

Work Injuries in Construction, 1948-49

**Estimates of Injury Volume
and of Accident Costs in 1949,
and Details of the 1948 Injury Record**

Bulletin No. 1004

UNITED STATES DEPARTMENT OF LABOR

MAURICE J. TOBIN, *Secretary*

BUREAU OF LABOR STATISTICS

EWAN CLAGUE, *Commissioner*



**Work Injuries
in Construction,
1948-49**

Bulletin No. 1004

UNITED STATES DEPARTMENT OF LABOR

MAURICE J. TOBIN, *Secretary*

BUREAU OF LABOR STATISTICS

EWAN CLAGUE, *Commissioner*



Letter of Transmittal

UNITED STATES DEPARTMENT OF LABOR,
BUREAU OF LABOR STATISTICS,
Washington, D. C., October 19, 1950.

THE SECRETARY OF LABOR:

I have the honor to transmit herewith a report on the work-injury experience of construction workers during the year 1948.

This report constitutes a part of the Bureau's regular program of compiling work-injury information for use in accident-prevention work. A supplemental report dealing with the causes of accidents in selected construction occupations will be made available later.

This report was prepared in the Bureau's Branch of Industrial Hazards by Frank S. McElroy and George R. McCormack.

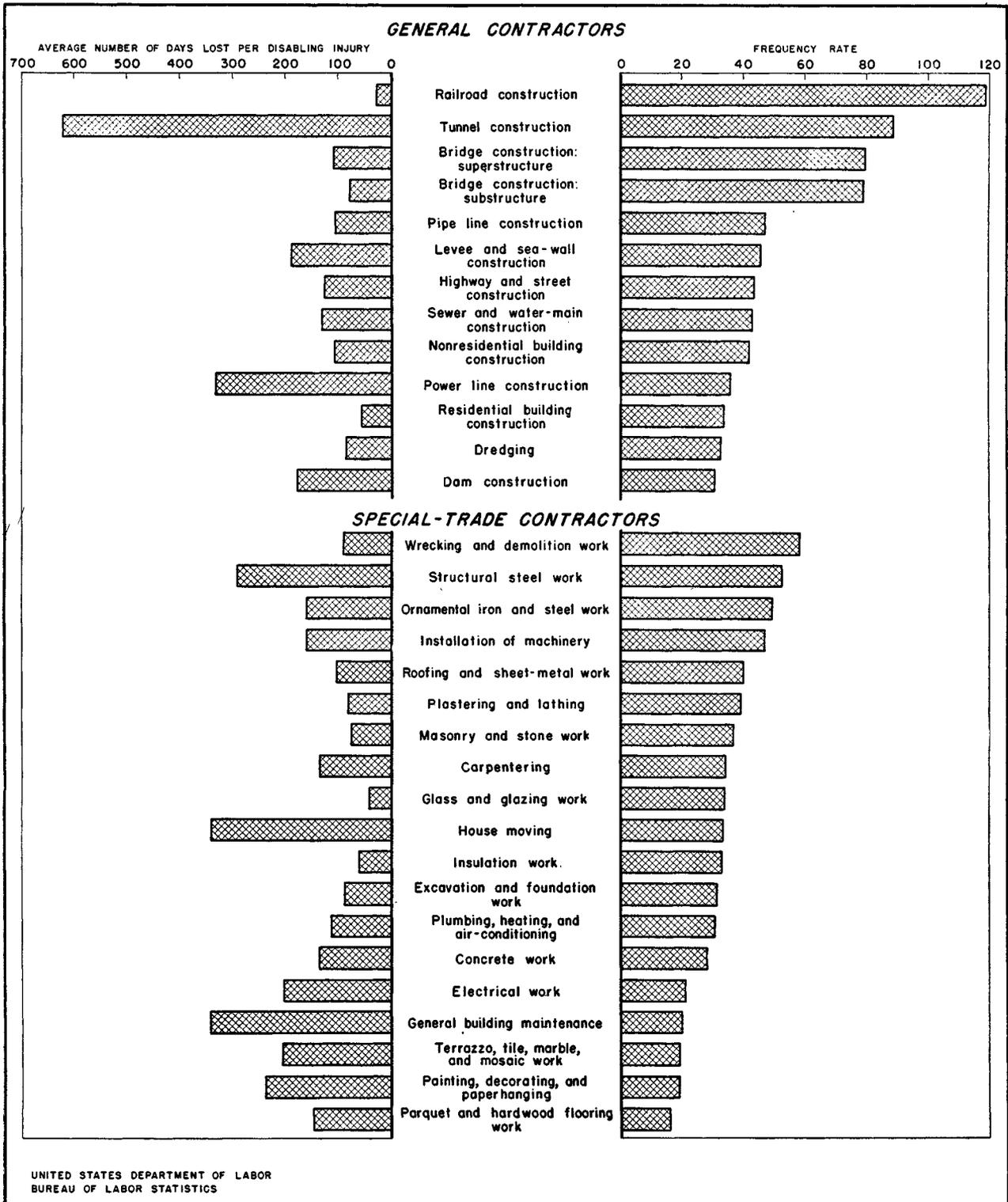
EWAN CLAGUE, *Commissioner.*

Hon. MAURICE J. TOBIN,
Secretary of Labor.

Contents

	Page
The industry record	1
An estimate of injury costs in 1949	1
Scope and method of the survey	2
Injury-rate comparisons, 1948	4
Types of contracting	4
General contracting	4
Special trades contracting	4
Types of construction	4
Building construction	4
Heavy engineering and marine construction	5
New construction versus repair work	5
Highway and street construction	6
General contracting, building	6
Electrical contracting	6
Painting, paperhanging, and decorating	6
Plumbing, heating, and air-conditioning	7
Roofing and sheet-metal work	7
Geographic comparisons	7
General contracting, building	7
Highway and street construction	7
Heavy engineering and marine construction	7
Electrical contracting	8
Plumbing, heating, and air-conditioning	8
Occupational comparisons	8
General comparisons	8
Asbestos workers	10
Bricklayers	11
Carpenters	11
Cement finishers	12
Electricians	13
Ironworkers, structural	13
Laborers, general	13
Lathers	14
Painters	14
Plasterers	15
Plumbers	15
Power equipment operators	15
Roofers, composition	16
Sheet-metal workers	16
Steam fitters	16
Appendix—Statistical tables:	
Injury-frequency and severity rates, classified by—	
1. Type of contracting	18
2. Type of contracting and kind of construction	19
3. Type of contracting, kind of construction, and type of operation	21
4. Geographic area, State, and type of contracting	22
5. Occupation and extent of disability	28
6. Type of contracting and occupation	29
7. Type of operation and occupation	31
8. Type of operation, kind of construction, and occupation	33
Charts:	
1. Injury-frequency rates and severity averages in the construction industry, by major types of contracting, 1948	iv
2. Injury-frequency rates for new construction and repair work in selected construction operations, 1948	6
3. Injury-frequency rates and severity averages in the construction industry, by occupation, 1948	9

Chart 1. Injury-frequency rates and severity averages in the construction industry, by major types of contracting, 1948



Work Injuries in Construction, 1948-49

The Industry Record

In 1938, before wartime influences became effective, construction workers had an average injury-frequency rate of 58.6 disabling work injuries for every million employee-hours worked.¹ During World War II, when many of the more hazardous types of construction were curtailed or eliminated, the all-construction injury rate declined substantially, reaching its lowest level, 26.1, in 1943. In 1944 and 1945, the rate remained comparatively low, but in 1946 and 1947, when construction activities were expanding rapidly, it rose to 40. In 1948, it dropped slightly to 37.

At its present level the all-construction injury-frequency rate indicates that the industry has achieved considerable improvement in safety since prewar days. In evaluating changes in the all-construction rate, however, consideration must be given to the many factors which effect this average. One of the most important is the composition of the industry at any given time. Because there are appreciable differences in the hazards associated with different types of construction, shifts in the proportionate amount of work undertaken in the various categories of construction tend to influence the all-construction rate to an extent

¹ A work injury is any injury experienced in the course of and arising out of employment, including industrial or occupational disease. A disabling injury is one which results in (a) death, or (b) any degree of permanent physical impairment, or (c) renders the injured person unable to work at any regularly established job, which is open and available to him, throughout the hours corresponding to his regular shift on any day after the day of injury.

which may outweigh the effects of improvement or retrogression in actual safety.

The decline in the all-construction rate during the war reflected in part greater attention to safety arising from the need to conserve all available manpower and resources, and from pressure exercised by the Federal agencies for whom much of the construction work was performed. However, the high degree of concentration on building construction, particularly on light army camp buildings during the early part of the period, tended to bring the all-construction injury rate down entirely apart from the improvement in safety programs. In large measure, therefore, the sharp drop in the all-construction injury rate during the war may be ascribed to a change in the characteristics of the work undertaken.

Conversely, in the postwar resurgence of private construction proportionately more and more heavy work was undertaken. This introduced proportionately more high-hazard operations into the picture and tended to force the all-construction injury rate higher regardless of the greater attention being given to safety in some segments of the industry. That the rate has not returned to the 1938 level may, in part, be because building construction, the least hazardous part of the industry, expanded more rapidly than the heavier types of construction, and today constitutes a higher proportion of total construction activity than in 1938.

An Estimate of Injury Costs in 1949

Preliminary estimates by the Bureau of Labor Statistics indicate that 183,000 construction workers lost time because of injuries

occurring in their work during 1949. This represents a reduction of 10,000 from the 1948 total of 193,000 disabling injuries, and in view

of the continuing high level of construction activity shows some evidence of improved safety conditions in the industry.

The more serious injuries in 1949 included 2,100 killed, 300 totally disabled for the rest of their lives, and 7,300 permanently impaired in some degree. The other 173,300 included in the estimate suffered no permanent ill effects, but they each lost at least one full day because of a work injury.

Without allowance for the continuing loss in production and earning power arising from the deaths and permanent impairments, it is estimated that actual time lost by the injured construction workers amounted to at least 2.6 million man-days during 1949. On the basis of standard time charges for deaths and permanent impairments, it is estimated that the future economic loss accruing from the more serious injuries will eventually amount to at least 22 million more man-days—making the total employment loss about 24 million man-days of work. Measured in terms of the average earnings of construction workers during 1949² this represents a wage value of \$250,000,000.

As workmen's compensation payments are

never equivalent to full wages, a considerable portion of this loss in earnings falls upon the injured workers. On the other hand, the employer's share of this wage loss, which he pays in the form of insurance premiums or as direct compensation payments, represents only a part of the actual costs which the industry must bear. In addition, there are payments for medical and hospital costs for the injured workers and many indirect costs, such as property damage, penalties for delayed completion of contracts, and supervisory time spent caring for the injured or reorganizing operations after the accident. These indirect costs seldom are a matter of record, but this does not lessen their reality.

Studies by H. W. Heinrich³ have indicated that for manufacturing generally the indirect costs average about four times the direct cost of compensation plus hospital and medical payments. On the assumption that this ratio may reasonably be applied in the construction industry, it is estimated that the indirect costs associated with accidents in the industry during 1949 amounted to at least 450 million dollars, bringing the total costs to approximately 700 million dollars.

² Monthly Labor Review, May 1950.

³ Industrial Accident Prevention, by H. W. Heinrich, New York, McGraw-Hill Book Co., 1941.

Scope and Method of the Survey

The Bureau of Labor Statistics has compiled annual injury rates for construction in each year since 1938. In recent years these surveys have included reports from more than 2,000 employers, representing a total exposure of over 250 million man-hours of employment. In addition to the all-construction injury rates based upon the total volume of reports, separate rates have been computed for each of the three primary types of construction—building, heavy engineering, and highway—based upon the reports received from operators in each of these categories of construction. In the main, the reports received in the surveys prior to 1948 have come from general contractors, although some

special trades contractors have reported in each classification. All of the data assembled in the surveys have been collected by mail. Reporting is entirely voluntary.

In order to provide greater detail and to permit more specific analysis of the experience of various segments of the industry, the survey was greatly expanded in 1948. The report form was enlarged and each cooperating employer was requested to report separately for each trade or occupation employed in his operations during the year. In addition, each reporter was requested to indicate the principal type of construction on which he was engaged during the year, the kind of operation performed, and the

location of his work. A total of 50,000 general and special trades contractors were requested to report. From this group, 16,321 usable reports were received—4,968 from general contractors and 11,353 from special trades contractors. The general contractors' reports covered a total of 419 million employee-hours worked and the special trades reports covered 300 million hours. From these reports it has been possible to make many comparisons which were previously impossible because of the limited volume of data available. Most of this report is based upon these data for 1948.

As injury rates based upon less than 1 million man-hours are subject to relatively large chance variations, their representativeness as indicators of the prevailing level of hazard may be somewhat questionable. It is standard practice in the Bureau's surveys, therefore, not to present injury rates based upon less than a million man-hours. In the construction survey, however, it was found that even complete coverage in some classifications would not yield a total of a million man-hours within a calendar year. In order to present as much detail as possible, therefore, it was necessary to modify the regular procedure and to show some rates based upon as few as 400,000 man-hours. However, the coverage on which each rate is based has been indicated in the appendix tables. Reference should be made to these coverage figures in evaluating the representativeness of any specific rate.

The comparisons presented in this report are based primarily upon injury-frequency rates, average time charges per disabling injury, and injury-severity rates. These measures are computed as follows:

Injury Frequency Rate.—The injury-frequency rate represents the average number of disabling work injuries occurring in each million employee-hours worked. It is computed according to the following formula:

$$\text{Frequency rate} = \frac{\text{Number of disabling injuries multiplied by 1,000,000}}{\text{Number of employee-hours worked}}$$

Average Time Charge per Disabling Injury.—The relative severity of a temporary injury is measured by the number of calendar days during which the injured person is unable to work at any regularly established job which is open and available to him. The relative severity of death and permanent impairment cases is determined by reference to a table of economic time charges established by the American Standards Association⁴. These time charges, based upon an average working-life expectancy of 20 years for the entire working population, represent the average percentage of working ability lost as the result of specified impairments, expressed in unproductive days. The average time charge per disabling injury is computed by adding the days lost for each temporary injury and the days charged according to the standard table for each death and permanent impairment and dividing the total by the number of disabling injuries.

Injury-Severity Rate.—The standard injury-severity rate weights each disabling injury with its corresponding time loss or time charge and expresses the aggregate in terms of the average number of days lost per 1,000 employee-hours worked. It is defined as the average number of days lost or charged for each 1,000 employee-hours worked. It is computed according to the following formula:

$$\text{Severity rate} = \frac{\text{Total days lost or charged multiplied by 1,000}}{\text{Number of employee-hours worked}}$$

⁴Published in American Standard Method of Compiling Industrial Injury Rates, The American Standards Association, New York, 1945.

Injury-Rate Comparisons, 1948

Types of Contracting

In general, the injury-frequency rates for general contractors were higher than for the special trades contractors, but the injuries experienced by employees of the special trades contractors tended to be more severe. For the entire group of general contractors the average frequency rate was 40; for the special trades group it was 32. General contractors had the higher incidence of deaths and permanent-total disabilities, but the special trades group had the higher ratio of permanent-partial disabilities. For general contractors, the frequency rate of deaths and permanent-total disabilities was 0.5 and of permanent-partial disabilities 1.3. Corresponding rates for the special trades contractors were 0.4 and 1.7, respectively.

The severity of injuries as measured by the average time lost or charged per disabling injury was 154 days for the special trades group and 124 days for the general contractors. The time lost per temporary-total disability, however, was practically the same for the two groups—15 days for the special trades and 14 days for general contracting. The standard severity rate was identical for both groups—5.0 days lost or charged per thousand hours worked.

General Contracting.—In the general contracting field the highest ratio of injuries occurred in highway and street construction. On this type of operation the injury-frequency rate was 43.3—representing an average of one disabling injury in every 23,000 man-hours, one permanent impairment in every 770,000 man-hours, and one death in every 2,000,000 man-hours.

For heavy and marine contracting, the overall injury-frequency rate was somewhat lower (39.2) but the fatality rate was the same and the rate for permanent impairments was higher than in highway and street construction.

For building construction the over-all injury frequency rate was 39.0. In this type of general

contracting there was one fatality for every 3,000,000 man-hours and one permanent impairment for every 850,000 man-hours.

Special Trades Contracting.—Of the 19 special trades classifications for which separate rates were computed, wrecking and demolition work had the highest injury-frequency rate—58.3. Other special trades groups with particularly high injury rates included: Structural steel work, 52.4; ornamental iron and steel work, 49.4; installation of machinery and equipment, 46.7; and roofing and sheet-metal work, 40.0.

The lowest injury rates in the special trades groups were: 15.9 for parquet and hardwood floor work; 19.2 for painting, paperhanging, and decorating; 19.4 for terrazzo, tile, marble, and mosaic work; and 20.0 for general building maintenance work.

The highest rate of fatalities, 1.8 for every million employee-hours worked, occurred in house-moving operations. High fatality rates were also recorded for structural steel work, 1.2; and for general building maintenance, 1.1. High rates for permanent impairments were found in: Installation of machinery and equipment, 8.7 cases per million employee-hours worked; structural-steel work, 4.5; and ornamental-iron and steel work, 3.4. The lowest rates, for fatalities and permanent impairments combined, occurred in glass and glazing work, masonry and stone work, insulation work, concrete work, and parquet and hardwood flooring work.

Types of Construction

Building Construction.—General contractors engaged in the construction of residential buildings, as a rule, had lower injury-frequency rates than those engaged in nonresidential building. For residential construction the frequency rate was 33.8. For nonresidential building construction it was 42.0, while the group of contractors who divided their operations between residential and nonresidential building had a rate of

35.4. Because of the relatively small proportion of deaths and permanent impairments reported by the residential contractors (43 out of 1,200 disabling injuries) the average time charged per injury in this group was only 58 days and the severity rate was only 2.0. The corresponding averages for nonresidential building construction were 107 days and 4.5.

Most of the special trades contractors indicated that their work was in the field of building construction, but a considerable number were unable to specify how their operations divided between residential and nonresidential construction. As a result, comparative rates for the two types of building could be computed for only 11 special trades classifications. In five of these classifications the injury-frequency rate for residential work was higher than for nonresidential work. For the other six classifications the reverse was true. The residential rate was higher for: Lathing and plastering; excavating and foundation work; electrical work; roofing and sheet-metal work; and carpentering work. The nonresidential rate was higher for: Painting, paperhanging, and decorating; concrete work; insulation work; terrazzo, tile, marble, and mosaic work; plumbing, heating, and air-conditioning work; and masonry and stone work.

In general, the severity of injuries experienced by employees of special trades contractors on residential and nonresidential building operations followed the same pattern as the frequency rates.

Heavy Engineering and Marine Construction.—The average injury-frequency rates for the various types of heavy construction varied widely. Railroad construction had the highest frequency rate, 118.7. However, most of the injuries reported by railroad-construction contractors were temporary-total disabilities. As these injuries averaged only 5 days of lost time per case, the average injury severity for this type of operation was lower than for most other heavy construction activities.

Tunnel construction had a high average frequency rate of 88.6 and, in addition, showed a higher injury severity than prevailed in any other heavy construction activity. In this type

of work the frequency rate for fatalities and permanent-total disabilities was 2.8 and the frequency rate for permanent-partial disabilities was 26.0. As a result, the average time charge per disabling injury in tunnel work was 623 days and the standard severity rate was 55.2. Furthermore, the average time lost per temporary disability experienced in tunnel construction was 34 days. All of these severity averages were substantially higher than the corresponding averages for any other type of construction.

In bridge construction the frequency rates for substructure and superstructure work were both just under 80. The superstructure work, however, had much the higher proportion of serious injuries, giving it a severity rate of 8.5 and an average time charge of 107 days per disabling injury.

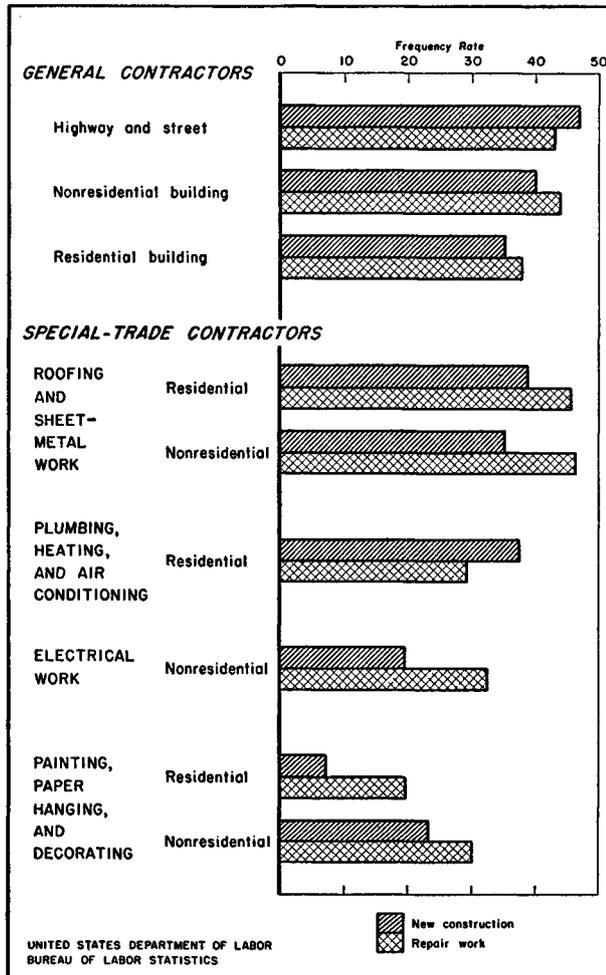
The injury-frequency rates for pipe-line construction, sewer, and water-main construction, and levee and sea-wall construction all ranged between 40 and 50. The levee and sea-wall work had a relatively high proportion of death and permanent-total disability cases and the sewer and water-main construction had a high ratio of permanent-partial disabilities.

The lowest injury-frequency rates among the various classifications of heavy construction were 30.6 for dam construction, 32.6 for dredging work, and 35.9 for power-line construction. The relatively low frequency rate for power-line construction, however, was offset by the high incidence of death cases in this activity. Because of this factor, the severity rate for power-line work was 11.9 and the average time charge per disabling injury was 332 days.

New Construction versus Repair Work

Because many of the reporting companies engage in both new construction and repair work and were unable to report separately their experience in the two types of operations, the number of comparisons between new construction and repair work had to be limited to highway and street construction and to eight classifications of building-construction work. While some of the comparisons are not conclusive, the evidence indicates that in the building construc-

Chart 2. Injury-frequency rates for new construction and repair work in selected construction operations, 1948



tion field, repair work is generally more hazardous than new construction.

Highway and Street Construction.—General contractors of this group who engaged exclusively in new construction had an average injury-frequency rate of 47.0, while those who limited their operations to repair work had a rate of 43.1. As the difference between these rates is comparatively small, the significance of that difference is very doubtful. It is highly significant, however, that the repair contractors did not report a single death or permanent-impairment case while the new-construction contractors reported a considerable number of such

cases. It appears reasonable, therefore, to conclude that in street and highway work the probabilities of an injury occurring are about the same for new and repair construction, but that the worker on new construction has a much higher probability of being seriously injured.

General Contracting, Building.—In residential work, the general contractors engaged strictly in repair work had an injury-frequency rate of 37.8, while those engaged in new construction had a rate of 35.2. In nonresidential building, the rate for repair work was 44.0 and the new construction rate was 40.1. In neither of these comparisons is the difference between the rates for new construction and repair work great enough to be conclusive. The fact that in both examples the variation is in the same direction, however, lends some significance to the implication that injuries are more common in repair work than in new construction. The higher time charges and higher severity rates for repair work point to a more generalized conclusion that building-repair work is more hazardous than new building construction.

Electrical Contracting.—On new nonresidential building construction, electrical contractors had an injury-frequency rate of 19.7, an average time charge of 106 days per disabling injury, and a severity rate of 2.1. A comparable group engaged in nonresidential repair work had a frequency rate of 32.4, an average time charge of 335 days, and a severity rate of 10.9. The evidence here indicates strongly that electrical repair work was much more hazardous than new construction work. The difference may be that electricians work on hot lines more frequently in repair work than they do in new construction work.

Painting, Paperhanging, and Decorating.—In this type of work the contractors engaged exclusively in repair work had substantially higher injury-frequency rates, higher average time charges per disabling injury, and higher severity rates than those who limited their operations to new construction. This was true

for both residential and nonresidential building. There appears to be little doubt on the basis of these data that repair work is more hazardous than new construction work for painters, paperhangers, and decorators.

Plumbing, Heating, and Air-Conditioning.—Plumbing, heating, and air-conditioning contractors engaged in new residential construction had an injury-frequency rate of 36.3, an average time charge of 37 days per disabling injury, and a severity rate of 1.4. A similar group engaged in residential repair work had a frequency rate of 29.1, an average time charge of 246 days per injury, and a severity rate of 7.1. For this type of work, therefore, the record indicates that new construction presents the greater possibility of injury but that a much higher proportion of the injuries experienced in repair work are serious cases.

Roofing and Sheet-Metal Work.—In this type of contracting the injury-frequency rates for repair work on both residential and nonresidential projects were substantially higher than the corresponding rates for new construction. Similarly, the average time charges and severity rates for repair operations were higher than those for new construction activities. Here again, the evidence is strong that repair work is more hazardous than new construction.

Geographic Comparisons

Variations in injury rates among the different States and regions may result from many factors, such as differences in the type of work being performed, differences in State safety regulations and in their enforcement, and differences in local safety programs. Determination of the controlling factor in any particular instance is extremely difficult, but when comparisons are limited to specific types of operations rather than to over-all averages it may reasonably be assumed that differences in the injury rates reflect differences in the application of safety principles.

General Contracting, Building.—Injury-frequency rates for employees of general contrac-

tors engaged in building construction were computed for 35 States. Because of sample limitations it was impossible to present these rates in residential and nonresidential construction detail. The separate State rates, therefore, are subject to an indeterminate amount of internal weighting, depending upon the volume of each type of building construction reported in the various areas.

The lowest and the highest of the State injury-frequency rates were both found in the Rocky Mountain area—16.4 disabling injuries per million employee-hours for New Mexico and 71.7 for Arizona. Similarly, divergent averages for adjacent States in other regions indicate strongly that regional and climatic influences had little bearing upon the level of rates. In the New England region, Connecticut and Rhode Island had rates of 35.2 and 36.2, while Massachusetts had a rate of 51.9. In the West South Central region the range was from 18.3 for Louisiana to 64.7 for Texas. On the West Coast, Washington had a rate of 32.8 while Oregon had a rate of 59.4.

Highway and Street Construction.—Eighteen State injury-frequency rates were computed for general contracting on highway and street construction. In this field there was a relatively high degree of comparability in the types of work undertaken, but it must be recognized that in many areas the nature of the terrain and the resulting characteristics of the work undertaken may exercise an important influence upon the general level of injury rate.

Michigan had the lowest of the State injury-frequency rates for highway and street construction, 19.0. New York was second, with an average of 25.4, and New Jersey was third, with an average of 30.6. Illinois, Texas, Washington, Minnesota, and California all had rates between 50 and 60, while Florida topped the list with an average rate of 66.1. No regional characteristics were apparent in this group of rates.

Heavy Engineering and Marine Construction.—In the heavy and marine construction field average injury-frequency rates were computed for 15 States. The lowest rates for this classi-

fication were: 19.8 for Tennessee; 28.8 for Georgia; 32.5 for Michigan; and 32.8 for Pennsylvania. The highest averages were: 69.3 for New York; 79.6 for Wisconsin; and 87.9 for Washington. There was no evidence of any regional characteristics in these rates.

In evaluating these State rates it should be recognized that the variations in the type of work under way in heavy and marine construction are more pronounced and exert a greater influence upon the level of the rates than is the case in respect to building or highway and street construction.

Electrical Contracting.—The highest of 10 State frequency rates for electrical contractors was 39.6 for Wisconsin. However, the rates for Illinois (30.0), New Jersey (28.0), and California (23.5) were all somewhat above the national average of 21.2. The lowest averages were 12.6 for Ohio and 14.2 for Michigan. In the middle range, but still below the national average, were Pennsylvania 16.3, Washington 16.6, Texas 17.4, and New York 19.9.

Plumbing, Heating, and Air Conditioning.—New York had the highest of the 13 State injury-frequency rates computed for plumbing, heating, and air-conditioning work. The New York rate of 50.2, however, was only slightly above the Texas rate of 48.2 and was in the same general range as the Illinois rate of 44.4 and the New Jersey rate of 41.0. At the other end of the list, Indiana had an average frequency rate of 19.9, followed closely by Pennsylvania, 23.0, and Massachusetts, 23.4.

Occupational Comparisons

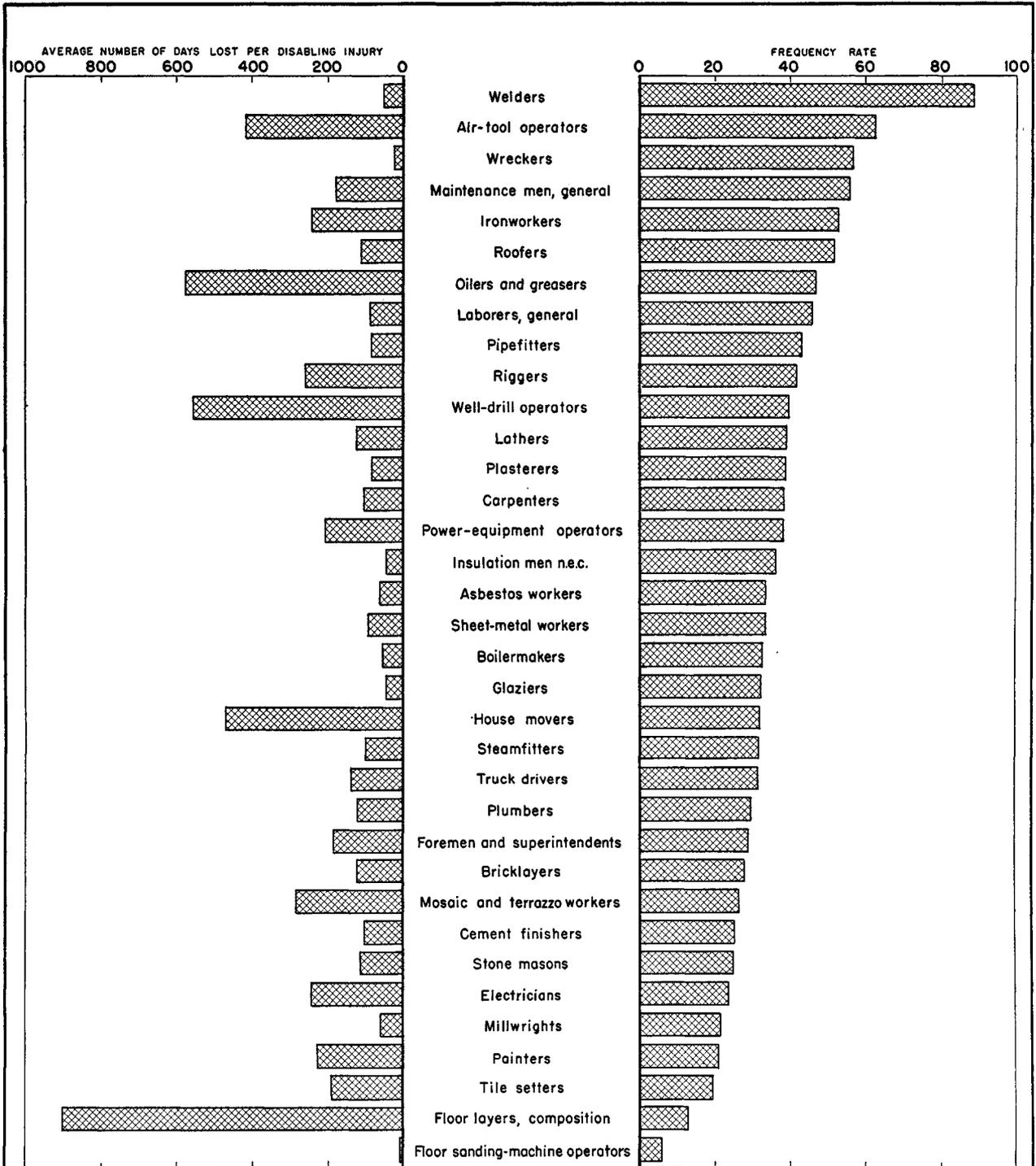
Separate injury rates were computed for each of 43 individual trades or occupations. In addition, the data for a number of these occupations were further broken down according to the type of work being performed. These breakdowns show wide differences in the general level of hazards prevailing in the various occupations and emphasize the environmental hazards associated with different types of construction work.

General Comparisons.—The most hazardous of the 43 occupations covered was that of pile-driver operators. These workers had the highest injury-frequency rate—97.3 disabling injuries per million employee-hours worked—and in addition ranked at the top or near the top in all injury-severity comparisons. Their frequency rate for fatalities and permanent-total disabilities was 2.5, slightly lower than the corresponding rates for oilers and greasers and blade-grader operators, but still six times as high as the average for the entire construction industry. For permanent-partial disabilities their rate was 9.3, substantially above the rate for any of the other occupations and again six times as high as the all-construction average. Furthermore, the temporary disabilities experienced by these workers tended to be very severe, averaging 24 days of lost time per case in comparison with an average of 14 days for the entire construction industry. As a result, the injury-severity rate for this occupation was 28.3 days lost for each 1,000 employee-hours worked—higher than for any other occupation and over five times the industry average. In respect to the average severity of the injuries actually experienced, however, the position of this occupation was more favorable. The permanent-partial impairments experienced by pile-driver operators generally tended to be less severe than those experienced in many other occupations. As a result, the average time charge per disabling injury in the occupation—291 days—was lower than the averages for 6 other occupations. It was, however, more than double the average for the entire industry.

At the other extreme, and reflecting the fact that these workers do not come on the job until practically all other construction work has been completed, floor-sanding machine operators had a very low frequency rate of only six disabling injuries per million employee-hours worked. All of the injuries reported for this occupation were temporary in nature and the average amount of time lost was only 5 days per case. The severity rate for this occupation, therefore, was almost zero.

In addition to pile-driver operators, six other occupations had injury-frequency rates which can be characterized as exceptionally high.

Chart 3. Injury-frequency rates and severity averages in the construction industry, by occupation, 1948



UNITED STATES DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

These rates were: 88.4 for welders; 62.7 for air-tool operators; 56.8 for wreckers; 55.7 for maintenance workers; 54.1 for composition roofers; and 53.9 for structural-iron workers. The injuries experienced by air-tool operators, maintenance men, and structural-iron workers included relatively high proportions of fatalities and permanent-impairments. As a result, the severity rates and the average time charges per case for these three occupations were also quite high. No fatalities were reported for welders and no fatalities nor permanent impairments were reported for wreckers. These two occupations, therefore, ranked very favorably in respect to the severity of their injuries.

The majority of the occupations (27) had injury-frequency rates ranging between 20 and 40. Six had rates in the medium-high range of 40 to 50, while only two in addition to the floor-sanding machine operators had rates below 20.

In addition to a relatively high frequency rate (46.8), oilers and greasers had a high proportion of fatal and permanent impairment cases which placed them near the top in respect to their injury severity. Composition floor layers had a very low injury-frequency rate (12.6) but 1 death and 3 permanent-partial impairments in 18 reported injuries gave them a high severity rating. Other occupations with high rates for fatalities and permanent-total disabilities included house movers (2.3) and blade-grader operators (2.7). In addition to those already mentioned, particularly high-frequency rates for permanent-partial impairments were recorded for riggers (7.3) and for well-drill operators (5.0).

Among the more common occupations—i.e., those with the largest numbers of workers—laborers ranked high in injury frequency (45.7). However, both the fatality and permanent impairment rates for this occupation were below average. As a result, it stood relatively low in the injury-severity comparisons. The injury-frequency rates for plasterers (38.8) and carpenters (38.2) were slightly above the all-construction average, but both of these occupations ranked better than average in respect to the severity of their injuries. Sheet-metal workers, steam fitters, truck drivers, plumbers,

bricklayers, and cement finishers all had frequency rates somewhat lower than the all-construction average along with better than average severity records. Electricians and painters had lower than average injury-frequency rates, but their injuries included a somewhat higher than average proportion of fatalities, which gave them relatively high averages of days lost per injury.

Asbestos Workers.—Asbestos workers had fewer and less severe injuries than construction workers generally, but in the particular fields in which they are most commonly employed—insulation work and plumbing, heating, and air-conditioning work—they ranked relatively high in injury frequency.

The entire group of asbestos workers had an injury-frequency rate of 33.2. Their record included comparatively few serious injuries, giving them a severity rate of 2.1 and an average time charge of only 64 days per disabling injury. Each of these averages was better than the corresponding average for all construction workers.

Asbestos workers engaged in insulation work had a frequency rate of 35.6, which was somewhat higher than the rates for most other occupations in this type of work. The average for all employees in this field was 32.7. The injury severity for asbestos workers in this field also averaged higher than for other workers. The asbestos workers in insulation work had an average of 87 days charged per disabling injury and a severity rate of 3.1, while the averages for all workers in this field were 61 days and 2.0, respectively.

In plumbing, heating, and air-conditioning work the frequency rate for asbestos workers was 36.7 and the average for all workers in the field was 30.6. The asbestos workers, however, had a very favorable severity record. Their average time charge per disabling injury was only 18 days and their severity rate was only 0.7 in contrast with averages of 112 days and 3.4 for all plumbing, heating, and air-conditioning workers.

Asbestos workers engaged in repair work generally experienced more injuries than those working on new construction, but the injuries

on new construction tended to be more serious. On repair work, the frequency rate for the occupation was 58.8, the average time charge per disabling injury was 24 days, and the severity rate was 1.4. On new construction, the frequency rate was 30.1, the average time charge was 79 days, and the severity rate was 2.4.

Bricklayers.—The injury-frequency rate for bricklayers was lower than the average for most other occupations in nearly all possible comparisons. For all bricklayers the average frequency rate was 27.9, the average time charge per disabling injury was 127 days, and the severity rate was 3.5. All of these averages were better than the corresponding averages for all construction workers.

Bricklayers also had lower than average frequency rates in the specific types of construction work on which they are most commonly employed. In building construction, bricklayers employed by general contractors had a frequency rate of 27.7, while the average for all employees of such contractors was 39.0. Similarly, bricklayers working for masonry and stone-setting contractors had a frequency rate of 29.6, as compared with the all-employee rate of 36.9. In heavy engineering and marine construction the difference was even more pronounced, the bricklayer frequency rate being only 7.1 while the all-employee average was 39.2.

Measured in terms of the average number of days charged per injury, the severity of injuries experienced by bricklayers tended to be somewhat greater than for other occupations on the same types of construction. Because of their lower injury frequency, however, the bricklayers' severity rate was usually below the general average.

Bricklayers engaged in new construction work had a slightly higher injury-frequency rate than those working on repairs, but the injuries experienced on repair projects tended to be more serious. For all new construction the bricklayers' frequency rate was 29.7; for all repair work it was 25.9. More specifically, in new nonresidential construction bricklayers had a frequency rate of 30.3 and in nonresidential

building repair work they had a frequency rate of 20.7.

The more serious nature of the injuries experienced on repair work is reflected in the average time charges and severity rates. The average time charge for all bricklayers' injuries on repair projects was 262 days per case and the severity rate was 6.8. For new construction the average time charge was 139 days and the severity rate was 4.1. The same severity pattern occurred in the specific field of nonresidential building work. On repair work in this field bricklayers had an average time charge of 411 days per injury and a severity rate of 8.5 as compared with 159 days and 4.8 on new nonresidential building work.

Carpenters.—The injury-frequency rate for all carpenters included in the survey was 38.2. This was not significantly different from the general average of 36.7 for all construction workers. The carpenters, however, had a somewhat lower than average proportion of fatalities. As a result, their average time charge per injury, 106 days, and their severity rate, 4.1, were both better than the corresponding all-construction worker averages.

Carpenters employed by general contractors had higher injury-frequency and severity rates than those employed by special trades contractors. Carpenters employed by highway and street contractors had an injury-frequency rate of 55.2; those employed by heavy-engineering and marine contractors had a rate of 44.8; and those employed by general building contractors had a rate of 35.0.

In the four special-trades fields for which separate carpenters' rates could be computed, their frequency rates were: 35.0 in carpentering contracting; 29.5 in concrete work; 26.4 in insulation work; and 22.4 in parquet and hardwood floor laying.

Carpenters engaged in insulation work experienced a relatively high proportion of permanent partial disabilities but no fatalities or permanent-total disabilities were reported for this group. Consequently their average time charge per injury, 67 days, and their severity rate, 1.8, were comparatively low.

The 186 injuries reported for carpenters employed by carpenter-contractors included 2 fatalities and 14 permanent impairments. This relatively high proportion of serious injuries gave this group a rather high average time charge, 163 days per case, and a high severity rate, 5.7.

Heavy engineering and marine contractors and highway and street contractors also reported a high incidence of serious injuries for their carpenters. On heavy engineering and marine construction projects the average time charge for injuries to carpenters was 130 days and the severity rate was 5.8. On highway and street work the carpenter averages were 107 days per injury and 6.0, respectively.

Carpenters engaged in parquet and hardwood floor laying experienced very few serious injuries. As a result, they had a very low average time charge of 33 days per injury and a very low severity rate of 0.7.

In general, the injury-frequency rates for carpenters engaged in new construction work ran higher than for those engaged in repair work. However, the injuries experienced on repair work tended to be more serious.

For all new construction the carpenters' frequency rate was 39.2. For all repair work it was 33.6. In nonresidential construction the rate on new work was 37.6; on repair work it was 24.6. In residential work, however, the relationship was reversed, the rate for new construction being 36.6 while the rate for repair work was 41.9.

In general, carpenters engaged in new construction experienced a higher proportion of fatalities and permanent-total disabilities than those working on repair work. The latter group, however, had much the higher ratio of permanent-partial disabilities. As a result, the severity rates for the two classes of work were practically identical. The average time charges per injury, however, were substantially different—128 days for repair work and 107 days for new construction.

In residential work there was a clear tendency toward more severe injuries on repair projects. The comparison here showed an average time charge of 147 days per injury and a severity rate of 6.2 for repair work in contrast

with 98 and 3.6, respectively, for new construction.

A similar comparison in nonresidential building construction showed a different relationship. Here the average time charge per injury on new work was 106 days and the severity rate was 4.0. On repair work the corresponding averages were 63 days and 1.5.

Cement Finishers.—For all cement finishers the injury-frequency rate was 24.9; the average time charge per injury was 105 days; and the severity rate, 2.6. All of these were considerably below the corresponding all-construction averages.

The highest injury-frequency rate in the occupation was 32.9 for cement finishers employed by highway and street contractors. However, all of the injuries reported for these workers were temporary in nature. As a result, they had a very low average time charge per injury, 16 days, and a very low severity rate, 0.5.

Cement finishers employed by general building contractors had a frequency rate of 25.4. The average time charge per injury, 37 days, and the severity rate, 0.9, however, were both quite low.

For cement finishers employed by concrete contractors the injury-frequency rate was 20.4. In this group a relatively large proportion of the reported injuries resulted in death or permanent impairment. Consequently, the average time charge per injury, 331 days, and the severity rate, 6.8, for the group were both rather high.

In heavy engineering and marine construction work the injury-frequency rate for cement finishers was only 18.3. The average time charge per injury, 136 days, and the severity rate, 2.5, on the other hand, were relatively high.

There was no significant difference between the injury-frequency rate for cement finishers engaged in new construction and the rate for those on repair work. However, no deaths or permanent impairments were reported in repair work. As a result, the average time charge per injury in repair work was only 20 days and the

severity rate was only 0.6. The similar averages for new construction were 94 days and 2.4.

Electricians.—Although electricians as a group experienced proportionately fewer injuries than most of the other construction occupations, their injuries generally tended to be more serious than the general average. The injury-frequency rate for all electricians was only 23.1, but the high proportion of fatal and permanent-total disabilities in their record gave them a high average time charge of 247 days per case and a severity rate of 5.7.

Electricians employed by general building contractors had a frequency rate of 39.3. The same rate applied to those employed by heavy engineering and marine contractors. In contrast, electricians working for electrical contractors had an injury-frequency rate of only 21.5.

The highest ratio of serious injuries experienced by electricians occurred in heavy engineering and marine construction. In this type of work they had a record of 3.2 deaths or permanent-total disabilities and 1.5 permanent-partial disabilities for every million employee-hours worked. This gave them an average time charge of 533 days per injury and a severity rate of 20.8.

In general building construction work the record was sharply different. Here there were no serious disabilities reported for electricians and their average time charge per injury (9 days) and their severity rate (0.4) both reached very low levels.

On nonresidential work the electricians working on new construction had a better record than those doing repair work. On new construction their frequency rate was 20.2—on repair work it was 30.6. The general severity of the injuries which occurred on new work likewise was lower than on repair work.

In residential work the injury-frequency rate for new work was 30.7 while the frequency rate for repairs was only 16.9. The ratio of serious injuries, however, was much higher in repair work, giving the repair workers a very high average time charge per injury, 905 days, and a very high severity rate, 15.3.

Ironworkers, Structural.—Structural-iron workers ranked near the top of the construction trades in both injury frequency and severity. The average frequency rate for all workers in the occupation was 53.9; their average time charge per injury was 261 days; and their severity rate was 14.1.

The frequency rate for this occupation was high in all of the construction classifications in which structural-iron workers were reported. For those employed by general building contractors the frequency rate was 49.2. In heavy engineering and marine construction their frequency rate was 55.4; for those employed by specialized structural-steel erecting contractors the rate was 54.5; and for those engaged in installing machinery and equipment the rate was 60.9. In all of these classifications the severity of the reported injuries was relatively high, particularly for the specialized structural-steel erecting group. For this group the average time charge per injury was 316 days and the severity rate was 17.2.

Because relatively few structural-iron workers were reported as engaged in repair work, it was impossible to draw conclusive comparisons between new work and repair work. The indications, however, were that higher frequency rates prevailed on new work than on repair projects.

In the breakdown of strictly new construction, the highest injury-frequency rate for ironworkers occurred in the construction of bridge superstructures. The ironworkers' frequency rate on this type of work was 81.4. Their rate of 71.8 on new nonresidential construction was also high. In contrast, the ironworkers engaged in new pipe-line construction work had a very low frequency rate, 22.0. A high proportion of serious injuries in pipe-line work, however, gave ironworkers in that activity an average time charge of 670 days per injury and a severity rate of 14.7.

Laborers, General.—In nearly all categories of construction the injury-frequency rate for general laborers was somewhat above the average for the activity. The severity of their injuries, however, tended to be less than average.

For the entire occupation the frequency rate was 45.7, the average time charge per injury was 89 days, and the severity rate was 4.1.

The frequency rates for laborers employed by the three major types of general contractors did not differ greatly. On heavy and marine construction the rate was 50.3; on highway and street construction, 45.7; and on building construction, 43.9. The severity of the injuries experienced on highway and street work, however, was substantially less than in the other types of general contracting.

In the special trades the range of the frequency rates for laborers was quite broad. The lowest was 21.1 for laborers employed by plastering and lathing contractors; the highest was 69.7 for laborers engaged in wrecking and demolition work. The rates were also high for laborers engaged in masonry (61.8) and carpentry (51.5) work. Roofing laborers had a frequency rate of 48.6 and excavating laborers had a rate of 42.1. In the lower range, laborers on plumbing and heating work had a rate of 38.0; those employed on concrete work had a rate of 35.7; and those working for glass and glazing contractors had a rate of 40.3.

From the standpoint of injury severity, the plastering and lathing laborers had the best record. No deaths and no permanent impairments were reported for this group. This gave them a very low average time charge per injury (17 days) and an unusually low severity rate (0.4). In contrast, the plumbers' laborers had an average time charge of 319 days and a severity rate of 12.1. Wrecking laborers also had a high injury severity, while the carpenters' laborers had a relatively good record.

In general, the laborers engaged on new construction were injured more frequently and more severely than those working on repair projects. In residential construction, the frequency rate for new work was 39.7, the average time charge 27 days, and the severity rate, 1.1. On residential repair work the corresponding averages were 27.2, 21, and 0.6 respectively. Similarly on new highway and street work laborers had a frequency rate of 52.9, an average time charge of 69 days per injury, and a severity rate of 3.6 in contrast with repair work averages of 45.9, 12, and 0.5. On nonresidential

building construction the frequency rate for new work was slightly lower than for repair work, but the injuries on new work tended to be more serious.

Lathers.—The average injury-frequency rate for all lathers was 38.9, their average time charge per injury was 125 days, and their severity rate was 4.9. None of these averages was significantly different from the corresponding averages for all-construction work. The lather's record, however, showed a somewhat higher proportion of fatalities and permanent total disabilities and a lower proportion of permanent-partial disabilities than prevailed in most other construction occupations.

Although some lathers were included in the reports from general building contractors, the great majority of the experience for the occupation was reported by plastering and lathing contractors. The lathers employed by these specialty contractors had a frequency rate of 43.6, an average time charge of 97 days, and a severity rate of 4.2.

Painters.—The injury-frequency rate for all painters, 20.9, was relatively low in comparison with the rates for other construction occupations. The painters, however, had a high proportion of fatalities which raised their average time charge per injury, 231 days, well above the all-construction average. Their severity rate of 4.8, however, was not significantly different from the all-construction average.

Most of the painters covered in the survey were employed by specialty contractors engaged in painting, paperhanging, and decorating, although a considerable number were employed by general building contractors and a few by heavy engineering contractors. The painters employed by general building contractors had the poorest experience. Their frequency rate, 27.0, was relatively high and so was their average time charge, 252 days, and their severity rate, 6.8. The larger group employed by the specialty contractors had a frequency rate of 19.4, an average time charge of 212 days, and a severity rate of 4.1.

The painters' frequency rate on new work was not significantly different from that for

repair work (20.9 vs. 21.9). The general severity of the injuries, however, was very different. On repair work the average time charge per injury was 446 days in contrast to 121 days on new construction. Similarly, the severity rate for repair work, 9.8, was nearly 4 times the average of 2.5 for new construction.

Plasterers.—The injury-frequency rate for all plasterers (38.8) was not significantly different from the average for all construction occupations. The plasterers, however, had a better than average injury-severity record. Their average time charge per injury was 83 days and their severity rate was 3.2.

The majority of the plasterers for whom reports were received were employed by plastering and lathing specialty contractors, although some were reported as working for general building contractors. The latter group had the lower frequency rate, 20.4, but they experienced a larger proportion of serious injuries, giving them an average time charge of 252 days and a severity rate of 6.8.

Plasterers employed by plastering and lathing contractors had a frequency rate of 41.2, an average time charge per injury of 85 days, and a severity rate of 3.5. These rates were all somewhat lower than the similar rates for lathers employed by the same contractors but were much higher than the rates for laborers employed by these contractors.

In new construction work plasterers engaged on residential work had a much poorer record, both in injury frequency and injury severity, than those working on nonresidential building.

As between new work and repair work, the new work produced a much higher frequency of injury for plasterers, but the injuries experienced on repair work tended to be more serious.

Plumbers.—The injury-frequency rate for all plumbers (29.5) was considerably lower than the average for all construction occupations. Similarly, the plumbers' average time charge per injury (126 days) and their severity rate (3.7) were both below the all-construction averages.

The highest injury-frequency rate for any group of plumbers was 50.4 for those employed

by heavy and marine construction contractors. These workers, however, experienced relatively few serious injuries. There was little difference between the frequency rates for plumbers employed by general building contractors (27.8) and for those working for plumbing, heating, and air conditioning contractors (28.6). The latter group, however, had the higher proportion of serious injuries.

Plumbers working on new construction had a substantially higher injury-frequency rate than those working on repairs, but the repair work produced a much higher proportion of serious injuries. On new construction, the frequency rates for residential and nonresidential work were identical, but the injuries tended to be more severe in the nonresidential work. On repair work, both the frequency of injury and the general severity of the injuries were higher for residential projects than for nonresidential work.

Power-Equipment Operators.—The injury-frequency rate for the entire group of power-equipment operators (38.0) was only slightly above the average for all construction occupations, but the average severity of their injuries was considerably higher. Their average time charge per injury was 207 days and their severity rate was 7.9.

For this occupation the generalized averages for different types of construction appeared to have little significance as the variations in hazards were more closely related to the type of equipment operated than to the type of construction performed.

Among the seven subgroups of power-equipment operators for which rates were computed, pile-driver operators had the highest frequency rate and the highest proportion of serious injuries. Their frequency rate was 97.3, their average time charge per injury was 291 days, and their severity rate was 28.3. In heavy engineering and marine construction, where the majority of these workers were employed, their frequency rate was 101.8.

Power shovel operators had a frequency rate of 39.1, but the average severity of their injuries was relatively low. Dredge operators with a frequency rate of 36.3, tractor operators with a

rate of 32.4 and bulldozer operators with a rate of 29.7 all had better than average injury-severity records. Blade-grader operators had the lowest frequency rate in the power-equipment group, 22.7, but this was coupled with a very high average injury severity.

Roofers, Composition.—Composition roofers ranked very high among the construction occupations in injury frequency. This gave them a higher than average severity rate although their average time charge per injury was below average. The frequency rate for the entire occupation was 54.1, the average time charge per injury was 118 days, and the severity rate was 6.4.

The composition roofers who were employed by general building contractors had a somewhat lower frequency rate, 46.4, than those working for roofing contractors, 55.5. The latter group, however, had the better record in respect to injury severity.

The frequency rates for composition roofers on new and repair work were practically identical, but the new work generally produced the more serious injuries. The exception was in new residential construction. On this type of work the composition roofers achieved their best injury record, a frequency rate of 35.4 coupled with a low average time charge per injury, 27 days, and a very low severity rate, 0.9.

Sheet-Metal Workers.—The record for sheet-metal workers was better than average in respect to both injury-frequency and severity. Their frequency rate, 33.1, was about 10 percent lower, and their average time charge per injury, 95 days, and their severity rate, 3.2, were both over 30 percent below the corresponding all-construction averages.

Most of the sheet-metal workers were reported as employed by contractors specializing in roofing and sheet-metal work. However, a few were employed by general building contractors and a considerable number by plumbing, heating, and air-conditioning contractors.

Those employed by general building contractors had a very high injury-frequency rate,

58.8, but all of their reported injuries were temporary in nature. As a result, their average time charge per injury was only 6 days and their severity rate was only 0.4.

The group employed by plumbing, heating, and air-conditioning contractors had a substantially lower injury-frequency rate, 28.7. No fatalities were reported for this group, but there were some permanent-impairment cases. This gave them a higher average time charge, 70 days, and a higher severity rate, 2.0.

The large group of sheet-metal workers employed by roofing and sheet-metal contractors had a frequency rate of 33.7. Their record included several fatalities which raised their average time charge to 118 days per injury and their severity rate to 4.0.

Sheet-metal workers engaged exclusively on new construction had a somewhat higher frequency rate, 35.7, than those working exclusively on repairs, 30.7. The repair workers, however, had the higher proportion of serious injuries, giving them a relatively high average time charge, 259 days, and a high severity rate, 7.9.

In new construction there was practically no difference between the rates for work on residential and nonresidential buildings. In repair work, however, there was considerable difference. Residential repair work had a comparatively low frequency rate, 19.4, coupled with a high average time charge, 387 days, and a severity rate of 7.5. For nonresidential repair work the frequency rate was 39.2, the average time charge was 266 days, and the severity rate was 10.4.

Steam Fitters.—As a group, the steam fitters had a relatively good accident record. Their injury-frequency rate, 30.4, their average time charge per injury, 101 days, and their severity rate, 3.1, were all well below the all-construction averages. In a more specific comparison with their companion trade, their frequency rate was almost identical with that of the plumbers, but the steam fitters' injuries tended to be less severe than those experienced by the plumbers.

Steam fitters employed by general building contractors had both a very low frequency rate, 16.5, and a very low ratio of serious injuries. Those employed by heavy engineering contractors had a substantially higher frequency rate, 26.3, coupled with a high injury severity. The injury-frequency rate for steam fitters employed by plumbing, heating, and air-conditioning contractors was still higher, 33.3. This group, however, experienced few serious injuries, giving them a comparatively low average time charge and a fairly low severity rate.

Repair work was considerably more hazardous than new construction for steam fitters. Their frequency rate on repairs was 51.5; on new work it was 31.5. The breakdown on new work, however, showed relatively high injury-frequency rates for both residential and non-residential construction, with a very low rate for pipe-line construction. Pipe-line construction, however, produced a high proportion of serious injuries, giving the steam fitters employed in this activity the highest time charge and the highest severity rate in the occupation.

Appendix.—Statistical Tables

TABLE 1.—Work injury rates for 16,321 construction companies classified by type of contracting and extent of disability, 1948

Type of contracting	Number of contractors	Number of employees	Em- ployee- hours worked (thou- sands)	Number of disabling injuries			Frequency rates of— ²				Severity			
				Total	Resulting in—		All dis- abling injuries	Death and perma- nent- total disa- bility	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility	Average number of days lost per—		Sever- ity rate ³	
					Death or perma- nent- total disa- bility ⁴	Perma- nent- partial disa- bility					Tempo- rary- total disa- bility	Dis- abling injury		Tempo- rary- total disa- bility
Total.....	16,321	375,514	719,867	26,402	(40) 320	1,063	25,019	36.7	0.4	1.5	34.8	135	14	5.0
General contractors ⁴	4,968	217,303	419,211	16,757	(30) 206	543	16,008	40.0	.5	1.3	38.2	124	14	5.0
Building construction.....	3,149	108,787	199,080	7,770	(12) 75	221	7,474	39.0	.4	1.1	37.5	101	13	3.9
Heavy engineering and marine con- struction.....	686	66,367	132,403	5,194	(14) 75	205	4,914	39.2	.6	1.5	37.1	148	15	5.8
Highway and street construction.....	945	39,561	82,286	3,559	(4) 46	103	3,410	43.3	.6	1.3	41.4	126	13	5.5
Special-trades contractors ⁴	11,353	158,211	300,656	9,645	(10) 114	520	9,011	32.1	.4	1.7	30.0	154	15	5.0
Carpentering.....	453	3,549	6,726	231	2	15	214	34.3	.3	2.2	31.8	135	13	4.6
Concrete work.....	481	4,991	9,482	267	(1) 3	7	257	28.2	.3	.7	27.2	136	17	3.8
Electrical work.....	1,973	25,758	51,259	1,088	(2) 23	48	1,017	21.2	.4	.9	19.9	204	15	4.3
Excavation and foundation work.....	371	5,143	10,004	313	1	15	297	31.3	.1	1.5	29.7	89	14	2.8
General building maintenance.....	101	1,001	1,901	38	2	1	35	20.0	1.1	.5	18.4	343	21	6.9
Glass and glazing work.....	438	4,331	8,228	277	.....	7	270	33.7	.....	.9	32.8	42	11	1.4
House moving.....	67	589	1,119	37	2	1	34	33.1	1.8	.9	30.4	343	12	11.4
Installation of machinery and equip- ment, not elsewhere classified.....	120	7,084	13,460	629	(1) 4	117	508	46.7	.3	8.7	37.7	161	14	7.5
Insulation work.....	193	3,174	6,030	197	1	5	191	32.7	.2	.8	31.7	61	13	2.0
Masonry and stone work.....	578	8,078	14,299	528	2	10	516	36.9	.1	.7	36.1	76	12	2.8
Ornamental iron and steel work.....	76	1,556	2,956	146	2	10	134	49.4	.7	3.4	45.3	161	14	8.0
Painting, paperhanging, and decor- ating.....	1,448	14,505	26,326	505	11	31	463	19.2	.4	1.2	17.6	239	18	4.6
Parquet and hardwood-flooring work.....	285	1,723	3,266	52	1	2	49	15.9	.3	.6	15.0	147	22	2.3
Plastering and lathing.....	584	10,047	18,136	708	3	19	686	39.0	.2	1.0	37.8	82	13	3.2
Plumbing, heating, and air condition- ing.....	2,186	28,999	56,838	1,740	(2) 13	67	1,660	30.6	.2	1.2	29.2	112	11	3.4
Roofing and sheet-metal work.....	1,007	12,965	23,660	946	(1) 8	22	916	40.0	.3	.9	38.8	102	13	4.1
Structural-steel work.....	170	13,103	24,895	1,304	(2) 30	111	1,163	52.4	1.2	4.5	46.7	293	21	15.4
Terrazzo, tile, marble, and mosaic work.....	534	6,637	12,611	245	4	12	229	19.4	.3	1.0	18.1	205	13	4.0
Wrecking and demolition work.....	120	2,041	3,879	226	(1) 1	11	214	58.3	.3	2.8	55.2	90	14	5.2

¹ Figures in parentheses indicate the number of cases of permanent-total disability included.

² The frequency rate is the average number of disabling work injuries for each million employee-hours worked. A disabling work injury is one which results in (a) death, or (b) any degree of permanent physical impairment, or (c) renders the injured person un-

able to work at any regularly established job, which is open and available to him, throughout the hours corresponding to his regular shift on any day after the day of injury.

³ The severity rate is the average number of days lost per thousand hours worked.

⁴ Totals include figures not shown separately because of insufficient data.

TABLE 2.—Work injury rates for 16,321 construction companies classified by type of contracting and kind of construction, 1948

Type of contracting and kind of construction	Number of contractors	Number of employees	Em- ployee- hours worked (thous- ands)	Number of disabling injuries			Frequency rates of— ²				Severity			
				Total	Resulting in—		All dis- abling injuries	Death and perma- nent- total disa- bility	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility	Average number of days lost per—		Sever- ity rate ³	
					Death or perma- nent- total disa- bility ¹	Perma- nent- partial disa- bility					Tempo- rary- total disa- bility	Dis- abling injury		Tempo- rary- total disa- bility
Total⁴.....	16,321	375,514	719,867	26,402	(40) 320	1,063	25,019	36.7	0.4	1.5	34.8	135	14	5.0
General contractors⁴.....	4,968	217,303	419,211	16,757	(30) 206	543	16,008	40.0	.5	1.3	38.2	124	14	5.0
Building construction ⁴	3,149	108,787	199,080	7,770	(12) 75	221	7,474	39.0	.4	1.1	37.5	101	13	3.9
Residential.....	1,163	19,440	35,575	1,203	(2) 3	40	1,160	33.8	.1	1.1	32.6	58	13	2.0
Residential and nonresidential.....	472	11,162	20,427	723	(2) 8	31	684	35.4	.4	1.5	33.5	136	15	4.8
Nonresidential.....	1,129	65,729	120,285	5,049	(8) 56	138	4,855	42.0	.5	1.2	40.3	107	13	4.5
Heavy engineering and marine con- struction ⁴	686	66,367	132,403	5,194	(14) 75 ⁷	205	4,914	39.2	.6	1.5	37.1	148	15	5.8
Bridges, substructure.....	13	594	1,185	94	1	1	92	79.4	.8	.8	77.8	78	11	6.2
Bridges, superstructure.....	13	1,155	2,304	184	2	8	174	79.9	.9	3.5	75.5	107	9	8.5
Dams.....	20	4,149	8,277	253	5	8	240	30.6	.6	1.0	29.0	178	20	5.4
Dredging.....	19	1,446	2,886	94	1	2	91	32.6	.3	.7	31.6	85	13	2.8
Pipe lines.....	55	7,952	15,864	746	(1) 8	19	719	47.0	.5	1.2	45.3	105	14	4.9
Power lines.....	46	6,109	12,188	438	(4) 22	8	408	35.9	1.8	.7	33.4	332	18	11.9
Railroads.....	37	1,178	2,350	279	.....	5	274	118.7	.....	2.1	116.6	29	5	3.4
Sewers and water mains.....	135	4,921	9,817	421	(1) 4	24	393	42.9	.4	2.4	40.1	130	14	5.6
Tunnels.....	4	713	1,422	126	(2) 4	37	85	68.6	2.8	26.0	59.8	623	34	55.2
Levees, seawalls, etc.....	24	1,147	2,288	104	(2) 3	.....	101	45.5	1.3	.....	44.2	189	16	8.6
Highway and street construction.....	945	39,561	82,286	3,559	(4) 46	103	3,410	43.3	.6	1.3	41.4	126	13	5.5
Special-trades contractors⁴.....	11,353	158,211	300,656	9,645	(10) 114	520	9,011	32.1	.4	1.7	30.0	154	15	5.0
Carpentering ⁴	453	3,549	6,726	231	2	15	214	34.3	.3	2.2	31.8	135	13	4.6
Residential.....	242	1,528	2,896	113	2	10	101	39.0	.7	3.5	34.8	247	14	9.7
Residential and nonresidential.....	50	615	1,165	33	.....	1	32	28.3	.....	.9	27.4	19	10	1.5
Nonresidential.....	62	807	1,529	57	.....	3	54	37.3	.....	2.0	35.3	32	12	1.2
Concrete work ⁴	481	4,991	9,482	267	(1) 3	7	257	28.2	.3	.7	27.2	136	17	3.8
Residential.....	203	1,739	3,304	70	1	2	67	21.2	.3	.6	20.3	198	21	4.2
Residential and nonresidential.....	68	568	1,079	38	(1) 1	2	35	35.2	.9	1.9	32.4	214	19	7.6
Nonresidential.....	81	1,735	3,296	123	.....	3	120	37.3	.....	.9	36.4	65	16	2.4
Electrical work ⁴	1,973	25,758	51,259	1,088	(2) 23	48	1,017	21.2	.4	.9	19.9	204	15	4.3
Residential.....	402	2,634	5,242	158	3	8	147	30.1	.6	1.5	28.0	205	8	6.2
Residential and nonresidential.....	552	5,393	10,732	223	(1) 5	8	210	20.8	.5	.7	19.6	190	17	3.9
Nonresidential.....	628	13,421	23,755	486	(1) 7	22	457	20.5	.3	.9	19.3	173	16	3.5
Excavation and foundation work ⁴	371	5,143	10,004	313	1	15	297	31.3	.1	1.5	29.7	89	14	2.8
Residential.....	143	1,109	2,157	76	1	3	72	35.2	.5	1.4	33.3	119	14	4.2
Residential and nonresidential.....	41	548	1,066	59	.....	1	58	55.4	.....	.9	54.5	12	7	6.6
Nonresidential.....	37	1,013	1,971	41	.....	1	40	20.8	.....	.5	20.3	109	12	2.3
General building maintenance ⁴	101	1,001	1,901	38	2	1	35	20.0	1.1	.5	18.4	343	21	6.9
Nonresidential.....	26	547	1,039	9	1	.....	8	8.7	1.0	.....	7.7	684	19	5.9
Glass and glazing work ⁴	438	4,331	8,228	277	.....	7	270	33.7	.....	.9	32.8	42	11	1.4
Residential.....	107	1,106	2,100	70	.....	3	67	33.3	.....	1.4	31.9	80	9	2.7
Nonresidential.....	144	1,999	3,799	147	.....	3	144	38.7	.....	.8	37.9	35	12	1.3
House moving.....	67	589	1,119	37	2	1	34	33.1	1.8	.9	30.4	343	12	11.4
Installation of machinery and equip- ment, not elsewhere classified ⁴	120	7,084	13,460	629	(1) 4	117	508	46.7	.3	8.7	37.7	161	14	7.5
Nonresidential.....	84	5,939	11,285	568	3	116	449	50.3	.3	10.3	39.7	165	15	8.3
Insulation work ⁴	193	3,174	6,030	197	1	5	191	32.7	.....	.8	31.7	61	13	2.0
Residential.....	81	749	1,423	37	.....	1	37	26.0	.....	.3	26.0	15	15	.4
Nonresidential.....	60	1,695	3,220	127	1	3	123	39.4	.3	.9	38.2	71	13	2.8
Masonry and stone work ⁴	578	8,078	14,299	528	2	10	516	36.9	.1	.7	36.1	76	12	2.8
Residential.....	218	2,351	4,162	159	1	1	157	38.2	.2	.2	37.8	63	14	2.4
Residential and nonresidential.....	94	1,043	1,846	46	.....	3	43	24.9	.....	1.6	23.3	128	12	3.2
Nonresidential.....	153	3,466	6,134	272	.....	6	266	44.3	.....	1.0	43.3	63	10	2.8
Ornamental iron and steel work ⁴	76	1,556	2,956	146	2	10	134	49.4	.7	3.4	45.3	161	14	8.0
Nonresidential.....	42	941	1,788	108	1	9	98	60.4	.6	5.0	54.8	154	15	9.3
Painting, paperhanging, and decor- ating ⁴	1,448	14,505	26,326	505	11	31	463	19.2	.4	1.2	17.6	239	18	4.6
Residential.....	531	3,915	7,106	105	2	9	94	14.8	.3	1.3	13.2	278	25	4.1
Residential and nonresidential.....	253	3,539	6,423	110	3	2	105	17.1	.5	.3	16.3	208	17	3.6
Nonresidential.....	169	3,801	6,900	193	4	13	176	28.0	.6	1.9	25.5	226	13	6.3
Parquet and hardwood-flooring work ⁴	285	1,723	3,266	52	1	2	49	15.9	.3	.6	15.0	147	22	2.3
Residential.....	159	839	1,591	30	.....	2	28	18.9	.....	1.3	17.6	44	26	.8

See footnotes at end of table.

TABLE 2.—Work injury rates for 16,321 construction companies classified by type of contracting and kind of construction, 1948 — Continued

Type of contracting and kind of construction	Number of contractors	Number of employees	Employee-hours worked (thousands)	Number of disabling injuries			Frequency rates of— ²				Severity			
				Total	Resulting in—		All disabling injuries	Death and permanent-total disability	Permanent-partial disability	Temporary-total disability	Average number of days lost per—		Severity rate ³	
					Death or permanent-total disability ¹	Permanent-partial disability					Temporary-total disability	Disabling injury		Temporary-total disability
Special-trades contractors ⁴ —Continued														
Plastering and lathing ⁴	584	10,047	18,136	708	3	19	686	39.0	0.2	1.0	37.8	82	13	3.2
Residential.....	270	3,620	6,534	383	1	6	376	58.6	.2	.9	57.5	55	11	3.2
Residential and nonresidential...	101	2,199	3,969	114	2	8	104	28.7	.5	2.0	26.2	221	12	6.4
Nonresidential.....	83	3,167	5,716	148	.....	2	146	25.9	.....	.3	25.6	28	14	.7
Plumbing, heating, and air conditioning ⁴	2,186	28,999	56,838	1,740	(2) 13	67	1,660	30.6	.2	1.2	29.2	112	11	3.4
Residential.....	868	7,545	14,790	433	2	24	407	29.3	.1	1.6	27.6	110	11	3.2
Residential and nonresidential...	335	4,352	8,530	257	1	8	248	30.1	.1	.9	29.1	70	9	2.1
Nonresidential.....	349	10,492	20,565	771	(2) 7	24	740	37.5	.3	1.2	36.0	115	11	4.3
Roofing and sheet-metal work ⁴	1,007	12,965	23,660	946	(1) 8	22	916	40.0	.3	.9	38.8	102	13	4.1
Residential.....	327	2,842	5,187	225	1	7	217	43.4	.2	1.3	41.9	110	16	4.8
Residential and nonresidential...	195	2,500	4,726	232	.....	5	227	49.1	.....	1.1	48.0	45	12	2.2
Nonresidential.....	208	4,875	8,897	348	(1) 6	4	338	39.1	.7	.4	38.0	127	12	5.0
Structural-steel work ⁴	170	13,103	24,895	1,304	(2) 30	111	1,163	52.4	1.2	4.5	46.7	293	21	15.4
Nonresidential.....	102	5,422	10,308	736	11	52	673	71.4	1.1	5.0	65.3	233	16	16.7
Terrazzo, tile, marble, and mosaic work ⁴	534	6,637	12,611	245	4	12	229	19.4	.3	1.0	18.1	205	13	4.0
Residential.....	247	2,589	4,919	95	2	4	89	19.3	.4	.8	18.1	283	10	5.5
Residential and nonresidential...	114	2,021	3,840	59	.....	4	55	15.4	.....	1.0	14.4	96	21	1.5
Nonresidential.....	80	1,269	2,411	62	2	4	56	25.7	.8	1.7	23.2	280	12	7.2
Wrecking and demolition work.....	120	2,041	3,879	226	(1) 1	11	214	58.3	.3	2.8	55.2	90	14	5.2

¹ Figures in parentheses indicate the number of cases of permanent-total disability included.

² The frequency rate is the average number of disabling work injuries for each million employee-hours worked. A disabling work injury is one which results in (a) death, or (b) any degree of permanent physical impairment, or (c) renders the injured person

unable to work at any regularly established job, which is open and available to him, throughout the hours corresponding to his regular shift on any day after the day of injury.

³ The severity rate is the average number of days lost per thousand hours worked.

⁴ Totals include figures not shown separately because of insufficient data.

TABLE 3.—Work injury rates in construction classified by type of contracting, kind of construction, and type of operation, 1948

Type of contracting, kind of construction, and type of operation	New Construction									Repair Work								
	Number of con- tractors	Em- ployee- hours worked (thou- sands)	Frequency rates of— ¹				Severity			Number of con- tractors	Em- ployee- hours worked (thou- sands)	Frequency rates of— ¹				Severity		
			Total	Death and per- ma- nent- total disa- bility	Per- ma- nent- partial disa- bility	Tem- po- rary- total disa- bility	Average number of days lost per—		Sev- erity rate ²			Total	Death and per- ma- nent- total disa- bility	Per- ma- nent- partial disa- bility	Tem- po- rary- total disa- bility	Average number of days lost per—		Sev- erity rate ²
							Dis- abling in- jury	Tem- po- rary- total disa- bility								Dis- abling in- jury	Tem- po- rary- total disa- bility	
<i>General contractors</i>																		
<i>Building construction:</i>																		
Residential.....	707	27,022	35.2	0.1	1.1	34.0	47	12	1.6	193	3,337	37.8	0.3	0.6	36.9	90	17	3.4
Nonresidential.....	795	93,723	40.1	.5	1.2	38.4	116	13	4.7	113	3,543	44.0	.3	2.0	41.7	124	13	5.5
Highway and street construction.....	651	57,402	47.0	.6	1.2	45.2	114	12	5.3	67	3,716	43.1	....	....	43.1	16	16	.7
<i>Special-trades contractors</i>																		
<i>Electrical work:</i>																		
Nonresidential.....	320	15,465	19.7	.1	1.0	18.6	106	16	2.1	115	1,912	32.4	1.0	2.6	28.8	335	20	10.9
<i>Painting, paperhanging, and decorating:</i>																		
Residential.....	76	2,258	7.1	....	....	7.1	20	20	.1	298	3,027	19.8	.3	2.6	16.9	354	20	7.0
Nonresidential.....	41	3,358	23.2	.3	.6	22.3	99	8	2.3	89	2,523	30.1	1.2	2.8	26.1	370	20	11.2
<i>Plumbing, heating, and air-conditioning:</i>																		
Residential.....	270	6,702	37.6	....	1.3	36.3	37	8	1.4	275	2,959	29.1	....	3.4	25.7	246	17	7.1
<i>Roofing and sheet-metal work:</i>																		
Residential.....	56	1,468	38.8	....	1.4	37.4	87	12	3.4	184	2,228	45.8	.4	1.8	43.6	164	15	7.5
Nonresidential.....	96	5,169	35.2	.6	.2	34.4	121	10	4.3	42	1,401	46.4	.7	2.1	43.6	139	19	6.4

¹ The frequency rate is the average number of disabling work injuries for each million employee-hours worked. A disabling work injury is one which results in (a) death, or (b) any degree of permanent physical impairment, or (c) renders the injured person

unable to work at any regularly established job, which is open and available to him, throughout the hours corresponding to his regular shift on any day after the day of injury. ² The severity rate is the average number of days lost per thousand hours worked.

TABLE 4.—Work injury rates for 16,321 construction companies classified by geographic area, State, type of contracting, and extent of disability, 1948

Geographic area, State; and type of contracting	Number of contractors	Em- ployee- hours worked (thou- sands)	Number of disabling injuries			Frequency rates of—				Severity				
			Total	Resulting in—		All dis- abling injuries	Death and perma- nent- total disa- bility	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility	Average number of days lost per—		Sever- ity rate*		
				Death or perma- nent- total disa- bility ¹	Perma- nent- partial disa- bility					Tempo- rary- total disa- bility	Dis- abling injury		Tempo- rary- total disa- bility	
NEW ENGLAND AREA														
Area total	1,127	34,006	1,170	(2) 12	29	1,129	34.4	0.4	0.9	33.1	102	15	3.5	
General contractors, total ⁴	296	19,084	744	(2) 6	16	722	39.0	.3	.8	37.9	80	15	3.1	
Building construction.....	198	10,403	455	(1) 1	9	445	43.7	.1	.9	42.7	40	15	1.8	
Heavy engineering and marine construction.....	36	5,154	154	(2) 4	7	143	29.9	.8	1.4	27.7	218	18	6.5	
Highway and street construction.....	45	3,310	131	.....	.....	130	39.6	.3	.....	39.3	57	11	2.3
Special-trades contractors, total ⁴	831	14,922	426	.....	13	407	28.5	.4	.9	27.2	140	15	4.0
Electrical work.....	103	2,537	73	.....	2	70	28.8	.4	.8	27.6	156	15	4.5
Painting, paperhanging, and decorating.....	102	1,800	23	.....	3	25	15.6	.....	1.7	13.9	317	23	4.9
Plumbing, heating, and air conditioning.....	171	2,609	73	.....	2	70	28.0	.8	.4	26.8	182	14	5.1
Roofing and sheet-metal work.....	84	1,929	57	.....	2	54	29.6	.5	1.0	28.1	138	18	4.1
<i>Connecticut</i>														
General contractors, building construction.....	36	2,043	72	.....	4	68	35.2	.....	2.0	33.2	43	15	1.5
<i>Massachusetts</i>														
General contractors:														
Building construction.....	63	3,236	168	1	4	163	51.9	.3	1.2	50.4	66	11	3.5
Heavy engineering and marine construction.....	15	1,328	68	1	4	63	51.2	.8	3.0	47.4	163	17	8.4
Special-trades contractors, plumbing, heating, and air conditioning.....	70	1,071	25	2	23	23.4	1.9	21.5	495	16	11.5
<i>Rhode Island</i>														
General contractors, building construction.....	38	1,823	66	.....	.....	66	36.2	.....	.....	36.2	33	33	1.2
MIDDLE ATLANTIC AREA														
Area total	4,047	156,313	5,448	(6) 56	243	5,149	34.9	0.4	1.6	32.9	136	15	4.7	
General contractors, total ⁴	1,226	84,533	3,116	(5) 35	124	2,957	36.9	.4	1.5	35.0	127	15	4.7	
Building construction.....	871	49,258	1,795	(2) 17	45	1,733	36.4	.3	.9	35.2	97	14	3.5	
Heavy engineering and marine construction.....	136	18,910	710	(3) 12	72	626	37.5	.6	3.8	33.1	242	19	9.1	
Highway and street construction.....	194	15,597	578	(1) 4	6	568	37.1	.3	.4	36.4	62	15	2.3	
Special-trades contractors, total ⁴	2,821	71,780	2,332	(1) 21	119	2,192	32.5	.3	1.7	30.5	148	15	4.8	
Carpentering.....	132	2,060	57	.....	4	52	27.7	.5	1.9	25.3	179	13	4.9
Concrete work.....	93	2,177	72	.....	1	71	33.1	.5	.....	32.6	103	20	3.4
Electrical work.....	429	11,609	226	.....	6	211	19.5	.5	.8	18.2	209	14	4.1
Excavation and foundation work.....	68	2,283	60	.....	2	58	26.3	.....	.9	25.4	39	22	1.0
Glass and glazing work.....	138	1,780	46	.....	2	44	25.8	.....	1.1	24.7	23	11	.6
Insulation work.....	49	1,785	45	.....	.....	45	25.2	.....	.....	25.2	11	11	.3
Masonry and stone work.....	132	3,477	147	.....	1	145	42.3	.3	.3	41.7	56	13	2.3
Ornamental iron and steel work.....	27	1,123	55	.....	1	50	49.0	.9	3.6	44.5	199	12	9.7
Painting, paperhanging, and decorating.....	421	7,844	108	.....	3	96	13.8	.4	1.1	12.3	311	23	4.3
Plastering and lathing.....	92	3,839	292	.....	6	286	76.1	.....	1.6	74.5	54	12	4.1
Plumbing, heating, and air conditioning.....	606	16,192	501	.....	3	22	47.6	.2	1.4	29.3	117	11	3.6
Roofing and sheet-metal work.....	291	6,564	267	.....	3	258	40.7	.5	.9	39.3	130	15	5.3
Structural-steel work.....	43	3,165	174	1	32	141	55.0	.3	10.1	44.6	369	13	20.3
Terrazzo, tile, marble, and mosaic work.....	93	2,074	76	.....	9	67	36.6	.....	4.3	32.3	232	15	8.5
Wrecking and demolition work.....	27	1,374	87	(1) 1	8	78	63.3	.7	5.8	56.8	196	12	12.4	
<i>New Jersey</i>														
General contractors:														
Building construction.....	83	4,867	197	2	8	187	40.5	.4	1.6	38.5	111	9	4.5
Highway and street construction.....	31	1,763	54	.....	.....	54	30.6	.....	.....	30.6	17	17	.5
Special-trades contractors:														
Electrical work.....	56	1,213	34	.....	1	33	28.0	.8	.....	27.2	185	8	5.2
Plumbing, heating, and air conditioning.....	55	1,806	74	.....	2	72	41.0	.....	1.1	39.9	89	11	3.7
<i>New York</i>														
General contractors:														
Building construction.....	149	7,941	367	3	24	340	46.2	.4	3.0	42.8	147	15	6.8
Heavy engineering and marine construction.....	32	3,016	209	(2) 5	46	158	69.3	1.7	15.3	52.3	429	25	29.7	
Highway and street construction.....	42	3,343	85	.....	.....	85	25.4	.....	.....	25.4	12	12	.3
Special-trades contractors:														
Electrical work.....	203	4,734	94	2	5	87	19.9	.4	1.1	18.4	198	16	3.9
Painting, paperhanging, and decorating.....	100	3,123	46	1	4	41	14.7	.3	1.3	13.1	226	20	3.3
Plastering and lathing.....	23	1,047	56	.....	4	52	53.5	.....	3.8	49.7	192	16	10.3
Plumbing, heating, and air conditioning.....	133	3,247	163	2	11	150	50.2	.6	3.4	46.2	174	9	8.7
Roofing and sheet-metal work.....	68	1,398	48	.....	1	46	34.3	.7	.7	32.9	218	10	7.5
Structural-steel work.....	17	1,245	88	.....	8	80	70.7	.....	6.4	64.3	197	13	13.9

See footnotes at end of table.

TABLE 4.—Work injury rates for 16,321 construction companies classified by geographic area, State, type of contracting, and extent of disability, 1948 — Continued

Geographic area, State, and type of contracting	Number of contractors	Em- ployee- hours worked (thou- sands)	Number of disabling injuries				Frequency rates of— ²				Severity			
			Total	Resulting in—			All dis- abling injuries	Death and perma- nent- total disa- bility	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility	Average number of days lost per—		Sever- ity rate ³	
				Death or perma- nent- total disa- bility ¹	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility					Dis- abling injury	Tempo- rary- total disa- bility		
MIDDLE ATLANTIC AREA — Continued														
<i>Pennsylvania</i>														
General contractors:														
Building construction	622	34,860	1,193	10	11	1,172	34.2	0.3	0.3	33.6	71	14	2.4	
Heavy engineering and marine construction	78	9,799	321	(1) 6	3	312	32.8	.6	.3	31.9	136	15	4.4	
Highway and street construction	118	9,919	429	4	6	419	43.3	.4	.6	42.3	80	15	3.4	
Special-trades contractors:														
Carpentering	87	1,177	22	1	3	18	18.7	.8	2.5	15.4	427	22	8.0	
Concrete work	50	1,007	16	1	1	15	15.9	1.0	.....	14.9	386	12	6.1
Electrical work	160	5,153	84	3	4	77	16.3	.6	.8	14.9	266	17	4.3	
Excavation and foundation work	28	1,167	27	.....	1	26	23.1	.....	.9	22.2	28	17	.6
Masonry and stone work	86	2,448	75	1	1	73	30.6	.4	.4	29.8	100	17	3.1	
Painting, paperhanging, and decorating	252	4,013	49	2	5	42	12.2	.5	1.2	10.5	467	28	5.7	
Plastering and lathing	50	1,204	45	.....	1	44	37.4	.....	.8	36.6	65	26	2.4
Plumbing, heating, and air conditioning	399	10,426	240	1	4	235	23.0	.1	.4	22.5	80	13	1.8	
Roofing and sheet-metal work	184	4,016	157	2	5	150	39.1	.5	1.2	37.4	151	19	5.9	
Structural-steel work	16	1,208	40	.....	3	37	33.1	.....	2.5	30.6	130	16	4.3
EAST NORTH CENTRAL AREA														
Area total	3,686	124,964	4,187	(6) 44	148	3,995	33.5	0.3	1.2	32.0	128	15	4.3	
General contractors, total ⁴	967	65,984	2,538	(4) 20	76	2,433	38.5	.4	1.2	36.9	124	15	4.8	
Building construction	608	40,128	1,374	(4) 15	37	1,322	34.2	.4	.9	32.9	116	16	4.0	
Heavy engineering and marine construction	112	9,278	542	4	12	526	58.4	.4	1.3	56.7	94	12	5.5	
Highway and street construction	202	15,915	604	9	24	571	38.0	.6	1.5	35.9	150	13	5.7	
Special-trades contractors, total ⁴	2,719	59,000	1,649	(2) 15	72	1,562	27.9	.3	1.2	26.4	134	16	3.7	
Carpentering	124	1,444	82	1	4	77	56.8	.7	2.8	53.3	149	13	8.5	
Concrete work	162	2,477	66	1	1	64	26.6	.4	.4	25.8	163	12	4.3	
Electrical work	414	11,476	245	(1) 3	17	225	21.3	.3	1.5	19.5	192	18	4.3	
Excavation and foundation work	150	3,518	95	.....	7	88	27.0	.....	2.0	25.0	136	15	3.7
Glass and glazing work	76	1,657	30	.....	1	29	18.1	.....	.6	17.5	25	9	.5
Installation of machinery and equipment, not elsewhere classified	35	1,753	67	.....	7	60	38.2	.....	4.0	34.2	198	21	7.6
Masonry and stone work	192	2,920	141	1	3	137	48.3	.3	1.0	47.0	109	13	5.3	
Painting, paperhanging, and decorating	322	4,829	88	1	3	84	18.2	.2	.6	17.4	122	15	2.2	
Plastering and lathing	193	4,149	113	2	2	109	27.2	.5	.5	26.2	158	14	4.3	
Plumbing, heating, and air conditioning	465	10,694	327	(1) 2	16	309	30.6	.2	1.5	28.9	111	15	3.4	
Roofing and sheet-metal work	201	4,470	170	.....	2	168	38.0	.....	.4	37.6	45	17	1.7
Structural-steel work	28	3,223	89	1	3	85	27.6	.3	.9	26.4	98	14	2.7	
Terrazzo, tile, marble, and mosaic work	135	2,402	37	1	.....	36	15.4	.4	.....	15.0	176	14	2.7
<i>Illinois</i>														
General contractors:														
Building construction	104	7,348	212	(1) 2	6	204	28.9	.3	.8	27.8	106	14	3.0	
Highway and street construction	43	3,185	164	.....	1	163	51.5	.....	.3	51.2	20	12	1.0
Special-trades contractors:														
Concrete work	40	1,011	40	1	1	38	39.6	1.0	1.0	37.6	260	10	10.3	
Electrical work	84	2,404	72	.....	2	70	30.0	.....	.8	29.2	24	13	.7
Painting, paperhanging, and decorating	62	1,195	32	1	1	30	26.8	.....	.8	25.2	214	12	5.7
Plastering and lathing	42	1,162	53	2	.....	51	45.6	1.7	.....	43.9	337	11	10.8
Plumbing, heating, and air conditioning	73	1,870	83	(1) 2	5	76	44.4	1.1	2.7	40.6	253	18	11.2	
<i>Indiana</i>														
General contractors:														
Building construction	89	3,623	134	1	5	128	37.0	.3	1.4	35.3	134	13	4.9	
Highway and street construction	23	1,473	72	4	5	63	48.9	2.7	3.4	42.8	429	14	21.0	
Special-trades contractors, plumbing, heating, and air conditioning	61	1,057	21	.....	.....	21	19.9	.....	.....	19.9	13	13	.3
<i>Michigan</i>														
General contractors:														
Building construction	105	7,836	311	2	5	304	39.7	.3	.6	38.8	79	19	3.1	
Heavy engineering and marine construction	25	2,462	80	1	2	77	32.5	.4	.8	31.3	145	11	4.7	
Highway and street construction	16	1,365	26	.....	7	19	19.0	.....	5.1	13.9	313	21	6.0
Special-trades contractors:														
Electrical work	103	3,233	46	.....	5	41	14.2	.....	1.5	12.7	249	16	3.5
Excavation and foundation work	33	1,451	24	.....	1	23	16.5	.....	.7	15.8	189	23	3.1
Plumbing, heating, and air conditioning	97	2,128	78	.....	2	76	36.7	.....	.9	35.8	29	18	1.1
Structural-steel work	5	1,718	17	.....	1	16	9.9	.....	.6	9.3	27	10	.3

See footnotes at end of table.

TABLE 4.—Work injury rates for 16,321 construction companies classified by geographic area, State, type of contracting, and extent of disability, 1948 — Continued

Geographic area, State, and type of contracting	Number of contractors	Em- ployee- hours worked (thou- sands)	Number of disabling injuries				Frequency rates of— ²				Severity		
			Total	Resulting in—			All dis- abling injuries	Death and per- manent- total disa- bility	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility	Average number of days lost per—		Sever- ity rate ³
				Death or per- manent- total disa- bility ¹	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility					Dis- abling injury	Tempo- rary- total disa- bility	
EAST NORTH CENTRAL AREA — Continued													
<i>Ohio</i>													
General contractors:													
Building construction	183	11,591	302	4	13	285	26.1	0.3	1.1	24.7	150	20	3.9
Heavy engineering and marine construction ..	26	2,432	121	.....	4	117	49.8	.....	1.6	48.2	58	15	2.9
Highway and street construction	68	2,998	123	1	6	116	41.0	3	2.0	38.7	111	15	4.5
Special-trades contractors:													
Concrete work	69	1,045	16	.....	.....	16	15.3	.....	.....	15.3	12	12	2
Electrical work	132	3,330	42	2	8	32	12.6	6	2.4	9.6	547	36	6.9
Excavation and foundation work	64	1,094	29	.....	5	24	26.5	.....	4.6	21.9	260	11	6.9
Painting, paperhanging, and decorating	84	1,073	22	.....	2	20	20.5	.....	1.9	18.6	148	18	3.0
Plastering and lathing	68	1,437	26	.....	1	25	18.1	.....	1.7	17.4	163	10	3.0
Plumbing, heating, and air conditioning	119	2,628	66	.....	3	63	25.1	.....	1.1	24.0	83	16	2.1
Roofing and sheet-metal work	61	1,498	35	.....	1	34	23.4	.....	1.7	22.7	142	28	3.3
<i>Wisconsin</i>													
General contractors:													
Building construction	113	6,318	268	(3) 3	5	260	42.4	5	8	41.1	103	12	4.4
Heavy engineering and marine construction ..	15	1,144	91	1	1	89	79.6	9	9	77.8	85	17	6.8
Highway and street construction	46	2,650	128	4	5	119	48.3	1.5	1.9	44.9	264	13	12.7
Special-trades contractors:													
Electrical work	49	1,463	58	.....	.....	58	39.6	.....	.....	39.6	17	17	7
Painting, paperhanging, and decorating	89	1,080	13	.....	.....	13	12.0	.....	.....	12.0	11	11	1
Plumbing, heating, and air conditioning	105	2,203	74	.....	5	69	33.6	.....	2.3	31.3	94	9	3.1
Roofing and sheet-metal work	40	1,025	65	.....	.....	65	63.4	.....	.....	63.4	16	16	1.0
WEST NORTH CENTRAL AREA													
Area total	1,010	41,094	1,486	(2) 21	54	1,411	36.2	0.5	1.3	34.4	143	15	5.2
General contractors, total ⁴	359	26,503	1,104	14	40	1,050	41.7	5	1.5	39.7	132	12	5.5
Building construction	190	14,341	537	6	12	519	37.4	4	8	36.2	101	12	3.8
Heavy engineering and marine construction ..	36	2,619	159	1	13	145	60.7	4	5.0	55.3	129	15	7.8
Highway and street construction	126	9,332	403	7	15	381	43.2	8	1.6	40.8	176	11	7.6
Special-trades contractors, total ⁴	651	14,590	382	(2) 7	14	361	26.2	5	1.0	24.7	174	16	4.6
Electrical work	150	3,257	78	2	1	75	23.9	6	3	23.0	171	8	4.1
Painting, paperhanging, and decorating	69	1,201	24	.....	1	23	20.0	.....	.....	19.2	191	25	3.8
Plumbing, heating, and air conditioning	148	3,299	106	2	6	98	32.1	6	1.8	29.7	192	9	6.2
Roofing and sheet-metal work	66	1,662	51	.....	1	50	30.7	.....	.....	30.1	54	19	1.7
<i>Iowa</i>													
General contractors:													
Building construction	33	1,730	76	.....	1	75	43.9	.....	.....	43.3	34	11	1.5
Highway and street construction	25	1,671	55	2	1	52	32.9	1.2	6	31.1	255	10	8.3
<i>Kansas</i>													
General contractors:													
Building construction	23	1,324	41	2	3	36	31.0	1.5	2.3	27.2	383	16	11.9
Highway and street construction	23	1,426	70	.....	2	68	49.1	.....	1.4	47.7	23	7	1.1
<i>Minnesota</i>													
General contractors:													
Building construction	52	2,501	100	.....	2	98	40.0	.....	.....	39.2	42	15	1.7
Highway and street construction	22	1,102	61	.....	.....	61	55.4	.....	.....	55.4	12	12	7
Special-trades contractors, plumbing, heating, and air conditioning	46	1,220	42	.....	1	41	34.4	.....	.....	33.6	27	9	9
<i>Missouri</i>													
General contractors, building construction	29	2,105	112	3	2	107	53.2	1.4	9	50.9	176	8	9.3
<i>Nebraska</i>													
General contractors, building construction	26	1,938	43	1	.....	42	22.2	5	.....	21.7	155	16	3.4

See footnotes at end of table.

TABLE 4.—Work injury rates for 16,321 construction companies classified by geographic area, State, type of contracting, and extent of disability, 1948 — Continued

Geographic area, State, and type of contracting	Number of contractors	Em- ployee- hours worked (thou- sands)	Number of disabling injuries			Frequency rates of— ²				Severity			
			Total	Resulting in—		All dis- abling injuries	Death and perma- nent- total disa- bility	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility	Average number of days lost per—		Sever- ity rate ³	
				Death or perma- nent- total disa- bility ¹	Perma- nent- partial disa- bility					Tempo- rary- total disa- bility	Dis- abling injury		Tempo- rary- total disa- bility
SOUTH ATLANTIC AREA													
Area total	1,451	60,904	2,269	(1) 25	61	2,183	37.3	0.4	1.0	35.9	109	10	4.1
General contractors, total ⁴	496	36,425	1,621	(1) 15	39	1,567	44.5	.4	1.1	43.0	96	10	4.3
Building construction	314	18,241	757	4	15	738	41.5	.2	.8	40.5	57	9	2.4
Heavy engineering and marine construction ..	63	7,441	281	3	9	269	37.8	.4	1.2	36.2	144	12	5.4
Highway and street construction	98	9,684	552	(1) 5	14	533	57.0	.5	1.4	55.1	94	11	5.3
Special-trades contractors, total ⁴	955	24,480	648	10	22	616	26.5	.4	.9	25.2	143	11	3.8
Electrical work	128	3,561	60	2	5	53	16.8	.6	1.4	14.8	394	8	6.6
Excavation and foundation work	28	1,069	50	.....	3	47	46.8	.....	2.8	44.0	33	8	1.6
Masonry and stone work	61	2,602	81	.....	2	79	31.1	.....	.8	30.3	56	12	1.8
Painting, paperhanging, and decorating	119	1,969	41	.....	2	37	20.8	1.0	1.0	18.8	340	25	7.1
Plastering and lathing	54	1,854	44	.....	2	42	23.7	.....	1.1	22.6	26	8	.6
Plumbing, heating, and air conditioning	234	5,255	130	.....	2	128	24.7	.....	.4	24.3	34	8	.8
Roofing and sheet-metal work	78	1,644	68	.....	2	65	41.4	.6	1.2	39.6	109	7	4.5
Terrazzo, tile, marble, and mosaic work	54	1,713	13	.....	3	10	7.6	1.8	.....	5.8	1,396	14	10.6
<i>Florida</i>													
General contractors:													
Building construction	44	2,690	146	1	4	141	54.3	.4	1.5	52.4	67	8	3.6
Heavy engineering and marine construction ..	12	1,917	74	3	1	70	38.6	1.6	.5	36.5	294	11	11.4
Highway and street construction	10	1,029	68	.....	.....	68	66.1	.....	.....	66.1	8	8	.5
<i>Georgia</i>													
General contractors:													
Building construction	56	2,104	79	.....	5	74	37.5	.....	2.4	35.1	38	8	1.4
Heavy engineering and marine construction ..	11	1,423	41	.....	1	40	28.8	.....	.7	28.1	108	10	3.1
Highway and street construction	16	1,375	54	.....	3	51	39.3	.....	2.2	37.1	86	15	3.4
<i>Maryland</i>													
General contractors:													
Building construction	51	2,303	88	.....	1	87	38.2	.....	.4	37.8	31	10	1.2
Highway and street construction	22	1,726	85	(1) 2	2	81	49.2	1.2	1.2	46.8	163	10	8.0
<i>South Carolina</i>													
General contractors, building construction	7	1,298	32	.....	.....	32	24.7	.....	.....	24.7	11	11	.3
<i>Virginia</i>													
General contractors:													
Building construction	68	3,204	149	2	1	146	46.5	.6	.3	45.6	91	9	4.2
Heavy engineering and marine construction ..	13	1,293	48	.....	5	43	37.1	.....	3.9	33.2	156	11	5.8
Highway and street construction	16	1,204	41	1	1	39	34.1	.8	.8	32.5	177	17	6.0
<i>West Virginia</i>													
General contractors, building construction	16	1,105	29	.....	1	28	26.2	.....	.9	25.3	22	13	.6
EAST SOUTH CENTRAL AREA													
Area total	515	21,354	636	(2) 9	22	605	29.8	0.4	1.0	28.4	136	10	4.1
General contractors, total ⁴	169	12,812	439	(2) 8	13	418	34.3	.6	1.0	32.7	163	9	5.2
Building construction	117	8,295	278	(2) 6	8	264	33.5	.7	1.0	31.8	174	8	5.8
Heavy engineering and marine construction ..	18	2,899	90	2	2	86	31.0	.7	.7	29.6	177	10	5.5
Highway and street construction	32	1,601	70	.....	3	67	43.7	.....	1.9	41.8	43	11	1.9
Special-trades contractors, total ⁴	346	8,541	197	1	9	187	23.1	.1	1.1	21.9	99	11	2.3
Plumbing, heating, and air conditioning	88	2,167	47	.....	2	45	21.7	.....	.9	20.8	22	9	.5
<i>Alabama</i>													
General contractors, building construction	26	1,372	38	.....	2	36	27.7	.....	1.5	26.2	124	11	3.4
<i>Kentucky</i>													
General contractors:													
Building construction	41	2,076	35	.....	1	34	16.9	.....	.5	16.4	23	15	.4
Heavy engineering and marine construction ..	5	1,278	62	2	1	59	48.5	1.6	.8	46.1	212	9	10.3
<i>Tennessee</i>													
General contractors:													
Building construction	45	3,806	121	(2) 6	5	110	31.8	1.6	1.3	28.9	351	8	11.1
Heavy engineering and marine construction ..	9	1,415	28	.....	1	27	19.8	.....	.7	19.1	99	14	2.0

See footnotes at end of table.

TABLE 4.—Work injury rates for 16,321 construction companies classified by geographic area, State, type of contracting, and extent of disability, 1948 — Continued

Geographic area, State, and type of contracting	Number of contractors	Em- ployee- hours worked (thou- sands)	Number of disabling injuries				Frequency rates of—				Severity		
			Total	Resulting in—			All dis- abling injuries	Death and perma- nent- total disa- bility	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility	Average number of days lost per—		Sever- ity rate ¹
				Death or perma- nent- total disa- bility ¹	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility					Dis- abling injury	Tempo- rary- total disa- bility	
WEST SOUTH CENTRAL AREA													
Area Total	737	31,091	1,339	(5) 13	49	1,277	43.1	0.4	1.6	41.1	112	11	4.8
General contractors, total ⁴	242	20,324	1,028	(5) 10	32	986	50.6	.5	1.6	48.5	102	10	5.2
Building construction.....	146	8,734	421	(2) 3	14	404	48.2	.3	1.6	46.3	85	11	4.1
Heavy engineering and marine construction.....	40	4,645	311	(3) 5	9	297	67.0	1.1	1.9	64.0	137	9	9.2
Highway and street construction.....	45	6,087	266	1	6	259	43.7	.2	1.0	42.5	68	11	3.0
Special-trades contractors, total ⁴	495	10,767	311	3	17	291	28.9	.3	1.6	27.0	147	13	4.2
Electrical work.....	128	3,380	67	1	6	66	19.8	.3	.....	19.5	105	16	2.1
Plumbing, heating, and air conditioning.....	95	2,119	77	1	2	74	36.3	.5	.9	34.9	119	11	4.3
Roofing and sheet-metal work.....	46	1,332	66	.....	1	65	49.6	.....	.8	48.8	21	10	1.0
<i>Louisiana</i>													
General contractors, building construction.....	17	1,256	23	.....	.....	23	18.3	.....	.....	18.3	11	11	.2
<i>Oklahoma</i>													
General contractors, building construction.....	36	2,135	82	(1) 1	2	79	38.4	.5	.9	37.0	91	11	3.5
<i>Texas</i>													
General contractors:													
Building construction.....	80	4,732	306	(1) 2	12	292	64.7	.4	2.5	61.8	91	12	5.9
Heavy engineering and marine construction.....	22	2,938	150	(1) 1	9	140	51.1	.4	3.1	47.6	120	14	6.1
Highway and street construction.....	25	3,102	164	1	4	159	52.9	.3	1.3	51.3	98	10	5.2
Special-trades contractors:													
Electrical work.....	77	2,535	44	.....	.....	44	17.4	.....	.....	17.4	10	10	.2
Plumbing, heating, air conditioning.....	52	1,244	60	.....	.....	60	48.2	.....	.....	48.2	11	11	.5
ROCKY MOUNTAIN AREA													
Area total	810	27,243	1,053	12	59	982	38.7	0.4	2.2	36.1	145	17	5.6
General contractors, total ⁴	298	19,538	804	11	40	753	41.1	.6	2.0	38.5	146	19	6.0
Building construction.....	189	9,528	441	2	25	414	46.3	.2	2.6	43.5	103	20	4.8
Heavy engineering and marine construction.....	38	5,997	182	6	4	172	30.4	1.0	.7	28.7	225	21	6.8
Highway and street construction.....	51	3,894	173	1	8	164	44.4	.3	2.1	42.0	81	13	3.6
Special-trades contractors, total ⁴	512	7,705	249	1	19	229	32.3	.1	2.5	29.7	141	11	4.6
Electrical work.....	100	1,439	35	.....	3	32	24.3	.....	2.1	22.2	87	13	2.1
Plumbing, heating, air conditioning.....	96	1,567	45	1	6	38	28.7	.6	3.8	24.3	342	8	9.8
<i>Arizona</i>													
General contractors, building construction.....	34	2,042	211	.....	11	200	71.7	.....	3.7	68.0	65	28	4.7
<i>Colorado</i>													
General contractors:													
Building construction.....	46	1,804	47	1	5	41	26.1	.6	2.8	22.7	261	15	6.8
Heavy engineering and marine construction.....	7	1,528	76	1	3	72	49.7	.7	2.0	47.0	101	11	5.0
<i>Montana</i>													
General contractors, building construction.....	31	1,597	82	1	4	77	51.3	.6	2.5	48.2	104	9	5.4
<i>New Mexico</i>													
General contractors, building construction.....	14	1,589	26	.....	2	24	16.4	.....	1.3	15.1	214	15	3.5
PACIFIC AREA													
Area total	2,311	85,908	3,721	(6) 45	104	3,572	43.3	0.5	1.2	41.6	118	12	5.1
General contractors, total ⁴	687	48,128	2,462	(4) 33	66	2,363	51.2	.7	1.4	49.1	117	12	6.0
Building construction.....	425	21,073	977	(1) 7	24	946	46.4	.3	1.1	45.0	73	11	3.4
Heavy engineering and marine construction.....	121	16,955	907	(2) 12	30	865	53.5	.7	1.8	51.0	118	12	6.3
Highway and street construction.....	116	9,129	517	(1) 13	11	493	56.6	1.4	1.2	54.0	191	12	10.8
Special-trades contractors, total ⁴	1,624	37,780	1,259	(2) 12	38	1,209	33.3	.3	1.0	32.0	121	12	4.0
Concrete work.....	80	1,748	42	.....	2	40	24.0	.....	1.1	22.9	164	13	3.9
Electrical work.....	421	8,680	196	(1) 6	7	183	22.6	.7	.8	21.1	265	17	6.0
Glass and glazing.....	49	1,266	51	.....	1	50	40.3	.....	.8	39.5	23	14	.9
Masonry and stone work.....	52	1,438	35	.....	2	33	24.3	.....	1.4	22.9	115	12	2.8
Painting, paperhanging, and decorating.....	234	4,001	108	2	4	102	27.0	.5	1.0	25.5	143	11	3.9
Plastering and lathing.....	98	3,799	147	1	3	143	38.7	.3	.8	37.6	93	11	3.6
Plumbing, heating, and air conditioning.....	241	7,047	210	.....	5	205	29.8	.....	.7	29.1	67	9	2.0
Roofing and sheet-metal work.....	122	2,542	177	(1) 2	5	170	69.6	.8	2.0	66.8	135	10	9.4
Terrazzo, tile, marble, and mosaic work.....	92	2,182	51	.....	1	50	23.4	.....	.5	22.9	48	13	1.1

See footnotes at end of table.

TABLE 4.—Work injury rates for 16,321 construction companies classified by geographic area, State, type of contracting, and extent of disability, 1948 — Continued

Geographic area, State, and type of contracting	Number of contractors	Employee-hours worked (thousands)	Number of disabling injuries			Frequency rates of— ²				Severity			
			Total	Resulting in—		All disabling injuries	Death and permanent-total disability	Permanent-partial disability	Temporary-total disability	Average number of days lost per—		Severity rate ³	
				Death or permanent-total disability ¹	Permanent-partial disability					Temporary-total disability	Disabling injury		Temporary-total disability
PACIFIC AREA — Continued													
<i>California</i>													
General contractors:													
Building construction	237	14,833	704	5	12	687	47.5	0.3	0.8	46.4	66	10	3.1
Heavy engineering and marine construction	76	13,356	673	(1) 6	20	647	50.4	.4	1.5	48.5	82	9	4.1
Highway and street construction	75	6,459	386	(1) 9	6	371	59.8	1.4	.9	57.5	166	12	9.9
Special-trades contractors:													
Concrete work	56	1,315	26		1	25	19.8		.8	19.0	169	15	3.3
Electrical work	320	6,466	152	(1) 4	6	142	23.5	.6	.9	22.0	252	16	5.9
Masonry and stone work	39	1,051	22		2	20	20.9		1.9	19.0	178	16	3.7
Painting, paperhanging, and decorating	141	2,620	68	2	3	63	26.0	.8	1.1	24.1	212	9	5.5
Plastering and lathing	71	3,154	123			123	39.0			39.0	11	11	.4
Plumbing, heating, and air conditioning	148	5,106	138			138	27.0			27.0	10	10	.3
Roofing and sheet-metal	71	1,443	129	(1) 1	3	125	89.4	.7	2.1	86.6	101	9	9.0
Terrazzo, tile, marble, and mosaic work	82	1,975	46			46	23.3			23.3	14	14	.3
<i>Oregon</i>													
General contractors, building construction	44	1,194	71		3	68	59.4		2.5	56.9	28	9	1.7
<i>Washington</i>													
General contractors:													
Building construction	137	4,240	139	(1) 2	8	129	32.8	.5	1.9	30.4	146	16	4.8
Heavy engineering and marine construction	26	1,763	155	2	6	147	87.9	1.1	3.4	83.4	141	20	12.4
Highway and street construction	28	1,680	92	2	5	85	54.7	1.2	3.0	50.5	242	13	13.2
Special-trades contractors:													
Electrical work	60	1,085	18	1	1	16	16.6	.9	.9	14.8	405	34	6.7
Painting, paperhanging, and decorating	68	1,056	34			34	32.2			32.2	14	14	.4
Plumbing, heating, and air conditioning	56	1,184	30		5	25	25.3		4.2	21.1	411	10	10.4

¹ Figures in parentheses indicate the number of cases of permanent-total disability included.
² The frequency rate is the average number of disabling work injuries for each million employee-hours worked. A disabling work injury is one which results in (a) death, or (b) any degree of permanent physical impairment, or (c) renders the injured person

unable to work at any regularly established job, which is open and available to him, throughout the hours corresponding to his regular shift on any day after the day of injury.
³ The severity rate is the average number of days lost per thousand hours worked.
⁴ Totals include figures not shown separately because of insufficient data.

TABLE 5.—Work injury rates for 16,321 construction companies classified by occupation and extent of disability, 1948

Occupation	Number of contractors	Em- ploye- hours worked (thou- sands)	Number of disabling injuries			Frequency rates of— ³				Severity			
			Total	Resulting in—		All dis- abling injuries	Death and perman- ent- total disa- bility	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility	Average number of days lost per—		Sever- ity rate ⁴	
				Death or perman- ent- total disa- bility ¹	Perma- nent- partial disa- bility					Tempo- rary- total disa- bility	Dis- abling injury		Tempo- rary- total disa- bility
Total⁴	16,321	719,867	26,402	(40) 320	1,063	25,019	36.7	0.4	1.5	34.8	135	14	5.0
Air-tool operators.....	47	1,388	87	(1) 3	9	75	62.7	2.2	6.5	54.0	418	24	26.2
Asbestos workers.....	145	5,091	169	1	3	165	33.2	.2	.6	32.4	64	12	2.1
Boilermakers.....	58	2,655	86	3	3	83	32.4	1.1	1.1	31.3	56	21	1.8
Bricklayers.....	1,691	21,866	611	(1) 7	19	585	27.9	.3	.9	26.7	127	15	3.5
Carpenters.....	3,930	90,076	3,442	(6) 30	145	3,267	38.2	3	1.6	36.3	106	14	4.1
Cement finishers.....	1,872	10,913	272	(1) 2	9	261	24.9	.2	.8	23.9	105	18	2.6
Electricians.....	2,161	54,306	1,256	(4) 37	52	1,167	23.1	.7	1.0	21.4	247	15	5.7
Floor layers, composition.....	114	1,433	18	1	3	14	12.6	.7	2.1	9.8	903	19	11.3
Floor sanding-machine operators.....	87	1,503	3	1	3	3	6.0	1.0	2.3	6.0	5	5	(9)
Foremen and superintendents.....	322	3,967	114	(1) 2	9	103	28.9	.5	2.3	25.9	188	19	5.4
Glaziers.....	489	7,100	228	7	7	221	32.1	2.3	1.0	31.1	48	11	4.6
House movers.....	50	852	27	2	1	24	31.7	1.0	1.2	28.2	469	15	14.9
Insulation men, not elsewhere classified.....	102	1,363	49	1	1	48	36.0	2.3	1.7	35.3	48	11	1.7
Ironworkers, total ⁴	855	33,174	1,756	(3) 32	141	1,583	52.9	1.0	4.3	47.6	244	17	12.9
Ornamental.....	129	3,469	159	1	9	149	45.8	.3	2.6	42.9	102	11	4.7
Structural.....	711	29,240	1,578	(3) 31	131	1,414	53.9	1.1	4.5	48.3	261	17	14.1
Laborers, general.....	4,679	156,113	7,132	(7) 54	181	6,897	45.7	.3	1.2	44.2	89	12	4.1
Lathers.....	355	4,554	177	(1) 3	2	172	38.9	.7	.4	37.8	125	11	4.9
Maintenance men, general.....	240	3,053	22	(2) 3	9	158	55.7	1.0	2.9	51.8	180	11	10.0
Millwrights.....	48	1,045	22	2	2	20	21.1	1.9	1.9	19.2	61	22	1.3
Mosaic and terrazzo workers.....	130	2,229	58	2	1	55	26.0	.9	.4	24.7	285	9	7.4
Oilers and greasers.....	108	1,046	49	(1) 3	6	40	46.8	2.9	5.7	38.2	579	27	27.1
Painters.....	1,942	28,974	606	14	29	563	20.9	.5	1.0	19.4	231	19	4.8
Pipe fitters.....	19	2,422	104	1	1	102	42.9	.4	.4	42.1	86	12	3.7
Plasterers.....	881	13,350	518	1	18	499	38.8	.1	1.3	37.4	83	12	3.2
Plumbers.....	1,765	27,586	815	7	35	773	29.5	.3	1.3	27.9	126	12	3.7
Power-equipment operators, total ⁴	2,713	27,884	1,060	(2) 22	61	977	38.0	.8	2.2	35.0	207	15	7.9
Blade-grader operators.....	164	750	17	2	1	14	22.7	2.7	1.3	18.7	950	11	21.5
Bulldozer operators.....	318	1,515	45	1	3	41	29.7	.7	2.0	27.0	173	12	5.1
Crane and winch operators.....	302	1,776	56	1	4	51	31.5	.6	2.3	28.6	254	18	8.0
Dredge operators.....	14	1,405	51	1	2	48	36.3	.7	1.4	34.2	166	8	6.0
File-driver operators.....	48	1,181	115	(1) 3	11	101	97.3	2.5	9.3	85.5	291	24	28.3
Power-shovel operators.....	402	2,277	89	2	5	84	39.1	1.0	2.2	36.9	88	15	3.4
Tractor operators.....	210	2,685	87	1	2	84	32.4	.4	.7	31.3	130	10	4.2
Riggers.....	19	410	17	1	3	14	41.5	1.0	7.3	34.2	260	27	10.8
Roofers, total ⁴	898	10,324	535	5	13	517	51.8	.5	1.3	50.0	111	15	5.8
Composition.....	661	7,855	425	4	10	411	54.1	.5	1.3	52.3	118	14	6.4
Slate or tile.....	153	1,429	70	1	2	67	49.0	.7	1.4	46.9	117	21	5.7
Sheet-metal workers.....	913	18,829	623	(1) 5	17	601	33.1	.3	.9	31.9	95	9	3.2
Steam fitters.....	523	14,450	439	2	17	420	30.4	.1	1.2	29.1	101	13	3.1
Stone masons.....	269	2,222	55	2	6	49	24.8	1.0	2.7	22.1	117	15	2.9
Tile setters.....	516	9,229	182	2	12	168	19.7	.2	1.3	18.2	192	14	3.8
Truck drivers.....	2,692	23,815	721	11	20	690	30.3	.5	.8	29.0	141	14	4.3
Welders.....	86	894	79	2	2	77	88.4	1.0	2.2	86.2	55	10	4.9
Well-drill operators.....	145	2,578	102	6	13	83	39.6	2.3	5.0	32.3	557	21	22.0
Wreckers.....	36	510	29	1	2	29	56.8	1.0	1.0	56.8	23	23	1.3

¹ Figures in parentheses indicate the number of cases of permanent-total disability included.

² The frequency rate is the average number of disabling work injuries for each million employee-hours worked. A disabling work injury is one which results in (a) death, or (b) any degree of permanent physical impairment, or (c) renders the injured person

unable to work at any regularly established job, which is open and available to him, throughout the hours corresponding to his regular shift on any day after the day of injury.

³ The severity rate is the average number of days lost per thousand hours worked.

⁴ Totals include figures not shown separately because of insufficient data.

⁵ Less than 0.05.

TABLE 6.—Work injury rates for 16,321 construction companies classified by type of contracting and by occupation, 1948

Type of contracting and occupation	Number of contractors	Em-ployee-hours worked (thousands)	Number of disabling injuries				Frequency rates of—				Severity		
			Total	Resulting in—			All disabling injuries	Death and permanent-total disability	Permanent-partial disability	Temporary-total disability	Average number of days lost per—		Severity rate*
				Death or permanent-total disability ¹	Permanent-partial disability	Temporary-total disability					Disabling injury	Temporary-total disability	
General contractors:													
Building construction ⁴	3,149	199,080	7,770	(12) 75	221	7,474	39.0	0.4	1.1	37.5	101	13	3.9
Bricklayers	1,024	11,855	328	4	12	3,112	27.7	3	1.0	26.4	126	15	3.5
Carpenters	2,568	69,056	2,613	(6) 22	99	2,492	37.8	3	1.4	36.1	101	13	3.8
Cement finishers	968	4,570	116		3	113	25.4		.7	24.7	37	13	4.4
Electricians	90	458	18		1	18	39.3			39.3	9	9	4.4
Foremen and superintendents	84	753	14		2	11	18.6	1.3	2.7	14.6	627	8	11.7
Ironworkers ⁵	344	3,156	153	(1) 2	3	148	48.5	.7	1.0	46.9	122	14	5.9
Structural	308	2,990	147	(1) 2	3	142	49.2	.7	1.0	47.5	127	14	6.2
Laborers, general	1,868	60,381	2,653	(3) 25	64	2,564	43.9	4	1.1	42.4	97	12	4.3
Lathers	136	616	10	(1) 1	1	9	16.2	1.6		14.6	613	15	10.0
Painters	493	3,592	97		3	91	27.0	.8		25.4	252	26	6.8
Plasterers	319	1,423	29		1	28	20.4		.8	19.7	28	9	1.4
Plumbers	103	539	15			15	27.8			27.8	28	28	3.8
Power-equipment operators	405	1,761	76		7	68	43.2	.6	4.0	38.6	190	20	8.2
Roofers ⁶	134	814	41		1	40	50.4	1.2		49.2	157	11	7.9
Roofers, composition	112	626	29		1	28	46.4	1.6		44.8	220	17	10.2
Sheet-metal workers	59	902	53			53	58.8			58.8	6	6	4.3
Steam fitters	16	547	9			9	16.5			16.5	21	21	3.3
Stone masons	123	648	18		2	16	27.8		3.1	24.7	43	16	1.9
Truck drivers	793	3,737	126		3	123	33.7		.8	32.9	49	18	1.5
Heavy engineering and marine construction ⁴	686	132,403	5,194	(14) 75	205	4,914	39.2	.6	1.5	37.1	143	15	5.8
Air-tool operators	18	879	49	(1) 1	8	40	55.7	1.1	9.1	45.5	452	34	25.2
Boilermakers	16	886	50		2	48	56.5		2.3	54.2	21	21	4.2
Bricklayers	72	702	5	(1) 1	1	3	7.1	1.4	1.4	4.3	1,685	9	12.0
Carpenters	232	8,319	373		5	349	44.8	.6	2.3	41.9	130	17	5.8
Cement finishers	140	1,367	25		1	24	18.3		.7	17.6	156	42	2.5
Electricians	65	4,085	159	(2) 13	6	140	38.9	3.2	1.5	34.2	533	19	20.8
Foremen and superintendents	83	1,579	51	(1) 1	4	46	32.3	.6	2.5	29.2	26	18	6.6
Ironworkers ⁵	120	5,547	292		4	270	52.6	.7	3.2	48.7	163	12	8.6
Ornamental	4	563	17			17	30.2			30.2	6	6	2.2
Structural	114	4,965	275		4	18	55.4	.8	3.6	51.0	172	13	9.5
Laborers, general	441	35,086	1,765	(2) 11	51	1,703	50.3	3	1.5	48.5	87	12	4.4
Maintenance men, general	68	1,511	62	(2) 2	4	56	41.0	1.3	2.6	37.1	292	9	12.0
Oilers and greasers	53	710	30	(1) 3	5	22	42.3	4.2	7.0	31.1	886	21	37.4
Painters	40	350	11		1	10	31.4		2.9	28.5	78	36	2.5
Plumbers	59	1,033	52		3	49	50.4		2.9	47.5	49	11	2.5
Power-equipment operators ⁴	626	10,059	428		8	393	42.6	.8	2.7	39.1	210	16	9.0
Crane operators	77	794	24		2	22	30.2		2.5	27.7	84	23	2.5
Dredge operators	13	1,405	51		2	48	36.3	.7	1.4	34.2	166	8	6.0
Pile-driver operators	42	1,090	111	(1) 3	10	98	101.8	2.8	9.2	89.8	298	24	30.4
Power-shovel operators	110	871	40		2	38	45.9		2.3	43.6	52	15	2.4
Tractor operators	45	881	22		1	21	25.0		1.1	23.9	192	10	4.8
Steam fitters	30	3,876	102		2	97	26.3	.5	.8	25.0	212	15	5.6
Truck drivers	299	4,812	166		2	156	34.5	.4	1.7	32.4	159	16	5.5
Welders	31	462	25			25	54.2			54.2	12	12	7.7
Highway and street construction ⁴	945	82,286	3,559	(4) 46	103	3,410	43.3	.6	1.3	41.4	126	13	5.5
Carpenters	250	2,736	151		6	144	55.2	.4	2.2	52.6	107	12	6.0
Cement finishers	283	1,704	56			56	32.9			32.9	16	16	5.5
Foremen and superintendents	123	1,486	48		3	45	32.3		2.0	30.3	47	23	1.5
Laborers, general	701	37,545	1,717	(1) 10	32	1,675	45.7	.3	.9	44.5	64	11	2.9
Maintenance men, general	100	963	82		3	78	85.1	1.0	3.1	81.0	134	9	11.4
Power-equipment operators ⁴	1,164	13,351	474		21	442	35.5	.8	1.6	33.1	202	13	7.2
Blade-grader operators	138	676	16		2	13	23.7	3.0	1.5	19.2	1,010	12	23.9
Bulldozer operators	93	610	14		1	13	23.0		1.6	21.4	48	13	1.1
Power-shovel operators	146	801	26			26	32.5			32.5	18	18	6.6
Tractor operators	106	1,487	51		1	49	34.3	.7	.7	32.9	136	8	4.6
Truck drivers	611	10,389	318		9	300	30.6	.9	.9	28.8	215	12	6.6
Special-trades contractors:													
Carpentering ⁴	453	6,726	231		2	214	34.3	.3	2.2	31.8	135	13	4.6
Carpenters	402	5,310	186		2	170	35.0	.4	2.6	32.0	163	14	5.7
Laborers, general	57	602	51			30	51.5		1.7	49.8	26	10	1.3
Concrete Work ⁴	481	9,482	267	(1) 3	7	257	28.2	.3	.7	27.2	136	17	3.8
Carpenters	48	576	17		1	16	29.5		1.7	27.8	113	8	3.3
Cement finishers	307	2,742	56	(1) 2	3	51	20.4	.7	1.1	18.6	331	20	6.8
Laborers, general	314	4,029	144		3	141	35.7		.7	35.0	60	14	2.1
Truck drivers	80	424	9			9	21.2			21.2	15	15	3.3

See footnotes at end of table.

TABLE 6.—Work injury rates for 16,321 construction companies classified by type of contracting and by occupation, 1948 — Continued

Type of contracting and occupation	Number of contractors	Em- ployee- hours worked (thous- ands)	Number of disabling injuries			Frequency rates of— ²				Severity			
			Total	Resulting in—		All dis- abling injuries	Death and perma- nent- total disabil- ity	Perma- nent- partial disabil- ity	Tempo- rary- total disabil- ity	Average number of days lost per—		Sever- ity rate ³	
				Death or perma- nent- total disabil- ity ¹	Perma- nent- partial disabil- ity					Tempo- rary- total disabil- ity	Dis- abling injury		Tempo- rary- total disabil- ity
Special-trades contractors—Continued													
Electrical work ⁴	1,973	51,259	1,088	(2) 23	48	1,017	21.2	0.4	0.9	19.9	204	15	4.3
Electricians.....	1,925	48,441	1,042	(2) 22	45	975	21.5	.5	.9	20.1	203	15	4.4
Excavation and foundation work ⁴	371	10,004	313	1	15	297	31.3	.1	1.5	29.7	89	14	2.8
Laborers, general.....	200	3,826	161		6	155	42.1		1.6	40.5	64	14	2.7
Power-equipment operators ⁴	388	2,115	52		5	47	24.6		2.4	22.2	124	13	3.1
Bulldozer operators.....	104	407	16		2	14	39.3		4.9	34.4	62	14	2.5
Truck drivers.....	212	1,783	33		3	33	18.5			18.5	12	12	.2
General building maintenance.....	101	1,901	38	2	1	35	20.0	1.1	.5	18.4	343	21	6.9
Glass and glazing work ⁴	438	8,228	277		7	270	33.7		.9	32.8	42	11	1.4
Glaziers.....	434	6,854	226		7	219	33.0		1.0	32.0	49	11	1.6
Laborers, general.....	38	844	34			34	40.3			40.3	14	14	.6
Installation of machinery and equipment, not elsewhere classified ⁴	120	13,460	629	(1) 4	117	508	46.7	.3	8.7	37.7	161	14	7.5
Boilermakers.....	14	877	16			16	18.2			18.2	29	29	.5
Ironworkers ⁴	22	472	28		2	26	59.3		4.2	55.1	100	10	5.9
Structural.....	20	460	28		2	26	60.9		4.3	56.6	100	10	6.1
Insulation work ⁴	193	6,030	197	1	5	191	32.7	.2	.8	31.7	61	13	2.0
Asbestos workers.....	66	3,144	112	1	2	109	35.6	.3	.6	34.7	87	14	3.1
Carpenters.....	53	872	23		3	20	26.4		3.4	23.0	67	17	1.8
Insulation men, not elsewhere classified.....	72	977	39			39	39.9			39.9	11	11	.5
Masonry and stone work ⁴	578	14,299	528	2	10	516	36.9	.1	.7	36.1	76	12	2.8
Bricklayers.....	447	8,337	247	1	6	240	29.6	.1	.7	28.8	83	13	2.5
Laborers, general.....	241	3,092	191		3	188	61.8		1.0	60.8	53	10	3.3
Stone masons.....	68	965	24		1	23	24.9		1.0	23.9	92	18	2.3
Ornamental iron and steel work ⁴	76	2,956	146	2	10	134	49.4	.7	3.4	45.3	161	14	8.0
Ironworkers ⁴	76	2,722	138	2	10	126	50.7	.7	3.7	46.3	169	13	8.6
Ornamental.....	65	2,291	111	1	8	102	48.4	.4	3.5	44.5	120	11	5.8
Painting, paper hanging, and decorating ⁴	1,448	26,326	505	11	31	463	19.2	.4	1.2	17.6	239	18	4.6
Painters.....	1,296	24,075	467	9	24	434	19.4	.4	1.0	18.0	212	18	4.1
Parquet and hardwood-flooring work ⁴	285	3,266	52	1	2	49	15.9	.3	.6	15.0	147	22	2.3
Carpenters.....	149	1,899	38		1	37	22.4		.6	21.8	33	26	.7
Floor layers, composition.....	27	456	3	1		2	6.6	2.2		4.4	2,002	3	13.2
Floor sanding-machine operators.....	77	456	3			3	6.6			6.6	5	5	(5)
Plastering and lathing ⁴	584	18,136	708	3	19	686	39.0	.2	1.0	37.8	82	13	3.2
Laborers, general.....	150	1,560	33			33	21.1			21.1	17	17	.4
Lathers.....	186	3,781	165	2	2	161	43.6	.5	.5	42.6	97	10	4.2
Plasterers.....	500	11,661	481	1	17	463	41.2	.1	1.5	39.6	85	12	3.5
Plumbing, heating, and air conditioning ⁴	2,186	56,838	1,740	(2) 13	67	1,660	30.6	.2	1.2	29.2	112	11	3.4
Asbestos workers.....	30	1,226	45		1	44	36.7		.8	35.9	18	7	.7
Laborers, general.....	314	2,974	113	(2) 4	6	103	38.0	1.3	2.0	34.7	319	16	12.1
Pipe fitters.....	18	2,410	104	1	1	102	43.2	.4	.4	42.4	86	12	3.7
Plumbers.....	1,552	25,703	734	7	32	695	28.6	.3	1.2	27.1	136	12	3.9
Sheet-metal workers.....	296	6,073	174		9	165	28.7		1.5	27.2	70	8	2.0
Steam fitters.....	453	9,817	327		14	313	33.3		1.4	31.9	69	12	2.3
Truck drivers.....	164	507	16			16	31.6			31.6	12	12	.4
Roofing and sheet-metal work ⁴	1,007	23,660	946	(1) 8	22	916	40.0	.3	.9	38.8	102	13	4.1
Laborers, general.....	36	535	26		1	25	48.6		1.9	46.7	78	9	3.8
Roofers ⁴	686	8,713	451	2	13	436	51.8	.2	1.5	50.1	90	15	4.6
Composition.....	487	6,633	368	2	10	356	55.5	.3	1.5	53.7	102	14	5.7
Slate or tile.....	123	1,094	47		2	45	43.0		1.8	41.2	38	22	1.6
Sheet-metal workers.....	500	11,063	373	(1) 5	6	362	33.7	.5	.5	32.7	118	9	4.0
Structural-steel work ⁴	170	24,895	1,304	(2) 30	111	1,163	52.4	1.2	4.5	46.7	293	21	15.4
Ironworkers ⁴	161	19,888	1,087	(2) 24	106	957	54.7	1.2	5.3	48.2	307	19	16.8
Structural.....	140	19,165	1,045	(2) 24	104	917	54.5	1.3	5.4	47.8	316	19	17.2
Terrazzo, tile, marble, and mosaic work ⁴	534	12,611	245	4	12	229	19.4	.3	1.0	18.1	205	13	4.0
Mosaic and terrazzo workers.....	116	2,189	58	2	1	55	26.5	.9	.5	25.1	285	9	7.5
Tile setters.....	433	8,749	162	2	8	152	18.5	.2	.9	17.4	187	13	3.5
Wrecking and demolition work ⁴	120	3,879	226	(1) 1	11	214	58.3	.3	2.8	55.2	90	14	5.2
Laborers, general.....	75	2,411	168	(1) 1	9	158	69.7	.4	3.7	65.6	111	13	7.7
Wreckers.....	36	510	29			29	56.8			56.8	23	23	1.3

¹ Figures in parentheses indicate the number of cases of permanent-total disability included.

² The frequency rate is the average number of disabling work injuries for each million employee-hours worked. A disabling work injury is one which results in (a) death, or (b) any degree of permanent physical impairment, or (c) renders the injured person

unable to work at any regularly established job, which is open and available to him, throughout the hours corresponding to his regular shift on any day after the day of injury.

³ The severity rate is the average number of days lost per thousand hours worked.

⁴ Totals include figures not shown separately because of insufficient data.

TABLE 7.—Work injury rates for 16,321 construction companies classified by type of operation and by occupation, 1948

Type of operation and occupation	Number of contractors	Em- ployee- hours worked (thous- ands)	Number of disabling injuries			Frequency rates of— ³				Severity			
			Total	Resulting in—		All dis- abling injuries	Death and perma- nent- total disa- bility	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility	Average number of days lost per—		Sever- ity rate ³	
				Death or perma- nent- total disa- bility ¹	Perma- nent- partial disa- bility					Tempo- rary- total disa- bility	Dis- abling injury		Tempo- rary- total disa- bility
New construction ⁴	6,489	431,002	16,990	(25) 190	610	16,190	39.4	0.4	1.4	37.6	124	13	4.9
Air-tool operators.....	38	877	62	(1) 2	8	52	70.7	2.3	9.1	59.3	457	29	32.3
Asbestos workers.....	60	2,988	90	1	1	89	30.1	3	.....	29.8	79	13	2.4
Boilermakers.....	28	1,186	57	.....	2	155	48.0	.....	1.7	46.3	62	15	3.0
Bricklayers.....	1,016	15,904	472	(1) 6	17	449	29.7	4	1.1	28.2	139	13	4.1
Carpenters.....	2,257	64,816	2,541	(4) 24	107	2,410	39.2	4	1.7	37.1	108	14	4.2
Cement finishers.....	1,249	8,046	206	1	7	198	25.6	1	.....	24.6	94	15	2.4
Electricians.....	827	26,983	661	(1) 13	27	621	24.5	5	1.0	23.0	197	16	4.8
Floor layers, composition.....	37	407	6	1	1	5	14.7	2.5	.....	12.2	1,026	31	15.1
Foremen and superintendents.....	241	3,238	88	(1) 2	9	77	27.2	6	2.8	23.8	239	21	6.5
Glaziers.....	147	2,736	99	.....	2	97	36.2	.....	.....	35.5	21	13	.....
Insulation men, not elsewhere classified.....	31	411	14	.....	.....	14	34.0	.....	.....	34.0	26	26	.....
Ironworkers ⁴	621	22,269	1,328	(3) 17	86	1,225	59.6	8	3.9	54.9	184	15	10.9
Ornamental.....	89	2,778	123	1	8	114	44.3	4	2.9	41.0	125	12	5.5
Structural.....	521	19,137	1,191	(3) 16	77	1,098	62.2	8	4.0	57.4	191	15	11.9
Laborers, general.....	2,797	113,915	5,367	(5) 44	131	5,192	47.1	4	1.1	45.6	90	12	4.3
Lathers.....	222	3,132	154	(1) 3	2	149	49.2	1.0	.....	47.6	142	11	7.0
Maintenance men, general.....	176	2,453	141	(2) 3	7	131	57.5	1.2	2.9	53.4	190	11	10.9
Millwrights.....	34	791	18	.....	2	16	22.7	.....	2.5	20.2	71	24	1.6
Mosaic and terrazzo workers.....	76	1,423	41	2	1	38	28.8	1.4	.....	26.7	399	9	11.5
Oilers and greasers.....	89	8,875	42	(1) 2	6	34	48.0	2.3	6.9	38.8	531	30	25.5
Painters.....	487	8,698	182	3	2	177	20.9	3	.....	20.4	121	17	2.5
Pipe fitters.....	13	1,152	46	1	1	44	39.9	9	.....	38.1	184	15	7.3
Plasterers.....	426	8,798	418	1	11	406	47.5	1	1.3	46.1	68	11	3.2
Plumbers.....	534	12,475	455	3	15	437	36.5	2	1.2	35.1	75	11	2.7
Power-equipment operators ⁴	2,119	22,733	827	(1) 17	49	761	36.4	7	2.2	33.5	207	15	7.5
Blade-grader operators.....	130	582	13	1	1	11	22.3	1.7	1.7	18.9	776	8	17.3
Bulldozer operators.....	262	1,276	36	.....	2	34	28.2	.....	1.6	26.6	34	13	1.0
Crane and winch operators.....	240	1,462	44	.....	4	40	30.1	.....	2.7	27.4	182	18	5.5
Dredge operators.....	6	995	33	1	.....	32	33.2	1.0	.....	32.2	192	10	6.4
Pile driver operators.....	27	717	47	(1) 3	9	35	65.5	4.2	12.5	48.8	600	41	39.3
Power-shovel operators.....	326	1,811	77	.....	4	73	42.5	.....	2.2	40.3	97	16	4.1
Tractor operators.....	180	2,487	80	1	2	77	32.2	.....	.....	31.0	141	10	4.5
Roofers ⁴	186	2,654	159	5	2	152	59.9	1.9	.....	57.2	204	12	12.2
Composition.....	143	2,141	124	4	1	119	57.9	1.9	.....	55.5	207	12	12.0
Sheet-metal workers.....	311	9,315	333	1	6	326	35.7	1	.....	35.0	76	9	2.7
Steam-fitters.....	242	9,549	301	2	13	286	31.5	2	1.4	29.9	121	13	3.8
Stone masons.....	157	1,477	40	.....	5	35	27.1	.....	3.4	23.7	144	16	3.9
Tile setters.....	251	5,191	116	2	7	107	22.3	4	.....	20.6	251	13	5.6
Truck drivers.....	1,714	17,403	547	7	16	524	31.4	4	1.3	30.1	121	14	3.8
Welders.....	62	714	64	.....	.....	64	89.7	.....	.....	89.7	9	9	.....
Well-drill operators.....	97	1,930	79	3	10	66	40.9	1.6	5.2	34.1	406	16	16.6
Repair work ⁴	2,739	45,348	1,559	(1) 19	94	1,446	34.4	4	2.1	31.9	186	16	6.4
Asbestos workers.....	28	528	31	.....	1	30	58.8	.....	1.9	56.9	24	9	1.4
Bricklayers.....	193	1,195	31	1	1	29	25.9	8	.....	24.3	282	11	6.8
Carpenters.....	570	5,144	173	1	10	162	33.6	2	1.9	31.5	128	14	4.3
Cement finishers.....	152	666	19	.....	.....	19	28.5	.....	.....	28.5	20	20	6
Electricians.....	250	3,742	135	(1) 4	10	121	36.1	1.1	2.7	32.3	273	16	9.9
Glaziers.....	90	697	18	.....	2	16	25.8	.....	2.9	22.9	177	12	4.6
Insulation men, not elsewhere classified.....	31	465	10	.....	.....	10	21.5	.....	.....	21.5	9	9	.....
Ironworkers.....	36	404	35	1	2	32	86.5	2.5	4.9	79.1	216	10	18.7
Laborers, general.....	496	5,906	241	1	5	235	40.8	2	.....	39.8	81	14	3.3

See footnotes at end of table.

TABLE 7.—Work injury rates for 16,321 construction companies classified by type of operation and by occupation, 1948 — Continued

Type of operation and occupation	Number of contractors	Em- ployee- hours worked (thous- ands)	Number of disabling injuries			Frequency rates of— ²				Severity			
			Total	Resulting in—			All dis- abling injuries	Death and perma- nent- total disa- bility	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility	Average number of days lost per—		Sever- ity rate ³
				Death or perma- nent- total disa- bility ¹	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility					Dis- abling injury	Tempo- rary- total disa- bility	
Repair work—Continued													
Lathers.....	21	478	6			6	12.6			12.6	3	3	(⁵)
Painters.....	649	8,839	194	8	22	164	21.9	0.9	2.5	18.5	446	19	9.8
Plasterers.....	124	707	19		4	15	26.9		5.7	21.2	545	30	14.6
Plumbers.....	408	3,798	111	1	12	98	29.2	.3	3.2	25.7	302	17	8.8
Power equipment operators.....	98	768	46		2	44	59.9		2.6	57.3	67	23	4.0
Roofers ⁴	318	2,976	164		7	157	55.1		2.4	52.7	104	17	5.7
Composition.....	246	2,247	131		6	125	58.3		2.7	55.6	120	15	7.0
Slate or tile.....	43	451	21			21	46.5			46.5	27	27	1.3
Sheet-metal workers.....	190	2,149	66	2	5	59	30.7	.9	2.3	27.5	259	12	7.9
Steam fitters.....	61	602	31		2	29	51.5		3.3	48.2	97	16	5.0
Truck drivers.....	242	1,290	34			34	26.4			26.4	24	24	.6
Wrecking and demolition⁴													
Laborers, general.....	120	3,879	226	(1) 1	11	214	58.3	.3	2.8	55.2	90	14	5.2
Wreckers.....	75	2,411	168	(1) 1	9	158	69.7	.4	3.7	65.6	111	13	7.7
Wreckers.....	36	510	29			29	56.8			56.8	23	23	1.3
New construction and repair work⁴													
Asbestos workers.....	4,101	154,736	5,033	(12) 80	286	4,667	32.5	.5	1.8	30.2	169	14	5.5
Boilermakers.....	47	1,497	47		2	45	31.4		1.3	30.1	60	12	1.9
Bricklayers.....	17	1,148	16			16	13.9			13.9	38	38	.5
Carpenters.....	397	3,840	82		1	81	21.4		.3	21.1	36	27	.8
Cement finishers.....	907	17,142	610	(2) 5	26	579	35.6	.3	1.5	33.8	112	13	4.0
Electricians.....	375	1,778	38	(1) 1	2	35	21.4	.6	1.1	19.7	223	28	4.8
Floor layers, composition.....	833	19,388	414	(2) 19	15	380	21.4	1.0	.8	19.6	329	14	7.0
Glaziers.....	39	609	3			3	4.9			4.9	7	7	(⁵)
Ironworkers ⁴	163	2,770	90		2	88	32.5		.7	31.8	59	9	1.9
Ornamental.....	140	9,188	348	13	51	284	37.9	1.4	5.6	30.9	479	23	18.1
Structural.....	23	404	18		1	17	44.6		2.5	42.1	33	5	1.5
Laborers, general.....	115	8,682	324	13	50	261	37.3	1.5	5.8	30.0	512	24	19.1
Lathers.....	1,010	27,978	1,097	(1) 7	25	1,065	39.2	.3	.9	38.0	78	11	3.1
Mosaic and terrazzo workers.....	82	628	8			8	12.7			12.7	10	10	.1
Painters.....	39	562	15			15	26.7			26.7	9	9	.2
Pipe fitters.....	445	7,630	149	2	3	144	19.5	.3	.4	18.8	124	18	2.4
Plasterers.....	4	1,262	57			57	45.2			45.2	9	9	.4
Plumbers.....	236	3,012	41		1	40	13.6		.3	13.3	25	13	.3
Power equipment operators.....	594	8,815	205	2	7	196	23.3	.2	.8	22.3	130	13	3.0
Roofers ⁴	349	3,110	154	4	8	142	49.5	1.3	2.6	45.6	219	11	10.8
Composition.....	290	3,696	184		3	181	49.8		.8	49.0	44	17	2.2
Slate or tile.....	196	2,698	142		2	140	52.6		.7	51.9	47	16	2.5
Sheet-metal workers.....	62	505	21		1	20	41.6		2.0	39.6	48	26	2.0
Steam fitters.....	291	5,242	190	(1) 2	3	185	36.2	.4	.6	35.2	80	6	2.9
Stone masons.....	175	3,396	85			85	25.0			25.0	13	13	.3
Tile setters.....	67	507	12		1	11	23.7		2.0	21.7	52	11	1.2
Truck drivers.....	166	2,725	44		4	40	16.1		1.5	14.6	57	18	.9
Well-drill operators.....	534	3,764	107	3	3	101	28.4	.8	.8	26.8	262	15	7.4
Well-drill operators.....	21	426	8	1	2	5	18.8	2.3	4.7	11.8	1,021	14	19.2

¹ Figures in parentheses indicate the number of cases of permanent-total disability included.

² The frequency rate is the average number of disabling work injuries for each million employee-hours worked. A disabling work injury is one which results in (a) death, or (b) any degree of permanent physical impairment, or (c) renders the injured person

unable to work at any regularly established job, which is open and available to him, throughout the hours corresponding to his regular shift on any day after the day of injury.

³ The severity rate is the average number of days lost per thousand hours worked.

⁴ Totals include figures not shown separately because of insufficient data.

⁵ Less than 0.05.

TABLE 8.—Work injury rates for 16,321 construction companies classified by type of operation, kind of construction, and by occupation, 1948

Type of operation, kind of construction, and occupation	Number of contractors	Em- ployee- hours worked (thou- sands)	Number of disabling injuries			Frequency rates of— ²				Severity			
			Total	Resulting in—			All dis- abling injuries	Death and perma- nent- total disa- bility	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility	Average number of days lost per—		Sever- ity rate ³
				Death or perma- nent- total disa- bility ¹	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility					Dis- abling injury	Tempo- rary- total disa- bility	
New construction ⁴	6,489	431,002	16,990	(25) 190	610	16,190	39.4	0.4	1.4	37.6	124	13	4.9
Residential building ⁴	2,305	61,750	2,247	(2) 11	67	2,169	36.4	.2	1.1	35.1	79	12	2.9
Bricklayers.....	295	3,667	127	1	.....	126	34.6	.3	.....	34.3	59	11	2.0
Carpenters.....	817	16,088	589	(2) 4	28	557	36.6	.2	1.7	34.7	98	13	3.6
Cement finishers.....	300	1,486	32	1	1	30	21.5	.7	.7	20.1	326	14	7.0
Electricians.....	253	3,123	96	1	2	93	30.7	.3	.6	29.8	154	8	4.7
Ironworkers ⁴	41	900	45	.....	.....	45	50.0	.....	.....	50.0	9	9	.4
Ornamental.....	15	491	27	.....	.....	27	55.0	.....	.....	55.0	10	10	.6
Laborers, general.....	721	10,673	424	.....	7	417	39.7	.....	.7	39.0	27	11	1.1
Lathers.....	87	1,255	82	.....	.....	82	65.3	.....	.....	65.3	12	12	.8
Painters.....	230	3,312	37	.....	1	36	11.2	.....	.3	10.9	32	19	.4
Plasterers.....	215	4,476	279	1	6	272	62.3	.2	1.3	60.8	71	11	4.4
Plumbers.....	240	4,601	161	.....	7	154	35.0	.....	1.5	33.5	46	9	1.6
Power-equipment operators.....	229	947	46	.....	4	42	48.6	.....	4.2	44.4	69	27	3.4
Roofers ⁴	74	715	33	.....	1	32	46.2	.....	1.4	44.8	18	9	.8
Composition.....	56	509	18	.....	1	17	35.4	.....	2.0	33.4	27	11	.9
Sheet-metal workers.....	108	1,887	63	.....	1	62	33.4	.....	.5	32.9	73	9	2.4
Steam fitters.....	42	516	21	.....	1	20	40.7	.....	1.9	38.8	36	8	1.5
Tile setters.....	154	3,088	55	2	3	50	17.8	.6	1.0	16.2	410	11	7.3
Truck drivers.....	306	1,385	36	.....	.....	36	26.0	.....	.....	26.0	13	13	.3
Both residential and nonresidential building ⁴	548	23,222	877	(1) 9	26	842	37.8	.4	1.1	36.3	114	13	4.3
Bricklayers.....	93	1,380	34	.....	1	33	24.6	.....	.7	23.9	62	10	1.5
Carpenters.....	146	4,491	174	(1) 2	8	164	38.7	.4	1.8	36.5	125	15	4.9
Cement finishers.....	79	518	12	.....	1	11	23.2	.....	1.9	21.3	53	12	1.2
Electricians.....	120	3,065	81	1	2	78	26.4	.3	.7	25.4	151	19	4.0
Laborers, general.....	174	4,323	181	4	4	173	41.9	.9	.9	40.1	187	17	7.8
Lathers.....	24	455	34	2	1	31	74.7	4.4	2.2	68.1	378	12	28.3
Painters.....	47	805	30	.....	.....	30	37.3	.....	.....	37.3	8	8	.3
Plasterers.....	45	1,173	45	.....	2	43	38.4	.....	1.7	36.7	32	9	1.2
Plumbers.....	46	1,370	58	.....	.....	58	42.3	.....	.....	42.3	8	8	.3
Sheet-metal workers.....	32	1,218	70	.....	1	69	57.5	.....	.8	56.7	43	9	2.5
Steam fitters.....	21	499	14	.....	.....	14	28.0	.....	.....	28.0	9	9	.2
Tile setters.....	32	1,137	20	.....	1	19	17.6	.....	.9	16.7	161	12	2.8
Truck drivers.....	101	534	11	.....	.....	11	20.6	.....	.....	20.6	8	8	.2
Nonresidential building ⁴	2,029	162,848	6,356	(8) 69	226	6,061	39.0	.4	1.4	37.2	123	13	4.8
Asbestos workers.....	43	2,770	87	.....	1	86	31.4	.4	.....	31.0	81	13	2.6
Boilermakers.....	12	592	17	.....	.....	17	28.7	.....	.....	28.7	29	29	.8
Bricklayers.....	504	9,865	299	.....	15	280	30.3	.4	1.5	28.4	159	14	4.8
Carpenters.....	836	33,188	1,249	(1) 12	50	1,187	37.6	.4	1.5	35.7	106	13	4.0
Cement finishers.....	483	3,121	86	.....	4	82	27.6	.....	1.3	26.3	50	11	1.4
Electricians.....	346	15,581	314	1	16	297	20.2	.1	1.0	19.1	108	16	2.2
Foremen and superintendents.....	49	517	6	.....	1	4	11.6	1.9	1.9	7.8	1,402	3	16.3
Glaziers.....	75	1,738	67	.....	1	66	38.6	.....	.6	38.0	17	13	.6
Ironworkers ⁴	383	12,511	855	(1) 10	58	787	68.3	.8	4.6	62.9	190	16	13.0
Ornamental.....	60	1,539	73	.....	8	65	47.4	.....	5.2	42.2	122	14	5.8
Structural.....	316	10,695	768	(1) 10	49	709	71.8	.9	4.6	66.3	199	16	14.3
Laborers, general.....	888	38,901	1,728	(4) 19	40	1,669	44.4	.5	1.0	42.9	110	12	4.9
Lathers.....	97	1,320	37	(1) 1	1	35	28.0	.8	.8	26.4	219	9	6.1
Mosaic and terrazzo workers.....	38	1,030	32	.....	2	30	31.1	1.9	.....	29.2	384	10	11.9
Painters.....	148	4,089	101	.....	3	98	24.7	.7	.....	24.0	194	16	4.8
Pipe fitters.....	11	1,147	46	.....	1	44	40.1	.9	.9	38.3	184	15	7.4
Plasterers.....	143	3,015	87	.....	2	85	28.9	.....	.7	28.2	36	12	1.0
Plumbers.....	157	5,174	181	.....	2	174	35.0	.4	1.0	33.6	96	12	3.4
Power-equipment operators.....	285	1,260	45	.....	1	39	35.7	.8	4.0	30.9	355	10	12.7
Roofers ⁴	86	1,532	73	.....	3	70	47.6	2.0	.....	45.6	261	15	12.4
Composition.....	66	1,284	56	.....	3	53	43.6	2.3	.....	41.3	334	13	14.6
Sheet-metal workers.....	143	5,362	178	.....	2	175	33.2	.2	.4	32.6	77	8	2.6
Steam fitters.....	137	4,839	177	.....	9	168	36.6	.....	1.9	34.7	78	12	2.9
Stonemasons.....	61	700	16	.....	3	13	22.8	.....	4.3	18.5	195	17	4.5
Tile setters.....	40	768	17	.....	1	16	22.1	.....	1.3	20.8	113	7	2.5
Truck drivers.....	512	2,630	87	.....	3	84	33.1	.....	1.1	32.0	54	18	1.8
Highway and street ⁴	668	57,856	2,710	(2) 33	72	2,605	46.8	.6	1.2	45.0	114	12	5.3
Carpenters.....	216	2,436	132	.....	1	5	54.2	.4	2.1	51.7	107	10	5.8
Cement finishers.....	228	1,387	50	.....	.....	50	36.8	.....	.....	36.8	10	10	.4
Foremen and superintendents.....	90	1,113	31	.....	3	28	27.9	.....	2.7	25.2	64	28	1.8
Laborers, general.....	538	26,449	1,398	(1) 9	28	1,361	52.9	.3	1.1	51.5	69	11	3.6
Maintenance men, general.....	77	755	67	.....	1	64	88.7	1.3	2.6	84.8	117	10	10.4
Power-equipment operators ⁴	914	11,052	380	.....	9	355	34.4	.8	1.4	32.2	201	12	6.9
Blade grader operators.....	110	520	12	.....	1	10	23.1	1.9	1.9	19.3	840	8	19.4
Bulldozer operators.....	78	530	11	.....	.....	11	20.8	.....	.....	20.8	15	15	.3
Power shovel operators.....	119	631	23	.....	.....	23	36.4	.....	.....	36.4	18	18	.7
Tractor operators.....	96	1,418	47	.....	1	45	33.1	.7	.7	31.7	146	8	4.8
Truck drivers.....	480	7,895	252	.....	5	242	31.9	.6	.6	30.7	138	12	4.4
Heavy engineering and marine ⁴	568	110,290	4,318	(10) 55	196	4,067	39.2	.5	1.8	36.9	145	16	5.7
Bridges, substructures.....	12	1,208	103	.....	1	2	85.2	.8	1.7	82.7	77	11	6.6
Bridges, superstructure ⁴	13	2,501	192	(1) 3	8	181	76.8	1.2	3.2	72.4	134	9	10.3
Ironworkers, structural.....	9	1,954	159	(1) 3	6	150	81.4	1.5	3.1	76.8	154	9	12.5

See footnotes at end of table.

TABLE 8.—Work injury rates for 16,321 construction companies classified by type of operation, kind of construction, and by occupation, 1948 — Continued

Type of operation, kind of construction, and occupation	Number of contractors	Em- ployee- hours worked (thous- ands)	Number of disabling injuries				Frequency rates of— ²				Severity		
			Total	Resulting in—			All dis- abling injuries	Death and perma- nent- total disa- bility	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility	Average number of days lost per—		Sever- ity rate ³
				Death or perma- nent- total disa- bility ¹	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility					Dis- abling injury	Tempo- rary- total disa- bility	
New construction—Continued													
Heavy engineering and marine—Continued													
Dams ⁴	26	8,286	262	5	8	249	31.6	0.6	1.0	30.0	172	20	5.4
Carpenters.....	12	2,072	52	3	2	47	25.1	1.4	1.0	22.7	395	33	9.9
Laborers, general.....	17	1,841	40			40	21.7			21.7	15	15	.3
Maintenance men, general.....	11	484	16			16	33.1			33.1	8	8	.3
Power-equipment operators.....	26	1,235	46		1	45	37.2		.8	36.4	39	13	1.5
Truck drivers.....	13	836	36	2	1	33	43.1	2.4	1.2	39.5	445	31	19.2
Dredging ⁴	10	2,329	78	1	2	75	33.5	.4	.9	32.2	102	15	3.4
Power-equipment operators ⁴	7	1,021	34	1		33	33.3	1.0		32.3	183	7	6.1
Dredge operators.....	5	919	27			26	29.4	1.1		28.3	229	7	6.7
Pipe lines ⁴	51	14,169	648	(1) 8	19	621	45.7	.6	1.3	43.8	1,131	14	5.4
Carpenters.....	17	616	11	2	1	8	17.8	3.2	1.6	13.0	1	17	20.2
Foremen and superintendents.....	8	444	1			1	2.3			2.3	21	21	(⁵)
Ironworkers, structural.....	9	455	10	1	1	8	22.0	2.2	2.2	17.6	670	13	14.7
Laborers, general.....	38	4,277	306		5	301	71.6		1.2	70.4	27	14	2.0
Power-equipment operators.....	51	1,076	44	1	4	39	40.9	.9	3.7	36.3	273	17	11.2
Steam fitters.....	9	1,526	26	1	1	24	17.0	.7	.7	15.6	400	17	6.8
Truck drivers.....	30	681	29		1	28	42.6		1.5	41.1	21	12	.9
Power lines ⁴	45	5,763	222	7	7	208	38.5	1.2	1.2	36.1	228	16	8.8
Electricians.....	32	2,559	103	6	2	95	40.3	2.3	.8	37.2	391	23	15.8
Laborers, general.....	14	1,488	53	1	1	51	35.6	.7	.7	34.2	158	8	5.6
Sewers and water mains ⁴	121	8,460	369	2	26	341	43.6	.2	3.1	40.3	125	14	5.5
Laborers, general.....	100	5,557	256	2	15	239	46.1	.4	2.7	43.0	131	15	6.0
Power-equipment operators.....	121	667	17		1	16	25.5		1.5	24.0	38	10	1.0
Levees, seawalls, etc. ⁴	20	1,836	99	(2) 3		96	53.9	1.6		52.3	198	17	10.7
Laborers, general.....	19	633	54			54	85.3			85.3	11	11	.9
Power-equipment operators.....	20	468	16			16	34.2			34.2	18	18	.6
Repair work⁴.....	2,739	45,348	1,559	(1) 19	94	1,446	34.4	.4	2.1	31.9	186	16	6.4
Residential ⁴	1,337	15,132	457	4	31	422	30.2	.3	2.0	27.9	202	16	6.1
Carpenters.....	305	2,551	107	1	5	101	41.9	.4	2.0	39.5	147	15	6.2
Electricians.....	65	415	7	1	1	5	16.9	2.4	2.4	12.1	905	7	15.3
Insulation men, not elsewhere classified.....	24	404	6			6	14.8			14.8	7	7	.1
Laborers, general.....	190	1,066	29			29	27.2			27.2	21	21	.6
Painters.....	361	3,431	67	1	8	58	19.5	.3	2.3	16.9	317	18	6.2
Plumbers.....	245	2,142	68		8	60	31.7		3.7	28.0	285	18	9.0
Roofers ⁴	199	1,664	88		4	84	52.9		2.4	50.5	119	14	6.3
Composition.....	155	1,325	77		4	73	58.1		3.0	55.1	134	14	7.8
Sheet-metal workers.....	103	928	18	1	1	16	19.4	1.1	1.1	17.2	387	14	7.5
Nonresidential building ⁴	611	14,605	519	(1) 8	28	483	35.5	.5	1.9	33.1	181	15	6.4
Bricklayers.....	87	726	15	1		14	20.7	1.4		19.3	411	12	8.5
Carpenters.....	142	1,706	42		2	40	24.6	1.2		23.4	63	13	1.5
Electricians.....	121	1,928	59	(1) 2	4	53	30.6	1.0	2.1	27.5	321	20	9.8
Laborers, general.....	147	1,827	88		3	85	48.2		1.6	46.6	78	9	3.8
Lathers.....	13	460	5			5	10.9			10.9	3	3	(⁵)
Painters.....	123	2,769	84	4	9	71	30.3	1.4	3.2	25.7	455	18	13.8
Plumbers.....	36	488	11		1	10	22.6		2.1	20.5	117	9	2.6
Roofers.....	34	589	35		2	33	59.4		3.4	56.0	53	23	3.1
Sheet-metal workers.....	38	893	35	1	3	31	39.2	1.1	3.4	34.7	266	15	10.4
Both residential and nonresidential building ⁴	332	4,950	159	4	15	140	32.1	.8	3.0	28.3	352	15	11.3
Carpenters.....	70	605	18		3	15	29.8		5.0	24.8	210	12	6.3
Electricians.....	35	408	15		2	13	36.8		4.9	31.9	146	7	5.4
Painters.....	83	1,424	20	2	1	17	14.0	1.4	.7	11.9	735	17	10.3
Plumbers.....	55	557	16	1	2	13	28.7	1.8	3.6	23.3	750	15	21.5
Roofers ⁴	54	517	30			30	58.0			58.0	19	19	1.1
Composition.....	38	406	20			20	49.2			49.2	15	15	.7
Highway and street ⁴	68	3,718	160			160	43.0			43.0	16	16	.7
Laborers, general.....	50	1,828	84			84	45.9			45.9	12	12	.5
Power-equipment operators.....	57	555	31			31	55.9			55.9	27	27	1.5
Truck drivers.....	44	652	15			15	23.0			23.0	23	23	.5
New construction and repair work⁴.....	4,101	154,736	5,033	(12) 80	286	4,667	32.5	.5	1.8	30.2	169	14	5.5
Residential ⁴	1,219	18,167	405	4	20	381	22.3	.2	1.1	21.0	127	16	2.8
Asbestos workers.....	8	422	7			7	16.6			16.6	6	6	.1
Carpenters.....	311	3,204	72		9	63	22.5		2.8	19.7	182	17	4.1
Electricians.....	152	1,819	58	1	5	62	31.9	.5	2.7	28.7	194	6	6.2
Laborers, general.....	254	1,805	42			42	23.3			23.3	15	15	.4
Painters.....	160	1,726	31	1	1	29	18.0	.6	.6	16.8	236	24	4.2
Plasterers.....	85	637	6			6	9.4			9.4	5	5	(⁵)
Plumbers.....	270	3,028	52	2	1	49	17.2	.7	.3	16.2	276	12	4.7
Roofers ⁴	82	671	26			26	38.7			38.7	28	28	1.1
Composition.....	56	475	21			21	44.2			44.2	26	26	1.1
Sheet-metal workers.....	95	1,041	51		3	48	49.0		2.9	46.1	48	9	2.3
Tile setters.....	79	910	17		1	16	18.7		1.1	17.6	23	6	.4

See footnotes at end of table.

TABLE 8.—Work injury rates for 16,321 construction companies classified by type of operation, kind of construction, and by occupation, 1948 — Continued

Type of operation, kind of construction, and occupation	Number of contractors	Em- ployee- hours worked (thou- sands)	Number of disabling injuries				Frequency rates of— ²				Severity			
			Total	Resulting in—			All dis- abling injuries	Death and perma- nent- total disa- bility	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility	Average number of days lost per—		Sever- ity rate ³	
				Death or perma- nent- total disa- bility ¹	Perma- nent- partial disa- bility	Tempo- rary- total disa- bility					Dis- abling injury	Tempo- rary- total disa- bility		
New construction and repair work—Continued														
Both residential and nonresidential building⁴	1,554	39,554	973	(3) 9	41	923	24.6	0.2	1.0	23.4	118	14	2.9	
Bricklayers.....	150	1,061	16		1	15	15.1		.9	14.2	63	17	.9	
Carpenters.....	292	5,029	137	(1) 2	7	128	27.2	.4	1.4	25.4	151	16	4.1	
Cement finishers.....	116	460	15	(1) 1	2	12	32.6	2.2	4.3	26.1	526	33	17.2	
Electricians.....	411	7,266	127	4	4	119	17.5	.6	.6	16.3	217	15	3.8	
Glaziers.....	89	1,486	54		2	52	36.3		1.3	35.0	90	7	3.3	
Ironworkers.....	27	424	24		6	18	56.6		14.1	42.5	568	13	32.1	
Laborers, general.....	319	4,423	136		1	135	30.7		.2	30.5	14	12	.4	
Lathers.....	36	419	5			5	11.9			11.9	5	5	.1	
Mosaic and terrazzo workers.....	25	442	8			8	18.1			18.1	7	7	.1	
Painters.....	192	4,481	71	1	1	69	15.8	.2	.2	15.4	116	21	1.8	
Plasterers.....	93	1,417	18		1	17	12.7		.7	12.0	35	7	.4	
Plumbers.....	203	3,342	85		3	82	25.4		.9	24.5	41	10	1.0	
Roofers ⁴	130	1,915	102		3	100	53.8		1.6	52.2	61	13	3.3	
Composition.....	83	1,279	73		2	71	57.1		1.6	55.5	75	14	4.3	
Sheet-metal workers.....	109	2,071	72			72	34.8			34.8	6	6	.2	
Steam fitters.....	64	640	13			13	20.3			20.3	15	15	.3	
Tile setters.....	69	1,527	26		3	23	17.0		2.0	15.0	82	27	1.4	
Truck drivers.....	159	691	15			15	23.8			23.8	29	29	.7	
Nonresidential building⁴	743	51,656	2,136	(3) 22	148	1,966	41.4	.4	2.9	38.1	127	12	5.3	
Asbestos workers.....	20	718	34		1	33	47.4		1.4	46.0	26	12	1.2	
Boilermakers.....	11	757	7			7	9.2			9.2	7	7	.1	
Bricklayers.....	138	2,215	55			55	24.8			24.8	16	16	.4	
Carpenters.....	232	8,023	365	(1) 3	7	355	45.5	.4	.9	44.2	85	10	3.9	
Cement finishers.....	114	672	17			17	25.3			25.3	21	21	.5	
Electricians.....	183	5,795	111	4	2	105	19.2	.7	.3	18.2	279	15	5.4	
Glaziers.....	45	1,032	29			29	28.1			28.1	11	11	.3	
Ironworkers ⁴	67	1,999	103	2	6	95	51.5	1.0	3.0	47.5	262	14	13.5	
Structural.....	59	1,878	90		2	82	47.9	1.1	3.2	43.6	300	15	14.4	
Laborers, general.....	225	8,811	481	(1) 6	17	458	54.6	.7	1.9	52.0	119	11	6.5	
Painters.....	54	792	35			35	44.2			44.2	11	11	.5	
Pipefitters.....	4	1,292	57			57	45.2			45.2	9	9	.4	
Plasterers.....	37	751	14			14	18.6			18.6	25	25	.5	
Plumbers.....	41	1,074	35		1	34	32.6		.9	31.7	133	19	4.3	
Roofers ⁴	54	901	50			50	55.5			55.5	18	18	.1	
Composition.....	43	813	44			44	54.1			54.1	15	15	.8	
Sheet-metal workers.....	61	1,793	60	(1) 2		58	33.5	1.1		32.4	205	5	6.9	
Steam fitters.....	47	1,432	46			46	31.0			31.0	12	12	.4	
Truck drivers.....	128	641	25			25	39.0			39.0	12	12	.5	
Highway and street⁴	129	14,004	395	(2) 11	21	363	28.2	.8	1.5	25.9	263	13	7.4	
Laborers, general.....	98	8,683	207		4	202	23.8		.5	23.2	69	12	1.7	
Power-equipment operators.....	170	1,462	58	2	4	52	39.7	1.4	2.7	35.6	246	9	9.7	
Truck drivers.....	95	1,633	39	3	3	33	23.9	1.8	1.8	20.3	692	15	16.5	
Heavy engineering and marine⁴	134	18,495	808	(4) 22	13	773	43.7	1.2	.7	41.8	201	14	8.8	
Pipe lines ⁴	8	1,574	92			92	58.4			58.4	12	12	.7	
Laborers, general.....	4	730	51			51	69.8			69.8	12	12	.8	
Power lines ⁴	20	9,113	313	(4) 19	2	292	34.3	2.1	.2	32.0	389	17	13.4	
Electricians.....	16	2,525	90	(2) 10	2	78	35.6	4.0	.8	30.8	709	15	25.3	
Railroads ⁴	15	1,130	121		1	120	107.1		.9	106.2	8	3	.9	
Laborers, general.....	10	941	112			112	119.0			119.0	3	3	.4	

¹ Figures in parentheses indicate the number of cases of permanent-total disability included.
² The frequency rate is the average number of disabling work injuries for each million employee-hours worked. A disabling work injury is one which results in (a) death, or (b) any degree of permanent physical impairment, or (c) renders the injured person

unable to work at any regularly established job, which is open and available to him, throughout the hours corresponding to his regular shift on any day after the day of injury.
³ The severity rate is the average number of days lost per thousand hours worked.
⁴ Totals include figures not shown separately because of insufficient data.
⁵ Less than 0.05.

RECENT BUREAU OF LABOR STATISTICS REPORTS ON INDUSTRIAL HAZARDS AND WORKING CONDITIONS¹

Annual Reports on Work Injuries: A collection of basic industrial injury data for each year beginning with 1942, presenting national average injury-frequency and severity rates for each of the major industries in the United States. Individual establishments may evaluate their own injury records by comparison with these data.

<i>Bulletin No.</i>		<i>Price</i>
975	Work Injuries in the United States During 1948	15 cents
945	Work Injuries in the United States During 1947	15 cents
921	Work Injuries in the United States During 1946	10 cents
889	Work Injuries in the United States During 1945	10 cents
849	Work Injuries in the United States During 1944	10 cents
802	Work Injuries in the United States During 1943	10 cents
758	Work Injuries in the United States During 1942	10 cents

Injuries and Accident Causes: Intensive studies of the frequency and severity of work injuries, the kinds of injuries, types of accidents, and causes of accidents in selected major industries:

<i>Bulletin No.</i>		<i>Price</i>
962	Injuries and Accident Causes in Textile Dyeing and Finishing	45 cents
949	Injuries and Accident Causes in Fertilizer Manufacturing	20 cents
924	Injuries and Accident Causes in the Pulpwood-Logging Industry, 1943 and 1944	10 cents
884	Injuries and Accident Causes in the Brewing Industry, 1944	15 cents
855	Injuries and Accident Causes in the Slaughtering and Meat-Packing Industry, 1943	15 cents
839	Fatal Work Injuries in Shipyards, 1943 and 1944	10 cents
834	Shipyard Injuries, 1944	5 cents
805	Injuries and Accident Causes in the Foundry Industry, 1942	15 cents

Performance of Physically Impaired Workers in Manufacturing Industries. Bulletin No. 923. Price 55 cents.

This report compares the work performance of physically impaired persons and unimpaired workers on the same jobs in respect to absenteeism, work injuries, output, and stability on the job. Consideration is also given to placement practices and the jobs at which the impaired persons were employed. Separate chapters are devoted to the work performance records of persons having each of the 10 specific impairments included in the study.

Hours of Work and Output. Bulletin No. 917. Price 35 cents.

A study of production, efficiency, absenteeism, and accidents under different schedules of working hours. Findings are based upon 78 case studies which are described in detail.

Workmen's Compensation and Protection of Seamen. Bulletin No. 869. Price 20 cents.

A report on the financial protection afforded merchant seamen who are disabled because of injury or disease while in the service of their vessels. Presents the status of such seamen under both foreign and domestic legislation and examines the probable results of applying to seamen the recommendations of an interdepartmental committee for a workmen's compensation act, fitted to the existing rights of merchant seamen.

Quarterly and Monthly Reports on Work Injuries in Manufacturing:

Press releases presenting injury-frequency rates for selected manufacturing industries, by months and quarters. Issued quarterly. For free distribution upon request to the Bureau of Labor Statistics. Also appears in *Monthly Labor Review*.

¹ Unless otherwise designated, for sale by the Superintendent of Documents at prices indicated. *How to order publications:* Address your order to the Superintendent of Documents, Government Printing Office, Washington 25, D. C., with remittance in check or money order. Currency is sent at sender's risk. Postage stamps not acceptable.