

National Survey of Professional, Administrative, Technical, and Clerical Pay: Private Service Industries, March 1987



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U.S. Department of Labor
Dennis E. Whitfield, Deputy Secretary

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Preface

This is the first-time that the survey of professional, administrative, technical, and clerical pay (the PATC survey) has produced data for all of the private service industries only. This bulletin summarizes the results of that March 1987 survey. Previous Bureau white-collar pay surveys have included other private sectors of the economy as well as selected service industries. Consequently, the March 1987 results of the PATC survey cannot be directly compared with earlier survey data. The 1987 salary information, collected from establishments with as few as 20 employees, is representative of all private service industries throughout the United States, except Alaska and Hawaii.

In conducting this survey, the Bureau of Labor Statistics carries out its responsibility under the Federal Pay Comparability Act of 1970, which currently governs general pay adjustments for Federal white-collar employees. Under the Act, a Pay Agent designated by the President (currently the Secretary of Labor, and the directors of the Office of Management and Budget and the Office of Personnel Management) sets up comparability procedures and reports annually to the President. The report compares salaries of Federal employees with those paid in private industry for the same levels of work, as determined by the PATC survey. The Bureau selects a list of sample establishments and collects, edits, tabulates, and reports the data. The survey scope, including the industries to be covered and the occupations to be studied, is the responsibility of the President's Pay Agent. More information on the survey scope is contained in appendix A.

The occupations studied span a wide range of duties and

responsibilities. The definitions used to collect salary data (appendix C) reflect duties and responsibilities in private industry; however, they also are designed to be translatable to specific General Schedule (GS) grades applying to Federal employees (appendix D).

The survey could not have been conducted without the cooperation of the many firms whose salary data provided the statistical information in this bulletin. The Bureau, on its own behalf and on behalf of the other Federal agencies that contributed to survey planning, wishes to express appreciation for the cooperation it has received.

The analysis in this bulletin was prepared in the Office of Wages and Industrial Relations by the staff of the Division of Occupational Pay and Employee Benefit Levels. Computer programming and systems design were provided by the Division of Directly Collected Periodic Surveys. The Division of Wage Statistical Methods was responsible for the sample design, nonresponse adjustments, and other statistical procedures. Fieldwork for the survey was directed by the Bureau's Assistant Regional Commissioners for Operations.

In 1986, a survey of employee benefits in private industry covered the same industrial scope as the 1986 nationwide PATC survey. The findings of the survey, which excluded most of the service industries, appear in *Employee Benefits in Medium and Large Firms, 1986*, Bulletin 2281 (Bureau of Labor Statistics, 1987).

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Professional, Administrative, Technical, and Clerical Pay: Private Service Industries: March 1987

Summary

This survey of private service industries developed average salaries for 93 of the 134 occupational work levels studied. These averages ranged from \$8,558 for nursing assistants performing routine duties to \$78,049 for the highest level of engineer studied. Even within similar categories of employees, such as professional, technical, or clerical, wage levels varied widely: For example, \$10,338 to \$19,151 for four levels of general clerks, \$15,285 to \$29,014 for five levels of secretaries, and \$19,588 for beginning accountants to \$49,291 for supervisory accountants in complex accounting systems.

For most occupations, salary levels in metropolitan areas and in large establishments were higher than the average for all establishments covered by the survey. Among the service industries, firms providing architectural, engineering, and research services generally reported the highest average salaries while those providing educational services reported the lowest salaries. Separate information on selected service industries is provided in this bulletin where data are sufficient to warrant publication.

In 1987, the Bureau's Professional, Administrative, Technical and Clerical Pay survey (PATC) was designed to cover all private service industries, including health care and educational services, and to obtain data from firms employing as few as 20 workers.¹ Three jobs in the nursing field also were added to the survey because of the introduction of health services, yielding salary data for about 1,064,000 additional workers.

Characteristics of the survey

This survey—28th in an annual series of white-collar pay studies—provides nationwide data for 26 occupations spanning 93 work level categories. Information was collected from establishments throughout the United States, except Alaska and Hawaii. Because previous surveys have included jobs in non-service sectors of the private economy, results from the 1987

¹ For a description of the survey and its design changes, see appendixes A and B. Also see John D. Morton, "BLS Prepares to Broaden Scope of its White-Collar Pay Survey," *Monthly Labor Review*, March 1987, pp.3-7.

survey of private services cannot be compared with the earlier findings.²

The survey occupations are divided into work levels based on duties and responsibilities. (See appendix C.) The number of work levels—designated by roman numerals, with "I" the lowest—varies from occupation to occupation, as do degree of difficulty and responsibility.³

The number of levels in each occupation ranges from one for messengers to eight for engineers. These work levels, however, are not intended to represent all the workers in a specific occupation. For example, the duties and responsibilities of an establishment's top engineers may exceed those of the highest level of engineers in the survey. Thus, the survey does not present comparisons of overall occupational salary levels, such as between accountants as a group and engineers.

The approximately 120,000 establishments within the scope of the survey employed about 13 million workers; 48 percent were professional, administrative, technical, and clerical employees on full-time schedules. Of these white-collar workers, 29 percent or approximately 1,700,000, were in occupations and work levels for which salary data were developed. The survey presents separate occupational pay data for metropolitan areas—where about nine-tenths of the white-collar workers covered by the study were employed—and for various establishment size groups based on employment.

Employment

Employment varied widely among occupations in the survey, reflecting both actual differences in employment counts and differences in the range of duties and responsibilities covered by survey definitions. For example, there were 426,000 incumbents in the four levels of registered nurses, accounting for 70 percent of the 606,500 professional employees covered

² For a description and results of the 1986 survey, see *National Survey of Professional, Administrative, Technical, and Clerical Pay, March 1986*, Bulletin 2271 (Bureau of Labor Statistics, 1986).

³ The roman numerals do not necessarily identify equal levels of work among occupations. For example, public accountant levels I to IV equate to accountant levels II to V, while attorney I equates to accountant III and public accountant II. See appendix D.

by the survey occupations; in contrast, the three-level auditor occupation had 600 incumbents.

The five levels of computer programmers and five levels of systems analysts had 42,500 and 34,400 employees, respectively. Together, they accounted for nine-tenths of the employees estimated to match the survey's administrative job descriptions. Other administrative jobs included buyers, job analysts, and directors of personnel.

Among the technical support occupations surveyed, nursing assistants accounted for almost two-thirds of the 698,000 incumbents, while licensed practical nurses accounted for nearly three-tenths. None of the other technical support occupations studied—engineering technician, drafter, computer operator, and photographer—accounted for over 4 percent of the total.

Of the clerical occupations surveyed, secretaries accounted for nearly one-third of the 294,000 incumbents. Accounting clerks and general clerks each made up slightly over one-fifth of the clerical total.

Employment in many of the occupations surveyed was heavily concentrated in health services (primarily in hospitals) and in architectural, engineering, and research services (table 7). Health services, for example, employed not only virtually all of the registered nurses, licensed practical nurses, and nursing assistants, but also accounted for three-fourths of the directors of personnel and file clerks, and between one-half and three-fifths of the job analysts, messengers, personnel clerks/assistants, purchasing clerks/assistants, and typists. Firms providing architectural, engineering, and research services employed at least nine-tenths of the engineers, engineering technicians, and drafters; they also employed two-fifths of the buyers, one-third of the auditors, and one-fourth of the attorneys.

Average salaries, March 1987

Reflecting the wide range of duties and responsibilities covered by the survey occupations, average annual salaries ranged from \$8,558 for nursing assistants I to \$78,049 for the top level of engineer (table 1). Despite such wide differences, salary averages for professional jobs of equivalent work levels often fell within a relatively narrow band. For example, annual averages for the following equivalent work levels fell within \$3,800, or an 8-percent range: Accountant V (\$49,291), Attorney III (\$53,100), and Engineer V (\$50,597). The following paragraphs summarize findings for many of the occupations studied.⁴

Annual salaries of *accountants* averaged \$19,588 at level I and \$49,291 at level V. Salaries of *public accountants* ranged

from \$21,006 for new graduates at level I to \$33,989 for supervisors at level IV. In the survey classification structure, the level designations among occupations are not synonymous; for example, public accountant levels I to III are comparable to skill levels II to IV for accountants and auditors. The accountants, public accountants, and auditors included in the survey had at least a bachelor's degree in accounting or the equivalent in education and experience.

Attorneys included in the study (all having at least L.L.B. degrees and bar membership) were employed in the legal departments of establishments other than law firms. Those performing work involving applicable precedents and established facts were classified at level II and averaged \$41,370 a year; those at level IV, with responsibility for resolving difficult legal problems, averaged \$63,711.

Buyers, who purchase "off-the shelf" and readily available items and services from local sources (level I), averaged \$20,492 a year. Buyers IV, who purchase highly complex and technical items, or materials that are custom designed and manufactured, averaged \$41,828.

Computer programmer trainees (level I) averaged \$20,980 a year; this was approximately half the average of level V incumbents who plan and direct large computer programming projects or solve unusually complex computer programming problems.

Computer systems analysts averaged \$28,607 a year. This level includes workers who are familiar with systems analysis procedures and are working independently on routine problems. Systems analysts V, the highest of six job levels for which publishable data could be developed, averaged \$59,841 a year. At this level, analysts are either senior technicians or managers responsible for the development and maintenance of large and complex computer systems.⁵

Personnel management occupations are represented by *job analysts*, and *directors of personnel*. *Job analyst* salaries were published for levels II and III of a four-level series. Level II salaries averaged \$23,315 and level III, \$27,433. *Directors of personnel* are limited by definition to those who, at a minimum, are responsible for administering a job evaluation system, employment and placement functions, and employee relations and services. Those with significant responsibility as the principal company representative in contract negotiations with labor unions are excluded. Various combinations of work force size, duties, and responsibilities determine the work level. Annual salaries for directors of personnel averaged \$35,167 for level I and \$43,927 for level II.

Engineers are surveyed in eight levels starting with a professional trainee level typically requiring a bachelor's degree. The highest level surveyed involves either full responsibility over a broad, complex, and diversified engineering program, with several subordinates each directing large and important segments of the program, or individual research and consultation

⁴ The following occupational work levels were surveyed but insufficient data were obtained to warrant publication: Accountant VI; auditor I; chief accountant I-V; attorney I, V, and VI; systems analyst VI; job analyst I and IV; director of personnel III-V; chemist I-VIII; nursing assistant IV; civil engineering technician I-V; engineering technician I; computer operator V and VI; photographer I, IV, and V; file clerk III; personnel clerk/assistant V; purchasing clerk/assistant IV; and stenographer I and II.

⁵ As noted in appendix C, information was collected separately for five levels of nonsupervisory systems analysts and four levels of systems analysts supervisors/managers. The data were consolidated for publication, using the approach shown in appendix C.

in problem areas where the engineer is a recognized authority and where solutions represent a major scientific or technological advance. Average yearly salaries ranged from \$26,355 for engineers I to \$78,049 for engineers VIII. Level IV employees, performing complex, conventional engineering were the largest group in the profession and averaged \$42,964.

Data on pay are presented for three new jobs in the nursing field. One of these, *registered nurse*, was the largest of the professional and administrative occupations studied. Average salaries ranged from \$21,012 for level I to \$34,383 for level IV. Registered nurse II, which designates those nurses working with considerable independence in cases presenting difficult nursing problems, accounted for nearly nine-tenths of the nurses surveyed. They averaged \$24,127 annually.

The other two new jobs—*nursing assistant* and *licensed practical nurse*—are included among the survey's technical support occupations. Nursing assistants, with 440,000 incumbents, had average salaries ranging from \$8,558 for level I to \$14,369 for level III, the highest level for which pay data met Bureau publication standards. Of the three levels of licensed practical nurse, average salaries ranged from \$14,636 (level I) to \$18,837 (level III). Just over four-fifths of the licensed practical nurses were at level II; their salaries averaged \$16,487 a year.

Engineering technician is a five-level series limited to employees providing technical support to engineers. These technicians work with engineers in such areas as research, design, development, testing, or manufacturing process improvement, and normally use electrical, electronic, or mechanical components or equipment. Technicians involved in production or maintenance work are excluded. Engineering technicians II, who perform standardized assignments, averaged \$20,149 a year. Engineering technicians V, who plan and conduct complex projects under general guidelines supplied by a supervisor or professional engineer, averaged \$34,275. Salaries for intermediate levels III and IV, containing a majority of the technicians surveyed, averaged \$24,425 and \$30,009, respectively.

Average salaries for *drafters* ranged from \$12,450 a year for level I (those who trace or copy finished drawings) to \$31,634 for level V (those who work closely with designers preparing drawings of unusual, complex, or original designs). Drafters who primarily use computers to transmit and duplicate designs were not surveyed.

Computer operators are classified on the basis of responsibility for problem solving, variability of assignments, and scope of authority for corrective actions needed by their equipment. Computer operators I, whose work assignments consist of on-the-job training, averaged \$14,067 a year. Level II, the largest group surveyed, averaged \$16,812, and the top level publishable (IV) averaged \$24,673.

Among the 27 clerical levels for which data are shown, average yearly salaries ranged from \$10,338 for general clerks I to \$29,014 for secretaries V, the highest of a five-level series. Averages for 8 of the clerical levels exceeded \$19,000; 7 ranged from \$15,000 to \$19,000; and 12 fell below \$15,000.

Secretary was the most populous among the clerical occupations surveyed. Average yearly salaries ranged from \$15,285 for level I to \$29,014 for level V. Secretaries in hospital wards were not included in the survey.

Typists I averaged \$13,016 and those at level II, \$15,106. Word processors were not studied.

Accounting clerks performing simple and routine clerical accounting operations (level I) averaged \$11,569 a year. Level IV clerks who maintain journals or subsidiary ledgers averaged \$20,097. Four-fifths of all accounting clerks were classified in levels II and III, which averaged \$14,424 and \$16,739 a year, respectively.

Personnel clerks/assistants who perform routine tasks requiring a knowledge of personnel rules and procedures (level I) averaged \$13,409 a year. Level IV assistants, who provide support such as interviewing and recommending placement for well-defined occupations, averaged \$23,130.

Level I purchasing clerks/assistants follow well-established and clear-cut procedures to prepare and process purchasing documents. Their yearly average of \$13,425 compares with \$20,940 for level III assistants, who generally expedite purchases by making recommendations for action based on simple analyses of the facts at hand, organizational guidelines, and the background of the purchase.

Four levels of *general clerks*, who perform a combination of clerical tasks to support office, business, or administrative operations, were surveyed. Level I clerks who follow detailed procedures in performing simple and repetitive tasks averaged \$10,338 annually. Level IV clerks, who use subject matter knowledge and judgment to complete various nonroutine assignments averaged \$19,151 a year. Level II and III clerks, the largest levels, averaged \$12,178 and \$14,767 a year, respectively.

Salary levels in metropolitan areas

For most occupational levels, average salaries in metropolitan areas⁶ (table 2) were slightly higher than the national averages (table 1). In only 19 cases, however, did such differences exceed 1 percent because metropolitan areas made up a large majority of the workers in the survey jobs.

Approximately nine-tenths of the employees covered by the survey were located in metropolitan areas. Among the occupations studied, licensed practical nurses and nursing assistants recorded the lowest proportions in such areas, about 70 percent each. On the other hand, 95 percent or more of the auditors, public accountants, attorneys, computer programmers, systems analysts, job analysts, engineers, engineering technicians, drafters, photographers, and messengers were in metropolitan areas.

⁶ Metropolitan Statistical Areas as defined by the U.S. Office of Management and Budget through June 1984.

Text table 1. Distribution of work levels by degree of salary dispersion, private services, March 1987

Occupation	Number of work levels	Number of levels having degree of dispersion ¹ of--				
		Under 15 percent	15 and under 20 percent	20 and under 25 percent	25 and under 30 percent	30 percent and over
All occupations	93	9	37	35	7	5
Professional and administrative						
Accountants	5	-	5	-	-	-
Auditors	3	1	2	-	-	-
Public accountants	4	2	1	1	-	-
Attorneys	3	1	1	1	-	-
Buyers	4	1	2	1	-	-
Computer programmers	5	1	2	2	-	-
Systems analysts	5	-	4	1	-	-
Job analysts	2	1	-	1	-	-
Directors of personnel	2	-	1	1	-	-
Engineers	8	-	7	1	-	-
Registered nurses	4	-	2	2	-	-
Technical support						
Licensed practical nurses	3	-	-	2	1	-
Nursing assistants	3	-	-	1	-	2
Engineering technicians	4	-	2	2	-	-
Drafters	5	1	1	2	1	-
Computer operators	4	-	2	2	-	-
Photographers	2	1	-	-	-	1
Clerical workers	27	-	5	15	5	2

¹ Degree of salary dispersion equals the salary range of the middle 50 percent of employees in a work level expressed as a percent of the median salary for that level.

NOTE: A dash indicates that no data were reported.

Salary levels by establishment size

Table 3 compares average annual salaries for 40 work levels across three establishment size groupings—20 to 499 employees, 500 to 2,499, and 2,500 employees or more. These comparisons show that average salaries were usually highest in the largest size category and lowest in the smallest; that such pay relationships were sometimes reversed; and that the size of the differences varied by type of occupation, as well as by skill level within occupations.

Because of the limited number of comparisons across all three size categories, no definite pattern emerged. For example, some occupations, such as nursing assistant III and general clerk I, had pay advantages (in establishments with 2,500 workers or more) as large as 35 and 28 percent, respectively. For others (accountant III, systems analysts I, and engineer IV), the average pay difference dropped to 2 to 3 percent; and, in 11 observations, the large-establishment pay advantage disappeared entirely.

The smallest establishment size category accounted for one-half of all employees in the 40 work levels shown in table 3. The highest concentrations were: Nearly nine-tenths of the drafters III, and between 70 and 80 percent of the nursing assistants II, accounting clerks I through IV, key entry operators I and II, and general clerks I, II, and III.

Salary distributions

Salary distributions for professional and administrative occupations are presented in table 4, for technical support occu-

pations in table 5, and for clerical occupations in table 6. Within most work levels, the highest salaries were at least twice the lowest salaries. As illustrated in charts 1 to 3, pay differences tended to increase with each rise in the work level. Salary ranges for specific work levels also tended to overlap each other. This reflects both salary differences among establishments and the frequent overlapping of salary ranges within individual firms.⁷

Median annual salaries for most work levels were slightly lower than mean annual salaries.⁸ Hence, salaries in the upper half of the arrays affected the means more than salaries in the lower half. The relative difference between the mean and the median was less than 2 percent for 62 of the 93 published work levels, from 2 to 4 percent for 25 levels, and from over 4 to 8 percent in the other 6 levels.

The degree of salary dispersion tended to be larger for clerical occupations than for professional, administrative, or technical occupations. These dispersions, shown in text table 1, reflect the salary range of the middle 50 percent of employees expressed as a percent of the median salary. This eliminates the extremely low and high salaries for each comparison. In about three-fourths of the 93 publishable work levels, the degree of dispersion ranged from 15 to 25 percent. Observations of

⁷ For an analysis of rate ranges within establishments, see Martin E. Persnick, "White-Collar Pay Determination Under Range-of-Rate Systems," *Monthly Labor Review*, December 1984, pp.25-30.

⁸ The median designates position; one-half of the workers receive the same as or more and one-half receive the same as or less than the median rate. The mean is computed for each job by totaling the earnings of all workers and dividing by the number of workers.

Text table 2. Average pay relatives by type of service

Selected occupational work level	All private services	Business services ¹	Architectural, engineering, and research services ²	Health services	Educational services
Accountants III	100	105	107	98	96
Accounting clerks II	100	102	110	99	94
General clerks III	100	102	109	98	95
Secretaries II	100	103	105	99	88
Key entry operators I	100	95	115	103	99
Computer operators II	100	102	107	97	93
Computer programmers II	100	101	100	96	89
Systems analysts II	100	101	103	95	91

¹ Includes business services in addition to research and development laboratories and commercial testing laboratories presented separately as part of architectural, engineering, and research services.

² Includes research and development laboratories, commercial

testing laboratories, engineering and architectural services, and noncommercial educational, scientific, and research organizations.

NOTE: "All private services" includes industries in addition to those shown separately.

25 percent and over were recorded only for technical support and clerical jobs.

Salary differences within work levels reflect a variety of factors other than duties and responsibilities. These include salary structures within establishments which provide for a range of rates for each grade level; variations in occupational employment among service industries (table 7); and geographic salary differences, especially for clerical employees.⁹ Clerical employees usually are recruited locally, while professional and administrative employees generally are recruited on a broader regional or national basis.

Pay differences by industry

Pay levels varied significantly by type of services provided (table 8). Occupational salary levels generally were highest in architectural, engineering, and research services and lowest in educational services. The pay advantages typically averaged 10 to 20 percent. Even when comparisons between these two service industries are limited to the same work levels, pay spreads remained relatively constant. (See text table 2.) Busi-

⁹ For an analysis of interarea pay differentials in clerical salaries, see *Wage Differences Among Metropolitan Areas, 1986*, Summary 86-5 (Bureau of Labor Statistics, 1987), and Mark S. Sieling, "Clerical Pay Differences in Metropolitan Areas, 1961-80," *Monthly Labor Review*, July 1982, pp.10-14.

ness services, one of the fastest growing industries in the economy, usually ranked second in the pay relatives displayed in these two tabulations; health services was third.

In the health services industry, hospital workers nearly always averaged more than their counterparts in nursing homes. The hospital pay advantage over nursing homes averaged from 31 percent for nursing assistants to 3 percent for computer operators and personnel clerks; generally the differences were between 10 and 20 percent.

Average standard weekly hours

Average weekly hours (rounded to the nearest half hour) are shown in table 9 by occupation for selected service industries. Average weekly hours were slightly longer in architectural, engineering, and research services (40 hours for most occupations) than in the health and educational service industries (38-39.5 hours for most occupations). Observations in business services were about equally divided between 40 and 39.5 hours per week. Standard weekly hours, the base for regular straight-time salary, were obtained for individual employees in the occupations studied. When individual hours were not available, particularly for some higher level professional and administrative positions, the predominant workweek of the office work force was used as the standard.

Chart 1. Salaries in professional occupations, March 1987

(Mean annual salaries and ranges within which fell 50 percent of employees)

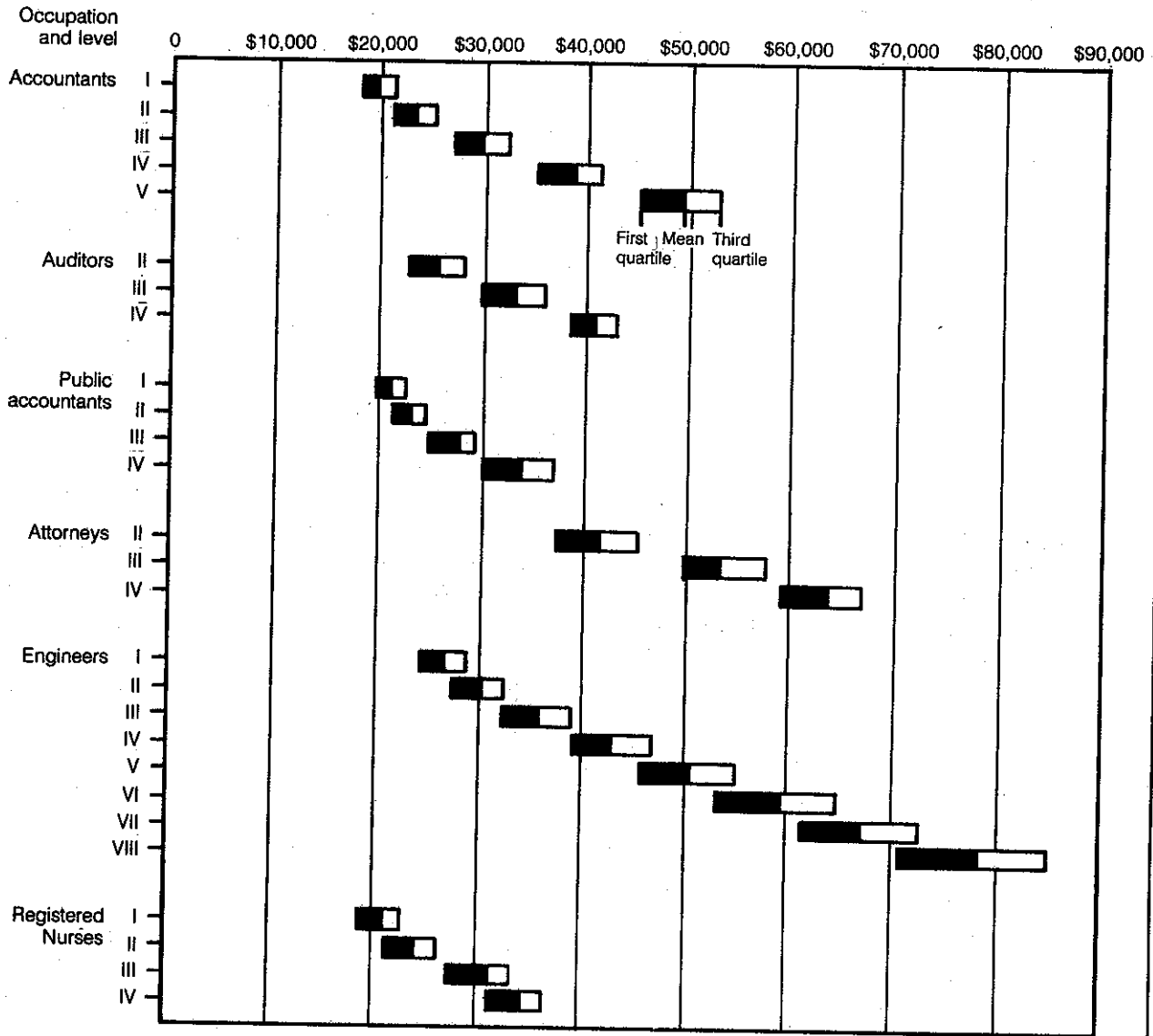


Chart 2. Salaries in administrative and technical occupations, March 1987

(Mean annual salaries and ranges within which fell 50 percent of employees)

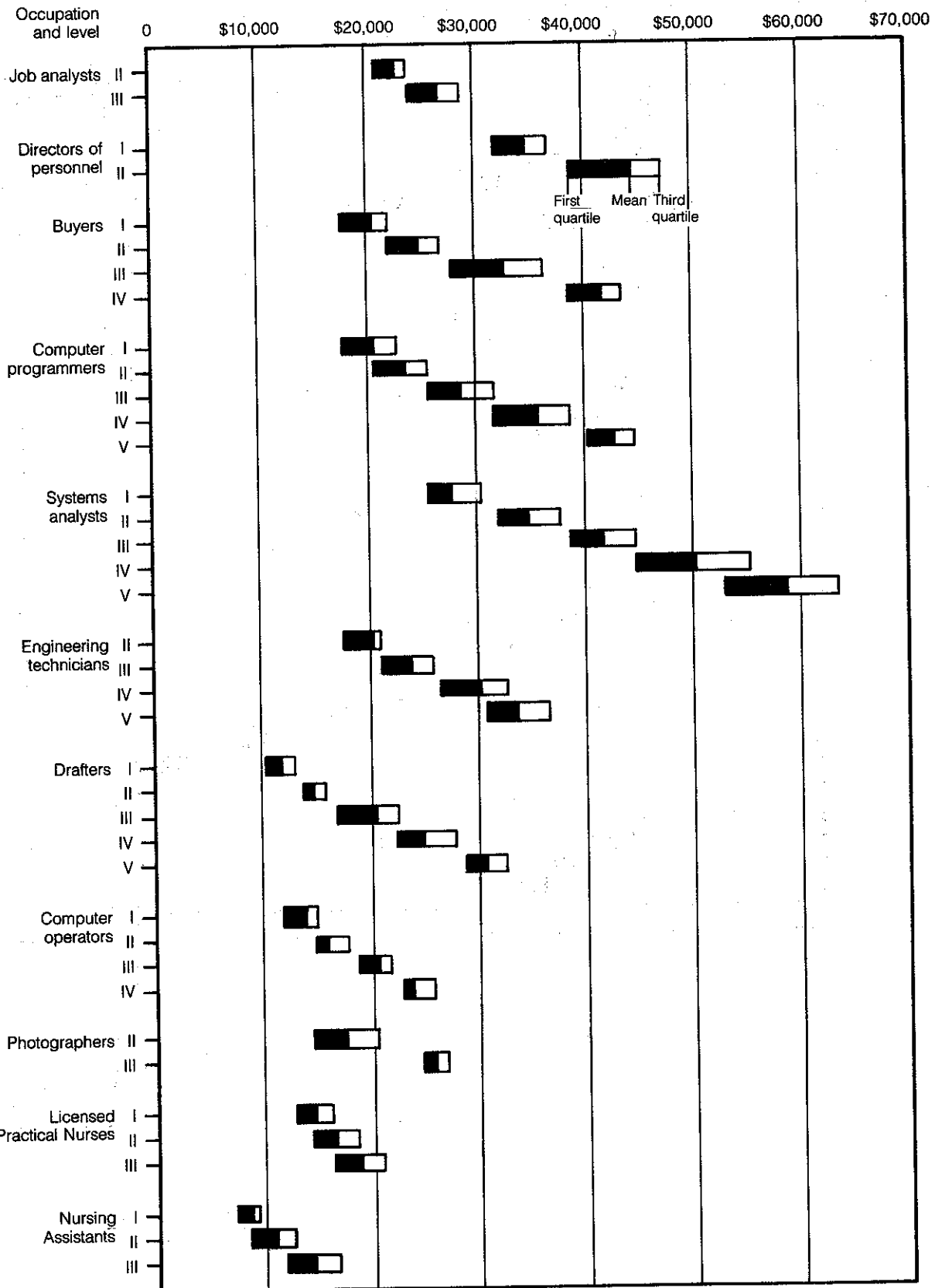


Chart 3. Salaries in clerical occupations, March 1987

(Mean annual salaries and ranges within which fell 50 percent of employees)

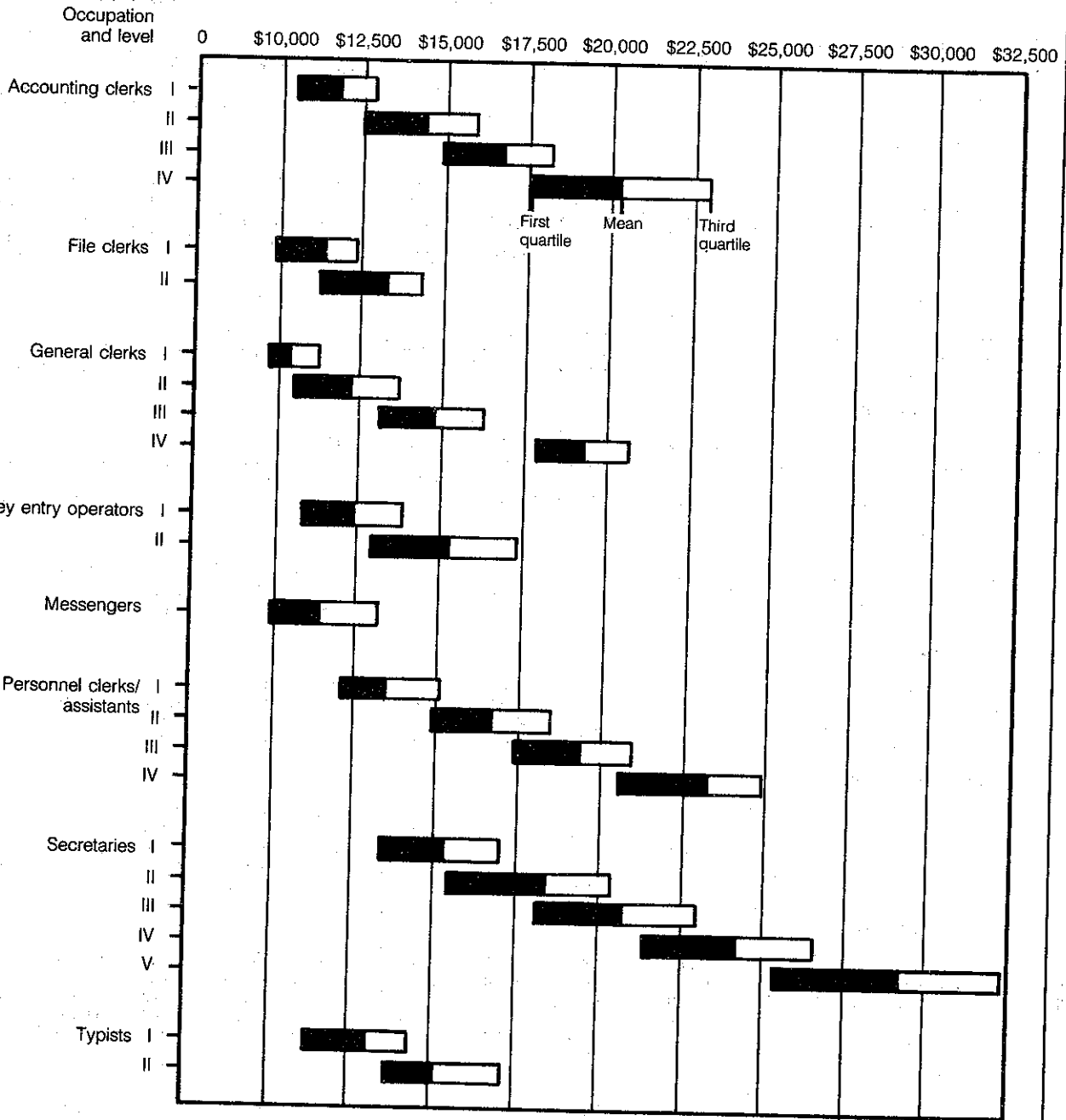


Table 1. Private services: Average salaries--United States

(Employment and average salaries for selected professional, administrative, technical, and clerical occupations, United States, except Alaska and Hawaii,¹ March 1987)

Occupation and level ²	Number of employees ³	Monthly salaries ⁴				Annual salaries ⁴			
		Mean ⁵	Median ⁵	Middle range ⁵		Mean ⁵	Median ⁵	Middle range ⁵	
				First quartile	Third quartile			First quartile	Third quartile
Accountants									
I	2,644	\$1,632	\$1,606	\$1,499	\$1,769	\$19,588	\$19,267	\$17,985	\$21,223
II	7,056	1,952	1,937	1,750	2,091	23,426	23,244	21,000	25,089
III	7,129	2,483	2,499	2,246	2,707	29,791	29,988	26,949	32,487
IV	3,227	3,226	3,200	2,929	3,455	38,707	38,400	35,149	41,460
V	808	4,108	4,000	3,750	4,428	49,291	48,000	45,000	53,140
Auditors									
II	212	2,140	2,078	1,999	2,333	25,683	24,940	23,990	27,996
III	275	2,766	2,855	2,499	2,999	33,187	34,255	29,988	35,986
IV	112	3,401	3,380	3,167	3,565	40,817	40,564	38,009	42,779
Public accountants									
I	14,233	1,750	1,750	1,654	1,874	21,006	21,000	19,850	22,491
II	14,443	1,920	1,916	1,791	2,041	23,044	22,991	21,491	24,490
III	15,563	2,295	2,232	2,071	2,417	27,537	26,789	24,850	29,004
IV	6,849	2,832	2,775	2,500	3,075	33,989	33,300	30,000	36,900
Attorneys									
II	186	3,447	3,409	3,086	3,765	41,370	40,908	37,027	45,180
III	458	4,425	4,172	4,165	4,811	53,100	50,060	49,980	57,727
IV	586	5,309	5,415	4,940	5,569	63,711	64,974	59,276	66,823
Buyers									
I	1,634	1,708	1,683	1,534	1,852	20,492	20,195	18,408	22,221
II	2,739	2,114	2,083	1,903	2,307	25,373	24,991	22,837	27,689
III	845	2,776	2,768	2,399	3,116	33,309	33,217	28,785	37,392
IV	451	3,486	3,499	3,280	3,710	41,828	41,983	39,361	44,520
Computer programmers									
I	5,385	1,748	1,750	1,541	1,916	20,980	21,000	18,490	22,991
II	13,587	1,990	1,999	1,792	2,199	23,883	23,990	21,504	26,389
III	15,102	2,453	2,457	2,237	2,666	29,435	29,488	26,844	31,987
IV	6,594	3,017	2,991	2,675	3,250	36,204	35,889	32,100	39,000
V	1,849	3,608	3,582	3,336	3,749	43,292	42,983	40,037	44,982
Systems analysts									
I	5,047	2,384	2,379	2,167	2,557	28,607	28,548	25,998	30,688
II	15,081	2,949	2,916	2,685	3,165	35,386	34,986	32,223	37,985
III	9,494	3,557	3,500	3,249	3,802	42,687	41,999	38,984	45,630
IV	4,066	4,222	4,165	3,744	4,582	50,658	49,980	44,925	54,978
V	749	4,987	4,992	4,448	5,350	59,841	59,899	53,379	64,200
Job analysts									
II	114	1,943	1,938	1,753	2,002	23,315	23,258	21,036	24,022
III	182	2,286	2,251	2,024	2,496	27,433	27,013	24,290	29,950
Directors of personnel									
I	416	2,931	2,916	2,666	3,106	35,167	34,986	31,987	37,276
II	853	3,661	3,624	3,270	3,998	43,927	43,483	39,234	47,981
Engineers									
I	7,321	2,196	2,167	2,040	2,378	26,355	25,998	24,480	28,540
II	14,392	2,513	2,513	2,291	2,693	30,151	30,158	27,489	32,316
III	21,903	2,982	2,946	2,686	3,232	35,779	35,357	32,238	38,784
IV	27,115	3,580	3,549	3,250	3,898	42,964	42,583	39,000	46,781

See footnotes at end of table.

Table 1. Private services: Average salaries—United States—Continued

(Employment and average salaries for selected professional, administrative, technical, and clerical occupations, United States, except Alaska and Hawaii,¹ March 1987)

Occupation and level ²	Number of employees ³	Monthly salaries ⁴				Annual salaries ⁴			
		Mean ⁵	Median ⁵	Middle range ⁵		Mean ⁵	Median ⁵	Middle range ⁵	
				First quartile	Third quartile			First quartile	Third quartile
Engineers									
V	21,285	\$4,216	\$4,167	\$3,813	\$4,582	\$50,597	\$49,999	\$45,756	\$54,978
VI	10,573	4,952	4,898	4,428	5,385	59,422	58,776	53,136	64,620
VII	3,251	5,599	5,546	5,132	6,050	67,183	66,555	61,584	72,600
VIII	933	6,504	6,500	5,915	7,084	78,049	78,000	70,975	85,003
Registered nurses									
I	38,257	1,751	1,736	1,565	1,907	21,012	20,830	18,777	22,878
II	366,888	2,011	1,986	1,778	2,201	24,127	23,835	21,399	26,414
III	20,402	2,601	2,589	2,290	2,787	31,216	31,073	27,479	33,444
IV	392	2,865	2,811	2,600	3,035	34,383	33,735	31,198	36,418
Licensed practical nurses									
I	31,195	1,220	1,213	1,066	1,349	14,636	14,559	12,791	16,184
II	165,049	1,374	1,357	1,192	1,541	16,487	16,285	14,309	18,490
III	2,061	1,570	1,570	1,367	1,731	18,837	18,836	16,410	20,778
Nursing assistants									
I	148,366	713	676	607	771	8,558	8,111	7,279	9,255
II	269,803	906	854	711	1,049	10,872	10,248	8,527	12,583
III	22,075	1,197	1,200	997	1,392	14,369	14,394	11,959	16,701
Engineering technicians									
II	2,253	1,679	1,647	1,559	1,829	20,149	19,761	18,713	21,943
III	3,034	2,035	2,036	1,824	2,236	24,425	24,430	21,890	26,830
IV	3,428	2,501	2,478	2,257	2,749	30,009	29,736	27,084	32,987
V	2,535	2,856	2,821	2,595	3,132	34,275	33,852	31,140	37,585
Drafters									
I	1,848	1,037	1,040	910	1,127	12,450	12,479	10,919	13,519
II	4,223	1,325	1,300	1,213	1,406	15,898	15,599	14,559	16,868
III	6,582	1,729	1,699	1,475	1,950	20,742	20,382	17,700	23,398
IV	7,128	2,107	2,037	1,863	2,340	25,281	24,438	22,358	28,078
V	2,023	2,636	2,601	2,416	2,773	31,634	31,208	28,993	33,277
Computer operators									
I	2,616	1,172	1,166	1,060	1,295	14,067	13,994	12,720	15,544
II	12,000	1,401	1,378	1,258	1,533	16,812	16,535	15,094	18,393
III	6,790	1,752	1,737	1,603	1,877	21,020	20,840	19,239	22,525
IV	2,191	2,056	2,045	1,915	2,215	24,673	24,540	22,982	26,580
Photographers									
II	2,017	1,504	1,416	1,300	1,733	18,046	16,992	15,599	20,798
III	435	2,232	2,296	2,101	2,296	26,782	27,558	25,208	27,558
Accounting clerks									
I	7,692	964	953	858	1,049	11,569	11,439	10,300	12,583
II	33,476	1,202	1,191	1,040	1,329	14,424	14,287	12,479	15,952
III	20,392	1,395	1,390	1,230	1,550	16,739	16,685	14,761	18,600
IV	5,276	1,675	1,707	1,460	1,907	20,097	20,480	17,523	22,878
File clerks									
I	10,114	953	880	780	1,036	11,430	10,566	9,359	12,432
II	6,470	1,097	1,040	940	1,192	13,166	12,479	11,275	14,304

See footnotes at end of table.

Table 1. Private services: Average salaries—United States—Continued

(Employment and average salaries for selected professional, administrative, technical, and clerical occupations, United States, except Alaska and Hawaii,¹ March 1987)

Occupation and level ²	Number of employees ³	Monthly salaries ⁴				Annual salaries ⁴			
		Mean ⁵	Median ⁵	Middle range ⁵		Mean ⁵	Median ⁵	Middle range ⁵	
				First quartile	Third quartile			First quartile	Third quartile
Key entry operators									
I	24,832	\$1,036	\$1,018	\$889	\$1,153	\$12,431	\$12,219	\$10,670	\$13,831
II	11,067	1,267	1,262	1,071	1,445	15,199	15,141	12,853	17,343
Messengers									
	5,916	946	929	812	1,090	11,354	11,148	9,749	13,082
Personnel clerks/assistants									
I	1,297	1,117	1,127	1,000	1,257	13,409	13,519	12,000	15,079
II	1,333	1,393	1,366	1,242	1,525	16,717	16,389	14,908	18,303
III	1,071	1,613	1,569	1,445	1,749	19,359	18,827	17,346	20,992
IV	320	1,928	1,983	1,707	2,083	23,130	23,799	20,486	24,990
Purchasing clerks/assistants									
I	1,216	1,119	1,118	1,005	1,220	13,425	13,415	12,063	14,642
II	1,279	1,375	1,361	1,215	1,499	16,502	16,327	14,580	17,993
III	346	1,745	1,751	1,565	1,890	20,940	21,006	18,781	22,680
Secretaries									
I	24,316	1,274	1,257	1,116	1,416	15,285	15,079	13,395	16,993
II	31,190	1,526	1,474	1,291	1,699	18,309	17,693	15,494	20,382
III	26,195	1,720	1,681	1,500	1,916	20,644	20,174	18,000	22,991
IV	10,904	2,009	1,995	1,780	2,207	24,109	23,945	21,360	26,489
V	2,021	2,418	2,425	2,102	2,690	29,014	29,100	25,228	32,280
Typists									
I	6,108	1,085	1,083	936	1,196	13,016	12,995	11,228	14,351
II	2,503	1,259	1,300	1,130	1,426	15,106	15,599	13,561	17,117
General clerks									
I	5,385	861	867	737	927	10,338	10,399	8,839	11,127
II	26,145	1,015	1,000	895	1,127	12,178	11,995	10,744	13,519
III	27,105	1,231	1,213	1,083	1,365	14,767	14,559	12,999	16,380
IV	5,595	1,596	1,583	1,468	1,712	19,151	18,996	17,618	20,550

¹ For the scope of the survey, see table A-1 in appendix A.
² Occupational definitions appear in appendix C.
³ Occupational employment estimates relate to the total in all establishments within the scope of the survey and not to the number actually surveyed. For further explanation, see appendix A.
⁴ Excludes premium pay for overtime and for work on weekends, holidays, and late shifts. Also excluded are performance bonuses and lump-sum payments of the type negotiated in the auto and aerospace industries, as well as profit-sharing payments, attendance bonuses, Christmas or year-end bonuses, and other nonproduction bonuses. Pay increases - but not bonuses - under cost-of-living allowance clauses, and incentive payments, however, are included.
⁵ The mean is computed for each job by totaling the earnings of all workers and dividing by the number of workers. The median designates position; one-half of the workers receive the same as or more and one-half receive the same as or less than the rate shown. The middle range is defined by two rates of pay; one-fourth of the workers earn the same as or less than the lower of these rates and one-fourth earn the same as or more than the higher rate.

Table 2. Private services: Average salaries—Metropolitan areas

(Employment and average salaries for selected professional, administrative, technical, and clerical occupations, metropolitan areas,¹ United States, except Alaska and Hawaii, March 1987)

Occupation and level ²	Number of employees ³	Monthly salaries ⁴				Annual salaries ⁴			
		Mean ⁵	Median ⁵	Middle range ⁵		Mean ⁵	Median ⁵	Middle range ⁵	
				First quartile	Third quartile			First quartile	Third quartile
Accountants									
I	2,487	\$1,643	\$1,622	\$1,499	\$1,785	\$19,720	\$19,467	\$17,993	\$21,422
II	6,114	1,977	1,959	1,789	2,128	23,724	23,502	21,464	25,540
III	6,664	2,502	2,499	2,283	2,728	30,029	29,988	27,402	32,737
IV	3,092	3,236	3,217	2,937	3,490	38,833	38,607	35,246	41,878
V	778	4,127	4,014	3,755	4,450	49,521	48,170	45,060	53,400
Auditors									
II	212	2,140	2,078	1,999	2,333	25,683	24,940	23,990	27,996
III	274	2,765	2,855	2,499	2,999	33,176	34,255	29,988	35,986
IV	106	3,397	3,380	3,167	3,565	40,766	40,564	38,009	42,779
Public accountants									
I	13,976	1,756	1,750	1,666	1,874	21,078	21,000	19,992	22,491
II	14,084	1,928	1,916	1,800	2,041	23,136	22,991	21,600	24,490
III	14,958	2,305	2,249	2,083	2,450	27,662	26,989	24,990	29,400
IV	6,742	2,842	2,782	2,500	3,080	34,101	33,387	30,000	36,960
Attorneys									
II	167	3,460	3,415	3,017	3,836	41,517	40,984	36,199	46,032
III	449	4,443	4,172	4,165	5,000	53,322	50,060	49,980	60,000
IV	585	5,311	5,415	4,950	5,569	63,726	64,974	59,400	66,823
Buyers									
I	1,454	1,715	1,712	1,534	1,862	20,585	20,538	18,408	22,350
II	2,463	2,134	2,114	1,920	2,320	25,607	25,366	23,045	27,840
III	771	2,765	2,759	2,366	3,101	33,182	33,111	28,989	37,208
IV	451	3,486	3,499	3,280	3,710	41,828	41,983	39,361	44,520
Computer programmers									
I	5,285	1,752	1,750	1,558	1,916	21,021	21,000	18,693	22,991
II	13,343	1,994	1,999	1,798	2,200	23,925	23,990	21,571	26,400
III	14,695	2,456	2,457	2,239	2,666	29,469	29,488	26,869	31,988
IV	6,498	3,017	2,997	2,675	3,250	36,205	35,960	32,100	39,000
V	1,820	3,608	3,582	3,336	3,749	43,295	42,983	40,037	44,982
Systems analysts									
I	5,001	2,385	2,382	2,167	2,557	28,618	28,589	25,998	30,688
II	14,999	2,950	2,916	2,689	3,165	35,405	34,993	32,273	37,985
III	9,393	3,556	3,499	3,249	3,800	42,669	41,983	38,984	45,600
IV	4,050	4,224	4,165	3,749	4,582	50,688	49,980	44,982	54,978
V	747	4,988	4,992	4,415	5,350	59,853	59,899	52,980	64,200
Job analysts									
II	110	1,953	1,951	1,765	2,024	23,433	23,417	21,175	24,293
III	177	2,278	2,249	2,024	2,496	27,333	26,989	24,290	29,950
Directors of personnel									
I	357	2,958	2,916	2,666	3,200	35,500	34,986	31,987	38,398
II	758	3,700	3,665	3,333	3,998	44,394	43,982	39,995	47,981
Engineers									
I	7,065	2,192	2,167	2,037	2,374	26,300	25,998	24,438	28,489
II	13,814	2,519	2,513	2,291	2,698	30,226	30,158	27,489	32,374
III	21,001	2,982	2,945	2,686	3,227	35,782	35,346	32,238	38,724
IV	25,542	3,581	3,549	3,250	3,895	42,975	42,583	39,000	46,740

See footnotes at end of table.

Table 2. Private services: Average salaries--Metropolitan areas--Continued

(Employment and average salaries for selected professional, administrative, technical, and clerical occupations, metropolitan areas,¹ United States, except Alaska and Hawaii, March 1987)

Occupation and level ²	Number of employees ³	Monthly salaries ⁴				Annual salaries ⁴			
		Mean ⁵	Median ⁵	Middle range ⁵		Mean ⁵	Median ⁵	Middle range ⁵	
				First quartile	Third quartile			First quartile	Third quartile
Engineers									
V	20,696	\$4,216	\$4,168	\$3,809	\$4,582	\$50,596	\$50,020	\$45,709	\$54,978
VI	10,328	4,954	4,900	4,435	5,385	59,452	58,800	53,223	64,620
VII	3,229	5,599	5,546	5,130	6,053	67,187	66,555	61,563	72,640
VIII	933	6,504	6,500	5,915	7,084	78,049	78,000	70,975	85,003
Registered nurses									
I	28,996	1,788	1,782	1,617	1,943	21,450	21,381	19,402	23,315
II	317,678	2,047	2,028	1,820	2,238	24,563	24,338	21,838	26,851
III	18,283	2,652	2,633	2,373	2,799	31,829	31,593	28,471	33,589
IV	384	2,858	2,811	2,600	3,033	34,297	33,735	31,198	36,397
Licensed practical nurses									
I	20,305	1,270	1,267	1,127	1,381	15,240	15,204	13,519	16,577
II	119,599	1,439	1,428	1,265	1,603	17,264	17,131	15,183	19,239
III	1,578	1,599	1,571	1,388	1,731	19,186	18,851	16,660	20,778
Nursing assistants									
I	97,190	733	693	624	792	8,791	8,319	7,487	9,505
II	184,200	967	936	757	1,134	11,600	11,231	9,089	13,602
III	16,209	1,280	1,312	1,133	1,432	15,361	15,744	13,595	17,179
Engineering technicians									
II	2,185	1,681	1,647	1,559	1,827	20,177	19,761	18,713	21,924
III	2,929	2,032	2,026	1,820	2,230	24,381	24,313	21,840	26,760
IV	3,314	2,495	2,466	2,253	2,730	29,943	29,596	27,039	32,757
V	2,486	2,857	2,820	2,595	3,139	34,286	33,843	31,140	37,668
Drafters									
I	1,848	1,037	1,040	910	1,127	12,450	12,479	10,919	13,519
II	4,158	1,324	1,300	1,213	1,406	15,888	15,599	14,559	16,868
III	6,269	1,739	1,700	1,500	1,978	20,867	20,400	17,997	23,731
IV	6,978	2,108	2,041	1,863	2,340	25,290	24,490	22,358	28,078
V	1,955	2,631	2,599	2,416	2,773	31,574	31,188	28,993	33,277
Computer operators									
I	2,527	1,176	1,166	1,060	1,295	14,106	13,994	12,720	15,544
II	10,970	1,410	1,387	1,278	1,549	16,922	16,639	15,339	18,593
III	6,519	1,751	1,737	1,604	1,873	21,017	20,840	19,248	22,478
IV	2,068	2,051	2,031	1,915	2,200	24,616	24,376	22,982	26,400
Photographers									
II	1,991	1,503	1,416	1,300	1,733	18,039	16,992	15,599	20,798
III	432	2,232	2,296	2,101	2,296	26,786	27,558	25,208	27,558
Accounting clerks									
I	7,316	970	953	867	1,058	11,642	11,439	10,399	12,695
II	30,270	1,220	1,200	1,047	1,333	14,643	14,400	12,562	15,996
III	17,973	1,417	1,409	1,270	1,575	17,001	16,909	15,240	18,900
IV	5,057	1,680	1,733	1,461	1,907	20,164	20,798	17,526	22,878
File clerks									
I	9,393	962	884	784	1,036	11,541	10,607	9,404	12,432
II	6,192	1,102	1,043	953	1,198	13,229	12,521	11,439	14,372

See footnotes at end of table.

Table 2. Private services: Average salaries—Metropolitan areas—Continued

(Employment and average salaries for selected professional, administrative, technical, and clerical occupations, metropolitan areas,¹ United States, except Alaska and Hawaii, March 1987)

Occupation and level ²	Number of employees ³	Monthly salaries ⁴				Annual salaries ⁴			
		Mean ⁵	Median ⁵	Middle range ⁵		Mean ⁵	Median ⁵	Middle range ⁵	
				First quartile	Third quartile			First quartile	Third quartile
Key entry operators									
I	23,018	\$1,043	\$1,030	\$896	\$1,166	\$12,516	\$12,354	\$10,753	\$13,994
II	10,764	1,270	1,262	1,074	1,452	15,234	15,141	12,888	17,419
Messengers									
	5,810	946	927	808	1,090	11,348	11,125	9,697	13,082
Personnel clerks/assistants									
I	1,193	1,119	1,127	1,000	1,257	13,428	13,519	12,000	15,079
II	1,230	1,403	1,374	1,249	1,532	16,841	16,493	14,986	18,386
III	1,023	1,619	1,569	1,451	1,749	19,428	18,827	17,408	20,992
IV	307	1,927	1,991	1,692	2,083	23,118	23,897	20,299	24,990
Purchasing clerks/assistants									
I	1,051	1,131	1,126	1,026	1,227	13,573	13,515	12,311	14,725
II	1,106	1,381	1,365	1,238	1,499	16,571	16,379	14,850	17,993
III	286	1,746	1,739	1,565	1,891	20,949	20,869	18,781	22,692
Secretaries									
I	20,650	1,308	1,295	1,147	1,435	15,694	15,544	13,769	17,221
II	29,514	1,541	1,480	1,309	1,712	18,491	17,765	15,703	20,538
III	24,492	1,738	1,708	1,529	1,928	20,860	20,492	18,348	23,138
IV	10,524	2,021	1,999	1,791	2,208	24,248	23,990	21,491	26,496
V	1,950	2,432	2,451	2,126	2,695	29,183	29,415	25,511	32,340
Typists									
I	5,829	1,089	1,083	936	1,206	13,070	12,999	11,228	14,476
II	2,044	1,338	1,331	1,213	1,478	16,060	15,973	14,554	17,741
General clerks									
I	4,952	869	867	750	936	10,426	10,399	9,006	11,231
II	22,333	1,026	1,004	909	1,137	12,315	12,042	10,906	13,645
III	23,915	1,250	1,235	1,100	1,387	15,006	14,819	13,200	16,639
IV	5,180	1,604	1,589	1,485	1,712	19,246	19,072	17,820	20,550

¹ Metropolitan data relate to all 327 Metropolitan Statistical Areas (MSA's) and Primary Metropolitan Statistical Areas (PSMA's) within the contiguous 48 states, as defined by the U.S. Office of Management and Budget through June 1983.

² Occupational definitions appear in appendix C.

³ Occupational employment estimates relate to the total in all establishments within the scope of the survey and not to the number actually surveyed. For further explanation, see appendix A.

⁴ Excludes premium pay for overtime and for work on weekends, holidays, and late shifts. Also excluded are performance bonuses and lump-sum payments of the type negotiated in the auto and aerospace

industries, as well as profit-sharing payments, attendance bonuses, Christmas or year-end bonuses, and other nonproduction bonuses. Pay increases - but not bonuses - under cost-of-living allowance clauses, and incentive payments, however, are included.

⁵ The mean is computed for each job by totaling the earnings of all workers and dividing by the number of workers. The median designates position; one-half of the workers receive the same as or more and one-half receive the same as or less than the rate shown. The middle range is defined by two rates of pay; one-fourth of the workers earn the same as or less than the lower of these rates and one-fourth earn the same as or more than the higher rate.

Table 3. Private services: Average salaries--By size of establishment

(Employment and average annual salaries for selected professional, administrative, technical, and clerical occupations, United States, except Alaska and Hawaii, March 1987)

Occupation and level ²	Establishments employing 20 - 499 workers ³			Establishments employing 500-2,499 workers			Establishments employing 2,500 workers or more ⁴		
	Number of employees ⁵	Annual salaries ⁶		Number of employees ⁵	Annual salaries ⁶		Number of employees ⁵	Annual salaries ⁶	
		Mean ⁷	Median ⁷		Mean ⁷	Median ⁷		Mean ⁷	Median ⁷
Accountants									
I	1,252	\$18,942	\$18,115	804	\$19,808	\$19,492	588	\$20,661	\$20,449
II	4,345	22,879	22,991	1,819	24,020	23,835	892	24,881	24,610
III	4,097	29,704	29,988	2,235	29,692	29,304	797	30,518	30,480
IV	1,657	39,092	38,880	1,133	38,490	37,985	437	37,810	37,333
Buyers									
I	575	20,019	19,570	738	20,175	20,192	321	22,069	21,797
II	1,022	24,904	24,290	1,125	25,410	25,019	592	26,110	25,740
Computer programmers									
I	3,046	20,267	20,492	1,464	20,845	21,000	875	23,685	24,802
II	8,105	23,185	23,031	3,332	24,594	24,648	2,150	25,410	25,990
III	9,057	29,406	29,488	3,703	29,924	29,961	2,342	28,776	28,988
Systems analysts									
I	3,094	28,298	28,489	1,293	29,284	28,988	660	28,730	28,373
II	8,725	35,272	34,986	3,764	36,332	35,926	2,592	34,396	34,161
III	5,705	42,231	41,983	2,366	44,469	43,083	1,423	41,550	41,289
IV	2,408	50,663	50,280	1,023	51,836	49,896	635	48,740	48,564
Engineers									
IV	15,560	42,283	41,983	8,760	43,941	43,800	2,795	43,696	43,080
Registered nurses									
I	25,236	20,315	20,133	8,882	21,969	21,630	4,139	23,210	22,733
II	78,738	22,401	21,891	205,776	24,234	23,960	82,374	25,512	25,249
III	6,435	29,181	29,867	8,061	31,722	30,823	5,906	32,741	31,619
Nursing assistants									
II	201,791	10,009	9,511	54,026	13,414	13,311	13,986	13,498	13,997
Drafters									
III	5,854	20,829	20,392	545	19,817	20,122	183	20,723	20,742
Computer operators									
I	1,538	13,717	13,994	840	14,631	14,160	238	14,338	14,081
II	7,089	16,657	16,223	3,671	16,863	16,847	1,240	17,546	17,408
III	3,364	21,271	21,038	2,395	20,622	20,018	1,031	21,127	20,911
Accounting clerks									
I	5,604	11,266	11,439	1,826	12,264	11,751	262	13,224	12,977
II	25,422	14,210	13,994	6,100	14,883	14,559	1,954	15,778	15,548
III	14,865	16,472	16,556	3,569	17,195	17,093	1,958	17,937	17,780
IV	4,009	19,909	20,480	644	20,179	20,722	623	21,222	20,958
Key entry operators									
I	19,479	12,248	11,995	4,251	12,760	12,479	1,102	14,401	14,039
II	8,141	14,728	14,494	2,306	16,314	16,223	620	17,245	17,325
Messengers									
.....	3,337	11,180	11,019	2,065	11,215	10,732	514	13,047	12,772
Personnel clerks/assistants									
II	402	16,569	16,366	714	16,591	16,140	217	17,409	17,200
III	478	19,781	18,758	466	18,875	18,823	127	19,544	19,821

See footnotes at end of table.

Table 3. Private services: Average salaries--By size of establishment--Continued

(Employment and average annual salaries for selected professional, administrative, technical, and clerical occupations; United States, except Alaska and Hawaii,¹ March 1987)

Occupation and level ²	Establishments employing 20 - 499 workers ³			Establishments employing 500-2,499 workers			Establishments employing 2,500 workers or more ⁴		
	Number of employees ⁵	Annual salaries ⁶		Number of employees ⁵	Annual salaries ⁶		Number of employees ⁵	Annual salaries ⁶	
		Mean ⁷	Median ⁷		Mean ⁷	Median ⁷		Mean ⁷	Median ⁷
Purchasing clerks/assistants	462	\$15,799	\$15,141	627	\$16,814	\$16,793	190	\$17,181	\$16,587
Secretaries									
I	12,548	14,653	14,734	7,670	15,641	15,306	4,098	16,557	16,493
III	12,125	21,214	20,798	7,922	20,113	19,904	6,148	20,207	20,125
IV	4,216	24,699	24,326	4,310	23,846	23,669	2,378	23,538	23,359
V	868	30,122	31,499	809	27,760	26,925	344	29,163	28,988
Typists									
I	3,592	12,386	12,895	1,675	13,655	13,068	841	14,436	14,455
General clerks									
I	4,032	9,831	10,200	828	11,410	11,314	525	12,542	12,444
II	18,374	11,771	11,699	5,400	12,707	12,604	2,371	14,127	13,935
III	19,372	14,525	14,556	4,623	15,219	15,079	3,110	15,599	15,079

¹ For the scope of the survey, see table A-1 in appendix A.

² Occupational definitions appear in appendix C.

³ Includes establishments employing fewer than the 20 worker minimum at the time of the survey.

⁴ Includes data from some large companies that provide companywide data not identified by size of establishment.

⁵ Occupational employment estimates relate to the total in all establishments within the scope of the survey and not to the number actually surveyed. For further explanation, see appendix A.

⁶ Excludes premium pay for overtime and for work on weekends,

holidays, and late shifts. Also excluded are performance bonuses and lump-sum payments of the type negotiated in the auto and aerospace industries, as well as profit-sharing payments, attendance bonuses, Christmas or year-end bonuses, and other nonproduction bonuses. Pay increases - but not bonuses - under cost-of-living allowance clauses, and incentive payments, however, are included.

⁷ The mean is computed for each job by totaling the earnings of all workers and dividing by the number of workers. The median designates position; one-half of the workers receive the same as or more and one-half receive the same as or less than the rate shown.

Table 4. Private services: Earnings distribution--Professional and administrative occupations

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Accountants				
	I	II	III	IV	V
Number of employees	2,644	7,056	7,129	3,227	808
Average annual salary	\$19,588	\$23,426	\$29,791	\$38,707	\$49,291
Total	100.0	100.0	100.0	100.0	100.0
Under \$15,000	2.6	.2	-	-	-
\$15,000 and under \$16,000	6.2	.4	-	-	-
\$16,000 and under \$17,000	6.7	1.5	-	-	-
\$17,000 and under \$18,000	17.2	.8	.1	-	-
\$18,000 and under \$19,000	15.4	5.8	.1	-	-
\$19,000 and under \$20,000	14.0	5.2	.4	-	-
\$20,000 and under \$21,000	10.4	8.5	.3	-	-
\$21,000 and under \$22,000	9.1	14.2	1.1	-	-
\$22,000 and under \$23,000	6.0	9.8	4.8	-	-
\$23,000 and under \$24,000	7.0	14.2	1.4	.3	-
\$24,000 and under \$25,000	1.9	14.0	3.8	.1	-
\$25,000 and under \$26,000	2.3	6.7	9.3	.1	-
\$26,000 and under \$27,000 .....	.5	6.1	4.7	.2	-
\$27,000 and under \$28,000 .....	.3	4.5	11.2	.7	-
\$28,000 and under \$29,000 .....	.3	2.4	4.9	1.2	-
\$29,000 and under \$30,000 .....	.1	2.3	11.1	2.1	-
\$30,000 and under \$31,000	(^a)	1.3	6.7	2.1	-
\$31,000 and under \$32,000	-	1.2	12.4	2.6	-
\$32,000 and under \$33,000 .....	.1	.5	7.6	2.0	.2
\$33,000 and under \$34,000	-	.4	5.2	2.8	-
\$34,000 and under \$35,000	-	.1	5.1	10.4	.2
\$35,000 and under \$36,000	-	-	3.6	7.2	.5
\$36,000 and under \$37,000	-	(^a)	2.5	8.8	.7
\$37,000 and under \$38,000	-	-	.9	7.6	1.7
\$38,000 and under \$39,000	-	-	.8	8.1	.7
\$39,000 and under \$40,000	-	-	.9	11.2	3.0
\$40,000 and under \$41,000	-	-	.6	6.0	1.2
\$41,000 and under \$42,000	-	-	.2	6.6	5.9
\$42,000 and under \$43,000	-	-	.1	2.0	3.5
\$43,000 and under \$44,000	-	-	.2	3.3	2.0
\$44,000 and under \$45,000	-	-	(^a)	2.4	5.1
\$45,000 and under \$46,000	-	-	.1	3.3	12.4
\$46,000 and under \$47,000	-	-	-	2.9	6.7
\$47,000 and under \$48,000	-	-	(^a)	1.5	5.7
\$48,000 and under \$49,000	-	-	-	.9	4.2
\$49,000 and under \$50,000	-	-	-	1.1	3.2
\$50,000 and under \$51,000	-	-	-	.8	9.7
\$51,000 and under \$52,000	-	-	-	.6	5.0
\$52,000 and under \$53,000	-	-	-	.5	3.0
\$53,000 and under \$54,000	-	-	-	.2	2.7
\$54,000 and under \$55,000	-	-	-	.1	3.7
\$55,000 and under \$56,000	-	-	-	.1	5.8
\$56,000 and under \$57,000	-	-	-	.1	1.4
\$57,000 and under \$58,000	-	-	-	.1	1.2
\$58,000 and under \$59,000	-	-	-	.1	2.1
\$59,000 and under \$60,000	-	-	-	-	1.2
\$60,000 and under \$61,000	-	-	-	-	1.7
\$61,000 and over	-	-	-	.1	5.4

See footnotes at end of table.

Table 4. Private services: Earnings distribution--Professional and administrative occupations--Continued

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Auditors			Public accountants			
	II	III	IV	I	II	III	IV
Number of employees	212	275	112	14,233	14,443	15,563	6,849
Average annual salary	\$25,683	\$33,187	\$40,817	\$21,006	\$23,044	\$27,537	\$33,989
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under \$16,000	-	-	-	2.5	-	-	-
\$16,000 and under \$17,000	-	-	-	3.1	.3	-	-
\$17,000 and under \$18,000	-	-	-	6.5	1.2	-	-
\$18,000 and under \$19,000	-	-	-	6.8	3.8	-	-
\$19,000 and under \$20,000 .....	.9	-	-	11.9	6.1	(¹)	-
\$20,000 and under \$21,000	4.2	-	-	13.7	7.8	.4	(¹)
\$21,000 and under \$22,000	4.2	.4	-	25.3	18.8	2.4	-
\$22,000 and under \$23,000	4.7	-	-	16.2	13.5	4.8	.1
\$23,000 and under \$24,000	32.5	1.5	-	7.8	17.3	10.8	.8
\$24,000 and under \$25,000	7.5	1.8	-	3.6	15.2	9.6	3.1
\$25,000 and under \$26,000	14.6	4.0	-	1.3	6.2	12.2	3.3
\$26,000 and under \$27,000	2.8	3.6	-	.5	3.9	14.4	2.6
\$27,000 and under \$28,000	4.2	3.3	-	.2	3.1	11.4	3.4
\$28,000 and under \$29,000	2.8	4.0	-	.1	1.2	8.7	4.8
\$29,000 and under \$30,000	13.2	6.5	-	(¹)	.3	5.7	5.7
\$30,000 and under \$31,000 .....	.9	4.7	-	-	.5	3.8	10.5
\$31,000 and under \$32,000	1.4	7.3	1.8	-	.1	4.1	6.9
\$32,000 and under \$33,000	1.9	6.2	3.6	.5	(¹)	2.1	7.7
\$33,000 and under \$34,000	1.9	3.6	2.7	-	-	2.3	8.1
\$34,000 and under \$35,000	1.9	12.7	.9	-	.4	1.6	6.5
\$35,000 and under \$36,000	-	21.1	1.8	-	(¹)	1.6	5.3
\$36,000 and under \$37,000	-	7.3	3.6	-	(¹)	1.5	7.8
\$37,000 and under \$38,000	-	4.0	9.8	-	-	.7	4.0
\$38,000 and under \$39,000	-	.4	8.0	-	-	.4	5.9
\$39,000 and under \$40,000	-	4.0	17.0	-	-	.1	1.5
\$40,000 and under \$41,000	-	.4	13.4	-	-	.3	1.3
\$41,000 and under \$42,000	-	2.2	7.1	-	-	.1	1.0
\$42,000 and under \$43,000	-	.4	6.3	-	-	.3	1.7
\$43,000 and under \$44,000	-	.7	1.8	-	-	(¹)	1.9
\$44,000 and under \$45,000	-	-	4.5	-	-	-	.6
\$45,000 and under \$46,000	-	-	5.4	-	-	(¹)	1.4
\$46,000 and under \$47,000	-	-	3.6	-	-	.4	.2
\$47,000 and under \$48,000	-	-	.9	-	-	-	.7
\$48,000 and under \$49,000	-	-	7.1	-	-	-	1.2
\$49,000 and over	-	-	.9	-	-	-	1.9

See footnotes at end of table.

Table 4. Private services: Earnings distribution—Professional and administrative occupations—Continued

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Job analysts		Directors of personnel	
	II	III	I	II
Number of employees	114	182	416	853
Average annual salary	\$23,315	\$27,439	\$35,167	\$43,927
Total	100.0	100.0	100.0	100.0
Under \$19,000	5.3	1.6	-	-
\$19,000 and under \$20,000	4.4	1.1	-	-
\$20,000 and under \$21,000	14.9	1.1	-	-
\$21,000 and under \$22,000	16.7	3.3	-	-
\$22,000 and under \$23,000	7.9	4.9	-	-
\$23,000 and under \$24,000	21.9	4.9	-	-
\$24,000 and under \$25,000	8.8	13.7	-	-
\$25,000 and under \$26,000	7.9	11.5	-	-
\$26,000 and under \$27,000	-	6.6	-	.7
\$27,000 and under \$28,000	2.6	9.3	4.3	-
\$28,000 and under \$29,000 .....	.9	7.1	1.2	-
\$29,000 and under \$30,000	1.8	9.9	9.6	.2
\$30,000 and under \$31,000	1.8	11.0	1.7	-
\$31,000 and under \$32,000 .....	.9	4.4	13.9	1.5
\$32,000 and under \$33,000	-	1.1	6.7	2.0
\$33,000 and under \$34,000	4.4	1.1	9.9	.9
\$34,000 and under \$35,000	-	1.6	6.0	1.5
\$35,000 and under \$36,000	-	1.6	2.9	3.5
\$36,000 and under \$37,000	-	1.1	9.6	5.4
\$37,000 and under \$38,000	-	-	11.5	4.1
\$38,000 and under \$39,000	-	1.1	3.6	4.8
\$39,000 and under \$40,000	-	.5	1.2	4.7
\$40,000 and under \$41,000	-	.5	10.3	6.0
\$41,000 and under \$42,000	-	-	-	6.3
\$42,000 and under \$43,000	-	.5	1.4	4.0
\$43,000 and under \$44,000	-	-	4.6	7.2
\$44,000 and under \$45,000	-	-	1.0	5.0
\$45,000 and under \$46,000	-	-	-	5.4
\$46,000 and under \$47,000	-	-	-	4.8
\$47,000 and under \$48,000	-	-	-	12.1
\$48,000 and under \$49,000	-	-	-	1.8
\$49,000 and under \$50,000	-	-	-	3.3
\$50,000 and under \$51,000	-	-	-	2.5
\$51,000 and under \$52,000	-	-	-	2.2
\$52,000 and under \$53,000	-	-	-	1.4
\$53,000 and under \$54,000	-	-	-	2.2
\$54,000 and under \$55,000	-	-	.5	.2
\$55,000 and under \$56,000	-	-	-	.2
\$56,000 and under \$57,000	-	-	-	.5
\$57,000 and under \$58,000	-	-	-	3.2
\$58,000 and over	-	-	-	2.3

See footnotes at end of table.

Table 4. Private services: Earnings distribution—Professional and administrative occupations—Continued

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Attorneys		
	II	III	IV
Number of employees	186	458	586
Average annual salary	\$41,370	\$53,100	\$63,711
Total	100.0	100.0	100.0
Under \$30,000 .....	.5	-	-
\$30,000 and under \$31,000	2.7	.4	-
\$31,000 and under \$32,000	-	-	-
\$32,000 and under \$33,000 .....	.5	-	-
\$33,000 and under \$34,000	13.4	-	-
\$34,000 and under \$35,000	2.7	-	-
\$35,000 and under \$36,000	2.2	-	-
\$36,000 and under \$37,000	2.2	.2	-
\$37,000 and under \$38,000	7.0	-	-
\$38,000 and under \$39,000	7.0	.2	-
\$39,000 and under \$40,000	11.3	1.5	-
\$40,000 and under \$41,000	7.0	.7	-
\$41,000 and under \$42,000	6.5	.9	-
\$42,000 and under \$43,000	4.8	.2	-
\$43,000 and under \$44,000	2.2	9.0	-
\$44,000 and under \$45,000	4.3	-	-
\$45,000 and under \$46,000	2.7	1.7	1.0
\$46,000 and under \$47,000	2.7	2.2	-
\$47,000 and under \$48,000	-	.4	-
\$48,000 and under \$49,000	2.7	2.6	-
\$49,000 and under \$50,000	12.4	11.8	.5
\$50,000 and under \$51,000	-	25.3	1.4
\$51,000 and under \$52,000	-	6.6	.9
\$52,000 and under \$53,000	-	2.4	.7
\$53,000 and under \$54,000	-	2.4	.2
\$54,000 and under \$55,000	3.2	4.6	6.5
\$55,000 and under \$56,000	-	.2	8.0
\$56,000 and under \$57,000	-	-	3.2
\$57,000 and under \$58,000	-	1.7	1.5
\$58,000 and under \$59,000	1.1	-	.9
\$59,000 and under \$60,000	1.1	.2	1.9
\$60,000 and under \$61,000	-	9.6	1.4
\$61,000 and under \$62,000	-	2.2	1.2
\$62,000 and under \$63,000	-	1.7	3.2
\$63,000 and under \$64,000	-	-	13.1
\$64,000 and under \$65,000	-	3.9	13.1
\$65,000 and under \$66,000	-	2.2	12.3
\$66,000 and under \$67,000	-	.7	9.0
\$67,000 and under \$68,000	-	-	.7
\$68,000 and under \$69,000	-	.4	-
\$69,000 and under \$70,000	-	1.1	7.5
\$70,000 and under \$71,000	-	-	1.4
\$71,000 and under \$72,000	-	-	.9
\$72,000 and under \$73,000	-	-	1.0
\$73,000 and under \$74,000	-	-	.3
\$74,000 and under \$75,000	-	-	4.9
\$75,000 and over	-	2.8	3.2

See footnotes at end of table.

Table 4. Private services: Earnings distribution—Professional and administrative occupations—Continued

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Buyers			
	I	II	III	IV
Number of employees	1,634	2,739	845	451
Average annual salary	\$20,492	\$25,373	\$33,309	\$41,828
Total	100.0	100.0	100.0	100.0
Under \$16,000	8.4	.6	-	-
\$16,000 and under \$17,000	5.7	.4	-	-
\$17,000 and under \$18,000	6.2	1.0	-	-
\$18,000 and under \$19,000	12.4	3.5	-	-
\$19,000 and under \$20,000	14.2	5.1	-	-
\$20,000 and under \$21,000	12.9	2.7	-	-
\$21,000 and under \$22,000	13.4	5.5	-	-
\$22,000 and under \$23,000	7.2	7.7	-	-
\$23,000 and under \$24,000	6.0	13.3	.9	-
\$24,000 and under \$25,000	5.8	11.2	.6	-
\$25,000 and under \$26,000	2.8	9.0	3.3	-
\$26,000 and under \$27,000	1.8	9.7	8.6	-
\$27,000 and under \$28,000	1.5	7.8	9.0	-
\$28,000 and under \$29,000	1.0	3.9	5.4	-
\$29,000 and under \$30,000 .....	.2	4.7	3.9	.2
\$30,000 and under \$31,000 .....	.3	3.3	5.6	.4
\$31,000 and under \$32,000 .....	.1	4.6	4.6	1.3
\$32,000 and under \$33,000	-	2.2	5.6	.4
\$33,000 and under \$34,000	-	.8	8.5	.7
\$34,000 and under \$35,000	-	1.5	3.4	1.6
\$35,000 and under \$36,000 .....	.2	.9	8.4	7.8
\$36,000 and under \$37,000	-	.2	5.9	2.7
\$37,000 and under \$38,000	-	-	10.3	2.2
\$38,000 and under \$39,000	-	.1	2.7	4.4
\$39,000 and under \$40,000	-	(⁹)	4.3	20.6
\$40,000 and under \$41,000	-	(⁹)	2.1	4.0
\$41,000 and under \$42,000	-	-	.7	3.8
\$42,000 and under \$43,000	-	(⁹)	.8	12.2
\$43,000 and under \$44,000	-	-	3.3	8.4
\$44,000 and under \$45,000	-	-	.4	7.1
\$45,000 and under \$46,000	-	-	.5	9.5
\$46,000 and under \$47,000	-	-	.1	1.3
\$47,000 and under \$48,000	-	-	.7	2.7
\$48,000 and under \$49,000	-	-	.1	3.1
\$49,000 and under \$50,000	-	-	-	1.6
\$50,000 and over	-	-	.1	4.0

See footnotes at end of table.

Table 4. Private services: Earnings distribution--Professional and administrative occupations--Continued

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Computer programmers				
	I	II	III	IV	V
Number of employees	5,385	13,587	15,102	6,594	1,849
Average annual salary	\$20,980	\$23,883	\$29,435	\$36,204	\$43,292
Total	100.0	100.0	100.0	100.0	100.0
Under \$16,000	3.3	.3	-	-	-
\$16,000 and under \$17,000	8.5	.7	-	-	-
\$17,000 and under \$18,000	9.8	3.4	-	-	-
\$18,000 and under \$19,000	9.6	4.6	(¹)	-	-
\$19,000 and under \$20,000	7.6	5.9	.3	-	-
\$20,000 and under \$21,000	11.3	7.1	.8	-	-
\$21,000 and under \$22,000	16.4	8.0	1.5	-	-
\$22,000 and under \$23,000	11.1	10.9	1.8	-	-
\$23,000 and under \$24,000	6.1	11.0	2.4	(¹)	-
\$24,000 and under \$25,000	6.5	10.7	6.2	.1	-
\$25,000 and under \$26,000	5.3	10.3	6.7	.9	-
\$26,000 and under \$27,000	2.3	7.1	8.5	1.4	-
\$27,000 and under \$28,000	1.6	8.9	11.5	2.3	-
\$28,000 and under \$29,000 .....	.6	4.8	7.4	2.5	-
\$29,000 and under \$30,000	(¹)	2.6	11.4	3.6	-
\$30,000 and under \$31,000 .....	.1	1.8	8.6	3.3	.5
\$31,000 and under \$32,000	-	.7	8.6	9.3	.5
\$32,000 and under \$33,000	-	.4	8.2	9.7	.1
\$33,000 and under \$34,000	-	.2	5.0	6.3	.5
\$34,000 and under \$35,000	-	.2	4.5	8.5	4.1
\$35,000 and under \$36,000	-	.1	1.9	5.6	2.1
\$36,000 and under \$37,000	-	(¹)	1.1	7.2	4.3
\$37,000 and under \$38,000	-	-	1.4	10.0	4.4
\$38,000 and under \$39,000	-	-	.5	3.8	3.1
\$39,000 and under \$40,000	-	-	.8	6.5	4.5
\$40,000 and under \$41,000	-	-	.3	3.3	9.6
\$41,000 and under \$42,000	-	-	.5	2.9	12.3
\$42,000 and under \$43,000	-	-	-	2.7	16.4
\$43,000 and under \$44,000	-	-	(¹)	3.0	3.6
\$44,000 and under \$45,000	-	-	-	.9	9.9
\$45,000 and under \$46,000	-	-	-	.2	5.1
\$46,000 and under \$47,000	-	-	-	.5	.6
\$47,000 and under \$48,000	-	-	-	.8	.6
\$48,000 and under \$49,000	-	-	-	.2	4.3
\$49,000 and under \$50,000	-	-	-	2.5	1.9
\$50,000 and under \$51,000	-	-	-	.2	.7
\$51,000 and under \$52,000	-	-	-	.2	1.1
\$52,000 and under \$53,000	-	-	-	.8	2.3
\$53,000 and under \$54,000	-	-	-	-	.6
\$54,000 and under \$55,000	-	-	-	.2	.2
\$55,000 and under \$56,000	-	-	-	.2	-
\$56,000 and under \$57,000	-	-	-	-	.4
\$57,000 and over	-	-	-	.2	6.2

See footnotes at end of table.

Table 4. Private services: Earnings distribution—Professional and administrative occupations—Continued

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Systems analysts				
	I	II	III	IV	V
Number of employees	5,047	15,081	9,494	4,066	749
Average annual salary	\$28,607	\$35,386	\$42,687	\$50,658	\$59,841
Total	100.0	100.0	100.0	100.0	100.0
Under \$21,000	2.5	-	-	-	-
\$21,000 and under \$22,000 .....	.8	-	-	-	-
\$22,000 and under \$23,000	1.4	.1	-	-	-
\$23,000 and under \$24,000	5.0	.2	-	-	-
\$24,000 and under \$25,000	9.4	.3	-	-	-
\$25,000 and under \$26,000	6.8	.3	-	-	-
\$26,000 and under \$27,000	7.7	.9	.2	-	-
\$27,000 and under \$28,000	11.8	1.2	.1	-	-
\$28,000 and under \$29,000	11.2	1.7	(¹)	-	-
\$29,000 and under \$30,000	10.1	3.8	.1	-	-
\$30,000 and under \$31,000	11.0	5.2	.4	-	-
\$31,000 and under \$32,000	7.9	10.3	.4	-	-
\$32,000 and under \$33,000	5.0	7.9	1.3	-	-
\$33,000 and under \$34,000	2.0	9.3	1.3	.1	-
\$34,000 and under \$35,000	3.0	9.8	1.6	.2	-
\$35,000 and under \$36,000	1.2	8.9	2.0	.4	-
\$36,000 and under \$37,000 .....	.9	9.1	4.3	.4	-
\$37,000 and under \$38,000	1.0	6.6	8.0	.3	-
\$38,000 and under \$39,000 .....	.4	6.1	5.7	.4	-
\$39,000 and under \$40,000 .....	.3	6.0	9.3	1.3	-
\$40,000 and under \$41,000 .....	.1	3.5	8.1	1.8	-
\$41,000 and under \$42,000 .....	.2	2.6	7.4	2.7	.7
\$42,000 and under \$43,000 .....	.2	1.7	7.8	1.3	-
\$43,000 and under \$44,000	-	1.0	5.7	13.1	-
\$44,000 and under \$45,000	-	.9	7.5	3.9	-
\$45,000 and under \$46,000	(¹)	.7	5.1	3.3	.7
\$46,000 and under \$47,000	-	.6	4.6	5.0	-
\$47,000 and under \$48,000	-	.3	4.2	4.1	2.3
\$48,000 and under \$49,000	-	.4	3.0	3.9	.9
\$49,000 and under \$50,000	-	.2	2.6	9.2	1.2
\$50,000 and under \$51,000	-	.1	1.9	5.2	2.0
\$51,000 and under \$52,000	-	.1	2.2	5.5	1.6
\$52,000 and under \$53,000	-	.2	.8	7.0	15.6
\$53,000 and under \$54,000	-	(¹)	.6	4.2	1.6
\$54,000 and under \$55,000	-	-	.8	3.4	3.1
\$55,000 and under \$56,000	-	(¹)	.9	4.2	2.8
\$56,000 and under \$57,000	-	-	.4	1.6	4.0
\$57,000 and under \$58,000	-	-	.6	1.4	1.6
\$58,000 and under \$59,000	-	-	.2	3.5	2.3
\$59,000 and under \$60,000	-	-	.3	2.3	15.8
\$60,000 and under \$61,000	-	-	.4	2.1	3.9
\$61,000 and under \$62,000	-	-	.1	.8	5.7
\$62,000 and under \$63,000	-	-	.1	1.6	4.7
\$63,000 and under \$64,000	-	-	.1	.9	3.3
\$64,000 and under \$65,000	-	-	-	1.4	12.4
\$65,000 and under \$66,000	-	-	-	.4	1.7
\$66,000 and under \$67,000	-	-	-	.5	2.3
\$67,000 and under \$68,000	-	-	-	.6	-
\$68,000 and under \$69,000	-	-	-	.4	.5
\$69,000 and under \$70,000	-	-	-	.4	1.7
\$70,000 and over	-	-	-	1.2	7.6

See footnotes at end of table.

Table 4. Private services: Earnings distribution--Professional and administrative occupations--Continued

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Engineers							
	I	II	III	IV	V	VI	VII	VIII
Number of employees	7,321	14,392	21,903	27,115	21,285	10,573	3,251	933
Average annual salary	\$26,355	\$30,151	\$35,779	\$42,964	\$50,597	\$59,422	\$67,183	\$78,049
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under \$22,000	4.1	1.2	.2	-	-	-	-	-
\$22,000 and under \$23,000	10.1	.7	-	-	-	-	-	-
\$23,000 and under \$24,000	9.0	1.2	.2	.1	-	-	-	-
\$24,000 and under \$25,000	15.5	4.4	.7	-	-	-	-	-
\$25,000 and under \$26,000	14.9	6.0	.7	(¹)	(¹)	-	-	-
\$26,000 and under \$27,000	7.3	6.6	.5	.1	-	-	-	-
\$27,000 and under \$28,000	10.2	10.8	1.3	.1	-	-	-	-
\$28,000 and under \$29,000	10.1	8.9	2.5	.2	-	-	-	-
\$29,000 and under \$30,000	8.5	7.4	4.6	(¹)	-	-	-	-
\$30,000 and under \$31,000	5.8	14.0	5.1	.6	(¹)	-	-	-
\$31,000 and under \$32,000	2.5	11.4	7.2	.7	-	-	-	-
\$32,000 and under \$33,000	1.1	7.7	7.7	1.4	(¹)	-	-	-
\$33,000 and under \$34,000 .....	.3	5.2	6.7	2.2	.1	-	-	-
\$34,000 and under \$35,000 .....	.4	4.8	9.2	2.7	.2	.1	-	-
\$35,000 and under \$36,000 .....	.2	4.3	8.6	2.2	.1	(¹)	-	-
\$36,000 and under \$37,000 .....	.1	2.2	8.1	2.6	.5	(¹)	-	-
\$37,000 and under \$38,000 .....	.1	1.0	6.9	6.6	.6	.1	-	-
\$38,000 and under \$39,000	(¹)	.5	5.7	4.8	.7	-	-	-
\$39,000 and under \$40,000 .....	.1	.5	4.6	7.7	2.1	(¹)	-	-
\$40,000 and under \$41,000	-	.8	5.3	7.0	1.8	.1	-	-
\$41,000 and under \$42,000	-	.3	3.2	6.5	2.2	.2	-	-
\$42,000 and under \$43,000	(¹)	.1	2.8	8.3	3.4	.8	-	-
\$43,000 and under \$44,000	-	.1	1.9	6.5	4.5	.5	.1	-
\$44,000 and under \$45,000	-	.1	2.0	6.1	5.7	.5	.4	-
\$45,000 and under \$46,000	-	.1	1.2	5.3	4.9	2.0	.3	-
\$46,000 and under \$47,000	-	(¹)	.6	4.6	5.2	1.9	.3	-
\$47,000 and under \$48,000	-	(¹)	.6	4.0	6.5	2.0	.4	-
\$48,000 and under \$49,000	-	-	.7	4.2	6.2	2.1	.4	-
\$49,000 and under \$50,000	-	-	.2	3.9	5.4	3.7	.4	-
\$50,000 and under \$51,000	-	(¹)	.3	2.5	4.2	3.2	.5	-
\$51,000 and under \$52,000	-	-	.3	2.4	8.4	4.2	.7	-
\$52,000 and under \$53,000	-	-	-	1.7	4.3	2.6	1.1	.1
\$53,000 and under \$54,000	-	-	.3	.8	4.0	3.5	2.1	-
\$54,000 and under \$55,000	-	-	(¹)	1.1	4.2	5.2	2.2	-
\$55,000 and under \$56,000	-	-	(¹)	1.1	4.3	4.2	2.5	-
\$56,000 and under \$57,000	-	-	-	.6	3.2	3.6	1.6	-
\$57,000 and under \$58,000	-	-	-	.5	3.5	5.7	2.0	.1
\$58,000 and under \$59,000	-	-	-	.4	3.3	4.8	2.6	.2
\$59,000 and under \$60,000	-	-	-	.1	2.3	3.4	2.3	.9
\$60,000 and under \$61,000	-	-	-	.1	1.4	5.8	3.1	.3
\$61,000 and under \$62,000	-	-	-	(¹)	1.4	4.2	3.3	.6
\$62,000 and under \$63,000	-	-	-	.1	.9	3.5	4.9	3.8
\$63,000 and under \$64,000	-	-	-	(¹)	1.2	5.1	6.2	2.7
\$64,000 and under \$65,000	-	-	-	(¹)	1.2	3.5	5.8	6.3
\$65,000 and under \$66,000	-	-	-	(¹)	.3	3.4	3.4	1.1
\$66,000 and under \$67,000	-	-	-	(¹)	.3	3.3	5.2	1.6
\$67,000 and under \$68,000	-	-	-	(¹)	.3	2.7	5.0	1.4
\$68,000 and under \$69,000	-	-	-	-	.3	2.9	3.4	2.0
\$69,000 and under \$70,000	-	-	-	-	.5	1.7	3.8	1.8
\$70,000 and under \$71,000	-	-	-	-	.1	1.3	6.1	3.4
\$71,000 and under \$72,000	-	-	-	-	.1	.8	2.5	3.9
\$72,000 and under \$73,000	-	-	-	-	.1	.9	4.0	1.7
\$73,000 and under \$74,000	-	-	-	-	(¹)	.9	3.3	1.6
\$74,000 and under \$75,000	-	-	-	-	(¹)	.9	2.1	1.4
\$75,000 and under \$76,000	-	-	-	-	(¹)	.8	3.9	7.2

See footnotes at end of table.

Table 4. Private services: Earnings distribution—Professional and administrative occupations—Continued

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Engineers							
	I	II	III	IV	V	VI	VII	VIII
\$76,000 and under \$77,000	-	-	-	-	(9)	0.8	2.5	1.9
\$77,000 and under \$78,000	-	-	-	-	(9)	.6	1.9	5.1
\$78,000 and under \$79,000	-	-	-	-	(9)	.2	1.4	2.9
\$79,000 and under \$80,000	-	-	-	-	-	.2	1.2	2.5
\$80,000 and under \$81,000	-	-	-	-	(9)	.2	.8	8.3
\$81,000 and under \$82,000	-	-	-	-	(9)	.2	.6	1.8
\$82,000 and under \$83,000	-	-	-	-	-	.1	1.3	2.4
\$83,000 and under \$84,000	-	-	-	-	-	.1	.4	2.1
\$84,000 and under \$85,000	-	-	-	-	(9)	.4	.5	4.3
\$85,000 and under \$86,000	-	-	-	-	-	.1	.6	5.7
\$86,000 and under \$87,000	-	-	-	-	-	(9)	1.0	6.0
\$87,000 and under \$88,000	-	-	-	-	-	(9)	.3	2.8
\$88,000 and under \$89,000	-	-	-	-	-	(9)	.1	1.2
\$89,000 and under \$90,000	-	-	-	-	-	(9)	.1	1.4
\$90,000 and under \$91,000	-	-	-	-	-	-	.1	.6
\$91,000 and under \$92,000	-	-	-	-	-	(9)	.1	1.9
\$92,000 and under \$93,000	-	-	-	-	-	-	.1	1.2
\$93,000 and over	-	-	-	-	-	.8	1.2	5.8

See footnotes at end of table.

Table 4. Private services: Earnings distribution--Professional and administrative occupations--Continued

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Registered nurses			
	I	II	III	IV
Number of employees	38,257	366,888	20,402	392
Average annual salary	\$21,012	\$24,127	\$31,216	\$34,383
Total	100.0	100.0	100.0	100.0
Under \$16,000	4.2	.2	-	-
\$16,000 and under \$17,000	5.3	.6	-	-
\$17,000 and under \$18,000	8.0	1.8	.1	-
\$18,000 and under \$19,000	10.8	4.0	.1	-
\$19,000 and under \$20,000	11.9	6.5	.3	-
\$20,000 and under \$21,000	11.6	8.3	1.3	-
\$21,000 and under \$22,000	15.4	9.6	2.2	-
\$22,000 and under \$23,000	9.5	9.8	2.2	-
\$23,000 and under \$24,000	6.3	10.8	2.8	-
\$24,000 and under \$25,000	6.1	10.3	4.4	.5
\$25,000 and under \$26,000	2.4	9.2	5.4	.3
\$26,000 and under \$27,000	4.1	7.8	3.4	3.3
\$27,000 and under \$28,000	1.6	6.9	6.0	3.8
\$28,000 and under \$29,000	1.1	4.6	7.5	3.3
\$29,000 and under \$30,000 .....	.6	2.8	7.5	4.8
\$30,000 and under \$31,000 .....	.4	2.0	6.5	5.4
\$31,000 and under \$32,000 .....	.5	1.4	7.1	13.3
\$32,000 and under \$33,000 .....	.2	.6	6.4	9.4
\$33,000 and under \$34,000	(¹)	.8	15.6	7.1
\$34,000 and under \$35,000	(¹)	.6	3.2	7.1
\$35,000 and under \$36,000	-	.4	3.1	11.5
\$36,000 and under \$37,000	-	.6	2.6	8.2
\$37,000 and under \$38,000	-	.1	2.0	3.1
\$38,000 and under \$39,000	-	(¹)	2.1	3.6
\$39,000 and under \$40,000	-	(¹)	1.3	1.5
\$40,000 and under \$41,000	-	(¹)	1.1	1.8
\$41,000 and under \$42,000	-	(¹)	1.0	6.6
\$42,000 and under \$43,000	-	(¹)	1.0	-
\$43,000 and under \$44,000	-	-	.9	.8
\$44,000 and under \$45,000	-	-	.7	2.6
\$45,000 and over	-	-	2.2	2.0

¹ For the scope of the study see table A-1 in appendix A

² Less than 0.05 percent

Table 5. Private services: Earnings distribution--Technical support occupations

(Percent distribution of employees in selected technical support occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Licensed practical nurses			Nursing assistants		
	I	II	III	I	II	III
Number of employees	31,195	165,049	2,061	148,366	269,803	22,075
Average annual salary	\$14,636	\$16,487	\$18,837	\$8,558	\$10,872	\$14,369
Total	100.0	100.0	100.0	100.0	100.0	100.0
Under \$6,500	-	-	-	.4	(¹)	-
\$6,500 and under \$7,000	-	-	-	11.8	2.5	-
\$7,000 and under \$7,500	-	-	-	20.7	7.0	.3
\$7,500 and under \$8,000	-	-	-	14.3	6.6	.8
\$8,000 and under \$8,500	-	-	-	13.3	8.3	.4
\$8,500 and under \$9,000	-	-	-	11.4	8.6	1.8
\$9,000 and under \$9,500 .....	.8	(¹)	-	6.4	7.4	1.6
\$9,500 and under \$10,000 .....	.9	.3	-	5.8	6.5	.7
\$10,000 and under \$10,500	1.9	.3	-	3.4	6.3	1.5
\$10,500 and under \$11,000	1.9	.9	-	3.2	5.3	.7
\$11,000 and under \$11,500	5.1	1.6	-	2.6	5.7	14.6
\$11,500 and under \$12,000	3.0	2.7	-	1.6	5.0	4.4
\$12,000 and under \$12,500	6.4	3.2	.2	1.2	4.7	5.2
\$12,500 and under \$13,000	8.7	4.0	1.2	1.5	4.1	4.9
\$13,000 and under \$13,500	5.9	3.8	-	.5	3.2	3.6
\$13,500 and under \$14,000	7.2	5.1	8.7	.4	2.9	5.7
\$14,000 and under \$14,500	6.0	5.4	5.2	.4	2.7	5.0
\$14,500 and under \$15,000	6.3	6.3	2.6	.2	2.5	5.1
\$15,000 and under \$15,500	11.0	6.2	3.4	.2	2.1	4.3
\$15,500 and under \$16,000	8.1	6.1	2.4	.3	1.6	5.5
\$16,000 and under \$16,500	6.1	6.8	1.8	.2	1.2	5.6
\$16,500 and under \$17,000	5.6	6.2	5.7	.1	1.0	9.0
\$17,000 and under \$17,500	2.7	6.2	1.2	.1	1.0	4.9
\$17,500 and under \$18,000	3.6	5.0	5.1	.1	1.2	4.3
\$18,000 and under \$18,500	1.5	5.2	10.6	(¹)	1.0	6.1
\$18,500 and under \$19,000	1.7	4.5	6.7	(¹)	.8	.5
\$19,000 and under \$19,500	1.8	3.9	3.3	(¹)	.2	.5
\$19,500 and under \$20,000	1.7	3.9	10.6	(¹)	.1	.2
\$20,000 and under \$20,500	1.2	2.8	5.4	-	.3	1.2
\$20,500 and under \$21,000 .....	.5	2.5	6.6	-	(¹)	.1
\$21,000 and under \$21,500 .....	.3	1.8	1.1	-	(¹)	.6
\$21,500 and under \$22,000 .....	.1	1.5	.5	-	(¹)	.4
\$22,000 and under \$22,500 .....	.1	.8	1.8	-	(¹)	(¹)
\$22,500 and under \$23,000	-	.7	.4	-	(¹)	.2
\$23,000 and under \$23,500	-	.7	3.8	-	-	(¹)
\$23,500 and under \$24,000	-	.6	1.9	-	-	(¹)
\$24,000 and under \$24,500	-	.5	1.4	-	-	(¹)
\$24,500 and under \$25,000	-	.1	.2	-	-	(¹)
\$25,000 and under \$25,500	-	.3	.2	-	-	(¹)
\$25,500 and under \$26,000	-	.1	1.5	-	-	.1
\$26,000 and over	-	.2	6.3	-	-	-

See footnotes at end of table.

Table 5. Private services: Earnings distribution--Technical support occupations--Continued

(Percent distribution of employees in selected technical support occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Engineering technicians				Drafters				
	II	III	IV	V	I	II	III	IV	V
Number of employees	2,253	3,034	3,428	2,535	1,848	4,223	6,582	7,128	2,023
Average annual salary	\$20,149	\$24,425	\$30,009	\$34,275	\$12,450	\$15,898	\$20,742	\$25,281	\$31,634
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under \$10,500	-	-	-	-	11.4	-	-	-	-
\$10,500 and under \$11,000	-	-	-	-	18.7	-	-	-	-
\$11,000 and under \$11,500	-	-	-	-	8.5	1.7	-	-	-
\$11,500 and under \$12,000	-	-	-	-	2.2	.1	-	-	-
\$12,000 and under \$12,500	-	-	-	-	13.9	2.0	(¹)	-	-
\$12,500 and under \$13,000 .....	.1	-	-	-	9.0	.1	(¹)	-	-
\$13,000 and under \$13,500 .....	.6	-	-	-	2.3	2.2	.1	-	-
\$13,500 and under \$14,000 .....	.4	-	-	-	15.6	6.8	(¹)	-	-
\$14,000 and under \$14,500 .....	.1	-	-	-	5.6	7.1	.1	-	-
\$14,500 and under \$15,000 .....	.5	-	-	-	9.3	12.0	1.7	-	-
\$15,000 and under \$15,500 .....	.7	-	-	-	2.4	16.1	1.9	-	-
\$15,500 and under \$16,000	1.4	-	-	-	-	12.2	3.4	-	-
\$16,000 and under \$16,500	1.8	.1	.1	-	.1	8.0	1.6	-	-
\$16,500 and under \$17,000	1.3	(¹)	-	-	-	8.7	6.3	(¹)	-
\$17,000 and under \$17,500	5.4	.1	-	-	-	5.3	5.0	-	-
\$17,500 and under \$18,000	5.7	.3	-	-	1.1	3.7	7.1	1.6	-
\$18,000 and under \$18,500	5.5	.2	-	-	-	2.0	6.5	1.6	-
\$18,500 and under \$19,000	11.5	.5	-	-	-	2.8	5.9	1.5	-
\$19,000 and under \$19,500	6.3	1.1	.3	-	-	2.8	2.2	2.5	-
\$19,500 and under \$20,000	14.9	9.4	.4	-	-	3.0	4.4	.3	-
\$20,000 and under \$20,500	5.5	1.1	(¹)	-	-	(¹)	7.9	2.0	-
\$20,500 and under \$21,000	4.6	5.4	.1	-	-	.4	7.4	5.8	-
\$21,000 and under \$21,500	3.6	2.2	.5	-	-	-	3.2	3.5	-
\$21,500 and under \$22,000	6.1	5.3	.5	-	-	-	3.3	3.0	-
\$22,000 and under \$22,500	3.7	4.0	.6	-	-	1.9	.8	5.1	-
\$22,500 and under \$23,000	5.1	4.9	1.1	(¹)	-	.1	5.5	7.8	.1
\$23,000 and under \$23,500	3.7	3.5	.8	.3	-	(¹)	1.4	6.5	.1
\$23,500 and under \$24,000	6.3	6.0	1.6	.2	-	.1	3.1	4.9	1.2
\$24,000 and under \$24,500	1.8	7.3	2.3	.2	-	(¹)	1.3	4.0	.3
\$24,500 and under \$25,000 .....	.7	8.3	2.2	.2	-	.6	2.3	5.7	1.6
\$25,000 and under \$25,500 .....	.5	4.6	3.3	.3	-	(¹)	1.1	3.1	1.2
\$25,500 and under \$26,000 .....	.7	5.3	3.6	.7	-	-	4.5	4.3	2.1
\$26,000 and under \$26,500 .....	.2	4.1	3.2	1.6	-	(¹)	.1	1.2	.4
\$26,500 and under \$27,000 .....	.1	2.2	4.0	.9	-	-	6.6	3.6	1.0
\$27,000 and under \$27,500 .....	.9	7.1	4.1	.7	-	-	2.5	4.0	2.1
\$27,500 and under \$28,000	-	4.3	3.2	1.1	-	-	(¹)	2.7	4.2
\$28,000 and under \$28,500	(¹)	3.0	5.0	2.2	-	-	1.1	2.3	2.6
\$28,500 and under \$29,000	-	2.8	6.8	1.5	-	-	1.1	1.3	9.1
\$29,000 and under \$29,500	(¹)	2.5	4.6	2.6	-	-	.2	5.4	5.2
\$29,500 and under \$30,000	(¹)	1.2	6.3	3.2	-	-	.3	1.0	4.4
\$30,000 and under \$30,500	-	.6	2.9	3.2	-	-	(¹)	3.5	3.2
\$30,500 and under \$31,000	-	.7	5.5	2.7	-	-	-	1.4	7.9
\$31,000 and under \$31,500	-	.1	5.5	7.1	-	-	(¹)	1.4	6.8
\$31,500 and under \$32,000	-	.4	2.3	5.0	-	-	.1	1.5	6.5
\$32,000 and under \$32,500	-	.1	2.3	4.6	-	-	-	1.4	5.2
\$32,500 and under \$33,000	-	.1	2.2	4.3	-	-	-	1.1	8.0
\$33,000 and under \$33,500	-	.1	5.7	4.7	-	-	-	.3	5.1
\$33,500 and under \$34,000	-	.7	1.5	3.7	-	-	-	.3	1.3
\$34,000 and under \$34,500	-	.1	1.3	3.5	-	-	-	1.1	1.7
\$34,500 and under \$35,000	-	.1	.6	4.3	-	-	-	.3	.3
\$35,000 and under \$35,500	-	(¹)	2.8	3.4	-	-	(¹)	1.5	3.1
\$35,500 and under \$36,000	-	.1	1.0	3.6	-	-	-	-	.4
\$36,000 and under \$36,500	-	-	1.6	3.0	-	-	-	.3	3.9
\$36,500 and under \$37,000	-	-	.3	3.2	-	-	-	-	.2
\$37,000 and under \$37,500	-	-	8.4	2.4	-	-	-	-	.4
\$37,500 and under \$38,000	-	-	.1	3.0	-	-	-	-	3.9

See footnotes at end of table.

Table 5. Private services: Earnings distribution--Technical support occupations--Continued

(Percent distribution of employees in selected technical support occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Engineering technicians				Drafters				
	II	III	IV	V	I	II	III	IV	V
\$38,000 and under \$38,500	-	-	0.7	2.4	-	-	-	1.3	0.1
\$38,500 and under \$39,000	-	-	.1	3.0	-	-	-	-	.1
\$39,000 and under \$39,500	-	-	.2	2.1	-	-	-	-	.1
\$39,500 and under \$40,000	-	-	.1	5.7	-	-	-	-	3.0
\$40,000 and under \$41,000	-	-	(?)	2.6	-	-	-	-	.1
\$41,000 and under \$41,500	-	-	.1	.6	-	-	-	-	-
\$41,500 and under \$42,000	-	-	(?)	1.5	-	-	-	-	3.0
\$42,000 and under \$42,500	-	-	-	.3	-	-	-	-	-
\$42,500 and under \$43,000	-	-	-	1.2	-	-	-	-	-
\$43,000 and over	-	-	-	2.3	-	-	-	-	-

See footnotes at end of table.

Table 5. Private services: Earnings distribution--Technical support occupations--Continued

(Percent distribution of employees in selected technical support occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Computer operators			
	I	II	III	IV
Number of employees	2,616	12,000	6,790	2,191
Average annual salary	\$14,067	\$16,812	\$21,020	\$24,673
Total	100.0	100.0	100.0	100.0
Under \$9,500 .....	.5	-	-	-
\$9,500 and under \$10,000	3.5	.1	-	-
\$10,000 and under \$10,500	3.7	.1	-	-
\$10,500 and under \$11,000	1.2	.1	-	-
\$11,000 and under \$11,500	4.9	.8	-	-
\$11,500 and under \$12,000	6.5	1.5	-	-
\$12,000 and under \$12,500	3.0	1.8	-	-
\$12,500 and under \$13,000	5.5	3.5	.1	-
\$13,000 and under \$13,500	7.8	2.5	.1	-
\$13,500 and under \$14,000	14.1	3.9	.1	-
\$14,000 and under \$14,500	12.1	4.5	.2	.4
\$14,500 and under \$15,000	6.8	4.9	.8	-
\$15,000 and under \$15,500	4.5	5.3	.8	.1
\$15,500 and under \$16,000	10.8	10.2	1.7	.5
\$16,000 and under \$16,500	1.4	10.1	1.0	.1
\$16,500 and under \$17,000	4.5	9.7	1.2	.2
\$17,000 and under \$17,500	2.1	4.6	2.7	.2
\$17,500 and under \$18,000	2.3	8.0	3.1	.8
\$18,000 and under \$18,500 .....	.7	4.2	4.7	.7
\$18,500 and under \$19,000	1.0	3.6	6.7	.6
\$19,000 and under \$19,500 .....	.7	3.8	6.2	1.4
\$19,500 and under \$20,000 .....	.9	4.4	10.5	1.0
\$20,000 and under \$20,500 .....	.6	2.4	5.9	1.9
\$20,500 and under \$21,000 .....	.4	2.4	7.3	4.0
\$21,000 and under \$21,500	(¹)	3.2	5.8	.6
\$21,500 and under \$22,000 .....	.1	1.9	8.6	3.9
\$22,000 and under \$22,500 .....	.1	.7	7.0	3.4
\$22,500 and under \$23,000	-	.5	4.8	8.1
\$23,000 and under \$23,500	(²)	.5	4.1	3.4
\$23,500 and under \$24,000 .....	.2	.3	4.5	8.9
\$24,000 and under \$24,500	-	.2	2.1	8.6
\$24,500 and under \$25,000	-	.2	2.6	3.8
\$25,000 and under \$25,500	-	.1	1.6	9.5
\$25,500 and under \$26,000	-	-	2.3	8.4
\$26,000 and under \$26,500	-	.1	.6	4.2
\$26,500 and under \$27,000	-	-	.3	6.4
\$27,000 and under \$27,500	-	-	.8	3.7
\$27,500 and under \$28,000	-	-	.3	3.1
\$28,000 and under \$28,500	-	-	.4	2.5
\$28,500 and under \$29,000	-	-	.4	2.4
\$29,000 and under \$29,500	-	-	.2	1.5
\$29,500 and under \$30,000	-	-	.1	1.9
\$30,000 and over	-	-	.5	3.7

¹ For the scope of the study see table A-1 in appendix A

² Less than 0.05 percent

Table 6. Private services: Earnings distribution—Clerical occupations

(Percent distribution of employees in selected clerical occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Accounting clerks				File clerks	
	I	II	III	IV	I	II
Number of employees	7,692	33,476	20,392	5,276	10,114	6,470
Average annual salary	\$11,569	\$14,424	\$16,739	\$20,097	\$11,430	\$13,166
Total	100.0	100.0	100.0	100.0	100.0	100.0
Under \$7,000 .....	.8	-	(¹)	-	1.5	(¹)
\$7,000 and under \$7,500 .....	.7	-	-	-	2.4	-
\$7,500 and under \$8,000	1.5	.1	-	-	.6	-
\$8,000 and under \$8,500	2.0	.9	-	-	4.7	.2
\$8,500 and under \$9,000	2.5	.5	.4	-	8.5	.5
\$9,000 and under \$9,500	7.0	.7	1.0	-	9.4	.9
\$9,500 and under \$10,000	7.3	1.9	1.4	-	7.4	1.5
\$10,000 and under \$10,500	9.8	1.9	.1	-	14.7	6.7
\$10,500 and under \$11,000	9.6	3.5	.3	-	6.1	9.4
\$11,000 and under \$11,500	12.8	3.5	2.6	-	12.1	7.9
\$11,500 and under \$12,000	13.4	5.2	.5	-	5.0	17.0
\$12,000 and under \$12,500	7.3	9.5	2.0	2.7	4.6	6.2
\$12,500 and under \$13,000	4.9	7.3	2.0	(¹)	2.8	9.4
\$13,000 and under \$13,500	3.8	6.3	2.5	6.6	1.4	4.0
\$13,500 and under \$14,000	5.9	5.9	5.1	2.7	2.1	7.3
\$14,000 and under \$14,500	3.9	7.5	4.9	2.0	1.1	5.3
\$14,500 and under \$15,000	1.8	8.9	4.0	.6	3.9	2.6
\$15,000 and under \$15,500	1.4	5.4	5.7	1.2	1.7	1.3
\$15,500 and under \$16,000 .....	.9	8.0	4.7	2.7	1.1	2.4
\$16,000 and under \$16,500 .....	.4	4.7	8.7	.8	.5	5.3
\$16,500 and under \$17,000 .....	.5	3.0	9.2	4.1	.2	3.6
\$17,000 and under \$17,500 .....	.7	2.9	4.3	1.6	(¹)	.4
\$17,500 and under \$18,000 .....	.2	2.6	7.9	2.2	.6	.7
\$18,000 and under \$18,500 .....	.4	2.2	6.5	4.2	.2	4.0
\$18,500 and under \$19,000	(¹)	1.2	5.9	7.2	.5	.8
\$19,000 and under \$19,500	(¹)	1.2	5.7	3.0	.5	(¹)
\$19,500 and under \$20,000	(¹)	.7	3.8	5.4	5.8	.1
\$20,000 and under \$20,500 .....	.1	.5	2.4	3.5	.2	.2
\$20,500 and under \$21,000 .....	.1	.3	1.8	2.5	.1	1.5
\$21,000 and under \$21,500	-	.1	1.3	3.2	-	(¹)
\$21,500 and under \$22,000	(¹)	.9	1.3	5.7	.2	.7
\$22,000 and under \$22,500	-	1.0	.4	4.3	-	-
\$22,500 and under \$23,000	-	.8	1.5	12.1	-	-
\$23,000 and under \$23,500	(¹)	-	.5	4.3	-	-
\$23,500 and under \$24,000	-	.3	.1	5.3	-	-
\$24,000 and under \$24,500	-	(¹)	.3	2.1	-	(¹)
\$24,500 and under \$25,000	(¹)	.1	.3	2.4	(¹)	-
\$25,000 and under \$25,500	-	(¹)	.1	.7	-	-
\$25,500 and under \$26,000	(¹)	(¹)	.2	1.9	-	-
\$26,000 and under \$26,500	(¹)	(¹)	.3	1.1	-	-
\$26,500 and under \$27,000	(¹)	.2	(¹)	1.0	-	-
\$27,000 and over .....	.2	.1	.2	3.0	-	-

See footnotes at end of table.

Table 6. Private services: Earnings distribution--Clerical occupations--Continued

(Percent distribution of employees in selected clerical occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Messengers	Key entry operators		General clerks			
		I	II	I	II	III	IV
Number of employees	5,916	24,832	11,067	5,385	26,145	27,105	5,595
Average annual salary	\$11,354	\$12,431	\$15,199	\$10,338	\$12,178	\$14,767	\$19,151
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under \$7,000 .....	.3	.2	-	4.4	-	-	-
\$7,000 and under \$7,500	4.9	1.2	-	2.8	.5	-	-
\$7,500 and under \$8,000	2.1	.3	-	1.9	.9	-	-
\$8,000 and under \$8,500	2.6	1.0	-	8.9	1.2	-	-
\$8,500 and under \$9,000	5.0	3.1	-	9.3	4.0	.6	-
\$9,000 and under \$9,500	7.2	5.3	-	8.6	5.8	1.0	-
\$9,500 and under \$10,000	6.7	4.7	.1	2.7	4.4	1.1	-
\$10,000 and under \$10,500	11.6	7.0	.8	24.0	5.9	2.7	-
\$10,500 and under \$11,000	7.2	8.6	4.0	8.0	7.2	1.7	.1
\$11,000 and under \$11,500	5.7	8.2	3.3	9.7	11.3	4.9	-
\$11,500 and under \$12,000	10.6	8.3	8.6	4.3	10.9	4.1	.4
\$12,000 and under \$12,500	5.5	11.0	2.5	4.2	7.5	3.5	.2
\$12,500 and under \$13,000	3.9	7.9	7.2	3.0	7.2	5.7	1.4
\$13,000 and under \$13,500	13.0	5.1	5.7	1.9	7.9	5.9	.7
\$13,500 and under \$14,000	3.0	4.8	6.3	1.1	7.5	8.3	.9
\$14,000 and under \$14,500	3.2	4.2	5.2	1.0	4.1	7.7	1.2
\$14,500 and under \$15,000	1.8	4.0	5.1	.9	3.0	9.6	1.4
\$15,000 and under \$15,500	1.4	3.2	5.1	.6	2.6	6.7	1.7
\$15,500 and under \$16,000 .....	.7	2.0	6.3	.8	3.6	8.0	3.2
\$16,000 and under \$16,500	1.4	2.9	7.2	.4	1.3	4.3	4.5
\$16,500 and under \$17,000 .....	.5	1.9	5.6	1.1	1.6	6.2	3.6
\$17,000 and under \$17,500 .....	.3	1.1	6.1	.1	.6	3.0	5.3
\$17,500 and under \$18,000 .....	.1	.6	2.1	(⁰)	.6	4.1	10.5
\$18,000 and under \$18,500 .....	.8	1.2	6.0	(⁰)	.1	2.2	6.7
\$18,500 and under \$19,000 .....	.1	.3	3.5	(⁰)	.2	1.5	8.3
\$19,000 and under \$19,500 .....	.1	.4	1.7	-	.1	2.6	8.6
\$19,500 and under \$20,000 .....	.3	.2	1.6	.2	(⁰)	1.2	4.7
\$20,000 and under \$20,500	(⁰)	1.1	2.7	.1	(⁰)	.6	4.1
\$20,500 and under \$21,000 .....	.1	.2	.8	-	(⁰)	.8	13.1
\$21,000 and under \$21,500	-	(⁰)	.9	-	(⁰)	.5	1.9
\$21,500 and under \$22,000	-	(⁰)	.4	-	(⁰)	.2	2.4
\$22,000 and under \$22,500	-	(⁰)	.4	-	(⁰)	.9	1.8
\$22,500 and under \$23,000	-	(⁰)	.2	-	(⁰)	.2	2.1
\$23,000 and under \$23,500	-	(⁰)	(⁰)	-	-	.1	4.8
\$23,500 and under \$24,000	-	(⁰)	(⁰)	-	-	.2	1.0
\$24,000 and over	-	(⁰)	.4	-	(⁰)	.1	5.5

See footnotes at end of table.

Table 6. Private services: Earnings distribution--Clerical occupations--Continued

(Percent distribution of employees in selected clerical occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Personnel clerks/assistants				Purchasing clerks/assistants		
	I	II	III	IV	I	II	III
Number of employees	1,297	1,333	1,071	320	1,216	1,279	346
Average annual salary	\$13,409	\$16,717	\$19,359	\$23,130	\$13,425	\$16,502	\$20,940
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under \$9,500 .....	.2	-	-	-	1.4	-	-
\$9,500 and under \$10,000	8.5	-	-	-	.4	-	-
\$10,000 and under \$10,500 .....	.6	-	-	-	3.7	-	-
\$10,500 and under \$11,000	6.9	.5	-	-	7.3	-	-
\$11,000 and under \$11,500	4.4	-	-	-	6.5	.5	-
\$11,500 and under \$12,000	4.2	.5	-	-	4.6	1.9	-
\$12,000 and under \$12,500	12.1	1.2	-	-	7.9	.8	-
\$12,500 and under \$13,000	4.4	4.4	-	-	13.0	4.0	.6
\$13,000 and under \$13,500	6.2	3.5	.8	-	6.2	2.0	-
\$13,500 and under \$14,000	8.2	5.6	1.5	-	8.5	7.7	-
\$14,000 and under \$14,500	9.6	6.0	1.7	-	9.9	6.9	1.7
\$14,500 and under \$15,000	8.2	9.5	2.6	-	13.9	5.3	.6
\$15,000 and under \$15,500	17.0	4.6	.7	.6	4.1	7.0	-
\$15,500 and under \$16,000	2.5	8.4	1.5	-	5.2	9.3	1.7
\$16,000 and under \$16,500	1.7	9.8	4.9	-	2.5	7.3	.6
\$16,500 and under \$17,000	1.1	7.2	8.6	1.6	.8	8.5	2.3
\$17,000 and under \$17,500	1.2	3.8	4.1	.6	.7	5.9	4.3
\$17,500 and under \$18,000 .....	.8	7.4	10.4	.6	1.6	8.6	7.2
\$18,000 and under \$18,500 .....	.8	5.4	8.8	1.9	.3	6.4	3.2
\$18,500 and under \$19,000	1.1	4.2	6.0	4.7	1.3	4.1	9.5
\$19,000 and under \$19,500	-	3.2	5.2	1.9	-	2.6	3.5
\$19,500 and under \$20,000 .....	.1	3.6	4.3	9.7	-	4.5	4.6
\$20,000 and under \$20,500 .....	.2	1.9	9.2	4.4	.2	.7	4.9
\$20,500 and under \$21,000	-	1.3	5.6	.9	-	.9	4.9
\$21,000 and under \$21,500	-	1.5	3.7	5.9	-	.3	9.8
\$21,500 and under \$22,000	-	.5	2.9	6.3	-	.9	6.9
\$22,000 and under \$22,500	-	2.3	.7	6.3	-	1.7	2.3
\$22,500 and under \$23,000	-	1.4	3.6	1.3	-	.4	12.7
\$23,000 and under \$23,500	-	.4	1.3	3.1	-	.5	1.4
\$23,500 and under \$24,000	-	1.1	3.9	1.9	-	.2	4.6
\$24,000 and under \$24,500	-	.6	.4	22.2	-	.2	.6
\$24,500 and under \$25,000	-	.3	2.0	7.5	-	.5	1.2
\$25,000 and under \$25,500	-	-	3.0	2.2	-	.1	3.5
\$25,500 and under \$26,000	-	-	.2	4.1	-	.1	1.2
\$26,000 and under \$26,500	-	-	2.4	.6	-	-	.9
\$26,500 and under \$27,000	-	-	-	.9	-	-	.6
\$27,000 and under \$27,500	-	-	-	.9	-	.1	.9
\$27,500 and under \$28,000	-	-	-	1.6	-	.1	-
\$28,000 and under \$28,500	-	.1	-	.6	-	-	.3
\$28,500 and under \$29,000	-	-	-	.3	-	.2	.6
\$29,000 and under \$29,500	-	-	-	-	-	-	.3
\$29,500 and under \$30,000	-	-	-	-	-	-	.3
\$30,000 and over	-	-	-	7.5	-	-	2.3

See footnotes at end of table.

Table 6. Private services: Earnings distribution--Clerical occupations--Continued

(Percent distribution of employees in selected clerical occupations by annual salary, United States, except Alaska and Hawaii, March 1987)

Annual salary	Secretaries					Typists	
	I	II	III	IV	V	I	II
Number of employees	24,316	31,190	26,195	10,904	2,021	6,108	2,503
Average annual salary	\$15,285	\$18,309	\$20,644	\$24,109	\$29,014	\$13,016	\$15,106
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under \$8,500 .....	.3	-	-	-	-	1.1	-
\$8,500 and under \$9,000 .....	.1	.1	-	-	-	2.7	11.1
\$9,000 and under \$9,500 .....	.3	.1	-	-	-	2.6	-
\$9,500 and under \$10,000 .....	.7	.1	-	-	-	6.5	1.5
\$10,000 and under \$10,500	1.5	(¹)	(¹)	-	-	6.9	-
\$10,500 and under \$11,000	2.3	.5	-	-	-	2.7	(¹)
\$11,000 and under \$11,500	2.2	.7	.2	-	-	6.8	.6
\$11,500 and under \$12,000	5.5	1.4	.1	-	-	4.4	1.6
\$12,000 and under \$12,500	4.6	1.1	.3	.2	-	6.5	1.7
\$12,500 and under \$13,000	3.9	1.8	.3	-	-	11.2	5.3
\$13,000 and under \$13,500	5.8	2.9	.3	-	-	16.7	1.3
\$13,500 and under \$14,000	7.2	2.6	1.1	.2	-	3.8	5.3
\$14,000 and under \$14,500	6.9	4.7	1.0	(¹)	-	4.5	6.4
\$14,500 and under \$15,000	7.3	4.2	1.5	(¹)	-	7.0	6.5
\$15,000 and under \$15,500	6.6	4.9	1.6	.4	-	3.6	4.0
\$15,500 and under \$16,000	9.0	6.3	2.6	.3	-	3.0	14.2
\$16,000 and under \$16,500	5.3	6.1	2.5	.2	-	1.3	6.9
\$16,500 and under \$17,000	6.7	6.4	4.1	1.0	-	1.4	6.6
\$17,000 and under \$17,500	5.7	4.2	3.3	1.9	.2	1.0	4.8
\$17,500 and under \$18,000	3.8	7.2	5.1	1.8	.6	1.5	7.3
\$18,000 and under \$18,500	2.8	4.2	5.5	1.9	.2	.5	7.9
\$18,500 and under \$19,000	2.5	5.1	6.7	2.3	.2	.8	1.6
\$19,000 and under \$19,500	2.4	4.4	5.4	2.6	2.1	1.5	1.1
\$19,500 and under \$20,000	1.9	4.1	6.6	3.0	.7	.9	1.7
\$20,000 and under \$20,500 .....	.6	2.9	4.1	3.1	.8	.4	.4
\$20,500 and under \$21,000 .....	.7	3.9	5.0	3.9	.5	.6	1.0
\$21,000 and under \$21,500	1.5	2.9	4.5	3.6	1.4	(¹)	.2
\$21,500 and under \$22,000 .....	.3	1.2	5.4	6.6	.7	.1	-
\$22,000 and under \$22,500 .....	.2	1.9	3.1	3.7	1.5	-	.4
\$22,500 and under \$23,000 .....	.8	2.7	5.0	5.4	1.1	(¹)	.1
\$23,000 and under \$23,500 .....	.2	1.8	4.1	4.6	.9	-	-
\$23,500 and under \$24,000	(¹)	.3	4.3	5.6	3.8	-	-
\$24,000 and under \$24,500 .....	.1	.5	2.1	6.2	2.9	-	.3
\$24,500 and under \$25,000	(¹)	2.3	2.5	6.6	4.8	-	-
\$25,000 and under \$25,500 .....	.1	.4	1.7	3.8	3.8	-	.4
\$25,500 and under \$26,000 .....	.1	.3	1.6	3.8	4.3	-	(¹)
\$26,000 and under \$26,500 .....	.1	.1	1.0	3.1	2.1	-	-
\$26,500 and under \$27,000 .....	.1	.1	.7	2.4	3.0	-	-
\$27,000 and under \$27,500 .....	.1	.1	1.0	2.7	2.7	-	-
\$27,500 and under \$28,000	(¹)	.1	2.2	1.8	4.2	-	-
\$28,000 and under \$28,500	(¹)	.1	.5	1.6	1.3	-	-
\$28,500 and under \$29,000	(¹)	2.4	.4	2.2	4.0	-	-
\$29,000 and under \$29,500	(¹)	1.7	.5	1.6	3.5	-	-
\$29,500 and under \$30,000	(¹)	.2	.2	1.6	4.3	-	-
\$30,000 and under \$30,500	-	(¹)	.1	.9	3.0	-	-
\$30,500 and under \$31,100	-	.1	.4	.9	3.3	-	-
\$30,000 and under \$31,500	-	.1	.9	2.7	4.3	-	-
\$31,500 and under \$32,000	-	.1	.1	1.5	6.0	-	-
\$32,000 and under \$32,500	-	.1	(¹)	.5	5.0	-	-
\$32,500 and under \$33,000	-	(¹)	(¹)	.2	5.8	-	-
\$33,000 and under \$33,500	-	.2	(¹)	2.5	2.8	-	-
\$33,500 and under \$34,000	-	.2	(¹)	.1	1.9	-	-
\$34,000 and under \$34,500	-	-	.1	.1	.7	-	-
\$34,500 and under \$35,000	-	.1	-	.3	4.0	-	-
\$35,000 and under \$35,500	-	-	-	.1	.7	-	-
\$35,500 and under \$36,000	-	-	(¹)	.1	.5	-	-

See footnotes at end of table.

Table 6. Private services: Earnings distribution--Clerical occupations--Continued

(Percent distribution of employees in selected clerical occupations by annual salary, United States, except Alaska and Hawaii,¹ March 1987)

Annual salary	Secretaries					Typists	
	I	II	III	IV	V	I	II
\$36,000 and under \$36,500	-	-	-	0.1	0.5	-	-
\$36,500 and under \$37,000	-	-	(²)	.1	.9	-	-
\$37,000 and over	-	-	-	.1	4.8	-	-

¹ For the scope of the study see table A-1 in appendix A

² Less than 0.05 percent

Table 7. Private services: Percent distribution of employment--Occupation by industry

(Relative employment in selected professional, administrative, technical, and clerical occupations,¹ selected private service industries,² United States, except Alaska and Hawaii, March 1987)

Occupation	All private services	Business services ³	Architectural, engineering, and research services ⁴	Health services		Educational services
				Total	Hospitals	
Professional and administrative						
Accountants	100	20	21	40	37	17
Auditors	100	29	34	25	23	23
Attorneys	100	24	27	11	11	18
Buyers	100	27	40	-	-	9
Computer programmers	100	56	19	14	13	10
Systems analysts	100	54	17	15	14	11
Job analysts	100	15	12	50	49	26
Directors of personnel	100	6	5	76	74	6
Engineers	100	41	92	-	-	-
Registered nurses	100	-	-	97	94	2
Technical support						
Licensed practical nurses	100	-	-	98	76	1
Nursing assistants	100	-	-	98	53	1
Engineering technicians	100	72	95	-	-	3
Drafters	100	27	93	-	-	-
Computer operators	100	39	13	36	34	-
Photographers	100	8	16	44	42	31
Clerical						
Accounting clerks	100	15	13	39	33	19
File clerks	100	4	8	76	68	2
Key entry operators	100	26	8	45	40	10
Messengers	100	12	13	53	50	8
Personnel clerks/assistants	100	16	12	61	58	10
Purchasing clerks/assistants	100	18	17	56	54	13
Secretaries	100	15	18	40	39	26
Typists	100	11	15	55	53	11
General clerks	100	15	20	48	43	20

¹ Each occupation is limited to the work levels shown in table 1.

² For scope of the study, see table A-1, appendix A.

³ Includes business services in addition to research and development laboratories and commercial testing laboratories presented separately as part of Architectural, Engineering, and Research Services.

⁴ Includes research and development laboratories, commercial testing

laboratories, engineering and architectural services, and noncommercial educational, scientific, and research organizations.

NOTE: A dash indicates that no workers were found in the occupation-industry designation. "All private services" includes industries in addition to those shown separately.

Table 8. Private services: Relative salary levels--Occupation by industry

(Relative salary levels for selected professional, administrative, technical, and clerical occupations,¹ selected private service industries,² United States, except Alaska and Hawaii, March 1967)

Occupation	All private services	Business services ³	Architectural, engineering, and research services ⁴	Health services		Educational services
				Total	Hospitals	
Professional and administrative						
Accountants	100	104	104	98	99	97
Auditors	100	104	104	99	99	92
Attorneys	100	104	99	98	98	99
Buyers	100	105	108	-	-	99
Computer programmers	100	100	104	96	97	89
Systems analysts	100	100	103	96	96	92
Job analysts	100	104	118	98	98	99
Directors of personnel	100	110	109	97	97	94
Engineers	100	103	100	-	-	-
Registered nurses	100	-	-	100	101	96
Technical support						
Licensed practical nurses	100	-	-	100	105	107
Nursing assistants	100	-	-	100	123	138
Engineering technicians	100	99	100	-	-	102
Drafters	100	106	100	-	-	-
Computer operators	100	101	105	97	98	-
Photographers	100	122	117	106	106	101
Clerical						
Accounting clerks	100	104	109	98	103	95
File clerks	100	92	102	99	109	85
Key entry operators	100	95	114	103	107	99
Messengers	100	108	114	105	109	101
Personnel clerks/assistants	100	104	109	99	100	92
Purchasing clerks/assistants	100	107	105	99	100	97
Secretaries	100	102	108	98	97	87
Typists	100	102	107	103	107	91
General clerks	100	102	106	99	105	96

¹ Each occupation is limited to the work levels shown in table 1. In computing relative salary levels for each occupation by industry, the total employment in each work level in all industries surveyed was used as a constant employment weight to eliminate the effect of differences in the proportion of employment in various work levels within each occupation.

² For scope of the study, see table A-1, appendix A.

³ Includes business services in addition to research and development laboratories and commercial testing laboratories presented separately as

part of Architectural, Engineering, and Research Services.

⁴ Includes research and development laboratories, commercial testing laboratories, engineering and architectural services, and noncommercial educational, scientific, and research organizations.

NOTE: A dash indicates that no workers were found in the occupation-industry designation. "All private services" includes industries in addition to those shown separately.

Table 9. Private services: Average weekly hours--Occupation by industry

(Average standard weekly hours¹ for employees in selected professional, administrative, technical, and clerical occupations,¹ selected private service industries,² United States, except Alaska and Hawaii, March 1987)

Occupation	All private services	Business services ³	Architectural, engineering, and research services ⁴	Health services		Educational services
				Total	Hospitals	
Professional and administrative						
Accountants	39.5	39.5	40.0	39.5	39.5	38.5
Auditors	39.5	40.0	40.0	39.5	39.5	39.0
Attorneys	38.0	37.5	40.0	40.0	40.0	39.0
Buyers	39.5	40.0	40.0	-	-	38.5
Computer programmers	39.5	39.5	40.0	39.5	40.0	38.5
Systems analysts	39.5	40.0	40.0	40.0	40.0	39.5
Job analysts	39.5	40.0	40.0	39.5	39.5	39.0
Directors of personnel	39.5	39.5	40.0	40.0	40.0	38.5
Engineers	40.0	40.0	40.0	-	-	-
Registered nurses	39.5	-	-	39.5	39.5	40.0
Technical support						
Licensed practical nurses	39.5	-	-	39.5	40.0	40.0
Nursing assistants	39.5	-	-	39.5	39.5	39.5
Engineering technicians	40.0	40.0	40.0	-	-	40.0
Drafters	40.0	40.0	40.0	-	-	-
Computer operators	39.5	39.5	40.0	39.5	39.5	-
Photographers	39.5	40.0	39.5	39.5	39.5	38.0
Clerical						
Accounting clerks	39.5	39.5	39.5	39.5	39.5	38.5
File clerks	39.0	39.5	40.0	40.0	40.0	39.0
Key entry operators	39.5	39.5	40.0	39.5	39.5	39.0
Messengers	38.0	39.5	39.0	40.0	40.0	38.5
Personnel clerks/assistants	39.5	39.5	40.0	40.0	40.0	38.0
Purchasing clerks/assistants	39.5	40.0	40.0	39.5	39.5	38.0
Secretaries	39.0	39.5	40.0	39.5	39.5	38.5
Typists	39.0	38.5	39.5	39.5	39.5	39.0
General clerks	39.0	39.5	39.5	39.5	40.0	38.0

¹ Based on the standard workweek for which employees receive their regular straight-time salary. If standard hours are not available, the standard hours applicable for a majority of the office workforce in the establishment were used. The average for each job category was rounded to the nearest half hour.

² For scope of the study, see table A-1, appendix A.

³ Includes business services in addition to research and development laboratories and commercial testing laboratories presented separately as

part of Architectural, Engineering, and Research Services.

⁴ Includes research and development laboratories, commercial testing laboratories, engineering and architectural services, and noncommercial educational, scientific, and research organizations.

NOTE: A dash indicates that no workers were found in the occupation-industry designation. "All private services" includes industries in addition to those shown separately.

Appendix A. Scope and Method of Survey

Scope

The survey covered establishments¹ in the United States, except Alaska and Hawaii, employing at least 20 workers² and primarily providing personal, business, educational, health, legal, recreational, and technical services. (See table A-1.)

Establishments which met the minimum size criterion during the reference period of the information used in compiling the survey universe were included even if they employed fewer than 20 workers at the time of the survey. Establishments found to be outside of the industrial scope of the survey at the time of data collection were excluded.

Table A-1 shows the estimated number of establishments and employees within the scope of the survey (the universe) and the number within the sample actually studied for each major service industry. Separate estimates are presented for establishments located in metropolitan areas,³ for those employing at least 2,500 workers, and for full-time white-collar groupings.

Sampling frame

The list of establishments (the sampling frame) from which the sample was selected was developed using data from the most recently available (usually March 1985) Unemployment Insurance reports for the 48 contiguous States and the District of Columbia. For the portion of the sampling frame to be checked for accuracy and completeness, updating procedures were used (including results of other BLS programs) in which establishments known to be missing were added; out-of-business and out-of-scope establishments were removed; some units were combined or split to meet the establishment/collection unit definitions; and for some, address, employment, type of industry, or other information was corrected.

¹ For this survey, a services establishment is an economic unit which includes all locations of an individual company in a Metropolitan Statistical Area (MSA) or Primary Metropolitan Statistical Area (PMSA) or non-metropolitan county.

² See appendix B for details on the expansion of the survey in 1986 and 1987.

³ Metropolitan data relate to all 327 MSA's and PMSA's within the contiguous 48 States as defined by the U.S. Office of Management and Budget through June 1984.

This type of review and refinement was not practical for the large number of small units in the sampling frame (units with 20-99 employees). Instead, the small units selected were checked prior to collection to verify location, employment, and industry.

Survey design

The design for a survey of this nature includes classifying individual establishments into homogeneous groups or strata, determining the size of the sample for each stratum, and selecting the sample of establishments for each stratum.

Establishments within the scope of the 1987 survey were stratified by industry and by total employment.

The sample size in a stratum was proportionate to the expected number of employees to be matched in professional, administrative, technical, and clerical (PATC survey) occupations. The expected number of matched employees was estimated using previous PATC surveys, experience from collecting data for similar jobs in the Bureau's Industry Wage Surveys, and other sources. Using this allocation method, the larger the expected number of employees in all surveyed occupations for all establishments in a stratum, the larger the sample in that stratum. Also, an upward adjustment was made to the sample size in those strata expected to have specific occupations with relatively high sampling errors based upon the results of previous surveys. (See "Reliability of estimates" section for a discussion of sampling errors.)

For the small firms, the estimated number of occupational matches in each size class was derived from information on the expected incidence of workers matched in the larger size classes, and an appropriate sample selected. Supplementary samples were prepared and designated for collection for those strata where the out-of-business and out-of-scope rate was unusually high.

Data collection

Data for the survey are obtained primarily by personal visits of the Bureau's field representatives to a nationwide sample of establishments. Collection for the 1987 survey was from October 1986 through May 1987 and reflects an average reference month of March 1987.

Employees are classified by occupation and work level using job descriptions (appendix C) prepared jointly by the Bureau of Labor Statistics and the Office of Personnel Management. Descriptions are designed to reflect duties and responsibilities of employees in private industry and to be translatable to specific General Schedule grades applying to Federal employees (appendix D). Thus, definitions of some occupations and work levels are limited to specific elements which can be classified uniformly among establishments.

In comparing the actual duties and responsibilities of employees with those enumerated in job descriptions, the Bureau's field representatives, with the assistance of company officials, make extensive use of company position

descriptions, organization charts, and other personnel records.

Salaries reported for survey occupations are those paid to full-time employees for standard work schedules, i.e., the straight-time salary corresponding to the employee's normal work schedule excluding overtime hours and premium pay for work on weekends, holidays, and late shifts. However, premium pay for overtime was included in reported salaries of workers in nursing occupations on 12-hour shifts. Excluded are performance bonuses and lump-sum payments of the type negotiated in the auto and aerospace industries,⁴ as well as profit-sharing payments, attendance bonuses, Christmas or year-end bonuses, and other nonproduction bonuses. Pay increases (but not bonuses) under cost-of-living allowance clauses and incentive payments, however, are included.

Survey nonresponse

In the March 1987 survey, salary data were not available from 13 percent of the sample establishments (representing 1,472,948 employees in the total universe covered by the survey). An additional 7 percent of the sample establishments (representing 911,723 employees) were either out of business or outside the scope of the survey.

If data are not provided by a sample member, the weights of responding sample establishments are increased to adjust for the missing data. The weights for establishments which are out of business or outside the scope of the survey are changed to zero.

Some sampled companies have a policy of not disclosing salary data for certain employees. No adjustments are made to salary estimates for the survey as a result of these missing data. In all but three of the professional, administrative, technical, and clerical work levels published in this bulletin, the proportion of employees for whom salary data was not available was less than 3 percent. The three are accountant V (9 percent), director of personnel II (7 percent), and job analyst III (3.7 percent).

Survey estimation methods

Data conversion. Salary data are collected from company records in the most readily available form, i.e., weekly, bi-weekly, semimonthly, monthly, or annual. Before initial tabulations, all salary data are converted to a monthly basis. The factors used to convert the salary data are as follows:

Payroll basis	Conversion factor
Weekly	4.3333
Biweekly	2.1665
Semimonthly	2.0000
Monthly	1.0000
Annual	0.0833

⁴ For a discussion of such payments, see Joan Borum and others, "Collective Bargaining in 1987: Local, Regional Issues to Set Tone" and George Ruben, "Labor-Management Scene in 1986: Industrial Woes Continue", *Monthly Labor Review*, January 1987, pp. 23-48.

Factors which reflect the normal work schedules for the month are used to convert hourly rates to a monthly basis.

Employment. Occupational employment data published in this bulletin are estimated totals for all establishments within the scope of the survey and are not limited to establishments actually studied. An occupational employment estimate is derived by multiplying the full-time employment in the occupation in each sample establishment by the establishment weight and summing these results. (See "Limitations" section of this appendix.)

Salary averages. The mean salary (average wage rate) for a specific occupational level is obtained by dividing total wages for that level by the corresponding total employment. All salary averages in the tables are rounded to the nearest dollar. For all annual salary calculations, individual monthly salaries (to the nearest one-tenth cent) are multiplied by 12 before performing the necessary data aggregation.

Limitations

Survey occupations are limited to employees meeting the specific criteria in each job definition and are not intended to include all employees in each field of work.⁵ Employees whose salary data are not available, as well as those for whom there is no satisfactory basis for classification by work level, are not taken into account in the estimates. For these reasons, and because of differences in occupational structure among establishments, estimates of occupational employment obtained from the sample of establishments studied indicate only the relative importance of occupations and levels as defined for the survey. These limitations affecting the employment estimates do not materially affect the accuracy of the earnings data.

Reliability of estimates

The statistics in this report are estimates derived from a sample survey. There are two types of errors possible in an estimate based on a sample survey—sampling and non-sampling.

Sampling errors occur because observations come only from a sample, not the entire population. The particular sample used in this survey is one of a number of all possible samples of the same size that could have been selected using the same sample design. Estimates derived from the different samples would differ from each other.

A measure of the variation among these differing estimates

⁵ Engineers, for example, include employees engaged in engineering work within a band of eight levels, starting with inexperienced engineering graduates and excluding only those within certain fields of specialization or in positions above those covered by level VIII. In contrast, occupations such as directors of personnel include only those with responsibility for a specific program and with duties and responsibilities as indicated for each of the more limited number of work levels selected for study.

is called the standard error or sampling error.⁶ It indicates the precision with which an estimate from a particular sample approximates the average result of all possible samples. The relative standard error is the standard error divided by the estimate. The smaller the RSE, the greater the reliability of the estimate.

Estimates of relative standard errors (RSE) for the 1987 survey vary among the occupational work levels depending on such factors as the frequency with which the job occurs, the dispersion of salaries for the job, and the survey design. For the 93 publishable work levels, estimated relative standard errors for average salary estimates are distributed as follows:

<i>Relative standard error.</i>	<i>Number of occupational work levels</i>
Less than 1 percent	18
1 to 2 percent	59
2 to 3 percent	13
3 percent or more	3

In general, a sample estimate ± 1 standard error will contain the "true value" in 68 percent of all samples, ± 2 standard errors in 95 percent, and ± 3 standard errors in 99 percent. The Bureau evaluated the reliability of its estimates of average salaries in this survey based partly on the value of two relative standard errors. For example, the 95-percent confidence interval for accountants I is from \$19,196 to \$19,980 (annual average \$19,588 plus or minus 2 RSE's or 2 percent).

Nonsampling errors can come from many sources, such as inability to obtain information from some establishments; definitional difficulties; inability of respondents to provide correct information; mistakes in recording or coding the data

obtained; and other errors of collection, response, coverage, and estimation of missing data. Although not specifically measured, the survey's nonsampling errors are expected to be minimal due to the high response rate and the extensive and continuous training of field representatives, careful screening of data at several levels of review, annual maintenance and evaluation of the suitability of job definitions, and thorough field testing of new or revised job definitions.

To measure and better control nonsampling errors that occur during data collection, a quality control procedure was added to the PATC survey in 1983 and repeated in the following years.⁷ The procedure, job match validation (JMV), is designed to identify the frequency, reasons for, and sources of incorrect decisions made by Bureau field representatives in matching company jobs to survey occupations. Once identified, the problems are discussed promptly with the field representatives while the data are still being collected. Subsequently, the JMV results are tallied, reported to BLS staff, and become the basis for remedial action at annual training conferences.

The 1987 JMV process was limited to a sample of the PATC survey. About 15 percent of the sampled 1,534 job match decisions checked with respondents were subsequently changed by survey reviewers. Of those revised, slightly over one-half (127) were either original job matches that should have been excluded or company jobs excluded by the field representative that should have been matches for BLS occupational work levels. Three-tenths of these errors of inclusion or exclusion were made in matching the accountant and accounting clerk occupations. Training prior to the 1988 survey will include a review of these two jobs. Most of the remaining errors were matching one work level too high or too low within the appropriate occupation, e.g., registered nurse I instead of registered nurse II.

⁶ A replication technique with 15 random groups was used to obtain estimates of relative standard errors for the 1987 survey.

⁷ For a more detailed description of the process, see *National Survey of Professional, Administrative, Technical, and Clerical Pay, March 1983*, Bulletin 2181 (Bureau of Labor Statistics, 1983), p. 35.

Table A-1. Number of establishments and workers within scope of study and number studied, by service industry, United States, March 1987

Service industry ¹	Within scope of survey			Actually studied		
	Number of establishments	Workers in establishments		Number of establishments	Workers in establishments	
		Total	Professional and administrative		Clerical and technical support	Total	Professional and administrative	Clerical and technical support
United States:						
All private service industries ²	114,850	12,123,224	3,025,055	2,759,815	2,167,282	531,715
Business services	19,951	2,529,603	499,265	454,369	225,564	53,227
Health services	26,356	4,503,256	1,119,111	1,342,739	1,245,931	337,239
Nursing homes	10,998	1,069,280	129,792	385,945	75,803	28,902
Hospitals	4,487	2,767,036	827,630	707,045	1,110,930	285,958
Educational services	7,036	997,571	381,216	166,255	335,544	67,870
Social services	12,242	770,768	220,818	167,114	27,660	4,962
Miscellaneous services ³	8,572	642,680	334,864	212,623	136,175	41,979
Metropolitan areas:⁴						
All private service industries ²	95,857	10,683,585	2,709,406	2,406,634	2,034,933	499,064
Business services	19,146	2,466,015	488,613	444,934	210,023	50,334
Health services	18,364	3,639,108	945,826	1,074,111	1,157,067	311,798
Nursing homes	6,329	705,776	91,070	259,806	62,069	24,076
Hospitals	2,712	2,334,592	713,716	586,911	1,037,092	265,766
Educational services	5,927	876,076	325,421	146,889	317,426	65,037
Social services	10,274	636,658	186,229	140,511	24,906	4,448
Miscellaneous services ³	7,893	614,009	322,984	202,103	134,182	41,449

¹ As defined in the 1972 edition of the U.S. Office of Management and Budget.

² Establishments with total employment at or above the 20-worker minimum; excludes Alaska and Hawaii.

³ "Standard Industrial Classification Manual,"

³ Includes engineering, architectural, and surveying services and noncommercial educational, scientific, and research organizations.

⁴ Metropolitan Statistical Areas and Primary Metropolitan Statistical Areas, as defined by the U.S. Office of Management and Budget through June 1984.

Appendix B. Survey Changes in 1987

Changes in scope

The March 1987 survey reflects the second stage of changes designed to broaden the coverage of the PATC survey to more industries, including health care and educational services, and to smaller establishments. The survey's minimum establishment size was lowered to 20 workers and was limited to private service industries. Service industries, largely excluded from the previous surveys, primarily provide personal, business, educational, health, legal, recreational, and technical services. The 1987 survey findings were combined with updated information from establishments in industries other than services that had been studied in 1986. These findings are presented in table B-2. Rotating industry coverage in different years allows BLS to obtain a broader scope of pay data within budgetary limits.

In the first phase of the expansion, the 1986 survey increased its coverage of small establishments within the industries previously studied. The survey's minimum establishment size requirement, which generally had ranged from 100 to 250 employees depending on industry, was lowered to 50 employees in 1986, regardless of industry.

These changes were part of a proposal by the President's Cabinet Council on Management and Administration (CCMA) to expand the PATC survey to major segments of the labor force not covered previously and to use this additional information to broaden the base of the Federal pay comparability process.

Table B-1 presents the estimated number of establishments and workers and the number actually studied for the combined 1986 and 1987 survey coverage, which included all private industries except farms and households. Table B-2 presents the occupational employment and salary data from the combined surveys. BLS delivered these combined data to

the President's Pay Agent, who used the annual median salaries in the Federal pay comparability process for white-collar workers. In producing the combined data, (1) the selected services studied in 1986 were deleted (engineering, architectural, and surveying services; commercially operated research, development, and testing laboratories; credit reporting and collection agencies; computer and data processing services; management, consulting, and public relations services; noncommercial educational, scientific, and research organizations; and accounting, auditing, and bookkeeping services); (2) the remaining results were updated by applying the March 1986-March 1987 Employment Cost Index component for wages and salaries of private industry white-collar occupations, excluding sales (3.9 percent); and (3) these updated statistics were combined with the results of the 1987 survey of all private services.

Changes in occupational coverage

Three jobs in the nursing field were introduced into the survey in 1987. A four-level registered nurse job describes duties ranging from routine patient care at level I to the complex duties of a nursing specialist/consultant or practitioner at level IV. The three-level licensed practical nurse job describes routine hygiene and patient duties at level I to the more complex duties at level III, which involve care of critically ill or dependent patients. Nursing assistant, a four-level job, describes duties ranging from simple housekeeping tasks at level I to assisting the professional staff in patient care and maintenance at level IV. Also introduced in 1987 was a five-level civil engineering or survey technician/construction inspector job which was rarely encountered in this survey of the service industries. Consequently, data did not warrant publication.

Table B-1. Number of establishments and workers within scope of study and number studied, by industry, United States, March 1986 and March 1987

Industry ¹	Within scope of survey			Actually studied		
	Number of establishments	Workers in establishments		Number of establishments	Workers in establishments	
		Total	Professional and administrative		Clerical and technical support	Total	Professional and administrative	Clerical and technical support
United States:						
All industries	263,965	44,097,072	9,391,823	8,729,866	7,534	8,170,145
Manufacturing	58,581	14,856,991	2,926,493	1,908,188	2,110	3,352,415
Nonmanufacturing:						
Mining	2,455	439,685	104,071	62,399	110	66,114
Construction	9,109	1,093,057	150,148	72,952	102	65,178
Transportation, communications, electric, gas, and sanitary services	11,637	3,448,099	755,105	818,713	433	314,869
Wholesale trade	15,082	1,770,326	498,521	377,405	410	40,977
Retail trade	36,600	7,105,151	863,710	1,080,042	503	517,655
Finance, insurance, and real estate	15,651	3,260,539	1,068,780	1,560,352	597	214,994
Service industries ²	114,850	12,123,224	3,025,055	2,759,815	3,269	2,167,282
Business services	19,951	2,523,803	499,265	454,369	564	87,820
Health services	26,356	4,503,256	1,119,111	1,245,931	1,467	375,038
Nursing homes	10,998	1,069,280	129,792	385,945	433	9,118
Hospitals	4,487	2,767,036	827,630	707,045	866	350,092
Educational services	7,036	997,571	381,216	166,255	262	111,592
Social services	12,242	770,768	220,818	167,114	162	6,671
Miscellaneous services ³	8,572	642,680	334,864	212,623	340	74,095
Metropolitan areas:⁴						
All industries	215,660	37,413,021	8,427,363	7,805,998	6,378	7,709,652
Manufacturing	43,624	11,249,366	2,511,404	1,646,348	1,661	3,083,349
Nonmanufacturing:						
Mining	1,082	200,766	70,056	46,818	64	46,577
Construction	8,704	1,019,556	175,768	70,025	92	57,560
Transportation, communications, electric, gas, and sanitary services	9,064	3,171,700	708,067	759,365	376	312,667
Wholesale trade	13,730	1,822,195	461,726	362,242	384	101,905
Retail trade	29,687	6,389,845	772,466	947,915	436	508,583
Finance, insurance, and real estate	13,912	3,076,018	1,018,470	1,566,651	554	623,530
Service industries ²	95,857	10,683,585	2,709,406	2,406,634	2,791	2,034,933
Business services	19,146	2,466,015	488,613	444,934	543	647,336
Health services	18,364	3,639,108	945,826	1,074,111	1,140	210,023
Nursing homes	6,329	705,776	91,070	259,806	289	1,157,067
Hospitals	2,712	2,834,592	713,716	586,911	702	7,669
Educational services	5,927	876,076	325,421	146,899	223	329,728
Social services	10,274	636,658	166,229	140,511	136	102,478
Miscellaneous services ³	7,893	614,009	322,984	202,103	323	6,116

¹ As defined in the 1972 edition of the U.S. Office of Management and Budget.

² Includes service industries in addition to those shown separately.

³ "Standard Industrial Classification Manual,"

Includes engineering, architectural, and surveying services and noncommercial educational, scientific, and research organizations.

⁴ Metropolitan Statistical Areas and Primary Metropolitan Statistical Areas, as defined by the U.S. Office of Management and Budget through June 1984.

TABLE B-2. Average Salaries for Selected Occupations, National Survey of Professional, Administrative, Technical, and Clerical Pay, All Private Industries Surveyed in March 1986 and March 1987¹

Occupational Classification	Number of workers	Annual mean salary	Annual median salary
Accounting clerks I	41,656	\$12,831	\$12,247
Accounting clerks II	160,540	15,102	14,630
Accounting clerks III	94,900	18,296	17,871
Accounting clerks IV	26,486	22,223	21,623
File clerks I	30,054	10,984	10,535
File clerks II	16,100	12,821	12,047
Key entry operators I	80,597	13,408	12,962
Key entry operators II	39,231	16,931	16,207
Messengers	14,754	12,197	11,585
Secretaries I	80,024	16,448	15,890
Secretaries II	94,752	18,769	18,125
Secretaries III	127,130	21,745	21,082
Secretaries IV	55,527	24,603	24,203
Secretaries V	16,948	29,090	28,417
Stenographers I	6,847	19,011	18,764
Stenographers II	5,443	22,603	23,189
Typists I	28,030	13,098	12,895
Typists II	14,381	17,218	16,379
Personnel clerks/asst. I	3,706	14,310	14,392
Personnel clerks/asst. II	5,487	17,343	16,633
Personnel clerks/asst. III	4,041	20,158	19,879
Personnel clerks/asst. IV	1,482	24,457	23,883
Purchasing clerk/asst. I	5,090	14,285	14,046
Purchasing clerk/asst. II	6,651	17,689	17,072
Purchasing clerk/asst. III	4,271	22,832	22,629
Purchasing clerk/asst. IV	1,037	30,524	29,288
General clerks I	16,537	10,702	10,405
General clerks II	82,850	12,907	12,463
General clerks III	89,708	15,700	15,149
General clerks IV	37,750	19,987	19,325
Accountants I	15,604	21,527	21,291
Accountants II	34,887	25,984	25,445
Accountants III	50,828	32,074	31,482
Accountants IV	25,661	40,611	40,272
Accountants V	8,388	51,144	50,152
Accountants VI	1,411	63,977	62,975
Auditors I	1,748	22,354	22,226
Auditors II	3,046	27,007	26,276
Auditors III	4,836	33,302	33,071
Auditors IV	2,037	41,250	40,505
Chief accountants I	937	40,198	41,144
Chief accountants II	1,484	49,531	49,852
Chief accountants III	515	65,564	65,400
Chief accountants IV	230	83,883	82,725
Public accountants I	14,233	21,006	21,000
Public accountants II	14,443	23,044	22,991
Public accountants III	15,563	27,537	26,789
Public accountants IV	6,849	33,989	33,300
Job analysts I	110	22,642	22,137
Job analysts II	448	25,615	24,259
Job analysts III	760	30,749	29,222
Job analysts IV	488	39,326	38,469
Directors of personnel I	2,258	40,229	38,775
Directors of personnel II	2,767	47,021	46,713
Directors of personnel III	1,302	65,106	64,392
Directors of personnel IV	406	78,123	75,090
Attorneys I	1,421	32,022	31,188
Attorneys II	3,070	41,319	40,667
Attorneys III	4,519	52,158	50,620

See footnotes at end of table.

TABLE B-2. Average Salaries for Selected Occupations, National Survey of Professional, Administrative, Technical, and Clerical Pay, All Private Industries Surveyed in March 1986 and March 1987—Continued

Occupational Classification	Number of workers	Annual mean salary	Annual median salary
Attorneys IV	3,924	\$65,944	\$64,992
Attorneys V	1,960	80,856	79,995
Attorneys VI	609	105,658	106,235
Chemists I	3,833	23,205	23,003
Chemists II	6,685	28,236	28,042
Chemists III	10,140	35,504	34,910
Chemists IV	8,869	43,480	43,015
Chemists V	7,176	52,927	52,569
Chemists VI	3,539	63,548	63,499
Chemists VII	871	78,605	75,921
Engineers I	40,460	28,958	29,392
Engineers II	75,123	32,295	32,205
Engineers III	147,085	37,235	37,006
Engineers IV	160,817	44,360	44,083
Engineers V	112,374	52,698	52,303
Engineers VI	50,605	61,807	61,440
Engineers VII	12,223	71,475	70,291
Engineers VIII	2,755	81,060	80,517
Registered nurses I	38,257	21,012	20,830
Registered nurses II	366,888	24,127	23,835
Registered nurses III	20,402	31,216	31,073
Registered nurses IV	392	34,383	33,735
Licensed practical nurses I	31,195	14,636	14,559
Licensed practical nurses II	165,049	16,487	16,285
Licensed practical nurses III	2,061	18,837	18,836
Nursing assistants I	148,366	8,558	8,111
Nursing assistants II	269,803	10,872	10,248
Nursing assistants III	22,075	14,369	14,394
Engineering technicians I	5,524	17,577	17,288
Engineering technicians II	17,215	21,131	20,792
Engineering technicians III	32,443	24,857	24,627
Engineering technicians IV	35,064	29,732	29,475
Engineering technicians V	18,367	34,380	34,186
Buyers I	8,119	21,779	21,610
Buyers II	24,706	27,184	26,939
Buyers III	18,459	34,818	34,035
Buyers IV	4,953	42,772	42,139
Computer operators I	10,476	14,339	14,162
Computer operators II	44,318	17,690	17,288
Computer operators III	28,475	22,207	21,657
Computer operators IV	9,011	25,441	25,098
Computer operators V	1,457	30,295	30,522
Photographers III	1,079	27,712	27,558
Photographers IV	410	33,452	34,317
Photographers V	81	37,961	39,484
Computer programmers I	16,995	21,398	21,387
Computer programmers II	42,721	25,056	24,936
Computer programmers III	52,523	30,320	30,048
Computer programmers IV	23,412	36,422	36,143
Computer programmers V	9,763	44,693	44,698
Systems analysts I	23,249	30,111	29,849
Systems analysts II	53,410	36,103	35,960
Systems analysts III	39,382	43,592	43,070
Systems analysts IV	14,342	51,537	50,912
Systems analysts V	2,685	61,673	60,582
Systems analysts VI	246	74,632	74,378
Drafters I	3,645	13,258	13,086
Drafters II	13,523	16,479	16,064
Drafters III	27,346	21,071	20,759
Drafters IV	25,978	25,621	25,185
Drafters V	13,747	32,117	31,539

¹ This tabulation combines the results of the March 1987 survey in the service industries with updated results from the March 1986 survey of private industries, excluding services. The BLS Employment Cost Index component for wages and

salaries of private industry white-collar occupations, excluding sales, was used for updating. This adjustment factor was a 3.9 percent increase between March 1986 and March 1987.

Appendix C. Occupational Definitions

The primary purpose of preparing job definitions for the Bureau's wage surveys is to assist its field staff in classifying into appropriate occupations, or levels within occupations, workers who are employed under a variety of payroll titles and different work arrangements from establishment to establishment and from area to area. This permits the grouping of occupational wage rates representing comparable job content. To secure

comparability of job content, some occupations and work levels are defined to include only those workers meeting specific criteria as to training, job functions, and responsibilities. Because of this emphasis on inter-establishment and interarea comparability of occupational content, the Bureau's occupational definitions may differ significantly from those in use in individual establishments or those prepared for other purposes.

Accountants and Auditors

ACCOUNTANTS

Performs professional operating or cost accounting work requiring knowledge of the theory and practice of recording, classifying, examining, and analyzing the data and records of financial transactions. The work generally requires a bachelor's degree in accounting or, in rare instances, equivalent experience and education combined. Positions covered by this definition are characterized by the inclusion of work that is analytical, creative, evaluative, and advisory in nature. The work *draws* upon and *requires* a thorough knowledge of the fundamental doctrines, theories, principles, and terminology of accounting, and often entails some understanding of such related fields as business law, statistics, and general management. (See also chief accountant.)

Professional responsibilities in accountant positions above the entry and developmental levels include such duties as:

- Analyzing the effects of transactions upon account relationships;
- Evaluating alternative means of treating transactions;
- Planning the manner in which account structures should be developed or modified;
- Assuring the adequacy of the accounting system as the basis for reporting to management;
- Considering the need for new or changed controls;
- Projecting accounting data to show the effects of proposed plans on capital investments, income, cash position, and overall financial condition;

Interpreting the meaning of accounting records, reports, and statements;

Advising operating officials on accounting matters; and

Recommending improvements, adaptations, or revisions in the accounting system and procedures.

Entry and developmental level positions provide opportunity to develop ability to perform professional duties such as those enumerated above.

In addition to such professional work, most accountants are also responsible for assuring the proper recording and documentation of transactions in the accounts. They, therefore, frequently direct nonprofessional personnel in the actual day-to-day maintenance of books of accounts, the accumulation of cost or other comparable data, the preparation of standard reports and statements, and similar work. (Positions involving such supervisory work, but not including professional duties as described above, are not included in this description.)

Excluded are accountants whose *principal or sole* duties consist of designing or improving accounting systems or other nonoperating staff work, e.g., budget analysis, financial analysis, financial forecasting, tax advising, etc. (The criteria that follow for distinguishing among the several levels of work are inappropriate for such jobs.) Note, however, that professional accountant positions with responsibility for recording or reporting accounting data relative to taxes are included, as are other operating or cost accountants whose work

includes, but is not limited to, improvement of the accounting system.

Some accountants use electronic data processing equipment to process, record, and report accounting data. In some such cases, the machine unit is a subordinate segment of the accounting system; in others, it is a separate entity or is attached to some other organization. In either instance, provided that the primary responsibility of the position is professional accounting work of the type otherwise included, the use of data processing equipment of any type does not of itself exclude a position from the accountant description nor does it change its level.

Accountants I

General characteristics. At this beginning professional level, the accountant learns to apply the principles, theories, and concepts of accounting to a specific system. The position is distinguishable from nonprofessional positions by the variety of assignments; rate and scope of development expected; and the existence, implicit or explicit, of a planned training program designed to give the entering accountant practical experience. (Terminal positions are excluded.)

Direction received. Works under close supervision of an experienced accountant whose guidance is directed primarily to the development of the trainee's professional ability and to the evaluation of advancement potential. Limits of assignments are clearly defined, methods of procedure are specified, and kinds of items to be noted and referred to supervisor are identified.

Typical duties and responsibilities. Performs a variety of accounting tasks such as: Examining a variety of financial statements for completeness, internal accuracy, and conformance with uniform accounting classifications or other specific accounting requirements; reconciling reports and financial data with financial statements already on file, and pointing out apparent inconsistencies or errors; carrying out assigned steps in an accounting analysis, such as computing standard ratios; assembling and summarizing accounting literature on a given subject; preparing relatively simple financial statements not involving problems of analysis or presentation; and preparing charts, tables, and other exhibits to be used in reports. In addition, may also perform some nonprofessional tasks for training purposes.

Responsibility for direction of others. Usually none.

Accountants II

General characteristics. At this level, the accountant makes practical application of technical accounting practices and concepts beyond the mere application of detailed rules and instructions, as a phase in developing

greater professional competence. Initial assignments are designed to expand practical experience and to develop professional judgment in the application of basic accounting techniques to simple problems. Is expected to be competent in the application of standard procedures and requirements to routine transactions, to raise questions about unusual or questionable items, and to suggest solutions.

Direction received. Work is reviewed closely to verify general accuracy and coverage of unusual problems, and to insure conformance with required procedures and special instructions.

Typical duties and responsibilities. Performs a variety of accounting tasks, e.g., prepares routine working papers, schedules, exhibits, and summaries indicating the extent of the examination and presenting and supporting findings and recommendations. Examines a variety of accounting documents to verify accuracy of computations and to ascertain that all transactions are properly supported, are in accordance with pertinent policies and procedures, and are classified and recorded according to acceptable accounting standards.

Responsibility for direction of others. Usually none, although sometimes responsible for supervision of a few clerks.

Accountants III

General characteristics. The accountant at this level applies well-established accounting principles, theories, concepts, and practices to moderately difficult problems. Receives detailed instructions concerning the overall accounting system and its objectives, the policies and procedures under which it is operated, and the nature of changes in the system or its operation. Characteristically, the accounting system or assigned segment is stable and well established (i.e., the basic chart of accounts, classifications, the nature of the cost accounting system, the report requirements, and the procedures are changed infrequently).

Depending upon the workload involved, the accountant may have such assignments as supervision of the *day-to-day operation* of: (a) The entire system of a relatively small establishment; or (b) a major segment (e.g., general accounting, cost accounting, or financial statements and reports) of a somewhat larger system; or (c) in a complex system, may be assigned to a relatively narrow and specialized segment dealing with some problem, function, or portion of work which is appropriate for this level.

Direction received. A higher level professional accountant normally is available to furnish advice and assistance as needed. Work is reviewed for technical ac-

curacy, adequacy of professional judgment, and compliance with instructions through spot checks, appraisal of results, subsequent processing, analysis of reports and statements, and other appropriate means.

Typical duties and responsibilities. The primary responsibility of most positions at this level is to assure that the assigned day-to-day operations are carried out in accordance with established accounting principles, policies, and objectives. The accountant performs such professional work as: Developing nonstandard reports and statements (e.g., those containing cash forecasts reflecting the interrelations of accounting, cost budgeting, or comparable information); interpreting and pointing out trends or deviations from standards; projecting data into the future; predicting the effects of changes in operating programs; or identifying management informational needs, and refining account structures or reports accordingly.

Within the limits of delegated responsibility, makes day-to-day decisions concerning the accounting treatment of financial transactions. Is expected to recommend solutions to moderately difficult problems and propose changes in the accounting system for approval at higher levels. Such recommendations are derived from personal knowledge of the application of well-established principles and practices.

Responsibility for direction of others. In most instances, is responsible for supervision of a subordinate nonprofessional staff; may coordinate the work of lower level professional accountants.

Accountants IV

General characteristics. At this level, the accountant applies well-established accounting principles, theories, concepts, and practices to a wide variety of difficult problems. Receives instructions concerning the objectives and operation of the overall accounting system. Compared with level III, the accounting system or assigned segment is more complex, i.e., (a) is relatively unstable, (b) must adjust to new or changing company operations, (c) is substantially larger, or (d) is complicated by the need to provide and coordinate separate or specialized accounting treatment and reporting (e.g., cost accounting using standard cost, process cost, and job order techniques) for different operations or divisions of company.

Depending upon the workload and degree of coordination involved, the accountant IV may have such assignments as the supervision of the *day-to-day operation* of: (a) The entire accounting system of an establishment having a few relatively stable accounting segments; or (b) a major segment (e.g., general accounting, cost accounting, or financial statements and reports) of an accounting system serving a larger and

more complex establishment; or (c) in a complex system, may be assigned to a relatively narrow and specialized segment dealing with some problem, function, or portion of work which is itself of the level of difficulty characteristic of this level.

Direction received. A higher level accountant normally is available to furnish advice and assistance as needed. Work is reviewed by spot checks and appraisal of results for adequacy of professional judgment, compliance with instructions, and overall accuracy and quality.

Typical duties and responsibilities. As in level III, a primary characteristic of most positions at this level is the responsibility of operating an accounting system or major segment of a system in the intended manner.

The accountant IV exercises professional judgment in making frequent, appropriate recommendations for: New accounts; revisions in the account structure; new types of ledgers; revisions in reporting system or subsidiary records; and changes in instructions regarding the use of accounts, new or refined account classifications or definitions; etc. Also makes day-to-day decisions concerning the accounting treatment of financial transactions and is expected to recommend solutions to complex problems beyond incumbent's scope of responsibility.

Responsibility for direction of others. Accounting staff supervised, if any, may include professional accountants.

Accountants V

General characteristics. The accountant V applies accounting principles, theories, concepts, and practices to the solution of problems for which no clear precedent exists or performs work which is of greater than average responsibility due to the nature or magnitude of the assigned work. Responsibilities at this level, in contrast to accountants at level IV, extend beyond accounting system maintenance to the solution of more complex technical and managerial problems. Work of accountants V is more directly concerned with what the accounting system (or segment) should be, what operating policies and procedures should be established or revised, and what is the managerial as well as the accounting meaning of the data included in the reports and statements for which they are responsible. Typically, this level of work approaches chief accountant positions in terms of the nature of the concern for the accounting system and its operation, but not in terms of the breadth or scope of responsibility.

Examples of assignments characteristic of this level are supervision of the *day-to-day operation* of: (a) The entire accounting system of an establishment having a few relatively complex accounting segments; or (b) a

major segment of a larger and more complex accounting system; or (c) the entire accounting system (or major segment) of a company that has a relatively stable and conventional accounting system when the work includes significant responsibility for accounting systems design and development; or (d) in a complex system, may be assigned to a relatively narrow and specialized segment dealing with some problem, function, or portion of work which is of a difficulty characteristic of this level.

Direction received. An accountant of higher level normally is available to furnish advice and assistance as needed. Work is reviewed for adequacy of professional judgment, compliance with instructions, and overall quality.

Typical duties and responsibilities. The accountant V performs such professional work as: Participating in the development and coordinating the implementation of new or revised accounting systems, and initiating necessary instructions and procedures; assuring accounting reporting systems and procedures are in compliance with established company policies, regulations, and acceptable accounting practices; providing technical advice and services to operating managers, interpreting accounting reports and statements, and identifying problem areas; and evaluating completed assignments for conformance with applicable policies, regulations, and tax laws.

Responsibility for direction of others. Accounting staff supervised generally includes professional accountants.

Accountants VI

General characteristics. At this level, the accountant applies accounting principles, theories, concepts, and practices to specialized, unique or nonrecurring complex problems (e.g., implementation of specialized automated accounting systems). The work is substantially more difficult and of greater responsibility than level V because of the unusual nature, magnitude, importance, or overall impact of the work on the accounting program.

At this level, the accounting system or segment is usually complex, i.e., (a) is generally unstable, (b) must adjust to the frequent changing needs of company operations, or (c) is complicated by the need to provide specialized or individualized reports.

Examples of assignments at this level are the supervision of the *day-to-day operation* of: (a) A large and complex corporate accounting system, or (b) a major segment (e.g., general accounting, property accounting, etc.) of an unusually complex accounting system requiring technical expertise in a particular accounting field (e.g., cost accounting, tax accounting, etc.).

Direction received. A higher level professional accountant is normally available to furnish advice as needed. Work is reviewed for adequacy of professional judgment, compliance with instructions and policies, and overall quality.

Typical duties and responsibilities. Accountants at this level are delegated complete responsibility from higher authority to establish and implement new or revised accounting policies and procedures. Typically, accountants VI participate in decisionmaking sessions with operating managers who have policymaking authority for their subordinate organizations or establishments; recommend management actions or alternatives which can be taken when accounting data disclose unfavorable trends, situations, or deviations; and assist management officials in applying financial data and information to the solution of administrative and operating problems.

Responsibility for direction of others. Accounting staff supervised generally includes professional accountants.

NOTE: Excluded are accountants above level VI whose principal function is to direct, manage, or administer an accounting program in that they are *primarily* concerned with the administrative, budgetary, and policy matters of the program rather than the actual supervision of the *day-to-day operations* of an accounting program. This type of work requires extensive managerial ability as well as superior professional competence in order to cope with the technical accounting and management problems encountered. Typically, the level of work involves responsibility for more than one accounting activity (e.g., cost accounting, sales accounting, etc.).

AUDITORS

Performs professional auditing work requiring a bachelor's degree in accounting or, in rare instances, equivalent experience and education combined. Audits the financial records and practices of a company, or of divisions or components of the company, to appraise systematically and verify the accounting accuracy of records and reports and to assure the consistent application of accepted accounting principles. Evaluates the adequacy of the accounting system and internal financial controls. Makes appropriate recommendations for improvement as necessary. To the extent determined necessary, examines the transactions entering into the balance sheet, and the transactions entering into income, expense, and cost accounts. Determines:

1. The existence of recorded assets (including the observation of the taking of physical inventories) and the all-inclusiveness of recorded liabilities.
2. The accuracy of financial statements or reports and the fairness of presentation of facts therein.

3. The propriety or legality of transactions.
4. The degree of compliance with established policies and procedures concerning financial transactions.

Excluded from this definition are:

- a. Auditors primarily examining or reporting on the financial management of company operations. These auditors evaluate such matters as: (1) The operation's degree of compliance with the principles of sound financial management; and (2) the effectiveness of management and operating controls.
- b. Auditors assigned to audit programs which are confined on a relatively permanent basis to repetitive examination of a limited area of company operations and accounting processes, e.g., accounts payable and receivable; payroll; physical inventory; and branch offices which do not have complete accounting systems. This does not preclude positions responsible for performing a segment of an audit (i.e., examining individual items on a balance sheet, rather than the entire balance sheet), *as long as the work directly relates to the financial audit program*; and
- c. Electronic data processing (EDP) auditors. These positions require an extensive knowledge of computer systems, programming, etc.

Auditors I

General characteristics. As a trainee auditor at the entering professional level, performs a variety of routine assignments. Typically, the trainee is rotated through a variety of tasks under a planned training program designed to provide practical experience in applying the principles, theories, and concepts of accounting and auditing to specific situations. (Terminal positions are excluded.)

Direction received. Works under close supervision of an experienced auditor whose guidance is directed primarily to the development of the trainee's professional ability and to the evaluation of advancement potential. Limits of assignments are clearly defined, methods of procedure are specified, and kinds of items to be noted and referred to supervisor are identified.

Typical duties and responsibilities. Assists in making audits by performing such tasks as: Verifying the accuracy of the balances in various records; examining a variety of types of documents and vouchers for accuracy of computations; checking transactions to assure they are properly documented and have been recorded in accordance with correct accounting classifications; verifying the count of inventories; preparing detailed statements, schedules, and standard audit working papers; counting cash and other assets; and preparing simple reconciliations and similar functions.

Auditors II

General characteristics. At this level, the professional auditor serves as a junior member of an audit team, independently performing selected portions of the audit which are limited in scope and complexity, as a phase in developing greater professional competence. Auditors at this level typically have acquired knowledge of company operations, policies, and procedures.

Direction received. Detailed instructions are furnished and the work is reviewed to the extent necessary to verify its general accuracy and coverage of unusual problems, to insure conformance with required procedures and special instructions, and to assure the auditor's professional growth. Any technical problems not covered by instructions are brought to the attention of a superior.

Typical duties and responsibilities. Applies knowledge of *accounting theory* and audit practices to a variety of relatively simple professional problems in audit assignments, including such tasks as: The verification of reports against source accounts and records to determine their reliability; reconciliation of bank and other accounts and verifying the detail of recorded transactions; detailed examinations of cash receipts and disbursement vouchers, payroll records, requisitions, work orders, receiving reports, and other accounting documents to ascertain that transactions are properly supported and are recorded correctly from an accounting or regulatory standpoint; or preparation of working papers, schedules, and summaries.

Auditors III

General characteristics. Work at this level consists of the audit of operations and accounting processes that are relatively stable, well established, and typical of the industry. The audits primarily involve the collection and analysis of readily available findings; there is previous audit experience that is directly applicable; the audit reports are normally prepared in a prescribed format using a standard method of presentation; and few, if any, major problems are anticipated. The work performed requires the *application* of substantial knowledge of accounting principles and practices, e.g., bases for distinguishing among capital maintenance and operating expenses; accruing reserves for taxes; and other accounting considerations of an equivalent nature.

Direction received. Work is normally within an established audit program and supervision is provided by a higher level auditor who outlines and discusses assignments. Work is spot checked in progress. Completed assignments are reviewed for adequacy of coverage, soundness of judgment, compliance with professional standards, and adherence to policies.

Typical duties and responsibilities. The auditor examines transactions and verifies accounts; observes and evaluates accounting procedures and internal controls; and prepares audit working papers and submits an audit report in the required pattern containing recommendations for needed changes or improvements. Usually is responsible for selecting the detailed audit methods to follow, choosing the audit sample and its size, determining the extent to which discrepancies need to be investigated, and deciding the depth of the analyses required to support reported findings and conclusions.

Examples of assignments involving work at this level:

1. As a team leader or working alone, independently conducts audits of the complete accounts and related operations of smaller or less complex companies (e.g., involving a centralized accounting system with few or no subordinate, subsidiary, or branch accounting records) or of comparable segments of larger companies.
2. As a member of an audit team, independently accomplishes varied audit assignments of the above described characteristics, typically major segments of complete audits, or assignments otherwise limited in scope, of larger and more complex companies (e.g., complex in that the accounting system entails cost, inventory, and comparable specialized *systems* integrated with the general accounting system).

Illustrative of such assignments are the audit and initial review of the accounting treatment and validity of reporting of overhead expenses in a large manufacturing or maintenance organization (e.g., major repair yard of a railroad); or the checking, verification, and balancing of all accounts receivable and accounts payable; or the analysis and verification of assets and reserves; or the inspection and evaluation of account controls and procedures.

Auditors IV

General characteristics. Auditors at this level are experienced professionals who apply thorough knowledge of accounting principles and theory in connection with a *variety* of audits. Work at this level is characterized by the audit of organizations and accounting processes which are complex and difficult because of such factors as: Presence of new or changed programs and accounting systems; existence of major specialized accounting functions (e.g., cost accounting, inventory accounting, sales accounting), in addition to general accounting; need to consider extensive and complicated regulatory requirements; lack of or difficulty in obtaining information; and other similar factors. Typically, a variety of different assignments are encountered over a period of time, e.g., 1 year. The audit reports prepared are comprehensive, explain irregularities, cite rules and regulations violated, recommend remedial actions, and contain analyses of items of special importance or interest to company management.

Direction received. Within an established audit program, has responsibilities for independently planning and executing audits. Usually difficult problems are discussed with the supervisor who also reviews completed assignments for adherence to principles and standards and the soundness of conclusions.

Typical duties and responsibilities. Auditors at this level have full responsibility for planning the audit, including determination of the aspects to emphasize, methods to be used, development of nonstandard or specialized audit aids, such as questionnaires, etc., *where previous audit experience and plans are of limited applicability.*

Included in the scope of work that characterizes this level are such functions as: Evaluation of methods used for determining depreciation rates of equipment; evaluation of assets where original costs are unknown; evaluation of the reliability of accounting and reporting systems; analysis of cost accounting systems and cost reports to evaluate the basis for cost and price setting; evaluation of accounting procurement and supply management records, controls, and procedures; and many others.

Examples of assignments involving work at this level:

1. As a team leader or working alone, independently plans and conducts audits of the complete accounts and related operations of relatively large complex companies (e.g., complex in that the accounting system entails cost, inventory, and comparable specialized accounting *systems* integrated with the general accounting system) or of company branch, subsidiary, or affiliated organizations which are individually of comparable size and complexity.
2. As a member of an audit team, independently plans and accomplishes audit assignments that constitute major segments of audits of very large and complex organizations, for example, those with financial responsibilities so great as to involve specialized subordinate, subsidiary, or affiliate accounting systems that are complete in themselves.

NOTE: Excluded from level IV are auditors who, as team leaders or working alone, conduct *complete* audits of very large and complex organizations, for example, those with financial responsibilities so great as to involve specialized subordinate, subsidiary, or affiliate accounting systems that are complete in themselves; or are team members assigned to major segments of audits of even larger or more complex organizations. Also excluded are positions primarily responsible for overseeing multiple concurrent audits.

PUBLIC ACCOUNTANTS

Performs professional auditing work in a public accounting firm. Work requires at least a bachelor's degree in accounting. Participates in or conducts audits to ascertain the fairness of financial representations made by client companies. May also assist the client in improving accounting procedures and operations.

Examines financial reports, accounting records, and related documents and practices of clients. Determines whether all important matters have been disclosed and whether procedures are consistent and conform to acceptable practices. Samples and tests transactions, internal controls, and other elements of the accounting system(s) as needed to render the accounting firm's final written opinion.

Excluded are positions which do not require full professional accounting training. Also excluded are specialist positions in tax or management advisory services.

Public Accountants I

General characteristics. As an entry level public accountant, serves as a junior member of an audit team. Receives classroom and on-the-job training to provide practical experience in applying the principles, theories, and concepts of accounting and auditing to specific situations. (Positions held by trainee public accountants with advanced degrees, such as MBA's, are excluded at this level.)

Direction received. Complete instructions are furnished and work is reviewed to verify its accuracy, conformance with required procedures and instructions, and usefulness in facilitating the accountant's professional growth. Any technical problems not covered by instructions are brought to the attention of a superior.

Typical duties and responsibilities. Carries out basic audit tests and procedures, such as: Verifying reports against source accounts and records; reconciling bank and other accounts; and examining cash receipts and disbursements, payroll records, requisitions, receiving reports, and other accounting documents in detail to ascertain that transactions are properly supported and recorded. Prepares selected portions of audit working papers.

Public Accountants II

General characteristics. At this level, the public accountant carries out routine audit functions and detail work with relative independence. Serves as a member of an audit team on assignments planned to provide exposure to a variety of client organizations and audit situations. Specific assignments depend upon the difficulty and complexity of the audit and whether the client has been previously audited by the firm. On moderately complex audits where there is previous audit experience by the firm, accomplishes complete segments of the audit (i.e., functional work areas such as cash, receivables, etc.). When assigned to more complicated audits, carries out activities similar to public accountants I.

Direction received. Works under the supervision of a

higher level public accountant who provides instructions and continuing direction as necessary. Work is spot checked in progress and reviewed upon completion to determine the adequacy of procedures, soundness of judgment, compliance with professional standards, and adherence to clearly established methods and techniques. All interpretations are subject to close professional review.

Typical duties and responsibilities. Carries out a variety of sampling and testing procedures in accordance with the prescribed audit program, including examination of transactions and verification of accounts, the analysis and evaluation of accounting practices and internal controls, and other detail work. Prepares a share of the audit working papers and participates in drafting reports. In moderately complex audits, may assist in selecting appropriate tests, samples, and methods commonly applied by the firm and may serve as primary assistant to the accountant in charge. In more complicated audits, concentrates on detail work. Occasionally, may be in charge of small, uncomplicated audits which require only one or two other subordinate accountants. Personal contacts usually involve only the exchange of factual technical information and are usually limited to the client's operating accounting staff and department heads.

Public Accountants III

General characteristics. At this level, the public accountant is in charge of a complete audit and may lead a team of several subordinates. Audits are usually accomplished one at a time and are typically carried out at a single location. The firms audited are typically moderately complex, and there is usually previous audit experience by the firm. The audit conforms to standard procedural guidelines, but is often tailored to fit the client's business activities. Routine procedures and techniques are sometimes inadequate and require adaptation. Necessary data are not always readily available. When assigned to more difficult and complex audits (see level IV), the accountant may run the audit of a major component or serve as the primary assistant to the accountant in charge.

Direction received. Works under the general supervision of a higher level public accountant who oversees the operations of the audit. Work is performed independently, applying generally accepted accounting principles and auditing standards, but assistance on difficult technical matters is available. Work may be checked occasionally during progress for appropriateness and adherence to time requirements, but routine analyses, methods, techniques, and procedures applied at the worksite are expected to be correct.

Typical duties and responsibilities. Is responsible for carrying out the technical features of the audit, leading team members, and personally performing the most dif-

difficult work. Carries out field work in accordance with the general format prescribed in the audit program, but selects specific methods and types and sizes of samples and tests. Assigns work to team members, furnishes guidance, and adjusts workloads to accommodate daily priorities. Thoroughly reviews work performed for technical accuracy and adequacy. Resolves anticipated problems within established guidelines and priorities but refers problems of unusual difficulty to superiors for discussion and advice. Drafts financial statements, final reports, management letters, and other closing memoranda. Discusses significant recommendations with superiors and may serve as technical resource at "closing" meetings with clients. Personal contacts are usually with chief accountants and assistant controllers of medium-size companies and divisions of large corporations to explain and interpret policies and procedures governing the audit process.

Public Accountants IV

General characteristics. At this level, the public accountant directs field work including difficult audits—e.g., those involving initial audits of new clients, acquisitions, or stock registrations—and may oversee a large audit team split between several locations. The audit team usually includes one or more level III public accountants who handle major components of the audit. The audits are complex and clients typically include those engaged in projects which span accounting periods; highly regulated industries which have various external reporting requirements; publicly held corporations; or businesses with very high dollar or transaction volume. Clients are frequently large with a variety of operations which may have different accounting systems. Guidelines may be general or lacking and audit programs are intricate, often requiring extensive tailoring to meet atypical or novel situations.

Direction received. Works under general supervision. The supervisor sets overall objectives and resource limits but relies on the accountant to fully plan and direct all technical phases of the audit. Issues not covered by guidelines or known precedents are discussed with the supervisor, but the accountant's recommended approaches and courses of action are normally approved. Work is reviewed for soundness of approach, completeness, and conformance with established policies of the firm.

Typical duties and responsibilities. Is responsible for carrying out the operational and technical features of the audit, directing the work of team members, and personally performing the most difficult work. Often participates in the development of the audit scope, and drafts complicated audit programs with a large number of concurrently executed phases. Independently develops audit steps and detailed procedures, deviating from traditional methods to the extent required. Makes program

adjustments as necessary once an audit has begun; and selects specific methods, types, and sizes of samples, the extent to which discrepancies need to be investigated, and the depth of required analyses. Resolves most operational difficulties and unanticipated problems.

Assigns work to team members; reviews work for appropriateness, conformance to time requirements, and adherence to generally accepted accounting principles and auditing standards. Consolidates working papers, drafts reports and findings; and prepares financial statements, management letters, and other closing memoranda for management approval. Participates in "closing" meetings as a technical resource and may be called upon to sell or defend controversial and critical observations and recommendations. Personal contacts are extensive and typically include top executives of smaller clients and mid- to upper-level financial and management officers of large corporations, e.g., assistant controllers or controllers. Such contacts involve coordinating and advising on work efforts and resolving operating problems.

NOTE: Excluded from this level are public accountants who direct field work associated with the complete range of audits undertaken by the firm, lead the largest and most difficult audits, and who frequently oversee teams performing concurrent audits. This type of work requires extensive knowledge of one or more industries to make subjective determinations on questions of tax, law, accounting, and business practices. Audits may be complicated by such factors as: The size and diversity of the client organization (e.g., multinational corporations and conglomerates with a large number of separate and distinct subsidiaries); accounting issues where precedents are lacking or in conflict; and, in some cases, clients who are encountering substantial financial difficulties. They perform most work without technical supervision, and completed audits are reviewed mainly for propriety of recommendations and conformance with general policies of the firm. Also excluded are public accountants whose principal function is to manage, rather than perform accounting work, and the equity owners of the firm who have final approval authority.

CHIEF ACCOUNTANTS

As the top technical expert in accounting, is responsible for directing the accounting program for a company or for an establishment of a company. The minimum accounting program includes: (1) General accounting (assets, liabilities, income, expense, and capital accounts, including responsibility for profit and loss and balance sheet statements); and (2) at least one other *major* accounting activity, typically tax accounting, cost accounting, property accounting, or sales accounting. It may also include such other activities as payroll and timekeeping, and

mechanical or electronic data processing operations which are an adjunct of the accounting system. (Responsibility for an internal audit program is typically *not* included.)

The responsibilities of the chief accountant include *all* of the following:

1. On own responsibility, developing, adapting, or revising an accounting system to meet the needs of the organization;
2. Supervising, either directly or through subordinate supervisors, the operation of the system with full management responsibility for the quality and quantity of work performed, training and development of subordinates, work scheduling and review, coordination with other parts of the organization served, etc.;
3. Providing directly, or through an official such as a comptroller, advisory services to the top management officials of the organization served as to:
 - a. The status of financial resources and the financial trends or results of operations as revealed by accounting data, and selecting a manner of presentation that is meaningful to management;
 - b. Methods for improving operations as suggested by an expert knowledge of accounting, e.g., proposals for improving cost control, property management, credit and collection, tax reduction, or similar programs.

Excluded are positions with responsibility for the accounting program if they also include (as a major part of the job) responsibility for budgeting; work measurement; organization, methods, and procedures studies; or similar nonaccounting functions. (Positions of such breadth are sometimes titled comptroller, budget and accounting manager, financial manager, etc.)

Some positions responsible for supervising general accounting and one or more other major accounting activities but which do *not* fully meet *all* of the responsibilities of a chief accountant specified above may be covered by the descriptions for accountant.

Chief accountant jobs which meet the characteristics described are classified by level of work according to (a) authority and responsibility, and (b) technical complexity, using table C-1.

Authority and Responsibility

AR-1. The accounting system (i.e., accounts, procedures, and reports to be used) has been prescribed in considerable detail by higher levels in the company or organization. The chief accountant has final, unreviewed authority, within the prescribed system, to expand it to fit the particular needs of the organization served, e.g., in the following or comparable ways:

- Providing greater detail in accounts and reports or financial statements;
- Establishing additional accounting controls, accounts,

subaccounts, and subsidiary records; and

Providing special or interim reports and statements needed by the manager responsible for the *day-to-day operations* of the organization served.

This degree of authority is typically found at a plant or similar subordinate establishment.

AR-2. The basic accounting system is prescribed in broad outline rather than in specific detail. While certain major financial reports, overall accounts, and general policies are required by the basic system, the chief accountant has broad latitude and *authority* to decide the specific methods, procedures, accounts, reports, etc., to be used within the organizational segment served. Approval must be secured from higher levels only for those changes which would basically affect the broad requirements prescribed by such higher levels. Typical responsibilities include:

Evaluating and taking final action on recommendations proposed by subordinate establishments for changes in aspects of the accounting system or activities not prescribed by higher authority;

Extending cost accounting operations to areas not previously covered;

Instituting new cost accounting procedures;

Expanding the utilization of computers within the accounting process; and

Preparing accounting reports and statements reflecting the events and progress of the entire organization for which incumbent is responsible, often consolidating data submitted by subordinate segments.

This degree of authority is most typically found at intermediate organizational levels such as regional offices, or division or subsidiary headquarters. It is also found in some company-level situations where the authority of the chief accountant is less extensive than is described in AR-3. More rarely, it is found in plant-level chief accountants who have been delegated more authority than usual for such positions as described in AR-1.

AR-3. Has complete responsibility for establishing and maintaining the framework for the basic accounting system used in the company, subject only to general policy guidance and control from a higher level company official responsible for general financial management. Typical responsibilities include:

Determining the basic characteristics of the company's accounting system and the specific accounts to be used;

Devising and preparing accounting reports and statements required to meet management's needs for data;

Establishing basic accounting policies, interpretations, and procedures;

Reviewing and taking action on proposed revisions to the company's accounting system suggested by subordinate units; and

Table C-1. Criteria for matching chief accountants by level

Level	Authority and responsibility ¹	Technical complexity ¹	Subordinate professional accounting staff
I	AR-1	TC-1	Only 1 or 2 professional accountants who do not exceed the accountant III job definition.
II	AR-1	TC-2	About 5 to 10 professional accountants, with at least one or two matching the accountant IV job definition.
	or		
	AR-2	TC-1	About 5 to 10 professional accountants. Most of these match the accountant III job definition, but one or two may match the accountant IV job definition.
	or		
III	AR-3	TC-1	Only 1 or 2 professional accountants who do not exceed the accountant IV job definition.
	AR-1	TC-3	About 15 to 20 professional accountants. At least one or two match the accountant V job definition.
	or		
	AR-2	TC-2	About 15 to 20 professional accountants. Many of these match the accountant IV job definition, but some may match the accountant V job definition.
	or		
	AR-3	TC-1	About 5 to 10 professional accountants. Most of these match the accountant III job definition, but one or two may match as high as accountant V.
IV	AR-2	TC-3	About 25 to 40 professional accountants. Many of these match the accountant V job definition, but several may exceed that level.
	or		
V	AR-3	TC-2	About 15 to 20 professional accountants. Most of these match the accountant IV job definition, but several may match the accountant V and one or two may exceed that level.
	AR-3	TC-3	About 25 to 40 professional accountants. Many of these match the accountant V job definition, but several may exceed that level.

¹ AR-1, -2, -3, and TC-1, -2, and -3 are explained in the text.

Taking final action on all technical accounting matters.

Characteristically, participates extensively in broad company management processes by providing accounting advice, interpretations, or recommendations based on data accumulated in the accounting system and on professional judgment and experience.

Technical Complexity

TC-1. The organization which the accounting program serves has relatively few functions, products, work processes, etc., and these tend to be stable and unchanging. The accounting system operates in accordance with well-established principles and practices or those of equivalent difficulty which are typical of that industry.

TC-2. The organization which the accounting program

serves has a relatively large number of functions, products, work processes, etc., which require substantial and frequent adaptations of the basic system to meet management needs (e.g., adoption of new accounts, subaccounts, and subsidiary records; revision of instructions for the use of accounts; improvements or expansion of methods for accumulating and reporting cost data in connection with new or changed work processes).

TC-3. The organization which the accounting program serves puts a *heavy demand on the accounting organization for specialized and extensive adaptations* of the basic system to meet management needs. Such demands arise because the functions, products, work processes, etc., of the organization are very numerous, diverse, unique, or specialized, or there are other comparable complexities. Consequently, the accounting system, to a considerable degree, is developed well

beyond established principles and accounting practices in order to:

Provide for the solution of problems for which no clear precedents exist; or

Provide for the development or extension of accounting theories and practices to deal with problems to which these theories and practices have not previously been applied.

Subordinate Staff

In table C-1, the number of professional accountants supervised is recognized to be a relatively crude criterion for distinguishing between various levels. It is to be considered less important in the matching process than the other criteria. In addition to the staff of professional accountants in the system for which the chief accountant is responsible, there are clerical, machine operation, bookkeeping, and related personnel.

Attorneys

Performs consultation and advisory work and carries out the legal processes necessary to effect the rights, privileges, and obligations of the company. The work performed requires completion of law school with an L.L.B. degree (or the equivalent) and admission to the bar. *Responsibilities or functions include one or more of the following or comparable duties:*

Preparing and reviewing various legal instruments and documents, such as contracts, leases, licenses, purchases, sales, real estate, etc.;

Acting as agent of the company in its transactions;

Examining material (e.g., advertisements, publications, etc.) for legal implications; advising officials of proposed legislation which might affect the company;

Applying for patents, copyrights, or registration of company's products, processes, devices, and trademarks;

Advising whether to initiate or defend lawsuits;

Conducting pretrial preparations; defending the company in lawsuits; and

Advising officials on tax matters, government regulations, and/or corporate rights.

Excluded from this definition are:

Patent work which requires professional training in addition to legal training (typically a degree in engineering or in a science);

Claims examining, claims investigating, or similar work for which professional legal training and bar membership is not essential; and

Attorneys, frequently titled "general counsel" (and their immediate full associates or deputies), who serve as company officers or the equivalent and are responsible for participating in the overall management and formulation of policy for the company in addition to directing its legal work. (The duties and responsibilities of such positions exceed level VI as described below.)

Attorney jobs which meet the above definition are to be classified in accordance with table C-2 and the definitions which follow.

Difficulty

D-1. Legal questions are characterized by: Facts that are well established; clearly applicable legal precedent; and matters not of substantial importance to the organization. (Usually relatively limited sums of money, e.g., a few thousand dollars, are involved.)

Examples of D-1 work:

Legal investigation, negotiation, and research preparatory to defending the organization in potential or actual lawsuits involving alleged negligence where the facts can be firmly established and there are precedent cases directly applicable to the situation.

Searching case reports, legal documents, periodicals, textbooks, and other legal references, and preparing draft opinions on employee compensation or benefit questions when there is a substantial amount of clearly applicable statutory, regulatory, and case material.

Drawing up contracts and other legal documents in connection with real property transactions requiring the development of detailed information but *not* involving serious questions regarding titles to property or other major factual or legal issues.

D-2. Legal work is regularly difficult by reason of one or more of the following: The absence of clear and directly applicable legal precedents; the different possible interpretations that can be placed on the facts, the laws, or the precedents involved; the substantial importance of the legal matters to the organization (e.g., sums as large as \$100,000 are generally directly or indirectly involved); and the matter is being strongly pressed or contested in formal proceedings or in negotiations by the individuals, corporations, or government agencies involved.

Examples of D-2 work:

Advising on the legal implications of advertising representations when the facts supporting the representations and the applicable precedent cases are subject to different interpretations.

Table C-2. Criteria for matching attorneys by level

Level	Difficulty of legal work ¹	Responsibility of job ¹	Experience required
I	This is the entry level. The duties and responsibilities after initial orientation and training are those described in D-1 and R-1.		Completion of law school with an LL.B. or J.D. degree plus admission to the bar.
II	D-1	R-2	Sufficient professional experience (at least 1 year, usually more) at the D-1 level to assure competence as an attorney.
	or D-2	R-1	
III	D-2	R-2	At least 1 year, usually more, of professional experience at the D-2 level.
	or D-3	R-1	
IV	D-2	R-3	Extensive professional experience at the D-2 or higher level.
	or D-3	R-2	
V	D-3	R-3	Extensive professional experience at the D-3 level.
VI	D-3	R-4	Extensive professional experience at the D-3 and R-3 levels.

¹ D-1, -2, -3, and R-1, -2, -3, and -4 are explained in the text.

Reviewing and advising on the implications of new or revised laws affecting the organization.

Presenting the organization's defense in court in a negligence lawsuit which is strongly pressed by counsel for organized group.

Providing legal counsel on tax questions complicated by the absence of precedent decisions that are directly applicable to the organization's situation.

D-3. Legal work is typically complex and difficult because of one or more of the following: The questions are unique and require a high order of original and creative legal endeavor for their solution; the questions require extensive research and analysis and the obtaining and evaluation of expert testimony regarding controversial issues in a scientific, financial, corporate organization, engineering, or other highly technical area; and the legal matter is of critical importance to the organization and is being vigorously pressed or contested (e.g., sums such as \$1 million or more are generally directly or indirectly involved).

Examples of D-3 work:

Advising on the legal aspects and implications of Federal antitrust laws to projected greatly expanded marketing operations involving joint ventures with several other organizations.

Planning legal strategy and representing a utility company in rate or government franchise cases involving a geographic area including parts of all or several States.

Preparing and presenting a case before an appellate court where the case is highly important to the future operation of the organization and is vigorously contested by very distinguished (e.g., having a broad regional or national reputation) legal talent.

Serving as the principal counsel to the officers and staff of an insurance company on the legal problems in the sale, underwriting, and administration of group contracts involving nationwide or multistate coverages and laws.

Performing the principal legal work in nonroutine, major revision of the company's charter or in effectuating new major financing steps.

Responsibility

R-1. Responsibility for final action is usually limited to matters covered by legal precedents and in which little deviation from standard practice is involved. Any decisions or actions having a significant bearing on the organization's business are reviewed. Is given guidance in the initial stages of assignment, e.g., in planning and organizing legal research and studies. Assignments are then carried out with moderate independence although guidance is generally available and is sought from time to time on problem points.

R-2. Usually works independently in investigating the facts, searching legal precedents, defining the legal and factual issues, drafting the necessary legal documents, and developing conclusions and recommendations. Decisions having an important bearing on the organization's business are reviewed. Receives information from supervisor regarding unusual circumstances or important policy considerations pertaining to a legal problem. If trials are involved, may receive guidance from a supervisor regarding presentation, line of approach, possible line of opposition to be encountered, etc. In the case of nonroutine written presentations, the final product is reviewed carefully, but primarily for overall soundness of legal reasoning and consistency with

organization policy. Some, but not all, attorneys make assignments to one or more lower level attorneys, aides, or clerks.

R-3. Carries out assignments independently and makes final legal determinations in matters of substantial importance to the organization. Such determinations are subject to review only for consistency with company policy, possible precedent effect, and overall effectiveness. To carry out assignments, deals regularly with company officers and top-level management officials and confers or negotiates regularly with senior attorneys and officials in other companies or in government agencies on various aspects of assigned work. Receives little or no preliminary instruction on legal problems and a minimum of technical legal supervision. May assign and review work of a few attorneys, but this is not a primary responsibility.

R-4. Carries out assignments which entail independently planning investigations and negotiations on legal problems of the highest importance to the organization and developing completed briefs, opinions, contracts, or other legal products. To carry out assignments, represents the organization at conferences, hearings, or trials and personally confers and negotiates with top attorneys and top-

ranking officials in private companies or in government agencies. On various aspects of assigned work, may give advice directly and personally to corporation officers and top-level managers, or may work through the general counsel of the company in advising officers. Generally receives no preliminary instructions on legal problems. On matters requiring the concentrated efforts of several attorneys or other specialists, is responsible for directing, coordinating, and reviewing the work of the attorneys involved.

OR

As a primary responsibility, directs the work of a staff of attorneys, one, but usually more, of whom regularly performs D-3 legal work. With respect to the work directed, gives advice directly to corporation officers and top managerial officers, or may give such advice through the general counsel. Receives guidance as to organization policy but no technical supervision or assistance except when requesting advice from, or briefing by, the general counsel on the overall approach to the most difficult, novel, or important legal questions. Usually reports to the general counsel or deputy.

Buyers

Purchases materials, supplies, equipment, and services (e.g., utilities, maintenance, and repair). In some instances, items are of types that must be specially designed, produced, or modified by the vendor in accordance with drawings or engineering specifications.

Solicits bids, analyzes quotations received, and selects or recommends supplier. May interview prospective vendors. Purchases items and services at the most favorable price consistent with quality, quantity, specification requirements, and other factors. Prepares or supervises preparation of purchase orders from requisitions. May expedite delivery and visit vendors' offices and plants.

Normally, purchases are unreviewed when they are consistent with past experience and are in conformance with established rules and policies. Proposed purchase transactions that deviate from the usual or from past experience in terms of prices, quality of items, quantities, etc., or that may set precedents for future purchases are reviewed by higher authority prior to final action.

In addition to work described above, some (but not all) buyers direct the work of one or a few clerks who perform routine aspects of the work. As a secondary and subsidiary duty, some buyers may also sell or dispose of surplus, salvage, or used materials, equipment, or supplies.

NOTE: Some buyers are responsible for the purchasing of a variety of items and materials. When the variety includes items and work described at more than one of the following levels, the position should be considered to equal the highest level that characterizes at least a substantial portion of the buyer's time.

Excluded are:

- a. Buyers of items for direct sale, either wholesale or retail;
- b. Brokers and dealers buying for clients or for investment purposes;
- c. Positions that specifically require professional education and qualifications in a physical science or in engineering (e.g., chemist, mechanical engineer);
- d. Buyers who specialize in purchasing a single or a few related items of highly variable quality such as raw cotton or wool, tobacco, cattle, or leather for shoe uppers, etc. Expert personal knowledge of the item is required to judge the relative value of the goods offered, and to decide the quantity, quality, and price of each purchase in terms of its probable effect on the organization's profit and competitive status;
- e. Buyers whose principal responsibility is the supervision of a purchasing program;

- f. Persons predominantly concerned with contract or subcontract administration;
- g. Persons whose major duties consist of ordering, reordering, or requisitioning items under existing contracts;
- h. Positions restricted to clerical functions or to purchase expediting work; and
- i. Positions not requiring: (1) Three years of administrative, technical, or substantive clerical experience; (2) a bachelor's degree in any field; or (3) any equivalent combination of experience and education yielding basic skills in problem analysis and communication.

Buyers I

Purchases "off-the-shelf" types of readily available, commonly used materials, supplies, tools, furniture, services, etc.

Transactions usually involve local retailers, wholesalers, jobbers, and manufacturers' sales representatives.

Quantities purchased are generally small amounts, e.g., those available from local sources.

Examples of items purchased include: Common stationery and office supplies; standard types of office furniture and fixtures; standard nuts, bolts, and screws; janitorial and common building maintenance supplies; or common utility services or office machine repair services.

Buyers II

Purchases "off-the-shelf" types of standard, generally available technical items, materials, and services. Transactions may involve occasional modification of standard and common usage items, materials, and services, and include a few stipulations about unusual packing, marking, shipping, etc.

Transactions usually involve dealing directly with manufacturers, distributors, jobbers, etc.

Quantities of items and materials purchased may be relatively large, particularly in the case of contracts for continuing supply over a period of time.

May be responsible for locating or promoting possible new sources of supply. Usually is expected to keep abreast of market trends, changes in business practices in the assigned markets, new or altered types of materials entering the market, etc.

Examples of items purchased include: Standard industrial types of handtools; gloves and safety equipment; standard electronic parts, components, and component test instruments; electric motors; gasoline service station equipment; PBX or other specialized telephone services; special-purpose printing services; and routine purchases of common raw materials such as standard grades and sizes of steel bars, rods, and angles.

Also included at this level are buyers of materials of

the types described for buyer I when the quantities purchased are so large that local sources of supply are generally inadequate and the buyer must deal directly with manufacturers on a broader-than-local scale.

Buyers III

Purchases items, materials, or services of a technical and specialized nature. The items, while of a common general type, are usually made, altered, or customized to meet the user's specific needs and specifications.

Transactions usually require dealing with manufacturers. The number of potential vendors is likely to be small and price differentials often reflect important factors (quality, delivery dates and places, etc.) that are difficult to evaluate.

The quantities purchased of any item or service may be large.

Many of the purchases involve one or more of such complications as: Specifications that detail, in technical terms, the required physical, chemical, electrical, or other comparable properties; special testing prior to acceptance; grouping of items for lot bidding and awards; specialized processing, packing, or packaging requirements; export packs; overseas port differentials; etc.

Is expected to keep abreast of market and product developments. May be required to locate new sources of supply.

Some positions may involve *assisting* in the training or supervising of lower level buyers or clerks.

Examples of items purchased include: Castings; special extruded shapes of normal size and material; special formula paints; electric motors of special shape or speeds; production equipment; special packaging of items; and raw materials in substantial quantities or with special characteristics.

Buyers IV

Purchases highly complex and technical items, materials, or services, usually those specially designed and manufactured exclusively for the purchaser.

Transactions require dealing with manufacturers and often involve persuading potential vendors to undertake the manufacturing of custom-designed items according to complex and rigid specifications.

Quantities of items and materials purchased are often large in order to satisfy the requirements for an entire large organization for an extended period of time. Complex schedules of delivery are often involved. Buyer determines appropriate quantities to be contracted for at any given period of time.

Transactions are often complicated by the presence of one or more such matters as inclusion of: Requirements for spare parts, preproduction samples and testing, or technical literature; or patent and royalty provisions.

Keeps abreast of market and product developments. Develops new sources of supply.

In addition to the work described above, a few positions may also require supervision over a few lower level buyers or clerks. (No position is included in this level *solely* because supervisory duties are performed.)

Examples of items purchased include: Special-purpose, high-cost machine tools and production facilities; specialized condensers, boilers, and turbines; raw materials of critically important characteristics or quality; and parts, subassemblies, components, etc., specially designed and made to order (e.g., communications equipment for installation in aircraft being manufactured; component assemblies for missiles and rockets; and motor vehicle frames).

NOTE: Excluded are buying positions above level IV. Some buyers above level IV make purchases in such unusually large quantities that they can affect the market price of a commodity or produce other significant effects on the industry or trade concerned. Others may purchase items of either (1) extraordinary technical complexity, e.g., involving the outermost limits of science or engineering, or (2) unusually high individual or unit value. Such buyers often persuade suppliers to expand their plants or convert facilities to the production of new items or services. These types of buying functions are often performed by program managers or company officials who have primary responsibilities other than buying.

Computer Systems Analysts¹

Analyzes business or scientific problems for resolution through electronic data processing. Gathers information from users, defines work problems, and, if feasible, designs a system of computer programs and procedures to resolve the problems. Develops complete specifications to enable computer programmers to prepare required programs: Analyzes subject-matter operations to be automated; specifies number and types of records, files, and documents to be used and outputs to be produced; prepares work diagrams and data flow charts; coordinates tests of the system and participates in trial runs of new and revised systems; and recommends computer equipment changes to obtain more effective operations. May also write the computer programs.

Excluded are:

- (a) Trainees who receive detailed directives and work plans, select authorized procedures for use in specific situations, and seek assistance for deviations and problems;
- (b) Positions which require a bachelor's degree in a specific scientific field (other than computer science), such as an engineering, mathematics, physics, or chemistry degree; however, positions are potential matches where the required degree may be from *any* of several possible scientific fields;
- (c) Computer programmers who write computer programs and solve user problems not requiring systems modification;
- (d) Workers who primarily analyze and evaluate problems concerning *computer equipment* or its selection or utilization; and
- (e) Computer systems programmers or analysts who primarily write programs or analyze problems concerning the system software, e.g., operating systems,

compilers, assemblers, system utility routines, etc., which provide basic services for the use of all programs and provide for the scheduling of the execution of programs; however, positions matching this definition may develop a "total package" which includes not only analyzing work problems to be processed but also selecting the computer equipment and system software required.

Positions are classified into levels on the basis of the following definitions.

Computer Systems Analysts I

At this level, *initial assignments* are designed to *expand* practical experience in applying systems analysis techniques and procedures. Provides *several phases* of the required systems analysis where the nature of the system is predetermined. Uses established factfinding approaches, knowledge of pertinent work processes and procedures, and familiarity with related computer programming practices, system software, and computer equipment.

Carries out factfinding and analysis as assigned, usually of a single activity or a routine problem; applies established procedures where the nature of the system,

¹ For publication purposes, data for Computer Systems Analysts and Computer Systems Analysts Supervisors/Managers were combined into a six level series as follows:

Level	Systems Analysts	
	Nonsupervisory	Supervisory/Managerial
I.....	I	-
II.....	II	-
III.....	III	I
IV.....	IV	II
V.....	V	III
VI.....	-	IV

feasibility, computer equipment, and programming language have already been decided; may assist a higher level systems analyst by preparing the detailed specifications required by computer programmers from information developed by the higher level analyst; may research routine user problems and solve them by modifying the existing system when the solutions follow clear precedents. When costs and deadline estimates are required, results receive close review.

The supervisor defines objectives, priorities, and deadlines. Incumbents work independently; adapt guides to specific situations; resolve problems and deviations according to established practices; and obtain advice where precedents are unclear or not available. Completed work is reviewed for conformance to requirements, timeliness, and efficiency. May supervise technicians and others who assist in specific assignments.

Computer Systems Analysts II

Applies systems analysis and design skills in an area such as a recordkeeping or scientific operation. A system of several varied sequences or formats is usually developed, e.g., develops systems for maintaining depositor accounts in a bank, maintaining accounts receivable in a retail establishment, maintaining inventory accounts in a manufacturing or wholesale establishment, or processing a limited problem in a scientific project. Requires competence in most phases of systems analysis and knowledge of pertinent system software and computer equipment and of the work processes, applicable regulations, workload, and practices of the assigned subject-matter area. Recognizes probable interactions of related computer systems and predicts impact of a change in assigned system.

Reviews proposals which consist of objectives, scope, and user expectations; gathers facts, analyzes data, and prepares a project synopsis which compares alternatives in terms of cost, time, availability of equipment and personnel, and recommends a course of action; and, upon approval of synopsis, prepares specifications for development of computer programs. Determines and resolves data processing problems and coordinates the work with programmers, users, etc.; orients user personnel on new or changed procedures. May conduct special projects such as data element and code standardization throughout a broad system, working under specific objectives and bringing to the attention of the supervisor any unusual problems or controversies.

Works independently under overall project objectives and requirements; appraises supervisor about progress and unusual complications. Guidelines usually include existing systems and the constraints imposed by related systems with which the incumbent's work must be meshed. Adapts design approaches successfully used in precedent systems. Completed work is reviewed for timeliness,

compatibility with other work, and effectiveness in meeting requirements. May provide functional direction to lower level assistants on assigned work.

OR

Works on a segment of a complex data processing scheme or broad system, as described for computer systems analysts, level III. Works independently on routine assignments and receives instructions and guidance on complex assignments. Work is reviewed for accuracy of judgment, compliance with instructions, and to insure proper alignment with overall system.

Computer Systems Analysts III

Applies systems analysis and design techniques to complex computer systems in a *broad* area such as manufacturing; finance management; engineering, accounting, or statistics; logistics planning; material management; etc. Usually, there are multiple users of the system; however, there may be complex single-user systems, e.g., for engineering or research projects. Requires competence in all phases of available systems analysis techniques, concepts, and methods and knowledge of available systems software, computer equipment, and the regulations, structure, techniques, and management practices of one or more subject-matter areas. Since *input data usually come from diverse sources*, is responsible for recognizing probable conflicts and integrating diverse data elements and sources. Produces innovative solutions for a variety of complex problems.

Maintains and modifies complex systems or develops new subsystems such as an integrated production scheduling, inventory control, cost analysis, and sales analysis record in which every item of each type is automatically processed through the full system of records. Guides users in formulating requirements; advises on alternatives and on the implications of new or revised data processing systems; analyzes resulting user project proposals, identifies omissions and errors in requirements, and conducts feasibility studies; recommends optimum approach and develops system design for approved projects. Interprets information and informally arbitrates between system users when conflicts exist. May serve as lead analyst in a design subgroup, directing and integrating the work of one or two lower level analysts, each responsible for several programs.

Supervision and nature of review are similar to level II; existing systems provide precedents for the operation of new subsystems.

Computer Systems Analysts IV

Applies expert systems analysis and design techniques to complex *systems development* in a specialized design area and/or resolves unique or unyielding problems in

existing complex systems by *applying new technology*. Work requires a broad knowledge of data sources and flow, interactions of existing complex systems in the organization, and the capabilities and limitations of the systems software and computer equipment. Objectives and overall requirements are defined in organization EDP policies and standards; the primary constraints typically are those imposed by the need for compatibility with existing systems or processes. Supervision and nature of review are similar to levels II and III.

Typical duties and responsibilities. One or more of the following:

1. As team project leader, provides systems design in a *specialized and highly complex design area*, e.g., interrelated business statistics and/or projections, scientific systems, mathematical models, or similar unprecedented computer systems. *Establishes the framework of new computer systems* from feasibility studies to postimplementation evaluation. Devises new sources of data and develops new approaches and techniques for use by others. May serve as technical authority for a design area. At least one or two team members perform work at level III; one or two team members may also perform work as a level IV staff specialist or consultant as described below.
2. As staff specialist or consultant, with expertise in a specialty area (e.g., data security, telecommunications, systems analysis techniques, EDP standards development, etc.), plans and conducts analyses of unique or unyielding problems in a broad system. Identifies problems and specific issues in assigned area and prepares overall project recommendations from an EDP standpoint, including feasible advancements in EDP technology; upon acceptance, determines a design strategy that anticipates directions of change; designs and monitors necessary testing and implementation plans. Performs work such as: Studies broad areas of projected work processes which cut across established organization EDP systems; conducts continuing review of computer technological developments applicable to systems design and prepares long-range forecasts; develops EDP standards where new and improved approaches are needed; or develops recommendations for a management information system where new concepts are required.

Computer Systems Analysts V

As a top technical expert, develops broad unprecedented computer systems and/or conducts critical studies central to the success of large organizations having extensive technical or highly diversified computer requirements. Considers such requirements as broad company policy, and the diverse user needs of several organization levels and locations. Works under general administrative direction.

Typical duties and responsibilities. One or more of the following:

1. As team or project leader, guides the development of broad unprecedented computer systems. The information requirements are complex and voluminous. Devises completely new ways to locate and develop data sources; establishes new factors and criteria for making subject-matter decisions. Coordinates fact-finding, analysis, and design of the system and applies the most recent developments in data processing technology and computer equipment. Guidelines consist of state-of-the-art technology and general organization policy. *At least one team member performs work at level IV.*
2. As staff specialist or consultant, is a recognized leader and authority in a large organization (as defined above). Performs at least *two* of the following: (a) Has overall responsibility for evaluating the significance of technological advancement and developing EDP standards where new and improved approaches are needed, e.g., programming techniques; (b) conceives and plans exploratory investigations critical to the overall organization where useful precedents do not exist and new concepts are required, e.g., develops recommendations regarding a comprehensive management information system; or (c) evaluates existing EDP organizational policy for effectiveness, devising and formulating changes in the organization's position on broad policy issues. May be assisted on individual projects by other analysts.

COMPUTER SYSTEMS ANALYSTS SUPERVISORS/MANAGERS

Supervises three or more employees, two of whom perform systems analysis. Work requires substantial and recurring use of systems analysis skills in directing staff. May also supervise programmers and related clerical and technical support personnel.

Excluded are:

- a. Positions also having significant responsibility for the management or supervision of functional areas (e.g., system software development, data entry, or computer operations) *not* related to the Computer Systems Analyst and Computer Programmer definitions.
- b. Supervisory positions having base levels below Computer Systems Analyst II or Computer Programmer IV.
- c. Managers who supervise two or more subordinates performing at Computer Systems Analyst Supervisor/Manager level IV.

Supervisory jobs are matched at 1 of 4 levels according to two factors: (a) Base level of work supervised, and (b) level of supervision. Table C-3 indicates the level of the supervisor for each combination of factors.

Table C-3. Criteria for matching computer systems analyst supervisors/managers

Base level of nonsupervisory job(s)		Supervisor/manager level		
		Level of supervision		
Matched in the computer programmers definition	Matched in the computer systems analysts definition	LS-1	LS-2	LS-3
IV	II	I	II	III
V	III	II	III	IV
-	IV	III	IV	Exclude
-	V	IV	Exclude	Exclude

Base Level of Work

The base level of work is that level of *nonsupervisory* work under the direct or indirect supervision of the supervisor/manager which (when added to the non-supervisory levels above it) represents at least 25 percent of the total nonsupervisory, nonclerical staff and at least two of the full-time positions supervised.

To determine the base level of nonsupervisory, nonclerical work: (1) Positions are arrayed by level of difficulty; (2) the number of workers in each position is determined; and (3) the highest level is determined that has at least 25 percent of the total nonsupervisory, nonclerical staff accumulated from itself and levels above itself.

Level of Supervision

Supervisors and managers are matched at 1 of the 3 LS levels below best describing their supervisory responsibility.

LS-1 Plans, coordinates, and evaluates the work of a small staff, normally not more than 15 programmers, systems analysts, and technicians; estimates personnel needs and schedules, assigns and reviews work to meet completion date; interviews candidates for own unit and recommends hires, promotions, or reassignments; resolves complaints and refers group grievances and more serious unresolved complaints to higher level supervisors; and may reprimand employees.

LS-2. Directs a sizable staff (normally 15-30 employees), typically divided into subunits controlled by subordinate supervisors; advises higher level management of work problems of own unit and the impact on broader programs; collaborates with heads of other units to negotiate and/or coordinate work changes; makes decisions on work or training problems presented by subordinate supervisors; evaluates subordinate

supervisors and reviews their evaluations of other employees; selects nonsupervisors (higher level approval is virtually assured) and recommends supervisory selections; and hears group grievances and serious or unresolved complaints. May shift resources among projects and perform long-range budget planning.

NOTE: In rare instances, supervisory positions responsible for directing a sizable staff (e.g., 20-30 employees) may not have subordinate supervisors, but have all other *LS-2 responsibilities*. Such positions are matched to LS-2.

LS-3. Directs two subordinate supervisory levels, and the work force managed typically includes substantially more than 30 employees. Makes major decisions and recommendations which have a direct, important, and substantial effect on own organization and work. Performs at least three of the following:

- Decides what programs and projects should be initiated, dropped, expanded, or curtailed;

- Determines long-range plans in response to program changes, evaluates program goals, and redefines objectives;

- Determines changes to be made in organizational structure, delegation of authority, coordination of units, etc.;

- Decides what compromises to make in operations in view of public relations implications and need for support from various groups;

- Decides on the means to substantially reduce operating costs without impairing overall operations; justifies major equipment expenditures; and

- Resolves differences between key subordinate officials; decides, or significantly affects final decisions, on personnel actions for supervisors and other key officials.

Computer Programmers

Performs programming services for establishments or for outside organizations who may contract for services.

Converts specifications (precise descriptions) about business or scientific problems into a sequence of de-

tailed instructions to solve problems by electronic data processing (EDP) equipment, i.e., digital computers. Draws program flow charts to describe the processing of data and develops the precise steps and processing logic which, when entered into the computer in coded language (COBOL, FORTRAN, or other programming language), cause the manipulation of data to achieve desired results. Tests and corrects programs and prepares instructions for operators who control the computer during production runs. Modifies programs to increase operating efficiency or to respond to changes in work processes; maintains records to document program development and revisions.

At levels I, II, and III, some computer programmers *may also perform* programming analysis such as: Gathering facts from users to define their business or scientific problems and to investigate the feasibility of solving problems through new or modified computer programs; developing specifications for data inputs, flow, actions, decisions, and outputs; and participating on a continuing basis in the overall program planning along with other EDP personnel and users.

In contrast, at levels IV and V, some programming analysis *must be performed* as part of the programming assignment. The analysis duties are identified as a separate paragraph at levels I, II, III, and IV and are part of each alternative described at level V. However, the systems requirements are defined by systems analysts or scientists.

Excluded are:

- a. Positions which require a bachelor's degree in a specific scientific field (other than computer science), such as an engineering, mathematics, physics, or chemistry degree; however, positions are potential matches where the required degree may be from *any of several possible scientific fields*;
- b. Positions responsible for developing and modifying computer systems;
- c. Computer programmers who perform level IV or V programming duties but who *perform no programming analysis*;
- d. *Workers who primarily analyze and evaluate problems concerning computer equipment or its selection or utilization*;
- e. Computer systems programmers or analysts who *primarily write programs or analyze problems concerning the system software*, e.g., operating systems, compilers, assemblers, system utility routines, etc., which provide basic services for the use of all programs and provide for the scheduling of the execution of programs; however, *positions matching this definition may develop a "total package"* which includes not only writing programs to process data but also *selecting* the computer equipment and system software required;
- f. Employees who have significant responsibility for the management or supervision of workers (e.g., systems

analysts) whose positions are *not* covered in this definition; or employees with significant responsibility for *other functions* such as computer operations, data entry, system software, etc.; and

- g. Positions *not* requiring: (1) Three years of administrative, technical, or *substantive* clerical experience; (2) a bachelor's degree in any field; or (3) any equivalent combination of experience and education yielding basic skills in problem analysis and communication.

Positions are classified into levels based on the following definitions.

Computer Programmers I

At this trainee level, assignments are usually planned to develop basic programming skills because incumbents are typically inexperienced in applying such skills on the job. Assists higher level staff by performing elementary programming tasks which concern limited and simple data items and steps and which closely follow patterns of previous work done in the organization, e.g., drawing flow charts, writing operator instructions, or coding and testing routines to accumulate counts, tallies, or summaries. May perform routine programming assignments (as described in level II) under close supervision.

In addition, as training and to assist higher level staff, computer programmers *may perform* elementary fact-finding concerning a specified work process, e.g., a file of clerical records which is treated as a unit (invoices, requisitions, or purchase orders, etc.); reports findings to higher level staff.

Receives classroom and/or on-the-job training in computer programming concepts, methods, and techniques and in the basic requirements of the subject matter area. May receive training in elementary factfinding. *Detailed*, step-by-step instructions are given for each task and any deviation must be authorized by a supervisor. Work is closely monitored in progress and reviewed in detail upon completion.

Computer Programmers II

At this level, initial assignments are designed to develop competence in applying established programming procedures to routine problems. Performs routine programming assignments that do not require skilled background experience but do require knowledge of established programming procedures and data processing requirements. Works according to clear-cut and complete specifications. The data are refined and the format of the final products is very similar to that of the input or is well defined when significantly different, i.e., there are few, if any, problems with interrelating varied records and outputs.

Maintains and modifies routine programs. Makes approved changes by amending program flow charts, developing detailed processing logic, and coding changes. Tests and documents modifications and writes operator

instructions. May write routine new programs using prescribed specifications; may confer with EDP personnel to clarify procedures, processing logic, etc.

In addition and as continued training, computer programmers may evaluate simple interrelationships in the immediate programming area, e.g., whether a contemplated change in one part of a simple program would cause unwanted results in a related part; confers with user representatives to gain an understanding of the situation sufficient to formulate the needed change; implements the change upon approval of the supervisor or higher level staff. The incumbent is provided with charts, narrative descriptions of the functions performed, an approved statement of the product desired (e.g., a change in a local establishment report), and the inputs, outputs, and record formats.

Reviews objectives and assignment details with higher level staff to insure thorough understanding; uses judgment in selecting among authorized procedures and seeks assistance when guidelines are inadequate, significant deviations are proposed, or when unanticipated problems arise. Work is usually monitored in progress; all work is reviewed upon completion for accuracy and compliance with standards.

Computer Programmers III

As a fully qualified computer programmer, applies standard programming procedures and detailed knowledge of pertinent subject matter (e.g., work processes, governing rules, clerical procedures, etc.) in a programming area such as: A recordkeeping operation (supply, personnel and payroll, inventory, purchasing, insurance payments, depositor accounts, etc.); a well-defined statistical or scientific problem; or other standardized operation or problem. Works according to approved statements of requirements and detailed specifications. While the data are clear cut, related, and equally available, there may be substantial interrelationships of a variety of records, and several varied sequences or formats are usually produced. The programs developed or modified typically are linked to several other programs in that the output of one becomes the input for another. Recognizes probable interactions of other related programs with the assigned program(s) and is familiar with related system software and computer equipment. Solves conventional programming problems. (In small organizations, may maintain programs which concern or combine several operations, i.e., users, or develop programs where there is one primary user and the other gives input.)

Performs such duties as: Develops, modifies, and maintains assigned programs; designs and implements modifications to the interrelation of files and records within programs in consultation with higher level staff; monitors the operation of assigned programs and responds to problems by diagnosing and correcting errors in logic and coding; and implements and/or maintains assigned

portions of a scientific programming project, applying established scientific programming techniques to well-defined mathematical, statistical, engineering, or other scientific problems usually requiring the translation of mathematical notation into processing logic and code. (Scientific programming includes assignments such as: Using predetermined physical laws expressed in mathematical terms to relate one set of data to another; the routine storage and retrieval of field test data; and using procedures for real-time command and control, scientific data reduction, signal processing, or similar areas.) Tests and documents work and writes and maintains operator instructions for assigned programs. Confers with other EDP personnel to obtain or provide factual data.

In addition, computer programmers may carry out factfinding and programming analysis of a single activity or routine problem, applying established procedures where the nature of the program, feasibility, computer equipment, and programming language have already been decided. May analyze present performance of the program and take action to correct deficiencies based on discussion with the user and consultation with and approval of the supervisor or higher level staff. May assist in the review and analysis of detailed program specifications and in program design to meet changes in work processes.

Works independently under specified objectives; applies judgment in devising program logic and in selecting and adapting standard programming procedures; resolves problems and deviations according to established practices; and obtains advice where precedents are unclear or not available. Completed work is reviewed for conformance to standards, timeliness, and efficiency. May guide or instruct lower level programmers; may supervise technicians and others who assist in specific assignments.

OR

Works on complex programs (as described in level IV) under close direction of higher level staff or supervisor. May *assist* higher level staff by independently performing less difficult tasks assigned, and performing more difficult tasks under close supervision.

Computer Programmers IV

Applies expertise in programming procedures to complex programs; recommends the redesign of programs, investigates and analyzes feasibility and program requirements, and develops programming specifications. Assigned programs typically affect a broad multiuser computer system which meets the data processing needs of a broad area (e.g., manufacturing, logistics planning, finance management, human resources, material management, etc.) or a computer system for a project in engineering, research, accounting, statistics, etc. Plans the full range of programming actions to produce several inter-

related but different products from numerous and diverse data elements which are usually from different sources; solves difficult programming problems. Uses knowledge of pertinent system software, computer equipment, work processes, regulations, and management practices.

Performs such duties as: Develops, modifies, and maintains complex programs; designs and implements the interrelation of files and records within programs which will effectively fit into the overall design of the project; working with problems or concepts, develops programs for the solution to major scientific computational problems requiring the analysis and development of logical or mathematical descriptions of functions to be programmed; and develops occasional special programs, e.g., a critical path analysis program to assist in managing a special project. Tests, documents, and writes operating instructions for all work. Confers with other EDP personnel to secure information, investigate and resolve problems, and coordinate work efforts.

In addition, performs such programming analysis as: Investigates the feasibility of alternate program design approaches to determine the best balanced solution, e.g., one that will best satisfy immediate user needs, facilitate subsequent modification, and conserve resources; on typical maintenance projects and smaller scale, limited new projects, assists user personnel in defining problems or needs and determines how the work should be organized, the necessary files and records, and their interrelation within the program; and on large or more complicated projects, usually participates as a team member along with other EDP personnel and users and is typically assigned a portion of the project.

Works independently under overall objectives and direction, apprising the supervisor about progress and unusual complications. Modifies and adapts precedent solutions and proven approaches. Guidelines include constraints imposed by the related programs with which the incumbent's programs must be meshed. Completed work is reviewed for timeliness, compatibility with other work, and effectiveness in meeting requirements. May function as team leader or supervise a few lower level programmers or technicians on assigned work.

Computer Programmers V

At level V, workers are typically either supervisors, team leaders, staff specialists, or consultants. Some pro-

gramming analysis is included as a part of the programming assignment. Supervision and review are similar to level IV.

Typical duties and responsibilities. One or more of the following:

1. *In a supervisory capacity*, plans, develops, coordinates, and directs a large and important programming project (finance, manufacturing, sales/marketing, human resources, or other broad area) or a number of small programming projects with complex features. A substantial portion of the work supervised (usually two to three workers) is comparable to that described for level IV. Supervises, coordinates, and reviews the work of a small staff, normally not more than 15 programmers and technicians; estimates personnel needs and schedules; assigns, and reviews work to meet completion date. These day-to-day supervisors evaluate performance, resolve complaints, and make recommendations on hiring and firing. They do not make final decisions on curtailing projects, reorganizing, or reallocating resources.
2. *As team leader, staff specialist, or consultant*, defines complex scientific problems (e.g., computational) or other highly complex programming problems (e.g., generating overall forecasts, projections, or other new data fields widely different from the source data or untried at the scale proposed) and directs the development of computer programs for their solution; or designs improvements in complex programs where existing precedents provide little guidance, such as an interrelated group of mathematical/statistical programs which support health insurance, natural resources, marketing trends, or other research activities. In conjunction with users (scientists or specialists), defines major problems in the subject-matter area. Contacts coworkers and user personnel at various locations to plan and coordinate project and gather data; devises ways to obtain data not previously available; and arbitrates differences between various program users when conflicting requirements arise. May perform simulation studies to determine effects of changes in computer equipment or system software or may assess the feasibility and soundness of proposed programming projects which are novel and complex. Typically, develops programming techniques and procedures where few precedents exist. May be assisted on projects by other programmers or technicians.

Personnel Management

JOB ANALYSTS

Performs work involved in collecting, analyzing, and developing occupational data relative to jobs, job qualifications, and worker characteristics as a basis for compensating employees in a fair, equitable, and uniform manner. Performs such duties as studying and analyzing jobs and

preparing descriptions of duties and responsibilities and of the physical and mental requirements needed by workers; evaluating jobs and determining appropriate wage or salary levels in accordance with their difficulty and responsibility; independently conducting or participating with representatives of other companies in conducting

compensation surveys within a locality or labor market area; assisting in administering merit rating programs; reviewing changes in wages and salaries indicated by surveys and recommending changes in pay scales; and auditing individual jobs to check the propriety of evaluations and to apply current job classifications.

Excluded are:

- a. Positions also responsible for supplying management with a high technical level of advice regarding solution of broad personnel management problems;
- b. Positions not requiring (1) three years of administrative, technical, or substantive clerical experience; (2) a bachelor's degree in any field; or (3) any equivalent combination of experience and education yielding basic skills in problem analysis and communication.

Job Analysts I

As a trainee, performs work in designated areas and of limited occupational scope. Receives immediate supervision in assignments designed to provide training in the application of established methods and techniques of job analysis. Studies the least difficult jobs and prepares reports for review by a job analyst of higher level.

Job Analysts II

Studies, describes, and evaluates jobs in accordance with established procedures. Is usually assigned to the simpler kinds of both wage and salaried jobs in the establishment. Works independently on such assignments but is limited by defined areas of assignment and instructions of superior.

Job Analysts III

Analyzes and evaluates a variety of wage and salaried jobs in accordance with established evaluation systems and procedures. May conduct wage surveys within the locality or participate in conducting surveys of broad compensation areas. May assist in developing survey methods and plans. Receives general supervision but responsibility for final action is limited.

Job Analysts IV

Analyzes and evaluates a variety of jobs in accordance with established evaluation systems and procedures, and is given assignments which regularly include responsibility for the more difficult kinds of jobs. ("More difficult" means jobs which consist of hard-to-understand work processes; e.g., professional, scientific, administrative, or technical; or jobs in new or emerging occupational fields; or jobs which are being established as part of the creation of new organizations; or where other special considerations of these types apply.) Receives general supervision, but responsibility for final action is limited. May participate in the development and installation of evaluation or compensation systems, which may include those for merit

rating programs. May plan survey methods and conduct or direct surveys within a broad compensation area.

DIRECTORS OF PERSONNEL

Directs a personnel management program for a company or a segment of a company. Serves top management officials of the organization as the source of advice and assistance on personnel management matters and problems generally; is typically consulted on the personnel implications of planned changes in management policy or program, the effects on the organization of economic or market trends, product or production method changes, etc.; and represents management in contacts with other companies, trade associations, government agencies, etc., dealing primarily with personnel management matters.

Typically, the director of personnel for a company reports to a company officer in charge of industrial relations and personnel management activities or an officer of similar level. Below the company level, the director of personnel typically reports to a company officer or a high management official who has responsibility for the operation of a plant, establishment, or other segment of the company.

For a job to be covered by this definition, the personnel management program *must include* responsibility for *all three* of the following functions:

1. *Administering a job evaluation system:* i.e., a system in which there are established procedures by which jobs are analyzed and evaluated on the basis of their duties, responsibilities, and qualification requirements in order to provide a foundation for equitable compensation. Typically, such a system includes the use of one or more sets of job evaluation factors and the preparation of formal job descriptions. It *may* also include such related functions as wage and salary surveys or merit rating system administration. The job evaluation system(s) does not necessarily cover all jobs in the organization, but does cover a substantial portion of the organization.
2. *Employment and placement function:* i.e., recruiting actively for at least some kinds of workers through a variety of sources (e.g., schools or colleges, employment agencies, professional societies, etc.); evaluating applicants against demands of particular jobs by use of such techniques as job analysis to determine requirements, interviews, written tests of aptitude, knowledge or skill, reference checks, experience evaluations, etc.; recommending selections and job placements to management, etc.
3. *Employee relations and services function:* i.e., functions designed to maintain employees' morale and productivity at a high level (e.g., administering a formal or informal grievance procedure; identifying and recommending solutions for personnel problems such as absenteeism, high turnover, low productivity, etc.; administration of beneficial suggestions system, retirement, pension, or insurance plans, merit rating

system, etc.; overseeing cafeteria operations, recreational programs, industrial health and safety programs, etc.).

In addition, positions covered by this definition may, but do not necessarily, include responsibilities in the following areas:

- a. *Employee training and development;*
- b. *Labor relations activities* which are confined mainly to the administration, interpretation, and application of those aspects of labor union contracts that are essentially of the type described under (3) above. May also participate in bargaining of a subordinate nature, e.g., to negotiate detailed settlement of such matters as specific rates, job classifications, work rules, hiring or layoff procedures, etc., within the broad terms of a general

agreement reached at higher levels, or to supply advice and information on technical points to the company's principal representative;

- c. *Equal Employment Opportunity (EEO);* and
- d. *Reporting under the Occupational Safety and Health Act (OSHA).*

Excluded are positions in which responsibility for actual contract negotiations with labor unions as the principal company representative is a significant aspect of the job, i.e., a responsibility which serves as a primary basis for qualification requirements and compensation.

Director of personnel jobs which meet the above definition are classified by level of work in accordance with the criteria shown in table C-4.

Table C-4. Criteria for matching directors of personnel by level

Number of employees in work force serviced	"Operations level" personnel program ¹		Number of employees in work force serviced	"Development level" personnel program ²	
	"Type A" organization serviced ³	"Type B" organization serviced ⁴		"Type A" organization serviced ³	"Type B" organization serviced ⁴
250-750	I	II	250-750	II	III
1,000-5,000	II	III	1,000-5,000	III	IV
6,000-12,000	III	IV	6,000-12,000	IV	V
15,000-25,000	IV	V	15,000-25,000	V	-

¹ "Operations level" personnel program—director of personnel servicing an organizational segment (e.g., a plant) of a company where the basic personnel program policies, plans, objectives, etc., are established at company headquarters or some other higher level between the plant and the company headquarters level. The personnel director's responsibility is to put these into operation at the local level, in such a manner as to most effectively serve the local management needs.

² "Development level" personnel program—either:

(a) Director of personnel servicing an entire company (with or without subordinate establishments) where the personnel director plays an important role in establishment of basic personnel policies, plans, objectives, etc., for the company subject to policy direction and control from company officers; or (b) director of personnel servicing an intermediate organization below the company level, e.g., a division or a subsidiary to which a relatively complete delegation of personnel program planning and development responsibility is made. In this situation, only basic policy direction is given by the parent company and local officers. The director of personnel has essentially the same degree of latitude and responsibility for basic personnel policies, plans objectives, etc., as described above in (a).

³ "Type A" organization serviced—most jobs serviced do not present particularly difficult or unusual recruitment, job evaluation, or training problems

because the jobs consist of relatively easy-to-understand work processes, and an adequate labor supply is available. These conditions are most likely to be found in organizations in which the work force and organizational structure are relatively stable.

⁴ "Type B" organization serviced—a substantial proportion of the jobs present difficult recruitment, job evaluation, or training problems because the jobs: Consist of hard-to-understand work processes (e.g., professional, scientific, administrative, or technical); have hard-to-match skill requirements; are in new or emerging occupations; or are extremely hard to fill. These conditions are most likely to be found in organizations in which the work force, organizational structure, work processes or functions, etc., are complicated or unstable.

NOTE: There are gaps between different degrees of all three elements used to determine job level matches. These gaps have been provided purposely to allow room for judgment in getting the best overall job level match for each job. Thus, a job which services a work force of 850 employees should be matched with level II if it is a personnel program operations level job where the nature of the organization serviced seems to fall slightly below the definition for type B. However, the same job should be matched with level I if the nature of the organization serviced clearly falls well within the definition for type A.

Chemists and Engineers

CHEMISTS

Performs professional work in research, development, interpretation, and analysis to determine the composition, molecular structure, and properties of substances; to develop or investigate new materials and processes; and to investigate the transformations which substances undergo. Work typically requires a B.S.

degree in chemistry or the equivalent in appropriate and substantial college level study of chemistry plus experience.

Chemists I

General characteristics. This is the entry level of professional work requiring a bachelor's degree in chemistry and

no experience, or the equivalent of a degree in appropriate education and experience. Performs assignments designed to develop professional capabilities and to provide experience in the application of training in chemistry as it relates to the company's programs. May also receive formal classroom or seminar-type training. (Terminal positions are excluded.)

Direction received. Works under close supervision. Receives specific and detailed instructions as to required tasks and results expected. Work is checked during progress, and is reviewed for accuracy upon completion.

Typical duties and responsibilities. Performs a variety of routine tasks that are planned to provide experience and familiarization with the chemistry staff, methods, practices, and programs of the company. The work includes a variety of routine qualitative and quantitative analyses; physical tests to determine properties such as viscosity, tensile strength, and melting point; and assisting more experienced chemists to gain additional knowledge through personal observation and discussion.

Responsibility for direction of others. Usually none.

Chemists II

General characteristics. At this continuing developmental level, performs routine chemical work requiring selection and application of general and specialized methods, techniques, and instruments commonly used in the laboratory, and the ability to carry out instructions when less common or proposed methods or procedures are necessary. Requires work experience acquired in an entry level position, or appropriate graduate level study. For training and developmental purposes, assignments may include some work that is typical of a higher level.

Direction received. Supervisor establishes the nature and extent of analyses required, specifies methods and criteria on new types of assignments, and reviews work for thoroughness of application of methods and accuracy of results.

Typical duties and responsibilities. Carries out a wide variety of standardized methods, tests, and procedures. In accordance with specific instructions, may carry out proposed and less common ones. Is expected to detect problems in using standardized procedures because of the condition of the sample, difficulties with the equipment, etc. Recommends modifications of procedures, e.g., extending or curtailing the analysis or using alternate procedures, based on knowledge of the problem and pertinent available literature. Conducts specified phases of research projects as an assistant to an experienced chemist.

Responsibility for direction of others. May be assisted by a few aides or technicians.

Chemists III

General characteristics. Performs a broad range of chemical tests and procedures utilized in the laboratory, using judgment in the independent evaluation, selection, and adaptation of standard methods and techniques. May carry through a complete series of tests on a product in its different process stages. Some assignments require a specialized knowledge of one or two common categories of related substances. Performance at this level requires developmental experience in a professional position, or equivalent graduate level education.

Direction received. On routine work, supervision is very general. Assistance is furnished on unusual problems and work is reviewed for application of sound professional judgment.

Typical duties and responsibilities. In accordance with instructions as to the nature of the problem, selects standard methods, tests, or procedures; when necessary, develops or works out alternative or modified methods with supervisor's concurrence. Assists in research by analyzing samples or testing new procedures that require specialized training because (a) standard methods are inapplicable, (b) analytical findings must be interpreted in terms of compliance or noncompliance with standards, or (c) specialized and advanced equipment and techniques must be adapted.

Responsibility for direction of others. May supervise or coordinate the work of a few technicians or aides, and be assisted by lower level chemists.

Chemists IV

General characteristics. As a fully competent chemist in all conventional aspects of the subject matter or the functional areas of the assignments, plans and conducts work requiring (a) mastery of specialized techniques or ingenuity in selecting and evaluating approaches to unforeseen or novel problems, and (b) ability to apply a research approach to the solution of a wide variety of problems and to assimilate the details and significance of chemical and physical analyses, procedures, and tests. Requires sufficient professional experience to assure competence as a fully trained worker; or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience.

Direction received. Independently performs most assignments with instructions as to the general results expected. Receives technical guidance on unusual or complex problems and supervisory approval on proposed plans for projects.

Typical duties and responsibilities. Conducts laboratory assignments requiring the determination and evaluation of alternative procedures and the sequence of performing them. Performs complex, exacting, or unusual analytical assignments requiring specialized knowledge of techniques or products. Interprets results, prepares reports, and may provide technical advice in specialized area.

Responsibility for direction of others. May supervise a small staff of chemists and technicians.

Chemists V

General characteristics. Participates in planning laboratory programs on the basis of specialized knowledge of problems and methods and probable value of results. May serve as an expert in a narrow specialty (e.g., class of chemical compounds, or a class of products), making recommendations and conclusions which serve as the basis for undertaking or rejecting important projects. Development of the knowledge and expertise required for this level of work usually reflects progressive experience through chemist IV.

Direction received. Supervision and guidance relate largely to overall objectives, critical issues, new concepts, and policy matters. Consults with supervisor concerning unusual problems and developments.

Typical duties and responsibilities. One or both of the following: (1) In a supervisory capacity, plans, organizes, and directs assigned laboratory programs. Independently defines scope and critical elements of the projects and selects approaches to be taken. A substantial portion of the work supervised is comparable to that described for chemist IV. (2) As individual researcher or worker, carries out projects requiring development of new or highly modified scientific techniques and procedures, extensive knowledge of specialty, and knowledge of related scientific fields.

Responsibility for direction of others. Supervises, coordinates, and reviews the work of a small staff of chemists and technicians engaged in varied research and development projects, or a larger group performing routine analytical work. Estimates personnel needs and schedules and assigns work to meet completion date. Or, as individual researcher or worker, may be assisted on projects by other chemists or technicians.

Chemists VI

General characteristics. Performs work requiring leadership and expert knowledge in a specialized field, product, or process. Formulates and conducts a systematic attack on a problem area of considerable scope and complexity which must be approached through a series of complete and conceptually related studies, or a number of projects of lesser scope. The problems are complex because they are difficult to define and require unconventional or novel approaches or have other difficult features. Maintains liaison with individuals and units within and outside the organization, with responsibility for acting independently on technical matters pertaining to the field. Work at this level usually requires extensive progressive experience including work comparable to chemist V.

Direction received. Supervision received is essentially administrative, with assignments given in terms of broad, general objectives and limits.

Typical duties and responsibilities. One or both of the following: (1) In a supervisory capacity, (a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance; or (b) is responsible for the entire chemical program of a company, when the program is of limited complexity and scope. Activities supervised are of such a scope that they require a few (three to five) subordinate supervisors or team leaders with at least one in a position comparable to level V. (2) As individual researcher or worker, determines, conceives, plans, and conducts projects of major importance to the company. Applies a high degree of originality and ingenuity in adapting techniques into original combinations and configurations. May serve as a consultant to other chemists in specialty.

Responsibility for direction of others. Plans, organizes, and supervises the work of a staff of chemists and technicians. Evaluates progress of the staff and results obtained, and recommends major changes to achieve overall objectives. Or, as individual worker or researcher, may be assisted on individual projects by other chemists or technicians.

Chemists VII

General characteristics. Makes decisions and recommendations that are recognized as authoritative and have an important impact on extensive chemical activities. Initiates and maintains extensive contacts with key chemists and officials of other organizations and companies. Requires skill in persuasion and negotiation of critical issues.

At this level, individuals will have demonstrated creativity, foresight, and mature judgment in anticipating and solving unprecedented chemical problems, determining program objectives and requirements, organizing programs and projects, and developing standards and guides for diverse chemical activities.

Direction received. Receives general administrative direction.

Typical duties and responsibilities. One or both of the following: (1) In a supervisory capacity, is responsible for (a) an important segment of a chemical program of a company with extensive and diversified scientific requirements, or (b) the entire chemical program of a company where the program is more limited in scope. The overall chemical program contains critical problems the solution of which requires major technological advances and opens the way for extensive related development. Makes authoritative technical recommendations concerning the scientific objectives and levels of work which will be most profitable in light of company requirements and scientific and industrial trends and developments. Recommends facilities, personnel, and funds required. (2) As individual researcher and consultant, selects problems for research to further the company's objectives. Conceives and plans investigations in which the phenomena and principles are not adequately understood, and where few or contradictory scientific precedents or results are available for reference. Outstanding creativity and mature judgment are required to devise hypotheses and techniques of experimentation and to interpret results. As a leader and authority in the company, in a broad area of specialization, or in a narrow but intensely specialized one, advises the head of a large laboratory or company officials on complex aspects of extremely broad and important programs. Has responsibility for exploring, evaluating, and justifying proposed and current programs and projects and furnishing advice on unusually complex and novel problems in the specialty field. Typically will have contributed innovations (e.g., techniques, products, procedures) which are regarded as significant advances in the field.

Responsibility for direction of others. Directs several subordinate supervisors or team leaders, some of whom are in positions comparable to chemist VI; or, as individual researcher and consultant, may be assisted on individual projects by other chemists and technicians.

Chemists VIII

General characteristics. Makes decisions and recommendations that are authoritative and have a far-reaching

impact on extensive chemical and related activities of the company. Negotiates critical and controversial issues with top level chemists and officers of other organizations and companies. Individuals at this level have demonstrated a high degree of creativity, foresight, and mature judgment in planning, organizing, and guiding extensive chemical programs and activities of outstanding novelty and importance.

Direction received. Receives general administrative direction.

Typical duties and responsibilities. One or both of the following: (1) In a supervisory capacity, is responsible for (a) an important segment of a very extensive and highly diversified chemical program of a company; or (b) the entire chemical program of a company when the program is of moderate scope. The programs are of such complexity and scope that they are of critical importance to overall objectives, include problems of extraordinary difficulty that often have resisted solution, and consist of several segments requiring subordinate supervisors. Is responsible for deciding the kind and extent of chemical and related programs needed to accomplish the objectives of the company, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. (2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the company and/or industry. Problems are characterized by the lack of scientific precedents and source materials, or the lack of success of prior research and analysis so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the company as a recognized authority for broad program areas of considerable novelty and importance. Has made contributions such as new products or techniques, development of processes, etc., which are regarded as major advances in the field.

Responsibility for direction of others. Supervises several subordinate supervisors or team leaders, some of whose positions are comparable to chemist VII, or individual researchers, some of whose positions are comparable to chemist VII and sometimes chemist VIII. As an individual researcher and consultant, may be assisted on individual projects by other chemists or technicians.

NOTE: Individuals in charge of a company's chemical program may match any of several of the survey job levels, depending on the size and complexity of chemical programs. *Excluded* from the definition are: (1) Chemists in charge of programs so extensive and complex (e.g., consisting of highly diversified or unusually novel products and procedures) that one or

more subordinate supervisory chemists are performing at level VIII; (2) individuals whose decisions have direct and substantial effect on setting policy for the organization (included, however, are supervisors deciding the "kind and extent of chemical program" within broad guidelines set at higher levels); and (3) individual researchers and consultants who are recognized as national and/or international authorities and scientific leaders in very broad areas of scientific interest and investigation.

ENGINEERS

Performs professional work in research, development, design, testing, analysis, production, construction, maintenance, operation, planning, survey, estimating, application, or standardization of engineering facilities, systems, structures, processes, equipment, devices, or materials, requiring knowledge of the science and art by which materials, natural resources, and power are made useful. Work typically requires a B.S. degree in engineering or the equivalent in combined education and experience. (*Excluded are:* Safety engineers, industrial engineers, quality control engineers, sales engineers, and engineers whose primary responsibility is to be in charge of nonprofessional maintenance work.)

Engineers I

General characteristics. This is the entry level of professional work requiring a bachelor's degree in engineering and no experience, or the equivalent of a degree in appropriate education and experience. Performs assignments designed to develop professional work knowledge and abilities. May also receive formal classroom or seminar-type training.

Direction received. Works under close supervision. Receives specific and detailed instructions as to required tasks and results expected. Work is checked during progress and is reviewed for accuracy upon completion.

Typical duties and responsibilities. Performs a variety of routine tasks that are planned to provide experience and familiarization with the engineering staff, methods, practices, and programs of the company.

Responsibility for direction of others. Usually none.

Engineers II

General characteristics. At this continuing developmental level, performs routine engineering work requiring application of standard techniques, procedures, and criteria in carrying out a sequence of related engineering tasks. Limited exercise of judgment is required on details of work and in making preliminary selections and

adaptations of engineering alternatives. Requires work experience acquired in an entry level position, or appropriate graduate level study. For training and developmental purposes, assignments may include some work that is typical of a higher level.

Direction received. Supervisor screens assignments for unusual or difficult problems and selects techniques and procedures to be applied on nonroutine work. Receives close supervision on new aspects of assignments.

Typical duties and responsibilities. Using prescribed methods, performs specific and limited portions of a broader assignment of an experienced engineer. Applies standard practices and techniques in specific situations, adjusts and correlates data, recognizes discrepancies in results, and follows operations through a series of related detailed steps or processes.

Responsibility for direction of others. May be assisted by a few aides or technicians.

Engineers III

General characteristics. Independently evaluates, selects, and applies standard engineering techniques, procedures, and criteria, using judgment in making minor adaptations and modifications. Assignments have clear and specified objectives and require the investigation of a limited number of variables. Performance at this level requires developmental experience in a professional position, or equivalent graduate level education.

Direction received. Receives instructions on specific assignment objectives, complex features, and possible solutions. Assistance is furnished on unusual problems and work is reviewed for application of sound professional judgment.

Typical duties and responsibilities. Performs work which involves conventional types of plans, investigations, surveys, structures, or equipment with relatively few complex features for which there are precedents. Assignments usually include one or more of the following: Equipment design and development, test of materials, preparation of specifications, process study, research investigations, report preparation, and other activities of limited scope requiring knowledge of principles and techniques commonly employed in the specific narrow area of assignments.

Responsibility for direction of others. May supervise or coordinate the work of drafters, technicians, and others who assist in specific assignments.

Engineers IV

General characteristics. As a fully competent engineer in all conventional aspects of the subject matter or the functional area of the assignments, plans and conducts work requiring judgment in the independent evaluation, selection, and substantial adaptation and modification of standard techniques, procedures, and criteria. Devises new approaches to problems encountered. Requires sufficient professional experience to assure competence as a fully trained worker; or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience.

Direction received. Independently performs most assignments with instructions as to the general results expected. Receives technical guidance on unusual or complex problems and supervisory approval on proposed plans for projects.

Typical duties and responsibilities. Plans, schedules, conducts, or coordinates detailed phases of the engineering work in a part of a major project or in a total project of moderate scope. Performs work which involves conventional engineering practices but may include a variety of complex features such as conflicting design requirements, unsuitability of standard materials, and difficult coordination requirements. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of principles and practices of related specialties.

Responsibility for direction of others. May supervise a few engineers or technicians on assigned work.

Engineers V

General characteristics. Applies intensive and diversified knowledge of engineering principles and practices in broad areas of assignments and related fields. Makes decisions independently on engineering problems and methods, and represents the organization in conferences to resolve important questions and to plan and coordinate work. Requires the use of advanced techniques and the modification and extension of theories, precepts, and practices of the field and related sciences and disciplines. The knowledge and expertise required for this level of work usually result from progressive experience, including work comparable to engineer IV.

Direction received. Supervision and guidance relate largely to overall objectives, critical issues, new concepts, and policy matters. Consults with supervisor concerning unusual problems and developments.

Typical duties and responsibilities. One or more of the following: (1) In a supervisory capacity, plans, develops,

coordinates, and directs a large and important engineering project or a number of small projects with many complex features. A substantial portion of the work supervised is comparable to that described for engineer IV. (2) As individual researcher or worker, carries out complex or novel assignments requiring the development of new or improved techniques and procedures. Work is expected to result in the development of new or refined equipment, materials, processes, products, and/or scientific methods. (3) As staff specialist, develops and evaluates plans and criteria for a variety of projects and activities to be carried out by others. Assesses the feasibility and soundness of proposed engineering evaluation tests, products, or equipment when necessary data are insufficient or confirmation by testing is advisable. Usually performs as a staff advisor and consultant as to a technical specialty, a type of facility or equipment, or a program function.

Responsibility for direction of others. Supervises, coordinates, and reviews the work of a small staff of engineers and technicians; estimates personnel needs and schedules and assigns work to meet completion date. Or, as individual researcher or staff specialist, may be assisted on projects by other engineers or technicians.

Engineers VI

General characteristics. Has full technical responsibility for interpreting, organizing, executing, and coordinating assignments. Plans and develops engineering projects concerned with unique or controversial problems which have an important effect on major company programs. This involves exploration of subject area, definition of scope and selection of problems for investigation, and development of novel concepts and approaches. Maintains liaison with individuals and units within or outside the organization with responsibility for acting independently on technical matters pertaining to the field. Work at this level usually requires extensive progressive experience including work comparable to engineer V.

Direction received. Supervision received is essentially administrative, with assignments given in terms of broad, general objectives and limits.

Typical duties and responsibilities. One or more of the following: (1) In a supervisory capacity, (a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance; or (b) is responsible for the entire engineering program of a company when the program is of limited complexity and scope. Extent of responsibilities generally requires a few (three to five) subordinate supervisors or team leaders with at least one in a position comparable to level V. (2) As individual researcher or worker, conceives, plans, and conducts research in problem areas of

considerable scope and complexity. The problems must be approached through a series of complete and conceptually related studies, be difficult to define, require unconventional and novel approaches, and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partially related to the problem, or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems. (3) As a staff specialist, serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles, and processes for an assigned area of responsibility (i.e., subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting the organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments.

Responsibility for direction of others. Plans, organizes, and supervises the work of a staff of engineers and technicians. Evaluates progress of the staff and results obtained, and recommends major changes to achieve overall objectives. Or, as individual researcher or staff specialist, may be assisted on individual projects by other engineers or technicians.

Engineers VII

General characteristics. Makes decisions and recommendations that are recognized as authoritative and have an important impact on extensive engineering activities. Initiates and maintains extensive contacts with key engineers and officials of other organizations and companies, requiring skill in persuasion and negotiation of critical issues. At this level, individuals will have demonstrated creativity, foresight, and mature engineering judgment in anticipating and solving unprecedented engineering problems, determining program objectives and requirements, organizing programs and projects, and developing standards and guides for diverse engineering activities.

Direction received. Receives general administrative direction.

Typical duties and responsibilities. One or both of the following: (1) In a supervisory capacity, is responsible for (a) an important segment of the engineering program of a company with extensive and diversified engineering requirements, or (b) the entire engineering program of a company when it is more limited in scope. The overall engineering program contains critical problems, the solution of which requires major technological advances and

opens the way for extensive related development. Extent of responsibilities generally requires several subordinate organizational segments or teams. Recommends facilities, personnel, and funds required to carry out programs which are directly related to and directed toward fulfillment of overall company objectives. (2) As individual researcher and consultant, is a recognized leader and authority in the company in a broad area of specialization or in a narrow but intensely specialized field. Selects research problems to further the company's objectives. Conceives and plans investigations of broad areas of considerable novelty and importance for which engineering precedents are lacking in areas critical to the overall engineering program. Is consulted extensively by associates and others, with a high degree of reliance placed on the incumbent's scientific interpretations and advice. Typically, will have contributed inventions, new designs, or techniques which are regarded as major advances in the field.

Responsibility for direction of others. Directs several subordinate supervisors or team leaders, some of whom are in positions comparable to engineer VI; or, as individual researcher and consultant, may be assisted on individual projects by other engineers and technicians.

Engineers VIII

General characteristics. Makes decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive engineering and related activities of the company. Negotiates critical and controversial issues with top level engineers and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing, and guiding extensive engineering programs and activities of outstanding novelty and importance.

Direction received. Receives general administrative direction.

Typical duties and responsibilities. One or both of the following: (1) In a supervisory capacity, is responsible for (a) an important segment of a very extensive and highly diversified engineering program of a company, or (b) the entire engineering program of a company when the program is of moderate scope. The programs are of such complexity and scope that they are of critical importance to overall objectives, include problems of extraordinary difficulty that often have resisted solution, and consist of several segments requiring subordinate supervisors. Is responsible for deciding the kind and extent of engineering and related programs needed to accomplish the objectives of the company, for choosing the scientific approaches, for planning and organiz-

ing facilities and programs, and for interpreting results. (2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the company or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the company as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance.

Responsibility for direction of others. Supervises several subordinate supervisors or team leaders, some of whose positions are comparable to engineer VII, or individual researchers some of whose positions are comparable to engineer VII and sometimes engineer VIII. As an individual researcher and consultant, may be

assisted on individual projects by other engineers or technicians.

NOTE: Individuals in charge of a company's engineering program may match any of several of the survey job levels, depending on the size and complexity of engineering programs. *Excluded* from the definition are: (1) Engineers in charge of programs so extensive and complex (e.g., consisting of research and development on a variety of complex products or systems with numerous novel components) that one or more subordinate supervisory engineers are performing at level VIII; (2) individuals whose decisions have direct and substantial effect on setting policy for the organization (included, however, are supervisors deciding the "kind and extent of engineering and related programs" within broad guidelines set at a higher level); and (3) individual researchers and consultants who are recognized as national and/or international authorities and scientific leaders in very broad areas of scientific interest and investigation.

Registered Nurses (RN)

Provides professional nursing care to patients in hospitals, nursing homes, clinics, health units, private residences, and community health organizations. Assists physicians with treatment; assesses patient health problems and needs; develops and implements nursing care plans; maintains medical records; and assists patients in complying with prescribed medical regimen. May specialize, e.g., operating room nurse, psychiatric nurse, nurse anesthetist, industrial nurse, nurse practitioner, and clinical nurse specialist. May supervise LPN's and nursing assistants.

Excluded are:

- a. Nurse midwives;
- b. Nursing instructors, researchers and consultants *who do not provide nursing care to patients*;
- c. Nursing supervisors and managers, e.g., head nurses, nursing coordinators, directors of nursing;
- d. RN's in nursing homes who perform the same duties as the LPN's but who are hired primarily to meet State certification requirements for nursing homes; and
- e. RN trainees primarily performing such entry level nursing care as: Recording case histories; measuring temperature, pulse, respiration, height, weight, and blood pressure; and testing vision and hearing.

Registered Nurses I

Provides comprehensive general nursing care to patients whose conditions and treatment are normally uncomplicated.

Follows established procedures, standing orders, and doctor's instructions. Uses judgment in selecting guidelines appropriate to changing patient conditions. Routine duties are performed independently; variations from established routines are performed under specific instructions. Typical assignments include:

Staff. Prepares hospital or nursing home patients for tests, examinations, or treatment; assists in responding to emergencies; records vital signs and effects of medication and treatment in patient charts; and administers prescribed medications and intravenous feedings.

Operating Room. Assists in surgical procedures by preparing patients for less complex operations (e.g., appendectomies); sterilizes instruments and other supplies; handles instruments; and assists in operating room, recovery room, and intensive care ward.

Psychiatric. Provides routine nursing care to psychiatric patients. May observe and record patient behavior.

Health Unit/Clinic. Administers immunizations, inoculations, allergy treatments, and medications in a clinic or employer health unit; performs first aid for minor burns, cuts, bruises, and sprains; obtains patient histories; and keeps records, writes reports, and maintains supplies and equipment.

Registered Nurses II

Plans and provides comprehensive nursing care in accordance with professional nursing standards. Uses judgment in assessing patient conditions, interprets guidelines, and

modifies patient care as necessary. Recognizes and determines proper action for medical emergencies, e.g., calls physician or takes preplanned emergency measures. Typical assignments include:

Staff. In addition to the duties described at level I, usually performs more complex procedures, such as: Administering blood transfusions; managing nasal-pharyngeal, gastric suction, and other drainage tubes; using special equipment such as ventilator devices, resuscitators, and hypothermic units; or closely monitoring postoperative and seriously ill patients.

Operating Room. Provides nursing service for surgical operations, including those involving complex and extensive surgical procedures. Confers with surgeons concerning instruments, sutures, prosthesis and special equipment; cares for physical and psychological needs of patients; assists in the care and handling of supplies and equipment; assures accurate care and handling of specimens; and assumes responsibility for aseptic technique maintenance and adequacy of supplies during surgery.

Psychiatric. Provides comprehensive nursing care for psychiatric patients. In addition to observing patients, evaluates and records significant behavior and reaction patterns and participates in group therapy sessions.

Health Unit/Clinical. Provides a range of nursing services, including preventive health care counseling. Coordinates health care needs and makes referrals to medical specialists; assesses and treats minor health problems; administers emergency treatment; performs limited portions of physical examinations; manages the stable phases of common chronic illnesses; and provides individual and family counselling.

Community Health. Provides a broad range of nursing services including adult and child health care, chronic and communicable disease control, health teaching, counselling, referrals, and follow-up.

Registered Nurses III

Plans and performs specialized and advanced nursing assignments of considerable difficulty. Uses expertise in assessing patient condition and develops nursing plans which serve as a role model for others. Evaluation and observation skills are relied upon by physicians in developing and modifying treatment. Work extends beyond patient care to the evaluation of concepts, procedures, and program effectiveness. Typical assignments include:

Specialists. Provides specialized hospital nursing care to patients having illnesses and injuries that require adaptation of established nursing procedures. Renders expertise in caring for patients who are seriously ill; are not responding to normal treatment; have undergone unique surgical operations; or are receiving infrequently used medication. Duties may require knowledge of special drugs or the ability to provide pulmonary ventilation.

Anesthetist. Recommends, administers, and manages anesthesia for a broad range of surgical procedures.

Psychiatric Specialist. Provides nursing expertise on an interdisciplinary treatment team which defines policies and develops total care programs for psychiatric patients.

Practitioner. Provides primary health care and nursing services in clinics, schools, employer health units, or community health organizations. Assesses, diagnoses, and treats minor illnesses and manages chronic health problems. Other services may include: Providing primary care for trauma cases, including suturing; planning and conducting a clinic, school, or employer health program; or studying and appraising community health services.

Registered Nurses IV

Plans, researches, develops, and implements new or modified techniques, methods, practices, and approaches in nursing care. Acts as consultant in area of specialization and is considered an expert or leader within specialty area. Consults with supervisor to develop decisions and coordinates with other medical staff and community. Typical assignments include:

Specialist/Consultant. Provides expert and complex hospital nursing and health care to a specialized group of patients. Develops and monitors the implementation of new nursing techniques, policies, procedures and programs; instructs nursing and medical staff in specialty; represents the specialty to outside organizations; and evaluates, interprets, and integrates research findings into nursing practices.

Practitioner. Serves as primary health advisor in clinics and community health organizations and provides full range of health care services. Manages clinic and is responsible for formulating nursing and health care standards and policies, including developing and teaching new techniques or practices and establishing or revising criteria for care. Collaborates with physician in planning, evaluating, coordinating and revising program and determines conditions, resources and policies essential to delivery of health care services.

Technical Support Occupations

LICENSED PRACTICAL NURSES (LPN's)

LPN's are licensed to provide practical or vocational nursing care to patients in hospitals, nursing homes, clinics, health units, homes and community health organizations. They typically work under the supervision of a registered nurse or physician, and may supervise unlicensed nursing assistants.

LPN's I

Provides standard nursing care requiring little latitude for independent judgment equipment. Uses initiative to perform recurring duties. Deviations from specific guidelines are authorized by the supervisor. Typical assignments include:

Hospitals/Nursing Homes. As part of a nursing team, assists patients in attending to their personal hygiene; measures and labels routine specimens; records vital signs; provides routine treatments such as compresses, enemas, sterile dressings and sitz baths; prepares and administers commonly prescribed medications; and observes and reports on patient conditions.

Mental Health/Resident Care. As part of a nursing team, makes rounds of assigned area to count patients; observes patients for changes in behavior and checks for cleanliness; encourages patients to participate in recreational activities; maintains standard records of patients and medications; and administers first aid.

Clinics/Community Health Organizations. Performs routine nursing procedures such as taking and recording height, weight, measurements and vital signs. Performs vision, hearing, urine and tuberculin skin tests; records test results. Administers medications and immunizations under supervision of an RN; observes, records and reports signs of illness or changes in patient condition; and assists physician with physical examinations. May provide routine nursing care to the sick at home, reinforcing physician's instructions, checking medication and eating and sleeping habits, and inquiring about additional problems.

LPN's II

Provides nursing care requiring an understanding of diseases and illnesses sufficient to enhance communication with physicians, registered nurses and patients. Follows general instructions in addition to established policies, practices and procedures. Uses judgment in assessing the applicability of guide lines to specific situations; supervisory approval for requested deviations is given routinely. Guidance is provided for unusual occurrences.

Hospitals/Nursing Homes. As a responsible member of a nursing team, cares for patients in various stages of dependency (e.g., ranging from those receiving general medical care to those who are critically ill). Provides appropriate verbal and written information for patient care plans. In addition to the tasks described at level I, assignments may include more complex duties such as: Tube-feeding patients and giving catheterizations; observing and reporting on subtle changes in a patient's condition; providing irrigations and suctioning patients; monitoring and maintaining intravenous fluids; and assisting in resuscitation procedures.

Mental Health/Resident Care. Provides input into nursing team conferences by interpreting patient nursing care needs and responses to therapy. In addition to the tasks described at level I, serves as a role model by performing and teaching self care; and participates in therapy sessions by promoting self care and self worth, and recording progress in treatment plans.

Clinics/Community Health Organizations. In addition to the duties described at level I uses experience and judgment to perform more complex procedures, such as: Screening patients for health problems such as hypertension and diabetes, using judgment in deciding to refer patients to RN or physician; providing patient counseling and implementing therapeutic approaches specified in the patient's treatment plan; coordinating selected clinic operations; giving irrigations and catheterizations, suctioning tracheotomies, and conducting electrocardiograms; or

recertifying applicants for supplemental food programs when test results indicate nutritional deficiencies.

Employer Health Units. Uses judgment to perform moderately complex procedures such as: Treating employees for minor illnesses and work related injuries, and referring difficult cases to RN or physician; observing reactions to drugs and treatments and reporting irregularities; assisting physicians with examinations and treatments; and maintaining records of occupational illnesses and injuries as required by government regulations.

LPN's III

This level applies to two different work situations. In situation 1, LPN's provide nursing care for patients in various stages of dependency, setting priorities and deadlines for patient care, and modifying nursing care as necessary, prior to notifying the supervisor. In situation 2, LPN's are assigned to a selected group of critically ill patients, e.g., in hospital intensive care or coronary care units. These assignments require LPN's to immediately recognize and respond to serious situations, sometimes prior to notifying an RN. However, their overall independence and authority is more limited than that described in situation 1 and supervisory approval is required for proposed deviations from established guidelines.

Hospitals. Under direct supervision of an RN, provides nursing care to critically ill patients in such areas as intensive care or coronary care. Duties, while similar to the more complex responsibilities described at level II, are performed under stressful conditions requiring special techniques and procedures in reacting to life-threatening situations and in providing basic patient care. Evaluates appropriateness of planned treatment, given the patient's condition, and proposes modifications to RN.

Mental Health/Resident Care/Nursing Homes. Duties are similar to those described at level II. However, these LPN's are authorized to adapt, if necessary, nursing care methods and procedures to meet changing patient needs.

Exclude LPN's above level III. Such positions not only provide difficult nursing care to a selected group of critically ill patients, but also set priorities and deadlines for patient care, and modify nursing care prior to notifying the supervisor.

NURSING ASSISTANTS

Provides personal and nursing care to patients in hospitals, nursing homes, resident care facilities, clinics, homes, and community health organizations. Duties include maintaining patient hygiene and supporting doctors and nurses in diagnostic procedures, technical treatments, patient charting, and patient teaching. Work does not require State licensure. Supervisory positions are excluded.

Nursing Assistants I

Performs simple personal care and housekeeping tasks requiring no previous training. Typical tasks include: Bathing, dressing, feeding, lifting, escorting, and transporting

patients; collecting laundry carts and food trays; taking and recording temperatures; and changing bed linen and cleaning patient's room. Follows detailed and specific instructions.

Nursing Assistants II

In addition to providing personal care, performs common nursing procedures such as: Observing and reporting on patient conditions; taking and recording vital signs; collecting and labeling specimens; sterilizing equipment; listening to and encouraging patients; giving sitz baths and enemas; applying and changing compresses and non-sterile dressings; checking and replenishing supplies; securing admission data from patients; and assisting in controlling aggressive or disruptive behavior. Follows specific instructions; matters not covered are verified with the supervisor.

NOTE: Positions receiving additional pay for performing the above duties and responsibilities in forensic units of mental health institutions should be matched at level III. Workers in such positions must regularly use skill in influencing and communicating with patients who display abusive or resistant behavior.

Nursing Assistants III

Performs a variety of common nursing procedures as described at level II. Work requires prior experience or training to perform these procedures with some latitude for exercising independent initiative or limited judgment. May also perform several procedures sequentially; chart patient care; administer prescribed medication and simple treatments; teach patient self care; and lead lower level nursing assistants.

NOTE: Positions receiving additional pay for performing the above duties and responsibilities in forensic units of mental health institutions should be matched at level IV. (See NOTE for level II.)

Nursing Assistants IV

Applies advanced patient or resident care principles, procedures and techniques which require considerable training and experience. In addition to the work described at level III, typical duties include: Assisting professional staff in planning and evaluating patient or resident care; recognizing subtle changes in patient's condition and behavior and varying nursing care accordingly; catheterizing, irrigating, and suctioning patients; monitoring IV fluids and alerting registered nurse when system needs attention; and performing minor operative and diagnostic procedures in a clinic. Supervisor describes limitations or priorities of work.

Excluded are nursing assistants above level IV. Workers in these excluded positions independently set priorities and deadlines for patient care and modify care as necessary. Also excluded are positions receiving additional pay for performing level IV duties and responsibilities in forensic units of mental health institutions. (See NOTE for level II.)

CIVIL ENGINEERING OR SURVEY TECHNICIANS/ CONSTRUCTION INSPECTORS

Provides semiprofessional support to engineers or related professionals engaged in the planning, design, management, or supervision of the construction (or alteration) of such structures as buildings, streets and highways, airports, sanitary systems, or flood control systems. Applies knowledge of the methods, equipment, and techniques of several of the following support functions:

Data compilation and analysis/design and specification—gathering, tabulating, and/or analyzing hydrologic and meteorologic information, quantities of materials required, traffic patterns, or other engineering data; or preparing project site layouts and specifications;

Testing—measuring the physical characteristics of soil, rock, concrete, or other construction materials to determine methods and quantities required or to comply with safety and quality standards;

Surveying—measuring or determining distances, elevations, areas, angles, land boundaries, or other features of the earth's surface; or

Construction inspection—performing on-site inspection of construction projects to determine conformance with contract specifications and building codes.

Excluded are building inspectors and construction, maintenance, and craft workers; chemical or other physical science technicians; engineers required to apply professional rather than technical knowledge of engineering to their work; and technicians not primarily concerned with civil or construction engineering.

Also excluded are technicians:

—Below level I whose work is limited to very simple and routine tasks, such as identifying, weighing and marking easy-to-identify items or recording simple instrument readings at specified intervals; and

—Above level V who perform work of: broad scope and complexity either by planning and accomplishing a complete project or by serving as an expert in a narrow aspect of a particular engineering field.

Positions are classified into levels on the basis of the following definitions.

Civil Engineering or Survey Technicians/Construction Inspectors I

Performs simple, routine tasks under close supervision or from detailed procedures. Work is checked in progress and on completion. Performs a variety of such typical duties as:

Data compilation—compiles engineering data from tests, drawing, specifications or field notes; performs arithmetic computations by substituting values in specified formulas; plots data and draws simple curves and graphs.

Testing—conducts simple or repetitive tests on soils, concrete and aggregates; e.g., sieve analysis, slump tests, and moisture content determination.

Surveying—performs routine and established functions such as holding range poles or rods where special procedures are required or directing the placement of surveyor's chain or tape and selecting measurement points.

Construction inspection—makes simple measurements and observations; may make preliminary recommendations concerning the acceptance of materials or workmanship in clear-cut situations.

Civil Engineering or Survey Technicians/Construction Inspectors II

Performs standard or prescribed assignments involving a sequence of related operations. Follows standard work methods and receives detailed instructions on unfamiliar assignments. Technical adequacy of routine work is assessed upon completion; nonroutine work is reviewed in progress. Performs a variety of such typical duties as:

Data compilation and analysis—compiles and examines a variety of data required by engineers for project planning (e.g., hydrologic and sedimentation data; earthwork quantities), applying simple algebraic or geometric formulas.

Testing—conducts a variety of standard tests on soils, concrete and aggregates, e.g., determines the liquid and plastic limits of soils or the flexural and compressive strength, air content, and elasticity of concrete. Examines test results and explains unusual findings.

Surveying—applies specialized knowledge, skills or judgment to a varied and complex sequence of standard operations, e.g., surveys small land areas using rod, tape, and hand level to estimate volume to be excavated; or records data requiring numerous calculations.

Construction inspection—Applies a variety of techniques in inspecting less complex projects, e.g., the quality, quantity, and placement of gravel for road construction, excavations and concrete footings for structures. Determines compliance with plans and specifications. May assist in inspecting more complex projects.

Civil Engineering or Survey Technicians/Construction Inspectors III

Performs assignments which include nonstandard applications, analyses or tests; or the use of complex instruments. Selects or adapts standard procedures using fully applicable precedents. Receives initial instructions, requirements, and advice as needed; performs recurring work independently. Work is reviewed for technical adequacy and conformance with instructions. Performs a variety of such typical duties as:

Data compilation and analysis—applies knowledge and judgment in selecting sources, evaluating data, and adapting methods, e.g., computes, from file notes, quantities of materials required for roads which include retaining walls and culverts; plots profiles, cross sections, and drainage areas for a small earthwork dam.

Testing—conducts tests for which established procedures and equipment require either adaptation or the construction of auxiliary devices. Uses judgment to interpret precise test results.

Surveying—uses a variety of complex instruments to measure angles and elevations, applying judgment and skill in selecting and describing field information. Assignments include: Recording complete and detailed descriptive data and providing sketches of relief, drainage, and culture; or running short traverse lines from specified points along unobstructed routes.

Construction inspection—independently inspects standard procedures, items or operations of limited difficulty, e.g., slope, embankment, grading, moisture content, earthwork compaction, concrete forms, reinforcing rods or simple batching and placement of concrete on road construction.

Civil Engineering or Survey Technicians/Construction Inspectors IV

Plans and performs nonroutine assignments of substantial variety and complexity. Selects appropriate guidelines to resolve problems which are not fully covered by precedents. Performs recurring work independently, receiving technical advice as needed. Performs a variety of such typical duties as:

Design and specification—prepares site layouts for projects from such information as design criteria, soil conditions, existing buildings, topography, and survey data; makes preliminary cost estimates from established unit prices.

Testing—conducts tests which require the selection and substantial modification of equipment and procedures. Recognizes and interprets subtle, i.e., fluctuating, test reactions.

Surveying—makes exacting measurements under difficult conditions, e.g., leads detached observing unit on surveys involving unusually heavy urban, rail, or highway traffic; serves as party chief on conventional construction, property, topographical, hydrographic, or geodetic surveys. Excluded are party chiefs responsible for unusually difficult or complex surveys.

Construction inspection—performs inspections for a variety of complete projects of limited size and complexity or a phase of a larger project, e.g., conventional one or two story concrete and steel buildings; park and forest road construction limited to clearing, grading, and drainage. Interprets plans and specifications, resolves differences between plans and specifications, and approves minor deviations in methods which conform to established precedents.

Civil Engineering or Survey Technicians/Construction Inspectors V

Performs nonroutine and complex assignments involving responsibility for planning and conducting a complete project of limited scope or a portion of a larger, more complex project. Selects and adapts techniques, designs, or layouts. Reviews, analyzes, and interprets the technical work of others. Completed work is reviewed for technical adequacy. Performs a variety of such typical duties as:

Design and specification—prepares plans and specifications for major projects such as roads and airport runways, or electrical

distribution systems. Applies established engineering practice; selects and adapts precedents to meet specific requirements.

Testing—modifies established testing programs, analyzing specifications, drawings, and other data to determine the tests required; adapts test equipment and procedures; analyzes and evaluates test data and writes evaluative reports of findings and recommendations.

Construction inspection—inspects projects of unusual difficulty and complexity, e.g., large multi-story hospitals or laboratories which include sophisticated electrical and mechanical equipment; airport runways for jet aircraft with exacting requirements. Independently interprets plans and specifications to resolve complex construction problems.

ENGINEERING TECHNICIANS

To be covered by these definitions, employees must meet *all* of the following criteria:

1. Provides semiprofessional technical support for engineers working in such areas as research, design, development, testing, or manufacturing process improvements.
2. Work pertains to electrical, electronic, or mechanical components or equipment.
3. Required to have some practical knowledge of science or engineering; some positions may also require a practical knowledge of mathematics or computer science.

Excludes production or maintenance workers, quality control technicians or testers, modelmakers or other craftworkers, chemical or other nonengineering technicians, civil engineering technicians, drafters, designers, and engineers (who are required to apply a professional knowledge of engineering theory and principles to their duties, unlike higher level engineering technicians who may perform the same duties using only practical skills and knowledge).

Also excludes engineering technicians:

- a. Below level I who are limited to simple tasks such as: Measuring items of regular shape with a caliper and computing cross-sectional areas; identifying, weighing, and marking easy-to-identify items; or recording simple instrument readings at specified intervals; and
- b. Above level V who perform work of broad scope and complexity either by planning and accomplishing a complete project or study or by serving as an expert in a narrow aspect of a particular field of engineering.

Engineering Technicians I

Performs simple routine tasks under close supervision or from detailed procedures. Work is checked in process or on completion. Performs, at this level, one or a combination of such typical duties as:

Assembles or installs equipment or parts requiring simple wiring, soldering, or connecting.

Performs simple or routine tasks or tests such as tensile or hardness tests; operates and adjusts simple test equipment; records test data.

Gathers and maintains specified records of engineering data such as tests, drawings, etc.; performs computations by substituting numbers in specified formulas; and plots data and draws simple curves and graphs.

Engineering Technicians II

Performs standardized or prescribed assignments involving a sequence of related operations. Follows standard work methods on recurring assignments but receives explicit instructions on unfamiliar assignments; technical adequacy of routine work is reviewed on completion; nonroutine work is reviewed in process. Performs, at this level, one or a combination of such typical duties as:

Assembles or constructs simple or standard equipment or parts; may service or repair simple instruments or equipment.

Conducts a variety of standardized tests; may prepare test specimens; sets up and operates standard test equipment; records test data, pointing out deviations resulting from equipment malfunction or observational errors.

Extracts engineering data from various prescribed but nonstandardized sources; processes the data following well-defined methods including elementary algebra and geometry; presents the data in prescribed form.

Engineering Technicians III

Performs assignments that are not completely standardized or prescribed. Selects or adapts standard procedures or equipment, using fully applicable precedents. Receives initial instructions, equipment requirements, and advice from supervisor or engineer as needed; performs recurring work independently; and work is reviewed for technical adequacy or conformity with instructions. Performs, at this level, one or a combination of such typical duties as:

Constructs components, subunits, or simple models or adapts standard equipment. May troubleshoot and correct malfunctions.

Conducts various tests or experiments which may require minor modifications in test setups or procedures as well as subjective judgments in measurement; selects, sets up, and operates standard test equipment and record test data.

Extracts and compiles a variety of engineering data from field notes, manuals, lab reports, etc.; processes data, identifying errors or inconsistencies; and selects methods of data presentation.

Engineering Technicians IV

Performs nonroutine assignments of substantial variety and complexity, using precedents which are not fully applicable. May also plan such assignments.

Receives technical advice from supervisor or engineer (as needed, performs recurring work independently); work is reviewed for technical adequacy (or conformity with instructions). May be assisted by lower level technicians and have frequent contact with professionals and others within the establishment. Performs at this level one or a combination of such typical duties as:

Works on limited segment of development project; constructs experimental or prototype models to meet engineering requirements; conducts tests or experiments and redesigns them as necessary; and records and evaluates data and report findings.

Conducts tests or experiments requiring selection and adaptation or modification of a wide variety of critical test equipment and test procedures; sets up and operates equipment; records data, measures and records problems of sufficient complexity to sometimes require resolution at higher level; and analyzes data and prepares test reports.

Extracts and analyzes a variety of engineering data; applies conventional engineering practices to develop or prepare schematics; designs, specifications, parts lists, or makes recommendations regarding these items. May review designs or specification for adequacy.

Engineering Technicians V

Performs nonroutine and complex assignments involving responsibility for planning and conducting a complete project of relatively limited scope or a portion of a larger and more diverse project. Selects and adapts plans, techniques, designs, or layouts. Contacts personnel in related activities to resolve mutual problems and coordinate the work; reviews, analyzes, and integrates the technical work of others. Supervisor or professional engineer outlines objectives, requirements, and design approaches; completed work is reviewed for technical adequacy and satisfaction of requirements. May train and be assisted by lower level technicians. Performs at this level one or a combination of such typical duties as:

Designs, develops, and constructs major units, devices, or equipment; conducts tests or experiments; analyzes results and redesigns or modifies equipment to improve performance; and reports results.

Plans or assists in planning tests to evaluate equipment performance. Determines test requirements, equipment modification, and test procedures; conducts tests, analyzes and evaluates data, and prepares reports on findings and recommendations.

Reviews and analyzes a variety of engineering data to determine requirements to meet engineering objectives; may calculate design data; and prepares layouts, detailed specifications, parts lists, estimates, procedures, etc. May check and analyze drawings or equipment to determine adequacy of drawing and designs.

DRAFTERS

Performs drafting work requiring knowledge and skill in drafting methods, procedures, and techniques. Prepares

drawings of structures, facilities, land profiles, water systems, mechanical and electrical equipment, pipelines, duct systems, and similar equipment, systems, and assemblies. Drawings are used to communicate engineering ideas, designs, and information. Uses recognized systems of symbols, legends, shadings, and lines having specific meanings in drawings.

Excluded are:

- (a) Designers using technical knowledge and judgment to conceive, plan, or modify designs;
- (b) Illustrators or graphic artists using artistic ability to prepare illustrations;
- (c) Office drafters preparing charts, diagrams, and room arrangements to depict statistical and administrative data;
- (d) Cartographers preparing maps and charts primarily using a technical knowledge of cartography;
- (e) Computer-assisted drafters;
- (f) Supervisors.

Positions are classified into levels based on the following definitions.

Drafters I

Working under close supervision, traces or copies finished drawings, making clearly indicated revisions in notes and dimensions. Uses appropriate templates to draw curved lines. Assignments are designed to develop increasing skill in various drafting techniques. Work is spot checked during progress and reviewed upon completion.

NOTE: Excludes drafters receiving instruction in the elementary methods and techniques of drafting and learning to use and care for equipment. Workers in these excluded positions typically trace and copy simple drawings having straight lines and few details; prepare border lines and title boxes for drawing sheets; and prepare basic title headings by tracing or using lettering kits.

Drafters II

Prepares drawings of simple, easily visualized structures, systems, parts or equipment from sketches or marked-up prints. Selects appropriate templates or uses a compass and other equipment needed to complete assignments. Drawings fit familiar patterns and present few technical problems. Supervisor provides detailed instructions on new assignments, gives guidance when questions rise, and reviews completed work for accuracy. Typical assignments include:

From marked-up prints, revises the original drawings of a plumbing system by increasing pipe diameters.

From sketches, draws building floor plans, determining size, spacing, and arrangement of freehand lettering according to scale.

Draws simple land profiles from predetermined structural dimensions and reduced survey notes. Traces river basin maps and enters symbols to denote stream sampling locations, municipal and industrial waste discharges, and water supplies.

Drafters III

Prepares various drawings of such units as construction projects or parts and assemblies, including various views, sectional profiles, irregular or reverse curves, hidden lines, and small or intricate details. Work requires use of most of the conventional drafting techniques and a working knowledge of the terms and procedures of the occupation. Makes arithmetic computations using standard formulas. Familiar or recurring work is assigned in general terms. Unfamiliar assignments include information on methods, procedures, sources of information, and precedents to follow. Simple revisions to existing drawings may be assigned with a verbal explanation of the desired results. More complex revisions are produced from sketches or specifications which clearly depict the desired product. Typical assignments include:

From a layout and manual references, prepares several views of a simple gear system. Obtains dimensions and tolerances from manuals and by measuring the layout.

Draws base and elevation views, sections, and details of new bridges or other structures; revises complete sets of roadway drawings for highway construction projects; or prepares block maps, indicating water and sewage line locations.

Prepares and revises detail and design drawings for such projects as the construction and installation of electrical or electronic equipment, plant wiring, and the manufacture and assembly of printed circuit boards. Drawings typically include details of mountings, frames, guards, or other accessories; conduit layouts; or wiring diagrams indicating transformer sizes, conduit locations and mountings.

Drafters IV

Prepares complete sets of complex drawings which include multiple views, detail drawings, and assembly drawings. Drawings include complex design features that require considerable drafting skill to visualize and portray. Assignments regularly require the use of mathematical formulas to draw land contours or to compute weights, center of gravity, load capacities, dimensions, quantities of material, etc. Works from sketches, models, and verbal information supplied by an engineer, architect, or designer to determine the most appropriate views, detail drawings, and supplementary information needed to complete assignments. Selects required information from precedents, manufacturers' catalogs, and technical guides. Independently resolves most of the

problems encountered. Supervisor or design originator may suggest methods of approach or provide advice on unusually difficult problems. Typically assignments include:

From layouts or sketches, prepares complete sets of drawings of test equipment to be manufactured. Several cross-sectional and subassembly drawings are required. From information supplied by the design originator and from technical handbooks and manuals, describes dimensions, tolerances, fits, fabrication techniques, and standard parts to use in manufacturing the equipment.

From electronic schematics, information as to maximum size, and manuals giving dimensions of standard parts, determines the arrangement and prepares drawings of printed circuit boards.

From precedents, drafting standards, and established practices, prepares final construction drawings for floodgates, navigation locks, dams, bridges, culverts, levees, channel excavations, dikes, and berms; prepares boring profiles, typical cross-sections, and land profiles; and delineates related typographical details as required.

Prepares final drawings for street paving and widening or for water and sewer lines having complex trunk lines; reduces field notes and calculates true grades. From engineering designs, lays out plan, profile and detail appurtenances required; notifies supervisor of conflicting details in design.

NOTE: Excludes drafters performing work of similar difficulty to that described at this level but who provide support for a variety of organizations which have widely differing functions or requirements.

Drafters V

Works closely with design originators, preparing drawings of *unusual, complex, or original designs which require a high degree of precision*. Performs unusually difficult assignments requiring considerable initiative, resourceful, and drafting expertise. Assures that anticipated problems in manufacture, assembly, installation, and operation are resolved by the drawings produced. Exercises independent judgment in selecting and interpreting data based on a knowledge of the design intent. Although working primarily as a drafter, may occasionally interpret general designs prepared by others to complete minor details. May provide advice and guidance to lower level drafters or serve as coordinator and planner for large and complex drafting projects.

Computer Operators

Monitors and operates the control console of either a mainframe digital computer or a group of minicomputers, in accordance with operating instructions, to process data. Work is characterized by the following:

- Studies operating instructions to determine equipment setup needed;
- Loads equipment with required items (tapes, cards, paper, etc.);
- Switches necessary auxiliary equipment into system;
- Starts and operates control console;
- Reviews error messages and makes corrections during operation or refers problems; and
- Maintains operating record.

May test run new or modified programs and *assist* in modifying systems or programs. Included within the scope of this definition are fully qualified computer operators, trainees working to become fully qualified operators, and lead operators providing *technical* assistance to lower level positions.

Excluded are:

- a. Workers operating small computer systems where there is little or no opportunity for operator intervention in program processing and few requirements to correct equipment malfunctions;
- b. Peripheral equipment operators and remote terminal or computer operators who do not run the *control console* of either a mainframe digital computer or a group of minicomputers; and
- c. Workers using the computer for scientific, technical, or mathematical work when a knowledge of the subject matter is required.

Computer Operators I

Receives on-the-job training in operating the control console (sometimes augmented by classroom training). Works under close personal supervision and is provided detailed written or oral guidance before and during assignments. As instructed, resolves common operating problems. May serve as an assistant operator working under close supervision or performing a portion of a more senior operator's work.

Computer Operators II

Processes scheduled routines which present few difficult operating problems (e.g., infrequent or easily resolved error conditions). In response to computer output instructions or error conditions, applies standard operating or corrective procedure. Refers problems which do not respond to preplanned procedure. May serve as an assistant operator, working under general supervision.

Computer Operators III

Processes a range of scheduled routines. In addition to operating the system and resolving common error conditions, diagnoses and acts on machine stoppage and error conditions not fully covered by existing procedures and guidelines (e.g., resetting switches and other controls or making mechanical adjustments to maintain or restore equipment operations). In response to computer output instructions or error conditions, may deviate from standard procedures if standard procedures do not provide a solution. Refers problems which do not respond to corrective procedures.

Computer Operators IV

Adapts to a variety of nonstandard problems which require extensive operator intervention (e.g., frequent introduction of new programs, applications, or procedures). In response to computer output instructions or error conditions, chooses or devises a course of action from among several alternatives and alters or deviates from standard procedures if standard procedures do not provide a solution (e.g., reassigning equipment in order to work around faulty equipment or to transfer channels); then refers problems. Typically, completed work is submitted to users without supervisory review.

Computer Operators V

Resolves a variety of difficult operating problems (e.g., making unusual equipment connections and rarely used equipment and channel configurations to direct processing through or around problems in equipment, circuits, or channels or reviewing test run requirements

and developing unusual system configurations that will allow test programs to process without interfering with on-going job requirements). In response to computer output instructions and error conditions or to avoid loss of information or to conserve computer time, operator deviates from standard procedures. Such actions may materially alter the computer unit's production plans. May spend considerable time away from the control station providing technical assistance to lower level operators and assisting programmers, systems analysts, and subject matter specialists in resolving problems.

Computer Operators VI

In addition to level V responsibilities, uses a knowledge of program language, computer features, and software systems to assist in: (1) Maintaining, modifying, and developing operating systems or programs; (2) developing operating instructions and techniques to cover problem situations; and (3) switching to emergency backup procedures.

Photographers

Takes pictures requiring a knowledge of photographic techniques, equipment, and processes. Typically, some familiarity with the company's activities (e.g., scientific, engineering, industrial, technical, retail, commercial, etc.) and some artistic ability are needed at the higher levels. Depending on the objectives of the assignment, photographers use standard equipment (including simple still, graphic, and motion picture cameras, video and television hand cameras, and similar commonly used equipment) and/or use special-purpose equipment (including specialized still and graphic cameras, motion picture production, television studio, and high-speed cameras and equipment). At the higher levels, a complex accessory system of equipment *may* be used, as needed, with sound or lighting systems, generators, timing or measurement control mechanisms, or improvised stages or environments, etc. Work of photographers at all levels is reviewed for quality and

acceptability. Photographers may also develop, process, and edit film or tape, may serve as a lead photographer to lower level workers, or may do work described at lower levels as needed.

Excluded are:

- a. Workers who have no training or experience in photography techniques, equipment, and processes;
- b. Workers who *primarily* operate reproduction, offset, or copying machines, motion picture projectors, or machines to match, cut, or splice negatives;
- c. Workers who *primarily* develop, process, print, or edit photographic film or tape; or develop, maintain, or repair photographic equipment;
- d. Workers who *primarily* direct the sequences, actions, photography, sound, and editing of motion pictures for television writers and editors; and

- e. Photographers taking pictures for *commercial* newspaper or magazine publishers, television stations, or movie producers.

Positions are matched to the appropriate level based on the difficulty of, and responsibility for, the photography performed, including the subject-matter knowledge and artistry required to fulfill the assignment. While the equipment may be an indication of the level of difficulty, photographers at the higher levels may use standard equipment, as needed.

Photographers I

Takes routine pictures in situations where several shots can be taken. Uses standard still cameras for pictures where complications, such as speed, motion, color contrast, or lighting are not present or where there is no particular need to overcome them. Photographs are taken for identification, employee publications, information, or publicity purposes. Workers may be able to focus, center, and provide simple flash-type lighting for an uncomplicated photograph.

Typical subjects are employees who are photographed for identification or publicity of award ceremonies, interviews, banquets, or meetings; or external views of machinery, supplies, equipment, buildings, damaged shipments, or other routine subjects photographed to record the condition at a specified time. Assignments are usually performed without direct guidance due to the clear and simple nature of the desired photograph.

Photographers II

Uses standard still cameras, commonly available lighting equipment, and related techniques to take photographs which involve limited problems of speed, motion, color contrast, or lighting. Typically, the subjects photographed are similar to those at level I, but the technical aspects require more skill. Based on clear-cut objectives, determines shutter speeds, lens settings and filters, camera angles, exposure times, and type of film. Requires familiarity with the situation gained from similar past experience to arrange for specific emphasis, balanced lighting, and correction for distortion, etc., as needed. May use 16mm. or 35mm. motion picture cameras for simple shots such as moving equipment, individuals at work or meetings, and the like, where available or simple artificial lighting is used.

Ordinarily, there is opportunity for repeated shots or retakes if the original exposure is unsatisfactory. Consults with supervisor or more experienced photographers when problems are anticipated.

Photographers III

Selects from a range of standard photographic

equipment for assignments demanding exact renditions, normally without opportunity for later retakes, when there are specific problems or uncertainties concerning lighting, exposure time, color, artistry, etc. Discusses technical requirements with operating officials or supervisor and customizes treatment for each situation according to a detailed request. Varies camera processes and techniques and uses the setting and background to produce esthetic, as well as accurate and informative, pictures. Typically, standard equipment is used at this level although "specialized" photography work is usually performed; may use some special-purpose equipment under closer supervision.

In typical assignments, photographs: Drawings, charts, maps, textiles, etc., requiring accurate computation of reduction ratios and exposure times and precise equipment adjustments; tissue specimens in fine detail and exact color when color and condition of the tissue may deteriorate rapidly; medical or surgical procedures or conditions which normally cannot be recaptured; machine or motor parts to show wear or corrosion in minute wires or gears; specialized real estate or retail goods for company catalogs or listings where saleability is enhanced by the photography; company products, work, construction sites, or patrons in prescribed detail to substantiate legal claims, contracts, etc.; artistic or technical design layouts requiring precise equipment settings; fixed objects on the ground or air-to-air objects which must be captured quickly and require directing the pilot to get the correct angle of approach.

Works independently; solves most problems through consultations with more experienced photographers, if available, or through reference sources.

Photographers IV

Uses special-purpose cameras and related equipment for assignments in which the photographer usually makes all the technical decisions, although the objective of the pictures is determined by operating officials. Conceives and plans the technical photographic effects desired by operating officials and discusses modifications and improvements to their original ideas in light of the potential and limits of the equipment. Improvises photographic methods and techniques or selects and alters secondary photographic features (e.g., scenes, backgrounds, color, lighting) to carry out the desired primary objectives. Many assignments afford only one opportunity to photograph the subject. Typical examples of equipment used at this level include ultra-high speed, motion picture production, studio television, animation cameras, specialized still and graphic cameras, electronic timing and triggering devices, etc.

Some assignments are characterized by extremes in light values and the use of complicated equipment. Sets up precise photographic measurement and controls equipment; uses high-speed color photography, synchronized

stroboscopic (interval) light sources, and/or timed electronic triggering; operates equipment from a remote point; or arranges and uses cameras operating at several thousand frames per second. In other assignments, selects and sets up motion picture or television cameras and accessories and shoots a part of a production or a sequence of scenes, or takes special scenes to be used for background or special effects in the production.

Works under the guidelines and requirements of the subject-matter area to be photographed. Consults with supervisors only when dealing with highly unusual problems or altering existing equipment.

Photographers V

As a top technical expert, exercises imagination and creative ability in response to photography situations requiring novel and unprecedented treatment. Typically performs *one or more* of the following assignments: (1) Develops and adapts photographic equipment or processes to meet new and unprecedented situations, e.g., works with engineers and physicists to develop and modify equipment for use in extreme conditions such as excessive heat or cold, radiation, high altitude, under-water, wind

and pressure tunnels, or explosions; (2) plans and organizes the overall technical photographic coverage for a variety of events and developments in phases of a scientific, industrial, medical, or commercial research project or similar program; or (3) creates the desired illusion or emotional effect through developing trick or special effects photography for novel situations requiring a high degree of ingenuity and imaginative camera work to heighten, simulate, or alter reality.

Independently develops, plans, and organizes the overall technical photographic aspects of the assignment in collaboration with operating officials who are responsible for the substance of the project. Uses imagination and creative ability to implement objectives within the capabilities and limitations of cameras and equipment. May exercise limited control over the substance of the event to be photographed by staging the action, suggesting behavior of the principals, and rehearsing the activity before photographs are taken.

NOTE: Excluded are photographers above level V who independently plan the objectives, scope, and substance of the photography for the project in addition to planning the overall technical photographic coverage.

Clerical

ACCOUNTING CLERKS

Performs one or more accounting tasks, such as posting to registers and ledgers; balancing and reconciling accounts; verifying the internal consistency, completeness, and mathematical accuracy of accounting documents; assigning prescribed accounting distribution codes; examining and verifying the clerical accuracy of various types of reports, lists, calculations, postings, etc.; preparing journal vouchers; or making entries or adjustments to accounts.

Levels I and II require a basic knowledge of routine clerical methods and office practices and procedures as they relate to the clerical processing and recording of transactions and accounting information. Levels III and IV require a knowledge and understanding of the established and standardized bookkeeping and accounting procedures and techniques used in an accounting system, or a segment of an accounting system, where there are few variations in the types of transactions handled. In addition, some jobs at each level may require a basic knowledge and understanding of the terminology, codes, and processes used in an automated accounting system.

Accounting Clerks I

Performs very simple and routine accounting clerical operations, for example, recognizing and comparing easily identified numbers and codes on similar and repetitive accounting documents, verifying mathematical accuracy, and identifying discrepancies and bringing them to the supervisor's attention. Supervisor gives clear detailed instructions for specific assignments. Employee refers to supervisor all matters not covered by instructions. Work is closely controlled and reviewed in detail for accuracy, adequacy, and adherence to instructions.

Accounting Clerks II

Performs one or more routine accounting clerical operations, such as: Examining, verifying, and correcting accounting transactions to ensure completeness and accuracy of data and proper identification of accounts, and checking that expenditures will not exceed obligations in specified accounts; totaling, balancing, and reconciling collection vouchers; posting data to transaction sheets where employee identifies proper accounts and items to be posted; and coding documents in accord-

ance with a chart (listing) of accounts. Employee follows specific and detailed accounting procedures. Completed work is reviewed for accuracy and compliance with procedures.

Accounting Clerks III

Uses a knowledge of double entry bookkeeping in performing one or more of the following: Posts actions to journals, identifying subsidiary accounts affected and debit and credit entries to be made and assigning proper codes; reviews computer printouts against manually maintained journals, detecting and correcting erroneous postings, and preparing documents to adjust accounting classifications and other data; or reviews lists of transactions rejected by an automated system, determining reasons for rejections, and preparing necessary correcting material. On routine assignments, employee selects and applies established procedures and techniques. Detailed instructions are provided for difficult or unusual assignments. Completed work and methods used are reviewed for technical accuracy.

Accounting Clerks IV

Maintains journals or subsidiary ledgers of an accounting system and balances and reconciles accounts. Typical duties include one or both of the following: Reviews invoices and statements (verifying information, ensuring sufficient funds have been obligated, and, if questionable, resolving with the submitting unit, determining accounts involved, coding transactions, and processing material through data processing for application in the accounting system); and/or analyzes and reconciles computer printouts with operating unit reports (contacting units and researching causes of discrepancies, and taking action to ensure that accounts balance). Employee resolves problems in recurring assignments in accordance with previous training and experience. Supervisor provides suggestions for handling unusual or nonrecurring transactions. Conformance with requirements and technical soundness of completed work are reviewed by the supervisor or are controlled by mechanisms built into the accounting system.

NOTE: Excluded from level IV are positions responsible for maintaining either a general ledger or a general ledger in combination with subsidiary accounts.

FILE CLERKS

Files, classifies, and retrieves material in an established filing system. May perform clerical and manual tasks required to maintain files. Positions are classified into levels on the basis of the following definitions.

File Clerks I

Performs routine filing of material that has already been classified or which is easily classified in a simple serial classification system (e.g., alphabetical, chronological, or numerical). As requested, locates readily available materials in files and forwards material; may fill out withdrawal charge. May perform simple clerical and manual tasks required to maintain and service files.

File Clerks II

Sorts, codes, and files unclassified material by simple (subject-matter) headings or partly classified material by finer subheadings. Prepares simple related index and cross-reference aids. As requested, locates clearly identified material in files and forwards material. May perform related clerical tasks required to maintain and service files.

File Clerks III

Classifies and indexes file material such as correspondence, reports, technical documents, etc., in an established filing system containing a number of varied subject matter files. May also file this material. May keep records of various types in conjunction with the files. May lead a small group of lower level file clerks.

GENERAL CLERKS

Performs a *combination of clerical tasks* to support office, business or administrative operations, such as: Maintaining records; receiving, preparing, or verifying documents; searching for and compiling information and data; responding to routine requests with standard answers (by phone, in person, or by correspondence). The work requires a basic knowledge of proper office procedures. Workers at levels I, II, and III follow prescribed procedures or steps to process paperwork; they may perform other routine office support work, (e.g., typing, filing, or operating a keyboard controlled data entry device to transcribe data into a form suitable for data processing). Workers at level IV are also required to make decisions about the adequacy and content of transactions handled in addition to following proper procedures.

Clerical work is controlled (e.g., through spot checks, complete review, or subsequent processing) for both quantity and quality. Supervisors (or other employees) are available to assist and advise clerks on difficult problems and to approve their suggestions for significant deviations from existing instructions.

Excluded from this definition are: Workers whose pay is *primarily* based on the performance of a *single* clerical duty such as typing, stenography, office machine

operation, or filing; and other workers, such as secretaries, messengers, receptionists or public information specialists who perform general clerical tasks incidental to their primary duties.

General Clerks I

Follows a few clearly detailed procedures in performing simple repetitive tasks in the same sequence, such as filing precoded documents in a chronological file or operating office equipment, e.g., mimeograph, photocopy, addressograph or mailing machine. Full performance can usually be reached after a few days of training and on-the-job practice.

General Clerks II

Follows a number of specific procedures in completing several repetitive clerical steps performed in a prescribed or slightly varied sequence, such as coding and filing documents in an extensive alphabetical file, simple posting to individual accounts, opening mail, running mail through metering machines, and calculating and posting charges to departmental accounts. Little or no subject matter knowledge is required, but the clerk needs to choose the proper procedure for each task. Full performance can usually be reached after a few days to 2 weeks of training.

General Clerks III

Work requires a familiarity with the terminology of the office unit. Selects appropriate methods from a wide variety of procedures or makes simple adaptations and interpretations of a limited number of substantive guides and manuals. The clerical steps often vary in type or sequence, depending on the task. Recognized problems are referred to others. Full performance can usually be reached after several weeks to several months.

Typical duties include a combination of the following: Maintaining time and material records, taking inventory of equipment and supplies, answering questions on departmental services and functions, operating a variety of office machines, posting to various books, balancing a restricted group of accounts to controlling accounts, and assisting in preparation of budgetary requests. May oversee work of lower level clerks.

General Clerks IV

Uses some subject matter knowledge and judgment to complete assignments consisting of numerous steps that vary in nature and sequence. Selects from alternative methods and refers problems not solvable by adapting or interpreting substantive guides, manuals, or procedures.

Proficiency in the full cycle of operations or variety of work may require from several months to 1 year of on-the-job-experience.

Typical duties include: Assisting in a variety of administrative matters; maintaining a wide variety of financial or other records; verifying statistical reports for accuracy and completeness; and handling and adjusting complaints. May also direct lower level clerks.

Positions above level IV are *excluded*. Such positions (which may include supervisory responsibility over lower level clerks) require workers to use a thorough knowledge of an office's work and routine to: (1) Choose among widely varying methods and procedures to process complex transactions, and (2) select or devise steps necessary to complete assignments. Typical jobs covered by this exclusion include administrative assistants, clerical supervisors, and office managers.

KEY ENTRY OPERATORS

Operates keyboard-controlled data entry device such as keypunch machine or key-operated magnetic tape or disc encoder to transcribe data into a form suitable for computer processing. Work requires skill in operating an alphanumeric keyboard and an understanding of transcribing procedures and relevant data entry equipment.

Positions are classified into levels on the basis of the following definitions.

Key Entry Operators I

Work is routine and repetitive. Under close supervision or following specific procedures or detailed instructions, works from various standardized source documents which have been coded and require little or no selecting, coding, or interpreting of data to be entered. Refers to supervisor problems arising from erroneous items, codes, or missing information.

Key Entry Operators II

Work requires the application of experience and judgment in selecting procedures to be followed and in searching for, interpreting, selecting, or coding items to be entered from a variety of source documents. On occasion, may also perform some routine work as described for level I.

NOTE: Excluded are operators above level II using the key entry controls to access, read, and evaluate the substance of specific records to take substantive actions, or to make entries requiring a similar level of knowledge.

MESSENGERS

Performs various routine duties such as running errands, operating minor office machines such as sealers or mailers, opening mail, distributing mail on a regularly scheduled route or in a familiar area, and other minor clerical work. May deliver mail that requires some special handling, e.g., mail that is insured, registered, or marked for special delivery.

Excluded are positions which include any of the following as *significant* duties:

- a. Operating motor vehicles;
- b. Delivering valuables or security-classified mail when the work requires a continuing knowledge of special procedures for handling such items;
- c. Weighing mail, determining postage, or recording and controlling registered, insured, and certified mail in the mail room;
- d. Making deliveries to unfamiliar or widely separated buildings or points which are not part of an established route; or
- e. Directing other workers.

PERSONNEL CLERKS/ASSISTANTS (EMPLOYMENT)

Personnel clerks/assistants (employment) provide clerical and technical support to personnel professionals or managers in matters relating to recruiting, hiring, transfer, change in pay status, and termination of company employees. At the lower levels, clerks/assistants primarily provide basic information to current and prospective employees, maintain personnel records and information listings, and prepare and process papers on personnel actions (hires, transfers, changes in pay, etc.). At the higher levels, clerks/assistants (often titled personnel assistants or specialists) may perform limited aspects of a personnel professional's work, e.g., interviewing candidates, recommending placements, and preparing personnel reports. Final decisions on personnel actions are made by personnel professionals or managers. Some clerks/assistants may perform a limited amount of work in other specialties, such as benefits, compensation, or employee relations. Typing may be required at any level.

Excluded are:

- a. Workers who primarily compute and process payrolls or compute and/or respond to questions on company benefits or retirement claims;
- b. Workers who receive additional pay primarily for maintaining and safeguarding personnel record files for a company;

- c. Workers whose duties do not require a knowledge of the company's personnel rules and procedures, such as receptionists, messengers, typists, or stenographers;
- d. Workers in positions requiring a bachelor's degree; and
- e. Workers who are primarily compensated for duties outside the employment specialty, such as benefits, compensation, or employee relations.

Positions are classified into levels on the basis of the following definitions. The work described is essentially at a responsible clerical level at the low levels and progresses to a staff assistant or technician level. At level III, which is transitional, both types of work are described. Jobs which match either type of work described at level III, or which are combinations of the two, can be matched.

Personnel Clerks/Assistants (Employment) I

Performs routine tasks which require a knowledge of company personnel procedures and rules, such as: Providing simple employment information and appropriate lists and forms to applicants or employees on types of jobs being filled, procedures to follow, and where to obtain additional information; ensuring that the proper company forms are completed for name changes, locator information, applications, etc., and reviewing completed forms for signatures and proper entries; or maintaining assigned segments of company personnel records, contacting appropriate sources to secure any missing items, and posting the items, such as, dates of promotion, transfer, and hire, or rates of pay or personal data. (If this information is computerized, skill in coding or entering information may be needed as a minor duty.) May answer outside inquiries for simple factual information, such as verification of dates of employment in response to telephone credit checks on employees. Some receptionist or other clerical duties may be performed. May be assigned work to provide training for a higher level position.

Detailed company rules and procedures are available for all aspects of the assignment. Guidance and assistance on unusual questions are available at all times. Work is spot checked, often on a daily basis.

Personnel Clerks/Assistants (Employment) II

Examines and/or processes personnel action documents using experience in applying company personnel procedures and policies. Ensures that all information is complete and consistent and determines whether further discussion with applicants or employees is needed or whether personnel information must be checked against additional files or listings. Must select the most appropriate precedent, rule, or procedures as a basis for the

personnel action from a number of alternatives. Responds to varied questions from applicants, employees, or managers for readily available information which can be obtained from file material or manuals; responses require skill to secure cooperation in correcting improperly completed personnel action documents or to explain regulations and procedures. May provide information to managers on availability of applicants and status of hiring actions; may verify employment dates and places supplied on job applications; may maintain assigned personnel records, and may administer typing and stenography tests.

Completes routine assignments independently. Detailed guidance is available for situations which deviate from established precedents. Clerks/assistants are relied upon to alert higher level clerks/assistants or supervisor to such situations. Work may be spot checked periodically.

Personnel Clerks/Assistants (Employment) III Type A

Serves as a clerical expert in independently processing the most complicated types of personnel actions, e.g., temporary employment, rehires, and dismissals, and in providing information when it is necessary to consolidate data from a number of sources, often with short deadlines. Screens applications for obvious rejections. Resolves conflicts in computer listings or other sources of employee information. Locates lost documents or reconstructs information using a number of sources. May check references of applicants when information in addition to dates and places of past work is needed, and judgment is required to ask appropriate routine follow-up questions. May provide guidance to lower level clerks. Supervisory review is similar to level II.

AND/OR

Type B

Performs routine personnel assignments beyond the clerical level, such as: Orienting new employees to company programs, facilities, rules on time and attendance, and leave policies; computing basic statistical information for reports on manpower profiles, EEO progress and accomplishments, hiring activities, attendance and leave profiles, turnover, etc.; and screening applicants for well-defined positions, rejecting those who do not qualify for available openings for clear-cut reasons, referring others to appropriate employment interviewer. Guidance is provided on possible sources of information, methods of work, and types of reports needed. Completed written work receives close technical review from higher level personnel office employees; other work may be checked occasionally.

Personnel Clerks/Assistants (Employment) IV

Performs work in support of personnel professionals which requires a good working knowledge of personnel

procedures, guides, and precedents. In representative assignments: Interviews applicants, obtains references and recommends placement of applicants in a few well-defined occupations (trades or clerical) within a stable organization or unit; conducts postplacement or exit interviews to identify job adjustment problems or reasons for leaving the company; performs routine statistical analyses related to manpower, EEO, hiring, or other employment concerns, e.g., compares one set of data to another set as instructed; and requisitions applicants through employment agencies for clerical or similar level jobs. At this level, assistants typically have a range of personal contacts within and outside the company and with applicants, and must be tactful and articulate. May perform some clerical work in addition to the above duties. Supervisor reviews completed work against stated objectives.

Personnel Clerks/Assistants (Employment) V

Workers at this level perform duties similar to level IV, but are responsible for more complicated cases and work with greater independence. Performs limited aspects of professional personnel work dealing with a variety of occupations common to the company which are clear cut and stable in employment requirements. Typical duties include: Researching recruitment sources, such as employment agencies or State manpower offices, and advising managers on the availability of candidates in common occupations; screening and selecting employees for a few routine, nonpermanent jobs, such as summer employment; or answering inquiries on a controversial issue, such as a hiring or promotion freeze. These duties often require considerable skill and diplomacy in communications. Other typical duties may include: Surveying managers for future hiring requirements; developing newspaper vacancy announcements or explaining job requirements to employment agencies for administrative or professional positions; or reviewing the effect of corporate personnel procedural changes on local employment programs (e.g., automation of records, new affirmative action goals). May incidentally perform some clerical duties. Supervisory review is similar to level IV.

PURCHASING CLERKS/ASSISTANTS

Provides clerical or technical support to buyers or contract specialists who deal with suppliers, vendors, contractors, etc., *outside* the company to purchase goods, materials, equipment, services, etc. Clerks/assistants at level I prepare and process purchase documents, such as purchase orders, invitations to bid, contracts, and supporting papers. Clerks/assistants at level II also examine, review, verify, and control these documents to assure accuracy, and correct processing. Clerks/assistants at levels III and IV may also expedite purchases already made, by contacting vendors and analyzing and recommending company reactions to supplier problems related to delivery, availability of goods,

or any other part of the purchase agreement. Clerks/assistants at level IV may also develop technical information for buyers, e.g., comparative information on materials sought.

All assignments require a practical knowledge of company purchasing procedures and operations. Assignments above level I require experience in applying company regulations, guidelines, or manuals to specific transactions. Clerks/assistants may type the purchasing documents or perform work described at lower levels, as needed. Final decisions on purchasing transactions are made by buyers, contract specialists, or supervisors.

Excluded are:

- a. Typists, file clerks, secretaries, receptionists, and trainees not required to have a knowledge of company purchasing procedures and operations;
- b. Workers who process or expedite the purchase of items for direct sale, either wholesale or retail;
- c. Workers who as a primary duty: Maintain a filing system or listing to monitor inventory levels; reorder items by phone under ongoing contracts; or receive and disburse supplies and materials for use in the company;
- d. Production expeditors or controllers who primarily ensure the timely arrival and coordination of purchased materials with assembly line or production schedules and requirements;
- e. Purchasing expeditors who only check on the status of purchases already made and who do not analyze the facts at hand and do not make recommendations for either extension of delivery dates or for other similar modifications to the purchase agreement, as described at level III, b;
- f. Positions which require a technical knowledge of equipment characteristics and parts, production control, or manufacturing methods and procedures;
- g. Positions requiring a bachelor's degree; and
- h. Buyers.

Positions are classified into levels based on the following definitions according to the complexity of the work, the conditions of the purchase, and the amount of supervision.

Purchasing Clerks/Assistants I

Following well established and clear-cut procedures and instructions, *prepares* and *processes* documents such as purchase orders, invitations to bid, contracts, and supporting papers. Enters such prescribed information as quantities, model numbers, addresses and prices, *after* a higher level employee screens the requisition for completeness and accuracy. Posts data from requisitions to internal controls. Work requires a knowledge of proper terminology (including spelling and abbreviations) and some judgment in selecting the appropriate procedures

or precedents for each transaction. Contacts are usually limited to the supervisor and the immediate work unit. Receives step-by-step instructions on new assignments. Refers questions to supervisor who may spot check work on a daily basis.

Purchasing Clerks/Assistants II

According to detailed procedures or company regulations, *examines* documents such as requisitions, purchase orders, invitations to bid, contracts, and supporting papers. Reviews the purchase requisition to determine whether the correct item description, price, quantity, discount terms, shipping instructions, and/or delivery terms have been included and selects the appropriate purchase phrases and forms from prescribed company lists or files. Obtains any missing or corrected information, prepares the purchase order, and gives it to the buyer for approval when satisfied that the information is complete and the computations are accurate. Contacts are usually within establishment to verify or correct factual information. May contact vendors for information about purchases already made and may reorder items under routine and existing purchase arrangements where few, if any, questions arise. Receives detailed instructions on new assignments. Refers questions to supervisor who may spot check work on a daily basis.

Assistants at this level examine documents for orders of standard goods, supplies, equipment, or services, and/or for orders of specialized items when the complexity of the item does not affect the assistant's work, i.e., the assistant is *not* required to use considerable judgment to find a previous transaction to use as a guideline, as described at level III, a.

Purchasing Clerks/Assistants III

Assistants at this level perform assignments described in paragraphs a or b, or a combination of the two.

- a. Reviews and prepares purchase documents for specialized items, such as items with optional features or technical equipment requiring precise specifications. Since the transactions usually require special purchasing conditions, e.g., multiple deliveries, provision of spare parts, or renegotiation of terms, considerable judgment is needed to find a previous transaction to use as a guideline; as required, adapts the phrases or clauses in the guideline transaction that apply to the purchase at hand. In some cases, reviews purchasing documents prepared by lower level clerks or prepared by personnel in other company units to detect processing discrepancies or to clarify the purchase papers; corrects clerical errors. May advise company employees on how to prepare requisitions for items to be ordered.
- b. Expedites purchases by *making a recommendation for action* based on simple analysis of the facts at hand, company guidelines, and the background of

the purchase: Contacts suppliers to obtain information on deliveries or on contracts; based on clear-cut guidelines for each type of purchase and previous performance of supplier, availability of item, or impact of delay, recommends extension of delivery date or other similar modifications. In some cases, decides to refer problems to production, packaging, or other company specialists. May reorder standard items under a variety of existing purchase agreements where judgment is needed to ask further questions and follow up and coordinate transactions. Assistants at this level expedite purchases of standard goods, supplies, equipment, or services, and/or purchases of specialized items when the complexity of the item does *not* affect the assistant's work, i.e., the assistant does not coordinate requests for minor deviations from contract specifications, etc., as described at level IV, b.

Assistants at this level coordinate information with company buyers and with suppliers outside the company and keep others informed of the progress of transactions. Major changes in company regulations and procedures are explained by supervisor. Refers unusual situations to supervisor, who also spot checks all completed work for adequacy.

Purchasing Clerks/Assistants IV

Assistants at this level have a good understanding of purchase circumstances for specialized items—what to buy, where to buy, and under what terms buyers negotiate and make purchases. They perform assignments described in paragraphs a, b, or c, or a combination of any of these.

- a. Reviews and prepares purchase documents for highly specialized items where few precedent transactions exist that can be used as guidelines and where provisions such as fixed-price contracts with provisions for escalation, price redetermination, or cost incentives are needed. Complicated provisions for progress payments, for testing and evaluating the ordered item, or for meeting company production schedules may also exist. As necessary, drafts special clauses, terms, or requirements for unusual purchases. Provides authoritative information to others on company purchase procedures and assures that documents and transactions agree with basic procurement policies.
- b. Expedites purchases of specialized items when the complexity of the items *does* affect the assistant's work. (See level III, b.) Investigates supplier problems and coordinates requests for minor deviations from the contract specifications with specialists, buyers, suppliers, and users. Recommends revisions to the contract or purchase agreement, if needed, based upon company requirements. May reorder technical and specialized items within existing purchase contracts which contain special purchasing conditions. Questions which arise are handled similarly to those in level III, b.

- c. Furnishes technical support to buyers or contract specialists, using a detailed knowledge of company purchasing transactions and procedures, e.g., analyzes bids for contracts to determine the possible number and interest of bidders for *standard* commodities and services; assembles contracts and drafts special clauses, terms, or requirements for unprecedented purchases, e.g., for specially designed equipment or for complex one-time transactions; gathers and summarizes information on the availability of special equipment and the ability of suppliers to meet company needs.

Purchasing assistants at this level receive instructions about new procurement policies. Assistants seek guidance on highly unusual problems but are expected to propose solutions for supervisory approval. Supervisory review is similar to level III; drafts of special clauses, etc., are reviewed in detail.

NOTE: Excluded are higher level workers who: Negotiate agreements with contractors on minor changes in the terms of an established contract; or analyze and make recommendations about proposals of specialized equipment, about the solvency and performance of firms, or about clerical processing methods needed to fit new purchasing policies.

SECRETARIES

Provides principal secretarial support in an office, usually to one individual, and, in some cases, also to the subordinate staff of that individual. Maintains a close and highly responsive relationship to the day-to-day activities of the supervisor and staff. Works fairly independently receiving a minimum of detailed supervision and guidance. Performs varied clerical and secretarial duties requiring knowledge of office routine and an understanding of the organization, programs, and procedures related to the work of the office.

Exclusions: Not all positions titled "secretary" possess the above characteristics. Examples of positions which are excluded from the definition are as follows:

- a. Clerks or secretaries working under the direction of secretaries or administrative assistants as described in e;
- b. Stenographers not fully performing secretarial duties;
- c. Stenographers or secretaries assigned to two or more professional, technical, or managerial persons of equivalent rank;
- d. Assistants or secretaries performing any kind of technical work, e.g., personnel, accounting, or legal work;
- e. Administrative assistants or supervisors performing duties which are more difficult or more responsible than the secretarial work described in LR-1 through LR-4;

- f. Secretaries receiving additional pay primarily for maintaining confidentiality of payroll records or other sensitive information;
- g. Secretaries performing routine receptionist, typing, and filing duties following detailed instructions and guidelines; these duties are less responsible than those described in LR-1 below; and
- h. Trainees.

Classification by Level

Secretary jobs which meet the required characteristics are matched at one of five levels according to two factors: a) Level of the secretary's supervisor within the overall organizational structure, and (b) level of the secretary's responsibility. Table C-5 indicates the level of the secretary for each combination of factors.

Level of secretaries' supervisor (LS)

Secretaries should be matched at one of the three LS levels below best describing the organization of the secretary's supervisor.

LS-1. Organizational structure is not complex and internal procedures and administrative controls are simple and informal; supervisor directs staff through face-to-face meetings.

LS-2. Organizational structure is complex and is divided into subordinate groups that usually differ from each other as to subject matter, function, etc.; and supervisor usually directs staff through intermediate supervisors; internal procedures and administrative controls are formal. An entire organization (e.g., division, subsidiary, or parent organization) may contain a variety of subordinate groups which meet the LS-2 definition. Therefore, it is not unusual for one LS-2 supervisor to report to another LS-2 supervisor.

The presence of subordinate supervisors does not by itself mean LS-2 applies, e.g., a clerical processing organization divided into several units, each performing very similar work, is placed in LS-1.

In smaller organizations or industries such as retail trade, with relatively few organizational levels, the supervisor may have an impact on the policies and may deal with important outside contacts, as described in LS-3.

LS-3. Organizational structure is divided into two or

more subordinate supervisory levels (of which at least one is a managerial level) with several subdivisions at each level. Executive's program(s) are usually interlocked on a direct and continuing basis with other major organizational segments, requiring constant attention to extensive formal coordination, clearances, and procedural controls. Executive typically has: Financial decisionmaking authority for assigned program(s); considerable impact on the entire organization's financial position or image; and responsibility for, or has staff specialists in, such areas as personnel and administration for assigned organization. Executive plays an important role in determining the policies and major programs of the entire organization, and spends considerable time dealing with outside parties actively interested in assigned program(s) and current or controversial issues.

Level of secretaries' responsibility (LR)

This factor evaluates the nature of the work relationship between the secretary and the supervisor or staff, and the extent to which the secretary is expected to exercise initiative and judgment. Secretaries should be matched at the level best describing their level of responsibility. When a position's duties span more than one LR level, the introductory paragraph at the beginning of each LR level should be used to determine which of the levels best matches the position. (Typically, secretaries performing at the higher levels of responsibility also perform duties described at the lower levels.)

LR-1. Carries out recurring office procedures independently. Selects the guideline or reference which fits the specific case. Supervisor provides specific instructions on new assignments and checks completed work for accuracy. Performs varied duties including or comparable to the following:

- a. Responds to routine telephone requests which have standard answers; refers calls and visitors to appropriate staff. Controls mail and assures timely staff response; may send form letters.
- b. As instructed, maintains supervisor's calendar, makes appointments, and arranges for meeting rooms.
- c. Reviews materials prepared for supervisor's approval for typographical accuracy and proper format.
- d. Maintains recurring internal reports, such as: Time and leave records, office equipment listings, correspondence controls, training plans, etc.
- e. Requisitions supplies, printing, maintenance, or other services. Types, takes and transcribes dictation, and establishes and maintains office files.

LR-2. Handles differing situations, problems, and deviations in the work of the office according to the supervisor's general instructions, priorities, duties, policies, and program goals. Supervisor may assist

Table C-5. Criteria for matching secretaries by level

Level of secretary's supervisor	Level of secretary's responsibility			
	LR-1	LR-2	LR-3	LR-4
LS-1	I	II	III	IV
LS-2	I	III	IV	V
LS-3	I	IV	V	V

secretary with special assignments. Duties include or are comparable to the following.

- a. Screens telephone calls, visitors, and incoming correspondence; personally responds to requests for information concerning office procedures; determines which requests should be handled by the supervisor, appropriate staff members, or other offices. May prepare and sign routine, nontechnical correspondence in own or supervisor's name.
- b. Schedules tentative appointments without prior clearance. Makes arrangements for conferences and meetings and assembles established background materials, as directed. May attend meetings and record and report on the proceedings.
- c. Reviews outgoing materials and correspondence for internal consistency and conformance with supervisor's procedures; assures that proper clearances have been obtained, when needed.
- d. Collects information from the files or staff for routine inquiries on office program(s) or periodic reports. Refers nonroutine requests to supervisor or staff.
- e. Explains to subordinate staff supervisor's requirements concerning office procedures. Coordinates personnel and administrative forms for the office and forwards for processing.

LR-3. Uses greater judgment and initiative to determine the approach or action to take in nonroutine situations. Interprets and adapts guidelines, including unwritten policies, precedents, and practices, which are not always completely applicable to changing situations. Duties include or are comparable to the following:

- a. Based on a knowledge of the supervisor's views, composes correspondence on own initiative about administrative and general office policies for supervisor's approval.
- b. Anticipates and prepares materials needed by the supervisor for conferences, correspondence, appointments, meetings, telephone calls, etc., and informs supervisor on matters to be considered.
- c. Reads publications, regulations, and directives and takes action or refers those that are important to the supervisor and staff.
- d. Prepares special or one-time reports, summaries, or replies to inquiries, selecting relevant information from a variety of sources such as reports, documents, correspondence, other offices, etc., under general direction.
- e. Advises secretaries in subordinate offices on new procedures; requests information needed from the subordinate office(s) for periodic or special conferences, reports, inquiries, etc. Shifts clerical staff to accommodate workload needs.

LR-4. Handles a wide variety of situations and conflicts involving the clerical or administrative functions of the office which often cannot be brought to the attention of the executive. The executive sets the overall objectives of the work. Secretary may participate in developing the work deadlines. Duties include or are comparable to the following:

- a. Composes correspondence requiring some understanding of technical matters; may sign for executive when technical or policy content has been authorized.
- b. Notes commitments made by executive during meeting and arranges for staff implementation. On own initiative, arranges for staff members to represent organization at conferences and meetings, establishes appointment priorities, or reschedule or refuses appointments or invitations.
- c. Reads outgoing correspondence for executive's approval and alerts writers to any conflict with the file or departure from policies or executives's viewpoints; gives advice to resolve the problems.
- d. Summarizes the content of incoming materials, specially gathered information, or meetings to assist executive; coordinates the new information with background office sources; and draws attention to important parts or conflicts.
- e. In the executive's absence, ensures that requests for action or information are relayed to the appropriate staff member; as needed, interprets requests and helps implement action; makes sure that information is furnished in timely manner; decides whether executive should be notified of important or emergency matters.

Excludes secretaries performing any of the following duties:

- a. Acts as office manager for the executive's organization, e.g., determines when new procedures are needed for changing situations and devises and implements alternatives; revises or clarifies procedures to eliminate conflict or duplication; identifies and resolves various problems that affect the orderly flow of work in transactions with parties outside the organization.
- b. Prepares agenda for conferences; explains discussion topics to participants; drafts introductions and develops background information and prepares outlines for executive or staff members(s) to use in writing speeches.
- c. Advises individuals outside the organization on the executive's views on major policies or current issues facing the organization; contacts or responds to contacts from high-ranking outside officials (e.g., city or State officials, Members of Congress, presidents of national unions or large national or international firms, etc.) in unique situations. These officials may be relatively inaccessible, and each contact typically must be handled differently, using judgment and discretion.

STENOGRAPHERS

Primary duty is to take dictation using shorthand and to transcribe the dictation. May also type from written copy. May operate from a stenographic pool. May occasionally transcribe from voice recordings.

Excluded from this definition are:

- a. Trainee positions not requiring a fully qualified stenographer.
- b. Secretaries providing the principal secretarial support in an office and performing more responsible and discretionary tasks, as described in LR-1 thru LR-4 in the secretary definition;
- c. Stenographers who take dictation involving the frequent use of a wide variety of technical or specialized vocabulary. Typically this kind of vocabulary cannot be learned in a relatively short period of time, e.g., a month or two; and
- d. Stenographers, such as shorthand reporters, who record material verbatim at hearings, conferences, or similar proceedings.

Stenographers I

Takes and transcribes dictation, receiving specific assignments along with detailed instructions on such requirements as forms and presentation. The transcribed material is typically reviewed in rough draft and the final transcription is reviewed for conformance with the rough drafts. May maintain files, keep simple records, or perform other relatively routine clerical tasks.

Stenographers II

Takes and transcribes dictation, determining the most appropriate format. Performs stenographic duties requiring significantly greater independence and responsibility than stenographer I. Supervisor typically provides general instructions. Work requires a thorough working knowledge of general business and office procedures and of the specific business operations, organizations, policies, procedures, files, workflow, etc. Uses this knowledge in performing stenographic duties and responsible clerical tasks such as maintaining followup files; assembling material for reports, memoranda, and letters; composing simple letters from general instructions; reading and routing incoming mail; answering routine questions; etc.

TYPISTS

Uses a manual, electric, or automatic typewriter to type various materials. Included are automatic typewriters that are used only to record text and update and reproduce previously typed items from magnetic cards or tape. May include typing of stencils, mats, or similar materials for use in duplicating processes. May do clerical work involving little special training, such as keeping simple records, filing records and reports, or sorting and distributing incoming mail.

Excluded from this definition is work that involves:

- a. Typing directly from spoken material that has been recorded on discs, cylinders, belts, tapes, or other similar media;
- b. The use of varitype machines, composing equipment, or automatic equipment in preparing material for printing; and
- c. Familiarity with specialized terminology in various keyboard commands to manipulate or edit the recorded text to accomplish revisions, or to perform tasks such as extracting and listing items from the text, or transmitting text to other terminals, or using sort commands to have the machine reorder material. Typically requires the use of automatic equipment which may be either computer linked or have a programmable memory so that material can be organized in regularly used formats or preformed paragraphs which can then be coded and stored for future use in letters or documents.

Typists I

Performs *one or more of the following*: Copy typing from rough or clear drafts; or routine typing of forms, insurance policies, etc.; or setting up simple standard tabulations; or copying more complex tables already set up and spaced properly.

Typists II

Performs *one or more of the following*: Typing material in final form when it involves combining material from several sources; or responsibility for correct spelling, syllabication, punctuation, etc., of technical or unusual words or foreign language materials; or planning layout and typing of complicated statistical tables to maintain uniformity and balance in spacing. May type routine form letters, varying details to suit circumstances.

Classification by Standard Occupational Codes

The titles and the 3- or 4-digit codes to the right of the BLS (PATC) occupations in table C-6 are taken from the 1980 edition of the *Standard Occupational Classification Manual* (SOC) issued by the U.S. Department of Commerce, Office of Federal Statistical Policy and Standards.

In general, the Bureau of Labor Statistics' occupational descriptions are much more specific than those

found in the SOC manual. For example, the PATC occupations Accountant, Chief Accountant, Auditor, and Public Accountant are all classified in the SOC manual as accountants and auditors. the SOC occupations (e.g., budget accountants, credit analysts, accounting methods analysts) than are excluded from the PATC description.

Table C-6. Comparison of occupations in the professional, administrative, technical, and clerical (PATC) survey with the Standard Occupational Classification Manual

PATC occupation	Standard Occupational Classification Manual (SOC)
	SOC code
Accountants	1412 Accountants and auditors
Chief accountants	1412 Accountants and auditors
Auditors	1412 Accountants and auditors
Public accountants	1412 Accountants and auditors
Job analysts	143 Personnel, training, and labor relations specialists
Directors of personnel	143 Personnel, training, and labor relations specialists
Attorneys	211 Lawyers
Buyers	1449 Purchasing agents and buyers, not elsewhere classified
Computer programmers	397 Programmers
Systems analysts	1712 Computer systems analysts
Chemists	1845 Chemists, except biochemists
Engineers	162-3 Engineers
Registered nurses	290 Registered nurses
Licensed practical nurses	366 Licensed practical nurses
Nursing assistants	5236 Nursing aides, orderlies, and attendants
Engineering technicians	371 Electrical and electronic engineering technologists and technicians
Drafters	372 Drafting occupations
Civil engineering or survey technicians	1472 Construction inspectors
	3733 Surveying technicians
Computer operators	4612 Computer operators
Photographers	326 Photographers
Accounting clerks	4712 Bookkeepers and accounting and auditing clerks
File clerks	4696 File clerks
Key entry operators	4793 Data entry operators
Messengers	4745 Messengers
Personnel clerks/assistants	4692 Personnel clerks, except payroll and timekeeping
Purchasing assistants	4664 Order clerks
Secretaries	4622 Secretaries
Stenographers	4623 Stenographers
Typists	4624 Typists
General clerks	463 General office occupations

Appendix D. Comparisons of Salaries in Private Industry with Those of Federal Government Employees Under the General Schedule

The PATC survey is designed to provide a basis for comparing salaries under the General Schedule classification and pay system with salaries in private enterprise. To assure collection of pay data for work levels equivalent to the General Schedule grade levels, the Office of Personnel Management (OPM), in cooperation with the Bureau of Labor Statistics, prepares the occupational work level definitions used in the survey. Definitions are developed by OPM according to standards established for each grade level. Table D-1 shows the surveyed jobs grouped by work levels equivalent to General Schedule grade levels.

Table D-1. Comparison of average annual salaries in private industry with salary rates for Federal employees under the General Schedule, March 1987

Occupation and level surveyed by BLS ¹	Average annual salary in private industry ²	Salary rates for Federal employees under the General Schedule ³											
		Grade ⁴	Average ⁵	Step ⁶									
				1	2	3	4	5	6	7	8	9	10
File clerks I	\$10,984	GS 1	\$9,980	9,940	10,280	10,579	10,899	11,087	11,403	11,721	11,785	12,036	
General clerks I	\$10,702												
Messengers	\$12,197												
Accounting clerks I	\$12,831	GS 2	\$11,112	11,073	11,430	11,735	11,866	12,215	12,564	12,913	13,262	13,611	
Drafters I	\$13,258												
File clerks II	\$12,821												
General clerks II	\$12,907												
Key entry operators I	\$13,408												
Typists I	\$13,016												
Accounting clerks II	\$15,102	GS 3	\$12,691	12,195	12,588	12,981	13,374	13,767	14,160	14,553	14,946	15,339	
Drafters II	\$16,479												
Engineering technicians I	\$17,577												
General clerks III	\$15,700												
Key entry operators II	\$16,931												
Personnel clerks/assistants I	\$14,310												
Purchasing clerks/assistants I	\$14,285												
Typists II	\$17,218												
Accounting clerks III	\$18,296	GS 4	\$14,727	13,690	14,132	14,574	15,016	15,458	15,900	16,342	16,784	17,226	
Computer operators I	\$14,339												
Drafters III	\$21,027												
Engineering technicians II	\$21,131												
General clerks IV	\$19,987												
Personnel clerks/assistants II	\$17,343												
Purchasing clerks/assistants II	\$17,689												
Secretaries I	\$16,448												
Accounting clerks IV	\$22,223	GS 5	\$16,783	15,316	15,810	16,304	16,798	17,292	17,786	18,280	18,744	19,268	
Accountants I	\$21,527												
Auditors I	\$22,354												
Buyers I	\$21,779												
Chemists I	\$23,205												
Computer operators I	\$17,690												
Drafters IV	\$25,621												
Engineers I	\$28,958												
Engineering technicians III	\$24,857												
Job analysts I	\$22,642												
Personnel clerks/assistants III	\$20,158												
Computer programmers I	\$21,398												
Purchasing clerks/assistants III	\$22,832												
Secretaries II	\$18,769												
Computer operators III	\$22,207	GS 6	\$18,980	17,072	17,623	18,174	18,725	19,276	19,827	20,378	20,929	21,480	
Personnel clerks/assistants IV	\$24,457												
Purchasing clerks/assistants IV	\$30,524												
Secretaries III	\$21,745												

See footnotes at end of table.

Table D-1. Comparison of average annual salaries in private industry with salary rates for Federal employees under the General Schedule, March 1987 —Continued

Occupation and level surveyed by BLS ¹	Average annual salary in private industry ²	Salary rates for Federal employees under the General Schedule ³											
		Grade ⁴	Average ⁵	Step ⁶									
				1	2	3	4	5	6	7	8	9	10
Accountants II	\$25,984	GS 7	\$20,817	18,358	18,970	19,582	20,194	20,806	21,418	22,030	22,642	23,254	23,866
Auditors II	\$27,007												
Buyers II	\$27,184												
Chemists II	\$28,238												
Computer operators IV	\$25,441												
Drafters V	\$32,117												
Engineers II	\$32,295												
Engineering technicians IV	\$29,732												
Job analysts II	\$25,615												
Photographers III	\$27,712												
Computer programmers II	\$25,056												
Public accountants I	\$21,006												
Secretaries IV	\$24,603												
Computer operators V	\$30,295	GS 8	\$23,618	20,333	21,011	21,689	22,367	23,045	23,723	24,401	25,079	25,757	26,435
Secretaries V	\$29,080												
Accountants III	\$32,074	GS 9	\$25,289	22,458	23,207	23,956	24,705	25,454	26,203	26,952	27,701	28,450	29,199
Attorneys I	\$32,022												
Auditors III	\$33,302												
Buyers III	\$34,818												
Engineers III	\$37,235												
Engineering technicians V	\$34,980												
Job analysts III	\$30,749												
Photographers IV	\$33,452												
Computer programmers III	\$30,320												
Public accountants II	\$23,044												
Systems analysts I	\$30,111												
Accountants IV	\$40,611	GS 11	\$30,811	27,172	28,078	28,984	29,890	30,796	31,702	32,608	33,514	34,420	35,326
Attorneys II	\$41,319												
Auditors IV	\$41,250												
Buyers IV	\$42,772												
Chemists IV	\$43,480												
Directors of personnel I	\$40,229												
Engineers IV	\$44,360												
Job analysts IV	\$39,326												
Photographers V	\$37,961												
Computer programmers IV	\$36,422												
Public accountants III	\$27,537												
Systems analysts II	\$36,103												
Accountants V	\$51,144	GS 12	\$37,243	32,567	33,653	34,73	35,825	36,911	37,997	39,083	40,169	41,255	42,341
Attorneys III	\$52,158												
Chemists V	\$52,927												
Chief accountants II	\$49,531												
Directors of personnel II	\$47,021												
Engineers V	\$52,698												

See footnotes at end of table.

Table D-1. Comparison of average annual salaries in private industry with salary rates for Federal employees under the General Schedule, March 1987 —Continued

Occupation and level surveyed by BLS ¹	Salary rates for Federal employees under the General Schedule ³																			
	Average annual salary in private industry ²	Grade ⁴	Average ⁵	Step ⁶																
				1	2	3	4	5	6	7	8	9	10							
Computer programmers V	\$44,693																			
Public accountants IV	\$33,989																			
Systems analysts III	\$43,592																			
Attorneys IV	\$65,944	GS 13	\$44,797	38,727	40,018	41,309	42,600	43,891	45,182	46,473	47,764	49,055	50,346							
Chemists VI	\$63,548																			
Chief accountants III	\$65,564																			
Directors of personnel III	\$65,106																			
Engineers VI	\$61,807																			
Systems analysts IV	\$51,537																			
Attorneys V	\$80,856	GS 14	\$53,309	45,763	47,288	48,813	50,338	51,863	53,388	54,913	56,438	57,963	59,488							
Chemists VII	\$78,605																			
Chief accountants IV	\$83,883																			
Directors of personnel IV	\$78,123																			
Engineers VII	\$71,475																			
Systems analysts V	\$61,673																			
Attorneys VI	\$105,658	GS 15	\$63,725	53,830	55,624	57,418	59,212	61,006	62,800	64,594	66,388	68,182	69,976							
Engineers VIII	\$81,060																			
Systems analysts VI	\$74,632																			

¹ For definitions, see appendix C.

² Survey findings as summarized in table B-2 of this bulletin. For scope of 1986 and 1987 surveys, see appendix B.

³ General schedule rates in effect in March 1987, the reference date of the PATC survey.

⁴ Corresponding grades in the General Schedule were supplied by the Office of Personnel Management.

⁵ Mean salary of all General Schedule employees in each grade as of March 31, 1987. Not limited to Federal employees in occupations surveyed by BLS.

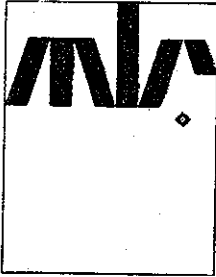
⁶ Section 5335 of title 5 of the U.S. Code provides for within-grade increases on condition that the employee's work is of an acceptable level of competence as determined by the head of the agency. For employees who meet this condition, the service requirements are 52 calendar weeks for each advancement to salary rates 2, 3, and 4; 104 weeks for advancement to salary rates 5, 6, and 7; and 156 weeks for each advancement to salary rates 8, 9, and 10. Section 5336 provides that an additional

within-grade increase may be granted within any 52-week period in recognition of high quality performance above that ordinarily found in the type of position concerned.

NOTE: Under Section 5303 of title 5 of the U.S. Code, higher minimum rates (but not exceeding the maximum salary rate prescribed in the General Schedule for the grade or level) and a corresponding new salary range may be established for positions or occupations under certain conditions. The conditions include a finding that the Government's recruitment or retention of well-qualified persons is significantly handicapped because the salary rates in private industry are substantially above the salary rates of the statutory pay schedules. As of March 1987, special higher salary rates were authorized for professional engineers at the entry grades (GS-5 and GS-7), and at GS-9 through GS-12. In addition, special rates were authorized for petroleum engineers at GS-5 through GS-13. Information on special salary rates, including the occupations and the areas to which they apply, may be obtained from the Office of Personnel Management, Washington, D.C. 20415, or its regional offices.

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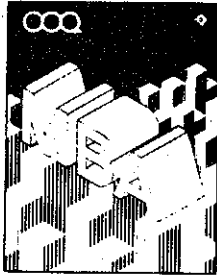
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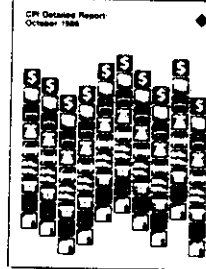
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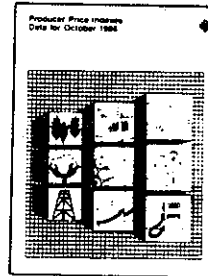
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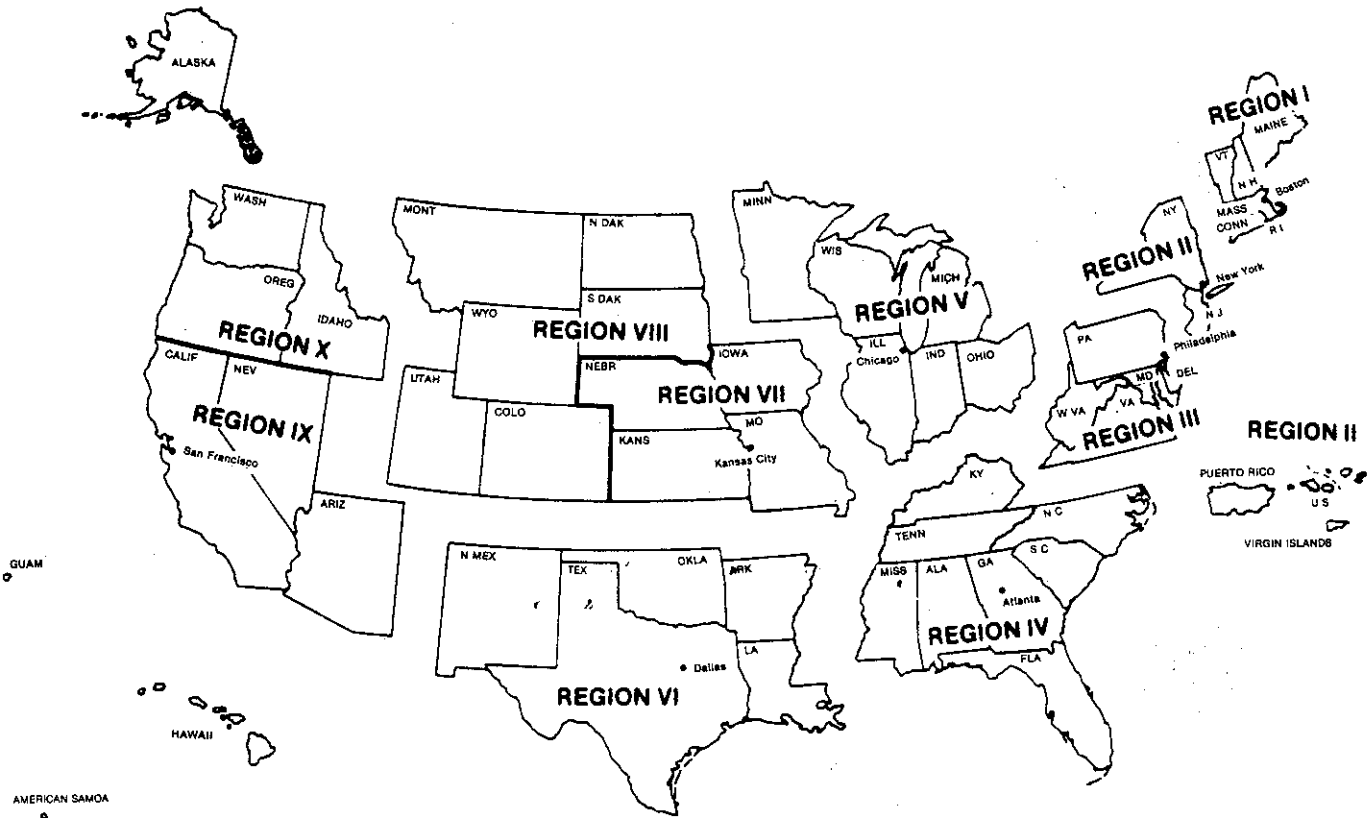
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