



Welcome to Japan !

To those of you set to work at shipyards or factories in Japan

Training materials for foreign workers to
secure a healthy and safe work environment

2020.3

National Headquarters for the Promotion of Safety and Health in Shipbuilding

Introduction

Hello, everyone.

We created this brochure so that you can work safely in a shipyard or a factory in Japan, without any injuries.

In Japan, there are many people like you who have come from another country to master a job. The most important thing one must do to acquire skills and feel comfortable in the day-to-day life in an unfamiliar environment, is to not be injured and avoid encountering accidents and disasters. Please use this brochure effectively to protect your safety and health.

We hope your time in Japan becomes a priceless experience for you.

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Safety begins with Seiri, Seiton, Seisou, Seiketsu, Shitsuke



The **5S** method -For a clean environment for safe working -

To protect your health and safety, it is important to maintain a clean workplace. The 5S method allows you to be constantly aware of the five key points which start with S, to create a clean workplace together.

Organize

Seiri

Sort out what is necessary and what is not, and remove unnecessary items.



Tidy

Seiton

Tidy up the necessary items in the set place, making it easier to use when needed.



Clean

Seisou

Keep your workplace free of trash and dirt.

Scrub

Seiketsu

Keep your workplace organized, tidy and clean at all times.

Discipline

Shitsuke

On top of being organized, tidy, clean and sanitary, you should learn to respect rules and regulations.



"Safety at work: Welding"



1 : Clothing and gear for welding workers

Welding is a process where metal pieces are melted with heat and joined together. Please be very careful to avoid incidents like a burn or fire, as the process uses fire.

■ Welding workwear

Make sure you wear flame resistant work clothes and fasten all buttons to avoid skin exposure.



■ Undergarments (Cotton)

Wear cotton undergarments. (Undergarments made of synthetic fibers are dangerous as they melt and stick to the skin when they burn.)

■ Safety footwear

Wear flame resistant leather safety footwear. To protect the whole foot in case an object falls on it or something heavy squeezes it, wear instep protectors.



■ Safety gaiters

Always wrap your trouser legs with gaiters so the pants hems don't get caught in something or sucked into something.



■ Ear plugs

Wear ear plugs. Factories can be very loud.



■ Dust-proof masks

Always wear a dust-proof mask. The toxic fumes that arise from welding can cause pneumoconiosis.



■ Helmets

Always wear a helmet to protect your head. Fasten the headband and the chin strap properly.



■ Shading glasses

Always wear shading glasses or use a face shield. The surface of your eyes can suffer inflammation if you keep looking at the welding flame with the naked eye.



■ Safety goggles

During a grinding or cutting process such as when using a grinder, always wear safety goggles to prevent flying debris from entering your eyes.



■ Fire resistant hood

To stop sparks from entering your collar, wear a fire resistant hood, then a helmet.



■ Arm gloves

Always wear arm gloves for overhead welding. Sparks will fall on your arms and your workwear, causing burns.



■ Leather safety gloves

Always wear leather safety gloves when welding. (With bare hands or fabric gloves, your hands may be burnt by flying sparks.)



■ Personal Fall Arrest Systems equipment

Always wear Personal Fall Arrest Systems equipment when working at heights. Make sure all buckles are securely fastened.



2 : Preparing to weld

■ Predicting danger (KY)

Before welding, carry out a danger prediction, or "Kiken Yochi," to check if there are any dangers around you, such as the points listed below.

- ☐ Are there corner guards on the edges of a block?
- ☐ Is there a risk of falling from openings?
- ☐ Is there anything nearby that the welding flame might set fire to?
- ☐ Are there any spray cans that might explode due to heat?
- ☐ Is there any source of fire? Is there a fire extinguisher?
- ☐ Is the ban on sources of fire enforced?



■ Wiring cabtyres

When wiring a cabtyre of the welding machine, make sure the cable doesn't obstruct other workers. Cabtyres and electrical cords can make workers accidentally trip and cause further accidents.



- When using long electric cords or hoses, wire them overhead where possible, using designated wiring tools such as arch hangers.
- For overhead wiring make sure the cables are above a certain height to avoid them wrapping around people's necks.
- When there is no choice but to lay out cables on the floor, put the cables together by using wiring tools such as a wiring tray.



3 : Possible hazards in welding

■ Risks of falling

There is the risk of falling when welding is carried out at a height, because a face shield will restrict your vision. Personal Fall Arrest Systems equipment must be worn at all times. Make sure you take the safety precautions required for specific situations. For example, if you are working on the edge of the block, attach a clamp on the wall so you can use it to hang the Personal Fall Arrest Systems equipment.



■ Electric shocks

Human bodies conduct electricity, so you will experience an electric shock if you grab a welding rod with bare hands. Electric shock is dangerous, as it can cause muscles to stiffen, paralysis of the body and even death. Always use dry leather gloves (wet gloves can cause an electric shock) when handling a welding rod. When switching on an arc welding machine, always check the status of the electric shock protector and make sure it is grounded.



■ Burning

During welding, there is a danger that the workwear will catch fire and cause burns. Check the position of fire extinguishers and prepare water for firefighting when welding.



■ Working below cranes

It is dangerous to be below a crane, as you may come into contact with the crane's load, for example. When you hear a siren signaling that the crane is about to move, check where the crane is, and if it is likely to pass above you, stop work and evacuate. In addition, if there are colleagues working around you, let them know of the danger.



4 : Cleaning up after welding

■ Turning the power off and removing the ground wire

Tidy up each time you complete a process. Make it a habit to tidy up as you go along. When tidying up after a process, be careful not to let the torch or the holder touch a steel sheet, as this can cause sparks. Turn the power off properly and remove the ground wire at the same time.



■ Collecting the cabtyres

Coil the cabtyre, ground wire, electric cable etc. neatly and organize them so they are ready to be used again.



■ Cleaning

After welding, clean up debris e.g. slag. Prepare designated broom, dustpan and garbage can etc. to make this easier. Sort out the trash into industrial waste, recyclable materials etc. and dispose of them into designated collection bins.



COLUMN-01 Burns caused by fire

Make sure you wear clothing designed for welding made of flame resistant materials. Flame resistant materials are special materials that are resistant to catching fire even if they are exposed to sparks or flames. Flammable materials normally used for clothing catch fire readily, so there is a high risk of serious burns and therefore it is highly recommended that you wear flame resistant work wear.

Human skin will burn (i.e. the skin tissues will be destroyed), even with a one-second exposure to 70 degrees Celsius heat. The severity of burns varies from first to third degree, depending on the location of the burn and the extent of skin damage. Generally, if over 30% of your body suffers second or third degree burns, it will affect your whole body and in the worst-case

scenario, lead to death.

During welding, in addition to ensuring that no skin is exposed, wear cotton undergarment (which is less likely to stick to skin even if it burns) and always wear welding workwear made of flame resistant materials to avoid burns caused by your clothing catching fire.



"Safety at Work : Painting"



1 : Clothing and gear for painting workers

Painting uses paints with organic solvents. Organic solvents emit toxic and highly flammable fumes, and can cause poisoning or an explosion. Wear appropriate protective clothing and gear to work safely.

■ Painting work clothes

Do up all zippers and buttons so your skin is not exposed, in order to prevent paint attaching to your body.



■ Safety footwear for painting

Wear footwear with slip-resistant soles for painting jobs. Make sure your pants hems are cinched to avoid them being sucked into something or getting caught.



■ Personal Fall Arrest Systems equipment

Always wear Personal Fall Arrest Systems equipment when working at a height. Make sure all buckles are securely fastened.



■ Antigas masks

Always wear an antigas mask when painting. Check the tightness of the fit using a fit-checker once you have put it on.



■ Helmets

Always wear a helmet to protect your head. Fasten the headband and the chin strap properly.



■ Ventilators

For paint jobs which require fresh air to be supplied directly to the mouth and nose, wear a ventilator.



■ Ear plugs

Wear ear plugs. Factories can be very loud.



■ Safety goggles

During polishing processes, always wear safety goggles to prevent flying metal particles and pieces from entering your eyes.



■ Gloves

Always wear gloves to prevent injury. Airless paint sprayers eject paint at a pressure that can penetrate your body.



2 : Preparing to paint

■ Predicting Danger (KY)

Before painting, carry out a danger prediction, or "Kiken Yochi," to check if there are any dangers around you, such as the points listed below.

- Are scaffolds installed for a location that requires working at a height?
- Is there fencing that prohibits access to areas where paints are used?
- Is it clearly labeled as "No entry"?
- Is there a fire extinguisher?
- Is the ban on sources of fire enforced?
- Is the name of the operational leader clearly displayed as prescribed by law?



■ Wiring air hoses

Connect the air hoses securely to avoid air leakage. When wiring them along a passage in the operational area, use overhead wiring, trays etc. to avoid obstructing other users.



■ Checking hoses

Always inspect the hoses connected to the airless paint sprayers. Make sure there are no holes or cracks, and that the connection parts are tightly sealed. Paint sprayed at high pressure is very dangerous, as it can penetrate a human body.



■ Attaching a spray gun

When attaching a spray gun to a hose, check it the way you checked the hose, and tighten it securely to avoid paint from leaking at high pressure.



■ Installing steps

Prepare steps that are stable and fix them so that they don't wobble or slip when you use them.



3 : Possible hazards in painting

■ Explosions

If you carry out spraying without grounding the airless paint sprayer, highly flammable organic solvents can explode even with a static electricity spark. Make sure the machine is grounded to avoid static electricity.



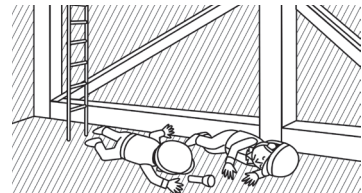
■ Fine particles

Always wear safety goggles when using a sander on surfaces to be sprayed, to avoid particles entering your eyes.



■ Oxygen deprivation

During painting, there is a risk of being poisoned by organic solvents, and of oxygen deprivation due to low oxygen levels if you work in a confined space.



Set up a ventilator and make sure the area is well-ventilated. In addition, before you work in a confined or closed-off area, always take a gas measurement.

4 : Cleaning up after painting

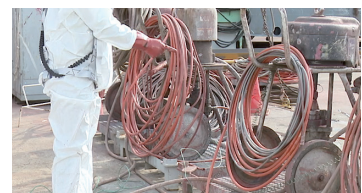
■ Safety mechanism on spray guns

Tidy up each time you complete a process. Make it a habit to tidy up as you go along. As soon as you finish working, put the stopper on the spray gun.



■ Tidying up the hose

Coil the hose neatly, while checking its condition, and organize it so it is ready to be used again.



■ Flushing with paint thinners

Flush residual paint inside the hose with a paint thinner. Paint thinners are volatile so keep your mask on for this process.



Preventing slipping and falling –the most common incidents



Working safely at heights

The most common accidents seen in the Japanese shipbuilding industry are slipping and falling from heights. Make sure you follow the precautions for working at heights and prevent risks of slipping and falling.



■ How to use Personal Fall Arrest Systems equipment

When working near a handrail on a block, attach the hook of the Personal Fall Arrest Systems equipment to it. When there is nowhere to attach it, set up a carrier cable and use that to attach the hook. On the edge of a block at less than two meters in height with no handrail, you can also attach a clamp to attach the hook. (Falling accidents from this height are not uncommon.)



■ Enforcing the "three-point touch" rule when ascending and descending

When you go up and down a vertical ladder, make sure you follow the three-point touch rule. It will take a bit of time, but it is a useful method to prevent falling off a vertical ladder. Learn the rule and follow it.



■ Enforcing the use of a load-lifting rope

Use a load-lifting rope when lifting tools or parts to height. It is highly dangerous to carry something in your hand, as it means that you cannot follow the three-point touch rule.



■ The scaffold's weight limit

Each scaffold has a weight limit. Do not exceed the displayed weight. When preparing for construction, do not put too much on the plank and make sure to include your body weight in the total amount.



■ Enforcing entry restrictions and ban on working on top of each other

When working at a height, do not allow entry to the area below you, as fallen parts or tools may cause injury to people below. Fence off the area and give clear instructions.



■ Handling of vehicles for works at heights

Buckets have weight limits. Be careful not to exceed the weight limit by overloading with parts or people. There

have been serious incidents where the operator did not notice an overhead object such as a ceiling, lifted the bucket too high, and a person was crushed to death. Always equip a head guard.



■ Checking before operations

Always carry out a check before any operation. Rotate all around the vehicle to check for abnormalities, and operate the vehicle from the side before boarding, to check for abnormal behaviors. It is also important to record everything on the maintenance log.



■ Checking water for fire

Prepare water for extinguishing fire with, not only near the engine, but inside the bucket. In case there is a fire within the bucket, the worker will carry out the initial firefighting.



■ Checking the Personal Fall Arrest Systems equipment

The first thing you do after boarding the vehicle is to attach the Personal Fall Arrest Systems equipment. It should be clipped onto somewhere higher than your waist, such as a head guard.



COLUMN-02

Dangers of going in "double directions"

Going in "double directions," where you ascend and circle the bucket at the same time, is extremely dangerous. This movement will make it difficult for you to spot obstructions, so there is a risk of crashing into a block or a crane. This may result in the worker falling off the bucket due to the impact of the crash. Operate the platform carefully, one direction at a time, ensuring safety.



Keep calm and swiftly call for your colleagues!



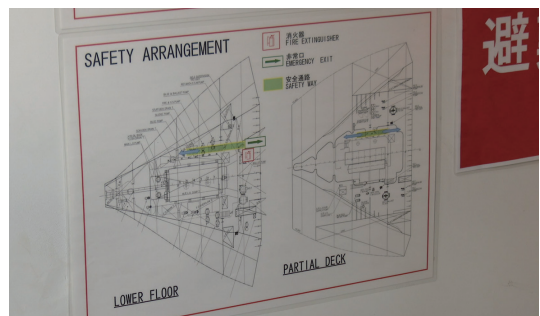
How to deal with an emergency

No matter how careful you are, unexpected emergencies can arise. You should know what to do in such rare eventualities, to remain calm.

If you are injured, do not ignore the injury. Swiftly and loudly let your colleagues know and ask for help. If your colleague is injured, you will also call for help loudly for him/her. In an emergency, it is important to let everyone know about it.

For example, if there is a fire, let the others know by shouting, and engage in the initial firefighting together. If the fire, however, is too big to be fought with firefighting water or fire extinguishers, swiftly evacuate to the designated place. Human lives are the top priority at any time. To protect people's lives, know where AED units are and how to use them.

In the event of natural disasters such as earthquake, typhoon, tsunami or flooding, follow the team leader or the foreman's instructions and swiftly evacuate to protect your life. It is also important to keep a note of where the evacuation site is and what the evacuation route is. You and your colleagues in the same workplace should cooperate and save each other's lives.



Enjoy working with a healthy body and mind !

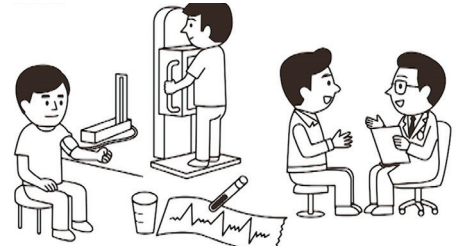


Remember to care for your body and mind

For those of you who live far away from your country and families, nothing is more important than "staying healthy." Make sure you look after your own health to maintain a healthy condition at all times.

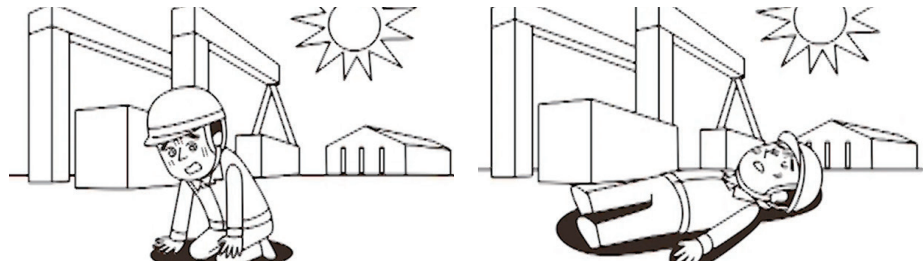
■ Health checks for healthy bodies

In Japan, you will take regular physical examinations, which is a good opportunity for you to find out about your own health status. Always go for your examination.



■ Danger of heatstrokes

Japanese summers are hot and humid, and many people suffer from heatstrokes. If you feel symptoms that may be due to a heatstroke, such



as high body temperature or a headache, do not push yourself and take a break. Tell your colleagues and your boss about your symptoms and take appropriate measures such as drinking water. Remember, heatstrokes can lead to death a short time after occurring.

■ The importance of mental health

To be able to enjoy work and be enthusiastic, mental health is just as important as physical health. There are many people working with you, and you may find it to be more difficult to get on with some people than others. You should never bottle it up inside you, but talk to your colleagues, team leader or foreman who you can trust, certainly if you are a victim of violence or bullying, but also if there is anything that is worrying or bothering you.



Symptoms that may be due to a heatstroke

- High body temperature
- Red, hot, and dry skin
(with no sweat, high surface temperature)
- A throbbing headache
- Dizziness/nausea
- Hazy consciousness (abnormal or no response)



■ Stress can consume your mind before you know it

As well as health checks, we will also assess your stress level while you are in Japan. The stress-check is to see how healthy the work environment is.

■ Receive counseling from an industrial physician about body and mind

There is an industrial physician in your workplace who will give you counseling when necessary. You can consult the physician about not only physical but also mental health issues, so visit the physician if you have any worries.

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