ABSTRACT

ACCIDENT PREVENTION AND GOVERNMENTAL CONTROL IN THE CONSTRUCTION INDUSTRY IN MICHIGAN AND OHIO

by Paul E. Sands

Are injury rates in the construction industry lower in Ohio where there is safety legislation than in Michigan, and if so, why? This is a study that has taken place in two states that have been at opposite extremes regarding the amount of government involvement in accident prevention. Ohio has safety legislation, numerous regulations, and a separate code which applies specifically to the construction industry. The government has complete control of all workmen's compensation underwriting and allows no competition from private insurance firms in this area. On the other hand, Michigan has only recently enacted construction safety legislation. However, the law had not been passed when the data gathering phase of this research was in progress, and there are still no regulations in force up to the present time.

Forty-two of the fifty states have had laws in effect that deal with occupational accident prevention. In addition, the published injury rates in Ohio are among the lowest in the nation. A natural conclusion from facts of this type could easily be that Michigan also should have had a safety code for the construction industry. However, no

one has known for certain what the number of disabling injuries per million man-hours worked in Michigan actually has been. Therefore, this study has attempted to find the answers to the following questions:

1. What are the frequency rates of construction firms in Ohio and in Michigan?

2. What does workmen's compensation casualty insurance cost contractors in the two states?

3. How much assistance is being received by builders from the government and from other sources, and what is the amount of influence being exerted toward accident prevention?

4. How much interest in and understanding of safety is there by management in the two states? To what degree are accepted safety practices followed and hazardous conditions removed?

5. What are the feelings of the construction industry in Ohio toward safety legislation; have Ohio contractors felt harassed because of it; and have these regulations interfered with productive operations?

The study procedure began with the selection of a random sample of fifty contractors in Ohio and Michigan. In order to save on expenses and travel time, they were not chosen from throughout each state. Instead, five companies in each of the five largest cities of the two states were interviewed. These firms were picked from the lists of contractors in the various telephone books with the use of a

table of random numbers. The appropriate attitudes, opinions, and experiences were obtained, and injury and cost data was also collected from company records. In addition, permission was received, in the form of a signed statement, which enabled the investigator to gather statistics on these contractors from insurance companies, government agencies, trade organizations, actuaries, and other sources. The outline of the thesis follows the order of the previously posed questions with a chapter having been devoted to each one of the five points.

The major findings of the study include:

1. The validity of published injury rates that are determined with the aid of "voluntary" reports of the number of injuries and hours worked is highly doubtful.

2. Contrary to natural expectation, the workmen's compensation costs in Ohio are definitely higher than those in Michigan.

3. The total amount of positive influence and assistance being received from all sources is approximately the same in Ohio and in Michigan.

4. Michigan contractors have a greater interest in and understanding of safety, and they do more to prevent injuries.

5. Ohio respondents are overwhelmingly in favor of legislation, believe that it is effective, and have not experienced harassment or interference with output.

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My sincere appreciation goes to the members of my committee--Professor Rollin H. Simonds, chairman; Professor Claude McMillan; and Professor Gardiner M. Jones--for their guidance and assistance. I am especially indebted to Professor Simonds for instilling in me a keen awareness of the true worth of occupational accident prevention. He has not only shown that safety is "good business," as well as being humanitarian, but that this subject need not be approached merely from the standpoint of "slogans." It can and should be dealt with on the basis of scientific and systematic investigation.

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CHAPTER I

INTRODUCTION

This research project has been an attempt to compare the injury records of construction firms in two states that have differed widely in the amount of government involvement in safety activities. In addition, the factors influencing accident prevention performance in these companies have also been analyzed.

Questions and Hypotheses

The main question is: Are injury rates in the construction industry lower in Ohio where there is comprehensive safety legislation than in Michigan, and, if so, why? More specifically, the study endeavors to answer the following:

1. What are the frequency rates of construction firms in Ohio and in Michigan?

2. What does workmen's compensation casualty insurance cost contractors in the two states?

3. How much assistance in being received by builders from the government and from other sources, and what is the amount of influence being exerted toward accident prevention.

4. How much interest in and understanding of safety is there by management in the two states? To what degree are accepted safety practices followed and hazardous conditions removed?

5. What are the feelings of the construction industry in Ohio toward safety legislation; have Ohio contractors felt harassed because of it; and have these regulations interfered with productive operations?

In order to give some indication of what the writer believed to be most probably true when the investigation was begun, the previous questions are listed below in the form of hypotheses. Furthermore, the reasoning behind these views is also presented.

1. Injury rates are lower in Ohio than they are in Michigan.

2. The cost to contractors of workmen's compensation insurance per hundred dollars of payroll is much less in Ohio.

3. Ohio contractors are being helped and influenced in safety by the government to a greater extent than their counterparts are in Michigan from all sources combined.

4. There is greater interest in and understanding of safety in Ohio, and the firms there employ more and better safety practices and take greater precautions to remove or control hazardous conditions.

5. Contractors in Ohio do not feel strongly against

safety legislation. They have not been harassed to any significant extent because of it, and productive operations have not been interfered with.

Reasoning For Above Hypotheses

The primary reason for thinking that Ohio firms have fewer injuries and that they also do a great deal more in accident prevention is that the published injury rates for that state are very low. The statistics made public by the Ohio Division of Safety and Hygiene compare most favorably with the accident figures gathered by the National Safety Council and the Bureau of Labor Statistics.[1] Even though there are no statewide rates compiled for the whole construction industry in Michigan, the Ohio rates are as low or lower than any figures published by any group or organization in the country. In addition, the number of firms making up the size of the sample from which accident experience is obtained is very large in the Buckeye state as compared to other groups.[2] Therefore, since injuries can only be prevented by a conscious effort, it can be concluded that Ohio contractors must be lowering the amount of accidents by following certain generally accepted practices in safety.

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[1]Ohio, Industrial Commission, Division of Safety and Hygiene, Ohio Industrial Safety Record, No. 8 (Columbus, 1959), pp. 16-20.

[2]Ibid.

Fewer injuries and accident prevention are necessarily correlated. In Michigan not only are the statistics for determining frequency and severity incomplete, there is also no comprehensive information available on what contractors are doing to decrease the number of occupational disabilities.[1]

If there are fewer injuries per million man hours worked, then less expense should be incurred in Ohio for the settlement of claims. Firms would then be burdened with relatively smaller workmen's compensation premiums per hundred dollars of payroll. In addition, Ohio has an exclusive state fund for this type of coverage and private insurance companies are not allowed to compete in the area. The economies of scale in administration and the absence of profits, taxes, and selling expense results in only 5 per cent of income being retained for overhead costs.[2] On the other hand, the overhead for all of the private workmen's compensation underwriters in the country averaged 42.4 per cent in 1961 and 43.5 per cent in 1962.[3]

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[1]The frequency rate is the number of disabling injuries per million man-hours worked, and the severity rate is the number of days lost per million man-hours of exposure including charges for permanent disabilities and death.

[2]Interview with James L. Young, Administrator, Ohio Bureau of Workmen's Compensation, May 14, 1963.

[3]The Spectator - 1963 Casualty Insurance Index (Philadelphia: Chilton Company), p. 3.

Furthermore, it is logical to conclude that if Ohio contractors take greater precautions in accident prevention, then they have comparatively more interest in and understanding of safety. They have also probably been influenced and assisted to a greater extent than their counterparts in Michigan. If Ohio rates are actually lower, it can only be because relatively more is being done to promote safe work habits and to guard against hazardous conditions by all concerned. Finally, in order for a state safety program to be effective, the cooperation of management must be forthcoming. It is highly doubtful if this would occur in an atmosphere where harassment was prevalent and contractors had negative attitudes toward safety legislation and regulations. Therefore, the following chapters will each attempt to answer one of the queries previously posed in the order that they have been listed. Chapter II deals with injury rates; Chapter III, with costs; Chapter IV describes the assistance received and influence exerted; and Chapter V compares management's interest and safety activities in the two states. Finally, Chapter VI answers the questions concerning the feelings of contractors toward safety legislation, and possible harassment.

Purpose and Value of the Study

A research project attempting to find the answers to these questions should be of value for a number of reasons. The most important, as previously indicated, is to know whether or not there is a significant difference in the injury rates between these two states because Ohio and Michigan have been at opposite extremes insofar as the amount of government influence on and control of safety activities is concerned. To summarize the situation in Ohio: there is comprehensive safety legislation covering most of the phases of business activity, with a separate code for the construction industry.[1] These laws include provisions for enforcement along with a system of penalties. There are adequate personnel and funds to conduct the program, since a portion of the workmen's compensation premiums paid by the employer is automatically set aside for this purpose. Of considerable importance is the fact that these regulations can be revised at periodic intervals, which allows for flexibility under changing conditions and technology. Finally, Ohio has the exclusive state fund for workmen's compensation insurance. This means that the government has a monopoly as

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[1]Ohio, The Industrial Commission of Ohio and the Department of Industrial Relations, Specific Safety Requirements Relating to Building and Construction Work, Bulletin No. 202, January 2, 1953.

private insurance companies are not allowed to sell this type of policy. In addition to state officials being directly involved in selling premiums and managing the fund, they also gain an enormous amount of control by having the accident records of all of the companies in the state. Furthermore, all of the information and statistics that may possibly be required for various reports, charts, tables, and publications are available in one location. There are several other places that have exclusive insurance funds, but these states are relatively small in population and industry. Therefore, because of the combination of these factors, Ohio is in a class by itself and is the state where government control and influence in the general area of industrial injuries is most prevalent.

Since this study was begun, there has been a major change in Michigan. Construction safety legislation, which had been voted down by the legislature every year for the past eight years, was finally passed. This occurred only after all of the interviews in this project had been conducted and information gathered.[1] The balance of this chapter will examine the situation as it existed during the period of this study and any changes arising from the new safety legislation will be analyzed later in the report.

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[1]Michigan, Public Act No. 89 (1963).

As a matter of fact, up to this time there is still some doubt as to what pattern of implementation the law will take. No definite course of action has been decided upon, and no specific regulations have been put into effect.

In contrast to Ohio, Michigan's previous safety legislation was passed in 1909. Although there had been many minor revisions and additions, the law as a whole was somewhat obsolete.[1] It really applied to a different industrial age. The construction industry had no specialized safety code in force, and Michigan was the only large and important state where this situation existed. Forty-two of the fifty states had laws of this type. There were no really effective enforcement provisions and penalties to speak of in Michigan, as they were scattered throughout the act and were unclear. Employers had to allow government inspectors to enter their places of business, but accepting and acting upon their advice, directives, or recommendations was another matter altogether. One reason for this was the small amount of money that had been provided for enforcement and administration of the law. Not only had the funds that had been voted yearly by the legislature been relatively meager, they had also been uncertain and subject to change. The Workmen's Compensation Bureau had only a small percentage

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[1]Michigan, Public Act No. 285 (1909).

of the personnel that is to be found in this department in Ohio, and the Michigan Department of Labor was greatly understaffed for the supervisory work it was required to do. The law stipulated that the latter group be responsible for an annual inspection of all manufacturing establishments, factories, hotels, workshops, and stores, with the result that twenty-eight men had to inspect over 110,000 places of business each year.[1] Thus, it is obvious that because of confusing enforcement provisions and inadequate financial backing Michigan had a relatively weak law. The Department of Labor could do nothing about interpreting or changing these regulations in order to keep them up to date. Finally, the fact that approximately eighty private companies sell workmen's compensation insurance in Michigan means that many statistics of various kinds are not readily available, and there is much information which it would be extremely difficult or impossible to obtain.

Therefore, this study compares rates in firms from two important industrialized states located next to one another, which fall at either end of a scale insofar as government involvement in and control of occupational injuries has been concerned. Does this control influence the rate of injuries? Has Michigan been relatively handicapped because

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[1]Michigan, Department of Labor, Annual Report (1960), pp. 10-11.

of its lack of a construction safety code? This study will endeavor to answer questions of this nature, and will also attempt to determine what other factors play an important role in accident prevention.

Of course, it would be a relatively simple matter to compare these two states if the accident statistics were readily available. However, no one knows for certain what the frequency and severity rates in construction in Michigan are as this data is not collected or published. It is also doubtful if most of the individual construction companies know what their own rates are or even if they know how to determine them. Before any progress can take place, if it is needed, there must be a realization that a problem exists, and one of the prime prerequisites to improvement in safety is to know where one stands initially.

There are many indications that the number of injuries in construction are too high, but the over-all picture in Michigan is still somewhat cloudy. For example, in one of the latest publications of the Department of Labor, construction firms employed 4 per cent of the workers in the state, but had 19 per cent of the deaths that occurred on the job.[1] The number of compensable injuries is also out of proportion to the labor force employed in this industry. On the national scene, construction ranks close to the top in

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[1] Ibid., p. 17.

occupational injuries in the figures published by the United States Department of Labor and the National Safety Council.[1] However, what is more disturbing is the fact that these rates have been increasing recently, and instead of there being more research and statistics collected by these two organizations, there is less. The general lack of information is one reason why the construction industry is being investigated in this study. In addition, the nature of the industry is such that there are many factors mitigating against low injury rates. It seems to have everything against it! The five most influential conditions which contribute to a good or a poor safety record, in order of their importance, are as follows:[2]

1. A safety program
2. The amount of mechanization and automation
3. The size of the company
4. The ability to enforce and control operations
5. The amount of hazard involved.

In other words, a good safety program, a high degree of mechanization, a large company, the operations taking place under one roof, and the absence of serious hazards will

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[1] Accident Facts--1961 (Chicago: National Safety Council), pp. 26-27.

[2] From a lecture by Michigan State University Professor Rollin H. Simonds in Course G. B. 403: Safety Management (1956).

naturally result in low frequency and severity rates, and the opposite of these things leads to a high number of injuries. The difficulties of the construction industry become clearly apparent when the average firm is compared to one in another industry, which has exceedingly low rates. For example, AC Spark Plug, a division of General Motors located in Flint, has a frequency rate of less than one disabling injury per million man hours worked (on the average). This is primarily because it has a good safety program and a qualified safety director in charge of it. Many operations are done without manual labor and there is a continuing trend toward automation and greater amounts of capital, science, technology, and engineering. The size of the company is very large so that it can readily afford these things plus a great number of various types of staff specialists. The operations are in one place and do not change too often so that it is easy for line personnel to enforce safety and to control what is going on. Even though there may originally have been hazards, they have been guarded against in a number of ways so that any danger has been removed.

The average contractor has all of these things going against him. He is relatively too small to afford employing a safety specialist, and the president has to be well versed in a great number of skills. Even if he is interested in safety, there are a great many other problems clamoring for his attention. There is much manual handling of material

and hand labor, such as the hammering of nails, etc., which cannot be done by machinery, plus the fact that construction has progressed very slowly in technology and mechanization. What is perhaps the greatest problem is that hazards come and go as the job progresses and they cannot be permanently guarded against. The weather often confounds any precautions taken, and finally a firm may have jobs scattered all over a large area and this work continually changes, which makes it exceedingly difficult for management to be certain of and to control safety activities. Various studies have also shown that semiskilled and unskilled laborers have the highest number of injuries of all types of employees, and construction has many of these. They also seem to show a false sense of bravado in far too many cases, and there is a relatively high turnover in this category of personnel. The question too often becomes, "Why educate a man in safety at over $3.00 per hour when he will not be working for me much longer anyway?"

In a government publication that discusses why small firms have high accident rates, many reasons other than those already mentioned are given. They also apply to the construction industry.[1] The average contractor has only a

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[1]Bureau of Labor Standards, Safety Subjects, Bulletin No. 67 (Washington, D.C.: United States Department of Labor, revised 1956), p. 11.

relatively small number of employees; a company that maintains a work force of over 100 men full-time is one of the really large firms of this business. These "large" firms make up only a small percentage of contractors, but compared to other industries, 100 workers in a company is usually considered to be small in size. A brief summary of why rates are high for small firms follows. While some of these things have been mentioned in another context, they all are found to be problems for the large majority of contractors who fit into this category.

1. They cannot employ full-time safety personnel.
2. The small executive carries a complex load and has no technical staff.
3. He does not join safety organizations or attend safety conferences.
4. There is no detailed cost accounting, so the costs of accidents are not discovered.
5. As there are few employees, only a small number of injuries cause very high rates. These rates are not known or calculated; therefore, there are not enough injuries so that the problem can be clearly seen.
6. These companies cannot afford expenditures without immediate returns, so they tend to do less in preventing and guarding against hazards.

7. There are so many small businesses that it is hard to reach them all and to sell them the "gospel of safety."

It should be obvious that contractors can use all of the help that they can get in accident prevention. Even though a safety law has been passed in Michigan, there are bound to be controversies on how it should be administered and enforced. It is becoming increasingly important that there be greater understanding in this general area, and it would undoubtedly be worthwhile for all concerned to have some objective facts available. Everyone is agreed that accident rates should be reduced, but what is the best way to do this? Does there have to be strict government control; and all things considered, has Michigan pursued the wisest course in the past?

It should be valuable to check on and get some indication of the accuracy of Ohio's published injury rates. These figures are very low and compare favorably with those listed by the National Safety Council whose members comprise the most safety-conscious firms in the nation. In addition, they are much lower than the rates published by the Bureau of Labor Statistics; however, it seems that this government department questions their validity. At the present time, there are approximately ten states cooperating with the federal government in taking samples of injury frequency and

severity rates from various industries according to the American Standards Association Z16.1 method.[1] Ohio claims to use this standard, but there are arguments back and forth with the result that Ohio's statistics are not used by the United States Department of Labor. It is possible that there are honest differences or misunderstandings in the interpretations of the standard method of figuring rates, but this seems hardly likely. Some lost-time cases may not be included in Ohio's calculations. On the other hand, they might have been doing exceedingly well in their accident prevention program even though it is difficult for some people to believe. One interesting fact in this controversy is that the number of firms in the sample backing national figures for both the Bureau of Labor Statistics and the National Safety Council combined, is less than the number of participating companies in Ohio.[2] If rates were as low as is claimed in Ohio, and they were used by the Bureau of Labor Statistics in determining country-wide averages, it would tend to reduce this department's published figures. Therefore, it would seem that this bureau would be interested in using Ohio's statistics if they could. When questioned,

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[1] American Standard Method of Recording and Measuring Work Injury Experience, Z16.1-1954 (New York: American Standards Association).

[2] Ohio Industrial Safety Record, pp. 20-22.

Ohio officials give the impression that it is not that they cannot cooperate, but that they do not choose to do so. They imply that they are really doing an effective job and that they do not want to have their efforts diluted by getting involved with individuals who do not believe in the type of government controlled program that they are administering. One factor that probably contributes to the difficulty is that Ohio does not figure injury rates for individual firms. All of the hours worked and lost-time cases in an industry are lumped together into one formula. To complicate the problem even further, the Associated General Contractors of America receives voluntary injury reports from its members all over the country and figures the frequency and severity rates for these firms and also for the chapters of each state. This trade association claims that the rate for Michigan is lower than most states and much lower than in Ohio. It should be worthwhile to determine which claims seem to be valid and the reasons for these doubts and discrepancies.

A further analysis of the frequency and severity statistics from a sample of companies in Michigan and Ohio could possibly result in the answers to the following very interesting types of questions: What is the amount of variation in the injury rates among these firms? Is the dispersion much greater in one state than the other or do there seem to be two clusters at different levels depending upon

the presence or absence of safety legislation? The reason that these and related questions are important is because of the special nature of the construction industry. There are many contractors and companies employed on each job and they come and go at different times. If only one subcontractor were safety-minded he would be severely handicapped by working with other people who are not, and he would also be unable to remove all of the hazardous conditions that his employees would be exposed to with his own relatively limited resources. The American Standards Association, in the introduction to its Safety Code for Building Construction, states that it is difficult for a single contractor to do other than follow common practices in accident prevention.[1] They also mention the fact that other extremely hazardous industries have solved the problem of numerous injuries, while the construction industry has failed to do so. In the former case, an individual employer could act effectively by instituting a good safety program, but a single contractor is handicapped in this respect. Therefore, it would seem that the only solution is for concerted action on the part of everyone in the industry. Can this be done without the government taking an active part? Is it really much more difficult for a firm in one state to have a very low

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[1] American Standard Safety Code for Building Construction (New York: American Standards Association, 1944), p. 9.

frequency rate than it is in the other, or can a company which is determined to have very few injuries accomplish this endeavor on a practical and business-like basis regardless of its location?

Up to this point, the major emphasis has been placed on the desirability of knowing, defining, and comparing injury rates. However, if these percentages are lower in Ohio and the differences seem to be significant, then it is also important to investigate why this is so. Many people might quickly jump to the conclusion that this dissimilarity is due to the presence of safety legislation, and that the solution to Michigan's problem was found when the law was passed. Nevertheless, it should be kept in mind that it is not the regulations themselves that reduce the number of injuries, but the accident prevention activities of management. It is conceivable that safety legislation could actually increase the frequency and severity of disabilities if employers were to become antagonistic and not cooperate. The same type of thing was true with prohibition in the 1920's. Management could well follow the "letter" of the law when it is really the "spirit" and interest in accident prevention that is important and effective. In an industry like construction where specific hazardous conditions continually change, are extremely complex, and also vary insofar as responsibility for them is concerned, safety codes cannot possible cover all contingencies. A law is not something definite and

apart that can be separated from the particular environment that it has to work in. Thus, this whole area must be explored more deeply.

Even if a difference in rates between the two states is not found, it is still necessary to know and to understand the factors that influence management toward accident prevention practices. Certainly legislation could be one of these, but there may be additional ones as well, which may have a much greater influence. For example, a firm might be motivated because of special cost incentives and savings; management could receive extra services and assistance in doing the job; there may be more education and communications so that the resulting knowledge and understanding would lead to a greater interest in solving the problem. Why do these things vary in different situations? Are small companies being neglected in one state and not in the other? It is important to remember that conditions may be greatly improved by means other than the passage of a law, and this research will endeavor to discover what these things are and how well they seem to work.

Apart from any differences in safety practices caused by various types of governmental influence, the activities of state-wide trade associations, insurance companies, and unions could easily be decisive factors in bringing about a favorable climate for the prevention of injuries. In addition, it may not be the laws and the fear of penalties

as such which reduce frequency and severity rates, but rather the added communication that they engender. People are likely to talk about safety to a greater extent, and the discussion of restrictions or dissatisfactions, etc. may incidentally lead to increased information and greater awareness of what is involved in the necessity for safe operations. In this same vein, legislation might not hurt a contractor as much as it might help him in persuading employees to work safely because of the added prestige and government sanctions which back him up when he issues various safety directives.

Therefore, while the importance of knowing and understanding these influences is of value to persons connected with the administration of safety legislation, there is another area that cannot be neglected. This has to do with the attitudes, opinions, and feelings of the contractors themselves, and their reactions to inspections, enforcement, and penalties. Have they been unduly harassed? Have regulations interfered with production operations? Do any fears that they may have seem justified? Do there seem to be major differences in these attitudes on a statewide basis? It could easily be that the fear of the unknown is playing a major part and that Michigan employers, who have had relatively few or no restrictions, think that they would be more severely handicapped than Ohio managers actually are. On the other hand, the background and historical development

could easily be the significant factor, and what works in one place would not necessarily be effective in another. Knowing what these people think should be done, what they will go along with, and what they object to, will certainly give strong indications of just what can be successfully attempted, given the particular situation in this state.

The procedure of going directly to individual contractors in order to ask them what they want, could have surprising results. For example, the recent experience of the meat packing industry in Michigan comes to mind. Bills had been continuously brought before the legislature concerned with humane methods of slaughtering livestock. However, it was believed that these proposals would be unduly harassing to the companies involved. When a check was made of the actual practices in effect, it was found that in the overwhelming majority of cases these methods were already being employed and that management had no objection to them. Needless to say, the law was then passed.[1]

In order to understand and to evaluate properly the responses given by the interviewees, it is advisable to know what they are actually doing insofar as accident prevention practices and procedures are concerned. Are they following the existing legal provisions (especially in Ohio)? Are those who are doing least to limit the number of injuries

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[1]Michigan, Public Act No. 163 (1962).

the ones with the most negative attitudes? Does legislation seem to make a difference in the actual practices that companies employ to remove hazards?

A further benefit in the study of these activities would come from an analysis of the differences in practices between individual firms and between the firms in each state and their correlation with frequency and severity rates. Which procedures are the most important and effective in reducing injuries? Do low rates depend upon luck or rather the understanding, interest, and knowledge of certain employers? The answers to these questions are pretty well known, but not by a great number of contractors--at least these people do not seem to be convinced. Too often, they hear the voice of some "authority" on the subject saying what should or should not be done, or there may be a glowing report of the results of a safety program in one company, which does not necessarily prove anything and might conceivably be interpreted as so much propaganda. However, the same results coming from the research on a large number of firms should carry that much more weight, and so help to educate and to motivate construction management towards safety.

In conclusion, it may be stated that a study of this type should be beneficial on three levels: national, state, and local. At the national level the Bureau of Labor Statistics would have a check on the accuracy and reliability of Ohio's published injury rates; they would then know whether

or not these statistics could properly be used in estimating nation-wide averages. Furthermore, the federal government should have a better understanding of the effectiveness of certain measures and systems for the prevention of injuries, and also learn of the variation in safety procedures and activities on an individual firm and a state-wide basis. There would likewise be additional information at hand on the accident experience of firms in an important industry, for construction injury rates are no longer being collected and published by the Bureau of Labor Statistics. These figures would also indicate how the average concern is performing, because they would not be distorted by voluntary returns that are predominantly from the largest and most safety-conscious companies, which is the case under the present method of gathering disabling injury statistics. In this research project, businesses that do not belong to the National Safety Council and that do not have safety programs, will have their proportionate chance of being represented in the sample. Therefore, the average construction firm's accident rates should be considerably higher and look much more serious than most people believe them to be, and this may hopefully result in more action being taken to solve the problem. Certainly everyone appreciates the fact that the large and progressive firms are doing a fine job. Their experience is not typical, however, nor the reason for the present concern over the relatively large number of accidents and the

agitation for government regulation.

The states should more clearly understand the part that can best be played by them, and also recognize the things that they can effectively do to prevent injuries with a minimum of confusion and complaint. Thus, officials may be able to answer the question of whether or not state governments should be concerned with actively entering into the area of safety and accident prevention and to what extent. Should various services and types of assistance be provided, or legislation passed--what kind--how strictly enforced--and how administered so as to get them accepted by management and labor?

On the local level, individual firms would have additional information on the specific things that they can do to lower frequency and severity rates. It is to be hoped that increased incentive will ensue as they come to realize and appreciate the extent of the problem that they have in this area. There should also be indications of what the future is likely to bring, for if Michigan contractors do not want severe restrictions, they had better do something about reversing the present trend of rising disabilities. At the very least, an objective study of this type should help to dispel some of the existing confusion and indicate where bias and partiality exist.

Method of Study

The study procedure began with the selection of a random sample of fifty contractors in Ohio and Michigan. In order to save on expenses and travel time, they were not chosen from throughout each state. Instead, five companies in each of the five largest cities of the two states were interviewed. These firms were picked from the lists of contractors in the various telephone books with the use of a table of random numbers. One of the very difficult problems here was the determination of just who or what falls under the classification of contractor. Perhaps for this reason, there are no complete published lists of them available. For example, a carpenter who has his son working for him would be called a contractor if he was self-employed and took on small residential jobs. In addition, there are all types of relatively minor categories such as acoustical, garbage removal, ventilating, air conditioning, porch enclosure contractors, etc., to name a few. In fact, it is not unheard of for there to be as many as forty-four different subcontractors on a single, large, commercial or industrial project. Therefore, a number of conditions had to apply for those who were to be selected. Only industrial and commercial contractors in building construction that employed an average of at least twenty men were included in the study. At one point it was planned to interview some of the important types of subcontractors, but as the sample size was to

be so small, it was felt that this practice would dilute and confuse the results. For that reason only general contractors were chosen. In addition, the line was drawn at approximately twenty employees because firms that are much smaller than this tend not to have adequate office facilities and clerical help, with the result that records are not complete or very well kept.

The interview method of gathering information was used instead of a mailed questionnaire. This necessitated the relatively small size of the sample, and was done because of the difficulties with injury statistics. Most contractors are not too familiar with frequency and severity rates so that these figures could not have been gathered in any other way than by going directly to the company and looking at the various records, accident reports, etc. There was some doubt at the beginning of the research as to just what figures and information would be available in the two different states, and what difficulties would be encountered. Some of the plans had to be altered as the project progressed; however, they pertained only to the gathering of injury statistics and will be explained fully in the next chapter. The contractors themselves were very gracious and cooperative and seemed to be interested in the study.

Not only did interviews facilitate the gathering of injury statistics, they also helped to insure returns from a more representative sample of employers. Contractors who

are not particularly safety-minded, would probably not answer a mailed questionnaire in the proportion that they exist in the industry. It is only human for someone who is doing poorly in any particular area not to advertise the fact and to be generally uninterested in the subject. This seems to be a major drawback in the present method of gathering rates, as all returns are of a voluntary nature and tend to make state-wide frequency and severity statistics look much better than they actually are. If it is true that the firms with the poorest accident experience do not keep the proper records and do not know their injury rates, then they cannot voluntarily supply this information on their own.

The interview itself was a highly structured one, and every contractor was asked the same things. The only exceptions to this were on a state-wide basis, as the presence or absence of safety legislation necessitated a slightly different form to some of the questions on the attitudes and practices of these firms. However, any observations or additional remarks that were made were also recorded, and the respondent was allowed to air his views at length. There are seven major sections to the interview schedule and a copy begins on the next page. The first section, or cover, contains all of the identifying information and also has a code number which is used for tabulating purposes. The firms were promised that the names of the companies would not be mentioned in the report and so they are not.

CODE NUMBER_____

INTERVIEW SCHEDULE

I. **IDENTIFYING INFORMATION:**

Name of Company _____

Address _____

City & State _____

Telephone number _____

Name of interviewee _____

His title _____

Type of contractor _____

Type of work done _____

Office facilities _____

Average no. employees _____

Special characteristics _____

_____

Desires a copy of abstract Yes _____ No _____

Degree of cooperation _____

Date _____

NO._____

II. SAFETY PRACTICES:

1. What do you do in the way of safety?

	Yes	No	Comments
a.) safety program	___	___	_____
b.) safety organization	___	___	_____
c.) written safety policies	___	___	_____
d.) safety rules	___	___	_____
e.) enforcement	___	___	_____
f.) safety training	___	___	_____
g.) safety meetings	___	___	_____
h.) safety inspections	___	___	_____
i.) medical provisions	___	___	_____
j.) bulletin boards	___	___	_____
k.) other	___	___	_____

2. Have your safety practices and activities changed in the last several years? Yes___ No___ Why? _____

3. External participation and activities:

	Yes	No	How Much?
a.) national safety council	___	___	_____
b.) safety conf. & meetings	___	___	_____
c.) training programs	___	___	_____
d.) unions	___	___	_____
e.) other contractors	___	___	_____
f.) government	___	___	_____
g.) insurance company	___	___	_____
h.) trade associations	___	___	A.G.C. _____ other _____
i.) other (safety org's)	___	___	_____

No. _____

III. OUTSIDE INFLUENCES:

4. Have you ever been really and effectively helped in safety? Yes___ No___

a.) From whom did you receive this help? _____

5. Other assistance:	Yes	No	How?
a.) contractors	___	___	_____
b.) unions	___	___	_____
c.) trade associations	___	___	_____
d.) insurance company	___	___	_____
e.) government	___	___	_____
f.) A.G.C.	___	___	Other _____
g.) insurance co.	___	___	_____
h.) actuary	___	___	Feel you need? _____
i.) safety organizations	___	___	_____

6. How much cost motivation have you received? _____

From whom? _____

7. Other kinds of motivation, i.e. extent of communication? _____

How much do you hear about safety? _____

8. HAVE YOU EVER ASKED FOR ASSISTANCE IN SAFETY? Yes ___ No ___ _____

From whom? _____ How? _____

9. Do you ever give safety instructions to sub-contractors? Yes___ No___

Do they comply?_____ Any problems here? _____

How strictly do you enforce safety? _____

Is the average sub-contractor safety conscious? _____

10. How often do you see an inspector? _____

Identify _____

Comments _____

No. _____

IV. HAZARDOUS CONDITIONS:

12. WHEN YOU ARE CONSTRUCTING TEMPORARY FACILITIES SUCH AS SCAFFOLDS, WALKWAYS, EXCAVATIONS, ETC., DO YOU FOLLOW ANY TYPE OF SPECIFICATIONS ON HOW THEY ARE TO BE BUILT IN SO FAR AS SIZE, STRENGTH, AND TYPE OF MATERIALS ARE CONCERNED? Yes___ No___ State take lead? _____

13. Are you familiar with any construction safety standards? Yes___ No___ Ever refer to them on the job? Yes___ No___ _____

14. What do you do in the way of removing and guarding against hazardous conditions? _____

15. Are all of your employees required to wear hard hats when needed on the job? Yes___ No___ Extent of enforcement? _____

16. Are there guard rails and toe boards around all hazardous openings and scaffolds on your jobs? Yes___ No___ _____

17. Do all of your excavations have adequate bracings? Yes___ No___ _____

_____

18. Do your workers ever ride on hoists and other like equipment on the job? Yes___ No___ Extent of enforcement? _____

19. Do all of your ladders have rubber shoes, spikes, or spurs on the bottom of them? Yes ___ No ___ Tied down? _____

20. Are there guards on all of your power saws and other like pieces of mechanical equipment? Yes ___ No ___ _____

21. Do you see workers operating equipment with the guards removed or not functioning properly? Yes___ No___ Enforcement? _____

22. How well does the average contractor do in (observing law) taking these types of precautions? _____

Is there a relationship to company size? _____

23. How much of a part does the inspector play in this? _____

No._____

V. LEGISLATION AND GOVERNMENT CONTROL:

24. DO YOU FEEL THAT SAFETY LEGISLATION IS EFFECTIVE IN CUTTING THE RATE OF ACCIDENTS? Yes___ No___ _____

25. ARE YOU FOR OR AGAINST SAFETY LEGISLATION? For___ Against _____

26. Do you feel that safety laws and regulations interfere with production and output? Yes___ No___ _____

M 27. Have you ever had to follow government safety regulations and specifications because of various contracts? Yes___ No___ _____

M 28. When was the last time you were inspected by the govt.? _____

29. Do you feel that the inspector was primarily enforcing rules or being of service in safety? Rules ____ Safety _____ Both _____ _____

30. Did he give you any helpful advice or assistance apart from regulations? Yes ___ No ___ _____

31. Did he seem to be qualified and to have the proper knowledge and training in safety? Yes ___ No ___ _____

32. HAVE GOVT. SAFETY REGULATIONS EVER BEEN HARRASSING TO YOU? Yes___ No___

33. ARE YOU AFRAID THAT THEY MIGHT BE IN THE FUTURE (IF LEG. PASSED)?_____

M 34. Fear of union harrassment if leg. passed? Yes___ No___ _____

O 35. Have unions used safety legislation to harrass management? Yes___ No___

36. Future or past concern of unfairness of inspector? Yes ___ No ___

37. DEGREE OF ACCEPTANCE OF GOVT. INVOLVEMENT IN SAFETY: 1 - 2 - 3 - 4 - 5

a.) Present (or proposed) law acceptable? Yes ___ No ___ _____

O b.) What would you change? _____

O c.) Private Workmen's Compensation insurance cheaper? Yes ___ No ___ _____

O d.) Effectiveness of program? _____

M e.) No law - just service agency?(research & records etc.) Yes ___ No ____

M f.) Some pressure? Yes ___ No___ If run right? Yes ___ No ___ _____

f.) Degree of Govt. involvement - more or less & why? _____

No._____

* To Michigan Workmen's Compensation Rating Bureau and insurance underwriter:

We are participating in a research project at Michigan State University. Therefore, please allow Paul E. Sands to look over any statistical information that you may have on this company in order that he may complete his doctoral dissertation on safety in the construction industry.

signed _____

company _____

address _____

_____

* (For those firms in Ohio the statement was addressed to the Bureau of Workmen's Compensation and the Industrial Commission of Ohio.)

No._____

VI. COMPANY STATISTICS:

38. Do you know your frequency and severity rates? Yes___ No___ _____

39. Do you know what these rates are? Yes___ No___ _____

40. How they are figured? Yes ___ No ___ _____

Do you have a record of all injuries? Yes ___ No ___ _____

41. What is your experience modification?

1959_____ 60_____ 61_____ 62_____

42. What do you pay for W.C. per hundred dollars of payroll?

_____ 1959_____ 60_____ 61_____ 62_____

_____ _____ _____ _____ _____

43. Insurance company or Actuary? _____ Agent_____

44. Insurance premium: 1959_____ 60_____ 61_____ 62_____

Any discounts _____ _____ _____ _____

45. Payroll: _____ _____ _____ _____

46. Total hours worked: _____ _____ _____ _____

Reports to govt? _____ _____ _____ _____

47. Compensable injuries: _____ _____ _____ _____

doctor's _____ _____ _____ _____

lost-time _____ _____ _____ _____

over 7 days _____ _____ _____ _____

FREQUENCY RATES:

compensable _____ _____ _____ _____

doctor's _____ _____ _____ _____

lost-time _____ _____ _____ _____

over 7 days _____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

No._____

VII. **OBSERVATIONS**: (To be filled out immediately upon leaving company.)

48. Amount of safety activities:_____

_____

49. Interest in and understanding of safety:_____

_____

50. Help and motivation in safety:_____

_____

51. Precautions against hazards:_____

_____

52. Attitude on legislation and government control:_____

_____

53. Accident rates:_____

_____

GENERAL COMMENTS:

Part II deals with the safety practices that take place within the company and also with the external participation and activities in safety. There had originally been a section at the beginning that was mainly concerned with breaking the ice, promoting a feeling of rapport, and finding out some information on how the contractor felt about the over-all subject. It succeeded only too well and had to be deleted because the interviewee talked so much it was difficult to go on with the main body of questions. However, some insights were gained on the cause of accidents along with the major problems that contractors felt that they had in safety, and these things will be mentioned in the body of the report.

The next part deals with outside influences, and asks about the various kinds of help and information that they have received, from what sources, etc. It also attempts to determine how much influence these firms have on others in safety. Part IV, on hazardous conditions, refers to safety practices that are required by the Ohio safety code, but they are worded in such a way that the law is not mentioned. This way they can be used in both states, in the majority of cases. Thus, it may be ascertained how much actual difference the safety code makes in certain specific preventive practices. There is capital M or O in the left-hand border before some of the numbers, and these indicate the questions that are asked in only one of the states. In the

section on legislation and government control, the contractor's feelings and fears are thoroughly explored and the last part attempts to determine their degree of acceptance or rejection of government involvement in safety. These questions naturally vary because of previous responses and tend to be of the open end variety, where the interviewees can expound at will. The actual comments here were extensively recorded, and the contractors were also allowed to express themselves fully without any restraint.

Throughout the interview it was not only necessary to record the responses and to keep things moving along in an orderly fashion, it was also very important to generate interest in the project. The reason for this was because these people were then asked to sign a statement giving the interviewer permission to be allowed access to statistics on these companies from several sources. These signatures were invaluable and will be further discussed in Chapter II on rates. This proved to be an important point in the proceedings for if the form was not signed, the company could not be included in the sample. However, there was no real difficulty here except in one instance when the contractor stated that he wanted to check with his insurance company. The agent approved and the information sought was forthcoming. The next step was to obtain company records which showed the total payroll, the net workmen's compensation insurance premium, the number of injuries, the experience

modification, and the name of the insurance company or actuary. Several firms only gave some of this confidential information reluctantly, but the fact that they had already committed themselves when signing the statement made persuading them that much easier. Actually they were very cooperative as a whole, and very interested in learning the results of the research. There can be no doubt that they were happy to receive assistance with this problem.

At the outset, the necessary statistics were gathered for a four year period--1959 through 1962. However, in firms where the injury rates had to be figured, the accident reports seemed to be less available and complete as one went back in time, and it took hours to go through them all. Therefore, a two year period was decided upon, and additional figures were gathered if they were readily at hand. If the company did not have some of the needed information, then it was obtained from other sources with the aid of the official's signature. In Section VI, there were also a number of questions asked with the objective of determining the degree of familiarity and understanding of injury rates. Finally, a page was included at the end with provisions for recording a number of observations, and these impressions were written in immediately after leaving the premises. At the first opportunity and before the next interview was conducted, the whole schedule was gone over very carefully and

if there were any doubts or missing information a phone call was placed before departure from that particular city.

Limitations of the Study

Although they may be mentioned in other parts of the study, it might be advantageous at this point to briefly summarize some of the major limitations and difficulties encountered in the research. In the first place, there were no grants connected with this endeavor and the amount of funds available was not large. This resulted in a somewhat smaller project than was possible; however, the fact that no biased parties had any chance to influence the results or procedures taken, ended up by being a net gain. It is exceedingly hard to come to conclusions that make financial backers look bad. One problem that it was impossible to solve dealt with injury statistics. While frequency rates could be determined in all cases, the severity rates could not. Once the time passed and the number of days lost was left unrecorded, there was no way to go back and pick up this information without serious chances of error. Nevertheless, the drawbacks to this situation are not too large as severity usually fluctuates greatly from year to year due to chance factors in the seriousness of any particular injury. Most experts agree that the frequency rate is the better indicator of accident prevention performance, because it is easier to control the over-all number of injuries

rather than their effects. Of course, the ideal situation is to have both rates, but severity becomes increasingly valuable only as it is looked at and compared over a large number of years and not merely one or two. As the compilation and collection of the numbers of injuries is dealt with in the following chapter, the difficulties with and limitations of these statistics will be examined there.

Having to interview each respondent resulted in only a relatively few being interrogated. It must be kept in mind while reading any conclusions, that these apply to conditions in only two states and in only one segment of a large industry. In addition, just the bigger general contractors in commercial or industrial building construction in the five largest cities in each state were approached. Therefore, this study cannot give answers about safety legislation in general, although it is a beginning. Perhaps, the greatest limitation of all was that there were no actual inspections of construction sites so that there could be various checks and definite proof of not only what was being done to prevent injuries, but the degree of accomplishment of various objectives. It would be worthwhile to know the differences in understanding of safety factors between the president of the company and the men on the job. In order for a scientific study of the construction industry to be conclusive, it is not only necessary for injury rates to be accurately determined, but the size of the project and the

type of construction must also be noted along with other like factors, and this can only be done by on-site inspections. Anyone doing this would have to be very familiar with the industry and understand all of the safety and engineering aspects very well, and the researcher did not fall into this category.

CHAPTER II

INJURY RATES

As previously mentioned, the most important part of this study was to be an attempt to determine accurately the accident experience of the firms in the sample. There was some doubt in the beginning that lost-time cases could be obtained, and it was thought that total compensable or medical cases would have to be used instead. However, upon further investigation it proved to be possible to figure frequency rates according to the American Standards Association Z16.1 method. The problems in gathering the appropriate statistics were greatest in Michigan. While the Michigan Workmen's Compensation Rating Bureau had information on all of the construction firms in the state, there were serious limitations in their statistics. In the first place, there was a one year lag in the figures that they received from the various insurance companies, which meant that little or no information would be available for the year 1962. In addition, the number of disabling injuries of less than a week's duration were lumped together with the "medical only" cases. They did have the total number of claims filed, but the same type of figures were not kept in Ohio in any accessible form. Therefore, the only solution was to gather the

necessary statistics from individual company records.

The majority of the companies in the study were members of the Associated General Contractors and had been keeping a record of their disabling injuries. These were reported every month along with the number of days lost and man-hours worked, so that this association was able to figure the frequency and severity rates for all of their members in Michigan. In other firms, disabling injury reports were sent in to the Bureau of Labor Statistics and the National Safety Council, while in still others the agent or insurance company had its own forms for reporting injuries with special provisions for clearly recording the lost-time cases of less than a week's duration. In the remaining companies, the workmen's compensation reports were carefully scrutinized and the total number of disabling injuries were obtained from them. Although this took a good deal of time and careful effort, it was not impossible to do, as one of the items on the form required the company to state the number of days work lost because of the injury. By analyzing all of the pertinent information on the report, and asking questions, the total number of disabling injuries could be determined. On the other hand, there were no problems of this type in Ohio as the Bureau of Workmen's Compensation and the Division of Safety and Hygiene had all of the needed statistics and agreed to make them available.

Before proceeding to the findings concerning the rates of injuries, it might be advisable to pause at this point in order to make certain that there are no misunderstandings or possible confusion. There are a number of terms which should be clearly defined so that there is no question as to exactly what is meant and what is actually being discussed. They are used frequently throughout this chapter and may be interpreted somewhat differently by various people. The way that they will be used in this report is as follows:

1. The frequency rate is determined according to this formula:

$$\frac{\text{No. of Lost-Time Cases} \times 1{,}000{,}000}{\text{No. of Man-Hours Worked}} = \text{Frequency Rate}$$

2. Lost-time cases are those injuries that cause a person to be incapacitated at least one full day other than the day on which he was hurt.
3. A disabling injury is exactly the same thing as a lost-time case.
4. An indemnity or compensable case is one in which an injured worker receives compensation because of an injury. In Michigan and Ohio this would happen if he was incapacitated for longer than one week. Therefore, an indemnity case is always a lost-time case, but a lost-time case is only a compensable

case if it lasts longer than seven days. They are not the same thing, but some people treat them as though they were.

5. A non-indemnity injury is commonly referred to as a medical case. All medical bills are paid but the employee does not receive any compensation checks. This is a disabling injury if the person who is hurt cannot return to work on the day after the accident occurred.

The reason that these points have been emphasized is that some of these terms have been used interchangeably and incorrectly. One of the big problems is that the underwriters are not interested in lost-time and no lost-time cases, but in indemnity and non-indemnity cases. The result is that lost-time cases of less than a week's duration are lost track of and lumped with the medical cases because this is the only payment involved. Therefore, only lost-time cases of over seven days are "visible" and too often only the indemnity cases become reported disabling injuries.

Frequency Rates--Phase I

The research on frequency rates may be divided into two major phases. In the first, the statistics were gathered from the various sources and were quickly analyzed and compared, with very interesting results. The information

supplied showed that there was very little difference in the accident rates in the two states. In 1961, the Michigan firms had a combined frequency of 42.31 as compared to 41.03 in Ohio. In 1962, the situation was reversed with Michigan having a slightly lower rate. The figures were 33.71 in Michigan and 34.85 for Ohio. When the two years are averaged the results are 38.62 for Michigan and 37.99 for Ohio, which can certainly be called an insignificant difference. It seemed obvious that Michigan contractors were doing as well without safety legislation. However, the most important finding was the fact that there was absolutely no relationship between the published Ohio construction industry frequency rate of 16.04 for 1961 (the 1962 statistics have not been published up to this time) and the average rate of 41.03 for the random sample.[1] It should be kept in mind that these firms were among the largest and most closely inspected and controlled in this industry in the state, and they should be expected to have the lowest rates. When the frequency rates for the two years are averaged for each firm, not one of them was even close to the supposed average for the industry as the lowest frequency rate was 22.16. It is also worthwhile to keep in mind that the number of lost-time

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[1]Ohio, Industrial Commission, Division of Safety and Hygiene, Ohio Industrial Safety Record, No. 10 (Columbus, 1962), p. 18.

cases on these companies were supplied from the same source that publishes the industry-wide rates. A more elaborate analysis of all of these figures will be presented in the section on statistical evidence.

As the analysis progressed it soon became apparent that something was amiss. Preliminary tabulations showed that many frequency rates did not correspond to the impressions concerning safety consciousness that were received during the interviews. There were also not the simple and precise correlations between safety activities and accident rates that had been expected. Many explanations were considered for this phenomenon, but as all of the items on the interview schedule had not been obtained for all companies, this analysis was as yet merely superficial. One important fact in this regard was that any statistical information that had been voluntarily supplied to various organizations was used in the study. In other words, if the frequency rate had been previously determined for a firm, these figures were employed and the contractor's workmen's compensation forms and records were not requested at the time of the interview. The majority of the Michigan builders belonged to the Associated General Contractors and so fell into the latter category. However, before all of this became much of a problem, Phase II evolved and provided answers to some of the questions that had been arising.

Frequency Rates--Phase II

After gathering all of the information from the interviews and making the above mentioned tabulations, there were still a few minor items yet to be cleared up. The experience modifications for one contractor had to be collected from the insurance company in Detroit, and several other minor items such as the net insurance premium had to be checked in cases where management had had some doubts as to the accuracy of their figures. In addition, there was a question in several instances about whether or not some companies had been members of the Associated General Contractors but had discontinued their membership in this organization. Therefore, these things had to be sought out before the results of the study could be completely analyzed and written up. One person who was approached was an official of the Associated General Contractors who had been interviewed when the research was in its formative stages. He had been asked for financial assistance, and agreed to provide some when the proper application had been filled out. However, the money was never applied for because as the study progressed it seemed as though the findings might not be complimentary to this organization and no chance was to be taken of having the results influenced in any way. On this visit he was told how things were developing and how his organization, the State of Michigan, and the private

insurance companies were doing a fine job without government control. This was sincerely believed to be the case at that time! He naturally wanted to be of any assistance and was asked for the complete statistics and monthly reports for the previous three years of all of the members who had been included in the sample. These figures were supplied several days later, and immediately the Detroit chapter was contacted and they agreed to do the same thing. On this trip to Detroit, the Michigan Workmen's Compensation Rating Bureau was also contacted and they were pleased with the way that things were going. They were asked for and gave all of the pertinent information that they had on the twenty-five Michigan firms. There were statistics for 1962 on only a few companies, but complete information for 1961--and in most cases 1960 also--was forthcoming. The experience modification, payroll, insurance premium and total number of claims filed including indemnity and nonindemnity cases were obtained, and when these things were analyzed it quickly became apparent that all was not as it had appeared.

Up to this point, action had been taken upon information which had been accepted in good faith. Now, inadvertently, these things were being checked-up on with disastrous results. When comparing the disabling injuries and indemnity cases there was a strong tendency for them to be equal in number. In other words, only lost-time cases of a week or longer were being reported to the Associated General

Contractors as lost-time cases, and the evidence of this will be shown further on. There were also several instances where the numbers of indemnity cases were larger than the reported lost-time cases. (Lost-time cases are the larger category of which indemnity cases are only a part.) It soon became quite apparent that these statistics were not being taken seriously and/or they were not being reported correctly. The following are instances where errors of one kind or another were made (all from the initial statistics). For example, the firm with the lowest combined frequency rate in Michigan had received Associated General Contractors' awards for no disabling injuries for the three years prior to 1961, yet they were involved in one indemnity case in 1960 according to the Michigan Workmen's Compensation Rating Bureau's figures. The next lowest firm in Michigan reported five lost-time cases to the Associated General Contractors in 1961 but had ten indemnity cases. The third contractor said that he did not know his experience modification but reported one lost-time case for 1959, one for 1960, two for 1961 and none for 1962 or an average of only one a year, which was exceedingly low. His experience modification had continually increased during this period and was over 100 per cent of the basic or manual rate, casting a great deal of doubt on these figures. Number four on the list had at least two lost-time cases in 1961 but reported only one to the Associated General Contractors. The sixth lowest had a frequency rate of 304.78

in 1960 when he was not a member of the Associated General Contractors. In the following two years when he became a member the rates fell to below the lowest firms in Ohio. Number seven's figures seem to be accurate, but there was no safety consciousness to speak of in the company and subsequent information indicates that the next year's frequency rate was very high. However, it is not known if all of these injuries were reported to the Associated General Contractors.

Some further instances: in one company there were three lost-time cases for 1962 in their office records, but they reported only one to the Associated General Contractors. In another, for 1961 there were 29 disabling injuries sent in to the Associated General Contractors, but 37 indemnity cases were on file at the Rating Bureau. One company sent in their accident experience to the National Safety Council, and this information was seen and noted at their office. When their reports to the Associated General Contractors for 1961 were obtained there was an interesting discrepancy. They reported a frequency and severity of 59.50 and 781.21 respectively to the National Safety Council and a frequency of 67.91 and a severity of 2,309 to the Associated General Contractors--a difference of about three times in the latter category. What the real rates were for this period is now impossible to ascertain. In two separate instances information from two sources within the same organization, that

provided services to construction firms, reported differing numbers of lost-time cases for the same period for a contractor, and in one of these instances the information from both sources proved to be incorrect. Not all of the errors were in the same direction. In one case a company was reporting a number of medical injuries as lost-time cases and this became immediately evident on observing their reports, but it was caught and corrected by the Associated General Contractors when the rates were figured. One other construction company was so far off in hours worked that they reported that they would have had to be paying about $6.00 an hour in wages, on the average, in order for their reports to be correct. As the average wage was found to be around $3.80, they were not submitting all of the hours worked and so making their reported injury rates higher than they actually were. However, they were also probably not reporting all of their lost-time cases either as the number sent in were exactly the same as the indemnity cases in 1961 and also in 1962. In at least three other cases, the hours worked that were reported bore no relation to reality and could not have been carefully determined. They were off in both directions by as much as 50 per cent or a ratio of two to one.

These examples are by no means evidence of a complete check for errors. After all of the new information was analyzed and compared with the previous statistics, it was then understood that all was not as it had appeared, but no

further checking was done beyond this point in order to find additional mistakes. It had to be resolved that the rates which had been gathered and worked on so carefully were invalid. In addition, it would be very easy for anyone with access to the monthly reports of all the members of the Michigan Associated General Contractors, plus the number of indemnity cases from the underwriters or Rating Bureau, to determine more closely the extent of false reporting of disabling injuries in order to prove for themselves the correctness of the above assumptions. It seems that the limited evidence at hand shows the weakness of voluntarily reporting injuries even though this was not what the research had originally intended to do. Whether a silent conspiracy has been taking place or people just do not take accident statistics seriously is impossible to state, but it is certain that the rates collected in a voluntary manner are definitely unreliable.

Ohio Frequency Rates

The next question then becomes a rather obvious one--how correct do the Ohio injury rates seem to be? In the first place, the Division of Safety and Hygiene's own statistics tend to refute their published injury rates for the construction industry as previously noted. Furthermore, a check was made on the reliability of the number of lost-time cases obtained from the state. This was done by going

through the records of some firms and by interviewing the actuaries of about fifteen others. As there is no private workmen's compensation insurance in Ohio, many employers feel that they need someone to represent their interests when claims are filed. Therefore, most of the contractors in the study have private companies who check on claims, keep the necessary records, submit periodic reports, and make certain that they are not being charged too much in premiums by the Workmen's Compensation Bureau. These so-called actuaries collect all of the forms and reports that the employer would otherwise keep on his own premises, but they do not save the originals. Instead, they maintain their own types of records and these vary a great deal. The reason that this is important is that it was impossible to check the amount of disabling injuries as they also are only interested in the costs of medical and compensable cases. All that was available were the number of indemnity injuries, but these could be compared the same way that they were in Michigan. By doing this it became apparent that there were also inconsistencies here as there were two instances when the number of indemnity cases were <u>larger</u> than the amount of lost-time cases that were supplied by the state. In addition, another contractor, whose records were checked at his office, had four disabling injuries for 1962, three of which were indemnity cases, but the state only had a record of two for that year.

The officials at the Associated General Contractors headquarters in Columbus were not queried for two reasons. The first was that the information that they had was not as crucial for comparative purposes as it was in Michigan, and no attempt was being made to show the extent of the negligence that was prevalent in reporting disabling injuries. The second was that all of the Ohio contractors had already been asked if they made monthly reports of lost-time cases and only five had been doing this long enough for rates to be figured. Of these five, two could not produce copies of the monthly forms or figures and there was some question as to whether they really understood what was requested. They probably did not know their rates because it takes time to process and figure them even though they had been supplying statistics for over a year. The remaining three companies were aware of the Associated General Contractors' program for determining injury experience and they supplied the figures requested. In none of these three cases were the full number of lost-time cases being reported to the Associated General Contractors. The ratio was a total of twenty-two disabling injuries submitted, to thirty-seven of which the Division of Safety and Hygiene had a record. This means that there was a minimum of thirty-seven, and that there were probably even more than this number that were of less than a week's duration, that had failed to be properly classified.

The big problem in Ohio seems to be with the disabling injuries of less than a week. This was difficult to prove conclusively, but it is almost a certainty that many nonindemnity lost-time cases are not being recognized as such and are merely being called medical or doctor's cases. There are two different types of workmen's compensation forms that are used to file claims. One of them is blue (Form C-1) and is used for indemnity injuries, while the other is pink (Form C-3) and is employed for nonindemnity cases. There was no confusion with the blue form, but the pink one was an entirely different matter. There was a line on which the doctor was supposed to state the number of days that the claimant was disabled from work, but this was not being done in most cases. This line along with many others was usually left completely blank by the doctor, and this was not being filled in at the company. However, on some forms the word none was entered and on others the number of days lost were written in. Approximately twenty additional people were asked about this including secretaries, actuaries, management, etc., and not one of them said that the doctors were conscientious about filling this out. Many physicians are exceedingly busy and they probably have their office help take care of the forms while they just sign their names. Therefore, there is no question that some of these lost-time cases are not being reported to the state, and the Division of Safety and Hygiene then has no other way of finding out about them.

How many of these go unrecognized it is difficult to ascertain.

The improper filling out of reports is probably more of a problem in the construction industry than in any other. There are many changes in employment. Job-sites are scattered all over, and there is no doubt that the coordination between the office help and supervisors on the job is inferior to situations where everyone is located in one building. The fact that most contractors are relatively small and that the office is not always notified immediately of the accident or its results confuses the issue even further. No one seemed to be concerned with the necessity of properly recording all the lost-time cases, and the Workmen's Compensation Bureau was not after these people or putting any pressure on them to do so. There is no doubt that not all cases are being reported, but there was general vagueness and uncertainty and any type of completely satisfactory answer was not forthcoming from anyone involved. About the most positive statement heard was one by a secretary who received the forms from the doctors. She said that they "usually" report the days off the job. The implication was that if they did not it was no concern of hers, for she had one side of the sheet to fill out, and they had the other. If the lost-time cases were not noted, that was the doctor's concern and not the contractor's. Everyone else that was queried on the subject either did not know or said that they

thought not all cases were being reported and let it go at that. It does seem certain, however, that when the information is forwarded, there is a record of all these disabling injury statistics kept by the Division of Safety and Hygiene.

Hours Worked

Another example in a different area also shows how casually these statistics are treated. Ohio rates are published on a "voluntary" basis as the employer has to send in a form that shows the hours worked in his company for the year. Otherwise his experience is not included in the industry-wide average. The files containing these reports, which were located in the statistical department, were personally checked for the year 1961. This was information on the latest year available at the time as the 1962 forms were still not properly arranged and filed. There were immediately found to be some obvious errors and discrepancies which had been passed over and accepted. One company reported having an average of sixty-four employees for that year and total hours worked of 8,654. This figure would cover about four full-time employees. If sixty-four people had actually worked they would have averaged about 135 hours each or a little over three weeks work for the entire year. This was brought to the attention of the clerk in charge of the operation and she said that this was perfectly alright. The sad thing is that the payrolls for all of the risks in the state

were on this person's work desk, and a quick check would have definitely shown that some sort of a mistake had been made. The actual payroll was $157,239 which meant that there were approximately twenty full-time employees or the equivalent thereof, and that about 40,000 hours had been worked. In addition, the contractor was located in the same city, so that a phone call could have immediately straightened out the situation. Not only was nothing done to correct the mistake after it had been brought to their attention, the whole thing was taken very lightly and no impression was made or concern shown on the part of anyone.

A further incident of this type shows just how far off these voluntary reports can be. This very obvious error was over 60,000 hours off in the other direction and was approved just as readily, as nothing had been done to attempt to correct it. Anyone at all familiar with these forms could have spotted the discrepancy immediately if there had been any intention or effort to do so. The contractor reported 175,369 hours worked to the state for 1961, and said that there were only sixty-four employees (the same number as in the previous example where there were only 8,600 hours worked). If the sixty-four people were on the job full-time this would still come to only about 128,000 hours not 175,000, so it should have been immediately apparent that something was wrong. The yearly payroll indicated that the hours

worked were close to 114,000 hours or a difference of about 60,000. What really is surprising here is that the same firm reported hours on the job of only 60,000 to the Associated General Contractors for that year. A difference in reporting of from 175,000 to 60,000 hours--certainly not the type of statistics that anyone should put much faith in.

There was one more glaring inconsistency that went unnoticed. This showed an average of 304 employees working only 68,029 hours, or an average of less than six weeks employment each. A full-time person works about forty hours a week for fifty weeks, which comes to 2,000 hours. If 2,000 is multiplied by 304 employees, the result is well over 600,000. In other words, the reported figure was about ten times off. The correct number of hours worked according to the payroll was a little over 300,000, which means that they only had an average number of employees of about half of what they claimed. Practically everyone made the same type of mistake with the number of employees. They sent in the total amount of personnel that worked for them in the period instead of the average number that the form very clearly calls for.[1] Finally, in one other firm, the report to the state was correct at 96,081, but these people sent in monthly reports to the Associated General Contractors totaling only 79,363 for the identical period. Certainly everyone concerned cannot be taking voluntary reports seriously!

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[1] Ibid., No. 9, p. 7.

To summarize the hours-worked forms briefly: there were fifteen Ohio contractors out of the twenty-five in the sample who returned these reports in 1961. Of this number, there were three errors that were so large that they should have been caught on sight. Further checking with payrolls showed that there were three more mistakes of over 20 per cent. Thus 40 per cent of these returns were worthless insofar as accuracy is concerned, and while there were errors in most of the others, they did bear some resemblance to reality. At least the Industrial Commission did not allow the control over reporting the number of disabling injuries up to the individual contractor, which means that a greater percentage were probably being reported than would ordinarily be the case. While the doctors were not keeping perfect check, they at least had no special biases, so that errors occurred in a random fashion. These things will be examined more closely at a further point in the chapter.

Certainly, using the voluntary hours-worked would not lead to accurate frequency rates and this was realized at an early point in the proceedings. Instead, all possible information was gathered in order to obtain the average hourly wage paid and then to divide this into the payroll in order to get the total hours worked. As all of the firms in the sample were not too much different, the average wage was not expected to vary by an unusually large amount. It was found that the range was from approximately $3.50 to $4.10 and that a good average figure was around $3.80 an hour.

Most companies would fall close to this amount, and although there was some chance for error, this procedure was much more accurate than employing statistics that were obviously incorrect. In addition, being a few hours off would not affect the frequency rate to any appreciable extent, while the difference of only one disabling injury could change the results by ten or twenty points depending upon the size of the labor force in the particular company involved. Therefore, the payroll figures were employed in all cases and in both states, and any individual differences in wages would tend to cancel out when state-wide rates were compared. When it was realized that not all lost-time cases were being uncovered, any apprehension about using this system vanished. While it is true that payroll figures cannot be used for all businesses, they should at least be employed in Ohio to check the man hours reported. However, before any improvements are made in this area, there should first be some system for insuring that untold numbers of disabling injuries are not being ignored.

Statistical Evidence

Up to this point, there have been no charts or tables showing the injury experience collected from the various firms and states. There had to be a clear realization of what was involved and what had taken place in the research before this could be done. Nevertheless, even though the

statistics are unreliable, some comparisons can be made with possible benefit. Let us at least examine what was found. Table 2-1 shows the average combined frequency rates for 1961 and 1962 for the firms in both states from the lowest to the highest. The two years were combined in order to give a broader base so that chance factors would play a lesser part, especially in the smaller companies. The figures for Ohio came from the lost-time cases provided by the Division of Safety and Hygiene and none of the mistakes that were found have been added. For Michigan, the rates have been increased upward only to the extent that the number of indemnity cases have been substituted when they have been higher than the reported number of disabling injuries. This means that the averages are a little farther apart than they should be, but probably not by a very significant amount. The reason that this was done was so that there would be no question whatsoever that these rates would be 100 per cent accurate in one major aspect. They are certainly unreliable as to maximums, as there is no doubt that in both cases the frequencies <u>are</u> higher, but it is positive that they are no lower than this. When it is recalled that the companies in the sample are expected to be among the most safety conscious firms in the construction industry, and also among the larger ones, a frequency rate of around 40 minimum is very high.

TABLE 2-1

FREQUENCY RATES OF CONSTRUCTION FIRMS IN OHIO AND MICHIGAN, FOR THE COMBINED YEARS OF 1961-1962

Number of Firms	Ohio	Michigan
1	22.16	5.11
2	22.54	15.39
3	22.73	17.23
4	24.60	18.13
5	24.92	19.64
6	27.91	20.68
7	28.77	23.45
8	30.18	25.50
9	31.09	26.86
10	31.44	29.33
11	31.70	36.41
12	34.28	38.45
13	36.23	38.74
14	36.31	39.95
15	36.83	40.01
16	38.34	46.45
17	38.53	51.34
18	45.02	54.88
19	50.09	55.75
20	50.85	60.16
21	51.13	73.12
22	57.68	79.94
23	60.70	93.06
24	67.54	93.51
25	77.65	95.40
Average	37.99	40.75

Some of the more hazardous areas like steel erection, bridge construction, excavation, etc., plus the experience of numerous small subcontractors, have not been included in the study and their experience is undoubtedly much worse than the general contractors. Therefore, the greatest value of these statistics is in showing that the various "voluntary" rates published from all sources are definitely misleading, as anyone looking over published statistics would tend to think that the average for the industry was in the 30's. While it would probably surprise everyone concerned, a much better guess would be that the real frequency rate for the average of <u>all</u> firms in the construction industry is two or three times that number.

A further look at Table 2-1 shows the great difference in the range of the figures. The Ohio firms are closer together as compared to those in Michigan and if these rates were accurate the natural conclusion would be that some Michigan firms do a really good job and take an active interest in safety while others are completely in the dark. Michigan had the four highest and the six lowest frequency rates. However, the firms with the ten lowest figures were or had been members of the Associated General Contractors and so had supplied their own voluntary statistics. Perhaps this also explains why there seemed to be more control over the rates in Michigan, as there was less variation in these statistics from 1961 to 1962. The companies that were low

in one year also tended to have low rates in the next, but this was not found to be true in Ohio. In other words, the safety legislation in Ohio was not exerting the degree of stability that one would have expected, while this phenomenon was occurring in Michigan. Of course, in the latter case the control was found to be in the reported number of disabling injuries.

What is the ratio of lost-time cases of under a week's duration to those that last longer than this amount of time? The obvious answer is that there are relatively fewer of the more serious injuries. Just as one would expect that there are many times the number of first aid injuries than there are doctor's cases, and doctor's cases to disabling injuries, it is also natural to suppose that there are many more nonindemnity lost-time cases than indemnity accidents. This reasoning holds true for most areas, but if we are to believe what was reported in both states, the opposite would be the case in the construction industry. This is beyond logic and all known experience, and is further proof that frequency rates are higher than those submitted. Therefore, let us observe Table 2-2, which shows the results of this type of inquiry. Looking at Ohio's statistics reveals that there is information for three years. The first column indicates the number of firms that there were figures for during that period. In the third column are the reported lost-time cases from the Division of Safety

TABLE 2-2

PROPORTION OF REPORTED NONINDEMNITY LOST-TIME CASES TO INDEMNITY CASES OF FIRMS IN MICHIGAN AND OHIO, 1960-1962

Number of Firms	Year	Reported Lost-time Cases	Indemnity Cases	Reported Nonindemnity Lost-Time Cases	Ratio of Nonindemnity Lost-Time Cases to Indemnity Cases	Per Cent of Nonindemnity Lost-Time Cases	Per Cent of Indemnity Cases
				Ohio			
9	1960	44	15	29	1.9 to 1	66%	34%
15	1961	94	47	47	1.0 to 1	50%	50%
15	1962	80	49	31	.6 to 1	39%	61%
Totals		218	111	107	1.0 to 1	49%	51%
				Michigan			
14	1961	89	89	0	0.0 to 1	0%	100%
12	1962	57	48	9	.2 to 1	16%	84%
Totals		146	137	9	.1 to 1	6%	94%

and Hygiene, and the indemnity cases come next. These indemnity cases were obtained from the various actuaries in all but one or two instances, when they came from company files. When the indemnity injuries are subtracted from the reported disabling injuries, the result is the number of nonindemnity lost-time cases. It seems reasonable to expect about two or three of these relatively minor injuries would occur to every one of over a week's duration. For 1960, this ratio is almost two to one with 66 per cent of the reported lost-time cases being of the nonindemnity variety. However, as time passes, this ratio keeps going down and in 1962 only 39 per cent of reported injuries lasted seven days or less, showing an increasing laxness. The averages for the three years reveal that the proportions of these two types of lost-time cases are about the same. If the actual ratio was really three to one in 1961--if all cases had been reported and recorded--how would this affect the frequency rate for that year for the companies in the sample? We have already seen that the rate for this year was 41.03, and increasing lost-time cases of seven days or under to three times the number of indemnity injuries would result in a true frequency of over 80.0 for these contractors. Thus, an average of 100 for the entire industry does not look unreasonable, especially when smaller contractors never see a government inspector, and the safety code is not enforced insofar as they are concerned. Of course, only further scientific research can

truly tell what the usual percentage of nonindemnity lost-time cases really are, and this would give valuable insights on the validity of published injury rates of a "voluntary" nature, as the number of indemnity cases can be easily checked.

By and large the statistics for Ohio are representative, but this is not true to the same extent for Michigan's portion of Table 2-2. In the first place, the contractors themselves had control over reporting the number of disabling injuries and a couple of large companies have undoubtedly distorted the results. The firms not represented in these statistics are probably exerting less "control" over reported cases also, which would make the differences less drastic than they appear. For example, in 1961 there were no lost-time cases of seven days or under reported on balance, however, this total is what it is because two companies sent in only a small portion of even their indemnity cases to the Associated General Contractors. Furthermore, the indemnity cases came from the Michigan Workmen's Compensation Rating Bureau, and the insurance year varies from contractor to contractor. Thus, only those companies whose insurance premiums begin at the first of the year or who send in monthly reports to the Associated General Contractors can have like periods compared. For this reason, the two years on the table are merely approximations as only a majority of months have to fall in a period for it to be listed

as that particular year. What is intended here is not to show that approximately half as many nonindemnity lost-time cases are being reported in Michigan as in Ohio, but that all companies in both states are not having all of their disabling injuries recorded and shown in various published statistics, private or otherwise.

Further proof of whether or not there is something wrong with Ohio's method of recording lost-time cases comes from information obtained from the Division of Safety and Hygiene. When the project was in its formative stages and initial inquiries were being made as to the feasibility of the study, the chief statistician had been asked to explain the code numbers for the various categories of construction in Ohio. He did so by using an accident statistics report which showed all of the various types of disabling injuries in each category of construction for the year 1960. A copy of this report entitled "Lost-Time Claims Filed With the Industrial Commission of Ohio for the Building Erection, Demolition, and Construction Industry for the year 1960," was then kept by the interviewer. The really important item of information, which was not considered so at the time, was a breakdown of the claims between lost-time cases of over seven days and those of seven days or less. These breakdowns are not published and could not have been obtained in any other way. Therefore, if in fact there are as many or more nonindemnity lost-time cases as indemnity cases in

construction, then it can be definitely proven that the reason Ohio's injury rates are so low is because they do not have records of all of the disabling injuries that occurred.

For manual classification number 5601--Building Construction, there were only 733 lost-time cases of seven days or less reported in 1960 out of a total of 2,590 disabling injuries. This means that 72 per cent of the lost-time cases were indemnity injuries or almost three out of four. This percentage is much larger than for the Ohio contractors in the sample, which explains why their rates are higher than the published averages for the industry. The figure for indemnity cases in 1960 was 34 per cent as shown in the last column of Table 2-2 and has been increasing steadily since that time, which makes one wonder about what has happened to the state-wide proportions and whether or not the 28 per cent of nonindemnity cases reported has been decreasing further? The total amounts for all types of construction in the state were not much different than for building construction. Out of a grand total of 8,360 disabling injuries reported, only 2,480 or 30 per cent were nonindemnity lost-time cases in 1960. Thus, it becomes easy to explain why the frequency rates in this research and Ohio's rates have no similarity. There is a better job being done in the reporting of disabling injuries of seven days or less on the part of the larger and more "visible" types of contractors, but there is also great reason to suppose that even they, or

the doctors who serve them, are not recording them all.

There has also been some question as to whether or not even the reported nonindemnity lost-time cases are always being included in injury rates. The reason for this reservation is because of an additional experience that was encountered during the research. In Ohio, the first five companies interviewed were in Toledo, and this was done after the ones in Michigan had been completed. It quickly became obvious that these firms did not keep as good accident records on the premises as those in Michigan did. In the first place, four of these companies employed actuaries and so did not have any workmen's compensation records on hand at all. The actuaries, in turn, made out their own forms and did not keep records of nonindemnity lost-time cases. Therefore, Ohio's statistics had to be obtained from the Industrial Commission, as promised, or the study could not be completed. In order to make absolutely certain that there would be no problems or misunderstandings and that the necessary cooperation would be forthcoming, a trip was made to Columbus for the complete statistics on these contractors. The Workmen's Compensation Bureau supplied all that was asked for, but the Division of Safety and Hygiene only gave lost-time cases for 1961. This was enough for a check and it was agreed that other figures would be made available at a later date. There was a total of about 850,000 man-hours worked for the five contractors in that year and a reported

fifteen lost-time cases, which made for a frequency rate of 17.66. This was very close to the published industry average of 16.04 and so looked to be quite accurate. However, upon further examination of the indemnity cases that had already been collected from one firm's files and the actuaries' records, it quickly became apparent that all was not as it had appeared. This was because there had been fifteen indemnity cases for the same period, which aroused some suspicions as to what was taking place. These fears were allayed somewhat when at the end of the interviews, the same contractors had thirty-two disabling injuries charged against them for 1961 in the complete statistics that were then obtained from the commission. The frequency rate then rose from 17.66 to 37.66, which was close to the average for the sample. As the tabulations progressed and inconsistencies were found, the question then came to mind as to which figures were correct, and what type of error had been made? Are two sets of records maintained, and most importantly, are only indemnity cases being used to determine state-wide frequencies? If comparisons are made between the rates for the sample and those published by the Industrial Commission, the latter situation certainly seems to be the case.

Perhaps a brief review of the impressions concerning the accuracy of the statistics and the cooperation of the individuals in both states would be appropriate at this point. Before the study was begun, there was so much secrecy

in Michigan that the impression was an unfavorable one. Everyone was concerned about giving out too much information on someone else's business. Thus, insurance companies and other organizations did not appear to be as cooperative as they could have been. The complete opposite was true in Ohio where the red carpet was rolled out, and every assistance was given. There seemed to be little doubt at this time that the situation in safety was far advanced in Ohio. As the interviews were conducted, however, the Michigan contractors themselves were so interested and concerned about the problem that a favorable disposition toward them steadily grew. The opposite was true in Ohio, as there was not the same degree of interest and cooperation. This was mainly because these contractors did not think safety was as much of a problem and they were more confident of their performance in the area. In other words, they did not feel as though they had as much to gain from the research.

After the Toledo interviews, when the trip to Columbus was made, as previously mentioned, there was the same degree of cooperation at the Workmen's Compensation Bureau, but the Division of Safety and Hygiene became somewhat evasive. Several questions were asked that undoubtedly made some people feel uneasy. After all of the information had been gathered from the remaining Ohio firms and the state had also supplied what it had agreed upon, it became obvious why no one in the government was interested in figuring

individual company frequency and severity rates. It also came to be appreciated that the study was only able to be made because of the open door policy of James L. Young, the able administrator of the Workmen's Compensation Bureau. After this, the situation in Michigan looked to be best until the subsequent checking and investigation was concluded. Therefore, because of problems and inconsistencies of this type, it is extremely difficult to say which state actually has the lower rates. It seems that a greater proportion of nonindemnity cases were being reported in Ohio in the random sample, and the frequency there may be somewhat lower. However, Ohio can receive no praise for their safety activities from this research, as the government has all of the opportunities for real progress and has not taken advantage of them. They are not exerting any control, to speak of, and their research and assistance is practically nonexistent!

Certainly the Ohio published rates have been discredited, but what about the Michigan Associated General Contractors and the National Safety Council rates? A few comparisons here should be in order. For example, the Associated General Contractors Chapter frequency for outstate Michigan was 26.81 for the year July 1961 to June 1962, according to one of their officials. The statistics in this research were compiled on a calendar year basis, and for 1961 the frequency for those members in the sample in this chapter was 52.63. Of course, the higher figure reflects

the errors that were found concerning indemnity cases, and 1961 was chosen for this comparison because of the relative completeness of this extra information. Only the contractors who sent in monthly reports and contributed to the 26.81 frequency were included in the group that was actually found to have a basic minimum rate of over 50.00 for that year.

Insofar as the National Safety Council is concerned, 10 per cent of the contractors interviewed were members of this organization. Of these five companies, three were located in Michigan and two in Ohio. The combined average frequency of these firms for 1961 and 1962 shows that their rate was 44.16 or over twice as much as the all-industry rate published by this safety council.[1] In addition, the firm with the lowest rate for the two year period, which was in the 30's, was no where near the frequency of less than 20 which is usually shown. It is interesting to note that only one of the contractors was sending in accident reports, which further strengthens the conclusion that only the very best companies in safety send in voluntary information of this type. It would be valuable to know how many of the National Safety Council's members in the construction industry send in injury reports year in and year out on a consistent basis regardless of how good or bad they are doing in preventing injuries. Perhaps one reason why Ohio publishes such a low

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[1] Accident Facts--1961 (Chicago: National Safety Council), p. 26.

frequency is that they realize what others are doing and so do the same in order to protect their program from undue criticism. As they are the largest state where private companies are not allowed to sell workmen's compensation insurance, there is always the potential that competitors will use whatever they can in order to discredit the state program. Certainly there is nothing to indicate that things are worse in Ohio than anywhere else.

Understanding and Use of Injury Rates

An entirely different area concerning the research on rates, had to do with the familiarity and understanding of the average contractor at the time that he was interviewed. Before any attempt was made to gather the necessary statistics, several questions were asked. The first was: Do you know your frequency and severity rates? Nine Michigan contractors said that they did as compared to only two in Ohio. In all cases the firms were members of the Associated General Contractors, although in some instances their rates were also figured for them by some other organization. These people said that they knew their rates. This was not entirely true, however. What they actually meant was that they had them on a form or card somewhere in the office. No one recited what their frequency and severity was from memory, and in most cases they did not even know whether their rates were high or low. Of the fourteen Michigan firms who belonged to the

Associated General Contractors, only nine of them had been sending in monthly reports long enough to have received rates for the 1961-62 year and one company was getting them from its insurance company. Therefore, nine of these ten were the ones who said that they "knew" their accident rates, the other one did not even realize that they were being sent to him! At this time, all Michigan members are sending in the monthly forms. Even though there were more contractors who belonged to the Associated General Contractors in Ohio, only the two previously mentioned had received actual returns of the figured rates. Of the nineteen members there, the number sending in monthly reports at the time of the interview were merely five and possibly six, but only solid evidence of this was seen in three cases. There was much uncertainty in Ohio as to just what was being discussed, and there can be no doubt that the Michigan Associated General Contractors is doing a much better job in educating its members concerning injury rates.

The next question asked if these people knew the definition of these rates or what they meant. No one in either state answered that frequency was the number of disabling injuries per million man-hours worked, but some contractors had a general idea. There were nine of these in Michigan as compared to only one in Ohio. Insofar as knowing how these rates are figured is concerned, seven Michigan respondents and one Ohioan answered in the affirmative.

However, saying that you know how something is done is much different than actually working out the solution to a problem. The reason that the latter was not requested was because it was very obvious that just about all of the interviewees would not have been able to do it correctly. This was evident from the way that they talked about the subject, and from their expressions as they did so. One thing is certain, not one of them figured their own rates, within the company, for themselves. The only rates that anyone had were those given to them by someone outside of the organization. On the whole, there was much confusion and a real lack of understanding of the terms and definitions used by the American Standards Association. This may well be the major reason for all of the inconsistencies found in the accident reports. Finally, the importance of keeping injury rates for accident prevention purposes and knowing just where one stood in order to compare present with past experience was not appreciated.

One further example of the casualness with which injury rates are treated is the case of the contractor who won an award for having the lowest frequency and severity in the country over a long period of time. When asked what his latest rates were, he said that he did not know. This does not speak too well for the efforts being made in Michigan if the president and owner of the best firm in the United States is not interested enough and proud enough to be aware

of how he has been doing. This brings to mind another "leader" in safety in the industry. He was very knowledgeable and safety conscious. When asked for his injury rates he said that he could not find them, but as he had signed the statement shown in the interview schedule in Chapter I, the rates were obtained later from the Associated General Contractors. His frequency for 1961-62 was over 70.00! It is probably only natural that if there are a great many injuries in this industry, contractors cannot be expected to advertise the fact. This reasoning may well go a long way toward explaining some of the problems encountered in the research on rates.

In conclusion, this project has found that much present data is not trustworthy. Furthermore, it has shown where additional research would be of great value. More significant and relevant questions may now be asked, and it should be clearly understood by all concerned that before any real progress can be made in safety in the construction industry, there has to be a realistic and accurate determination of just how things stand at the present time. While the study has attempted to figure frequency rates in a systematic manner and failed, it has at least shown the general situation and major difficulties in both states. Just how great the problem in safety in construction really is will not be known until injury rates are accurately determined over a period of years.

CHAPTER III

INSURANCE COSTS

Ever since H. W. Heinrich did his studies on the costs of accidents in 1926 there has been an air of mystery concerning the overhead and profit of insurance companies that handle workmen's compensation.[1] The reason for this statement is because of an omission that was made at that time in figuring the total costs of injuries to the employer. Heinrich divided expenses into those that occurred on the company premises and those that were paid by the insurance underwriter. The latter were called the direct costs and the former were the indirect. Therefore, the money paid to the injured worker and all of the medical expenses were the direct costs. The indirect were such things as damage to material and equipment, employees being paid for less or no production because of the accident, and other things of like nature. He also found that the indirect costs were usually about four times the direct, and these two combined made up the total outlay due to the injury. Of course something was missing, but many years went by without this four to one

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[1]H. W. Heinrich, Industrial Accident Prevention (third edition; New York: McGraw-Hill Book Company, Inc., 1950), pp. 49-66.

ratio being formally challenged.

When Professor Rollin H. Simonds developed his own method of determining the costs of accidents in 1947, he rectified the previous errors and omissions.[1] The new system divided the expenses of injuries into insured and uninsured costs, and a formula was substituted for the previously mentioned ratio. There were minor changes made in Heinrich's list of indirect costs, but by and large these things were approximately the same as the uninsured costs category. What is important for this research is the difference between insured and direct. The cost to the employer was not what the insurance company paid out, but what his total premium was for the period, or what he paid in because of industrial injuries. These two things are by no means the same, as the overhead of the underwriter makes up from 40 to 65 per cent of the premium dollar.[2] No mention was made of this by Heinrich, but to believe that employers were not paying for administration or that this is not a valid cost of accidents is unrealistic. Even after Simonds' method was in

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[1]Rollin H. Simonds, Estimating Costs of Industrial Accidents, U. S. Department of Labor (Washington, D.C.: U.S. Government Printing Office, 1955).

[2]Rollin H. Simonds and John V. Grimaldi, Safety Management (rev. edition; Homewood, Illinois: Richard D. Irwin, Inc., 1963), p. 105.

general use by the National Safety Council and others, many insurance people still referred to direct costs and left out the overhead and profits of their operations. The only logical conclusion was that they did not want to draw attention to the fact that businessmen were paying relatively high prices for workmen's compensation coverage.

Assumptions of this nature are reinforced by the claims of exclusive state funds. In Ohio, the government has a monopoly in compensation insurance and private companies are not allowed to compete in this area. Because of the economies in administration, overhead expenses make up a much smaller amount of the premium paid in. There is a great deal of duplication of effort when eighty private firms are selling casualty insurance, as they are in Michigan at the present time. In addition, the program in Ohio is a nonprofit one, and there are no selling expenses. Several years ago the overhead was reputed to be merely nine cents on the dollar and it has recently dropped to only about 4 per cent. This means that ninety-six cents goes for payments to workers and medical services out of each premium dollar in Ohio, as compared to about fifty cents in Michigan. It seems that there can be few real benefits due to competition as it is practiced in Michigan, because the whole industry is strictly controlled by government regulations and even the price of premiums falls into this category. This is certainly not an example of free enterprise at work in either case.

Given the above statistics, there can only be two results of the extreme differences in administrative expenses. The first is that the benefits to the worker are much greater and/or the cost of workmen's compensation insurance to the employer in Ohio is a great deal less expensive.

An investigation indicated that there was no disparity of any consequence in benefits paid to workers in either state, although it looked like the Ohio program might be slightly more liberal. Therefore, it seemed as though Ohio employers should be paying a lot less in premiums. This could not be told by looking at the insurance rates in the two states because the systems are quite different. For example, there is one broad category in Ohio which encompasses general building construction and this is classification number 5601 with a 1962 cost of $2.67 per $100 of payroll. In Michigan, this same classification is broken up into carpenters, supervisors, concrete construction, masonry, and other categories with rates that range from below one dollar to over four per $100 of payroll. Most large companies are experience rated and pay more or less than the manual or basic rate depending upon the number of injuries that they have had and the costs involved. There are also several other types of discounts and plans available, and variations in premiums due to the size of the company in both states. Therefore, what is really important here is not the price of the manual rates, but how much contractors

are actually paying out net per $100 of payroll. The study attempted to find out just how large these differences were.

However, before looking at the results of this inquiry, one additional factor must be examined and explained. While the interviews were being conducted in Michigan, there had been a vote by employers taking place in Ohio on whether or not to eliminate the exclusive state fund and allow private insurance companies to sell workmen's compensation insurance. Therefore, each contractor in the sample was asked if he thought that private insurance would be cheaper, and if he would like to see the state fund abolished. There was no need to ask this type of question in Michigan as it is quite definite that contractors want no part of further government control. Even if costs were higher with private insurance, they would all be in the same position insofar as competition and passing the cost on to the customer was concerned. Both sides in Ohio made a number of claims, and the private insurance firms primarily stressed the benefits to be found in competition. The Workmen's Compensation Bureau's basic argument was that premiums were smaller under the system currently in operation. As is usual in situations of this type, everyone used examples that put himself in a good light, while ignoring other factors almost completely. From what was said, an impartial observer would have had difficulty in determining just what would be the best action

for businessmen to take.

The voting ended with a bare majority wanting to continue with the exclusive state fund, and as this was a current topic of interest the contractors were asked for their views on the subject. It seemed to be almost a certainty that if employers knew generally about the wide differences in overhead costs, they would more fully appreciate the state program. As these questions were being asked, there was little doubt on the part of the interviewer that Ohio's rates were lower than those in Michigan. The only evidence that was seen to the contrary was a study made in a safety class conducted by the safety engineer of an insurance company. The results showed that Michigan workmen's compensation costs to owners of a business were very low as compared to other states. This may have been true at one time. However, an insurance executive in Detroit had also made a study which showed that manual rates in construction had gone up approximately 67 per cent in the previous three years in Michigan. Therefore, even if Ohio premiums had been higher than Michigan's at some time in the past, this was most probably no longer the case.

The response from the sample quite accurately reflected the results of the state-wide election. Employers were about evenly split, as thirteen thought that the state fund would provide lower costs and twelve did not. One Cincinnati contractor was for private insurance as an

individual because he was also in the insurance business and his profits would increase if the state fund ceased to exist. However, he said that he knew the state program was cheaper because he both sold insurance and did construction work across the river in Covington, Kentucky where the costs were greater. If his vote is cancelled, it makes for a twelve to twelve tie. With this one exception, the other firms did not seem to really know for certain whether or not they were saving money and just answered what they thought was most probably true. Of the people who guessed that private insurance would be cheaper, some gave competition and competitive bidding as the reasons. Others thought that the state was too liberal in granting claims and awards, while one man even quoted "Parkinson's Law" as a cause for less government efficiency.[1] Finally, there was a general concensus that if injury rates were very low, there would be greater savings passed along by private carriers.

What were the actual costs per $100 of payroll for the contractors in both states? The results were a surprise and quite unexplainable as Michigan's rates were definitely lower. It should also be clearly stated at this point that the statistics proving this are 100 per cent reliable and not like the frequency rates in Chapter II. In all cases the information recorded at the Workmen's Compensation

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[1]"Work expands to fill the time [and money] available."

Bureau in Columbus checked with company records and the same type of thing was true in Michigan. Table 3-1 shows the costs per $100 of payroll for the combined years of 1961 and 1962 in order to give a broader basis for comparison. The average premium in Ohio for this period was $2.08 per $100 as compared to $1.92 in Michigan. The range of costs seem roughly comparable, and while Ohio has both the highest and lowest figures, it is only by one firm in each instance. In order to find where the real differences lie, it is necessary to observe these lists more closely. If the number of firms with costs below $1.70 are analyzed, it can be seen that there are twice as many in Michigan, as this state has ten to Ohio's five. Conversely, if the last ten items in each column are observed, we find that they start out at approximately the same costs, but Ohio's amounts increase at a much more rapid rate.

Table 3-2 shows a breakdown of the combined figures in the previous table plus some information for 1960. These statistics are complete for Ohio, but there were 1960 entries for only fifteen of the twenty-five companies in Michigan, and they came mostly from the Michigan Workmen's Compensation Rating Bureau. Looking at Ohio first, one can see that the 1960 average cost per $100 of payroll was $2.04, or very close to the 1962 price of $2.02. This is as it should be because the basic rate did not change during this period.

TABLE 3-1

WORKMEN'S COMPENSATION INSURANCE COSTS PER $100 OF PAYROLL FROM 50 CONSTRUCTION FIRMS IN OHIO AND MICHIGAN, FOR THE COMBINED YEARS OF 1961-1962

Number of Firms	Ohio	Michigan
1	1.29	1.31
2	1.37	1.38
3	1.50	1.45
4	1.53	1.49
5	1.68	1.57
6	1.78	1.57
7	1.80	1.59
8	1.87	1.65
9	1.88	1.66
10	1.88	1.69
11	1.91	1.75
12	1.93	1.84
13	1.98	1.89
14	2.01	1.91
15	2.02	1.99
16	2.04	2.00
17	2.24	2.01
18	2.29	2.04
19	2.33	2.08
20	2.35	2.14
21	2.42	2.17
22	2.62	2.43
23	2.65	2.52
24	3.09	2.65
25	3.54	3.24
Averages	2.08	1.92

TABLE 3-2

WORKMEN'S COMPENSATION INSURANCE COSTS PER $100 OF PAYROLL FROM 50 CONSTRUCTION FIRMS IN OHIO AND MICHIGAN FOR THE YEARS 1960-62, INCLUSIVE

	Ohio			Michigan		
Number of Firms	1960	1961	1962	1960	1961	1962
1	1.77	2.34	2.96	1.50	1.73	2.09
2	1.49	1.30	1.75	2.04	1.86	2.22
3	1.86	1.60	1.39	1.62	1.61	1.69
4	1.84	1.94	1.82	1.37	1.51	1.86
5	1.38	1.37	1.36		1.82	1.95
6	1.91	2.08	1.87		1.83	2.51
7	1.74	2.05	2.53	1.78	1.94	2.03
8	2.28	2.30	2.39		2.30	2.99
9	2.07	1.83	2.64	1.40	1.41	1.90
10	2.29	2.50	2.73		1.39	1.50
11	1.69	1.89	2.12	2.00	1.89	2.26
12	1.92	1.84	1.98	1.35	1.23	1.52
13	1.85	1.74	1.85	1.60	1.65	2.36
14	1.78	1.83	2.24		2.10	2.18
15	1.94	1.98	2.06		2.11	1.88
16	1.60	1.87	1.87		1.41	1.73
17	1.42	1.24	1.33		1.25	1.36
18	1.93	1.95	1.91		1.51	1.47
19	1.75	1.62	1.74	2.32	2.82	2.22
20	1.76	1.76	1.79	1.39	1.48	2.02
21	3.52	3.48	3.59		2.39	2.46
22	3.80	3.26	2.91	1.16	1.42	1.71
23	2.33	1.87	1.89	1.70	1.62	2.06
24	2.35	2.38	2.27	2.41	3.10	3.37
25	2.65	2.40	2.43	1.37	1.58	1.60
Averages	2.04	2.02	2.14	1.67	1.80	2.04

However, the manual rate went from $2.43 to $2.67 for 1962 which is reflected in the rise of the average up to $2.14 in that year. Michigan rose from $1.67 to $1.80 to $2.04, which also follows the steady increase in the basic costs of workmen's compensation coverage in this state. When all three years are combined, Ohio firms have an average cost of $2.07 to Michigan's $1.84 or a difference of $0.37 in 1960, $0.22 in 1961, and $0.10 in 1962. Therefore, it is readily apparent that private insurance companies are charging much less, but the gap has been narrowing because of the steadily rising costs in Michigan.

It has been stated that the statistics in this chapter are 100 per cent reliable and this is true for Ohio, but there are some exceptions and explanations needed for Michigan. Again every effort has been made to give Ohio the benefit of the doubt, so that the differences shown are definite minimums. In other words, the costs in Michigan are no more than have been listed, but in some cases they are less. The reason for this is because it was exceedingly difficult to find the exact amount of all discounts that had been given in every single instance. For example, the Michigan Workmen's Compensation Rating Bureau does not have records of the total deductions given by private insurance companies other than the experience rating. These discounts vary a great deal and depending upon the particular underwriter and the size of the contractor, they can range from

a low of zero up to 30 per cent of the premium. In some cases this bureau's figures were used and if the insurance company's policy and additional savings were not known exactly they were not deducted. This was not of any real concern except for the 1960 costs as information for only two years were obtained from most company offices. However, it would be wrong to suppose that these things made a big difference in the average cost statistics. If they did, the information could be easily obtained from the underwriters. They are merely mentioned so there can be no possibilities of any misunderstandings. To repeat, Michigan's totals may be slightly less than shown, especially for 1960, but the overriding fact is that Ohio's Workmen's Compensation expense in construction is much different than we are led to believe by that government's declarations.

Why is it that with an overhead of only 4 per cent the insurance charges in Ohio are so relatively large? Perhaps it would be appropriate to look more closely at this administrative percentage. The following quotation is taken from a statement by the head of the Workmen's Compensation Bureau:

> The simplest explanation of the cost question is that the Ohio fund uses 99¢ of its premium dollar to pay benefits and 1¢ to finance the safety operation. There is a separate assessment for administrative cost as provided by statute. The employers pay 2/3 of that cost through the assessment which is 4¢ per $100 of payroll and 1/3 is paid by the state. The annual operating cost of the department is approximately $5,000,000. With a premium income in excess of $100,000,000, the

> annual expense bears a relationship of approximately 5% to premium income. Nowhere in the nation is it any lower than in Ohio. In contrast, a private carrier pays out as little as 60¢ of each premium dollar in benefits; the other 40¢ is for overhead, profit and taxes. This fact alone really disposes of the cost argument.[1]

All of this sounds very convincing, but it really does not dispose of the cost argument at all. What employers actually pay out per $100 of payroll is the cost that really counts.

One of the primary reasons for insurance charges being as high as they are in Ohio, according to the contractors that were interviewed, is because of the "philosophy" of the Workmen's Compensation Bureau. Contractors claim that the Bureau is wholly concerned with the welfare of the workers, and does not investigate claims very closely. The result is a great deal of malingering, with the Bureau paying out much larger amounts than they should. The vice-president of one construction firm claimed that a past administrator of the fund had gone so far as to practically deplete the reserves, but they were slowly being built up again in recent years. Because of the prevalent attitude, most employers felt that it was necessary for them to have a representative on hand

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[1]James L. Young, Administrator of Ohio Bureau of Workmen's Compensation; comments on a talk given by Andrew Kalmynow, Manager, Casualty Department, Association of Casualty and Surety Companies, Delivered at Workmen's Compensation Symposium, Smaller Business of America, Inc., March 6, 1962 (in mimeograph form), p. 12.

whenever there were disputed claims. Therefore, they employ private firms of actuaries to do this, keep the proper records, and check to see that they are not being charged too much for compensation insurance. Even though this service adds an extra expense as compared to Michigan firms, and widens the already large difference in costs, contractors feel that this is a practical necessity. The Workmen's Compensation Bureau maintains that this outside assistance is not needed, but nineteen of the twenty-five employers in the sample had actuaries and fifteen said that they believed they could not get along as well without someone like this to guard their interests. Another cost that Michigan firms do not have is concerned with insurance payments on any overtime premium. This is not true in Ohio as businessmen pay so much per $100 of payroll regardless of whether or not an employee was receiving double time wages for Sunday work. In conclusion, some of the reasons that workmen's compensation insurance is relatively cheaper in Michigan are: (1) many more discounts, (2) no overtime premium charges, (3) economy in the processing and payment of claims, (4) less liberal interpretation of claims, and (5) the incompleteness of Ohio overhead cost figures. Finally, the evidence in this chapter reinforces what has been found in the previous one, for if the low published injury rates were correct, and the administrative expenses were also only 4 or 5 per cent, then insurance costs could not possibly be as high as they

are. These factors lead to the conclusion that there must be many more injuries occurring than are reported, otherwise Ohio contractors would not be paying more for workmen's compensation coverage than Michigan firms.

Company Size and Insurance Costs

None of the differences found up to this point can be attributed to the firms in one state being much smaller or larger than in the other. The main reason for this is that they are remarkably similar in size. When the payrolls are listed and compared as in Table 3-3, it can be clearly seen that they do not differ to any significant extent. These amounts have been arranged from smallest to largest, and the years 1961 and 1962 have been combined and averaged as in previous tables, because the amount of business in any one year in a firm can fluctuate widely. These payrolls have been rounded off to the nearest thousand dollars in order to make comparisons easier. The average per employer in Michigan comes to $563,000 and exactly $500,000 in Ohio, and the latter figure is smaller only because of the size of the largest company in the former state. The range varies to the extent that Michigan has the largest and smallest firms by one; however, when these amounts are analyzed in a slightly different manner the similarities become much stronger. For example both states have only one company in the sample group with a payroll of less than $100,000, and

TABLE 3-3

PAYROLL IN THOUSANDS FROM 50 CONSTRUCTIN FIRMS IN OHIO AND MICHIGAN, FOR THE COMBINED YEARS OF 1961-62

Number of Firms	Ohio	Michigan
1	98	72
2	152	123
3	155	142
4	165	194
5	182	205
6	186	212
7	198	221
8	232	238
9	251	253
10	282	296
11	305	298
12	343	315
13	367	324
14	420	338
15	422	372
16	489	403
17	506	466
18	554	491
19	567	552
20	694	675
21	793	923
22	860	951
23	1,158	1,087
24	1.513	1,481
25	1,604	3,445
Averages	500	563

three each with over $1,000,000 in wages. In addition, there are exactly eight contractors in Michigan and eight in Ohio with labor costs of less than $250,000, and the six largest employers in both states have payrolls of over $600,000. The remaining eleven firms in the middle are also roughly comparable.

Larger companies have an advantage in Ohio as compared to Michigan, which shows up when the premium per $100 of payroll is correlated with size. In Table 3-4 in Michigan it can be seen that the thirteen firms with the lowest workmen's compensation costs are all under $500,000 in wages. This is not the case in Ohio, as the three employers who pay the lowest premiums per $100 all have payrolls of over $500,000 a year. In addition, three of the last four are also over this amount in labor costs. It is true that if the columns are reversed and size is listed in order, there is no close correlation between payrolls and compensation expenses in general. However, by making these comparisons in their present form it indicates that it seems to be easier for larger companies in Ohio to have low workmen's compensation costs. There are valid reasons for this situation. The first is that as a firm becomes larger in Ohio it can get both a higher and lower experience modification. This ranges to 85 per cent above or below the basic rate, and there are a number of steps up to this amount depending

TABLE 3-4

COMPARISON OF INSURANCE COSTS PER $100 AND PAYROLL IN THOUSANDS FROM 50 CONSTRUCTION FIRMS IN OHIO AND MICHIGAN, FOR THE COMBINED YEARS OF 1961-1962

	Ohio		Michigan	
Number of Firms	Insurance	Payroll	Insurance	Payroll
1	1.29	694	1.31	142
2	1.37	554	1.38	298
3	1.50	1,513	1.45	238
4	1.53	155	1.49	296
5	1.68	152	1.57	194
6	1.78	165	1.57	338
7	1.80	489	1.59	212
8	1.87	232	1.65	324
9	1.88	182	1.66	205
10	1.88	282	1.69	315
11	1.91	186	1.75	403
12	1.93	305	1.84	372
13	1.98	251	1.89	253
14	2.01	1,604	1.91	552
15	2.02	343	1.99	1,087
16	2.04	422	2.00	675
17	2.24	1,158	2.01	123
18	2.29	198	2.04	221
19	2.33	567	2.08	951
20	2.35	98	2.14	1,481
21	2.42	367	2.17	491
22	2.62	860	2.43	466
23	2.65	420	2.52	923
24	3.09	793	2.65	72
25	3.54	506	3.24	3,445

strictly on the size of the premium.[1] In Michigan the normal experience rating procedure does not give the larger firms this same type of advantage. Therefore, it is only possible for large companies in Ohio to pay such low rates. In the second place, the broad classification number 5601 allows big firms, which do a large proportion of dangerous work, to pay the basic rate of $2.67. In Michigan, larger firms tend to use more of the high cost categories and to pay for them separately at increased expense. A good example of this would be concrete construction, which is well over $4.00 per $100 of payroll.

Another way of looking at the above is to correlate size and the experience modification as in Table 3-5. In Michigan, the two smallest firms pay a penalty and also six out of the last eight are above the manual rate, while those in the middle all have a discount. On the other hand, the same situation is not true in Ohio, as size and penalties have no seeming correlation. However, the last nine companies, or those with payrolls of over $500,000, have both the three lowest and the two highest experience modifications. Thus, it can be said that in Michigan the smallest and largest firms tend to pay a penalty, while in Ohio it is the large companies who both tend to save more and to spend

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[1]Ohio, Bureau of Workmen's Compensation, Handbook for Employees and Employers: Workmen's Compensation Act (revised edition; Columbus, 1959), p. 12.

TABLE 3-5

COMPARISON OF PAYROLL IN THOUSANDS AND THE EXPERIENCE MODIFICATION FROM 50 CONSTRUCTION FIRMS IN OHIO AND MICHIGAN, FOR THE COMBINED YEARS OF 1961-1962

	Ohio		Michigan	
Number of Firms	Payroll	Experience Modification	Payroll	Experience Modification
1	98	.93	72	1.30
2	152	1.11	123	1.09
3	155	.72	142	.87
4	165	.74	194	.82
5	182	.91	205	.84
6	186	.88	212	.95
7	198	1.08	221	.96
8	232	.97	238	.81
9	251	.76	253	.85
10	282	.78	296	.92
11	305	.84	298	.81
12	343	.87	315	.72
13	367	.97	324	.86
14	420	1.18	338	.97
15	422	.98	372	.83
16	489	.78	403	.92
17	506	1.53	466	.98
18	554	.53	491	1.25
19	567	.92	552	1.05
20	694	.53	675	1.05
21	793	1.23	923	1.03
22	860	1.14	951	1.16
23	1,158	1.03	1,087	.87
24	1,513	.63	1,481	.84
25	1,604	.86	3,445	1.12

more. In other words, their size alone permits them to do this under the Ohio system where they have to take larger risks than the small contractors and also stand to gain more if the fund pays out less in settlement of claims against them. In Table 3-6 the range of discounts in Ohio is greater than Michigan's, as it has the three lowest rates and also the highest one. This is again because there are not the same number of gradations and advantages in Michigan due solely to size, as there are in Ohio. On the other hand, a smaller, safety conscious firm in Michigan is able to save more (if the costs of settling claims against him are low) than the same size contractor in Ohio, as the latter is more closely limited in both his possible credits or penalties.

The Experience Modification and Insurance Costs

The average experience modification in Table 3-6 is 92 per cent in Ohio and 95 per cent in Michigan. This shows that contractors in the latter state are not paying less for workmen's compensation coverage because of this discount, but for the other reasons previously mentioned. Furthermore, these two percentages are so close that they, by themselves, can be responsible for no other significant differences in the findings. There are a total of seven penalties in Ohio as compared to eight in Michigan. In addition, the eleventh lowest company in each state has a rate of 87 per cent, so

TABLE 3-6

EXPERIENCE MODIFICATIONS FROM 50 CONSTRUCTION FIRMS IN OHIO AND MICHIGAN, FOR THE COMBINED YEARS OF 1961-1962

Number of Firms	Ohio	Michigan
1	.53	.72
2	.53	.81
3	.63	.81
4	.72	.82
5	.74	.83
6	.76	.84
7	.78	.84
8	.78	.85
9	.84	.86
10	.86	.87
11	.87	.87
12	.88	.92
13	.91	.92
14	.92	.95
15	.93	.96
16	.97	.97
17	.97	.98
18	.98	1.03
19	1.03	1.05
20	1.08	1.05
21	1.11	1.09
22	1.14	1.12
23	1.18	1.16
24	1.23	1.25
25	1.53	1.30
Averages	.92	.95

that even though Ohio is way ahead in the number of firms paying less than 80 per cent, Michigan makes up for this with companies in the 80 to 90 per cent range. Ohio has an eight to one advantage below 80 per cent but is behind by four to ten in the 80's, or a difference of one. Both states have six employers with costs in the 90 per cent bracket.

When the experience modification is compared with the net premium per $100 of payroll (Table 3-7), there is not found to be a totally consistent correlation, although one generally follows the other in each state. The reason for this inconsistency is that in both states there is a difference in the time period involved, as the insurance costs have been figured on a calendar year basis for this research, and the experience modification is based on the premium year. In Ohio, the insurance year changes on the first of July and in Michigan the policy dates can be at any time depending upon when the coverage was first purchased and/or the system of the particular underwriter. In addition, the amount of employment can vary a great deal in the several construction classifications, which have different rates per $100 of payroll. This can change the net premium even when the total number of employees and the experience modification remains the same, and it also explains the variations between companies in insurance when their discounts are similar. For example, some contractors have

TABLE 3-7

COMPARISON OF EXPERIENCE MODIFICATIONS AND INSURANCE COSTS PER $100 FROM 50 CONSTRUCTION FIRMS IN OHIO AND MICHIGAN, FOR THE COMBINED YEARS 1961-1962

	Ohio		Michigan	
Number of Firms	Experience Modification	Insurance	Experience Modification	Insurance
1	.53	1.23	.72	1.69
2	.53	1.37	.81	1.38
3	.63	1.50	.81	1.45
4	.72	1.53	.82	1.57
5	.74	1.78	.83	1.84
6	.76	1.98	.84	1.66
7	.78	1.80	.84	2.14
8	.78	1.88	.85	1.89
9	.84	1.93	.86	1.65
10	.86	2.01	.87	1.31
11	.87	2.02	.87	1.99
12	.88	1.91	.92	1.49
13	.91	1.88	.92	1.75
14	.92	2.33	.95	1.59
15	.93	2.35	.96	2.04
16	.97	1.87	.97	1.57
17	.97	2.42	.98	2.43
18	.98	2.04	1.03	2.52
19	1.03	2.24	1.05	2.00
20	1.08	2.29	1.05	1.91
21	1.11	1.68	1.09	2.01
22	1.14	2.62	1.12	3.24
23	1.18	2.65	1.16	2.08
24	1.23	3.09	1.25	2.17
25	1.53	3.54	1.30	2.65

much more clerical help than others, and this type of personnel costs practically nothing to insure. Therefore, a firm with an extraordinary amount of office help will have a relatively low net premium, and everything else being equal, they should also have a much lower frequency and severity rate.

The experience modification is not a good indicator of a company's injury rates by itself, although it is useful when used with other data. This is because: (1) It is an average of the past several years' experience. (The costs of the fund in settling claims in Ohio are averaged for a five year period, and in Michigan there is a one year lag and then the three previous years are combined.) (2) A really serious and costly accident can distort the picture for a long time--depending upon the size of the contractor involved. (There is a procedure which charges all of the costs up to a certain point against a firm, but no more than this amount per injury.) (3) A costly injury can distort the modification much more in a small company than in a large one. However, as previously mentioned, only larger firms in Ohio can have the extremes in credits or debits. (4) Reserves may be set aside because of a claim and even though the full amount is never used for that purpose it will still be charged in the rating procedure. Thus, it can be seen that many factors can be responsible for an experience modification being very high while the frequency rate is low and vice versa.

Naturally, some aspects of frequency and severity are included in experience rating, but this percentage is really only a reflection of the direct costs of the underwriters. Medical-only cases cost the insurance company money but they do not influence the injury rates of a contractor. On the other hand, it is unreasonable to suppose that there is not some sort of loose ratio between medical and lost-time cases, which would not vary too much between firms in the same industry. Another consideration is that there is no necessary correlation between the seriousness of an injury in days lost or charged and what the expenses are to the insurance company. To complicate matters even further, the manual rate may increase and this alone would change the experience modification if everything else was to stay the same. Stated in another way, a contractor's injuries may become more numerous and the direct costs in settlement of claims may also rise, but if the manual rate went up in this period the result could well be that the credit or debit would stay exactly the same.

However, even with all of the reservations mentioned, if a contractor has a consistently high (or low) experience modification over a considerable period of time, it is safe to assume that his safety program probably leaves much to be desired (or is doing well). If the changes in manual rates are known and other information is at hand from a number of companies, then the level and direction of this

discount gives valuable clues as to what is occurring. Two examples should suffice to prove this point, and they come from comparisons with all of the available data and the frequency rates reported. (The appropriate tables and correlations have not been included here because of the errors that were previously mentioned in Chapter II with nonindemnity lost-time injuries.) In the first case, an Ohio contractor had the second lowest combined frequency, which was 22.54; however, his experience modification was 153 per cent. These two figures do not go together, especially when the previous year's penalty was 165 per cent of the basic rate. The example in Michigan showed an employer who reported a frequency in the middle 30's, but he had the highest premiums per $100 of payroll and an experience modification that was the fourth highest, well over 100, and going up. It was later found that he had reported eight less lost-time cases than there were indemnity cases in 1961. Certainly the experience rating does not tell the story that well-kept frequency and severity statistics do, but if injury rates are maintained at a low level because of a safety program this percentage will naturally follow. It is of crucial importance to a contractor that he does not have a high modification as this will seriously affect his ability in competitive bidding situations and also his profits. This becomes doubly serious if the penalty had been earned during a period of relatively low business activity and then volume

was to increase greatly. Regardless of what he did then, his premium would be enormous and this high cost could cut into profits for a long time.

Cost Motivation

During the interview, everyone was asked if they had received any cost motivation, how much, and from what source or sources? In Ohio, ten firms answered that they had been recipients of various degrees of persuasion, while fifteen of them had not. Of the ten affirmative replies, four had obtained cost information from their actuaries, four from the state, and two from the Associated General Contractors. A dozen companies had received this type of motivation in Michigan, nine from their insurance underwriters and three from the Associated General Contractors. Two of these had also been given assistance and literature from a local safety organization and the National Safety Council. Of the remaining contractors, twelve said that they had heard nothing at all in this respect, and the remaining one was influenced in a sense by his own actions. He had compared prices and changed insurance companies several times and became aware of the importance of costs in the process, even though no one had actually set out to help and to educate him in this area.

From the above figures, one might receive the impression that the general situation in regard to cost was not too

much different in the two states, but nothing could be further from the truth. The questions that contractors were asked referred to someone trying to motivate them by some form of persuasion or education, and this had been about equal. However, the environment in the two states was not the same, and accounts for there being a great deal more interest and understanding in one place than the other. In Ohio, all forms, procedures, and records are standardized. There is not the confusion one finds when eighty different underwriters are competing in an area, as they are in Michigan. In addition, each firm has a penalty or a discount assigned to it, and a form is then sent which clearly indicates the amount that it is to pay per $100 of payroll. Building construction classification number 5601 was the only category that twenty-three out of twenty-five companies in the sample had besides office personnel, so they had no doubts about the amount of this expense. The experience modification was the only discount given, which made it very simple for them to observe the rise and fall of their workmen's compensation net premium and the costs per $100 of payroll.

Most contractors in Ohio are apprehensive about the proper administration of the fund by the government. For this reason they have private actuaries check on the charges assigned against them, and on all of the various computations which affect their experience modification. This outside

force stands apart and criticizes the state's actions when necessary, and this whole process tends to make their customers more aware of costs. The fact that the government knows everyone's premiums also makes for less surreptitiousness in general, as one insurance company in Michigan might take business away from others if these costs were out in the open. The competition makes for secrecy, and a contractor's discounts tend to be a hush-hush subject. Finally, there is a system of penalties in Ohio, which range from 15 to 50 per cent of the total cost of an injury.[1] This money is given in a lump sum to the employee who was hurt if it can be shown that the contractor had not been following some provision of the safety code when the accident occurred. This penalty is not covered by the regular workmen's compensation and is an out-of-pocket expense, which results in additional strong motivation from an economic standpoint. There can be no doubt that the whole procedure concerning the insurance costs of accidents in Ohio is relatively simple and generally understood.

The situation in Michigan is just the opposite. Things are so confusing that the average employer just does not know what is going on. Practically every insurance company has different forms and individual methods of figuring the premium, giving discounts, collecting the payments, etc.

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[1]Ohio, Constitution (1924), Art. 2, sec. 35.

The numerous classifications of building construction, which vary widely insofar as costs are concerned, makes it impossible for the firm to have any idea of what they are paying per $100 of payroll. Besides these separate prices, the percentage of workers in each category is also continually changing. The total premium by itself tells nothing because the total volume of production and activity is never the same from year to year. The only way for the contractor to actually know what his costs are per $100 of payroll, is to do the necessary calculations himself. Only one person in the sample had ever tried to do this, and he proved to be off in his estimate by about 25 per cent.

It is almost impossible in some cases for a company to even find out their past net premium--depending upon their accounting procedures and whom they are insured with. One owner assigned the workmen's compensation expense for each construction job on an individual basis and against the revenue from that project. Therefore, he was uncertain of his total costs and asked the interviewer to procure this figure from his insurance company which was one of the large and respected firms. The trip was authorized in writing and on the first occasion the statistics supplied showed the firm as paying $5.98 per $100 of payroll. On the next visit it came to $1.12, and on the third the correct information was finally obtained. These errors were not due to a lack of cooperation, but because the people involved had never

had this type of data previously requested, and they were uncertain as to how to go about getting it. When another contractor was asked for his net workmen's compensation insurance cost, he could not supply it because it was combined with other types of coverage. He further stated that he not only did not know it, he did not even care, as he was a construction specialist and could not be bothered with insurance. He also said that he trusted his agent and allowed that person to handle everything that was necessary. When approached, the insurance agent also had a very difficult time finding the figures and could only come up with a "close approximation." The words of a very well informed and safety conscious builder came to mind at this point. They were:

> If the price of shovels or other such material went up, then the average contractor would be right on top of things and complaining, but the cost of workmen's compensation insurance could be raised and he would not even be aware of it.

As an example of this, the firm with the highest experience modification in Michigan did not have any idea of his costs or that he even had a "problem" in safety.

Perhaps the primary reason that there is difficulty in determining the net premium is because of the many types and variations of deductions from the manual rate that are available in addition to the experience modification. First of all, there is a discount of from 3 to 16 per cent, depending on the firm's size, if the coverage is with a mutual

insurance underwriter. Next, the stock companies give credits that range from 9 to 14 per cent if the premium is between $4,000 and $95,000 annually. The mutuals in turn give a further dividend of from 10 to 15 per cent at the end of the insurance year.[1] There are still other types of policies that can provide additional savings, but the risks are also greater. These so-called retrospective rating plans have four degrees of protection, A, B, C, and D, and as the possible discounts become greater the penalties may also be much larger, depending upon how high the direct costs in settlement of claims against the contractor become. An example of how involved these plans can be is as follows: One insurance company was approached in the late summer of 1963, and they had still not determined the net premium for the calendar and insurance year of 1962. This was a lag of eight months, which makes the net insurance cost almost impossible to obtain while it is still relevant. Of course, this is by no means all that there is to the discount picture, but it will suffice to show the chances that there are for a contractor to become confused.

Most employers in the construction industry do not realize that they can shop around and save money on their

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[1]Basic Manual of Workmen's Compensation and Employer Liability Insurance (Detroit: Michigan Workmen's Compensation Rating Bureau, December 1, 1963), p. 6A.

workmen's compensation insurance. This fact is not publicized, and the impression that one receives is that everybody in an industry pays the same rate, and the only competition that exists is concerned with service. While it is true that a contractor's experience modification is identical regardless of who the underwriter may be, the similarities cease at this point. The better insurance companies will investigate a prospective customer and if his accident prevention activities are poorer than average, they will not write a policy for him. The point being stressed here is that if a contractor is safety conscious and also knows what his insurance costs are, he can bargain and insure with one of the good companies who charge less, and who also give the best service in both safety inspections and accident prevention. The average builder does not understand all this very well, especially those who are paying the higher premiums.

Furthermore, many firms do not look around for lower prices in workmen's compensation coverage because they have an independent agent who handles their insurance and who receives a commission on the premium from the underwriter. These agents are not especially interested or too much concerned with safety as such, and when they are choosing an insurance company, the safety services provided do not seem to be of primary importance. Actually, the underwriters who give the biggest discounts and the better safety services do not deal through a middleman, which clearly indicates that

what is good for the agent is not necessarily in the best interests of the contractor.

In Ohio, the actuaries side with and work for the businessman. Costs are continually discussed and the government is often criticized. However, in Michigan there is no one like this to explain the various intricacies to the employer. Thus, while the average contractor may be somewhat suspicious of the Workmen's Compensation Bureau in Ohio, there are relatively few complaints about insurance costs from Michigan firms. They really do not know when their expenses are going up and to what extent, and they have not been generally aware of how much the manual rates have been increasing in the past several years. In other words, the secrecy and lack of understanding concerning premiums have made things easier for the insurance companies, but they have not done a great deal toward motivating the employers to reduce the number and severity of injuries. Most Michigan firms know about their experience modifications, but this figure does not tell as much as it seems to. The manual rates can easily increase to the point that a contractor's experience modification discount would be larger, while his costs per $100 of payroll would in reality be higher than when he received the lesser discount.

Therefore, while the amount of education and persuasion in the area of cost motivation by the various sources in both states is not too much different, the basic system

of workmen's compensation coverage in Ohio leads to involuntary awareness and more real motivation. There have been no scientific studies of the costs of injuries made in the construction industry, and without this type of research, so-called motivation can only be a series of insignificant pep-talks. This is important because what contractors actually seem to feel is that they have no real control over these expenses. They continually cite examples of workers being hurt through their own negligence, which results in premiums going way up for several years. Although this may not be true, it is the way that the average contractor looks at injuries and the costs of accidents--he feels bewildered and ineffective. Is anyone aware of what really can be done on a financially sound basis, and can they prove it? The construction industry is like no other in respect to accident prevention; they have their own particular problems. Even though it has been shown that safety pays in most areas, there should be extreme caution about transferring generalizations from other industries without the necessary facts to back them up.

Before this subject is closed, there is one drawback concerning costs in Ohio that has not been mentioned and that needs to be explained. The basic rate of $2.67 per $100 of payroll, for building construction classification number 5601, also applies to executive and supervisory personnel who appear and work on the various job-sites. However, classification

number 8810, which is for office and clerical workers, has a rate of merely ten cents per $100 of payroll. Therefore, if an officer of the company never visits a construction project he may be included in the latter category. This happened to be the case with the treasurer of one company in the sample, which had the best over-all safety program in Ohio. The only real difficulty here is that this person was also the safety director of the firm!

In conclusion, another experience that occurred during the interviews sums up the confusion and misunderstandings that are all too prevalent. A contractor had been complaining to his agent about the high costs due primarily to one injury. In citing reasons for the increased premium, the insurance man explained that the injured employee earned approximately $150 per week, and as he was receiving two-thirds of his wages in compensation, a great deal of money was being paid out. Both people ended the conversation by happily decrying government interference and "creeping socialism" and the employer self-righteously stated that "the workers were walking away with the place." In reality, there are double maximums on the workmen's compensation benefits that may be collected in Michigan, as the unmarried employee in question could receive no more than two-thirds of his pay or $36.00 a week--whichever happened to be the lesser amount. In other words, the worker was getting about

25 per cent of his earnings rather than the 67 per cent that the agent had implied. It is true that employers were collecting two-thirds of their wages when the Workmen's Compensation Act was passed in 1913, but this amount has steadily decreased because of gradual inflation and the double maximum. The act has not been liberalized to any significant extent since its passage, and in more and more cases it is being by-passed and claims are being brought into court. The expensive settlements and continuances allowed by the courts are primarily responsible for the large increases in the manual rate. This whole procedure goes against the principles that workmen's compensation was founded upon. Therefore, rather than the term "creeping socialism" being used to describe workmen's compensation today, something like "galloping medievalism" would be just as colorful and also just about as inaccurate!

CHAPTER IV

ASSISTANCE

The purpose of this chapter is to explore the various types of assistance that contractors receive in their accident prevention activities. The sources of this aid and the major differences between the two states will also be analyzed. To begin with, the respondents were asked for their general feelings on the subject in the form of the following question: Have you ever been really and effectively helped in safety? This query was so phrased that a "pep-talk" on accident prevention would not be considered as assistance. The result was surprising as half of the interviewers said that they had never been given any worthwhile aid in this area. Of the remaining twenty-five who felt that they had been helped, fifteen were located in Michigan and ten in Ohio. Moreover, the only source of help given in the latter state was by the Division of Safety and Hygiene, while four different types of organizations were mentioned in Michigan. There were three firms that named two sources of assistance, which resulted in insurance companies being listed twelve times; trade organizations, four times; a local safety organization, once; and the Army Corps of Engineers, once. Thus, five more contractors feel that they

have benefited in safety from sources outside of the company in Michigan than in Ohio, and also the greatest amount of aid originates from the underwriters' activities. This most important and influential area will be examined next.

Safety Inspections

Undoubtedly, the greatest amount of help and interaction in safety takes place during the inspections that occur on a continuing basis on the job. Table 4-1 clearly indicates that there is much more of this going on in Ohio than there is in Michigan. In no instance does more than three months elapse without a contractor's major projects being inspected in Ohio, and the usual situation is for this to occur every month. Only six firms see a state official less than an average of twelve times yearly as compared to fourteen in Michigan who fit into that category. The last nine companies in Michigan do not receive the benefit of being coached in their safety efforts on a regular schedule and to any significant extent. It would seem that visits occurring at intervals of more than three months cannot make a lasting impact or any real impression. About all that can be said for these contractors is that three of them have had someone on their jobs at one time or another; however, the remaining six have never seen an inspector of any type and from any source whatsoever!

TABLE 4-1

AVERAGE NUMBER OF SAFETY INSPECTIONS PER YEAR IN 50 CONSTRUCTION FIRMS IN OHIO AND MICHIGAN

Number of Firms	Ohio	Michigan
1	24	48
2	24	24
3	12	12
4	12	12
5	12	12
6	12	12
7	12	12
8	12	12
9	12	12
10	12	12
11	12	12
12	12	8
13	12	6
14	12	4
15	12	4
16	12	4
17	12	1
18	12	1
19	12	1
20	8	0
21	8	0
22	6	0
23	4	0
24	4	0
25	4	0

The Division of Safety and Hygiene has twelve men located around Ohio who work exclusively with the construction industry. A written report is mailed to the firms after most investigations; this is especially true when something is found to be unsafe. In addition, the inspector often drops by to see if the violations have been corrected and his suggestions complied with. While there are some differences to be found within this state program, they are by no means as extensive as the ones in Michigan where the whole situation is much more complex. Most private insurance companies send their safety engineers out on a regular basis, but not to all builders. Contractors in out-of-the-way places are not often visited by some underwriters and others only service their larger customers. The practices on the job also vary widely as several programs are excellent and have highly qualified personnel, while other insurance firms seem to be merely going through the motions for competitive purposes. Furthermore, many private inspectors work exclusively with construction firms while others call on all types of business concerns, which dilutes their skills and efforts. An example that shows the possible degree of diversity which may exist comes from the sample itself, as there were thirteen different underwriters for the twenty-five contractors interviewed in Michigan. This was true even though seven employers were insured with the largest company.

No one but the state in Ohio ever inspects a firm's construction projects. The contractor receives no accident prevention assistance of this type from any other group or safety organization. The one possible exception, which was also true in Michigan, was that a few contractors did work for the federal government, and there is always a federal inspector on these jobs. However, this official never appeared at any other company buildings. The same type of situation was also true for various kinds of city or county work, but these inspectors were not safety specialists as much as they were engineers who were primarily concerned with the job being done right, and various specifications being met. The only organization, other than a contractor's underwriter, that actually provided assistance with safety problems on the job was a local chapter of a trade association in Michigan. However, these took place in only one city and were not too extensive. They had not had a chance to provide this service to all of their members in the area, only one job-site was inspected for a particular contractor, and only one of these visits seemed to be made per month so that a very long time elapsed between calls. According to the reports from the firms in the study, and with the exceptions already mentioned, there were no safety inspections made by any safety organizations, the Associated General Contractors, or any other groups.

There is a noticeable lack of uniformity in the amount and quality of assistance that is given by different inspectors, by the same inspectors to different companies, and by underwriters to their various customers. Some safety engineers in Ohio were qualified to the extent that they had once been carpenters, but had retired from that type of employment because of age. Others were not as efficient, persuasive, or interested as they might have been. In some cities, inspections were skipped every so often or were done hurriedly and superficially and reports were not always made out when they were due. An example that highlights the differences in safety personnel is as follows: the only cost motivation in the five areas came from one man who inspected in the Toledo area. He tried to sell safety and show where it was financially sound and all of the contractors that he visited knew of the importance of costs. However, none of the remaining firms had ever heard anything of this nature from the public officials in their area. The same general situation seemed to be the case in Michigan. Some safety engineers were providing excellent assistance while others were no more than clerks with titles. In a large and well respected insurance company, there was one inspector who was approached by the interviewer for some statistics and it quickly became obvious that he was not very well qualified. Mistakes had been discovered in his reports to the contractor but they were brushed off. He justified his actions by

implying that this was only a public relations stunt to impress the company president and continue to sell him coverage. The frequency rate submitted to the employer had no basis in fact whatsoever, and the actual help given on the job could not have been very worthwhile judging from this person's seeming knowledge of construction safety. Another representative from a different underwriter told one of the contractors in the sample that all of the casualty companies operating in Michigan had agreed to discontinue their safety inspections in the future. This firm had not been visited for several months before the interview and was resigned to receiving no more assistance of this type. This would then make a total of ten Michigan firms out of the twenty-five who are not being regularly inspected by their insurance companies.

Why is there such a difference in the safety service provided to contractors? One of the first things that comes to mind is the possible variations due to the size of the company. Table 4-2 correlates size and the frequency of inspections, and there does not appear to be any relationship at all in these two factors in Ohio. Looking at the three firms that are contacted the least number of times, one can readily observe that both the largest and smallest employer fits into that category. In addition, the seventeen contractors who are visited one a month range from very high to very low in the total amount of premiums that they

TABLE 4-2

COMPARISON OF PAYROLL IN THOUSANDS AND NUMBER OF INSPECTIONS PER YEAR FOR 50 CONSTRUCTION FIRMS IN MICHIGAN AND OHIO

	Ohio		Michigan	
Number of Firms	Payroll	Number of Inspections	Payroll	Number of Inspections
1	98	4	72	0
2	152	12	123	0
3	155	12	142	0
4	165	12	194	8
5	182	4	205	0
6	186	12	212	1
7	198	12	221	48
8	232	6	238	4
9	251	24	253	4
10	282	24	296	12
11	305	12	298	12
12	343	12	315	12
13	367	8	324	1
14	420	12	338	0
15	422	12	372	12
16	489	12	403	12
17	506	12	466	6
18	554	12	491	12
19	567	12	552	1
20	694	12	675	4
21	793	8	923	12
22	860	12	951	0
23	1,158	12	1,087	12
24	1,513	12	1,481	24
25	1,604	4	3,445	12

pay in. Perhaps the major reason for this situation is that in Ohio the inspections are not looked upon as a service to the extent that they are in Michigan. This is because of the presence of safety legislation in one place and the relative freedom to change underwriters in the other. Therefore, while the size of the firms in the sample does not make a perceptible difference, it must be remembered that all of the interviewees were general contractors and they were relatively large. They were fairly "visible," advertised, had easily accessible office facilities, and were generally well known in the trade as they all specialized in commercial and industrial construction work. Inquiries were made during the study which indicated that the same conditions did not apply in the rest of the industry. For example, if jobs lasted less than a month, there were no visits from state officials. Furthermore, there were never any inspections of house builders, which seems to be only natural as there were merely a dozen inspectors in construction in the whole state and they could not possibly cover all of this type of work that was being done. In other words, the sample is not representative of the industry as a whole when it comes to inspections. Smaller projects that are not institutional, commercial, or industrial and that take a relatively short time to complete are ignored even though a large percentage of the man-hours worked throughout the state falls into this category. If accident rates are lower on these jobs it

cannot be due to anything that the state is doing in safety, but only to the less hazardous nature of the work, and no one can really take any credit for this situation.

In Michigan, size is a much more important consideration, as insurance companies maintain that they cannot provide good service when only a small premium is involved. A good example of this comes from two underwriters who have three customers each in the sample. They both have one contractor that has never been inspected, one each that is visited every three months and the remaining firm is inspected at least once a month in both cases. These differences depend upon size in every instance but one, and this special case will be examined in a moment. The effect of total premiums on service shows some correlation in Table 4-2 as it can be seen that the three smallest firms have never been inspected. Not only has this condition also applied to three out of the lowest four companies, there are also eight out of the nine smallest firms who are visited less than once a month; stated in another way, only one contractor out of the first six can really be said to be given any practical assistance. As the payrolls become larger, there is less of a correlation, and if the last seven figures are analyzed, it can be seen that the number of calls varies extensively. They range from one every two weeks, to one a month, one every three months, one a year, and all the

way to none at all. The reason for this is that another factor becomes increasingly important at this point, which is the policy regarding services of the particular insurance company itself. Some of them do a much better job than others. For example, the largest underwriter in the sample provides inspections on an average of one a month for its seven customers. Their smallest contractor, or number four in the column, is visited every six weeks, while the largest, which is number twenty-four, is inspected every two weeks. The other five firms are contacted every month. To show how important this casualty company is in the amount of service that it gives as compared to the average of the other underwriters, a further extensive examination will be made. If these seven employers are taken from the list in Table 4-2, then numbers seven and fifteen are the only two employers that are visited at least once a month all the way up to the eighteenth company in the column. Of these two, one is the special case previously mentioned and the other is the firm who is no longer being inspected at all. In other words, the efforts of this one underwriter are what is really making Michigan look as good as it is as compared to Ohio.

Another circumstance that influenced the amount of assistance provided by the inspector was his reception by the people on the construction site. If there was a good relationship between the two parties, then he appeared more often. This discovery came about by accident and was not

sought after directly. Without being asked, the two employers in Ohio that were inspected every two weeks and also the one in Michigan that was contacted weekly, all said that they personally liked the inspector and were glad to see him arrive on the job. In both states, these were the firms that were visited more than anyone else, and it seems certain that the frequent calls were not due to the underwriter's general policy, but to the congenial atmosphere.

Therefore, three factors help to determine the frequency of contacts: the size of the employer's business, the policy of the underwriter, and how the individual inspector is treated on the job. Several Ohio companies mentioned that they would like to have the inspector come around more often, and as they cannot change insurance firms, about the only thing that they can do is to develop a personal relationship with the representative from the Division of Safety and Hygiene. The same thing is true for the one Michigan employer that complained of too few visits. He was being inspected once a month, and was a customer of the best underwriter, so his only recourse would be to make the representative feel real welcome and try to take his advice when he appeared on the construction site. Of course, these restrictions do not apply to the average contractor in Michigan, especially those who are receiving very little assistance. Although the smaller builders tend to insure with the underwriters who provide the least service there is no reason

why this has to be the case. They cannot change their size, but they can look around for a good insurance company, try to be safety conscious, and treat the inspector with respect and appreciation. Of course the best underwriters cannot be named in this study; however, they can be found by an interested employer if he simply looks for the companies that charge the lowest net premium. These companies in turn provide the best service, but they only take the good risks also, so the contractor will have to show in word and deed that he is vitally interested in accident prevention. If he does this, then his size will not be a handicap.

Safety Training

The next most important type of assistance that the contractors in the study had received was safety training. While Ohio was far ahead in the number of inspections, the exact opposite is true when this other type of help is considered. There is really no formal training to speak of that comes from outside of the company organization structure in Ohio. Officials of the Division of Safety and Hygiene had said that they had training programs that were given firms on request, but it is doubtful if there is one designed specifically for the construction industry. There was also some mention of a long waiting list to take advantage of this assistance, but according to the interviewees they were not aware of any of this. When asked if they had

received any safety training, only two Ohio contractors replied in the affirmative, and their explanations showed that there was not very much actual training that took place. In the first company, which was located right in Columbus and close to the state headquarters, one pay-clerk had seen two short safety films. He said that he was not impressed, and did not really get anything out of them. This was the total extent of training in that firm, and the other situation was not much different. This employer stated that he and some of his officials went to safety meetings twice a year and there were some accident prevention instructions given. However, these were probably in the nature of "pep-talks" and not actual training as such. The Workmen's Compensation Bureau does hold meetings to discuss rate increase and explain how the fund operates, and this is probably what had been referred to. There can be little doubt that they were attending safety conferences for industry in general and not planned programs that would help solve contractor's specialized problems. A good indication of this was that the president stated that the only way that they could ever get supervisors and people on the job to go along was to put direct pressure on them.

On the other hand, there was evidence of actual safety training taking place in Michigan. This was in the form of an eight week course with classes held one night a week for a three hour period. Upon completion of the planned

program a certificate was issued to all participants. There were approximately thirty men in a class, which usually consisted of owners, executives, supervisors and other key personnel of contractors in a certain city or area. These courses have been conducted throughout the state over a relatively long period of time, and were jointly sponsored by the Associated General Contractors and other groups. Although some respondents had also attended other types of training programs put on by the Red Cross or safety organizations, the one previously mentioned undoubtedly has made the greatest impact. There were a total of sixteen Michigan firms in the sample that had sent some employees to bona-fide safety training classes, and in some cases all of the permanent personnel in a company had participated in a program put on especially for that concern. In no way did what had occurred in Ohio compare with the assistance that these Michigan contractors had received in this area.

Outside Influence

Inspections and training are somewhat definite and can easily be labeled, while there are other forms of help that are more in the nature of persuasion and motivation and not so readily identified and evaluated. This is the reason that these items are classified under the heading of outside influences. Certainly inspections and training are also concerned with educating and influencing people, but these

things could be handled more directly, while "selling" safety is more variable and can take many forms. This section of the report will try to determine the extent of the influence towards accident prevention and also the effectiveness of these endeavors. This was done by asking an open end question that attempted to probe into the extent of the communication that contractors were aware of, how they were motivated, what they heard about safety, and from what sources. In no instance do these queries relate to areas that have been specifically handled elsewhere, such as for example, the amount of cost motivation that the firms had received.

Because of the rather broad nature of the responses, they were classified into three general groups; thus, the amount and quality of the safety propaganda that contractors were subjected to was rated as being either relatively good, fair, or poor for comparative purposes. In other words, a poor notation means that the firm had not been influenced towards accident prevention, and no one had even tried to do this, insofar as the respondent's awareness and consciousness of the effort was concerned. A fair answer indicates that there had been some communication, but it had not generated any real interest or activity, and good shows that someone had done a fine job in selling accident prevention and the contractor had become more safety conscious as a result. The responses show a greater range in Michigan as there were

thirteen good, three fair, and nine poor, in comparison to twelve good, eight fair, and five poor for Ohio. These figures show that almost twice as many Michigan companies had not heard very much about safety as had those who were in the sample in Ohio. However, the great differences on the other end are obscured and need to be explored more fully. The three most safety conscious employers in Michigan had not only been well motivated, they were going out and influencing others. They were all in charge of some type of safety committee or organization outside of their own firm, and they all gave talks and speeches on the importance of safety to various other groups. Nothing comparable to this was found in Ohio. Therefore, the replies to these queries on persuasion are in reality a key to the recurrent theme that runs throughout the study and which highlights the greater extremes that are continually being found in Michigan. There is much more interest and ferment on the part of the better contractors here, which has no doubt been due in part to the threatened passage of safety legislation. In Ohio, there is not as much concern being generated in accident prevention, but on the other hand, no one seems to be as completely in the dark as some of the Michigan employers who are not being reached by anyone.

When the origins of the various influences are analyzed in Ohio the picture looks relatively simple. As there were five poor answers, this means that only twenty sources

of assistance were named. Of these, the Division of Safety and Hygiene was mentioned sixteen times; the Associated General Contractors, three times; and a safety organization, once. The latter group was given a fair, and the Associated General Contractors was rated good for the three times it was named. There were seven fair ratings for the Division of Safety and Hygiene, which indicates that while it was doing the most in selling safety, there were also many contractors who believed that these efforts were ineffective. As opposed to this, the situation in Michigan was rather confusing and not at all consistent. Several interviewees mentioned more than one source of influence, and there were at least nine different origins that were listed. Things like safety publications and the political climate were referred to, but the source that stood out from the others was the Associated General Contractors, which received five good votes--much better than anyone else. Because of the difficulty and variety of these responses a separate section later in this chapter will evaluate the contributions of the influential groups in both states. Again it should be made clear that some of the Michigan companies did not play as passive a role here as their counterparts in Ohio, as they were seeking out sources of information and actively discussing the subject of accident prevention and safety legislation.

In order to put all of these items into their proper perspective, the following observations should also be noted. Certainly all of these people in both states had heard something about safety, but the difficulty is that they do not take it too seriously. No one said that they were against it, but relatively few could be called strongly motivated towards accident prevention. One of the major reasons for this situation is the limited degree of sophistication and knowledge that exists in the area. The state of Ohio has all sorts of opportunities to do research and come up with hard facts as to what is going on; however, they seem to concentrate on maing interesting cartoons for their posters and safety hand-books. Strong influence cannot be exerted in this manner. The same thing is generally true for the training programs in existence. They deal with hearsay knowledge and old research that has been proven to be obsolete. There is too much attention on "how" to prevent injuries rather than stressing the "why" aspects. First things should come first. There is no sense in showing someone how to do a thing until the point is reached where he "wants" to do something about it. This is the area where research is needed and until it is done on an impartial basis no one can teach what is not understood or available. It certainly seems that the education in Michigan is as good as it is in other states. It is the state of the art that is at fault. If safety is really important

to a contractor, no one has scientifically proven it as yet and made the information readily available. The average construction company is proceeding on the basis that they have much more important things to worry about and to be actively concerned with. Of course, this does not refer to their feelings on legislation, which is discussed in Chapter VI.

There was another question that had been asked of everyone in the sample, which gives a view of the amount and effectiveness of various influences from a slightly different angle. However, the same general picture emerges, and the results agree with the findings in the next chapter concerning the interest and activities in safety of the employers in each state. The query was: "Have your safety practices and activities changed in the last several years; and if so, why?" There were fourteen yes and eleven no responses in Michigan as compared to ten yes and fifteen no in Ohio. Upon further investigation the following additional factors also came to light: fourteen Michigan contractors said that their safety precautions had been increasing and six more out of the remaining eleven only gave a no response because they felt that they had been safety conscious right along and had been doing a relatively good job over a greater period of time. The other five firms had practically no appreciation of safety at all. Thus, twenty out of the twenty-five either thought that they were improving in safety or were already taking the necessary precautions. Of the

ten yes answers in Ohio, one man said he was doing less in accident prevention and two more had actually not done anything of significance themselves, as the general betterment of tools and equipment in the industry does not qualify them as having been influenced in any appreciable manner. This leaves seven whose safety activities were increasing plus two others who felt that they had been doing everything necessary for a long time. Therefore, these nine compare with the previous twenty in Michigan who were improving or thought that they had no need to. The remaining companies in Ohio could not be classified with the last five in Michigan because they had been regularly taking some precautions due to the presence of safety legislation and periodic visits by inspectors. Thus, the extremes previously apparent in Michigan still hold true. The least safety conscious employers are in a class by themselves, but on the other hand, the top six firms in Michigan made a better impression and were doing more than the best Ohio companies.

Insofar as the reasons for their changes in behavior are concerned, seven Michigan contractors said that they increased their safety activity because of the bad or numerous accidents that had occurred to them. Costs were mentioned three times, trade associations were given the credit twice, and two others merely stated that improvement was due to their own general awareness. In all twenty-five responses, there were only three instances, other than the two already

mentioned, where any outside source was given even passing credit, and in one of these cases a name was not even stated, but there was the implication that there had been some persuasion from outside of the company. The rundown in Ohio was: three influenced by costs, two said it was due to general awareness on their part, one mentioned bad accidents and the last stated that the Division of Safety and Hygiene was responsible. This was the only contractor in the whole state of Ohio who said that he had increased his safety activities because of someone else's positive influence. There were three others who mentioned the negative aspects of legislation and the extra workmen's compensation penalty as also entering into their consciousness when they thought about their accident prevention activities. Thus, contractors in both states gave relatively little credit to outside sources as being significantly influential in changing their safety practices.

Evaluation of Sources of Assistance

An attempt will be made here to analyze the various sources of aid individually. All types of information from throughout the interview schedule will be employed, including observations, chance remarks, answers to specific questions about these groups, and also any other responses that may apply.

Safety Organizations

Safety organizations have not been mentioned to any great extent up to this point because they have made relatively little impact upon the companies' activities. Employers were asked if they were members of any safety organization, and there were ten in Michigan and seven in Ohio. The impression was very strong that some contractors believed they were helping a worthy cause by contributing financially, rather than thinking that they were the ones who were supposed to be assisted. Each person was also questioned as to his awareness of what safety organizations were accomplishing in accident prevention and what they were doing for him. These answers along with all of the employers other responses enabled the interviewer to evaluate and record whether the contractor felt safety organizations were doing a good, fair, or poor job in helping to prevent accidents. The results are not very complimentary as there was only one good, four fair, and twenty poor in Michigan; and two good, one fair, and twenty-two poor in Ohio. In no instance was a nonmember helped in any way whatsoever! The five firms that belonged to the National Safety Council in the two states rated it good once, fair twice, and poor twice. No one had ever asked a safety organization for any help with a problem, and only a total of three companies said that they had ever received any worthwhile assistance of any kind from all of these groups combined.

Other Contractors

It soon became apparent during the interviews that there was not much interaction between contractors concerning safety on an individual basis outside of trade associations and other like groups. They do not normally go to each other with their safety problems. During extensive questioning concerning their relations with subcontractors, no one mentioned that they helped these people with their accident prevention activities. This was not specifically asked for, but indications of this were looked for by the interviewer. Some general contractors did say that they issued safety orders and instructions on occasion, and that they prodded subcontractors who were lax. They also charged them for the cleaning up that had to be done after them. However, the element of assistance was noticeably absent. What did come out in this respect was that when work was done for large corporations like General Motors in Michigan and Proctor and Gamble in Ohio, the latter safety conscious firms provided aid and guidance to the builders in the area of accident prevention.

Unions and Employees

The general impression that one receives from management is that employees are not especially concerned with safety, and that it is sometimes exceedingly difficult to get them to willingly cooperate in accident prevention.

Furthermore, the unions do nothing on their own and want no part of any responsibility for safety. They are all in favor of regulations and legislation. Note that no effort or expense is entailed for them. Some contractors feel that union officials tend to use moral arguments and talk about the general welfare when it comes to restrictions and costs to employers for greater accident prevention, but when the subject of featherbedding comes up, they wonder what happens to the concern over the general welfare in those instances?

Trade Associations

How much assistance in safety do construction companies receive from the Associated General Contractors, and how do they feel about this organization's influences in the field of accident prevention? Everyone was specifically asked about their experiences with and attitudes toward this trade association, and along with other responses, a score of good, fair, or poor was noted as in previous examples. Naturally a poor does not necessarily mean that this is what the respondent generally thought of this group, but indicates the amount of help that they received from it in safety and/or their feelings concerning its contribution and effectiveness in preventing injuries. In no instance was a nonmember helped or influenced to any extent by this organization, so all these cases rated a poor notation. In Ohio, there were five good, five fair, and fifteen poor, as compared to nine

good, two fair, and fourteen poor for Michigan. A breakdown and detailed analysis shows that the five good ratings in Ohio all came from just two cities where the Associated General Contractors was most active. In these areas, this group's safety program seemed better than the Division of Safety and Hygiene's, while in the others the state was doing a finer job. It really depended upon the various individuals involved in each area and how much knowledge, interest, and persuasiveness that they had. An interesting observation in this regard, which tends to prove the above statement, is that only one company had a good for each group and this was the most safety conscious firm in the state. There were also two cases where there were a good and fair combined but there were twelve instances where if one was rated good the other one was rated poor. What this really means is that the effectiveness of the safety programs of each of these groups were not consistent and varied with the abilities of the personnel responsible in each area.

The nine good ratings in Michigan refer solely to the Associated General Contractors' efforts. There were, however, two other trade associations that also provided assistance and they were each active in a different city. One of these groups had local chapters around the state, but in no other instance was there the evidence of a safety program, as this was due primarily to the efforts of one man in one of the areas mentioned. There were five more good

notations that could be added from these sources that did not have this much help from the Associated General Contractors. This makes a total of fourteen good as compared to the five in Ohio, as the latter state did not have any other trade associations that assisted the sample in accident prevention. This ratio of practically three to one is very large when the membership in the Associated General Contractors is considered, as there were nineteen in Ohio as compared to fourteen in Michigan. Therefore, adding the extra five good does not distort or weight the results unduly in favor of the latter state. Actually the competition in safety in the two cities referred to above, made these the two most safety conscious areas, and the reason that the Associated General Contractors membership was not larger in Michigan was probably because of the good work of these other groups.

There can be no question that the Associated General Contractors and other trade associations in Michigan are doing a much better job than these groups in Ohio. Probably the main motivating and unifying force in the former area has been due to the fight against state safety regulations, while in Ohio accident prevention tends to be left up to the government. Nevertheless, 100 per cent of Michigan's Associated General Contractors members send in accident reports from which frequency and severity rates are figured, they sponsor training programs and educational meetings, and one

organization makes safety inspections on construction sites. None of these things are done in Ohio. Finally, looking at the poor responses of Associated General Contractors members corroborates these findings and conclusions, because there were nine of these in Ohio that received no help, compared to only three in Michigan. In two of the three cases, the company had just recently joined the association so there had been no assistance in the past for that reason. However, one of these two had received good help from another group. In the third case, the firm was the only member--in or out of the sample in that city--so it worked closely with its insurance company.

Underwriters

As the state of Michigan has done practically nothing in safety in the past, and private insurance companies are not allowed to sell workmen's compensation insurance in Ohio, there is no overlapping. Therefore, the state in Ohio and private firms in Michigan carry out similar functions and may be compared. Using the same techniques as in previous cases, the results show a remarkable similarity as Ohio had eleven good, six fair, and eight poor to Michigan's eleven good, five fair, and nine poor. It should be kept in mind that even though all the Ohio firms in the sample had regular inspections, this by itself does not necessarily mean that a good job was being done. If the contractor did

very little in accident prevention, and was not aware of receiving any persuasion or assistance, then a good could not be given regardless of the number of calls by an inspector. There is a somewhat loose correlation between the number of inspections in Michigan and other types of assistance, but this only occurs when contracts are more than three months apart. In other words, the insurance companies which do not have representatives around the job sites at least four times a year, do not provide much other kinds of help either. However, in both states the frequency of inspections greater than four times a year does not indicate that the person who calls most often also does as much in other ways or is as generally influential. The only exception to this is for the employers in both states who are inspected more than once a month. In all of these instances the safety engineer is influential, helps them in many ways, and receives a good. These were the cases where the contractor said that he liked the inspector and was happy to see him when he called. Thus, the underwriters are the greatest source of assistance and influence in each area, with the trade associations next, and safety organizations coming in a poor third.

To summarize briefly, Michigan has the best and also the least assistance, but all in all there is not a great deal of difference between the two states. Table 4-3 shows

TABLE 4-3

AMOUNTS AND TYPES OF ASSISTANCE IN SAFETY IN 50 CONSTRUCTION FIRMS IN OHIO AND MICHIGAN

	Number of Firms	
	Ohio	Michigan
1. Number of firms having at least four regular inspections a year	25	16
2. Participation in safety training outside of the company	1	16
3. Membership in safety organization	7	10
4. Contractors who felt that they had really been helped in safety	10	15
5. Contractors who received cost motivation	12 good 8 fair 5 poor	13 good 3 fair 9 poor
6. Contractors who increased safety activities in the past several years	7	14
7. Good assistance in safety from:		
Underwriters	11	11
Trade associations	5	14
Safety organizations	2	1
8. Contractors that have asked for assistance	5	6

that Ohio is way ahead in the number of firms having regular inspections. However, this is not quite looked on as help to the same extent that it is in Michigan because of the safety regulations. On the other hand, the amount of outside training is overwhelmingly in favor of Michigan. This has probably been motivated, however, by the fight against legislation. This state is also leading in membership in safety organizations, the number of contractors who feel that they have really been helped in accident prevention, and the amount of cost motivation that they have received. Nevertheless, the situation in Ohio probably results in more actual awareness of costs as the insurance expense structure in Michigan is very confusing. There is not too much difference in other types of communication and motivation except for the firms that are hardly reached at all in Michigan. Twice as many construction companies in this state have increased their safety activities in the past several years as have contractors in Ohio. This has probably been because of union and public pressure for laws, and the consequent fear of the unknown if they should be passed. Michigan builders feel less secure in this area, and are more personally involved on account of the agitation for regulation. Ohio employers are less emotionally concerned for the reason that they "think" that they do better because of the low published construction frequency and severity rates. They feel that

they are about average, and as no one figures their individual accident rates, there is relatively less pressure for improvement as a result. Finally, an evaluation of sources of aid and influence suggests that even though there are more inspections in Ohio, the amount of help and effective persuasion from the underwriter is surprisingly similar in the two states. The trade associations provide much greater assistance in Michigan, and safety organizations have relatively little influence in either state insofar as can be observed. If anything, their popularity and usefulness is waning.

The conclusions from this chapter tend to strengthen those from the previous two. As costs and accident rates are not too dissimilar, it is only natural that there should not be large differences in the aid that contractors receive in attacking the problem of occupational injuries. However, there is the answer to an additional question that shows that this difficulty is not just one-sided. There is more involved here than the amount of help that has been given, and this is how much contractors are ready to receive. A question that spans this chapter and the next one because it involves both contractor's interest in safety and the job that has been done by others in selling them on the subject is: "Have you ever asked for assistance in safety?" Certainly no one knows everything in this area, and asking for advice or help is a very good indication of how safety

conscious a person really is. The results give a good insight into the generally sad picture of accident prevention in the construction industry, as only five Ohio companies had ever asked for any type of information or assistance from any source. The number in Michigan was six. In addition, four of these eleven firms also said that they had never been really helped--three in Ohio and one in Michigan.

The situation looks even worse when what was actually requested is analyzed. In one of the five cases in Ohio, an employer had merely asked his actuary how to make out a special supplementary accident report form that the latter individual kept for his own files. The remaining four contractors all sought help from the state inspectors. Two of these wanted posters or first-aid booklets. One other could not remember anything specific--"little things on the job" he said, and the last requested advice on special hazards that they had encountered. In Michigan one employer asked a supplier about the best buy in hard hats and first-aid kits, another said that he had requested aid but he could not remember what it was for, a third asked another contractor about excavations because they did not do much of this type of work, and a fourth had once had the same kind of request for a blasting operation. The remaining two firms said that they often asked for varied types of assistance from their insurance company's safety engineer. There can be absolutely no doubt that very few contractors are so

interested in safety that they are actively and continually checking up on and asking about the things that they should know and be aware of in advance of their use!

It has been mentioned several times in this chapter that contractors have relatively little conscious interest in accident prevention. However, in order that the reader does not conclude that the rate and costs of injuries in construction is a trivial matter, the following information from the National Safety Council is presented.[1] The total cost of occupational injuries in 1962 was approximately five billion dollars. The only industry to have both a higher frequency and severity rate than construction was underground mining. The average compensation per indemnity case in Michigan in 1961 was over $1,600 dollars, and this figure was higher than in any other state in the nation. In addition, medical costs, the overhead of the insurance companies, and the uninsured costs such as production delays and material damage have not been added. Finally, the average compensation cost per injury is higher in the construction industry than in any other.

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[1] Accident Facts--1963 Edition (Chicago: National Safety Council), pp. 24-32.

CHAPTER V

INTEREST AND ACTIVITIES

This chapter is divided into three main sections. The first deals with standard safety practices, the next with the interest that is taken in accident prevention, and the third has to do with the removal and guarding of hazardous conditions. Naturally, these things are not mutually exclusive, but they have been broken down in the manner indicated in order to facilitate ease of handling. The accident prevention activities listed first are the type that are general in nature and that can be found in any safety conscious firm regardless of the kind of industry that it is in. No one was asked directly how interested they were in safety, but there are factors that give some indications, and the interview method of gathering data enabled observations to be made in this respect. The hazards that are dealt with pertain specifically to the construction industry, and are also related to the safety code in Ohio. This section attempts to determine the difference that legislation makes in accident prevention and comprises the bulk of the chapter. There have also been included some other pertinent and related items that have a bearing on these precautionary activities.

Safety Practices

A check list of eight safety practices ranging from the presence of a safety program, through meetings and inspections, to items like the enforcement of rules was taken up here. They all occurred within the company and had nothing to do with similar outside activities, which are discussed at a later point. Table 5-1 begins with the number who said that they had a safety program. It was obvious that in some cases this was a program in name only; however, the answers are noted exactly as they were given by the contractor. In each state, seven employers replied in the affirmative. There were also the same number who said that they had someone in charge of a safety organization in the company. In all but two cases, in each state, respondents answered both questions the same way. In the remaining instances, there was either a safety program or organization but not both. Therefore, six firms said yes twice in each area; there was one in Ohio and in Michigan that had a safety program with no one in charge, and the other two had just the opposite--a safety organization with no accident prevention program.

Up to this point the results are equal, but in the following seven items the Michigan contractors always said that they were doing more than their counterparts in Ohio. Six Michigan firms had written safety policies to only two

TABLE 5-1

NUMBER OF GENERAL SAFETY PRACTICES UNDERTAKEN BY 50 CONSTRUCTION FIRMS IN OHIO AND MICHIGAN

Safety Practices	Ohio	Michigan
1. Safety program	7	7
2. Safety organization	7	7
3. Written safety policies	2	6
4. Safety rules	6	8
5. Enforcement of safety	7	15
6. Safety training	2	3
7. Safety meetings	7	11
8. Safety inspections	11	17
9. Other	3	11

in Ohio. Insofar as safety rules are concerned, the margin was eight to six. Some companies did not have their own rules, but used the Associated General Contractors' or another organization's instead. These were allowed to count only if they were posted on the job for everyone to see. There was also much greater enforcement of safety in Michigan, as the ratio was fifteen to seven. The next three procedures referred to activities solely by company officials, and the margin for in-plant safety training was three to two, safety meetings eleven to seven, and safety inspections seventeen

to eleven. A closer examination of this table shows that the greatest activity in Ohio takes place in the area of inspections by executives of the firm, and they occurred in eleven companies. This really does not speak too well for accident prevention in the construction industry if fourteen out of twenty-five owners do not check up on safety and provide an occasional reminder to people on the job that they are working incorrectly. In Michigan seventeen employers had regular inspections, and fifteen enforced safety. This was over twice as many firms as compared to the seven in Ohio which backed up their accident prevention requirements. There is also a large proportionate difference in companies with written safety policies, as the ratio is three to one in favor of Michigan.

These findings seem to be generally true because of an additional item of information that substantiates the degree and proportion of safety practices in the two states. During the course of the interviews, mention was often made of other safety activities that were not specifically asked for, and they were always immediately recorded. These things varied to a considerable extent, but they were all bona-fide safety practices and showed an interest in the subject. For example, whenever there was a serious injury in one company, the president made it a point to not only interview the disabled employee, but to talk to his family as well. Trying to find out what the trouble was in this

manner might not always have worked; however, word got around fast, and there was no doubt in anyone's mind that the owner was really interested in limiting the number of accidents. In another firm there were dinners given for the supervisors and their wives, who had the fewest number of injuries in the previous three months, and the partners of the business always attended. Other employers made up their own individual safety manuals, paid the insurance company's safety engineer to come on his own time and conduct evening classes in special problems, had off-the-job safety programs that had nothing to do with construction as such, and did other things of like nature on their own initiative. In these important and revealing endeavors, the Michigan contractors led by a score of eleven to three.

When one point is given for each of these nine factors the results appear as in Table 5-2. Michigan firms had eighty-five points as compared to only fifty-two in Ohio out of a possible two hundred twenty-five. Furthermore, a closer analysis shows that ten Michigan companies had totals of five or more, whereas there were merely half the number in this category in Ohio. There were fifteen of the employers in the latter state that did only one of these things or less, and none of them did them all. On the other hand, two Michigan contractors had nine points, and not only were the top Michigan companies better in quantity, the quality of their procedures also seemed to be greater. Their safety

TABLE 5-2

NUMBER OF GENERAL SAFETY PRACTICES EMPLOYED PER FIRM IN 50 CONSTRUCTION COMPANIES IN OHIO AND MICHIGAN

Number of Firms	Ohio	Michigan
1	8	9
2	7	9
3	6	8
4	5	7
5	5	7
6	3	6
7	3	5
8	2	5
9	2	5
10	2	5
11	2	4
12	1	3
13	1	3
14	1	3
15	1	2
16	1	2
17	1	1
18	1	1
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
Totals	52	85

precautions were more substantial in general, and the safety inspections by company officials in particular were also much more thorough and numerous. However, in order to keep all of these things in the proper perspective one additional and related observation should be mentioned at this time. In no instance, in either state was there a full or even a part-time safety specialist employed in any firm in the sample. In other words, there were various regular employees assigned to safety activities, but they were not safety engineers or staff specialists, and for a safety program to be that in fact as well as in name there have to be properly qualified personnel on hand who are seriously concerned with accident prevention.

Contractors often ask: "What can we do to prevent injuries?" The foregoing items were selected in order to emphasize some of the more common and simple practices that everyone can easily follow. Naturally the first requirement is that the owner or president of the company be interested in safety and realize its importance, otherwise nothing of any lasting value can be accomplished. The next step is to have a safety program and to let everyone know of its existence. Someone should be put in charge who is responsible for maintaining interest, keeping the president informed, and seeking knowledge and new ideas that he can pass on. This may be on a part-time basis, but the person has to become proficient in learning about accident reduction in the

construction industry. He should go over the insurance safety engineers inspection reports, figure frequency and severity rates, coordinate efforts, and become somewhat of a specialist in the area. Some contractors have stated that at wage rates of three and four dollars an hour, they cannot afford to sit around and have classes in safety, especially when the turnover of employees is so very high. However, there is nothing to prevent them from having written safety policies so that the workers will at least know that they are interested in accident prevention. They should also formulate a set of safety rules and enforce them. Regular inspectors should be made and reports posted so that everyone will be continually reminded that someone is at least noticing what is going on. A few five minute safety meetings every once in a while where the most important items are discussed and some training can occur is also a necessity. These things are minimum requirements for any real reduction in injuries to take place, and until programs of this type are more common the accident rates for the construction industry will continue to be very high.

Interest and Understanding

Of course, top management must understand and be interested in safety and only scientific research and study can enable this objective to be accomplished. In how many of the fifty firms contacted did there seem to be a genuine

interest in and understanding of accident prevention? It was felt that this could best be determined by the general nature of the responses and the impressions that were received during the interview. The original plan was to have five categories of safety consciousness, and one of these would be immediately checked at the termination of the meeting. They ranged from good, above average, average, below average to poor. In actual practice, it was found to be relatively easy to place firms in the first and last groupings, but the three middle ones seemed to merge and be much less distinct. A company was rated poor if they seemed to be unaware that safety even existed, and if they did not realize that the construction industry had a problem with high injury rates. These people tended to use terms like accident prone, and carelessness, to describe reasons why the workers were the primary cause of accidents. On the other hand, the best group handled themselves well in discussing the subject, and there was no doubt that they stood apart from the rest of the respondents.

It is at this point that the difficulty with the use of "safety conscious" comes into sharp focus. It tends to imply that someone is not only conscious of safety, but that he is also actually doing something about it, and this is less easy to judge accurately. Therefore, this rating really describes awareness, or the interest and knowledge that was shown. The results, nevertheless, are very interesting.

There were six companies in the good category in Michigan and nine in the poor. The remaining ten were somewhere in the middle. In Ohio only three firms could be considered as safety conscious and nine were in the lowest classification, with the remaining thirteen being about average. However, the situation is not as simple as these figures seem to indicate, for the best six contractors in Michigan were more interested in safety than the top three in Ohio. In addition, the nine poor in the former state were more completely in the dark concerning accident prevention than their counterparts in Ohio. These are the same types of extremes that have appeared in other sections of this report and for the identical reasons.

So far in this chapter, Michigan employers have taken the lead in the number of safety practices that they employ, and the amount of interest that is shown, and this trend is carried on in the remaining activities. In order to get a more complete picture of the amount of interest in the two states, some of the relationships involving accident prevention with sources outside of the company are also listed. In all of these cases a certain amount of initiative on management's part was a necessity. For example, asking for help or joining safety organizations is a very good indication of interest in accident prevention and the same applies to safety training. It is true that there was not as much of this offered in Ohio and the amount of assistance

was not as readily available, but even though Michigan contractors might have been pressured into attending safety classes their interest and understanding was undoubtedly much greater at the conclusion of the eight-week programs. It is because of this that Table 5-3 is entitled as it is, even though there can be no doubt that all of the safety practices undertaken and described in this chapter are also intimately related with management's attitudes and feelings toward this subject. Therefore, this list showing the amount of interest in each state is somewhat of an arbitrary one but it was thought that these factors would give a good indication and general picture of the situation as well as any others could. As has already been noted, Michigan has more firms in the sample that are safety conscious, have asked for assistance, belong to safety organizations, and that have attended training sessions. Table 5-3 also shows that the number of builders in Michigan who attended safety meetings or conferences were also larger by a margin of eight points. Not only was there more participation of this type in Michigan, the meetings also were attended more often and were of a better quality insofar as safety is concerned. The final items have to do with a firm's relationship with its sub-contractors. Everyone was asked if they ever gave safety orders and instructions to these people and twenty-two Michigan employers said yes to twenty for Ohio. However, only fourteen firms in the former state enforced these

requests as compared to sixteen in Ohio.

TABLE 5-3

NUMBER OF ACTIVITIES INDICATING INTEREST IN SAFETY UNDERTAKEN BY 50 CONSTRUCTION FIRMS IN OHIO AND MICHIGAN

Activity	Ohio	Michigan
1. Safety consciousness	3	6
2. Asked for assistance	5	6
3. Membership in safety organizations	7	10
4. Outside safety training	1	16
5. Attend outside safety meetings and conferences	11	19
6. Gives safety instructions to subcontractors	20	22
7. Enforces safety with subcontractors	16	14

When one point is given for each of the seven factors that are used to indicate a degree of interest and understanding of the importance of safety, it can be seen in Table 5-4 that Michigan leads by thirty points with a total of ninety-three to Ohio's sixty-three. The former state has three companies with perfect scores and two with six points, while the latter has none in these two top categories. On the other hand, Ohio has at least double the number of zeros,

TABLE 5-4

NUMBER OF ACTIVITIES INDICATING INTEREST IN SAFETY EMPLOYED PER FIRM IN 50 CONSTRUCTION COMPANIES IN OHIO AND MICHIGAN

Number of Firms	Ohio	Michigan
1	5	7
2	5	7
3	5	7
4	4	6
5	4	6
6	4	5
7	4	5
8	4	5
9	3	5
10	3	4
11	2	4
12	2	3
13	2	3
14	2	3
15	2	3
16	2	3
17	2	3
18	2	3
19	2	3
20	1	2
21	1	2
22	1	2
23	1	1
24	0	1
25	0	0
Totals	63	93

ones, and twos, but only about half of the contractors with three points or more. Of course, many of the items used to determine the amount of interest were also used in the previous chapter in evaluating the assistance received by firms. However, where there is more help being given, there is also likely to be a greater degree of interest, as the two things tend to go hand in hand. Therefore, Michigan contractors show more concern for safety and the primary reason is that they do not want government control. It is relatively easy for companies to pick up the superficial aspects of accident prevention, but the main question is not how many things they do, but how well they do them and how much money and actual time they spend in safety activities. The evidence leads this writer to the conclusion that the average Michigan builder is much more interested in seeing that there is no legislation than he is in accident prevention for itself.

There are some further impressions regarding the interest and understanding in the area of safety that should be mentioned. These were merely observations and were not checked in all cases, so that they should be examined fully in any future research. However, it does not seem to be generally understood by the average employer in the construction industry that the elimination and control of hazardous conditions should be the first consideration in accident prevention. Perhaps this is a carryover from the primary

accident cause ratio, which states that 88 per cent of injuries are the fault of the worker, 10 per cent are mainly due to hazards and 2 per cent are the results of acts of God.[1] Actually, there is usually more than one contributing factor when an accident occurs. It is difficult to be injured without the presence of both an unsafe condition and an unsafe act, and it is incorrect to say that one is more responsible than the other.[2] This ratio along with the natural inclination to blame the other fellow leads to placing the major emphasis in safety on training and educating the employees. However, human nature cannot be controlled as easily as inanimate objects, and getting people to act safely 100 per cent of the time is asking for the impossible. On the other hand, if the hazard is removed or guarded, then a person can still be thoughtless and not seriously injure himself. This is the way that other industries have reduced their frequency and severity rates, yet it is much more difficult to control unsafe conditions in construction for a number of reasons. The major one is perhaps the changing and temporary nature of the work. Nevertheless, contractors

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[1]H. W. Heinrich, "The Accident Cause Ratio--Pro," National Safety News (technical section), May 1956, p. 18.

[2]Roland P. Blake, "The Accident Cause Ratio--Con," National Safety News (technical section), May 1956, p. 19.

in general are prone to blame the high rates in their operations on human error. There is altogether too much stress on finding a scapegoat and not enough on making the job itself safe.

Another factor that is related to the previous one concerns the amount of money that is spent on accident prevention. This is something that would be important to determine accurately because the average contractor does not feel that he should be paying out additional funds for this purpose. Not only did these people think that they would not recover any increased investment in controlling hazardous conditions, they were somewhat surprised by the fact that they could spend more money and eventually get it back in the form of savings on accident costs. This has been proven to be the case in other industries, but it may or may not be true in construction. Accident prevention costs money, and if scientific cost studies can show that these funds are not being wasted and may even bring a substantial return, then perhaps some real progress can be made.

Hazardous Conditions

The intention at the beginning of this project was to include a summary of the Ohio Safety code relating to building and construction work. However, it is in the process of being revised and the new publication should be issued shortly. The major changes are to take place in

the regulations and specifications for scaffolds, where much of the present information and restrictions are obsolete because of the widespread use of patented metal scaffolds. In general, this code is not too much different from the American Standards Association publication and those of other states, with the possible exception of numerous minor specifications in some areas, and the items pertaining to penalties and enforcement provisions. The question naturally arises about the difference that regulations of this type make in a contractor's safety efforts. Do Michigan employers provide for the removal of hazardous conditions in the absence of legislation to the same extent that Ohio firms do in the process of observing the law? The very first query in this section was an attempt to determine if any guides were ever used when temporary facilities such as scaffolds were being built. The word safety was not mentioned in order to see if this aspect would be brought out in the discussion. There were four Michigan respondents who said that they had, but upon further questioning these sources of information proved to be items such as engineering manuals. Therefore, no one in Michigan brought up the subject of safety when answering number 12 on the interview schedule. The Ohio people were much more conscious of the fact that various types of specifications should be met when construction of walkways or excavations took place, and thirteen of them

said that they looked at the safety code from time to time in order to check on the proper size, strength, and type of materials to use. The remaining twelve firms either felt that the code was obsolete and did not bother with it, or they said that they just used their own judgement and experience and if anything was being done wrong they would leave it up to the state inspector to call their attention to it. There were many references at this point to the use of special steel patented scaffolds which made much of the code and regulations irrelevant.

In line with the remarks concerning the reliance upon the state safety representative, all were asked if they took the lead in safety, or just depended upon the inspector from the Division of Safety and Hygiene to show them where they were failing. Not only did fourteen contractors say that they took the lead in accident prevention and did not rely on the state, but some of these mentioned that they went beyond the provisions of the code and took greater precautions than they had to. It was stated succinctly by one interviewee, that if they waited for the safety engineer they would not get very much done, as he was not around the job long enough or often enough. However, the remaining eleven firms merely followed instructions, as they did nothing to speak of on their own initiative. The safety regulations were definitely not held in awe or looked at with any great respect. They did not seem to be taken seriously and the

actual enforcement of regulations was not onerous or very strict.

The next question was intended to be an enlargement of number 12 and it asked if they were familiar with any construction safety standards, and if they ever referred to them on the job? In Ohio, there were five contractors who said that they were familiar with them, but only three had ever referred to these things on the job. Of course, these were all cases where standards other than the Ohio safety code were used. There were eight Michigan firms that were familiar with this type of publication and five of them had referred to the safety standards on the job. A brief rundown of these standards shows that the Army Corps of Engineers manual was mentioned four times in Ohio and six in Michigan. The American Standards Association Code was given twice in Ohio and three times in this state. There were also other state codes named in Michigan that were used in those localities. However, there were no voluntary efforts related to the Army Corps of Engineers manual, as in all cases work was being done for the federal government and use of the manual was mandatory. As an indication of the real interest that there is in accident prevention for its own sake and apart from any pressure, there were only two Michigan firms that said that they ever voluntarily referred to a safety standard like the American Standards Association manual and one of these people called this publication

obsolete. In addition, there was evidence of this type of thing occurring only once in Ohio. The results here show that contractors in general just use their own judgement and experience when building temporary facilities, and only really look at and employ safety manuals when they are forced to do so.

Numbers 14 through 21 in the interview schedule are queries that relate to guarding against specific hazardous conditions, and they will be totaled in the same manner as those items that gave an indication of interest in safety and the practices employed within the company. The Ohio code or legislation was not mentioned in any of these questions, and they were supposed to be merely a general investigation of activities on the job. However, they were taken from provisions of the Ohio law and worded in such a manner that they could be used in both states. This enabled comparisons and judgements to be made as to the effectiveness of the presence of a safety code. In addition, various observations will be inserted as they apply, plus comments from contractors that pertain to the material being treated. As an introduction to this section, respondents were asked to describe what they did in the way of removing and guarding against hazardous conditions. The average builder seemed to be sort of stunned by this, and some could not answer. Many of those interviewed named one or two things that they did, but very few people handled this question

well and showed that they were familiar with dealing with the problem. Housekeeping, barricades, and hard hats were mentioned most often, but it really did not seem as though this area was something to which they had given a great deal of thought. The removal of hazards was not in the front of their consciousness concerning construction, and there was not much difference in this respect between the two states.

Each employer was interrogated in respect to the use of hard hats and whether or not all employees were required to wear them when needed on the job? There were twelve affirmative replies in Ohio as compared to nineteen in Michigan. Even though it is not necessary for protective helmets to be worn at all times and on every job, and this is not specified in the Ohio code; nevertheless, there is a tendency towards this practice in both states. Some firms have rules stating that hard hats must be worn regardless of the type of work being performed, and one contractor, who was only digging top-soil for a federal government project, said that the Army Corps of Engineers required his employees to wear safety helmets at all times. Whenever this type of situation is found, there seems to be very little difficulty with getting the workers to go along with these arrangements. Most problems occur when an owner is trying to institute a program of gradual use, and hard hats are worn on a hit or miss basis. The change in policy is what causes the difficulty and there is always resistance by the men on the job.

However, if everyone in a company is already wearing this type of personal protective equipment, then a new employee will take up the practice without argument even if he has not been used to doing this in previous employment.

While no actual checks were undertaken on the interviewee's construction sites, there did seem to be more hard hats worn generally throughout Michigan than in Ohio. This was one of the things that was looked for whenever trips were made to the various localities and building projects happened to be encountered. Two instances come to mind that made a special impression because of the circumstances and ease of observation. The first took place in Michigan where a building was being erected next to the motel in which the interviewer happened to be staying while he called on the contractors in that city. Every morning at eight o'clock a loud bell would ring and everyone would start working. Even though the project was only built up to about six or seven feet from the ground level, every single person on the job was wearing a protective helmet for the three day period that the work was being watched. The other example occurred in Ohio during a visit with an actuary. There was a tall skeletal structure of twelve stories that could be seen from the office, which was merely a mass of steel beams. In this type of construction the Ohio law clearly specifies that hard hats must be worn. However, well over half of the workers had absolutely nothing on their heads, and there was no

protection of any kind if a rivet happened to fall. There was no flooring between the levels and bareheaded people were walking on the ground with the work going on directly overhead. Furthermore, this was taking place right in Columbus where the headquarters of the Division of Safety and Hygiene and the Industrial Commission are located, yet the actuary claimed that the situation had been the same from the beginning of the project. Some of the steel workers were also sitting astride girders and doing grinding and polishing without wearing safety goggles which is also plainly specified by the safety code!

It should be recalled that the question on hard hats asked only if they were worn "when needed." As there were thirteen negative replies in Ohio, these people were in effect admitting that they were breaking the law by not requiring the use of this type of personal protective equipment. When over 50 per cent of a random sample replies that they are not paying any attention to provisions in the safety code, then these regulations cannot be strictly enforced. One contractor went so far as to say that they would never get any work done if they tried to follow all of the numerous restrictions. From looking over the various statistics and other items of information, there can be no doubt that the inspectors who rely on education and persuasion are much more successful and effective in getting things done, as there are major differences in the precautions taken by

firms in the several cities. Another related item concerning enforcement has to do with the requirements in the code that pertain to employees. They must wear hard hats under certain circumstances if they are provided, and do various other things like using the guards on power saws. However, no references were made to workers ever being penalized or reprimanded by the state if they failed to do any one of the list of things of this nature. There seemed to be no enforcement provisions here that anyone was aware of.

The reason that information was sought on how strictly the contractors themselves enforced the use of safety helmets on their own jobs, can best be brought out by describing the following incident. One owner mentioned that he required hard hats to be worn by everybody, but he also said that in about a half hour after he left the construction site most workers had taken them off again. Thus, a safety rule of this type is practically worthless if there is not some sort of enforcement provision or procedure. Michigan leads again as there were thirteen firms that had a strict policy as opposed to only eight in Ohio. The nature and content of the responses left little doubt that employers in the former state kept a closer watch on this activity. In addition, they also made a greater number of comments which indicated that they had more interest and initiative in devising methods to get the employees to accept the use of helmets.

Allowing the men to pick their own style and color seemed to help, but the best idea of all came from one Michigan owner who had just joined the Associated General Contractors and was starting his own safety program. He hired a commercial artist to paint pictures on the hard hats of the workers much as was done on airplanes in World War II. The employees thought up the ideas to be used on their own headgear, and they took great pride in these hats, which were among their proudest possessions.

The following question attempted to determine if there were guard rails and toe boards around all hazardous openings and scaffolds on their jobs. This is a task that is difficult to accomplish all the time because of the changing nature of the work area. Surprisingly, eighteen of the Ohio firms said that this was done and the same number replied in the identical manner in Michigan. The word surprising is used advisedly, because during the time that the interviews were being conducted, every construction site that was passed was looked at with this phenomenon in mind. The presence or absence of guard rails on scaffolds can be easily seen, yet not one project was observed in either state that had these safeguards. The only place that both toe boards and guard rails were seen on scaffolds in Ohio was in a picture in a safety publication put out by the Division of Safety and Hygiene. There was one case in Michigan where both a toe board and a railing was attached to a

scaffold, but this was on the campus of Michigan State University where two men were repairing the cement between the bricks of an old dormitory building.

The interviewer mentioned this fact in some of the later calls in Ohio just before the visits were about to be terminated. There were various shrugs, admissions, and explanations given. The primary excuse was that material had to be hoisted and transported to these scaffolds and platforms, and the railings were in the way and had to be removed. This type of explanation was undoubtedly given to inspectors and as they only appeared approximately once a month, the whole physical situation would be changed the next time around. One contractor claimed that he never used rails or toe boards and the state safety representative had seen this and said nothing until an accident occurred, and then he "crawled all over us." The inspector had also not mentioned that they should acquire guards for their power saws. The same firm had a man recently killed in an excavation cave-in, yet they actually felt that they did as much in safety as the average construction company. This builder also said that the state did not enforce the law, but he believed that the inspector could shut down the job if he wished. Most people thought that work could be stopped if there were infractions of the code, but this had never happened to the firms in the sample and they had not heard of it occurring to anyone else in the past several

years. However, if violations were noticed and written up in the state safety engineers' reports, and then an injury was sustained because of this unsafe practice, the contractor could be assigned an extra out-of-pocket cost that his insurance would not cover. It should be made clear before the next subject is taken up that the observations described concerning scaffolds and guard rails were not done on a scientific basis and did not refer to the construction projects of the firms in the study. Nevertheless, it is unlikely from what was seen, that the thirty-six companies that answered affirmatively had guard rails and toe boards around all scaffolds and hazardous openings on the job at all times. It is probably more correct to say that they were extremely aware that this should be done, and that they did do these things on occasion.

Excavations do not always need bracings depending upon the type of soil, the slope of the sides of the trench and the depth of the hole. Therefore, there is some room left for judgement in most cases, so the respondents were asked about this type of operation as follows: "Do all of your excavations have adequate bracings?" Despite the presence of safety regulations and the use of the word adequate, there were eight Ohio firms that said "no." One company never did any of this kind of work, which left sixteen affirmative replies in this state to twenty-two in Michigan.

Only three builders in the latter state said that they were not always conscientious about this accident prevention practice.

Although it is clearly against the law in Ohio for workers to ride on material hoists and to hang on to other types of moving equipment, ten contractors said that they saw their employees doing this occasionally. In Michigan, there were only five respondents who were aware of having these problems. Naturally, this may be happening frequently and if management is not safety conscious they might not recognize this as being an unsafe act. Therefore, how strictly actions--such as riding on improper hoists--are controlled, is the really important thing here. There was not too much difference in this category as enforcement of these violations by company officials in Ohio took place in thirteen firms as compared to fifteen in Michigan. However, when these two statistics are correlated the results show that six Ohio builders saw workers riding on equipment in a manner that was definitely unsafe and yet they did nothing about it, whereas this phenomena occurred only three times in Michigan.

One of the great advantages of an interview over a mailed questionnaire is that if there are any doubts about the meaning of the question, or if there is misunderstanding and confusion in the response, then the query can be rephrased. This was often necessary when discussing number 19

as follows: "Do all of your ladders have rubber shoes, spikes, or spurs on the bottom of them?" To begin with, the Ohio code states that all portable ladders must have something on the bottom end to keep them from slipping. Portable here does not refer to small step ladders because they do not lean against anything. There are exceptions allowed if this type of equipment is hooked, tied, or nailed down in some manner. However, the implication is clear that all ladders should have shoes of some kind, but if not, then the other precautions are alright. The reasoning here is that if there is nothing on the bottom, they might be used for temporary jobs and the tendency is not to secure them properly at all times when people are in a hurry. Insofar as the rubber shoes, spikes, or spurs alone are concerned, eight Ohio firms had these and there were only four in Michigan. The real difficulty is that there were many complaints associated with the use of these safety devices. There were several responses where claims were made that these things were not effective on loose earth. Others mentioned that floors were sometimes damaged and that the same ladders could not be used inside and out, which necessitated having more specialized equipment. Therefore, if the employment of kickers or other methods of securing ladders are listed, then Michigan had eleven companies that did this as compared to three in Ohio. When both preventive practices are totaled, there were eleven firms in Ohio to twelve in Michigan where

precautions of one kind or another were taken. A very interesting item in relation to this data is that three Michigan contractors said that they combined the two kinds of safety activity at all times, while no one in Ohio had both shoes and a system of tying down ladders that went together as standard practice.

One very important thing that can be done to control hazards and prevent injuries is to put guards on power saws and other like pieces of mechanical equipment. This is a rather obvious necessity and one that employers who are at all concerned with accident prevention should be careful to do something about. More contractors in Ohio take this kind of precaution, as twenty-three of them said that they had safety devices on all of this type of equipment, while twenty Michigan firms did this in all cases. When asked if they ever saw workers operating equipment with the guards removed or not functioning properly, sixteen companies in the former state replied in the affirmative to fifteen in the latter. Of course, the only relevant answers here are the ones where the firms have the guards; therefore, fourteen out of twenty-three concerns that have these devices in Ohio see them misused, and this occurs in ten out of the twenty cases in Michigan. This leaves nine companies in Ohio and ten in Michigan where there is protection and management is not aware of any safety violations taking place. However, this does not mean that there might not be more infractions, but

just that they are not being noticed by the head of the organization. The reason that there are some serious doubts raised here is that in only three of these nine Ohio businesses is the use of these devices enforced by company officials. In Michigan, out of the ten instances where abuses are not observed, five have no enforcement policies. The only possible conclusion to all of this is that even though the large majority of firms have guards, the common practice is for workers to disregard them rather often.

The law in Ohio is probably responsible for the greater prevalence of available protection in regard to machinery, but the difficulty with these devices being removed does not seem to have been solved by regulations. This is because management is not as much involved in accident prevention as they should be. For example, only eight out of the twenty-five builders enforce the use of guards on equipment as compared to ten in Michigan who do this. To put this in another way, there are nine Ohio contractors who have safety devices, who see them being abused or removed, and who do nothing about it, whereas only five Michigan firms can be placed in this category. Therefore, Ohio companies cannot be given credit for having a greater number of guards on their equipment, because this is only a part of accident prevention in this area--they have to be used properly and management also has to have procedures for insuring their employment. Perhaps the reason for many of the problems

with power saws is because of the design and inefficiency of the guards themselves. There were several complaints that the safety devices were the greatest hazard and that some operations would be safer without them.

Table 5-5 is a summary of the activities that were undertaken by owners to control and guard against hazardous conditions. Michigan contractors required hard hats to be worn more often, were stricter in enforcing this safety rule, provided for bracings in excavations to a greater extent, did not allow as much riding on hoists and moving equipment, had shoes or secured ladders from slipping more often, and had higher numbers of firms with both power equipment that was guarded and provisions for the enforcement of the use of these devices. The only place where they were equal was in putting guard rails and toe boards around all hazardous openings and scaffolds on the job, and Ohio was not ahead in anything. When the number of points is totaled for each company the results appear as in Table 5-6. Michigan firms had one hundred nine to eighty-six, a difference of twenty-three points or close to an average of one additional safety precaution per contractor in Michigan. There were four perfect scores of seven to only two for Ohio, and if the number of firms with five points or over are counted then Michigan also had twice as many or fourteen to seven. Looked at from the other end of the scale, only four companies in the latter state did two things or less, while there were nine of these

TABLE 5-5

NUMBER OF FIRMS UNDERTAKING ACTIVITIES DESIGNED TO CONTROL AND GUARD AGAINST HAZARDS IN 50 CONSTRUCTION COMPANIES IN OHIO AND MICHIGAN

	Safety Activities	Ohio	Michigan
1.	Require the wearing of hard hats . .	12	19
2.	Strict enforcement of use of safety helmets	8	13
3.	Railings and toe boards on scaffolds and openings	18	18
4.	Adequate bracings in excavations . .	16	22
5.	No riding allowed on hoists and equipment	13	15
6.	Ladders secured or provided with shoes	11	12
7.	Guards on saws plus insurance of their use	8	10

TABLE 5-6

NUMBER OF ACTIVITIES DESIGNED TO CONTROL AND GUARD AGAINST HAZARDS PER FIRM UNDERTAKEN BY 50 CONSTRUCTION COMPANIES IN OHIO AND MICHIGAN

Number of Firms	Ohio	Michigan
1	7	7
2	7	7
3	6	7
4	6	7
5	5	6
6	5	6
7	5	6
8	4	5
9	4	5
10	4	5
11	4	5
12	4	5
13	3	5
14	3	5
15	3	4
16	3	4
17	2	3
18	2	3
19	2	3
20	2	3
21	1	3
22	1	2
23	1	2
24	1	1
25	1	0
Totals	86	109

in Ohio. However, Ohio did not do as poorly with hazards as they did in the previous two categories. There were two contractors that had perfect scores, which had not happened before, and the total number of points was also higher at eighty-six. In addition, the difference of twenty-three was the smallest margin that Michigan builders led by in the three types of practices studied. The code probably had something to do with this, but even with all of the laws and restrictions, the Michigan respondents claimed that they also accomplished more in the guarding and control of hazardous conditions. Therefore, even though the construction safety legislation has helped, it still cannot be said to have been very effective! Finally, Table 5-7 gives the grand totals for all three kinds of safety activities and Michigan is ahead by 287 to 201. No one in Ohio had twenty points or over, while three Michigan concerns did this much. If the number per firm of over ten are compared, the latter state has fourteen to Ohio's six. The reverse is also true for the contractors who did the least, as there were twelve firms with less than seven points in Ohio, while only five were in this category in Michigan.

In order to obtain some idea of how the people in the sample felt about how other construction firms in their state were doing, insofar as guarding against hazards is concerned, they were asked several questions concerning this

TABLE 5-7

TOTAL NUMBER OF SAFETY ACTIVITIES UNDERTAKEN
BY 50 CONSTRUCTION COMPANIES
IN OHIO AND MICHIGAN

Number of Firms	Ohio	Michigan
1	19	23
2	16	22
3	15	22
4	14	19
5	13	17
6	11	17
7	10	15
8	9	14
9	9	13
10	9	13
11	8	13
12	8	13
13	7	13
14	6	11
15	6	9
16	6	8
17	5	8
18	5	7
19	5	7
20	4	7
21	4	4
22	4	4
23	4	4
24	3	4
25	1	0
Totals	201	287

subject. The first one varied somewhat because of the presence or absence of legislation; therefore, Ohio builders were queried as to how well the average contractor was observing the safety code, and in Michigan it was how well unsafe conditions were being controlled in some manner. The responses were somewhat inconclusive as ten answers could not be used in this state, and five in Ohio also either did not know, or qualified their replies in such a way that they could not be categorized. For example, many persons thought that the size of the company played the most important part in how much was accomplished in accident prevention. Nevertheless, seven Michigan firms answered in a positive manner, from doing o.k. to putting forth every effort, and eleven Ohio firms stated that a good job was being done. There were eight interviewees in the former state who believed that the average contractor was doing a poor job in safety, and nine in Ohio who stated that the typical construction company was not following the safety code to any significant extent.

Insofar as their own subcontractors are concerned, eleven Michigan businesses said that they had difficulty in getting these people to comply with safety directives, but this only happened to two in Ohio. In addition, seven builders in the former state thought that the average subcontractor was safety conscious compared to fourteen in the latter

who believed this to be true. On the other hand fourteen Michigan firms stated that the typical subcontractor was not safety conscious to eight who felt this way in Ohio. There can be little doubt that the state regulations made it easier for Ohio owners in their dealings with others in accident prevention. Some Michigan people have even stated that at least this would be one advantage of a safety code, even though they would not be happy to see regulations approved by the legislature. When asked if the state inspector played much of a part in getting the average contractor to guard against or control hazardous conditions, only three of the twenty-five Ohio firms said "no," the other twenty-two felt that he was of some importance. Without a state representative on the job from time to time, the majority of builders thought that much less accident prevention efforts would be made.

The last topic in this chapter deals with the relationship between company size and the amount of safety effort put forth. The majority of firms believed that the larger contractors took greater precautions in accident prevention, as the ratio was eighteen yes and six no in Ohio and thirteen to six in Michigan. The remaining concerns did not know or didn't have an opinion on this subject. There is nothing in the safety code that mentions size and compliance with the regulations, and if small firms are doing very little, then the law is not being followed or enforced as

it should be. Table 5-8 shows that there is no necessary correlation between the amount of payroll and the number of safety activities for the companies in the sample.

TABLE 5-8

COMPARISON OF SIZE OF PAYROLL IN THOUSANDS AND TOTAL NUMBER OF SAFETY ACTIVITIES UNDERTAKEN IN 50 CONSTRUCTION FIRMS IN OHIO AND MICHIGAN

No.	Ohio		Michigan		
Firms	Payroll	Activities	Activities		Payroll
1	1,604	16	22		3,445
2	1,513	14	23		1,481
3	1,158	5	13		1,087
4	860	Total 8	7	Total	951
5	793	79 15	17	118	923
6	694	Average 9	14	Average	675
7	567	10 3	15	15	552
8	554	9	7		491
9	506	10	13		466
10	489	6	19		403
11	422	6	11		372
12	420	13	8		338
13	367	Average 8	7	Average	324
14	343	9 19	13	13	315
15	305	11	22		298
16	282	4	13		296
17	251	5	9		253
18	232	9	8		238
19	198	7	17		221
20	186	1	4		212
21	182	Total 5	4	Total	205
22	165	40 4	4	54	194
23	155	Average 4	13	Average	142
24	152	5 6	0	7	123
25	98	4	4		72

However, if the top third in size are compared with the bottom third then a clearer picture emerges. For Ohio, the eight largest firms have seventy-nine points or an average of eight activities each, while the smallest contractors do only half that much. The same is true for Michigan also, except that in all cases these builders take greater precautions in safety than their counterparts in Ohio.

CHAPTER VI

LEGISLATION

The clearest and most definite picture in the study emerges when the attitudes toward safety legislation are discussed. There can be no doubts here as to the true feelings for the results are practically black and white. Michigan contractors are against government controls; they do not believe regulations are effective, and they are fearful of harassment, while Ohio builders feel just the opposite. These viewpoints are examined at length in the four main sections that follow. The first is concerned with opinions on construction safety codes, the next deals with harassment, the third reviews past experience with government inspectors, and the last one analyzes the beliefs that are held about the states being involved in accident prevention.

Construction Safety Codes

There are three questions that are handled under this subheading--numbers 24, 25, and 26 of the interview schedule. The responses were so simple and uniform in Ohio that they will be described separately. When asked if they thought that safety legislation was effective in cutting the rate of accidents, twenty-two persons replied in the affirmative. There were many remarks such as it is needed; we

should have it, and it is necessary for the government to be able to put on some pressure. Of the remaining three who disagreed with the majority, one contractor believed that cost education would be more effective, another said "no" but he was for it because it took the costs of accident prevention out of competition and enabled safety to be more standardized, and the last said that man's habits cannot be legislated. However, these replies were by no means made in a negative sense, because all of these people were "for" safety codes. The next question was simply: "Are you for or against safety legislation?" Everyone in the state said that they were for it, but there were some qualifications to the extent that it should be sensible and well run. No one mentioned that it was not administered properly in Ohio.

In response to whether or not they feel that safety laws and regulations interfere with production and output, there were twenty-four interviewees who said, "no." Typical of the statements that were forthcoming at this point were the following: "accidents cause much more interference than laws;" "I would want the code even if this was true;" "it saves you money in the end;" and finally, "there is no problem when you get used to regulations as it is just as easy to do things one way as another." The one contractor who said "yes" only believed that this occurred to a minor degree, and his experience was very interesting. It seems that the inspector had been after him for quite some time to have all

of his electrical equipment grounded with special wiring, and he had been very lax in complying with this provision of the code. There was some verbal pressure along with persuasion employed by the state official and he threatened to close down the job. After several weekly visits by the representative of the Division of Safety and Hygiene, the owner of the company finally agreed to install the necessary items. At the time of the interview, he stated that he was glad that he had made the changes, and that the enforcement had been very reasonable. This then was the extent of the total interference with output in the entire sample in Ohio, and it cannot be said to have been very great.

Furthermore, this builder was definitely not safety minded, and the other information from him bears this out. For example, in the previous chapter he had only four points out of a possible twenty-three safety activities examined and only one Michigan firm did less than this. His frequency rate was fourth from the highest and also indicated that there were very few precautions being taken in accident prevention. Why is all this being brought out at this time? It is because his agreeing to ground all of the electrical equipment may be responsible for a fact that had been very disquieting. There was a safety award on the wall of his office from the Division of Safety and Hygiene and it was very impressive. This was the only award of any type from the state that was seen in Ohio. When asked for the reason

that it had been received, the respondent smiled foolishly and said that he did not know. The only possible explanation was that the inspector was so happy that new wiring had been installed on electrical equipment that he gave them the safety plaque. Therefore, not only is enforcement not very strict, but honors are won just for following the code. Although this provision had been in the regulations for at least ten years, many firms had been ignoring it right along. This had not been specifically asked about, but when everyone was queried concerning whether or not their safety practices had changed recently, many people mentioned that they had added grounding wires to power tools and machinery. There has probably been a statewide push in the past couple of years to have this restriction complied with, and there are undoubtedly many contractors who have not gotten around to it as yet. The inspector who threatened to close the job down was most likely bluffing and doing this on his own initiative. It seems that the only real penalty would occur if a worker received an electrical shock and was disabled, and also knew enough to make a claim for the out-of-pocket monetary settlement.

Thus, out of seventy-five responses there were only four that were different from the majority, which shows that there is uncommon accord in Ohio on the three questions. In no case did any employer disagree on any more than one of these areas; and even the contractor above, who believed that

his production had been hampered somewhat, was "for" regulations and felt that they were effective in reducing the number of injuries. The largest number of reservations were felt when it came to the subject of the effectiveness of legal restrictions, but even so twenty-two companies thought that they were accomplishing their objectives. This conclusion is not borne out by the facts and was clearly shown in the last chapter, as Ohio firms do not do as much to prevent injuries and control hazards as Michigan concerns do. Laws by themselves cannot accomplish anything, and if management's safety precautions are not increased then the code can be said to have failed. Perhaps so many Ohio builders think that the law is working as it is supposed to, because they see the very low published injury rates for the construction industry, and they do not know their own frequency and severity of injuries. Finally, as everyone was for the law and there was actually no interference with production, the only conclusion possible is that there is very little enforcement. Safety legislation then, is not as bothersome and as fearful a phenomenon as most Michigan businessmen believe!

What do the executives of construction companies in Michigan feel about these three points? In the first place, they are more unsure of themselves as there were a greater number of "don't know" or qualified answers. In addition, the uniformity was not as great as in Ohio, but this was

actually more apparent than real. There were twenty builders who were of the opinion that safety laws were not effective, and of the remaining five, one did not know and four said "yes." However, these affirmative answers were so qualified by statements like "if they were administered properly" or "it is theoretically possible" that they are really negative answers in disguise. No one wanted to think that if restrictions were imposed on them that it would be in their best interests. The same was true when they were asked if they were for or against a safety code. Twenty replies were definitely against, two said that they were not against regulations, but they were not for them either. The remaining three contractors said they were for legislation if it was run right, but no one actually believed that this was in the realm of possibility. It is worthwhile noting that these people who were the least antagonistic were not members of the Associated General Contractors or other groups that were active in fighting government control. They were not in the mainstream of the controversy and were taken somewhat by surprise when these questions were asked. It was obvious as the interview progressed and they had more time to think about it, that they were satisfied with the way things were at the time, and they did not want to see a law passed. There was one owner though, who believed that the Associated General Contractors should spend less time fighting a safety code, and more time insuring that contractors

could live with the one that would eventually appear.

There were eighteen construction company managers in Michigan who felt that safety laws and regulations interfered with production and output. Two persons replied that they had no idea if they did or not, and five said "no." However, every one of the no answers was qualified in one way or another. What they all meant in effect was that there did not have to be interruptions if the code was administered the way that it should be. However, these responses were not strong ones, and it seemed as though everyone was at least slightly concerned that any real law would interfere with the work to some extent.

Table 6-1 gives a picture of what has already been discussed, and also highlights a few additional factors. There were twenty-one Ohio firms that answered the three questions in exactly the same way--they believed safety laws were effective, they were for them, and they didn't feel that regulations interfered with output. On the other hand, fifteen Michigan companies replied similarly, but these responses were just the opposite of the ones in Ohio. No Ohioans replied like the majority of Michiganders, and only one of the latter answered like the former. Number 21 said "yes," "for," and "no," but he specifically qualified all his remarks by stating that only the right kind of legislation would be effective if it was also properly administered.

TABLE 6-1

ANSWERS TO QUESTIONS CONCERNING THE EFFECTIVENESS, INTERFERENCE, AND FEELINGS FOR AND AGAINST SAFETY LAWS IN 50 FIRMS IN OHIO AND MICHIGAN

	Ohio					Michigan				
	No. 24 Effective		No. 25 For or Against	No. 26 Interfere		No. 24 Effective		No. 25 For or Against	No. 26 Interfere	
1	Yes		For	No			No	Against	Yes	
2	Yes		For	No			No	Against	Yes	
3	Yes		For	No			No	Against	Yes	
4	Yes		For	No			No	Against	Yes	
5	Yes		For	No			No	Against	Yes	
6	Yes		For	No			No	Against	Yes	
7	Yes		For	No			No	Against	Yes	
8	Yes		For	No			No	Against	Yes	
9	Yes		For	No			No	Against	Yes	
10	Yes		For	No			No	Against	Yes	
11	Yes		For	No			No	Against	Yes	
12	Yes		For	No			No	Against	Yes	
13	Yes		For	No			No	Against	Yes	
14	Yes		For	No			No	Against	Yes	
15	Yes		For	No			No	Against	Yes	
16	Yes		For	No			No	Against		No
17	Yes		For	No			No	Against		No
18	Yes		For	No			No	Against		
19	Yes		For	No			No			No
20	Yes		For	No			No			No
21	Yes		For	No		Yes		For		No
22	Yes		For	Yes		Yes		For		
23		No	For	No		Yes		For	Yes	
24		No	For	No		Yes		Against	Yes	
25		No	For	No				Against	Yes	
Totals	22	3	25-0	1	24	4	20	3-20	18	5

In other words, he was not referring to the safety legislation that was then being proposed in the legislature, but to a hypothetical situation. This firm was one of the nine in Michigan that were considered to be unconscious of safety from observations made during the interview.

There are two major points that stand out when this data is analyzed. The first is that Michigan contractors are fearful of the unknown and do not want a safety code. The second is that Ohio builders find no difficulty in living with the safety regulations, and as they violate them rather often, the restrictions cannot be too strongly enforced. In addition, there are powerful groups and organizations that are actively fighting laws of this nature in Michigan, and their propaganda increases the owners' distrust of government control. On the other hand, there are only about ten inspectors who visit construction sites in all of Ohio, some of them are not very well qualified and this industry has only recently been given assistance in safety by the state. Some builders have called construction an "orphan" insofar as accident prevention help from the Division of Safety and Hygiene is concerned. Finally, all of this tends to focus on one aspect of human nature, which is that everyone and all of the forces in both areas seem to be directed toward maintaining the status quo.

Harassment

How much actual harassment was experienced by the contractors in the sample? To begin with, it was practically nonexistent in Ohio, as only two respondents said that they had ever been subject to governmental pressure of this type. Furthermore, one of these persons is the previously mentioned builder who received the safety award. He had not been harassed to any significant extent, and certainly not in the manner that Michigan businessmen are fearful of. In the other instance, the complaint was for the same reason, and concerned the addition of three-wire cable for grounding purposes. If possible, there was even less harassment in this case, and the owner here was one that answered like the majority in the previous section. It is true that the inspector continually mentioned the violation in his reports to management, but this calling of attention to a problem is really not the same thing as being harassed, at least not in the generally accepted sense of the word. What is more revealing of the true state of affairs is that neither one of these two persons was the least bit concerned about being harassed in the future.

There were twenty-one Michigan firms that had never been harassed because of government safety regulations; however, only fifteen companies had ever been subject to these kinds of restrictions. In most cases they had done work for

the federal government and the Army Corps of Engineers had had inspectors on the construction sites. In the four instances when the contractors felt that they had been pressured, there was no evidence of any serious harm having been inflicted. To say that they were annoyed or pestered would be closer to the truth of the matter. For example, situations were described where workers had to wear hard hats when laying floors and digging shallow excavations, plus various other petty things of like nature. Therefore, while the actual difference in the amount of harassment experienced by builders in the two states was not much different, any similarities in the response concerning this subject cease at this point. Michigan builders are fearful of what the future may bring in this respect, while the people in Ohio are definitely not worried in the least.

When asked about their concern for future government harassment, only one Ohioan said that this "could" happen, but he did not seem very certain that it would. He had never been bothered in the past, but thought that there was a "potential for this type of occurrence whenever you are dealing with a man-made system or program." His fears were minimal, and he also believed that there was less politics now in the state safety program, and that they were doing a better job as time goes on. In comparison to this relative calm nineteen Michigan contractors were definitely worried about what would happen if safety legislation was passed in

the state and another one stated that harassment could occur in the future, but he was not greatly concerned. Of the five who were not afraid, four of them had had federal inspectors on their projects so that they had some idea of what to expect.

Because the trade unions had been so active in pushing for the passage of a construction safety code, and they are a potential source of harassment, all of the Michigan builders were asked if they expected any trouble from these groups. There were twenty-one respondents who feared that the unions would use safety regulations to harass management, one did not know, and three others did not believe that this would occur in the future. In Ohio, the contractors were queried as to their <u>past</u> relationships with these organizations and five companies replied that the unions had used safety legislation to harass them. The remaining twenty firms had never experienced any difficulty at all in safety with the representatives of the workers. When the five yes answers are analyzed, there was only one interviewee who really felt that he had been abused, the other four just mentioned things that were very minor in nature and that could not be defined as harassment. Two of the latter contractors also said that the unions were really not interested in accident prevention and only mentioned safety during periods when contract negotations were in progress so that they could gain other advantages.

Actually there was no difficulty with safety codes and the unions in Ohio in the way that most Michigan firms are fearful of. However, it is probably true that more threats of harassment will arise from this source in the future than from any other. In both states, comparisons of these statistics show that both past experience and future expectations are worse with unions than with the government or anyone else. It is well to remember that if a worker's organization wants to make trouble, they do not need a safety code to do it. It is not usually accident prevention itself that causes the controversies even though signs of difficulty may well erupt in this area. Therefore, fear of the unknown has to be playing a major part in Michigan. These owners have heard stories of real abuses and stupidities in other states that have grown in horror with the retelling. While there might be differences in the laws in the two places, they are dealing with the same unions and the fact is that at least 80 per cent of the Ohio builders have not been bothered by these organizations in any way, shape, or form when it comes to safety. Personal observation of the responses show that executives in this state are more worried than they need to be. This subject was discussed very quietly and calmly in Ohio and did not generate much excitement or concern, while the adrenalin flowed freely in Michigan and the answers tended to be more emotional in nature.

The last question in this section has to do with the harassment from the individual inspector on the job as apart from the regulations themselves. Michigan contractors were asked about their possible concern over the unfairness of the state representative if a safety code was put into effect. There were seventeen persons who feared that this might happen and eight who did not. Therefore, even though there was a great deal of apprehension here also, there was still a lesser amount than in any of the other areas having to do with legislation or enforcement. When one thinks about all of this in a rational manner, he should quickly realize that a complaint to the inspector's superior would put an end to any personal abuses of power. A government official, who was at all interested in accident prevention, could not allow this type of thing to happen, otherwise any real progress in safety would have to suffer. In Ohio, builders were not only queried as to whether or not this occurred in the past, but also if they were worried about the future. No one had had trouble before and the only person who had doubts about what could take place was the same respondent who had continually replied that there were poor types of people in any program.

A summary of all of the figures on harassment appears in Table 6-2. The companies have been listed so that as clear a picture as possible would be shown, but they are not in the same order as the firms were in the previous table.

TABLE 6-2

ANSWERS TO QUESTIONS CONCERNING FUTURE FEARS AND PAST EXPERIENCE WITH HARASSMENT FROM VARIOUS SOURCES BY 50 FIRMS IN OHIO AND MICHIGAN

	Ohio				Michigan			
No.	No. 32 Past Govt. Harassment	No. 33 Future Govt. Harassment	No. 35 Past Union Harassment	No. 36 Inspector Harassment	No. 32 Past Govt. Harassment	No. 33 Future Govt. Harassment	No. 34 Future Union Harassment	No. 36 Inspector Harassment
1	No	No	No	No	No	No	No	No
2	No	No	No	No	No	No	No	No
3	No	No	No	No	No	No	No	No
4	No	No	No	No	No	No	Yes	No
5	No	No	No	No	No	No	Yes	Yes
6	No	No	No	No	No	Yes	Yes	No
7	No	No	No	No	No	Yes	Yes	No
8	No	No	No	No	No	Yes	Yes	No
9	No	No	No	No	No	Yes	Yes	No
10	No	No	No	No	No	Yes		Yes
11	No	No	No	No	No	Yes	Yes	Yes
12	No	No	No	No	No	Yes	Yes	Yes
13	No	No	No	No	No	Yes	Yes	Yes
14	No	No	No	No	No	Yes	Yes	Yes
15	No	No	No	No	No	Yes	Yes	Yes
16	No	No	No	No	No	Yes	Yes	Yes
17	No	No	No	No	No	Yes	Yes	Yes
18	No	No	No	No	No	Yes	Yes	Yes
19	No	No	No	No	No	Yes	Yes	Yes
20	No	No	Yes	No	No	Yes	Yes	Yes
21	No	No	Yes	No	No	Yes	Yes	Yes
22	No	No	Yes	No	Yes	Yes	Yes	Yes
23	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
24	Yes	No	Yes	No	Yes	Yes	Yes	Yes
25	Yes	No	No	No	Yes	Yes	Yes	Yes
Totals	2-23	1-24	5-20	1-24	4-21	20-5	21-3	17-8

In other words, the only correlations that can be made are those concerned solely with harassment. It can be readily observed that nineteen Ohio contractors answered exactly the same way, and they had not experienced any difficulty and also did not expect any in the future. In addition, the two builders who had been slightly pressured to ground their electrical equipment, did not believe that they would have any problems of this type again. There were only two instances when there was more than one yes answer in Ohio, and these came from the firm that received the safety award that did not deserve it, and the owner who did not have much faith in human nature. Neither of these companies had actually been harassed at all. The remaining significant factor is that a greater number of people were bothered by the unions than by the representatives of the state.

It should be kept in mind that the questions in Ohio were slanted toward past happenings even though two of the four dealt with the future. The Michigan companies had very little experience with any of this and they were primarily concerned about what would occur if legislation was to be enacted. In other words, the responses in one place were based on facts and in the other on fears. There was much less uniformity in Michigan as three contractors said no in all of their answers and four had replied in the affirmative in each case. The most numerous response was the one where they had not experienced harassment but expected this from

all sources if a safety code was put into effect, and this happened eleven times. In comparison with Ohio, the only similarities are that their actual previous abuse was small, and they both had the most mistrust of the unions. In addition, less trouble was foreseen from the individual inspectors than from the worker's representatives.

Inspectors

In order to better understand the average contractor's relationships with and feelings toward enforcement and government safety specialists, everyone was asked about the inspectors' orientation or emphasis, his qualifications, and the assistance that he provided. On the whole, the Ohio employers thought well of the representatives from the Division of Safety and Hygiene. In answer to whether the inspector was primarily enforcing rules or being of service in safety, ten builders said that he was providing a service first, and ten others replied that the main emphasis was on the regulations, while the remaining five believed that the two approaches were evenly balanced. There were sixteen builders who received helpful advice and assistance in accident prevention from him apart from the restrictions in the code, and twenty-two who were of the opinion that the state inspector was qualified and had the proper knowledge and training in the area. Therefore, even though ten respondents thought that the primary emphasis was on enforcement, and nine had

never been helped outside of the rules, there were only three people who said that their state safety representative was not qualified to do his job.

Perhaps one of the major reasons that Michigan contractors have such little faith in government safety regulations is because of their past experience with these restrictions and the inspectors who enforce them. The situation is different in the two states and the same things are not being compared as federal inspectors are referred to in this paragraph while state personnel were discussed in the last one. In Michigan both parties do not have the opportunity to work with and come to know one another as they do in Ohio. Only a fraction of the typical firm's work is for the federal government and the safety personnel are not necessarily the same ones on each separate construction project. When asked if they ever had to follow safety rules and specifications because of various government contracts, fifteen interviewees in this state replied in the affirmative. However, three companies had not had federal safety people on their jobs, while the twelve others had had experience with representatives from United States departments. Only three builders thought that these people primarily tried to be of service in accident prevention, and the other nine said that observing the specific rules was stressed. In addition, there were merely two companies that had ever been helped in safety, and eight out of twelve contractors were of the opinion

that the federal inspector was not consistent and did not have the necessary knowledge and training in construction safety.

Although additional information was not specifically requested, the recorded comments show that on the whole, the Michigan employers were not too happy with the Army Corps of Engineers inspectors. There is some doubt and confusion here because it was not certain in all instances as to exactly who was being discussed, but if the Corps of Engineers was mentioned it was recorded, and this was done in ten of the twelve cases. For example, the four contractors who felt that they had been harassed in the past all criticized the Corps and said that the letter of the law rather than the spirit was stressed. They called the restrictions asinine and stated that most inspectors did not know anything about accident prevention and just followed the manual. The experience of these people was so bad that all of them feared future harassment from all sources without exception. These builders were the ones on the bottom of Table 6-2 that had all yes answers. On the other hand, two of the three at the top of the page with complete no responses were also visited by the Army Corps of Engineers personnel. One of them thought a good job was being done, but the two received no help in safety and both believed that the primary emphasis was on enforcing the restrictions. Furthermore, of the five Michigan firms in the sample that were not worried about

future harassment, four of these had been contacted by federal inspectors. It seems that the competence of the individual representative is all important and that there is also a lot of variety in this respect.

The only discussion of a situation involving real government harassment that was described during the interviews was also attributed to the Army Corps of Engineers. This did not occur to a member of the sample, but to one of his associates. It seems that there is an extra cable required on some types of temporary elevators and the contractor in question did not have this. Even though the one cable was in excellent condition and could have done the work, the added safety factor was missing. The inspector saw this violation in the morning and shut down the job immediately. The owner promised that he would have the needed item the next day as it would take that long to obtain one; however, the government official was adamant. The chances of an injury occurring on that day were infinitesimal, and more so if people were careful, for the one cable was all that the owner regularly used on private building projects and no accident had ever happened before. This was an expensive shutdown because all of the employees had to be paid for the time lost. Certainly a warning here would have been in order. Another example of poor public relations was the case of the corps representative who boasted to one employer that he was leaving in order to go

and close down the construction project of another company. One respondent who had built a large post office claimed that there were about fifty corps of engineers inspectors on the job and they were in each other's way so much that one of them sustained an injury because of this situation. Their presence did not seem to help very much because his frequency and severity rates for that year were enormous even though this firm was listed as one of the most safety conscious in the study!

Of course the Michigan builders could be merely prejudiced, but in the case of Ohio there was some actual basis for comparison between state and federal safety personnel. There were ten companies that had done work for the federal government but two had had so little experience that they could not offer an opinion. Of the remaining eight firms, four of them believed that state and Army Corps of Engineer inspectors were very much alike, and the others thought the federal officials were more strict, petty, or rigid while one builder stated that they were better trained but that they also carried precautions to ridiculous extremes. Everyone was pretty much agreed that they were on the construction site more often, and in some cases never left the job at all. These conclusions are much like those in Michigan as even the one person who thought that the corps inspectors did a good job also believed that they went overboard on safety. The general opinion that they were too

petty or strict also existed in about the same proportions in the two states.

A brief summary shows that while 40 per cent of the Michigan contractors who had dealings with the Army Corps of Engineers had felt harassed, only 8 per cent of the sample in Ohio had this feeling about the state representative. In addition, 40 per cent of the employers in the latter state believed the federal program to be too strict and arbitrary in nature. Another conclusion seems to be that there is a wide range in the capabilities of various inspectors and they are the most important link in any safety program. Management's cooperation in accident prevention is essential regardless of whether there are regulations or not and this depends in great part on the individual inspector. Even if the safety legislation is ideal and the program is well administered, poor personnel in the field could ruin everything. It has been previously stated that some areas in Ohio have firms which take much fewer precautions than others. An analysis of the information in this chapter indicates why this is the case in one city. There were only three respondents who thought that their state inspector was not qualified and they were all speaking of the same man. The five contractors in that location all felt that this official stressed enforcement of rules and gave no assistance in safety, which probably helps to explain why accident prevention activities are below average in these firms.

Furthermore, the only instance of a threat to shut down a job that was recorded during the interviews in Ohio came from this person.

Government Control

It has been fairly well established up to this point that Michigan contractors do not want to see greater government control, while the Ohio builders do not seem to mind what is being done in their state. However, in order to gain a better idea of the degree of acceptance of the state's involvement in safety, a series of questions was asked which had to be entirely different in the two areas. Ohio construction people were queried as to whether or not the present law was acceptable; about the effectiveness of the state program; what they would like to see changed; and if the government should do more or less in accident prevention? In Michigan, the respondents were asked if the proposed legislation was acceptable; whether or not they would like a service agency without enforcement powers; if they felt some pressure was ever necessary; and would they be for a safety law if they were certain that it would be run right? In addition, all of these interviewees were ranked as to their intensity of beliefs concerning the government's involvement in accident prevention. Of course the emphasis in Ohio was on past occurrences, whereas Michigan builders were dealing with hypothetical situations involving the future.

To begin with, every single company official in Ohio thought that their present safety legislation was acceptable, and this was not surprising because they all were for having safety codes. When the question was posed in a slightly different manner, a number of differences became apparent. Their feelings as to the effectiveness of the state program varied as three believed the government was doing a poor job, eleven said that it was fair, and the remaining eleven were of the opinion that the Division of Safety and Hygiene was providing good assistance. Everyone had the opportunity to talk about what he would change in the present set-up if he could do so, and fourteen builders said that they would do nothing different or they were pretty well satisfied with the way that things were at the present time. Inspections were mentioned six times and everyone wanted more of them, even the person who was already being called upon most often in the state. However, one contractor desired these visits to be conducted by private insurance companies. There were also two company officials who said that they would like to be able to purchase workmen's compensation insurance from private companies--one because he believed that rates would be less expensive and the other for the reason that there would be less malingering allowed by claimants. Although he did not mention private carriers, one owner also believed that claims should be checked much more closely. The remaining two firms had entirely different feelings, as the first

person believed that the union ought to have more responsibility for safety training and the other thought that the "letter" of the law should be stressed much less than the "spirit."

Did the average construction executive want to see the state become more or less involved in accident prevention? The large majority replied that things should remain as they are at present. Along with the seventeen who said "stay the same," there were four who wished for "more" government participation and control and four who wanted "less." Of those who said "more," all four would have liked to have a greater number of calls by the Division of Safety and Hygiene's safety engineer, while the "less" answers had to do with the dissatisfaction with the Bureau of Workmen's Compensation and the whole "principle" of government meddling. The three previous "poor" responses connected with the effectiveness of the state program came from two of these builders who said that less should be done on principle. The third thought that enough was not being attempted or accomplished and so there was a need for "more" involvement and control.

Going back for a moment, it will be recalled that there were three Michigan contractors who were "for" safety legislation and two others who were not necessarily against it, but they were not for it either. When it came to finding out if the proposed legislation was acceptable or not,

only one respondent said "yes," as he believed that it was certainly coming. He was the person who thought that the Associated General Contractors should have spent more time helping to draft a good law than just fighting against regulations, and he also felt that a safety code would help the general contractor with his subcontractors. However, even this owner who was the least antagonistic to legislation, did not say that he was "for" it in the beginning--merely that he was not necessarily "against," and that it was not really effective. In other words, as he thought about the subject, he became more convinced that blind reaction was not the answer. The opposite was true for the remaining four firms under discussion. One company president who was for safety laws at first, later changed his mind completely and said he did not see any reason for government involvement. The other three men all stated that they did not know or understand about the proposed law, but when it was explained to them, they still did not find it acceptable. There were no doubts with the twenty interviewees who said "no."

Did the Michiganders want the government out of the picture completely or would they accept help if there were no restrictions attached to it? About the least involvement possible would be a situation in which there was no law enforcement, or coercion of any kind, but where the state provided various safety services and research, and nineteen

company officials replied affirmatively to this proposal. The other six were against even this much interference "on principle." When asked if there should not be some sort of pressure exerted in exceptional cases where there were high accident rates and no awareness or concern for even minimum amounts of safety, twelve people said "yes." The other thirteen wanted absolutely no control regardless of the circumstances. The next question was: "Would you approve of safety legislation if you were certain that it would be run right? There were thirteen yes responses and many of these were speaking of a theoretical situation only, as they did not believe that this could actually happen here. Of the remaining twelve replies, one person did not know and eleven answered with a no. Finally, all of the various comments and information was analyzed along with the observations of the interviewer so that a scale could be made and a rating assigned to everyone in the sample. The degree of belief in the beneficial effects of government involvement and control ranged from one which was pro, to the absolutely negative attitude indicated by the number 5. There was one 1, three 2's, four 3's, eleven 4's, and six 5's. In other words, four persons were neutral and did not have strong convictions either way, four contractors had varying amounts of positive feelings, and seventeen others were antagonistic towards the state.

To summarize briefly, the information in this last section tends to reinforce what was found to be true in the balance of the chapter. Ohioans do not mind the form of state control that they have while contractors in Michigan want no part of government intervention. Therefore, any changes contemplated in Michigan should start out by calming the generally unfounded fears that are widespread, and also allow a certain amount of participation by the builders. If they have respect for the people in charge and the correct attitude is shown by inspectors or other officials then there is a chance that legislation can help in the reduction of injuries. Finally there have been many comments about unions and federal inspectors that have come from the members of the sample. These may or may not be accurate as they are merely attitudes and opinions and there was no attempt made to hear the other side of the story.

CHAPTER VII

SUMMARY AND CONCLUSIONS

There had been a great deal of agitation for a considerable period of time in Michigan for the passage of construction safety legislation. To the average person there did not seem to be any real problem involved as most states already had these types of laws. Furthermore, the neighboring state of Ohio had more government control than most places and their injury rates and workmen's compensation costs looked to be very low. Michigan contractors and the organizations representing them, however, did not want any restrictions, and they claimed that the injury rates in Michigan were among the lowest in the country. There was no way of being absolutely certain from the facts at hand in preliminary investigation, but it seemed as though the situation in Ohio was actually best for everyone concerned. Therefore, the research was undertaken to try to clarify the various positions and to provide impartial information.

The hypotheses in Chapter I were stated in part to show what was thought to be most probably true. It was believed that Ohio's frequency and severity rates were lower, that the contractors in that state paid less for casualty insurance, were given more assistance in safety, understood

and took greater precautions in accident prevention, and were much less antagonistic toward safety regulations. However, the answers to the five main questions indicate that most of these assumptions were incorrect. A brief summary of the findings is as follows:

1. What are the frequency rates of construction firms in Ohio and Michigan?

   There is a general laxity in the recording and reporting of disabling injury statistics, and the correctness of the published rates is highly doubtful. The differences in the two states were negligible. The average frequency rates of all of the firms in the sample were around 40.00 for the years studied. This was a minimum figure, as many lost-time cases of less than a week's duration were not identified as such. Depending upon the actual ratio of indemnity to nonindemnity lost-time injuries, the real rate for the whole construction industry could easily be as high as 80.00. Finally, these statistics are not taken too seriously, and there is much confusion and misunderstanding among contractors as to their proper use and true worth. That a frequency rate of 40.00 to 80.00 represents a tremendous waste can be easily appreciated when it is noted that the frequency rates as reported nationally by the National Safety Council show an "all industry" average of 19.92, with such other naturally hazardous industries as steel,

automotive, chemical, and machinery having frequency rates of 3.37, 1.73, 3.31, and 3.65 respectively.

2. What are the comparative costs of workmen's compensation casualty insurance?

Despite monopoly, great size, reported low overhead, and other advantages, the workmen's compensation costs in Ohio are definitely higher than those in Michigan. When the reputedly large differences in the overhead or expense of administering the two programs are considered, the results are amazing. The average premium per $100 of payroll for a three year period was $2.07 in Ohio and $1.84 in Michigan. The latter state had an average expense of thirty-seven cents less in 1960, twenty-two cents less in 1961, and only ten cents less in 1962. Therefore, even though the overhead varies from 4 per cent in Ohio to over 40 per cent in Michigan, the private insurance companies are still charging a smaller amount. However, the gap is narrowing because of the steadily rising costs in Michigan due to large settlements and claims being awarded by the courts. The actuaries in Ohio feel that there is a great deal of malingering and abuses in the state program, which accounts for the high costs. It may also be true that the state fund is not run as efficiently, regardless of its claims, and workers receive higher benefit payments. Even though the Bureau of Workmen's Compensation does

not have to make profits, does not have selling expenses, has large economies of scale in administration because of less duplication of effort, provides fewer services, and does not have competitive pressures, it still charges a higher premium. It seems that the three previously mentioned factors all contribute to this situation, and it can definitely be stated that the impression given of a cheaper and much better program in Ohio is entirely invalid.

3. How much assistance is being received and what is the amount of influence being exerted toward accident prevention and from what sources?

The only evidence of greater assistance and influence in Ohio is in the area of inspections. Everyone in the sample was visited at least four times a year, while there were nine Michigan firms that did not fit into this category. However, some of the motivating force behind these activities in Ohio comes from the presence of safety legislation. The service aspects disappear to some extent as a result. In addition, house builders and other small contractors are not called on by representatives from the Division of Safety and Hygiene. Officials of the state spoke in glowing terms about all of the help that was given in the form of education, training, and other safety services. While this may be true for other industries in Ohio, it

certainly was not for the contractors included in the study. The Michigan firms were ahead in this respect. The main difference in the two states was that some small Michigan companies were hardly being reached at all, but most of the others were assisted much more than their counterparts in Ohio. The greatest sources of aid were the underwriters and trade associations in both places, and the least influence seemed to come from safety organizations. Once again the impressions received from Ohio propagandists proved to be incorrect.

4. How much interest in and understanding of safety is there by management in the two states, along with the employment of accepted safety practices and the removal and guarding of hazardous conditions?

Michigan contractors have a greater interest in and understanding of safety, and they do more to prevent injuries. When one point was given for each of a number of safety activities and precautions, they received a total of 287 to only 201 for Ohio companies. Both the most and the least safety conscious firms were in Michigan, as the only perfect score, and the builder that did nothing at all, came from that state. Michigan owners were more concerned about safety, and they also realized that they had a problem in this area. These things were probably closely connected to the pressure for the passage of safety legislation. On the other

hand, Ohio contractors thought that they were doing well in accident prevention and generally seemed to be less anxious and insecure about the subject. It is interesting to realize that these people freely admitted that they were not doing certain things which were required by the law. This is one more indication that the safety code was not taken very seriously or enforced to any great extent.

5. What are the feelings toward safety legislation? Have contractors felt harassed because of it, and have these regulations interfered with productive operations?

All Ohio respondents were in favor of safety legislation. Twenty-two of them thought that it was effective in reducing the number of injuries, and twenty-four said that it had never interfered with output. There had never been any evidence of real harassment taking place, and the large majority of firms were satisfied with the existing situation. To put it simply, almost the complete opposite was found to be true in Michigan. Although there had been relatively little harassment in the past, most people were fearful that it would take place in the future. There was only one Michigan contractor who had a favorable attitude toward government involvement in accident prevention, and he was merely being realistic as he believed that it was only a matter of time until there would be a safety code.

As a general and overall conclusion based on the observations of the construction industry in the two states, and in order to place all of the information in the proper perspective, it should be stated that the differences in safety are not very great. While many of the statistics in the previous chapters have shown wide ranges, they have indicated relatively minor differences in terms of averages. There is really not much actual accident prevention to speak of in the whole construction industry in either place. For example, fourteen firms said that they had safety programs, but compared to what is going on in other industries, there was actually not one of these companies that could be said to have a real safety program. This is the opinion of the writer as opposed to those expressed by the contractors themselves, which have been recorded in the study. One place of great difference between Ohio and Michigan firms was in the attitudes and feelings toward safety legislation. Here the real differences were even greater than the statistics indicate, if that is possible. Michigan builders were fearful of the unknown, and they were fighting legislation, which probably colored a great deal of their thoughts and responses. On the other hand, Ohio owners were well satisfied with their situation, and did not show any evidence of the anxiety that the Michigan people feared.

Recommendations

Many of the recommendations noted here should apply generally to safety in the construction industry in any area even though they are primarily directed toward the problems in Michigan.

One exception is the following specific suggestion for the Ohio program. They seem to have established a dilemma, for on the one hand the low published frequency and severity rates tell contractors that they are the best in the country, and on the other hand they are trying to get them to be safety conscious. While Ohio officials may believe that they are silencing criticism and putting on a good face before the nation, they are in effect defeating their own purposes. How can they enforce the regulations and get people to take the necessary precautions when they are at the same time telling them that they do not really need to? Contractors do not have accurate information, and the accompanying complacency stops the progress that is vitally needed. The writer feels that dedicated state personnel must feel uneasy about what they are being asked to do. It would be wise to reverse the present procedure and figure individual company injury rates instead of publishing the irrelevant statistics that they do now. Of course, before this can occur safety has to be given a higher priority relative to politics.

The evidence in the study indicates that the mere passage of a law in Michigan will not solve the problem of high accident rates in the construction industry all by itself. Injuries are not occurring because management is doing something wrong, but because the necessary precautions are not being taken. These two things are not exactly the same. Just what is a safety code expected to do, make owners take a positive approach toward accident prevention? How much government control and enforcement will there be? Certainly, enacting legislation, then believing that the major job has been done, and relaxing or forgetting about the difficulty, will not do anyone any real good. This is a complicated matter and many questions have to be answered. How much money should be spent? Where will it come from? What penalties or punishments should be inflicted for violations? Changing the habits and activities of a large and important industry is exceedingly difficult even if there is a clear picture of what has to be done and how. Who can say that even the strictest enforcement will lower injury rates? This research has found that despite the comprehensive regulations in Ohio, the hazardous conditions still abound.

There can be no doubt that if frequency and severity rates are to be reduced there must be management interest and participation. Just letting the state handle and be responsible for safety will not work. It is hoped that a law would change contractor's activities in the right

direction, but caution must be taken as merely making these people antagonistic would not accomplish anything of value. At this time there is more concern over accident prevention in Michigan than in Ohio, and this interest should not be destroyed. Builders do not want to see workers hurt and they are not criminals. They need to be helped and persuaded in the right direction.

One additional factor that should be kept in mind is that safety is also a result of improved technology. Early industrialists were not intent on killing their employees, but because their machinery and technology was so crude, accidents were inevitable. This may be one price of progress. Construction is not only extremely hazardous, it is also one of the most technically retarded of all of our major industries. Development of new building methods and increased efficiency should also result in fewer injuries. The same reasoning applies to retail outlets and restaurants. They have higher frequency rates than automobile or chemical plants probably because of less advanced technology as well as because their managements do not realize that they have a safety problem and consequently, do not carry on safety programs. Certainly, automation and increased mechanization can reduce accidents to an enormous extent for the same amount of overall production, and in construction we still find individuals hammering nails.

Actually, what is most needed at the present time is some clear thinking and the proper orientation. To begin with, too much of the emphasis in safety is concerned with "how to" reduce the number of injuries, and not enough stress is placed on "wanting to." The motivational aspects do not receive the serious consideration that they deserve. Too many people seem to take it for granted that owners have sufficient desire to lower the number of accidents, and they become absorbed with details about what to do under various circumstances. Everyone is "for" safety, but most do not give enough attention to it. There is not the necessary conviction that is needed for any real progress to take place. It will only become possible to lower injury rates if the industry "wants to" enough to give it serious effort. Then the "how to" aspects can follow naturally with some chance of success.

There are basically two approaches which can be taken in order to make businessmen want to improve in the area of accident prevention. The first might well be called the "good business" method of motivation. If reducing the rate of disabling injuries costs less than the expenses associated with the occurrence of accidents, then injuries can be economically controlled. Those people who spend money and take the proper precautions will benefit financially. It only remains to prove whether or not this is so by scientific and extensive cost studies patterned after the Simonds

method. Exhortations and examples of what happened in one company, or other industries, or what experts believe is not enough. If it can be shown beyond any doubt that safety pays, then the only problem that remains is one of education, as everyone stands to gain in this type of situation.

However, because of the particular nature of this industry, it may very well be that hazards can only be really controlled at overwhelming expense. In other words, a great deal of money may be spent without eventual financial rewards that are at all commensurate with costs. If so, there is only one other basic approach that can be taken, and this involves various kinds of pressure from different sources. Safety legislation, poor public relations, union agitation, and the results of low employee morale fall into this second broad category. The primary motivating force would then be social or political and perhaps indirectly economic. The procedures to ensure compliance would be entirely different. At this time no one seems absolutely certain about what should be done. Should contractors be threatened, or sold on safety? Is accident prevention for or against the employers best financial interest? Can builders be motivated toward accident prevention if their competitors, who are not safety minded, are able to underbid them on jobs and profit thereby? How can any real progress take place until it is understood how to attack the problem?

Regardless of what method of increasing accident prevention practices turns out to be the best, there still has to be interest in and concern for rates, costs, and research. How can anyone know what measures are effective, or what is going on unless accurate frequency and severity rates are kept? There cannot be any progress if improvement is measured by guesswork. The same thing is also true for any proposals or suggestions that are not based on facts. Safety will have to suffer if rates are not properly determined, regardless of what else is done or tried, as fast talk will then be able to take the place of action. A program cannot go forward very far in the dark or with banners that contain old wives tales, for slogans and suggestions without scientific backing are eventually disregarded.

Reliance cannot be put in irregularly kept records as the research has shown that they are a farce and worse than useless. It becomes possible to "cut" injuries by lying or by conveniently forgetting accidents. For example, the supposedly most safety conscious firm in Michigan--the only one in the study with a perfect score of 23 points--had reported five lost-time cases to the Associated General Contractors for the calendar year of 1961; but the Workmen's Compensation Rating Bureau had records showing that they had ten indemnity cases for that same period. The actual number of disabling injuries could easily have been twenty, thirty, or even more. What is needed is some automatic procedure

whereby all lost-time cases are recorded. This may involve changing the workmen's compensation forms and/or system to some extent. If this is not feasible, then just indemnity cases could be used to figure the rates. There is no absolute necessity to follow the American Standards Association Z16.1 method as it has been widely abused anyway. What is important is that everyone in the state adopt the same procedure so that comparisons can be made. It may possibly be that the easiest thing would be to count only the indemnity cases, as this is what most people seem to be doing at the present time. However, any system should clearly indicate what is being measured, and allow no possibility of cheating.

One of the advantages that Ohio has over Michigan is concerned with motivation in the area of costs. Contractors know how much they are paying per hundred dollars of payroll and can clearly see this change from year to year. This provides an incentive to be safety conscious in the same way that the out-of-pocket penalty does when an injury occurs because of the violation of the code. In Michigan, the cost structure is so complicated that the average builder does not even try to figure out his expense in relation to volume and output. In both places, there is not the realization of how expensive uninsured costs are and many people do not even seem to know that they exist. Studies in this area should provide increased motivation and understanding. Of course, the ultimate effectiveness of this would depend on the

relation between costs of accidents and cost of prevention. While some contractors have claimed that they are doing everything possible regardless of the outlay, it should help to improve the precautions taken if it is found that safety and good business are not incompatible. It has been clearly established in many industries that "safety is good business." It must be kept in mind that an accident prevention program costs money. Even good housekeeping may be an extra expense as management may have to use additional labor for this. However, a clean and uncluttered workplace may increase the efficiency of operations as well as reduce the number of injuries.

Just having the workers wear hard hats and things of like nature do not go far toward solving the problem of high rates. Hazards must be guarded or controlled in some manner, and because of the continually changing nature of a construction site, the costs of doing this must necessarily be very large. It may prove true that for unsafe conditions to be neutralized to the extent that they are in some other industries, exorbitant expenditures would have to be entailed. If this is the case, then construction will have higher than average frequency and severity statistics regardless of whether or not there is safety legislation or anything else of the kind. However, there will still be areas where improvements can be made, and cost studies could conceivably show the point of diminishing returns. They should also

indicate which areas provide the greatest returns in the form of lower costs and rates with any given expenses. These things could be concentrated on first.

In other words, this whole difficulty is much like the situation on the highways. Accidents would be drastically reduced if the speed limit were fifteen miles an hour, but we as a society are not willing to pay the price in added inconvenience in order to cut the number of injuries. Any large increase in building costs without eventual return would of necessity be passed on to the consumer, and we may not be ready yet to accept this. Nevertheless, even though costs may mitigate against safety in this industry in an overall sense, studies would doubtless show some areas where it would be highly profitable to take precautions. There could be no excuse for not taking such steps at least.

A continuing program of scientific investigation should be a part of any plan for the future. This is how progress is made in other areas of our economy in this enlightened age, and the only way that anything can be really accomplished in construction safety. If management "wants to" reduce the number of injuries, then this is the manner in which the "how to" aspects can be best learned and passed on. At the present time there is emphasis placed on regulations, penalties, assistance, carelessness, enlightened self interest and all sorts of other things, but research is rarely mentioned in relation to accident prevention in the building industry. The three E's are talked about the most:

education, engineering, and enforcement. Educate who? It usually is the other fellow who needs this. Engineering--they are notoriously not safety conscious. Actually what this statement implies is that money be spent to do away with unsafe conditions, and there is really very little pressure for this. Enforce what? Anything that someone talks loudly enough about? These things can only have meaning if they are tied in with research so that the right things are taught and enforced. There needs to be proof in back of any proposals and not a lot of slogans that sound good but convince no one. In other words, research of one type or another is the key to all of the recommendations in this chapter, and regardless of what approach is eventually found to be most effective in promoting increased safety, studies involving rates, costs, and methods will still be needed.

More specifically, should there be a safety code containing various provisions and regulations in Michigan? On balance, this would probably be best, but a great deal depends upon the spirit in which this is presented to the industry. It will take a long time for anyone to have all of the answers, so at first a code could be considered as a general guide only. Threats and punishment should not be major factors in a state program. Therefore, management should be interested in any assistance especially if unreasoning and harsh restrictions are absent, and there are no political overtones.

All possible participation and company involvement must be striven for in the hope that there will be increased attention and motivation as a result. If a restrictive policy is taken, then there are limitations that other states have already leaned about to their dismay. How often will inspections take place and cannot a shrewd operator give untold reasons why he is or is not doing certain things? There cannot be a constant watch on all firms. If a contractor is not interested he can find many ways to cut corners and take chances. What has to be emphasized in the beginning is that companies are securing a service. Rather than their having an inspector call on them, they are obtaining the help of a specialist in accident prevention.

In other words, it seems to this investigator that the construction industry does not need policemen at this point, but rather people who can help them with the problem. Old, retired carpenters and union men following a set of rules, just will not do. It is extremely important to have well qualified personnel who are highly trained in the area and who can develop new methods and ideas. This is no place to economize, for if the state representative is inadequate or improperly oriented, the best program will be doomed to failure. The average builder's only contact with the state plan is through the safety specialist and everything comes together in his hands. He passes on information concerning the best way of doing things, persuades the owner to try

various safety precautions, gives cost data, figures frequency and severity rates, and gathers research material. He is a teacher or expert and should not be called or even considered to be an inspector in the usual sense of the word. If there is not a system of education and coordination of this type, how can progress be made? Expecting businessmen to learn by reading a set of regulations is unrealistic and will solve nothing.

The first thing is to do away with the secrecy surrounding accident rates and figure the frequency and severity for every company. Insurance firms can supply the payroll from which the hours worked may be estimated, and the lost-time cases could be obtained from the Workmen's Compensation Department. At last everyone would know exactly where they stood and how serious their difficulties were. What is important is that there be fewer injuries and not mechanical observation of specific regulations.

If everyone were to learn how serious the problem really is by knowing the actual rates of disabling injuries, a great deal of motivation and incentive would be automatically provided. However, this cannot be accomplished with voluntary plans. Michigan has the opportunity to succeed where Ohio failed. It is true that systematic collection and determination of injuries would probably make Michigan's rates look comparatively high, but without this, the ability to "reduce" rates by not recording injuries would handicap

any type of program. Michigan has the opportunity to be a real leader in safety and to help the entire construction industry of the nation by its example, and by what it learns.

Some plan whereby all companies would be given a safety rating depending upon their frequency and severity could be put into effect if stronger means of persuasion were necessary. The result would be that the onus of responsibility or blame would not be on the government's shoulders. If a firm is unsafe because of its own doing, then employees, customers, stockholders, competitors, and the general public among others should know about it. Anyone entering into a relationship of one kind or another with this contractor would be able to take his safety record into consideration whenever necessary. If this affected his competitive situation, then he might try to take greater precautions. On the other hand, the builder who goes out of his way to consider the welfare of others by guarding them against hazardous conditions, ought to have a low accident rate; and this should be known by all so that he may receive the acclaim and benefits that he deserves.

The modern trend is for those people having responsibility to be able also to judge their own performance from accepted standards and not depend on others to tell them how they are doing. This type of system substitutes internal pressure and motivation for outside control. If a contractor has a high accident rate and is aware of what it is, he

can push himself to improve rather than have the state representative issue veiled threats. Furthermore, it may be a good idea to have provisions for out-of-pocket cost penalties when injury rates climb over a certain specified point. This could be patterned somewhat after the Ohio plan. The percentage of the penalty would depend upon how high above the specified points the rates were and for how many years this situation persisted. In other words, if a contractor had an unsafe job and he violated accepted standards with the result that someone was injured, he would have to pay a penalty equal to somewhere between 15 to 50 per cent of his workmen's compensation premium only if his frequency and severity rates were in the top 10 per cent of the industries accident experience. The main point here is that if something of this type were in effect, the builder would be interested in knowing his rates and following their progress. In addition, he would look at safety specialists as a source of aid in attacking the problem and not as policemen.

Of course, any direct action of this type should come only after there is more knowledge in the area. That is why any new Michigan Safety Commission must start out with the intention of learning. The safety specialist who calls on the construction site has a wonderful opportunity to gather all types of invaluable information. He can observe what is being done in safety, note the management's attitudes, record the type of construction that is done, the volume of

employment, the size of the company, and all other significant factors and correlate these things with frequency and severity rates. For example, he would be able to see what difference the wearing of helmets made and also judge how successful other preventive practices were. Cost studies, research, and the dissemination of knowledge would be his primary concerns. If builders did not follow his suggestions it would be to their disadvantage. He is like the safety man who has a staff position in a large corporation and reports to the president or other major executive. He does not need to have any authority in the usual sense, but he does have to be an expert and be able to persuade, sell, and educate.

Therefore, a safety code would serve a useful purpose if it was continually revised and explained, regardless of whether or not there was any need for pressure. It would act as a guide, with special separate cost penalties only if they were necessary. These things along with a program of continual research on the most effective ways to reduce the number of injuries at the least cost with proven results, should be one of the most fruitful methods of handling the problem of the exceedingly high rate of injuries in the construction industry.

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