

STATE OF ARKANSAS  
DEPARTMENT OF LABOR

**BASIC SAFETY  
MANUAL**

(Authority, Act 161 of 1937)



Promulgated:  
STATE DEPARTMENT OF LABOR  
Little Rock, Arkansas

Effective June 8, 1959



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## **FOREWORD**

**Act 161 of 1937 reorganized the Department of Labor. Act. No. 126 of 1943 abolished the State Industrial Board and gave to the Commissioner of Labor the power, among other things, to make reasonable rules for the prevention of accidents in places of employment. The first promulgation comprised 49 rules dealing with hazards common throughout industry. These were published along with pertinent information under the title "Basic Safety Manual." This manual proved to be very useful in advancing the practice of accident prevention in the industrial establishments in this State. In response to suggestions we are adding more material in order to make it even more valuable to the employers (and their employees) of the State. This issue, therefore, is an enlargement rather than a revision.**

**While every employer in the state is required (and we believe will wish) to comply with all of the rules herein that are applicable to his operations, the chief purpose of this manual is to aid employers to discharge fully their duty as regards the safety of their employees. It is defined in the Annotated Digest of the Labor Laws of the State of Arkansas (Sec. 16-81-108) as:**

**(a) Every employer shall furnish employment which shall be safe for the employee therein and shall furnish and use safety devices and safeguards, and shall adopt and use methods and processes reasonably adequate to render such an employment and place of employment safe, and shall do every other thing reasonably necessary to protect the life, health, safety and welfare of such employees; provided that, as used in this Act, the term "safe" or "safety" as applied to any employment or a place of employment shall include conditions and methods of sanitation and hygiene reasonably necessary for the protection of the life, health, safety and welfare of employees or the public.**

**Every one of the rules herein is just good common sense safety and is accepted as such in every plant whose safety performance is good. These rules and the safety codes that have been or will be promulgated are to be regarded as minimal. They constitute a floor for safety below which no plant should operate. The structure of safety should be erected above this foundation. Compliance with these rules and the safety codes is an essential part of an effective safety program. The other essentials are set forth in this manual. While space does not permit the inclusion herein of the full details of an adequate safety program, the fundamentals are given. Any employer who will master these simple fundamentals -and they are simple and easily understood - can with the help of ordinary everyday common sense fill in all the details needed to develop and maintain "top rate" safety performance in his establishment. No injury frequency rate above 5 (one disabling injury per year per hundred employees) can be considered top rate. A great many establishments in practically every branch of industry do even better than this. Furthermore, they testify that it pays them to do so. Accidents constitute a needless waste of human and material resources. It is cheaper to prevent them than to allow them to continue to occur.**

# **BASIC SAFETY MANUAL**

## **PURPOSE**

**1. The purpose of this Basic Safety Manual is to present information and rules the observance of which will be helpful in preventing occupational injuries. The great majority of all injuries connected with employment can be prevented by means available to every employer and well within his resources to apply. The actual accomplishments of numerous establishments in this State and in every other State proves this beyond any possible doubt. This manual is a guide indicating the pathway to such achievement.**

## **THE STATE'S PART IN INDUSTRIAL SAFETY**

**2. That the State has both the right and the duty to make sure that those who are employed within its industries are provided with reasonably safe work places is well established. However, it is now realized that the State can and should go farther than this. The great majority of injuries which workers suffer in industrial employment do not result from hazards. Instead, the great annual total of such injuries is, for the most part, built up injury by injury and day by day throughout the year from the almost endless variety of relative hazards that are involved in industrial operations.**

**3. The magnitude of the annual waste due to human injuries in industry is nationally serious. For example, during 1957 the accident toll in American industry was approximately 14,200 dead and over 1,930,000 injured. It is obviously impossible to assign a definite dollar value to human life and human suffering, but the economic loss has been carefully estimated. Even the most conservative reckoning yields a national total that runs into billions annually. The share of this waste that even the least industrially developed State must bear is to be counted in millions - a serious continuing drain on the resources of the State - a drain which experience proves can be almost wholly stopped.**

**4. The chief foes of safety are ignorance, indifference, and inertia. Good safety performances in industry must rest on a basis of managerial enthusiasm for safety. A good**

**accident record is not particularly difficult to achieve. Those managements which become safety minded to an extent that they seriously and persistently undertake to eliminate preventable injuries from their employment always achieve at least a good standard of performance in this respect.**

**5. This is where the State must take an increasingly active part if satisfactory progress is to continue. These small employers cannot afford to hire full-time safety engineers. They are not much exposed to nor can they readily get a safety service adequate to their needs. However, given the proper information any management capable of operating a business at all can, if its interest is aroused, so direct and carry on its activities as to eliminate most of the injuries its employees normally suffer. Furthermore, it will profit financially by doing so.**

**6. A competent prevention-minded inspection service maintained by the State is in position to place its effort where improvement is most needed. It can carry the needful informational service to every establishment in the State. The attitude of most managements that fail to pay the proper attention to accident prevention is merely that of passive good will toward safety. They don't want their employees hurt, but they fail to take effective preventive action.**

## **MANAGEMENT'S PART IN SAFETY**

**7. If really good practice in the elimination of preventable accidents is to be reached and held in any establishment, the top management must definitely accept full responsibility and apply a good share of its attention to safety just as it does to any other undertaking of vital importance. Every kind of work that men do involves some degree of hazard and each such hazard produces its share of injuries. But, by the proper attention to safety, almost all the injuries which would otherwise occur can be eliminated regardless of the industry, the type of operation or the occupation in question. Since all authority, determination of policies and executive direction must come from the management, the primary drive for safety must also. The management must want to eliminate injuries badly enough to make their prevention a vital part of all activities. Prevention must be given continuous attention along with such matters as cost, quality, and production.**

**Very briefly the more important definite things management must do to prevent accidents may be set down as follows:**

- A. Provide safe plant, equipment and tools.**
- B. Safeguard all machinery.**
- C. Place no new machinery or equipment in operation until full attention has been paid to its safety.**
- D. Plan and arrange all processes and operations with careful attention to safety.**
- E. Maintain a system of inspection to discover correctible hazards.**
- F. Maintain safety-minded supervision.**
- G. Train, educate, and stimulate its employees to follow safe methods of work and take a sincere interest in the safety of themselves and their fellow workers.**
- H. Investigate each and every accident to determine how best to prevent recurrence.**
- I. Make full and prompt report to the proper authorities of all cases of injury.**

## **LABOR'S PART IN SAFETY**

**8. The splendid continuing progress in safety made by industry under the leadership of the National Safety Council has deservedly become widely known. However, it is proper here to point out that the industrial safety movement rests on the passage of workmen's compensation acts for which labor is primarily responsible. Labor has been and is persistently on the side of safety, and workers, when their cooperation is sought on a proper basis, will work wholeheartedly and intelligently to eliminate injuries from their employment.**

**9. The complaint that the majority of injuries are due to carelessness or other personal fault is commonly voiced. That is an unthinking or uninformed viewpoint. It is, of course, true that in each case of accidental injury someone (usually the person injured) either did something he shouldn't have or left something undone or improperly done. But careful investigation will show in nearly every case there is also a definite hazard which can be eliminated, reduced, or guarded against by means under the direct control of the management. Those managements that have accident records representing best practice invariably seek by every practicable means to eliminate or reduce physical hazards. In addition to this, they place great emphasis on securing the wholehearted interest and cooperation of every employee in preventing accidents. Nor do they fail to get it. Workers, organized or unorganized, will readily cooperate when their employer has demonstrated by his actions a willingness to do his full part for safety. "Safety First" is a valuable slogan when used sincerely, but used as a substitute for the expenditure of money and effort, it promotes a spirit which is definitely hurtful to the cause of safety.**

**10. The management cannot, however, do the whole safety job alone. Every worker must do his part to keep himself and his fellow workers from getting hurt. Some of the ways in which his help is most necessary are:**

- A. Faithfully using all safeguards provided.**
- B. Understanding and carefully following safety rules and safety instructions.**
- C. Working earnestly on safety committees or other safety activities to which he may be assigned.**
- D. Seeking always for the safe way of working on each job or activity.**
- E. Watching out always for the safety of his fellowman.**
- F. Reporting all hazardous conditions of which he learns.**

**If the plant is organized, the union should take an active part in the work of eliminating injuries. Safety is something everyone wants and needs and everyone is in favor of. Safety is one thing management and workers can and should cooperate wholeheartedly to secure for all.**

## **ACCIDENT COSTS**

**11. The fact that by preventing accidents we are preventing human suffering, misery, and deprivation is a fine heart-warming thing. But the main driving force behind the industrial safety movement is the fact that accidents are expensive. Substantial savings can be made by preventing them. An appeal to the emotions is effective at times, but the kind of persistent day by day effort necessary to eliminate preventable injuries is most**

surely obtainable by enlisting on the side of safety the ever-present desire and necessity for reducing waste.

**12. Everyone can easily see that accident costs are wholly waste. It is not so easy to see how large these wastes are. Compensation and medical costs (spoken of as direct costs) are obvious. It has, however, taken careful studies by experienced cost accountants and industrial executives to show how large the other costs (spoken of as indirect costs) are. It is now clear that on the average the indirect costs of accidents in industry are not less than four times the direct costs. The items of costs likely to be present in each case of accidental injury are:**

**A. Compensation**

**B. Medical expense**

**C. Lost time of injured employee (day of injury).**

**D. Lost time of fellow employees who stop work.**

- (1.) To aid injured worker**
- (2.) Out of sympathy or curiosity**
- (3.) For other incidental reasons.**

**E. Time of foreman, executives, or other staff personnel.**

- (1.) Assisting injured employee**
- (2.) Investigating cause of accident**
- (3.) Arranging for continuance of injured employee's work**
- (4.) Selecting, training, or breaking in new employees**
- (5.) Preparing accident report**
- (6.) Attending hearings on injury (serious or contested cases).**

**F. Lost production due to upset, shock, or diverted interest of workers.**

**G. Lost production due to stoppage of machine or process in charge of injured person.**

**H. Damage to machine, equipment, or material directly occasioned by accident.**

**I. Spoiled product or material due to emotional upset of fellow workers.**

**J. Lessened effectiveness of injured employee for a period after his return to work.**

**K. Business or good will lost through failure to fill order on time; lost bonuses; payment of forfeits for non-delivery, etc.**

**L. Legal expense, court fees, expense of preparation of case, settlements, judgements, etc., in cases contested at law.**

**M. The employer's share of the loss and expense to society in each case of death or continued loss in earning power.**

**13. The loss of human values involved should also be included even though no definite money figure can be set down for it. Any person who takes the trouble to trace a number of injury cases through the experience of the injured workers and their families**

become profoundly impressed with the seriousness of this side of the accident picture. Every permanent disability lessens the desirability of the victim in the labor market. His earning power is usually reduced. His morale is lessened. His family suffers in the numberless and continuing ways in which families always suffer when their small income is cut still more. Graphic supporting evidence can be had in any average group of unemployed old men. The proportion of work-connected physical impairments usually run high and particularly so among those from high hazard industries as, for instance, wood and metal working, construction and mining.

## **INJURY RATES**

**14. In order to judge the effectiveness of any continuing activity one must have means of measuring results, a basis of comparison. Cost accountants think in terms of unit cost (cost per article, per pound, per gallon or per year). An important measure to the production executive is the number or amount produced per day or per man, the rate of production. Similarly one must have a means of judging safety performance. Obviously the injuries that the workers in any establishment or occupation suffer constitute a measure of its safety. In order to use this measure, however, we must take three things into consideration. These things are:**

- A. The frequency with which the injuries occur, which is the "Frequency Rate."**
- B. The seriousness of these injuries, which is the "Severity Rate."**
- C. What injuries to count.**

**The following explanations of these three things have received national acceptance:**

**15. Suppose we have two plants which we will call Plant A and Plant B. Last year 10 men were hurt in Plant A and 20 in Plant B. Which plant had the worse injury record? Plant B? But suppose Plant A had 100 workers and Plant B had twice as many. Each plant, therefore, had the same number of injuries per hundred men working. But suppose Plant A worked 40 hours per week and Plant B, 44 hours. That would make Plant B's record better because each man worked more hours; that is, was exposed to the chance of getting hurt (at work) a total of 44 hours each week instead of 40. Thus, in order to make a true comparison of the rates at which injuries occurred in Plant A and B last year, we must take into account the total "man-hours" worked in each plant. The unit of measure called "frequency rate" or "frequency" does this. It is "the number of lost-time injuries for each million man-hours worked." Written as a formula, it is:**

$$\mathbf{F = \frac{\text{Number of injuries} \times 1,000,000}{\text{Man-hours}}}$$

**16. If Plant A had 10 injuries last year and worked 200,000 man-hours during the year, we get, using the above formula:**

$$\mathbf{F = 10 \times 1,000,000 = 50}$$

**200,000**

**This simply means that during the year the workmen in Plant A received lost-time injuries at the rate of 50 for each million hours that they were at work. Another more understandable way of putting it is that in that plant each man, on the average, suffers one lost-time injury every 10 years, or 1 man of each 10 is injured each year. This corresponds to a frequency rate of 50, provided each man worked an average of 2,000 hours per year (a 40-hour week, 50 weeks in the year).**

**SEVERITY OF INJURY**

**17. Now we come to the question of the seriousness of severity of injuries. Severity is measured by the time-loss caused and by the degree of permanent disability (if any) which results. Severity is the time loss per million man-hours. It is written in a formula:**

$$\frac{\text{Total days charged X 1,000,000}}{\text{Employee-hours of exposure}}$$

**If in the case of Plant A, the 10 injuries caused a total of 200 days lost time we get, using the formula:**

$$\frac{S = 200 \times 1,000,000}{200,000} = 1,000$$

**That is, the time lost because of injuries in Plant A last year was 1 day for each 1,000,000 hours worked. If each man worked 2,000 hours during the year, the average time-loss was 2 days per man for the year.**

**18. In the above example no account was taken of permanent disability, such as a stiff leg, a lost finger, or a lost eye. The actual loss of time while the injury is healing is not an adequate measure of its seriousness. Therefore, a schedule of time-loss charges has been agreed upon (American Standard) for all permanent injuries. The American Standard schedule of time charges is -**

**DEATH - Deaths resulting from work injuries shall be assigned a time charge of 6,000 days each.**

**PERMANENT-TOTAL DISABILITY - Permanent-total disabilities resulting from work injuries shall be assigned a time charge of 6,000 days each.**

**PERMANENT-PARTIAL DISABILITY - Permanent-partial disabilities resulting from work injuries shall be assigned time charges in accordance with the following tables and definitions below. These time charges shall replace actual time lost as a result of permanent-partial disabilities, and shall apply whether or not any time actually is lost.**

**TABLE A - SCHEDULE CHARGES FOR LOSS OF MEMBER - TRAUMATIC  
OR SURGICAL - FINGERS, THUMB, AND HAND**

<b>Amputation involving all or part of bone</b>					
	<b>Thumb</b>	<b>Finger</b>			
		<b>Index</b>	<b>Middle</b>	<b>Ring</b>	<b>Little</b>
<b>Distal Phalange</b>	<b>300</b>	<b>100</b>	<b>75</b>	<b>60</b>	<b>0</b>
<b>Middle Phalange</b>		<b>200</b>	<b>150</b>	<b>120</b>	
<b>100</b>					
<b>Proximal Phalange</b>	<b>600</b>	<b>400</b>	<b>300</b>	<b>240</b>	<b>200</b>
<b>Metacarpal</b>	<b>900</b>	<b>600</b>	<b>500</b>	<b>450</b>	<b>400</b>
<b>Hand at wrist</b>	<b>3,000</b>				

**TOE, FOOT OR ANKLE**

<b>Amputation involving all or part of bone Toe</b>		
	<b>Great</b>	<b>Each of Other</b>
		<b>Toes</b>
<b>Distal Phalange</b>	<b>150</b>	<b>35</b>
<b>Middle Phalange</b>		<b>75</b>
<b>Proximal Phalange</b>	<b>300</b>	<b>150</b>
<b>Metatarsal</b>	<b>600</b>	<b>350</b>
<b>Foot at ankle</b>	<b>2,400</b>	

**ARM**

<b>Any point above elbow, including shoulder joint</b>	<b>4,500</b>
<b>Any point above wrist and at or below elbow</b>	<b>3,600</b>

**LEG**

<b>Any point above the knee</b>	<b>4,500</b>
<b>Any point above ankle and at or below knee</b>	<b>3,000</b>

**TABLE B - SCHEDULE CHARGES FOR IMPAIRMENT OF FUNCTION**

<b>1 eye (loss of sight) whether or not there is sight in the other eye</b>	<b>1,800</b>
<b>Both eyes (loss of sight), in 1 accident</b>	<b>6,000</b>
<b>1 ear (complete industrial loss of hearing), whether or not there is hearing in the other ear</b>	<b>600</b>
<b>Both ears (complete industrial loss of hearing), in 1 accident</b>	<b>3,000</b>
<b>Unrepaired hernia</b>	<b>50</b>

**19. Suppose in our example we included an injury requiring the amputation of the**

**index finger and two phalanges of the middle finger. The charge would be 750 days, which, added to the actual time loss for the remaining 9 injuries which we will assume to have been 180 days, gives a total of 930 days, and our severity becomes -**

$$\frac{\$ = 930 \times 1,000,000 = 4,650}{200,000}$$

## **INVESTIGATING ACCIDENTS**

**20. It is obvious that every accident which occurs should be carefully investigated to find out how to prevent a recurrence. Such investigations must not be allowed to become a mere formality. They must be made by persons who are intelligent, painstaking and keenly safety minded. Usually an accident has more than a single cause. A combination of circumstances was necessary to bring it about. The employer should try to correct every condition or circumstance that might lead to injury. He should particularly not be content with finding the human fault or failure that was involved, for in almost every case, both a material and a human fault will be found. If the material fault or lack is corrected, the human fault or lack usually fails to produce injury. Of course, effort should be made to correct the human fault also. Usually correction of the material or mechanical fault involves expense so that the constant temptation is to blame the individual at fault and let the matter end there. This is not in the best interest of safety and the tendency to take that course must continuously be resisted.**

**21. The idea of seeking to fix blame should definitely be avoided, for where it is allowed to enter, an attitude of "covering up" develops, which makes it difficult, if not impossible, to get all the facts. If every person involved - foremen, workmen, investigators - knows that the sole purpose is to prevent and not to blame, there will be no incentive to withhold essential information, and the investigator will have all the facts to aid in further preventive activities.**

**22. If in any given establishment, a policy of thoroughly investigating each accident is adopted, a fund of information on prevention will gradually be built up. If this practice is accompanied by systematic and thorough inspection to discover hazardous conditions, and if the findings of the accident investigations are consistently applied to the work of inspection, its effectiveness will continually increase. When investigations and inspections are adequately supplemented by corrective action, accidents steadily decline. This fact is so true that investigation, inspection, and analysis leading consistently to corrective action, may properly be termed vital foundation stones of accident prevention.**

**23. Accident investigation is a simple procedure, but certain principles should be followed if maximum results are to be secured.**

**A. Common sense and clear thinking are prime requisites. An investigator must be able to collect his facts, weigh the value of each, and reach conclusions justified by the evidence.**

**B. Familiarity with the equipment, operation, or process should be at least sufficient to permit an understanding of the possible hazards in any given situation.**

**C. An understanding of the type of condition or situation likely to yield accidents is also necessary.**

**D. Neither the investigation nor the investigators should be under the control of the foreman or other supervisor involved, because few persons can be unbiased and objective about a situation or condition involving their own work. The attitude should be one of cooperating with the foreman to discover and secure the correction of the causative factors.**

**E. Each clue should be investigated fully. A conclusion that appears reasonable will often be changed by exploring a factor of apparently little importance.**

**F. Since both a physical hazard and an unsafe act are present in the great majority of accidents, both should be investigated fully. Every effort should be made to find means of eliminating the physical hazard. Similarly, appropriate means of correcting the unsafe practice should be sought.**

**G. No investigation is ever satisfactorily completed unless definite recommendation is made for corrective action.**

**H. More than one person should investigate, on the principle that "two heads are better than one."**

**I. Promptness is essential. Conditions may change quickly and details are soon forgotten. Finally, and vitally important, is the fact that the immediateness of the investigation will be taken by the workmen as indicative of the importance the management attaches to the matter of their safety.**

**J. Every accident should be investigated in appropriate degree whether or not it is serious, since "chance" is often the sole difference between a trivial accident and serious or even fatal injury.**

**24. The great majority of all injuries in industry arise out of conditions and activities which are common to almost all establishments. The chief injury sources are: Handling Materials (25 to 30%), Mechanical Equipment (20 to 25%), Falls (12 to 15%), Hand Tools (5 to 10%). Detailed studies of these reports show that in nearly every case the injury could have been prevented by careful attention to one or more of the following items:**

## **HANDLING MATERIALS AND OBJECTS**

**a. Maintenance of equipment used in lifting, handling, and transporting materials and objects.**

**b. Equipment of safe design and construction and adequate to its purpose.**

**c. Training and instruction of the workers.**

**d. Careful safety-minded supervision.**

**e. Planning to insure orderly procedure and the use of safe methods of operation.**

**f. Proper and adequate personal protective equipment.**

**g. Good housekeeping**

**h. Adequate and proper illumination.**

## **OPERATING AND USING MECHANICAL APPARATUS**

- a. Guarded transmission machinery.**
- b. Safeguarded parts of operating machines.**
- c. Maintenance.**
- d. Training and instruction of machine operatives.**
- e. Safety-minded supervision.**
- f. Good housekeeping.**
- g. Adequate and proper illumination.**

## **FALLS**

- a. Smooth non-slippery floors and other surfaces on which men walk or step.**
- b. Good housekeeping.**
- c. Safe means of reaching and serving over-head equipment or apparatus.**
- d. Safe portable equipment from which men work.**
- e. Adequate and proper illumination.**

## **USING HAND TOOLS**

- a. Good tool maintenance.**
- b. Tools suited to the work.**
- c. Training in proper methods of use of tools.**
- d. Personal protective equipment.**
- e. Adequate and proper illumination.**

By rearranging and condensing the above items we get the following as the minimum requirements which, given a good standard of performance in each, we may regard as constituting the essentials of a condition of reasonable safety:

- a. Good housekeeping.**
- b. Safe and properly safeguarded machinery.**
- c. Safe equipment adequate to its purpose.**
- d. Good maintenance.**
- e. Inspection.**
- f. Planning.**
- g. Supervision.**
- h. Employee training and education in safety.**
- i. Personal protective equipment.**
- j. Proper illumination.**

**25. From the above, one fact stands out so plainly that it deserves special mention and that is that GOOD HOUSEKEEPING, although one of the simplest, is also one of the most important items for the attention of both employer and employee. By giving strict and habitual attention to GOOD HOUSEKEEPING both the accident frequency rate and the accident severity rate in the establishments of Arkansas could be materially lowered. This should be done and could be done with very little expense to the employer.**

## **FIRST AID FACILITIES**

**26. First aid equipment shall be provided by every employer free of expense to his employees and promptly available for use in case of injury. The facilities needed will depend upon the type of hazards and the number of employees. In all cases it is important that arrangements be made and faithfully maintained in such a way that every injury suffered will receive adequate treatment promptly. The facilities provided, kit, cabinet, first aid room, or plant hospital, must be conveniently located, kept clean and orderly and arranged to insure reasonable privacy.**

**When a doctor or trained nurse is not on duty, a specific person or persons, always available, should be assigned to administer first aid. Such persons should receive a specific training for such duty.**

**The first aid supplies to be kept should be determined by the doctor. However, the following list has received wide acceptance as minimum.**

**1-inch compresses on adhesive in individual packages**

**Sterile gauze squares - about 3" x 3" - in individual packages.**

**Assorted sterile bandage compresses in individual packages.**

**Triangular bandages.**

**Sterile gauze in individual packages of about 1 square yard.**

**Roll of 1/2 inch adhesive.**

**Burn ointment.**

**Aromatic spirits of ammonia.**

**Inelastic tourniquet.**

**Scissors.**

**3 inch splinter forceps.**

**Paper cups.**

**1 inch and 2 inch roller bandages.**

**Wire or thin board splints.**

**Castor oil or mineral oil for use in eyes - this should be sterile; may be obtained in small tubes.**

## **SAFETY ORGANIZATION AND EDUCATION**

**27. The importance of plant organization and education whereby safety mindedness is carried to every employee, and full employee cooperation for safety cannot be over-emphasized. As previously pointed out, safety must begin at the top. The management must actively direct safety work and give it leadership and executive force. Also plant and equipment must be made safe which only management can do. But employee cooperation must be secured and held. The successful promotion of safe practice in any establishment requires that it be considered a full time job. It must receive its share of each day's effort by the plant executive.**

**No definite program for all types and sizes of establishments can be laid down. It must be suited to conditions. For instance, the employment of a full-time safety engineer may be justified with as few as 50 men in such highly hazardous work as building demolition, while in a low hazard industry a plant of 1,000 employees might scarcely require one. However, in every establishment a safety committee can be helpful provided the following fundamental conditions are fully realized by the management:**

**a. A safety committee cannot be a substitute for executive interest. It is a tool of**

management that will be effective in proportion to the way it is fashioned and directed.

b. Safety committee recommendations must be taken seriously and either complied with or proved to be not suitable.

c. It must be so constituted and conducted as to merit the support and confidence of the employees.

## **SHOP SAFETY COMMITTEES**

28. When backed by the cooperation of the management, a safety committee composed of manager, foreman, or someone in authority and several representatives of workers has proved to be a most effective method of reducing accidents. The functions of such a committee should include the responsibility for periodic inspections of the plant; review and approval of inspection reports; analysis of causes of accidents for the purpose of submitting recommendations to prevent recurrence of similar accidents; instruction of new employees or workers transferred to unaccustomed tasks to the hazards of their work, and promoting the education of all employees in safe practices. The committee should meet at least monthly and keep a written record of the number and nature of its recommendations: the number carried out; the number incompletd; and the number not acted upon. The members of the committee should be selected from the various departments and should be changed at regular intervals.

## **SAFETY MEETINGS, CONFERENCES AND SCHOOLS**

29. Plant safety meetings attended by all employees, or, if practicable, by employees of a particular department should be held at least semi-annually. The State Inspector should be ready and willing to take full advantage of every opportunity to address these meetings. Small group safety meetings addressed by the foreman are also recommended. The safety program of an individual plant may be supplemented effectively by safety conferences and schools sponsored by the State Labor Department, with assistance of other official state and city agencies, and such agencies as organized labor groups, manufacturers' and trade associations, civic clubs and safety organizations. The schools may be open to the public as a whole, at which general messages on safety are presented, or may be restricted to specialized industry or occupational groups open only to "key men," such as safety men, superintendents and foremen, or may consist of a combination of these two plans with a general school open to all groups, coordinated with special group conference meetings.

## **RULES**

(The following rules have the full force and effect of laws and apply to all industries and in every phase of employment within the State of Arkansas. They will be enforced by the Commissioner of Labor.)

**RULE 1.** Before putting any new or repaired or overhauled machine, tool or other device in operation it shall be safeguarded in full compliance with the applicable provisions of the safety codes of the State of Arkansas. Machinery, tools, or other devices not covered by those codes shall be safeguarded in accordance with the applicable provisions of the "American Standards Association Safety Code applying thereto."

**RULE 2.** Every employer shall investigate or cause to be investigated every

**accidental injury which his employees suffer in connection with their employment to determine what means should be taken to prevent a recurrence.**

**RULE 3. Every employer shall report on forms furnished by the State Department of Labor, and in the manner directed by such forms, each injury his employees suffer in connection with their employment.**

## **PLANT HOUSEKEEPING**

**RULE 4. Do not allow loose materials or objects over which men may trip to remain on the floor surface.**

**RULE 5. Keep loose materials and objects from overhead places whence they might fall and cause injury to persons below.**

**RULE 6. Keep floors clean in order to keep them from becoming slippery.**

**RULE 7. Mark all traffic aisles in rooms housing operating machinery or benches at which persons work with distinctive lines and maintain them so as to keep them distinctive.**

**RULE 8. Clearly mark the limits of all spaces to be reserved in workrooms for storage. Do not allow storage elsewhere in workrooms.**

**RULE 9. Provide suitable racks or holders for tools used at benches or machinery.**

**RULE 10. Pay careful attention to the piling of materials and articles to insure all piles will be safe.**

**RULE 11. Remove, or bend over in such manner as to make them harmless, all projecting nails in kegs, barrels, boards, or boxes allowed to remain about the work place.**

**RULE 12. All floor surfaces shall be maintained in a smooth non-slippery condition and free from holes or projections which might cause tripping.**

**RULE 13. No floor or platform shall be so loaded as to have a factor of safety less than four.**

**RULE 14. Floors, other than those directly resting on solid ground, shall, when used for storage or loads of persons, equipment, or materials, under conditions which might lead to overloading, be clearly posted to show maximum floor loads.**

**RULE 15. There shall be no fixed obstructions, across or in aisles, which might cause tripping.**

## **STAIRS**

**RULE 16. Risers in any given stair shall be uniform in height with a minimum of eight (8) inches in width.**

**RULE 17. Treads in any given stair shall be uniform in width and level.**

**RULE 18. Broken or split treads that are uneven from wear shall be promptly replaced or repaired to put them in safe condition.**

**RULE 19. Slipperiness of treads, landings, or stair approaches shall be promptly corrected by means suited to conditions.**

**RULE 20. Treads shall be firmly secured and sufficiently strong and stiff to be firm under foot for all reasonable conditions of use.**

**RULE 21. Every flight of stairs having four (4) or more risers shall be equipped with a stair railing or handrail.**

**RULE 22. Stairways not more than forty-four (44) inches wide and enclosed on both sides shall have at least one (1) handrail located on the descending side.**

**RULE 23. Stairways not more than forty-four (44) inches and having one (1) open side shall have a stair railing along the open side. If both sides are open, a railing shall be provided for both sides if practicable.**

**RULE 24. Stairways more than forty-four (44) inches wide shall have a handrail on each side.**

**RULE 25. Stairways eighty-eight (88) inches or more in width shall be provided with a center rail.**

**RULE 26. Stairs, stair landings, and stair approaches shall be kept lighted during all times when use of stairs may reasonably be expected. The lighting shall be so arranged as to be free from shadows and of such intensity that each tread will be clearly and distinctly visible.**

## **LADDERS, PORTABLE STEPS AND HORSES**

**RULE 27. Ladders shall be of substantial construction and sound material. Protective coating must be transparent.**

**RULE 28. Rung spacing on each fixed ladder shall be uniform. This includes the space between the top rung and the landing measured vertically from the top rung.**

**RULE 29. Rungs of all ladders shall be firmly secured and maintained in a sufficiently tight condition to prevent turning or other motion.**

**RULE 30. Bent rungs of metal fixed ladders shall be promptly replaced or repaired.**

**RULE 31. Clearance at back of rungs of fixed ladders shall be not less than 6 1/2 inches measured horizontally from any object.**

**RULE 32. Fixed ladders shall be secured with sufficient firmness and in such manner that they will be free from visible motion under normal conditions of use.**

**RULE 33. Hand-holds shall be provided at the top of each fixed ladder, so**

arranged that a person using same can conveniently retain a secure hold with either hand when stepping from the top rung of the ladder to the landing point, or the reverse.

**RULE 34.** No fixed ladder shall have a slope outward; that is, from the vertical toward the climber.

**RULE 35.** Ladders in disrepair shall be promptly repaired or removed from use. It is bad practice merely to set aside a portable ladder needing repair as some person is likely to not heed its condition and use it. It should be locked safely away from possible use until repaired, or destroyed.

**RULE 36.** Rung spacing in each portable ladder shall be uniform.

**RULE 37.** Every portable straight ladder shall be equipped with anti-slip feet, suited to conditions.

**RULE 38.** Every step-ladder shall be equipped with a spreader of a type which locks when the ladder is open, to hold it securely in the open position.

**RULE 39.** Portable steps and saw horses shall be of substantial construction with parts firmly secured and maintained in a safe state of repair.

## **OVERHEAD WORK**

**RULE 40.** Provide safe means of access, suited to conditions, to every overhead point to which employees are called upon to go in connection with their employment.

**RULE 41.** In addition to the requirement of Rule 40, provide a safe place from, or on which the work or service in question may be performed.

## **HAND TOOLS**

**RULE 42.** Each employer shall institute and maintain a definite system of tool inspection and repair, suited to conditions. The purpose of this rule is to induce each employer to give this important part of safety his careful attention.

**RULE 43.** Tools in disrepair shall not be used. It is the duty of any employee upon discovering a tool in a condition of disrepair not to use that tool. He should turn it in to his superior or otherwise in accordance with his employer's instructions.

**RULE 44.** Each employer shall take heed to the safety of the tools he provides for the use of his employees and make every reasonable effort to insure that they are suited to the work to be done, and of safe design and construction.

**RULE 45.** All powered tools which might cause injury through continued operation, should the operator lose his hold, shall be equipped with the so-called "dead-man" type of control (or the equivalent) whereby the power is automatically cut off when operator loses his hold.

**RULE 46.** Portable electric power tools shall be equipped with ground wires to maintain at all times an effective ground on the non-current carrying parts of the tool. New

systems installed after the effective date of adoption of these rules shall be arranged for such grounding and powered tools used thereon shall be so equipped.

## **LOW VOLTAGE ELECTRICAL HAZARDS**

**RULE 47.** All extension cords for lights and powered portable tools shall be of the type specified for such use by the National Electrical Code.

**RULE 48.** Extension lights shall be made up with the keyless non-breakable type of socket with no exposed metal parts. The light shall be protected by a guard against breakage which, unless made of non-conducting material, shall be effectively insulated from the current carrying parts.

**RULE 49.** All plugs used on extension cords shall be of the non-breakable type with pins so arranged as always to be dead when exposed. Screw type connections on extension cords are prohibited.

**RULE 50.** Bridging of fuses or other over-load types of current interrupters is prohibited.

**RULE 51.** Insulating mats or equivalent insulating floor covering shall be provided at all electrical power control boards unless same are of the "dead-front" type, or otherwise so arranged that contact with live current carrying parts is practically impossible. Such floor covering shall be of such size and shall possess such insulating value, that under all conditions reasonably to be expected, it will furnish efficient protection to any person operating or servicing the apparatus at such control station.

**RULE 52.** Every circuit must be considered alive until proven otherwise.

**RULE 53.** Open main switches must be locked and tagged before working on power circuits.

**RULE 54.** The frames of all stationary, electrically driven equipment, shall be properly grounded.

## **PERSONAL PROTECTIVE EQUIPMENT**

**RULE 55.** Goggles or equivalent protection suited to conditions shall be provided for all employees doing work of a nature such that the eyes may be endangered.

**RULE 55. (a)** Safety lenses for eye protection must be capable of withstanding the blow from a seven-eighth (7/8) inch steel ball dropping fifty (50) inches without shattering the lenses.

**RULE 56.** Special protective equipment suited to conditions shall be provided for workers exposed to harmful rays from welding, cutting, or burning operations.

**RULE 57.** Suitable special protective clothing and/or equipment shall be provided for employees exposed to the hazards of burns in handling hot or molten metals or substances.

**RULE 58.** Suitable special protective clothing and/or equipment shall be provided for employees exposed to contact with corrosive or otherwise hazardous acids or other chemicals.

**RULE 59.** For reasons of health, goggles, respirators, boots and shoes issued to one individual shall not be worn by another unless thoroughly sterilized.

**RULE 60.** All persons employed on construction and engineering projects shall wear substantial work shoes with good soles. Where there is a danger of crushing toes, a hard toe safety shoe is recommended.

**RULE 61.** Hard hats which will afford proper protection to the head from falling objects shall be provided to and shall be worn by all workmen employed in the wrecking, construction and remodeling of buildings, the construction of locks, tunnels, and any other type of construction work when necessary to prevent injury.

## **CRANES, DRAGLINES, ETC.**

**RULE 62.** Regulations governing the movement, storage, and use of cranes, draglines, and similar equipment in close proximity to high-voltage power lines.

### **DEFINITIONS**

**Section 1.1** The term "equipment" shall mean any machinery or equipment, whether or not power-driven, capable of being raised or swung in a vertical, lateral or horizontal plane (except backhoes) and including the load being handled therewith. The term shall include, without limiting the generality of the foregoing, all cranes, derricks, power shovels, drilling rigs, core-boring rigs, gin poles, pile drivers and similar apparatus.

**Section 1.2** The term "contractor" shall mean any person, firm, corporation, authority, or other entity, whether private or public (and including governmental agencies and political bodies), engaged or employed by another to perform work involving the utilization by said contractor of any equipment (as defined above). The term shall also include any such entity performing such work for itself.

**Section 1.3** The phrase "high-voltage power line" shall mean overhead electrical conductors carrying a voltage in excess of 400 volts between conductors, or from any conductor to ground.

**Section 1.4** The phrase "close proximity" as applied to high-voltage power lines shall mean any distance less than six feet.

### **CLEARANCE AND SAFEGUARDS**

#### **RULE 62**

**Section 2.1** No contractor, person, firm or corporation shall erect, install, store, operate, or otherwise utilize any equipment or any part thereof, in close proximity to high-voltage power lines, unless danger from accidental contact with said high-voltage lines, has been effectively guarded against by one or more of the following safety recommendations:

**I. (a)** The erection of mechanical barriers to prevent physical contact with high-voltage lines.

## **CAGE-TYPE GUARDS**

**1. (b) Installing an insulated cage-type guard or protective device about the boom or arm of the equipment, or any device as defined above in Section 1.1 of DEFINITIONS and such insulators shall have a dielectric strength sufficient to resist passage of a current of not less than 30,000 volts for a period of at least one minute.**

**The structural strength of the steel frame shall be such as to sustain a dead load of 1,000 pounds midway between supports without any permanent deflection of members after load is removed. The allowed deflection while loading shall not exceed 1.50 inches.**

**The Commissioner's approval of any device of above class shall be based on certified copy that same was tested and passed by a recognized engineering testing laboratory. Any change in design, structure, material, or assembly shall make such approval null and void, until such changes are field and laboratory tested by said recognized engineering testing laboratory and approved by the Commissioner.**

## **DE-ENERGIZING**

**1. (c) De-energizing and grounding the high-voltage lines.**

## **INSULATOR LINK**

**1. (d) Equipping all lifting lines with insulator links on the lift hook connections.**

**Minimum standards for insulator links shall be as follows: The minimum safety requirement on the lift hook connection shall have a dielectric strength sufficient to resist passage of a current of not less than 50,000 volts for a period of not less than three (3) minutes under the tonnage load for which it was designed.**

**The Commissioner's approval of such insulator link shall be on the basis that the unit was tested and passed by a recognized testing laboratory and a serial number stamped thereon, with a copy of each test certificate filed with the Commissioner.**

## **Section 2.2 EXCEPTIONS**

**The provisions of Section 2.1 hereof shall not apply to:**

**Work performed by a qualified electrical worker when working in his capacity as an employee of an electric, transportation, or communication utility, either private or public owned (and including municipalities and rural electric cooperatives) or as an employee of a qualified electrical contractor engaged by any such utility to perform such work, or as an employee of a community television antenna system either municipally owned or operating pursuant to franchise from an incorporated town or city.**