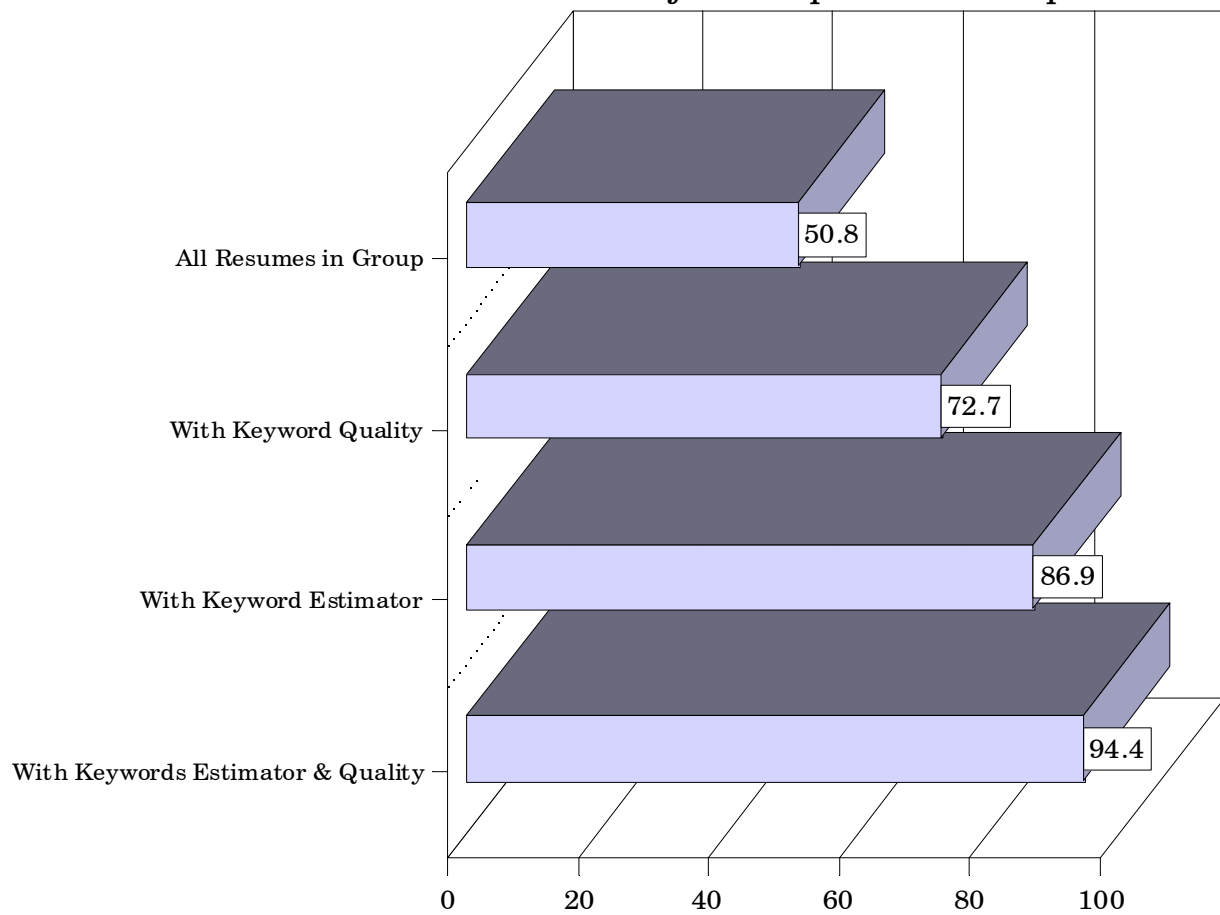




Office of Workforce Development  
Bureau of Labor Market Information

## Keywords Found on AJB Resumes and Job Orders 2004

Percentage of Resumes Viewed by Employers  
Construction & Extraction - Major Occupational Group 47



# Keywords Found on AJB Resumes and Job Orders 2004

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# Keywords Found on AJB Resumes and Job Orders in 2004

Funded by Ohio Department of Job and Family Services

Prepared by Caldwell Economic Information Services (CEIS)

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## Introduction

### Purpose

The primary objective of this project was to identify keywords associated with labor demand by mining resume and job order data submitted to America's Job Bank (AJB). Employers' hiring requirements can change quickly in response to changing markets and technological options. Those changes can affect both the occupations recruited and the knowledge and skills required for those occupations. Keyword analysis of the AJB database provides a unique insight into labor market dynamics that labor market professionals can choose to incorporate into their programs.

### Data Overview

- ◆ Job Orders – In 2004 AJB averaged nearly 1.8 million job orders per quarter. The three types of sources are shown below with their respective percentage of total job orders in 2004.
  - ◆ State systems (25.3%)
  - ◆ AJB's own national online system (6.8%)
  - ◆ A batch system used by some large employers, private employment agencies, and other labor market intermediaries (68.0%)
- ◆ Tallies of job orders from both the national online and state systems are often referred to as nonbatch orders in this report. To maintain consistency with resume data, average quarterly job orders are used throughout this report.
- ◆ Occupation – The Standard Occupational Classification (SOC) is a hierarchical system. Two levels of the SOC are used in this report.
  - ◆ Major group – Two digits are used at this level and all data in this report can be aggregated to major group.
  - ◆ Detailed – Six digits are used at this level. Only nonbatch job orders are coded with sufficient precision at this level. Employers' resume criteria, resumes, and batch job orders cannot be aggregated accurately to the detailed level of the SOC. Occupational information from BLS, state Labor Market Information (LMI) agencies, and Career Information Delivery Systems (CIDS) are generally coded to this level.
- ◆ Resumes – Active resumes at the end of each quarter averaged more than 683 thousand in 2004. Unlike job orders, which are never coded to multiple occupation codes, 30.6% of resumes in 2004 were coded to more than one occupation. Job seekers are often qualified for a variety of potential jobs.
- ◆ Education – Nearly all resumes and nonbatch job orders contained an educational level.

- ◆ Keywords – Employers' resume search criteria are tallied by major occupational group and keyword. Keywords commonly found on search criteria for each major group are searched for on resumes and job orders. Counts of resumes and job orders containing each keyword are developed for all occupational groups. When a keyword is found more than once on a resume or job order the tally is still only incremented once. Keywords are then tested for their relative importance on labor market demand. Up to 15 primary keywords are selected for each major group. Related keywords, must improve the average quarterly percent of viewed resumes by a statistically significant amount, and are shown for each primary keyword. Details on screening and statistical testing are provided in the Technical Appendix.

### Indicators of Labor Demand

Employers may recruit workers either after viewing selected resumes, or by placing a job order. The following indicators are used in this report to show the relative demand for labor by various characteristics:

- ◆ Average quarterly percent of resumes viewed by employers in the quarter (often referred to more simply as the percent of viewed resumes). This is the most important indicator of the relative value of keywords. For example, the percent of viewed resumes for the *Computer and Mathematical* group in 2004 was 66.1%. However, employers viewed 86.7% of the resumes coded to that group containing the primary keyword *WebSphere*, and 86.1% containing *J2EE*. A Keyword Glossary (at the end of this report) defines those keywords as well as acronyms, brand names, and other uncommon terms identified as keywords in this report.
- ◆ Ratio of job orders to resumes – The ratio of job orders to resumes is a second indicator of relative labor market demand. Job orders often specify skill requirements that may not be commonly found in resumes. *Therapist* was a keyword found in more than 200 times as many job orders than resumes coded to the *Healthcare Practitioners and Technical* group in 2004.

### How to Use This Report

The core of the report is the keyword analysis sections for each major occupational group. Other information in the report supports this analysis.

Each keyword analysis will include the following information.

- ◆ Narrative analysis
- ◆ Table 1 – *Quarterly average of Nonbatch Job Orders by Detailed SOC Codes in 2004* – This table shows which detailed occupations had the most job orders in 2004. All federal and state statistical agencies, that code occupational data, use the Standard Occupational Classification (SOC) codes. Most occupational information from those agencies, as well as that found in Career Information Delivery Systems (CIDS), are coded to the detailed level of the SOC. This table permits comparisons to occupational information from Labor Market Information (LMI) agencies and CIDS for the subset of job orders that can be coded to the detailed SOC level.

- ◆ *Table 2 – Percent of Resumes by Educational Level in 2004* - Nearly all resumes in the AJB database specify an educational level. This table also shows the percentage of resumes in the major occupational group viewed by employers during the fourth quarter 2004, by educational level.
- ◆ *Table 3 – Percent Education Required on Nonbatch Job Orders by Detailed SOC Code in 2004* – Career counselors can use this table to advise their clients to the need for a college degree, or vocational training to pursue work in many occupations. The occupations selected for this table are the same ones shown in Table 2. Education level required is only coded on job orders from state systems and AJB's national online system.
- ◆ *Table 4 – Average Quarterly Resumes and Job Orders Containing Primary Keywords in 2004* – Both indicators of relative labor market demand described earlier are displayed in this table by primary keyword. The highest percent of resumes viewed by employers and the highest ratio of job orders to resumes are highlighted with a bold font.

Using keywords shows pockets of skill demand, even if an occupation's employment level is falling. Training program graduates should have more success in the labor market if they have been taught the skills employers most require.

Some businesses recruit primarily by reviewing resumes and others depend more on job orders. Lower skilled occupations are more often recruited with job orders. Some keywords rank highly on both indicators (percent of resumes viewed by employers and ratio of job orders to resumes). Those keywords may reflect especially strong demand with employers using all recruiting methods to meet their requirements.

Many keywords refer to brand names or acronyms commonly used in an industry. At the end of this report is a Keyword Glossary that defines those terms.

- ◆ *Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004* - This table shows which detailed occupation is most commonly associated with each primary keyword on nonbatch job orders. Career counselors can use this table to link skill requirements to the coding level used for other occupational information, such as projections produced by state labor market information agencies. Since batch job orders are not adequately coded to the detailed SOC level it is especially valuable to use keywords to more precisely define employers' job requirements.
- ◆ *Primary and Related Keyword Combinations* – Employers generally specify multiple keywords to screen resumes for their viewing. When the subset of resumes containing two keywords has a percent of viewed resumes that is higher, by a statistically significant amount, than the percent of associated with the primary keyword alone a related keyword is assigned.

All primary/related keyword combinations are shown for each major occupational group with their respective average quarterly percentage of resumes viewed by employers. Frequently, but not always, two words will both be primary keywords and each may be a related keyword to the other. These keyword combinations are especially important when employers require a combination of skills. This is common for jobs requiring knowledge of multiple software and/or technologies.

Related keywords provide a context for primary keywords. The screens used to select these keywords are described in the Technical Appendix.

Descriptions of report sections, and their uses, follow below:

- ◆ Introduction – This is the section you are reading now. It provides an overview report's information and use. The report is structured to cluster all its detailed AJB information related to a major occupational group into a few pages to facilitate distribution to job seekers and students. If this is done, the introduction and keyword glossary should also be copied for them.
- ◆ Major Occupational Group Comparisons -Tables display percentages of resumes viewed by employers, ratios of job orders to resumes, and educational levels reported on resumes. This allows for quick comparisons between occupational groups for each of those indicators. Narrative is limited to highlighting groups of interest, and providing factors that affect all groups.

Readers not already focused on a particular occupational group, may want to read this section before deciding which groups to read.

- ◆ Keyword Analysis by Major Occupational Group – This section is the core of the report where the most detailed data is provided. Most readers will benefit from first reading the Introduction before proceeding to this section. Those interested in a specific occupation could then go directly to that chapter. Other readers may want to first read the Major Occupational Group Comparisons to help them decide which groups to explore in more detail.
- ◆ Technical Appendix – The keyword selection process and other technical topics are covered in this section.
- ◆ Keyword Glossary – Covers acronyms, brand names and other keywords found on job orders and resumes.

## Major Occupational Group Comparisons

Occupational groups composed of many detailed occupations requiring high skill levels, such as *Architecture and Engineering* (17) and *Healthcare Practitioners and Technical* (29), generally had high percentages of viewed resumes in 2004. Conversely, occupational groups requiring less training before entry, such as *Personal Care and Service* (39) and *Food Preparation and Serving Related* (35), generally have lower percentages of viewed resumes.

Though the number of resumes were small, *Military Specific* (55) occupations had the highest percentage of average quarterly viewed resumes of all major occupational groups in 2004. While confidentiality limitations prevent CEIS from determining who viewed resumes coded to the *Military Specific* group, many of the job orders associated with this group were from branches of the U.S. Military and 2004 was the second year of the war in Iraq.

Average Quarterly Resumes and Viewed Resumes  
By Major Occupation Group in 2004

Standard Occupational Classification (SOC) Major Occupational Group		Average Quarterly Viewed Resumes		
Code	Description	Resumes	#	%
11	Management	120,046	72,609	60.5
13	Business and Financial Operations	48,385	31,520	65.1
15	Computer and Mathematical	68,695	45,438	66.1
17	Architecture and Engineering	30,412	22,329	73.4
19	Life, Physical, and Social Science	9,177	5,639	61.4
21	Community and Social Services	19,630	10,228	52.1
23	Legal	7,345	4,512	61.4
25	Education, Training, and Library	20,560	10,138	49.3
27	Arts, Design, Entertainment, Sports, and Media	23,251	11,856	51.0
29	Healthcare Practitioners and Technical	11,939	8,024	67.2
31	Healthcare Support	22,934	11,315	49.3
33	Protective Service	19,148	8,982	46.9
35	Food Preparation and Serving Related	30,732	11,998	39.0
37	Building and Grounds Cleaning and Maintenance	26,318	11,216	42.6
39	Personal Care and Service	14,666	5,626	38.4
41	Sales and Related	75,351	45,173	59.9
43	Office and Administrative Support	192,442	94,928	49.3
45	Farming, Fishing, and Forestry	2,934	1,431	48.8
47	Construction and Extraction	33,327	16,921	50.8
49	Installation, Maintenance, and Repair	38,985	24,821	63.7
51	Production	67,392	33,161	49.2
53	Transportation and Material Moving	60,896	25,324	41.6
55	Military Specific	112	83	<b>73.7</b>

The ratio of job orders to resumes (36.57) was extremely high for the *Healthcare Practitioners and Technical* group (29). Over 93 percent of the job orders coded to this group came from batch accounts in 2004.

Average Quarterly Resumes and Job Orders  
By Major Occupational Group in 2004

Standard Occupational Classification (SOC) Major Occupational Group		Average Quarterly		
Code	Description	Resumes	Job Orders	Orders/ Resumes
11	Management	120,046	146,463	1.22
13	Business and Financial Operations	48,385	126,719	2.62
15	Computer and Mathematical	68,695	165,377	2.41
17	Architecture and Engineering	30,412	90,840	2.99
19	Life, Physical, and Social Science	9,177	21,080	2.30
21	Community and Social Services	19,630	12,196	0.62
23	Legal	7,345	7,916	1.08
25	Education, Training, and Library	20,560	15,769	0.77
27	Arts, Design, Entertainment, Sports, and Media	23,251	21,080	0.91
29	Healthcare Practitioners and Technical	11,939	<b>436,570</b>	<b>36.57</b>
31	Healthcare Support	22,934	65,203	2.84
33	Protective Service	19,148	12,667	0.66
35	Food Preparation and Serving Related	30,732	33,154	1.08
37	Building and Grounds Cleaning and Maintenance	26,318	24,589	0.93
39	Personal Care and Service	14,666	12,727	0.87
41	Sales and Related	75,351	114,275	1.52
43	Office and Administrative Support	<b>192,442</b>	211,073	1.10
45	Farming, Fishing, and Forestry	2,934	3,792	1.29
47	Construction and Extraction	33,327	34,763	1.04
49	Installation, Maintenance, and Repair	38,985	39,396	1.01
51	Production	67,392	68,056	1.01
53	Transportation and Material Moving	60,896	64,169	1.05
55	Military Specific	112	154	1.38

AJB data was extracted on a quarterly basis. The following table shows the quarterly distribution of job orders in 2004. While orders were expected to vary seasonally for economic reasons, those trends were often overwhelmed by the incorporation of data from new batch accounts. For example, job orders for the *Healthcare Practitioners and Technical* (29) and *Healthcare Support* (31) groups increased sharply in the last two quarters of the 2004 with most orders originating from a few new large batch accounts.



Quarterly Distribution of Job Orders  
By Major Occupation Group in 2004

Standard Occupational Classification (SOC)		Percentage of Annual Job Orders			
Major Occupational Group					
Code	Description	1 <sup>st</sup> Qtr	2 <sup>nd</sup> Qtr	3 <sup>rd</sup> Qtr	4 <sup>th</sup> Qtr
11	Management	22.1	27.2	25.1	25.5
13	Business and Financial Operations	23.9	25.2	26.1	24.8
15	Computer and Mathematical	22.6	16.1	33.1	28.2
17	Architecture and Engineering	21.5	23.2	30.1	25.1
19	Life, Physical, and Social Science	21.0	24.8	26.4	27.8
21	Community and Social Services	23.8	24.7	27.6	23.9
23	Legal	23.4	26.7	25.6	24.3
25	Education, Training, and Library	20.7	27.3	28.9	23.1
27	Arts, Design, Entertainment, Sports, and Media	24.2	<b>35.4</b>	20.6	19.9
29	Healthcare Practitioners and Technical	18.5	16.7	<b>40.6</b>	24.2
31	Healthcare Support	9.7	13.0	38.2	<b>39.1</b>
33	Protective Service	26.1	23.6	26.4	23.8
35	Food Preparation and Serving Related	23.0	25.9	29.3	21.9
37	Building and Grounds Cleaning and Maintenance	23.7	26.2	28.1	22.0
39	Personal Care and Service	21.4	21.1	29.7	27.8
41	Sales and Related	<b>28.1</b>	22.7	24.9	24.3
43	Office and Administrative Support	24.1	23.9	28.6	23.4
45	Farming, Fishing, and Forestry	27.2	27.9	27.7	17.1
47	Construction and Extraction	20.4	26.3	30.8	22.5
49	Installation, Maintenance, and Repair	21.9	26.6	28.4	23.1
51	Production	22.0	25.7	29.2	23.2
53	Transportation and Material Moving	25.2	23.4	28.2	23.2
55	Military Specific	12.2	23.1	37.0	27.8

The following table shows the percentage of resumes for applicants with college degrees in December 2004 varied greatly by major occupational group. While 75.1% of the resumes coded to *Life, Physical, and Social Science* reported graduation from college, the equivalent number for *Building and Grounds Cleaning and Maintenance* was only 2.5%.

Percent of Resumes by Educational Level  
By Major Occupation Group in 2004

Standard Occupational Classification (SOC) Major Occupational Group		College Degree	Some College or Vocational	Other
Code	Description			
11	Management	48.6	35.2	16.1
13	Business and Financial Operations	55.3	33.0	11.7
15	Computer and Mathematical	45.5	45.5	9.0
17	Architecture and Engineering	52.0	39.8	8.2
19	Life, Physical, and Social Science	<b>75.1</b>	17.9	7.0
21	Community and Social Services	56.2	31.0	12.8
23	Legal	50.3	39.6	10.1
25	Education, Training, and Library	55.9	26.8	17.3
27	Arts, Design, Entertainment, Sports, and Media	50.7	36.0	13.3
29	Healthcare Practitioners and Technical	25.6	49.4	25.0
31	Healthcare Support	7.6	41.8	50.6
33	Protective Service	12.9	39.5	47.6
35	Food Preparation and Serving Related	4.4	27.8	67.8
37	Building and Grounds Cleaning and Maintenance	2.5	19.5	<b>78.0</b>
39	Personal Care and Service	9.3	31.4	59.3
41	Sales and Related	20.4	33.9	45.8
43	Office and Administrative Support	13.0	49.1	37.9
45	Farming, Fishing, and Forestry	13.0	27.1	59.9
47	Construction and Extraction	5.2	29.7	65.1
49	Installation, Maintenance, and Repair	6.7	51.6	41.8
51	Production	6.2	30.6	63.2
53	Transportation and Material Moving	4.1	24.5	71.3
55	Military Specific	18.3	<b>52.2</b>	29.5

Often the distribution of educational attainment reported on resumes (see above) was considerably different from employer requirements as indicated on nonbatch job orders in the following table. For example, 92.3% of the nonbatch job orders for *Healthcare Practitioners and Technical* (29) required a college degree in 2004, yet only 25.6% of resumes coded to that group reported attainment of a degree.

Percent Education Required on Nonbatch Job Orders  
By Major Occupation Group in 2004

Standard Occupational Classification (SOC) Major Occupational Group		College Degree	Some College or Vocational	Other
Code	Description			
11	Management	55.8	10.6	33.7
13	Business and Financial Operations	51.3	8.7	40.0
15	Computer and Mathematical	20.0	4.5	75.5
17	Architecture and Engineering	51.6	9.9	38.5
19	Life, Physical, and Social Science	67.1	10.2	22.7
21	Community and Social Services	53.7	13.1	33.2
23	Legal	42.2	15.1	42.6
25	Education, Training, and Library	51.9	19.2	28.9
27	Arts, Design, Entertainment, Sports, and Media	30.4	9.8	59.8
29	Healthcare Practitioners and Technical	<b>92.3</b>	4.6	3.0
31	Healthcare Support	19.4	<b>24.6</b>	56.0
33	Protective Service	3.3	7.1	89.7
35	Food Preparation and Serving Related	1.1	3.6	95.3
37	Building and Grounds Cleaning and Maintenance	0.7	2.0	<b>97.3</b>
39	Personal Care and Service	12.0	14.2	73.7
41	Sales and Related	20.8	8.3	70.9
43	Office and Administrative Support	8.5	11.0	80.4
45	Farming, Fishing, and Forestry	4.2	5.3	90.5
47	Construction and Extraction	4.1	4.9	90.9
49	Installation, Maintenance, and Repair	3.0	11.7	85.2
51	Production	4.6	7.4	88.0
53	Transportation and Material Moving	1.4	1.8	96.8
55	Military Specific	14.2	6.0	79.9

Generally, applicants who graduated from college were more likely to have their resumes viewed by employers. The following table shows the percentages of resumes viewed by employers in 2004, by education level and major occupational group. For some groups the percentage of viewed resumes was only modestly higher than for applicants with other training past high school, and for *Installation, Maintenance, and Repair* (49) it was slightly lower.

Two factors contribute to a high percentage of viewed resumes for higher education levels:

- ◆ Employers often require a specific educational level.
- ◆ Skills indicated by keywords in employers' resume search criteria are often associated with higher education levels.

Occupational groups with high skill requirements, such as *Architecture and Engineering* (17) and *Healthcare Practitioners and Technical* (29), generally had high percentages of viewed resumes. While lower skilled occupational groups, such as *Personal Care and Service* (39) and *Food Preparation and Serving Related* (35), generally had lower percentages of viewed resumes.

Percent of Resumes Viewed by Employers  
By Major Occupation Group and Educational Level in 2004

Standard Occupational Classification (SOC) Major Occupational Group		College Degree	Some College or Vocational	Other
Code	Description			
11	Management	64.9	60.2	47.8
13	Business and Financial Operations	68.8	63.2	53.1
15	Computer and Mathematical	69.7	65.0	54.1
17	Architecture and Engineering	77.7	71.1	57.6
19	Life, Physical, and Social Science	64.0	57.7	43.6
21	Community and Social Services	54.9	51.4	41.6
23	Legal	63.4	61.1	53.0
25	Education, Training, and Library	53.8	49.4	34.7
27	Arts, Design, Entertainment, Sports, and Media	52.7	52.2	41.2
29	Healthcare Practitioners and Technical	76.4	68.9	54.4
31	Healthcare Support	61.0	55.5	42.5
33	Protective Service	54.8	53.4	39.4
35	Food Preparation and Serving Related	51.1	48.7	34.3
37	Building and Grounds Cleaning and Maintenance	57.7	55.4	38.9
39	Personal Care and Service	46.8	46.8	32.6
41	Sales and Related	74.6	66.0	49.0
43	Office and Administrative Support	57.1	53.1	41.8
45	Farming, Fishing, and Forestry	63.9	56.2	42.2
47	Construction and Extraction	68.0	61.2	44.6
49	Installation, Maintenance, and Repair	68.1	68.8	56.7
51	Production	64.0	58.9	43.1
53	Transportation and Material Moving	55.0	54.3	36.4
55	Military Specific	<b>84.1</b>	<b>76.1</b>	<b>62.9</b>

## Management

### SOC Major Occupational Group 11

#### Detailed Occupations and Education Level

*Management* occupations were quite diverse in 2004. The only detailed occupation with more than 7.6% of the group's nonbatch job orders was the residual occupation *Managers, All Other* (11-9199). Over 41 percent job titles of those nonbatch job orders contained the generic phrase "project manager".

Overall 48.6% of the resumes coded to this group were from college graduates. However, the degree requirements required on nonbatch job orders varied greatly by detailed occupation. College degrees were required on 83.7% of nonbatch orders for *Engineering Managers* (11-9041), but only for 13.5% of *Food Service Managers* (11-9051).

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Management* - Major Occupational Group 11

Code	Title	#	%
11-9199	Managers, All Other	6,545	17.2
11-9051	Food Service Managers	2,908	7.6
11-2022	Sales Managers	2,827	7.4
11-3031	Financial Managers	2,742	7.2
11-1021	General and Operations Managers	2,380	6.2
11-2021	Marketing Managers	2,254	5.9
11-3011	Administrative Services Managers	2,089	5.5
11-9041	Engineering Managers	1,655	4.3
11-3021	Computer and Information Systems Managers	1,482	3.9
11-3051	Industrial Production Managers	1,447	3.8
11-9111	Medical and Health Services Managers	1,297	3.4
11-3071	Transportation, Storage, and Distribution Managers	1,199	3.1
Total of occupations with less than 3.0% of group's job orders		9,301	24.4
Total Nonbatch Job Orders		38,126	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			26.0

Table 2 – Percent of Resumes by Education Level in 2004  
For *Management*  
Major Occupational Group 11

Education Level	Percent of Resumes	Percent Viewed by Employers
Less Than High School	1.3	39.3
High School Diploma or GED	14.9	48.5
Some College or Vocational	35.2	60.2
Bachelors Degree	36.2	64.9
Graduate Degree	12.4	64.7

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Management* - Major Occupational Group 11

Code	Title	College Degree	Some College or Voc	Other
11-9199	Managers, All Other	47.8	12.0	40.3
11-9051	Food Service Managers	13.5	10.7	75.9
11-2022	Sales Managers	42.3	13.3	44.5
11-3031	Financial Managers	52.6	9.5	38.0
11-1021	General and Operations Managers	49.5	14.5	36.0
11-2021	Marketing Managers	69.5	8.2	22.3
11-3011	Administrative Services Managers	32.9	17.6	49.5
11-9041	Engineering Managers	83.7	7.8	8.5
11-3021	Computer and Information Systems Managers	64.6	12.6	22.8
11-3051	Industrial Production Managers	45.6	16.8	37.5
11-9111	Medical and Health Services Managers	65.8	17.4	16.8
11-3071	Transportation, Storage, and Distribution Managers	34.9	16.1	49.0

**Keywords**

Table 5 shows that of the 15 primary keywords for this major occupational group, nine were most commonly found in the nonbatch job orders coded to the residual occupation *Managers, All Other* (11-9199). *Automotive* was one of those primary keywords, and it had the highest average quarterly percentage of resumes viewed by employers at 75.7%. Additionally, of the 11 primary/related keyword combinations with a viewed percentage over 80% (shown at the end of this chapter), *Automotive* was part of 10 of them.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Management* - Major Occupational Group 11

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/ Resumes
Automotive	2,356	<b>75.7</b>	2,128	0.90
Business	38,554	69.3	56,238	1.46
Call	7,212	71.4	10,995	1.52
Human	14,930	69.2	10,576	0.71
Insurance	8,960	71.7	14,282	<b>1.59</b>
Manufacturing	11,554	74.8	10,295	0.89
Operations	37,516	69.2	25,874	0.69
Plant	7,252	74.3	3,216	0.44
Production	22,039	69.1	13,552	0.61
Program	24,835	72.5	24,654	0.99
Project	30,169	70.9	29,580	0.98
Purchasing	12,425	68.9	3,281	0.26
Quality	26,483	71.7	26,474	1.00
Real	5,440	72.2	4,455	0.82
Resources	15,748	71.8	17,630	1.12
Major Group Total	120,046	60.5	146,462	1.22

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Management* - Major Occupational Group 11

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
Automotive	11-9199	Managers, All Other	356	107	30.1
Business	11-9199	Managers, All Other	11,667	2,052	17.6
Call	11-9199	Managers, All Other	2,362	447	18.9
Human	11-3049	Human Resources Managers, All Other	3,359	610	18.2
Insurance	11-9199	Managers, All Other	2,225	475	21.3
Manufacturing	11-3051	Industrial Production Managers	2,430	427	17.6
Operations	11-9199	Managers, All Other	7,530	1,380	18.3
Plant	11-3051	Industrial Production Managers	924	198	21.4
Production	11-3051	Industrial Production Managers	3,362	565	16.8
Program	11-9199	Managers, All Other	6,056	1,175	19.4
Project	11-9199	Managers, All Other	5,701	1,458	25.6
Purchasing	11-3061	Purchasing Managers	1,041	310	29.7
Quality	11-9199	Managers, All Other Property, Real Estate, and Community	5,400	1,072	19.8
Real	11-9141	Association Managers	734	153	20.8
Resources	11-9199	Managers, All Other	4,330	716	16.5

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: Automotive

Related Keywords: Business 79.7%, Customer 78.1%, Human 79.9%, Insurance 80.7%, Management 78.2%, Manager 78.8%, Manufacturing 82.3%, Marketing 78.9%, Operations 78.8%, Plant 83.5%, Production 81.6%, Program 82.8%, Project 82.2%, Purchasing 80.4%, Quality 81.4%, Real 81.6%, Resources 81.1%, Supervisor 78.4%

Primary Keyword: Business

Related Keywords: Automotive 79.7%, Call 74.6%, Customer 72.3%, Food 71.3%, Human 73.4%, Insurance 75.4%, Management 71.7%, Manager 72.9%, Manufacturing 77.7%, Marketing 71.9%, Operations 72.6%, Plant 77.4%, Production 71.7%, Program 75.2%, Project 74.5%, Purchasing 73.5%, Quality 74.2%, Real 76.6%, Resources 75.4%, Restaurant 72.3%, Retail 73.0%, Sales 71.9%, Service 71.9%, Store 70.4%, Supervisor 73.6%

Primary Keyword: Call

Related Keywords: Automotive 76.5%, Business 74.6%, Human 74.9%, Insurance 74.8%, Management 72.9%, Manager 74.1%, Manufacturing 78.8%, Marketing 75.2%, Operations 73.3%, Plant 76.5%, Production 74.8%, Program 75.4%, Project 75.6%, Purchasing 74.5%, Quality 74.2%, Real 78.5%, Resources 76.7%, Restaurant 74.4%, Retail 75.0%, Sales 73.8%

Primary Keyword: Human

Related Keywords: Automotive 79.9%, Business 73.4%, Call 74.9%, Customer 71.4%, Food 71.8%, Insurance 76.3%, Management 71.9%, Manager 72.9%, Manufacturing 76.5%, Marketing 73.7%, Operations 72.8%, Plant 76.0%, Production 72.5%, Program 74.9%, Project 75.8%, Purchasing 72.8%, Quality 74.1%, Real 75.7%, Resources 70.5%, Restaurant 74.1%, Retail 72.7%, Sales 73.1%, Service 71.7%, Store 71.6%, Supervisor 73.6%

Primary Keyword: Insurance

Related Keywords: Automotive 80.7%, Business 75.4%, Call 74.8%, Customer 73.0%, Food 74.1%, Human 76.3%, Management 74.4%, Manager 74.9%, Manufacturing 79.6%, Marketing 76.1%, Operations 75.3%, Plant 78.1%, Production 75.2%, Program 76.8%, Project 77.6%, Purchasing 74.4%, Quality 75.5%, Real 78.2%, Resources 77.3%, Restaurant 75.1%, Retail 77.1%, Sales 74.5%, Service 73.4%, Supervisor 74.6%

Primary Keyword: Manufacturing

Related Keywords: Automotive 82.3%, Business 77.7%, Call 78.8%, Customer 77.2%, Food 77.3%, Human 76.5%, Insurance 79.6%, Management 76.5%, Manager 77.4%, Marketing 77.5%, Operations 76.3%, Plant 77.8%, Production 75.8%, Program 79.7%, Project 79.5%, Purchasing 76.1%, Quality 77.3%, Real 79.8%, Resources 78.3%, Restaurant 79.3%, Retail 76.4%, Sales 77.0%, Service 76.7%, Supervisor 77.3%

Primary Keyword: Operations

Related Keywords: Automotive 78.8%, Business 72.6%, Call 73.3%, Customer 71.5%, Food 70.9%, Human 72.8%, Insurance 75.3%, Management 71.4%, Manager 72.4%, Manufacturing 76.3%, Marketing 72.8%, Plant 76.3%, Production 72.6%, Program 75.4%, Project 75.0%, Purchasing 72.5%, Quality 73.8%, Real 76.1%, Resources 74.7%, Restaurant 71.8%, Retail 71.3%, Sales 71.8%, Service 71.3%, Supervisor 73.0%

Primary Keyword: Plant



Related Keywords: Automotive 83.5%, Business 77.4%, Call 76.5%, Customer 76.2%, Food 78.4%, Human 76.0%, Insurance 78.1%, Management 76.4%, Manager 76.9%, Manufacturing 77.8%, Marketing 77.3%, Operations 76.3%, Production 76.4%, Program 79.4%, Project 79.9%, Purchasing 76.0%, Quality 77.9%, Real 81.3%, Resources 77.4%, Retail 76.0%, Sales 76.5%, Service 75.4%, Supervisor 77.8%

Primary Keyword: Production

Related Keywords: Automotive 81.6%, Business 71.7%, Call 74.8%, Customer 72.8%, Food 70.8%, Human 72.5%, Insurance 75.2%, Management 72.1%, Manager 73.1%, Manufacturing 75.8%, Marketing 71.1%, Operations 72.6%, Plant 76.4%, Program 75.8%, Project 75.9%, Purchasing 72.5%, Quality 73.9%, Real 76.7%, Resources 74.9%, Restaurant 71.4%, Retail 73.2%, Sales 72.3%, Service 71.9%, Store 70.4%, Supervisor 73.5%

Primary Keyword: Program

Related Keywords: Automotive 82.8%, Business 75.2%, Call 75.4%, Customer 74.4%, Human 74.9%, Insurance 76.8%, Management 74.3%, Manager 75.5%, Manufacturing 79.7%, Marketing 74.6%, Operations 75.4%, Plant 79.4%, Production 75.8%, Project 76.3%, Purchasing 75.0%, Quality 76.3%, Real 77.9%, Resources 76.4%, Retail 75.8%, Sales 74.5%, Service 73.7%, Supervisor 75.4%

Primary Keyword: Project

Related Keywords: Automotive 82.2%, Business 74.5%, Call 75.6%, Customer 74.7%, Food 74.7%, Human 75.8%, Insurance 77.6%, Management 72.8%, Manager 73.9%, Manufacturing 79.5%, Marketing 73.6%, Operations 75.0%, Plant 79.9%, Production 75.9%, Program 76.3%, Purchasing 76.0%, Quality 76.3%, Real 77.6%, Resources 76.9%, Restaurant 74.8%, Retail 76.5%, Sales 74.5%, Service 74.1%, Store 75.4%, Supervisor 76.2%

Primary Keyword: Purchasing

Related Keywords: Automotive 80.4%, Business 73.5%, Call 74.5%, Customer 71.3%, Food 71.7%, Human 72.8%, Insurance 74.4%, Management 71.6%, Manager 72.0%, Manufacturing 76.1%, Marketing 73.3%, Operations 72.5%, Plant 76.0%, Production 72.5%, Program 75.0%, Project 76.0%, Quality 73.6%, Real 76.7%, Resources 73.8%, Restaurant 72.5%, Retail 72.4%, Sales 71.8%, Service 70.9%, Store 70.3%, Supervisor 73.0%

Primary Keyword: Quality

Related Keywords: Automotive 81.4%, Business 74.2%, Call 74.2%, Customer 72.6%, Human 74.1%, Insurance 75.5%, Management 73.6%, Manager 74.4%, Manufacturing 77.3%, Marketing 74.3%, Operations 73.8%, Plant 77.9%, Production 73.9%, Program 76.3%, Project 76.3%, Purchasing 73.6%, Real 77.0%, Resources 75.7%, Retail 73.5%, Sales 73.3%, Supervisor 74.4%

Primary Keyword: Real

Related Keywords: Automotive 81.6%, Business 76.6%, Call 78.5%, Customer 75.3%, Food 74.4%, Human 75.7%, Insurance 78.2%, Management 74.6%, Manager 75.8%, Manufacturing 79.8%, Marketing 75.5%, Operations 76.1%, Plant 81.3%, Production 76.7%, Program 77.9%, Project 77.6%, Purchasing 76.7%, Quality 77.0%, Resources 78.0%, Retail 76.1%, Sales 74.5%, Service 75.7%, Store 74.3%, Supervisor 77.4%

**Primary Keyword: Resources**

**Related Keywords: Automotive 81.1%, Business 75.4%, Call 76.7%, Customer 73.7%, Insurance 77.3%, Management 73.9%, Manager 74.9%, Manufacturing 78.3%, Marketing 74.8%, Operations 74.7%, Plant 77.4%, Production 74.9%, Program 76.4%, Project 76.9%, Purchasing 73.8%, Quality 75.7%, Real 78.0%, Retail 74.3%, Sales 74.8%, Service 73.8%, Supervisor 75.0%**

## Business and Financial Operations

SOC Major Occupational Group 13

### Detailed Occupations and Educational Level

Job orders for the residual occupation *Financial Specialists, All Other* (13-2099) were somewhat overstated for 2004. Over 28 percent of the job titles associated with those orders contained the word “*teller*”, and the correct code for them should be *Tellers* (43-3071).

Educational requirements for *Financial Specialists, All Other* (13-2099), as shown in Table 3, were also affected by the inclusion of *Tellers* as nearly all of those job orders only required High School.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Management* - Major Occupational Group 11

Code	Title	#	%
11-9199	Managers, All Other	6,545	17.2
11-9051	Food Service Managers	2,908	7.6
11-2022	Sales Managers	2,827	7.4
11-3031	Financial Managers	2,742	7.2
11-1021	General and Operations Managers	2,380	6.2
11-2021	Marketing Managers	2,254	5.9
11-3011	Administrative Services Managers	2,089	5.5
11-9041	Engineering Managers	1,655	4.3
11-3021	Computer and Information Systems Managers	1,482	3.9
11-3051	Industrial Production Managers	1,447	3.8
11-9111	Medical and Health Services Managers	1,297	3.4
11-3071	Transportation, Storage, and Distribution Managers	1,199	3.1
Total of occupations with less than 3.0% of group's job orders		9,301	24.4
Total Nonbatch Job Orders		38,126	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			26.0

Table 2 – Percent of Resumes by Education Level in 2004  
For *Business and Financial Operations*  
Major Occupational Group 13

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	0.7	41.1
High School Diploma or GED	11.0	53.9
Some College or Vocational	33.0	63.2
Bachelors Degree	43.5	68.7
Graduate Degree	11.8	69.3

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Business and Financial Operations* – Major Occupational Group 13

Code	Title	College Degree	Some College or Voc	Other
13-2011	Accountants and Auditors	67.5	14.5	18.0
13-2099	Financial Specialists, All Other	19.2	4.6	76.1
13-1199	Business Operations Specialists, All Other	49.6	13.8	36.5
13-2072	Loan Officers	16.5	7.9	75.6
13-1071	Employment, Recruitment, and Placement Specialists	36.8	19.1	44.2
13-2051	Financial Analysts	74.7	7.7	17.6
13-1111	Management Analysts	79.6	8.7	11.7
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	43.9	18.4	37.7
13-1079	Human Resources, Training, and Labor Relations Specialists, All Other	47.6	12.2	40.1

### Keywords

The ratio of job orders to resumes was exceptionally high for the subsets containing the primary keyword *CPA*. There were nearly 13 times as many job orders containing the keyword *CPA* in 2004, as there were resumes. That keyword also had the highest percentage of resumes viewed by employers in the *Business and Financial Operations* major occupational group of 81.8%. The viewed percentages of resumes containing the keywords *CPA* and *Real*, or *CPA* and *Loan* were 87.8%. The Keyword *Real* was nearly always part of the phrase “real estate”.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Business and Financial Operations* – Major Occupational Group 13

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/ Resumes
Audit	4,149	77.5	13,235	3.19
Auditor	1,153	77.1	2,601	2.26
Commercial	3,175	76.3	7,147	2.25
Controller	1,761	76.0	3,504	1.99
Cost	7,306	76.3	12,277	1.68
CPA	1,052	<b>81.8</b>	13,594	<b>12.92</b>
Estate	2,374	76.5	5,621	2.37
Insurance	6,395	73.6	15,355	2.40
Internal	6,113	77.1	22,808	3.73
Loan	4,371	76.5	12,173	2.78
Mortgage Officer	2,407	79.3	9,503	3.95
Processor	2,491	76.6	2,786	1.12
Real	801	78.0	1,486	1.86
Series	2,764	76.6	5,868	2.12
Major Group Total	1,851	74.5	3,605	1.95
	48,384	65.1	126,718	2.62

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Business and Financial Operations* – Major Occupational Group 13

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
Audit	13-2011	Accountants and Auditors	1,936	1,177	60.8
Auditor	13-2011	Accountants and Auditors	504	421	83.4
Commercial	13-2072	Loan Officers	1,671	389	23.3
Controller	13-2011	Accountants and Auditors	452	278	61.6
Cost	13-2011	Accountants and Auditors	2,688	783	29.1
CPA	13-2011	Accountants and Auditors	1,860	1,167	62.7
Estate	13-2072	Loan Officers	1,402	725	51.7
Insurance	13-2099	Financial Specialists, All Other	2,777	585	21.1
Internal	13-2099	Financial Specialists, All Other	6,885	2,536	36.8
Loan	13-2072	Loan Officers	3,547	1,830	51.6
Mortgage Officer	13-2072	Loan Officers	2,619	1,304	49.8
Processor	13-2072	Loan Officers	701	235	33.5
Real	13-2072	Loan Officers	334	203	60.9
Series	13-2099	Financial Specialists, All Other	1,452	730	50.3
			608	365	60.0

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

**Primary Keyword: Audit**

Related Keywords: Accountant 81.3%, Accounting 79.2%, Accounts 78.8%, Analyst 81.0%, Auditor 82.5%, Banking 81.4%, Business 79.9%, CPA 85.0%, Commercial 81.9%, Controller 82.7%, Cost 82.0%, Credit 79.5%, Estate 84.3%, Finance 80.3%, Financial 80.0%, Insurance 80.3%, Internal 81.1%, Loan 80.6%, Management 79.5%, Manager 79.6%, Mortgage 83.1%, Officer 82.2%, Payable 79.2%, Real 84.1%, Sales 80.0%, Series 80.8%, Tax 79.7%

**Primary Keyword: Auditor**

Related Keywords: Accountant 80.9%, Accounting 79.9%, Accounts 80.1%, Analyst 84.2%, Audit 82.5%, Banking 83.0%, Business 81.0%, CPA 87.2%, Commercial 82.3%, Controller 85.1%, Cost 81.6%, Credit 80.3%, Estate 82.9%, Finance 79.9%, Financial 80.2%, Insurance 80.9%, Internal 81.7%, Loan 82.4%, Management 80.6%, Manager 81.0%, Mortgage 84.7%, Payable 80.5%, Real 81.4%, Sales 80.9%, Tax 80.0%

**Primary Keyword: CPA**

Related Keywords: Accountant 84.8%, Accounting 83.9%, Accounts 85.8%, Analyst 87.1%, Audit 85.0%, Auditor 87.2%, Bookkeeping 85.3%, Business 85.5%, Controller 85.2%, Cost 87.4%, Credit 85.2%, Customer 84.3%, Estate 87.1%, Finance 84.2%, Financial 83.5%, Human 85.0%, Insurance 86.3%, Internal 87.7%, Loan 87.8%, Management 85.0%, Manager 85.3%, Officer 87.1%, Payable 85.0%, QuickBooks 85.8%, Real 87.8%, Sales 85.5%, Tax 84.1%

**Primary Keyword: Commercial**

Related Keywords: Accountant 81.9%, Accounting 78.6%, Accounts 78.3%, Analyst 80.7%, Audit 81.9%, Auditor 82.3%, Banking 80.4%, Business 80.0%, CPA 84.1%, Controller 81.0%, Cost 80.6%, Credit 78.8%, Estate 81.4%, Finance 82.6%, Financial 78.8%, Human 79.9%, Insurance 79.2%, Internal 80.8%, Loan 81.1%, Management 78.8%, Manager 79.7%, Mortgage 85.1%, Officer 81.8%, Processor 83.7%, Real 82.1%, Sales 79.3%, Series 81.7%, Tax 80.5%

**Primary Keyword: Controller**

Related Keywords: Accountant 80.4%, Accounting 77.3%, Accounts 79.6%, Analyst 81.8%, Audit 82.7%, Auditor 85.1%, Banking 78.7%, Business 80.5%, CPA 85.2%, Commercial 81.0%, Cost 82.9%, Credit 79.8%, Customer 79.9%, Estate 85.6%, Finance 80.6%, Financial 77.6%, Human 78.5%, Insurance 81.6%, Internal 83.2%, Loan 82.2%, Management 79.7%, Manager 79.8%, Mortgage 82.3%, Officer 81.6%, Payable 79.7%, Real 82.9%, Sales 81.1%, Series 87.9%, Tax 80.9%

**Primary Keyword: Cost**

Related Keywords: Accountant 81.1%, Accounting 77.7%, Accounts 78.3%, Analyst 80.2%, Audit 82.0%, Auditor 81.6%, Banking 78.4%, Business 78.7%, CPA 87.4%, Commercial 80.6%, Controller 82.9%, Credit 79.3%, Customer 77.4%, Estate 79.3%, Finance 79.9%, Financial 78.3%, Human 78.8%, Insurance 80.2%, Internal 80.6%, Loan 82.0%, Management 77.9%, Manager 79.4%, Mortgage 82.9%, Officer 82.1%, Payable 78.9%, Processor 82.0%, Real 79.6%, Sales 78.7%, Series 80.5%, Tax 78.9%

**Primary Keyword: Estate**

**Related Keywords:** Accountant 80.7%, Accounting 78.7%, Accounts 79.5%, Analyst 80.4%, Audit 84.3%, Auditor 82.9%, Banking 81.1%, Business 80.0%, CPA 87.1%, Commercial 81.4%, Controller 85.6%, Cost 79.3%, Credit 81.4%, Customer 79.1%, Finance 80.1%, Financial 79.2%, Human 78.8%, Insurance 81.3%, Internal 81.7%, Loan 83.1%, Management 78.9%, Manager 80.6%, Mortgage 84.4%, Officer 81.7%, Processor 87.0%, Sales 79.2%, Series 80.0%, Tax 80.3%

**Primary Keyword: Insurance**

**Related Keywords:** Accountant 80.2%, Accounting 77.2%, Accounts 76.4%, Analyst 79.0%, Audit 80.3%, Auditor 80.9%, Banking 78.4%, Bookkeeping 76.6%, Business 77.6%, CPA 86.3%, Commercial 79.2%, Controller 81.6%, Cost 80.2%, Credit 77.6%, Customer 75.4%, Estate 81.3%, Finance 79.1%, Financial 77.7%, Human 76.1%, Internal 80.7%, Loan 79.7%, Management 77.0%, Manager 77.5%, Mortgage 81.5%, Officer 80.7%, Payable 75.9%, Processor 78.3%, QuickBooks 78.2%, Real 80.9%, Sales 77.9%, Series 79.6%, Tax 78.6%

**Primary Keyword: Internal**

**Related Keywords:** Accountant 81.7%, Accounting 79.3%, Accounts 78.8%, Analyst 79.8%, Audit 81.1%, Auditor 81.7%, Banking 79.1%, Business 79.4%, CPA 87.7%, Commercial 80.8%, Controller 83.2%, Cost 80.6%, Credit 79.7%, Estate 81.7%, Finance 80.4%, Financial 79.2%, Insurance 80.7%, Loan 81.4%, Management 78.5%, Manager 79.5%, Mortgage 82.9%, Officer 82.0%, Payable 79.8%, Processor 80.8%, QuickBooks 80.1%, Real 83.1%, Sales 79.3%, Series 79.3%, Tax 80.3%

**Primary Keyword: Loan**

**Related Keywords:** Accountant 82.0%, Accounting 77.7%, Analyst 80.8%, Audit 80.6%, Auditor 82.4%, Banking 78.7%, Business 79.7%, CPA 87.8%, Commercial 81.1%, Controller 82.2%, Cost 82.0%, Credit 77.8%, Customer 78.0%, Estate 83.1%, Finance 79.8%, Financial 78.2%, Human 79.2%, Insurance 79.7%, Internal 81.4%, Management 79.0%, Manager 79.1%, Mortgage 81.2%, Officer 80.8%, Processor 83.0%, Real 83.1%, Sales 79.6%, Series 83.3%, Tax 79.5%

**Primary Keyword: Mortgage**

**Related Keywords:** Accountant 84.3%, Analyst 83.8%, Audit 83.1%, Auditor 84.7%, Banking 81.1%, Business 82.3%, CPA 86.8%, Commercial 85.1%, Cost 82.9%, Credit 80.9%, Customer 80.5%, Estate 84.4%, Finance 81.9%, Insurance 81.5%, Internal 82.9%, Loan 81.2%, Management 82.2%, Manager 82.0%, Officer 84.6%, Processor 85.1%, Real 84.6%, Sales 82.3%, Series 83.9%

**Primary Keyword: Officer**

**Related Keywords:** Accountant 83.4%, Accounting 79.4%, Accounts 79.0%, Analyst 79.8%, Audit 82.2%, Banking 78.8%, Business 79.5%, CPA 87.1%, Commercial 81.8%, Controller 81.6%, Cost 82.1%, Credit 80.6%, Customer 79.3%, Estate 81.7%, Finance 79.7%, Financial 79.1%, Insurance 80.7%, Internal 82.0%, Loan 80.8%, Management 78.9%, Manager 78.7%, Mortgage 84.6%, Payable 79.8%, Processor 83.7%, Real 82.9%, Sales 81.1%, Series 81.3%, Tax 80.4%

**Primary Keyword: Processor**

**Related Keywords:** Banking 83.0%, Commercial 83.7%, Cost 82.0%, Credit 81.5%, Estate 87.0%, Loan 83.0%, Mortgage 85.1%, Officer 83.7%, Real 86.9%

Primary Keyword: Real

Related Keywords: Accountant 79.5%, Accounting 78.8%, Accounts 79.6%, Analyst 80.7%, Audit 84.1%, Auditor 81.4%, Banking 80.9%, Business 80.4%, CPA 87.8%, Commercial 82.1%, Controller 82.9%, Cost 79.6%, Credit 81.5%, Customer 79.4%, Finance 80.8%, Financial 79.4%, Human 80.3%, Insurance 80.9%, Internal 83.1%, Loan 83.1%, Management 79.4%, Manager 81.1%, Mortgage 84.6%, Officer 82.9%, Processor 86.9%, Sales 79.2%, Series 79.8%, Tax 79.7%

Primary Keyword: Series

Related Keywords: Accountant 80.7%, Accounting 77.1%, Accounts 79.3%, Analyst 79.2%, Audit 80.8%, Auditor 81.7%, Banking 78.1%, Business 78.6%, CPA 86.3%, Commercial 81.7%, Controller 87.9%, Cost 80.5%, Credit 78.1%, Customer 76.5%, Estate 80.0%, Finance 77.5%, Financial 76.9%, Human 79.8%, Insurance 79.6%, Internal 79.3%, Loan 83.3%, Management 77.7%, Manager 79.5%, Mortgage 83.9%, Officer 81.3%, Real 79.8%, Sales 78.7%, Tax 81.1%



## Computer and Mathematical SOC Major Occupational Group 15

### Detailed Occupations and Educational Level

Only 9.0% of the resumes coded to the *Computer and Mathematical* group indicated an educational level of high school or below in 2004. In comparison, 20.9% of the nonbatch job orders, which specified an education level, required no more than high school. Many job orders list specific software knowledge requirements and some applicants have obtained qualifying knowledge without formal training beyond high school.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Computer and Mathematical* – Major Occupational Group 15

Code	Title	#	%
15-1021	Computer Programmers	3,201	16.2
15-1032	Computer Software Engineers, Systems Software	3,128	15.8
15-1041	Computer Support Specialists	2,725	13.8
15-1099	Computer Specialists, All Other	2,676	13.5
15-1051	Computer Systems Analysts	2,365	12.0
15-1031	Computer Software Engineers, Applications	1,863	9.4
15-1071	Network and Computer Systems Administrators	1,603	8.1
15-1061	Database Administrators	1,007	5.1
Total of occupations with less than 3.0% of group's job orders		1,191	6.0
Total Nonbatch Job Orders		19,759	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			11.9

Table 2 – Percent of Resumes by Education Level in 2004  
For *Computer and Mathematical*  
Major Occupational Group 15

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	0.6	48.7
High School Diploma or GED	8.4	54.5
Some College or Vocational	45.5	65.0
Bachelors Degree	35.7	69.9
Graduate Degree	9.8	68.7

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Computer and Mathematical* – Major Occupational Group 15

Code	Title	College Degree	Some College or Voc	Other
15-1021	Computer Programmers	60.5	22.6	16.9
15-1032	Computer Software Engineers, Systems Software	81.6	8.4	10.0
15-1041	Computer Support Specialists	32.9	28.6	38.5
15-1099	Computer Specialists, All Other	47.0	17.4	35.6
15-1051	Computer Systems Analysts	70.0	16.5	13.5
15-1031	Computer Software Engineers, Applications	80.4	10.7	9.0
15-1071	Network and Computer Systems Administrators	57.3	21.6	21.1
15-1061	Database Administrators	61.4	19.0	19.6

### Keywords

Both labor market demand indicators (the ratio of job orders to resumes, and the average quarterly percentage of resumes viewed by employers), were high for the primary keywords *J2EE* and *WebSphere*. Those keywords were both commonly associated with the development of business enterprise applications. Table 5 shows that the detailed occupation most commonly associated with nonbatch job orders for those keywords were *Computer Programmers* (15-1021).

Employers often sought a combination of skills. At the end of this chapter is a list of primary/related keyword combinations. This list shows that the percentage of resumes viewed by employers, containing many combinations of primary and related keywords, were above or near 90 percent.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Computer and Mathematical* – Major Occupational Group 15

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/ Resumes
ASP	5,734	77.7	11,729	2.05
C#	1,631	83.1	5,531	3.39
Clearance	2,087	79.1	7,653	3.67
DB2	3,876	77.5	7,334	1.89
J2EE	1,270	86.1	10,518	<b>8.28</b>
Net	6,234	78.5	30,815	4.94
Oracle	11,638	78.0	26,913	2.31
PeopleSoft	1,126	82.0	5,098	4.53
SAP	1,928	80.0	7,431	3.85
SCI	357	83.5	1,656	4.64
Secret	1,918	79.3	3,421	1.78
TS	280	80.8	1,337	4.78
VB	4,192	77.9	7,097	1.69
WebSphere	791	<b>86.7</b>	5,962	7.54
XML	5,245	80.5	12,928	2.46
Major Group Total	68,694	66.1	165,376	2.41

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Computer and Mathematical* – Major Occupational Group 15

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
ASP	15-1021	Computer Programmers	1,182	427	36.1
C#	15-1021	Computer Programmers	569	187	32.8
		Computer Software Engineers, Systems			
Clearance	15-1032	Software	1,575	484	30.7
DB2	15-1021	Computer Programmers	601	188	31.2
J2EE	15-1021	Computer Programmers	943	292	30.9
Net	15-1021	Computer Programmers	1,459	498	34.1
Oracle	15-1021	Computer Programmers	2,728	656	24.0
PeopleSoft	15-1021	Computer Programmers	448	101	22.5
SAP	15-1099	Computer Specialists, All Other	629	142	22.6
		Computer Software Engineers, Systems			
SCI	15-1032	Software	428	111	25.9
		Computer Software Engineers, Systems			
Secret	15-1032	Software	693	204	29.5
		Computer Software Engineers, Systems			
TS	15-1032	Software	231	57	24.6
VB	15-1021	Computer Programmers	770	278	36.0
WebSphere	15-1021	Computer Programmers	441	144	32.6
XML	15-1021	Computer Programmers	1,511	448	29.6

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

**Primary Keyword: ASP**

Related Keywords: 2000 79.9%, Analyst 82.0%, Basic 79.3%, Business 81.3%, C 81.2%, C# 85.6%, C++ 80.8%, COBOL 79.3%, Cisco 79.5%, Clearance 84.9%, DB2 83.9%, Data 80.7%, Database 79.9%, Design 79.8%, Desk 79.6%, Desktop 79.4%, Developer 80.8%, Development 79.7%, Engineer 82.1%, Field 79.0%, Help 79.8%, Information 79.1%, J2EE 88.2%, Java 80.9%, Linux 81.1%, MCSE 80.6%, Manager 82.0%, Microsoft 79.8%, Net 82.8%, Network 79.5%, Oracle 82.0%, PC 79.4%, PeopleSoft 83.5%, Programmer 79.7%, Project 81.7%, SAP 86.2%, SQL 79.4%, Secret 83.3%, Security 81.3%, Server 80.0%, Service 80.4%, Software 79.2%, Support 80.1%, System 80.8%, Systems 79.8%, Technical 80.0%, Top 82.9%, UNIX 81.4%, VB 80.6%, Visual 79.6%, Web 78.9%, WebSphere 88.1%, Windows 79.6%, XML 82.3%

**Primary Keyword: C#**

Related Keywords: 2000 84.3%, ASP 85.6%, Analyst 87.3%, Business 87.0%, DB2 88.2%, Data 85.4%, Database 84.8%, Design 85.3%, Developer 85.4%, Development 84.9%, Information 84.6%, J2EE 87.6%, Manager 88.2%, Microsoft 84.5%, Net 84.5%, Oracle 85.7%, Project 85.6%, SAP 90.2%, SQL 84.6%, Security 86.7%, Server 85.3%, Service 85.7%, Support 84.5%, System 85.3%, Systems 84.5%, Technical 84.9%, UNIX 84.5%, VB 85.4%, Web 84.9%, WebSphere 89.0%, XML 85.0%

**Primary Keyword: Clearance**

Related Keywords: ASP 84.9%, Analyst 81.1%, Basic 80.9%, Business 81.7%, C 82.9%, C++ 81.0%, Cisco 81.9%, Data 80.5%, Database 80.8%, Design 80.8%, Developer 83.8%, Development 81.5%, Engineer 82.6%, Information 80.4%, J2EE 85.7%, Java 82.9%, Linux 81.9%, MCSE 83.3%, Manager 81.5%, Net 82.9%, Oracle 84.3%, Project 81.4%, SAP 86.8%, SCI 84.5%, SQL 81.8%, TS 83.6%, Top 81.1%, UNIX 81.3%, VB 85.1%, Visual 81.4%, Web 81.5%, XML 85.3%

**Primary Keyword: DB2**

Related Keywords: 2000 81.4%, ASP 83.9%, Basic 81.3%, Business 81.2%, C 82.1%, C# 88.2%, C++ 83.5%, Cisco 82.4%, Data 79.6%, Database 81.1%, Design 80.4%, Desk 79.7%, Desktop 82.5%, Developer 83.0%, Development 80.4%, Engineer 84.0%, Field 79.9%, Help 81.0%, Information 78.8%, J2EE 89.9%, Java 83.1%, LAN 82.4%, Linux 84.9%, Manager 81.1%, Microsoft 80.8%, Net 85.4%, Network 82.3%, Oracle 83.0%, PC 79.3%, PeopleSoft 87.2%, Project 79.8%, SAP 86.4%, SQL 80.0%, Security 82.5%, Server 81.8%, Service 81.4%, Software 79.7%, Support 80.0%, System 79.6%, Systems 79.3%, Technical 80.3%, Technician 83.7%, Top 81.7%, UNIX 82.9%, VB 83.8%, Visual 81.4%, Web 82.6%, WebSphere 88.3%, Windows 80.6%, XML 85.0%

**Primary Keyword: J2EE**

Related Keywords: ASP 88.2%, Basic 87.8%, Business 87.9%, C 87.7%, C++ 87.6%, COBOL 88.5%, DB2 89.9%, Data 87.7%, Database 87.6%, Developer 88.1%, Linux 87.6%, Net 88.1%, Oracle 87.7%, Project 87.8%, SAP 90.3%, SQL 87.4%, Service 88.3%, System 87.3%, Systems 87.6%, Technical 87.4%, UNIX 87.8%, VB 89.9%, Visual 88.0%, WebSphere 90.0%, Windows 87.3%, XML 87.9%

**Primary Keyword: Net**

Related Keywords: 2000 79.6%, ASP 82.8%, Analyst 83.0%, Basic 81.1%, Business 82.6%, C 82.9%, C# 84.5%, C++ 82.3%, COBOL 82.0%, Clearance 82.9%, DB2 85.4%, Data 81.3%, Database 81.9%, Design 81.4%, Developer 84.3%, Development 82.4%, Engineer 81.8%, Information 79.6%, J2EE 88.1%, Java 83.2%, Linux 80.6%, Manager 81.6%, Microsoft 79.5%, Oracle 84.3%, PeopleSoft 86.9%, Programmer 82.9%, Project 82.8%, SAP 84.9%, SCI 86.9%, SQL 82.4%, Secret 84.2%, Security 80.9%, Server 80.8%, Software 79.6%, System 80.8%, Systems 79.8%, TS 87.7%, Technical 79.6%, Top 81.5%, UNIX 81.2%, VB 82.8%, Visual 81.9%, Web 81.1%, WebSphere 87.9%, Windows 79.2%, XML 84.3%

**Primary Keyword: Oracle**

Related Keywords: 2000 79.9%, ASP 82.0%, Analyst 81.3%, Basic 79.5%, Business 81.9%, C 80.9%, C# 85.7%, C++ 80.3%, COBOL 79.4%, Cisco 80.9%, Clearance 84.3%, DB2 83.0%, Data 80.5%, Database 80.1%, Design 80.9%, Desk 79.5%, Developer 81.9%, Development 80.9%, Engineer 82.0%, Field 79.5%, Help 79.5%, Information 79.4%, J2EE 87.7%, Java 81.2%, LAN 79.7%, Linux 81.9%, Manager 82.1%, Microsoft 79.6%, Net 84.3%, Network 79.6%, PC 78.7%, PeopleSoft 85.7%, Programmer 80.5%, Project 81.3%, SAP 85.2%, SCI 87.2%, SQL 79.8%, Secret 83.9%, Security 81.8%, Server 80.9%, Service 80.3%, Software 79.3%, Support 80.1%, System 80.4%, Systems 79.6%, TS 87.2%, Technical 80.2%, Top 82.6%, UNIX 80.2%, VB 82.3%, Visual 79.9%, Web 81.2%, WebSphere 89.1%, Windows 79.6%, XML 83.5%

**Primary Keyword: PeopleSoft**

Related Keywords: Analyst 85.3%, Business 85.1%, C 84.9%, C++ 86.2%, COBOL 84.7%, DB2 87.2%, Data 84.0%, Database 84.8%, Design 84.9%, Developer 87.9%, Development 85.2%, J2EE 87.2%, Manager 85.4%, Net 86.9%, Oracle 85.7%, Programmer 85.0%, Project 85.7%, SQL 85.2%, Security 85.1%, System 83.7%, Visual 84.9%, Web 84.2%, WebSphere 90.8%, XML 85.2%

**Primary Keyword: SAP**

Related Keywords: ASP 86.2%, Analyst 84.0%, Basic 83.4%, Business 83.9%, C 84.4%, C# 90.2%, C++ 85.6%, COBOL 85.1%, Clearance 86.8%, DB2 86.4%, Data 82.0%, Database 83.0%, Design 84.2%, Developer 87.5%, Development 84.6%, Engineer 83.5%, J2EE 90.3%, Java 85.6%, Linux 82.6%, Manager 83.8%, Net 84.9%, Oracle 85.2%, PeopleSoft 84.7%, Programmer 85.1%, Project 83.9%, SQL 84.4%, Security 83.3%, Server 81.9%, System 82.0%, Technical 82.1%, Top 85.3%, UNIX 83.0%, VB 85.6%, Visual 85.1%, Web 83.8%, WebSphere 89.1%, XML 88.8%

Primary Keyword: SCI

Related Keywords: Analyst 87.8%, Business 88.2%

Primary Keyword: Secret

Related Keywords: ASP 83.3%, Analyst 82.7%, Business 82.5%, C 83.9%, C++ 81.5%, Cisco 81.8%, Data 81.4%, Database 81.5%, Design 81.7%, Developer 83.2%, Development 82.2%, Engineer 83.5%, Field 81.0%, J2EE 85.1%, Java 84.3%, Linux 81.5%, MCSE 84.1%, Manager 81.8%, Net 84.2%, Oracle 83.9%, Project 82.6%, SCI 85.7%, SQL 82.4%, TS 84.6%, Technician 81.4%, Top 81.1%, UNIX 82.2%, Visual 81.2%, Web 81.3%, XML 85.3%

Primary Keyword: TS

Related Keywords: C++ 86.6%, Net 87.7%, Oracle 87.2%, SCI 85.9%

Primary Keyword: VB

Related Keywords: 2000 80.4%, ASP 80.6%, Analyst 80.5%, Basic 79.8%, Business 81.5%, C 80.7%, C# 85.4%, C++ 80.4%, COBOL 79.3%, Cisco 80.0%, Clearance 85.1%, DB2 83.8%, Data 80.9%, Database 80.2%, Design 80.5%, Desk 79.8%, Developer 82.3%, Development 80.9%, Engineer 82.6%, Field 80.2%, Help 80.3%, Information 80.0%, J2EE 89.9%, Java 81.0%, Linux 81.1%, Manager 82.3%, Microsoft 80.4%, Net 82.8%, Network 79.6%, Oracle 82.3%, PeopleSoft 83.5%, Programmer 79.5%, Project 82.5%, SAP 85.6%, SQL 79.6%, Security 82.4%, Server 80.6%, Service 80.6%, Software 79.6%, Support 80.2%, System 80.9%, Systems 80.0%, Technical 80.7%, Top 82.5%, UNIX 81.1%, Visual 80.4%, Web 80.3%, WebSphere 88.0%, Windows 79.8%, XML 84.0%

Primary Keyword: WebSphere

Related Keywords: Basic 89.6%, C 88.5%, Design 88.3%, Developer 89.8%, J2EE 90.0%, Oracle 89.1%, SQL 88.3%, Visual 88.4%, XML 89.2%

Primary Keyword: XML

Related Keywords: 2000 81.9%, ASP 82.3%, Analyst 82.8%, Basic 81.5%, Business 83.7%, C 83.0%, C# 85.0%, C++ 82.3%, COBOL 81.8%, Cisco 83.3%, Clearance 85.3%, DB2 85.0%, Data 82.9%, Database 82.7%, Design 82.3%, Desk 82.6%, Desktop 82.0%, Developer 83.2%, Development 82.3%, Engineer 83.2%, Field 82.0%, Help 82.2%, Information 81.5%, J2EE 87.9%, Java 81.9%, LAN 82.5%, Linux 83.4%, Manager 83.8%, Microsoft 81.9%, Net 84.3%, Network 82.3%, Oracle 83.5%, PeopleSoft 85.2%, Programmer 82.1%, Project 83.3%, SAP 88.8%, SQL 82.0%, Secret 85.3%, Security 84.0%, Server 83.0%, Service 83.0%, Software 81.7%, Support 82.2%, System 83.0%, Systems 82.3%, Technical 82.3%, Top 84.3%, UNIX 82.6%, VB 84.0%, Visual 82.1%, Web 81.8%, WebSphere 89.2%, Windows 81.4%

## Architecture and Engineering SOC Major Occupational Group 17

### Detailed Occupations and Education Level

Job titles of 13 percent of the nonbatch job orders coded to *Engineers, All Other* (17-2199) contained the terms “*software*” or “*system*”. Most of those orders should have been coded to the *Computer and Mathematical* group (15).

Table 3 shows that nonbatch job orders for engineering occupations generally require a college degree, while few orders for engineering technicians seldom do.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Architecture and Engineering* – Major Occupational Group 17

Code	Title	#	%
17-2199	Engineers, All Other	4,629	19.5
17-2071	Electrical Engineers	2,338	9.9
17-2141	Mechanical Engineers	2,049	8.6
17-2051	Civil Engineers	1,623	6.8
17-3023	Electrical and Electronic Engineering Technicians	1,334	5.6
17-2112	Industrial Engineers	1,315	5.5
17-3029	Engineering Technicians, Except Drafters, All Other	1,026	4.3
17-2061	Computer Hardware Engineers	794	3.3
17-2072	Electronics Engineers, Except Computer	780	3.3
Total of occupations with less than 3.0% of group's job orders		7,836	33.0
Total Nonbatch Job Orders		23,724	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			26.1

Table 2 – Percent of Resumes by Education Level in 2004  
For *Architecture and Engineering*  
Major Occupational Group 17

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	0.7	52.4
High School Diploma or GED	7.4	58.1
Some College or Vocational	39.8	71.1
Bachelors Degree	39.9	78.1
Graduate Degree	12.2	76.3

Table 3 – Percent Education Required on Nonbatch Job Orders  
 By Detailed SOC Code in 2004  
 For *Architecture and Engineering* – Major Occupational Group 17

Code	Title	College Degree	Some College or Voc	Other
17-2199	Engineers, All Other	73.0	10.5	16.5
17-2071	Electrical Engineers	82.8	7.4	9.7
17-2141	Mechanical Engineers	80.1	10.2	9.7
17-2051	Civil Engineers	87.1	6.5	6.4
17-3023	Electrical and Electronic Engineering Technicians	15.9	43.9	40.2
17-2112	Industrial Engineers	76.5	11.4	12.1
17-3029	Engineering Technicians, Except Drafters, All Other	13.0	29.1	57.9
17-2061	Computer Hardware Engineers	71.9	13.3	14.8
17-2072	Electronics Engineers, Except Computer	84.6	8.6	6.8

### Keywords

The average quarterly percentage of resumes viewed by employers were higher in 2004 for *Architecture and Engineering* than for any other major occupational group except for *Military Specific*. In fact over two-thirds of primary keywords for all major groups were associated with a lower viewed percentage than the average for the *Architecture and Engineering* group.

Job orders for this group were nearly three times as high as resumes. *Healthcare Practitioners and Technical* was the only occupational group with a higher ratio of job orders to resumes than *Architecture and Engineering*. Most primary keywords in this group were found on more than twice as many job orders as resumes.



Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Architecture and Engineering* – Major Occupational Group 17

Primary MG Keyword	Resumes	% Viewed	Job Orders	Orders/ Resumes
17 AutoCAD	8,118	81.1	7,005	0.86
17 CAD	5,369	80.1	5,613	1.05
17 Civil	1,703	85.9	8,265	<b>4.85</b>
17 Design	15,825	79.8	40,325	2.55
17 Development	8,316	81.9	32,306	3.88
17 Electrical	7,533	79.4	14,529	1.93
17 Engineer	10,977	79.9	31,271	2.85
17 Land	854	84.5	2,922	3.42
17 Manufacturing	7,377	82.0	16,348	2.22
17 Mechanical	8,437	79.7	15,781	1.87
17 Power	5,919	80.7	6,140	1.04
17 Project	10,520	81.6	23,274	2.21
17 Quality	8,734	80.4	15,225	1.74
17 Structural	1,907	<b>86.1</b>	3,617	1.90
17 Test	7,377	79.6	17,933	2.43
Major Group Total	30,411	73.4	90,839	2.99

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Architecture and Engineering* – Major Occupational Group 17

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
AutoCAD	17-3011	Architectural and Civil Drafters	2,437	359	14.7
CAD	17-2141	Mechanical Engineers	1,921	323	16.8
Civil	17-2051	Civil Engineers	1,679	965	57.5
Design	17-2199	Engineers, All Other	10,485	2,386	22.8
Development	17-2199	Engineers, All Other	6,926	1,966	28.4
Electrical	17-2071	Electrical Engineers	3,993	1,168	29.2
Engineer	17-2199	Engineers, All Other	7,004	1,919	27.4
Land	17-2051	Civil Engineers	691	221	32.0
Manufacturing	17-2199	Engineers, All Other	4,263	1,214	28.5
Mechanical	17-2141	Mechanical Engineers	4,544	1,243	27.4
Power	17-2071	Electrical Engineers	1,803	550	30.5
Project	17-2199	Engineers, All Other	5,322	1,372	25.8
Quality	17-2199	Engineers, All Other	3,670	1,096	29.9
Structural	17-2051	Civil Engineers	1,103	272	24.7
Test	17-2199	Engineers, All Other	4,646	1,260	27.1

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: AutoCAD

Related Keywords: CAD 82.9%, Civil 87.4%, Design 82.8%, Development 84.9%, Electrical 83%, Engineer 84.3%, Engineering 83%, Land 88.1%, Manufacturing 84.5%, Mechanical 83%, Power 84.2%, Project 84.3%, Quality 84%, Structural 85.8%, Systems 83.7%, Test 83.8%

Primary Keyword: CAD

Related Keywords: AutoCAD 82.9%, Chemical 82.5%, Civil 86%, Design 82.7%, Development 85.2%, Electrical 83.8%, Engineer 84.2%, Engineering 83.3%, Land 87.1%, Manufacturing 84.8%, Mechanical 82.9%, Power 84.5%, Project 84.6%, Quality 84.2%, Structural 86.9%, Systems 84.2%, Test 85.3%

Primary Keyword: Civil

Related Keywords: AutoCAD 87.4%, Chemical 89.5%, Design 87.6%, Development 90.2%, Engineer 88.5%, Engineering 87%, Land 88.9%, Power 88.9%, Project 88.3%, Quality 89%, Structural 88.1%, Systems 87.8%, Test 88.5%

Primary Keyword: Design

Related Keywords: AutoCAD 82.8%, CAD 82.7%, Chemical 81.7%, Civil 87.6%, Development 83.9%, Electrical 82.8%, Engineer 83.4%, Engineering 82.3%, Land 86.8%, Manufacturing 84.1%, Mechanical 82.4%, Power 83.5%, Project 83.5%, Quality 83.4%, Structural 86.9%, Systems 82.3%, Test 83%

Primary Keyword: Development

Related Keywords: AutoCAD 84.9%, CAD 85.2%, Civil 90.2%, Design 83.9%, Electrical 85.1%, Engineer 84.7%, Engineering 83.7%, Land 88.7%, Manufacturing 84.6%, Mechanical 85%, Power 84.3%, Project 84.9%, Quality 83.9%, Structural 88.8%, Systems 83.8%, Test 83.6%

Primary Keyword: Electrical

Related Keywords: AutoCAD 83%, CAD 83.8%, Chemical 83.7%, Civil 86.8%, Design 82.8%, Development 85.1%, Engineer 82.9%, Engineering 81.9%, Land 84.6%, Manufacturing 84.3%, Mechanical 82.8%, Power 83.2%, Project 84.6%, Quality 83.4%, Structural 86.4%, Systems 82.7%, Test 82.7%

Primary Keyword: Engineer

Related Keywords: AutoCAD 84.3%, CAD 84.2%, Civil 88.5%, Design 83.4%, Development 84.7%, Electrical 82.9%, Engineering 82.8%, Land 87.5%, Manufacturing 84.5%, Mechanical 83.3%, Power 84.4%, Project 84.2%, Quality 83.8%, Structural 89.2%, Systems 83.1%, Test 83.7%

Primary Keyword: Land

Related Keywords: AutoCAD 88.1%, CAD 87.1%, Civil 88.9%, Design 86.8%, Development 88.7%, Engineer 87.5%, Engineering 87.1%, Project 88%, Structural 91.4%

Primary Keyword: Manufacturing

Related Keywords: AutoCAD 84.5%, CAD 84.8%, Chemical 83.8%, Civil 87%, Design 84.1%, Development 84.6%, Electrical 84.3%, Engineer 84.5%, Engineering 83.3%, Land 85.7%, Mechanical 84.2%, Power 84.4%, Project 84.6%, Quality 83.2%, Structural 88.1%, Systems 84.1%, Test 83.5%

Primary Keyword: Mechanical

Related Keywords: AutoCAD 83%, CAD 82.9%, Chemical 83.3%, Civil 87%, Design 82.4%, Development 85%, Electrical 82.8%, Engineer 83.3%, Engineering 82.3%, Land 86.5%, Manufacturing 84.2%, Power 82.5%, Project 84.4%, Quality 83.4%, Structural 87.7%, Systems 83.1%, Test 83.2%

Primary Keyword: Power

Related Keywords: AutoCAD 84.2%, CAD 84.5%, Civil 88.9%, Design 83.5%, Development 84.3%, Electrical 83.2%, Engineer 84.4%, Engineering 82.9%, Land 83.7%, Manufacturing 84.4%, Mechanical 82.5%, Project 85.3%, Quality 83.3%, Structural 89.2%, Systems 82.3%, Test 82.4%

Primary Keyword: Project

Related Keywords: AutoCAD 84.3%, CAD 84.6%, Chemical 82.7%, Civil 88.3%, Design 83.5%, Development 84.9%, Electrical 84.6%, Engineer 84.2%, Engineering 83.3%, Land 88%, Manufacturing 84.6%, Mechanical 84.4%, Power 85.3%, Quality 84.3%, Structural 88.3%, Systems 83.4%, Test 84.4%

Primary Keyword: Quality

Related Keywords: AutoCAD 84%, CAD 84.2%, Chemical 82.3%, Civil 89%, Design 83.4%, Development 83.9%, Electrical 83.4%, Engineer 83.8%, Engineering 82.6%, Land 85.9%, Manufacturing 83.2%, Mechanical 83.4%, Power 83.3%, Project 84.3%, Structural 88.5%, Systems 82.5%, Test 81.9%

Primary Keyword: Structural

Related Keywords: Civil 88.1%, Development 88.8%, Engineer 89.2%, Engineering 87.6%, Land 91.4%, Manufacturing 88.1%, Mechanical 87.7%, Power 89.2%, Project 88.3%, Quality 88.5%, Systems 87.6%, Test 88.4%

Primary Keyword: Test

Related Keywords: AutoCAD 83.8%, CAD 85.3%, Chemical 83.4%, Civil 88.5%, Design 83%, Development 83.6%, Electrical 82.7%, Engineer 83.7%, Engineering 82.2%, Manufacturing 83.5%, Mechanical 83.2%, Power 82.4%, Project 84.4%, Quality 81.9%, Structural 88.4%, Systems 82%

## Life, Physical, and Social Science SOC Major Occupational Group 19

### Detailed Occupations and Education Level

Only 7.0% of the resumes coded to this group specified no education beyond high school. In contrast, nonbatch job orders for technical occupations often required no more than a high school education.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Life, Physical, and Social Science* – Major Occupational Group 19

Code	Title	#	%
19-2031	Chemists	616	8.2
19-1099	Life Scientists, All Other	593	7.9
19-3021	Market Research Analysts	506	6.7
19-4031	Chemical Technicians	504	6.7
19-1021	Biochemists and Biophysicists	428	5.7
19-4099	Life, Physical, and Social Science Technicians, All Other	387	5.2
19-3099	Social Scientists and Related Workers, All Other	342	4.6
19-3031	Clinical, Counseling, and School Psychologists	312	4.2
19-1029	Biological Scientists, All Other	311	4.1
19-1020	Biological Scientists	295	3.9
19-4021	Biological Technicians	287	3.8
19-3051	Urban and Regional Planners	233	3.1
Total of occupations with less than 3.0% of group's job orders		2,683	35.7
Total Nonbatch Job Orders		7,497	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			35.6

Table 2 – Percent of Resumes by Education Level in 2004  
For *Life, Physical, and Social Science*  
Major Occupational Group 19

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	1.1	35.7
High School Diploma or GED	5.9	45.0
Some College or Vocational	17.9	57.7
Bachelors Degree	52.9	63.3
Graduate Degree	22.2	65.7

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Life, Physical, and Social Science* – Major Occupational Group 19

Code	Title	College Degree	Some College or Voc	Other
19-2031	Chemists	85.4	7.3	7.3
19-1099	Life Scientists, All Other	76.0	5.0	18.9
19-3021	Market Research Analysts	75.7	9.2	15.1
19-4031	Chemical Technicians	34.1	29.4	36.4
19-1021	Biochemists and Biophysicists	96.0	2.5	1.5
19-4099	Life, Physical, and Social Science Technicians, All Other	38.8	29.7	31.6
19-3099	Social Scientists and Related Workers, All Other	34.8	14.0	51.2
19-3031	Clinical, Counseling, and School Psychologists	58.1	13.1	28.9
19-1029	Biological Scientists, All Other	93.3	1.5	5.2
19-1020	Biological Scientists	92.6	3.1	4.3
19-4021	Biological Technicians	47.7	17.6	34.6
19-3051	Urban and Regional Planners	86.0	7.3	6.7

### Keywords

High demand was evident for keywords linked to the medical field. *Validation* was the primary keyword found on the group's highest percentage of viewed resumes. A review of job descriptions showed that *Validation* was often in the context of clinical trials.

*Medical* is the primary keyword with the highest ratio of job orders to resumes in the *Life, Physical, and Social Science* occupational group. In 2004, the quarterly average of job orders was more than 11 times as high as resumes.

A list of the primary/related keyword combinations with high percentages of resumes viewed by employers is at the end of this chapter. Reviewing that list shows that most primary keywords have related keywords linked to the healthcare or medical research.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Life, Physical, and Social Science* – Major Occupational Group 19

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/ Resumes
Bio	70	75.5	403	5.76
Cell	422	72.9	1,023	2.42
Chem	73	73.8	174	2.38
Development	1,296	70.3	6,889	5.32
GC	555	73.1	628	1.13
High	541	70.7	3,665	6.77
HPLC	644	75.5	1,027	1.59
Medical	558	71.5	6,415	<b>11.50</b>
Organic	430	72.9	514	1.20
Performance	513	72.0	1,818	3.54
Pharmaceutical	464	71.6	3,112	6.71
QA	153	74.5	546	3.57
Quality	1,222	70.4	3,568	2.92
Regulatory	208	79.2	1,920	9.23
Validation	144	<b>82.8</b>	907	6.30
Major Group Total	9,176	61.4	21,079	2.30

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Life, Physical, and Social Science* – Major Occupational Group 19

Primary Keyword	Detailed SOC Occupational Description		Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
Bio	19-2031	Chemists	143	48	33.2
Cell	19-1020	Biological Scientists	424	112	26.5
Chem	19-2031	Chemists	35	15	42.9
Development	19-1099	Life Scientists, All Other	1,956	274	14.0
GC	19-2031	Chemists	133	85	63.4
		Life, Physical, and Social Science			
High	19-4099	Technicians, All Other	1,125	105	9.3
HPLC	19-2031	Chemists	223	133	59.6
Medical	19-1099	Life Scientists, All Other	1,041	204	19.6
Organic	19-2031	Chemists	156	75	48.1
Performance	19-1021	Biochemists and Biophysicists	553	81	14.7
Pharmaceutical	19-1099	Life Scientists, All Other	494	124	25.1
QA	19-2031	Chemists	153	28	18.0
Quality	19-2031	Chemists	1,085	125	11.5
Regulatory	19-1099	Life Scientists, All Other	576	178	31.0
Validation	19-2031	Chemists	209	47	22.7

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: Cell

Related Keywords: Chemistry 78.0%, Development 79.3%, HPLC 78.3%, Medical 79.7%,  
Pharmaceutical 77.9%, Quality 79.9%

Primary Keyword: Development

Related Keywords: Biology 77.8%, Cell 79.3%, Chemical 73.2%, Chemist 75.3%, Chemistry 76.1%,  
Clinical 80.1%, Environmental 75.7%, GC 76.5%, High 77.2%, HPLC 77.5%, Lab 73.5%, Laboratory  
74.2%, Medical 78.4%, Organic 77.4%, Performance 75.1%, Pharmaceutical 79.8%, Physics 77.6%,  
QA 79.0%, Quality 76.4%, Regulatory 83.8%, Validation 86.2%

Primary Keyword: GC

Related Keywords: Chemical 76.7%, Chemist 78.3%, Development 76.5%, HPLC 76.1%, Organic  
77.4%, Pharmaceutical 79.2%, Quality 78.7%

Primary Keyword: High

Related Keywords: Chemical 75.2%, Chemist 79.6%, Development 77.2%, Organic 78.3%,  
Performance 75.3%, Physics 78%, Quality 75.2%

Primary Keyword: HPLC

Related Keywords: Chemistry 78.3%, Environmental 80.1%, Lab 78.8%, Pharmaceutical 79.5%,  
Regulatory 83.2%, Validation 82.6%

Primary Keyword: Medical

Related Keywords: Cell 79.7%, Chemistry 76.7%, Clinical 77.6%, Development 78.4%, HPLC  
80.2%, Laboratory 75.8%, Performance 77.8%, Pharmaceutical 81.5%, Quality 78.4%, Regulatory  
87.1%, Research 75.1%

Primary Keyword: Organic

Related Keywords: Chemical 76.7%, Development 77.4%, GC 77.4%, High 78.3%, HPLC 78.2%,  
Performance 82.3%, Pharmaceutical 80.7%, Quality 80.9%

Primary Keyword: Performance

Related Keywords: Chemist 80.5%, HPLC 78.6%, Laboratory 76.4%, Organic 82.3%

Primary Keyword: Pharmaceutical

Related Keywords: Cell 77.9%, Chemistry 76.7%, Clinical 80.9%, Development 79.8%,  
Environmental 79.2%, GC 79.2%, HPLC 79.5%, Laboratory 76.1%, Medical 81.5%, Organic 80.7%,  
Performance 79.4%, Quality 82.0%, Regulatory 82.2%, Validation 83.9%

Primary Keyword: Quality

Related Keywords: Cell 79.9%, Chemical 73.6%, Chemist 74.6%, Chemistry 76.3%, Clinical 82.2%,  
Development 76.4%, GC 78.7%, High 75.2%, HPLC 78.7%, Laboratory 72.9%, Medical 78.4%,  
Organic 80.9%, Pharmaceutical 82.0%, Physics 78.4%, QA 77.3%, Regulatory 79.8%, Research  
73.2%, Validation 85.8%

Primary Keyword: Regulatory

Related Keywords: Development 83.8%, Medical 87.1%

## Community and Social Services

### SOC Major Occupational Group 21

#### Detailed Occupations and Education Level

*Social and Human Service Assistants* (21-1093) was the only detailed occupations with at least 3.0% of the group's nonbatch job orders in 2004 where most orders did not require education past high school. Many of those required a driver's license as they transported clients as part of their duties.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Community and Social Services* – Major Occupational Group 21

Code	Title	#	%
21-1021	Child, Family, and School Social Workers	1,526	16.2
21-1093	Social and Human Service Assistants	1,347	14.3
21-1012	Educational, Vocational, and School Counselors	1,173	12.5
21-1029	Social Workers, All Other	1,023	10.9
21-1099	Community and Social Service Specialists, All Other	740	7.9
21-1023	Mental Health and Substance Abuse Social Workers	670	7.1
21-1019	Counselors, All Other	648	6.9
21-1022	Medical and Public Health Social Workers	553	5.9
21-1011	Substance Abuse and Behavioral Disorder Counselors	430	4.6
21-1014	Mental Health Counselors	367	3.9
21-1091	Health Educators	290	3.1
Total of occupations with less than 3.0% of group's job orders		634	6.7
Total Nonbatch Job Orders		9,401	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			77.1

Table 2 – Percent of Resumes by Education Level in 2004  
For *Community and Social Services*  
Major Occupational Group 21

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	1.7	34.2
High School Diploma or GED	11.1	42.7
Some College or Vocational	31.0	51.4
Bachelors Degree	41.5	53.3
Graduate Degree	14.7	59.4



Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Community and Social Services* – Major Occupational Group 21

Code	Title	Some College Degree	College or Voc	Other
21-1021	Child, Family, and School Social Workers	56.8	12.0	31.2
21-1093	Social and Human Service Assistants	18.5	15.5	65.9
21-1012	Educational, Vocational, and School Counselors	59.7	12.2	28.1
21-1029	Social Workers, All Other	65.0	11.0	23.9
21-1099	Community and Social Service Specialists, All Other	47.5	17.3	35.2
21-1023	Mental Health and Substance Abuse Social Workers	70.1	12.9	17.0
21-1019	Counselors, All Other	52.8	13.3	33.9
21-1022	Medical and Public Health Social Workers	77.1	10.6	12.3
21-1011	Substance Abuse and Behavioral Disorder Counselors	57.8	19.9	22.4
21-1014	Mental Health Counselors	73.7	9.4	16.9
21-1091	Health Educators	50.8	27.8	21.3

### Keywords

The ratio of job orders to resumes for *Community and Social Services* was the lowest of all major occupational groups. Except for the keyword *Career*, subsets of orders and resumes containing primary keywords were had higher ratios than the group's average, and most were over twice as high. The ratio for the keyword *Career* may be an anomaly as it is more common for resumes to discuss career goals, in the objectives section, than for career to be discussed in a job order. Resumes containing *Career* were more likely to specify a college degree, and less likely to specify no education beyond high school than the average for the entire major occupational group. It is likely that employers chose to review resumes containing *Career* not because they of the keyword, but because they were searching for applicants with more education.

*Non* was another unusual keyword. Over 41 percent of the job orders that contained *Non* also contained the word "profit". Additionally, *Non* was part of a wide variety of compound words including: non-judgmental, non-benefit, and non-smoker.

Employers may search for potential workers either by reviewing resumes or by placing job orders. When searching for the applicants with the skills and backgrounds related to primary keywords for this occupational group, it was clear that employers would sometimes predominately favor either job orders or resume searches. For example, *Coach* was the primary keyword with the highest percentage of viewed resumes in the group, yet it had one of the lowest ratios of orders to resumes. Conversely, the keywords *Residential* and *Home* had relatively high ratios of orders to resumes, but more modest percentages of viewed resumes.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Community and Social Services* – Major Occupational Group 21

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/ Resumes
Abuse	1,092	55.0	1,148	1.05
Career	1,885	58.5	523	0.28
Case	1,947	54.8	2,215	1.14
Clinical	592	61.4	1,446	2.44
Coach	116	<b>63.0</b>	80	0.69
Community	2,795	54.1	3,217	1.15
Fundraising	132	61.7	64	0.48
Health	2,224	55.6	3,251	1.46
Home	914	53.9	1,383	1.51
Job	2,744	54.3	4,148	1.51
Licensed	526	62.1	775	1.47
Non	522	56.4	677	1.30
Residential	415	54.6	1,144	<b>2.76</b>
Risk	417	58.4	571	1.37
Substance	798	55.3	809	1.01
Major Group Total	19,629	52.1	12,196	0.62

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Community and Social Services* – Major Occupational Group 21

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
Abuse	21-1011	Substance Abuse and Behavioral Disorder	960	173	18.0
		Counselors			
Career	21-1012	Educational, Vocational, and School	378	154	40.6
		Counselors			
Case	21-1021	Child, Family, and School Social Workers	1,777	377	21.2
Clinical	21-1022	Medical and Public Health Social Workers	808	139	17.1
		Educational, Vocational, and School			
Coach	21-1012	Counselors	68	17	24.2
Community	21-1093	Social and Human Service Assistants	2,607	452	17.3
		Community and Social Service Specialists,			
Fundraising	21-1099	All Other	55	17	30.1
		Mental Health and Substance Abuse Social			
Health	21-1023	Workers	2,190	287	13.1
Home	21-1021	Child, Family, and School Social Workers	1,138	281	24.7
Job	21-1021	Child, Family, and School Social Workers	2,968	512	17.2
		Mental Health and Substance Abuse Social			
Licensed	21-1023	Workers	502	85	16.8
Non	21-1093	Social and Human Service Assistants	531	76	14.4
Residential	21-1093	Social and Human Service Assistants	725	158	21.7
Risk	21-1021	Child, Family, and School Social Workers	483	119	24.6
		Mental Health and Substance Abuse Social			
Substance	21-1023	Workers	660	158	23.9

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: Abuse

Related Keywords: Case 58.4%, Clinical 60.4%, Drug 58.8%, Health 60.6%, Licensed 66%, Mental 59.9%, Residential 64.3%, Risk 60.8%, Services 58.0%

Primary Keyword: Career

Related Keywords: Clinical 68.7%, Home 66.8%, Job 61.5%

Primary Keyword: Case

Related Keywords: Abuse 58.4%, Care 60.3%, Career 58.0%, Clinical 66.8%, Community 57.8%, Health 59.1%, Home 59.8%, Licensed 63.8%, Mental 57.7%, Residential 64.3%, Risk 60.0%, Substance 57.9%

Primary Keyword: Clinical

Related Keywords: Career 68.7%, Case 66.8%

Primary Keyword: Community

Related Keywords: Abuse 57.7%, Career 58.4%, Case 57.8%, Clinical 63.2%, Health 58%, Licensed 62.8%, Residential 58.9%, Substance 57.5%

Primary Keyword: Health

Related Keywords: Abuse 60.6%, Alcohol 62.3%, Career 60.4%, Case 59.1%, Clinical 61.6%, Community 58%, Licensed 64.2%, Non 61.8%, Psychology 59.3%, Residential 60.4%, Services 57.9%, Substance 60.9%

Primary Keyword: Home

Related Keywords: Career 66.8%, Case 59.8%, Clinical 65%, Non 60.8%, Psychology 65.6%, Risk 67.1%, Substance 61.9%

Primary Keyword: Job

Related Keywords: Career 61.5%, Case 57.4%, Clinical 67.0%, Coach 60.7%, Licensed 64.5%, Residential 61.8%, Risk 62.4%, Services 57.7%, Substance 60.1%

Primary Keyword: Non

Related Keywords: Care 61.9%, Career 63.6%, Health 61.8%

Primary Keyword: Residential

Related Keywords: Abuse 64.3%, Case 64.3%, Clinical 65.5%, Health 60.4%, Job 61.8%, Mental 59.4%, Risk 63.2%, Services 60.3%, Social 58.8%, Substance 63.7%, Worker 61.0%

Primary Keyword: Risk

Related Keywords: Home 67.1%

Primary Keyword: Substance

Related Keywords: Care 60.4%, Clinical 63.9%, Health 60.9%, Home 61.9%, Job 60.1%, Licensed 63.4%, Mental 60.8%, Residential 63.7%, Services 58.8%, Social 58.2%

## Legal

### SOC Major Occupational Group 23

#### Detailed Occupations and Education Level

Lawyers (23-1011), and *Paralegals and Legal Assistants* (23-2011) each had nearly one-third of the nonbatch job orders for this group in 2004.

The percentage of resumes viewed by employers was slightly higher applicants with a bachelor's degree, than for applicants with an advanced degree.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Legal* – Major Occupational Group 23

Code	Title	#	%
23-1011	Lawyers	659	32.8
23-2011	Paralegals and Legal Assistants	647	32.1
23-2099	Legal Support Workers, All Other	390	19.4
23-2091	Court Reporters	109	5.4
23-2093	Title Examiners, Abstractors, and Searchers	79	4.0
Total of occupations with less than 3.0% of group's job orders		129	6.3
Total Nonbatch Job Orders		2,013	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			25.4

Table 2 – Percent of Resumes by Education Level in 2004  
For *Legal*  
Major Occupational Group 23

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	0.9	42.5
High School Diploma or GED	9.2	53.9
Some College or Vocational	39.6	61.1
Bachelors Degree	31.7	64.6
Graduate Degree	18.6	61.3

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Legal* – Major Occupational Group 23

Code	Title	College Degree	Some College or Voc	Other
23-1011	Lawyers	75.7	4.5	19.7
23-2011	Paralegals and Legal Assistants	29.7	34.1	36.1
23-2099	Legal Support Workers, All Other	30.6	23.8	45.6
23-2091	Court Reporters	1.5	31.9	66.6
23-2093	Title Examiners, Abstractors, and Searchers	6.4	12.9	80.7

### Keywords

Table 5 shows that all of the primary keywords were most commonly found on the nonbatch job orders coded to one of two detailed occupations, either *Lawyers* (23-1011) or *Paralegals and Legal Assistants* (23-2011). Keywords most commonly associated with *Lawyers* included: *Contracts*, *Intellectual* (normally as part of intellectual property), *Law*, *Legal*, and *Litigation*. *Paralegals and Legal Assistants* was the occupation most commonly associated with: *Administrative*, *Assistant*, *Estate* (often as part of real estate), *Paralegal*, *Real*, *Secretary*, and *Support*.

The number of job orders containing the primary keyword *Intellectual* only accounted for 5.4% of the occupational group's total orders. However, there was still a relative shortage as only 1.5% of the group's resumes contained the term. Furthermore the primary/related keyword combination with the highest percentage of resumes viewed by employers (75.4%) was *Intellectual* and *Contract*.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Legal* – Major Occupational Group 23

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/Resumes
Administrative	853	64.4	804	0.94
Assistant	976	64.8	752	0.77
Contracts	323	<b>67.5</b>	834	2.58
Estate	620	66.0	813	1.31
Intellectual	109	67.4	428	<b>3.93</b>
Law	2,036	62.9	3,792	1.86
Legal	3,393	63.6	3,840	1.13
Litigation	638	65.4	2,100	3.29
Paralegal	1,717	65.7	1,877	1.09
Real	613	66.1	776	1.27
Secretary	347	67.0	657	1.89
Support	489	66.0	1,911	3.91
Major Group Total	7,344	61.4	7,916	1.08

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Legal* – Major Occupational Group 23

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
Administrative Assistant	23-2011	Paralegals and Legal Assistants	222	80	36.0
Contracts	23-1011	Lawyers	223	98	43.9
Estate	23-2011	Paralegals and Legal Assistants	174	81	46.6
Intellectual	23-1011	Lawyers	102	63	61.9
Law	23-1011	Lawyers	840	416	49.5
Legal	23-1011	Lawyers	991	384	38.8
Litigation	23-1011	Lawyers	402	184	45.7
Paralegal	23-2011	Paralegals and Legal Assistants	409	349	85.2
Real	23-2011	Paralegals and Legal Assistants	172	76	44.2
Secretary	23-2011	Paralegals and Legal Assistants	65	32	48.8
Support	23-2011	Paralegals and Legal Assistants	422	152	36.0

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: Administrative

Related Keywords: Litigation 69.0%, Paralegal 68.6%, Secretary 70.5%

Primary Keyword: Assistant

Related Keywords: Litigation 68.7%, Paralegal 67.4%

Primary Keyword: Contracts

Related Keywords: Intellectual 75.4%

Primary Keyword: Estate

Related Keywords: Title 71.5%

Primary Keyword: Intellectual

Related Keywords: Contracts 75.4%

Primary Keyword: Law

Related Keywords: Contracts 70.6%, Intellectual 68.7%, Legal 64.6%, Litigation 66.0%, Paralegal 66.5%, Title 69.4%

Primary Keyword: Legal

Related Keywords: Assistant 65.2%, Contracts 66.6%, Estate 66.3%, Litigation 67.0%, Paralegal 67.1%, Real 65.9%, Secretary 68.6%, Support 66.7%

Primary Keyword: Litigation  
Related Keywords: Paralegal 68.3%

Primary Keyword: Paralegal  
Related Keywords: Administrative 68.6%, Real 69.0%, Secretary 70.6%

Primary Keyword: Real  
Related Keywords: Title 71.3%



## Education, Training, and Library

### SOC Major Occupational Group 25

#### Detailed Occupations and Education Level

Earlier reports indicated an apparent seasonal pattern for recruitment for the *Education, Training, and Library* major occupational group. Recruitment of teachers peaks in the spring, followed by hiring of support staff in the summer.

Table 3 shows that there were substantial differences in educational requirements on nonbatch job orders for detailed occupations in this group in 2004.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Education, Training, and Library* – Major Occupational Group 25

Code	Title	#	%
25-9041	Teacher Assistants	1,515	13.7
25-2011	Preschool Teachers, Except Special Education	1,217	11.0
25-3099	Teachers and Instructors, All Other	1,159	10.5
25-2021	Elementary School Teachers, Except Special Education	824	7.4
25-9031	Instructional Coordinators	570	5.1
25-3021	Self-Enrichment Education Teachers	561	5.1
25-1199	Postsecondary Teachers, All Other	548	4.9
25-9099	Education, Training, and Library Workers, All Other	472	4.3
25-4021	Librarians	349	3.1
25-2031	Secondary School Teachers, Except Special and Vocational Education	335	3.0
Total of occupations with less than 3.0% of group's job orders		3,537	31.9
Total Nonbatch Job Orders		11,087	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			70.3

Table 2 – Percent of Resumes by Education Level in 2004  
For *Education, Training, and Library*  
Major Occupational Group 25

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	2.8	29.2
High School Diploma or GED	14.5	35.7
Some College or Vocational	26.8	49.4
Bachelors Degree	37.5	53.0
Graduate Degree	18.4	55.4

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Education, Training, and Library* – Major Occupational Group 25

Code	Title	Degree	Some College or Voc	Other
25-9041	Teacher Assistants	2.8	29.4	67.7
25-2011	Preschool Teachers, Except Special Education	18.0	43.5	38.5
25-3099	Teachers and Instructors, All Other	51.1	21.7	27.2
25-2021	Elementary School Teachers, Except Special Education	77.5	12.0	10.5
25-9031	Instructional Coordinators	59.4	20.1	20.6
25-3021	Self-Enrichment Education Teachers	56.6	26.4	17.1
25-1199	Postsecondary Teachers, All Other	91.8	5.2	3.0
25-9099	Education, Training, and Library Workers, All Other	41.3	20.2	38.5
25-4021	Librarians	76.7	7.8	15.6
25-2031	Secondary School Teachers, Except Special and Vocational Education	89.0	7.0	4.0

### Keywords

Overall, this group's ratio of orders to resumes of 0.77 was the third lowest of all major occupational groups in 2004. However, the ratio for orders and resumes containing the primary keyword *Part* was 4.20. About 78 percent of those job orders also contained the word “time” indicating a strong relative demand for part-time workers.

*High* was another primary key word with a high ratio of job orders to resumes (2.61) relative to the rest of the occupational group. Over 80 percent of the job orders containing the keyword *High* also had the keyword *School*.

*Marketing* was the primary keyword with the highest percentage of resumes viewed by employers (63.6%) in the occupational group in 2004. A review of job orders shed some light on why. Many of the job orders coded to *Education, Training, and Library* were from companies' books, services or products to schools. When the job orders were from schools, they were often looking for someone who could market a social program (like suicide prevention) or educational program to school boards or the public.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Education, Training, and Library* – Major Occupational Group 25

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/Resumes
Customer	2,955	55.4	848	0.29
Education	4,242	53.5	5,838	1.38
High	1,127	58.0	2,946	2.61
Instructor	1,470	59.3	1,371	0.93
Job	2,576	52.5	5,718	2.22
Marketing	705	<b>63.6</b>	403	0.57
Math	559	51.3	700	1.25
Part	607	58.0	2,551	<b>4.20</b>
Sales	1,553	59.7	415	0.27
Special	1,063	51.5	1,892	1.78
Training	3,972	60.8	3,329	0.84
Youth	340	54.1	397	1.17
Major Group Total	20,560	49.3	15,768	0.77

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Education, Training, and Library* – Major Occupational Group 25

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
		Education, Training, and Library Workers, All Other			
Customer	25-9099	All Other	287	56	19.5
Education	25-9041	Teacher Assistants	3,792	495	13.1
High	25-9041	Teacher Assistants	1,812	392	21.6
Instructor	25-3099	Teachers and Instructors, All Other	951	189	19.8
Job	25-9041	Teacher Assistants	3,312	382	11.5
		Education, Training, and Library Workers, All Other			
Marketing	25-9099	All Other	201	32	16.0
Math	25-9041	Teacher Assistants	525	91	17.3
Part	25-3099	Teachers and Instructors, All Other	1,670	202	12.1
Sales	25-3099	Teachers and Instructors, All Other	121	44	36.5
Special	25-9041	Teacher Assistants	1,236	247	20.0
Training	25-3099	Teachers and Instructors, All Other	1,917	302	15.7
Youth	25-3099	Teachers and Instructors, All Other	334	66	19.8

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: Customer

Related Keywords: Education 61.0%, High 65.4%, Instructor 63.7%, Job 60.5%, Marketing 67.8%, Part 63.1%, Sales 59.5%, Special 60.4%, Training 65.7%

Primary Keyword: Education

Related Keywords: Customer 61.0%, High 61%, Instructor 59.4%, Job 56.7%, Marketing 67.3%, Part 60.0%, Sales 63.9%, Training 61.4%

Primary Keyword: High

Related Keywords: Customer 65.4%, Education 61%, Instructor 64.1%, Marketing 71.1%, Sales 68.6%, Special 63.6%, Training 66.4%

Primary Keyword: Instructor

Related Keywords: Customer 63.7%, High 64.1%, Marketing 70.2%, Sales 65.9%, School 62.7%, Special 69.1%, Training 64.9%

Primary Keyword: Job

Related Keywords: Customer 60.5%, Education 56.7%, High 57.2%, Instructor 60.3%, Marketing 72.1%, Part 57.4%, Sales 62.9%, Training 60.9%

Primary Keyword: Marketing

Related Keywords: Customer 67.8%, Education 67.3%, High 71.1%, Instructor 70.2%, Job 72.1%, Part 76%, Sales 67.9%, School 71.3%, Training 67.4%

Primary Keyword: Math

Related Keywords: High 58.3%, Training 61.3%

Primary Keyword: Part

Related Keywords: Customer 63.1%, Instructor 64.1%, Marketing 76%, Sales 66.4%, Training 65.1%

Primary Keyword: Sales

Related Keywords: Education 63.9%, High 68.6%, Instructor 65.9%, Job 62.9%, Marketing 67.9%, Part 66.4%, Training 68.6%

Primary Keyword: Special

Related Keywords: Child 57.0%, Customer 60.4%, Early 59.4%, High 63.6%, Instructor 69.1%, Marketing 67.7%, Part 59.6%, Sales 60.2%, Training 60.9%

Primary Keyword: Training

Related Keywords: Customer 65.7%, High 66.4%, Instructor 64.9%, Marketing 67.4%, Part 65.1%, Sales 68.6%

## Arts, Design, Entertainment, Sports, & Media

### SOC Major Occupational Group 27

#### Detailed Occupations and Education Level

*Merchandise Displayers and Window Trimmers (27-1026)* had the most nonbatch job orders of any detailed occupation in the group in 2004. However, orders for that occupation fell every quarter in 2004, and the fourth quarter job order level was only about half of the first quarter's level.

Educational requirements for this occupation were very low, and the job descriptions indicated that many were setting up store displays for specific brand name merchandise.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Arts, Design, Entertainment, Sports, and Media* – Major Occupational Group 27

Code	Title	#	%
27-1026	Merchandise Displayers and Window Trimmers	927	11.8
27-1024	Graphic Designers	748	9.6
27-3031	Public Relations Specialists	714	9.1
27-2012	Producers and Directors	624	8.0
27-3042	Technical Writers	510	6.5
27-3041	Editors	450	5.7
27-1029	Designers, All Other	350	4.5
27-2022	Coaches and Scouts	330	4.2
27-4021	Photographers	304	3.9
27-3099	Media and Communication Workers, All Other	242	3.1
27-1019	Artists and Related Workers, All Other	239	3.1
27-3091	Interpreters and Translators	237	3.0
Total of occupations with less than 3.0% of group's job orders		2,161	27.5
Total Nonbatch Job Orders		7,836	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			37.2

Table 2 – Percent of Resumes by Education Level in 2004  
For *Arts, Design, Entertainment, Sports, and Media*  
Major Occupational Group 27

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	1.9	34.8
High School Diploma or GED	11.4	42.2
Some College or Vocational	36.0	52.2
Bachelors Degree	43.6	52.9
Graduate Degree	7.1	51.3

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For Arts, Design, Entertainment, Sports, and Media – Major Occupational Group 27

Code	Title	Some		
		College Degree	College or Voc	Other
27-1026	Merchandise Displayers and Window Trimmers	1.6	1.6	96.7
27-1024	Graphic Designers	29.6	31.1	39.3
27-3031	Public Relations Specialists	64.9	12.5	22.6
27-2012	Producers and Directors	59.1	14.3	26.6
27-3042	Technical Writers	56.7	20.5	22.8
27-3041	Editors	59.6	10.7	29.7
27-1029	Designers, All Other	39.2	24.8	36.0
27-2022	Coaches and Scouts	47.2	15.1	37.7
27-4021	Photographers	8.1	9.8	82.1
27-3099	Media and Communication Workers, All Other	41.9	15.7	42.4
27-1019	Artists and Related Workers, All Other	52.8	19.0	28.2
27-3091	Interpreters and Translators	12.3	26.2	61.5

### Keywords

A single large batch account placed over 11,000 job orders coded to *Arts, Design, Entertainment, Sports, and Media* in the second quarter 2004. Unfortunately, most of those job orders should have been coded to other occupational groups with the bulk to *Installation, Maintenance, and Repair* (49) as they were for the installation and maintenance of heating and air conditioning units.

Since that coding problem was from a batch account, it did not show up in the tables based upon nonbatch job orders (tables 1, 3, and 5). Similarly it did not affect the percentage of resumes viewed by employers.

What it did impact was the ratio of orders to resumes in Table 4. Without the job orders from that account in the second quarter of 2004, the ratio of job orders to resumes would have fallen from 4.78 to 3.25 for the keyword *Account*, and from 1.55 to 1.35 for *Sales*. No other keywords would have their orders to resumes ratios affected by more than 0.02.

*Merchandise Displayers and Window Trimmers* (27-1026) was the occupation most often found on nonbatch job orders for the following keywords: *Account*, *Part* (usually with the phrase part time), and *Placement*. Table 3 earlier showed that this occupation rarely required any education beyond high school.

Occupations in the *Arts, Design, Entertainment, Sports, and Media* group are often linked with marketing and the Internet. Three keywords (*Marketing*, *Sales*, and *Web*) were each related keywords to 11 of 14 other primary keywords. Meaning that resumes containing both the primary and related keywords were more likely to be viewed by employers, by a statistically significant proportion, than were all resumes containing the primary keyword.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004

For *Arts, Design, Entertainment, Sports, & Media* – Major Occupational Group 27

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/Resumes
Account	323	61.8	1,545	<b>4.78</b>
Commerce	145	<b>67.0</b>	206	1.42
Digital	1,698	57.5	680	0.40
Education	1,553	59.8	2,158	1.39
Graphics	1,797	57.1	1,104	0.61
Interior	393	57.4	195	0.50
Marketing	2,925	59.4	3,367	1.15
Off	168	57.9	493	2.93
Part	763	56.9	2,393	3.14
Placement	141	56.8	465	3.30
Relations	2,056	56.8	1,071	0.52
Sales	2,473	60.3	3,825	1.55
Screen	220	57.5	347	1.58
Special	632	57.4	1,085	1.72
Web	3,242	58.8	2,527	0.78
Major Group Total	23,251	51.0	21,079	0.91

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For Arts, Design, Entertainment, Sports, and Media – Major Occupational Group 27

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
		Merchandise Displayers and Window			
Account	27-1026	Trimmers	221	118	53.4
Commerce	27-3031	Public Relations Specialists	26	5	19.6
Digital	27-1024	Graphic Designers	308	70	22.8
Education	27-3031	Public Relations Specialists	864	129	14.9
Graphics	27-1024	Graphic Designers	506	234	46.1
Interior	27-1025	Interior Designers	116	78	66.9
Marketing	27-3031	Public Relations Specialists	1,148	376	32.7
		Media and Communication Workers, All			
Off	27-3099	Other	174	23	13.1
		Merchandise Displayers and Window			
Part	27-1026	Trimmers	1,041	312	30.0
		Merchandise Displayers and Window			
Placement	27-1026	Trimmers	93	32	34.7
Relations	27-3031	Public Relations Specialists	424	240	56.5
Sales	27-3031	Public Relations Specialists	915	201	22.0
Screen	27-1024	Graphic Designers	198	35	17.6
Special	27-3031	Public Relations Specialists	456	89	19.4
Web	27-1024	Graphic Designers	640	151	23.7

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: Account

Related Keywords: Designer 69.5%, Digital 76.4%, Education 69.9%, Marketing 68.4%, Sales 69.4%, Web 68.6%

Primary Keyword: Commerce

Related Keywords: Sales 74.8%

Primary Keyword: Digital

Related Keywords: Account 76.4%, Design 59.3%, Designer 60.1%, Education 63.4%, Marketing 63.2%, Part 67.0%, Relations 63.8%, Sales 68.3%, School 62.8%, Web 61.9%

Primary Keyword: Education

Related Keywords: Account 69.9%, Assistant 64.1%, Design 64.7%, Designer 66.4%, Digital 63.4%, Graphics 67.8%, Marketing 66.1%, Sales 68.0%, School 63.0%, Video 65.1%, Web 66.5%



Primary Keyword: Graphics

Related Keywords: Assistant 62.3%, Design 58.7%, Designer 60.2%, Digital 59.6%, Education 67.8%, Marketing 61.7%, Off 69.7%, Sales 62.8%, School 62.9%, Screen 66.7%, Video 60.4%, Web 62.0%

Primary Keyword: Interior

Related Keywords: Designer 63.8%, Marketing 66.3%, Sales 62%

Primary Keyword: Marketing

Related Keywords: Account 68.4%, Commerce 70.6%, Digital 63.2%, Education 66.1%, Interior 66.3%, Sales 63.3%, School 63.7%, Screen 66.9%, Special 63.3%, Web 63.5%

Primary Keyword: Off

Related Keywords: Design 66.3%, Graphic 71.1%, Graphics 69.7%, Sales 68.9%, Video 68.2%, Web 70.1%

Primary Keyword: Part

Related Keywords: Design 61.1%, Digital 67%, Editor 64.9%, Education 63.9%, Graphic 61.3%, Marketing 61.9%, School 62.1%, Video 65%, Web 61.5%

Primary Keyword: Relations

Related Keywords: Copy 60.9%, Design 59.5%, Digital 63.8%, Education 61.2%, Marketing 59.0%, Sales 61.8%, School 64.8%, Web 61.6%

Primary Keyword: Sales

Related Keywords: Account 69.4%, Commerce 74.8%, Designer 65.5%, Digital 68.3%, Education 68%, Marketing 63.3%, Media 62.6%, Off 68.9%, School 64.9%, Set 65.3%, Special 64.3%, Video 65.7%, Web 67.0%

Primary Keyword: Screen

Related Keywords: Graphics 66.7%, Marketing 66.9%, Web 64%

Primary Keyword: Special

Related Keywords: Assistant 64.1%, Design 62.4%, Designer 64.8%, Marketing 63.3%, Media 60.8%, Sales 64.3%, Web 63.7%

Primary Keyword: Web

Related Keywords: Account 68.6%, Care 66.3%, Commerce 65.6%, Digital 61.9%, Editor 62.3%, Education 66.5%, Graphics 62.0%, Marketing 63.5%, Media 60.8%, Off 70.1%, Relations 61.6%, Sales 67.0%, Screen 64.0%, Special 63.7%, Video 63.1%

## Healthcare Practitioners and Technical

### SOC Major Occupational Group 29

#### Detailed Occupations and Education Level

Characteristics, such as detailed occupational coding and educational requirements are not available from batch job orders. Unfortunately, nonbatch job orders only comprised 6.8% of total job orders for the *Healthcare Practitioners and Technical* occupational group. Database queries of job titles showed that nursing occupations made up a smaller percentage of batch job orders.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Healthcare Practitioners and Technical* – Major Occupational Group 29

Code	Title	#	%
29-1111	Registered Nurses	11,847	40.0
29-2061	Licensed Practical and Licensed Vocational Nurses	4,009	13.5
29-1123	Physical Therapists	1,272	4.3
29-2012	Medical and Clinical Laboratory Technicians	1,146	3.9
29-2034	Radiologic Technologists and Technicians	1,034	3.5
Total of occupations with less than 3.0% of group's job orders		10,281	34.7
Total Nonbatch Job Orders		29,589	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			6.8

Table 2 – Percent of Resumes by Education Level in 2004  
For *Healthcare Practitioners and Technical*  
Major Occupational Group 29

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	3.9	50.9
High School Diploma or GED	21.1	55.0
Some College or Vocational	49.4	68.9
Bachelors Degree	18.1	75.2
Graduate Degree	7.5	79.4

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Healthcare Practitioners and Technical* – Major Occupational Group 29

Code	Title	College Degree	Some College or Voc	Other
29-1111	Registered Nurses	25.9	68.5	5.6
29-2061	Licensed Practical and Licensed Vocational Nurses	4.4	71.1	24.4
29-1123	Physical Therapists	64.9	30.0	5.1
29-2012	Medical and Clinical Laboratory Technicians	24.4	26.9	48.6
29-2034	Radiologic Technologists and Technicians	9.8	72.9	17.3

### Keywords

The ratio of job orders to resumes is exceptionally high for the *Healthcare Practitioners and Technical* major occupational group. In fact, the group's average of 36.57 in 2004 was more than 12 times higher than the next highest group. Over 40 percent of the group's job orders for 2004 came in the third quarter with one account increasing their orders by more than 382 thousand over the second quarter.

Ratios of orders to resumes containing primary keywords were generally much higher. Six primary keywords had ratios exceeding 100.00, led by *Therapist* at 233.84. Though, the ratio of job orders to resumes containing the keyword *RN* was next highest at 177.15, that ratio was understated since one large batch account coded most of their orders to *Healthcare Support* (31).

Only two occupational groups had a percentage of resumes viewed by employers higher than the *Healthcare Practitioners and Technical* group's 67.2%. Keywords were often associated with much higher percentages of viewed resumes. Seven primary keywords exceeded 80 percent viewed resumes, and six primary/related keyword combinations had percentages over 90 percent.

An example of the importance of keyword combinations is shown by the words *Physical* and *Therapist*. Employers viewed 91.4% of the subset of resumes containing both terms, considerably higher than either the 81.8 % for all resumes containing *Therapists* or the 78.5% for *Physical*.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Healthcare Practitioners and Technical* – Major Occupational Group 29

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/Resumes
Licensed	742	78.2	48,332	65.14
LPN	572	79.1	11,865	20.74
Nurse	1,432	83.2	73,634	51.42
Nursing	1,633	78.7	114,440	70.08
Occupational Pharmacist	278	79.0	38,904	139.94
Physical	115	81.9	9,637	83.80
Physician	478	78.5	64,564	135.07
Radiology	371	75.2	30,506	82.23
Registered Respiratory RN	121	80.3	10,340	85.45
Speech Therapist	971	85.0	63,087	64.97
Therapy	190	78.2	7,278	38.31
Major Group Total	453	<b>89.6</b>	80,247	177.15
	138	75.6	22,349	161.95
	279	81.8	65,242	<b>233.84</b>
	531	81.3	71,665	134.96
Major Group Total	11,938	67.2	436,569	36.57

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Healthcare Practitioners and Technical* – Major Occupational Group 29

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
Licensed	29-1111	Registered Nurses Licensed Practical and Licensed Vocational	3,697	1,351	36.5
LPN	29-2061	Nurses	1,387	1,010	72.8
Nurse	29-1111	Registered Nurses	7,714	5,904	76.5
Nursing	29-1111	Registered Nurses	9,604	6,865	71.5
Occupational Pharmacist	29-1122	Occupational Therapists	868	469	54.0
Physical	29-1051	Pharmacists	786	543	69.1
Physician	29-1111	Registered Nurses	3,056	855	28.0
Radiology	29-1111	Registered Nurses	1,867	658	35.2
Registered Respiratory RN	29-2034	Radiologic Technologists and Technicians	885	533	60.2
Speech Therapist	29-1111	Registered Nurses	5,772	3,954	68.5
Therapy	29-1126	Respiratory Therapists	789	501	63.4
	29-1111	Registered Nurses	7,754	6,889	88.8
	29-1127	Speech-Language Pathologists	479	375	78.3
	29-1123	Physical Therapists	1,801	754	41.9
	29-1123	Physical Therapists	2,388	664	27.8

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: Licensed

Related Keywords: Care 83.4%, Health 81.8%, Home 83.2%, LPN 83.5%, Nurse 83.0%, Nursing 84.3%, Registered 84.3%, RN 88.9%, Therapy 85.2%

Primary Keyword: LPN

Related Keywords: Care 82.4%, Licensed 83.5%, Nurse 82.3%, Nursing 83.1%, RN 86.9%, Therapy 88.1%

Primary Keyword: Nurse

Related Keywords: Care 86.4%, Health 87.6%, Nursing 86.7%, Registered 90.8%, RN 92.4%, Therapy 88.7%

Primary Keyword: Nursing

Related Keywords: Care 82.2%, Health 82.5%, Licensed 84.3%, LPN 83.1%, Nurse 86.7%, Occupational 87.4%, Physical 84.3%, Physician 84.4%, Registered 90.7%, RN 89.7%, Therapy 88.3%

Primary Keyword: Occupational

Related Keywords: Nurse 86.0%, Nursing 87.4%, Registered 86.6%, Therapist 89.7%

Primary Keyword: Physical

Related Keywords: Home 89.7%, Nurse 87.1%, Nursing 84.3%, Registered 86.7%, Therapist 91.4%, Therapy 85.6%

Primary Keyword: Physician

Related Keywords: Licensed 83.0%, Nurse 84.3%, Nursing 84.4%, Registered 86.3%, Therapy 82.5%

Primary Keyword: Registered

Related Keywords: Care 87.8%, Health 87.4%, Home 89.3%, Nurse 90.8%, Nursing 90.7%, RN 94.2%

Primary Keyword: Respiratory

Related Keywords: Home 89.0%

Primary Keyword: RN

Related Keywords: Nurse 92.4%, Registered 94.2%

Primary Keyword: Speech

Related Keywords: Language 86.4%

Primary Keyword: Therapist

Related Keywords: Care 86.0%, Home 90.6%, Occupational 89.7%, Physical 91.4%

Primary Keyword: Therapy

Related Keywords: Care 85.4%, Home 89.1%, Licensed 85.2%, LPN 88.1%, Nurse 88.7%, Nursing 88.3%, Physical 85.6%

## Healthcare Support

### SOC Major Occupational Group 31

#### Detailed Occupations and Education Level

Few nonbatch job orders required a college degree for this major occupational group. Most orders that did specify a college degree were for the detailed residual occupation *Healthcare Support Workers, All Other* (31-9099). About half of those job orders had the word “*Phlebotomist*” in their job title. A phlebotomist collects blood from patients for analysis by a medical laboratory. Even for phlebotomists, only about one-quarter of the job orders required a college degree.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Healthcare Support* – Major Occupational Group 31

Code	Title	#	%
31-1012	Nursing Aides, Orderlies, and Attendants	4,644	35.3
31-1011	Home Health Aides	2,207	16.8
31-9099	Healthcare Support Workers, All Other	2,118	16.1
31-9092	Medical Assistants	2,044	15.5
31-9091	Dental Assistants	522	4.0
31-1013	Psychiatric Aides	461	3.5
Total of occupations with less than 3.0% of group's job orders		1,155	8.8
Total Nonbatch Job Orders		13,151	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			20.2

Table 2 – Percent of Resumes by Education Level in 2004  
For *Healthcare Support*  
Major Occupational Group 31

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	13.0	38.2
High School Diploma or GED	37.6	43.9
Some College or Vocational	41.8	55.5
Bachelors Degree	6.4	60.7
Graduate Degree	1.2	62.4

Table 3 – Percent Education Required on Nonbatch Job Orders  
 By Detailed SOC Code in 2004  
 For *Healthcare Support* – Major Occupational Group 31

Code	Title	College Degree	Some College or Voc	Other
31-1012	Nursing Aides, Orderlies, and Attendants	0.7	26.5	72.8
31-1011	Home Health Aides	1.0	11.9	87.1
31-9099	Healthcare Support Workers, All Other	16.1	20.9	63.0
31-9092	Medical Assistants	2.8	49.8	47.4
31-9091	Dental Assistants	1.4	35.4	63.2
31-1013	Psychiatric Aides	4.0	5.1	90.9

### Keywords

The ratio of job orders to resumes containing the primary keyword *RN* (for registered nurse) was an exceptionally high 105.28 in 2004. In this case the ratio is misleading. Resumes, and job orders, for registered nurses should always be coded in the major occupational group *Healthcare Practitioners and Technical* (29). However a few resumes, and job orders, will contain the keyword *RN* when describe reporting to, or otherwise working with, a registered nurse. Over 81 percent of the job orders coded to this occupational group containing the keyword *RN* were from a single batch account.

Table 4 – Average Quarterly Resumes and Job Orders  
 Containing Primary Keywords in 2004  
 For *Healthcare Support* – Major Occupational Group 31

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/Resumes
Care	5,333	51.4	34,017	6.38
Emergency	360	64.9	9,950	27.64
Licensed	230	64.7	4,888	21.25
LPN	200	64.2	3,520	17.60
Manager	864	60.5	2,885	3.34
Medical	6,743	56.1	29,810	4.42
Nurse	1,885	51.1	11,030	5.85
Practical	139	65.2	893	6.42
Registered	335	67.9	8,061	24.06
RN	122	66.0	12,844	<b>105.28</b>
Travel	393	<b>68.7</b>	2,296	5.84
Major Group Total	22,933	49.3	65,203	2.84

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Healthcare Support* – Major Occupational Group 31

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
Care	31-1012	Nursing Aides, Orderlies, and Attendants	5,986	2,722	45.5
Emergency	31-9099	Healthcare Support Workers, All Other	260	84	32.4
Licensed	31-1012	Nursing Aides, Orderlies, and Attendants	565	218	38.6
LPN	31-1012	Nursing Aides, Orderlies, and Attendants	213	100	47.2
Manager	31-9099	Healthcare Support Workers, All Other	359	132	36.6
Medical	31-9092	Medical Assistants	3,520	1,376	39.1
Nurse	31-1012	Nursing Aides, Orderlies, and Attendants	1,321	920	69.6
Practical	31-1012	Nursing Aides, Orderlies, and Attendants	89	49	54.5
Registered	31-1012	Nursing Aides, Orderlies, and Attendants	631	295	46.7
RN	31-1012	Nursing Aides, Orderlies, and Attendants	699	273	39.1
Travel	31-9099	Healthcare Support Workers, All Other	360	95	26.3

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: Care

Related Keywords: CNA 53.2%, Emergency 66.8%, Licensed 64.9%, LPN 74.1%, Manager 61.1%, Medical 59.8%, Nurse 57.0%, Nursing 54.6%, Practical 71.1%, Registered 74.5%, RN 70.2%, Travel 68.1%

Primary Keyword: Emergency

Related Keywords: Health 69.6%, Nurse 72.7%

Primary Keyword: LPN

Related Keywords: Care 74.1%

Primary Keyword: Manager

Related Keywords: Medical 65.4%, Nurse 74.3%

Primary Keyword: Medical

Related Keywords: Care 59.8%, CNA 58.3%, Emergency 65.7%, Health 59.1%, Home 58.6%, Licensed 67.7%, LPN 69.5%, Manager 65.4%, Nurse 60.7%, Nursing 59.4%, Practical 69.8%, Registered 73.5%, RN 72.3%, Travel 71.9%

Primary Keyword: Nurse

Related Keywords: Care 57.0%, CNA 57.2%, Emergency 72.7%, Licensed 64.3%, LPN 68.5%, Manager 74.3%, Medical 60.7%, Nursing 54.6%, Practical 67.7%, Registered 69.6%, Travel 67.3%

Primary Keyword: Registered

Related Keywords: Care 74.5%, Medical 73.5%



**Protective Service**  
SOC Major Occupational Group 33

**Detailed Occupations and Education Level**

Few nonbatch job orders for this occupational group required a college degree. However, over 80 percent of the orders with a job title containing the phrase “*retail loss prevention manager*” required a college degree. Over three-quarters of those orders were in the last half of the year, and all were coded to the residual occupation *Protective Service Workers, All Other* (33-9099)

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Protective Service* - Major Occupational Group 33

Code	Title	#	%
33-9032	Security Guards	5,604	54.9
33-9099	Protective Service Workers, All Other	978	9.6
33-3051	Police and Sheriff's Patrol Officers	918	9.0
33-3012	Correctional Officers and Jailers	778	7.6
33-9021	Private Detectives and Investigators	368	3.6
Total of occupations with less than 3.0% of group's job orders		1,564	15.3
Total Nonbatch Job Orders		10,210	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			80.6

Table 2 – Percent of Resumes by Education Level in 2004  
For *Protective Service*  
Major Occupational Group 33

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	7.9	26.4
High School Diploma or GED	39.7	42.0
Some College or Vocational	39.5	53.4
Bachelors Degree	11.3	55.0
Graduate Degree	1.6	53.3

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Protective Service* - Major Occupational Group 33

Code	Title	College Degree	Some College or Voc	Other
33-9032	Security Guards	0.6	2.6	96.9
33-9099	Protective Service Workers, All Other	8.8	8.8	82.4
33-3051	Police and Sheriff's Patrol Officers	2.2	24.5	73.3
33-3012	Correctional Officers and Jailers	1.8	3.2	95.0
33-9021	Private Detectives and Investigators	5.8	12.4	81.8

**Keywords**

*Protective Service* had the second lowest ratio of job orders to resumes of all major occupational groups in 2004. *Physical* was a primary keyword with an order to resume ratio of 2.60, about four times the group's ratio.

Resumes containing the primary keyword *Top* were viewed by employers 67.9% of the time, and that percentage increased to 76.5% when the resumes had both keywords *Top* and *Physical*. However, a query of resumes with both of those keywords found that they rarely were used together in a phrase. Often *Top* referenced a top-secret security clearance.

*Physical* was used in a variety of ways. Frequently it referred to the objects that were guarded, as in physical plant. It also referred to passing a series of medical tests.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Protective Service* - Major Occupational Group 33

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/ Resumes
Armed	452	55.0	359	0.79
Deputy	163	52.8	157	0.96
Law	2,567	53.6	1,697	0.66
Loss	684	54.8	1,065	1.56
Military	1,547	60.8	864	0.56
Officer	2,836	53.7	2,068	0.73
Physical	723	59.7	1,880	<b>2.60</b>
Police	1,841	53.2	1,260	0.68
Prevention	930	53.2	1,118	1.20
Protection	887	57.3	882	0.99
Sales	1,103	55.5	87	0.08
Special	439	64.0	580	1.32
Top	266	<b>67.9</b>	236	0.89
Major Group Total	19,148	46.9	12,667	0.66

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Protective Service* - Major Occupational Group 33

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
Armed	33-9032	Security Guards	337	276	81.9
Deputy	33-3051	Police and Sheriff's Patrol Officers	142	73	51.4
Law	33-9032	Security Guards	1,342	471	35.1
Loss	33-9032	Security Guards	550	273	49.7
Military	33-9032	Security Guards	683	410	59.9
Officer	33-9032	Security Guards	1,764	792	44.9
Physical	33-9032	Security Guards	1,135	427	37.6
Police	33-3051	Police and Sheriff's Patrol Officers	1,063	464	43.6
Prevention	33-9032	Security Guards	587	175	29.8
Protection	33-9032	Security Guards	671	401	59.7
Sales	33-9032	Security Guards	39	15	37.4
Special	33-9032	Security Guards	395	126	31.8
Top	33-9032	Security Guards	100	46	45.5

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: Armed

Related Keywords: Military 59.8%, Physical 63.2%, Protection 61.6%

Primary Keyword: Law

Related Keywords: Military 61.0%, Officer 57.2%, Physical 62%, Police 56.8%, Prevention 59.1%, Protection 61.9%, Security 56.2%, Special 66.1%, Top 62.3%

Primary Keyword: Loss

Related Keywords: Military 63.6%, Officer 60.1%, Physical 63.7%, Police 61.7%, Protection 63.6%, Sales 61.0%

Primary Keyword: Military

Related Keywords: Officer 64.2%, Physical 67.5%, Prevention 65.1%, Protection 66.4%, Security 62.6%, Special 70.6%, Top 73.6%

Primary Keyword: Officer

Related Keywords: Armed 57.2%

Primary Keyword: Officer

Related Keywords: Law 57.2%, Loss 60.1%, Military 64.2%, Physical 67.9%, Police 55.3%, Prevention 61.2%, Protection 64.4%, Special 67.0%, Top 69.7%

Primary Keyword: Physical

Related Keywords: Military 67.5%, Officer 67.9%, Police 64.3%, Protection 66.6%, Security 63.2%, Special 74.9%, Top 76.5%

Primary Keyword: Police

Related Keywords: Law 56.8%, Loss 61.7%, Military 60.5%, Officer 55.3%, Physical 64.3%, Prevention 59.2%, Protection 60.8%, Special 66.7%, Top 64.2%

Primary Keyword: Prevention

Related Keywords: Law 59.1%, Military 65.1%, Officer 61.2%, Physical 62.7%, Police 59.2%, Special 70.9%

Primary Keyword: Protection

Related Keywords: Law 61.9%, Loss 63.6%, Military 66.4%, Officer 64.4%, Physical 66.6%, Police 60.8%, Special 72.2%

Primary Keyword: Sales

Related Keywords: Loss 61.0%

Primary Keyword: Special

Related Keywords: Guard 69.7%, Military 70.6%, Physical 74.9%, Prevention 70.9%, Protection 72.2%, Top 74.7%

Primary Keyword: Top

Related Keywords: Military 73.6%, Physical 76.5%, Special 74.7%

## Food Preparation and Serving Related

SOC Major Occupational Group 35

### Detailed Occupations and Education Level

With the exception of a few cooks and first-line supervisors, it was rare for any job orders to require a college degree for jobs in the *Food preparation and Serving Related* occupational group.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Food Preparation and Serving Related* - Major Occupational Group 35

Code	Title	#	%
35-2014	Cooks, Restaurant	4,111	14.3
35-3031	Waiters and Waitresses	3,564	12.4
35-9099	Food Preparation and Serving Related Workers, All Other	2,158	7.5
35-2021	Food Preparation Workers	2,058	7.1
Combined Food Preparation and Serving Workers, Including Fast			
35-3021	Food	2,026	7.0
35-3041	Food Servers, Nonrestaurant	1,895	6.6
35-2012	Cooks, Institution and Cafeteria	1,808	6.3
First-Line Supervisors/Managers of Food Preparation and Serving			
35-1012	Workers	1,647	5.7
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	1,623	5.6
35-9021	Dishwashers	1,530	5.3
35-3011	Bartenders	1,255	4.4
35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	1,170	4.1
35-1011	Chefs and Head Cooks	948	3.3
Total of occupations with less than 3.0% of group's job orders		3,004	10.4
Total Nonbatch Job Orders		28,797	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			86.9

Table 2 – Percent of Resumes by Education Level in 2004  
For *Food Preparation and Serving Related*  
Major Occupational Group 35

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	20.9	29.0
High School Diploma or GED	46.9	36.6
Some College or Vocational	27.8	48.7
Bachelors Degree	4.0	51.4
Graduate Degree	0.4	47.8

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Food Preparation and Serving Related* - Major Occupational Group 35

Code	Title	College Degree	Some College or Voc	Other
35-2014	Cooks, Restaurant	0.2	5.2	94.6
35-3031	Waiters and Waitresses	0.0	0.6	99.3
Food Preparation and Serving Related Workers, All				
35-9099	Other	0.2	0.7	99.0
35-2021	Food Preparation Workers	0.4	1.8	97.8
Combined Food Preparation and Serving Workers,				
35-3021	Including Fast Food	0.1	2.4	97.5
35-3041	Food Servers, Nonrestaurant	0.3	0.9	98.7
35-2012	Cooks, Institution and Cafeteria	0.1	3.6	96.2
First-Line Supervisors/Managers of Food Preparation				
35-1012	and Serving Workers	2.9	9.2	87.9
Counter Attendants, Cafeteria, Food Concession, and				
35-3022	Coffee Shop	0.5	2.0	97.5
35-9021	Dishwashers	0.1	0.8	99.1
35-3011	Bartenders	0.0	2.7	97.3
Dining Room and Cafeteria Attendants and Bartender				
35-9011	Helpers	0.0	1.0	99.0
35-1011	Chefs and Head Cooks	6.6	22.0	71.4

### Keywords

*Food Preparation and Serving Related* had the second lowest percentage of resumes viewed by employers of any major occupational group. Keywords with the group's highest viewed percentages were *Front* and *Manager*. Over 65 percent of the resumes that contained the keyword *Front* also contained *Manager*. Additionally, five of the six highest viewed percentages for primary/related keyword combinations contained the term *Manager*.

Different keywords reflected labor market demand as measured by the job order to resume ratio. *Hotel* had the group's highest ratio at 3.74, followed by *Restaurant* at 3.33.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Food Preparation and Serving Related* - Major Occupational Group 35

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/Resumes
Assistant	1,127	49.8	1,259	1.12
Catering	456	50.7	944	2.07
Chef	1,082	47.5	1,039	0.96
Food	11,645	40.6	15,978	1.37
Front	353	<b>56.0</b>	611	1.73
Hotel	561	49.9	2,100	<b>3.74</b>
Kitchen	2,946	40.7	5,336	1.81
Manager	2,069	55.0	2,318	1.12
Prep	3,061	43.6	2,387	0.78
Restaurant	2,114	49.8	7,046	3.33
Service	8,692	46.4	11,126	1.28
Major Group Total	30,731	39.0	33,154	1.08

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Food Preparation and Serving Related* - Major Occupational Group 35

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
		First-Line Supervisors/Managers of Food			
Assistant	35-1012	Preparation and Serving Workers	584	150	25.7
Catering	35-1011	Chefs and Head Cooks	576	88	15.3
Chef	35-1011	Chefs and Head Cooks	787	412	52.3
Food	35-3031	Waiters and Waitresses	13,040	1,773	13.6
		Combined Food Preparation and Serving			
Front	35-3021	Workers, Including Fast Food	494	72	14.5
Hotel	35-2014	Cooks, Restaurant	1,771	244	13.8
Kitchen	35-2014	Cooks, Restaurant	4,543	770	16.9
		First-Line Supervisors/Managers of Food			
Manager	35-1012	Preparation and Serving Workers	1,145	452	39.4
Prep	35-2014	Cooks, Restaurant	2,243	574	25.6
Restaurant	35-2014	Cooks, Restaurant	5,466	1,208	22.1
Service	35-3031	Waiters and Waitresses	8,247	1,103	13.4

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: Assistant

Related Keywords: Food 52.0%, Front 61.7%, Manager 57.2%, Prep 54.0%, Restaurant 59.9%, Service 54.9%

Primary Keyword: Catering

Related Keywords: Hotel 58.1%, Manager 60.3%, Restaurant 58.5%

Primary Keyword: Chef

Related Keywords: Assistant 53.4%, Catering 53.7%, Food 53.4%, Kitchen 53.0%, Manager 59.4%, Prep 54.7%, Restaurant 59.9%, Service 56.7%

Primary Keyword: Food

Related Keywords: Assistant 52.0%, Catering 53.6%, Chef 53.4%, Cook 42.9%, Front 56.8%, Hotel 50.7%, Manager 56.4%, Prep 44.1%, Restaurant 53.4%, Service 44.7%

Primary Keyword: Hotel

Related Keywords: Catering 58.1%, Manager 64.1%, Restaurant 53.8%

Primary Keyword: Kitchen

Related Keywords: Assistant 52.2%, Catering 51.5%, Chef 53.0%, Cook 43.5%, Front 56.9%, Hotel 50.4%, Manager 55.6%, Prep 45.5%, Restaurant 53.9%, Service 44.9%

Primary Keyword: Manager

Related Keywords: Catering 60.3%, Chef 59.4%, Front 61.5%, Hotel 64.1%, Prep 57.2%, Restaurant 63.8%, Service 58.0%

Primary Keyword: Prep

Related Keywords: Assistant 54.0%, Catering 54.5%, Chef 54.7%, Front 60.0%, Hotel 50.5%, Kitchen 45.5%, Manager 57.2%, Restaurant 58.7%, Service 48.2%

Primary Keyword: Restaurant

Related Keywords: Assistant 59.9%, Catering 58.5%, Chef 59.9%, Food 53.4%, Front 60.1%, Hotel 53.8%, Kitchen 53.9%, Manager 63.8%, Prep 58.7%, Service 57.2%

Primary Keyword: Service

Related Keywords: Assistant 54.9%, Catering 53.9%, Chef 56.7%, Front 58.3%, Hotel 51.4%, Manager 58.0%, Prep 48.2%, Restaurant 57.2%



## Building and Grounds Cleaning and Maintenance

### SOC Major Occupational Group 37

#### Detailed Occupations and Education Level

College degrees were required on 3.8% of the nonbatch job orders for *First-Line Supervisors/Managers of Housekeeping and Janitorial Workers* (37-1011) in 2004. Most of those job orders were for positions in hotels, casinos, or hospitals. No other detailed occupation, with at least 3.0% of the groups orders, required college degrees on even 1.0% of their orders.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Building and Grounds Cleaning and Maintenance* - Major Occupational Group 37

Code	Title	#	%
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	8,660	39.0
37-2012	Maids and Housekeeping Cleaners	5,113	23.0
37-3011	Landscaping and Groundskeeping Workers	3,388	15.2
37-1011	First-Line Supervisors/Managers of Housekeeping and Janitorial Workers	1,930	8.7
37-3019	Grounds Maintenance Workers, All Other	1,097	4.9
37-2019	Building Cleaning Workers, All Other	913	4.1
Total of occupations with less than 3.0% of group's job orders		1,126	5.1
Total Nonbatch Job Orders		22,227	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			90.4

Table 2 – Percent of Resumes by Education Level in 2004  
For *Building and Grounds Cleaning and Maintenance*  
Major Occupational Group 37

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	27.6	32.0
High School Diploma or GED	50.4	42.7
Some College or Vocational	19.5	55.4
Bachelors Degree	2.2	57.5
Graduate Degree	0.2	59.7

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Building and Grounds Cleaning and Maintenance* - Major Occupational Group 37

Code	Title	College Degree	Some College or Voc	Other
	Janitors and Cleaners, Except Maids and Housekeeping			
37-2011	Cleaners	0.1	1.4	98.4
37-2012	Maids and Housekeeping Cleaners	0.1	0.6	99.3
37-3011	Landscaping and Groundskeeping Workers	0.3	1.5	98.2
	First-Line Supervisors/Managers of Housekeeping and			
37-1011	Janitorial Workers	3.8	4.4	91.8
37-3019	Grounds Maintenance Workers, All Other	0.6	2.9	96.5
37-2019	Building Cleaning Workers, All Other	0.8	1.7	97.5

### Keywords

Employers were much more likely to view resumes that contained the keyword *HVAC* (67.5%) in 2004 than they were to view all resumes coded to *Building and Grounds Cleaning and Maintenance* (42.6%). Some other facts related to *HVAC* are shown below:

- ◆ *HVAC* is an acronym for heating, ventilation, and air conditioning.
- ◆ Maintenance of *HVAC* is properly coded to the detailed occupation *Heating, Air Conditioning, and Refrigeration Mechanics and Installers* (49-9021) in the major occupational group *Installation, Maintenance, and Repair* (49).
- ◆ Over 44 percent of the resumes containing *HVAC* coded to *Building and Grounds Cleaning and Maintenance* were also coded to *Installation, Maintenance, and Repair*. Resumes are tallied as viewed by employers for all occupations they are coded to. There is no way to tell which occupational group employers were searching, only if the resume was viewed. So the high percentage of resumes viewed by employers was probably inflated because of searches of resumes also coded to major group 49.
- ◆ Of job orders containing the keyword *HVAC* those coded to major group 49 exceeded those coded to group 37 by more than ten fold in 2004.

The ratio of job orders to resumes containing the keyword *Facility* was 11.44 in 2004. Of job orders containing the word *Facility* by far the most common job title was “housekeeper”. While demand for housekeepers was probably high, it is also likely that housekeepers may not have used the term *Facility* in their resumes to the same degree employers chose to in their job orders.

*Part* also had a high job order to resume ratio (5.48). Generally, the term was part of the phrase “part time”.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004

For *Building & Grounds Cleaning & Maintenance* - Major Occupational Group 37

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/Resumes
Base	73	59.7	148	2.03
Carpet	362	58.2	837	2.31
Control	695	60.6	744	1.07
Experience	3,580	60.5	9,489	2.65
Facility	208	63.7	2,380	<b>11.44</b>
Floor	855	54.1	1,805	2.11
HVAC	248	<b>67.5</b>	224	0.90
Landscape	465	55.0	957	2.06
Lawn	903	52.0	1,031	1.14
Mechanic	466	56.4	58	0.12
Part	508	56.5	2,785	5.48
Pest	106	64.9	327	3.08
Supervisor	872	55.5	1,082	1.24
Tree	252	53.6	389	1.54
Years	1,941	58.6	2,169	1.12
Major Group Total	26,318	42.6	24,589	0.93

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Building and Grounds Cleaning and Maintenance* - Major Occupational Group 37

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
Base	37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	99	22	22.4
Carpet	37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	728	509	69.9
Control	37-2021	Pest Control Workers	618	204	33.0
Experience	37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	8,030	2,882	35.9
Facility	37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	1,128	537	47.6
Floor	37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	1,531	1,064	69.5
HVAC	37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	185	60	32.5
Landscape	37-3011	Landscaping and Groundskeeping Workers	913	677	74.2
Lawn	37-3011	Landscaping and Groundskeeping Workers	975	651	66.7
Mechanic	37-3019	Grounds Maintenance Workers, All Other	43	17	39.4
Part	37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	2,561	1,206	47.1
Pest	37-2021	Pest Control Workers	290	215	74.1
Supervisor	37-1011	First-Line Supervisors/Managers of Housekeeping and Janitorial Workers	911	299	32.8
Tree	37-3013	Tree Trimmers and Pruners	372	146	39.3
Years	37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	1,662	545	32.8

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: Base

Related Keywords: Maintenance 69.5%

Primary Keyword: Carpet

Related Keywords: Care 71.7%, Experience 66.7%, Floor 66.6%, Full 68.1%, Maintenance 64%, Supervisor 65.7%, Time 64.8%, Years 69.2%

Primary Keyword: Control

Related Keywords: Building 66.1%, Care 67.5%, Clean 69.7%, Experience 69%, Floor 67.8%, Maintenance 66.8%, Part 75%, Pest 66.4%, Supervisor 67.4%, Time 68.1%, Years 67.5%

Primary Keyword: Experience

Related Keywords: Building 63.3%, Carpet 66.7%, Control 69.0%, Facility 73.2%, Floor 65.6%, HVAC 81.0%, Landscape 68.4%, Maintenance 65.4%, Mechanic 68.9%, Pest 68.6%, Supervisor 64.6%, Tree 65.8%, Water 65.4%

Primary Keyword: Facility

Related Keywords: Building 70.2%, Experience 73.2%, Maintenance 71.1%, Years 72%

Primary Keyword: Floor

Related Keywords: Care 58.6%, Carpet 66.6%, Clean 59.2%, Cleaning 58.4%, Control 67.8%, Experience 65.6%, Full 62.5%, Lawn 63.3%, Supervisor 63.8%, Time 62.4%, Years 62.8%

Primary Keyword: HVAC

Related Keywords: Building 74.9%, Experience 81.0%, Years 76.5%

Primary Keyword: Landscape

Related Keywords: Care 62.4%, Cleaning 70.4%, Experience 68.4%, Lawn 62.3%, Plant 62.5%, Tree 63.6%, Years 64.8%

Primary Keyword: Lawn

Related Keywords: Building 59.2%, Carpet 64%, Clean 64.3%, Control 64%, Experience 63%, Floor 63.3%, Landscape 62.3%, Maintenance 57.7%, Materials 58.5%, Plant 63.0%, Supervisor 64.3%, Time 59.4%, Tree 60.9%, Years 61.1%

Primary Keyword: Mechanic

Related Keywords: Experience 68.9%, Maintenance 61.4%

Primary Keyword: Part

Related Keywords: Control 75.0%, Experience 61.0%, Janitorial 64.5%, Years 62.5%

Primary Keyword: Supervisor

Related Keywords: Carpet 65.7%, Control 67.4%, Experience 64.6%, Floor 63.8%, Lawn 64.3%, Maintenance 60.4%, Time 59.5%, Years 59.4%

Primary Keyword: Tree

Related Keywords: Experience 65.8%, Landscape 63.6%, Lawn 60.9%, Maintenance 66.7%, Years 63.6%

Primary Keyword: Years

Related Keywords: Building 63.2%, Care 63.2%, Carpet 69.2%, Control 67.5%, Experience 61.6%, Facility 72.0%, Floor 62.8%, HVAC 76.5%, Landscape 64.8%, Maintenance 63.4%, Water 69.6%

## Personal Care and Service

### SOC Major Occupational Group 39

#### Detailed Occupations and Education Level

A college degree was required on 20.9% of the nonbatch job orders coded to *Fitness Trainers and Aerobics Instructors* (39-9031). Job titles for many of those orders called for physical education teachers and coaches.

When a college degree was required for other detailed occupations, the positions were usually for a first-level supervisor. Common job titles associated with those orders included recreation coordinator, and park manager.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Personal Care and Service* - Major Occupational Group 39

Code	Title	#	%
39-9011	Child Care Workers	2,426	25.2
39-9021	Personal and Home Care Aides	1,252	13.0
39-9032	Recreation Workers	884	9.2
39-9099	Personal Care and Service Workers, All Other	838	8.7
39-3091	Amusement and Recreation Attendants	668	6.9
39-5012	Hairdressers, Hairstylists, and Cosmetologists	484	5.0
39-9041	Residential Advisors	473	4.9
39-6011	Baggage Porters and Bellhops	453	4.7
39-2021	Nonfarm Animal Caretakers	378	3.9
39-9031	Fitness Trainers and Aerobics Instructors	339	3.5
Total of occupations with less than 3.0% of group's job orders		1,435	14.9
Total Nonbatch Job Orders		9,630	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			75.7

Table 2 – Percent of Resumes by Education Level in 2004  
For *Personal Care and Service*  
Major Occupational Group 39

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	17.8	26.2
High School Diploma or GED	41.5	35.3
Some College or Vocational	31.4	46.8
Bachelors Degree	8.2	46.5
Graduate Degree	1.1	49.3

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Personal Care and Service* - Major Occupational Group 39

Code	Title	College Degree	Some College or Voc	Other
39-9011	Child Care Workers	2.5	23.8	73.7
39-9021	Personal and Home Care Aides	0.5	3.9	95.7
39-9032	Recreation Workers	13.0	15.4	71.6
39-9099	Personal Care and Service Workers, All Other	3.7	8.1	88.2
39-3091	Amusement and Recreation Attendants	3.0	6.3	90.7
39-5012	Hairdressers, Hairstylists, and Cosmetologists	0.5	39.2	60.3
39-9041	Residential Advisors	10.9	14.3	74.8
39-6011	Baggage Porters and Bellhops	0.1	3.5	96.4
39-2021	Nonfarm Animal Caretakers	1.8	7.6	90.6
39-9031	Fitness Trainers and Aerobics Instructors	20.9	22.9	56.2

### Keywords

*Personal Care and Service* occupations had the lowest percentage of resumes viewed by employers, and the fourth lowest ratio of job orders to resumes of any major occupational group in 2004. *Massage* was the group's keyword with the highest percentage of viewed resumes at 54.1%, and all other occupational groups had at least one keyword with a higher percentage. Only two keywords in this occupational group had as many as half of their resumes viewed in the average quarter in 2004, and those keywords were found on few resumes.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Personal Care and Service* - Major Occupational Group 39

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/Resumes
Caregiver	88	52.7	173	<b>1.97</b>
Elderly	354	45.0	422	1.19
Health	1,216	42.1	2,092	1.72
Home	1,372	43.2	1,257	0.92
Massage	51	<b>54.1</b>	72	1.41
Personal	1,246	42.2	995	0.80
Social	365	43.3	526	1.44
Major Group Total	14,665	38.4	12,726	0.87

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Personal Care and Service* - Major Occupational Group 39

Primary Keyword	Detailed SOC Occupational Description		Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
Caregiver	39-9021	Personal and Home Care Aides	148	82	55.2
Elderly	39-9021	Personal and Home Care Aides	414	312	75.2
Health	39-9021	Personal and Home Care Aides	678	196	28.9
Home	39-9021	Personal and Home Care Aides	1,008	471	46.7
Massage	39-9099	Personal Care and Service Workers, All Other	65	38	59.3
Personal	39-9021	Personal and Home Care Aides	827	409	49.5
Social	39-9011	Child Care Workers	402	94	23.4

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: Elderly

Related Keywords: Health 51.0%

Primary Keyword: Health

Related Keywords: Care 46.1%, Elderly 51.0%

Primary Keyword: Home

Related Keywords: Care 45.9%, Elderly 48.5%, Personal 45.8%

Primary Keyword: Personal

Related Keywords: Home 45.8%



## Sales and Related

### SOC Major Occupational Group 41

#### Detailed Occupations and Education Level

Nonbatch job orders seldom required a college degree for positions selling a wide variety of common products. However, orders for positions selling more specialized products were often associated higher educational requirements. Sales positions for medical or scientific products usually required a college degree.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Sales and Related* - Major Occupational Group 41

Code	Title	#	%
41-2031	Retail Salespersons	9,794	18.5
41-9099	Sales and Related Workers, All Other	9,408	17.7
41-2011	Cashiers	7,661	14.4
41-3099	Sales Representatives, Services, All Other	5,617	10.6
41-1011	First-Line Supervisors/Managers of Retail Sales Workers	3,179	6.0
41-9041	Telemarketers	2,512	4.7
41-3021	Insurance Sales Agents	2,399	4.5
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	2,277	4.3
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	2,116	4.0
41-3031	Securities, Commodities, and Financial Services Sales Agents	1,649	3.1
Total of occupations with less than 3.0% of group's job orders		6,465	12.2
Total Nonbatch Job Orders		53,077	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			46.4

Table 2 – Percent of Resumes by Education Level in 2004  
For *Sales and Related*  
Major Occupational Group 41

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	10.9	39.3
High School Diploma or GED	34.9	52.0
Some College or Vocational	33.9	66.0
Bachelors Degree	17.9	74.6
Graduate Degree	2.4	74.6

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Sales and Related* - Major Occupational Group 41

Code	Title	College Degree	Some College or Voc	Other
41-2031	Retail Salespersons	1.8	3.3	94.9
41-9099	Sales and Related Workers, All Other	17.7	14.2	68.2
41-2011	Cashiers	0.1	1.1	98.8
41-3099	Sales Representatives, Services, All Other	26.3	12.2	61.5
41-1011	Workers	7.3	9.4	83.4
41-9041	Telemarketers	2.9	7.3	89.7
41-3021	Insurance Sales Agents	6.9	9.7	83.4
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	57.5	9.8	32.7
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	11.3	10.1	78.6
41-3031	Securities, Commodities, and Financial Services Sales Agents	19.0	11.2	69.7

### Keywords

Overall, employers viewed 59.9% of resumes coded to *Sales and Related* occupations in 2004. Employers were more likely to view resumes of more educated applicants. Employers viewed about half the resumes of applicants with no education beyond high school, compared to about two-thirds with some college or vocational training, and three-quarters with college degrees.

The percentage of college graduates for resumes containing primary keywords was higher than the occupational groups overall average of 20.3% in 2004. Of resumes containing the keyword *Marketing* 53.3% were from college graduates, followed by the keywords *Account* (49.5%) and *Financial* (49.4%).

*Call* was the primary keyword with the highest ratio of job orders to resumes. Many sales positions routinely call prospective clients, and that function shows up in job descriptions of job orders. The ratio may be inflated somewhat by orders that direct applicants to call a contact phone number.

Primary/related keyword combinations are subsets of resumes, and/or job orders, containing a specific primary keyword as well as another keyword that raised the percentage of resumes viewed by a statistically significant amount. For example, employers viewed 75.1% of resumes coded to the *Sales and Related* group that contained the primary keyword *Advertising* in 2004. Only 65.9% of the group's resumes containing the keyword *Medical* were viewed. However, employers viewed 89.4% of the subset of resumes containing both keywords. Several other keyword combinations with high viewed percentages were related to work in the real estate and insurance industries.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Sales and Related* - Major Occupational Group 41

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/ Resumes
Account	2,843	78.4	15,745	5.54
Advertising	1,421	75.1	4,144	2.92
Business	7,900	76.2	46,578	5.90
Call	1,015	75.0	13,508	<b>13.31</b>
Cold	812	<b>82.4</b>	5,973	7.36
Estate	1,381	73.2	2,487	1.80
Financial	1,869	74.0	15,219	8.14
Inside	2,100	74.8	5,512	2.62
Insurance	2,143	75.6	14,934	6.97
Life	1,560	77.1	9,258	5.93
Loan	411	78.9	3,853	9.37
Management	13,428	74.8	35,291	2.63
Marketing	7,113	76.1	15,506	2.18
Mortgage	386	78.8	2,599	6.73
Outside	2,735	75.9	11,508	4.21
Major Group Total	75,351	59.9	114,275	1.52

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Sales and Related* - Major Occupational Group 41

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
Account	41-9099	Sales and Related Workers, All Other	4,144	1,470	35.5
Advertising	41-3011	Advertising Sales Agents	1,394	427	30.6
Business	41-9099	Sales and Related Workers, All Other	11,637	3,368	28.9
Call	41-9099	Sales and Related Workers, All Other	6,355	1,095	17.2
Cold	41-9099	Sales and Related Workers, All Other	1,911	564	29.5
Estate	41-3099	Sales Representatives, Services, All Other	667	218	32.6
		Securities, Commodities, and Financial			
Financial	41-3031	Services Sales Agents	3,883	932	24.0
Inside	41-9099	Sales and Related Workers, All Other	1,984	566	28.5
Insurance	41-3021	Insurance Sales Agents	5,491	1,324	24.1
Life	41-3021	Insurance Sales Agents	3,221	648	20.1
Loan	41-3099	Sales Representatives, Services, All Other	682	307	45.0
Management	41-9099	Sales and Related Workers, All Other	9,257	2,316	25.0
Marketing	41-9099	Sales and Related Workers, All Other	5,607	1,549	27.6
Mortgage	41-3099	Sales Representatives, Services, All Other	760	351	46.1
Outside	41-9099	Sales and Related Workers, All Other	3,813	974	25.6

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: Account

Related Keywords: Advertising 81.1%, Business 84.5%, Call 83.2%, Cold 87.5%, Customer 80.3%, Home 84.3%, Inside 82.4%, Insurance 83.6%, Life 88.8%, Management 83.6%, Manager 81.4%, Marketing 83.3%, Mortgage 88.5%, Outside 84.1%, Sales 80.5%

Primary Keyword: Advertising

Related Keywords: Account 81.1%, Business 80%, Call 84.7%, Cold 87.8%, Financial 82.2%, Home 85.2%, Inside 78.8%, Insurance 85.1%, Life 84.3%, Management 79.3%, Manager 80.8%, Marketing 77.6%, Medical 89.4%, Mortgage 83.9%, Outside 81.0%, Sales 76.7%, Telemarketing 84.6%

Primary Keyword: Business

Related Keywords: Account 84.5%, Advertising 80.0%, Call 81.3%, Cold 86.3%, Estate 81.5%, Financial 80.5%, Home 82.1%, Inside 79.9%, Insurance 80.9%, Life 82.4%, Loan 82.3%, Management 81.3%, Manager 80.1%, Marketing 81.6%, Medical 81.1%, Mortgage 88.2%, Outside 80.3%, Real 80.5%, Sales 79.0%, Telemarketing 80.9%

Primary Keyword: Call

Related Keywords: Account 83.2%, Advertising 84.7%, Business 81.3%, Cold 85.9%, Estate 88.4%, Home 82.6%, Inside 86.7%, Management 80.6%, Manager 81.7%, Marketing 84.1%, Medical 82.5%, Real 86.8%, Sales 77.9%

Primary Keyword: Cold

Related Keywords: Account 87.5%, Advertising 87.8%, Business 86.3%, Call 85.9%, Management 86.4%, Manager 86.8%, Marketing 84.9%, Medical 87.9%, Outside 86.9%, Real 89.1%

Primary Keyword: Estate

Related Keywords: Account 77.8%, Business 81.5%, Call 88.4%, Cold 88.2%, Customer 78.2%, Financial 80.0%, Home 80.7%, Inside 82.8%, Insurance 80.6%, Life 78.9%, Loan 81.7%, Management 79.7%, Manager 76.5%, Marketing 79.5%, Mortgage 82.3%, Outside 80.5%, Sales 75.4%, Service 78.0%, Telemarketing 81.9%, Work 76.7%

Primary Keyword: Financial

Related Keywords: Account 79.5%, Advertising 82.2%, Business 80.5%, Cold 85.8%, Estate 80.0%, Home 87.3%, Inside 83.3%, Insurance 78.0%, Life 79.2%, Loan 79.5%, Management 78.8%, Manager 80.6%, Marketing 79.8%, Mortgage 81.3%, Outside 78.5%, Real 80.3%, Retail 77.9%, Sales 77.8%, Service 77.0%

Primary Keyword: Inside

Related Keywords: Account 82.4%, Advertising 78.8%, Business 79.9%, Call 86.7%, Cold 85.0%, Estate 82.8%, Financial 83.3%, Insurance 82.8%, Life 82.3%, Management 78.9%, Manager 77.2%, Marketing 80.3%, Medical 80.1%, Outside 78.4%, Real 82.8%

Primary Keyword: Insurance

Related Keywords: Account 83.6%, Advertising 85.1%, Business 80.9%, Cold 86.3%, Estate 80.6%, Financial 78.0%, Home 83.2%, Inside 82.8%, Life 81.9%, Management 81.8%, Manager 81.5%, Marketing 81.1%, Mortgage 86%, Outside 81.5%, Real 80.4%, Sales 77.4%, Telemarketing 84%

Primary Keyword: Life

Related Keywords: Account 88.8%, Advertising 84.3%, Business 82.4%, Cold 87.6%, Inside 82.3%, Insurance 81.9%, Management 82.5%, Manager 82.1%, Marketing 83.0%, Medical 83.7%, Mortgage 88.5%, Outside 83.2%, Sales 79.9%

Primary Keyword: Loan

Related Keywords: Marketing 84.7%, Mortgage 83.6%

Primary Keyword: Management

Related Keywords: Account 83.6%, Advertising 79.3%, Business 81.3%, Call 80.6%, Cold 86.4%, Customer 75.9%, Estate 79.7%, Financial 78.8%, Home 80.2%, Inside 78.9%, Insurance 81.8%, Life 82.5%, Loan 79.7%, Manager 78.4%, Marketing 80.2%, Medical 80.9%, Mortgage 83.6%, Outside 80.6%, Real 79.1%, Sales 77.4%, Telemarketing 78.6%, Work 75.9%

Primary Keyword: Marketing

Related Keywords: Account 83.3%, Advertising 77.6%, Business 81.6%, Call 84.1%, Cold 84.9%, Estate 79.5%, Financial 79.8%, Home 82.4%, Inside 80.3%, Insurance 81.1%, Life 83.0%, Loan 84.7%, Management 80.2%, Manager 80.1%, Medical 83.4%, Mortgage 86.1%, Outside 78.7%, Real 80.2%, Sales 77%, Telemarketing 78.9%

Primary Keyword: Mortgage

Related Keywords: Account 88.5%, Business 88.2%, Customer 82.3%, Insurance 86.0%, Life 88.5%, Loan 83.6%, Management 83.6%, Manager 83.8%, Marketing 86.1%, Service 82.8%, Work 84.4%

Primary Keyword: Outside

Related Keywords: Account 84.1%, Advertising 81.0%, Business 80.3%, Cold 86.9%, Estate 80.5%, Home 81.5%, Inside 78.4%, Insurance 81.5%, Life 83.2%, Management 80.6%, Manager 80.4%, Marketing 78.7%, Medical 84.0%, Real 80.0%, Sales 77.5%, Telemarketing 82.3%

## Office and Administrative Support

SOC Major Occupational Group 43

### Detailed Occupations and Education Level

Factors associated with higher educational requirements for nonbatch job orders for this group in 2004 included:

- ◆ Knowledge requirements, such as accounting or specific software
- ◆ Size of company, large companies were more apt to require more education
- ◆ Supervisory responsibilities
- ◆ Visibility of the company (for example a media corporation), or the position to those outside the company

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Office and Administrative Support* - Major Occupational Group 43

Code	Title	#	%
43-9061	Office Clerks, General	9,768	10.6
43-6011	Executive Secretaries and Administrative Assistants	8,363	9.1
43-3031	Bookkeeping, Accounting, and Auditing Clerks	6,863	7.5
43-9199	Office and Administrative Support Workers, All Other	6,800	7.4
43-4171	Receptionists and Information Clerks	6,652	7.2
43-4051	Customer Service Representatives	6,354	6.9
43-5081	Stock Clerks and Order Fillers	6,076	6.6
43-3071	Tellers	3,827	4.2
43-5071	Shipping, Receiving, and Traffic Clerks	3,557	3.9
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	3,482	3.8
43-6014	Secretaries, Except Legal, Medical, and Executive	3,065	3.3
Total of occupations with less than 3.0% of group's job orders		27,131	29.5
Total Nonbatch Job Orders		91,938	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			43.6

Table 2 – Percent of Resumes by Education Level in 2004  
 For *Office and Administrative Support*  
 Major Occupational Group 43

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	4.3	32.1
High School Diploma or GED	33.6	43.0
Some College or Vocational	49.1	53.1
Bachelors Degree	11.7	57.2
Graduate Degree	1.3	56.6

Table 3 – Percent Education Required on Nonbatch Job Orders  
 By Detailed SOC Code in 2004  
 For *Office and Administrative Support* - Major Occupational Group 43

Code	Title	Some		
		College Degree	College or Voc	Other
43-9061	Office Clerks, General	1.4	9.0	89.6
43-6011	Executive Secretaries and Administrative Assistants	9.4	22.5	68.0
43-3031	Bookkeeping, Accounting, and Auditing Clerks	5.4	25.2	69.4
43-9199	Office and Administrative Support Workers, All Other	6.9	13.7	79.4
43-4171	Receptionists and Information Clerks	0.4	7.5	92.0
43-4051	Customer Service Representatives	5.4	8.6	86.0
43-5081	Stock Clerks and Order Fillers	0.8	3.4	95.8
43-3071	Tellers	0.3	2.6	97.1
43-5071	Shipping, Receiving, and Traffic Clerks	2.3	4.3	93.4
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	20.6	18.1	61.4
43-6014	Secretaries, Except Legal, Medical, and Executive	1.6	13.7	84.7

### Keywords

More resumes were coded to *Office and Administrative Support* than to any other major occupational group, and only one group had more job orders. The percentage of resumes viewed by employers was only modestly higher for the subsets containing primary keywords. *Human* (usually part of human resources) with a viewed percentage of 59.6% and *Insurance* at 58.6% were slightly higher than the remaining keywords.

The ratios of job orders to resumes has more of a spread between primary keywords. However, the highest ratio was for *Call* and that value appears inflated. Most resumes with the keyword *call* referred to previous work in a call center, while only about a quarter of the job orders did. Many job orders had instructed applicants to call a phone number listed in the order increasing the tally of orders with the keyword *Call*.

*Part* was often part of orders calling for part-time work. While *Time* also was used in other contexts as many positions in the occupational group keep track of *Time* for payroll functions.

Similarly, in job orders containing the keyword *Executive*, less than 2 percent had the term listed as part of the phrase “executive secretary”, and less than 5 percent part of “executive assistant”. Instead it more often referred to the people or accounts the positions would work with.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Office and Administrative Support* - Major Occupational Group 43

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/ Resumes
Accounting	18,875	55.0	13,821	0.73
Accounts	17,668	55.8	20,483	1.16
Assistant	24,186	54.2	21,955	0.91
Call	5,763	56.6	39,542	<b>6.86</b>
Data	45,454	53.9	41,043	0.90
Entry	38,572	54.6	30,624	0.79
Excel	63,458	55.3	40,027	0.63
Executive	6,559	54.7	18,908	2.88
Human	8,143	<b>59.6</b>	8,688	1.07
Insurance	9,304	58.6	18,577	2.00
Medical	18,156	55.0	30,204	1.66
Part	5,991	56.9	22,133	3.69
Payroll	13,778	56.3	7,307	0.53
Time	28,333	54.2	63,033	2.22
Word	73,924	54.3	45,358	0.61
Major Group Total	192,442	49.3	211,072	1.10



Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Office and Administrative Support* - Major Occupational Group 43

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
Accounting	43-3031	Bookkeeping, Accounting, and Auditing Clerks	6,748	2,984	44.2
Accounts	43-3031	Bookkeeping, Accounting, and Auditing Clerks	8,128	2,772	34.1
Assistant	43-6011	Executive Secretaries and Administrative Assistants	7,546	2,731	36.2
Call	43-4051	Customer Service Representatives	10,307	1,463	14.2
Data	43-9061	Office Clerks, General	16,921	2,432	14.4
Entry	43-9061	Office Clerks, General	13,359	2,214	16.6
Excel	43-6011	Executive Secretaries and Administrative Assistants	15,819	3,438	21.7
Executive	43-6011	Executive Secretaries and Administrative Assistants	1,781	1,020	57.3
Human	43-6011	Executive Secretaries and Administrative Assistants	4,027	617	15.3
Insurance	43-9199	Office and Administrative Support Workers, All Other	6,033	628	10.4
Medical	43-9061	Office Clerks, General	8,629	1,171	13.6
Part	43-9061	Office Clerks, General	9,399	1,227	13.1
Payroll	43-3031	Bookkeeping, Accounting, and Auditing Clerks	4,104	1,272	31.0
Time	43-9061	Office Clerks, General	22,115	2,592	11.7
Word	43-6011	Executive Secretaries and Administrative Assistants	17,663	3,960	22.4

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: Accounting

Related Keywords: Accounts 56.3%, Admin 57.7%, Administrative 57.5%, Assistant 58.6%, Bilingual 58.3%, Call 61.7%, Computer 56.7%, Customer 57.9%, Data 56.8%, Entry 58.0%, Excel 57.4%, Executive 60.5%, Human 61.3%, Insurance 60.6%, Medical 59.3%, Office 57.0%, Part 61.0%, Payroll 57.9%, Receptionist 58.0%, Secretary 57.3%, Service 58.3%, Time 59.2%, Word 57.0%

Primary Keyword: Accounts

Related Keywords: Admin 59.1%, Administrative 58.3%, Assistant 59.6%, Bilingual 60.8%, Call 60.8%, Computer 57.2%, Customer 57.9%, Data 58%, Entry 58.3%, Excel 58.2%, Executive 60.8%, Human 61.4%, Insurance 59.9%, Medical 60.7%, Office 57.5%, Part 60.8%, Payroll 57.7%, Receptionist 57.6%, Secretary 58.2%, Service 58.3%, Time 59%, Word 57.4%

Primary Keyword: Assistant

Related Keywords: Accounting 58.6%, Accounts 59.6%, Bilingual 59.6%, Call 62.3%, Computer 56.5%, Customer 57.7%, Data 59.0%, Entry 59.3%, Excel 56.9%, Executive 56.5%, Human 61.6%, Insurance 62.3%, Medical 59.0%, Office 56.2%, Part 60.8%, Payroll 59.8%, Receptionist 57.4%, Secretary 55.7%, Service 58.0%, Time 59.1%, Word 56.4%

Primary Keyword: Call

Related Keywords: Accounting 61.7%, Accounts 60.8%, Admin 67.3%, Assistant 62.3%, Bilingual 60.1%, Customer 57.6%, Data 58.3%, Entry 59.5%, Excel 59.7%, Executive 61.0%, Human 65.1%, Insurance 59.8%, Medical 60.4%, Office 58.2%, Part 60.9%, Payroll 61.5%, Secretary 61.0%, Service 58.7%, Time 60.0%, Word 58.6%

Primary Keyword: Data

Related Keywords: Accounting 56.8%, Accounts 58.0%, Admin 56.8%, Administrative 55.4%, Assistant 59.0%, Bilingual 57.9%, Call 58.3%, Computer 54.6%, Customer 56.1%, Entry 54.5%, Excel 57.2%, Executive 60.2%, Human 61.6%, Insurance 59.9%, Medical 59.4%, Office 55.7%, Part 59.8%, Payroll 58.2%, Receptionist 55.8%, Secretary 56.4%, Service 56.4%, Time 58.2%, Word 56.1%

Primary Keyword: Entry

Related Keywords: Accounting 58.0%, Accounts 58.3%, Admin 56.8%, Administrative 57.0%, Assistant 59.3%, Bilingual 58.5%, Call 59.5%, Computer 55.6%, Customer 56.4%, Excel 57.4%, Executive 60.2%, Human 62.0%, Insurance 60.8%, Medical 59.8%, Office 56.4%, Part 60.2%, Payroll 58.5%, Receptionist 56.0%, Secretary 57.0%, Service 56.6%, Time 58.3%, Word 56.6%

Primary Keyword: Excel

Related Keywords: Accounting 57.4%, Accounts 58.2%, Assistant 56.9%, Bilingual 59.3%, Call 59.7%, Computer 56.7%, Customer 57.1%, Data 57.2%, Entry 57.4%, Executive 57.1%, Human 62.2%, Insurance 61.6%, Medical 59.8%, Office 56.5%, Part 60.1%, Payroll 58.4%, Secretary 56.1%, Service 57.6%, Time 58.4%

Primary Keyword: Executive

Related Keywords: Accounting 60.5%, Accounts 60.8%, Administrative 56%, Assistant 56.5%, Bilingual 59.6%, Call 61.0%, Computer 57.6%, Customer 59.1%, Data 60.2%, Entry 60.2%, Excel 57.1%, Human 63.8%, Insurance 60.4%, Medical 60.7%, Office 57.4%, Part 61.0%, Payroll 61.5%, Receptionist 60.3%, Service 59.6%, Time 60.5%, Word 56.7%

Primary Keyword: Human

Related Keywords: Accounting 61.3%, Accounts 61.4%, Admin 64.3%, Assistant 61.6%, Bilingual 66.5%, Call 65.1%, Customer 60.7%, Data 61.6%, Entry 62.0%, Excel 62.2%, Executive 63.8%, Insurance 62.5%, Medical 63.6%, Office 61.1%, Part 63.0%, Payroll 61.0%, Service 60.5%, Time 62.7%, Word 61.5%

Primary Keyword: Insurance

Related Keywords: Accounting 60.6%, Accounts 59.9%, Administrative 60.3%, Assistant 62.3%, Computer 60.0%, Customer 60.7%, Data 59.9%, Entry 60.8%, Excel 61.6%, Executive 60.4%, Human 62.5%, Medical 60.3%, Office 59.4%, Part 63.0%, Payroll 60.0%, Receptionist 59.9%, Secretary 61.1%, Service 60.9%, Time 60.7%, Word 60.5%

Primary Keyword: Medical

Related Keywords: Accounting 59.3%, Accounts 60.7%, Administrative 58.6%, Assistant 59.0%, Call 60.4%, Computer 56.5%, Customer 58.5%, Data 59.4%, Entry 59.8%, Excel 59.8%, Executive 60.7%, Human 63.6%, Insurance 60.3%, Office 57.6%, Part 61.9%, Payroll 61.1%, Receptionist 57.3%, Secretary 56.6%, Service 58.9%, Time 59.4%, Word 58.7%

Primary Keyword: Part

Related Keywords: Accounting 61.0%, Accounts 60.8%, Admin 62.9%, Administrative 58.2%, Assistant 60.8%, Bilingual 63.5%, Call 60.9%, Customer 58.8%, Data 59.8%, Entry 60.2%, Excel 60.1%, Executive 61.0%, Human 63.0%, Insurance 63.0%, Medical 61.9%, Office 58.4%, Payroll 60.0%, Receptionist 58.9%, Service 59.2%, Word 59.3%

Primary Keyword: Payroll

Related Keywords: Accounting 57.9%, Accounts 57.7%, Administrative 58.6%, Assistant 59.8%, Bilingual 62.1%, Call 61.5%, Computer 57.1%, Customer 58.4%, Data 58.2%, Entry 58.5%, Excel 58.4%, Executive 61.5%, Human 61.0%, Insurance 60.0%, Medical 61.1%, Office 57.4%, Part 60.0%, Secretary 57.9%, Service 58.8%, Time 58.6%, Word 58.1%

Primary Keyword: Time

Related Keywords: Accounting 59.2%, Accounts 59.0%, Admin 58.6%, Administrative 57.1%, Assistant 59.1%, Call 60.0%, Computer 55.9%, Customer 57.6%, Data 58.2%, Entry 58.3%, Excel 58.4%, Executive 60.5%, Human 62.7%, Insurance 60.7%, Medical 59.4%, Office 57.0%, Part 55.6%, Payroll 58.6%, Receptionist 56.2%, Secretary 57.1%, Service 57.9%, Word 57.8%

Primary Keyword: Word

Related Keywords: Accounting 57.0%, Accounts 57.4%, Assistant 56.4%, Bilingual 58.9%, Call 58.6%, Computer 55.6%, Customer 56.2%, Data 56.1%, Entry 56.6%, Excel 55.5%, Executive 56.7%, Human 61.5%, Insurance 60.5%, Medical 58.7%, Office 55.3%, Part 59.3%, Payroll 58.1%, Secretary 55.0%, Service 56.6%, Time 57.8%

# Farming, Fishing, and Forestry

## SOC Major Occupational Group 45

### Detailed Occupations and Education Level

In 2004 nonbatch job orders for *Forest and Conservation Workers* (45-4011) requiring a college degree often fell into two categories:

- ◆ Positions responsible for timber sales
- ◆ Positions requiring substantial knowledge of environmental protection subjects

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Farming, Fishing, and Forestry* - Major Occupational Group 45

Code	Title	#	%
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	1,619	43.3
45-2093	Farmworkers, Farm and Ranch Animals	541	14.5
45-2091	Agricultural Equipment Operators	340	9.1
45-1011	First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers	230	6.1
45-4011	Forest and Conservation Workers	194	5.2
45-4022	Logging Equipment Operators	191	5.1
45-2099	Agricultural Workers, All Other	177	4.7
45-2041	Graders and Sorters, Agricultural Products	120	3.2
Total of occupations with less than 3.0% of group's job orders		331	8.8
Total Nonbatch Job Orders		3,743	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			98.7

Table 2 – Percent of Resumes by Education Level in 2004  
For *Farming, Fishing, and Forestry*  
Major Occupational Group 45

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	16.6	33.9
High School Diploma or GED	43.3	45.3
Some College or Vocational	27.1	56.2
Bachelors Degree	11.8	63.2
Graduate Degree	1.2	70.5

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Farming, Fishing, and Forestry* - Major Occupational Group 45

Code	Title	College Degree	Some College or Voc	Other
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	1.3	4.6	94.1
45-2093	Farmworkers, Farm and Ranch Animals	0.7	1.3	98.0
45-2091	Agricultural Equipment Operators	0.6	1.6	97.8
45-1011	First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers	19.2	14.1	66.7
45-4011	Forest and Conservation Workers	11.2	17.5	71.3
45-2099	Agricultural Workers, All Other	3.7	2.0	94.3
45-2041	Graders and Sorters, Agricultural Products	2.3	1.4	96.3

### Keywords

Both resume and job order counts were low for *Farming, Fishing, and Forestry* relative to most other major occupational groups. This was the major reason why no keywords met the statistical requirements (see Technical Appendix for details) to be designated as related keywords. *Ranch* was the primary keyword that ranked highest in both labor market demand indicators with 73.1% of resumes viewed by employers and a ratio of job orders to resumes of 2.68.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Farming, Fishing, and Forestry* - Major Occupational Group 45

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/Resumes
Agriculture	86	61.1	47	0.55
Dairy	52	63.1	103	1.98
Forestry	65	61.2	64	0.98
Hand	238	55.6	353	1.48
Manager	117	65.2	67	0.57
Ranch	59	<b>73.1</b>	158	<b>2.68</b>
Research	74	66.6	36	0.49
Supervisor	74	62.2	112	1.51
Technician	60	60.9	54	0.90
Travel	128	66.7	137	1.07
Major Group Total	2,933	48.8	3,792	1.29

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Farming, Fishing, and Forestry* - Major Occupational Group 45

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
Agriculture	45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	42	12	27.4
Dairy	45-2093	Farmworkers, Farm and Ranch Animals	99	51	51.1
Forestry	45-4011	Forest and Conservation Workers	63	46	73.6
Hand	45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	346	180	52.1
Manager	45-1011	First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers	63	31	48.2
Ranch	45-2093	Farmworkers, Farm and Ranch Animals	156	89	56.8
Research	45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	31	7	20.8
Supervisor	45-1011	First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers	110	43	38.6
Technician	45-4011	Forest and Conservation Workers	51	22	43.6
Travel	45-2091	Agricultural Equipment Operators	131	27	20.8

No keywords for this major occupational group met the statistical criteria (see Technical Appendix) to be designated as related keywords. Statistical significance testing of proportions for this project required a minimum of 100 resumes and 100 job orders during 2004. Generally the numbers of resumes and job orders containing both a primary and a related keyword fell short of those minimums.

## Construction and Extraction

### SOC Major Occupational Group 47

#### Detailed Occupations and Education Level

A college degree was required for 15.0% of the nonbatch job orders for *First-Line supervisors/Managers of Construction Trades and Extraction Workers* (47-1011). Most of the job orders requiring a college degree for other detailed occupations in this group were also for supervisory positions and were probably miscoded. An exception, were job orders for construction estimators, which also often required a degree.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Construction and Extraction* - Major Occupational Group 47

Code	Title	#	%
47-2031	Carpenters	4,438	15.9
47-2061	Construction Laborers	3,287	11.8
47-4099	Construction and Related Workers, All Other	2,850	10.2
47-2111	Electricians	2,643	9.5
	Operating Engineers and Other Construction Equipment		
47-2073	Operators	1,846	6.6
47-2152	Plumbers, Pipefitters, and Steamfitters	1,709	6.1
47-2141	Painters, Construction and Maintenance	1,331	4.8
	First-Line Supervisors/Managers of Construction Trades and		
47-1011	Extraction Workers	885	3.2
	Total of occupations with less than 3.0% of group's job orders	8,958	32.0
	Total Nonbatch Job Orders	27,947	100.0
	Nonbatch Job Orders as a Percent of Job Orders from all Sources		80.4

Table 2 – Percent of Resumes by Education Level in 2004  
For *Construction and Extraction*  
Major Occupational Group 47

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	15.3	36.2
High School Diploma or GED	49.8	47.2
Some College or Vocational	29.7	61.2
Bachelors Degree	4.6	67.7
Graduate Degree	0.6	70.0

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Construction and Extraction* - Major Occupational Group 47

Code	Title	College Degree	Some College or Voc	Other
47-2031	Carpenters	0.1	2.5	97.4
47-2061	Construction Laborers	0.1	1.3	98.6
47-4099	Construction and Related Workers, All Other	2.7	3.2	94.2
47-2111	Electricians	0.9	13.5	85.6
Operating Engineers and Other Construction				
47-2073	Equipment Operators	1.1	2.6	96.3
47-2152	Plumbers, Pipefitters, and Steamfitters	0.2	6.3	93.6
47-2141	Painters, Construction and Maintenance	0.2	2.0	97.8
First-Line Supervisors/Managers of Construction				
47-1011	Trades and Extraction Workers	15.0	13.4	71.6

### Keywords

Many *Construction and Extraction* jobs are seasonal. In 2004 30.8% of the job orders for this occupational group came in the summer quarter and another 26.3% in the spring quarter. This means that seasonal occupations must be hired each year while other occupations are affected more by business growth and retirements. This was a factor in the high ratio of job orders to resumes associated with the primary keyword *Helper*. Another factor was that employers tend to use job orders more than resume searches when recruiting less skilled workers.

In contrast, employers viewed high percentages of resumes containing keywords associated with higher-level skills such as *Estimator*, *Project*, *Quality*, *Manager*, and *Inspection*. Three primary/related keyword combinations, which all contained *Estimator* as one of the keywords, had viewed percentages above 90 percent.



Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Construction and Extraction* - Major Occupational Group 47

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/ Resumes
CDL	1,079	61.4	1,214	1.13
Electrical	3,402	65.7	2,912	0.86
Equipment	7,113	59.2	5,737	0.81
Estimator	191	<b>86.9</b>	430	2.25
Heavy	3,483	56.3	2,623	0.75
Helpers	38	67.8	398	<b>10.47</b>
Inspection	617	72.4	699	1.13
Journeyman	737	68.6	1,249	1.69
Loader	953	57.1	493	0.52
Manager	1,317	72.6	1,588	1.21
Metal	1,252	60.6	1,288	1.03
Pipe	1,024	61.8	1,077	1.05
Plumbing	2,558	62.1	1,909	0.75
Project	1,453	79.8	3,031	2.09
Quality	1,508	72.7	1,828	1.21
Major Group Total	33,327	50.8	34,762	1.04

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Construction and Extraction* - Major Occupational Group 47

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
		Operating Engineers and Other Construction			
CDL	47-2073	Equipment Operators	1,129	393	34.8
Electrical	47-2111	Electricians	2,189	1,359	62.1
		Operating Engineers and Other Construction			
Equipment	47-2073	Equipment Operators	4,256	999	23.5
Estimator	47-4099	Construction and Related Workers, All Other	49	18	36.2
		Operating Engineers and Other Construction			
Heavy	47-2073	Equipment Operators	2,079	649	31.2
Helpers	47-2031	Carpenters	362	62	17.1
Inspection	47-4011	Construction and Building Inspectors	378	193	51.1
Journeyman	47-2111	Electricians	1,080	430	39.8
		Operating Engineers and Other Construction			
Loader	47-2073	Equipment Operators	459	359	78.3
		First-Line Supervisors/Managers of			
Manager	47-1011	Construction Trades and Extraction Workers	327	137	42.0
Metal	47-2211	Sheet Metal Workers	1,115	406	36.4
Pipe	47-2152	Plumbers, Pipefitters, and Steamfitters	953	277	29.0
Plumbing	47-2152	Plumbers, Pipefitters, and Steamfitters	1,502	815	54.3
		First-Line Supervisors/Managers of			
Project	47-1011	Construction Trades and Extraction Workers	1,010	198	19.6
Quality	47-2031	Carpenters	584	114	19.6

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: CDL

Related Keywords: Concrete 72.7%, Electrical 67.8%, Laborer 69.6%, Pipe 72.1%, Plumbing 75.1%

Primary Keyword: Electrical

Related Keywords: Construction 69.4%, Equipment 68.2%, Inspection 77.5%, Journeyman 71.6%, Manager 81.4%, Pipe 70.9%, Plumbing 67.7%, Project 83.8%, Quality 79.1%

Primary Keyword: Equipment

Related Keywords: CDL 63.4%, Construction 60.1%, Electrical 68.2%, Estimator 81.2%, Inspection 74.0%, Journeyman 75.0%, Loader 61.0%, Manager 75.1%, Metal 63.5%, Pipe 65.0%, Plumbing 66.6%, Project 78.7%, Quality 74%, Roofing 61.9%

Primary Keyword: Estimator

Related Keywords: Manager 90.8%, Project 90.9%, Quality 94.4%

Primary Keyword: Heavy

Related Keywords: Carpenter 59.3%, CDL 62.7%, Concrete 59.6%, Construction 58.7%, Electrical 66.6%, Inspection 73.8%, Journeyman 67.7%, Loader 61.4%, Manager 70.2%, Metal 59.3%, Pipe 66.0%, Plumbing 63.3%, Project 78.1%, Quality 73.4%

Primary Keyword: Inspection

Related Keywords: Concrete 78.9%, Construction 75.8%, Electrical 77.5%, Manager 85.6%, Project 86.8%

Primary Keyword: Journeyman

Related Keywords: Construction 72.6%, Electrical 71.6%, Equipment 75%, Plumbing 73.4%, Project 82.0%, Quality 81.1%

Primary Keyword: Loader

Related Keywords: CDL 62.0%, Concrete 66.1%, Construction 62.1%, Equipment 61.0%, Heavy 61.4%, Pipe 65.1%

Primary Keyword: Manager

Related Keywords: Concrete 80.5%, Construction 75.9%, Electrical 81.4%, Equipment 75.1%, Estimator 90.8%, Inspection 85.6%, Plumbing 76.9%, Project 83.3%, Quality 84.5%

Primary Keyword: Metal

Related Keywords: Carpenter 66.8%, Construction 63.4%, Electrical 68.4%, Equipment 63.5%, Journeyman 73.5%, Pipe 70.0%, Plumbing 65.4%, Project 78.8%, Quality 77.1%

Primary Keyword: Pipe

Related Keywords: CDL 72.1%, Concrete 66.4%, Construction 65%, Electrical 70.9%, Equipment 65%, Heavy 66%, Journeyman 71.8%, Metal 70.0%, Project 77.6%, Quality 73.9%

Primary Keyword: Plumbing

Related Keywords: CDL 75.1%, Concrete 66.9%, Construction 66.5%, Electrical 67.7%, Equipment 66.6%, Inspection 76.0%, Journeyman 73.4%, Manager 76.9%, Metal 65.4%, Project 83.2%, Quality 75.4%

Primary Keyword: Project

Related Keywords: Construction 81.2%, Electrical 83.8%, Estimator 90.9%, Inspection 86.8%, Manager 83.3%, Plumbing 83.2%, Quality 84.7%

Primary Keyword: Quality

Related Keywords: Construction 76.6%, Electrical 79.1%, Estimator 94.4%, Journeyman 81.1%, Manager 84.5%, Metal 77.1%, Project 84.7%

## Installation, Maintenance and Repair

SOC Major Occupational Group 49

### Detailed Occupations and Education Level

Few nonsupervisory positions called for a college degree. Even the 3.1% of nonbatch job orders coded to *Electrical and Electronics Repairers, Commercial and Industrial Equipment (49-2094)* that required a college degree appeared to be overstated. Many of those orders appeared to be for engineering occupations.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Installation, Maintenance, and Repair* - Major Occupational Group 49

Code	Title	#	%
49-9042	Maintenance and Repair Workers, General	3,867	13.0
49-3023	Automotive Service Technicians and Mechanics	3,714	12.5
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	2,658	8.9
49-9041	Industrial Machinery Mechanics	2,452	8.2
49-9043	Maintenance Workers, Machinery	2,301	7.7
49-9099	Installation, Maintenance, and Repair Workers, All Other	2,108	7.1
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	1,784	6.0
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	1,044	3.5
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	897	3.0
Total of occupations with less than 3.0% of group's job orders		8,996	30.2
Total Nonbatch Job Orders		29,821	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			75.7

Table 2 – Percent of Resumes by Education Level in 2004  
For *Installation, Maintenance, and Repair*  
Major Occupational Group 49

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	5.9	44.8
High School Diploma or GED	35.9	58.6
Some College or Vocational	51.6	68.8
Bachelors Degree	5.9	68.5
Graduate Degree	0.7	64.5

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Installation, Maintenance, and Repair* - Major Occupational Group 49

Code	Title	College Degree	Some College or Voc	Other
49-9042	Maintenance and Repair Workers, General	0.7	8.3	91.0
49-3023	Automotive Service Technicians and Mechanics Bus and Truck Mechanics and Diesel Engine Specialists	0.3	9.6	90.1
49-3031		0.3	7.4	92.3
49-9041	Industrial Machinery Mechanics	0.7	13.7	85.5
49-9043	Maintenance Workers, Machinery Installation, Maintenance, and Repair Workers, All Other	1.0	9.1	89.9
49-9099		1.0	10.2	88.8
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	0.7	18.2	81.1
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	3.1	28.7	68.2
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	11.4	19.1	69.5

### Keywords

Generally, the percentage of a major occupational group's resumes viewed by employers is only high when the group also has a high percentage of college graduates. *Installation, Maintenance, and Repair* is an exception as its viewed percentage of 63.7% was the sixth highest among the 23 occupational groups, yet only five groups had a lower percentage of college graduates.

Apparently employers seek applicants with a combination of skills. The list of primary/related keyword combinations at the end of the chapter shows dozens of cases where employers viewed over 80 percent of resumes containing a pair of keywords in 2004.

On nearly 70 percent of the job orders containing the keyword *High* it was part of the phrase “high school”.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Installation, Maintenance, and Repair* - Major Occupational Group 49

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/Resumes
Air	2,887	75.4	3,455	1.20
Alarm	443	74.9	325	0.73
Diesel	1,320	<b>80.0</b>	2,693	2.04
Electrician	1,519	73.4	457	0.30
Electro	666	77.2	311	0.47
Engine	1,735	75.6	1,346	0.78
High	2,563	75.8	5,816	<b>2.27</b>
HVAC	2,082	74.3	3,228	1.55
Mechanical	5,212	73.3	6,888	1.32
Metal	1,278	73.7	951	0.74
Power	4,207	73.0	2,759	0.66
Refrigeration	883	76.9	1,716	1.94
Security	2,161	72.8	1,171	0.54
Sheet	696	75.2	609	0.88
Technician	6,366	73.0	5,049	0.79
Major Group Total	38,985	63.7	39,395	1.01

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Installation, Maintenance, and Repair* - Major Occupational Group 49

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
Air	49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	2,352	672	28.6
Alarm	49-2098	Security and Fire Alarm Systems Installers	235	95	40.4
Diesel	49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	2,139	1,228	57.4
Electrician	49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	324	93	28.7
Electro	49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	254	47	18.4
Engine	49-3023	Automotive Service Technicians and Mechanics	1,086	328	30.2
High	49-9042	Maintenance and Repair Workers, General	3,389	415	12.2
HVAC	49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	1,900	817	43.0
Mechanical	49-9041	Industrial Machinery Mechanics	5,590	878	15.7
Metal	49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	586	92	15.7
Power	49-9042	Maintenance and Repair Workers, General	2,165	208	9.6
Refrigeration	49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	895	427	47.7
Security	49-2098	Security and Fire Alarm Systems Installers	694	98	14.1
Sheet	49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	292	81	27.7
Technician	49-3023	Automotive Service Technicians and Mechanics	3,178	489	15.4

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: Air

Related Keywords: Automotive 79.8%, Cable 80.5%, Computer 78.8%, Construction 79.4%, Diesel 84.2%, Electric 78.8%, Electrical 79.7%, Electrician 83.1%, Electro 81.8%, Electronic 79.2%, Electronics 79.7%, Engine 80.5%, Equipment 78.1%, Heavy 78.6%, High 81.9%, HVAC 78.0%, Installation 77.8%, Maintenance 79.7%, Mechanic 80.2%, Mechanical 80.1%, Metal 78.2%, Power 81.8%, Refrigeration 77.4%, Repair 78.3%, Security 81.8%, Service 77.5%, Sheet 80.7%, Technician 80.8%, Truck 80.5%, Welder 80.7%

Primary Keyword: Alarm

Related Keywords: Construction 83.3%, Electrical 79.1%, Electronic 79.3%, Electronics 79.9%, Equipment 79.0%, Field 80.7%, High 84.2%, HVAC 86.5%, Maintenance 78.8%, Mechanical 81.2%, Power 81.1%, Repair 78.5%, Service 81.2%, Telephone 79.6%

Primary Keyword: Diesel

Related Keywords: Air 84.2%, Automotive 85.6%, Computer 83.2%, Electrical 83.6%, Electronics 90.3%, Engine 82.2%, Equipment 81.9%, High 86.3%, Maintenance 83.3%, Mechanical 83.3%, Power 82.7%, Refrigeration 87.4%, Repair 81.8%, Technician 85.2%

Primary Keyword: Electrician

Related Keywords: Air 83.1%, Computer 77.3%, Electric 79.7%, Electrical 76.7%, Electronic 79.9%, Electronics 79.2%, Equipment 78%, Field 76.9%, High 80.1%, HVAC 82.4%, Installation 78.0%, Maintenance 77.7%, Mechanic 79.8%, Mechanical 78.7%, Power 81.3%, Repair 78.7%, Security 82.3%, Service 79.1%, Technician 81.4%, Welding 76.8%

Primary Keyword: Electro

Related Keywords: Air 81.8%, Equipment 79.4%, High 82.4%, Maintenance 79.5%, Power 80.5%, Technician 81.4%

Primary Keyword: Engine

Related Keywords: Air 80.5%, Automotive 78.9%, Computer 80.1%, Diesel 82.2%, Electric 84.0%, Electrical 80.4%, Electronic 80.8%, Electronics 86.0%, Equipment 78.9%, Field 79.6%, Heavy 78.1%, High 81.7%, Installation 80.5%, Maintenance 80.1%, Mechanic 78.0%, Mechanical 79.8%, Power 80.7%, Refrigeration 80.6%, Security 81.5%, Technician 82.0%

Primary Keyword: High

Related Keywords: Air 81.9%, Alarm 84.2%, Automotive 82.8%, Diesel 86.3%, Electric 80.2%, Electrical 80.3%, Electrician 80.1%, Electro 82.4%, Electronic 79.5%, Electronics 78.3%, Engine 81.7%, Equipment 78.5%, Field 78.8%, HVAC 84.4%, Installation 78.1%, Maintenance 79.5%, Mechanic 81.6%, Mechanical 78.9%, Metal 83.6%, Power 79.9%, Refrigeration 81.9%, Repair 79.0%, Security 80.5%, Service 78.8%, Sheet 85.8%, Tech 79.2%, Technician 79.7%, Welder 79.6%, Welding 80.8%

Primary Keyword: HVAC

Related Keywords: Air 78.0%, Alarm 86.5%, Automotive 81.7%, Computer 79.0%, Electric 77.8%, Electrical 77.3%, Electrician 82.4%, Electronic 78.2%, Electronics 82.2%, Equipment 77.9%, Field 78.0%, High 84.4%, Installation 78.2%, Maintenance 79.5%, Mechanic 79.1%, Mechanical 79.1%, Metal 78.0%, Power 81.6%, Refrigeration 80.0%, Repair 78.1%, Security 81.6%, Service 78.1%, Sheet 81.7%, Technician 78.3%, Truck 80.0%, Welding 76.8%

Primary Keyword: Mechanical

Related Keywords: Air 80.1%, Alarm 81.2%, Automotive 75.9%, Construction 77.1%, Diesel 83.3%, Electrical 75.3%, Electrician 78.7%, Electro 77.9%, Electronics 77.1%, Engine 79.8%, Field 76.1%, Heavy 77.2%, High 78.9%, HVAC 79.1%, Installation 75.8%, Maintenance 76.7%, Mechanic 78.8%, Metal 79.5%, Refrigeration 80.1%, Repair 75.8%, Security 79.4%, Service 76.6%, Sheet 80.5%, Tech 76.2%, Technician 78.1%, Truck 77.5%, Welder 79.3%, Welding 75.6%



Primary Keyword: Metal

Related Keywords: Air 78.2%, Automotive 81.7%, Cable 84.4%, Computer 80.6%, Construction 77.0%, Electrical 78.5%, Electronic 79.5%, Field 78.3%, High 83.6%, HVAC 78.0%, Installation 81.0%, Maintenance 78.0%, Mechanic 78.9%, Mechanical 79.5%, Power 76.8%, Repair 76.6%, Service 77.6%, Sheet 76.2%, Technician 81.4%, Truck 82.1%

Primary Keyword: Power

Related Keywords: Air 81.8%, Alarm 81.1%, Automotive 80.2%, Computer 75.8%, Construction 76.5%, Diesel 82.7%, Electrical 76.6%, Electrician 81.3%, Electro 80.5%, Electronic 76.5%, Electronics 77.3%, Engine 80.7%, Equipment 74.1%, Field 76.2%, Heavy 77.3%, High 79.9%, HVAC 81.6%, Installation 74.9%, Maintenance 77.2%, Mechanic 78%, Metal 76.8%, Refrigeration 83.9%, Repair 75.9%, Security 80.2%, Service 77.4%, Sheet 79.7%, Tech 75.9%, Technician 78.6%, Truck 78.8%, Welding 77.0%

Primary Keyword: Refrigeration

Related Keywords: Computer 81.7%, Diesel 87.4%, Equipment 79.6%, Heavy 83.3%, High 81.9%, HVAC 80.0%, Maintenance 80.8%, Mechanic 81.3%, Mechanical 80.1%, Power 83.9%, Technician 79.5%

Primary Keyword: Security

Related Keywords: Air 81.8%, Cable 76.6%, Computer 76.7%, Diesel 79%, Electrical 80.5%, Electrician 82.3%, Electronic 77.1%, Electronics 79.5%, Engine 81.5%, Equipment 77.3%, Field 76.5%, High 80.5%, HVAC 81.6%, Installation 77.1%, Maintenance 79.1%, Mechanic 78.8%, Mechanical 79.4%, Power 80.2%, Refrigeration 80.7%, Repair 78.1%, Service 76.1%, Tech 78.3%, Technician 78.9%, Truck 78.6%, Welding 78.6%

Primary Keyword: Sheet

Related Keywords: Air 80.7%, Computer 80.0%, Electrical 80.9%, Equipment 78.3%, High 85.8%, HVAC 81.7%, Installation 79.8%, Maintenance 79.3%, Mechanic 79.6%, Mechanical 80.5%, Power 79.7%, Repair 78.9%, Service 81.4%, Technician 82.6%, Truck 82.5%

Primary Keyword: Technician

Related Keywords: Air 80.8%, Alarm 77.0%, Automotive 77.2%, Construction 76.8%, Diesel 85.2%, Electric 76.4%, Electrical 78.3%, Electrician 81.4%, Electro 81.4%, Electronic 75.5%, Electronics 75.8%, Engine 82.0%, Equipment 76.1%, Field 74.6%, Heavy 78.9%, High 79.7%, HVAC 78.3%, Installation 74.7%, Maintenance 77.9%, Mechanic 80.6%, Mechanical 78.1%, Metal 81.4%, Power 78.6%, Refrigeration 79.5%, Repair 76.3%, Security 78.9%, Service 74.4%, Sheet 82.6%, Truck 78.2%, Welding 80.5%

## Production

### SOC Major Occupational Group 51

#### Detailed Occupations and Education Level

*Production* occupations were very diverse with no detailed occupation receiving even 10 percent of the major group's total nonbatch job orders. Few nonsupervisory positions, other than those related to quality control, called for a college degree.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Production* - Major Occupational Group 51

Code	Title	#	%
51-2099	Assemblers and Fabricators, All Other	4,746	9.2
51-4121	Welders, Cutters, Solderers, and Brazers	4,446	8.6
51-9199	Production Workers, All Other	4,269	8.3
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	3,949	7.7
51-9198	Helpers--Production Workers	3,769	7.3
51-4041	Machinists	3,217	6.2
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	3,106	6.0
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	1,564	3.0
Total of occupations with less than 3.0% of group's job orders		22,532	43.7
Total Nonbatch Job Orders		51,598	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			75.8

Table 2 – Percent of Resumes by Education Level in 2004  
For *Production*  
Major Occupational Group 51

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	13.3	33.3
High School Diploma or GED	49.9	45.7
Some College or Vocational	30.6	58.9
Bachelors Degree	5.3	64.2
Graduate Degree	0.9	63.0

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Production* - Major Occupational Group 51

Code	Title	College Degree	Some College or Voc	Other
51-2099	Assemblers and Fabricators, All Other	1.3	3.2	95.5
51-4121	Welders, Cutters, Solderers, and Brazers	0.4	6.2	93.4
51-9199	Production Workers, All Other	3.4	4.3	92.3
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	5.2	14.7	80.1
51-9198	Helpers--Production Workers	0.4	1.8	97.8
51-4041	Machinists	0.4	12.8	86.8
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	20.6	15.2	64.2
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	0.1	5.7	94.2

### Keywords

Nearly seven times more job orders than resumes, coded to the *Production* major occupational group in 2004, contained the keyword *Center*. Based upon queries of job descriptions, it appears that high ratio should be discounted. Over 46 percent of the orders used the term as part of the phrase “call center”, and the bulk of those were from an advertising blurb that promoted the use of a large private employment company. Additionally, other job orders promoted the use of a “learning center”, or directed applicants to apply at their “work center”. As a result few job orders used the keyword *Center* as part of a skill requirement.

Yet 68.9% of resumes containing *Center* were viewed by employers compared to 49.2% for all resumes coded to *Production*. Queries of resumes showed that *Center* was often part of an institution's name where the applicant obtained training. Education beyond high school was listed on 57.3% of the resumes containing *Center*, and only on 36.8% of all resumes for the group. Higher educational attainment normally results in a higher percentage of resumes being viewed by employers.

More than half of the resumes containing one of several other primary keywords also indicated education beyond high school. Those keywords were: *CNC*, *Die*, *Electronics*, *Lathe*, *Machinist*, *Manufacturing*, *Mechanical*, *Quality*, and *Tool*.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Production* - Major Occupational Group 51

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/Resumes
Brake	908	65.7	926	1.02
Center	797	68.9	5,571	<b>6.99</b>
CNC	2,744	<b>74.4</b>	4,845	1.77
Die	1,058	68.1	809	0.76
Electronics	1,470	67.9	1,277	0.87
Injection	767	65.6	1,082	1.41
Lathe	960	71.4	1,554	1.62
Machinist	1,708	74.3	2,197	1.29
Manufacturing	5,624	66.1	12,936	2.30
Mechanical	3,021	68.5	6,018	1.99
Mill	839	69.6	1,334	1.59
Punch	1,160	65.9	917	0.79
Quality	8,625	65.2	9,085	1.05
Sheet	1,082	65.8	1,390	1.28
Tool	1,711	66.2	1,491	0.87
Major Group Total	67,391	49.2	68,055	1.01

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Production* - Major Occupational Group 51

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
Brake	51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	689	299	43.4
Center	51-9198	Helpers--Production Workers	2,167	286	13.2
CNC	51-4041	Machinists	3,678	1,405	38.2
Die	51-4111	Tool and Die Makers	622	136	21.9
Electronics	51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	598	121	20.2
Injection	51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	695	280	40.3
Lathe	51-4041	Machinists	1,198	490	40.9
Machinist	51-4041	Machinists	1,679	1,054	62.8
Manufacturing	51-9199	Production Workers, All Other	6,228	791	12.7
Mechanical	51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	4,042	552	13.7
Mill	51-4041	Machinists	1,055	364	34.5
Punch	51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	742	284	38.3
Quality	51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	6,102	1,235	20.2
Sheet	51-4121	Welders, Cutters, Solderers, and Brazers	1,039	137	13.2
Tool	51-4041	Machinists	1,104	219	19.8

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: Brake

Related Keywords: Center 77.3%, CNC 74.1%, Machine 68.4%, Maintenance 75.7%, Manufacturing 73.4%, Mechanical 78.4%, Metal 68.9%, Punch 70.3%, Quality 74.2%, Set 69.8%, Sheet 70.6%, Tool 76.4%

Primary Keyword: Center

Related Keywords: Brake 77.3%, CNC 81.0%, Control 77.1%, Die 80.1%, Electronic 74.7%, Lathe 78.9%, Machine 73.1%, Machinist 79.4%, Maintenance 76.6%, Manager 75.0%, Manufacturing 74.2%, Mechanical 79.8%, Metal 77.7%, Mill 82.7%, Operator 71.9%, Press 73.7%, Production 72.6%, Punch 74.5%, Quality 76.7%, Set 76.5%, Sheet 78.7%, Supervisor 73.0%, Tool 80.8%

Primary Keyword: CNC

Related Keywords: Center 81.0%, Control 78.5%, Die 80.5%, Electronic 81.2%, Lathe 77.2%, Machine 75.8%, Machinist 80.7%, Maintenance 78.4%, Manager 79.8%, Manufacturing 79.1%, Mechanical 80.5%, Mill 77.6%, Punch 77.4%, Quality 78.4%, Set 76.0%, Sheet 78.2%, Supervisor 79.6%, Tool 79.0%

Primary Keyword: Die

Related Keywords: Center 80.1%, CNC 80.5%, Control 74.2%, Injection 76.2%, Lathe 76.5%, Machinist 79.3%, Maintenance 75.1%, Manufacturing 79.3%, Mechanical 75.3%, Mill 79.6%, Plastic 75.4%, Punch 77.7%, Quality 77.6%, Supervisor 78.3%, Tool 70.9%

Primary Keyword: Electronics

Related Keywords: Center 74.6%, Control 77.0%, Inspector 75.5%, Machine 72.6%, Maintenance 76.4%, Manager 78.2%, Manufacturing 72.8%, Mechanical 73.1%, Metal 74.8%, Production 71.9%, Quality 76.1%, Set 72.9%, Shipping 72.3%, Supervisor 75.4%, Tool 79.7%

Primary Keyword: Injection

Related Keywords: CNC 76.7%, Control 71.0%, Die 76.2%, Inspector 73.1%, Machinist 75.7%, Maintenance 74.6%, Manager 77.3%, Manufacturing 73.1%, Mechanical 76.9%, Metal 73.2%, Plant 75.7%, Plastic 69.7%, Quality 70.8%, Set 74.1%, Supervisor 73.6%, Tool 77.5%

Primary Keyword: Lathe

Related Keywords: Center 78.9%, CNC 77.2%, Control 76.6%, Die 76.5%, Machinist 79.0%, Maintenance 78.2%, Manufacturing 76.7%, Mechanical 76.8%, Mill 76.4%, Plastic 81.4%, Quality 77.9%, Set 77.5%, Supervisor 76.6%, Tool 74.6%

Primary Keyword: Machinist

Related Keywords: Assembly 77.9%, Center 79.4%, CNC 80.7%, Control 81.3%, Die 79.3%, Lathe 79.0%, Maintenance 78.7%, Manager 82.9%, Manufacturing 82.1%, Mechanical 82.6%, Metal 78.8%, Mill 82.5%, Plant 83.6%, Press 77.6%, Production 77.4%, Quality 82.3%, Set 80.2%, Supervisor 83.7%, Tool 77.9%

Primary Keyword: Manufacturing

Related Keywords: Brake 73.4%, Center 74.2%, CNC 79.1%, Control 73.7%, Die 79.3%, Electronic 69.9%, Electronics 72.8%, Injection 73.1%, Inspector 73.3%, Lathe 76.7%, Machine 67.8%, Machinist 82.1%, Maintenance 72.8%, Manager 76.8%, Mechanical 74.8%, Metal 72.1%, Mig 69.5%, Mill 74.5%, Plant 74.4%, Plastic 72.6%, Punch 70.7%, Quality 73.3%, Set 70.8%, Sheet 73.3%, Supervisor 72.9%, Tool 77.2%

Primary Keyword: Mechanical

Related Keywords: Assembly 71.3%, Brake 78.4%, Center 79.8%, CNC 80.5%, Control 73.7%, Die 75.3%, Electronics 73.1%, Injection 76.9%, Inspector 73.4%, Lathe 76.8%, Machine 71.3%, Machinist 82.6%, Maintenance 72.2%, Manager 73.0%, Manufacturing 74.8%, Metal 76.3%, Mig 74.3%, Mill 78.3%, Plant 72.7%, Press 72.1%, Production 70.8%, Punch 76%, Quality 74.9%, Set 72.4%, Sheet 75.5%, Supervisor 71.6%, Tool 74.1%

Primary Keyword: Mill

Related Keywords: Assembly 76.9%, Center 82.7%, CNC 77.6%, Control 75.4%, Die 79.6%, Lathe 76.4%, Machine 73.7%, Machinist 82.5%, Maintenance 77.3%, Manufacturing 74.5%, Mechanical 78.3%, Metal 80.1%, Press 73.1%, Production 72.5%, Quality 73.1%, Set 74.9%, Sheet 77.8%, Supervisor 75.4%, Tool 78.6%

Primary Keyword: Punch

Related Keywords: Brake 70.3%, Center 74.5%, CNC 77.4%, Control 70.8%, Die 77.7%, Lathe 71%, Machine 68.8%, Machinist 76.2%, Maintenance 73.4%, Manufacturing 70.7%, Mechanical 76%, Metal 70.6%, Mig 71.5%, Plastic 76.6%, Production 69.2%, Quality 73.0%, Set 69.0%, Sheet 72.3%, Supervisor 75.1%, Tool 74.3%

Primary Keyword: Quality

Related Keywords: Brake 74.2%, Center 76.7%, CNC 78.4%, Die 77.6%, Electronic 68.8%, Electronics 76.1%, Forklift 66.5%, Injection 70.8%, Inspector 67.6%, Lathe 77.9%, Machine 68.2%, Machinist 82.3%, Maintenance 73.9%, Manager 75.5%, Manufacturing 73.3%, Mechanical 74.9%, Metal 73.3%, Mig 73.5%, Mill 73.1%, Plant 73.0%, Plastic 69.7%, Press 69.8%, Printing 68.6%, Production 67.0%, Punch 73.0%, Set 71.2%, Sheet 74.6%, Supervisor 72.7%, Tool 76.8%

Primary Keyword: Sheet

Related Keywords: Brake 70.6%, Center 78.7%, CNC 78.2%, Control 74.6%, Electronic 76.9%, Inspector 73.8%, Lathe 75.3%, Machine 69.8%, Machinist 76.9%, Maintenance 71.2%, Manager 71.3%, Manufacturing 73.3%, Mechanical 75.5%, Mig 69.5%, Mill 77.8%, Operator 68.6%, Plant 77.7%, Plastic 81.6%, Press 69.0%, Production 70.6%, Punch 72.3%, Quality 74.6%, Set 69.5%, Supervisor 76.1%, Tool 76.0%

Primary Keyword: Tool

Related Keywords: Assembly 73.6%, Brake 76.4%, Center 80.8%, CNC 79%, Control 74.9%, Die 70.9%, Electronics 79.7%, Forklift 70.8%, Injection 77.5%, Lathe 74.6%, Machinist 77.9%, Maintenance 73.8%, Manager 79.1%, Manufacturing 77.2%, Mechanical 74.1%, Mill 78.6%, Operator 68.5%, Plant 73.7%, Press 71.3%, Production 71.6%, Punch 74.3%, Quality 76.8%, Set 74.3%, Sheet 76.0%, Supervisor 77.0%

## Transportation and Material Moving

SOC Major Occupational Group 53

### Detailed Occupations and Education Level

Education was not a big factor in employers' job orders compared to the requirements for specific classes of commercial drivers licenses. For this reason the keyword portion of the analysis better describes employers' labor market needs.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Transportation and Material Moving* - Major Occupational Group 53

Code	Title	#	%
53-3032	Truck Drivers, Heavy and Tractor-Trailer	14,843	30.6
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	9,012	18.6
53-3033	Truck Drivers, Light or Delivery Services	5,654	11.7
53-3031	Driver/Sales Workers	3,658	7.5
53-7051	Industrial Truck and Tractor Operators	2,559	5.3
53-7064	Packers and Packers, Hand	1,621	3.3
53-7199	Material Moving Workers, All Other	1,566	3.2
Total of occupations with less than 3.0% of group's job orders		9,594	19.8
Total Nonbatch Job Orders		48,507	100.0
Nonbatch Job Orders as a Percent of Job Orders from all Sources			75.6

Table 2 – Percent of Resumes by Education Level in 2004  
For *Transportation and Material Moving*  
Major Occupational Group 53

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	19.8	27.2
High School Diploma or GED	51.5	40.0
Some College or Vocational	24.5	54.3
Bachelors Degree	3.6	55.4
Graduate Degree	0.5	52.3



Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Transportation and Material Moving* - Major Occupational Group 53

Code	Title	College Degree	Some College or Voc	Other
53-3032	Truck Drivers, Heavy and Tractor-Trailer Laborers and Freight, Stock, and Material Movers, Hand	0.0	1.0	99.0
53-7062	Truck Drivers, Light or Delivery Services	0.2	1.2	98.6
53-3033	Driver/Sales Workers	0.1	1.4	98.5
53-3031	Industrial Truck and Tractor Operators	0.2	1.8	98.0
53-7051	Packers and Packagers, Hand	0.0	1.6	98.3
53-7064	Material Moving Workers, All Other	0.5	0.7	98.8
53-7199		0.6	1.8	97.6

### Keywords

*Transportation and Material Moving* occupations had the third lowest percentage of resumes viewed by employers of the 23 major occupational groups in 2004. However, resumes were much more likely to be viewed if they contained keywords associated with driving heavy trucks. Resume subsets containing primary/related keyword combinations were tallied. The 14 keyword combinations with the occupational group's highest viewed percentages were all composed of the following terms:

*Drivers*

*Diesel* The heaviest trucks are generally powered by diesel engines

*CDL* Commercial drivers license

*Class* CDL class, job orders predominately specify class A, required for the heaviest trucks

*OTR* Over the road, term specifying longer intercity routes

*Road* Part of “over the road”

*Driver*

*Tractor* The front portion of a tractor trailer rig which includes the engine and cab

Generally, those were the same keywords with the highest ratios of job orders to resumes.

Table 4 – Average Quarterly Resumes and Job Orders  
Containing Primary Keywords in 2004  
For *Transportation and Material Moving* - Major Occupational Group 53

Primary Keyword	Resumes	% Viewed	Job Orders	Orders/Resumes
CDL	5,409	62.5	13,186	2.44
Class	5,264	62.7	15,452	2.94
Delivery	3,041	54.9	7,972	2.62
Diesel	464	<b>67.6</b>	319	0.69
Driver	10,199	53.3	16,952	1.66
Drivers	1,431	57.5	14,875	<b>10.39</b>
Forklift	11,101	50.5	5,774	0.52
OTR	491	66.0	2,095	4.27
Road	959	59.6	4,200	4.38
Sales	3,581	54.2	3,879	1.08
Shipping	5,333	52.6	2,733	0.51
Tractor	2,832	56.5	6,344	2.24
Trailer	2,286	60.6	6,830	2.99
Truck	10,381	50.1	13,283	1.28
Warehouse	9,344	46.4	8,750	0.94
Major Group Total	60,896	41.6	64,168	1.05

Table 5 – Primary Keywords by Detailed SOC With the Most Nonbatch Job Orders in 2004  
For *Transportation and Material Moving* - Major Occupational Group 53

Primary Keyword	Detailed SOC	Occupational Description	Average Quarterly Job Orders		
			Major Group	Detailed SOC	%
CDL	53-3032	Truck Drivers, Heavy and Tractor-Trailer	10,532	7,306	69.4
Class	53-3032	Truck Drivers, Heavy and Tractor-Trailer	11,447	7,507	65.6
Delivery	53-3033	Truck Drivers, Light or Delivery Services	5,735	1,914	33.4
Diesel	53-3032	Truck Drivers, Heavy and Tractor-Trailer	251	143	56.9
Driver	53-3032	Truck Drivers, Heavy and Tractor-Trailer	10,596	5,284	49.9
Drivers	53-3032	Truck Drivers, Heavy and Tractor-Trailer	9,555	4,568	47.8
Forklift	53-7051	Industrial Truck and Tractor Operators	4,843	1,697	35.0
OTR	53-3032	Truck Drivers, Heavy and Tractor-Trailer	1,832	1,753	95.7
Road	53-3032	Truck Drivers, Heavy and Tractor-Trailer	2,575	1,981	76.9
Sales	53-3031	Driver/Sales Workers	1,515	792	52.3
Shipping	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	2,078	859	41.3
Tractor	53-3032	Truck Drivers, Heavy and Tractor-Trailer	2,924	2,563	87.7
Trailer	53-3032	Truck Drivers, Heavy and Tractor-Trailer	3,254	2,750	84.5
Truck	53-3032	Truck Drivers, Heavy and Tractor-Trailer	11,119	6,367	57.3
Warehouse	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	5,080	2,063	40.6

All primary and related keyword combinations for this major occupational group are shown below with their respective average quarterly percentage of resumes viewed by employers.

Primary Keyword: CDL

Related Keywords: Class 66.2%, Delivery 64.8%, Diesel 74.3%, Driver 64.9%, Drivers 68.5%, Forklift 64.2%, OTR 69.8%, Road 69.2%, Sales 68.2%, Tractor 67.7%, Trailer 67.9%

Primary Keyword: Class

Related Keywords: CDL 66.2%, Diesel 74.5%, Driver 65%, Drivers 67.3%, OTR 70.7%, Road 67.9%, Sales 66.7%, Tractor 67.4%, Trailer 67.1%

Primary Keyword: Delivery

Related Keywords: CDL 64.8%, Class 64.2%, Driver 57.5%, Forklift 59.8%, OTR 67%, Road 67.4%, Sales 60.8%, Shipping 62.3%, Tractor 60.1%, Trailer 61.1%, Warehouse 58.9%

Primary Keyword: Diesel

Related Keywords: CDL 74.3%, Class 74.5%, Driver 72.1%, Drivers 79.6%

Primary Keyword: Driver

Related Keywords: CDL 64.9%, Class 65%, Delivery 57.5%, Diesel 72.1%, Drivers 63.2%, Forklift 55.9%, OTR 67.8%, Road 64.9%, Sales 58.8%, Shipping 57.4%, Tractor 62.6%, Trailer 63.8%, Truck 56.9%, Warehouse 55.4%

Primary Keyword: Drivers

Related Keywords: CDL 68.5%, Class 67.3%, Diesel 79.6%, Driver 63.2%, Forklift 63.9%, Road 66.4%, Shipping 61.9%, Tractor 62.5%, Trailer 63.6%

Primary Keyword: Forklift

Related Keywords: Bus 55.3%, CDL 64.2%, Class 62.9%, Delivery 59.8%, Driver 55.9%, Drivers 63.9%, Road 61.9%, Sales 59.2%, Shipping 54.5%, Tractor 58.5%, Trailer 65.3%, Truck 56.0%, Warehouse 51.8%

Primary Keyword: OTR

Related Keywords: CDL 69.8%, Class 70.7%, Road 73.9%

Primary Keyword: Road

Related Keywords: CDL 69.2%, Class 67.9%, Delivery 67.4%, Driver 64.9%, Drivers 66.4%, OTR 73.9%, Sales 65.8%, Shipping 64.4%, Tractor 64.2%, Trailer 65.9%, Truck 62.4%, Warehouse 64.2%

Primary Keyword: Sales

Related Keywords: CDL 68.2%, Class 66.7%, Delivery 60.8%, Driver 58.8%, Forklift 59.2%, Road 65.8%, Shipping 61.9%, Tractor 64.7%, Trailer 66.5%, Truck 59.4%, Warehouse 58.2%

Primary Keyword: Shipping

Related Keywords: CDL 63.9%, Class 60.8%, Delivery 62.3%, Driver 57.4%, Drivers 61.9%, Forklift 54.5%, Road 64.4%, Sales 61.9%, Tractor 60.9%, Trailer 67.0%, Truck 58.2%, Warehouse 54.7%

Primary Keyword: Tractor

Related Keywords: Bus 61.2%, CDL 67.7%, Class 67.4%, Delivery 60.1%, Diesel 66.7%, Driver 62.6%, Drivers 62.5%, Forklift 58.5%, OTR 69.2%, Road 64.2%, Sales 64.7%, Shipping 60.9%, Trailer 60.4%

Primary Keyword: Trailer

Related Keywords: CDL 67.9%, Class 67.1%, Diesel 71.7%, Driver 63.8%, Forklift 65.3%, OTR 68.6%, Road 65.9%, Sales 66.5%, Shipping 67.0%, Warehouse 63.8%

Primary Keyword: Truck

Related Keywords: Bus 56.3%, CDL 63.3%, Class 63.7%, Delivery 54.8%, Diesel 69.2%, Driver 56.9%, Drivers 57.4%, Forklift 56%, OTR 67.6%, Road 62.4%, Sales 59.4%, Shipping 58.2%, Tractor 55.2%, Trailer 60.9%, Warehouse 54.6%

Primary Keyword: Warehouse

Related Keywords: Bus 51.4%, CDL 62.7%, Class 62.0%, Delivery 58.9%, Driver 55.4%, Drivers 59.9%, Forklift 51.8%, Road 64.2%, Sales 58.2%, Shipping 54.7%, Tractor 57.1%, Trailer 63.8%, Truck 54.6%

**Military Specific**  
SOC Major Occupational Group 55

**Detailed Occupations and Education Level**

2004 was the second year of the Iraq war. Some of the job orders coded to *Military Specific* occupations were from branches of the US Military.

Table 1 – Quarterly Average of Nonbatch Job Orders by Detailed SOC Codes in 2004  
For *Military Specific* - Major Occupational Group 55

Code	Title	#	%
55-3019	Military Enlisted Tactical Operations and Air/Weapons Specialists and Crew Members, All Other	35	23.1
55-2013	First-Line Supervisors/Managers of All Other Tactical Operations Specialists	22	14.4
55-3016	Infantry	21	13.6
55-3018	Special Forces	15	10.1
55-3014	Artillery and Missile Crew Members	9	6.2
55-1015	Command and Control Center Officers	8	5.4
55-3015	Command and Control Center Specialists	7	4.9
55-1019	Military Officer Special and Tactical Operations Leaders/Managers, All Other	7	4.5
	Total of occupations with less than 3.0% of group's job orders	30	17.9
	Total Nonbatch Job Orders	154	100.0
	Nonbatch Job Orders as a Percent of Job Orders from all Sources		100.0

Table 2 – Percent of Resumes by Education Level in 2004  
For *Military Specific*  
Major Occupational Group 55

Education Level	Percent of Percent Viewed	
	Resumes	by Employers
Less Than High School	0.0	N/A
High School Diploma or GED	29.5	62.9
Some College or Vocational	52.2	76.1
Bachelors Degree	14.3	82.8
Graduate Degree	4.0	88.9

Table 3 – Percent Education Required on Nonbatch Job Orders  
By Detailed SOC Code in 2004  
For *Military Specific* - Major Occupational Group 55

Code	Title	College Degree	Some College or Voc	Other
55-3019	Military Enlisted Tactical Operations and Air/Weapons Specialists and Crew Members, All Other	2.5	4.1	93.4
55-2013	First-Line Supervisors/Managers of All Other Tactical Operations Specialists	20.3	14.5	65.2
55-1015	Command and Control Center Officers	84.4	6.3	9.4
55-3015	Command and Control Center Specialists	35.7	0.0	64.3
55-1019	Military Officer Special and Tactical Operations Leaders/Managers, All Other	33.3	14.3	52.4

**Keywords**

No primary or related keywords were identified for *Military Specific* occupations. The first stage of keyword identification for this project was to tally all words contained in employers’ resume search criteria. In 2004 no employers submitted a resume search criteria for this major occupational group.

# Technical Appendix

## Technical Documentation and Data Limitations

### Occupational Coding

All occupational data in this report are based upon the Standard Occupational Classification (SOC). The SOC is a hierarchical classification system used by statistical agencies and others working with occupational data. In this report, two levels of the SOC are used.

- ◆ *Major Group* – Two digits are used to designate this level. Some data such as employers' resume searches and job orders submitted through a batch system by private employers and intermediaries are only considered by CEIS to be valid at this coding level.
- ◆ *Detailed SOC* – Six digits are used to designate this level. Existing data in CIDS are often developed at this level. In this report, only job orders created by AJB's national online system, or submitted by state systems are tallied by detailed SOC.

### Data Sources

Employers' Resume Search Criteria: Most criteria are only occupationally coded to the SOC major group level. Some criteria do not include keywords.

Resumes: Some resumes are active for several quarters. For this report, resumes active on the last day of the each quarter are tallied and expressed as a quarterly average.

Viewed Resumes: Each resume has a counter of how many times employers have viewed them. The counter of each active resume is read to see if an employer viewed the resume during the quarter. For this report, viewed resumes are displayed as an average quarterly percentage of all active resumes.

Job Orders: Job orders are submitted to AJB through three systems. In 2004, 68 percent of the job orders submitted to AJB originated with the national batch system. Batch job orders are not originally coded to the SOC, so they are not represented in some appendix tables. Just over 25 percent of the orders in 2004 came from state systems and the remainder from the national online system.

### Keywords

Words and acronyms are searched for in the database text columns of employers' resume searches, resumes, and job order descriptions. Large text columns entered into AJB databases are generally entered free-form. For example, employers will often delimit some words with hyphens or slashes instead of spaces. Other words are set off with asterisks, or other special characters, to highlight them.

CEIS used custom utilities to identify words, even when surrounded by special characters. Additionally, those utilities captured the record identification of the job order, resume, or employer search criteria. This avoided multiple counting, even if the same word occurred several times in a single record. Common terms, not adding to the understanding of labor market dynamics are excluded (for example: *the, or, and*).

Resumes were assigned to one or more SOC codes. All keywords pertain only to a specific SOC major group and meet the following selection criteria:

- ◆ Only words commonly found on employers' search criteria for the major group are considered as keywords.
- ◆ Each potential keyword must be found in at least 100 active resume/quarters assigned to the major group during the year. A resume is counted whenever it is active at the end of a quarter and some will be counted for multiple quarters. AJB resumes have free-form information in six database text columns covering job objectives, certificates, skills, previous job titles and duties, and other notes. All of those text columns are searched for potential keywords, but a keyword will only be tallied once for a specific resume and quarter, even if the term is used many times.
- ◆ Job descriptions are searched, and potential keywords must be found on at least 100 job orders created during the year and coded to the major group.
- ◆ The proportion of average quarterly viewed resumes, containing a specific keyword, must have been significantly higher than the equivalent proportion of the all resumes coded to its major occupational group. Significance testing was at the 90% confidence level.
- ◆ Keywords, meeting the criteria above, were organized by major occupational group and ranked by their proportion of viewed resumes. Up to 15 keywords, with the highest proportion of viewed resumes, were identified as *Primary Keywords* for each major group. Some major groups have fewer than 15 keywords to select from. In fact the *Military Specific* major group had none because there were no employer's resume search criteria coded to that occupational group.

*Related Keywords* were designated to provide a context for primary keywords. To be designated as a related keyword, the proportion of viewed resumes for the combination must have been significantly higher than the proportion of the primary keyword alone. Significance testing was at the 90% confidence level. Additionally, the combination of primary and related keywords had to be on at least 100 resume/quarters and 100 job orders.

Keywords were not selected because they were the most numerous terms found in resumes and job orders coded to specific major groups. Many selected keywords were only found on a small percentage of the resumes. But the resumes containing those keywords were more likely to be viewed by employers.



## **Keyword Glossary**

### **Acronyms and Special Terms Found in Job Orders and Resumes**

Acronyms, and brand names, are treated as keywords if they meet keyword criteria. The following acronyms and special terms are provided with their meanings.

*2000* – Most often, resumes and job orders used *2000* to refer to a Microsoft operating system.

*Access* – Most commonly references a Microsoft desktop database.

*ASP* – Application Service Provider, as well as Active Server Pages

*AutoCAD* – A leading brand of computer assisted design software.

*C* – A programming language.

*C#* - Pronounced *see sharp* – Microsoft’s version of the C programming language for their “.NET” environment

*C++* - An enhanced version of the C programming language.

*CAD* – Computer Assisted Design

*CDL* – Commercial Drivers License

*CICS* – Customer Information Control System, is an IBM online transaction processing program.

*Cisco* – A major networking company. References in job orders, and resumes, to *Cisco* could refer to either networking hardware or networking software.

*CMM* – Capability Maturity Model, a process to promote software improvements over time. Also, used as acronyms for Coordinate Measuring Machine, Color Management Module, and Comprehensive Medical Management.

*CNA* – Certified Nursing Assistant

*CNC* – Computer Numerical Control – often used to control manufacturing equipment

*COBOL* – A programming language primarily used on mainframe computers for business applications.

*CPA* – Certified Public Accountant

*CRM* – Customer Relationship Management and the software used for that purpose

*Crystal* – Reports software that takes inputs from many different databases.

*DB2* – IBM’s database software

*DBA* – Database Administrator – also “Doing Business As” used with company names

*Embedded* – Most often refers to a computer system stored in ROM (read only memory) that is used to control a function or functions of a device, appliance, vehicle, or other machine.

*EJB* – Enterprise JavaBeans

*Excel* – Microsoft's spreadsheet

*GC* – Gas Chromatography

*HPLC* – High Pressure Liquid Chromatography

*HR* – Human Resources

*HTML* – Hyper Text Markup Language – used to tag sections of Web documents for display with browser software.

*HVAC* – Heating, Ventilating and Air Conditioning

*ISO* – International Organization for Standardization, frequently job orders include experience with a specific ISO standard for production jobs.

*J2EE* – Java 2 Enterprise Edition

*Java* – This term is not an acronym. Java is a programming language, developed by SUN Microsystems, designed to work on multiple operating systems.

*JavaScript* – A client side scripting language supported by most Internet browsers. JavaScript code is often inserted into HTML pages to make them interactive.

*JDE* – Java Development Environment

*JSP* – Java Server Pages

*LAN* – Local Area Network

*Linux* – The major open-source operating system.

*LPN* – Licensed Practical Nurse

*MCSE* – Microsoft Certified Systems Engineer

*MD* – Most commonly refers to Doctor of Medicine (Latin – *Medicinae Doctor*). Also refers to Measured Depth (oil industry), Muscular Dystrophy, and Maryland.

*MIG* – Metal Inert Gas (welding)

*MS* – Microsoft, Mississippi, Multiple Sclerosis, or a term to replace Miss or Mrs. when a choice is made not to divulge marital status

*Net* – Sometimes *net* refers to the Internet. However, “.NET” also refers to a collection of Microsoft software technologies which focus on connected applications. Utilities that delimit the keywords, in the free-form AJB text fields, strip away the leading period.

*NC* – Numerical Control, may also match North Carolina

*NT* – A Microsoft operating system aimed at businesses, predating Windows 2000 and Windows XP, which was originally referred to as New Technology

*Oracle* – A brand of database management, and related, software.

*OTR* – Over-The-Road – referencing long-haul truck driving

*PC* – Personal Computer

*PE* – Generally refers to a Professional Engineers license

*PeopleSoft* – A company that sells business intelligence software and related services. This company was acquired by Oracle in 2005.

*Perl* – A cross-platform programming language commonly used to develop Web applications.

*Phlebotomist* – Draws blood from patients for analysis by a medical laboratory.

*PL* – Procedural Language – nearly always used as part of PL/SQL a powerful query language

*PLC* – Programmable Logic Controller

*QA* – Quality Assurance

*QuickBooks* – A brand of accounting software

*RF* – Radio Frequency

*RN* – Registered Nurse

*SAP* – An international business intelligence company and their software products.

*Sarbanes* – Generally refers to the Sarbanes-Oxley Act, which requires financial and accounting disclosure information. The act was named for Senator Paul Sarbanes and Congressman Michael Oxley.

*SAS* – A software company featuring products for business intelligence and statistics.

*SCI* – Usually Security Clearance Investigation, but sometimes used as an abbreviation for science (e.g., computer sci).

*Siebel* – A leading CRM software company which is being purchased by Oracle

*Solaris* – A Sun Microsystems operating system.

*Sous* = “Sous chef” is often specified on job orders when employers are looking for a kitchen manager.

*SQL* – Structured Query Language

*Sybase* - A brand of database management, and related, software.

*TCP* – Transmission Control Protocol used for communication between two hosts.

*TIG* – Tungsten Inert Gas (welding)

*TS* – Top Secret – frequently combined as TS/SCI a security clearance that requires a polygraph interview

*UNIX* – An operating system originally developed in 1969. Many versions have been released, often tailored for proprietary hardware.

*VB* – “Visual Basic”, a Microsoft programming language.

*Web* – Web is often used to refer to the World Wide Web. The Web is the subset of the Internet accessed by a browser (as opposed to e-mail, file transfer protocol (FTP) or Telnet).

*WebSphere* – An IBM software platform for e-business.

*XML* – Extensible Markup Language, a text format used for electronic publishing and databases.

*XP* – Used to refer to various Microsoft current operating system editions including: Home, Professional, Media Center, and 64-bit Professional.