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- Five steps to community-based indu



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FIVE STEPS TO COMMUNITY-BASED INDUSTRY TARGETING

Policy Analysis Division
Department of Energy and Economic Development

September 17, 1986

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STEP 1 IDENTIFY INDUSTRIES ALREADY REPRESENTED IN THE STATE

STEP 2 IDENTIFY GROWTH INDUSTRIES

Resource Material:

Table A - "Minnesota Manufacturing Employment"

Minnesota and United States Durable Manufacturing Employment

SIC Description	Minnesota Employment						United States Employment			
	Whole #'s		Net % Change	MN LQI	MN LQI	Employment (X1000)	Net % Change			
	1977	1984	Change 1977-1984	1977	1984		Change 1977-1984	1977	1984	Change 1977-1984
241 Logging Camps & Logging Contractors	572	555	(17)	-3.0%	0.42	0.33	84.2	89.4	5.2	6.2%
242 Sawmills & Planing Mills	918	867	(51)	-5.6%	0.25	0.23	227.9	203.2	(24.7)	-10.8%
243 Millwork, Plywood & Structural Mem.	6,365	7,481	1,116	17.5%	1.91	1.82	206.7	220.4	13.7	6.6%
244 Wood Containers	816	521	(295)	-36.2%	1.20	0.67	42.0	41.4	(0.6)	-1.4%
245 Wood Buildings & Mobile Homes	1,610	1,076	(534)	-33.2%	1.21	0.78	82.1	74.1	(8.0)	-9.8%
249 Miscellaneous Wood Products	1,340	1,670	330	24.6%	1.05	1.14	79.0	78.3	(0.7)	-0.9%
251 Household Furniture	1,544	1,079	(465)	-30.1%	0.30	0.20	315.1	295.2	(19.9)	-6.3%
253 Public Building & Related Furniture	463	677	214	46.2%	1.21	1.38	23.7	26.2	2.5	10.5%
254 Partitions & Fixtures	963	1,535	572	59.4%	1.02	1.24	58.2	66.5	8.3	14.3%
259 Miscellaneous Furniture & Fixtures	284	606	322	113.4%	0.70	0.92	25.1	35.4	10.3	41.0%
322 Glass & Glassware, Pressed	802	755	(47)	-5.9%	0.37	0.40	132.4	101.0	(31.4)	-23.7%
323 Products of Purchased Glass	323	842	519	160.7%	0.46	0.91	43.4	49.6	6.2	14.3%
325 Structural Clay Products	108	103	(5)	-4.6%	0.13	0.15	50.5	37.9	(12.6)	-25.0%
327 Concrete, Gypsum, & Plastic Prod.	4,763	3,571	(1,192)	-25.0%	1.50	0.96	197.0	199.4	2.4	1.2%
328 Cut Stone & Stone Products	1,185	1,177	(8)	-0.7%	5.87	5.53	12.5	11.4	(1.1)	-8.8%
329 Misc. Nonmetallic Mineral Products	1,829	1,828	(1)	-0.1%	0.84	0.82	134.9	118.7	(16.2)	-12.0%
331 Blast Furnace & Basic Steel Prod.	884	1,198	314	35.5%	0.10	0.19	554.6	336.1	(218.5)	-39.4%
332 Iron & Steel Foundries	2,071	1,343	(728)	-35.2%	0.56	0.48	230.5	149.1	(81.4)	-35.3%
334 Secondary Nonferrous Metals	62	158	96	154.8%	0.18	0.43	21.2	19.8	(1.4)	-6.6%
335 Nonferrous Rolling and Drawing	185	230	45	24.3%	0.06	0.06	200.2	192.2	(8.0)	-4.0%
336 Nonferrous Foundries	2,258	2,949	691	30.6%	1.58	1.83	88.7	86.5	(2.2)	-2.5%
339 Miscellaneous Primary Metal Prod.	438	294	(144)	-32.9%	1.23	0.63	22.0	24.8	2.8	12.7%
341 Metal Cans and Shipping Containers	1,426	1,115	(311)	-21.8%	1.14	1.04	77.7	57.6	(20.1)	-25.9%
342 Cutlery, Hand Tools, & Hardware	3,248	3,117	(131)	-4.0%	1.15	1.13	175.3	148.4	(26.9)	-15.3%
343 Plumbing & Heating, Except Electric	807	831	24	3.0%	0.72	0.70	69.2	63.2	(6.0)	-8.7%
344 Fabricated Structural Metal Prod.	8,159	6,700	(1,459)	-17.9%	1.07	0.82	473.9	436.5	(37.4)	-7.9%
345 Screw Machine Products, Bolts, Etc.	1,497	1,701	204	13.6%	0.92	0.94	101.2	96.5	(4.7)	-4.6%
346 Metal Forgings and Stampings	3,809	3,446	(363)	-9.5%	0.81	0.74	291.4	250.1	(41.3)	-14.2%
347 Metal Services, nec.	2,091	2,596	505	24.2%	1.36	1.30	95.1	107.0	11.9	12.5%
348 Ordinance & Accessories, nec.	9,768	12,707	2,939	30.1%	10.40	8.97	58.1	75.9	17.8	30.6%
349 Misc. Fabricated Metal Products	2,590	2,856	266	10.3%	0.67	0.67	240.8	228.9	(11.9)	-4.9%
352 Farm & Garden Machinery	6,673	5,244	(1,429)	-21.4%	2.47	2.55	167.5	110.3	(57.2)	-34.1%
353 Construction & Related Machinery	7,813	5,292	(2,521)	-32.3%	1.38	1.10	349.3	257.3	(92.0)	-26.3%

Minnesota and United States Durable Manufacturing Employment

SIC Description	Minnesota Employment						United States Employment			
	Net % Change		MN LQI	MN LQI	MN LQI	MN LQI	Employment		Net % Change	
	(Whole #'s)	Change					1977 To	1984	(X1000)	1984
1977	1984	1977-1984	1984	1977	1984	1977	1984	1977-1984	1984	
354 Metalworking Machinery	3,997	5,132	1,135	28.4%	0.76	0.90	324.7	305.6	(19.1)	-5.9%
355 Special Industry Machinery	2,971	3,811	840	28.3%	0.97	1.22	189.9	167.7	(22.2)	-11.7%
356 General Industrial Machinery	5,667	7,805	2,138	37.7%	1.19	1.53	295.0	273.3	(21.7)	-7.4%
357 Office and Computing Machines	29,207	47,964	18,757	64.2%	5.80	4.88	311.4	526.1	214.7	68.9%
358 Refrigeration & Service Machinery	6,699	6,814	115	1.7%	2.43	2.13	170.8	171.1	0.3	0.2%
359 Misc. Machinery, Except Electrical	6,671	7,681	1,010	15.1%	1.72	1.52	240.7	270.8	30.1	12.5%
361 Electric Distributing Equipment	600	757	157	26.2%	0.31	0.35	119.0	116.1	(2.9)	-2.4%
362 Electric Industrial Apparatus	6,557	3,089	(3,468)	-52.9%	1.74	0.80	232.9	206.0	(26.9)	-11.6%
363 Household Appliances	5,053	2,851	(2,202)	-43.6%	1.73	1.02	180.5	149.8	(30.7)	-17.0%
364 Electric Lighting & Wiring Equip.	1,218	1,677	459	37.7%	0.37	0.45	205.4	200.5	(4.9)	-2.4%
365 Radio & TV Receiving Equipment	1,021	662	(359)	-35.2%	0.51	0.39	122.7	90.6	(32.1)	-26.2%
366 Communication Equipment	2,433	4,815	2,382	97.9%	0.33	0.42	461.6	616.6	155.0	33.6%
367 Electronic Components & Accessories	5,448	11,909	6,461	118.6%	0.83	0.95	404.7	672.7	268.0	66.2%
369 Misc. Electrical Equipment & Supp.	2,767	2,115	(652)	-23.6%	1.13	0.73	151.4	156.0	4.6	3.0%
371 Motor Vehicles & Equipment	6,499	3,864	(2,635)	-40.5%	0.42	0.24	947.3	860.1	(87.2)	-9.2%
372 Aircraft and Parts	427	261	(166)	-38.9%	0.05	0.02	487.0	595.8	108.8	22.3%
373 Ship & Boat Building & Repairing	1,754	1,511	(243)	-13.9%	0.49	0.42	223.8	193.9	(29.9)	-13.4%
379 Miscellaneous Transportation Equip.	2,313	1,043	(1,270)	-54.9%	2.32	1.09	61.6	51.1	(10.5)	-17.0%
381 Engineering & Scientific Inst.	3,798	5,526	1,728	45.5%	3.74	3.72	62.8	79.5	16.7	26.6%
382 Measuring and Controlling Devices	7,664	9,545	1,881	24.5%	2.39	2.06	198.3	248.2	49.9	25.2%
383 Optical Instruments and Lenses	49	253	204	416.3%	0.12	0.39	25.7	35.0	9.3	36.2%
384 Medical Instruments & Supplies	5,305	7,390	2,085	39.3%	2.57	2.30	127.8	171.9	44.1	34.5%
385 Ophthalmic Goods	2,165	2,603	438	20.2%	3.21	3.52	41.8	39.6	(2.2)	-5.3%
386 Photographic Equipment and Supp.	2,550	2,228	(322)	-12.6%	1.21	0.97	130.3	123.6	(6.7)	-5.1%
391 Jewelry, Silverware and Plated Wire	762	892	130	17.1%	0.77	0.87	61.4	55.2	(6.2)	-10.1%
393 Musical Instruments	53	12	(41)	-77.4%	0.14	0.04	23.6	16.9	(6.7)	-28.4%
394 Toys & Sporting Goods	3,934	2,363	(1,571)	-39.9%	2.01	1.14	121.4	110.7	(10.7)	-8.8%
395 Pens, Pencils, Office and Art Supp.	281	244	(37)	-13.2%	0.49	0.41	35.3	32.2	(3.1)	-8.8%
396 Costume Jewelry & Notions	203	299	96	47.3%	0.21	0.40	61.2	40.5	(20.7)	-33.8%
399 Miscellaneous Manufacturers	2,507	1,704	(803)	-32.0%	1.14	0.71	136.6	128.6	(8.0)	-5.9%

TABLE A (cont'd)

Source: Unpublished ES202 Data, U.S. Department of Commerce, Bureau of Labor Statistics
Employment and Earnings, U.S. Department of Commerce, Bureau of Labor Statistics

Minnesota and United States Nondurable Manufacturing Employment

SIC Description	Minnesota Employment						United States Employment			
	(Whole #'s)		Net % Change	MN IQI	MN IQI	Employment (X1000)	Net % Change			
	1977	1984	Change 1977-1984	1977 To 1984	1977		1984	Change 1977-1984	1984	
201 Meat Products	13,788	11,731	(2,057)	-14.9%	2.43	1.76	351.7	357.0	5.3	1.5%
202 Dairy Products	6,822	7,712	890	13.0%	2.25	2.53	187.5	163.4	(24.1)	-12.9%
203 Preserved Fruits & Vegetables	7,986	5,578	(2,408)	-30.2%	1.95	1.27	253.1	236.1	(17.0)	-6.7%
204 Grain Mill Products	8,110	8,633	523	6.4%	3.52	3.55	142.4	130.4	(12.0)	-8.4%
205 Bakery Products	2,707	2,125	(582)	-21.5%	0.71	0.54	235.8	211.2	(24.6)	-10.4%
206 Sugar and Confectionery Products	3,021	2,937	(84)	-2.8%	1.68	1.55	111.3	101.2	(10.1)	-9.1%
207 Fats & Oils	1,437	1,200	(237)	-16.5%	2.13	1.76	41.7	36.6	(5.1)	-12.2%
208 Beverages	4,111	4,136	25	0.6%	1.12	1.03	227.6	214.5	(13.1)	-5.8%
209 Misc. Foods & Kindred Products	1,254	1,480	226	18.0%	0.49	0.47	159.9	168.1	8.2	5.1%
223 Weaving and Finishing Mills, Wool	206	216	10	4.9%	0.61	0.64	20.9	18.0	(2.9)	-13.9%
225 Knitting Mills	2,228	1,232	(996)	-44.7%	0.59	0.32	233.3	204.0	(29.3)	-12.6%
229 Miscellaneous Textile Goods	563	214	(349)	-62.0%	0.49	0.21	70.6	55.1	(15.5)	-22.0%
232 Men's & Boy's Furnishings	2,744	956	(1,788)	-65.2%	0.45	0.15	374.3	337.6	(36.7)	-9.8%
233 Women's & Misses' Outerwear	681	632	(49)	-7.2%	0.10	0.09	426.7	387.3	(39.4)	-9.2%
235 Hats, Caps, & Millinery	181	106	(75)	-41.4%	0.72	0.34	15.5	16.5	1.0	6.5%
236 Childrens Outerwear	156	23	(133)	-85.3%	0.14	0.02	71.1	63.8	(7.3)	-10.3%
237 Fur Goods	23	20	(3)	-13.0%	0.32	0.35	4.5	3.1	(1.4)	-31.1%
238 Misc. Apparel & Accessories	319	106	(213)	-66.8%	0.32	0.12	61.6	46.2	(15.4)	-25.0%
239 Misc. Fabricated Textile Products	2,191	821	(1,370)	-62.5%	0.75	0.24	180.0	184.3	4.3	2.4%
262 Paper Mills, Except Building Paper	5,251	5,939	688	13.1%	1.85	1.81	175.7	175.9	0.2	0.1%
264 Misc. Converted Paper Products	21,201	24,007	2,806	13.2%	6.20	5.68	211.5	226.3	14.8	7.0%
265 Paperboard Containers & Boxes	3,981	2,660	(1,321)	-33.2%	1.18	0.73	209.1	196.5	(12.6)	-6.0%
266 Building Paper & Board Mills	485	622	137	28.2%	2.36	3.30	12.7	10.1	(2.6)	-20.5%
271 Newspapers	8,241	10,441	2,200	26.7%	1.29	1.27	395.6	440.6	45.0	11.4%
272 Periodicals	1,298	3,377	2,079	160.2%	1.07	1.70	74.9	106.7	31.8	42.5%

Minnesota and United States Nondurable Manufacturing Employment

SIC Description	Minnesota Employment						United States Employment			
	(Whole #'s)		Net % Change	MN IQI	MN IQI	MN IQI	Employment		Net % Change	1977 To 1984
	1977	1984	1977-1984	1977	1984		(X1000)	1984	Change	
273 Books	2,996	3,743	747	24.9%	1.89	1.94	98.0	103.3	5.3	5.4%
274 Miscellaneous Publishing	1,861	2,711	850	45.7%	2.65	2.22	43.5	65.3	21.8	50.1%
275 Commercial Printing	11,601	15,318	3,717	32.0%	1.95	1.75	367.8	467.9	100.1	27.2%
276 Manifold Business Forms	349	422	73	20.9%	0.51	0.47	42.1	47.8	5.7	13.5%
278 Blankbooks & Bookbindings	1,628	2,435	807	49.6%	1.75	1.88	57.7	69.3	11.6	20.1%
279 Printing Trade Services	913	1,605	692	75.8%	1.45	1.78	39.0	48.3	9.3	23.8%
281 Industrial Inorganic Chemicals	275	171	(104)	-37.8%	0.11	0.06	161.8	142.7	(19.1)	-11.8%
282 Plastics Materials & Synthetics	625	850	225	36.0%	0.18	0.26	220.2	177.9	(42.3)	-19.2%
283 Drugs	563	855	292	51.9%	0.19	0.22	181.0	205.6	24.6	13.6%
284 Soap, Cleaners, & Toilet Goods	2,830	3,485	655	23.1%	1.35	1.28	129.9	145.4	15.5	11.9%
285 Paints & Allied Products	624	593	(31)	-5.0%	0.59	0.51	66.0	61.8	(4.2)	-6.4%
287 Agricultural Chemicals	531	506	(25)	-4.7%	0.49	0.45	67.7	60.7	(7.0)	-10.3%
289 Miscellaneous Chemical Products	855	1,649	794	92.9%	0.61	0.97	86.7	91.5	4.8	5.5%
291 Petroleum Refining	950	896	(54)	-5.7%	0.36	0.32	163.6	149.0	(14.6)	-8.9%
295 Paving & Roofing Materials	628	461	(167)	-26.6%	1.23	0.92	31.6	26.9	(4.7)	-14.9%
299 Misc. Petroleum & Coal Products	111	301	190	171.2%	0.61	1.43	11.3	11.3	0.0	0.0%
306 Fabricated Rubber Products, nec.	1,469	1,790	321	21.9%	0.81	0.87	112.3	109.8	(2.5)	-2.2%
307 Miscellaneous Plastic Products	9,065	9,758	693	7.6%	1.33	0.97	422.7	539.5	116.8	27.6%
311 Leather Tanning & Finishing	508	470	(38)	-7.5%	1.39	1.53	22.6	16.5	(6.1)	-27.0%
314 Footwear Except Rubber	1,109	1,224	115	10.4%	0.42	0.58	161.5	113.8	(47.7)	-29.5%
315 Leather Gloves and Mittens	76	86	10	13.2%	0.90	1.32	5.2	3.5	(1.7)	-32.7%
319 Leather Goods, nec.	60	7	(53)	-88.3%	0.37	0.05	10.1	8.2	(1.9)	-18.8%

Source: Unpublished ES202 Data, U.S. Department of Commerce, Bureau of Labor Statistics
 Employment and Earnings, U.S. Department of Commerce, Bureau of Labor Statistics

TABLE A (cont'd)

STEP 3 IDENTIFY NON-METROPOLITAN SECTORS/INDUSTRIES

Resource Materials:

Table B - "Industries Increasing Non-Metro Employment"

Table C - "Population Density of Industry Locations"

Example: Example SIC Code Listing from Minnesota Directory of
Manufacturers

TABLE B

REGIONAL MANUFACTURING INDUSTRIES
WHICH INCREASED THEIR SHARE OF STATE EMPLOYMENT BETWEEN
1976 AND 1984

<u>SIC</u>	<u>INDUSTRY</u>	<u>1976 SHARE</u>	<u>1984 SHARE</u>	<u>GAIN</u>
<u>NORTHEAST</u>				
36	Electrical Machinery	0.2	1.5	1.3
38	Instruments	0.9	1.1	0.2
39	Miscellaneous Manufacturing	7.0	8.8	1.8/a
<u>SOUTHEAST</u>				
20	Food & Kindred Products	31.3	32.7	1.4/a
22/23	Textiles/Apparel	15.6	30.2	14.6/a
25	Furniture & Fixtures	33.0	37.8	4.8
26	Paper & Allied Products	0.8	1.2	0.4
27	Printing & Publishing	15.4	15.8	0.4
28/29	Chemicals/Petroleum	6.7	11.6	4.9
33	Primary Metals	14.2	15.3	1.1
35	Machinery	15.9	16.0	0.1
39	Miscellaneous Manufacturing	14.4	15.3	0.9
<u>METRO</u>				
22/23	Textiles/Apparel	42.0	46.9	4.9/a
24	Lumber & Wood Products	39.6	40.5	0.9
26	Paper & Allied Products	73.9	75.6	1.7
27	Printing & Publishing	68.8	68.9	0.1
30/31	Rubber & Plastics/Leather	54.9	60.2	5.3
32	Stone, Clay & Glass	30.0	36.1	6.1
35	Machinery	75.0	76.2	1.2
37	Transportation Equipment	41.2	54.7	13.5/a
38	Instruments	84.5	88.3	3.8
<u>CENTRAL</u>				
20	Food & Kindred Products	9.4	11.5	2.1
24	Lumber & Wood Products	6.5	8.8	2.3
25	Furniture & Fixtures	10.2	12.9	2.7
26	Paper & Allied Products	8.1	9.0	0.9
27	Printing & Publishing	4.3	5.8	1.5
28/29	Chemical/Petroleum	1.1	1.4	0.3
33	Primary Metals	0.4	2.2	1.8
34	Fabricated Metals	6.2	7.9	1.7
36	Electrical Machinery	6.2	11.3	5.1
37	Transportation Equipment	5.6	6.4	0.8/a

WEST

TABLE B (cont'd)

37	Transportation Equipment	5.6	6.4	0.8/a
20	Food & Kindred Products	13.7	14.0	0.3/a
24	Lumber & Wood Products	17.1	21.6	4.5
32	Stone, Clay & Glass	11.5	13.4	1.9
33	Primary Metals	1.5	3.3	1.8
34	Fabricated Metals	1.1	1.1	/b
36	Electrical Machinery	1.2	5.9	4.8

a/Increase in share did not result from job gains, but from job losses smaller than statewide average decline in this industry.

b/Increase in share less than 0.1.

SOURCE: Minnesota Department of Jobs and Training, ES-202 employment data.

Table C

Population Density Range	Ranking of industry concentration by county population density									
	0-9	10-19	20-29	30-39	40-49	50-64	65-89	90-129	130-300	300+
1	271	271	327	271	327	327	327	275	275	275
2	241	241	275	327	271	275	359	327	327	359
3	352	327	202	275	275	271	275	271	204	399
4	327	352	352	359	204	399	271	204	359	344
5	242	204	204	204	202	352	352	344	344	307
6	201	359	399	399	399	202	202	359	354	354
7	204	202	201	202	352	344	399	201	399	327
8	399	399	359	201	201	359	204	399	271	356
9	359	242	242	241	359	201	344	352	243	347
10	202	275	344	344	344	204	201	353	352	271
11	249	201	307	352	307	354	307	202	353	243
12	275	249	371	307	205	243	353	355	201	239
13	353	344	379	242	353	307	354	307	202	279
14	354	307	207	353	394	353	328	243	208	349
15	379	353	353	371	354	239	356	205	349	346
16	355	371	203	354	208	394	208	354	272	355
17	344	243	245	379	272	249	332	371	307	367
18	371	394	354	394	274	371	243	394	355	272
19	307	209	208	249	356	347	371	208	205	352
20	349	379	243	355	207	207	205	209	279	204
21	243	239	355	243	209	205	239	251	356	353
22	272	208	287	251	243	272	355	367	249	358
23	232	355	274	232	242	245	265	396	209	384
24	334	272	394	203	371	355	349	349	274	394
25	239	245	205	349	249	289	251	284	242	284
26	251	349	239	274	379	254	207	242	239	371
27	287	287	329	336	355	379	379	272	384	264
28	205	332	373	367	245	367	373	332	273	205
29	209	373	249	356	284	203	287	356	347	201
30	281	254	251	208	264	208	394	264	394	209
31	266	342	342	239	393	349	272	287	284	208
32	207	329	232	332	334	346	242	207	367	274
33	394	354	349	272	358	244	274	347	342	372
34	244	233	241	209	329	242	336	239	251	345
35	279	264	272	245	349	373	323	265	289	289
36	331	205	264	287	326	342	346	283	278	251
37	233	207	358	205	336	325	342	369	371	249
38	376	334	336	291	278	284	249	295	336	265
39	393	232	289	342	342	241	393	342	264	357
40	291	206	319	346	241	306	329	334	283	336
41	283	289	363	283	266	356	244	341	265	254
42	245	203	254	207	396	358	279	279	244	366
43	372	343	233	244	345	209	284	281	346	278
44	358	393	209	289	289	287	362	289	326	342
45	323	396	345	373	386	251	358	358	207	362
46	319	266	328	279	347	334	273	311	366	273
47	274	345	372	281	233	283	363	306	379	202
48	343	283	283	363	236	265	383	253	241	369
49	386	384	346	366	384	336	334	329	358	332
50	342	251	347	233	285	386	345	266	254	329

STEP 4 ASSESS YOUR LOCAL RESOURCE BASE

Resource Materials:

Table D - "Example of 1980 Census, Labor Supply Information"

Example: Example SIC Code Listing from Minnesota Directory of
Manufacturers

Table E - "Example of Information from the City/County Data
Book (U.S. Department of Commerce, Bureau of
Census"

REF
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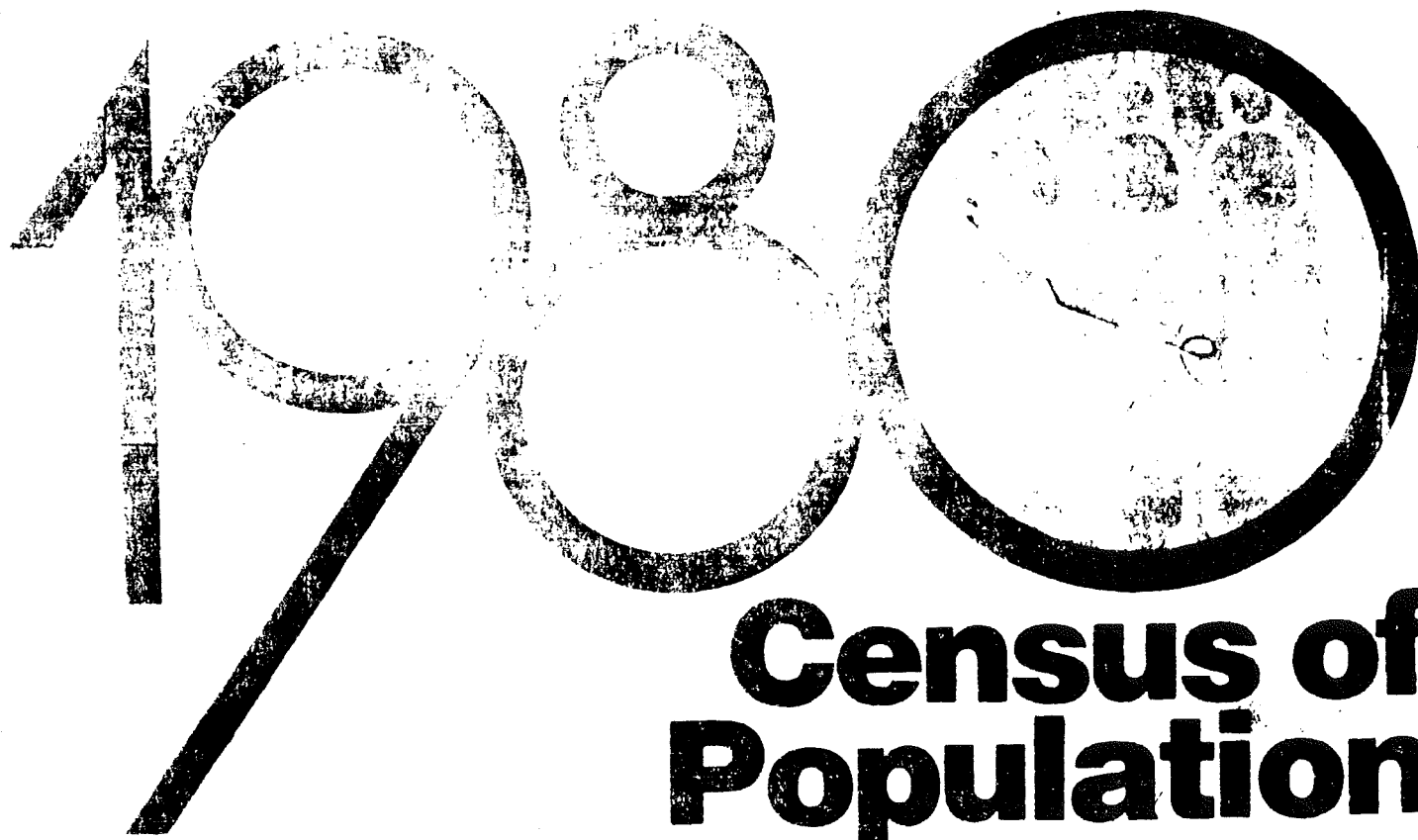
TABLE D

CHARACTERISTICS OF THE POPULATION

General Social and Economic Characteristics

MINNESOTA

Library
19
55731



Census of Population

U.S. Department of Commerce
BUREAU OF THE CENSUS

MINNESOTA
EMPLOYMENT and WAGES
BY COUNTY
4th QUARTER 1985

Department of Energy &
Economic Development
1985

AITKIN COUNTY

Industry	Units	Employment			Total Wages
		October	November	December	
Agriculture, Forestry and Fisheries	*	*	*	*	*
Mining	*	*	*	*	*
Construction	43	110	102	66	\$302,240.
Manufacturing	*	*	*	*	*
Transportation, Communications and Utilities	18	128	126	104	487,717.
Trade	116	835	785	806	1,705,662.
Finance, Insurance and Real Estate	23	126	121	124	390,837.
Services	58	481	488	490	1,336,936.
Total Private	299	1,994	1,921	1,876	5,644,701.
Total Government	47	597	606	594	2,479,830.
Grand Total	346	2,591	2,527	2,470	\$8,124,531.

TABLE D (cont'd)

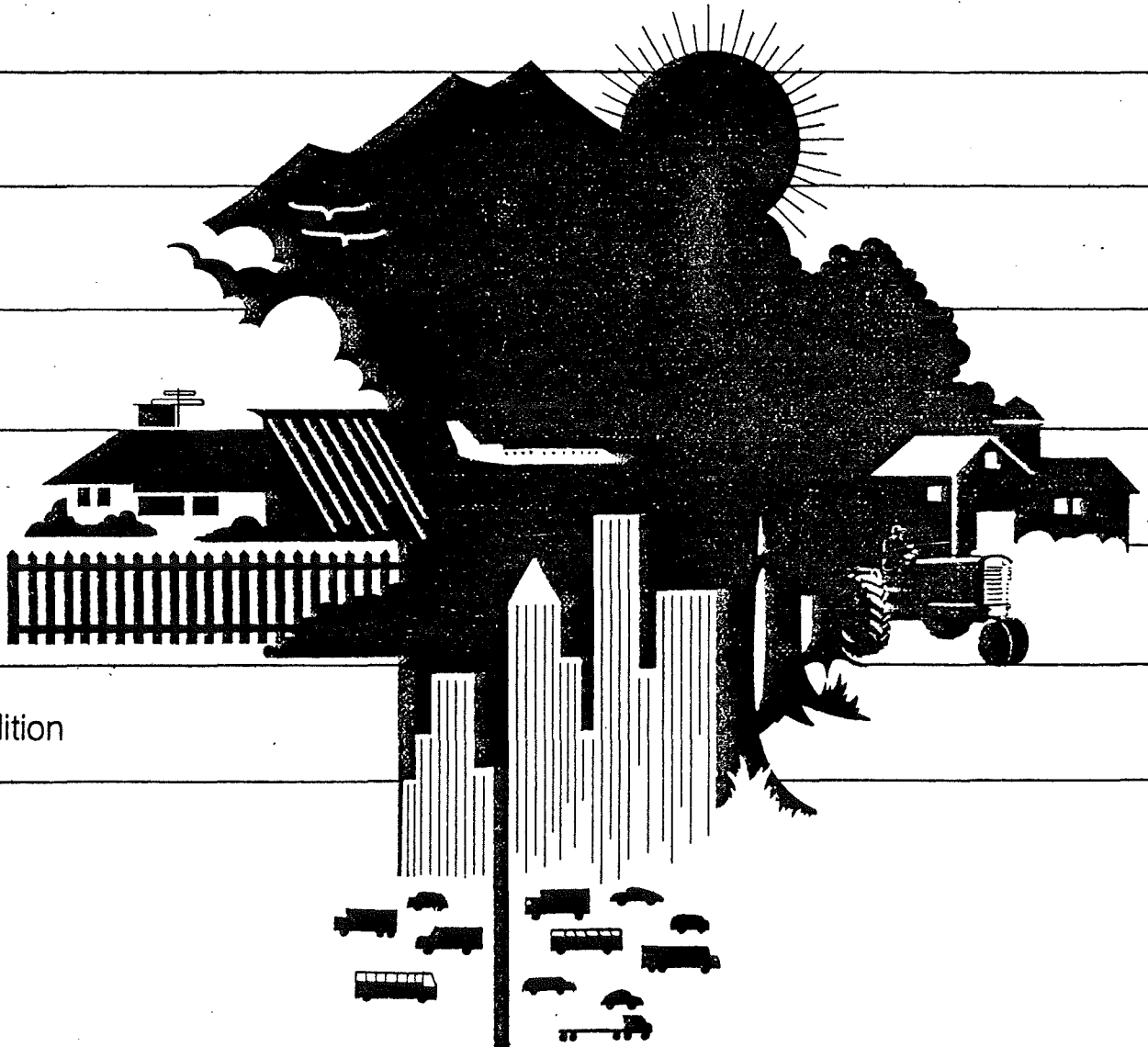
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istical Abstract Supplement

TABLE E

County and City Data Book

1983



10th Edition

STEP 5 MATCH YOUR RESOURCES WITH INDUSTRY NEEDS

Resource Materials:

Table F - "Input Requirements by Industry"

Table G - "Staffing Patterns by Industry"

TABLE G

TABLE 224. (A) OCCUPATION OF EMPLOYED PERSONS BY INDUSTRY: 1980

DATA ARE ESTIMATES BASED ON A SAMPLE; SEE INTRODUCTION. FOR MEANING OF SYMBOLS, SEE INTRODUCTION. FOR DEFINITIONS OF TERMS, SEE APPENDIXES A AND B1

MINNESOTA

	TOTAL	AGRICULTURE FORESTRY AND FISHERIES			CONSTRUCTION	TOTAL	MANUFACTURING NONDURABLE GOODS				
								FOOD AND KINDRED PRODUCTS	TEXTILE PRODUCTS	APPAREL AND MILL ISHED TEXTILE PROD.	PAPER AND ALLIED PRODUCTS
EMPLOYED PERSONS 16 YEARS AND OVER	1 885 521	110 647	15 221	99 380	380 763	131 666	45 969	2 733	5 892	14 738	36 515
MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS	434 495	2 794	1 418	9 359	71 140	21 679	7 001	274	550	1 818	7 309
EXECUTIVE, ADMINISTRATIVE, AND MANAGERIAL OCCUPATIONS, OFFICIALS AND ADMINISTRATORS, PUBLIC ADMINISTRATIONS	200 130	1 128	806	7 612	44 086	14 784	5 596	233	470	1 286	3 898
FINANCIAL MANAGERS	5 711	-	-	171	-	-	-	-	-	-	-
ADMINISTRATORS, EDUCATION AND RELATED FIELDS	6 987	41	18	126	1 778	630	238	-	32	36	145
MANAGERS, MEDICINE AND HEALTH	5 859	-	6	6	28	17	2	-	-	-	3
OTHER SPECIFIED MANAGERS AND ADMINISTRATORS, N.E.C..	2 074	-	-	-	-	-	-	-	-	-	-
SALARIED	24 668	155	32	493	6 842	2 532	889	33	72	201	840
SELF-EMPLOYED	104 183	719	421	5 372	25 668	8 608	2 923	147	297	763	2 452
MANAGEMENT RELATED OCCUPATIONAL ACCOUNTANTS AND AUDITORS, PERSONNEL, TRAINING, AND LABOR RELATIONS SPECIALISTS	94 110	595	404	4 345	24 697	8 155	2 854	127	265	755	2 154
BUYERS AND PURCHASING AGENTS, INSPECTORS AND COMPLIANCE OFFICERS	10 073	124	17	1 227	971	453	69	20	32	8	298
OTHER MANAGEMENT RELATED OCCUPATIONS	50 648	213	329	1 244	9 770	2 997	1 544	53	69	286	458
PROFESSIONAL SPECIALTY OCCUPATIONS	20 769	91	120	557	4 669	1 539	815	16	19	151	247
ENGINEERS, ARCHITECTS, AND SURVEYORS	8 514	55	129	174	1 802	497	216	30	23	33	92
ARCHITECTS	7 932	29	29	181	2 629	773	431	7	23	81	82
CIVIL ENGINEERS	3 454	11	34	281	57	13	8	-	-	-	-
ELECTRICAL AND ELECTRONIC ENGINEERS	9 979	27	17	51	613	175	74	-	4	21	37
INDUSTRIAL ENGINEERS	234 365	1 666	612	1 747	27 054	6 895	1 405	41	80	532	3 411
MECHANICAL ENGINEERS	23 195	231	458	1 329	14 513	1 583	453	26	15	307	114
OTHER ENGINEERS	1 961	178	-	109	66	9	4	-	-	-	5
SURVEYORS AND MAPPING SCIENTISTS	22 509	33	404	1 132	14 429	1 567	449	26	15	307	102
COMPUTER SYSTEMS ANALYSTS AND SCIENTISTS	2 874	25	26	947	217	65	43	-	-	-	-
OPERATIONS AND SYSTEMS RESEARCHERS AND ANALYSTS	5 593	-	20	32	3 936	71	20	-	-	34	-
MATHEMATICAL SCIENTISTS	4 503	-	48	21	3 771	499	123	17	13	121	72
NATURAL SCIENTISTS	3 624	1	63	45	2 986	208	72	-	-	38	16
CHEMISTS, EXCEPT BIOCHEMISTS	5 913	7	247	87	3 519	724	191	9	2	114	14
HEALTH DIAGNOSING OCCUPATIONS	725	20	54	88	18	7	-	-	-	-	7
HEALTH ASSESSMENT AND TREATING OCCUPATIONS	4 417	-	-	20	2 329	246	121	2	-	22	32
REGISTERED NURSES	1 034	-	1	5	402	76	14	-	-	10	18
TEACHERS, EXCEPT POSTSECONDARY	650	14	6	5	141	11	2	-	-	9	-
SOCIAL SCIENTISTS AND URBAN PLANNERS	4 768	416	117	53	1 454	787	276	2	-	96	14
SOCIAL AND RECREATION WORKERS	1 628	7	57	-	1 034	572	136	2	-	69	14
LAWYERS AND JUDGES	11 937	724	-	-	35	17	15	-	-	-	-
WRITERS, ARTISTS, ENTERTAINERS, AND ATHLETES	37 835	5	-	6	248	75	52	-	-	-	17
OTHER PROFESSIONAL SPECIALTY OCCUPATIONS	29 514	3	-	-	219	46	25	-	-	-	15
TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS	75 161	38	6	-	346	90	61	-	11	-	12
TECHNICIANS AND RELATED SUPPORT OCCUPATIONS	4 023	11	-	54	849	244	141	-	11	5	32
HEALTH TECHNOLOGISTS AND TECHNICIANS	10 301	13	-	4	19	2	2	-	-	-	-
LICENSED PRACTICAL NURSES	8 865	-	-	22	278	141	72	-	-	3	19
OTHER HEALTH TECHNOLOGISTS AND TECHNICIANS	23 730	214	24	249	6 177	3 540	167	11	37	80	3 123
ENGINEERING AND SCIENCE TECHNICIANS	26 449	-	-	-	263	83	29	-	6	-	30
ELECTRICAL AND ELECTRONIC TECHNICIANS	567 909	3 512	1 333	10 587	88 232	30 364	8 245	365	1 101	2 576	11 933
INDUSTRIAL AND MECHANICAL ENGINEERING TECHNICIANS	65 735	767	397	2 443	19 137	3 136	1 100	21	34	398	602
DRAFTING AND SURVEYING TECHNICIANS	22 143	243	13	-	134	12	6	-	-	-	6
TECHNICIANS, EXCEPT HEALTH, ENGINEERING, AND SCIENCE	10 175	-	-	-	10	5	5	-	-	-	-
TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS	11 968	243	13	-	124	7	1	-	-	-	6
TECHNICIANS AND RELATED SUPPORT OCCUPATIONS	23 065	380	303	2 262	11 870	2 263	884	12	21	288	311
HEALTH TECHNOLOGISTS AND TECHNICIANS	6 978	14	42	32	4 888	248	10	7	12	11	200
LICENSED PRACTICAL NURSES	449	-	4	5	380	69	12	-	-	44	-
OTHER HEALTH TECHNOLOGISTS AND TECHNICIANS	7 075	29	99	929	3 095	232	57	-	2	48	44
TECHNICIANS, EXCEPT HEALTH, ENGINEERING, AND SCIENCE	20 527	144	81	181	7 133	861	210	9	13	110	285

TABLE G (cont'd)

TABLE 224. (A) OCCUPATION OF EMPLOYED PERSONS BY INDUSTRY: 1980 - CON.

DATA ARE ESTIMATES BASED ON A SAMPLE; SEE INTRODUCTION. FOR MEANING OF SYMBOLS, SEE INTRODUCTION. FOR DEFINITIONS OF TERMS, SEE APPENDICES A AND B1

MINNESOTA	TOTAL	AGRICULTURE FORESTRY AND FISHERIES			CONSTRUCTION	TOTAL	MANUFACTURING NONDURABLE GOODS					
		FISHERIES	MINING	CONSTRUCTION			FOOD AND KINDRED PRODUCTS	TEXTILE PRODUCTS	APPAREL AND MILL ISHED TEXTILE PROD.	PAPER AND ALLIED PRODUCTS	PRINTING AND PUBLISHING AND ALLIED INDUSTRIES	
COMPUTER PROGRAMMERS	9 352	14	32	34	4 654	461	108	2	13	25	210	
OTHER TECHNICIANS, EXCEPT HEALTH, ENGINEERING, AND SCIENCE	11 175	130	49	147	2 479	400	102	7	-	85	75	
SALES OCCUPATIONS	187 186	523	37	1 229	14 438	7 529	1 306	105	376	421	3 744	
SUPERVISORS AND PROPRIETORS, SALES OCCUPATIONS	24 823	21	8	87	929	364	171	7	12	12	126	
SELF-EMPLOYED	6 609	4	1	12	69	10	4	-	-	-	-	
SALES REPRESENTATIVES, FINANCE AND BUSINESS SERVICES	35 951	166	-	1 019	2 240	2 151	6	-	-	-	2 133	
SALES REPRESENTATIVES, COMMODITIES, EXC. RETAIL	26 896	244	27	19	9 321	3 427	1 048	98	364	409	7	
SALES WORKERS, RETAIL AND PERSONAL SERVICES	98 790	92	2	104	1 875	1 567	65	-	-	-	1 478	
CASHIERS	28 532	68	2	9	185	124	63	-	-	-	43	
SALES RELATED OCCUPATIONS	726	-	-	-	73	20	16	-	-	-	-	
ADMINISTRATIVE SUPPORT OCCUPATIONS, INCLUDING CLERICAL	314 988	2 222	899	6 915	54 657	19 699	5 839	239	691	1 757	7 587	
SUPERVISORS, ADMINISTRATIVE SUPPORT OCCUPATIONS	14 848	65	47	286	2 890	1 048	335	8	58	149	277	
COMPUTER EQUIPMENT OPERATORS	7 150	8	39	121	2 141	516	172	5	34	48	191	
SECRETARIES	87 588	582	167	2 481	14 204	4 721	1 649	46	145	405	1 484	
STENOGRAPHERS, & TYPISTS	73 391	518	156	2 277	12 420	3 865	1 473	46	100	365	987	
RECEPTIONISTS	11 326	155	4	191	954	360	111	7	8	23	132	
OTHER INFORMATION CLERKS	7 243	18	17	50	311	155	51	-	2	9	70	
FILE CLERKS	4 271	6	8	38	1 168	509	225	12	12	36	155	
OTHER RECORDS PROCESSING OCCUPATIONS, EXCEPT FINANCIAL	12 514	34	22	50	1 787	836	125	15	45	80	464	
BOOKKEEPERS, ACCOUNTING, AND AUDITING CLERKS	41 033	882	129	2 297	5 530	2 270	917	14	57	113	745	
PAYROLL AND TIMEKEEPING CLERKS	2 508	14	29	107	705	319	135	15	12	45	52	
OTHER FINANCIAL RECORDS PROCESSING OCCUPATIONS	5 020	17	17	29	741	357	90	7	8	33	147	
TELEPHONE OPERATORS	3 904	16	2	30	268	106	5	5	-	5	66	
MAIL AND MESSAGE DISTRIBUTING OCCUPATIONS	14 248	19	8	29	1 085	720	85	-	-	21	555	
PRODUCTION COORDINATORS AND EXPEDITORS	6 889	18	78	130	3 466	723	116	19	34	93	309	
TRAFFIC, SHIPPING AND RECEIVING CLERKS	9 063	9	10	59	4 255	1 375	289	37	81	234	385	
STOCK AND INVENTORY CLERKS	10 275	37	74	164	3 641	753	287	20	60	100	101	
OTHER MATERIAL RECORDING, SCHEDULING, AND DISTRIBUTING CLERKS	4 134	42	63	44	640	424	287	-	8	34	17	
DATA-ENTRY KEYERS	8 554	13	31	97	2 124	750	208	3	9	75	321	
OTHER ADMINISTRATIVE SUPPORT OCCUPATIONS	64 412	287	154	712	8 747	3 757	752	26	118	254	2 116	
SERVICE OCCUPATIONS	264 633	637	432	780	8 340	3 710	2 066	26	83	412	527	
PRIVATE HOUSEHOLD OCCUPATIONS	6 979	-	-	-	-	-	-	-	-	-	-	
PROTECTIVE SERVICE OCCUPATIONS	16 955	195	88	44	1 071	353	164	2	2	62	31	
GUARDS	6 653	42	79	44	1 000	347	158	2	2	62	31	
OTHER PROTECTIVE SERVICE OCCUPATIONS	10 302	153	9	-	71	6	6	-	-	-	-	
SERVICE OCCUPATIONS, EXC. PROTECTIVE AND HOUSEHOLD	240 699	442	344	736	7 269	3 357	1 902	24	81	350	496	
FOOD PREPARATION AND SERVICE OCCUPATIONS	101 689	26	5	11	721	456	359	-	-	45	20	
HEALTH SERVICE OCCUPATIONS	44 266	12	-	7	72	45	19	-	-	-	16	
CLEANING AND BUILDING SERVICE OCCUPATIONS, EXC. HOUSEHOLD	55 489	280	337	681	6 345	2 801	1 493	24	81	305	460	
PERSONAL SERVICE OCCUPATIONS	39 255	124	2	37	131	55	31	-	-	-	-	
FARMING, FORESTRY, AND FISHING OCCUPATIONS	106 902	101 456	1	161	1 728	94	48	-	-	42	-	
PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS	212 891	742	6 835	59 507	59 874	18 135	8 329	392	721	2 359	2 785	
MECHANICS AND REPAIRERS	66 538	454	3 500	3 336	11 214	3 842	1 699	117	54	728	361	
SUPERVISORS, MECHANICS AND REPAIRERS	2 620	29	159	90	262	102	68	-	-	16	8	
AUTOMOBILE MECHANICS, INCLUDING BODY	21 635	90	535	504	902	323	215	19	2	26	17	
INDUSTRIAL MACHINERY REPAIRERS	7 177	139	905	233	4 138	1 884	775	39	23	240	227	
ELECTRONIC REPAIRERS, COMMUNICATIONS AND INDUSTRIAL EQUIPMENT	2 679	2	36	89	214	12	2	-	-	2	-	
HEATING, AIR CONDITIONING, AND REFRIGERATION MECHANICS	1 444	4	11	411	275	33	17	-	-	2	12	
OTHER MECHANICS AND REPAIRERS	30 983	190	1 854	2 009	5 423	1 488	622	59	29	442	97	
CONSTRUCTION TRADES	72 384	196	782	54 750	4 726	973	311	9	23	324	105	
SUPERVISORS, CONSTRUCTION OCCUPATIONS	10 601	22	62	9 088	204	40	20	-	-	11	6	
CARPENTERS	22 344	128	65	18 919	1 061	171	59	7	7	30	38	
ELECTRICIANS	9 124	2	513	5 735	1 256	372	137	2	-	146	35	
PAINTERS, CONSTRUCTION AND MAINTENANCE	5 457	14	29	3 770	694	64	22	-	-	6	2	
PLUMBERS, PIPEFITTERS, AND STEAMFITTERS	7 264	9	42	4 946	687	253	59	-	-	120	19	
OTHER CONSTRUCTION TRADES	17 594	21	71	12 292	824	73	14	-	16	11	5	

TABLE G (cont'd)

TABLE 224. (A) OCCUPATION OF EMPLOYED PERSONS BY INDUSTRY: 1980 - CON.

DATA ARE ESTIMATES BASED ON A SAMPLE; SEE INTRODUCTION. FOR MEANING OF SYMBOLS, SEE INTRODUCTION. FOR DEFINITIONS OF TERMS, SEE APPENDICES A AND B.

MINNESOTA

	TOTAL	AGRICULTURE FORESTRY AND FISHERIES			CONSTRUCTION	TOTAL	MANUFACTURING NONDURABLE GOODS				
				MINING			FOOD AND KINDRED PRODUCTS	TEXTILE MILL PRODUCTS	APPAREL AND OTHER FINISHED TEXTILE PROD.	PAPER AND ALLIED PRODUCTS	PRINTING AND PUBLISHING ALLIED INDUSTRIES
EXTRACTIVE OCCUPATIONS	2 185	2	2 025	42	85	29	6	9	-	2	-
PRECISION PRODUCTION OCCUPATIONS	71 784	90	528	1 379	43 849	13 291	6 313	257	644	1 305	2 319
SUPERVISORS, PRODUCTION OCCUPATIONS	26 140	46	203	160	17 858	6 170	2 277	178	201	868	1 277
PRECISION METALWORKING OCCUPATIONS	16 117	5	250	996	12 970	1 294	212	30	22	263	167
TOOL AND DIE MAKERS	3 192	-	-	3	3 048	276	-	3	-	49	10
MACHINISTS	8 964	5	212	64	7 653	819	193	20	8	189	62
SHEET METALWORKERS	2 220	-	5	812	1 086	25	8	-	-	12	-
OTHER PRECISION METALWORKERS	1 741	-	33	117	1 183	174	11	7	14	13	95
PRECISION TEXTILE, APPAREL, AND FURNISHINGS MACHINE WORKERS	4 239	2	-	15	877	665	24	45	398	12	-
PRECISION FOOD PRODUCTION OCCUPATIONS	9 696	22	2	6	3 554	3 467	3 437	-	-	8	-
PRECISION INSPECTORS, TESTERS, AND RELATED WORKERS	1 279	-	-	66	749	40	11	-	-	9	6
PLANT AND SYSTEM OPERATORS, OTHER PRECISION PRODUCTION OCCUPATIONS	4 864	14	67	90	1 418	750	340	4	6	142	34
OPERATORS, FABRICATORS, AND LABORERS	298 691	1 506	5 202	18 986	151 449	57 684	20 280	1 676	3 437	7 531	13 961
MACHINE OPERATORS, ASSEMBLERS, & INSPECTORS	145 440	346	1 181	2 082	117 693	39 305	8 958	1 494	3 086	5 229	12 266
MACHINE OPERATORS AND TENDERS, EXC. PRECISION METALWORKING AND PLASTIC WORKING MACHINE OPERATORS	84 742	267	446	679	67 423	32 619	6 963	1 255	2 740	4 391	11 220
FABRICATING MACHINE OPERATORS, N.E.C.	11 086	7	35	83	10 379	375	68	5	2	26	95
METAL AND PLASTIC PROCESSING AND WOODWORKING MACHINE OPERATORS	321	-	1	9	285	19	-	-	-	1	18
PRINTING MACHINE OPERATORS	7 333	15	26	62	6 782	1 978	27	35	14	287	155
TEXTILE MACHINE OPERATORS	11 341	-	-	10	10 131	9 637	59	14	28	350	9 116
TEXTILE SEWING MACHINE OPERATORS	1 032	-	2	12	984	831	32	609	23	70	19
LAUNDERING AND DRYCLEANING MACHINE OPERATORS	3 538	2	8	-	3 127	2 602	23	263	2 166	30	6
PACKAGING AND FILLING MACHINE OPERATORS	3 761	-	-	3	33	33	23	10	-	-	-
FURNACE, KILN, AND OVEN OPERATORS, EXCEPT FOOD OPERATORS	2 444	-	-	-	2 175	1 960	1 716	29	-	76	37
OTHER SPECIFIED MACHINE OPERATORS	2 090	7	90	29	1 190	420	237	8	-	64	2
MISCELLANEOUS AND NOT SPECIFIED MACHINE OPERATORS	14 720	81	284	156	9 889	5 506	2 033	120	262	1 057	634
FABRICATORS, ASSEMBLERS, AND HAND WORKING OCCUPATIONS	27 076	155	-	315	22 448	9 258	2 745	162	245	2 430	1 138
WELDERS AND CUTTERS	49 425	69	646	1 364	40 917	4 231	1 111	142	139	556	679
ASSEMBLERS, HAND WORKING OCCUPATIONS	13 575	40	641	1 157	9 160	395	156	8	6	94	25
PRODUCTION INSPECTORS, TESTERS, SAMPLERS, AND WEIGHERS	33 078	27	2	175	29 731	3 137	550	96	109	429	550
GRADERS AND SORTERS, EXCEPT AGRICULTURAL	1 834	2	3	29	1 140	657	391	35	20	33	87
TRANSPORTATION AND MATERIAL MOVING OCCUPATIONS	11 273	10	89	39	9 353	2 455	884	97	207	282	367
TRUCK DRIVERS	1 451	2	5	7	560	430	326	-	4	30	28
DRIVER-SALES WORKERS	76 568	715	2 508	7 304	13 095	6 818	4 307	31	53	844	684
RAIL AND WATER TRANSPORTATION OCCUPATIONS	61 655	636	1 443	2 765	7 327	4 414	3 163	19	28	248	563
MATERIAL MOVING EQUIPMENT OPERATORS	57 288	626	1 216	2 705	7 199	4 403	3 154	19	28	246	563
SUPERVISORS, MATERIAL MOVING EQUIPMENT OPERATORS	42 005	601	1 186	2 661	5 975	3 280	2 138	19	22	241	491
CRANE, HOIST, AND WINCH OPERATORS	3 314	19	3	4	1 036	992	934	-	-	-	58
EXCAVATING, GRADING, AND DOZER MACHINE OPERATORS	4 367	10	227	60	128	11	9	-	-	2	-
OTHER MATERIAL MOVING EQUIPMENT OPERATORS	14 913	79	1 065	4 539	5 768	2 404	1 144	12	25	596	121
HANDLERS, EQUIPMENT CLEANERS, HELPERS, AND LABORERS	642	-	7	22	131	56	18	-	-	8	2
SUPERVISORS, HANDLERS, EQUIPMENT CLEANERS, AND LABORERS, N.E.C.	1 511	2	178	362	601	149	43	-	-	73	-
HELPERS, CRAFT AND PRODUCTION	1 579	13	254	1 139	46	7	7	-	-	-	-
CONSTRUCTION LABORERS	9 068	19	27	47	579	312	251	2	-	15	12
FREIGHT, STOCK, AND MATERIAL HANDLERS	11 181	64	626	3 016	4 990	2 192	1 076	12	25	515	119
GARAGE AND SERVICE STATION OCCUPATIONS, AND EQUIPMENT CLEANERS	76 683	445	1 513	9 600	20 661	11 561	7 015	151	298	1 458	1 011
HAND PACKERS AND PACKAGERS	118	6	-	9	31	22	17	-	-	5	-
LABORERS, EXCEPT CONSTRUCTION	3 394	6	828	656	933	441	156	1	-	60	164
CONSTRUCTION LABORERS	9 580	5	79	8 768	199	81	4	3	-	42	18
CONSTRUCTION	23 281	116	126	101	4 033	2 237	1 576	33	59	189	143
CONSTRUCTION	9 068	19	27	47	579	312	251	2	-	15	12
CONSTRUCTION	8 415	68	3	19	4 915	3 122	1 935	38	114	329	252
CONSTRUCTION	22 827	225	450	-	9 971	5 346	3 076	74	125	818	422

TABLE G (cont'd)

TABLE 224. (B) OCCUPATION OF EMPLOYED PERSONS BY INDUSTRY: 1980 - CON.

DATA ARE ESTIMATES BASED ON A SAMPLE; SEE INTRODUCTION. FOR MEANING OF SYMBOLS, SEE INTRODUCTION. FOR DEFINITIONS OF TERMS, SEE APPENDIXES A AND B1

MINNESOTA

	MANUFACTURING - CON.											
	NONDURABLE GOODS - CON.		DURABLE GOODS									
	CHEMICALS, RUBBER AND ALLIED PRODUCTS	RUBBER AND MISCELLANEOUS PLASTICS	TOTAL	FURNITURE, LUMBER, AND WOOD PRODUCTS	STONE, CLAY, GLASS, AND CONCRETE PRODUCTS	PRIMARY METAL INDUSTRIES	FABRICATED METAL INCLUDING ORDNANCE	MACHINERY EXCEPT ELECTRICAL	ELECTRICAL MACHINERY AND SUPPLY	MOTOR VEHICLES AND EQUIPMENT	VEHICLES AND PARTS	AIRCRAFT SPACE VEHICLES AND PARTS
EMPLOYED PERSONS 16 YEARS AND OVER	11 762	10 671	249 097	15 924	8 198	9 184	33 403	91 479	40 662	5 837	1 102	3 092
MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS	2 999	1 327	49 461	1 496	1 108	1 068	4 992	21 851	8 901	854	234	518
EXECUTIVE, ADMINISTRATIVE, AND MANAGERIAL OCCUPATIONS, OFFICIALS AND ADMINISTRATORS, PUBLIC ADMINISTRATIONS	1 930	1 096	29 302	1 321	940	849	2 994	11 939	4 914	704	101	382
FINANCIAL MANAGERS	87	91	1 148	35	32	66	121	547	170	21	-	15
ADMINISTRATORS, EDUCATION AND RELATED FIELDS	12	-	11	-	-	-	-	2	-	-	-	-
MANAGERS, MEDICINE AND HEALTH	-	-	-	-	-	-	-	-	-	-	-	-
OTHER SPECIFIED MANAGERS	311	104	4 310	154	104	80	384	1 585	980	185	22	51
MANAGERS AND ADMINISTRATORS, N.E.C.	1 147	718	17 060	902	639	521	1 864	6 767	2 576	388	43	239
SALARIED	1 141	704	16 342	777	620	519	1 779	6 442	2 570	351	43	231
SELF-EMPLOYED	6	14	518	125	19	2	85	125	6	37	-	8
MANAGEMENT RELATED OCCUPATIONS	373	183	6 773	230	165	182	625	3 038	1 188	110	36	77
ACCOUNTANTS AND AUDITORS, PERSONNEL, TRAINING, AND LABOR RELATIONS SPECIALISTS	206	77	3 130	108	65	80	230	1 512	515	62	12	23
BUYERS AND PURCHASING AGENTS	48	49	1 305	32	51	47	150	529	252	19	12	12
INSPECTORS AND COMPLIANCE OFFICERS	86	55	1 856	90	46	28	196	832	305	22	12	34
OTHER MANAGEMENT RELATED OCCUPATIONS	5	-	44	-	-	12	6	-	8	-	-	-
28	2	438	-	3	15	43	165	108	7	-	-	8
PROFESSIONAL SPECIALTY OCCUPATIONS	1 069	231	20 159	175	168	219	1 998	9 912	3 987	150	133	136
ENGINEERS, ARCHITECTS, AND SURVEYORS	410	164	12 930	91	77	170	1 523	5 918	2 788	109	129	92
ARCHITECTS	-	-	57	2	-	-	-	19	34	-	-	-
ENGINEERS	410	164	12 862	89	77	159	1 523	5 899	2 754	109	129	92
CIVIL ENGINEERS	2	7	152	-	15	5	38	59	24	-	-	-
ELECTRICAL AND ELECTRONIC ENGINEERS	5	12	3 865	2	-	23	266	1 797	1 248	5	24	3
INDUSTRIAL ENGINEERS	66	57	3 272	34	28	71	442	1 430	653	26	14	12
MECHANICAL ENGINEERS	31	23	2 778	6	23	18	373	1 778	271	72	15	37
OTHER ENGINEERS	306	65	2 795	47	11	42	404	835	558	6	76	40
SURVEYORS AND MAPPING SCIENTISTS	-	-	11	-	-	11	-	-	-	-	-	-
COMPUTER SYSTEMS ANALYSTS AND SCIENTISTS	46	23	2 083	-	-	-	53	1 810	105	2	4	-
OPERATIONS AND SYSTEMS RESEARCHERS AND ANALYSTS	34	-	326	-	-	-	49	150	59	-	-	-
MATHEMATICAL SCIENTISTS	-	-	130	-	-	-	17	58	40	-	-	-
NATURAL SCIENTISTS	376	16	667	14	9	9	47	116	241	3	-	-
CHEMISTS, EXCEPT BIOCHEMISTS	328	16	462	5	9	9	45	56	190	-	-	-
HEALTH DIAGNOSING OCCUPATIONS	2	-	18	-	-	-	-	5	7	-	-	-
HEALTH ASSESSMENT AND TREATING OCCUPATIONS	6	-	173	5	9	8	37	38	32	-	-	-
REGISTERED NURSES	6	-	173	5	9	8	37	38	32	-	-	-
TEACHERS, EXCEPT POSTSECONDARY	6	-	256	-	11	7	-	147	52	-	-	3
SOCIAL SCIENTISTS AND URBAN PLANNERS	49	-	605	10	2	-	67	217	99	16	-	2
SOCIAL AND RECREATION WORKERS	47	-	137	-	-	-	2	70	37	-	-	-
LAWYERS AND JUDGES, WRITERS, ARTISTS, ENTERTAINERS, AND ATHLETES	75	28	2 637	55	60	25	196	1 274	465	20	-	39
OTHER PROFESSIONAL SPECIALTY OCCUPATIONS	18	-	180	-	-	-	7	109	52	-	-	-
TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS	3 839	1 685	57 868	1 932	1 297	1 226	6 461	24 809	10 233	1 114	258	514
TECHNICIANS AND RELATED SUPPORT OCCUPATIONS	717	203	16 001	255	194	225	1 244	9 081	2 762	125	99	63
HEALTH TECHNOLOGISTS AND TECHNICIANS	-	-	122	2	-	-	6	10	30	6	-	-
LICENSED PRACTICAL NURSES OTHER HEALTH TECHNOLOGISTS AND TECHNICIANS	-	-	5	2	-	-	-	-	3	-	-	-
ENGINEERING AND SCIENCE TECHNICIANS	-	-	117	-	-	-	6	10	27	6	-	-
ELECTRICAL AND ELECTRONIC TECHNICIANS	549	137	9 607	188	155	154	909	4 430	2 198	75	90	41
INDUSTRIAL AND MECHANICAL ENGINEERING TECHNICIANS, DRAFTING AND SURVEYING TECHNICIANS	3	5	4 640	2	8	6	207	2 453	1 384	8	29	6
TECHNICIANS, EXCEPT HEALTH, ENGINEERING, AND SCIENCE	6	7	311	30	6	-	31	161	45	-	5	-
40	34	2 863	119	83	51	395	1 267	442	60	48	26	
168	66	6 272	65	39	71	329	4 641	534	44	9	22	

TABLE G (cont'd)

TABLE 224. (B) OCCUPATION OF EMPLOYED PERSONS BY INDUSTRY: 1980 - CON.

DATA ARE ESTIMATES BASED ON A SAMPLE; SEE INTRODUCTION. FOR MEANING OF SYMBOLS, SEE INTRODUCTION. FOR DEFINITIONS OF TERMS, SEE APPENDICES A AND B7

MINNESOTA	NONDURABLE GOODS-CON.		MANUFACTURING - CON.									
	CHEMICALS AND ALLIED PRODUCTS	RUBBER AND MISCELLANEOUS PLASTICS PROD.	TOTAL	FURNITURE, LUMBER, AND WOOD PRODUCTS	STONE, CLAY, GLASS, AND CONCRETE PRODUCTS	PRIMARY METAL INDUSTRIES	FABRICATED METAL INCLUDING ORDNANCE	MACHINERY EXCEPT ELECTRICAL AND SUPPLY	ELECTRICAL MACHINERY AND EQUIPMENT	MOTOR VEHICLES AND TRUCKS	AIRCRAFT AND SPACE VEHICLES AND PARTS	OTHER TRANSPORTATION EQUIPMENT
COMPUTER PROGRAMMERS	72	31	4 193	21	9	12	163	3 599	194	15	7	10
OTHER TECHNICIANS, EXCEPT HEALTH, ENGINEERING, AND SCIENCE.	96	35	2 079	44	30	59	166	1 042	340	29	2	12
SALES OCCUPATIONS.	1 088	310	6 909	425	286	214	660	2 181	979	307	19	82
SUPERVISORS AND PROPRIETORS, SALES OCCUPATIONS	20	10	565	36	37	-	35	202	90	31	6	14
SELF-EMPLOYED SALES REPRESENTATIVES, FINANCE AND BUSINESS SERVICES.	-	6	59	7	22	-	14	5	-	-	-	-
SALES REPRESENTATIVES, COMMODITIES, EXC. RETAIL.	5	7	89	5	-	-	16	20	13	-	-	-
SALES REPRESENTATIVES, SALES WORKERS, RETAIL AND PERSONAL SERVICES	1 045	283	5 894	357	243	201	588	1 861	816	193	12	62
CASHIERS.	18	6	308	21	-	13	14	81	53	83	1	6
SALES RELATED OCCUPATIONS.	18	4	61	6	-	8	21	4	5	-	-	-
SALES RELATED OCCUPATIONS.	-	4	53	6	6	-	7	17	7	-	-	-
ADMINISTRATIVE SUPPORT OCCUPATIONS, INCLUDING CLERICAL.	2 034	1 172	34 958	1 252	817	787	4 557	13 547	6 492	682	140	369
SUPERVISORS, ADMINISTRATIVE SUPPORT OCCUPATIONS	120	71	1 842	70	58	37	174	615	448	60	6	13
COMPUTER EQUIPMENT OPERATORS	40	15	1 625	54	13	21	157	893	216	46	-	25
SECRETARIES, STENOGRAPHERS, & TYPISTS.	593	309	9 483	361	177	180	1 041	3 774	1 798	115	36	94
SECRETARIES.	522	287	8 555	313	161	159	908	3 393	1 691	107	29	92
RECEPTIONISTS.	58	21	594	7	43	9	88	244	61	7	-	11
OTHER INFORMATION CLERKS	23	-	156	14	-	13	28	35	18	-	-	2
FILE CLERKS.	26	30	659	9	24	33	79	174	173	2	-	6
OTHER RECORDS PROCESSING OCCUPATIONS, EXCEPT FINANCIAL.	49	52	951	45	25	15	122	359	180	9	-	6
BOOKKEEPERS, ACCOUNTING, AND AUDITING CLERKS	235	150	3 260	185	182	93	355	1 269	523	53	20	50
PAYROLL AND TIMEKEEPING CLERKS.	23	23	386	21	8	18	74	104	91	-	-	2
OTHER FINANCIAL RECORDS PROCESSING OCCUPATIONS.	49	23	384	15	10	-	74	132	64	-	2	-
TELEPHONE OPERATORS.	6	19	162	7	6	15	12	47	11	13	-	-
MAIL AND MESSAGE DISTRIBUTING OCCUPATIONS.	45	14	365	9	10	13	19	147	75	5	5	6
PRODUCTION COORDINATORS AND EXPEDITERS.	77	63	2 743	53	20	44	484	1 123	575	59	33	24
TRAFFIC, SHIPPING AND RECEIVING CLERKS.	190	123	2 880	121	50	128	584	1 012	366	115	2	40
STOCK AND INVENTORY CLERKS	108	62	2 888	75	36	42	388	1 195	509	79	26	43
OTHER MATERIAL RECORDING, SCHEDULING, AND DISTRIBUTING CLERKS	16	36	216	11	29	-	14	65	53	5	-	1
DATA-ENTRY KEYERS.	97	28	1 374	26	21	37	158	574	358	30	-	-
OTHER ADMINISTRATIVE SUPPORT OCCUPATIONS	279	133	4 990	169	105	89	706	1 785	973	84	10	46
SERVICE OCCUPATIONS.	290	194	4 630	310	156	305	769	1 179	845	116	16	131
PRIVATE HOUSEHOLD OCCUPATIONS	-	-	-	-	-	-	-	-	-	-	-	-
PROTECTIVE SERVICE OCCUPATIONS	66	13	718	38	31	28	120	177	182	11	2	47
GUARDS.	66	13	653	38	31	28	83	164	167	11	2	47
OTHER PROTECTIVE SERVICE OCCUPATIONS.	-	-	65	-	-	-	37	13	15	-	-	-
SERVICE OCCUPATIONS, EXC. PROTECTIVE AND HOUSEHOLD.	224	181	3 912	272	125	277	649	1 002	663	105	14	84
FOOD PREPARATION AND SERVICE OCCUPATIONS	16	-	265	14	-	6	11	58	84	-	-	3
HEALTH SERVICE OCCUPATIONS	4	-	27	-	-	7	6	5	2	-	-	2
CLEANING AND BUILDING SERVICE OCCUPATIONS, EXC. HOUSEHOLD	190	174	3 544	242	125	251	632	917	570	105	14	79
PERSONAL SERVICE OCCUPATIONS	14	7	76	16	-	13	-	22	7	-	-	-
FARMING, FORESTRY, AND FISHING OCCUPATIONS	2	2	1 634	1 464	6	22	19	55	30	-	-	2
PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS.	1 098	1 736	41 739	3 327	1 516	1 799	6 342	15 540	5 813	1 041	232	710
MECHANICS AND REPAIRERS	347	421	7 372	348	357	392	954	2 902	1 092	318	33	153
SUPERVISORS, MECHANICS AND REPAIRERS	2	-	160	5	25	28	20	47	9	-	-	-
AUTOMOBILE MECHANICS, INCLUDING BODY.	23	15	579	9	79	44	55	162	29	134	-	26
INDUSTRIAL MACHINERY REPAIRERS	203	308	2 254	149	144	133	481	673	341	32	-	37
ELECTRONIC REPAIRERS, COMMUNICATIONS AND INDUSTRIAL EQUIPMENT.	6	2	202	-	-	15	15	22	100	14	-	-
HEATING, AIR CONDITIONING, AND REFRIGERATION MECHANICS	2	-	242	-	-	5	27	147	35	-	-	-
OTHER MECHANICS AND REPAIRERS	111	96	3 935	185	109	167	356	1 851	578	138	33	90
CONSTRUCTION TRADES	61	39	3 753	817	234	167	619	721	479	110	12	276
SUPERVISORS, CONSTRUCTION OCCUPATIONS	-	3	164	37	13	-	12	33	22	-	-	31
CARPENTERS	12	1	890	496	17	6	51	58	37	6	-	159
ELECTRICIANS	14	16	884	69	27	76	92	220	260	35	-	24
PAINTERS, CONSTRUCTION AND MAINTENANCE	24	5	630	88	20	15	83	216	52	45	3	24
PLUMBERS, PIPEFITTERS, AND STEAMFITTERS.	7	7	434	54	11	12	98	87	77	15	3	27
OTHER CONSTRUCTION TRADES.	4	7	751	73	146	58	283	107	31	9	6	11

TABLE G (cont'd)

TABLE 224. (B) OCCUPATION OF EMPLOYED PERSONS BY INDUSTRY: 1980 - CON.

DATA ARE ESTIMATES BASED ON A SAMPLE; SEE INTRODUCTION. FOR MEANING OF SYMBOLS, SEE INTRODUCTION. FOR DEFINITIONS OF TERMS, SEE APPENDIXES A AND B1

MINNESOTA

	MANUFACTURING - CON.											
	NONDURABLE GOODS-CON.		DURABLE GOODS									
	CHEMICALS RUBBER AND ALLIED INDUS PRODUCTS	RUBBER AND MISCELLANEOUS PLASTIC PROD.	TOTAL	FURNITURE, LUMBER, AND WOOD PRODUCTS	STONE, CLAY, GLASS, AND CONCRETE PRODUCTS	PRIMARY METAL INDUSTRIES	FABRICATED METAL INCLUDING ORNANCE	MACHINERY ELECTRICAL	MOTOR VEH- ICLES AND SUPPLY	VEH- ICLES AND EQUIP	AIRCRAFT SPACE VEHICLES AND PARTS	OTHER TRANSPORTATION EQUIPMENT
EXTRACTIVE OCCUPATIONS.	10	-	56	4	6	22	4	18	2	-	-	-
PRECISION PRODUCTION OCCUPATIONS.	680	1 276	30 558	2 158	919	1 218	4 765	11 899	4 240	613	187	281
SUPERVISORS, PRODUCTION OCCUPATIONS.	501	694	11 688	902	492	659	1 916	3 486	1 867	371	43	153
PRECISION METALWORKING OCCUPATIONS.	92	486	11 676	137	93	314	2 507	6 071	903	199	120	86
TOOL AND DIE MAKERS.	28	181	2 772	17	2	106	768	1 290	264	13	28	11
MACHINISTS.	58	279	6 834	90	81	143	1 099	4 134	469	157	62	31
SHEET METALWORKERS.	3	2	1 061	12	2	29	523	268	138	14	20	-
OTHER PRECISION METALWORKERS.	3	24	1 009	18	8	36	117	379	32	15	10	44
PRECISION TEXTILE, APPAREL, AND FURNISHINGS MACHINE WORKERS.	7	21	212	49	1	2	21	5	7	14	3	23
PRECISION FOOD PRODUCTION OCCUPATIONS.	10	6	87	8	2	-	5	64	5	-	-	-
PRECISION INSPECTORS, TESTERS, AND RELATED WORKERS.	2	5	709	1	3	-	80	248	280	-	21	4
PLANT AND SYSTEM OPERATORS.	55	39	668	31	22	50	72	254	70	11	-	9
OTHER PRECISION PRODUCTION OCCUPATIONS.	13	25	5 518	1 030	306	193	164	1 771	1 108	18	-	6
OPERATORS, FABRICATORS, AND LABORERS.	3 534	5 727	93 765	7 395	4 115	4 764	14 820	28 045	14 840	2 712	362	1 217
MACHINE OPERATORS, ASSEMBLERS, & INSPECTORS.	2 423	4 815	78 388	5 383	2 190	3 416	12 593	24 949	13 072	2 358	337	899
MACHINE OPERATORS AND TENDERS, EXC. PRECISION METALWORKING AND PLASTIC WORKING MACHINE OPERATORS.	1 728	3 506	34 804	3 313	1 355	2 645	7 057	9 911	4 534	604	150	337
FABRICATING MACHINE OPERATORS, N.E.C.	44	133	10 004	257	163	551	2 595	4 221	1 067	235	63	67
METAL AND PLASTIC PROCESSING AND WOODWORKING MACHINE OPERATORS.	-	-	266	3	-	-	85	73	37	18	7	13
PRINTING MACHINE OPERATORS.	246	1 192	4 804	1 559	108	617	833	688	437	4	7	45
TEXTILE MACHINE OPERATORS.	39	31	494	7	16	10	72	139	126	-	-	7
TEXTILE SEWING MACHINE OPERATORS.	8	40	153	19	24	7	19	31	23	-	-	12
LAUNDERING AND DRYCLEANING MACHINE OPERATORS.	22	37	525	89	2	-	22	7	14	4	-	31
PACKAGING AND FILLING MACHINE OPERATORS.	61	26	215	11	33	8	27	50	37	-	-	-
FURNACE, KILN, AND OVEN OPERATORS, EXCEPT FOOD OTHER SPECIFIED MACHINE OPERATORS.	51	15	770	35	38	381	81	144	43	-	-	10
MISCELLANEOUS AND NOT SPECIFIED MACHINE OPERATORS.	410	566	4 383	368	504	353	741	986	603	126	6	45
FABRICATORS, ASSEMBLERS, AND HAND WORKING OCCUPATIONS.	847	1 466	13 190	965	467	718	2 582	3 572	2 147	217	67	107
WELDERS AND CUTTERS.	567	890	36 686	1 816	654	568	4 708	12 481	7 108	1 610	147	514
ASSEMBLERS, EXCEPT HAND WORKING OCCUPATIONS.	41	48	8 765	278	172	382	2 086	3 659	871	454	51	213
PRODUCTION INSPECTORS, TESTERS, SAMPLERS, AND WEIGHERS.	522	789	26 594	1 515	356	176	2 517	8 452	5 926	1 138	96	282
GRADERS AND SORTERS, EXCEPT AGRICULTURAL.	4	49	483	23	126	6	34	78	39	18	-	11
HANDWORKING OCCUPATIONS.	128	419	6 898	254	181	203	828	2 557	1 430	144	40	48
MATERIAL MOVING OCCUPATIONS.	6	31	130	59	25	-	9	11	8	-	-	-
TRANSPORTATION AND MATERIAL MOVING OCCUPATIONS.	472	249	6 277	962	1 027	606	864	1 275	538	178	8	128
MOTOR VEHICLE OPERATORS.	279	56	2 913	527	715	249	269	470	188	94	7	82
TRUCK DRIVERS.	279	56	2 796	526	715	172	266	449	188	86	7	75
DRIVER-SALES WORKERS.	263	56	2 695	526	708	171	250	426	172	64	7	73
RAIL AND WATER TRANSPORTATION OCCUPATIONS.	-	-	44	-	-	1	7	21	11	2	-	2
MATERIAL MOVING EQUIPMENT OPERATORS.	-	-	117	1	-	77	3	21	-	8	-	7
SUPERVISORS, MATERIAL MOVING EQUIPMENT OPERATORS.	193	193	3 364	435	312	357	595	805	350	84	1	46
CRANE, HOIST, AND WINCH OPERATORS.	10	10	75	7	-	6	-	30	12	6	-	-
EXCAVATING, GRADING, AND DOZER MACHINE OPERATORS.	18	3	452	18	47	165	139	35	24	5	1	12
OTHER MATERIAL MOVING EQUIPMENT OPERATORS.	-	-	39	14	2	11	-	12	-	-	-	-
HANDLERS, EQUIPMENT CLEANERS, HELPERS, AND LABORERS.	165	180	2 798	396	263	175	456	728	314	73	-	34
HANDLERS, EQUIPMENT CLEANERS, HELPERS, AND LABORERS.	639	663	9 100	1 050	898	742	1 363	1 821	1 230	176	17	190
SUPERVISORS, HANDLERS, EQUIPMENT CLEANERS, AND LABORERS, N.E.C.	-	-	9	-	-	-	6	-	3	-	-	-
HELPERS, CRAFT AND PRODUCTION.	8	39	492	39	18	52	104	124	69	21	-	14
CONSTRUCTION LABORERS.	11	3	118	17	55	11	11	7	4	-	-	3
FREIGHT, STOCK, AND MATERIAL HANDLERS.	102	94	1 796	295	172	104	269	312	329	62	16	29
GARAGE AND SERVICE STATION OCCUPATIONS, AND EQUIPMENT CLEANERS.	14	11	267	16	8	37	45	67	23	2	1	2
HAND PACKERS AND PACKAGERS.	213	196	1 793	140	140	36	183	359	366	32	-	4
LABORERS, EXCEPT CONSTRUCTION.	291	320	4 625	543	505	502	745	952	636	59	-	138

TABLE G (cont'd)

(SIC 38)			(SIC 38)		
Occupation	Employment ¹	Percent of total employment	Occupation	Employment ¹	Percent of total employment
Total	688,120	100.00	Operations and systems researchers and analysts, except computer	390	0.06
Managerial and administrative occupations	56,990	8.28	Opticians, dispensing and measuring	1,490	.22
Financial managers	4,050	.59	All other health professionals, paraprofessional and technicians	1,200	.17
Personnel, training, and labor relations managers	2,320	.34	Writers and editors	640	.09
Purchasing managers	1,690	.25	Technical writers	1,390	.20
Marketing, advertising, and public relations managers	5,690	.83	Designers, except interior designers	1,850	.27
Administrative services managers	2,000	.29	All other professional, paraprofessional, and technical workers	3,210	.47
Industrial production managers	6,050	.88	Sales and related occupations	25,680	3.73
General managers and top executives	19,900	2.89	First-line supervisors and manager/supervisors, sales and related workers	3,300	.48
All other managers and administrators	15,290	2.22	Sales engineers	3,040	.44
Professional, paraprofessional, and technical occupations	132,560	19.26	Sales representatives, scientific and related products and services, except retail	12,730	1.85
Management support workers	21,600	3.14	Sales representatives, except scientific and related products or services and retail	4,970	.72
Accountants, auditors, and other financial specialists	6,270	.91	All other sales and related workers	1,640	.24
Accountants and auditors	4,040	.59	Clerical and administrative support occupations	109,590	15.93
Budget analysts	1,140	.17	First-line supervisors and manager/supervisors, clerical and administrative support workers	3,930	.57
All other financial specialists	1,090	.16	Secretaries	23,840	3.46
Purchasing agents, except wholesale and retail trade, and farm products	6,110	.89	Stenographers	720	.10
Personnel, training, and labor relations specialists	2,210	.32	Receptionists and information clerks	960	.14
Cost estimators	1,060	.15	Typists	3,500	.51
All other management support workers	5,950	.86	Typists, word processing equipment	1,600	.23
Engineers	46,700	6.79	Personnel clerks, except payroll and timekeeping	1,220	.18
Metallurgists, and metallurgical, ceramic, and materials engineers	320	.05	File clerks	1,690	.25
Chemical engineers	1,320	.19	Order clerks, materials, merchandise, and service	5,160	.75
Electrical and electronic engineers	24,800	3.60	Procurement clerks	1,520	.22
Industrial engineers, except safety	5,480	.80	Bookkeeping, accounting, and auditing clerks	9,920	1.44
Mechanical engineers	7,420	1.08	Payroll and timekeeping clerks	1,370	.20
All other engineers	7,360	1.07	Billing, cost and rate clerks	2,100	.31
Engineering and related technicians and technologists	38,650	5.62	General office clerks	10,040	1.46
Electrical and electronic engineering technicians and technologists	18,930	2.75	Electronic data processing and other office machine operators	5,940	.86
Industrial engineering technicians and technologists	1,170	.17	Billing, posting, and calculating machine operators	350	.05
Mechanical engineering technicians and technologists	5,420	.79	Computer operators, except peripheral equipment	2,210	.32
Drafters	8,530	1.24	Peripheral EDP equipment operators	330	.05
All other engineering and related technicians and technologists	4,600	.67	Data entry keyers, except composing	2,680	.39
Physical scientists	3,000	.44	All other office machine operators	370	.05
Physicists and astronomers	280	.04	Switchboard operators	2,080	.30
Chemists, except biochemists	1,790	.26	Material recording, scheduling, dispatching, and distributing workers	29,030	4.22
All other physical scientists	930	.14	Production, planning, and expediting clerks	8,310	1.21
Life scientists	770	.11	Weghers, measurers, checkers, and samplers, recordkeeping	520	.08
Physical and life science technicians and technologists	3,510	.51	Stock clerks, stockroom, warehouse or storage yard	10,550	1.53
Chemical technicians and technologists, except health	2,730	.40	Traffic, shipping, and receiving clerks	8,860	1.29
All other physical and life science technicians and technologists	780	.11	All other material recording, scheduling, and distributing workers	790	.11
Computer scientists and related workers	8,160	1.19	All other clerical and administrative support workers	4,970	.72
Systems analysts, electronic data processing	3,010	.44	Service occupations	11,840	1.72
Computer programmers	3,910	.57	First-line supervisors and manager/supervisors, service	1,200	.17
Computer programmer aides	910	.13			
Programmers - numerical, tool, and process control	330	.05			
Mathematical scientists and related workers	390	.06			

See footnotes at end of table.

See footnotes at end of table.

TABLE G (cont'd)

(SIC 38)

(SIC 38)

Occupation	Employment ¹	Percent of total employment	Occupation	Employment ¹	Percent of total employment
Guards and watch guards	1,690	0.25	Machine setters, set-up operators, and tenders, metal and plastic	30,840	4.48
Food and beverage preparation and service workers	420	.06	Sawing machine tool setters and set-up operators, metal and plastic	190	.03
Cleaning and building service workers, except private households	7,590	1.10	Lathe and turning machine tool setters and set-up operators, metal and plastic	3,740	.54
Janitors and cleaners, except maids and housekeeping cleaners	6,710	.98	Drilling and boring machine tool setters and set-up operators, metal and plastic	2,200	.32
All other cleaning and building service workers, except private households	880	.13	Milling and planing machine setters and set-up operators, metal and plastic	1,150	.17
All other service workers	940	.14	Grinding, lapping, and buffing machine tool setters and set-up operators, metal and plastic	1,450	.21
Agriculture, forestry, fishing, and related occupations	240	.03	Machine tool cutting operators and tenders, metal and plastic	3,930	.57
Gardeners and groundskeepers, except farm	240	.03	Punching machine setters and set-up operators, metal and plastic	1,930	.28
Production, construction, operating, maintenance, and material handling occupations	351,220	51.04	Press and press brake machine setters and set-up operators, metal and plastic	540	.08
First-line supervisors, manager/supervisors - production, construction, maintenance, and related workers	25,550	3.71	Shear and slitter machine setters and set-up operators, metal and plastic	760	.11
First-line supervisors and manager/supervisors - mechanics, installers and repairers	1,180	.17	Machine forming operators and tenders, metal and plastic	4,870	.71
First-line supervisors and manager/supervisors - construction trades and extractive workers	200	.03	Numerical control machine tool operators and tenders, metal and plastic	2,130	.31
First-line supervisors and manager/supervisors - production and operating workers	22,510	3.27	Combination machine tool setters and set-up operators, metal and plastic	1,670	.24
All other first-line supervisors and manager/supervisors - production, construction, maintenance and related	1,660	.24	Combination machine tool operators and tenders, metal and plastic	1,980	.29
Precision inspectors, testers, and graders	12,450	1.81	Soldering and brazing machine setters and set-up operators	210	.03
Production inspectors, testers, graders, sorters, samplers, and weighers	15,920	2.30	Soldering and brazing machine operators and tenders	330	.05
Mechanics, installers, and repairers	16,320	2.37	Metal molding, coremaking, and casting machine setters and set-up operators	570	.08
Machinery maintenance mechanics	4,030	.59	Metal molding, coremaking, and casting machine operators and tenders	350	.05
Machinery maintenance workers	790	.11	Electrolytic plating and coating machine setters and set-up operators, metal and plastic	400	.06
Maintenance repairers, general utility	5,640	.82	Electrolytic plating and coating machine operators and tenders, metal and plastic	390	.06
Precision instrument repairers	4,340	.63	Nonelectrolytic plating and coating machine setters and set-up operators, metal and plastic	130	.02
Camera and photographic equipment repairers	300	.04	Nonelectrolytic plating and coating machine operators and tenders, metal and plastic	290	.04
Watchmakers	160	.02	Heating equipment setters and set-up operators, metal and plastic	160	.02
All other mechanics, installers, and repairers	1,060	.15	Heat treating, annealing, and tempering machine operators and tenders, metal and plastic	140	.02
Construction trades workers, except material moving	3,620	.56	All other machine setters and set-up operators, metal and plastic	1,330	.19
Carpenters	530	.08	All other machine operators and tenders, metal and plastic	3,330	.48
Electricians	1,710	.25	Machine setters, set-up operators, and tenders, except metal and plastic	40,530	5.89
Painters and paperhangers, construction and maintenance	430	.06	Sewing machine operators, nongarment	3,400	.49
Plumbers, pipefitters, and steamfitters	690	.10	Electronic semiconductor processors	1,050	.15
All other construction trades workers	470	.07	Chemical equipment controllers and operators	2,550	.37
Precision metal workers	24,940	3.62	Coating, painting, and spraying machine setters and set-up operators	1,150	.17
Tool-and-die makers	3,920	.57	Coating, painting, and spraying machine operators and tenders	2,130	.31
Precision instrument makers	4,160	.60			
Machinists	12,130	1.76			
Tool grinders, filers, sharpeners, and other precision grinders	1,550	.23			
Sheet-metal workers	2,650	.39			
All other precision metal workers	530	.08			
Precision woodworkers	390	.06			
Precision workers, nec	14,820	2.15			
Precision detail design decorators, and painters	120	.02			
Precision optical goods workers	10,600	1.54			
Medical appliance makers	2,190	.32			
All other precision workers, nec	1,910	.28			

See footnotes at end of table.

See footnotes at end of table.

TABLE G (cont'd)

(SIC 38)

Occupation	Employment ¹	Percent of total employment
Cleaning, washing, and pickling equipment operators and tenders	380	0.06
Crushing, grinding, mixing, and blending machine operators and tenders	2,440	.35
Packaging and filling machine operators and tenders	5,450	.79
All other machine setters and set-up operators, except metal and plastic	2,140	.31
All other machine operators and tenders, except metal and plastic	16,610	2.40
Precision assemblers, metal	35,030	5.09
Machine builders and other precision machine assemblers	1,460	.21
Electromechanical equipment assemblers, precision	9,530	1.38
Electrical and electronic equipment assemblers, precision	18,850	2.74
Watch, clock, and chronometer assemblers, adjusters, and calibrators, precision	3,170	.46
All other precision assemblers, metal	2,020	.29
Other hand workers, nec	104,110	15.13
Machine assemblers	3,990	.58
Electrical and electronic assemblers	24,820	3.61
Welders and cutters	2,640	.38
Solderers and brazers	2,530	.37
Painting, coating, and decorating, workers, hand	1,280	.19
Grinding and polishing workers, hand	3,390	.49
Assemblers and fabricators, except machine, electrical, electronic, and precision	59,620	8.66
All other hand workers, nec	5,840	.85
Plant and system workers	790	.11
Stationary engineers	470	.07
All other plant and system operators	320	.05
Motor vehicle operators	970	.14
Truck drivers, heavy or tractor trailer	200	.03
Truck drivers, light, include delivery and route workers	770	.11
All other transportation and motor vehicle operators	140	.02
Material moving equipment operators	2,480	.36
Industrial truck and tractor operators	1,820	.26
Conveyor operators and tenders	140	.02
All other material moving equipment operators	520	.08
Helpers - mechanics and repairers	430	.06
Construction trades and extractive worker helpers	160	.02
Machine feeders and offbearers	2,060	.30
Freight, stock, and material movers, hand	6,060	.88
Hand packers and packagers	7,440	1.08
All other helpers, laborers, and material movers, hand	6,050	.88

TABLE G (cont'd)

(SIC 39)

(SIC 39)

Occupation	Employment ¹	Percent of total employment	Occupation	Employment ¹	Percent of total employment
Total	369,770	100.00	Sales representatives, scientific and related products and services, except retail	3,110	0.84
Managerial and administrative occupations ..	24,870	6.75	Sales representatives, except scientific and related products or services and retail	7,880	2.13
Financial managers	1,210	.33	All other sales and related workers	1,680	.45
Personnel, training, and labor relations managers	580	.16	Clerical and administrative support occupations	51,800	14.01
Purchasing managers	520	.14	First-line supervisors and manager/supervisors, clerical and administrative support workers	1,440	.39
Marketing, advertising, and public relations managers	1,550	.42	Secretaries	9,380	2.54
Administrative services managers	390	.11	Stenographers	170	.05
Industrial production managers	1,730	.47	Receptionists and information clerks	520	.14
General managers and top executives	17,260	4.67	Typists	1,780	.48
All other managers and administrators	1,730	.47	Typists, word processing equipment	570	.15
Professional, paraprofessional, and technical occupations	18,820	5.09	Personnel clerks, except payroll and timekeeping	450	.12
Management support workers	6,960	1.88	File clerks	540	.15
Accountants, auditors, and other financial specialists	3,260	.88	Order clerks, materials, merchandise, and service	4,110	1.11
Accountants and auditors	2,670	.72	Procurement clerks	480	.13
Budget analysts	210	.06	Bookkeeping, accounting, and auditing clerks	7,100	1.92
All other financial specialists	380	.10	Payroll and timekeeping clerks	920	.25
Purchasing agents, except wholesale and retail trade, and farm products	2,210	.60	Billing, cost and rate clerks	1,020	.28
Personnel, training, and labor relations specialists	340	.09	General office clerks	6,570	1.78
Cost estimators	430	.12	Electronic data processing and other office machine operators	2,310	.62
All other management support workers ..	720	.19	Billing, posting, and calculating machine operators	330	.09
Engineers	2,220	.60	Computer operators, except peripheral equipment	670	.18
Industrial engineers, except safety	750	.20	Data entry keyers, except composing	1,180	.32
Mechanical engineers	950	.26	All other office machine operators	130	.04
All other engineers	520	.14	Switchboard operators	520	.14
Engineering and related technicians and technologists	2,620	.71	Material recording, scheduling, dispatching, and distributing workers	13,290	3.59
Industrial engineering technicians and technologists	240	.06	Production/planning, and expediting clerks	1,760	.48
Mechanical engineering technicians and technologists	240	.06	Weighers, measurers, checkers, and samplers, recordkeeping	340	.09
Drafters	1,560	.42	Stock clerks, stockroom, warehouse or storage yard	1,880	.51
All other engineering and related technicians and technologists	580	.16	Traffic, shipping, and receiving clerks	8,930	2.42
Physical scientists	200	.05	All other material recording, scheduling, and distributing workers	380	.10
Physical and life science technicians and technologists	370	.10	All other clerical and administrative support workers	630	.17
Chemical technicians and technologists, except health	250	.07	Service occupations	5,370	1.45
All other physical and life science technicians and technologists	120	.03	First-line supervisors and manager/supervisors, service	340	.09
Computer scientists and related workers	1,610	.44	Guards and watch guards	610	.16
Systems analysts, electronic data processing	620	.17	Food and beverage preparation and service workers	70	.02
Computer programmers	710	.19	Cleaning and building service workers, except private households	3,630	.98
All other computer systems analysts, programmers, and programmer aides ..	280	.08	Janitors and cleaners, except maids and housekeeping cleaners	3,460	.94
Health practitioners, technologists, technicians, and related health workers	130	.04	All other cleaning and building service workers, except private households	170	.05
Designers, except interior designers	4,070	1.10	All other service workers	720	.19
All other professional, paraprofessional, and technical workers ..	640	.17	Agriculture, forestry, fishing, and related occupations	80	.02
Sales and related occupations	13,660	3.69	Gardeners and groundskeepers, except farm	80	.02
First-line supervisors and manager/supervisors, sales and related workers	990	.27			

See footnotes at end of table.

See footnotes at end of table.

TABLE G (cont'd)

(SIC 39)

(SIC 39)

Occupation	Employment ¹	Percent of total employment	Occupation	Employment ¹	Percent of total employment
Production, construction, operating, maintenance, and material handling occupations	255,070	68.98	Machine setters, set-up operators, and tenders, metal and plastic	33,130	8.98
First-line supervisors, manager/supervisors - production, construction, maintenance, and related workers	15,500	4.19	Sawing machine tool setters and set-up operators, metal and plastic	260	.07
First-line supervisors and manager/supervisors - mechanics, installers and repairers	400	.11	Lathe and turning machine tool setters and set-up operators, metal and plastic	480	.13
First-line supervisors and manager/supervisors - production and operating workers	14,470	3.91	Drilling and boring machine tool setters and set-up operators, metal and plastic	580	.16
First-line supervisors and manager/superv-transp and material moving machine and vehicle workers	240	.06	Milling and planing machine setters and set-up operators, metal and plastic	150	.04
First-line supervisors and manager/supervisors - helpers, laborers, and material movers, hand	390	.11	Grinding, lapping, and buffing machine tool setters and set-up operators, metal and plastic	3,810	1.03
Precision inspectors, testers, and graders	2,150	.58	Machine tool cutting operators and tenders, metal and plastic	5,160	1.40
Production inspectors, testers, graders, sorters, samplers, and weighers	5,150	1.39	Punching machine setters and set-up operators, metal and plastic	4,480	1.21
Mechanics, installers, and repairers	8,300	2.24	Rolling machine setters and set-up operators, metal and plastic	250	.07
Machinery maintenance mechanics	1,600	.43	Machine forming operators and tenders, metal and plastic	2,850	.77
Machinery maintenance workers	410	.11	Numerical control machine tool operators and tenders, metal and plastic	100	.03
Maintenance repairers, general utility	4,760	1.29	Combination machine tool setters and set-up operators, metal and plastic	490	.13
Musical instrument repairers and tuners	260	.07	Combination machine tool operators and tenders, metal and plastic	460	.12
All other mechanics, installers, and repairers	1,270	.34	Soldering and brazing machine setters and set-up operators	150	.04
Construction trades workers, except material moving	4,860	1.31	Soldering and brazing machine operators and tenders	330	.09
Carpenters	1,750	.47	Plastic molding and casting machine setters and set-up operators	2,310	.62
Electricians	2,440	.66	Plastic molding and casting machine operators and tenders	6,490	1.76
Painters and paperhangers, construction and maintenance	260	.07	Metal molding, coremaking, and casting machine setters and set-up operators	400	.11
Plumbers, pipefitters, and steamfitters	160	.04	Metal molding, coremaking, and casting machine operators and tenders	640	.17
All other construction trades workers	250	.07	Electrolytic plating and coating machine setters and set-up operators, metal and plastic	550	.15
Precision metal workers	25,750	6.96	Electrolytic plating and coating machine operators and tenders, metal and plastic	530	.14
Tool-and-die makers	2,490	.67	Nonelectrolytic plating and coating machine setters and set-up operators, metal and plastic	100	.03
Machinists	1,800	.49	Nonelectrolytic plating and coating machine operators and tenders, metal and plastic	500	.14
Tool grinders, filers, sharpeners, and other precision grinders	1,430	.39	Heating equipment setters and set-up operators, metal and plastic	120	.03
Jewelers and silversmiths	5,440	1.47	Heat treating, annealing, and tempering machine operators and tenders, metal and plastic	110	.03
Precision hand workers, jewelry and related products	7,370	1.99	Heaters, metal and plastic	90	.02
Precision etchers and engravers, hand or machine	1,890	.51	All other machine setters and set-up operators, metal and plastic	1,740	.47
Sheet-metal workers	4,940	1.34	All other machine operators and tenders, metal and plastic	1,670	.45
All other precision metal workers	390	.11	Machine setters, set-up operators, and tenders, except metal and plastic	39,620	10.71
Precision woodworkers	4,960	1.34	Sawing machine setters and set-up operators	140	.04
Pattern and model makers, wood	240	.06	Sawing machine operators and tenders	430	.12
Wood machinists	460	.12	Woodworking machine setters and set-up operators, except sawing	560	.15
Cabinetmakers and bench carpenters	3,820	1.03			
All other precision woodworkers	440	.12			
Precision printing workers	440	.12			
Precision compositors, typesetters, and arrangers	320	.09			
All other precision printing workers	120	.03			
Precision workers, nec	4,660	1.26			
Precision molders, shapers, casters, and carvers, except jewelry and foundry	430	.12			
Precision patternmakers, model makers, layout workers, and cutters	310	.08			
Precision detail design decorators, and painters	2,300	.62			
Gem and diamond workers	610	.16			
All other precision workers, nec	1,010	.27			

See footnotes at end of table.

See footnotes at end of table.

TABLE G (cont'd)

(SIC 39)

(SIC 39)

Occupation	Employment ¹	Percent of total employment	Occupation	Employment ¹	Percent of total employment
Woodworking machine operators and tenders, except sawing	1,070	0.29	All other material moving equipment operators	310	0.08
Printing press machine setters and set-up operators	340	.09	Helpers - mechanics and repairers	340	.09
Specialty materials printing machine setters and set-up operators	550	.15	Construction trades and extractive worker helpers	220	.06
Screen printing machine setters and set-up operators	3,120	.84	Machine feeders and offbearers	8,500	1.76
All other printing related setters and set-up operators	230	.06	Freight, stock, and material movers, hand	5,720	1.55
Printing press machine operators and tenders	680	.18	Hand packers and packagers	18,020	4.87
All other printing, binding, and related machine operators and tenders	440	.12	All other helpers, laborers, and material movers, hand	8,930	2.42
Sewing machine operators, garment	1,370	.37	All other production, construction, operating, maintenance, and material handling occupations	50	.01
Sewing machine operators, nongarment	9,200	2.49			
Cutting and slicing machine setters and set-up operators	350	.09			
Cutting and slicing machine operators and tenders	1,000	.27			
Coating, painting, and spraying machine setters and set-up operators	880	.24			
Coating, painting, and spraying machine operators and tenders	1,360	.37			
Cleaning, washing, and pickling equipment operators and tenders	360	.10			
Crushing, grinding, mixing, and blending machine operators and tenders	540	.15			
Extruding, forming, pressing, and compacting machine setters and set-up operators	450	.12			
Extruding, forming, pressing, and compacting machine operators and tenders	1,290	.35			
Packaging and filling machine operators and tenders	7,230	1.96			
All other machine setters and set-up operators, except metal and plastic	1,360	.37			
All other machine operators and tenders, except metal and plastic	5,000	1.35			
Precision assemblers, metal	1,110	.30			
Electrical and electronic equipment assemblers, precision	1,110	.30			
Other hand workers, nec	65,640	17.75			
Electrical and electronic assemblers	1,290	.35			
Welders and cutters	2,720	.74			
Solderers and brazers	2,390	.65			
Sewers, hand	400	.11			
Cutters and trimmers, hand	870	.24			
Molders and casters, hand	720	.19			
Painting, coating, and decorating, workers, hand	6,030	1.63			
Engraving and printing workers, hand	580	.16			
Grinding and polishing workers, hand	5,580	1.51			
Assemblers and fabricators, except machine, electrical, electronic, and precision	40,750	11.02			
All other hand workers, nec	4,310	1.17			
Plant and system workers	110	.03			
Motor vehicle operators	1,490	.40			
Truck drivers, heavy or tractor trailer	700	.19			
Truck drivers, light, include delivery and route workers	720	.19			
All other motor vehicle operators	70	.02			
All other transportation and motor vehicle operators	70	.02			
Material moving equipment operators	2,350	.64			
Hoist and winch operators	160	.04			
Industrial truck and tractor operators	1,660	.45			
Conveyor operators and tenders	220	.06			

See footnotes at end of table.