

Chapter V SAFETY MANAGEMENT

There should be little disagreement that safety is ultimately the responsibility of management. In addition to the fact that the Occupational Safety and Health Act of 1970 (OSHA) requires each employer to furnish each employee a place of employment that is free from recognized hazards likely to cause death or serious physical harm, worker accidents and injuries are counter-productive and costly. As shown in Chapter III of this document (specifically Table III-3), the occupational injury and illness incidence rate for the precast concrete products industry in 1980 was in the top 3% of the durable goods manufacturing industries. Since 1977, the estimated cost of actual paid-out medical and indemnity expenses of occupational injuries in this industry has averaged more than \$30.9 million per year. The National Safety Council estimates that the full costs of work-related accidents have been 3.4 times greater than the cost of actual paid-out claims, or over \$105 million per year (see Chapter III).

These needless losses can be controlled by managing successful safety programs. However, safety programs can only be successful when plant management provides an environment responsive to worker safety and is committed to providing a safe workplace. Safety recommendations such as those presented in Chapter IV or safety standards such as those promulgated by OSHA will not, by themselves, reduce occupational injuries. Management must accept the responsibility of implementing a safety program which is designed for successful accident prevention. Such success requires an organized approach. No individual level of management can do the job by itself. It takes a combined effort of all -- from the plant manager down through the first-line supervisor to the employees.

This chapter presents the basic elements of safety program management. It outlines criteria for evaluation of present safety programs and suggests implementation of critical elements which are indicative of safety being a management function. It is recognized that each company will need to tailor its safety program to fit the various characteristics of its particular operation.

A. Pre-Assessment of Present Program

Before revising an on-going safety program or attempting to design a new program, it is advisable that management assess its existing safety status within the plant. An evaluation of the present safety status will help outline where changes and additions are essential. It will yield answers to the seriousness of the plant's accident problem, it will identify the major organizational deficiencies which have an adverse effect on the safety

program, and it will identify the major accident prevention deficiencies within the program itself.

Assessment of the following basic elements of the safety program should be made:

1. Management leadership
2. Assignment of responsibility
3. Identification and control of hazards
4. Employee and supervisory training
5. Accident reporting and investigation
6. Emergency plans
7. Employee awareness.

Utilization of pre-assessment tools such as the American Society of Safety Engineers (ASSE) Safety Audit contained in Appendix C, or the example assessment forms contained in Appendix D can provide insight into safety program weaknesses which need management's attention.

B. Basic Elements of a Safety Program

It is difficult to outline a safety program that will be applicable to all precast concrete plants, since a program must vary with the specific needs of each company. It is important that a safety program be tailored for the processes and operations of an individual company. It becomes the responsibility of management to design and define a program within the constraints of a specific plant's operation. A safety program should, however, include aspects of the following basic elements:

1. Management Leadership

Management's interest in safety must be sincere and visible to employees. Therefore, senior management must establish achievable safety program objectives and communicate these to all employees. The safety program objectives should receive the same management scrutiny as that given for the control of quality, cost, and production. Once the objectives are established, then management must plan, organize and control the overall program to meet the objectives.

Management's leadership and support should contain the following key elements:

a. Written Policy

A written safety policy is management's method of communicating a direction to be followed. It is the first step in organizing to meet the stated objectives. It is important that the policy be in writing to reduce confusion concerning direction and assignment of responsibility.

The written policy should be concise, to the point, and should address the following areas:

- o Management's intent
- o Scope of activities covered
- o Measurement of safety performance
- o Safety staff
- o Safety committee
- o Delegation of authority
- o Safety rules and procedures [44].

Policy statements signed by top management are indicative of their concern for employee safety and health. Such concerns by top management for safety makes it easier:

- o For supervisors to implement and enforce company policy
- o For the company to promote safe and healthful work practices
- o For employees to observe the stated policy
- o To purchase equipment with specified safety features
- o To maintain and repair equipment according to good engineering control and safety practices [45].

Figures V-1 and V-2 are shown to provide examples of plant safety policies. Selection of these examples are not indicative of their overall quality except that a published safety policy available to employees is better than none at all.

b. Employee Participation

A written safety policy is management's way of informing employees that safe performance of work is a requirement of the job. However, management cannot always expect employees to work or perform safely. The employee makes that decision based upon the safety attitude he has developed through his work experiences. Management can motivate workers to accept the safety program by encouraging their participation. Employees should participate in the program because:

- o Participation ensures that employees know their jobs and the associated hazards
- o Participation promotes morale
- o Employee participation is indicative of management's concern
- o Employee participation encourages suggestions for improved safety and health conditions [45].

Employee participation can be encouraged by conducting safety meetings and by forming a plant safety committee. Holding safety meetings is a useful technique for communicating safety to employees. These meetings are more commonly referred to as safety huddles, tailgate sessions, or toolbox sessions. These are short

SAFETY AND HEALTH POLICY

It is the policy of this company to provide every employee with a safe and healthful workplace.

When a person enters the employ of our company, they have the right to expect to be provided with a proper place in which to work, as well as proper and safe machines and tools with which to do the job, and that the employee will be able to devote his or her energies to the work without undue danger.

Only under these circumstances can the association between employee and employer be mutually profitable and harmonious. It is our desire, intention, and responsibility to provide a safe workplace, safe equipment, and proper materials and to establish and insist on safe methods and practices at all times.

People are our most important asset--their safety is our greatest responsibility.

It is a basic responsibility for all employees of this company to make the SAFETY of fellow human beings a part of their daily, hourly concern. This responsibility must be accepted by each person who conducts the affairs of the company, regardless of the capacity in which they function.

Employees are expected to know the SAFETY rules applicable to their job and must use the SAFETY equipment provided. Rules of conduct and rules of SAFETY shall be observed by all employees. SAFETY equipment must not be destroyed or abused.

The joint cooperation of employees and management in the observance of this policy will provide safe working conditions and accident-free performance to our mutual advantage.

We consider the SAFETY of our personnel to be of first importance, and we ask your full cooperation in making this policy effective.

Company President

FIGURE V-1. EXAMPLE OF A PLANT SAFETY AND HEALTH POLICY

Adapted from American Society for Personnel Administration, 19 Church Street, Berea, OH 44017.

As we are known and recognized for our products and service, so should we be known for our safety performance. No job must ever become so routine or so urgent that every safety precaution is not observed. Prevention of personal injury and damage to the property and equipment of both the company and its customers must always remain uppermost in the mind of every employee.

It is the policy of ABC PRECAST CONCRETE CORPORATION to develop and maintain safe and efficient operations. Our safety program has been designed, in accordance with the Williams-Steiger Occupational Safety and Health Act of 1970, to develop safe working conditions. The success of our program requires the full support of each and every employee.

President

FIGURE V-2. EXAMPLE OF A PLANT SAFETY POLICY STATEMENT

Adapted from Summary Plant Observation Report and Evaluation [46].

meetings usually conducted by the supervisor with all his employees. The primary functions of such meetings are to foster communication between management (supervisor) and employees relating to safety consciousness, and to disseminate safety concepts. The subject should be specific to work being performed or planned for the upcoming week. The session should take place at the work site and last 10-15 minutes. Employees knowledgeable in specific safety subject areas should be requested to lead the safety discussions, thereby encouraging peer participation.

Establishment of a safety committee is another technique which demonstrates management's desire that employees participate in the plant safety program. Committees may vary considerably in different organizations, but should have the basic functions of developing, promoting, and maintaining safety practices in the plant. Such committees should also serve as a means for communicating safety policies to both management and labor.

c. Leading by Example

Leading by example expresses interest and concern in the safety program as well as indirectly motivating others to show the same concerns. Management which participates in injury accident

investigations, safety meetings, and safety committees; which conducts periodic housekeeping inspections; or which observes the plant safety rules while conducting a plant safety walk-through is seen by the employees as being serious about the program. Management thereby communicates its concern about the program.

d. Rewarding Performance

Management should establish procedures for rewarding effective safety performance. Worker behavior patterns are strengthened by positive reinforcement rewards. Reinforcing safety performance has the following advantages:

- o It removes the unwanted side effects of discipline, confrontation, conflict, and frustration
- o It increases employee job satisfaction
- o Employees see the foreman or supervisor as a helpful resource
- o It creates an atmosphere of mutual reciprocity between supervisor and employee
- o It increases the probability of an employee continuing the safe behavior[45].

2. Assignment of Responsibility

Management has the responsibility for controlling unsafe acts of employees and unsafe working conditions. Ultimately, the plant manager has the overall responsibility for meeting the plant's safety program objectives.

Since plant size and organizational structure vary widely throughout the precast concrete products industry, assignment of safety responsibilities must be appropriate for the management structure within the plant. In very small plants, the owner/operator may have sole responsibility; in larger plants, responsibility is assigned to the plant manager, middle managers and first-line supervisors.

Additionally, the employees must also be assigned responsibilities in order to meet the stated safety program objectives.

a. Plant manager responsibilities include:

- o Adopting and implementing a safety program within all plant departments
- o Establishing and communicating the safety objectives
- o Providing managers and supervisors with the time, money, manpower, and authority necessary to implement the safety program
- o Motivating all subordinate managers to fulfill their assigned responsibilities
- o Auditing the safety program and evaluating its effectiveness

- o Ensuring that the plant complies with the various federal, state, and local safety standards and codes [47].

b. Middle manager responsibilities include:

- o Supplementing basic formal accident prevention training provided subordinate supervisors with personal and group instruction
- o Conducting safety meetings with subordinate supervisors
- o Participating in accident investigations and implementing recommended corrective actions to prevent recurrence
- o Conducting planned safety inspections
- o Ensuring subordinate supervisors properly orient and instruct employees assigned to new job positions
- o Maintaining safety discipline
- o Ensuring subordinate supervisors enforce use of personal protective equipment where required
- o Recommending safety program improvements [47].

c. First-line supervisor responsibilities include:

- o Being responsible for the safety of all regularly assigned employees
- o Ensuring that assigned personnel know plant and department safety rules and regulations, established safe job procedures, and all major hazards associated with their tasks and work areas
- o Developing cooperative safety attitudes of employees through application of approved methods of preventive and corrective discipline
- o Conducting planned safety inspections within the assigned work area
- o Maintaining satisfactory standards of housekeeping
- o Providing prompt medical treatment for all injuries no matter how slight
- o Investigating all reported accidents to personnel and equipment within his assigned area
- o Ensuring assigned personnel use the required safety apparel and equipment
- o Knowing safety standards which apply to the operations he supervises
- o Knowing how to operate emergency equipment installed within his assigned work area
- o Recommending safety program improvements [47].

d. Employee responsibilities include:

- o Obeying plant safety rules and safe operating procedures
- o Reporting hazards to immediate supervisors
- o Reporting accidents promptly and factually to their immediate supervisors.

3. Identification and Control of Hazards

Whenever management decides to either implement an accident prevention program or to overhaul an existing program, employees are inclined to be skeptical of projected results and tend to take a "wait and see" attitude. A vigorous management effort to eliminate longstanding hazards and to provide a safer workplace can convince employees that management is truly concerned about their on-the-job well being.

However, prior to eliminating these hazards, management must first identify them. Identification of hazards requires a fairly complete inspection of all precast operating areas. The inspection should be made by a small group composed of someone from production, someone from maintenance, and the safety program coordinator. The hazard identification process should be done in phases to reduce interference with normal work routines.

Safety inspection checklists may be helpful in directing the group's inspection to the operating areas with the more hazardous work exposures. Management can either obtain checklists from insurance companies, or develop one specifically for their plant after analysis of the injury data presented in Chapter III, Table III-5. As an example, analyze nails as a source of injury. The table shows that nails mostly resulted in puncture injuries to employee's feet. Therefore, it is assumed that when wooden forms are removed from cured product, the nails are not bent over or removed, thereby creating a hazard to workers. Analysis of the "machinery" source indicates that lack of adequate guards are creating a hazard. If these sources of injury are present within the plant, the checklist should address these items.

After the initial inspection has been performed, a program for correcting the noted deficiencies and performing periodic inspections should be established. Identifying hazards by means of inspection and promptly eliminating or controlling them is one of the best methods management can use to demonstrate its interest and concern for accident prevention to employees.

Periodic inspections are essential to:

- o Identify new or recurring hazards
- o Ensure safe operation of equipment
- o Detect use of required personal protective equipment
- o Keep check on general housekeeping
- o Ensure availability of first aid materials
- o Ensure fire fighting equipment is in proper operating condition
- o Check on condition of storage areas [48].

4. Safety Training

In ranking of importance, employee training is of top priority in a safety management program. Training is necessary to guide and instruct

both new employees and employees new to a particular task. Newly hired employees should always receive instruction and orientation about the company, the plant, the product, organizational arrangements, lines of authority, and safety policies and rules. Specific training, including supervised on-the-job training, must be provided to each employee.

During orientation to the plant, a new employee should be given copies of the company's safety policy, and safety rules and regulations. If an employee starts a new task, changes tasks, or uses new or modified equipment, it is essential that quality training for this job be provided. Training may be necessary to develop a particular skill that cannot be performed safely without specific knowledge; e.g., working at a rebar bender, casting concrete, or operating a forklift. Safety training is based on the general assumption that the development of a positive mental attitude predisposes an individual to safe habits of work and conduct. A job should be explained in detail by breaking it down into manageable parts. If personal protective equipment is required, employees must understand why it must be used and what may happen if it is not used properly. Hazards should be identified, and precautions or safe work practices demonstrated. Training should take a new employee through each step, and each step should be fully demonstrated. In addition, the supervisor should verify, at regular intervals, that the original lessons are being followed and that the employee is not developing bad habits or taking dangerous shortcuts. The type of training required, by employee group, is presented in Table V-1.

Other training, such as first-aid courses, cardiopulmonary resuscitation (CPR), fire extinguisher use, and other emergency procedures may be required.

Training is a continuous process, and attention must be paid to all employees. An employee who continues to repeat an unsafe procedure is not working safely, even if an accident has not occurred. The following indicators might show a need for training or retraining:

- o High incidence of injury
- o An increase in the number of "near misses" that could have resulted in accidents
- o A change in a process or introduction of a new process
- o A recent upswing in actual accident experience
- o Excessive waste or scrap due to poor housekeeping.

5. Accident Investigation

The investigation of accidents is an important part of the safety/accident prevention program. It identifies accident causes so that similar situations can be prevented by management actions such as mechanical improvements, better supervision, or employee training. It determines the "changes" or deviation that produced an "error" resulting in an accident; it

TABLE V-1
EMPLOYEE TRAINING

Training Activity	Personnel to Receive Training	Sources of Training
Orientation	All new employees	Personnel department, safety personnel, supervisors, foremen; PCI safety orientation slide/tape
Manual materials handling, including lifting, pulling, pushing	All employees, including foremen, management personnel	National Safety Council's "Lift Safely" booklet, NIOSH's "Work Practices Guide for Manual Lifting," safety personnel, insurance companies
Housekeeping, storage	All employees, including foremen, management personnel	PCI storage slide/tape, safety personnel, foremen
Cranes, hoists	All operators, oilers, mechanics, foremen	Operator certification programs, formal training through equipment manufacturers or schools, dry runs
Mechanical materials handling, rigging	All drivers, riggers, leadmen, supervisors	PCI handling slide/tape, equipment manufacturers, on-the-job training
Forklifts	Forklift operators, helpers	National Safety Council, equipment manufacturers, on-the-job and certification training
Road vehicles	Truck drivers, over-the-road vehicle operators	Insurance companies, on-the-job training, state licensing requirements
Personal protective equipment	All employees	Safety personnel, foremen
Respirator use	Welders, helpers, finishers, foremen	Safety personnel, equipment manufacturers
Welding	All welders, helpers, foremen	On-the-job training, unions, equipment manufacturers
First aid	Foremen, leadmen, supervisors	Red Cross, safety/medical department
Plant operations	All workers, leadmen, foremen	Supervisors, foremen, safety involved personnel

publicizes the particular hazard among employees and their supervisors; and it directs attention to accident prevention in general. Since nothing is learned from unreported accidents, even minor injuries and near misses should be investigated.

The investigation of accidents is the responsibility of all levels of management. However, the firstline supervisor is perhaps the best qualified, since he is close to the jobs, working conditions, and workers. The supervisor must be trained and have the ability to recognize the cause of accidents. This evaluation may require the assistance of management, equipment suppliers, and insurance representatives. Figure V-3 shows an example of an accident investigation form.

The basic problem confronting any supervisor interviewing a person involved in an accident is obtaining complete facts. Often a worker is reluctant to cooperate for fear of ridicule, sarcasm, or reprimand. It is important to stress the need for facts so that recurrence can be prevented in the future. It is also helpful to ask individuals involved in accidents for their ideas on making the job safer.

Witnesses are important sources of accident information. When a fatal injury occurs, a witness may be the only direct source of information available. When a serious injury occurs, a witness may be the only means of verifying incoherent pieces of the injured's account. For minor injuries, a witness may be able to clarify some of the circumstances surrounding the accident better than the injured person himself. This is also true of near accidents that have a potential for serious injury.

In all cases, all levels of management can learn how to prevent accidents through investigations. By investigating accidents, similar unsafe practices and conditions can be monitored in the future. The information compiled can also help to design better training programs, emphasize areas needing management's attention, and generally prevent future potential problems.

Management's participation is highly important to a functioning safety program in the precast concrete products industry. Efforts should be made to reduce the unnecessary costs of worker injury and illness, loss in production time, as well as repair and replacement of damaged machinery and products.

6. Emergency Plans

Management should have a written plan of action outlining procedures to be taken in emergency situations such as employee injury and fire. The purpose of the plan is to eliminate as much confusion as possible in order that immediate positive response will be taken to minimize the dangers of the emergency.

ACCIDENT INVESTIGATION REPORT FORM

NAME _____	OCCUPATION _____	HOW LONG AT THIS JOB _____															
LOCATION IN PLANT _____	DATE & TIME OF INJURY _____																
FOREMAN _____	WITNESSED BY _____																
INJURY _____	ESTIMATED TIME LOSS _____																
MEDICAL DISPOSITION																	
Complete and return to the safety office for review by top management within two days:																	
WHAT HAPPENED? _____	SENT OUT _____	RETURNED _____															
Describe what took place, what task and operation was being done.																	
WHAT COULD HAVE HAPPENED? _____																	
WHY DID IT HAPPEN? _____		Get all the facts by studying the job and situation involved. Question by use of WHY-WHAT-WHEN-WHO-HOW.															
WHAT SHOULD BE DONE? _____		Determine which of the 12 items require additional attention: <table style="width:100%; border:none;"> <tr> <td style="text-align:center;"><u>EQUIPMENT</u></td> <td style="text-align:center;"><u>MATERIAL</u></td> <td style="text-align:center;"><u>PEOPLE</u></td> </tr> <tr> <td style="text-align:center;">Selection</td> <td style="text-align:center;">Selection</td> <td style="text-align:center;">Selection</td> </tr> <tr> <td style="text-align:center;">Arrange</td> <td style="text-align:center;">Placement</td> <td style="text-align:center;">Placement</td> </tr> <tr> <td style="text-align:center;">Use</td> <td style="text-align:center;">Handling</td> <td style="text-align:center;">Training</td> </tr> <tr> <td style="text-align:center;">Maintain</td> <td style="text-align:center;">Processing</td> <td style="text-align:center;">Leadership</td> </tr> </table>	<u>EQUIPMENT</u>	<u>MATERIAL</u>	<u>PEOPLE</u>	Selection	Selection	Selection	Arrange	Placement	Placement	Use	Handling	Training	Maintain	Processing	Leadership
<u>EQUIPMENT</u>	<u>MATERIAL</u>		<u>PEOPLE</u>														
Selection	Selection		Selection														
Arrange	Placement		Placement														
Use	Handling	Training															
Maintain	Processing	Leadership															
WHAT HAVE YOU DONE THUS FAR? _____		Take or recommend action, depending upon your authority.															
Investigated by Foreman _____	Date _____	Reviewed by Safety _____	Date _____														
		Management _____	Date _____														

FIGURE V-3. ACCIDENT INVESTIGATION REPORT FORM

The plan should include:

- o Diagrams showing exits, fire extinguisher locations, and egress routes
- o Procedures for reporting fires and emergencies to authorities
- o Posting requirements of emergency telephone numbers for ambulance, doctor, hospital, fire, and police
- o Requirements for drills and training

- o Provision of first-aid treatment
- o Provision of medical treatment.

C. Post-Assessment of Program

The primary purpose of assessment is to ensure that the safety program is being applied effectively and correctly by all levels of management.

The post-assessment of a safety program is performed after additions or alterations have been implemented into the program. The post-assessment of the program is accomplished to:

- o Determine serious weaknesses in applications of the program
- o Identify corrective actions needed to improve the quality of the program
- o Motivate middle managers and supervisors to apply the safety program.

Assessment of the program should be made in the following areas:

- o Accident investigations
- o Control of hazards
- o Conduct of safety inspections
- o Safety training
- o Safety attitude
- o Safe work procedures
- o Management participation.

The example forms contained in Appendix D can be utilized as post-assessment tools. Analysis of the results obtained from the forms can provide plant management with indicators as to which basic elements of the overall program need management's attention. Management must make application of the safety program happen. This requires planned implementation of controls, continuous management involvement, and periodic assessment to ensure effective program operations.

Suggested Reading List on Safety Management:

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CHAPTER VI
RECOMMENDATION FOR RESEARCH NEEDS

During the development of this document, specific topics concerning the development of the comprehensive safety recommendations for precast concrete products operations were identified which require further research. To more fully assess the safety and health problems in the industry, the following analyses are also needed:

- o Development and testing of standards for bed end protection in stressing operations
- o Onsite testing for the adequacy of moving vehicle warning systems, and the development of recommendations for minimum standards for such systems coordinated with different industrial environmental constraints
- o Research and testing of machine guarding and/or work practices for the interface between the worker and pipe spin casting equipment
- o Research to determine the safest manual materials handling methods for common tasks in this industry
- o A research study to determine the efficacy of training programs for lifting properly.