

TABLE A-9. Fatal occupational injuries by primary and secondary source of injury by major private industry division, 1998

Primary source and secondary source	Total	Private industry <sup>1</sup> (percent)								
		Agriculture, forestry, and fishing	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
Total .....	6,026	13.8	2.4	19.4	11.5	15.0	3.8	9.4	1.5	12.6
Primary source <sup>2</sup>										
<b>Vehicles</b> .....	2,695	16.8	1.3	10.5	7.8	24.9	5.0	6.5	1.4	12.7
Air vehicle .....	229	5.7	-	-	5.7	25.3	1.3	4.4	-	22.7
Aircraft--powered fixed wing .....	121	9.1	-	-	9.9	24.8	-	5.8	-	27.3
Jet .....	16	-	-	-	-	-	-	-	-	25.0
Propeller-driven aircraft .....	71	9.9	-	-	11.3	28.2	-	5.6	-	29.6
Aircraft--powered rotary wing .....	74	-	-	-	-	25.7	-	-	-	10.8
Aircraft--nonpowered .....	7	-	-	-	-	-	-	-	-	71.4
Highway vehicle, motorized .....	1,915	6.0	1.1	13.0	7.9	29.3	6.4	8.1	1.7	13.0
Automobile .....	436	3.4	-	6.2	6.4	10.6	4.4	13.1	5.5	24.3
Bus .....	13	-	-	-	-	38.5	-	-	-	-
Truck .....	1,234	7.1	1.7	15.7	8.1	39.1	6.6	5.3	.4	7.6
Delivery truck .....	48	-	-	-	14.6	27.1	10.4	29.2	-	10.4
Dump truck .....	110	7.3	3.6	43.6	5.5	21.8	-	-	-	3.6
Pickup truck .....	251	13.9	2.8	26.7	9.2	8.4	6.8	7.6	2.0	9.6
Semitrailer, tractor trailer, trailer truck .....	530	2.6	1.3	6.2	7.9	66.6	7.4	2.6	-	3.6
Van--passenger or light delivery .....	127	2.4	-	11.8	13.4	12.6	10.2	13.4	2.4	19.7
Highway vehicle, nonmotorized .....	3	100.0	-	-	-	-	-	-	-	-
Animal or human powered vehicle .....	3	100.0	-	-	-	-	-	-	-	-
Offroad vehicle, nonindustrial .....	18	38.9	-	-	-	-	-	-	-	50.0
All terrain vehicle (ATV) .....	8	62.5	-	-	-	-	-	-	-	-
Golf cart, powered .....	6	-	-	-	-	-	-	-	-	66.7
Plant and industrial powered vehicles, tractors .....	369	66.1	.8	7.6	8.7	4.9	2.4	1.9	-	4.9
Forklift .....	90	4.4	-	17.8	28.9	16.7	7.8	7.8	-	11.1
Pallet lift truck--motorized .....	5	-	-	-	-	-	-	-	-	-
Platform lift truck--high or low lift .....	8	-	-	37.5	37.5	-	-	-	-	-
Powered industrial carrier, except forklift .....	3	-	-	-	-	-	-	-	-	-
Tractor .....	272	87.5	-	4.4	1.8	-	-	-	-	2.6
Rail vehicle .....	35	-	-	14.3	22.9	28.6	-	-	-	17.1
Water vehicle .....	117	59.0	5.1	-	4.3	20.5	-	-	-	5.1
Barge .....	17	-	17.6	-	-	47.1	-	-	-	-
Canoe, kayak, rowboat, raft .....	4	-	-	-	-	-	-	-	-	-
Motorboat .....	4	75.0	-	-	-	-	-	-	-	-
Ships--other than sail powered .....	14	-	-	-	-	64.3	-	-	-	-
Tugboat, commercial fishing boat .....	60	96.7	-	-	-	-	-	-	-	-
<b>Structures and surfaces</b> .....	791	7.0	4.3	54.5	7.6	4.3	2.1	3.9	1.8	9.9
Floors, walkways, ground surfaces .....	679	7.7	2.1	56.7	7.2	3.7	2.2	4.1	1.9	9.9
Floors .....	228	2.6	1.8	52.6	13.2	2.6	3.5	8.3	1.3	9.6
Ground .....	302	14.2	2.6	57.0	4.3	5.0	1.3	1.0	1.7	8.9
Sidewalks, paths, outdoor walkways ..	34	-	-	64.7	-	-	-	-	8.8	11.8
Street, road .....	14	-	-	71.4	-	-	-	-	-	-
Surfaces below ground level, n.e.c. ....	32	-	-	75.0	-	-	-	-	-	-
Ditches, channels, trenches, excavations .....	27	-	-	74.1	-	-	-	-	-	-
Parking lots .....	16	-	-	56.2	-	-	-	-	-	18.8
Other structural elements .....	49	-	-	55.1	14.3	8.2	-	-	-	8.2
Doors .....	6	-	-	-	50.0	-	-	-	-	-
Gates .....	5	-	-	-	-	-	-	-	-	-
Roof .....	9	-	-	33.3	-	-	-	-	-	-
Walls .....	21	-	-	81.0	-	-	-	-	-	-
Structures .....	55	-	32.7	34.5	-	5.5	-	-	-	10.9
Buildings--office, plant, residential .....	19	-	21.1	42.1	-	-	-	-	-	-
Mines, caves, tunnels .....	10	-	90.0	-	-	-	-	-	-	-
Scaffolds, staging .....	4	-	-	75.0	-	-	-	-	-	-
Towers, poles .....	15	-	26.7	46.7	-	-	-	-	-	-
Other structures .....	5	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

TABLE A-9. **Fatal occupational injuries by primary and secondary source of injury by major private industry division, 1998** —  
Continued

Primary source and secondary source	Total	Private industry <sup>1</sup> (percent)								
		Agriculture, forestry, and fishing	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
Primary source <sup>2</sup>										
<b>Machinery</b> .....	480	25.2	4.2	27.9	22.5	4.2	3.1	1.5	—	7.3
Agricultural and garden machinery .....	101	83.2	—	—	3.0	—	3.0	—	—	5.0
Harvesting and threshing machinery ..	29	93.1	—	—	—	—	—	—	—	—
Balers .....	10	80.0	—	—	—	—	—	—	—	—
Combines .....	5	100.0	—	—	—	—	—	—	—	—
Harvesters, reapers .....	7	100.0	—	—	—	—	—	—	—	—
Mowing machinery .....	36	75.0	—	—	—	—	—	—	—	13.9
Lawn mowers--riding .....	8	—	—	—	—	—	—	—	—	50.0
Mowers, tractor .....	28	92.9	—	—	—	—	—	—	—	—
Plowing, planting, and fertilizing machinery .....	9	100.0	—	—	—	—	—	—	—	—
Plowing and cultivating machinery	5	100.0	—	—	—	—	—	—	—	—
Construction, logging, and mining machinery .....	175	14.9	8.0	44.0	16.0	2.9	2.9	—	—	5.7
Excavating machinery .....	64	9.4	6.2	64.1	6.2	—	—	—	—	6.2
Backhoes .....	28	—	—	75.0	—	—	—	—	—	10.7
Bulldozers .....	25	12.0	12.0	52.0	12.0	—	—	—	—	—
Trenchers .....	3	—	—	—	—	—	—	—	—	—
Loaders .....	49	28.6	8.2	24.5	14.3	—	6.1	—	—	8.2
Bucket loaders .....	3	—	—	—	—	—	—	—	—	—
Front end loaders .....	31	22.6	9.7	22.6	12.9	—	—	—	—	12.9
Logging and wood processing machinery--specialized .....	20	20.0	—	—	80.0	—	—	—	—	—
Forwarder/yarder, skidder .....	7	—	—	—	71.4	—	—	—	—	—
Skidder--cable and grapple .....	7	—	—	—	85.7	—	—	—	—	—
Mining and drilling machinery .....	13	—	23.1	53.8	—	—	—	—	—	—
Drilling machines, drilling augers ....	9	—	—	66.7	—	—	—	—	—	—
Road grading and surfacing machinery .....	18	—	—	61.1	—	—	—	—	—	—
Graders, levellers, planers, scrapers .....	12	—	—	58.3	—	—	—	—	—	—
Steam rollers, road pavers .....	3	—	—	100.0	—	—	—	—	—	—
Heating, cooling, and cleaning machinery and appliances .....	19	—	—	15.8	31.6	—	—	—	—	26.3
Cooling and humidifying machinery and appliances .....	11	—	—	—	—	—	—	—	—	36.4
Heating and cooking machinery and appliances .....	3	—	—	—	—	—	—	—	—	—
Washers, dryers, and cleaning machinery and appliances .....	4	—	—	—	—	—	—	—	—	—
Material handling (cranes, conveyers, jacks) .....	108	9.3	3.7	41.7	20.4	6.5	3.7	—	—	10.2
Conveyors--powered .....	24	12.5	12.5	—	41.7	20.8	—	—	—	—
Cranes .....	53	7.5	—	54.7	13.2	—	—	—	—	13.2
Cranes--mobile, truck, rail mounted	18	—	—	61.1	—	—	—	—	—	16.7
Cranes--overhead .....	9	—	—	44.4	44.4	—	—	—	—	—
Elevators .....	22	—	—	63.6	—	—	—	—	—	—
Bucket or basket hoist--truck mounted .....	5	—	—	100.0	—	—	—	—	—	—
Elevators--electric .....	3	—	—	—	—	—	—	—	—	—
Elevators--hydraulic .....	3	—	—	—	—	—	—	—	—	—
Manlifts .....	6	—	—	83.3	—	—	—	—	—	—
Metal, woodworking, and special material machinery .....	34	—	—	8.8	79.4	—	—	—	—	—
Bending, rolling, shaping machinery ...	3	—	—	—	100.0	—	—	—	—	—
Extruding, injecting, forming, molding machinery .....	11	—	—	—	100.0	—	—	—	—	—
Casting machinery .....	3	—	—	—	100.0	—	—	—	—	—
Plastic injection molding machinery	5	—	—	—	100.0	—	—	—	—	—
Lathes .....	3	—	—	—	—	—	—	—	—	—
Presses, except printing .....	5	—	—	—	100.0	—	—	—	—	—

See footnotes at end of table.

TABLE A-9. **Fatal occupational injuries by primary and secondary source of injury by major private industry division, 1998** —  
Continued

Primary source and secondary source	Total	Private industry <sup>1</sup> (percent)								
		Agriculture, forestry, and fishing	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Primary source<sup>2</sup></b>										
Other metal, woodworking, and special material machinery .....	7	-	-	-	42.9	-	-	-	-	-
Spot welding machinery .....	7	-	-	-	42.9	-	-	-	-	-
Special process machinery .....	20	-	-	-	75.0	-	-	-	-	-
Food and beverage processing machinery--specialized .....	6	-	-	-	66.7	-	-	-	-	-
Packaging, bottling, wrapping machinery .....	3	-	-	-	100.0	-	-	-	-	-
Paper production machinery .....	3	-	-	-	100.0	-	-	-	-	-
Miscellaneous machinery .....	20	-	-	15.0	20.0	25.0	-	-	-	-
Street sweeping and cleaning machinery .....	5	-	-	-	-	-	-	-	-	-
<b>Parts and materials</b> .....	404	6.4	3.5	37.1	23.3	11.1	2.7	4.7	-	6.7
Building materials--solid elements .....	112	4.5	6.2	37.5	30.4	10.7	2.7	3.6	-	-
Bricks, blocks, structural stone .....	17	-	-	58.8	-	-	-	-	-	-
Pipes, ducts, tubing .....	27	-	14.8	25.9	18.5	22.2	-	-	-	-
Structural metal materials .....	43	-	7.0	39.5	39.5	-	-	-	-	-
Bars, rods, reinforcing bar (rebar) ..	6	-	-	66.7	-	-	-	-	-	-
Plates, metal panels .....	3	-	-	-	-	-	-	-	-	-
Wood, lumber .....	17	-	-	17.6	64.7	-	-	-	-	-
Other building materials--solid elements .....	7	-	-	57.1	-	-	-	-	-	-
Fasteners, connectors, ropes, ties .....	41	9.8	-	12.2	22.0	17.1	-	12.2	-	14.6
Fasteners .....	3	-	-	-	-	-	-	-	-	-
Ropes, ties .....	34	11.8	-	-	26.5	17.6	-	11.8	-	14.7
Rope, twine, string .....	13	-	-	-	-	-	-	23.1	-	-
Valves, nozzles .....	3	-	-	-	-	-	-	-	-	-
Machine, tool, and electrical parts .....	188	6.9	3.2	48.9	17.6	10.1	-	3.2	-	5.3
Electric parts .....	159	6.9	3.1	52.8	11.3	11.9	-	3.8	-	4.4
Electrical wiring .....	56	-	-	58.9	16.1	-	-	-	-	8.9
Power lines, transformers, convertors .....	70	11.4	-	48.6	5.7	20.0	-	4.3	-	-
Relays, rheostats, starters, controls .....	3	-	-	-	-	-	-	-	-	-
Switchboards, switches, fuses .....	9	-	-	66.7	-	-	-	-	-	-
Metal materials--nonstructural .....	7	-	-	-	71.4	-	-	-	-	-
Metal sheets, ingots, bars--nonstructural .....	3	-	-	-	-	-	-	-	-	-
Tars, sealants, caulking, insulating material .....	5	-	-	80.0	-	-	-	-	-	-
Vehicle and mobile equipment parts .....	43	7.0	-	14.0	20.9	14.0	-	9.3	-	20.9
Tires, inner tubes, wheels .....	24	-	-	16.7	-	12.5	-	16.7	-	20.8
Wheels, tire rims .....	10	-	-	-	-	-	-	-	-	-
Engine parts and accessories .....	3	-	-	-	-	-	-	-	-	-
Trailers .....	8	-	-	-	-	-	-	-	-	-
<b>Persons, plants, animals, and minerals</b> .....	262	26.0	3.8	11.5	30.9	4.2	1.5	4.2	1.5	11.1
Animals and animal products .....	40	62.5	-	-	-	-	-	-	-	20.0
Insects, arachnids .....	9	-	-	-	-	-	-	-	-	44.4
Mammals, except humans .....	27	77.8	-	-	-	-	-	-	-	14.8
Cattle .....	14	92.9	-	-	-	-	-	-	-	-
Horses .....	8	87.5	-	-	-	-	-	-	-	-
Food products--fresh or processed .....	15	53.3	-	-	20.0	-	-	-	-	-
Nonmetallic minerals, except fuel .....	39	12.8	23.1	43.6	15.4	-	-	-	-	-
Dirt, earth .....	18	16.7	-	83.3	-	-	-	-	-	-
Rocks, crushed stone .....	13	-	61.5	-	-	-	-	-	-	-
Sand, gravel .....	5	-	-	-	80.0	-	-	-	-	-
Person--other than injured or ill worker ..	34	-	-	-	-	-	-	26.5	8.8	32.4
Co-worker, former co-worker or injured worker .....	3	-	-	-	-	-	-	-	-	-
Plants, trees, vegetation--not processed .....	125	22.4	-	8.0	55.2	4.0	-	-	-	4.0
Cash grain crops .....	8	-	-	-	-	37.5	-	-	-	-

See footnotes at end of table.

TABLE A-9. **Fatal occupational injuries by primary and secondary source of injury by major private industry division, 1998** —  
Continued

Primary source and secondary source	Total	Private industry <sup>1</sup> (percent)								
		Agriculture, forestry, and fishing	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Primary source<sup>2</sup></b>										
Trees, logs .....	114	21.9	—	7.9	58.8	—	—	—	—	4.4
<b>Chemicals and chemical products</b> .....	133	9.0	6.8	14.3	19.5	9.8	2.3	6.0	3.0	21.8
Acids .....	3	—	—	—	—	—	—	—	—	—
Alkalies .....	3	—	—	—	—	—	—	—	—	—
Halogens and halogen compounds .....	3	—	—	—	—	—	—	—	—	—
Chemical products--general .....	61	6.6	—	13.1	14.8	16.4	—	6.6	—	29.5
Drugs, alcohol, medicines .....	50	8.0	—	10.0	10.0	18.0	—	6.0	—	34.0
Explosives, blasting agents, n.e.c. ....	9	—	—	33.3	44.4	—	—	—	—	—
Other chemicals .....	54	14.8	7.4	18.5	20.4	—	—	5.6	—	14.8
Cyanide and cyanide compounds, n.e.c. ....	3	—	—	—	—	—	—	—	—	—
Oxygen and oxygen compounds, n.e.c. ....	31	22.6	—	19.4	9.7	—	—	9.7	—	19.4
Carbon monoxide .....	21	14.3	—	23.8	—	—	—	14.3	—	28.6
Sulfur and sulfur compounds .....	12	—	—	—	41.7	—	—	—	—	—
<b>Tools, instruments, and equipment</b> .....	127	9.4	—	20.5	7.1	7.9	—	26.0	3.1	15.7
Handtools--nonpowered .....	77	7.8	—	5.2	6.5	9.1	—	37.7	5.2	19.5
Cutting handtools .....	55	5.5	—	—	5.5	10.9	—	43.6	—	23.6
Knives .....	50	—	—	—	6.0	12.0	—	48.0	—	24.0
Striking and nailing handtools .....	5	—	—	—	—	—	—	—	—	—
Turning handtools, screwdrivers, wrenches .....	7	—	—	—	—	—	—	—	—	—
Handtools--powered .....	18	22.2	—	27.8	16.7	—	—	—	—	—
Boring handtools .....	6	—	—	50.0	—	—	—	—	—	—
Cutting handtools .....	8	50.0	—	—	37.5	—	—	—	—	—
Welding and heating handtools .....	4	—	—	—	—	—	—	—	—	—
Handtools--power not determined .....	3	—	—	—	—	—	—	—	—	—
Ladders .....	18	—	—	77.8	—	—	—	—	—	—
Ladders--movable .....	16	—	—	81.2	—	—	—	—	—	—
Extension ladders .....	11	—	—	81.8	—	—	—	—	—	—
<b>Containers</b> .....	82	18.3	—	25.6	20.7	11.0	6.1	3.7	—	6.1
Containers-nonpressurized .....	35	14.3	—	37.1	14.3	—	—	—	—	11.4
Barrels, kegs, drums .....	5	—	—	—	—	—	—	—	—	—
Boxes, crates, cartons .....	3	—	—	—	—	—	—	—	—	—
Tanks, bins, vats .....	22	22.7	—	36.4	18.2	—	—	—	—	—
Containers-pressurized .....	22	—	—	27.3	31.8	—	—	—	—	—
Hoses .....	5	—	—	—	—	—	—	—	—	—
Pressure lines, except hoses .....	4	—	—	—	—	—	—	—	—	—
Propane tanks .....	3	—	—	—	—	—	—	—	—	—
Containers-variable restraint .....	19	47.4	—	—	15.8	15.8	—	—	—	—
Bundles, bales .....	14	64.3	—	—	—	—	—	—	—	—
Reels, rolls .....	5	—	—	—	—	—	—	—	—	—
Skids, pallets .....	6	—	—	—	—	—	—	—	—	—
<b>Other</b> .....	1,052	6.6	2.1	7.3	8.4	8.7	3.3	26.9	2.5	18.3
Furniture and fixtures .....	19	—	—	36.8	—	—	—	21.1	—	21.1
Cases, cabinets, racks, and shelves ..	5	—	—	—	—	—	—	—	—	—
Other fixtures .....	9	—	—	55.6	—	—	—	—	—	—
Ammunition .....	720	3.5	.4	3.8	6.4	9.2	3.1	35.8	3.2	18.6
Bullets .....	697	2.7	.4	3.7	6.3	9.5	3.2	36.3	3.3	18.4
Atmospheric and environmental conditions .....	181	13.3	7.7	14.4	17.1	6.1	5.0	6.1	—	14.9
Fire, flame, smoke .....	114	4.4	10.5	7.0	22.8	4.4	7.0	8.8	—	17.5
Fire, flame .....	84	6.0	14.3	9.5	22.6	3.6	7.1	8.3	—	17.9
Smoke, fire gases .....	14	—	—	—	—	—	—	—	—	—
Temperature extreme .....	36	33.3	—	27.8	—	11.1	—	—	—	—
Steam, vapors, liquids .....	85	21.2	4.7	12.9	7.1	10.6	—	—	—	21.2
Scrap, waste, debris .....	4	—	—	—	—	—	—	—	—	—
Chips, particles, splinters .....	3	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

TABLE A-9. **Fatal occupational injuries by primary and secondary source of injury by major private industry division, 1998** —  
Continued

Primary source and secondary source	Total	Private industry <sup>1</sup> (percent)								
		Agriculture, forestry, and fishing	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
Secondary source <sup>3</sup>										
<b>Vehicles</b> .....	1,023	8.5	1.3	11.2	10.9	22.0	7.0	8.3	2.2	13.6
Air vehicle .....	34	—	—	—	—	8.8	—	—	—	23.5
Aircraft--powered fixed wing .....	18	—	—	—	—	—	—	—	—	33.3
Jet .....	5	—	—	—	—	—	—	—	—	—
Propeller-driven aircraft .....	5	—	—	—	—	—	—	—	—	80.0
Aircraft--powered rotary wing .....	15	—	—	—	—	—	—	—	—	—
Highway vehicle, motorized .....	838	6.8	1.1	11.1	9.9	22.9	7.6	8.8	2.7	14.0
Automobile .....	192	3.1	—	13.0	10.4	17.2	7.3	13.0	4.7	16.7
Bus .....	13	—	—	—	—	—	—	—	—	—
Truck .....	527	8.2	1.7	9.5	9.5	26.4	8.0	6.5	2.1	13.3
Delivery truck .....	13	23.1	—	—	—	—	—	30.8	—	—
Dump truck .....	44	15.9	—	13.6	11.4	13.6	9.1	—	—	18.2
Pickup truck .....	83	13.3	—	12.0	9.6	7.2	7.2	8.4	7.2	9.6
Semitrailer, tractor trailer, trailer truck .....	268	4.9	1.9	6.7	6.7	35.8	7.8	6.0	—	14.6
Van--passenger or light delivery .....	32	—	—	25.0	9.4	18.8	9.4	9.4	—	—
Plant and industrial powered vehicles, tractors .....	64	34.4	—	21.9	17.2	6.2	7.8	7.8	—	4.7
Forklift .....	39	—	—	33.3	28.2	7.7	10.3	12.8	—	—
Platform lift truck--high or low lift .....	5	—	—	—	—	—	—	—	—	—
Tractor .....	25	84.0	—	—	—	—	—	—	—	—
Rail vehicle .....	61	—	4.9	11.5	18.0	27.9	4.9	6.6	—	13.1
Water vehicle .....	20	25.0	—	—	20.0	35.0	—	—	—	—
Barge .....	6	—	—	—	—	—	—	—	—	—
Motorboat .....	3	100.0	—	—	—	—	—	—	—	—
Ships--other than sail powered .....	6	—	—	—	—	—	—	—	—	—
<b>Structures and surfaces</b> .....	813	6.6	2.1	40.1	6.8	18.2	2.6	3.0	1.1	10.9
Floors, walkways, ground surfaces .....	224	12.1	—	17.0	10.3	17.0	4.5	2.2	1.8	17.4
Floors .....	25	—	—	48.0	16.0	—	—	—	—	20.0
Ground .....	119	14.3	—	2.5	9.2	22.7	4.2	—	—	18.5
Street, road .....	10	—	—	40.0	—	—	—	—	—	—
Surfaces below ground level, n.e.c. ....	33	15.2	—	27.3	12.1	15.2	9.1	—	—	—
Ditches, channels, trenches, excavations .....	27	14.8	—	29.6	—	18.5	11.1	—	—	—
Parking lots .....	3	—	—	—	—	—	—	—	—	—
Other structural elements .....	225	4.9	1.8	65.8	6.7	4.0	1.8	3.1	1.8	7.6
Doors .....	3	—	—	—	—	—	—	—	—	—
Fences, fence panels .....	15	20.0	—	20.0	—	20.0	—	—	—	—
Gates .....	3	—	—	—	—	—	—	—	—	—
Roof .....	122	—	—	80.3	6.6	—	—	—	—	6.6
Walls .....	22	—	—	18.2	13.6	18.2	—	22.7	—	—
Windows .....	4	—	—	—	—	—	—	—	—	—
Structures .....	359	4.2	2.8	38.4	4.7	28.1	1.7	3.3	—	9.2
Bridges, dams, locks .....	35	—	—	20.0	—	57.1	—	—	—	8.6
Buildings--office, plant, residential .....	22	13.6	—	—	—	18.2	—	—	—	31.8
Mines, caves, tunnels .....	15	—	—	60.0	—	—	—	—	—	—
Scaffolds, staging .....	94	—	—	89.4	3.2	—	—	—	—	3.2
Towers, poles .....	69	4.3	7.2	31.9	4.3	15.9	—	8.7	—	11.6
Other structures .....	112	4.5	2.7	8.0	8.0	57.1	2.7	2.7	—	6.2
Guardrails, road dividers .....	79	—	—	6.3	8.9	64.6	3.8	—	—	6.3
<b>Machinery</b> .....	232	13.4	5.2	25.0	25.9	6.0	5.6	3.0	—	12.9
Agricultural and garden machinery .....	17	76.5	—	—	—	—	—	—	—	17.6
Harvesting and threshing machinery ..	5	100.0	—	—	—	—	—	—	—	—
Mowing machinery .....	5	—	—	—	—	—	—	—	—	60.0
Construction, logging, and mining machinery .....	50	14.0	—	36.0	28.0	6.0	8.0	—	—	—
Excavating machinery .....	13	—	—	76.9	—	—	—	—	—	—
Backhoes .....	7	—	—	85.7	—	—	—	—	—	—
Bulldozers .....	4	—	—	75.0	—	—	—	—	—	—

See footnotes at end of table.

TABLE A-9. **Fatal occupational injuries by primary and secondary source of injury by major private industry division, 1998** —  
Continued

Primary source and secondary source	Total	Private industry <sup>1</sup> (percent)								
		Agriculture, forestry, and fishing	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Secondary source<sup>3</sup></b>										
Loaders .....	9	33.3	—	—	—	—	33.3	—	—	—
Front end loaders .....	3	—	—	—	—	—	—	—	—	—
Logging and wood processing machinery--specialized .....	13	23.1	—	—	76.9	—	—	—	—	—
Chippers .....	4	—	—	—	75.0	—	—	—	—	—
Log loaders, including heel boom ...	3	—	—	—	100.0	—	—	—	—	—
Forwarder/yarder, skidder .....	4	—	—	—	75.0	—	—	—	—	—
Mining and drilling machinery .....	5	—	—	—	—	—	—	—	—	—
Drilling machines, drilling augers ....	3	—	—	—	—	—	—	—	—	—
Road grading and surfacing machinery .....	5	—	—	80.0	—	—	—	—	—	—
Heating, cooling, and cleaning machinery and appliances .....	11	—	—	36.4	36.4	—	—	—	—	—
Cooling and humidifying machinery and appliances .....	4	—	—	—	—	—	—	—	—	—
Heating and cooking machinery and appliances .....	5	—	—	—	60.0	—	—	—	—	—
Material handling (cranes, conveyers, jacks) .....	118	8.5	7.6	26.3	17.8	8.5	5.9	4.2	—	17.8
Conveyors--gravity .....	4	—	—	—	—	—	—	—	—	—
Conveyors--powered .....	8	—	—	—	—	—	—	—	—	—
Cranes .....	37	—	10.8	32.4	29.7	10.8	—	—	—	8.1
Cranes--mobile, truck, rail mounted	3	—	—	—	—	—	—	—	—	—
Cranes--overhead .....	6	—	—	—	66.7	—	—	—	—	—
Cranes--portal, tower, pillar .....	3	—	—	—	—	—	—	—	—	—
Overhead hoists .....	7	—	—	42.9	—	—	—	—	—	—
Elevators .....	26	11.5	—	42.3	—	19.2	—	—	—	—
Bucket or basket hoist--truck mounted .....	13	—	—	30.8	—	30.8	—	—	—	—
Manlifts .....	4	—	—	—	—	—	—	—	—	—
Jacks .....	31	16.1	—	—	9.7	—	—	12.9	—	45.2
Metal, woodworking, and special material machinery .....	23	—	—	13.0	56.5	—	—	—	—	—
Extruding, injecting, forming, molding machinery .....	6	—	—	—	83.3	—	—	—	—	—
Forging machinery .....	4	—	—	—	75.0	—	—	—	—	—
Lathes .....	3	—	—	—	100.0	—	—	—	—	—
Presses, except printing .....	4	—	—	—	—	—	—	—	—	—
Sawing machinery, stationary .....	3	—	—	—	100.0	—	—	—	—	—
Other metal, woodworking, and special material machinery .....	4	—	—	—	—	—	—	—	—	—
Spot welding machinery .....	4	—	—	—	—	—	—	—	—	—
Special process machinery .....	7	—	—	—	57.1	—	—	—	—	—
Miscellaneous machinery .....	6	—	—	—	50.0	—	—	—	—	—
<b>Parts and materials</b> .....	252	11.1	2.4	46.8	13.5	9.5	1.6	—	2.0	7.1
Building materials--solid elements .....	48	6.2	6.2	43.8	22.9	—	—	—	—	6.2
Bricks, blocks, structural stone .....	6	—	—	83.3	—	—	—	—	—	—
Pipes, ducts, tubing .....	11	—	—	27.3	—	—	—	—	—	—
Structural metal materials .....	21	—	—	42.9	33.3	—	—	—	—	—
Plates, metal panels .....	3	—	—	—	100.0	—	—	—	—	—
Wood, lumber .....	7	—	—	42.9	—	—	—	—	—	—
Fasteners, connectors, ropes, ties .....	11	—	—	—	—	27.3	—	—	—	—
Ropes, ties .....	8	—	—	—	—	—	—	—	—	—
Hoisting accessories .....	3	—	—	—	100.0	—	—	—	—	—
Machine, tool, and electrical parts .....	154	13.6	—	59.1	9.1	6.5	—	—	1.9	5.8
Electric parts .....	147	13.6	—	59.2	9.5	5.4	—	—	2.0	6.1
Electrical wiring .....	22	—	—	54.5	13.6	—	—	—	—	13.6
Power lines, transformers, convertors .....	115	17.4	—	60.0	7.0	5.2	—	—	—	5.2
Vehicle and mobile equipment parts .....	35	—	—	14.3	8.6	25.7	—	—	—	11.4
Tires, inner tubes, wheels .....	13	—	—	—	—	30.8	—	—	—	—

See footnotes at end of table.

TABLE A-9. **Fatal occupational injuries by primary and secondary source of injury by major private industry division, 1998** —  
Continued

Primary source and secondary source	Total	Private industry <sup>1</sup> (percent)								
		Agriculture, forestry, and fishing	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
<b>Secondary source<sup>3</sup></b>										
Trailers .....	19	—	—	21.1	15.8	26.3	—	—	—	—
<b>Persons, plants, animals, and minerals</b>	955	8.3	0.7	4.3	7.5	12.7	3.0	31.2	2.5	17.3
Animals and animal products .....	28	39.3	—	—	—	14.3	—	—	—	21.4
Mammals, except humans .....	23	39.1	—	—	—	13.0	—	—	—	26.1
Cattle .....	4	—	—	—	—	—	—	—	—	—
Horses .....	14	64.3	—	—	—	—	—	—	—	35.7
Food products--fresh or processed .....	9	—	—	—	—	—	33.3	—	—	44.4
Nonmetallic minerals, except fuel .....	17	17.6	29.4	17.6	—	17.6	—	—	—	—
Dirt, earth .....	7	—	—	42.9	—	—	—	—	—	—
Rocks, crushed stone .....	8	—	—	—	—	37.5	—	—	—	—
Person--other than injured or ill worker ..	683	2.6	—	2.9	5.1	10.1	2.5	40.3	2.9	18.6
Co-worker, former co-worker or injured worker .....	66	7.6	—	9.1	21.2	4.5	—	12.1	—	16.7
Health care patient or resident of health care facility .....	8	—	—	—	—	—	—	—	—	62.5
Relative of injured worker .....	19	—	—	—	15.8	—	—	31.6	—	21.1
Plants, trees, vegetation--not processed	175	24.0	—	8.0	17.7	24.0	4.0	5.7	—	10.3
Trees, logs .....	167	22.2	—	8.4	18.6	24.6	4.2	4.8	—	10.8
<b>Chemicals and chemical products</b> .....	87	4.6	13.8	17.2	27.6	9.2	4.6	6.9	—	12.6
Chemical products--general .....	22	—	—	—	59.1	—	—	—	—	—
Drugs, alcohol, medicines .....	3	—	—	—	—	—	—	—	—	—
Explosives, blasting agents, n.e.c. ....	12	—	—	—	91.7	—	—	—	—	—
Coal, natural gas, petroleum fuels and products .....	54	—	22.2	20.4	13.0	11.1	—	7.4	—	14.8
Natural gas .....	17	—	47.1	17.6	—	23.5	—	—	—	—
Petroleum fuels, distillates, products, unspecified .....	31	—	—	22.6	9.7	—	—	12.9	—	22.6
Gasoline, diesel fuel, jet fuel .....	19	—	—	26.3	—	—	—	—	—	31.6
Propane .....	6	—	—	—	—	—	—	—	—	—
Other chemicals .....	3	—	—	—	—	—	—	—	—	—
<b>Tools, instruments, and equipment</b> .....	238	8.4	2.5	30.7	10.9	4.2	3.8	10.9	3.8	13.0
Handtools--nonpowered .....	5	—	—	—	—	—	—	—	—	—
Handtools--powered .....	26	11.5	—	23.1	26.9	—	—	—	—	15.4
Cutting handtools .....	10	—	—	30.0	40.0	—	—	—	—	—
Welding and heating handtools .....	16	—	—	18.8	18.8	—	—	—	—	18.8
Ladders .....	111	9.9	—	50.5	4.5	2.7	3.6	10.8	5.4	4.5
Ladders--fixed .....	5	—	—	—	—	—	—	—	—	—
Ladders--movable .....	52	—	—	63.5	5.8	—	—	9.6	7.7	—
Extension ladders .....	20	—	—	70.0	—	—	—	—	—	—
Step ladders .....	9	—	—	55.6	—	—	—	—	—	—
<b>Containers</b> .....	67	26.9	6.0	14.9	19.4	10.4	6.0	—	—	9.0
Containers-nonpressurized .....	49	28.6	8.2	14.3	16.3	12.2	8.2	—	—	8.2
Boxes, crates, cartons .....	6	—	—	—	—	—	—	—	—	—
Buckets, baskets, pails .....	3	—	—	—	—	—	—	—	—	—
Tanks, bins, vats .....	38	31.6	7.9	10.5	21.1	13.2	7.9	—	—	—
Containers-pressurized .....	7	—	—	—	42.9	—	—	—	—	—
Hoses .....	3	—	—	—	—	—	—	—	—	—
Containers-variable restraint .....	8	50.0	—	—	—	—	—	—	—	—
Bundles, bales .....	5	80.0	—	—	—	—	—	—	—	—
<b>Other</b> .....	274	31.4	4.0	11.3	4.7	17.9	4.7	4.4	1.1	7.7
Furniture and fixtures .....	12	—	—	—	—	—	—	25.0	—	—
Cases, cabinets, racks, and shelves ..	5	—	—	—	—	—	—	60.0	—	—
Furniture .....	6	—	—	—	—	—	—	—	—	—
Chairs .....	3	—	—	—	—	—	—	—	—	—
Atmospheric and environmental conditions .....	99	9.1	—	19.2	3.0	26.3	5.1	5.1	—	8.1
Fire, flame, smoke .....	24	—	—	—	—	41.7	12.5	—	—	—

See footnotes at end of table.

TABLE A-9. **Fatal occupational injuries by primary and secondary source of injury by major private industry division, 1998** —  
Continued

Primary source and secondary source	Total	Private industry <sup>1</sup> (percent)								
		Agriculture, forestry, and fishing	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
Secondary source <sup>3</sup>										
Fire, flame .....	13	—	—	—	—	46.2	23.1	—	—	—
Smoke, fire gases .....	8	—	—	—	—	37.5	—	—	—	—
Flood .....	3	—	—	—	—	—	—	—	—	—
Steam, vapors, liquids .....	126	50.8	5.6	4.0	4.0	15.1	4.0	—	—	7.1
<b>Not reported</b> .....	2,085	20.3	2.8	18.4	13.7	14.4	2.8	5.1	0.9	11.8

<sup>1</sup> Classified according to the *Standard Industrial Classification Manual, 1987*.

<sup>2</sup> The primary source of injury identifies the object, substance, or exposure that directly produced or inflicted the injury. For transportation incidents, the source identifies the vehicle in which the deceased was an occupant.

<sup>3</sup> The secondary source of injury, if any, identifies the object, substance, or person that generated the source of injury or that contributed to the event or exposure. For vehicle collisions, the deceased's vehicle is the primary source and the other object (truck, road, divider, etc.) is the secondary source. For most homicides, the "bullet" is the primary source and the

"perpetrator" is the secondary source.

NOTE: Totals for major categories may include subcategories not shown separately. Percentages may not add to totals because of rounding.

Dashes indicate no data reported or data that do not meet publication criteria.

n.e.c. means "not elsewhere classified."

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries