目　　次

CONTENTS

SAFETY CONTROL

1. Laws related to safety control

1-1. The Laws on Industrial Safety and Hygiene and their history

In the Meiji era, Japanese industry converted from the handicraft production system of the Edo period to a modern mechanized production system. In addition, following the slogan: "A Rich Country and A Strong Military," industry advanced at a rapid pace. During the course of the Sino-Japanese and the Russo-Japanese Wars, Japan substantially transformed itself and became a modern industrial nation. However, with the rapid industrialization of the country, the number of accidents at work-sites increased and industrial accidents became a serious social problem. Therefore, some laws related to industrial safety and hygiene, including The Factory Law, were enacted. These have been improved over time, in step with the development of industry in Japan. Here is the brief history of these laws.

(1) 1911
"The Factory Law" was enacted in 1911. This is the first Japanese law which deals with the safety of those who work in factories. It states that the governmental administration can give guidance to employers about the safety and hygiene of those who work for them.

(2) 1931
"The Rules for Preventing Industrial Hazards and Promoting the Hygiene of Workers" was enacted

(3) 1937
"Rules on the Safety and Hygiene of Those Who Work at Civil Engineering Sites, Building Sites and Factories" was enacted

Feeling that it had joined the Western industrial powers, Japan then started the Sino-Japanese War and later entered the Second World War. During wartime special exemption laws were enacted, so the laws intended to protect the safety of workers were remarkably limited in their effect.

(4) 1947
"The Labor Standards Law" was enacted under the New Constitution, in order to protect the rights and safety of workers.

Chapter 5 of this law, "Safety and Hygiene" was written to spell out specifically: "Preventing Danger," "Safety Devices," "Performance Tests," " Prohibitions on the Manufacture of Harmful Substances," "Safety Education," and "Health Check-ups."

(5) 1949
"The Sanitation Manager System" was enacted.

(6) 1952
"The Safety Manager System" was enacted to support safety control at work-sites.

After that, various rules (The Ministry of Labor's ordinances) such as "Safety Rules on Cranes and Other Such Devices," "Safety Rules on Boilers and Pressure Vessels," and "Rules on the Prevention of Anoxia and Other Such Conditions" were successively enacted. Besides which, safe construction standards (The Ministry of Labor's announcements), such as those for industrial machines and implements, were also enacted.

After the second half of the 1950s, the Japanese economy grew rapidly and the quality of industry changed substantially, while the number of workers increased dramatically. With this tremendous growth of the Japanese economy, the number of worker accidents increased drastically and also expanded in scale.

It thus became clear that the existing provisions of the Labor Law could not cope with changing conditions. The enactment of a new law was therefore requested, in order to work out measures to prevent worker accidents, keeping pace with complicated labor-management relationships and the rapid progress of the technological revolution.

(7) 1972

"The Laws on Industrial Safety and Hygiene" were thus enacted.

With the enactment of the new law, the provisions related to "Safety and Hygiene" in Chapter 5 of The Labor Standards Law were deleted. In addition, "The Enforcement Ordinance for the Laws on Industrial Safety and Hygiene" was enacted.

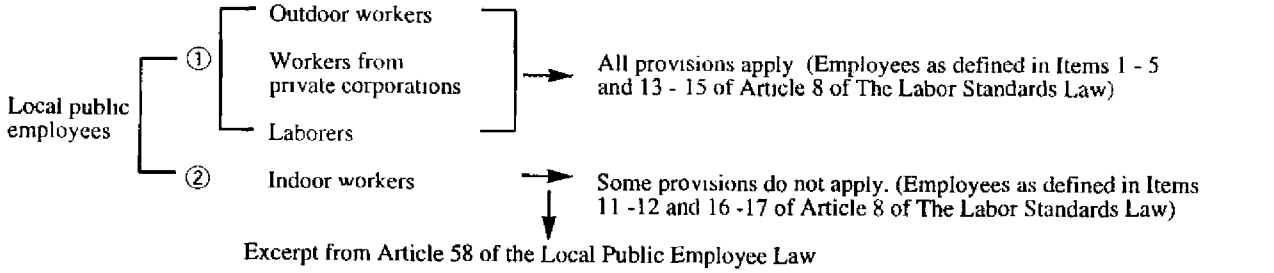
The Laws on Industrial Safety and Hygiene consist of 12 chapters and contain the following items: "Plan for preventing worker accidents," "Industrial safety and hygiene maintenance system," "Measures to Prevent Workers from Work Hazards and Health Disturbances," "Rules Related to Machinery and Harmful Substances," "Measures to be Taken on Behalf of Workers," "Health Maintenance," "Licenses," "Plan For and Supervision of Improvements in Industrial Safety and Hygiene."

In addition, related rules (for example, safety rules concerning boilers and high-pressure vessels, cranes, high atmospheric pressure work, and anoxia) were also enacted.

1-2. Application to fire station personnel of the Laws on Industrial Safety and Hygiene

The purpose of the Laws on Industrial Safety and Hygiene can be achieved in conjunction with the implementation of the Labor Standards Law That is, the safety and hygiene of workers is central to working conditions and thus this law must be used in combination with the Labor Standards Law.

Like the Labor Standards Law, the Laws on Industrial Safety and Hygiene thus apply to public employees as well as to private companies. However, Article 58 of the Local Public Employee Law has a provision that excludes the application of some provisions of the Laws on Industrial Safety and Hygiene.



Excerpt from Article 58 of the Local Public Employee Law

Chapter 2, Plan for preventing worker accidents (Articles 6 - 9) and Article 92 (Official duties of labor supervisors as judicial police officer) of the Laws on Industrial Safety and Hygiene do not apply Regarding the working conditions of these employees, the personnel committee or members of the personnel committee asked to assume its functions (the chiefs of local public bodies if they do not have a personnel committee) exercise the rights of organizations supervising the implementation of Labor Standards Law (Item 4 of Article 58 of the Local Public Employee Law)

Fire station personnel fall under "Other categories of business" as defined by the government ordinance. Therefore, fire stations are not within the category of businesses that are required by the Laws on Industrial Safety and Hygiene to appoint a safety supervisor. (Article 11 of the Laws on Industrial Safety and Hygiene and Article 3 of the Enforcement Ordinance of the Laws on Industrial Safety and Hygiene)

For example, the Tokyo Fire Defense Agency's vehicle repair shop is required to appoint a safety supervisor, because there are more than 50 people working in an automobile repair shop.

1-3. The safety control system of the central government and the Osaka Municipal Fire Department

In 1981, the "Study Group on Safe Fire Fighting Activities" was established in the Fire Defense Agency in the Ministry of Home Affairs, in order to discuss the safety control system and the preparation of a safety control manual. Keeping in mind the conclusions submitted by this study group, the "Establishment of the Safety Control System" (Announcement by the Fire Department Chief of the Fire Defense Agency in the Ministry of Home Affairs) was issued in 1983. Pursuant to this announcement, samples of "Safety Control Regulations" and "Outlines on Safety Control for Training" and the "Safety Control Manual for Training" were delivered to fire department headquarters across the country In 1984, the "Safety Control Manual for Fire Suppression Activities" was prepared.

In the Osaka Municipal Fire Department, we believe that maintaining safety should be tackled in combination with the theory of command and fire fighting strategy Safety control has been emphasized and efforts made to prevent accidents and line-of-duty casualties, as among the most important factors when spelling out fire fighting duties.

In 1979, when the central government's Study Group for Safe Fire Fighting Activities had not yet been established, we had already prepared our "Safety Standards for Fire Suppression Training." In addition, in 1983, we worked out our "Safety Standards for Fire Fighting Activities," to establish a safety control system on our own.

2. Basic principles of safety control

It is said that the reliability of safety control is increased by observing the following four principles:

2-1. Know the current situation

Knowing the current conditions of equipment and personnel and other important elements is the most basic factor. Therefore, safety inspections, data analysis, and research must be performed thoroughly.

That is, the following basic information must be known: the level of maintenance of materials and equipment, members' awareness of safety and the degree of their fire fighting skills, the state of the training facilities and safety gear, the readiness of training plans, leaders, and safety supervisors (assistants).

2-2. Uncover unsafe conditions* and acts**

It is also necessary to uncover unsafe conditions through the preparation of plans for training and exercises or during an advance inspection at a training site. In addition, it is necessary to be aware of the possibility of danger arising through changes in conditions during the course of training or exercise. Therefore, it is necessary to improve your foresight and insight into the possibility of accidents' happening. In other words, it is necessary to cultivate the ability to discover unsafe conditions and unsafe acts existing in the training or exercises environment, inherent in the equipment, the activities themselves, and the actions of the members.

(Note 1): Unsafe conditions are more basic to the occurrence of accidents than are unsafe acts. If equipment or facilities are defective, accidents can happen even if people commit no unsafe acts.

(Note 2): Acts that change safe conditions to unsafe ones or those that might induce conditions which cause an accident.

Generally speaking, the following equation has been demonstrated to apply:
(Accidents due to unsafe conditions): (Accidents due to unsafe acts) = 15%: 85%

* What is fire fighting training?

Fire fighting training means teaching the skills necessary for successful fire fighting and providing opportunities for members to practice their acquired skills. (Training involves a leader who has the ability to teach skills, and members who wish to learn them.)

* What is exercise?

Exercise means practicing the fire fighting skills acquired through training, assuming an actual situation.

2-3. Create appropriate measures

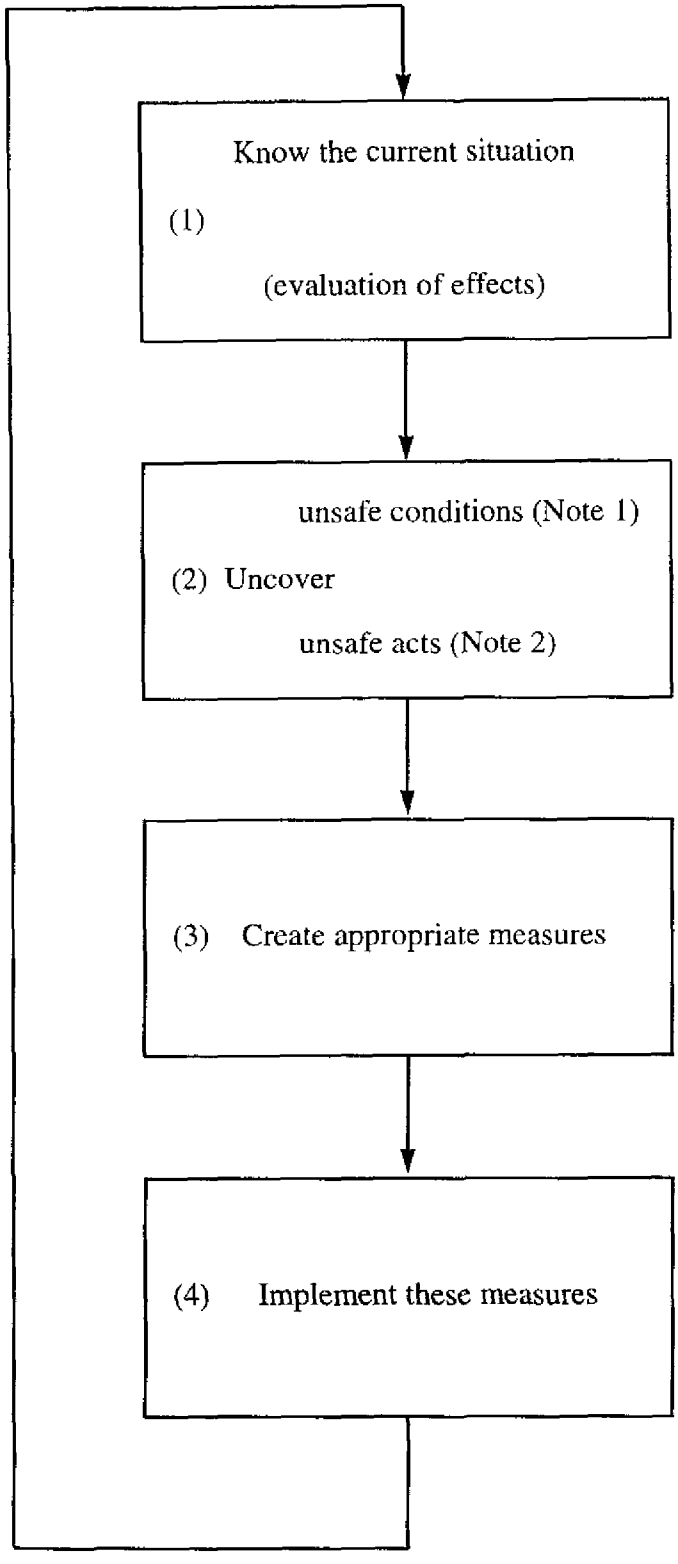
If unsafe conditions or acts are discovered, it is necessary to make a quick review of the causes, from an environmental as well as a human perspective, and work out specific measures to solve the problem.

If imminent danger is discovered during the course of training, necessary measures, including discontinuing or calling off the training, must be taken without hesitation

2-4. Implement these measures

Measures worked out must be implemented swiftly, to prevent accidents from happening.

○ Four steps for safety maintenance



3. Unsafe conditions and acts

3-1. Unsafe conditions

If there is a defect in facilities or equipment, an accident can happen even if no unsafe acts are committed by members.

Therefore, unsafe conditions are more likely to cause accidents than unsafe acts, but it might be easier to remedy them.

(1) Physical factors

Category	Defect	Degree of danger
Facilities, equipment, gear, implements and clothing	Defect in condition, function, or structure, lack of necessary quantity	○ Lack of strength due to defective design or materials ○ Decrease in strength due to aging, corrosion, breakage or burning ○ Failure or decreased performance due to wear and improper maintenance ○ Lack of necessary quantity of materials and implements

(2) Environmental factors

Category	Defect	Degree of danger
Natural environment	Bad weather	○ Slipping, poor visibility, and low morale due to rain, snow, fog, wind, heat, cold, or darkness.
Condition of training site	Bad ground condition or poor topography	○ Unstable footing and equipment due to limited space, hills, roughness, and differences in ground heights
	Improper organization of the training ground	○ Unstable footing due to a clutter of unnecessary articles ○ Risk of bumping into obstacles on the training ground.

Category	Defect	Degree of danger
Condition of training site	Discomfort due to exposure to harmful substances	○ Disturbed attentiveness and concentration or decreased morale due to humidity, odors, dust, smoke, harmful gases, or pests and vermin (such as mosquitoes)
	Defective equipment	○ Decreased ability to employ the five senses, due to noise, poor lighting or poor ventilation. ○ Direct physical danger due to insufficient warning signs

3-2. Unsafe acts

Acts that change safe conditions to unsafe ones or those that might induce conditions which can cause an accident.

Category	Defect	Degree of danger
No knowledge	Insufficient understanding or awareness of safety	○ Thinks that safety is the responsibility of leaders. ○ Thinks that accidents do not have anything to do with him. ○ No awareness of the negative effects of accidents on society, organizations, and himself.
	Insufficient knowledge of the importance of safety	○ Doesn't recognize the effects of human weakness and how to deal with it. (Disturbed attentiveness and concentration, physical pain or strong emotions can lead to "carelessness". Thus you cannot eliminate carelessness unless these factors are removed or dealt with.)

Category	Defect	Degree of danger
No knowledge	Insufficient knowledge of the importance of safety	○ No knowledge of the correct functions of equipment and tools. In addition, doesn't know their shortcomings and how to deal with them. ○ Unqualified people
	Insufficient sensitivity to danger	○ Doesn't notice unsafe circumstances even if he performs unsafe acts or sees other people performing them ○ Doesn't think of an unsafe condition as being actually unsafe. ○ Cannot predict danger.
No ability	Insufficient ability	○ Poor education ○ Poor judgment due to insufficient knowledge and experience ○ An order was given that required a high level of skill to obey ○ Workload was too great.
	Has ability but doesn't deliver sufficiently	○ Physical conditions are not appropriate. ○ Mental states, such as emotions, are unstable. ○ The organization has little ability and low morale. ○ The conditions on the training ground and within the organization of the training system are poor. ○ Insufficient equipment and tools ○ The training purposes and methods are unclear or not made completely known to team members ○ Defective equipment or tools

Category	Defect	Degree of danger
Poor motivation	Doesn't perform although he has knowledge and ability	○ Misunderstands the situation (difference between conception and reality) ○ Tends to have optimistic notions and practice wishful thinking ○ Personality and behavioral eccentricities, such as laziness, tuning out, shyness
	Loose discipline	○ Low morale ○ Insufficient command ability on the part of leaders ○ Ignores instructions and orders
	Poor level of education	○ Leaders do not have sufficient awareness of the importance of safety ○ Leaders do not have sufficient knowledge, experience or skill. ○ Safety instructions given by leaders are unclear because they are not sufficiently aware of potential danger. ○ Trainee's safety awareness is low.

4. Ten rules for securing safety

(1) Safety control must be actively pursued while performing one's duties.

(2) Disaster sites always contain potential dangers. Do not relax in such a situation and always be alert for danger.

(3) Units and members must always be under the control of the leader; otherwise there may well be a serious accident. Refrain from taking arbitrary actions; remain responsive to the control of the commanding officer.

(4) Any information on danger must be made known to all members on the site as soon as possible. Any team member who notices the presence of danger must report it to the command headquarters immediately In an emergency, let other people know about it, to prevent danger.

(5) Excitement and confusion will lead to an accident. Maintain your composure under all circumstances.

(6) Lack of knowledge of the machinery and equipment will lead to an accident. Get familiar with the functions and performance limits of the equipment and tools and learn how to operate them.

(7) Self-defense is the basic principle of maintaining personal safety. Your own safety must be assured by you, yourself.

(8) The first step for assuring safety is wearing fire-protection clothing Always wear a complete set of fire-protection clothing

(9) Assuring your safety requires strong willpower and physical strength. Keep up your willpower and physical strength so they can withstand any severe situation.

(10) Previous accident cases are important lessons. Study them in detail and use the results as guiding principles.

○ Clothing inspection

Disordered clothing shows mental disorder. Mental disorder leads to accidents.

When getting ready for training, check your clothing. Cinch your belt a bit tighter, to get yourself ready for training.

○ A checklist of important items is useful

Pointing at the items on the checklist with your finger, one by one while saying their names, stimulates and activates your brain. Look directly at the object to be checked, and point at it with your finger. That is, checking things off on a list by pointing at them while speaking their names raises your consciousness level and suppresses carelessness.

By saying "○○○ is OK", you check the item with both your eye and ear, and reinforce your responsibility.

(Reference)

Safety control plan and check list based on "The Safety Standards used in Fire Suppression Training and Elsewhere", compiled by the Osaka Municipal Fire Department

Chief of the fire station (Manager, senior officer)	Assistant chief of the fire station, commander (Section chief)	Safety supervisor	Safety control plan

Date	Day (day of the week), month, year time:											
Location	Inside/outside the fire station											
Chief leader							Safety supervisor					
Assistant to safety supervisor												
Type and contents of training	Fire suppression training							Guidance to self-defense forces regarding fire fighting	Guidance to citizens regarding fire fighting	Fire extinguishing experiments	Other fire suppression activities	
	Basics	Defense against fire	Rescue	First-aid	Flood protection	Combination	General					
	Attendees: people											
Facility to be used												
Equipment to be used (including protective materials)												
Safety control items to be given special consideration												

Check list

Category	Items to check
Planning of training and pre-training	○ Location ○ Safety of facility to be used ○ Training items ○ Chain of command and progress schedule ○ Composition of employees ○ Selection of suitable employees for training and total program ○ Employee health ○ Employee clothing ○ Types and quantity of equipment to be used ○ Use of protective materials ○ Characteristics of materials to be used. ○ Effective use of equipment ○ Deployment of watch personnel ○ Necessity of an emergency rescue system ○ Considerations regarding weather, such as rain or snow ○ Employees' knowledge of the training procedures ○ Safety education suitable to the scale, contents, and characteristics of the training ○ Necessity of holding a work-site safety and hygiene committee meeting
Immediately before training	○ Clothing inspection and warm-up exercises for employees ○ Employee health conditions ○ Employees' knowledge of the training procedures ○ The readiness of the training site ○ Pre-training inspection of the facility ○ Pre-training inspection of the equipment and materials to be used ○ Pre-training inspection of the protective materials ○ Evaluation of the characteristics of the equipment and materials to be used. ○ Deployment of watch personnel ○ Measures to deal with weather conditions, such as rain or snow ○ Confirmation during training of employee's knowledge about assuring safety ○ Giving instructions to assistants to the safety supervisor about safety control items ○ Deployment of assistants to the safety supervisor

Category	Items to check
During training	○ Employee clothing ○ Employee fatigue ○ Self-possessed employee behavior ○ Employees' awareness of safety ○ Training program schedule ○ Command control ○ Discipline at the training site ○ Effective use of protective materials ○ Equipment and materials which might be sources of danger ○ Damage to the facility ○ Damage to and failure of equipment ○ Necessity to change tactics because of weather conditions, such as rain or snow ○ Safety guidance of employees provided by assistants to the safety supervisor ○ Supervising system by assistants to safety supervisor
After training is complete	○ Employee health condition ○ Inspection of the facility used ○ Inspection of the equipment used ○ Disposal of materials used ○ Review of safety control procedure ○ Necessity of holding a work-site safety and hygiene committee meeting