

Make in India & Fire Safety: What Manufacturers Need to Know



This editorial explores the evolving relationship between India's manufacturing expansion and fire safety requirements. As industries scale under the Make in India initiative, manufacturers must align innovation, compliance, and risk management to ensure safer products, safer workplaces, and stronger business outcomes.

A STRATEGIC
EDITORIAL FOR
INDIA'S
MANUFACTURING
SECTOR

TECHNICAL
EDITION

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Featured Story

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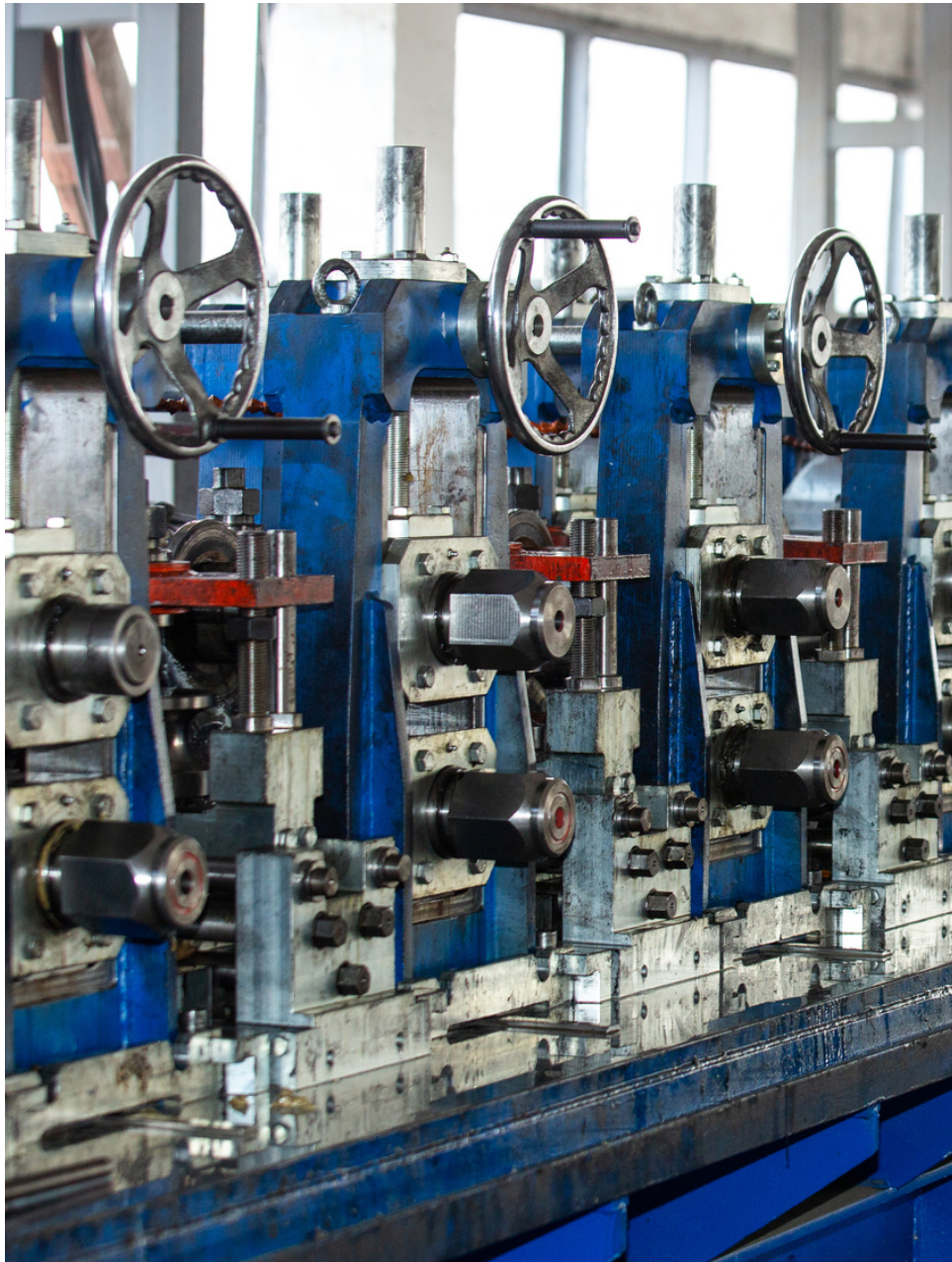
EDITORIAL INTRODUCTION

MAKE IN INDIA . MAKE IT SAFE.

India's manufacturing sector is entering a defining era. Driven by the Government's Make in India initiative, new factories, logistics hubs, and industrial parks are emerging at pace across electronics, railways, defence, automotive, and construction. But with industrial scale comes industrial risk. **Fire safety is no longer a compliance checkbox.** It has become a strategic imperative one that determines market access, investor confidence, operational continuity, and the lives of workers on the floor. This editorial examines what India's manufacturers must know about fire safety, fire testing, and the competitive advantage that comes from getting it right from the start.



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 - 03 The Regulatory Framework
 - 04 Rail, EV & Construction Deep Dive
 - 05 Building a Safety Culture
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PROSPEC PERSPECTIVE

"Manufacturers who treat fire safety as a business strategy — not a regulatory burden — are better positioned for growth, export, and long-term resilience."

AT A GLANCE

SCALE

India's Manufacturing Expansion—And the Fire Risk It Brings

The Risk Profile Has Changed

Modern manufacturing facilities are fundamentally different from those of a decade ago. High-density warehouses, automated production lines, lithium-ion battery storage, and complex electrical infrastructure mean that a single ignition point can escalate faster and with more severe consequences than traditional fire models account for.

The sectors driving India's growth — electronics, EV manufacturing, railway supply, construction — carry among the highest fire risk profiles of any industrial category.

Prospec's testing programmes are built precisely for this landscape.

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TARGET

India aims to raise manufacturing's share of GDP to 25% under the Make in India strategy — driving unprecedented industrial activity.

30+

PROSPEC EXPERTISE

Over thirty fire testing, compliance, and certification expertise serving India's most critical industries

SEVERAL TESTS

CONDUCTED

Prospec has conducted several fire safety evaluations across rail, defence, construction, and industrial sectors over the years

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FIRES ARE PREVENTABLE

Industry data consistently shows the vast majority of industrial fire incidents involve preventable risks — inadequate testing, poor material selection, and absent protocols

FIRE HAZARDS IN MODERN FACILITIES

- High electrical loads & automated machinery
- Flammable raw materials & chemical storage
- Lithium-ion battery banks
- High-density packing & warehousing
- Plastic components & insulation materials
- Industrial heating & process equipment

PRIORITY

Why Fire Safety Has Become a Core Business Requirement for Indian Manufacturers

For most of the last two decades, fire safety in India's industrial sector was treated as a documentation exercise. Manufacturers obtained a No-Objection Certificate from the local fire authority, installed extinguishers, designated assembly points — and considered the obligation met. That approach is no longer viable. The business landscape has shifted fundamentally, and the change is coming simultaneously from three directions: customer requirements, investor expectations, and regulatory tightening.

Customers Are Setting the Standard

Large OEMs — in automotive, aerospace, railways, and defence — now routinely require their supply chain partners to demonstrate formal fire safety compliance before approving them for procurement. A rail OEM sourcing seat materials must supply EN 45545-certified components. A defence contractor specifying cable insulation will request BS 476 test reports. A building developer procuring facade panels increasingly demands independently verified fire performance data. Without testing, without certification, without documented evidence — the manufacturer is simply not in the conversation. Fire safety has become a supplier qualification criterion, not an afterthought.

Investors Are Evaluating ESG Performance

ESG considerations now directly influence institutional investment decisions. Fire safety sits at the intersection of Social (worker welfare), Governance (risk management maturity), and Operational resilience. Manufacturers demonstrating structured fire risk management — through third-party testing, certifications, and documented protocols — signal a calibre of risk awareness that investors

KEY STANDARDS BY SECTOR

Railways & Transit

EN 45545-2 · RDSO Requirements · IS 15614

Construction

BS 476 Series · National Building Code · BIS Standards

Electrical & Electronics

UL 94 · IEC 60695 · IS 694

Defence & Aerospace

DEF STAN · Sector-specific material specs

Consumer & Industrial

Product-specific flame retardancy standards

WHAT INSURANCE DEMANDS

Insurers are tightening scrutiny of industrial facilities. Facilities without adequate fire protection measures face higher premiums, reduced coverage, or policy rejection outright. Third-party test certification is increasingly the most powerful single document that a manufacture can produce in an fire negotiation

FIRE TEST MEASURES

Flame Spread — How quickly fire travels across a surface

Heat Release Rate — Energy output during combustion

Smoke Density — Visibility reduction in evacuation scenarios

Toxicity — Harmful gas emissions during burning

Fire Resistance — Structural integrity under fire exposure

FOCUS

Three Sectors Where Fire Safety Determines Market Access

Railways & Urban Transit — Where EN 45545 Is Non-Negotiable

India is in the midst of one of the most ambitious transport infrastructure expansions in the world new metro lines, intercity rail corridors, Vande Bharat coaches, urban transit systems, and high-speed rail projects spanning the country. The passenger volumes involved are immense, and the evacuation challenges in enclosed, moving rail environments are uniquely severe.

The fire performance standard EN 45545-2 has become the defining certification requirement for materials used in passenger rail interiors. Seating, wall panels, flooring, cable insulation, ceiling linings — every material in a rail car must be tested and classified to EN 45545 Hazard Level requirements before it reaches a procurement shortlist.

Manufacturers who have not invested in this certification are categorically excluded from large rail tenders. Prospec's EN 45545 testing programme provides manufacturers with the technical data and certification pathway required to enter and compete in India's rapidly growing rail supply chain.

Construction Materials — The Competitive Differentiator

Modern commercial construction uses a complex array of materials composite facade panels, insulation systems, raised flooring, acoustic linings, and structural assemblies each contributing to the building's total fire profile. Increasingly, developers, architects, and specifiers demand independently tested fire performance data before approving a product for inclusion in a project specification.

RAIL: WHAT MUST BE TESTED

- ▶ Seat & upholstery materials
- ▶ Interior wall & ceiling panels
- ▶ Flooring systems
- ▶ Cable & wiring insulation
- ▶ Acoustic & thermal insulation

CONSTRUCTION: FIRE PERFORMANCE CRITERIA

Reaction to Fire — Ignitability, flame spread, heat release, smoke production classified per BS 476 / EN 13501

Fire Resistance — Structural integrity, insulation, and integrity of assemblies under standard time-temperature curves

Smoke & Toxicity — Critical for occupied building evacuation scenarios

EV AND ELECTRONICS EVALUATIONS

Battery enclosure fire containment · Thermal runaway propagation testing · Cable flame retardancy (UL 94, IEC 60695) · Component-level fire resistance · Heat management material performance

TRUST AND COMMITMENT

TRUST

Building a Fire-Safe Culture—Beyond Compliance, Toward Commitment

The most dangerous posture a manufacturer can take toward fire safety is the compliance-first mindset: pass the inspection, file the NOC, renew the certificate — and treat the obligation as discharged. A genuine fire-safe culture is structurally different. It begins with leadership that treats safety as a value rather than a cost. It cascades through worker training programmes that give every employee on the factory floor the knowledge to recognise, report, and respond to fire hazards. It manifests in preventive maintenance schedules that don't treat fire alarms and sprinkler systems as low-priority line items. Manufacturers that operate this way carry a measurably lower risk profile — which translates directly into faster customer qualifications, lower insurance premiums, fewer operational disruptions, and stronger reputations in their supply chains.

The Five Pillars of a Safety Culture

1. Leadership Commitment — Fire safety must receive visible, active support from senior management. Culture follows behaviour from the top.
2. Employee Training — Workers must understand specific fire hazards present in their environment, emergency response procedures, and how to report near-misses without fear of blame.
3. Preventive Maintenance — Regular, documented inspection of electrical systems, fire detection, suppression systems, and emergency exits prevents incidents before they occur.
4. Emergency Preparedness — Evacuation drills, incident response simulations, and documented emergency procedures ensure that when a fire does occur, the response is automatic rather than improvised.
5. Third-Party Verification — Independent testing by accredited laboratories like Prospec provides objective evidence that materials and products perform as expected under fire conditions — evidence that is impossible to replicate through self-declaration.

THE COMPETITIVE ADVANTAGE

Manufacturers with strong fire safety practices systematically benefit from:

Faster Customer Approvals — Test reports and third-party certification simplify supplier qualification processes dramatically.

Stronger Brand Reputation — Supply chain partners consistently prefer suppliers who demonstrate a commitment to safety over those offering only self-declared compliance.

Reduced Operational Risk — A lower probability of fire-related shutdowns protects revenue, supply continuity, and customer relationships.

Why Test in India with Prospec?

Speed — India-based testing eliminates the logistics and lead time of sending samples overseas for European or US laboratory evaluation.

Certifier Recognition — Prospec's test reports carry recognition that satisfies OEM qualification requirements across rail and defence sectors.

Cost Efficiency — Local testing is a fraction of the cost of international laboratory programmes, with no reduction in technical rigour or output quality.

Expertise — 300+ man-years of fire testing knowledge, embedded in every test report we produce.

Prospec lab — Sector Insight 2025

Companies that approach fire safety as a differentiator — rather than a requirement — consistently outperform their peers in export market access, OEM qualification timelines, and long-term supply chain relationships. Safe manufacturing is, ultimately, sustainable manufacturing.

FUTURE OUTLOOK

LOOKING AHEAD

A Word on Where India's Manufacturing Fire Safety Journey Leads

India's manufacturing ambition is real, it is funded, and it is accelerating. The Make in India programme is not a policy aspiration — it is a structural shift in where global supply chains source their components, materials, and assemblies. And India's manufacturers are responding.

What this means for fire safety is straightforward: the expectations placed on manufacturers — by their customers, by their investors, by their regulators, and by the markets they seek to enter — will continue to rise. The global standard for third-party fire testing, for certified material performance, for documented compliance is being applied to Indian suppliers as a condition of entry, not a preference.

The manufacturers who prepare now will compete tomorrow. Those who delay will find themselves not merely behind on certification — but behind on relationships, on approvals, and on the trust that takes years to build and moments to lose.

At Prospec, we have spent over three decades building the technical infrastructure, the testing expertise, and the institutional knowledge to help Indian manufacturers navigate this landscape. Our role is not to add bureaucracy to your supply chain — it is to provide the objective evidence that unlocks the doors your products deserve to walk through.

India's growth story is one of the most compelling in the world. We intend to help it be one of the safest.

FUTURE TRENDS TO WATCH Stricter compliance requirements tied to export market entry · Greater adoption of EN and ISO fire standards by Indian OEMs · Increased mandatory third-party testing across regulated sectors · Enhanced product traceability and fire performance documentation · Smart fire detection and data-driven risk management adoption · ESG-linked safety performance metrics in supplier scorecards	Key Takeaways — This Edition		
	Theme	Insight	Prospec Service
	Fire as Business Strategy	Certified fire performance opens supply chain doors that self-declaration cannot.	Material & Product Fire Testing
	Railway Compliance	EN 45545-2 is the gateway standard for India's growing rail supply chain.	EN 45545 Test Programme
	EV & Battery Safety	Thermal runaway testing is becoming a prerequisite for OEM qualification.	Battery & EV Material Testing
	Construction Sector	BS 476 / IS certification increasingly required by developers and architects.	Reaction-to-Fire & Resistance Testing
	Safety Culture	Third-party testing is the most credible form of fire safety evidence available.	Independent Laboratory Certification

Partner with Prospec Labs to ensure your materials don't just pass tests — they perform when it matters most.