
UNITED STATES DEPARTMENT OF LABOR

Frances Perkins, Secretary

BUREAU OF LABOR STATISTICS

Isador Lubin, Commissioner (on leave)

A. F. Hinrichs, Acting Commissioner

SHIPYARD INJURIES

1944



Bulletin No. 834

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Letter of Transmittal

UNITED STATES DEPARTMENT OF LABOR,
BUREAU OF LABOR STATISTICS,
Washington, D. C., May 25, 1945.

The SECRETARY OF LABOR:

I have the honor to transmit herewith a report on shipyard injuries, 1944, prepared in the Bureau's Industrial Hazards Division by Frank S. McElroy and George R. McCormack. All the information on which this study is based was furnished by the shipyards as a part of the joint program of safety and health for contract shipyards, sponsored by the United States Maritime Commission and the United States Navy Department.

A. F. HINRICHS,
Acting Commissioner.

HON. FRANCES PERKINS,
Secretary of Labor.



Contents

	Page
Effect of safety program on accident record.....	1
Kinds of injuries experienced.....	3
Accident types.....	4
Unsafe working conditions.....	4
Unsafe acts.....	5
Detailed data.....	5

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United States Bureau of Labor Statistics*

[Reprinted from the MONTHLY LABOR REVIEW, May 1945, with additional data]

Shipyard Injuries, 1944

Effect of Safety Program on Accident Record

THE sustained safety program sponsored by the U. S. Maritime Commission and the U. S. Navy Department led to substantial reductions in the volume of work injuries in shipyards during 1944. In 1943 the entire group of private shipyards working under Federal contracts reported an average of 31.2 disabling injuries for each million employee-hours worked. Those which continued their operations into 1944 had an average injury rate of 30.2. In 1944 the average injury-frequency rate for the reporting yards was down to 23.2—a decrease of 23 percent.

It is impossible to compute the total value of this achievement, as many of the most important savings cannot be expressed in monetary terms. Some indication of the great contribution to the war, embodied in this accomplishment, is apparent, however, in the simple totals of the injuries which have been prevented. If the frequency of injuries had been the same in 1944 as it was in 1943, it is estimated that 90,500 shipyard workers would have experienced disabling injuries in 1944. The reports received, however, indicate that the 1944 injury total was about 71,500 injuries. This means that 19,000 disabling injuries were prevented during the year and that at least 380,000 man-days were saved to hasten the production of ships. In addition to this saving in disabling injuries, it is estimated that fully 550,000 nondisabling injuries were prevented. The importance of these minor injuries is frequently overlooked because they seldom involve more than simple first aid. A Bureau of Labor Statistics study has shown, however, that on the average each nondisabling injury results in the loss of 1.2 hours of working time. In the aggregate the elimination of 550,000 nondisabling injuries represents a saving of 660,000 hours or 82,500 man-days of 8 hours each. The total saving of productive time as a result of the better accident record during 1944, therefore, amounts to 462,500 man-days.

A similar comparison with 1942, the year directly preceding the inauguration of the safety program, shows that the improved accident record during 1943 and 1944 resulted in a total saving of 611,000 man-days, which otherwise would have been lost because of disabling and minor injuries.

The 1944 shipyard record becomes even more impressive when compared with the records of earlier years. Bureau of Labor Statistics reports show that in 1939 the average injury-frequency rate for shipyards was 18.6. This was the last year of normal peacetime

operations. Expansion, crowding, faster operations, and new types of construction developed rapidly and in 1940 the rate rose to 20.6. In 1941 the average rate was 26.4 and in 1942 it rose to 33.1. With the inauguration of the joint Maritime Commission-Navy Department Safety Program in 1943, this steady rise in the frequency rate for shipyards was checked and the rate for that year declined to 31.2. The substantial improvement shown in the average rate for 1944 (23.2) is ample evidence that the safety program has definitely achieved its first objective, which was to reverse the upward trend in work injuries which had been so apparent in the shipyard record for previous years.

The 1944 record, however, shows both improvement and retrogression. In the shipyards engaged primarily in new construction the frequency rate shows a reduction from 30.2 disabling injuries per million employee-hours worked in 1943 to 22.7 injuries per million hours in 1944—a most creditable improvement of 24.9 percent. In the repair-yard group, on the other hand, the average frequency rate rose from 28.1 in 1943 to 31.1 in 1944. The need for intensified safety activities in the repair yards is apparent, and as yards currently engaged in new construction are converted into repair yards that need will grow.

Among the new construction yards, the group operating under contracts from the Maritime Commission reduced its average frequency rate from 32.9 in 1943 to 23.4 in 1944, a decrease of 29 percent. Private construction yards operating under contracts from the Navy Department similarly reduced their average frequency rate from 26.3 in 1943 to 21.6 in 1944, while those operating under War Department contracts achieved a reduction from 39.0 in 1943 to 27.6 in 1944.

Among the construction yards holding Maritime Commission contracts, those situated in the Great Lakes region had the lowest average frequency rate in 1944—13.1. The average for the Gulf region—16.5—however, was only slightly higher. The averages for the Atlantic and Pacific regions were practically identical—26.3 and 26.4, respectively. Each of these averages represents a substantial improvement in comparison with the corresponding frequency rate for 1943, the 44-percent reduction achieved in the Gulf region being particularly noteworthy.

Substantial frequency-rate reductions during 1944 were recorded for the yards operating under Navy Department contracts in each of the naval districts except the first, ninth, and thirteenth. In the last two naval districts the 1944 average rates were practically the same as the corresponding rates for 1943. In the first naval district the 1944 rate was nearly 28 percent higher than it had been in 1943. The most pronounced improvement was in the fourth naval district where the average frequency rate was reduced from 20.9 in 1943 to 9.1 in 1944. The following statement gives the industrial injury-frequency rates for the years 1943 and 1944 for shipyards with United States Government contracts, by type of contract and by geographic region.

	Frequency rates	
	1944	1943
Primarily new construction.....	22.7	30.2
United States Maritime Commission contracts.....	23.4	32.9
Atlantic region.....	26.3	33.0
Gulf region.....	16.5	29.6
Pacific region.....	26.4	35.0
Great Lakes region.....	13.1	21.1

Primarily new construction—Continued.	Frequency rates	
	1944	1945
United States Navy Department contracts.....	21.6	26.3
Naval District 1.....	33.9	26.5
Naval District 3.....	20.8	22.9
Naval District 4.....	9.1	20.9
Naval District 5.....	45.8	62.9
Naval District 6.....	25.6	39.1
Naval District 7.....	28.2	36.2
Naval District 8.....	21.2	28.2
Naval District 9.....	19.1	19.4
Naval District 11.....	16.1	24.9
Naval District 12.....	16.9	31.0
Naval District 13.....	33.7	33.2
United States War Department contracts.....	27.6	39.0
Primarily repair work.....	31.1	28.1
Government-owned navy yards.....	12.7	15.2

Comparisons based upon the type of construction performed indicate that the improvement achieved in the wood and concrete construction yards was considerably greater than in the yards which built steel vessels. In the yards which specialized in building concrete vessels the injury-frequency rate was reduced from 46.9 in 1943 to 27.1 in 1944 and in the yards constructing wooden vessels, from 45.8 in 1943 to 30.9 in 1944. For the larger group of yards which built steel vessels the reduction was from 29.5 in 1943 to 22.3 in 1944. Industrial injury-frequency rates for shipyards primarily engaged in new construction under United States Government contracts are given below by type of construction for 1943 and 1944.

	Frequency rates	
	1944	1945
Iron and steel construction.....	22.3	29.5
150 feet and over—powered.....	21.9	29.0
26 feet and under 150 feet—powered.....	33.1	46.1
Non-powered—all lengths.....	25.6	31.3
Wood construction.....	30.9	45.8
150 feet and over—powered.....	25.2	48.1
26 feet and under 150 feet—powered.....	32.8	44.1
Non-powered—all lengths.....	47.3	80.3
Concrete construction.....	27.1	46.9

Kinds of Injuries Experienced

Over a third of the 50,211 disabling shipyard injuries for which full details were reported in 1944, were injuries to the legs and feet. Injuries to the trunk constituted about one-fourth of the total; head injuries, including eye cases, constituted 22 percent of the total, and injuries to fingers, hands, wrists, and arms amounted to 18 percent.

Two-thirds of the toe injuries and one-third of the foot injuries were fractures; most of the other foot and toe cases were cuts and bruises. Practically all of these cases, or fully 12 percent of all the disabling injuries reported, probably would have been avoided had the injured persons been wearing safety shoes.

Nearly two-thirds of the 2,851 ankle injuries were sprains and about one-fourth were bruises or fractures.

Injuries to the back were generally strains or bruises; the rib and shoulder injuries were largely bruises or fractures, while the abdominal injuries were primarily hernia cases. Seventy percent of the head injuries were eye cases, most of which resulted from foreign bodies entering the eye or from exposure to welding arcs. The general use

of safety goggles would probably have prevented most of these eye injuries and thereby would have reduced the shipyard injury-frequency rate by about 10 or 15 percent. The brain and skull injuries, which totaled about 5 percent of all cases reported, were largely the result of falls or of workers' being struck by moving or falling objects. Nearly all of the latter group might have been avoided through the universal use of hard hats.

About one in seven of the 3,783 injuries to fingers resulted in an amputation, and about one in three was a fracture. Most other finger injuries were cuts or bruises.

Accident Types

One-third of all reported disabling injuries resulted from the injured employee's being struck by a moving or flying object. Injuries caused by foreign bodies striking the eyes were by far the most common; this one group alone accounted for about 10 percent of all reported injuries. Metal parts which fell from piles or from the hands of employees caused a considerable number of "struck by" accidents. Cranes and vehicles also accounted for a large number of injuries in this group. Most of these occurred when employees were struck by the moving sling load or by objects dropped from the load.

Falls accounted for approximately one-fourth of the reported injuries, with falls from one level to another slightly exceeding those on the same level. Of the first group, falls from stagings were the most common. In the latter group, falls on decks or floors were most frequent. Poor housekeeping contributed to many injuries in this group. Falls caused by cables or other feed lines on working surfaces were numerous.

Slips on working surfaces and overexertion caused by lifting was the third most common accident type; approximately one-fifth of the reported disabling injuries fell into this group.

Accidents in which the injured employee struck against tools or other objects accounted for 11 percent of the disabling injuries. Contact with temperature extremes, mostly hot metal, slag, or rivets, or contact with welding radiations was responsible for 7 percent of all disabling injuries. Employees who were caught in cranes, vehicles, or machines sustained the largest number of injuries in the "caught in, on, or between" group which accounted for 6 percent of the reported injuries.

Unsafe Working Conditions

Poor housekeeping caused more accidents than any other unsafe working condition. Of the 20,496 disabling injuries for which an unsafe working condition was known to exist, approximately 7,500, or 37 percent, were due to poor housekeeping. Failure to keep working surfaces or walkways clear of equipment or materials was responsible for a majority of these injuries. Welding cables, lumber, and structural parts lying on such surfaces were the most common source of these accidents. A large number of accidents were caused by failure to keep working surfaces free from snow, ice, water, or grease. Poor piling of materials was another frequent source of injury.

Failure to provide personal safety equipment, or providing defective safety equipment, accounted for 5,473 disabling injuries, or 27 percent of those for which an unsafe working condition existed. Over half of these injuries could have been prevented by the use of proper goggles. Approximately 2,750 injuries were caused by foreign bodies originating at the point of operation of a grinder, chipping hammer, or similar machine or tool; another 700 injuries were due to welding radiations. Lack of personal safety equipment to guard against burns from hot metal or slag caused nearly 1,100 disabling injuries.

Defective agencies contributed to 18 percent of the disabling injuries which were associated with unsafe working conditions. Approximately one-third of these accidents involved defective staging or scaffolds. Hand tools, fatigued or worn from excessive use, were a common source of injuries in this group. Insecurely bolted or welded metal parts and defective cranes also caused a considerable number of injuries.

Unguarded working surfaces, machines, and other equipment caused approximately 9 percent of the injuries which resulted from an unsafe working condition.

Unsafe Acts

Two types of unsafe acts were associated with over two-thirds of the disabling injuries in which an unsafe act was known to exist. Incorrect lifting was somewhat the more common of these, although taking an unsafe position or posture caused nearly as many injuries.

Of the group of injuries classified as incorrect lifting, 24 percent were due to lifting or carrying excessive weights, generally structural parts, lumber, and pipe. Taking an insecure hold, or the wrong hold, on hand tools was responsible for almost as many disabling injuries. Poor handling of metal parts, such as brackets, plates, and bars, caused 11 percent of the injuries in this group.

Inattention to footing was the most common specific fault in the group of unsafe acts classified as unsafe position or posture. Most of these accidents were falls, stumbles, or slips on the part of the injured employee. Lifting objects from an awkward position or with a bent back produced many back strains. Working too near objects or other persons caused numerous injuries.

Unsafe operation of, or unnecessary exposure to, cranes, vehicles, or machinery; failure to use provided personal safety equipment; and unsafe use of, or failure to use, scaffolds or ladders, each were involved in approximately 8 percent of the injuries caused by an unsafe act.

Detailed Data

Detailed statistics on disabling shipyard injuries, January–December 1944, are given by part of body injured and nature of injury in table 1, by accident type and agency in table 2, by unsafe working condition and agency in table 3, and by unsafe act and agency in table 4.

TABLE 1.—Distribution of Disabling Shipyard Injuries, Classified by Part of Body Injured and by Nature of Injury, January-December 1944

Part of body injured	Total disabling injuries		Contusions, bruises, hematomata	Strains, hernia, sprains	Fractures	Foreign bodies in eyes	Cuts, abrasions, lacerations	Burns			Amputations or enucleations	Concussion	Industrial disease and chemical poisoning	All other	Unclassified, insufficient data
	Number	Percent ¹						Total	Burns and scalds	Flash burns from welding radiations					
Total disabling injuries:															
Number.....	50,211		12,532	10,635	9,148	5,086	4,955	3,711	2,371	1,340	658	506	459	352	2,169
Percent ¹		100	26	22	19	11	10	8	5	3	1	1	1	1	
Lower extremities.....	17,169	34	5,841	3,381	4,862		1,603	845	845		57		6	18	556
Feet.....	4,353	8	1,524	328	1,495		435	380	389		4			3	184
Legs.....	3,834	8	1,602	238	730		778	276	276		7		2	9	132
Toes.....	3,065	6	831	12	2,055		67	7	7		46				47
Knees.....	3,065	6	1,431	971	213		250	51	51				3	5	142
Ankles.....	2,851	6	303	1,832	369		73	131	131				1	1	51
Trunk.....	12,434	25	3,341	6,489	1,467		163	112	112				19	27	816
Back or back vertebrae.....	6,524	13	1,319	4,356	327		54	31	31				1	2	434
Ribs or shoulders.....	3,316	7	1,272	734	1,015		38	51	51				3	5	198
Abdominal region or internal organs.....	1,847	4	368	1,242			53	25	25				15	18	126
Hips or pelvis.....	747	1	382	157	125		18	5	6					2	68
Head.....	10,745	22	1,271	103	467	5,086	1,132	1,684	344	1,340	11	506	46	89	350
Eyes.....	7,022	15	165	1		5,086	231	1,434	94	1,340	9		9	20	67
Brain or skull.....	2,485	5	851		253		625	16	16			506	1	8	225
Head, n. e. c.....	1,238	2	255	102	214		276	234	234		2		36	61	58
Upper extremities.....	8,841	18	1,929	642	2,343		2,040	969	969		590		98	22	208
Fingers.....	3,783	8	747	99	1,049		1,903	156	156		574		5	6	44
Hands.....	1,893	4	391	63	332		623	362	362		5		57	4	56
Arms.....	1,520	3	275	130	560		177	277	277		11		35	7	48
Wrists.....	901	2	102	263			94	81	81				1	2	25
Elbows.....	744	1	414	57	99		43	93	93					3	35
Body general.....	727	1	129	2	1		8	95	95				279	188	25
Multiple body parts.....	6	(²)	1	1	1									3	1
Unclassified, insufficient data.....	289		21	17	7		9	6	6				11	5	213

¹ Percent of known cases.

² Less than one-half of 1 percent.

TABLE 2.—Distribution of Disabling Shipyard Injuries, Classified by Accident Type and by Agency, January–December 1944

Accident type	Total disabling injuries		Working surfaces					Structural parts	Tools	Foreign bodies n. e. c.	Cranes, vehicles	Cables, other feed lines	Lumber	Pipe	Hot metal slag, rivets	Welding radiations	Machines	Poisons, chemicals, fumes	Other	Unclassified, insufficient data
	Number	Percent ¹	Total	Decks, floors, hatches	Scaffold, staging	Steps, ladders	Other working surfaces													
Total disabling injuries:																				
Number.....	50,211	-----	10,471	3,079	2,202	2,036	3,154	6,403	5,701	4,697	3,536	2,537	2,253	1,787	1,503	1,374	1,187	607	6,946	1,154
Percent ¹	-----	100	21	6	4	4	7	13	12	10	7	5	5	4	3	3	2	1	14	-----
Struck by.....	16,663	33	371	43	192	67	69	3,214	2,096	4,632	1,857	351	876	736	71	-----	237	59	2,026	117
Foreign bodies in eyes ²	4,921	10	1	-----	1	-----	-----	1	31	4,679	-----	43	1	2	12	-----	9	33	102	7
Material falling from above.....	1,180	2	77	3	67	2	5	296	334	-----	23	26	165	62	10	-----	3	-----	177	17
All other.....	10,562	21	293	40	124	65	64	2,927	1,641	3	1,834	282	710	672	49	-----	285	26	1,747	93
Falls.....	11,160	23	6,564	2,032	1,436	1,201	1,835	530	498	-----	453	1,106	311	271	7	-----	34	-----	1,238	153
To lower level.....	6,460	13	4,620	1,204	1,347	1,137	932	134	224	-----	364	229	104	49	3	-----	8	-----	662	63
On same level.....	4,700	10	1,944	828	149	64	903	366	264	-----	94	877	207	222	4	-----	26	-----	576	90
Slips (not falls) and overexertion.....	9,066	18	2,496	715	272	588	911	1,427	900	-----	232	832	599	490	5	-----	96	-----	1,755	244
Striking against.....	5,417	11	838	251	190	141	256	762	1,726	-----	148	130	377	168	78	-----	79	6	1,055	50
Own tools while in use.....	1,308	3	-----	-----	-----	-----	-----	-----	1,303	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
All other objects.....	4,109	8	838	251	190	141	256	762	418	-----	148	130	377	168	78	-----	79	6	1,055	50
Burns.....	3,369	7	6	3	1	-----	2	2	218	-----	7	77	-----	11	1,338	1,374	13	80	201	42
Contact with temperature extremes.....	1,979	4	6	3	1	-----	2	2	206	-----	7	77	-----	11	1,338	-----	13	80	201	38
Contact with welding radiations.....	1,390	3	-----	-----	-----	-----	-----	-----	12	-----	-----	-----	-----	-----	1,374	-----	-----	-----	-----	4
Caught in, on, or between.....	2,864	6	105	17	20	22	46	427	280	-----	773	15	81	103	-----	-----	639	-----	406	30
Inhalation, absorption, ingestion.....	475	1	-----	-----	-----	-----	-----	-----	2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	29
Other.....	394	1	18	8	2	1	7	2	42	-----	63	14	-----	1	2	-----	15	68	143	22
Unclassified, insufficient data.....	803	-----	83	10	29	16	28	39	39	15	38	12	13	7	2	-----	14	2	72	467

¹ Percent based on known cases.

² Includes only cases of the foreign body lodging in eye.

TABLE 3.—Distribution of Disabling Shipyard Injuries, Classified by Unsafe Working Condition and by Agency, January–December 1944

Unsafe working condition	Total Disabling injuries		Working surfaces				Structural parts	Tools	Foreign bodies n. a. c.	Cranes, vehicles	Cable, other feed-lines	Lumber	Pipe	Hot metal, slag, rivets, etc.	Welding radiations	Machines	Poisons, chemicals, fumes	Other agencies	Unclassified, insufficient data	
	Number	Percent	Total	Decks, floors, hatches	Sea-folds, stag-ing	Steps, lad-ders														Other work-ing sur-faces
Total disabling injuries:																				
Number.....	50,211	-----	10,471	3,079	2,202	2,036	3,154	6,403	5,701	4,097	3,586	2,537	2,258	1,787	1,503	1,374	1,187	607	6,946	1,154
Percent ¹	-----	100	21	6	4	4	7	13	12	10	7	5	5	4	3	3	2	1	14	-----
Poor housekeeping.....	7,467	16	1,480	729	80	178	493	1,495	364	-----	54	1,436	845	513	10	-----	7	10	1,238	15
Failure to keep deck or floor cleared.....	2,407	6	1	-----	-----	1	-----	413	85	-----	-----	987	169	239	4	-----	1	-----	502	6
Failure to keep other work surfaces cleared.....	2,035	4	7	-----	1	4	2	532	224	-----	1	427	291	124	4	-----	1	-----	422	2
Slippery, due to water, grease, ice, snow.....	1,285	3	1,226	505	56	148	427	14	-----	-----	23	-----	2	4	-----	-----	1	-----	13	2
Unsafely piled or stored material or equipment.....	1,156	2	17	-----	-----	17	-----	517	33	-----	7	20	152	144	2	-----	1	10	243	5
Other poor housekeeping.....	584	1	229	134	23	8	64	19	17	-----	23	2	231	2	-----	3	-----	58	-----	-----
Lack of, or defective, safety equipment.....	5,473	12	162	72	16	30	44	121	733	2,735	-----	23	27	22	1,096	712	20	98	310	14
No goggles.....	2,293	6	-----	-----	-----	-----	-----	-----	12	1,634	-----	-----	-----	17	589	-----	2	15	21	3
Goggles defective or unsuitable.....	1,150	2	-----	-----	-----	-----	-----	-----	-----	1,060	-----	-----	-----	-----	6	71	-----	1	3	-----
Other.....	2,030	4	162	72	16	30	44	121	121	32	-----	23	27	22	1,073	52	18	82	286	11
Defects of agencies.....	3,763	8	1,534	31	1,075	135	293	334	693	-----	253	257	17	60	-----	122	12	-----	489	4
Fatigued, decayed, worn, frayed.....	1,137	2	88	2	4	67	15	12	463	-----	107	127	3	13	-----	-----	70	-----	162	2
Unsafe construction or erection.....	824	2	820	9	647	32	132	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	4	-----
Insecurely bolted, braced, welded, etc.....	624	1	49	8	9	3	29	295	177	-----	3	-----	-----	15	-----	-----	-----	-----	83	2
Other.....	1,178	3	577	12	415	33	117	27	53	-----	53	130	14	32	-----	52	-----	240	-----	-----
Unguarded agencies.....	1,940	4	1,542	1,081	64	356	41	-----	16	-----	88	-----	-----	-----	26	30	-----	18	109	2
Unsafe processes.....	340	1	30	2	9	13	6	29	29	-----	112	9	8	8	4	1	8	46	56	-----
Unsafe rigging.....	501	1	-----	-----	-----	-----	-----	-----	-----	-----	493	-----	-----	-----	-----	-----	-----	-----	8	-----
Other unsafe working conditions.....	1,012	2	473	99	69	36	269	19	21	-----	100	9	6	11	6	-----	17	209	136	5
No unsafe working condition.....	26,297	56	4,898	967	799	1,253	1,879	4,004	4,309	1,579	2,355	780	1,215	1,086	273	523	787	153	4,217	118
Unclassified, insufficient data.....	3,418	-----	352	98	90	35	129	401	136	383	131	23	140	87	88	108	117	73	383	996

¹ Percent of known cases.

TABLE 4.—Distribution of Disabling Shipyard Injuries, Classified by Unsafe Act and by Agency, January–December 1944

Unsafe act	Total Disabling injuries		Working surfaces					Structural parts	Tools	Foreign bodies n. e. c.	Cranes, vehicles	Cables, other feed lines	Lumber	Pipe	Hot metal, slag, rivets	Welding radiations	Machines	Poisons, chemicals, fumes	Other	Unclassified, insufficient data
	Number	Percent ¹	Total	Decks, floors, hatches	Scaffold, staging	Steps, ladders	Other working surfaces													
Total disabling injuries:	50,211	-----	10,471	3,079	2,202	2,036	3,154	6,403	5,701	4,697	3,586	2,537	2,258	1,787	1,503	1,374	1,187	607	6,946	1,154
Number.....	-----	-----	21	6	4	4	7	13	12	10	7	5	5	4	3	3	2	1	14	-----
Percent ¹	-----	-----	100	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Gripping insecurely or overlifting.....	9,991	21	52	-----	3	47	2	2,691	2,955	-----	40	599	849	760	46	-----	159	87	1,710	43
Gripping insecurely or taking wrong hold.....	5,041	11	14	-----	-----	14	-----	1,053	2,211	-----	14	505	385	305	-----	-----	14	-----	537	3
Lifting or carrying too heavy load.....	2,404	5	24	-----	2	22	-----	902	79	-----	7	56	269	236	-----	-----	43	-----	752	3
Other unsafe handling.....	2,546	5	14	-----	1	11	2	736	665	-----	19	38	195	219	46	-----	102	87	421	4
Taking unsafe position or posture.....	8,480	18	3,337	1,042	520	137	1,638	1,218	1,049	-----	201	201	310	291	130	4	86	13	1,606	34
Inattention to footing.....	2,018	4	1,781	619	171	82	909	29	-----	-----	50	-----	12	15	1	-----	-----	-----	128	2
Lifting with bent back or overreaching.....	1,151	2	39	-----	15	13	11	357	79	-----	6	30	130	93	-----	-----	11	-----	388	18
Working too near objects or other persons.....	1,028	2	54	-----	40	2	12	340	136	-----	14	3	39	61	77	4	32	3	259	6
Other unsafe position or posture.....	4,283	10	1,463	423	294	40	706	492	834	-----	131	168	129	122	52	-----	43	10	831	8
Working without proper (or personal) safety equipment.....	2,096	4	18	4	3	6	5	10	20	1,378	-----	6	1	1	64	521	7	27	40	3
Falling to wear.....	1,759	4	5	2	1	-----	2	5	13	1,229	-----	5	-----	1	18	441	-----	21	19	2
Wearing improper or defective equipment.....	104	(²)	13	2	2	6	3	4	4	8	-----	-----	1	-----	38	7	7	4	17	1
Removing safety equipment.....	233	(²)	-----	-----	-----	-----	-----	1	3	141	-----	1	-----	8	73	-----	2	4	-----	-----
Unsafe operation of, or exposure to, cranes, vehicles and machines.....	2,398	5	-----	-----	-----	-----	-----	-----	-----	-----	1,933	-----	-----	-----	-----	-----	423	-----	42	-----
Unnecessary exposure to crane or crane load.....	1,145	2	-----	-----	-----	-----	-----	-----	-----	-----	1,145	-----	-----	-----	-----	-----	-----	-----	-----	-----
Other unsafe driving, operating or exposure.....	1,253	3	-----	-----	-----	-----	-----	-----	-----	-----	788	-----	-----	-----	-----	-----	423	-----	42	-----

¹ Percent based on known cases.
² Less than one-half of 1 percent.

TABLE 4.—Distribution of Disabling Shipyard Injuries, Classified by Unsafe Act and by Agency, January–December 1944—Continued

Unsafe act	Total disabling injuries		Working surfaces					Structural parts	Tools	Foreign bodies n. e. c.	Cranes, vehicles	Cables, other feed lines	Lumber	Pipe	Hot metal, slag, rivets	Welding radiations	Machines	Poisons, chemicals, fumes	Other	Unclassified, insufficient data
	Number	Percent ¹	Total	Decks, floors, hatches	Scaffold, staging	Steps, ladders	Other working surfaces													
Unsafe use of, or failure to use, scaffold or ladder.....	2,117	5	1,609	32	184	1,078	315	13	10	-----	86	-----	9	17	1	-----	8	-----	362	2
Ascending and descending rapidly or not gripping firmly.....	1,185	3	1,082	9	62	883	128	-----	-----	-----	77	-----	-----	-----	-----	-----	-----	-----	25	1
Other unsafe use of, or failure to use, ladder or staging.....	932	2	527	23	122	195	187	13	10	-----	9	-----	9	17	1	-----	8	-----	337	1
Using without authority, or failing to block, secure, signal or warn.....	936	2	115	7	84	6	18	65	129	-----	339	23	25	11	50	7	64	14	93	1
Unsafe use of equipment, or making safety devices inoperative.....	353	1	53	7	9	37	-----	2	68	-----	30	3	7	7	3	1	72	16	90	1
Other.....	1,142	2	176	26	91	23	36	89	191	-----	93	21	36	23	38	1	42	66	347	4
No unsafe act.....	19,148	42	4,736	1,859	1,214	658	1,005	1,895	1,102	-----	735	1,655	875	589	1,086	732	229	317	2,232	46
Unclassified, insufficient data.....	3,550	-----	375	102	94	44	135	420	177	-----	129	29	146	88	85	108	97	67	424	1,020

¹ Percent based on known cases.