Tracking the 2005 AAES Engineering Salary Survey

Kelly Roncone

INTRODUCTION

Engineering salaries remained relatively steady from 2004 to 2005, according to *Engineers' Salaries: Special Industry Report 2005*, published by the Engineering Workforce Commission of the American Association of Engineering Societies.

In general, the "median" engineers at the end of their careers saw a slight drop in their earnings in 2005. After a 14% salary raise for engineers with more than 35 years of experience in 2003—when this group reported earning a median salary of $104,652—salaries dropped back in the following years to $95,506 in 2004 and then to $94,164 in 2005.

Starting salaries have remained relatively unchanged over the past three years, from $50,277 in 2003 to $50,600 in 2004 and $49,957 in 2005.

All statistics reflect base salaries as of February 1, 2005, and represent the responses of 38,013 engineers working in industry and government. All numbers reported in this article are median salaries based on the number of years since the completion of undergraduate degrees.

Type of industry, company size, geographic region, education level, and supervisory status all affected compensation levels for engineers at all experience levels in 2005. Tables I–IV show salary variations based on type of employer (Table I), discipline (Table II), geographic region (Table III), and education and supervisory responsibility (Table IV). For details on salaries and job outlooks for materials engineers and recent college graduates, see the sidebars.

SALARIES BY INDUSTRY

R&D organizations offered the highest salaries to engineers in all stages of their careers in 2005, ranging from

Table I. Median Annual Salaries for Engineers Based on Experience and Employer (in Dollars)

	Number of Years after B.S.					
Employer	**0**	**5**	**9–10**	**13–16**	**21–25**	**35+**
Architecture, Engineering, and Related Services	49,500	54,337	71,713	81,833	99,040	96,000
Primary Metal Manufacturing	—	—	—	71,955	75,618	88,487
Fabricated Metal Product Manufacturing	—	—	58,349	56,344	67,500	56,514
Public Administration	42,131	51,488	57,808	66,898	72,249	69,968
Professional, Scientific, and Technical Services	50,540	61,853	73,943	80,631	90,750	119,016
R&D Organizations	62,500	73,171	82,513	90,881	105,703	127,620
Utilities	51,206	54,750	66,048	76,110	85,739	93,600
Electric Power Generation, Transmission & Distribution	—	48,503	62,967	70,857	82,027	91,800
Mining	—	64,197	72,188	82,275	96,593	105,747
All Nonmanufacturing	48,041	58,323	67,130	74,316	79,416	96,000
All Manufacturing	54,060	67,636	78,876	85,420	87,384	90,504

Table II. Median Annual Salaries for Engineers by Discipline (in Dollars)

	Number of Years after B.S.					
Discipline	**0**	**5**	**9–10**	**13–16**	**21–25**	**35+**
Aerospace Engineers	—	—	70,000	83,704	93,520	105,576
Materials Engineers	—	—	79,004	85,512	99,210	124,068
Computer Engineers	—	—	75,368	84,972	83,858	146,700
Civil Engineers	39,500	51,727	60,685	68,295	73,506	77,742
General Engineers	—	69,808	86,080	92,168	97,110	88,487
Industrial Engineers	—	65,508	79,644	87,196	97,080	88,800
Mechanical Engineers	42,131	63,248	75,367	85,024	95,688	107,004
Nuclear Engineers	—	—	—	83,796	81,078	125,832

Table III. Median Annual Salaries for Engineers Based on Experience and Geographic Region (in Dollars)

	Number of Years after B.S.					
Region	**0**	**5**	**9–10**	**13–16**	**21–25**	**35+**
CT, ME, MA, NH, RI, VT	50,080	61,700	70,610	75,273	78,630	82,100
NJ, NY, PA	48,041	61,325	65,018	70,070	76,686	73,137
IL, IN, MI, OH, WI	52,020	64,872	76,646	83,756	87,780	100,296
IA, KS, MN, MO, NE, ND, SD	—	56,614	67,172	78,366	90,465	96,707
DE, DC, FL, GA, MD, NC, SC, VA, WV	52,500	65,833	78,805	94,458	103,738	125,920
AL, KY, MS, TN	—	53,005	67,665	72,564	81,008	99,025
AR, LA, OK, TX	—	57,083	63,938	71,359	84,121	98,128
AZ, CO, ID, MT, NV, NM, UT, WY	52,455	62,815	74,355	84,161	93,689	120,780
AK, CA, HI, OR, WA	55,500	74,597	87,773	103,620	119,285	132,700
Metropolitan Area						
Chicago	—	62,973	75,484	83,331	95,000	124,068
Southern California	59,500	74,057	89,123	104,333	121,256	133,520

Table IV. Median Annual Salaries for Engineers Based on Experience, Supervisory Responsibility, and Level of Education (in Dollars)

Employer	Number of Years after B.S.					
	0	5	9–10	13–16	21–25	35+
Nonsupervisory						
B.S.	49,850	61,609	68,903	75,949	82,445	85,090
M.S.	—	71,180	80,496	85,672	89,946	104,290
Ph.D.	—	—	84,031	90,112	105,384	126,144
Supervisory						
B.S.	—	—	71,602	74,781	83,092	94,919
M.S.	—	106,584	97,060	106,044	113,282	100,044
Ph.D.	—	—	—	103,913	121,460	142,920

$62,500 starting salaries to $127,620 for employees who had worked 35 years or more.

Public administration offered the lowest starting salary to engineers in 2005 at $42,131, an amount that has remained basically flat since 2003. After 35 years of experience, engineers working in public administration reported earning $69,968 in 2005, which is slightly more than the $67,996 reported in 2003, but less than the $77,959 reported in 2004.

A more general view of the field shows that, as a whole, engineers in manufacturing industries saw increases in their salaries in 2005. Starting salaries in manufacturing industries rose 7%, from $50,420 in 2004 to $54,060 in 2005. After five years of experience, the increase was 6%, from $63,680 in 2004 to $67,636 in 2005. After 9–10 years, the increase was 5%, from $74,808 in 2004 to $78,876 in 2005. After 35 years, the increase was 5%, from $86,184 in 2004 to $90,504 in 2005.

SALARIES BY COMPANY SIZE

Medium-sized companies (those with 500–4,999 total employees) offered the best starting and ending salaries in 2005, while engineers with 5–10 years of experience found higher salaries in large companies (those with 5,000 or more total employees).

Engineers who had just completed their bachelors' degrees made $50,540 at medium-sized companies, compared to $48,708 at a large company. Engineers with more than 35 years of experience reported making $118,200 in medium companies, compared to $82,429 in large companies and $93,600 in small companies (those with fewer than 500 employees).

While medium companies posted some of the highest salaries in 2005, there was only a slight improvement (less than $1,000) for starting salaries and workers with five years of experience over 2004 levels. After that, salaries showed a slight decline for workers with 9–25 years of experience. Salaries for engineers with more than 35 years of experience rose 3% in medium companies, from $115,000 in 2004 to $118,200 in 2005.

Salaries for the top-earning engineers at large companies—those with more than 35 years of experience—have declined 8% over the past three years, from $89,700 in 2003 to $85,200 in 2004 to $82,429 in 2005. Salaries for engineers with 5–16 years of experience have steadily risen in large companies from 2003 to 2005. For those with five years of experience, salaries have increased by 10% at large companies, rising from $59,570 in 2003 to $65,694 in 2005. After 9–10 years, the salaries rose 12% from $67,082 in 2003 to $75,132 in 2005. After 13–16 years, salaries increased 7%, from $74,032 in 2003 to $79,472 in 2005.

At small companies, salaries rose at all levels of experience from 2004 to 2005, with engineers ranging from 5–25 years of experience seeing 12% increases in salary in 2005, after relatively steady numbers in 2003 and 2004. Salaries for engineers working five years rose from $55,045 in 2004 to $61,864 in 2005, those for engineers working 9–10 years went from $65,710 in 2004 to $73,713 in 2005, and those for engineers working 21–25 years went from $84,958 to $94,865.

SALARIES BY GEOGRAPHIC REGION

Whether just starting out or with more than 35 years of experience, engineers

JOB PROSPECTS AND SALARIES PROMISING FOR ENGINEERING GRADS

Engineers are among the most in-demand and highest-paid college graduates, according to the National Association of Colleges and Employers (NACE), an organization that provides information to college career centers and corporate human resources departments on employment and salary trends for college graduates.

"When we look at salaries in the survey and we look at top-paid majors, engineers are typically eight of the ten top-paid majors," said Andrea Koncz, employment information manager at NACE. "For the engineering discipline, we don't see many peaks and valleys, salaries are just steadily on the rise."

Koncz compiles annual reports on job outlooks and salary surveys for NACE, determining hiring trends and calculating average starting salaries for students graduating with bachelor's degrees in 70 disciplines, including 22 engineering disciplines. NACE surveys employers each year to determine if they plan to increase or decrease their hiring of new college graduates.

"The market for 2005 was an improvement over some of the prior years," said Koncz. "In 2002 and 2003, they were predicting decreases. In 2004, it started to turn around and they went back to predicting increases. 2005 was a slightly larger increase from the year prior."

For the annual Job Outlook report, NACE asks employers which degrees are most in demand. According to the 2005 report, the top ten most in-demand degrees in 2004 (at a bachelor's level) were:

1. Accounting
2. Electrical engineering
3. Mechanical engineering
4. Business administration/management
5. Economics/finance
6. Computer science
7. Computer engineering
8. Marketing/marketing management
9. Chemical engineering
10. Information sciences and systems

MATERIALS ENGINEERING OUTLOOK

Materials engineers at all levels of experience saw salary increases in 2005. The average starting salary for a materials engineer was $51,372 in 2005, up 3% from 2004, when it was $49,967, according to the National Association of Colleges and Employers.

Salaries for materials engineers who had worked for seven or fewer years were not available through the Engineering Workforce Commission's *Engineers' Salaries 2005* report, but those who had eight or more years of experience all reported increases in 2005. Materials engineers with 9–10 years of experience saw the greatest salary increase, rising 11% from $71,024 in 2004 to $79,004 in 2005. After 13–16 years, salaries increased 6% from $80,828 in 2004 to $85,512 in 2005, and after 21–25 years, salaries rose 4%, from $94,944 in 2004 to $99,210 in 2005. Those with 35 or more years of experience saw a 7% increase, from $116,280 in 2004 to $124,068 in 2005.

According to data collected by the U.S. Department of Labor's Bureau of Labor Statistics (BLS) from 2000 to 2004, the highest-paying industries for materials engineers are:

- Metal and mineral merchant wholesalers
- Oil and gas extraction
- Federal government
- Electronic markets and agents and brokers
- Management and technical consulting services

In terms of geography, the highest materials engineering salaries could be found in Washington, D.C., Maryland, Nevada, Kansas, and Florida.

Employment of materials engineers is expected to increase from 3% to 9% through 2012, according to the 2004–2005 *Occupational Outlook Handbook* published by the BLS. In 2002, materials engineers held approximately 24,000 jobs in the United States. Of these, 68% worked in manufacturing industries, primarily computer and electronic products, transportation equipment, fabricated metal products, primary metal production, and machinery manufacturing. The remaining 32% worked in service industries such as professional, scientific, and technical services and for federal and state governments. Many of the manufacturing industries where materials engineers are employed are expected to see declines in employment, but the BLS predicts that as manufacturing firms contract for their materials engineering needs, employment will grow in professional, scientific, and technical services industries.

According to BLS occupational employment statistics, the top five industries in terms of number of materials engineers employed in 2000–2004 were:

- Scientific R&D services
- Aerospace product and parts manufacturing
- Architectural and engineering services
- Semiconductor and electronic component manufacturing
- Federal government

Materials engineers were most heavily concentrated in Connecticut, South Carolina, New Hampshire, Tennessee, and Ohio.

living in Southern California reported the highest salaries in the United States in 2005. New graduates saw an increase in starting salaries from $57,750 in 2004 to $59,500 in 2005. Salaries for those with the most experience rose from $125,330 in 2003 and $129,410 in 2004 to $133,520 in 2005.

Engineers living in the broader Pacific Region, which includes all of California, Alaska, Hawaii, Oregon, and Washington, also fared well with salaries ranging from $55,500 for newcomers (up 11% from 2004) to $132,700 for those with more than 35 years of experience (up 7% from 2004). In 2004, engineers living in this same region reported making $49,940 to $124,480, respectively.

Of all the regions that reported starting salary information for new college graduates, the Middle Atlantic (New Jersey, New York, and Pennsylvania) paid the lowest salary at $48,041, down from $51,206 in 2004 and slightly below the 2003 level of $48,600. This region also had the lowest reported salaries for experienced engineers, paying $73,137 to those at the upper end of the experience ladder, a decrease of 13% from 2004.

Experienced workers in the New England region (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont) also saw a drop in their 2005 salaries. Engineers with more than 35 years of experience saw a 10% decrease in salary, from $91,070 in 2004 to $82,100 in 2005.

In the South Atlantic region (Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia), however, experience had its benefits. Engineers there with more than 35 years of experience earned $125,920 in 2005, up 9% from $115,880 in 2004. Engineers at all experience levels in this region reported salary gains in 2005. After 21–25 years, engineers saw an 11% increase, from $93,192 in 2004 to $103,738 in 2005; after 13–16 years, salaries increased 15%, from $81,900 in 2004 to $94,458 in 2005; after 9–10 years, salaries rose 12%, from $70,203 in 2004 to $78,805 in 2005; and after 5 years, salaries increased 16%, from $56,634 in 2004 to $65,833 in 2005. Starting salaries increased by 5%, from $50,020 in 2004 to $52,500 in 2005.

SALARIES BY EDUCATIONAL LEVEL

In 2005, engineers holding doctorate degrees could expect to earn $130,480 after 35 years of working, compared to $100,968 for those with the same level of experience holding masters' degrees and $87,500 for those with bachelors' degrees.

Engineers holding masters' degrees also showed fairly steady salary numbers, with decreases for those with 35 or more years of experience (down from $108,553 in 2003 and $109,836 in 2004 to $100,968 in 2005). After reports of increased salaries in 2004, engineers with 13–25 years of experience and holding masters' degrees saw their salaries return to lower levels in 2005. At 13–16 years, engineers saw salaries go from $83,697 in 2003 up to $91,036 in 2004 and back to $88,313 in 2005. At 21–25 years, engineers saw salaries go from $94,466 in 2003 to $101,412 in 2004 and back to $93,835 in 2005.

FOR MORE INFORMATION

For more information or to order a copy of *Engineers' Salaries: Special Industry Report 2005*, visit *www.ewc-online.org* or contact the American Association of Engineering Societies at 1828 L Street, NW, Suite 906, Washington, D.C., 20036; (202) 296-2237.

Kelly Roncone is news editor for JOM.