This commitment is strongly endorsed by the Board of Directors of the World Steel Association (worldsteel) and is accompanied by a set of six principles.

Six safety and health principles for the steel industry:

1. All injuries and work-related illness can and must be prevented.
2. Management is responsible and accountable for safety and health performance.
3. Employee engagement and training is essential.
4. Working safely is a condition of employment.
5. Excellence in safety and health supports excellent business results.
6. Safety and health must be integrated in all business management processes.

The Board believes that clearly-defined principles will result in an enhanced safety and health culture, as well as improved business results across the industry.

Through the adoption of the principles by the leaders of the member organisations, worldsteel and its members demonstrate their commitment to an injury-free and healthy workplace.

The principles are based on the experience, knowledge, company policies and values of worldsteel members.
The industry is committed to the goal of an injury-free and healthy workplace. The aim is to achieve excellence in safety and health practices.

The safety and health of our people is our core value and must not be compromised in the face of other business issues. This applies to everyone involved in the industry, be they business leaders, employees, service providers (contractors) or others such as suppliers, customers and visitors.

Individual companies have different goals and procedures. The principles should be adapted to meet differing cultural, social and corporate environments.

Is safety and health the highest priority in your company? Is this reflected in your mission statement and daily actions?
PRINCIPLE 1

All injuries and work-related illness can and must be prevented.

Injuries and occupational illnesses must not be considered a normal part of our industry.

Everything must be done, consistent with world-class practices, to prevent injuries and occupational illnesses as part of our ‘duty of care’ in managing our organisations.

Injuries and occupational illnesses must not be considered a normal part of our industry. Everyone has a responsibility to prevent injuries and illnesses; it is only by working together that we will achieve a safe and healthy workplace.

Investigating incidents (with or without injury) and learning from the results will help prevent the recurrence of such events. Knowledge from the lessons learnt will help the whole industry to protect people and avoid situations that threaten safety or health.

Risk assessment

All hazards should be risk assessed to determine what kinds of injury or illness they could cause. There are many ways to conduct a risk assessment. In the book “Safety and health in the iron and steel industry”, published by the International Labour Office (ilo.org), you will find explanations about hazard identification, risk assessment and control.

worldsteel offers member companies the opportunity to share incident reports on its Safety Forum. The Safety Forum is a password protected online tool accessible via the worldsteel extranet. The reports include information on the cause of the incident and key learnings, and thus enable others to prevent recurrence. All employees of worldsteel member companies can have access to the tool.

Implement a safety and health management system that includes risk assessment and hazard identification and control to prevent injuries and illnesses.
PRINCIPLE 2

Managers are responsible and accountable for safety and health performance.

If the leaders do not visibly change their behaviour, nothing will change.

Every manager from company executives to front-line leaders are responsible and accountable for safety and health.

It is essential that managers support safety and health initiatives in a consistent way on a daily basis. It lends credibility and thoughtfulness to every task, big or small. By leading the initiatives consistently, managers demonstrate their leadership and commitment.

If the leaders do not visibly change their behaviour, nothing will change. Managers should set priorities, establish goals and seek and provide resources for safety and health matters, and they should lead them. This active involvement shows that there is a genuine desire to succeed.

It is important to note that this principle does not contradict the later principle stating that working safely is a condition of employment. All employees are responsible for their personal safety and that of co-workers, and must comply with all relevant safety and health rules.

Include safety and health results in performance assessments and other career advancement decisions.
Employee engagement and training is essential.

PRINCIPLE 3

Engaged and empowered employees will choose to work safely for themselves as well as for others (shared vigilance).

Everyone must be involved in a meaningful way, on a daily basis, to support injury and occupational illness prevention. Through constant exposure to safe practices, people will develop behaviour that ensures each task is performed safely.

Engaged and empowered employees will choose to work safely themselves and ensure others do as well. They will also feel comfortable to contribute their ideas for safety and health improvement. Involvement and recognition of the employee will promote good safety and health results.

Training is an essential part of an effective safety and health system. Employees must know how to keep themselves and those around them safe.

All employees must undertake the necessary training and acquire the skills and tools to do their job safely. Employees need to show a willingness to be trained and must apply their acquired knowledge and skills. With the right training, each person can perform independent job risk assessments.

Provide your employees with adequate training to protect themselves and their colleagues.

Talk to your employees about safe and healthy ways of working every day. Are they aware of the inherent dangers associated with their jobs?
Every employee is empowered to stop any work or process if they believe it to be unsafe or unhealthy.

By making adherence to safe work practices a condition of employment, we foster the importance of safety and health in the workplace.

It is the responsibility of every employee to understand and comply with all relevant safety and health rules and safe work practices. Each individual employee must take personal responsibility for their own safety and health.

Upon arriving at work, and while at work, employees must be in a condition that will allow them to work safely.

Everyone must be aware of the hazards and risks involved with their work. Encourage each person to think through their tasks and to take steps to identify and eliminate any risks.

Every employee is empowered to stop any work or process if they believe it to be unsafe or unhealthy. For many companies, there could be a substantial cultural barrier to such an action. It is a management responsibility to make sure that employees feel empowered and confident to take such a step.

Does everyone on your site work safely? What are the consequences if they do not?
Caring about the well-being of our people is the essence of successful leadership. Good safety and health is good business and has a positive impact on employees. Engaging people in safety and health discipline also contributes to improved business results.

Prevention of injuries and occupational illnesses creates a competitive advantage by having our most valuable resource – our people – at work. All resources are jeopardised by workplace incidents, which result in production losses and downtime for investigations. The costs of incidents (with or without injuries) and occupational illnesses undermine competitiveness.

Excellence in occupational safety and health and process safety contributes to the zero-harm objective and prevents catastrophes that can lead to business disruptions.

To invest in safety and health is to improve productivity and performance.

Excellent safety systems form part of excellent management systems.

A robust safety management system will help managers to reduce loss through incident prevention.

Loss can include:

- Loss of man hours
- Loss of production time
- Loss of process stability
- Loss of plant or equipment
- Loss of product
- Loss of shareholder confidence.

Do you strive for excellence? Is your organisation a high reliability organisation?
Safety and health is integrated into all business management processes.

Bring safety and health to the forefront of all your business decisions and processes.

Safety and health should be included in all new and existing business processes, for example, managing assets, production, projects and administration. It should be reassessed before any changes are applied.

When safety and health are consistently brought to the forefront of business decisions and processes, people develop an appreciation for the importance of the topic. People understand what is expected of them and have the knowledge to work safely.

Before decisions are made, make an assessment of the safety and health implications. Involve different levels of people to ensure a thorough appraisal.
Employees and contractors

Company employee (employee)
A person who is on the payroll of the member company, e.g. has an employee number that identifies that person as a company employee and who is directly supervised by a company representative. Temporary or agency workers hired directly by the company are to be considered as employees if the company has primary responsibility for supervising their activities.

Contract employee (contractor)
An individual supplied by an external company (contractor, sub-contractor, consultant, or vendor) on a full or part-time basis and who is providing a service (production, maintenance, or administrative support) to the member. The contractor’s safety, health and well-being are primarily supervised by the external contractor’s supervisor or manager. He is paid by the external company directly. The external company presents an invoice for the contract for service to the member company.

Visitor
Anyone on the company premises other than a company employee or contractor. Injuries to a visitor will be included as a company employee since the company has the duty of care and direct safety supervision. If hours visited can be added to the calculation for frequency purposes, then please include them.

Types of incidents

Fatality (F)
Death from a work-related injury, certified by a medical professional. Fatality Frequency Rate (FFR) is calculated on the number of fatalities per million man hours.

Clear definitions and calculation methodologies ensure the industry is applying a common standard and metric.
Lost Time Injury (LTI)
Any work-related injury, resulting in the company, contractor or third party contractor employee not being able to return to work for their next scheduled work period. Returning to work with work restrictions does not constitute a lost time injury status, no matter how minimal or severe the restrictions, provided it is at the employee’s next scheduled shift. Lost Time Injury Frequency Rate (LTIFR) is calculated as number of Lost Time Injuries per million man hours.

Restricted Work Case (RWC)
Any work-related injury other than a fatality or a Lost Time Injury where the injured person cannot fulfill his normal work the day following the injury but is able to undertake a temporary job, work at his normal job but not full-time, or work at a permanently assigned job but unable to perform all duties normally assigned to it. If the injury has led to lower productivity or slower work from the worker, the worker is still capable of undertaking all of their routine tasks, then this would not be classified as restricted work.

Medical Treatment Injury (MTI)
Any work-related injury other than a fatality, a Lost Time Injury, or a restricted work case, or a Medical Treatment Injury which is treated by first aid or minor manipulation to provide relief for a strain or bruise. A minor injury does not require treatment by a professionally trained paramedic or physician and does not incur loss of work time other than time of the shift on which it occurred. The injured person continues with his normal scheduled work.

Minor Injury (MI)
Any work-related injury other than a fatality, a Lost Time Injury, a restricted work case, or a Medical Treatment Injury which is treated by first aid or minor manipulation to provide relief for a strain or bruise. A minor injury does not require treatment by a professionally trained paramedic or physician and does not incur loss of work time other than time of the shift on which it occurred. The injured person continues with his normal scheduled work.

Unsafe act, unsafe situation
• Any action that may endanger a person or people working around him/her.

Examples: When working at heights (on a roof for instance) without using a safety harness or not clipped on; not wearing a seatbelt when driving a vehicle.
• Or any situation judged as being such that, sooner or later, it may lead to a risk of an incident inflicting harm to one or more persons.

Examples: Slight cut in a finger treated in the infirmary; check-up in hospital by X-ray following a contusion and no crack or break is found.

Near miss incident
An incident that physically occurred but there was no personal injury to the employee, contractor or visitor but which could have resulted in a serious injury and needs to be followed up in the same way as a Lost Time Injury but recorded as a near miss.

Example: Operator finds a heavy bolt on the floor next to his operating station likely coming from an overhead crane or roof structure.

DEFINITIONS
Strains and sprains while performing work-related activities such as strenuous lifting and pulling. In summary, those injuries in which corrective action(s) can be identified and can be taken to improve upon the work being done at the time of the injury. (This point is the key determining factor.)

Work-related' includes attending company-sponsored courses, conferences, business travel, or any other activity where presence is expected by the company. For contractor personnel, ‘work-related’ normally includes only the time spent on company premises.

Injuries occurring in member company car parking lots, walkways, or any other portion of company property.

Exposure (contact with, contacted by, falls, etc.) to workplace conditions that directly result in injury, i.e., slippery floors, falling objects, protruding objects, molten metal, dust, gases.

Examples:

Work-related injuries:

• Exposure (contact with, contacted by, falls, etc.) to workplace conditions that directly result in injury, i.e., slippery floors, falling objects, protruding objects, molten metal, dust, gases.

• Strains and sprains while performing work-related activities such as strenuous lifting and pulling. In summary, those injuries in which corrective action(s) can be identified and can be taken to improve upon the work being done at the time of the injury. (This point is the key determining factor.)

• ‘Work-related’ includes attending company-sponsored courses, conferences, business travel, or any other activity where presence is expected by the company. For contractor personnel, ‘work-related’ normally includes only the time spent on company premises.

• Injuries occurring in member company car parking lots, walkways, or any other portion of company property.

Non-work-related injuries:

• Symptoms arising on member company property or business travel that are the result of other factors, i.e., cold or flu, heart attack.

Voluntary participation in wellness programmes/sports.

Personal grooming, self-medication, self-infliction.

Vehicle incidents/on foot travel to and from work, other than during business travel.

DEFINITIONS

Calculation of frequency rates

Hours worked
For company employees, the total number of hours worked including overtime and training during the period. For contractor employees, the total number of hours worked for the company during the period.

Work-related and non-work-related injuries

Work-related injury
A workplace injury is the direct result of ‘work-related’ activities for which management controls are, or should have been in place, or those occurring during business travel.

Examples:

Work-related injuries:

• Exposure (contact with, contacted by, falls, etc.) to workplace conditions that directly result in injury, i.e., slippery floors, falling objects, protruding objects, molten metal, dust, gases.

Sickness absence

Sickness absence
Absence from work on grounds of incapacity to work due to any sickness, work-related or not, and which could qualify for ‘disability income’. All other cases of absence such as pregnancy, childbirth, leave, training and seminars are not included in the definition of sickness absence.

Commuting accident

Any accident on the public road during trip from home to the workplace or from the workplace back home with any type of vehicle or on foot. Accidents inside the site or during business travel are excluded as they are considered as workplace accidents.

worldsteel recognises that not all companies record commuting accidents because of local legislation and also that not all commuting accidents are the result of measures the company has or has not taken.
Calculation methods of frequency rates

Lost Time Injury Frequency Rate:
Number of (F + LTI) * 1 000 000 / hours worked

Total Recorded Injury Frequency rate:
Number of (F + LTI + RWC + MTI) * 1 000 000 / hours worked

All Injury Frequency Rate:
Number of (F + LTI + RWC + MIT + MI) * 1 000 000 / hours worked

Fatality Frequency rate:
Number of F * 1 000 000 / hours worked

The calculations presented above focus on occupational safety and health; process safety requires separate indicators to track performance in that area.

Safety and health reporting in relation to worldsteel membership

Safety and health reporting in relation to steel production

The data refers to 2017 crude steel production. The unit used is million tonnes (Mt).
The three following areas need to be considered to manage safety and health comprehensively:

**Occupational Safety Management**
Occupational safety management promotes the safety of employees, contractors and visitors by preventing personal injuries in the workplace, and has a strong focus on primary prevention of exposure to hazards.

**Occupational Health Management**
In its widest definition, occupational health management encompasses the physical, mental and social well-being of the people working in the company. The focus is placed on long-term effects on exposure to hazards. The health of workers has several determinants, including risk factors at the workplace leading to cancers, musculoskeletal diseases, respiratory diseases, hearing loss, circulatory diseases, stress related disorders and others.

**Process Safety Management**
Process safety is a blend of engineering, operations and management skills focused on preventing catastrophic accidents, particularly structural collapse, explosions, fires and toxic releases associated with loss of containment of energy or dangerous substances such as toxic gases, molten metal, chemicals and petroleum products.

The manufacturing of steel involves processes with intrinsic hazards that need careful management. The measures needed to control these hazards are often complex. The focus of process safety management is not limited to protecting the people within the company but also includes the environment, assets and surrounding community.

The World Steel Association (worldsteel) is one of the largest and most dynamic industry associations in the world. worldsteel represents over 160 steel producers (including 9 of the world’s 10 largest steel companies), national and regional steel industry associations, and steel research institutes. worldsteel members represent around 85% of world steel production.

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