

# A3 Occupational Requirements

Major occupational groups are aggregations used to classify workers using the 2000 Standard Occupational Classification (SOC) System. Major groups include broad descriptive categories such as production occupations, management occupations and business and financial operations occupations, as shown in Exhibit A-1 below. Within the major groups are 821 detailed occupations. Detailed occupations are differentiated according to job skills, abilities and work activities required. They are not generally industry-specific but are common to several industries.

Exhibits A-2 through A-23 provide the education, experience and training requirements for each of detailed occupations listed within each major occupational group in California.

### Exhibit A-1 Aggregated Occupational Groups

SOC Code	Occupational Group
11-0000	Management occupations
13-0000	Business and financial operations occupations
15-0000	Computer and mathematical science occupations
17-0000	Architecture and engineering occupations
19-0000	Life, physical, and social science occupations
21-0000	Community and social services occupations
23-0000	Legal occupations
25-0000	Education, training, and library occupations
27-0000	Arts, design, entertainment, sports, and media occupations
29-0000	Healthcare practitioners and technical occupations
31-0000	Healthcare support occupations
33-0000	Protective service occupations
35-0000	Food preparation and serving related occupations
37-0000	Building and grounds cleaning and maintenance occupations
39-0000	Personal care and service occupations
41-0000	Sales and related occupations
43-0000	Office and administrative support occupations
45-0000	Farming, fishing, and forestry occupations
47-0000	Construction and extraction occupations
49-0000	Installation, maintenance, and repair occupations
51-0000	Production occupations
53-0000	Transportation and material moving occupations

Source: BLS

### Exhibit A-2 Management Occupations

SOC Code	Occupational Description	Required Education, Experience and Training
11-1011	Chief Executives	BA or Higher and Some Work Exp
11-1021	General and Operations Mgrs	BA or Higher and Some Work Exp
11-1031	Legislators	BA or Higher and Some Work Exp
11-2011	Advertising and Promotions Mgrs	BA or Higher and Some Work Exp
11-2021	Marketing Mgrs	BA or Higher and Some Work Exp
11-2022	Sales Mgrs	BA or Higher and Some Work Exp
11-2031	Public Relations Mgrs	BA or Higher and Some Work Exp
11-3011	Administrative Services Mgrs	BA or Higher and Some Work Exp
11-3021	Computer / Information Systems Mgrs	BA or Higher and Some Work Exp
11-3031	Financial Mgrs	BA or Higher and Some Work Exp
11-3041	Compensation and Benefits Mgrs	BA or Higher and Some Work Exp
11-3042	Training and Development Mgrs	BA or Higher and Some Work Exp
11-3049	Human Resources Mgrs, All Other	BA or Higher and Some Work Exp
11-3051	Industrial Production Mgrs	BA Degree
11-3061	Purchasing Mgrs	BA or Higher and Some Work Exp
11-3071	Transportation, Storage, and Distribution Mgrs	Work Exp in Related Occupation
11-9011	Farm, Ranch, and Other Agricultural Mgrs	BA or Higher and Some Work Exp
11-9012	Farmers and Ranchers	Long-Term On-the-Job Training
11-9021	Construction Mgrs	BA Degree
11-9031	Education Administrators, Preschool and Child Care Center/Program	BA or Higher and Some Work Exp
11-9032	Education Administrators, Elementary and Secondary School	BA or Higher and Some Work Exp
11-9033	Education Administrators, Postsecondary	BA or Higher and Some Work Exp
11-9039	Education Administrators, All Other	BA or Higher and Some Work Exp
11-9041	Engineering Mgrs	BA or Higher and Some Work Exp
11-9051	Food Service Mgrs	Work Exp in Related Occupation
11-9061	Funeral Directors	Associate Degree
11-9081	Lodging Mgrs	Work Exp in Related Occupation
11-9111	Health Services Mgrs	BA or Higher and Some Work Exp
11-9121	Natural Sciences Mgrs	BA or Higher and Some Work Exp
11-9131	Postmasters and Mail Superintendents	Work Exp in a Related Occupation
11-9141	Property, Real Estate, and Association Mgrs	BA Degree
11-9151	Social and Community Service Mgrs	BA Degree
11-9199	Mgrs, All Other	Work Exp in Related Occupation

Source: BLS

**Exhibit A-3**

**Business and Financial Operations Occupations**

SOC Code	Occupational Description	Required Education, Experience and Training
13-1011	Agents and Business Managers of Artists, Performers, and Athletes	BA or Higher and Some Work Exp
13-1021	Purchasing Agents and Buyers, Farm Products	Work Exp in Related Occupation
13-1022	Wholesale and Retail Buyers, Except Farm Products	BA Degree
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	BA Degree
13-1031	Claims Adjusters, Examiners, and Investigators	Long-Term On-the-Job Training
13-1032	Insurance Appraisers, Auto Damage	Long-Term On-the-Job Training
13-1041	Compliance Officers, Except Ag, Construction, Health and Safety, and Transportation	Long-Term On-the-Job Training
13-1051	Cost Estimators	BA Degree
13-1071	Employment, Recruitment, and Placement Specialists	BA Degree
13-1072	Compensation, Benefits, and Job Specialists	BA Degree
13-1073	Training and Development Specialists	BA Degree
13-1079	HR, Training, and Labor Relations Specialists, All Other	BA Degree
13-1081	Logisticians	BA Degree
13-1111	Management Analysts	BA or Higher and Some Work Exp
13-1121	Meeting and Convention Planners	BA Degree
13-1199	Business Operations Specialists, All Other	BA Degree
13-2011	Accountants and Auditors	BA Degree
13-2021	Appraisers and Assessors of Real Estate	Post-Secondary Vocational Education
13-2031	Budget Analysts	BA Degree
13-2041	Credit Analysts	BA Degree
13-2051	Financial Analysts	BA Degree
13-2052	Personal Financial Advisors	BA Degree
13-2053	Insurance Underwriters	BA Degree
13-2061	Financial Examiners	BA Degree
13-2071	Loan Counselors	BA Degree
13-2072	Loan Officers	BA Degree
13-2081	Tax Examiners, Collectors, Revenue Agents	BA Degree
13-2082	Tax Preparers	Moderate-Term On-the-Job Training
13-2099	Financial Specialists, All Other	BA Degree

Source: BLS

**Exhibit A-4**

**Computer and Mathematical Science Occupations**

SOC Code	Occupational Description	Required Education, Experience and Training
15-1011	Computer and Information Scientists, Research	Doctoral Degree
15-1021	Computer Programmers	BA Degree
15-1031	Computer Software Engineers, Applications	BA Degree
15-1032	Computer Software Engineers, Systems Software	BA Degree
15-1041	Computer Support Specialists	Associate Degree
15-1051	Computer Systems Analysts	BA Degree
15-1061	Database Administrators	BA Degree
15-1071	Network and Computer Systems Administrators	BA Degree
15-1081	Network Systems and Data Communications Analysts	BA Degree
15-1099	Computer Specialists, All Other	Associate Degree
15-2031	Operations Research Analysts	Master's Degree
15-2041	Statisticians	Master's Degree
15-2099	Mathematical Science Occupations, All Other	Master's Degree

Source: BLS

**Exhibit A-5****Architecture and Engineering Occupations**

SOC Code	Occupational Description	Required Education, Experience and Training
17-1011	Architects, Except Landscape and naval	BA Degree
17-1012	Landscape Architects	BA Degree
17-1021	Cartographers and Photogrammetrists	BA Degree
17-1022	Surveyors	BA Degree
17-2011	Aerospace Engineers	BA Degree
17-2031	Biomedical Engineers	BA Degree
17-2041	Chemical Engineers	BA Degree
17-2051	Civil Engineers	BA Degree
17-2061	Computer Hardware Engineers	BA Degree
17-2071	Electrical Engineers	BA Degree
17-2072	Electronics Engineers, Except Computer	BA Degree
17-2081	Environmental Engineers	BA Degree
17-2111	Health and Safety Engineers, Except Mining Safety Engineers, Inspectors	BA Degree
17-2112	Industrial Engineers	BA Degree
17-2131	Materials Engineers	BA Degree
17-2141	Mechanical Engineers	BA Degree
17-2161	Nuclear Engineers	BA Degree
17-2171	Petroleum Engineers	BA Degree
17-2199	Engineers, All Other	BA Degree
17-3011	Architectural and Civil Drafters	Post-Secondary Vocational Education
17-3012	Electrical and Electronics Drafters	Post-Secondary Vocational Education
17-3013	Mechanical Drafters	Post-Secondary Vocational Education
17-3019	Drafters, All Other	Post-Secondary Vocational Education
17-3021	Aerospace Engineering and Operations Technicians	Associate Degree
17-3022	Civil Engineering Technicians	Associate Degree
17-3023	Electrical and Electronic Engineering Technicians	Associate Degree
17-3024	Electro-Mechanical Technicians	Associate Degree
17-3025	Environmental Engineering Technicians	Associate Degree
17-3026	Industrial Engineering Technicians	Associate Degree
17-3027	Mechanical Engineering Technicians	Associate Degree
17-3029	Engineering Technicians, Except Drafters, All Other	Associate Degree
17-3031	Surveying and Mapping Technicians	Moderate-Term On-the-Job Training

Source: BLS

**Exhibit A-6****Life, Physical and Social Science Occupations**

SOC Code	Occupational Description	Required Education, Experience and Training
19-1012	Food Scientists and Technologists	BA Degree
19-1013	Soil and Plant Scientists	BA Degree
19-1021	Biochemists and Biophysicists	Doctoral Degree
19-1022	Microbiologists	Doctoral Degree
19-1023	Zoologists and Wildlife Biologists	Master's Degree
19-1029	Biological Scientists, All Other	BA Degree
19-1031	Conservation Scientists	BA Degree
19-1032	Foresters	BA Degree
19-1042	Medical Scientists, Except Epidemiologists	Doctoral Degree
19-1099	Life Scientists, All Other	Master's Degree
19-2012	Physicists	Doctoral Degree
19-2031	Chemists	BA Degree
19-2041	Environmental Scientists and Specialists, Including Health	BA Degree
19-2042	Geoscientists, Except Hydrologists and Geographers	Master's Degree
19-2099	Physical Scientists, All Other	BA Degree
19-3011	Economists	Master's Degree
19-3021	Market Research Analysts	Master's Degree
19-3022	Survey Researchers	Master's Degree
19-3031	Clinical, Counseling, and School Psychologists	Doctoral Degree
19-3039	Psychologists, All Other	Master's Degree
19-3041	Sociologists	Master's Degree
19-3051	Urban and Regional Planners	Master's Degree
19-3099	Social Scientists and Related Workers, All Other	Master's Degree
19-4011	Agricultural and Food Science Technicians	Associate Degree
19-4021	Biological Technicians	Associate Degree
19-4031	Chemical Technicians	Associate Degree
19-4041	Geological and Petroleum Technicians	Associate Degree
19-4061	Social Science Research Assistants	Associate Degree
19-4091	Environmental Science and Protection Technicians, Including Health	Associate Degree
19-4092	Forensic Science Technicians	Associate Degree
19-4093	Forest and Conservation Technicians	Associate Degree
19-4099	Life, Physical, and Social Science Technicians, All Other	Associate Degree

Source: BLS

**Exhibit A-7**

**Community and Social Services Occupations**

SOC Code	Occupational Description	Required Education, Experience and Training
21-1011	Substance Abuse and Behavioral Disorder Counselors	Master's Degree
21-1012	Educational, Vocational, and School Counselors	Master's Degree
21-1013	Marriage and Family Therapists	Master's Degree
21-1014	Mental Health Counselors	Master's Degree
21-1015	Rehabilitation Counselors	Master's Degree
21-1019	Counselors, All Other	Master's Degree
21-1021	Child, Family, and School Social Workers	BA Degree
21-1022	Medical and Public Health Social Workers	BA Degree
21-1023	Mental Health and Substance Abuse Social Workers	Master's Degree
21-1029	Social Workers, All Other	BA Degree
21-1091	Health Educators	Master's Degree
21-1092	Probation Officers and Correctional Treatment Specialists	BA Degree
21-1093	Social and Human Service Assistants	Moderate-Term On-the-Job Training
21-1099	Community and Social Service Specialists, All Other	BA Degree
21-2011	Clergy	BA Degree
21-2021	Directors, Religious Activities and Education	BA Degree
21-2099	Religious Workers, All Other	BA Degree

Source: BLS

**Exhibit A-8**

**Legal Occupations**

SOC Code	Occupational Description	Required Education, Experience and Training
23-1011	Lawyers	First Professional Degree - LLD/MD
23-1021	Administrative Law Judges, Adjudicators, and Hearing Officers	BA Degree or Higher and Some Work Experience
23-1022	Arbitrators, Mediators, and Conciliators	BA Degree or Higher and Some Work Experience
23-1023	Judges, Magistrate Judges, and Magistrates	BA Degree or Higher and Some Work Experience
23-2011	Paralegals and Legal Assistants	Associate Degree
23-2091	Court Reporters	Post-Secondary Vocational Education
23-2092	Law Clerks	BA Degree
23-2093	Title Examiners, Abstractors, and Searchers	Moderate-Term On-the-Job Training
23-2099	Legal Support Workers, All Other	BA Degree

Source: BLS

**Exhibit A-9**

**Education, Training and Library Occupations**

SOC Code	Occupational Description	Required Education, Experience and Training
25-1011	Business Teachers, Postsecondary	Master's Degree
25-1021	Computer Science Teachers, Postsecondary	Master's Degree
25-1022	Mathematical Science Teachers, Postsecondary	Master's Degree
25-1032	Engineering Teachers, Postsecondary	Doctoral Degree
25-1041	Agricultural Sciences Teachers, Postsecondary	Doctoral Degree
25-1042	Biological Science Teachers, Postsecondary	Doctoral Degree
25-1051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	Doctoral Degree
25-1052	Chemistry Teachers, Postsecondary	Doctoral Degree
25-1054	Physics Teachers, Postsecondary	Doctoral Degree
25-1063	Economics Teachers, Postsecondary	Doctoral Degree
25-1065	Political Science Teachers, Postsecondary	Doctoral Degree
25-1066	Psychology Teachers, Postsecondary	Doctoral Degree
25-1067	Sociology Teachers, Postsecondary	Doctoral Degree
25-1071	Health Specialties Teachers, Postsecondary	Master's Degree
25-1072	Nursing Instructors and Teachers, Postsecondary	Master's Degree
25-1081	Education Teachers, Postsecondary	Doctoral Degree
25-1111	Criminal Justice and Law Enforcement Teachers, Postsecondary	Doctoral Degree
25-1112	Law Teachers, Postsecondary	First Professional Degree - LLD/MD
25-1121	Art, Drama, and Music Teachers, Postsecondary	Master's Degree
25-1122	Communications Teachers, Postsecondary	Doctoral Degree
25-1123	English Language and Literature Teachers, Postsecondary	Master's Degree
25-1124	Foreign Language and Literature Teachers, Postsecondary	Master's Degree
25-1125	History Teachers, Postsecondary	Doctoral Degree
25-1126	Philosophy and Religion Teachers, Postsecondary	Doctoral Degree
25-1191	Graduate Teaching Assistants	BA Degree
25-1193	Recreation and Fitness Studies Teachers, Postsecondary	Master's Degree
25-1194	Vocational Education Teachers, Postsecondary	Post-Secondary Vocational Education
25-1199	Postsecondary Teachers, All Other	Master's Degree
25-2011	Preschool Teachers, Except Special Education	Post-Secondary Vocational Education
25-2012	Kindergarten Teachers, Except Special Education	BA Degree

**Exhibit A-9 (Continued)**

<b>SOC Code</b>	<b>Occupational Description</b>	<b>Required Education, Experience and Training</b>
25-2021	Elementary School Teachers, Except Special Education	BA Degree
25-2022	Middle School Teachers, Except Special and Vocational Education	BA Degree
25-2031	Secondary School Teachers, Except Special and Vocational Education	BA Degree
25-2032	Vocational Education Teachers, Secondary School	BA Degree
25-2041	Special Education Teachers, Preschool, Kindergarten, and Elementary School	BA Degree
25-2042	Special Education Teachers, Middle School	BA Degree
25-2043	Special Education Teachers, Secondary School	BA Degree
25-3011	Adult Literacy, Remedial Education, and GED Teachers/Instructors	BA Degree
25-3021	Self-Enrichment Education Teachers	Work Experience in Related Occupation
25-3099	Teachers and Instructors, All Other	BA Degree
25-4012	Curators	Master's Degree
25-4013	Museum Technicians and Conservators	BA Degree
25-4021	Librarians	Master's Degree
25-4031	Library Technicians	Short-Term On-the-Job Training
25-9031	Instructional Coordinators	Master's Degree
25-9041	Teacher Assistants	Short-Term On-the-Job Training
25-9099	Education, Training, and Library Workers, All Other	BA Degree

Source: BLS

**Exhibit A-10**

**Arts, Design, Entertainment, Sports and Media Occupations**

<b>SOC Code</b>	<b>Occupational Description</b>	<b>Required Education, Experience and Training</b>
27-1011	Art Directors	BA Degree or Higher and Some Work Experience
27-1013	Fine Artists, Painters, Sculptors, and Illustrators	Long-Term On-the-Job Training
27-1014	Multi-Media Artists and Animators	BA Degree
27-1021	Commercial and Industrial Designers	BA Degree
27-1022	Fashion Designers	BA Degree
27-1023	Floral Designers	Moderate-Term On-the-Job Training
27-1024	Graphic Designers	BA Degree
27-1025	Interior Designers	BA Degree
27-1026	Merchandise Displayers and Window Trimmers	Moderate-Term On-the-Job Training
27-1027	Set and Exhibit Designers	BA Degree
27-1029	Designers, All Other	BA Degree
27-2011	Actors	Long-Term On-the-Job Training
27-2012	Producers and Directors	BA Degree or Higher and Some Work Experience
27-2021	Athletes and Sports Competitors	Long-Term On-the-Job Training
27-2022	Coaches and Scouts	Long-Term On-the-Job Training
27-2023	Umpires, Referees, and Other Sports Officials	Long-Term On-the-Job Training
27-2031	Dancers	Long-Term On-the-Job Training
27-2032	Choreographers	Related Work Experience
27-2041	Music Directors and Composers	BA Degree or Higher and Some Work Experience
27-2042	Musicians and Singers	Long-Term On-the-Job Training
27-2099	Entertainers and Performers, Sports and Related Workers, All Other	Long-Term On-the-Job Training
27-3011	Radio and Television Announcers	Long-Term On-the-Job Training
27-3012	Public Address System and Other Announcers	Long-Term On-the-Job Training
27-3022	Reporters and Correspondents	BA Degree or Higher and Some Work Experience
27-3031	Public Relations Specialists	BA Degree
27-3041	Editors	BA Degree
27-3042	Technical Writers	BA Degree
27-3043	Writers and Authors	BA Degree
27-3091	Interpreters and Translators	Long-Term On-the-Job Training
27-3099	Media and Communication Workers, All Other	Long-Term On-the-Job Training
27-4011	Audio and Video Equipment Technicians	Long-Term On-the-Job Training
27-4012	Broadcast Technicians	Post-Secondary Vocational Education
27-4014	Sound Engineering Technicians	Post-Secondary Vocational Education
27-4021	Photographers	Long-Term On-the-Job Training
27-4031	Camera Operators	Moderate-Term On-the-Job Training
27-4032	Film and Video Editors	BA Degree
27-4099	Media and Communication Equipment Workers, Other	Moderate-Term On-the-Job Training

Source: BLS

**Exhibit A-11  
Healthcare Practitioners and Technical Occupations**

SOC Code	Occupational Description	Required Education, Experience and Training
29-1011	Chiropractors	First Prof Degree - LLD/MD
29-1021	Dentists, General	First Prof Degree - LLD/MD
29-1031	Dietitians and Nutritionists	BA Degree
29-1041	Optometrists	First Prof Degree - LLD/MD
29-1051	Pharmacists	First Prof Degree - LLD/MD
29-1061	Anesthesiologists	First Prof Degree - LLD/MD
29-1062	Family and General Practitioners	First Prof Degree - LLD/MD
29-1063	Internists, General	First Prof Degree - LLD/MD
29-1064	Obstetricians and Gynecologists	First Prof Degree - LLD/MD
29-1065	Pediatricians, General	First Prof Degree - LLD/MD
29-1066	Psychiatrists	First Prof Degree - LLD/MD
29-1067	Surgeons	First Prof Degree - LLD/MD
29-1069	Physicians and Surgeons, All Other	First Prof Degree - LLD/MD
29-1071	Physician Assistants	BA Degree
29-1081	Podiatrists	First Prof Degree - LLD/MD
29-1111	Registered Nurses	Associate Degree
29-1122	Occupational Therapists	Master's Degree
29-1123	Physical Therapists	Master's Degree
29-1124	Radiation Therapists	Associate Degree
29-1125	Recreational Therapists	BA Degree
29-1126	Respiratory Therapists	Associate Degree
29-1127	Speech-Language Pathologists	Master's Degree
29-1129	Therapists, All Other	BA Degree
29-1131	Veterinarians	First Prof Degree - LLD/MD
29-1199	Health Diagnosing and Treating Practitioners, All Other	Master's Degree
29-2011	Medical and Clinical Laboratory Technologists	BA Degree
29-2012	Medical and Clinical Laboratory Technicians	Associate Degree
29-2021	Dental Hygienists	Associate Degree
29-2031	Cardiovascular Technologists and Technicians	Associate Degree
29-2032	Diagnostic Medical Sonographers	Associate Degree
29-2033	Nuclear Medicine Technologists	Associate Degree
29-2034	Radiologic Technologists and Technicians	Associate Degree
29-2041	Emergency Medical Technicians and Paramedics	Post-Secondary Vocational Education
29-2051	Dietetic Technicians	Moderate-Term On-the-Job Training
29-2052	Pharmacy Technicians	Moderate-Term On-the-Job Training
29-2053	Psychiatric Technicians	Post-Secondary Vocational Education
29-2054	Respiratory Therapy Technicians	Post-Secondary Vocational Education
29-2055	Surgical Technologists	Post-Secondary Vocational Education
29-2056	Veterinary Technologists and Technicians	Associate Degree

**Exhibit A-11 (Continued)**

SOC Code	Occupational Description	Required Education, Experience and Training
29-2061	Licensed Practical and Licensed Vocational Nurses	Post-Secondary Vocational Education
29-2071	Medical Records and Health Information Technicians	Associate Degree
29-2081	Opticians, Dispensing	Long-Term On-the-Job Training
29-2099	Health Technologists and Technicians, All Other	Post-Secondary Vocational Education
29-9011	Occupational Health and Safety Specialists	BA Degree
29-9099	Healthcare Practitioners and Technical Workers, All Other	Post-Secondary Vocational Education

Source: BLS

**Exhibit A-12  
Healthcare Support Occupations**

SOC Code	Occupational Description	Required Education, Experience and Training
31-1011	Home Health Aides	Short-Term On-the-Job Training
31-1012	Nursing Aides, Orderlies, and Attendants	Short-Term On-the-Job Training
31-1013	Psychiatric Aides	Short-Term On-the-Job Training
31-2011	Occupational Therapist Assistants	Associate Degree
31-2021	Physical Therapist Assistants	Associate Degree
31-2022	Physical Therapist Aides	Short-Term On-the-Job Training
31-9011	Massage Therapists	Post-Secondary Vocational Education
31-9091	Dental Assistants	Moderate-Term On-the-Job Training
31-9092	Medical Assistants	Moderate-Term On-the-Job Training
31-9093	Medical Equipment Preparers	Short-Term On-the-Job Training
31-9094	Medical Transcriptionists	Post-Secondary Vocational Education
31-9095	Pharmacy Aides	Short-Term On-the-Job Training
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	Short-Term On-the-Job Training
31-9099	Healthcare Support Workers, All Other	Short-Term On-the-Job Training

Source: BLS



**Exhibit A-13**  
**Protective Service Occupations**

SOC Code	Occupational Description	Required Education, Experience and Training
33-1011	First-Line Supervisors/Mgrs of Correctional Officers	Work Experience in a Related Occupation
33-1012	First-Line Supervisors/Mgrs of Police and Detectives	Work Experience in a Related Occupation
33-1021	First-Line Supervisors/Mgrs of Fire Fighting and Prevention Workers	Work Experience in a Related Occupation
33-1099	First-Line Supervisors/Mgrs, Protective Service Workers, All Other	Work Experience in a Related Occupation
33-2011	Fire Fighters	Long-Term On-the-Job Training
33-3012	Correctional Officers and Jailers	Moderate-Term On-the-Job Training
33-3021	Detectives and Criminal Investigators	Work Experience in a Related Occupation
33-3041	Parking Enforcement Workers	Short-Term On-the-Job Training
33-3051	Police and Sheriff's Patrol Officers	Long-Term On-the-Job Training
33-9011	Animal Control Workers	Moderate-Term On-the-Job Training
33-9021	Private Detectives and Investigators	Work Experience in a Related Occupation
33-9032	Security Guards	Short-Term On-the-Job Training
33-9091	Crossing Guards	Short-Term On-the-Job Training
33-9092	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	Short-Term On-the-Job Training
33-9099	Protective Service Workers, All Other	Short-Term On-the-Job Training

Source: BLS

**Exhibit A-14**  
**Food Preparation and Serving Occupations**

SOC Code	Occupational Description	Required Education, Experience and Training
35-1011	Chefs and Head Cooks	Post-Secondary Vocational Education
35-1012	First-Line Supervisors/ Mgrs of Food Preparation and Serving Workers	Work Experience in a Related Occupation
35-2011	Cooks, Fast Food	Short-Term On-the-Job Training
35-2012	Cooks, Institution and Cafeteria	Moderate-Term On-the-Job Training
35-2014	Cooks, Restaurant	Long-Term On-the-Job Training
35-2015	Cooks, Short Order	Short-Term On-the-Job Training
35-2021	Food Preparation Workers	Short-Term On-the-Job Training
35-3011	Bartenders	Short-Term On-the-Job Training
35-3021	Combined Food Prep and Serving Workers, Including Fast Food	Short-Term On-the-Job Training
35-3022	Counter Attendants, Cafeteria, Food Concession	Short-Term On-the-Job Training
35-3031	Waiters and Waitresses	Short-Term On-the-Job Training
35-3041	Food Servers, Nonrestaurant	Short-Term On-the-Job Training
35-9011	Dining Room / Cafeteria Attendants and Bartender Helpers	Short-Term On-the-Job Training
35-9021	Dishwashers	Short-Term On-the-Job Training
35-9031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	Short-Term On-the-Job Training
35-9099	Food Preparation and Serving Workers, All Other	Short-Term On-the-Job Training

Source: BLS

**Exhibit A-15**  
**Building and Grounds Cleaning and Maintenance Occupations**

SOC Code	Occupational Description	Required Education, Experience and Training
37-1011	First-Line Supervisors/ Managers of Housekeeping and Janitorial Workers	Work Experience in a Related Occupation
37-1012	First-Line Supervisors/ Mgrs of Landscaping, Lawn and Groundskeeping Workers	Work Experience in a Related Occupation
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	Short-Term On-the-Job Training
37-2012	Maids and Housekeeping Cleaners	Short-Term On-the-Job Training
37-2021	Pest Control Workers	Moderate-Term On-the-Job Training
37-3011	Landscaping and Grounds-keeping Workers	Short-Term On-the-Job Training
37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	Moderate-Term On-the-Job Training
37-3013	Tree Trimmers and Pruners	Short-Term On-the-Job Training
37-3019	Grounds Maintenance Workers, All Other	Short-Term On-the-Job Training

Source: BLS

**Exhibit A-16**

**Personal Care and Service Occupations**

SOC Code	Occupational Description	Required Education, Experience and Training
39-1011	Gaming Supervisors	Post-Secondary Vocational Education
39-1012	Slot Key Persons	Post-Secondary Vocational Education
39-1021	First-Line Supervisors/Managers of Personal Service Workers	Work Experience in a Related Occupation
39-2011	Animal Trainers	Moderate-Term On-the-Job Training
39-2021	Nonfarm Animal Caretakers	Short-Term On-the-Job Training
39-3011	Gaming Dealers	Post-Secondary Vocational Education
39-3012	Gaming and Sports Book Writers and Runners	Post-Secondary Vocational Education
39-3019	Gaming Service Workers, All Other	Moderate-Term On-the-Job Training
39-3021	Motion Picture Projectionists	Short-Term On-the-Job Training
39-3031	Ushers, Lobby Attendants, and Ticket Takers	Short-Term On-the-Job Training
39-3091	Amusement and Recreation Attendants	Short-Term On-the-Job Training
39-3092	Costume Attendants	Short-Term On-the-Job Training
39-3093	Locker Room, Coatroom, and Dressing Room Attendants	Short-Term On-the-Job Training
39-3099	Entertainment Attendants and Related Workers, All Other	Short-Term On-the-Job Training
39-4021	Funeral Attendants	Short-Term On-the-Job Training
39-5011	Barbers	Post-Secondary Vocational Education
39-5012	Hairdressers, Hairstylists, and Cosmetologists	Post-Secondary Vocational Education
39-5092	Manicurists and Pedicurists	Post-Secondary Vocational Education
39-5093	Shampoosers	Short-Term On-the-Job Training
39-5094	Skin Care Specialists	Post-Secondary Vocational Education
39-6011	Baggage Porters, Bellhops	Short-Term On-the-Job Training
39-6012	Concierges	Moderate-Term On-the-Job Training
39-6021	Tour Guides and Escorts	Moderate-Term On-the-Job Training
39-6031	Flight Attendants	Long-Term On-the-Job Training
39-6032	Transportation Attendants, Except Flight Attendants and Baggage Porters	Short-Term On-the-Job Training
39-9011	Child Care Workers	Short-Term On-the-Job Training
39-9021	Personal and Home Care Aides	Short-Term On-the-Job Training
39-9031	Fitness Trainers and Aerobics Instructors	Post-Secondary Vocational Education
39-9032	Recreation Workers	BA Degree
39-9041	Residential Advisors	Moderate-Term On-the-Job Training
39-9099	Personal Care and Service Workers, All Other	Short-Term On-the-Job Training

Source: BLS

**Exhibit A-17**

**Sales and Related Occupations**

SOC Code	Occupational Description	Required Education, Experience and Training
41-1011	First-Line Supervisors/Mgrs of Retail Sales Workers	Work Experience in a Related Occupation
41-1012	First-Line Supervisors/Mgrs of Non-Retail Sales Workers	Work Experience in a Related Occupation
41-2011	Cashiers	Short-Term On-the-Job Training
41-2012	Gaming Change Persons and Booth Cashiers	Short-Term On-the-Job Training
41-2021	Counter and Rental Clerks	Short-Term On-the-Job Training
41-2022	Parts Salespersons	Moderate-Term On-the-Job Training
41-2031	Retail Salespersons	Short-Term On-the-Job Training
41-3011	Advertising Sales Agents	Moderate-Term On-the-Job Training
41-3021	Insurance Sales Agents	Associate Degree
41-3031	Securities, Commodities, and Financial Services Sales Agents	BA Degree
41-3041	Travel Agents	Post-Secondary Vocational Education
41-3099	Sales Representatives, Services, All Other	Moderate-Term On-the-Job Training
41-4011	Sales Reps, Wholesale and Manufacturing, Technical and Scientific Products	Moderate-Term On-the-Job Training
41-4012	Sales Reps, Wholesale and Manufacturing, Except Technical and Scientific Products	Moderate-Term On-the-Job Training
41-9011	Demonstrators and Product Promoters	Moderate-Term On-the-Job Training
41-9021	Real Estate Brokers	Work Experience in a Related Occupation
41-9022	Real Estate Sales Agents	Post-Secondary Vocational Education
41-9031	Sales Engineers	BA Degree
41-9041	Telemarketers	Short-Term On-the-Job Training
41-9091	Door-To-Door Sales Workers, News and Street Vendors, and Related	Short-Term On-the-Job Training
41-9099	Sales and Related Workers, All Other	Moderate-Term On-the-Job Training

Source: BLS



**Exhibit A-18****Office and Administrative Support Occupations**

<b>SOC Code</b>	<b>Occupational Description</b>	<b>Required Education, Experience and Training</b>
43-1011	First-Line Supervisors/Mgrs of Office and Administrative Support Workers	Work Experience in a Related Occupation
43-2011	Switchboard Operators, Including Answering Service	Short-Term On-the-Job Training
43-2021	Telephone Operators	Short-Term On-the-Job Training
43-3011	Bill and Account Collectors	Short-Term On-the-Job Training
43-3021	Billing and Posting Clerks and Machine Operators	Moderate-Term On-the-Job Training
43-3031	Bookkeeping, Accounting, and Auditing Clerks	Moderate-Term On-the-Job Training
43-3041	Gaming Cage Workers	Short-Term On-the-Job Training
43-3051	Payroll and Timekeeping Clerks	Moderate-Term On-the-Job Training
43-3061	Procurement Clerks	Short-Term On-the-Job Training
43-3071	Tellers	Short-Term On-the-Job Training
43-4011	Brokerage Clerks	Moderate-Term On-the-Job Training
43-4031	Court, Municipal, and License Clerks	Short-Term On-the-Job Training
43-4041	Credit Authorizers, Checkers, and Clerks	Short-Term On-the-Job Training
43-4051	Customer Service Representatives	Moderate-Term On-the-Job Training
43-4061	Eligibility Interviewers, Government Programs	Moderate-Term On-the-Job Training
43-4071	File Clerks	Short-Term On-the-Job Training
43-4081	Hotel, Motel, and Resort Desk Clerks	Short-Term On-the-Job Training
43-4111	Interviewers, Except Eligibility and Loan	Short-Term On-the-Job Training
43-4121	Library Assistants, Clerical	Short-Term On-the-Job Training
43-4131	Loan Interviewers and Clerks	Short-Term On-the-Job Training
43-4141	New Accounts Clerks	Related Work Experience
43-4151	Order Clerks	Short-Term On-the-Job Training
43-4161	Human Resources Assistants, Except Payroll	Short-Term On-the-Job Training
43-4171	Receptionists and Information Clerks	Short-Term On-the-Job Training
43-4181	Reservation and Transportation Ticket Agents and Travel Clerks	Short-Term On-the-Job Training
43-4199	Information and Record Clerks, All Other	Short-Term On-the-Job Training
43-5011	Cargo and Freight Agents	Moderate-Term On-the-Job Training
43-5021	Couriers and Messengers	Short-Term On-the-Job Training
43-5031	Police, Fire, and Ambulance Dispatchers	Moderate-Term On-the-Job Training
43-5032	Dispatchers, Except Police, Fire, and Ambulance	Moderate-Term On-the-Job Training
43-5041	Meter Readers, Utilities	Short-Term On-the-Job Training
43-5051	Postal Service Clerks	Short-Term On-the-Job Training
43-5052	Postal Service Mail Carriers	Short-Term On-the-Job Training
43-5053	Postal Service Mail Sorters, Processors, and Processing Machine Operators	Short-Term On-the-Job Training
43-5061	Production, Planning, and Expediting Clerks	Short-Term On-the-Job Training

**Exhibit A-18 (Continued)**

<b>SOC Code</b>	<b>Occupational Description</b>	<b>Required Education, Experience and Training</b>
43-5071	Shipping, Receiving, and Traffic Clerks	Short-Term On-the-Job Training
43-5081	Stock Clerks and Order Fillers	Short-Term On-the-Job Training
43-5111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	Short-Term On-the-Job Training
43-6011	Executive Secretaries and Administrative Assistants	Moderate-Term On-the-Job Training
43-6012	Legal Secretaries	Post-Secondary Vocational
43-6013	Medical Secretaries	Post-Secondary Vocational
43-6014	Secretaries, Except Legal, Medical, and Executive	Moderate-Term On-the-Job Training
43-9011	Computer Operators	Moderate-Term On-the-Job Training
43-9021	Data Entry Keyers	Moderate-Term On-the-Job Training
43-9022	Word Processors and Typists	Moderate-Term On-the-Job Training
43-9031	Desktop Publishers	Post-Secondary Vocational
43-9041	Insurance Claims and Policy Processing Clerks	Moderate-Term On-the-Job Training
43-9051	Mail Clerks and Mail Machine Operators	Short-Term On-the-Job Training
43-9061	Office Clerks, General	Short-Term On-the-Job Training
43-9071	Office Machine Operators, Except Computer	Short-Term On-the-Job Training
43-9081	Proofreaders and Copy Markers	Moderate-Term On-the-Job Training
43-9111	Statistical Assistants	Moderate-Term On-the-Job Training
43-9199	Office and Administrative Support Workers, All Other	Moderate-Term On-the-Job Training

Source: BLS

**Exhibit A-19****Farming, Fishing and Forestry Occupations**

<b>SOC Code</b>	<b>Occupational Description</b>	<b>Required Education, Experience and Training</b>
45-1011	First-Line Supervisors/Mgrs of Farming, Fishing, and Forestry Workers	Work Experience in a Related Occupation
45-2011	Agricultural Inspectors	Related Work Experience
45-2041	Graders and Sorters, Agricultural Products	Work Experience in a Related Occupation
45-2091	Agricultural Equipment Operators	Moderate-Term On-the-Job Training
45-2092	Farmworkers and Laborers, Crop, Nursery, Greenhouse	Short-Term On-the-Job Training
45-2093	Farmworkers, Farm and Ranch Animals	Short-Term On-the-Job Training
45-2099	Agricultural Workers, All Other	Short-Term On-the-Job Training
45-4011	Forest and Conservation Workers	Moderate-Term On-the-Job Training
45-4022	Logging Equipment Operators	Moderate-Term On-the-Job Training

Source: BLS

**Exhibit A-20**

**Construction and Extraction Occupations**

SOC Code	Occupational Description	Required Education, Experience and Training
47-1011	First-Line Supervisors/Mgrs of Construction Trades and Extraction Workers	Work Experience in a Related Occupation
47-2021	Brickmasons and Blockmasons	Long-Term On-the-Job Training
47-2022	Stonemasons	Long-Term On-the-Job Training
47-2031	Carpenters	Long-Term On-the-Job Training
47-2041	Carpet Installers	Moderate-Term On-the-Job Training
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	Moderate-Term On-the-Job Training
47-2043	Floor Sanders and Finishers	Moderate-Term On-the-Job Training
47-2044	Tile and Marble Setters	Long-Term On-the-Job Training
47-2051	Cement Masons and Concrete Finishers	Long-Term On-the-Job Training
47-2053	Terrazzo Workers and Finishers	Moderate-Term On-the-Job Training
47-2061	Construction Laborers	Moderate-Term On-the-Job Training
47-2071	Paving, Surfacing, and Tamping Equipment Operators	Moderate-Term On-the-Job Training
47-2073	Operating Engineers and Other Construction Equipment Operators	Moderate-Term On-the-Job Training
47-2081	Drywall and Ceiling Tile Installers	Moderate-Term On-the-Job Training
47-2082	Tapers	Moderate-Term On-the-Job Training
47-2111	Electricians	Long-Term On-the-Job Training
47-2121	Glaziers	Long-Term On-the-Job Training
47-2131	Insulation Workers, Floor, Ceiling, and Wall	Moderate-Term On-the-Job Training
47-2132	Insulation Workers, Mechanical	Moderate-Term On-the-Job Training
47-2141	Painters, Construction and Maintenance	Moderate-Term On-the-Job Training
47-2142	Paperhangers	Moderate-Term On-the-Job Training
47-2151	Pipelayers	Moderate-Term On-the-Job Training
47-2152	Plumbers, Pipefitters, and Steamfitters	Long-Term On-the-Job Training
47-2161	Plasterers and Stucco Masons	Long-Term On-the-Job Training
47-2171	Reinforcing Iron and Rebar Workers	Long-Term On-the-Job Training
47-2181	Roofers	Moderate-Term On-the-Job Training
47-2211	Sheet Metal Workers	Moderate-Term On-the-Job Training
47-2221	Structural Iron and Steel Workers	Long-Term On-the-Job Training
47-3011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	Short-Term On-the-Job Training
47-3012	Helpers--Carpenters	Short-Term On-the-Job Training
47-3013	Helpers--Electricians	Short-Term On-the-Job Training
47-3014	Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	Short-Term On-the-Job Training

**Exhibit A-20 (Continued)**

SOC Code	Occupational Description	Required Education, Experience and Training
47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	Short-Term On-the-Job Training
47-3016	Helpers--Roofers	Short-Term On-the-Job Training
47-3019	Helpers, Construction Trades, All Other	Short-Term On-the-Job Training
47-4011	Construction and Building Inspectors	Work Experience in a Related Occupation
47-4021	Elevator Installers and Repairers	Long-Term On-the-Job Training
47-4031	Fence Erectors	Moderate-Term On-the-Job Training
47-4041	Hazardous Materials Removal Workers	Moderate-Term On-the-Job Training
47-4051	Highway Maintenance Workers	Moderate-Term On-the-Job Training
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	Moderate-Term On-the-Job Training
47-4099	Construction and Related Workers, All Other	Moderate-Term On-the-Job Training
47-5011	Derrick Operators, Oil and Gas	Moderate-Term On-the-Job Training
47-5012	Rotary Drill Operators, Oil, Gas	Moderate-Term On-the-Job Training
47-5021	Earth Drillers, Except Oil and Gas	Moderate-Term On-the-Job Training
47-5071	Roustabouts, Oil and Gas	Moderate-Term On-the-Job Training
47-5081	Helpers--Extraction Workers	Short-Term On-the-Job Training

Source: BLS

**Exhibit A-21****Installation, Maintenance and Repair Occupations**

<b>SOC Code</b>	<b>Occupational Description</b>	<b>Required Education, Experience and Training</b>
49-1011	First-Line Supervisors/Mgrs of Mechanics, Installers, and Repairers	Work Experience in a Related Occupation
49-2011	Computer, Automated Teller, and Office Machine Repairers	Post-Secondary Vocational Education
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	Long-Term On-the-Job Training
49-2091	Avionics Technicians	Post-Secondary Vocational Education
49-2092	Electric Motor, Power Tool, and Related Repairers	Post-Secondary Vocational Education
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	Post-Secondary Vocational Education
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	Post-Secondary Vocational Education
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	Post-Secondary Vocational Education
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	Post-Secondary Vocational Education
49-2097	Electronic Home Entertainment Equipment Installers and Repairers	Post-Secondary Vocational Education
49-2098	Security and Fire Alarm Systems Installers	Post-Secondary Vocational Education
49-3011	Aircraft Mechanics and Service Technicians	Post-Secondary Vocational Education
49-3021	Automotive Body and Related Repairers	Long-Term On-the-Job Training
49-3022	Automotive Glass Installers and Repairers	Long-Term On-the-Job Training
49-3023	Automotive Service Technicians and Mechanics	Post-Secondary Vocational Education
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	Post-Secondary Vocational Education
49-3041	Farm Equipment Mechanics	Post-Secondary Vocational Education
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	Post-Secondary Vocational Education
49-3043	Rail Car Repairers	Long-Term On-the-Job Training
49-3051	Motorboat Mechanics	Long-Term On-the-Job Training
49-3052	Motorcycle Mechanics	Long-Term On-the-Job Training
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	Moderate-Term On-the-Job Training
49-3091	Bicycle Repairers	Moderate-Term On-the-Job Training
49-3092	Recreational Vehicle Service Technicians	Long-Term On-the-Job Training
49-3093	Tire Repairers and Changers	Short-Term On-the-Job Training
49-9011	Mechanical Door Repairers	Moderate-Term On-the-Job Training
49-9012	Control and Valve Installers and Repairers, Except Mechanical Door	Moderate-Term On-the-Job Training

**Exhibit A-21 (Continued)**

<b>SOC Code</b>	<b>Occupational Description</b>	<b>Required Education, Experience and Training</b>
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	Long-Term On-the-Job Training
49-9031	Home Appliance Repairers	Long-Term On-the-Job Training
49-9041	Industrial Machinery Mechanics	Long-Term On-the-Job Training
49-9042	Maintenance and Repair Workers, General	Long-Term On-the-Job Training
49-9043	Maintenance Workers, Machinery	Long-Term On-the-Job Training
49-9044	Millwrights	Long-Term On-the-Job Training
49-9051	Electrical Power-Line Installers and Repairers	Long-Term On-the-Job Training
49-9052	Telecommunications Line Installers and Repairers	Long-Term On-the-Job Training
49-9062	Medical Equipment Repairers	Moderate-Term On-the-Job Training
49-9091	Coin, Vending, and Amusement Machine Servicers and Repairers	Moderate-Term On-the-Job Training
49-9094	Locksmiths and Safe Repairers	Moderate-Term On-the-Job Training
49-9098	Helpers--Installation, Maintenance, and Repair Workers	Short-Term On-the-Job Training
49-9099	Installation, Maintenance, and Repair Workers, All Other	Moderate-Term On-the-Job Training

Source: BLS

**Exhibit A-22****Production Occupations**

<b>SOC Code</b>	<b>Occupational Description</b>	<b>Required Education, Experience and Training</b>
51-1011	First-Line Supervisors/Mgrs of Production and Operating Workers	Work Experience in a Related Occupation
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	Long-Term On-the-Job Training
51-2021	Coil Winders, Tapers, and Finishers	Short-Term On-the-Job Training
51-2022	Electrical and Electronic Equipment Assemblers	Short-Term On-the-Job Training
51-2023	Electromechanical Equipment Assemblers	Short-Term On-the-Job Training
51-2031	Engine and Other Machine Assemblers	Short-Term On-the-Job Training
51-2041	Structural Metal Fabricators and Fitters	Moderate-Term On-the-Job Training
51-2091	Fiberglass Laminators and Fabricators	Moderate-Term On-the-Job Training
51-2092	Team Assemblers	Moderate-Term On-the-Job Training
51-2099	Assemblers and Fabricators, All Other	Moderate-Term On-the-Job Training
51-3011	Bakers	Long-Term On-the-Job Training
51-3021	Butchers and Meat Cutters	Long-Term On-the-Job Training
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	Short-Term On-the-Job Training
51-3023	Slaughterers and Meat Packers	Moderate-Term On-the-Job Training
51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	Short-Term On-the-Job Training
51-3092	Food Batchmakers	Short-Term On-the-Job Training
51-3093	Food Cooking Machine Operators and Tenders	Short-Term On-the-Job Training
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	Moderate-Term On-the-Job Training
51-4012	Numerical Tool and Process Control Programmers	Long-Term On-the-Job Training
51-4021	Extruding and Drawing Machine Setters, Operators, Tenders, Metal and Plastic	Moderate-Term On-the-Job Training
51-4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	Moderate-Term On-the-Job Training
51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	Moderate-Term On-the-Job Training
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	Moderate-Term On-the-Job Training
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	Moderate-Term On-the-Job Training
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	Moderate-Term On-the-Job Training
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	Moderate-Term On-the-Job Training

**Exhibit A-22 (Continued)**

<b>SOC Code</b>	<b>Occupational Description</b>	<b>Required Education, Experience and Training</b>
51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	Moderate-Term On-the-Job Training
51-4041	Machinists	Long-Term On-the-Job Training
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	Moderate-Term On-the-Job Training
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	Moderate-Term On-the-Job Training
51-4111	Tool and Die Makers	Long-Term On-the-Job Training
51-4121	Welders, Cutters, Solderers, and Brazers	Post-Secondary Vocational Education
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	Moderate-Term On-the-Job Training
51-4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	Moderate-Term On-the-Job Training
51-4193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	Moderate-Term On-the-Job Training
51-4194	Tool Grinders, Filers, and Sharpeners	Moderate-Term On-the-Job Training
51-4199	Metal Workers and Plastic Workers, All Other	Moderate-Term On-the-Job Training
51-5011	Bindery Workers	Moderate-Term On-the-Job Training
51-5021	Job Printers	Long-Term On-the-Job Training
51-5022	Prepress Technicians and Workers	Long-Term On-the-Job Training
51-5023	Printing Machine Operators	Moderate-Term On-the-Job Training
51-6011	Laundry and Dry-Cleaning Workers	Moderate-Term On-the-Job Training
51-6021	Pressers, Textile, Garment, and Related Materials	Short-Term On-the-Job Training
51-6031	Sewing Machine Operators	Moderate-Term On-the-Job Training
51-6051	Sewers, Hand	Short-Term On-the-Job Training
51-6052	Tailors, Dressmakers, and Custom Sewers	Long-Term On-the-Job Training
51-6061	Textile Bleaching and Dyeing Machine Operators and Tenders	Moderate-Term On-the-Job Training
51-6062	Textile Cutting Machine Setters, Operators, and Tenders	Moderate-Term On-the-Job Training
51-6063	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	Long-Term On-the-Job Training
51-6091	Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers	Moderate-Term On-the-Job Training
51-6092	Fabric and Apparel Patternmakers	Long-Term On-the-Job Training
51-6093	Upholsterers	Long-Term On-the-Job Training
51-6099	Textile, Apparel, and Furnishings Workers, All Other	Short-Term On-the-Job Training

## Exhibit A-22 (Continued)

SOC Code	Occupational Description	Required Education, Experience and Training
51-7011	Cabinetmakers and Bench Carpenters	Long-Term On-the-Job Training
51-7021	Furniture Finishers	Long-Term On-the-Job Training
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	Moderate-Term On-the-Job Training
51-7042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	Moderate-Term On-the-Job Training
51-7099	Woodworkers, All Other	Moderate-Term On-the-Job Training
51-8012	Power Distributors and Dispatchers	Long-Term On-the-Job Training
51-8013	Power Plant Operators	Long-Term On-the-Job Training
51-8021	Stationary Engineers and Boiler Operators	Long-Term On-the-Job Training
51-8031	Water and Liquid Waste Treatment Plant and System Operators	Long-Term On-the-Job Training
51-8091	Chemical Plant and System Operators	Long-Term On-the-Job Training
51-8093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	Long-Term On-the-Job Training
51-9011	Chemical Equipment Operators and Tenders	Moderate-Term On-the-Job Training
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	Moderate-Term On-the-Job Training
51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	Moderate-Term On-the-Job Training
51-9022	Grinding and Polishing Workers, Hand	Moderate-Term On-the-Job Training
51-9023	Mixing and Blending Machine Setters, Operators, Tenders	Moderate-Term On-the-Job Training
51-9031	Cutters and Trimmers, Hand	Short-Term On-the-Job Training
51-9032	Cutting and Slicing Machine Setters, Operators, Tenders	Moderate-Term On-the-Job Training
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	Moderate-Term On-the-Job Training
51-9051	Furnace, Kiln, Oven, Drier, Kettle Operators, Tenders	Moderate-Term On-the-Job Training
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	Moderate-Term On-the-Job Training
51-9071	Jewelers and Precious Stone and Metal Workers	Post-Secondary Vocational Education
51-9081	Dental Laboratory Technicians	Long-Term On-the-Job Training
51-9082	Medical Appliance Technicians	Long-Term On-the-Job Training
51-9083	Ophthalmic Laboratory Technicians	Moderate-Term On-the-Job Training
51-9111	Packaging and Filling Machine Operators, Tenders	Short-Term On-the-Job Training
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	Moderate-Term On-the-Job Training

## Exhibit A-22 (Continued)

SOC Code	Occupational Description	Required Education, Experience and Training
51-9122	Painters, Transportation Equipment	Moderate-Term On-the-Job Training
51-9123	Painting, Coating, and Decorating Workers	Short-Term On-the-Job Training
51-9131	Photographic Process Workers	Moderate-Term On-the-Job Training
51-9132	Photographic Processing Machine Operators	Short-Term On-the-Job Training
51-9141	Semiconductor Processors	Associate Degree
51-9191	Cementing and Gluing Machine Operators, Tenders	Moderate-Term On-the-Job Training
51-9192	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	Moderate-Term On-the-Job Training
51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	Moderate-Term On-the-Job Training
51-9196	Paper Goods Machine Setters, Operators, Tenders	Moderate-Term On-the-Job Training
51-9198	Helpers--Production Workers	Short-Term On-the-Job Training
51-9199	Production Workers, All Other	Moderate-Term On-the-Job Training

Source: BLS

**Exhibit A-23****Transportation and Material Moving Occupations**

<b>SOC Code</b>	<b>Occupational Description</b>	<b>Required Education, Experience and Training</b>
53-1021	First-Line Supervisors/Mgrs of Helpers, Laborers, and Material Movers, Hand	Work Experience in a Related Occupation
53-1031	First-Line Supervisors/Mgrs of Transport and Material-Moving Machine and Vehicle Operators	Work Experience in a Related Occupation
53-2011	Airline Pilots, Copilots, and Flight Engineers	BA Degree
53-2012	Commercial Pilots	Post-Secondary Vocational
53-2021	Air Traffic Controllers	Long-Term On-the-Job Training
53-3011	Ambulance Drivers and Attendants, Except EMTs	Moderate-Term On-the-Job Training
53-3021	Bus Drivers, Transit, Intercity	Moderate-Term OJT
53-3022	Bus Drivers, School	Short-Term On-the-Job Training
53-3031	Driver/Sales Workers	Short-Term On-the-Job Training
53-3032	Truck Drivers, Heavy and Tractor-Trailer	Moderate-Term On-the-Job Training
53-3033	Truck Drivers, Light or Delivery Services	Short-Term On-the-Job Training
53-3041	Taxi Drivers and Chauffeurs	Short-Term On-the-Job Training
53-3099	Motor Vehicle Operators, All Other	Short-Term On-the-Job Training
53-4011	Locomotive Engineers	Related Work Experience
53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers	Work Experience in a Related Occupation
53-4021	Railroad Brake, Signal, and Switch Operators	Work Experience in a Related Occupation
53-4031	Railroad Conductors and Yardmasters	Work Experience in a Related Occupation
53-5011	Sailors and Marine Oilers	Short-Term On-the-Job Training
53-5021	Captains, Mates, and Pilots of Water Vessels	Work Experience in a Related Occupation
53-6021	Parking Lot Attendants	Short-Term On-the-Job Training
53-6031	Service Station Attendants	Short-Term On-the-Job Training
53-6051	Transportation Inspectors	Related Work Experience
53-6099	Transportation Workers, All Other	Short-Term On-the-Job Training
53-7011	Conveyor Operators and Tenders	Short-Term On-the-Job Training
53-7021	Crane and Tower Operators	Moderate-Term OJT
53-7032	Excavating and Loading Machine and Dragline Operators	Moderate-Term On-the-Job Training
53-7051	Industrial Truck and Tractor Operators	Short-Term On-the-Job Training
53-7061	Cleaners of Vehicles and Equipment	Short-Term On-the-Job Training
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	Short-Term On-the-Job Training
53-7063	Machine Feeders and Offbearers	Short-Term On-the-Job Training
53-7064	Packers and Packagers, Hand	Short-Term On-the-Job Training
53-7081	Refuse and Recyclable Material Collectors	Short-Term On-the-Job Training
53-7121	Tank Car, Truck, and Ship Loaders	Moderate-Term On-the-Job Training
53-7199	Material Moving Workers, All Other	Short-Term On-the-Job Training

Source: BLS