

INDUSTRY PROFILE

Engineering Services

3.10.2014

NAICS CODES: 54133, 54134

SIC CODES: 7389, 8711

Industry Overview

Companies in this industry apply engineering principles to design and develop systems, structures, processes, and instruments. Major companies include AECOM, Bechtel Group, Jacobs Engineering, and URS (all based in the US), along with AMEC (UK), Fugro (Netherlands), Babcock International (UK), SNC-Lavalin Group (Canada), and WorleyParsons (Australia).

Annual global spending for engineering services is estimated at \$750 billion. Spending is expected to reach \$1 trillion by 2020, according to a report by NASSCOM and Booz Allen Hamilton.

The US engineering services industry includes about 50,000 companies with combined annual revenue of about \$185 billion.

Competitive Landscape

Demand is driven largely by the construction needs of companies and governments and the desire of industrial customers to improve the efficiency of operations. Profitability depends on the ability to **accurately predict costs** for a project. Small firms, which can effectively compete with larger ones by having **expertise** in a particular field, are often hired as consultants on larger projects if they have special expertise. Large firms are advantaged in designing and managing large projects. The industry is **fragmented**: the 50 largest US firms account for about 40 percent of industry revenue.

Products, Operations & Technology

Major engineering services include product and industrial process design, construction design and management, systems engineering, and maintenance and operations. Companies in this industry apply engineering principles to design, develop, and use machines, materials, structures, and processes. **Engineering projects** require skills in analysis, design, project management, operations, or all four. Most firms specialize in a particular type of engineering; while companies that provide engineering services to the **construction industry** tend to be among the biggest in terms of revenue, engineering companies serve other industries including automotive, aerospace, petroleum, and technology. Most engineering work is **per project**, such as designing and constructing a highway or formulating an environmental plan for a wetlands area.

Engineering firms basically sell the knowledge of their employees. Attracting and retaining qualified engineers is an ongoing concern. Due to the complexity of many jobs, engineering firms often hire **subcontractors** and consultants to perform specialized work. Material inputs are provided by subcontractors.

Computer systems are used extensively for analysis, design, budgeting, **project planning** and control, accounting, and communications. Nearly all engineering companies have a centralized IT staff. Wide-area networks with engineering software that enable firms to balance workload among locations and ultimately improve productivity, and CAD, which allows instantaneous information sharing between engineers, architects, and planners, have become staples.

Sales & Marketing

Typical customers include governments, industrial corporations, real estate developers, and manufacturing companies. Some companies rely on the federal government for the majority of their business.

Many firms depend on large customers for repeat business. Because **referrals** are an important source of new customers, firms cultivate relationships with past customers, other engineering firms, architects, and construction companies. Firms may advertise their expertise in trade magazines. Many engineering contracts are

obtained after a **bidding process**. In the private sector, a customer typically invites several firms to bid on a particular project. Public sector bids are usually open to all bidders who meet certain basic technical and financial qualifications. The bidding process usually involves preparing a detailed plan of action for a project and a cost estimate. Firms often **collaborate** to bid on large projects that require a range of expertise.

Contracts are awarded to an engineering firm under a variety of **pricing** schemes that assign the **risk of cost overruns**. Under a **fixed-cost** (or lump sum) contract, an engineering firm is responsible for any costs incurred in excess of those forecast, but can also make a bigger profit if costs are less. Under a cost reimbursable (or **cost plus**) contract, the customer pays for all costs, plus a fee that may be a lump sum or a markup on labor costs. Under a **guaranteed maximum price** contract, the customer pays a fee plus all costs up to a maximum amount. Additional terms may be negotiated in any of these contracts to address how costs are handled if the customer changes the project's scope.

Finance & Regulation

Engineering firms typically receive **progress payments** as they work on a project, but may need a fair amount of working capital because costs are often incurred before payments are received. Final payments are often delayed until well after a project is finished ("retainage").

Typical **gross margins** for engineering firms are about 60 percent. Labor is the major cost for most firms, and is divided between direct (project related) and indirect (general overhead, marketing, and personal leave) expenses. **Accounts receivable** are often high -- more than 60 days sales, on average -- and disputes with customers about payments and reimbursable costs are common. Cash flow can be highly uneven, especially for smaller firms that work on just a few projects at a time. Firms that manage large construction projects may need sophisticated cash management services. Some firms have substantial international business and deal with foreign currencies.

Many firms have a **backlog** of projects, sometimes representing a year or more of work. Costs for liability **insurance** can be high because poor engineering can have catastrophic consequences.

While engineering companies aren't directly regulated, they must comply with numerous federal, state, and local **building codes**, **safety** regulations, **hiring practices**, etc. Public projects often entail even more detailed regulations. Companies generally have to maintain detailed records of many activities associated with a project. Certain engineering specialties may require **licensing** to practice in a state.

International Insights

Annual global spending for engineering services is estimated at \$750 billion. Worldwide spending is expected to reach \$1 trillion by 2020, according to a joint report by NASSCOM and Booz Allen Hamilton. Top engineering companies based outside the US include AMEC (UK), Babcock International (UK), Fugro (Netherlands), SNC-Lavalin Group (Canada), and WorleyParsons (Australia). Global engineering consultancies often are managed regionally, which increases understanding of clients in different markets.

A **construction boom** in developing countries and tough competition at home have prompted many European engineering firms to expand to emerging markets. Despite some significant political and financial risks, most large firms anticipate working overseas in the next five years. The global construction market is valued at more than \$5 trillion, and will be worth more than \$12 trillion by 2020, according to Global Construction Perspectives. Over the next decade, growth in **emerging markets** such as Brazil, Russia, India, and China (BRIC) is expected to outpace that in developed countries and account for more than half of the global construction market.

Outsourcing engineering services is increasing due to **cost reduction strategies** by companies, as well as by an aging workforce in the West. Engineering services are commonly **offshored** to India, Canada, China, Mexico, and Eastern Europe. India captures about 12 percent of all offshored work, but the amount outsourced makes up only 2 percent of total global spending for engineering services. The engineering services outsourcing market in India is expected to grow to \$40 billion by 2020 from the current level of \$2.5 to \$3 billion, according to ValueNotes, an Indian research firm.

Qualified workers are a critical need for global engineering service firms. Although developing countries such as India produce plenty of engineers, only half of engineering graduates have employable skills. Engineers that are trained to follow set processes only are not as sought-after as are engineers who have been exposed to global best practices and innovative approaches to engineering, according to Global Services Media.

Engineering services firms are subject to numerous **environmental regulations** worldwide, which vary by country. Firms that create environmental damage from construction and maintenance projects may be liable for remediation costs, which can total millions of dollars.

Regional Highlights

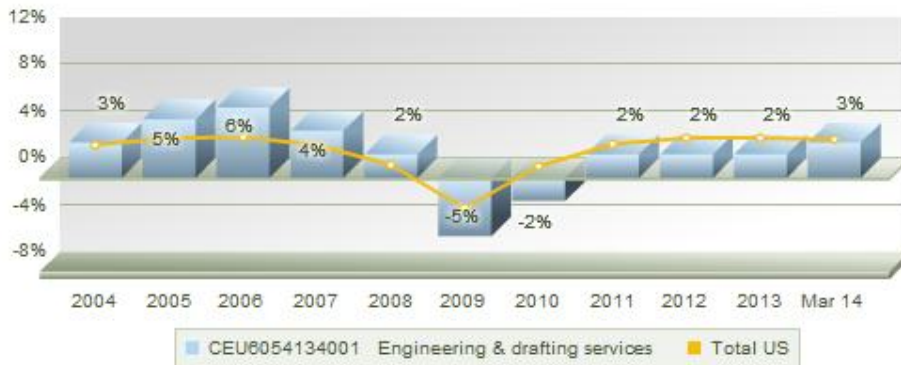
In the US, more than 20 percent of engineering services companies are located in [California](#) and [Texas](#) - populous states with many construction projects.

Small US firms close to the Canadian border may partner with Canadian engineering firms to bid on projects.

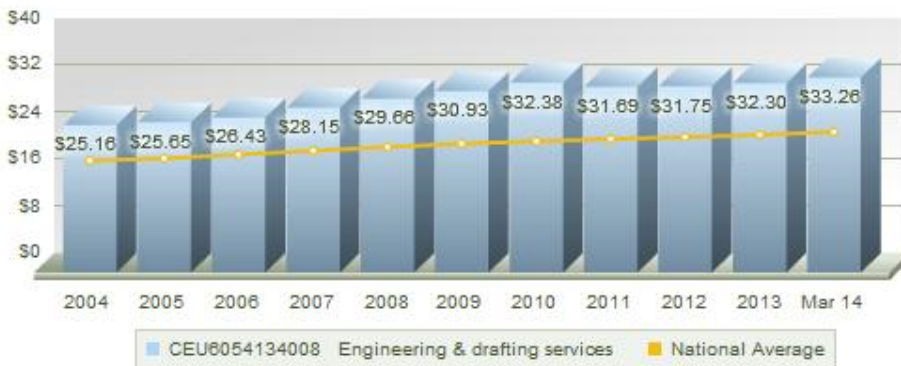
Human Resources

Most employees in engineering services have special technical or engineering skills and are accordingly **well paid**. Average hourly industry wages are significantly higher than the national average. Engineers and drafters primarily use computers to do their work and perform their jobs mostly indoors. As a result, injuries are rare. The industry's injury rate is less than one-third of the national injury rate.

Industry Employment Growth
Bureau of Labor Statistics



Average Hourly Earnings & Annual Wage Increase
Bureau of Labor Statistics



Industry Growth Rating



Demand: Depends on construction and industrial activity
Requires accurate project cost estimating
Risk: Housing slumps and liability lawsuits

Quarterly Industry Update

3.10.2014

Trend: Engineers' Pay Increases - Average salaries for US engineers are growing as global demand for technology services surges, especially in the health care and energy sectors, according to a survey by the American Society of Mechanical Engineers and the American Society of Civil Engineers. Average annual income for engineers in 2013 was \$104,303, an increase of nearly 1 percent from the year before and up 4.5 percent

compared to 2011. Pay and job opportunities are especially strong in ocean engineering and petroleum engineering. Top salaries also are paid in the nuclear energy and fire protection industries. Demand for engineers likely will continue to increase as corporate profits edge up and the world population expands.

Industry Impact - Companies looking to recruit engineers are seeking new strategies to find students and recent graduates. Companies also are paying out high bonuses to engineers in order to retain top talent. Meanwhile, engineers have strong leverage when negotiating compensation.

12.2.2013

Trend: Engineers Make the Leap to Entrepreneurship - Many engineers are starting their own businesses as a way to drive innovation and make millions of dollars in the process. The US is the most entrepreneurship-friendly country in the world, according to the recently released Amway Global Entrepreneurship Report. While most entrepreneurs have backgrounds in business, engineers, who often have the ability to turn a passion or hobby into a product, are poised to lead new businesses. Microsoft's Bill Gates and Google's Larry Page are among the best-known engineer entrepreneurs. Most recently engineers have gained attention for their projects to launch private craft or satellites into space.

Industry Impact - Engineering students may begin supplementing their studies with business and entrepreneurship courses in order to learn more about how to create and run their own businesses. Established engineers also may return to business school or take courses in order help bring their inventions to market.

9.9.2013

Challenge: Infrastructure Must Withstand Future Storms - Engineers and architects should adapt to the reality of climate change and prepare for more floods and worse storms in the future, according to the Hurricane Sandy Rebuilding Task Force. The presidential task force recently released 69 recommendations for rebuilding the coastal communities in the Northeast US that were struck last year by Hurricane Sandy. Task force suggestions aimed at making communities more resilient to extreme weather and rising sea levels include improving the electrical grid and communications systems as well as creating better planning tools and flood protection standards for rebuilding storm-damaged areas.

Industry Impact - Engineers who work in flood- and storm-prone areas should strengthen existing structures or build new ones that can function in anticipation of further effects from climate change.

6.17.2013

Challenge: Guest Worker Policy Prompts Debate - While many top US business leaders call for immigration reform that would significantly increase the number of highly skilled guest workers in the country, a new report suggests that the US produces an ample supply of science, technology, engineering, and math (STEM) graduates. The report by the Economic Policy Institute counters what many perceive to be a shortage of US STEM workers. Many companies employ guest workers, some of whom have earned their degrees in the US. However, the report argues that US STEM graduates struggle to find jobs in their fields because of the number of guest workers. Debate on the issue could slow the passage of immigration reform in Congress.

Industry Impact - Any significant changes to immigration policy will likely impact the availability of qualified workers for engineering firms.

Industry Indicators

US corporate profits, an indicator of corporate demand for engineering services, rose 6.2 percent in the fourth quarter of 2013 compared to the same period in 2012.

Total US manufacturers' shipments, an indicator of demand for engineering services used in the manufacturing process, rose 1.7 percent year-to-date in March 2014 compared to the same period in 2013.

The value of US nonresidential construction spending, a demand indicator for engineering services used in construction, rose 4 percent year-to-date in March 2014 compared to the same period in 2013.

Total US revenue for engineering services fell 0.2 percent in the fourth quarter of 2013 compared to the previous year.

Industry Forecast

The output of US engineering and R&D services is forecast to grow at an annual compounded rate of 9 percent between 2014 and 2018. Data Published: February 2014



First Research forecasts are based on INFORUM forecasts that are licensed from the Interindustry Economic Research Fund, Inc. (IERF) in College Park, MD. INFORUM's "interindustry-macro" approach to modeling the economy captures the links between industries and the aggregate economy. [Forecast FAQs](#)

Companies

Company	Country	Sales
Metallurgical Corporation of China Limited.	China	\$33,086.63M
Shanghai Construction No.1 (Group) Co., Ltd.	China	\$16,693.10M
China Railway Erju Co., Ltd.	China	\$13,017.15M
China Gezhouba Group Co., Ltd.	China	\$9,738.71M
Babcock International Group PLC	England	\$5,525.15M
Science Applications International Corporation	United States	\$4,121.00M
Bechtel Group, Inc.	United States	\$3,671.50M
China Nonferrous Metal Industry's Foreign Engineering And Construction Co., Ltd.	China	\$2,922.86M
PUNJ-LLOYD LIMITED	India	\$2,087.70M
WSP Global Inc.	Canada	\$1,884.76M

Industry Drivers

Changes in the economic environment that may positively or negatively affect industry growth.

Data provided by First Research analysts and reviewed annually



Energy Prices Change in crude oil and related energy prices



Consumer Spending Change in overall level of consumer spending on goods and services



Government Regulations Changes in federal, state, or local government regulations or business-

Critical Issues

Dependence on Construction, Industrial Production - Demand in major engineering fields such as construction and industrial process design depends heavily on the health of the US economy. During economic slowdowns, engineering firms are disproportionately hurt. For example, during the late 2000s recession, nonresidential construction spending in the US dropped nearly 20 percent.

Vulnerability to Project Cost Overruns - Project cost overruns are a primary cause of financial distress for engineering companies. Some firms have incurred heavy losses from underestimating costs, forcing them to divest business units or file for bankruptcy. In addition to paying for cost overruns, engineering firms can be penalized for not meeting deadlines.

Business Challenges

Vulnerability to Litigation - The nature of engineering work leaves firms open to liability lawsuits, both for poor work and inattention to regulations, as poor engineering work can result in injury and death. The increasing complexity of many engineering projects increases the likelihood of errors. Engineering service firms must comply with a large number of regulations, the improper handling of which can result in criminal fines and penalties.

Dependence on Skilled Personnel - Because expertise is their major asset, engineering firms depend heavily on employees' skills. Knowledge, particularly client-specific knowledge, is very difficult to replace. Many small firms say that finding good employees is the most difficult management issue. Technical advances are rapid in many engineering specialties, making finding and training qualified engineers more difficult.

Uneven Workload, Cash Flow - Because work in the industry is on a project basis, work demands can be very uneven, especially for smaller firms. Cash flow is also uneven, even for firms with continuous work, because the bulk of payments are made upon a project's completion. Small firms can't usually afford to cut their workforce when activity is slow because they need to retain the expertise.

Status of Guest Workers - Demand for engineers is robust. In order to fill some of those roles, many in the engineering industry are pushing for immigration reform that could help guest workers stay in the country on a permanent basis. Nearly half of US engineering master's and doctoral students are foreign nationals, according to the National Science Foundation. Many leave the US after graduation due to US immigration policies. Immigration reform could make it easier for science, math, and engineering graduates to become permanent residents. However, some argue that the influx of highly skilled guest workers can lead to lower wages in the industry.

Public Construction Declines - Budget cuts have impacted government spending on infrastructure projects, such as highways and bridges and electricity and water systems. Public construction spending decreased by about 3 percent in 2012, even as private construction spending shot up. The American Society of Civil Engineers (ASCE) has called for an extra \$157 billion a year to be invested in US infrastructure, but pressure to restrain government spending continues.

Business Trends

Consolidation - To broaden the types of services they provide and enhance geographic coverage, engineering firms have grown via acquisitions. The largest firms are the most likely to be involved in M&A activity. Consolidation in customer industries, among construction and chemical companies, for example, is encouraging consolidation among the engineering firms that serve them.

Greater Project Complexity - The increasingly technical nature of the US economy has, and will continue to, increase demand for engineering services. More technological equipment, crowded urban areas, government regulation, heightened environmental concerns, and a greater emphasis on product durability, all place more demand on designers. Even small projects often require a high engineering content, and large projects may be so complex that engineering costs surpass actual construction expenses.

Design/Build Contracts Encourage Size - While the design and construction phases of a project, in many

cases, are still handled by different companies, more contracts are being awarded to firms that can handle both. To compete for design/build contracts, firms must have both design and construction skills. Under so-called EPC contracts (engineering, procurement, construction), engineering firms must also have a procurement function.

Expanded Engineering Applications - Engineering is a key part of emerging sciences like nanotechnology, biomedicine, and computer technology. The lines between engineers and other scientists and designers are blurring, reshaping the entire engineering industry. These changes are influencing the licensing processes for professional engineers, including the type and format of engineering licensing exams.

Outsourcing to Lower-Cost Countries - Outsourcing is growing more popular as a way to reduce costs for some engineering tasks. For instance, the automotive industry will begin outsourcing 40 percent of engineering activities by 2015. A Booz Allen study finds that a third of companies outsource some R&D work, and 15 percent outsource product design functions. India is a leading outsourcing destination, followed by Canada and China.

Industry Opportunities

Increased Security Concerns - Concerns over terrorism affect engineering requirements on numerous projects. Structural safety, security, evacuation, and air circulation systems of buildings are likely to become a critical part of engineering design. More attention will be paid to building upgrades, such as improved structural supports and impact-resistant stairwells.

Cross-Marketing Engineering Capabilities - To diversify, firms are focusing on a "one-stop shopping" marketing approach. For example, if a new manufacturing facility is being considered, a single engineering firm may seek to handle background, permitting, land acquisition advice, building design, and machine and assembly line flow.

Electricity Infrastructure Investments - Civil engineering firms may benefit from an increase in electricity infrastructure investments. The US spends between \$44 billion and \$101 billion a year on energy infrastructure, according to the American Society of Civil Engineers. The group argues that an additional \$11 billion a year is needed to prevent problems such as equipment failures, voltage surges, and power quality irregularities that can cause blackouts and brownouts.

Executive Insight

Chief Executive Officer - CEO

Planning for Variable Demand in Local Markets

Because engineering projects are linked to construction and industrial activity, demand can be highly uneven from year to year. In local markets, construction activity can rise or fall 25 percent in a year. To protect against swings in demand, firms may seek long-term projects, expand their areas of expertise, or try to secure long-term maintenance and repair contracts.

Expanding Product Offerings

Many engineering firms specialize in a particular type of work, such as bridges or school buildings, but may shift their focus to diminish the effect of demand cycles in their specialty. Customers in recent years have awarded more contracts to firms that can manage procurement and construction as well as the engineering portion of a project. To offer a greater range of expertise and expand offerings, firms may hire experts, form alliances, or merge with other firms.

Chief Financial Officer - CFO

Planning for Uneven Cash Flow

Because most engineering work is done as projects, cash flow can be highly uneven, especially for smaller firms. Firms try to maintain a reserve in short-term securities to use in periods of low income. On lengthy projects, firms may receive progress payments, which may be inadequate to cover actual costs. Because skilled staff is hard to replace, firms avoid cutting staff during periods of low activity.

Improving Cost Estimating and Control Systems

Many engineering projects are awarded on a fixed-cost basis where the engineering firm is responsible for cost overruns, so project cost estimates must be accurate and actual expenditures tightly controlled. As engineering firms take on responsibility for larger projects, including the construction phase, the risk of cost mistakes increases. Several large firms have been bankrupted by cost overruns on big projects.

Chief Information Officer - CIO

Interfacing with Other Contractor Project Management Systems

Sophisticated software systems have been developed to help engineering firms manage projects, from initial design through procurement and construction. As firms manage larger projects, coordinating with partners, contractors, suppliers, inspectors, and others becomes more difficult and more crucial.

Improving Communications Systems

Sharing information among project participants, including documents, pictures, and plans, can be difficult because participants are in separate locations. As an alternative to courier services, collaboration systems allow participants to access, enter, and comment on information over the Internet. Systems like WebEx allow easy distance-conferencing through websites.

Human Resources - HR

Hiring and Training Project Personnel

Because most engineering work is done as projects, firms may hire workers for the duration of a project, which may last years or only months. For particular projects, workers with special expertise or skills may be needed, and may be hard to find. Firms may hire temporary foreign engineers under special visa programs.

Retaining Key Personnel

Many firms depend heavily on the reputation or skills of a few employees to secure business and execute projects. Because most firms are partnerships, rewarding employees with stock or stock options usually isn't possible. Instead, firms may use performance bonuses and deferred compensation plans to reward and retain key workers.

VP Sales/Marketing - Sales

Forming Alliances with Architects and Construction Companies

Because most engineering firms are small, they can't handle all aspects of larger projects. To participate in big projects, many form project alliances with companies that provide the other capabilities, such as architects, construction companies, and other engineering firms. Many firms work mainly as specialists or consultants for other engineering firms.

Maintaining Contact with Prospective Customers

Because many customers have only occasional need for engineering services, firms must maintain contact with a large number of potential customers to have steady work. Many projects are won through bidding and only a few firms are invited to submit bids. Some firms use customer relationship management (CRM) software to ensure that potential customers are contacted periodically.

Financial Information

COMPANY BENCHMARK TRENDS

Quick Ratio by Company Size

The quick ratio, also known as the acid test ratio, measures a company's ability to meet short-term obligations with liquid assets. The higher the ratio, the better; a number below 1 signals financial distress. Use the quick ratio to determine if companies in an industry are typically able to pay off their current liabilities.



Financial industry data provided by MicroBilt Corporation collected from 32 different data sources and represents financial performance of over 4.5 million privately held businesses and detailed industry financial benchmarks of companies in over 900 industries (SIC and NAICS). More data available by subscription or single report purchase at www.microbilt.com/firstresearch.

COMPANY BENCHMARK INFORMATION

NAICS: 54133, 54134

Data Period

Last Update March 2014

Table Data Format

Mean

Company Size	All	Large	Medium	Small
Size by Revenue		Over \$50M	\$5M - \$50M	Under \$5M
Company Count	49441	95	1208	48138

Income Statement

Net Sales	100%	100%	100%	100%
Gross Margin	65.2%	64.7%	65.2%	65.5%
Officer Compensation	5.2%	4.7%	5.3%	5.4%
Advertising & Sales	0.3%	0.3%	0.3%	0.3%
Other Operating Expenses	56.7%	56.7%	56.7%	56.7%
Operating Expenses	62.1%	61.7%	62.2%	62.4%
Operating Income	3.0%	3.0%	3.0%	3.1%
Net Income	1.8%	1.8%	1.8%	1.9%

Balance Sheet

Cash	20.5%	20.7%	19.9%	20.7%
Accounts Receivable	34.9%	34.1%	36.0%	34.8%
Inventory	4.7%	4.5%	5.1%	4.7%
Total Current Assets	73.9%	73.0%	74.6%	74.0%
Property, Plant & Equipment	8.0%	8.2%	7.7%	8.1%

Other Non-Current Assets	18.1%	18.9%	17.6%	17.9%
Total Assets	100.0%	100.0%	100.0%	100.0%
Accounts Payable	11.6%	11.4%	11.6%	11.9%
Total Current Liabilities	35.3%	33.5%	34.2%	37.5%
Total Long Term Liabilities	19.2%	14.5%	19.8%	22.5%
Net Worth	45.4%	52.0%	46.0%	40.0%

Financial Ratios (Click on any ratio for comprehensive definitions)				
Quick Ratio	1.65	1.71	1.71	1.57
Current Ratio	2.09	2.18	2.18	1.97
Current Liabilities to Net Worth	77.8%	64.5%	74.4%	93.8%
Current Liabilities to Inventory	x7.47	x7.48	x6.72	x8.00
Total Debt to Net Worth	x1.20	x0.92	x1.18	x1.50
Fixed Assets to Net Worth	x0.18	x0.16	x0.17	x0.20
Days Accounts Receivable	64	64	64	63
Inventory Turnover	x14.67	x15.09	x13.99	x14.83
Total Assets to Sales	50.7%	51.9%	49.7%	50.4%
Working Capital to Sales	19.5%	20.5%	20.1%	18.4%
Accounts Payable to Sales	5.8%	5.8%	5.7%	6.0%
Pre-Tax Return on Sales	2.9%	2.9%	2.9%	3.0%
Pre-Tax Return on Assets	5.8%	5.6%	5.8%	6.0%
Pre-Tax Return on Net Worth	12.8%	10.8%	12.6%	15.0%
Interest Coverage	x6.91	x6.57	x6.48	x7.43
EBITDA to Sales	5.6%	5.7%	5.5%	5.6%
Capital Expenditures to Sales	2.5%	2.3%	2.6%	2.5%

Financial industry data provided by MicroBilt Corporation collected from 32 different data sources and represents financial performance of over 4.5 million privately held businesses and detailed industry financial benchmarks of companies in over 900 industries (SIC and NAICS). More data available by subscription or single report purchase at www.microbilt.com/firstresearch.

ECONOMIC STATISTICS AND INFORMATION

Annual Construction Put into Place - Census Bureau



Change in Producer Prices - Bureau of Labor Statistics



VALUATION MULTIPLES

Engineering Services

Acquisition multiples below are calculated using at least 6 private, middle-market (valued at less than \$1 billion) industry asset transactions completed between 7/2004 and 2/2011. Data updated annually. Last updated: November 2013.

Valuation Multiple	MVIC/Net Sales	MVIC/Gross Profit	MVIC/EBIT	MVIC/EBITDA
Median Value	0.5	0.8	13.4	9.2

MVIC (Market Value of Invested Capital) = Also known as the selling price, the MVIC is the total consideration paid to the seller and includes any cash, notes and/or securities that were used as a form of payment plus any interest-bearing liabilities assumed by the buyer.

Net Sales = Annual Gross Sales, net of returns and discounts allowed, if any.

Gross Profit = Net Sales - Cost of Goods Sold

EBIT = Operating Profit

EBITDA = Operating Profit + Noncash Charges



SOURCE: Pratt's Stats, 2014 (Portland, OR: Business Valuation Resources, LLC). Used with permission. Pratt's Stats is available at <http://www.bvresources.com/prattsstats>

Industry Websites

American Association of Engineering Societies

Information on public policy, links, and communications.

American Council of Engineering Companies

Publications, news bulletins, and training information.

American Institute of Chemical Engineers

Conference, publication, education, training, government and industry information.

American Society of Civil Engineers

Up-to-date information on civil engineering.

American Society of Mechanical Engineers

News, links, and more.

Association of Consulting Engineering Companies - Canada

News and publications.

CENews.com

News about civil engineering.

Chemical Engineering

Engineering articles, news, product roundups, seminars and conferences, links, job advice, and more.

Engineering News-Record

News by specialized areas.

Engineers Canada

Regulation, licensing, media, events, and education.

Institute of Transportation Engineers (ITE)

Legislative and regulatory information, employment opportunities, transportation news and events.

McGraw-Hill Construction Dodge

Construction forecast.

Mechanical Engineering Magazine

News updated three times a week, product trends and literature information.

National Academy of Engineering

Publications, news, events, directories, and research reports.

Society of Manufacturing Engineers

News, education, trade shows. Salary surveys.

The Institute of Electrical and Electronics Engineers (IEEE)

Publications, product and services information, news and conferences.

Glossary of Acronyms

ASCE - American Society of Civil Engineers

BRIC - Brazil, Russia, India, China

CRM - Customer Relationship Management

ENR - *Engineering News-Record*

EPC - engineering, procurement, construction

CAD - computer-aided design