

Commissioned by the Ministry of Health, Labor and Welfare  
Occupational accident prevention measures project in  
response to construction demand related to the  
Tokyo Olympic and Paralympic Games

# Safety and Health Education Text for New Employees



Japan Construction Occupational  
Safety and Health Association  
(abbreviation: JCOSHA)

Contents

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Users of this textbook are encouraged to personally compare the translation with the original text to assess its accuracy before use.

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Note:The "safety belt" in the text is a "fall arrest device" under the Revised Industrial Safety and Health Act.

## Chapter 1 What is a construction site?

### (1) Construction site qualifications

A variety of construction machinery is in operation at construction sites, and each has its own qualifications. Also, the placement of a person to directly supervise the workers is determined based on the work. If you work without qualifications, you will be punished.

#### “Licensed” refers to a person with a license.

A person who has passed the exam conducted by a designated testing organization and received a license from the Director of the Prefectural Labor Bureau.

#### “Skilled” refers to a person who has completed a skill training course.

Skills training is a course conducted by educational institutions registered with the Prefectural Labor Bureau. A person who has completed a course at this educational institution.

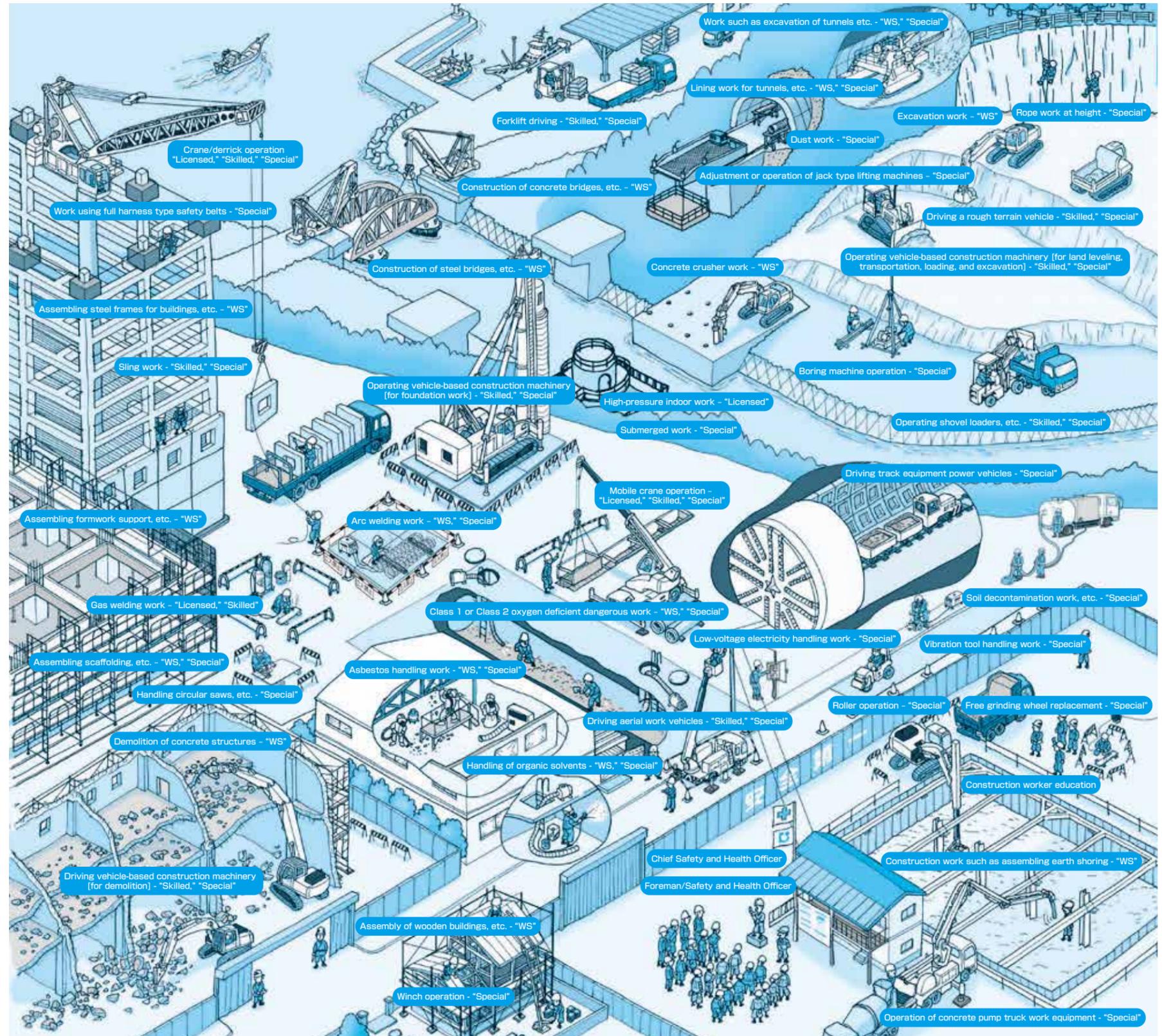
#### “Special” refers to a person who has completed special education (including education equivalent to special education)

Special education is education provided by each company based on a certain curriculum stipulated by law. In cases where a company does not have a qualified instructor, a safety and health organization such as JCOSHA conducts the training on the company's behalf. A person who has completed this training at a company or safety and health organization.

“Special” includes “education equivalent to special education” based on administrative notifications.

#### “WS” refers to the work supervisor

In order to prevent industrial accidents, work that requires safety and health management requires the assignment of a work supervisor to directly supervise the workers.

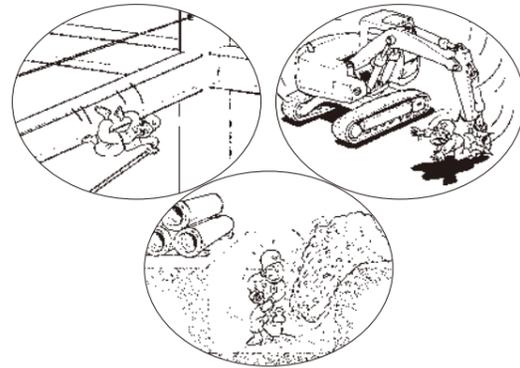


This figure shows the required qualifications that are particularly relevant in the construction industry.

## (2) Construction site characteristics

Construction sites differ significantly from other industries in the following ways:

- ① Dangerous areas within the construction site change daily depending on the progress of work. [Dangerous areas (openings, high places, underground, etc.)]
- ② At construction sites, many large machines such as vehicle-based construction machinery and mobile cranes are in operation, and in the unlikely event that someone gets caught or comes into contact with them, serious injury or death could result.
- ③ People from different types of companies work together on the same construction site. (Steel assembly companies, heavy machinery companies, equipment construction companies, etc.)
- ④ The work content of people working at the same site changes frequently depending on the progress of the work. Additionally, work conditions vary depending on weather conditions such as rain, wind, and snow.
- ⑤ The most common disasters at construction sites are the “three major accidents” of falls, construction machinery, and landslides.
- ⑥ Many traffic accidents occur during commuting and on-site.



## (3) Occurrence of industrial accidents after entering a construction site

A The figure on the right is a graph that categorizes fatal accidents by the number of days after first entering the construction site. Nearly 60% of fatal accidents occur within 7 days of entering a construction site.

B Regarding industrial accidents in the construction industry, the following may occur.

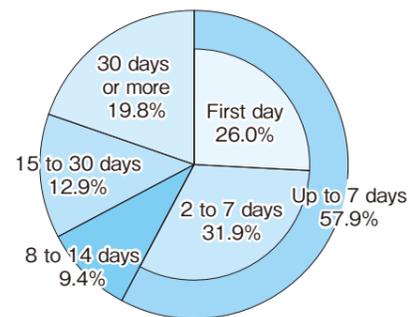
(A) If you are completely new to working in the construction industry

- a Construction work skills are immature and unfamiliar.
- b Not sure about the appropriate measures regarding safety and health.
- c Unsafe behavior or failure to follow established procedures.

(B) For those who have experience working in the construction industry

At each construction site, you will be working in the working environment and working methods of that site, and you may not be able to make use of your previous experience, or you may neglect danger or engage in “unsafe behavior” until you get used to it.

Number of days on site and rate of accidents



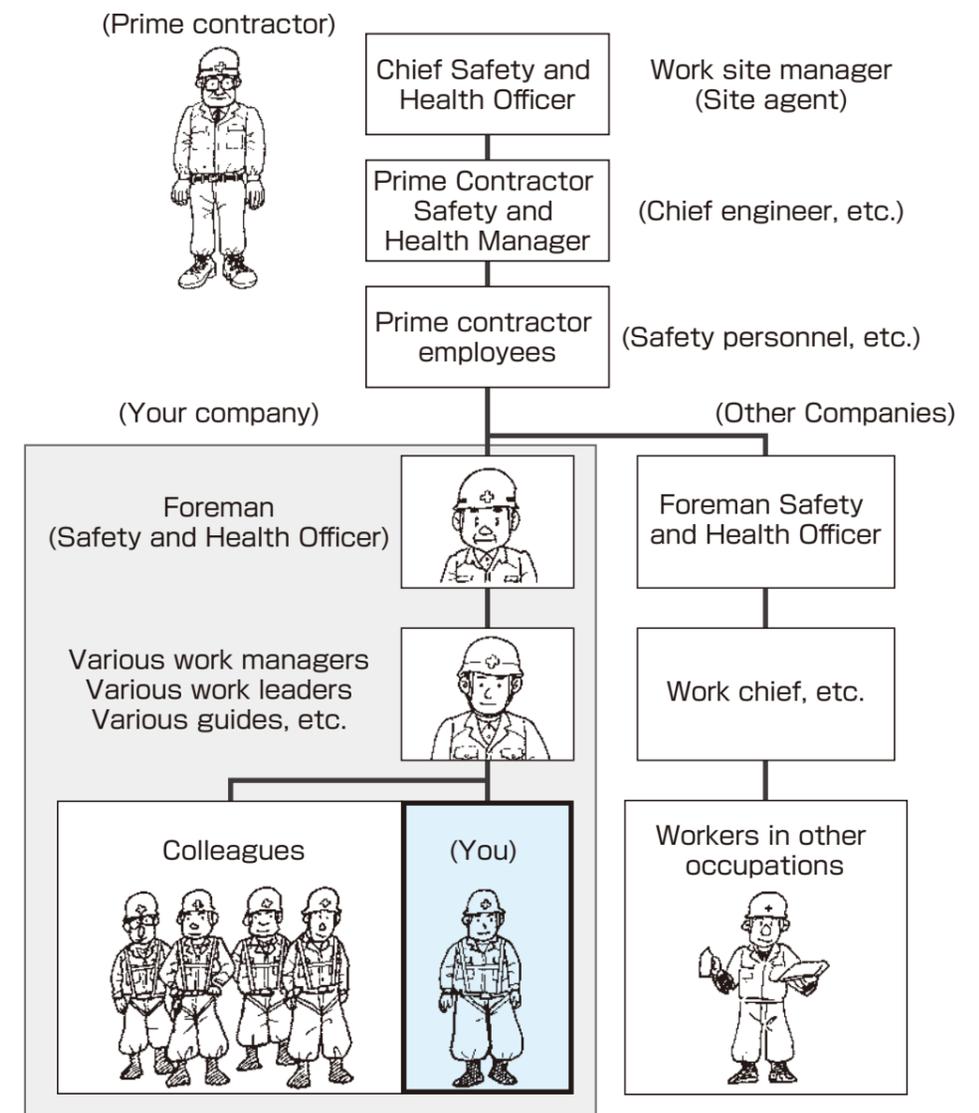
(From fatal accident analysis results)

## Chapter 2 Construction site work and safety and health

### 1 | What is the construction site safety and health management system?

At construction sites, each person has a role (there is an organization) to prevent disasters and accidents from occurring. The system for safety and health management in which the main contractor and related contractors (partner companies) work together is called the “overall safety and health management system.”

Your boss, the work site manager, works with the director of the prime contractor to provide instructions and guidance on how to proceed with safe work and the workplace environment, in order to protect you from industrial accidents.

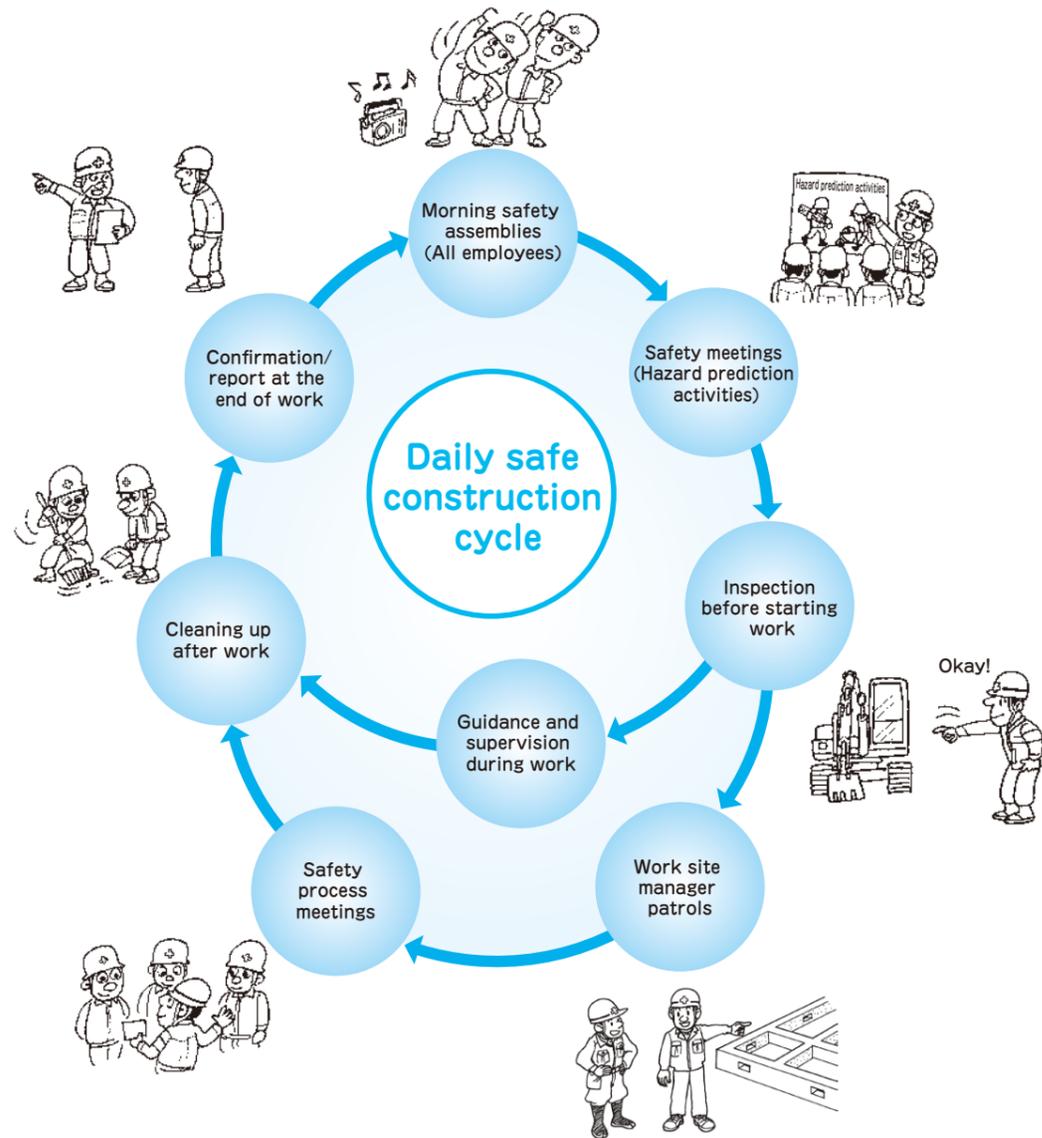


(Your company may be a 2nd or 3rd tier subcontractor.)

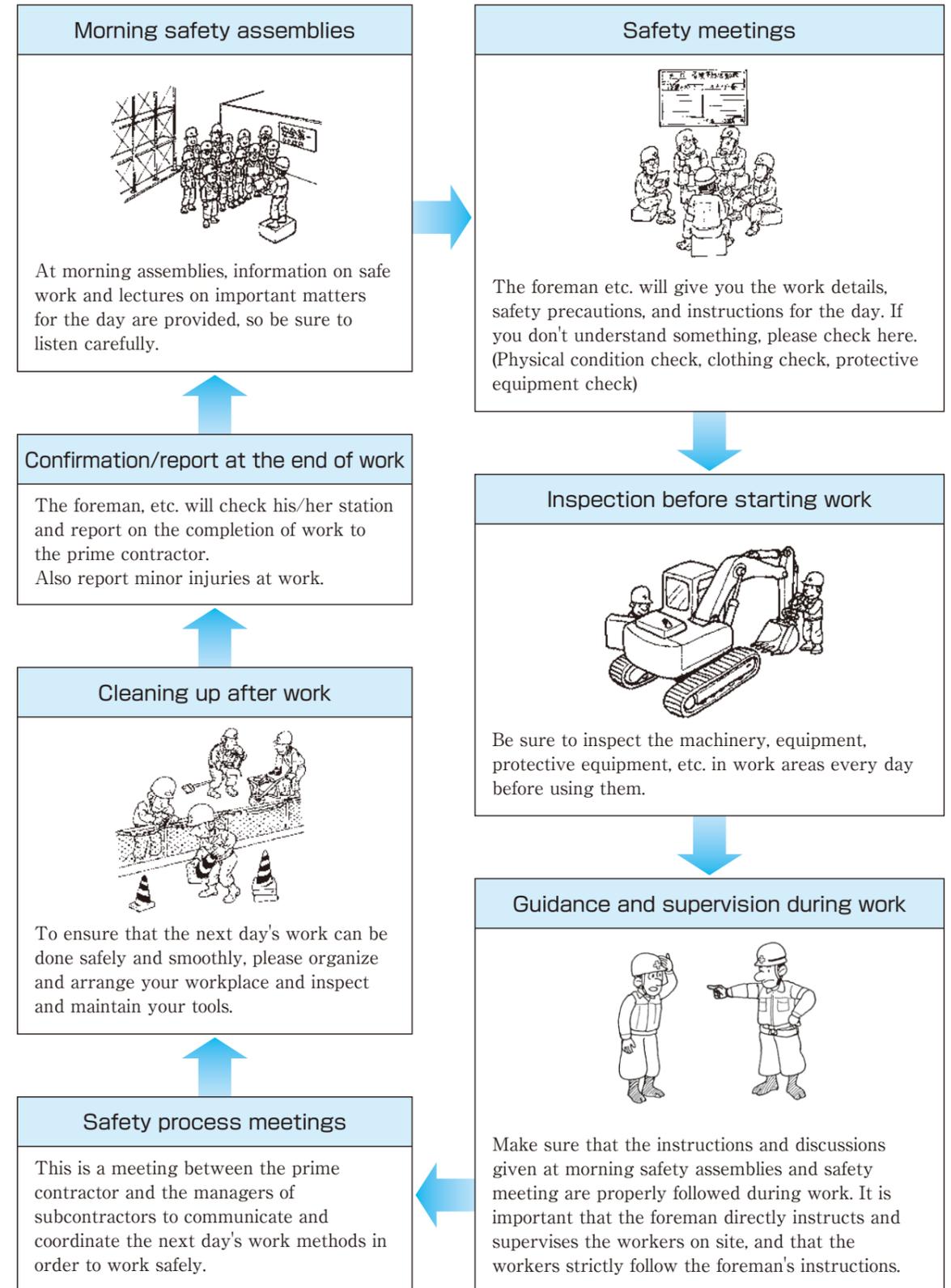
## 2 | Daily work flow at construction sites

At construction sites, there is a flow of safety activities called the “Safe Construction Cycle” to ensure that all workers work safely during daily work.

At construction sites, we build buildings, roads, tunnels, bridges, and other structures “safely,” at “highly (quality),” “quickly,” and “cheaply” by conducting “safe construction cycle activities.”



## Points to note regarding safe construction cycle activities



1 | What must be done to prevent industrial accidents?

(1) Your main roles in preventing industrial accidents

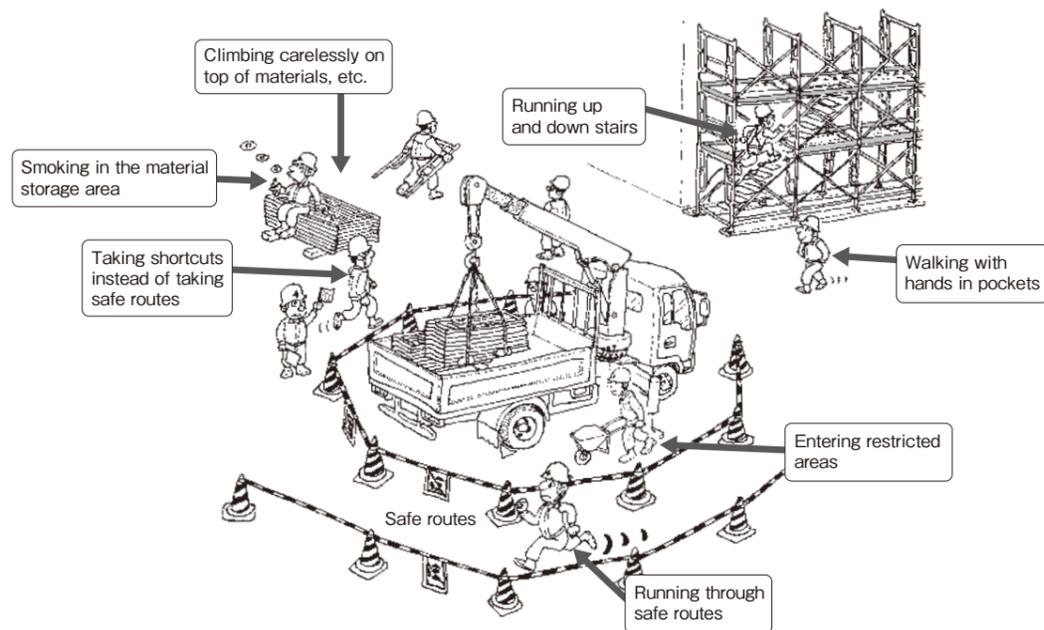
To prevent work-related accidents, please observe the following:

- ① Observe established site rules and work procedures.
- ② Obey the instructions of the foreman or other person in charge.
- ③ Properly use designated protective equipment such as a hard hat (helmet), safety belt, and dust mask.
- ④ Do not remove safety equipment such as handrails without permission.
- ⑤ Strive to organize, arrange, clean, and tidy materials and tools.

(2) Do not engage in unsafe behavior

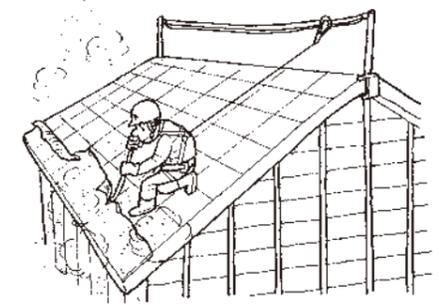
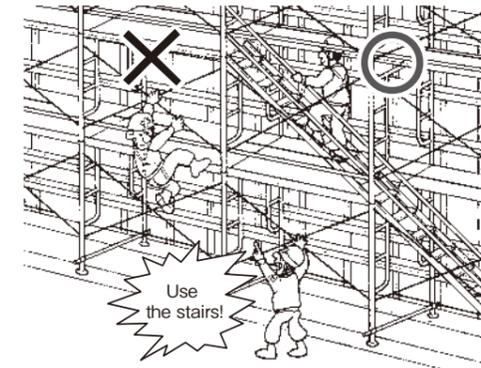
“Unsafe behavior” refers to engaging in dangerous behavior, whether or not the person knows it is “dangerous.” For example, doing something dangerous even though you know it is dangerous, taking a shortcut instead of taking a safe route, or skipping a set work procedure instead of following it.

To prevent work-related accidents, avoid situations like those shown below on-site. Ask to be told the rules of the workplace and be sure to follow them.

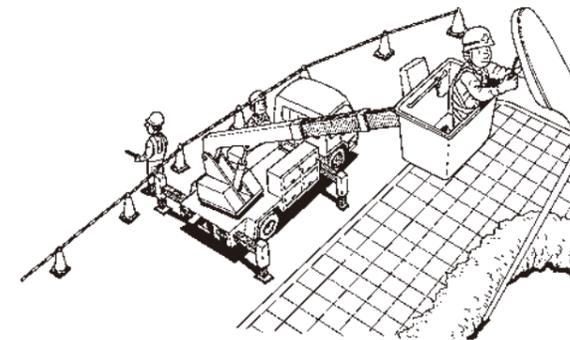


2 | Injuries and illnesses occur at construction sites due to the following types of work:

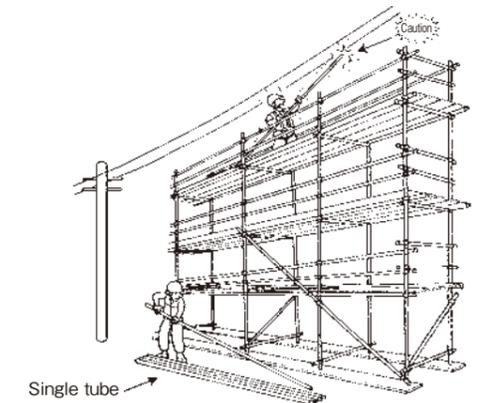
(1) Working at heights on scaffolding



Example of work on the roof



Example of work using an aerial work vehicle



Example of work on scaffolding under overhead power lines

[Rules to follow]

- ① Always use a safety belt when working at heights.
- ② Use lifting equipment (stairs, ladders, etc.) to move up and down.
- ③ Use designated safe routes.
- ④ When handling long objects such as steel pipes on rooftops, etc., be careful of nearby racks, open electrical wires, etc.
- ⑤ Keep your work area neat and tidy by not leaving things in aisles.

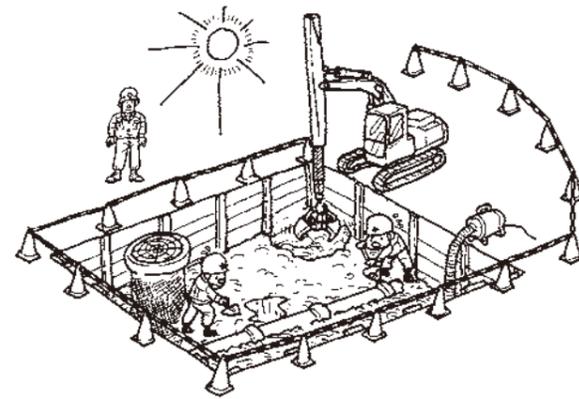
[Predicted disasters]

Disasters caused by falling/tumbling

(2) Working in hot and humid places, working outdoors under the scorching sun, working in hot and humid places with poor ventilation, etc.



Example of road paving work



Example of excavation work under the hot sun

**[Rules to follow]**

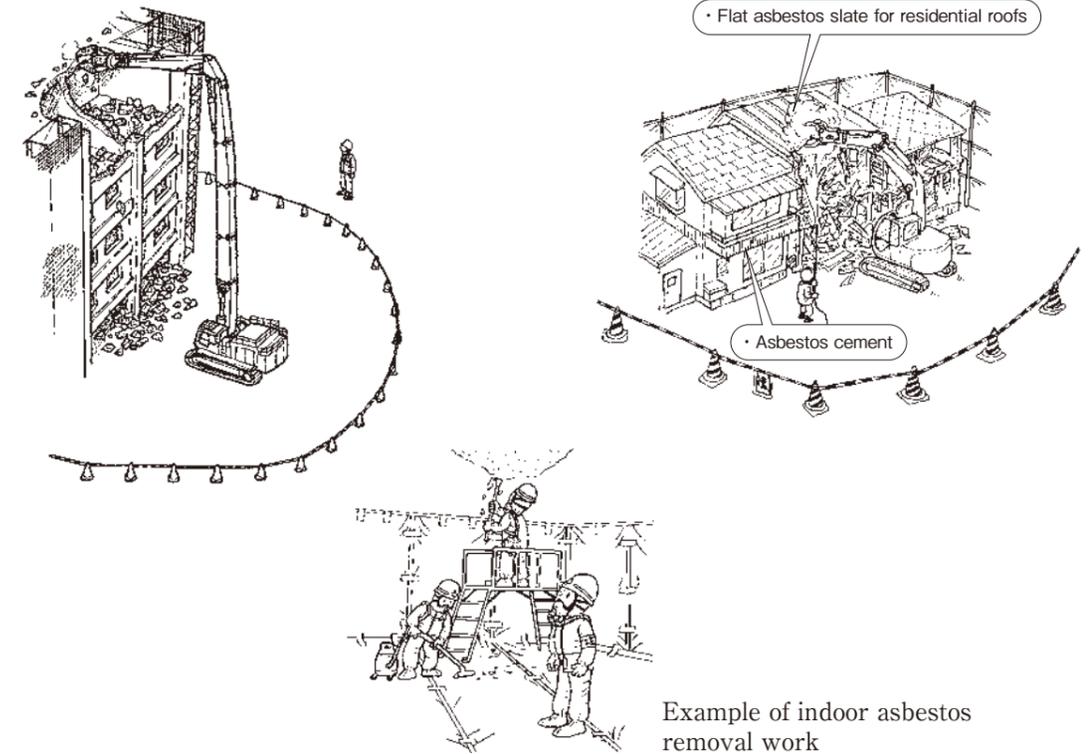
- ① Make sure to take in plenty of water, sports drinks, and salt.
- ② During breaks, use a well-ventilated shaded area or rest area to get plenty of rest.
- ③ The day before work, don't drink too much and get enough sleep.
- ④ Make effective use of protective hats, and cooling bands, etc. to prevent heatstroke.

**[Predicted disasters]**

Heatstroke

\* "Heatstroke" is a general term for diseases in which the body loses its ability to adjust in hot and humid work environments, resulting in life-threatening disorders. Normally, when the body begins to lose water and salt through sweating, the body's temperature regulation function becomes active, but when this exceeds its limit, the body temperature regulation function becomes ineffective, the body temperature rises, and the initial symptoms of headache, nausea, and sluggishness occur. If the disease progresses further, you may lose consciousness and even die.

(3) Work such as asbestos removal associated with the demolition and renovation of buildings, etc.



Example of indoor asbestos removal work

**[Rules to follow]**

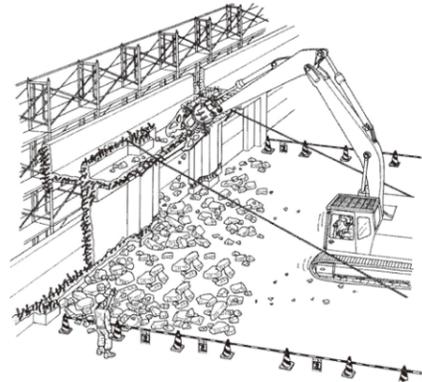
- ① Before use, check to see if the dust mask is damaged or leaking from gaps between it and your face.
- ② Wear the specified standard dust mask, protective clothing, hard hat (helmet), protective gloves, safety shoes, etc. as instructed.
- ③ Use a safety belt when working at heights (over 2m high).
- ④ In the summer, be sure to take measures to prevent heatstroke (such as hydration and salt intake, taking breaks in the shade with good ventilation, etc.).

**[Predicted disasters]**

Asbestosis, mesothelioma, pneumoconiosis, heatstroke, etc.

\* "Mesothelioma" is a malignant tumor that generally occurs in the membranes covering the lungs or heart.  
 "Pneumoconiosis" is a lung disease that occurs when dust accumulates in lung cells as a result of inhaling dust over a long period of time.

**(4) Processing of materials generated during demolition work**



Example of building demolition



Example of house demolition

When processing materials generated during demolition work, care must be taken as the debris is likely to contain many harmful chemicals such as asbestos and dust.

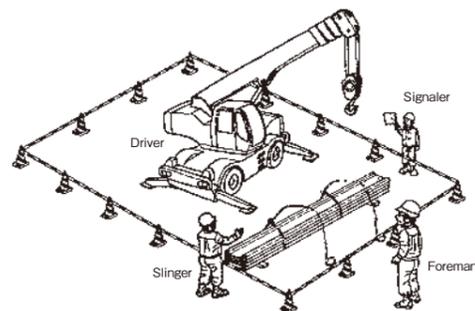
**[Rules to follow]**

- ① When processing generated materials, etc., be sure to use protective equipment such as dust masks, gas masks, hard hats (helmets), goggles (safety glasses), rubber gloves (protective gloves), and thick, durable shoes (safety boots).
- ② Wear long-sleeved work clothes to avoid exposing your skin.
- ③ If you find medicine bottles, cans, drums, etc. in the remains of a plating factory, etc., do not touch them and report them to the foreman.
- ④ If you find a building material with asbestos or something like cotton attached to the steel frame, do not touch it and follow the foreman's instructions.

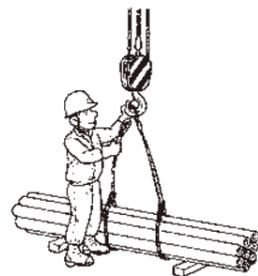
**[Predicted disasters]**

Disorders caused by dust (pneumoconiosis), tetanus from wounds caused by stepping on nails, burns caused by chemicals, cuts, bruises, fractures, falls, etc.

**(5) Work to lift and move loads using cranes, etc. (sling work)**



Example of slinging work using a mobile crane



Example of lifting a load using a crane

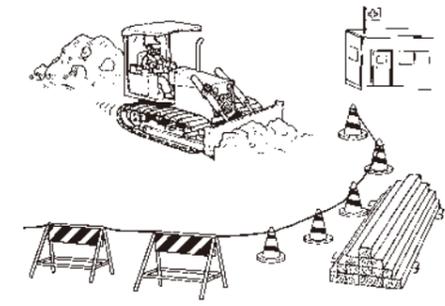
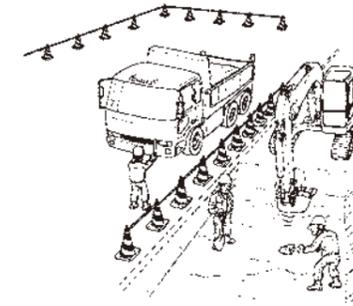
**[Rules to follow]**

- ① Unauthorized entry is prohibited within the work area.
- ② Never stand under a suspended load.
- ③ Sling work (the work of hanging wire ropes, etc. to a load, crane, etc. when hoisting a load using a crane, etc.) should be performed by qualified personnel.

**[Predicted disasters]**

Injuries caused by falling loads, injuries caused by falling cranes, etc.

**(6) Work such as excavation, land leveling, transportation, etc. using construction machinery such as backhoes**



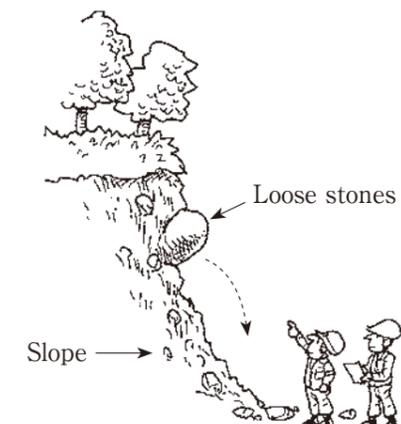
**[Rules to follow]**

- ① Do not enter areas where construction machinery is prohibited from entering without permission.
- ② It is prohibited to enter the work area of rotating construction machinery such as backhoes (drag excavators).
- ③ Follow the instructions of the work leader, guide, signaler, etc.
- ④ Use designated safe routes.

**[Predicted disasters]**

Injuries caused by being caught/entangled, falling/tumbling, or falling objects

**(7) Laying water and sewage pipes and excavating on slopes**



**[Rules to follow]**

- ① Please follow the safety guidelines. Digging in watermarks is prohibited.
- ② Check for loose stones, etc.
- ③ Use safety belts in designated areas.
- ④ When climbing up and down excavated trenches, use climbing equipment such as ladders and stairs.
- ⑤ If you find any abnormalities such as water leakage, cracks, or deformation of the shoring, be sure to contact the person in charge.

**[Predicted disasters]**

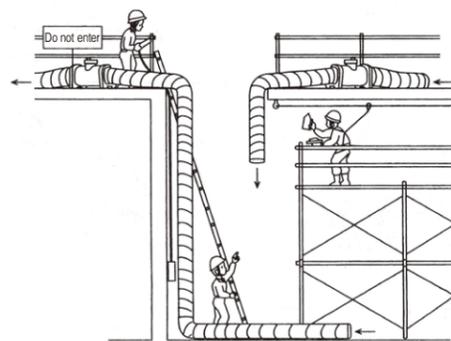
Injury due to collapse, falling/tumbling



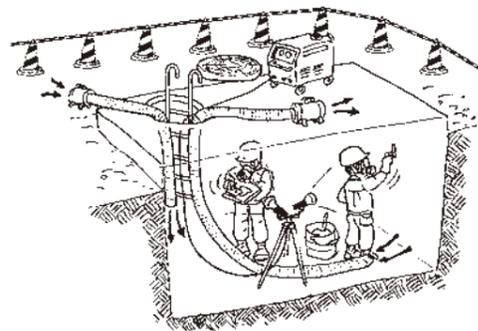
Verify qualification

At work sites, there are many tasks that require certain qualifications by law. Never allow unqualified personnel to perform these tasks.

**(8) Work in culverts with water, sewage, gas pipes, etc., manholes, inside storage tanks and silos, narrow basements, ship holds, etc.**



Example of basement ventilation



Example of ventilation in a small work area

**[Rules to follow]**

- ① Work according to the instructions of the work supervisor.
- ② When going up and down inside a manhole, use equipment such as a lifting device.
- ③ Use necessary protective equipment such as safety belts and hard hats (helmets).

- ④ Make sure fresh air is brought in from outside.
- ⑤ Engine-powered generators are prohibited from use in areas with inadequate ventilation.

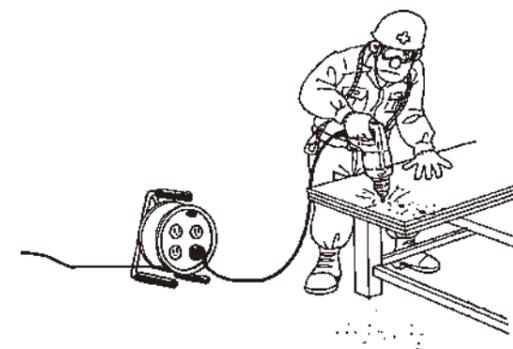
**[Predicted disasters]**

Oxygen deficiency, poisoning due to methane gas, hydrogen sulfide, etc., carbon monoxide poisoning, falls, injuries due to explosions

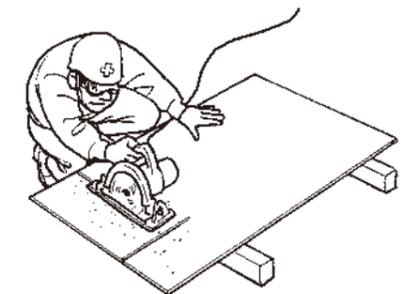
\* "Anoxia" is a condition which occurs when the oxygen concentration in the air is less than 18%, and you absorb oxygen-deficient air, where you may experience dizziness, loss of consciousness, or even death depending on the oxygen concentration.

\* Hydrogen sulfide exists in sewage and sludge such as sewers, and when agitated, it is released into the air and absorbed through the mucous membranes of the eyes and respiratory tract, causing corneal damage, olfactory paralysis, and bronchitis. There is also a risk of death due to difficulty breathing or suffocation.

**(9) Work using power tools, etc.**



Example of using an electric drill



Example of using an electric circular saw



Example of using a disc grinder



This mark is a safety mark displayed on electrically safe double-insulated products that can be used without grounding.

Double insulation mark

### [Rules to follow]

- ① Be sure to use the safety devices (safety cover) on portable circular saws and the grip on disc grinders.
- ② Check for damage to the power cable, etc.
- ③ Be sure to connect the earth.
- ④ Be sure to turn off the switch when moving while working.
- ⑤ Gloves are not allowed when using a power drill or disc grinder.
- ⑥ Get power from a device equipped with an earth leakage breaker to prevent electric shock.
- ⑦ Check the double insulation structure (double insulation mark on the nameplate).

### [Predicted disasters]

Cuts, scrapes, electric shock

### (10) Work using stepladders, etc.

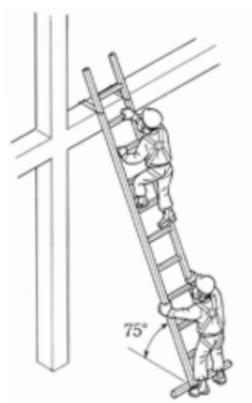


Example of stepladder

### [Rules to follow]

- ① Before use, check the stepladder for damage, curls, open stoppers, etc.
- ② Avoid openings and near stairs, and install on a flat surface.
- ③ Working while standing on the top is prohibited.
- ④ Be sure to use the opening stopper.
- ⑤ Do not climb up or down while carrying tools or other objects.
- ⑥ Working while leaning over a stepladder is dangerous.
- ⑦ Use a portable workbench whenever possible.

### (11) Work using a ladder



Example of a ladder

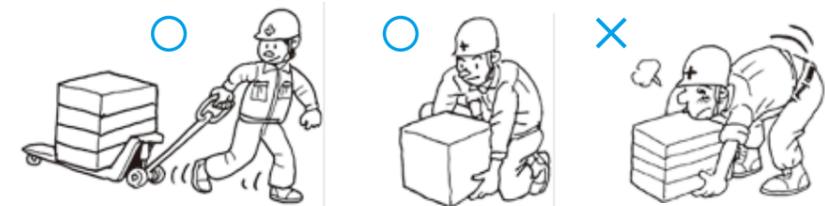
### [Rules to follow]

- ① Make sure to securely install the ladder with the top sticking out at least 60cm.
- ② Use legs with non-slip feet to ensure a secure installation.
- ③ Avoid lifting and lowering objects with one hand.

### [Predicted disasters]

Falling/tumbling

### (12) Handling heavy objects, work that puts strain on the back



### [Rules to follow]

- ① When lifting heavy objects, bend your knees, lower your hips, and stretch your back.
- ② When putting things down, be sure to do so gently and without throwing.
- ③ When doing continuous work that puts strain on your lower back, take regular breaks to stretch your lower back.

### [Predicted disasters]

Strained back, lower back pain

### (13) Work using vibrating tools



Example of a vibrating tool

### [Rules to follow]

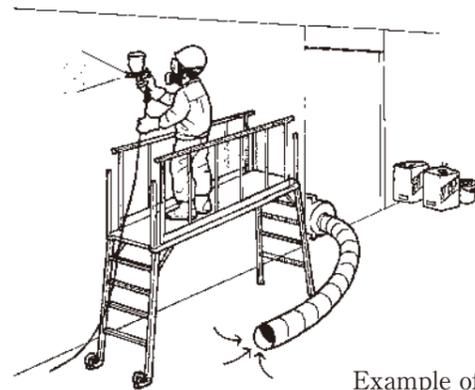
- 1) Use a dust mask, anti-vibration gloves, ear plugs, safety glasses, and a hard hat (helmet) appropriate for the work.
- 2) As a general rule, the usage time for vibrating tools is within 2 hours. In the case of work that exceeds these working hours, please follow the foreman's instructions regarding changing workers, etc.

### [Predicted disasters]

Vibration disorders such as white wax, dust disorders, pneumoconiosis, hearing impairment, and injuries caused by flying particles (eyes, etc.)

\*“Vibration tools” include hand-held rock jackhammers for tunnel excavation, concrete breakers for chipping and other work, pick hammers, concrete vibrators, chainsaws, engine cutters, lawn mowers (brush cutters), and portable tampers.

### (14) Painting, waterproofing, spraying moisturizers and insulation materials, and other work that uses organic solvents in indoor work areas.



Example of indoor spraying work

### [Rules to follow]

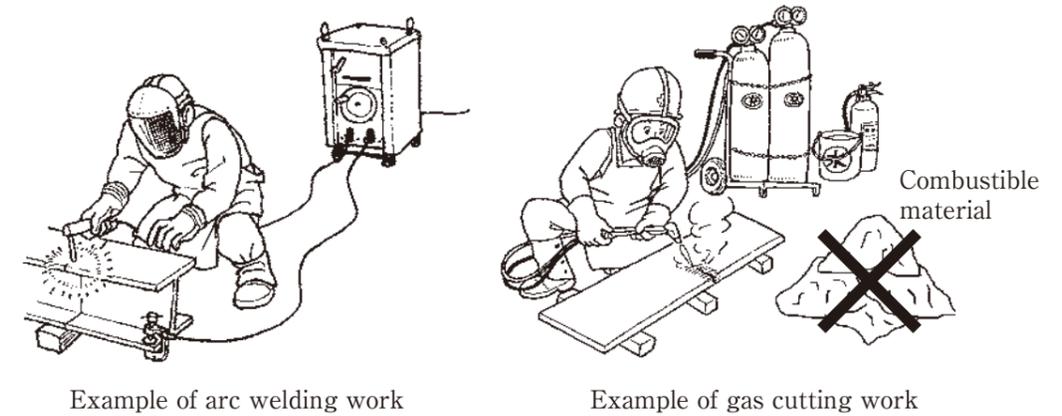
- ① Work according to the instructions of the work supervisor.
- ② Make sure there is sufficient ventilation while working.
- ③ Depending on the working environment, use an air mask or gas mask.
- ④ Use the designated protective equipment such as a hard hat (helmet) and safety glasses.

### [Predicted disasters]

Organic solvent poisoning

\*“Organic solvents, such as thinner, are widely used as thinners for paints and adhesives, and they easily evaporate and enter the body through the respiratory tract and skin, causing symptoms such as headaches, dizziness, nausea, and loss of consciousness. In the worst case scenario, this can even lead to death.”

### (15) Welding and cutting work



Example of arc welding work

Example of gas cutting work

### [Rules to follow]

- ① When working, make sure that there are no flammable materials around the work area.
- ② During work, be sure to use the designated welding/fusion cutting goggles, dust mask, safety shoes, leather gloves, etc.
- ③ Do not look directly at arc welding sparks with the naked eye.

### [Predicted disasters]

Burns, fire injuries, electric shock, explosions, pneumoconiosis, lightning ophthalmia

### (16) Measures against bee stings

There have been cases of people dying from bee stings while working. Bees that live in Japan and attack and sting include wasps and paper wasps. Many stings occur in mountainous areas and surrounding areas.

### [Symptoms of bee stings]

**Localized symptoms** Intense pain

**Systemic symptoms** Mild symptoms include fatigue and shortness of breath. Moderate, chest tightness, diarrhea and nausea. In severe cases, this can cause blindness, deafness, and loss of consciousness, and the most severe symptoms can lead to death due to anaphylactic shock.

\* Anaphylactic shock is a severe allergic reaction that causes swelling (edema) in the airways, leading to suffocation and death.

**[Treatment method]**

- ① If you get stung by a bee, suck out the venom within two minutes.
- ② If the symptoms are severe, immediately transport the person to a medical institution to receive treatment.

\* Ammonia, which is commonly referred to, has no effect on bee stings, so be careful.

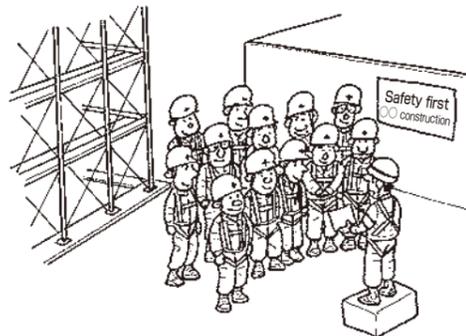
**[To avoid being stung by bees]**

- ① For working attire, avoid wearing black and wear white-colored clothing. If not possible, wear bright clothing such as yellow.
- ② Bees are sensitive to stimuli and vibrations. When working near bees, wear a bee net to protect your face.
- ③ If you find a nest, remove it by knocking it down or spraying it with insecticide.
- ④ If you notice a nest, mark the danger area with yellow tape and avoid entering.



Example of bee netting

**(17) Other general work considerations**



Example of a morning safety assembly



Example a KY meeting



Rest place



Organized, tidy, neat, and clean

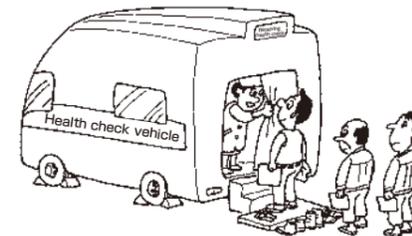
**[Rules to follow]**

- ① Please follow the rules on site.
- ② Check the work site in advance.
- ③ Be sure to participate in safety activities such as morning safety assemblies and hazard prediction (KY) activities.
- ④ Wear clothes appropriate for work.
- ⑤ Be sure to use designated protective equipment.
- ⑥ Obey safety signs.
- ⑦ Please follow the instructions of the signaller and guide.
- ⑧ Follow established work procedures.
- ⑨ Avoid approaching restricted or dangerous areas.
- ⑩ Know where the fire extinguisher is located and how to use it.
- ⑪ If you find any unsafe areas, please contact the person in charge.
- ⑫ Please smoke only in designated areas.
- ⑬ Try to be organized, tidy, neat, and clean.
- ⑭ Report even small injuries to your foreman.

**(18) Health checks**

At construction sites, various injuries and illnesses occur depending on the nature of the work, but it is important to work in a healthy condition.

In order to know your health condition, be sure to undergo health checks as instructed.



**[When you receive a health check]**

- ① You can know your current health status.
- ② If you are sick, you can start treatment sooner.

Please note that depending on illnesses detected during the health check, you may be required to engage in a different job than your previous one.

\* In addition to the health checks that are conducted when workers are hired or when they change work assignments, health checks also include a regular annual health check, and an annual check that is conducted to prevent workers from working with organic solvents or using vibrating tools. If you are engaged in special work such as work that uses equipment or in which you are exposed to dust, there are also “special health checks” that you must undergo once every six months.

**[Daily health management]**

- ① Refrain from binge eating.
- ② Always keep your work clothes clean.
- ③ If you have any physical abnormalities, seek treatment at a medical institution immediately.
- ④ Take breaks and rest your body to relieve fatigue.
- ⑤ Do warm-up exercises before work.

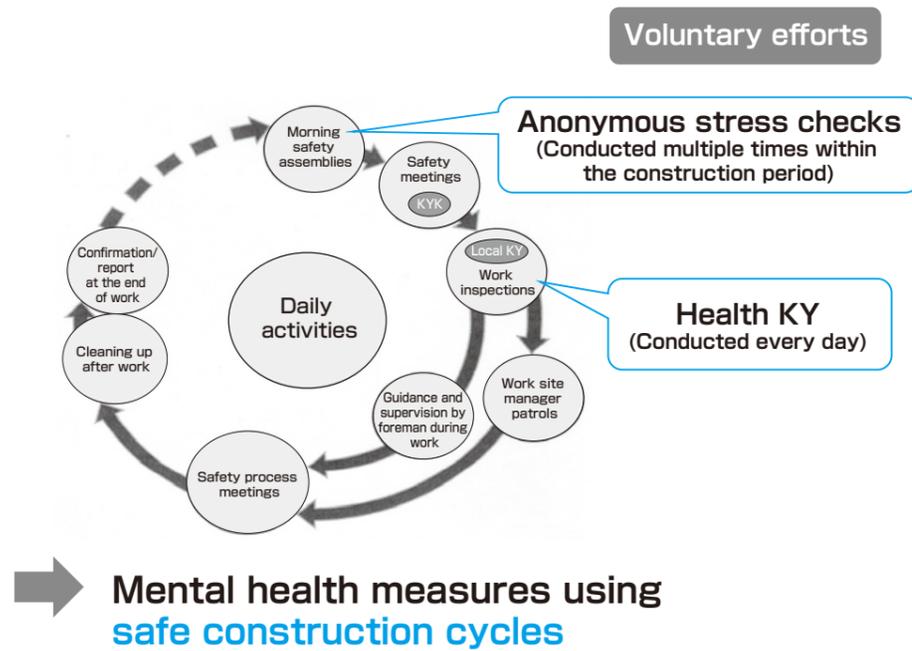
**(19) Mental health measures**

A stress check system based on the Industrial Safety and Health Act has been implemented, and direct workers are required to take mental health measures.

However, given that workers in the construction industry experience stress at the construction site, and that many workers have been certified for workers' compensation for mental disorders as on-site workers, it is considered necessary to implement measures at construction sites in addition to legally required measures.

For this reason, we are promoting the "JCOSHA Method Health KY and Anonymous Stress Check" that utilizes the safe construction cycle as a simple and effective method that can be performed at construction sites.

**JCOSHA Method Health KY and Anonymous Stress Checks**



The "JCOSHA Method Health KY and Anonymous Stress Check" is an initiative created for construction sites based on the stress check system newly established by the revision of the Industrial Safety and Health Act.

**Health KY**

Every day, foremen ask workers questions about their sleep, diet, and physical condition. This is expected to help individuals become aware of their own condition and to handle them, as well as to improve communication on-site.

**Health KY questions**

- 1 **Did you sleep well?**
- 2 **Did you eat well?**
- 3 **Are you feeling well?**

**Anonymous stress checks**

The system uses a questionnaire to understand the stress level of each company that works in the workplace, and uses the results to help create a workplace environment that is easy to work in.

**"Simple Occupational Stress Questionnaire"  
(simplified version: 23 items )**

	<small>Implementation date</small>		
	<small>Site name</small>		
	<small>Affiliated company name</small>		
	<small>Gender</small>	<small>Male/Female</small>	

(Simplified version: 23 items)  
Simple occupational stress questionnaire

A. We would like to ask you about your work.  
Please mark the one that applies most to you.

	1	2	3	4
1. Have to do a lot of work _____				
2. Unable to complete work within time _____				
3. Must work hard _____				
8. Can work at your own pace _____				
9. Able to decide the order and method of work yourself _____				
10. Can reflect your opinions in work policies at the workplace. _____				

B. We would like to ask you about your condition over the past month.  
Please mark the one that applies most to you.

	1	2	3	4
7. Very tired _____				
8. Exhausted _____				
9. Feeling tired _____				
10. Tense _____				
11. Anxious _____				
12. Can't relax _____				
13. Dispondent _____				
14. It's too much trouble to do anything _____				
16. Don't feel good _____				
27. No appetite _____				
29. Can't sleep well _____				

C. We would like to ask you about the people around you.  
Please mark the one that applies most to you.

How easily can you talk to the following people?

	1	2	3	4
1. Boss _____				
2. Colleagues at work _____				

To what extent can you rely on the following people when you are in trouble?

	1	2	3	4
1. Boss _____				
2. Colleagues at work _____				

How willing are the following people to listen to you if you talk to them about your personal problems?

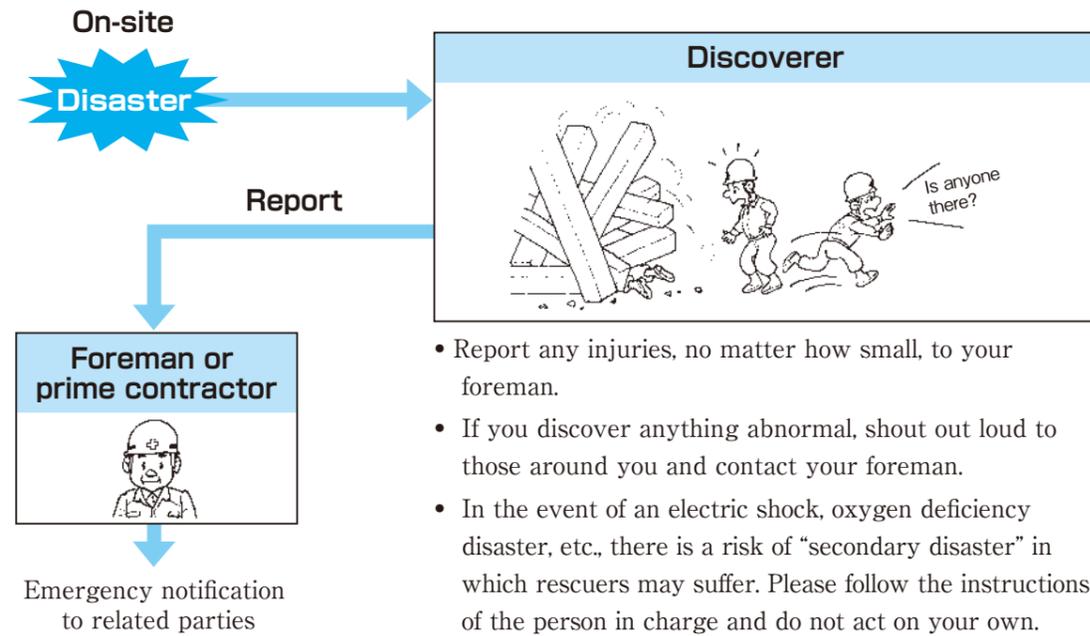
	1	2	3	4
1. Boss _____				
2. Colleagues at work _____				

\*Thank you for your cooperation.

Source: "Stress Check System Implementation Manual Based on the Industrial Safety and Health Act," Ministry of Health, Labor and Welfare, May 2011.6

### 3 | Emergency communication system and evacuation

(1) In case of an emergency, immediately contact a nearby colleague or foreman.



### (2) Disaster prevention training in the event of a disaster

Make full use of the results of daily training to deal with disasters when they occur.

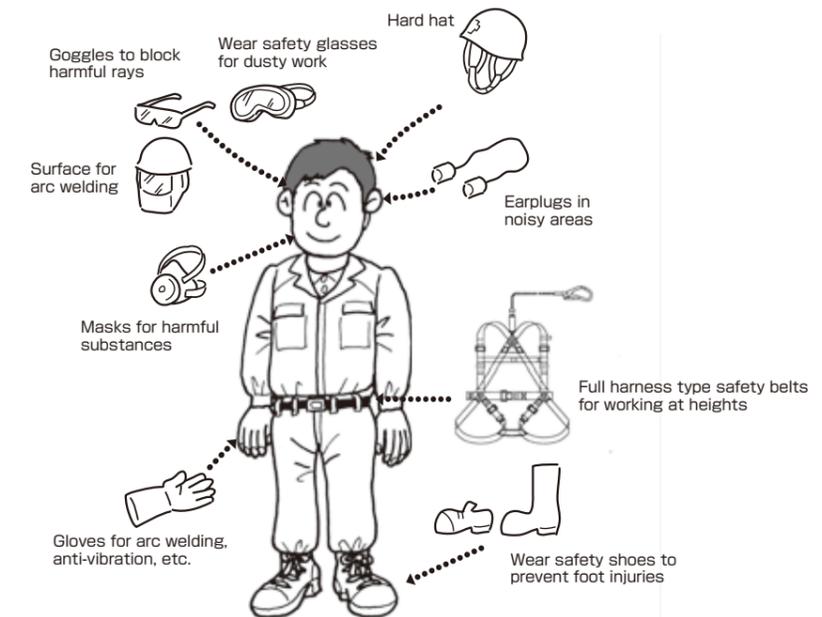
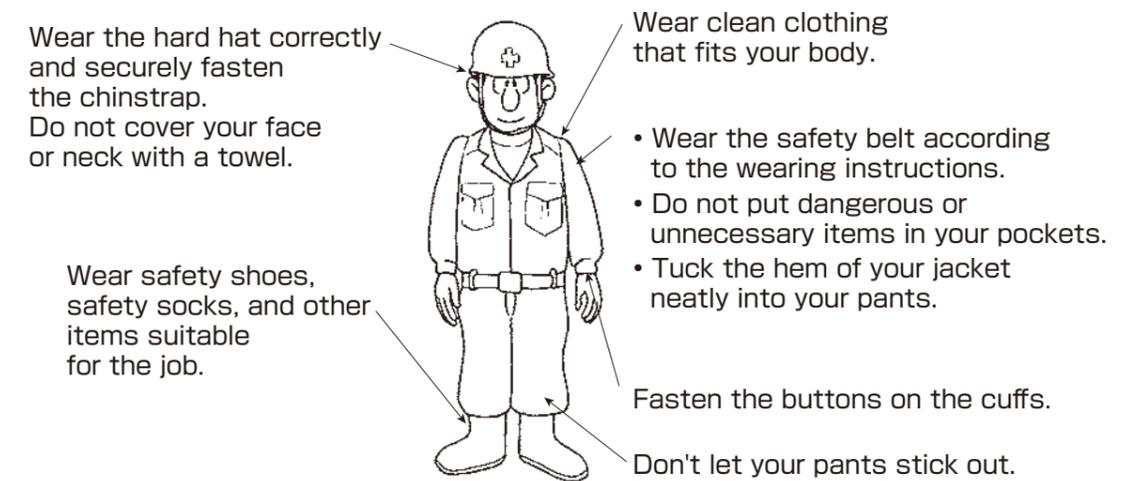


## Chapter 4 Handling safety and health protective equipment, etc.

### 1 | Correct handling of protective equipment, etc.

To protect yourself from injury, it is important to wear and use protective equipment correctly.

#### 1. Correct clothing, appropriate protective equipment



## 2 | Protective equipment to prevent industrial accidents

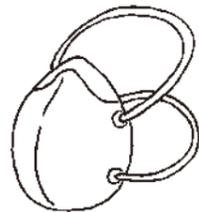
### 1) Respiratory protection

When working in an area where dust or toxic gases are generated, use a dust mask or gas mask, and use respiratory protective equipment such as an air respirator in areas where there is a risk of oxygen deficiency.

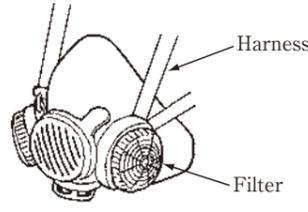
#### (1) Dust masks

A dust mask is designed to prevent you from breathing dust in the air into your lungs. Dust masks include disposable dust masks, replaceable dust masks, and electric fan-type respirators.

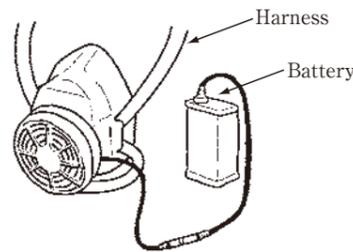
Choose a dust mask considering the type of dust, work content, etc.



Example of a disposable dust mask



Example of a dust mask



Example of a respirator with an electric fan

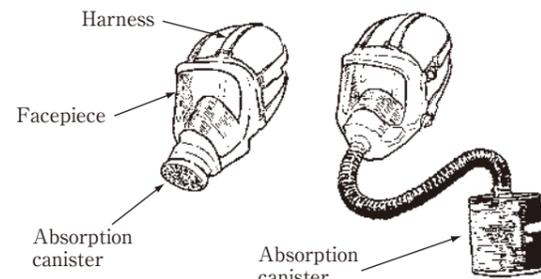
#### [Precautions for use]

- ① Do not use where the oxygen concentration is less than 18%.
- ② Do not use in areas with toxic gas.
- ③ Replace dirty filters.
- ④ Do not use deformed or damaged items.
- ⑤ For disposable types, observe the specified usage time limit.
- ⑥ Disposable items should not be washed and reused.
- ⑦ Use it tightly on your face. Do not use a mask with anything, such as a towel, sandwiched between it.

#### (2) Gas masks

Gas masks are designed to purify the air containing toxic gases using an absorbent canister.

Before use, check the breakthrough time (time until detoxification ability is lost) of the canister and confirm that it has detoxification ability before use.



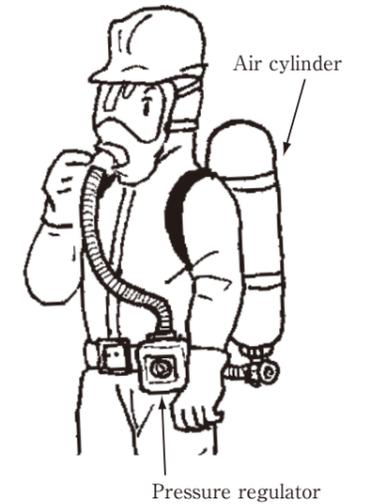
Example of gas mask

#### [Precautions for use]

- ① Do not use where the oxygen concentration is less than 18%.
- ② Confirm that the concentration of toxic gas in the work area is below the operating limit.
- ③ Use an absorption canister appropriate for the type of gas.
- ④ After putting on the mask, check that it is tight to your face.
- ⑤ Perform a proper inspection beforehand and take good care after use.

#### (3) Air breathing apparatus, etc.

Since they supply fresh air, they can be used even in oxygen-deficient environments, and there are various types such as air respirators and hose masks.



Example of an air breathing apparatus

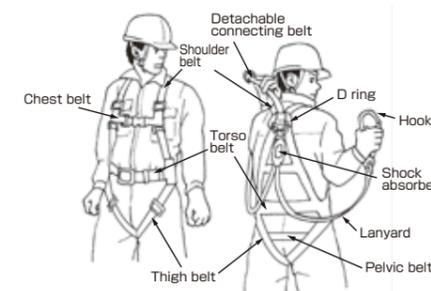
#### [Precautions for use]

- ① When using the mask, keep it close to your face. Do not use a mask with anything, such as a towel, sandwiched between it. Be careful if you have a thick beard, as harmful gases from outside can enter through the gaps.
- ② Before use, check the specified items.
- ③ Check the prescribed usage time. However, please be careful as the usable time varies depending on the amount of breathing during use.
- ④ When using a hose mask (air supply mask), place a supervisor, etc. at the point where the air is supplied.

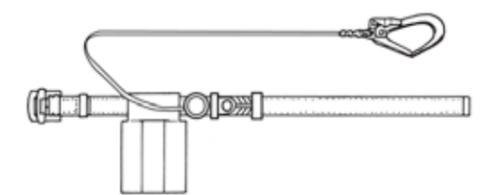
### 2) Safety belt

Always use a safety belt when working on elevated work floors, areas without handrails, or other designated areas.

There are two types of safety belts: "full harness type" and "torso belt type." Use a safety belt appropriate for the work at the construction site and the height of the work area.



Example of a full harness type safety belt



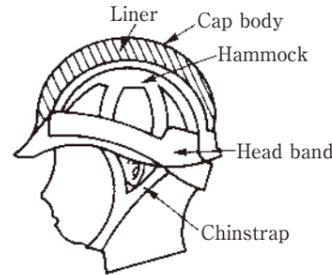
Example of a torso belt type safety belt

**[Precautions for use]**

- ① Use a safety belt that can withstand the total weight of the wearer and the weight of his/her equipment.
- ② When wearing a safety belt, make sure that you have all the necessary parts for safety, and make sure to wear it securely and not loosely.
- ③ Hook the safety belt in the correct position and in the correct way.

**3) Hard hat (helmet)**

Head injuries can be fatal. To protect your head, be sure to follow the instructions and wear the hard hat correctly. Choose the appropriate protective helmet for your work, including for flying/falling objects, for fall protection, and for electricity (working voltage 7000V or less).



Examples of hard hats

**[Precautions for use]**

- ① Adjust the headband and chinstrap to fit your head properly.
- ② Wear so that the chinstrap is not loose.
- ③ Make sure your ears are in the V-shaped part of the chinstrap and wear it correctly.
- ④ Do not wear a hard hat with a towel, baseball cap, etc. on your head.
- ⑤ If the hammock or headband gets dirty, replace it with a new one.

**4) Safety boots**

Select and use safety boots that are suitable for the job. Safety boots are designed to protect workers' feet from falling heavy objects or nails, etc. Safety boots include, for example, shoes for work at heights, welding work, demolition work (to prevent tripping), and acid/alkali work.



Safety boots

**[Precautions for use]**

- ① When there is a risk of tripping during waste disposal work, etc., use safety boots with a tripping prevention function.
- ② Regular safety boots (with non-slip synthetic rubber soles) are suitable for working in areas with a lot of chips and oil.
- ③ Tighten your shoelaces properly.
- ④ Care for your boots once a week. Inspect for nails, glass, etc., and for scratches, fraying, or tears, and replace items that are severely damaged.

**5) Safety glasses**

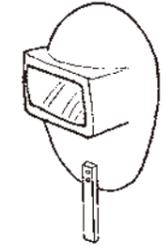
In order to protect your eyes from flying objects, dust, and harmful rays during building demolition work, chisel work, grinder work, welding work, etc., use “safety glasses” and “shielding glasses” that are appropriate for the work.



Example of safety glasses



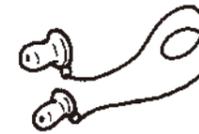
Example of shielding glasses



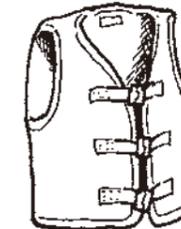
Example of welding light blocking surface

**6) Other protective equipment (examples)**

Use protective equipment correctly depending on the work location and work content.



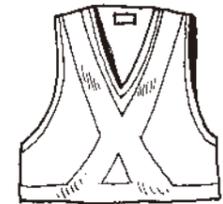
Earplugs



Life jacket



Gloves



Reflective vest

**7) Safety and health signs used at construction sites (example)**

At the site, signs are posted at dangerous areas and areas where rules have been decided upon by everyone. Please understand the meaning of the signs and follow them.



List of JCOSHA uniform safety signs



JCOSHA uniform safety sign website



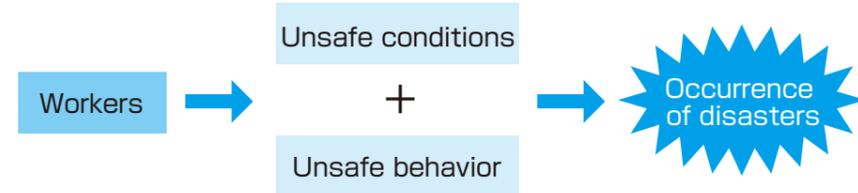
Examples of foreign language markings

This is an example of a foreign language sign written in 5 languages in addition to Japanese to accommodate foreign workers.

## Reference materials

### I Occurrence of industrial accidents

Occupational accidents occur due to the “unsafe condition” of machinery and equipment and the “unsafe actions” of people.

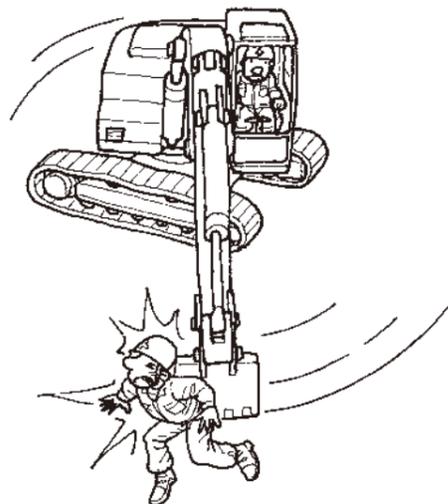


Recently, occupational accidents caused by unsafe behavior, especially human mistakes and errors, have become more prominent. Examples include “working in an unreasonable position,” mistakes such as “operation errors,” “entering dangerous places,” and “unsafe clothing or not using protective equipment.”

#### [Disasters due to human error]

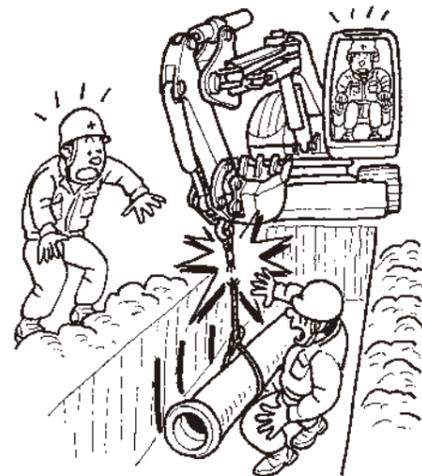
##### 1. Misjudgment due to ignorance or lack of experience (Ignorance, inexperience, unfamiliarity)

- ◆ A new visitor entered a restricted area without knowing the situation at the site and got caught in the backhoe. (New entrants should be especially careful.)



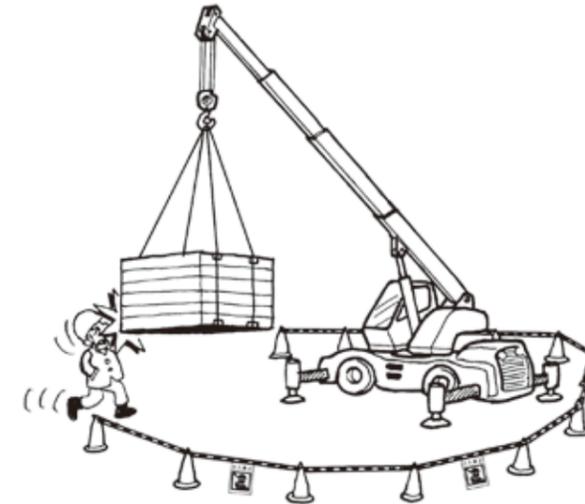
##### 2. It's okay, I'm fine (Neglecting danger, getting used to it)

- ◆ When attempting to lower a fume pipe with a backhoe (using it in a manner other than its intended use), the slinging wire snapped and struck a worker working nearby.



##### 3. Carelessness, absentmindedness (Inadvertent)

- ◆ I was careless and stepped under a load, and the load that was being lowered hit me.



##### 4. Troublesome, hindrance (Shortcuts, acts of omission)

- ◆ Instead of using a ladder, I jumped from a nearby low place and sprained my leg.



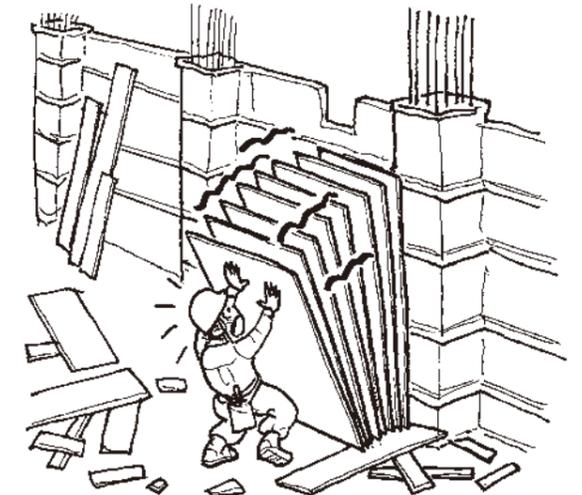
##### 5. When you concentrate on one thing, you can't see your surroundings (situational behavior)

- ◆ While assembling scaffolding, I slipped and almost fell while tightening it with the spanner, so I tried to grab it in a hurry and fell off the scaffolding.



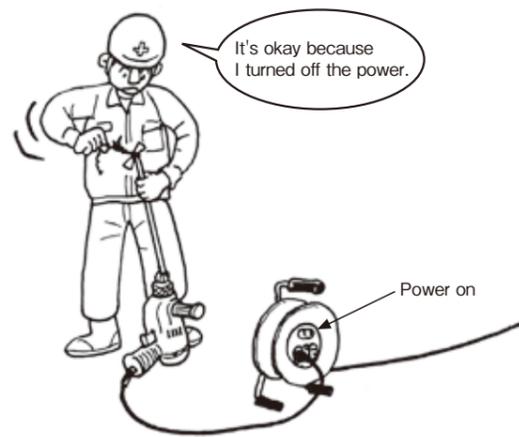
##### 6. Get panicked (Panic)

- ◆ The formwork material I had temporarily set up was about to topple over, and I immediately tried to hold it down but ended up getting pinned down.



### 7. Misunderstanding, assumptions (Perception)

◆ A foreign object got stuck in the rotating part of my electric stirrer and it stopped moving, and when I tried to remove the foreign object, I thought that the power was cut off (perception), and the moment I removed the foreign object, the stirring part started rotating and my finger was cut off. I was injured.



### 8. Delayed reaction due to age (Decrease in physical function of elderly people)

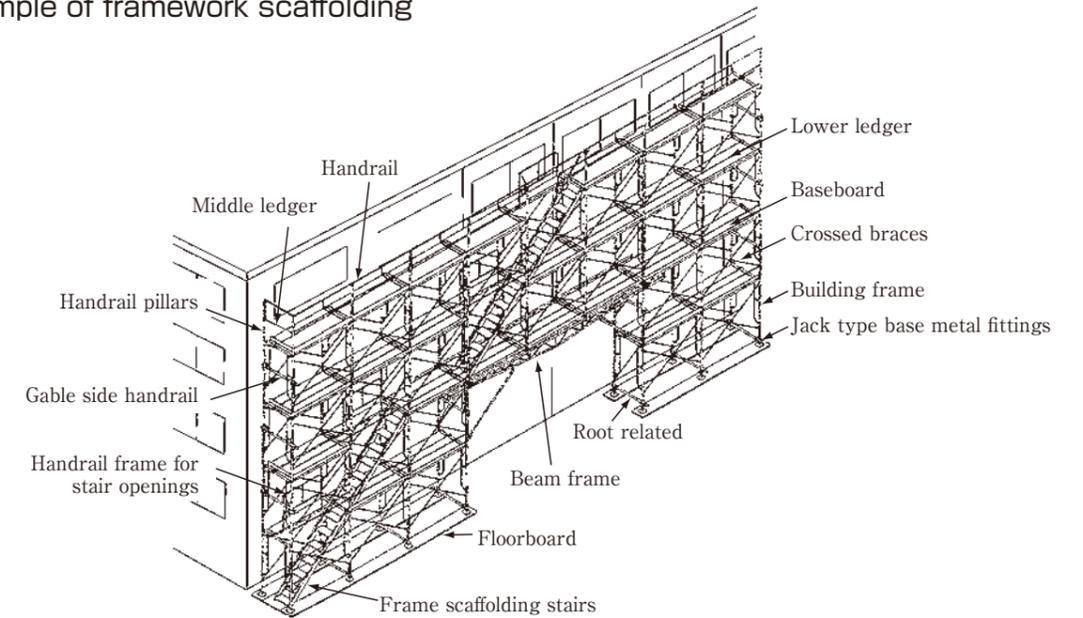
◆ While carrying leftover materials, I tripped over a step in the aisle and fell.



## II Names of construction equipment and tools commonly used at construction sites

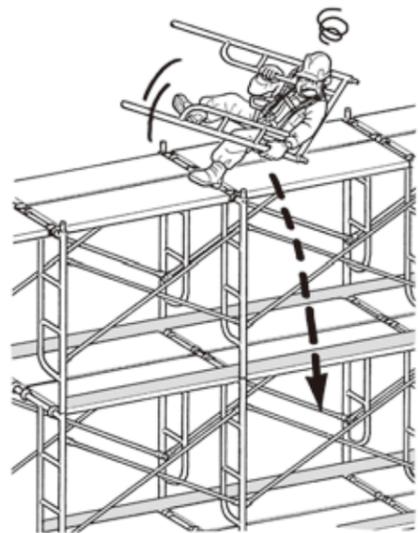
### Scaffolding names you should know

Example of framework scaffolding



### 9. Fatigue/illness/worries

◆ Because I was tired, I felt dizzy and fell off the scaffolding.

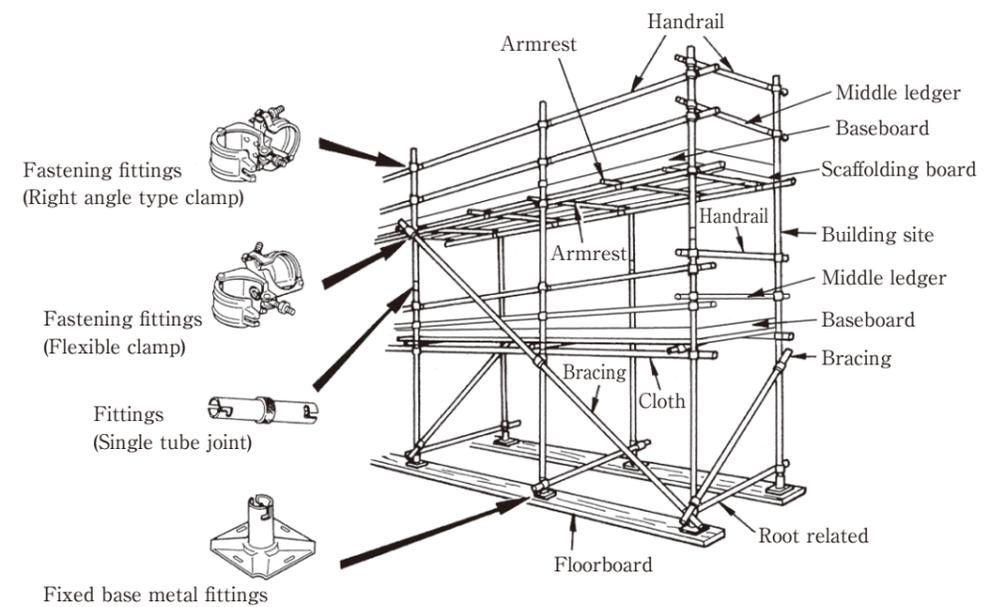


### 10. Deterioration of consciousness due to monotonous work

◆ As I was repeatedly hammering nails, I couldn't help but tap my fingers out of the monotonous rhythm.

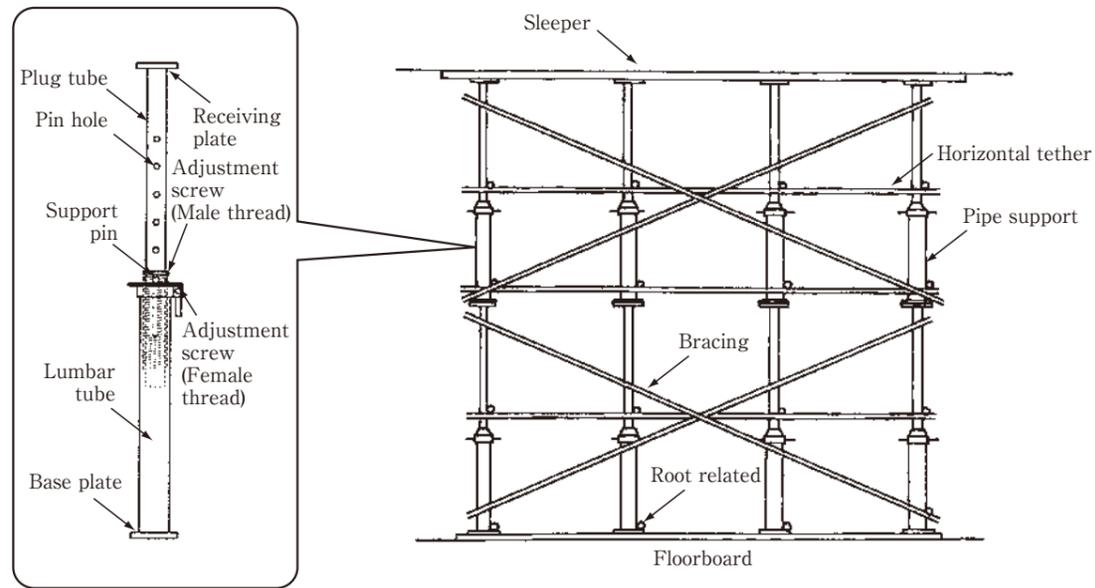


Example of framework scaffolding

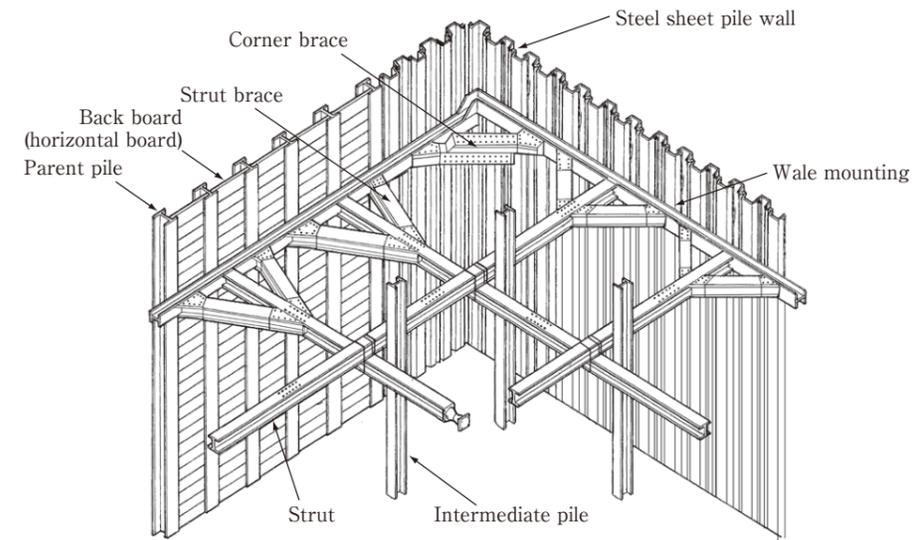


Names of formwork shoring that you should know

Example of pipe support types

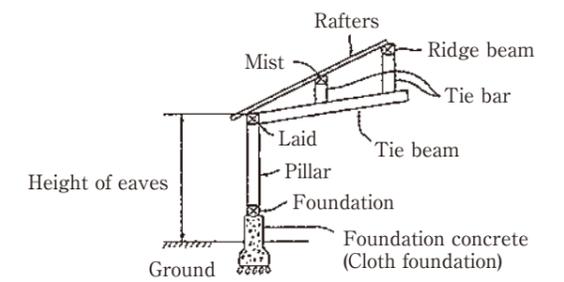
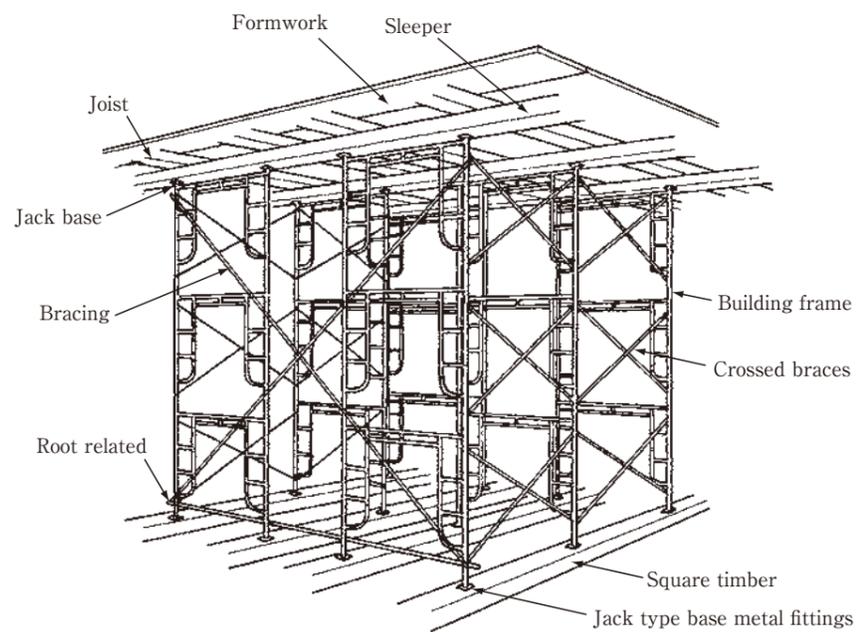


Names of earth shoring that you should know

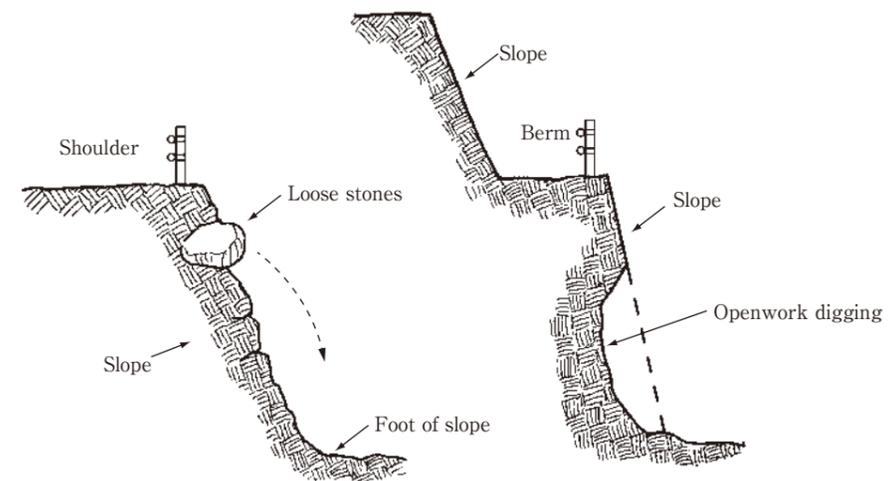


Names of wooden buildings you should know

Framework example

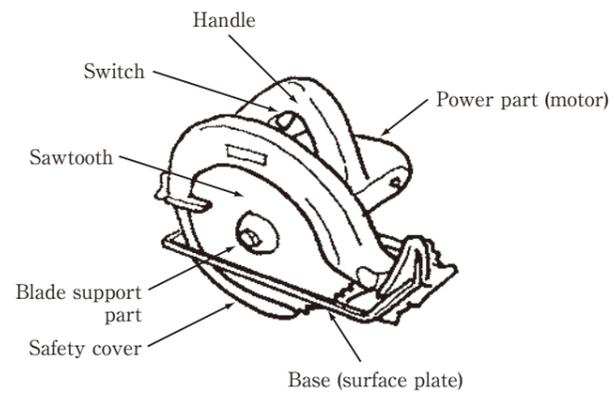


Names of light excavation that you should know

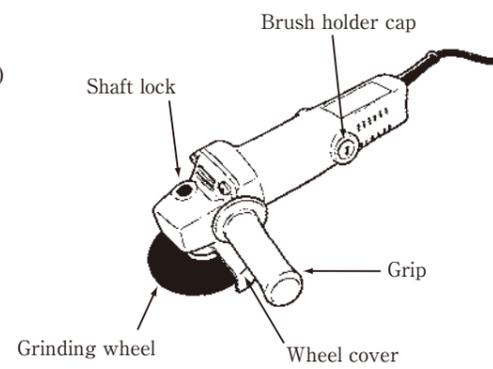


Names of power tools you should know

[Portable circular saw]

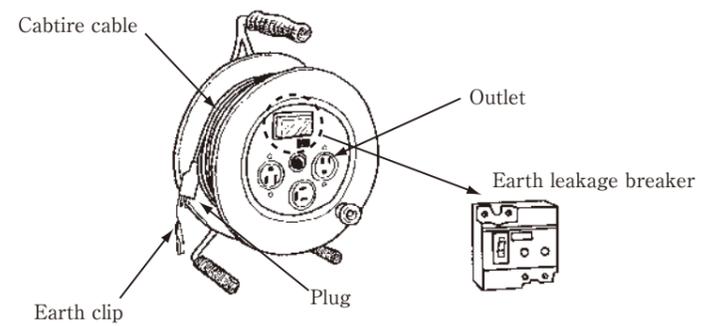


[Disc grinder]

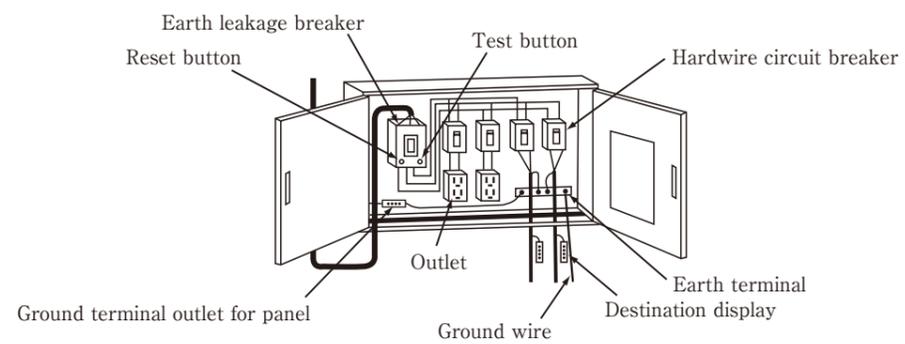


Names of electrical equipment you should know

[Electric Drum]



[Distribution board]



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