

Civil Engineering Guide for College Seniors

By: Names

Table of Contents:

Page Number

I. Information about the Guide

a. Contents/Scope.....	3
b. Audience/Purpose.....	3
c. Guide Assumptions.....	3
d. Organization of Guide.....	3
e. Tips for using Guide.....	4

II. Civil Engineering Job Resources

a. Civil Engineering Central.com Website.....	5
b. Environmental Chemistry.com Website	6
c. Graduating Engineer Computer Careers Website.....	7
d. Journal of Construction Engineering and Management.....	8
e. About.com Website.....	9

III. Civil Engineering Publications

a. Journal Publications.....	10
b. Books.....	12
c. Databases.....	13
d. Catalog of U.S. Government Publications.....	17
e. Statistical Abstracts.....	19

Information about the guide

Contents/Scope:

This guide contains information about all of the different fields of civil engineering. It contains a civil engineering job resource section and a civil engineering publications section. The job resource section contains information about current jobs in the field of civil engineering. The publication section contains information that a practicing civil engineer may find helpful while they are performing their design, inspection, or producing a project. All sources used in this guide have been produced by a professional engineer and are accredited.

Audience/Purpose:

This civil engineering guide was created for college seniors/soon to be graduates in civil engineering. All practicing civil engineers will know how to use most of the information, but much of the technical information may be difficult for a non-civil engineer to understand. The information provided in this guide may help to answer questions or problems that a civil engineer will come across in the line of work. The job resource section provides a magnificent opportunity to the seniors who will look for employment once they graduate.

Assumptions:

We have created this guide with the assumption that the reader is interested in learning more about the field of civil engineering. Also, the user of this guide should be either a senior civil engineering student or a professional engineer because the information in this guide is rather in depth. It would be difficult for a freshman wanting to become an engineer to use the guide because they lack the necessary background information of civil engineering.

We are under the assumption that the reader has a basic understanding of how the Internet works. The reader should have basic navigating skills of a webpage in order to search for the specific information they wish to obtain. Finally, the reader should have access to the Penn State online database in order to obtain certain online journals and databases that Penn State subscribes to.

Organization of Information:

The guide has a table of contents, which can be used to navigate the information more easily. The pages are numbered in order to increase readability of the guide. The table of contents is broken down into two main sections. These sections are professional information and academic information. The professional information contains sources that are specific to jobs that a civil engineer may have or want to have. The academic information contains journals,

online books and databases in which a civil engineer may be able to look up more information in a particular area of civil engineering.

User Tips:

You will find this guide most useful if you look at the table of contents first to locate the specific area you want to look at. Then there will be abstracts that highlight what the internet site is about and you can make the decision from there whether or not the source will be useful to you. There are tips after each abstract that will help you navigate the internet source and search for what you are specifically looking for, which can minimize time used and increase efficiency.

Civil Engineering Job Resources

Civil Engineering Central.com Website

Website - <http://jobs.civilengineeringcentral.com/JobSeeker/JobList.aspx>

Reasons to use this site:

- The site is specific to civil engineers so there is not a lot of excess information
- Gives brief description of each job listing
- Dates each job listing so you know how recent each job posting is

Description:

This website is a job listing site specific to civil engineers. The website covers the various fields of civil engineering ranging from a marine structural engineer to a senior project manager of water resources. Each job listing has a link that you can click on and you are provided with a brief description of the job and the requirements for the job. The site also includes a general information section that includes job title, job location, job type (for example full time or part time), and compensation (for example medical and dental health plans). There is also a link that allows you to apply for the job right through the website. This website is useful not only for civil engineers looking for jobs, but also for people looking for what a particular job may require of its workers.

Tips:

- Know what field in civil engineering you are looking for because there are many different types listed and there is no search bar.
- There is also a resource link on the page that can lead you to other useful information such as licensing information and other engineering associations.

Environmental Chemistry.com Website

Website - <http://environmentalchemistry.com/careers/type/civilengineering.html>

Reasons to use this site:

- Provides descriptions of various types of civil engineering professions
- Contains many related fields to civil engineering, so it is not too specific and provides a broader base.
- Allows you to look for jobs in other countries besides the United States

Description:

This is a website that allows you to search for jobs in the field of civil engineering. It also provides jobs that are not related to civil engineering that someone with a civil engineering degree may pursue. The website provides a detailed description of the job listing and provides the requirements for the job. This website also provides a link that allows you to learn more about the company that the job is for. This allows you to learn more about the company's goals and you can get an idea of what you may be doing in that job. Another feature this website provides is a link to salary information about the job. It provides you with the high and low salaries of people with similar jobs in the United States and you can use this to judge how much room for an increase in salary you may have with that particular job. This website is useful because it provides a lot of information about civil engineering. It also has a good deal of job opportunities in related fields like chemistry and environmental issues that are not exactly civil engineering specific.

Tips:

- There is a great deal of information on the page and is very cluttered. You need to be patient when looking for what you need because there is information that is very detailed and can be useful.
- Have an idea for what you are looking for but be careful not to get side tracked because there are many links that you can click on.

Graduating Engineer Computer Careers Website

Website- <http://www.graduatingengineer.com/resources/resources/20000207/Structural-Engineering>

Reasons to use this site:

- Gives accounts of other civil engineers experiences in the field
- Gives a brief overview of structural civil engineering
- Provides links to other careers in related fields

Description:

This is a website that provides civil engineers with information about different careers that can be pursued with a degree in civil engineering. The website provides first hand accounts from professionals in the field answering questions that younger civil engineers may have. It provides their name, company that employs them, and their education background. These professionals go on to answer questions like why they choose their job, what they do in their job, what they see themselves doing in the future, and even give advice to future civil engineers looking to enter their field. This is helpful to seniors looking into getting a job in a particular field and figuring out what their job may entail. This website answers many questions in an interview format that can help future civil engineers decide if this is something that interests them.

Tips:

- Know the particular area of civil engineering because the website is very job specific
- Use the search bar on the right to find different jobs in related fields
- Use the navigation bar on the left to get even more specific information on your desired job in the field of civil engineering

Journal of Construction Engineering and Management

ASCE Journal -

<http://ascelibrary.aip.org/getpdf/servlet/GetPDFServlet?filetype=pdf&id=JCEMD4000134000005@webtc.pdf&idtype=tocpdf>

Reasons to use this journal:

- Good source of technical information
- Journal has reputable authors that cites their sources and provides links
- Very specific field of civil engineering

Description:

This is an online journal that concentrates on construction engineering, which is a specific field in civil engineering. The journal is very recent, from May 2008. The journal contains information that can be useful to a civil engineer who is trying to narrow down what specific field of civil engineering that they would like to go into. The journal also provides links to other technical papers that are related to construction and management. An example of this is the cost and scheduling links and the project planning and design links. The journal also has case studies that may be useful in learning more about the particular field of construction and management engineering.

Tips:

- Be sure that construction and management is a field that interests you otherwise the site may not be helpful
- Look at the case studies first in order to decide if construction and management is appealing to you
- Be sure to look at as many links as you can because they all provide useful information

About.com Website

Website - <http://usmilitary.about.com/od/airforceenlistedjobs/a/afjobce.htm>

Reasons to use this site:

- This website provides information about civil engineering opportunities in the Air Force.
- Provides links to the other military services like the Army and Navy
- Gain an understanding of what a civil engineer may do in a day of work

Description:

This is a website that gives a brief description of what having a job as a civil engineer in the Air Force may be like. The website briefly describes the activities a civil engineer may encounter. For example: construction and maintenance of structural facilities and pavement areas. The website is linked with career builder.com which is a website than can be used to search for jobs. At the end of the description there are links to specific jobs that the Air Force offers and these links go into greater detail of what the job includes. The website is very useful to civil engineers looking for a more exciting life because you could be working with one of the branches of the armed services. It also shows different areas that can be applied to civil engineering in extreme circumstances.

Tips:

- There are many sidebars that can be used to find out other information about the US armed services, but I recommend focusing at one branch at a time because it is very easy to get lost.
- Stay away from the advertisements because they're useless links that could get you lost.

Civil Engineering Publications

ASCE Journal Publications

ASCE Journals- <http://pubs.asce.org/journals/>

Reasons to use this site:

- A great source of technical information for professional civil engineers.
- The information is broken into different sections based on the field of civil engineering, so it is great for many different types of civil engineers.
- If you become a member of the site you will be able to obtain more information on the interested subject matter.
- The most complete online site to obtain journals involving civil engineering.

Description:

This resource is used for online journals regarding civil engineering. It includes sub-sections, which highlight the specific fields of civil engineering such as construction, structural, geotechnical, etc. The journals that are provided online provide an abstract about what each journal entails. There are articles in the journal that the user is provided access to. In order to be able to view the entire journal, the user must become a member of the site and pay a fee. Each sub-section on the site has multiple journals that relate to the area of interest. This is important because if an engineer is involved in structural engineering they may need to know the maximum weight capacity that a particular design of truss can hold.

One article in the bridge engineering journal that does a more than adequate job is “Strength Evaluation of Deteriorated RC Bridge Columns J. Bridge Engrg.,” Volume 13, Issue 3, pp. 226-236 (May/June 2008). This article talks about methods used to calculate load capacity in already existing bridges. This article is extremely useful to any person involved in engineering who may have to inspect bridges that are older and have some sort of deterioration.

Each sub-section of the ASCE journal page and the sidebar on the right also provides the ability to link to another site or a specific journal. Since seniors or people graduating into civil engineering will use the journals, they should become familiar navigating the site and using the sidebar on the left.

Another useful article under the sub-section of management engineering is the “Journal of Management in Engineering,” Editor: **Irtishad U. Ahmad, Ph.D., P.E., M.ASCE, Florida International University**. This article talks about issues that are current in civil engineering that one may have deal with. This could include office, contract, project, financial, and many other different types of management. This article does an okay job of breaking each part of management into different sections depending on what the engineer is trying to manage.

Tips:

- It is important to narrow down which sub-section of civil engineering you are interested in researching to get the appropriate journals. Once the sub-section is chosen, you can browse through this to find a journal publication that best suites what you are researching. This can be seen in the environment and water resources section. In this section they talk about Planning and management to toxic and hazardous waste. This is why it is important to know what area you are trying to research.

ASCE Books Store

ASCE Books- <http://pubs.asce.org/books/>

Reasons to use this online store:

- The books provide significantly more detail about the area of interest than the online journals do
- If you are interested in having a hard copy of the information that you will need while you are out in the field.
- This site is the exclusive distributor of Thomas Telford titles. He is a highly respected man in the civil engineering profession.

Description:

This resource is used if one is interested in purchasing a book that involves civil engineering. This store has such a great variety of books ranging from The 21st-Century Engineer to Sedimentation Engineering: Theories, Measurements, Modeling, and Practice. The site contains over 1,500 books, all of which pertain to civil engineering. There are a few ways that one could browse for books on this site such as by title author, or subject. Any information that you could possibly want that relates to civil engineering can be found in this online store.

Tips:

- Since there is a large quantity of books on this site it is most helpful if the user uses the search key and at least types what field of civil engineering that they are interested in.
- There is a sidebar on the left hand side of the screen that gives more information about the bookstore, so if you have questions about a particular book this link can help.

Civil Engineering database

ASCE online research database

Home page- <http://pubs.asce.org/research/>

Reasons to use this database:

- If the engineer needs a technical document from a particular field of civil engineering this site is super.
- The user has the ability to browse the site so if they don't know exactly what it is that they are looking for they may be able to narrow the choices down and choose from there.

Description:

This online database provides a civil engineer with over 100,000 ASCE publications from 1970-present. The database is accessed from the main page and then a page comes up with different categories to help you with your search. For the search, the person provides categories like:

- Document type
- Serial Title
- All text fields
- Author
- Title
- Subject headings
- Year Range

Once the information is entered into the category bar, the user clicks on the search bar and all relevant information comes up. ASCE does a great job with this database because the user is able to browse for documents by scrolling down what type of document and what field of civil engineering they are interested in. This database could prove useful for any type of civil engineering project. The database contains information from the past 38 years so as long as the user has an idea what they are looking for, this resource will be a helpful guide.

Tips:

- This database has so much information that if you only type in a document type or serial title the database tells you to modify your search. If you do not modify the search it is possible to have over 10,000 hits on one particular topic. The more specific the user gets the better. If the user wants a particular author or the most recent publications it will help to narrow down the search.

Engineering Village Database

Homepage-

http://www.engineeringvillage2.org.ezaccess.libraries.psu.edu/controller/servlet/Controller?EISESSION=1_1ce85c411a17021b425dfbses2&CID=quickSearch&database=1

Reasons to use database:

- If the engineer needs a technical document from a particular field of civil engineering this site is adequate.
- If the user has a particular document in mind, this site will provide useful. The user should make sure they either know the author or title of the document so they can perform a quick, efficient search.

Description:

This online database gives information about all types of engineering. It is actually two databases in one: Compendex and Inspec. This database has millions of bibliographic citations and abstracts dating back 124 years. This database can be accessed through the Penn State online library by clicking on databases and then civil engineering. While the information on this site is astronomical, it is more difficult to find documents pertaining to civil engineering because this database includes all fields of engineering. This database has a similar search engine to the ASCE database. The categories for searching are:

- Document type
- Treatment type
- Discipline type
- Language
- Year range

The Engineering Village database does not have a browse function so the user must type something into the search line. This means the user has to be much more specific than the ASCE database to get the desired information. This is a great database if the user knows exactly what they are looking for.

Tips:

- This database is so immense that the user needs to narrow the field down greatly. The user might not want a document that is 124 years old so the year range category helps.

- Since the user cannot browse, it is important that you type in the author, title, or some other piece of information so that the database can narrow the search down.

Catalog of U.S. Government Publications

Homepage- <http://catalog.gpo.gov/F?RN=231569122>

Reasons to use database:

- To find publications from the US government regarding civil engineering
- To get any sort of federal regulations or laws pertaining to civil engineering that may be important to follow while practicing.

Description:

The *Catalog of U.S. Government Publications* can be used as a database to find any federal publications that are available online. When the *Catalog of U.S. Government Publications* home page is brought up there is one line where text can be typed. Below that is a scroll down menu with options such as:

- Keywords
- Title
- Author
- Subject

There is also an advanced search above where the text is typed. The categories in the advanced search are:

- Word/Phrase
- Year
- Format
- Language
- Catalog

If the user is trying to browse a particular topic than the basic search is adequate. When a user types in civil engineering as a keyword, 852 documents are given to choose from. The user then picks a particular document. The document that I chose was “World Trade Center building performance study: data collection, preliminary observations, and recommendations” which was produced by Washington, D.C.: Federal Emergency Management Agency, Federal Insurance and Mitigation Administration; New York: FEMA Region II; [Washington, DC: Supt. of Docs., U.S. G.P.O., distributor, 2002]. This report helps to show some of the duties a civil engineer could

perform. A team of civil, structural, and five protection engineers produced this report. The team was deployed by the American Society of Civil Engineers (ASCE) and the Federal Emergency Management Agency (FEMA) in the wake of the September 11, 2001 attacks on the world trade center. The report details what happened structurally to the buildings that caused them to collapse.

Tips:

- If you are looking for a broad topic than the basic search will work fine. If you are looking for more specific information, the advanced search works great.
- Since this site is a government publication site, most of the information on it details research done or analyzed. For this reason the user should not expect to find information on how to solve a particular problem in civil engineering.

Statistical Abstract of the United States

Homepage- <http://www.census.gov/compendia/statab/>

Reasons to use this site:

- To obtain statistical information that is related to the many fields of civil engineering.
- Most of the files in this site are in excel format so reading the documents will help the user get an idea of how information will be provided to them when they get into the work force.

Description:

The *Statistical Abstract of the United States* is a site that gives a summary of statistics on economical, social, and political organization of the United States. This has been published since 1878 and contains information from the Census Bureau, Bureau of Labor Statistics, Bureau of Economic Analysis, and other Federal agencies and private organizations. Much of the information has to do with different aspects of our country such as education, health, income, population, etc. The information on this site can be used by anyone interested in the statistics that our government records about our country. Civil Engineers will find it useful detailing information about the costs of construction materials or the annual payroll of civil engineers that work for the government.

One abstract that was interesting was a document “Construction—Establishments, Employees, Payroll by Kind of Business (NAICS Basis): 2003 and 2004.” This information was given in an excel table and split the information into several categories. These categories were industry, NAICS code, establishments, paid employees, and annual payroll. The user can find all the different types of information by picking an industry and then looking at the corresponding row to find all the useful information. This may be helpful to a senior who is graduating and may be curious about the average pay for a civil engineer.

Another abstract “Graduate enrollment in science and engineering programs in degree-granting institutions, by field of study: Fall 1993 through fall 2005,” shows the percentage of engineering students who enroll in graduate school. This is helpful to any senior who may be interested in attending graduate school right after graduation, or maybe a few years down the road. You are able to see what percentage of your peers have graduate degrees and can gauge how important it is for you to get a graduate degree.