

## SAFETY AND HEALTH RECOGNITION PROGRAMME 2016



# CONTENTS

<b>Foreword</b>	<b>3</b>
<b>2016 Recognised companies and programmes:</b>	
<b>ARCELORMITTAL - Maturity culture</b> - Luxembourg	<b>4</b>
<b>ARRIUM - Driver Awareness Program</b> - Peru	<b>5</b>
<b>GERDAU - Hydraulic arm for roll shop</b> - Brazil	<b>6</b>
<b>HADEED - Upgrade of ladle furnace dedusting system</b> - Saudi Arabia	<b>7</b>
<b>TATA STEEL - Leadership engagement in the safety excellence journey</b> - worldwide	<b>8</b>
<b>TERNIUM - Minimising fire hazards in the painting line</b> - Mexico	<b>9</b>
<b>2016 Steel Safety Day</b>	<b>10</b>

worldsteel represents approximately 150 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. worldsteel acts as the focal point for the steel industry, providing global leadership on all major strategic issues affecting the industry, particularly focusing on economic, environmental and social sustainability.

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“ Nothing is more important than the safety and health of the people who work in the steel industry. ”

worldsteel Board of Directors

Organisations gain substantial benefit from being members of worldsteel by sharing information and implementing good practices presented as part of the safety recognition programme. The annual programme provides an opportunity to identify and recognise outstanding practices in safety and health.

Improvements in safety and health practices happen continuously. It is vitally important to continue sharing knowledge to eliminate serious injuries and manage risks in the workplace. The industry has a duty of care to ensure all those who work on our sites have safe working conditions available to them at all times.

This year, the quality of the submissions demonstrated the ongoing commitment of worldsteel members to establish injury-free and healthy workplaces. Twenty-one entries were received covering a broad spectrum of initiatives from company-wide health promotion projects to safety-specific initiatives and improvement in leadership engagement. The judging panel selected six outstanding best practices from ArcelorMittal, Arrium, Hadeed, Gerdau, Tata Steel and Ternium.

Safety and health is a core value of the industry and must be maintained as the highest priority of every leader. A demonstrable strong and visible commitment to safety and health from the leaders in our industry is essential to creating a healthy and accident-free workplace.

I wish to congratulate and thank the six recognised organisations for their ongoing commitment and in achieving the excellent level of safety and health again for 2015. worldsteel encourages the other members to implement similar projects and achieve even better performance in the future.



**Henk Reimink**  
Director, Industry Excellence  
World Steel Association

## The six recognised programmes are judged on four key criteria:

1. How the organisation demonstrates the application of the six worldsteel safety and health principles.
2. Metrics used to test the project or system have a positive impact on the organisation's injury statistics.
3. Improvement in maturity level on the Bradley scale.
4. Relevance and applicability to other worldsteel members.

## worldsteel safety and health principles

- All injuries and work-related illness can and must be prevented.
- Managers are responsible and accountable for safety and health performance.
- Employee engagement and training is essential.
- Working safely is a condition of employment.
- Excellence in safety and health drives excellent business results.
- Safety and health must be integrated into all business management processes.

Despite the fact that all the traditional safety management tools were in place, safety indicators at the ArcelorMittal Belval plant in Luxembourg were not improving and were even regressing.

An analysis pointed out that this failure was related to human attitudes and behaviour. Bad habits, frustrations, unaccountability, lack of ownership, self-discipline and team commitment, lack of recognition for good workers, insufficient speaking-up, hesitant use of common sense and the fear of reprimand guided the workforce in their daily activities, resulting in existing safety management tools not bringing the expected results.

Following these observations, an ambitious change management project in safety culture named the 'Maturity Project' was launched in 2013. This project was inspired by a similar approach initiated three years before by the ArcelorMittal Long Products Brazil business unit. Thanks to a continuous benchmarking process with the Brazilian Health and Safety team, it was possible to customise the project to best fit local needs.

The 'Maturity Project' aimed to fully integrate safety into the production process and establish safety as a real value for all stakeholders. A cultural change is a long-term process that takes between three and five years to succeed. As long-term projects are no longer common in our fast changing world, it was crucial to receive the full support of the top management from the very beginning.

The project was initially launched in a bottom-up approach, but it became clear very quickly that the key factor of success was related to leadership skills of the managerial staff.

For decades, the site was managed with a directive leadership style while a 'Maturity Culture' requires participative leadership. Access to managerial functions was historically driven by excellent technical skills and strong personal investment enabling the appropriate technical performance. Safety was not considered a 'real' priority. It was therefore crucial to develop the managerial/leadership soft skills necessary to motivate teamwork, to drive and empower staff and to carry out effective shop floor management.

This meant that the management needed to be 'convinced' they had to change their leadership style and 'understand' the importance of leadership in their daily managerial work. Safety leadership is expected at all levels, including from the shop floor staff who lead on safety by their own behaviour.

A large-scale safety leadership training programme was therefore developed and targetted at different hierarchical levels: upper management, middle management and shop floor staff.

Driving cultural change requires a strong goal, a common vision motivating all stakeholders to adopt a 'Maturity Culture'. Making the plant become the reference in terms of safety, quality and productivity became the 'driver' of this process.



Moly-Cop Peru, a member of Arrium, manufactures steel grinding media for the mining industry at two domestic facilities located in Lima and Arequipa. The business outsources its transport requirements and uses a number of contract drivers to distribute its finished products. Given the rapid expansion of the nationwide fleet since 2000 (more than 200%), the industry has limited consolidation and is dominated by small operators where the owners are typically also the drivers.

Road infrastructure in the country is challenging, with most regional roads unpaved. Developing infrastructure and industry dynamics are contributing factors to the country's transport incident rate. However, the Peru logistics team review of transport incidents in the business indicated that 87% were the consequence of unsafe driver behaviours.

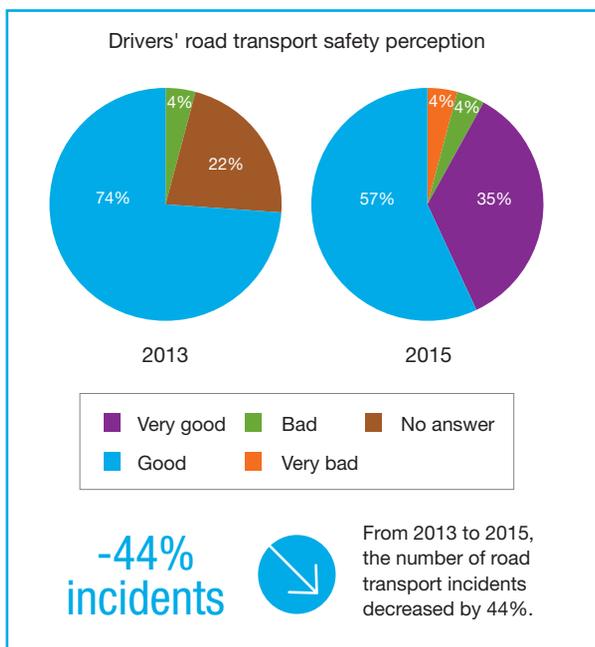
As a result, a Driver Awareness Program (DAP) was developed in cooperation with transportation companies. It was launched in 2013 with the objective of reducing incidents and improving driver capability in prioritising safety.

The programme included the following initiatives:

- Structured communication meetings with truck drivers, transport companies, customers and employees focusing on safe driving behaviours, incident communication.
- Safety presentations using family photographs and videos to connect emotionally with drivers and reinforce the importance of returning home safely. A family board game was also introduced.
- Interactive tools such as crossword puzzles and maze games in the driver waiting areas to engage drivers around safety messages during loading and unloading.
- The use of visual props such as an interactive white board and the use of a scale model of the site to more simply explain exclusion zones and standards during loading and unloading.
- Music to communicate safe behaviours and to counteract fatigue.
- Load restraint guidelines developed to outline the safe methods to restrain product loads that leave the sites.
- Auditing and monitoring programme embedded to verify compliance to expected behaviours.

The introduction of the DAP has resulted in a 44% reduction of road transport incidents over the last three years. A survey was also carried out to gauge drivers' opinion regarding safety, with the results showing that drivers' perceptions of safety improved from 74% to 92%.

### Driver Awareness Program results



One of the major hazards identified after the start-up of the new rolling mill in Gerdaul's Ouro Branco plant in Brazil was the operators' exposure to suspended loads in the roll shop. The stands of the rolling mill are equipped with two stripper guides (top and bottom) that need to be assembled and disassembled every time the rolls are removed to be grinded. These activities were initially carried out using an overhead crane and involved three roll shop employees who were exposed to the suspended load.

In line with Gerdaul's 'safety above all' commitment and their integrated policy that states 'No emergency situations, production or financial performance can compromise our people's health and safety, the environment, or the quality of our products and services', the company is always seeking to eliminate, reduce and control risks.

To put in practice Gerdaul's values and policy, the company has a safety management system structured in three barriers. The hazard in the roll shop was identified in several of the safety tools (inspections, safety observations, safety hour, etc.) and its impact on safety was reflected in the Safety Cultural Index (SCI) results.

SCI methodology uses a procedure of planned observations carried out by two observers who record non-conforming performance in predetermined

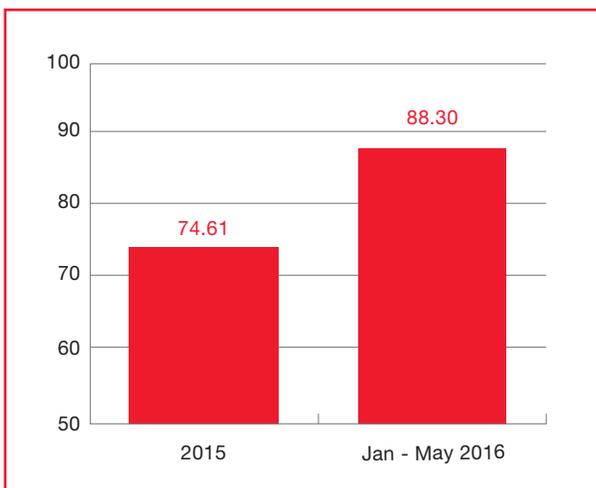
areas. It enables leadership to understand the most frequent types of non-conformities and act to improve performance. In Ouro Branco, the SCI is one of the main KPIs. All severity 'A' deviations from the SCI are presented monthly at the Safety Committee Meeting to all leadership.

Once a problem has been identified and the impact measured, the leaders conduct several Safety Observations and develop a solution to eliminate it. In this particular case, a hydraulic arm (to avoid the use of the overhead crane) and pedestals (to support the stands and improve ergonomics) were installed. The pedestals provided enough height to change oil on the same platform as the assembly/disassembly of the stripper guides. Furthermore, due to the efficient control of the oil, not a single bearing change was necessary following the implementation of the new solution.

Additional impacts not easily objectively measured but easily perceived:

- Elimination of a critical hazard that can cause a serious accident or fatalities.
- Better ergonomic conditions for the employee working in the stands.
- Increased productivity, due to the reduction of manoeuvres of the stands and rolls.

### Safety Cultural Index results (%)



New hydraulic arm for roll shop

## Upgrade of ladle furnace dedusting system

HADEED's long product facility in Saudi Arabia is equipped with two ladle furnaces. During steel refining operations, the concentration of particulate matter (PM) was higher than the exposure limit of 15mg/m<sup>3</sup> set by the Occupational Safety and Health Administration (OSHA).

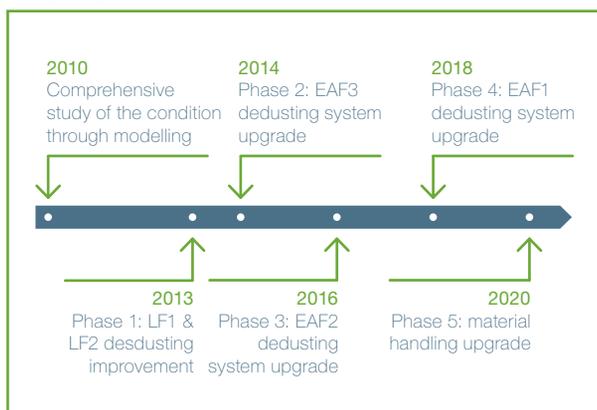
Enhancing health and safety conditions within the plant and implementing new techniques for improved health and safety performance is an integral part of HADEED's decision-making culture. In line with such a commitment, a specialised study was conducted to cut the emissions of PM generated during refining, which aimed to reduce exposure to dust of those working in the area.

The aim of the project was to fit the ladle furnace roof with new equipment to bring down the dust concentration to the challenging figure of 5 mg/m<sup>3</sup>, as well as to eliminate the skull build-up that required frequent wrecking.

Despite the caution taken to operate the ladle furnaces and the administrative measures fulfilled to avoid 'Environment, Health, Safety and Security (EHSS)' incidents or process delays, there were several known deficiencies, such as:

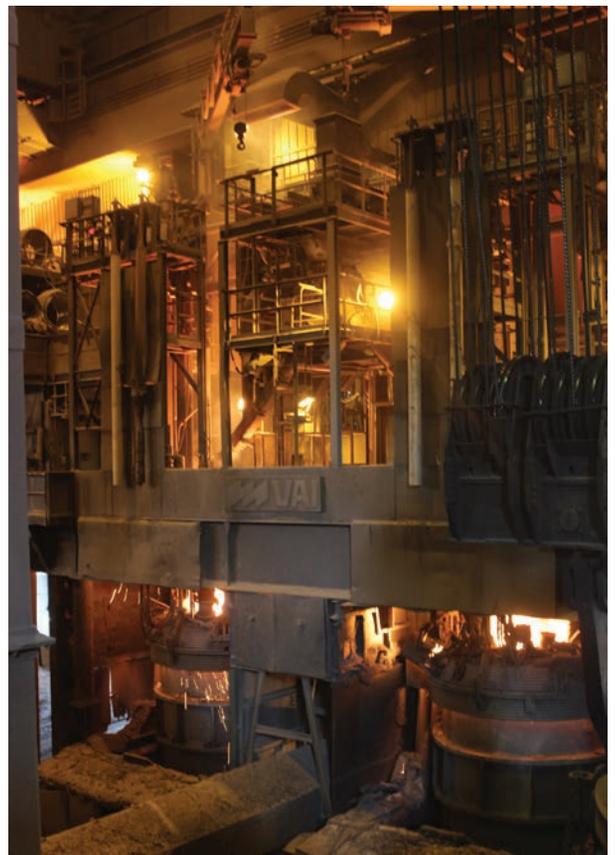
- Dust escaping to melt shop bays and retaining a base load ranging from 18-36 mg/m<sup>3</sup>.
- Repeated unwanted skull accumulation on top of the roof allowing sparks to escape and arcing energy to be lost.

### Project plan



All identified defective equipment was improved and further control signals added for better data reception and overall process optimisation. This led to:

- Clean working site without escape of dust (compliant with EHSS).
- Melt shop base load decreased on average from 18.8 to 6.62 mg/m<sup>3</sup>.
- Production interlocked and ceasing when the dedusting system stops working.
- Significant improvement of the processing treatment with optimised energy consumption in line with sustainability KPIs.
- Increased operating availability.
- Further improvements possible, such as auto-temperature sampling and advanced rinsing system.



Clean working site following improvements made

# TATA STEEL - WORLDWIDE

## Leadership engagement in the safety excellence journey

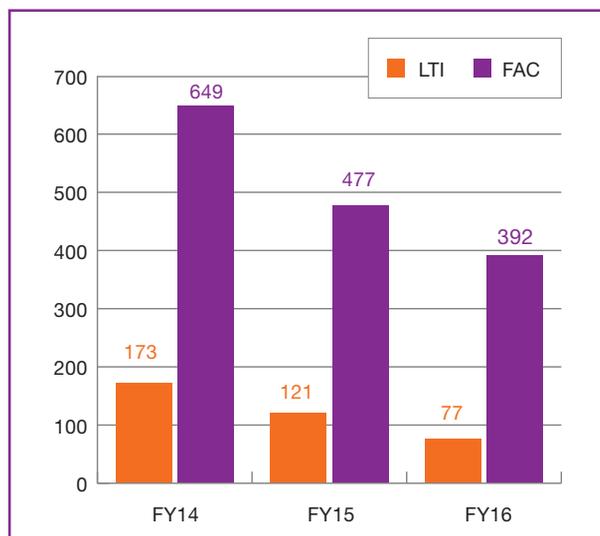
Tata Steel has recognised safety as the most important parameter to demonstrate commitment to its people and to the community at large. Applying Felt Leadership is seen as the first step towards meeting the corporate objective 'Committed to zero'.

The practice of Leadership engagement in the Safety Excellence Journey is illustrated in the following key activities:

- **Safety governance structure** – The Safety, Health and Environment Committee of the Tata Steel Board, chaired by an independent director, is responsible for setting goals and reviewing the deployment of safety and health strategies. Top senior management and safety and health leaders sit on this Committee and are also members of the Safety Council of India (APEX) whose quarterly meetings are also attended by top union officials.
- **Health and Safety Excellence programme for the leadership team** – Tata Steel has identified Leadership Development as their top strategic priority. Two-day leadership coaching dialogues are conducted across all Tata Steel sites by trained line leaders to instil the 'Committed to zero' culture and bring about a 'Felt Leadership' mindset.

- **Safety line walks** – To demonstrate Felt Leadership, leaders are visible on the shop floor and employees see, hear and ultimately believe that safety is their priority. The shop floor covers operations such as manufacturing units, construction sites and distribution centres, but also non-operation type areas, such as offices.
- **Safety campaigns** – 'Committed to Zero' through 'Find it, Own it, Fix it' – Among the many safety communications campaigns conducted by Tata Steel, 'Find It, Own It, Fix It' was conceived by the leaders to embody their own belief in the implementation of safety. It aims to achieve the corporate objective "Committed to Zero". Leaders take personal ownership of any unsafe conditions and proactively intervene ensuring any unsafe condition is resolved.
- **Leadership communication** – Tata Steel reinforces safety culture through leadership involvement and commitment. The Joint Mass Communication Programme is a joint initiative undertaken by management and senior union leaders, aiming at achieving zero harm. This programme has helped involve shop floor employees and contract workers, enabling them to interact with the senior leadership team of the division and the union.

Lost Time Injury (LTI) and First Aid Cases (FAC)  
Tata Steel India & South East Asia



Communication forum

The project carried out at Ternium's Juventud plant in Mexico was aimed at reinforcing a prevention culture and promoting the continuous improvement of safety at the workplace. It applied five steps of risk perception and was orientated towards three management axes: unsafe conditions, management system and behaviour barriers.

The objective was to reduce the Risk Factor of the critical activities performed during the painting process in the plant's painting line #3 by 50%, and to make it a reference for handling, preparing and applying paint.

In order to have an initial reference, the main activities of painting line #3 were assessed to obtain a Risk Factor.



Before the review



After the review

### Methodology: Five steps to perceive risks

- 1. Think about the task** – Based on the main activities of the process painting line, the tasks of the operators were evaluated and analysed by the painting operators and supervisors of the line, through reviewing the activities on-site and identifying the risks. Eighteen activities were identified which required attention.
- 2. Identify the dangers** – For each identified activity, the hazards and risks were established: fire due to solvents and paint, being hit by a suspended load, being trapped by moving machinery.
- 3. Assess the risk** – The Risk Factor arises from the following related tasks: handling and preparation of paint, paint and solvent storage, paint application. In order to have a wider vision, the painting staff performed a benchmark with its suppliers and other companies with painting lines in order to have a reference of the risk and its control, and the prevention measures related to storage, handling and preparation of paints and solvents. Operators, supervisors and safety engineers from the area took part in the benchmark activity.
- 4. Implement controls in painting line #3** – Controls were designed and implemented in order to reduce the Risk Factor of the area and the activities of the operator. Monitoring systems and alarms were installed around the ovens. Improvements were made to the air purification system of the painting area. Fire protection systems in storage areas were installed. Additionally, an emergency response procedure was put in place and critical equipment maintenance routines were implemented.
- 5. Do the job safely** – A video was produced by operators simulating the consequences of a major injury.

# 2016 STEEL SAFETY DAY

Working at height



Established in 2014, Steel Safety Day was set up to reinforce awareness of the five most common causes of severe safety incidents and to create a safer working environment across the entire global steel industry.

By focusing on the five causes - moving machinery, working at height, falling objects, gas & asphyxiation, and moving cranes – worldsteel intends to set up a continuous improvement process.

Ahead of Steel Safety Day on 28 April, worldsteel requests all its members and the wider steel industry to carry out an extensive safety audit. The focus this year was working at height.



## IN 2016...



390,000 employees and contractors from 47 companies in 349 sites actively took part in the audit.



900,000 employees and contractors working on those sites were directly or indirectly concerned by the audit.

## OUTCOME

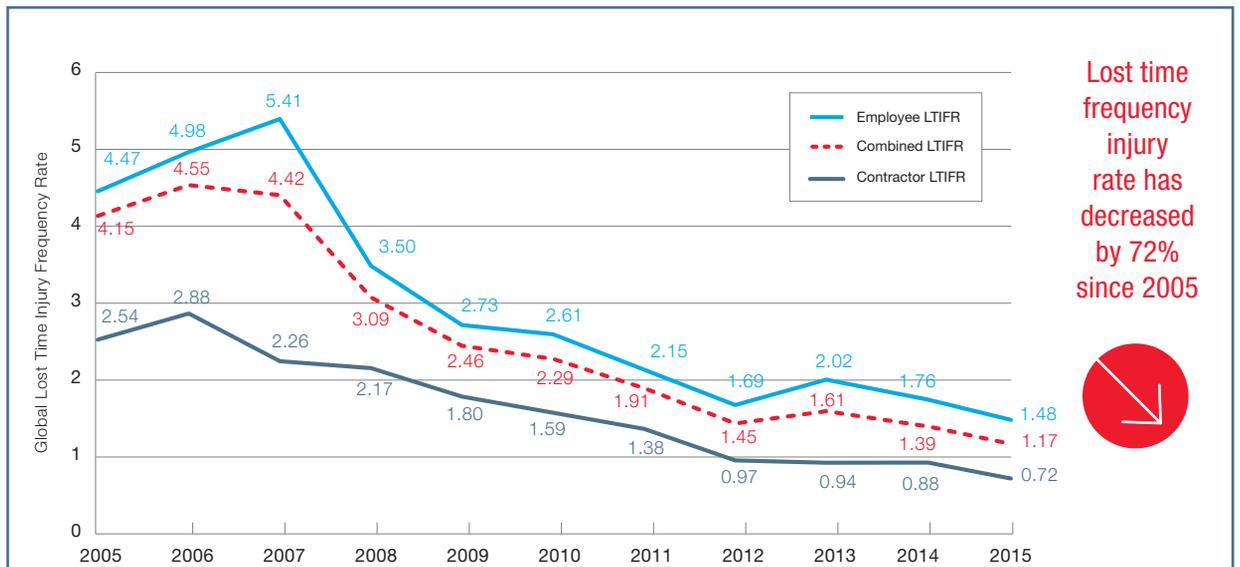


The Steel Safety Day audits have had a major positive effect in identifying the hazards in the workplace. Participating worldsteel members are now developing mitigation plans for 100% hazards identified to ensure serious injuries no longer occur.

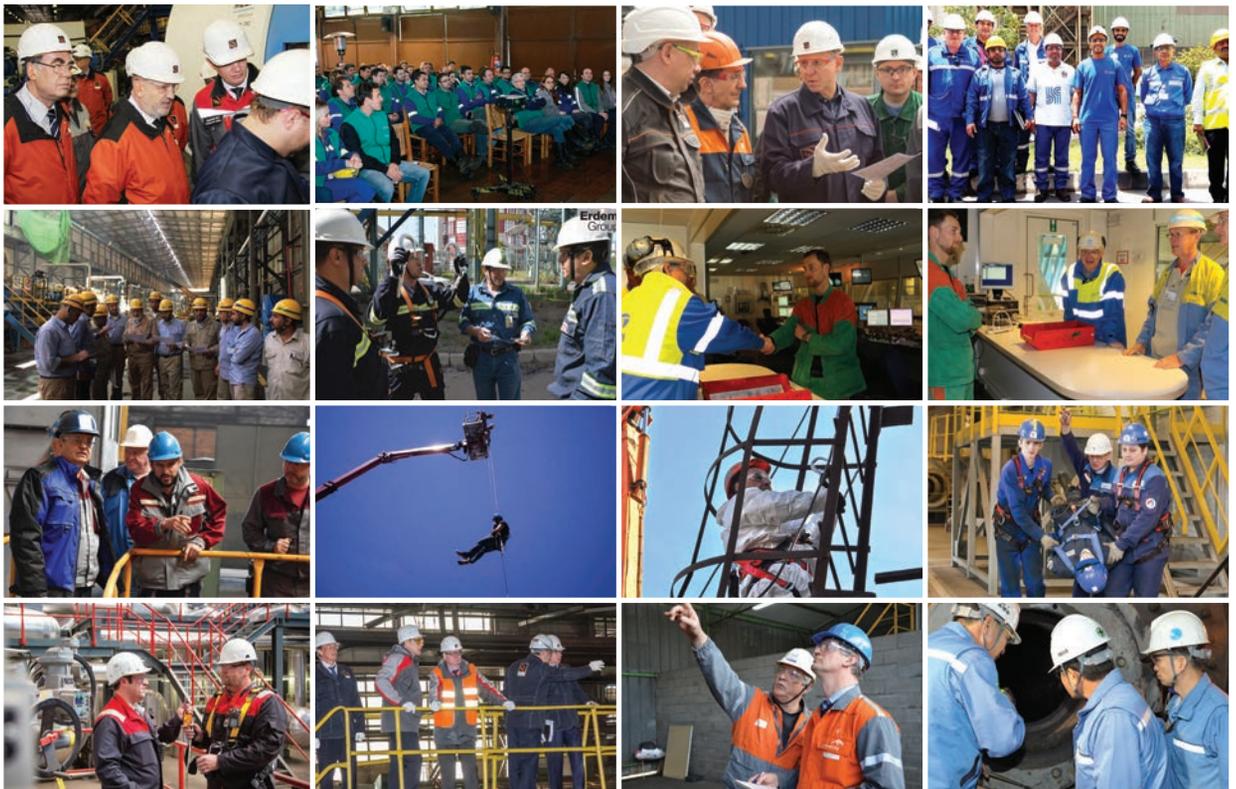
## 10 practical guidelines for working at height

- Identify potential hazards, assess the risk and mitigate each hazard before working at height.
- Only trained and authorised persons can be allowed to work at height.
- Guardrails must be built around every appropriate elevated work area.
- Mobile elevation devices such as man lifts must be kept in good condition and inspected regularly.
- Scaffolding must be provided with handrails, complete floors, kickboards and internally mounted ladders.
- Ladders must be secured and used only for means of access.
- Before working on roofs, fragile roof parts, unprotected openings and edges, and safe access points must be checked.
- A full body harness and appropriate lanyards must be worn and always attached to a secure anchor point.
- Proper training on the use of personal protection equipment must be provided.
- A fall rescue plan and equipment must be in place at the time of the work.

## Steel industry Lost Time Injury Frequency Rate (LTIFR)\*



\*A Lost Time Injury (LTI) is an incident that causes an injury that prevents the person from returning to his next scheduled shift or work period. Lost Time Injury Frequency Rate (LTIFR) is the number of Lost Time Injuries per million man-hours. LTIFR includes fatalities.



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