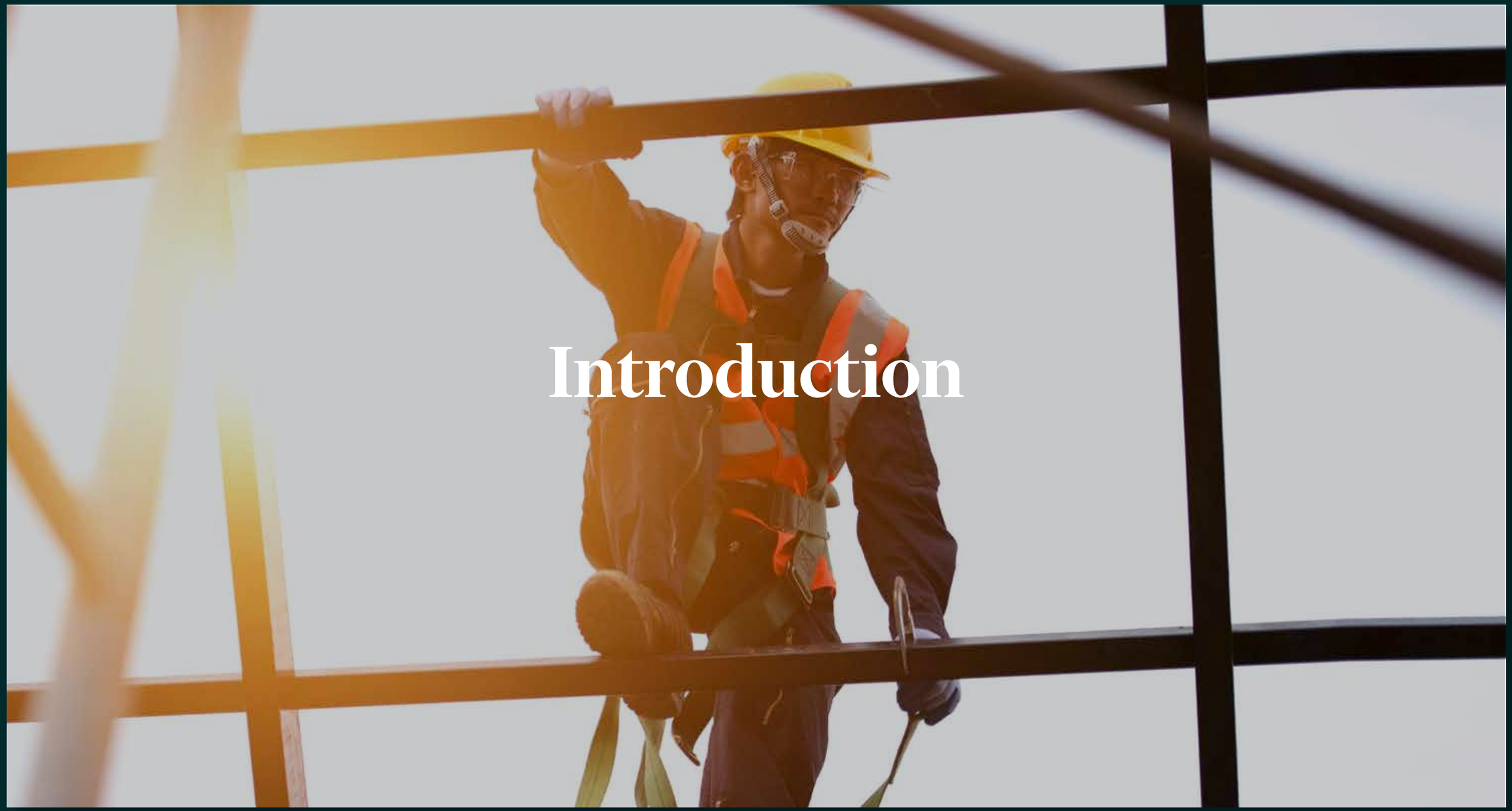
ADAPTIVE SPACES

Cultivating a Proactive Safety Culture in Construction

CBRE RESEARCH | APRIL 2024

Contents



Introduction

Our report 'Cultivating a Proactive Safety Culture in Construction' tries to analyse the intersection of two interesting trends in real estate – Health, Safety, and Environment (HSE) and Environmental, Social, and Governance (ESG). While our previous two reports around ESG - "**Indian Real Estate's ESG Landscape And Its Progress To A Sustainable Future**" in 2022 and "**Sustainable Energy: Powering India's Offices**" in 2023 were largely focussed around the 'Environmental' parameters, this paper attempts to go a step further to bring the 'Social' and 'Governance' aspects to the forefront. The report explores the criticality of the safety culture – the laws, best practices and the roles and responsibilities of various stakeholders involved. The report also attempts to offer best practices and recommendations for building an organisation-wide culture that prioritises safety.

Strong safety practices, or HSE excellence, is finely intertwined with overall ESG performance. As the focus on overall employee experience and wellbeing increases, it is important for organisations to pay attention to HSE in order to be able to achieve the three R's – Reputation, Recruitment and Retention. Regular safety audits, participation in safety briefings, and open communication about safety concerns are critical. As employees become more central to organisation policies, we anticipate the HSE aspect to move away from a "have to comply" to a "want to comply" parameter in the near future.

Our report emphasises the growing importance of safety culture for positive safety outcomes. It delves deeper into its significance, and how organisations with an ESG focus can cultivate and strengthen it – and accelerate the journey towards their ESG goals.

Importance of Safety Culture in the Construction Industry

The concept of safety culture has gained prominence in today's intricate and evolving work environments. This shift emerged in response to the 20th-century industrial disasters, where it became evident that technical and regulatory measures alone were insufficient o address causes of major accidents. The COVID-19 pandemic also spurred a robust emphasis on safety within the construction industry, focusing on protecting worker health and preventing virus spread. These measures led to a safer work environment, benefits that extend beyond the pandemic and enhance overall industry productivity. The concept has, since then, permeated across diverse industries, highlighting its criticality in the construction sector for multiple reasons, as outlined in the figure below.

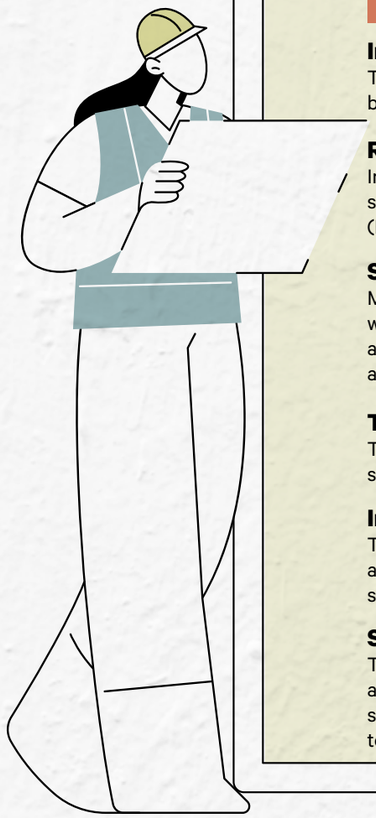
Figure 1.1. Key reasons to have a strong safety culture

Source: CBRE Research Q1 2024

Current State of Safety Culture in India's Construction Sector

The construction industry in India has witnessed significant growth in recent years, contributing substantially to the nation's economy. However, concerns regarding workers' safety remain a persistent challenge. According to a 2016 study, anywhere between 11,614 to 22,080 construction workers meet with fatal accidents on an average every year at construction sites[1]. This translates to an estimated fatality rate (fatal accidents/1,000 workers) of 0.22 in India, which is higher than many developing and developed countries. Some of the key factors contributing to the condition of safety practices in the industry are provided below.

Table 1.1. Current status of safety culture in India



Positives

Increased awareness
There is growing awareness regarding the importance of safety, driven by government initiatives, industry bodies, and media attention.

Regulatory framework
India has a comprehensive framework of safety regulations and standards, including the Building and Other Construction Workers (BOCW) Act and Construction (Safety, Health, and Welfare) Rules.

Safety training and development
Many construction companies provide basic safety training to their workers. Many organizations are also collaborating with safety experts and consultants for knowledge sharing, best practice dissemination, and the development of innovative safety solutions.

Technological advancements
The adoption of personal protective equipment (PPE), scaffolding systems, and fall arrest devices are increasing.

Industry Initiatives
The construction sector has implemented safety guidelines, procedures, and safety committees to ensure compliance and promote a culture of safety.

Safety Standards and Certifications
The adoption of international safety standards and certifications, such as ISO 45001, has gained traction in India and many organizations are striving to obtain these certifications to demonstrate their commitment to providing safe working environments.

Source: CBRE Research Q1 2024

Shortcomings

Informal sector
A large portion of the workforce operates without basic safety training and awareness.

Enforcement challenges
Safety regulation enforcement could face challenges associated with resource limitations and administrative complexities.

Focus on punishment
Some organisations may exhibit safety cultures characterised by a focus on punishment, limited incident reporting, and lower levels of employee involvement.

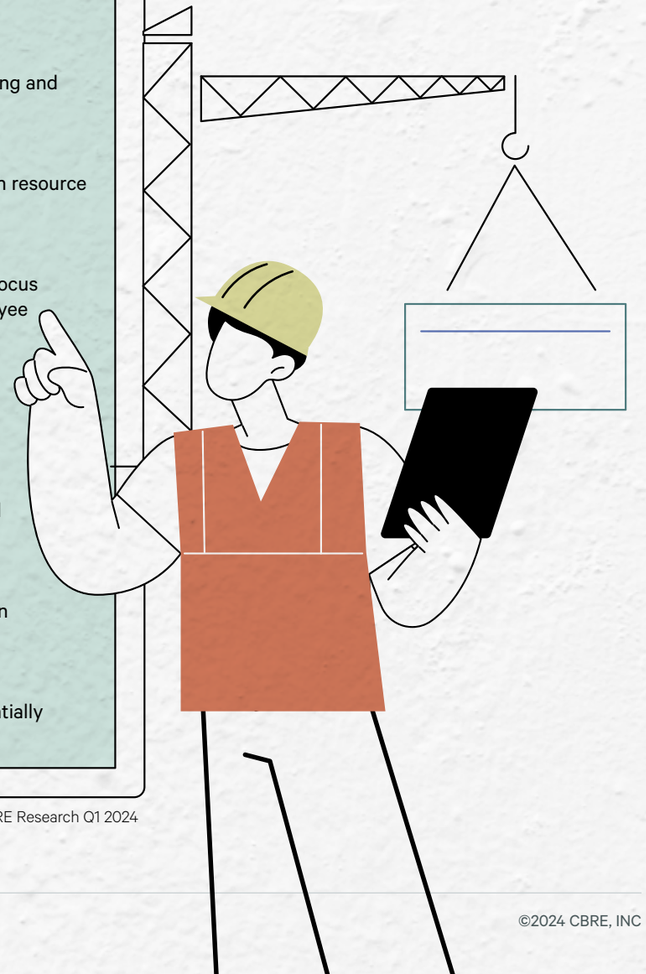
Inadequate infrastructure
Safety equipment and infrastructure such as proper scaffolding, barricading, and signage are often inadequate or poorly maintained.

Cost-cutting measures
Prioritising of cost over safety can compromise safety protocols and material quality.

Lack of skilled workforce
The industry faces a shortage of skilled safety professionals who can effectively implement and oversee safety measures.

Limited liability on developers
There are limited provision of penalties on project developers, potentially compromising health and safety measures.

Source: CBRE Research Q1 2024



[1]An estimate of fatal accidents in Indian construction, 2016, D.A. Patel, K.N. Jha

Legal Framework

Overview of Safety Laws and Regulations in India

India has multiple laws designed to ensure the safety and well-being of individuals across various sectors. Both central and state governments enact and enforce safety laws and regulations covering a wide range of industries, including manufacturing, construction, transportation, and healthcare. The construction industry in India is subject to specific safety laws and regulations aimed at safeguarding the well-being of workers, minimising accidents, and ensuring overall workplace safety. Compliance with these regulations is essential for construction companies to create a secure working environment. The following section provides an overview of crucial safety laws and regulations relevant to the construction industry in India.

Table 2.1. Policy brief

REGULATION / ACT	DETAILS	RULES / NOTIFICATIONS / ORDERS	LAST UPDATED
 Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996	• Addresses the welfare and safety of construction workers. • Requires the registration of construction establishments and the appointment of safety offi ers. • Mandates safety measures at construction sites to prevent accidents. • Establishes provisions for health check-ups and first aid facilities.	The Building and Other Construction Workers Central (Amendment) Rules 2017 Reconstitution of the Central Building and Other Construction Workers' Advisory Committee under section 3 of the BOCW Act, 1996 Mandatory online registration of establishments on the Shram Suvidha Portal	2017 2017 2018
 The Building and Other Construction Workers' Welfare Cess Act, 1996	• Provides for the levy and collection of a cess on the cost of construction incurred by employers. • The collected funds are utilised for the welfare of construction workers, including safety and health initiatives.	—	—
 Construction Workers (Regulation of Employment and Conditions of Service) Rules, 1998	• Elaborates on the implementation of the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996. • Provides detailed guidelines for the registration of construction workers and establishments.	—	—
 The Factories Act, 1948 (applicable to construction sites)	• Relevant provisions of the Factories Act apply to construction sites where a specified number of workers are engaged. • Mandates the appointment of safety offi ers, provision of safety equipment, and adherence to health and welfare measures.	Model Rules Part I framed under the Factories Act, 1948 Model Rules Part II framed under the Factories Act, 1948 Amendments to the Second Schedule of the Factories Act, 1948 Amendments to the Second Schedule 2 Model Factories Rules	1987 1987 2013 2015 2019

REGULATION / ACT	DETAILS	RULES / NOTIFICATIONS / ORDERS	LAST UPDATED
 National Building Code (NBC)	• While not a law, the NBC provides guidelines and standards for construction practices, including safety measures. • Includes provisions related to structural safety, fire safety, and general safety in construction projects.	Periodic updates	1970 1983 1997 2005 2016
 Occupational Safety, Health, and Working Conditions Code, 2020	• A comprehensive legislation that consolidates various labour laws, including those related to the construction industry. • Covers a wide range of occupational safety and health aspects applicable to workers in the construction sector.	—	—
 The Workmen's (Employee's) Compensation Act, 1923	• Provides for compensation to workers, including those employed in the construction industry, in case of injury or death during the course of employment.		Previous updates: 1929, 1933, 1938, 1946, 1954, 1961, 1964, 1976, 1978, 1984, 1994
		Twelfth amendment introduced significant changes, including increased compensation rates, simplified administration, and established a time limit for filing appeals.	2000
		Thirteenth amendment further increased compensation rates and made minor procedural changes	2009
		Fourteenth amendment replaced references to "workmen" with "employees" throughout the Act.	2010

Source: Ministry of Labour & Employment, Bureau of Indian Standards, CBRE Research Q1 2024

Regulatory Bodies and Enforcement Mechanisms

India has several regulatory bodies and multi-level enforcement mechanisms to maintain health, safety and environment (HSE) on construction sites. However, significant challenges remain, such as lack of awareness among workers and employers, limited resources for labour inspectorates and enforcement agencies, etc. Continuous efforts are needed to improve implementation, raise awareness, and ensure the safety and well-being of construction workers. Following is a list of regulatory bodies and the methods they employ to ensure on-ground HSE.

Table 2.2. Regulatory bodies to ensure HSE

Regulatory Bodies

Directorate General of Factory Advice Service and Labour Institutes (DGFASLI)
Responsible for formulating and implementing occupational safety and health standards and codes of practice.

Municipal Corporations
Responsible for issuing construction permits and ensuring adherence to safety norms within their jurisdiction.

State Labour Departments
Enforce HSE regulations at the state level.

Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 (BOCW Act)
Establishes the Building and Other Construction Workers' Welfare Board (BOCWWB) for registration, welfare, and social security of construction workers.

Source: CBRE Research Q1 2024

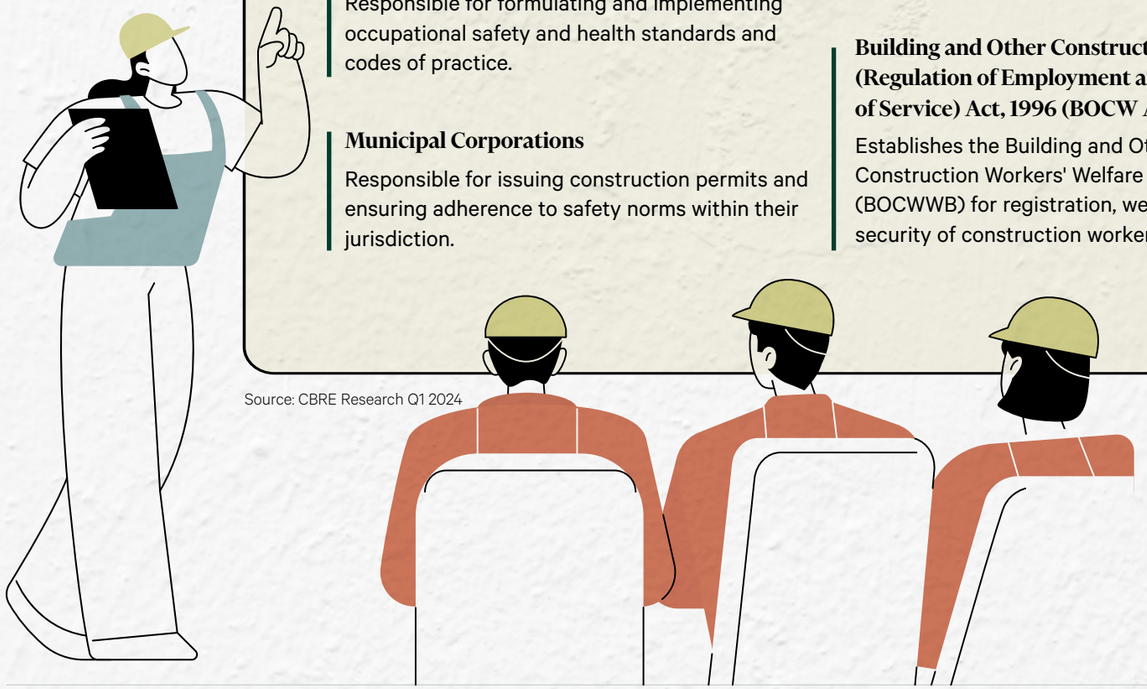


Table 2.3. Enforcement mechanisms

Inspections
Conducted by labour inspectors and BOCWWB officials o identify safety violations and issue stop-work orders if necessary.

Penalties
Imposed on violators through fines, imprisonment, or both.

Awareness Campaigns
Conducted by government agencies and NGOs to educate workers and employers about HSE best practices.

Community Monitoring
Encouraged by the BOCW Act to ensure worker safety and welfare.

Source: CBRE Research Q1 2024


Industry Best Practices

International Safety Standards in Construction

Aligning with international standards, the comprehensive safety standards available in India facilitate trade, allow Indian companies to participate in global projects, and improve the overall image of the Indian construction industry. Following are some of the key international standards that the construction industry in India aligns with:

Table 3.1. HSE international safety standards

ISO 45001: Occupational Health and Safety(OHS) Management Systems

- This standard provides a comprehensive framework for organisations to establish, implement, and continually improve their OHS management systems.
- It covers risk assessment, hazard identification, incident investigation, emergency preparedness, and workers' training.
- Certification to ISO 45001 demonstrates commitment to OHS and can lead to improved safety performance, reduced costs, and enhanced reputation.

International Labour Organization (ILO) Guidelines

- This code of practice provides practical guidance on a legal, administrative, technical, and educational framework for safety and health in construction.
- The revised ILO Code of Practice on Safety and Health in Construction was adopted by a Meeting of Experts held in Geneva from 21 to 25 February, 2022.
- This code of practice replaces an earlier code that was adopted in 1992 and considered outdated in view of the changes in working practices and conditions in the construction sector in the past decades. It takes into account new areas which require improved health and safety practices and other protective measures.
- The ILO, a specialised agency of the United Nations, develops and promotes international labour standards, which also includes construction.
- Their guidelines cover various aspects of OHS, from scaffolding and fall protection to chemical safety and noise exposure.
- These guidelines, while not mandatory, provide valuable guidance for countries developing their own regulations.

The USA: Occupational Safety and Health Act (OSHA) of 1970

- The OSHA Act's goal was to ensure that workers had a safe and healthy work environment by giving the authority to enforce the rules made under the Act, by helping and motivating the States to do the same, by offering research, information, education, and training in the area of occupational safety and health, and for other reasons.
- Many standards have been set under the Act, such as "Safety and Health Regulations for Construction", "Cranes and Derricks in Construction", "Specific Excavation Requirements", etc.
- Some of the other salient features include:
  - » Worker Rights: Workers have the right to request an OSHA inspection if they believe their workplace is unsafe. They can also refuse unsafe work without retaliation from their employer while being able to access safety training and information about hazards at their workplace.
  - » Data Collection and Analysis: OSHA collects data on workplace injuries and illnesses, which informs the development of new standards and targeted interventions. This data helps identify high-risk industries and specific hazards that need attention.

Source: CBRE Research Q1 2024

The UK: Construction (Design and Management) Regulations, 2015

- The core objective of the Health and Safety sections is to Improve health and safety throughout the construction project lifecycle, from conception to completion.
- Some of the key features include:
  - » Health and Safety File: Records key health and safety information for future reference and maintenance.
  - » Pre-construction information (PCI): Shared by the client to inform early planning and risk management.
  - » Construction Phase Plan (CPP): Developed by the principal contractor to detail how risks will be managed during construction.

Japan: Industrial Safety and Health Act (ISHA)

- The ISHA plays a crucial role in promoting worker safety and health in Japan.
- Some of the key features include:
  - » Comprehensive: Covers various industries and hazards, including construction, manufacturing, and chemicals.
  - » Preventive approach: Emphasizes risk assessment, hazard identification, and implementation of prevention measures.
  - » Shared responsibility: Places responsibility on both employers and workers for safety and health.
  - » Strong enforcement: Includes penalties for non-compliance and government inspections.
  - » Continuous improvement: Requires regular reviews and updates to reflect evolving risks and technologies.

Source: International Organization for Standardization, U.S. Department of Labor, Health and Safety Executive, CBRE Research Q1 2024

Safety Culture: Key Components

Roles and Responsibilities of Various Stakeholders

In the construction industry, ensuring health and safety is a shared responsibility involving a diverse group of stakeholders. Each stakeholder plays a critical role in creating a safe working environment and preventing accidents and injuries. Here's a breakdown of the major stakeholders and their responsibilities:

Table 4.1. Safety culture: Key stakeholders

	Roles	Responsibilities
Clients / Project Owners	Set project safety objectives, provide funding for safety measures, approve health and safety plans, and monitor safety performance.	Ensure project design incorporates safety, select competent contractors, enforce health and safety policies on site, and hold contractors accountable for safety performance.
Main Contractors	Develop and implement health and safety plans, appoint competent supervisors, provide training and instruction to workers, manage and control site risks, and report incidents and accidents.	Comply with health and safety regulations, ensure safe work systems are in place, provide adequate personal protective equipment (PPE), investigate and learn from incidents.
Sub-contractors	Implement sub-contractor health and safety plans, manage their workforce, follow principal contractor's safety rules, and communicate hazards and control measures.	Ensure workers are competent and trained, have appropriate PPE, and report hazards and incidents to the principal contractor.
Designers	Incorporate safety considerations into the design, identify potential hazards, and specify safe methods of work and materials.	Prepare design for access, considering the use of safe materials and equipment, worker ergonomics and fatigue, and consult with other stakeholders on safety.
Workers	Follow safety rules and procedures, use PPE correctly, report hazards and unsafe practices, and actively participate in safety training and improvement initiatives.	Work safely, take care of their own health and safety, and cooperate with others on safety matters.
Health and Safety Professionals	Advise on risk assessment, develop and implement safety plans, provide training and guidance, investigate incidents, and monitor safety performance.	Ensure compliance with legal requirements, identify and control hazards, promote safety culture, and support continuous improvement.
Regulators / Local Government Officials	Develop and enforce health and safety regulations, conduct inspections, investigate accidents, and prosecute offenders.	Maintain high safety standards, promote awareness of hazards and best practices, and deter unsafe practices.
Community and Public	Raise concerns about potential safety hazards, report unsafe practices, and support initiatives to improve safety in the industry.	Be aware of potential risks associated with construction activities and cooperate with on-site safety measures.

Source: CBRE Research Q1 2024

Key Components of a Strong Safety Culture

Building a strong safety culture goes beyond simply complying with regulations - it is about creating an environment where safety is ingrained in everyone's values and behaviours. Here are some key components of a strong safety culture in the construction industry:

Table 4.2. Safety culture - Key components

Leadership Commitment

Visible and active commitment

Leaders at all levels, from CEOs to site supervisors, must visibly demonstrate their commitment to safety through actions such as participating in safety walks, attending safety meetings, and prioritising safety resources.

Setting clear expectations

Establish clear safety goals, policies, procedures, funding and financial commitments that are communicated effectively to all workers.

Holding everyone accountable

Enforce safety rules and consequences fairly and consistently, regardless of position or seniority.

Open Communication

Encourage reporting

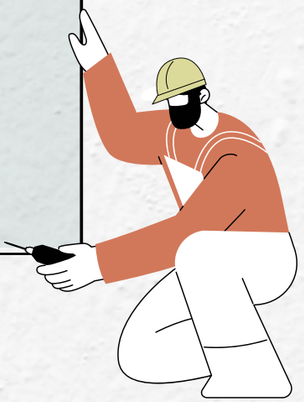
Create a safe space for workers to report hazards, near-misses, and incidents without fear of retribution. Investigate and address reported issues promptly.

Regular communication

Communicate safety information frequently through meetings, newsletters, training, and open discussions. Encourage two-way communication and feedback from workers.

Transparency

Be transparent about safety performance, incidents, and lessons learned. Share information widely and openly with all stakeholders.



Risk Management

Proactive approach

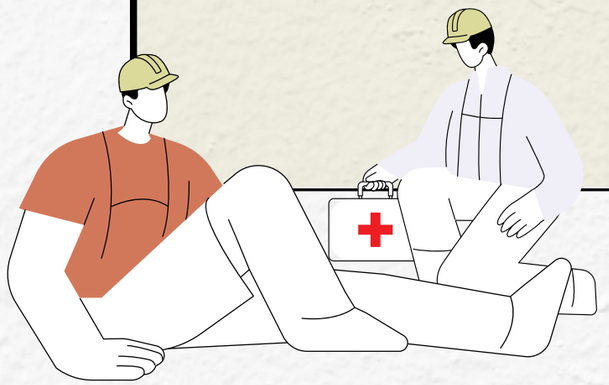
Proactively identify, assess, and control potential risks before they cause harm. Implement effective risk management plans and procedures.

Incident investigation

Thoroughly investigate incidents and near-misses to understand root causes and implement preventive measures. Learn from past incidents to prevent future occurrences.

Continuous improvement

Regularly review and update safety procedures and practices based on lessons learned and changing conditions.



Training and Development

Invest in training

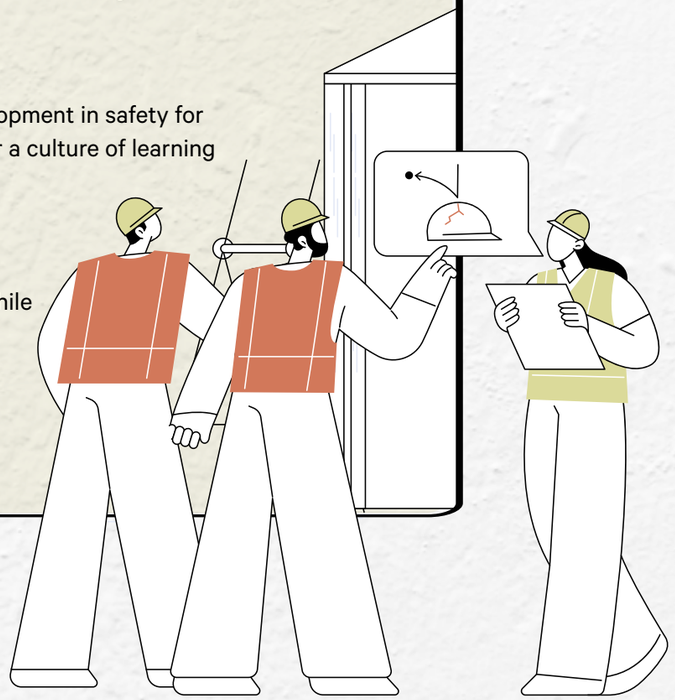
Provide comprehensive safety training tailored to specific roles and tasks. Regularly update training to reflect new regulations, technologies, and best practices.

Continuous learning

Encourage continuous learning and development in safety for all employees, including leadership. Foster a culture of learning from mistakes and incidents.

Empowerment

Equip workers with the knowledge, skills, and resources they need to work safely while identifying and controlling hazards.



Recognition and Rewards

Recognise safe behaviours

Recognise and reward individuals and teams for demonstrating safe work practices, identifying hazards, and contributing to safety improvements.

Celebrate successes

Celebrate safety milestones and achievements to reinforce positive behaviours and maintain motivation.

Positive reinforcement

Focus on positive reinforcement rather than punishment to encourage safe behaviours and ownership of safety culture.

Additional factors

Employee engagement

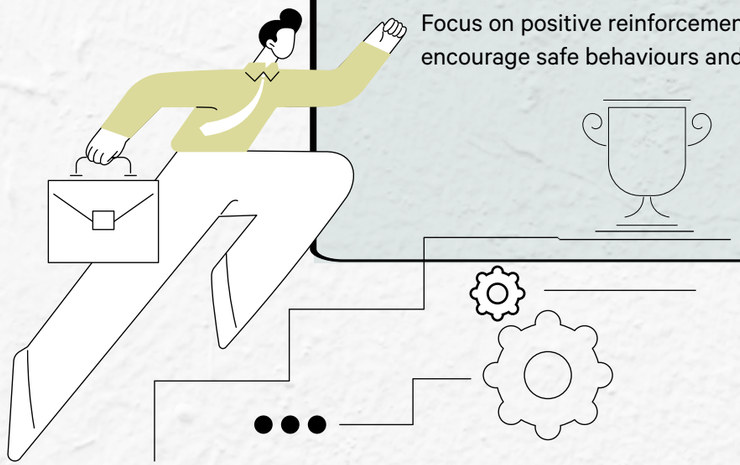
Encourage active participation of workers in safety initiatives and decision-making processes. Foster a sense of ownership and responsibility for safety.

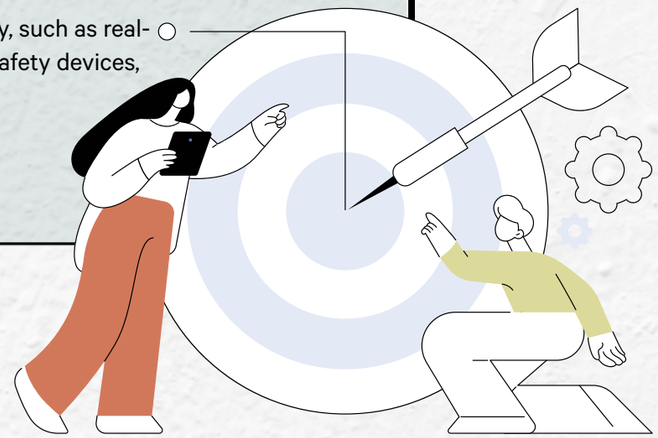
Psychological safety

Create a work environment where everyone feels safe to speak up about safety concerns without fear of judgment or retaliation.

Technology

Utilise technology to improve safety, such as real-time hazard monitoring, wearable safety devices, and data-driven insights.





Building a strong safety culture is an ongoing process that requires continuous effort and commitment from all stakeholders. By implementing these key components and fostering a safety-first culture, construction companies can create a safer and healthier work environment for everyone involved.

Safety Performance Metrics

Key Performance Indicators (KPIs) for Safety

A few KPIs to ensure safety in construction sites and the construction industry are listed below.

Leading Indicators

They measure proactive efforts to prevent accidents and promote safety awareness.

Safety training completion rate

Tracks the percentage of workers who have completed the required safety training programmes.

Hazard identification and reporting rate

Measures the number of hazards identified and reported by workers.

Near-miss reporting rate

Measures the number of near-miss incidents reported, indicating potential risks before they turn into accidents.

Safety meeting attendance rate

Tracks worker participation in safety meetings and briefings.

Safety committee participation rate

Measures worker involvement in safety committees and discussions.

Lagging Indicators

They measure the actual occurrence of incidents and injuries.

Lost Time Injury Frequency Rate (LTIFR)

The number of employees who experienced time away from work due to an incident.

Total Recordable Incident Rate (TRIR)

The number of total recordable incidents compared with the number of total hours worked by all employees in a single year.

Fatality Rate

The number of fatalities per million labour hours worked.

First Aid Recordable Rate

The number of first aid injuries per million labour hours worked.

Days Away, Restricted, or Transferred (DART) rate

The number of days lost due to work-related injuries and illnesses.

Additional KPIs

Safety budget adherence

Tracks adherence to the allocated budget for safety equipment, training, and initiatives.

Worker satisfaction with safety protocols

Measures worker perception of the effectiveness and implementation of safety measures.

Safety violations per project

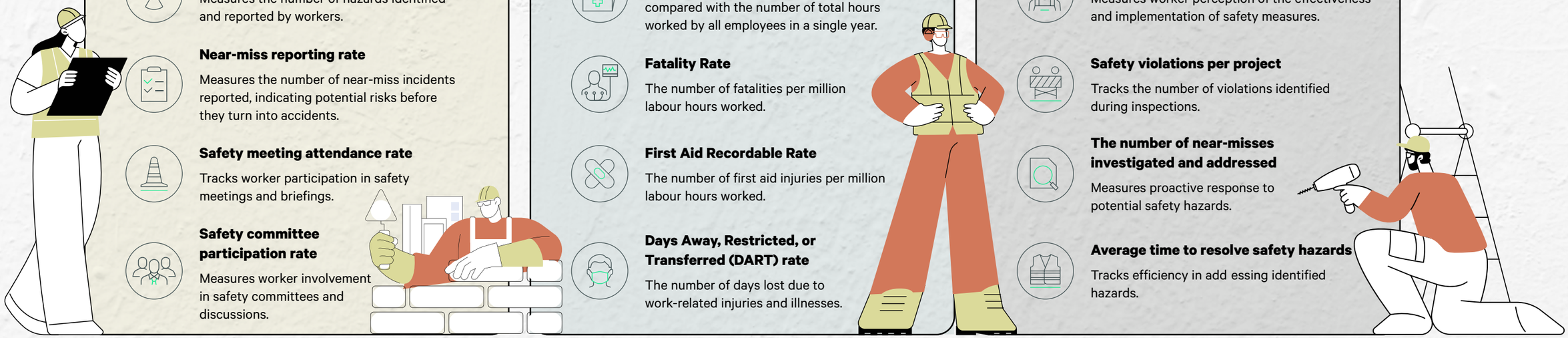
Tracks the number of violations identified during inspections.

The number of near-misses investigated and addressed

Measures proactive response to potential safety hazards.

Average time to resolve safety hazards

Tracks efficiency in add essing identified hazards.



KPIs are just one tool for enhancing safety at construction sites. Effective safety management requires a holistic approach that combines data-driven analysis with strong leadership, worker engagement, and continuous improvement efforts.

Disclaimer: Please note that there can be many other indicators to ensure better safety practices on construction sites. For the purpose of this report , we have chosen a select few indicators basis secondary research and CBRE proprietary information.

Monitoring and Evaluating Safety Culture

A strong safety culture goes beyond simply tracking incident rates and requires measuring the underlying attitudes, beliefs, and behaviours towards safety. Researchers and practitioners have identified safety culture and safety climate as key indicators to achieve zero-injury worksites. However, there is no consensus yet on how to define these concepts, how they should be measured, or which interventions designed to improve them are likely to succeed. Here are some prominent methods to monitor and evaluate a desirable safety culture:

Quantitative Methods

Safety Performance Indicators (KPIs):

Track KPIs such as incident rates, near-miss reporting, safety training completion, and participation in safety initiatives to identify trends and measure progress.

Employee Surveys

Conduct anonymous surveys to gauge employee perceptions of safety leadership, communication, training effectiveness, and overall safety climate.

Safety Observations / Audits

Conduct planned and unplanned observations of worker behaviour, safety practices, and adherence to procedures to identify areas for improvement.

Benchmarking

Compare safety culture metrics with industry benchmarks and best practices to identify areas for improvement.

Qualitative Methods

Safety Culture Assessments (SCAs)

Utilise standardised or customised assessments to evaluate various aspects of safety culture, such as leadership commitment, risk perception, communication, and worker engagement.

Focus Group Discussions

Facilitate discussions with diverse groups of workers to understand their concerns, suggestions, and perceptions of safety culture.

Safety Climate Interviews

Conduct in-depth interviews with key stakeholders to gain deeper insights into safety attitudes, beliefs, and motivators.

Root Cause Analysis (RCA)

Investigate incidents and near-misses to understand underlying cultural factors and prevent future occurrences.

A work site should ideally use a combination of quantitative and qualitative methods for a comprehensive understanding. The data should be gathered from multiple sources to avoid bias and gain diverse perspectives. Involving workers in data collection and analysis will likely promote ownership and trust. In addition, communication of results and action plans to all stakeholders can foster transparency and engagement.

Disclaimer: Please note that there can be many other monitoring methods. For the purpose of this report, we have chosen a select few indicators basis secondary research and CBRE proprietary information.

Recommendations and Outlook

Recommendations

Building a strong safety culture takes time, effort, and commitment from eall the stakeholders.. By implementing these strategies and fostering a collaborative and proactive approach to safety, one can create a safer and healthier work environment for all. Here are some key strategies that can be implemented by various stakeholders – especially at construction sites in India:

Formalisation and Skill Development

Formalise informal sector workforce
Implement measures to bring workers from the unorganised sector under social security and safety regulations, providing access to training and safety equipment.

Upskill construction workforce
Focus on skill development programmes in safety awareness, hazard identification, and safe work practices for all levels of workers.

Certification for safety professionals
Mandate certified safety professionals on construction sites to ensure qualified expertise and oversight.

Enforcement and Regulatory Improvements

Simplify and harmonise safety regulations
Streamline complex regulations and develop clear, easy-to-understand guidelines for all stakeholders.

Empower local enforcement agencies
Provide adequate resources and training to local authorities to effectively enforce on-site safety regulations.

Fast-track legal procedures
Streamline legal processes for addressing safety violations and ensuring timely penalties for non-compliance.

Financial and Technological Support

Integration of safety costs
Project owners integrate safety costs for equipment and training into project budgets from the outset, thereby minimising pressure on contractors.

Affordable safety technology
Encourage research and development of cost-effective safety technologies suitable for the Indian context and infrastructure.

Incentives on safety investments
Offer tax breaks and subsidies to construction companies that invest in safety training, technology, and infrastructure improvements.

Improved Awareness and Collaboration

Public awareness campaigns in local languages
Launch targeted campaigns highlighting the human cost of unsafe practices and promoting safety awareness among communities and workers in local languages.

Construction safety education in schools
Integrate safety awareness modules into school curricula to educate future generations about construction risks and safe practices.

Industry-wide safety forums and knowledge sharing
Encourage collaboration between construction companies, unions, and academic institutions to share best practices and develop innovative safety solutions.

Additional Recommendations

Address mental health and fatigue
Implement measures to manage workers' stress and fatigue, as these contribute to safety risks.

Focus on psychosocial hazards
Recognise and address psychological hazards such as discrimination, harassment, and lack of communication, which can adversely impact safety culture.

Promote workers' ownership of safety
Encourage workers' participation in safety committees, incident investigations, and decision-making processes.

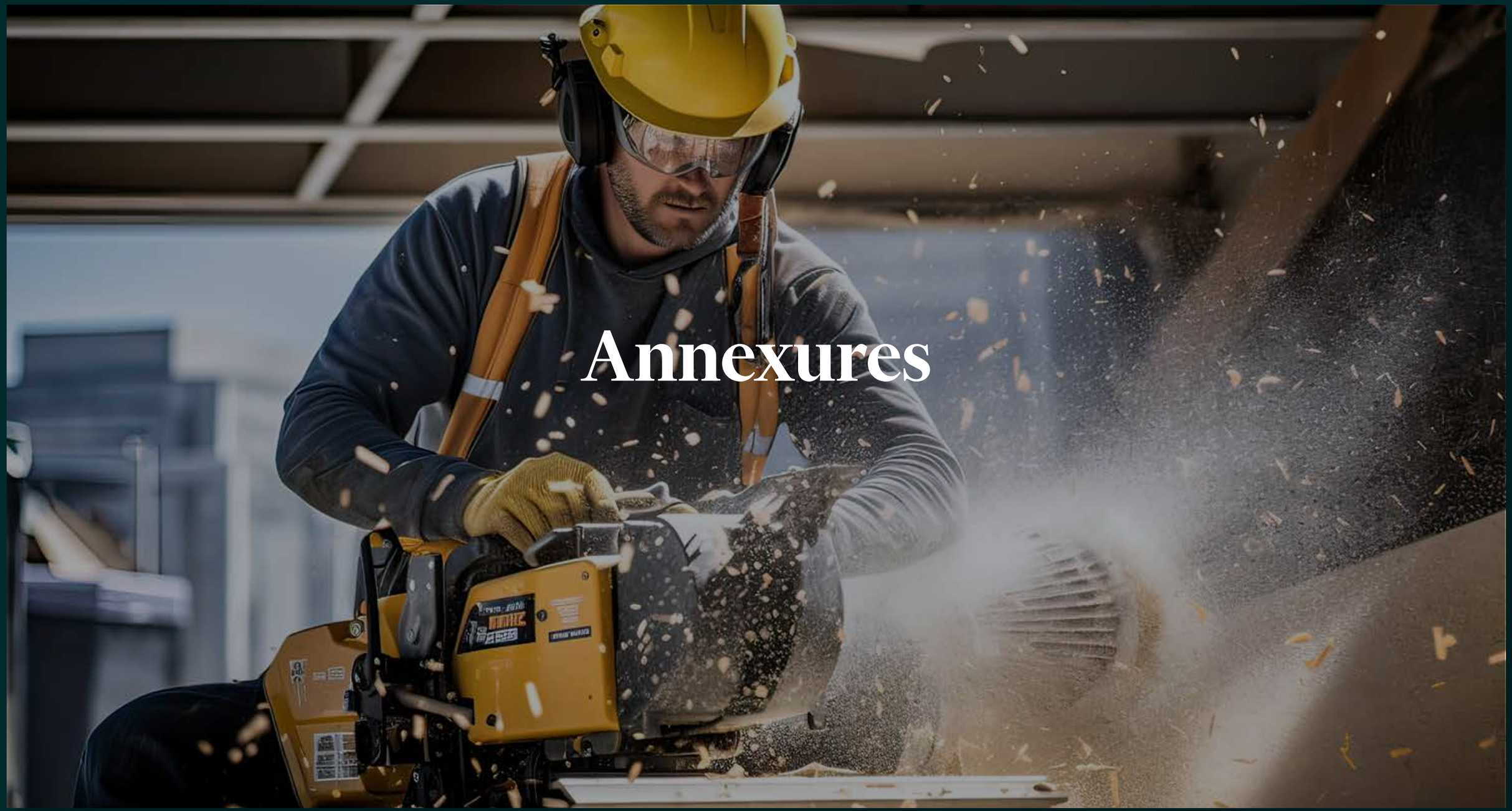
One of the fundamental proponents for focus on Health, Safety, and Environment (HSE) in the real estate sector is the increasing adoption of ESG. It is likely to become a major driver for safety improvements as ESG creates a natural synergy with safety. Companies are increasingly recognizing the strong connection between safety, social well-being, environmental protection, and good governance.

A focus on environmental protection aligns with preventing accidents that could cause spills or pollution. Social responsibility intrinsically links to employee well-being, a key aspect of safety culture. Strong governance translates to robust safety practices through clear policies, leadership commitment, and responsible risk management. With a strong safety culture, its possible to touch all three aspects of ESG.

Also, as ESG principles emphasize transparency and open communication, this likely translates to a safety culture where concerns are encouraged, near misses are reported, and lessons learned are shared openly. This fosters a collaborative environment where everyone plays a role in safety.

The war for talent in the coming years will emerge as a much stronger trend. In a competitive talent market, a strong safety culture becomes a valuable asset. Employees are increasingly seeking workplaces that prioritize their well-being. Companies with a proven safety record will be better positioned to attract and retain top talent. Also, as investors increasingly prioritize ESG parameters, companies with demonstrably strong safety cultures will gain a competitive edge. This incentivizes continuous improvement in safety practices.

Overall, the increasing adoption of ESG presents a golden opportunity to elevate safety culture to new heights. By aligning ESG goals with safety best practices, companies can create a safer and more sustainable future for their workforce and the environment.



Annexures

Annexure 1: Case Studies and Best Practices of Successful Safety Programmes

Well-established best practices related to safety culture provide a comprehensive framework for achieving safety, efficienc , and quality in construction projects. This section explores key areas where these best practices can effectively be implemented.

Examples of best practices

INITIATIVE	IMAGE	IMPACT
Edge Protection System • Edge Protection System (EPS) is a safety system that protects people and property from falling objects and debris. It is designed for high-rise constructions and renovations in existing buildings. • Screen Wall consist of GI framing with very fine synthetic mesh.		• Safety: They create a safe perimeter around the edge of a slab while the inbuilt platform prevents the fall of man and materials below. • Ease of use: They are easy to use and require no specialist. • Easy to erect and shift to the next floor as the site progresses. • Workers feels confident and work fearlessly inside an EPS platform. • Increases the productivity as multilevel platform is available. • No repair work for quality issues.
Temporary Grill for Window • 0.5-tonne scrap steel is used for temporary grill fixing in window openings. • 32 tonnes of scrap steel is used for temporary grills, which can be reused after fixing the permanent grills.		• Averts the usage of 40NB pipes for cutting the window barricading which needs to be scrapped after use. • Scrap steel is reused for barricading purpose. • Screw jacks are avoided to fix the barricades - resulting in cost savings.

Disclaimer: Please note that these are only a few examples of best practices being adopted on construction sites basis secondary research and CBRE proprietary information. There can be various other practices that can be deployed for better safety.

INITIATIVE	IMAGE	IMPACT
Debris Shaft • Debris Shaft built with block work and door system for safe usage of shafts. • Debris collection point in the basement for disposing of debris through a vehicle.		• Promotes a healthy and safe environment: Debris can create environmental pollution and add to health and safety risks. Proper management of debris can help create a healthier and safer environment. • Debris' disposal in a safer way reduces workers getting injured during the disposal process, and falling through the shaft is arrested. • Fall of materials from the above floor while dropping debris in shaft are arrested by providing doors on every floor.
Ceiling-Mounted Light Fixtures • Systematic fixing of light fixtures for standard illumination. • Ceiling-mounted light fixtures can be adjustable based on requirements. • Fixing of four lights in one frame so more drilling into the ceiling is reduced.		• No chance of human interference or horseplay. • Frequent focusing and adjustment not required. • Equally distributed illumination.

INITIATIVE	IMAGE	IMPACT
Interlocking System • Two interlocking limit switches are installed in two tanks which are connected in series connections. • Prevents manual operations and human errors.		• Automatic power cut off if the g te is in open condition. • Avoids human interruption and supervision. • Averts electrocution and other electrical hazards.
Electrical Insulators • Electrical insulators are installed in electrical poles to avoid conductivity between the light fixtures and stands. • The insulating medium prevents the flow of current from light fixtures to poles in case of accidental leakages.		• Prevents electrical shock hazards: Insulators prevent the conduction of electricity from energized wires to the ground, eliminating the risk of electrical shock hazards. • Enables safe maintenance and repair. • Reduces fire hazards. • Ensures compliance with safety regulations.

Source: CBRE Research Q1 2024

Annexure 2: Key Technologies for Enhanced Safety

The construction industry is witnessing a surge in innovative technologies aimed at improving health and safety practices. Here are some of the current and upcoming advancements:

Current Technologies

Wearable Technology
Smartwatches, exoskeletons, and biometric monitors track worker fatigue, posture, and exposure to hazards such as dust and noise.

Drones and Remote Sensing
Aerial drones inspect sites for hazards, map areas, and monitor progress while minimising worker risk in dangerous environments.

3D Printing and Digital Twins
Creating virtual models of construction sites allows for safer planning, training, and hazard identification before work begins.

Real-Time Monitoring Systems
Sensors and cameras monitor site conditions such as air quality, temperature, and worker movement, offering real-time data for proactive safety management.

Virtual Reality (VR) and Augmented Reality (AR)
VR training modules immerse workers in realistic scenarios to safely learn hazard recognition and safe work practices.
AR overlays safety information onto real-world environments, guiding workers and highlighting potential hazards.

Upcoming Technologies

Artificial Intelligence (AI)
AI algorithms can analyse data from various sources to predict safety risks, identify incident patterns, and recommend preventive measures.

Robotics and Automation
Robots can perform dangerous tasks such as heavy lifting, demolition, and confined space entry, reducing workers' risk exposure.

Blockchain Technology
Securely storing safety data on a blockchain can improve transparency, accountability, and collaboration across project stakeholders.

Sensor-Embedded Building Materials
Integrating sensors into building materials can monitor structural integrity, detect cracks, and alert about potential hazards before they become critical.

Advanced Wearables
Emerging wearables may track emotions and stress levels, offering insights into workers' well-being and potential safety risks related to fatigue or emotional state.

The adoption of these technologies is improving safety standards in construction by enabling early hazard detection, enhancing safety training and awareness, facilitating real-time monitoring, and promoting proactive safety management. While technology advancements are expected to further enhance safety and risk reduction, it is crucial to acknowledge persistent challenges such as cost, accessibility, data privacy and security, as well as training and workforce acceptance.

Disclaimer: Please note that these are only key technologies that can be deployed in construction industry basis secondary research and CBRE proprietary information. There can be various other technologies that can be deployed for better safety.

Annexure 3: Importance of Training in Building a Safety Culture

Here are some training programmes that can improve the safety culture on construction sites and the wider industry:

Basic Safety Training

Scaffolding safety
Covers erecting, using, and dismantling scaffolding systems safely.

Fall protection
Educates workers on the proper use of fall arrest systems, harnesses, and lanyards.

Electrical safety
Emphasises safe work practices around electrical equipment and avoiding hazards.

Confined space entry
Trains workers on safely identifying, entering, and working in confined spaces.

Personal protective equipment (PPE)
Explains the importance of proper PPE selection, use, and care.

Specialised Training

Excavation safety
Covers safe trenching, shoring, and working in underground utilities.

Working at heights
Trains workers on safe practices when working on roofs, ladders, and elevated platforms.

Lifting and rigging
Instructs workers on using cranes, hoists, and other lifting equipment safely.

Fire safety
Teaches fire prevention, fire extinguisher use, and evacuation procedures.

First aid and cardiopulmonary resuscitation (CPR)
Equips workers with basic life-saving skills in emergencies.

Behavioural-Based Safety (BBS) Training

Hazard identification and reporting
Encourages workers to identify and report potential safety hazards actively.

Safe work practices and procedures
Reinforces proper safety protocols and encourages consistent application.

Stop-work authority
Empowers workers to stop unsafe work and raise concerns without fear of retribution.

Incident investigation and learning
Teaches workers how to analyse and learn from incidents to prevent future occurrences.

Leadership and Management Training

Safety leadership
Equips leaders with skills to promote safety culture within their teams effectively.

Risk assessment and management
Trains leaders on identifying and mitigating potential safety risks on projects.

Accident investigation and analysis
Enables leaders to investigate incidents thoroughly and implement corrective actions.

Safety communication and engagement
Provides skills for effective communication with workers about safety issues.

Additional Programmes

Cultural competency training
Helps leaders understand and address cultural differences that might impact safety practices.

Mental health and stress management
Equips workers with coping mechanisms for workplace stress, a factor contributing to safety incidents.

Technology-based training
Utilises virtual reality or simulations for immersive safety training experiences.

While these are targeted training programmes, they should be regularly updated to reflect changing regulations, best practices, and new technologies. The training programmes should also be designed based on specific project risks, worker roles, and identified gaps in safety knowledge. Effective safety training is an ongoing process, not a one-time event. By investing in diverse and targeted training programmes, the construction industry can equip its workforce with the knowledge, skills, and attitudes necessary to build a safer and healthier work environment for everyone.

Disclaimer: Please note that these are only a few key trainings that can be conducted on construction sites basis secondary research and CBRE proprietary information. There can be various other training programmes that can be conducted for better safety

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