



HANDBOOK ELEVATORS

FEVZI

Table of Contents

Part I: Introduction and Safety	3
1. Introduction.....	3
2. Safety	4
Part II: Operations and Maintenance	10
3. Maintenance Planning	10
4. Elevator Maintenance Procedures	14
5. Troubleshooting and Repairs.....	18
Part III: Quality Assurance and Best Practices	21
6. Quality Assurance	21
7. Best Practices	24
Appendices	27
Appendix A: Safety Checklists	28
A.1 Personal Protective Equipment Inspection Checklist.....	28
A.2 Lockout/Tagout Checklist.....	28
A.3 Hoistway Access Checklist	29
A.4 Machine Room Access Checklist.....	29
A.5 Pit Access Checklist.....	30
Appendix B: Maintenance Checklists	31
B.1 Daily Inspection Checklist.....	31
B.2 Weekly Maintenance Checklists.....	32
B.2.1 Elevators.....	32
B.2.2 Escalators	32
B.3 Monthly Maintenance Checklists	33
B.3.1 Elevators.....	33
B.3.2 Escalators	33
B.4 Quarterly Maintenance Checklists.....	34
B.4.1 Elevators.....	34
B.4.2 Escalators	34
B.5 Annual Maintenance Checklists	35
B.5.1 Elevators.....	35
B.5.2 Escalators	35

Appendix C: Inspection and Testing Checklists.....	36
C.1 Acceptance Inspection Checklists	36
C.1.1 Electric Elevators.....	36
C.1.2 Hydraulic Elevators	36
C.1.3 Escalators and Moving Walks	37
C.2 Periodic Inspection Checklists.....	37
C.2.1 Cat 1 Inspection Checklist.....	37
C.2.2 Cat 5 Inspection Checklist.....	38
C.3 Fire Service Testing Checklist	38
C.4 Calibration and Testing Checklists for Inspection Equipment	38
Appendix D: Forms and Templates	40
D.1 Maintenance Work Order Form	40
D.2 Repair Report Form.....	41
D.3 Incident Investigation Form.....	41
D.4 Management of Change Form	41
D.5 Customer Satisfaction Survey Template.....	42
Appendix E: Quick Reference Guides	42
E.1 Elevator Rope Tensions	42
E.2 Elevator Oil Viscosity Grades.....	42
E.3 Escalator Step/Skirt Performance Index	43
Appendix F: Resources	43
F.1 Industry Standards and Codes	43
F.2 Regulatory Agencies and Authorities.....	43
F.3 Industry Associations	44
F.4 Recommended Books and Publications	44
F.5 Online Training and Certifications	44
8. Change Log	44
8. Fenzi Team	44
8. Copyright & Document Ownership	44

Elevator Maintenance and Safety Handbook

Part I: Introduction and Safety

1. Introduction

1.1 Purpose and Scope

This handbook provides a comprehensive guide for the safe and effective maintenance of elevators, escalators, and moving walks. It covers the types of equipment and maintenance activities commonly encountered in the vertical transportation industry.

1.2 Intended Audience

The primary audience for this handbook includes:

- Elevator technicians
- Maintenance supervisors
- Facility managers
- Safety professionals

Other users who may find this resource valuable include property owners, architects, and engineers.

1.3 How to Use This Handbook

This handbook is organized into three main parts, covering safety, maintenance procedures, and quality assurance. The appendices provide additional checklists, forms, and resources to support the maintenance process.

Users should familiarize themselves with the overall content structure and use the detailed table of contents to quickly locate specific topics as needed. The handbook can be used as a reference guide during maintenance activities, a

training resource for new technicians, and a basis for developing company-specific maintenance policies and procedures.

2. Safety

2.1 Safety Responsibilities

2.1.1 Organizational Safety Policy

Every elevator maintenance organization should have a documented safety policy that clearly states the company's commitment to providing a safe and healthful workplace. The policy should be communicated to all employees and regularly reviewed and updated.

2.1.2 Supervisor Responsibilities

Maintenance supervisors play a key role in implementing the organization's safety program. Their responsibilities include:

- Providing safety training and resources to technicians
- Enforcing safe work practices and procedures
- Conducting regular safety inspections and audits
- Investigating accidents and near-misses
- Leading by example and promoting a positive safety culture

2.1.3 Technician Responsibilities

Individual technicians are responsible for:

- Following all safety rules and procedures
- Utilizing appropriate PPE and tools for each task
- Reporting any unsafe conditions or practices
- Participating in safety training and meetings
- Looking out for the safety of coworkers and the public

2.2 General Safety Rules

2.2.1 Personal Conduct

All personnel are expected to conduct themselves in a professional manner, follow company policies, and abstain from horseplay, fighting, or working under the influence of drugs or alcohol.

2.2.2 Housekeeping

Work areas should be kept clean, organized, and free of tripping hazards. Tools and materials should be properly stored when not in use, and waste should be promptly disposed of in designated receptacles.

2.2.3 Hazardous Materials

Elevator maintenance may involve working with hazardous materials such as lubricants, solvents, and batteries. Technicians should be trained on the proper handling, storage, and disposal of these materials in accordance with safety data sheets (SDS) and environmental regulations.

2.3 Personal Protective Equipment

2.3.1 Fall Protection

Technicians working at heights of six feet or more must use appropriate fall protection, which may include harnesses, lanyards, and anchor points. Fall protection equipment should be regularly inspected and replaced if damaged or excessively worn.

2.3.2 Head Protection

Hard hats must be worn at all times in construction areas, machine rooms, and whenever there is a risk of falling objects or head injury. Hard hats should meet ANSI Z89.1 standards and be replaced if damaged or after a maximum of five years.

2.3.3 Eye and Face Protection

Safety glasses or goggles must be worn when working with chemicals, power tools, or any task that creates dust, splashes, or flying particles. Face shields may be required for grinding, welding, or other high-hazard tasks.

2.3.4 Hearing Protection

Earplugs or earmuffs must be worn in areas with noise levels exceeding 85 decibels, such as machine rooms or construction sites. Hearing protection should be selected based on the specific noise hazard and individual fit.

2.3.5 Respiratory Protection

Dust masks or respirators may be required when working in areas with poor ventilation or exposure to airborne contaminants. Technicians should be trained on the proper selection, use, and maintenance of respiratory protection.

2.3.6 Hand and Foot Protection

Gloves should be worn when handling rough or sharp materials, working with chemicals, or to protect against cuts and abrasions. Safety shoes with non-slip soles and reinforced toes are required in most elevator work environments.

2.4 Lockout/Tagout Procedures

2.4.1 When to Perform Lockout/Tagout

Lockout/tagout (LOTO) procedures are used to prevent the unexpected startup or release of energy during maintenance tasks. LOTO is required when:

- Performing service or maintenance on electrical or mechanical equipment
- Working in the elevator pit or hoist way
- Accessing the car top for inspection or repair

2.4.2 Authorized Personnel

Only technicians who have received specific LOTO training and are authorized by the company may perform lockout/tagout procedures. Unauthorized personnel should never attempt to remove or bypass LOTO devices.

2.4.3 Lockout/Tagout Sequence

The general steps for performing LOTO are:

1. Notify affected personnel of the impending shutdown
2. Identify and locate all energy sources and isolation points
3. Shut down equipment using normal stopping procedures

4. Isolate energy sources by turning off switches, valves, or breakers
5. Apply individually keyed locks and tags to each isolation point
6. Dissipate any stored energy, such as capacitors or hydraulic pressure
7. Verify zero energy state by attempting to start the equipment

2.4.4 Removal of Locks/Tags

LOTO devices should only be removed by the individual who applied them, after ensuring that:

- All tools and materials have been removed from the work area
- All personnel are clear of the equipment
- All guards and safety devices have been reinstalled
- Affected employees have been notified of the impending restart

2.5 Electrical Safety

2.5.1 Electrical Hazards

Elevator maintenance often involves working with high-voltage electrical equipment, which can pose serious risks of shock, arc flash, and electrocution. Technicians must be trained to recognize and control these hazards through safe work practices and PPE.

2.5.2 Safe Work Practices

When working on or near exposed electrical conductors or circuit parts, technicians must:

- De-energize and lockout/tagout equipment whenever possible
- Use proper tools and test instruments rated for the voltage level
- Maintain appropriate approach distances and cover exposed conductors
- Wear arc-rated clothing and PPE based on the incident energy level

2.5.3 Electrical PPE

In addition to standard PPE, electrical work may require specialized items such as:

- Rubber insulating gloves and sleeves
- Insulated tools and test probes

- Arc-rated face shields and balaclavas
- Insulating mats and blankets

Electrical PPE must be regularly inspected and tested to ensure effectiveness and safety.

2.6 Hoistway and Machine Room Safety

2.6.1 Accessing the Car Top

When accessing the car top for maintenance or inspection, technicians must:

- Verify that the car is stopped and the main power is shut off
- Use a safe means of access, such as a ladder or car top platform
- Maintain three points of contact and keep a firm handhold
- Wear appropriate fall protection when working near the hoistway opening

2.6.2 Working in the Pit

Before entering the elevator pit, technicians must:

- Verify that the car is secured at least two floors above the pit floor
- Lockout/tagout the main power and any auxiliary disconnects
- Test the pit stop switch and verify that the car cannot be moved
- Use a ladder or other safe means to enter and exit the pit
- Maintain adequate lighting and ventilation in the pit area

2.6.3 Accessing the Machine Room

When working in the machine room, technicians should:

- Keep the room locked and restrict access to authorized personnel only
- Maintain a clean and orderly workspace free of tripping hazards
- Ensure proper lighting, ventilation, and fire protection are in place
- Use caution when working around rotating machinery and high-voltage equipment

2.7 Emergency Procedures

2.7.1 Entrapment Response

If a passenger becomes trapped in an elevator, technicians should:

- Communicate with the passenger and assure them that help is on the way
- Notify emergency services if the passenger is in distress or injured
- Use the appropriate tools and procedures to safely release the passenger
- Document the incident and investigate the cause of the entrapment

2.7.2 Injury or Illness Response

In the event of an injury or sudden illness on the job, technicians should:

- Assess the severity of the situation and call for emergency medical assistance if needed
- Provide first aid or CPR if trained and necessary
- Notify the supervisor and safety personnel of the incident
- Assist with the incident investigation and documentation

2.7.3 Fire Safety and Evacuation

All technicians should be familiar with the facility's fire safety and evacuation plans, including:

- Location and use of fire alarms, extinguishers, and hoses
- Primary and secondary evacuation routes and assembly points
- Procedures for using elevators in fire service mode
- Coordination with local fire department and emergency responders

Part II: Operations and Maintenance

3. Maintenance Planning

3.1 Maintenance Requirements

3.1.1 Code Requirements

Elevator maintenance must comply with the applicable codes and standards, such as:

- ASME A17.1: Safety Code for Elevators and Escalators
- ASME A17.2: Guide for Inspection of Elevators, Escalators, and Moving Walks
- ASME A17.3: Safety Code for Existing Elevators and Escalators
- Local building and fire codes

Technicians should stay current with code updates and ensure that maintenance practices align with the latest requirements.

3.1.2 Manufacturer Recommendations

Elevator manufacturers provide detailed maintenance instructions and intervals for their specific equipment. These recommendations should be followed to ensure safe and reliable operation and to maintain warranty coverage.

3.1.3 Industry Standards

Professional organizations such as the National Elevator Industry, Inc. (NEII) and the Building Owners and Managers Association (BOMA) publish additional guidelines and best practices for elevator maintenance. These standards can help to fill in gaps and provide a higher level of care beyond the minimum code requirements.

3.2 Developing a Maintenance Plan

3.2.1 Preventive Maintenance

A comprehensive preventive maintenance (PM) program is the foundation of effective elevator maintenance. PM tasks are performed at regular intervals to prevent failures, extend equipment life, and maintain safe and reliable operation.

Key elements of a PM program include:

- Inspecting, cleaning, and lubricating equipment
- Adjusting and calibrating components to maintain proper operation
- Testing safety devices and system functions
- Replacing worn or damaged parts before they fail

The specific PM tasks and frequencies should be based on the equipment type, age, usage, and environmental factors.

3.2.2 Predictive Maintenance

Predictive maintenance techniques use condition monitoring and data analysis to identify potential issues before they result in breakdowns. Common predictive technologies used in elevator maintenance include:

- Vibration analysis to detect worn bearings or gears
- Infrared thermography to identify electrical or mechanical hotspots
- Oil analysis to monitor lubricant condition and contaminants
- Acoustical analysis to detect changes in sound or noise levels

By combining predictive maintenance with traditional PM, technicians can optimize maintenance intervals, reduce downtime, and lower overall costs.

3.2.3 Corrective Maintenance

Even with a robust PM program, elevators may still experience occasional breakdowns or malfunctions. Corrective maintenance involves troubleshooting, repairing, or replacing failed components to restore normal operation.

Effective corrective maintenance requires:

- Well-trained technicians with knowledge of the specific equipment
- Adequate inventory of spare parts and materials

- Diagnostic tools and test equipment
- Systematic troubleshooting and root cause analysis processes
- Detailed documentation and communication with stakeholders

By tracking corrective maintenance activities, organizations can identify recurring issues, update PM tasks, and improve overall system reliability.

3.3 Computerized Maintenance Management Systems

3.3.1 CMMS Benefits

A computerized maintenance management system (CMMS) is a software platform that helps organizations plan, execute, and track maintenance activities.

Key benefits of using a CMMS for elevator maintenance include:

- Centralizing equipment data and maintenance history
- Automating work order generation and scheduling
- Tracking labor, parts, and tool usage
- Providing real-time visibility into maintenance performance
- Enabling data-driven decision making and continuous improvement

3.3.2 CMMS Selection Criteria

When selecting a CMMS for elevator maintenance, consider the following factors:

- Ease of use and mobile accessibility for technicians
- Integration with existing systems, such as building automation or accounting
- Scalability to accommodate future growth and changes
- Reporting and analytics capabilities
- Technical support and training provided by the vendor

Involving key stakeholders, such as technicians, supervisors, and IT staff, in the selection process can help to ensure that the chosen CMMS meets the organization's specific needs and requirements.

3.4 Maintenance Planning and Scheduling

3.4.1 Work Order Management

An effective work order management process is critical for ensuring that maintenance tasks are completed safely, efficiently, and on time. Key steps in the work order lifecycle include:

- Initiating work orders based on PM schedules, inspections, or customer requests
- Prioritizing work orders based on urgency and impact
- Assigning work orders to qualified technicians with the necessary skills and tools
- Executing work orders and documenting all activities performed
- Closing out work orders and updating equipment records
- Analyzing work order data to identify trends and improvement opportunities

3.4.2 Resource Allocation

Efficient allocation of maintenance resources, such as labor, parts, and tools, is essential for minimizing downtime and maximizing productivity. Strategies for optimizing resource allocation include:

- Balancing workloads across technicians and shifts
- Cross-training technicians to handle a variety of tasks and equipment types
- Maintaining an adequate inventory of frequently used parts and materials
- Utilizing just-in-time (JIT) procurement for less common or expensive items
- Leveraging technology, such as mobile devices and barcoding, to streamline workflows

3.4.3 Shutdown Planning

Major maintenance tasks or modernization projects may require taking an elevator out of service for an extended period. Effective shutdown planning can help to minimize disruption to building occupants and operations. Key considerations include:

- Coordinating with building management and tenants to schedule the shutdown
- Communicating the shutdown scope, duration, and impact to all affected parties
- Arranging for alternative transportation, such as temporary stairs or shuttles
- Ensuring that all necessary parts, tools, and personnel are available
- Developing a detailed timeline and contingency plan for the shutdown activities

- Providing regular progress updates and notifying stakeholders of any changes

3.4.4 Outage Coordination

In addition to planned shutdowns, elevators may experience unexpected outages due to equipment failures, power outages, or other emergencies. Effective outage coordination can help to minimize downtime and customer inconvenience. Key steps include:

- Notifying building management and tenants of the outage and estimated duration
- Diagnosing the root cause of the outage and developing a repair plan
- Mobilizing the necessary resources, such as technicians, parts, and tools
- Providing frequent status updates to stakeholders
- Documenting the outage cause, resolution, and any preventive actions taken
- Conducting a post-outage review to identify lessons learned and improvement opportunities

4. Elevator Maintenance Procedures

4.1 Daily Inspections

Daily inspections are quick visual and functional checks performed to identify any obvious safety hazards or operational issues. Common items included in a daily inspection checklist are:

- Ride quality and noise levels
- Leveling accuracy and door operation
- Buttons, indicators, and signage
- Safety edges and door reopening devices
- Emergency phone and alarm systems
- Cleanliness and condition of the cab interior
- Housekeeping and lighting in the machine room and hoistway

Any deficiencies noted during the daily inspection should be promptly reported and addressed according to their severity and potential impact.

4.2 Weekly and Monthly Maintenance

4.2.1 Hoistway and Pit

Weekly and monthly maintenance tasks in the hoistway and pit area may include:

- Inspecting and cleaning the guide rails and rollers
- Lubricating the governor rope and tension sheave
- Checking the counterweight runby and clearances
- Testing the limit switches and emergency stop functions
- Inspecting the buffers and striker plates
- Verifying that the pit is clean, dry, and free of debris

4.2.2 Machine Room Equipment

- Inspect drive machines, controllers, and governors
- Check sheaves, bearings, and brakes for wear and proper operation
- Verify proper lubrication levels and condition

4.2.3 Elevator Car Equipment

- Inspect and test door operators, safety edges, and photoelectric sensors
- Check car top equipment, including switches, lighting, and ventilation
- Verify proper operation of car controls and indicators

4.3 Quarterly and Annual Maintenance

4.3.1 Governor and Safety Tests

- Perform annual no-load test of safety devices
- Conduct 5-year full-load test of safeties and governors
- Document results and maintain test tags

4.3.2 Car and Counterweight Tests

- Inspect car frame, platform, and enclosure for damage or corrosion
- Check counterweight and compensation systems for proper balance and operation
- Verify car and counterweight guide shoe/roller condition and adjustment

4.3.3 Cleaning and Lubrication

- Perform major cleaning of hoistways, cars, and equipment
- Lubricate wire ropes, bearings, and other components per manufacturer's guidelines
- Document lubrication type, quantity, and date

4.4 Maintenance of Accessory Equipment

4.4.1 CCTV and Communication Systems

- Inspect cameras, monitors, and recording equipment for proper operation
- Test intercoms, emergency phones, and alarm systems
- Verify integration with building security and emergency response systems

4.4.2 Access Control Systems

- Check card readers, keypads, and biometric devices for proper function
- Verify integration with elevator control system and building security
- Test override and emergency access features

4.5 Escalator and Moving Walkway Maintenance

- Perform daily, weekly, and monthly inspections and cleaning per checklists
- Lubricate chains, bearings, and other components per manufacturer's guidelines
- Conduct annual no-load and 5-year full-load brake tests
- Inspect steps, pallets, and comb plates for wear, damage, and proper clearances
- Verify operation of safety devices, stop switches, and fault detectors

4.6 Documentation and Recordkeeping

4.6.1 Equipment Manuals and Drawings

- Maintain a library of current installation, operation, and maintenance manuals
- Keep as-built drawings, wiring diagrams, and parts lists readily accessible
- Update documentation to reflect any modifications or upgrades

4.6.2 Maintenance Logs and Service Reports

- Document all inspection, testing, and repair activities
- Include date, technician, tasks performed, and any issues found
- Maintain records for at least the previous 5 years

4.6.3 Defect Reporting and Tracking

- Establish a system for reporting and tracking defects or nonconformances
- Prioritize and assign corrective actions based on safety and operational impact

- Verify completion and effectiveness of corrective actions

5. Troubleshooting and Repairs

5.1 Troubleshooting Methodology

5.1.1 Information Gathering

- Review maintenance logs, service reports, and fault codes
- Interview users or witnesses to identify symptoms and timeline
- Inspect equipment and surrounding area for any obvious issues

5.1.2 Problem Analysis

- Consult technical manuals, drawings, and troubleshooting guides
- Analyze symptoms to identify possible root causes
- Prioritize potential causes based on likelihood and ease of verification

5.1.3 Hypothesis Testing

- Develop a plan to systematically test and eliminate possible causes
- Use appropriate tools and test equipment to isolate the problem
- Verify that the issue is resolved and does not recur

5.2 Electrical Troubleshooting

5.2.1 Control and Safety Circuits

- Use wiring diagrams and schematics to trace circuits
- Check for proper voltages, continuity, and grounding
- Test relays, contacts, and switches for proper operation

5.2.2 Drives and Motors

- Check for proper incoming power and phase rotation
- Measure motor current, voltage, and resistance
- Inspect drive belts, couplings, and gears for wear or damage

5.2.3 Door Operators

- Check for proper voltage and alignment of door operator
- Inspect door rollers, gibs, and sills for wear or damage
- Verify proper operation of door sensors and safety devices

5.3 Mechanical Troubleshooting

5.3.1 Hoistway Equipment

- Inspect guide rails, brackets, and fastenings for wear, damage, or misalignment
- Check limit switches, buffers, and other safety devices for proper operation
- Verify proper tension and condition of suspension means

5.3.2 Door Systems

- Check door operator belts, clutches, and linkages for wear or damage
- Inspect door panels, hangers, and tracks for alignment and smooth operation
- Verify proper operation of door interlocks and safety devices

5.3.3 Hydraulic Systems

- Check for proper fluid level, temperature, and condition
- Inspect pumps, valves, and cylinders for leaks or damage
- Verify proper operation of pressure switches and relief valves

5.4 Utilizing Fault Codes and Error Logs

- Consult manufacturer's documentation for fault code definitions and troubleshooting steps
- Use error logs to identify patterns or recurring issues
- Correlate fault codes with other symptoms and observations to isolate root cause

5.5 Repair Procedures

5.5.1 Temporary Repairs

- Assess the safety and feasibility of temporary repairs
- Document the scope and limitations of temporary measures
- Establish a plan and timeline for permanent repairs

5.5.2 Permanent Repairs

- Follow manufacturer's repair procedures and use approved replacement parts
- Document the repair process, including parts replaced and tests performed
- Update equipment records and maintenance plans as needed

5.5.3 Post-Repair Testing

- Perform functional tests to verify proper operation
- Conduct safety tests as required by code or manufacturer
- Monitor equipment performance and check for any recurring issues

5.6 Incident and Failure Analysis

5.6.1 Root Cause Analysis

- Gather data from maintenance records, interviews, and physical evidence
- Use techniques such as 5 Whys, Fishbone Diagrams, or Fault Tree Analysis
- Identify the underlying causes that allowed the incident or failure to occur

5.6.2 Corrective and Preventive Actions

- Develop and implement corrective actions to address the root causes
- Establish preventive measures to reduce the likelihood of recurrence
- Verify the effectiveness of actions through monitoring and follow-up audits

Part III: Quality Assurance and Best Practices

6. Quality Assurance

6.1 Quality Policy and Objectives

- Establish a formal quality policy aligned with organizational goals
- Define measurable quality objectives for safety, reliability, and customer satisfaction
- Communicate the policy and objectives to all employees and stakeholders

6.2 Quality Control Processes

6.2.1 Incoming Inspections

- Verify that new equipment, parts, and materials meet specified requirements
- Check for proper documentation, labeling, and packaging
- Quarantine and report any nonconforming items

6.2.2 In-Process Inspections

- Conduct planned inspections at key points during maintenance and repair activities
- Use checklists, criteria, and sampling plans to ensure consistency and completeness
- Document results and address any deficiencies found

6.2.3 Final Inspections

- Perform thorough inspections and tests prior to returning equipment to service
- Verify compliance with codes, standards, and specifications
- Review documentation for completeness and accuracy

6.3 Maintenance Audits

6.3.1 Internal Audits

- Conduct periodic audits of maintenance processes, records, and outcomes
- Use trained auditors and standardized checklists to ensure objectivity and consistency
- Identify strengths, weaknesses, and opportunities for improvement

6.3.2 External Audits

- Engage third-party auditors to provide an independent assessment of maintenance program
- Evaluate compliance with codes, standards, and best practices
- Use findings to validate internal audit results and drive continuous improvement

6.3.3 Audit Findings and Corrective Actions

- Document audit findings and prioritize based on risk and impact
- Develop corrective action plans with assigned responsibilities and timelines
- Verify completion and effectiveness of corrective actions through follow-up audits

6.4 Codes and Standards Compliance

6.4.1 ASME A17.1/CSA B44

- Comply with the latest edition and addenda of the code
- Ensure that all new installations, alterations, and repairs meet code requirements
- Maintain records of code-mandated tests and inspections

6.4.2 Local Codes and Regulations

- Identify and comply with any additional requirements imposed by state or local authorities
- Obtain necessary permits and approvals for new installations or major modifications
- Participate in periodic inspections and audits by the authority having jurisdiction

6.5 Key Performance Indicators

6.5.1 Mean Time Between Failures (MTBF)

- Track the average time between equipment failures or service interruptions
- Use MTBF to assess the effectiveness of preventive maintenance and identify problem areas
- Set targets for improving MTBF over time

6.5.2 Mean Time To Repair (MTTR)

- Measure the average time required to diagnose and repair equipment failures
- Use MTTR to evaluate the efficiency and capability of the maintenance team
- Set targets for reducing MTTR through training, tools, and process improvements

6.5.3 Maintenance Backlog

- Monitor the number and age of open maintenance work orders
- Use backlog metrics to identify resource constraints or scheduling issues
- Set targets for reducing backlog and improving work order completion rates

6.5.4 Callback Ratio

- Track the number of repeat service calls or callbacks within a specified period after repairs
- Use callback ratio to assess the quality and effectiveness of repair work
- Set targets for reducing callbacks through better diagnostics, repairs, and testing

6.6 Inspection and Testing Equipment

6.6.1 Tachometers and Anemometers

- Use tachometers to measure the speed of rotating components such as motors and sheaves
- Use anemometers to measure air flow in hoistways and machine rooms
- Calibrate and maintain equipment per manufacturer's recommendations

6.6.2 Force, Pressure and Tension Meters

- Use force gauges to measure door closing force and brake torque
- Use pressure gauges to measure hydraulic system pressure and valve settings
- Use tension meters to measure the tension of suspension means and compensation ropes
- Calibrate and maintain equipment per manufacturer's recommendations

6.6.3 Electrical Testing Equipment

- Use multimeters to measure voltage, current, and resistance in electrical circuits
- Use insulation resistance testers to assess the condition of motor windings and electrical cables
- Use ground fault detectors to identify leakage currents and potential safety hazards
- Calibrate and maintain equipment per manufacturer's recommendations

6.6.4 Other Inspection Equipment

- Use borescopes and cameras to visually inspect hard-to-reach components
- Use infrared thermometers and thermal imaging cameras to detect hot spots and thermal anomalies
- Use ultrasonic thickness gauges and hardness testers to assess the condition of structural components
- Calibrate and maintain equipment per manufacturer's recommendations

7. Best Practices

7.1 Establishing a Strong Safety Culture

- Demonstrate management commitment to safety through policies, actions, and resources
- Involve employees in identifying and mitigating safety hazards
- Provide regular safety training and communication

- Recognize and reward safe behaviors and practices
- Investigate and learn from accidents and near-misses

7.2 Leveraging Technology for Maintenance

- Implement a computerized maintenance management system (CMMS) to automate work orders and recordkeeping
- Use sensors and IoT devices for remote monitoring and predictive maintenance
- Adopt mobile tools and apps for field data collection and communication
- Utilize 3D modeling and BIM for visualization and planning of maintenance activities
- Explore the use of drones and robots for inspections and maintenance in hazardous or inaccessible areas

7.3 Enhancing Communication and Customer Service

- Establish clear channels and protocols for communication with building management and customers
- Provide regular updates on maintenance activities and equipment status
- Respond promptly to service requests and complaints
- Conduct customer satisfaction surveys and act on feedback
- Foster a culture of professionalism and customer-focus among maintenance staff

7.4 Focusing on Continuous Improvement and Training

- Establish a formal process for identifying and implementing improvements to maintenance processes and outcomes
- Encourage employee suggestions and involvement in improvement initiatives
- Provide ongoing technical and safety training to maintain and enhance staff competencies
- Benchmark performance against industry peers and best practices
- Celebrate and build upon successes while learning from failures

7.5 Optimizing Inventory and Supply Chain Management

- Implement a formal inventory management system to track and control spare parts and materials
- Establish minimum and maximum stock levels based on criticality and usage rates
- Explore opportunities for standardization and rationalization of parts and suppliers
- Develop relationships with key suppliers to ensure quality, reliability, and timely delivery
- Conduct regular inventory audits and adjust stocking levels based on changing needs

7.6 Collaborating with Other Departments and Functions

- Foster open communication and collaboration with engineering, facilities, and other departments
- Involve maintenance in design and construction decisions to ensure maintainability and reliability
- Participate in capital planning and budgeting processes to ensure adequate resources for maintenance
- Coordinate with other trades and contractors to minimize conflicts and optimize efficiency
- Serve as a technical resource and advisor to building management and ownership

7.7 Planning for Business Continuity and Resilience

- Develop and maintain a business continuity plan to minimize disruptions from equipment failures, power outages, or other emergencies
- Identify critical equipment and functions, and establish contingency plans for their continued operation
- Conduct regular drills and exercises to test and refine business continuity plans
- Coordinate with building management, tenants, and emergency responders to ensure a cohesive and effective response

- Continuously update and improve business continuity plans based on changes in equipment, personnel, or external factors

7.8 Embracing Sustainability and Energy Efficiency

- Incorporate sustainability and energy efficiency considerations into maintenance practices and decision-making
- Utilize energy-efficient equipment, such as LED lighting and regenerative drives, where feasible
- Optimize equipment operation and settings to minimize energy consumption while maintaining performance and safety
- Regularly monitor and analyze energy usage data to identify opportunities for improvement
- Educate and engage staff, building management, and tenants on sustainability and energy conservation measures

7.9 Enhancing Cybersecurity of Elevator Systems

- Recognize the potential cybersecurity risks associated with connected and automated elevator systems
- Implement strong access controls, authentication, and encryption for all elevator control and monitoring systems
- Regularly update and patch software and firmware to address known vulnerabilities
- Conduct periodic cybersecurity audits and penetration testing to identify and mitigate weaknesses
- Develop and regularly test incident response and recovery plans for cybersecurity breaches
- Train staff on cybersecurity best practices and their role in protecting elevator systems

Appendices

Appendix A: Safety Checklists

A.1 Personal Protective Equipment Inspection Checklist

- Hard hat: Check for cracks, dents, or other damage; ensure proper fit and adjustment; replace as needed
- Safety glasses: Check for scratches, cracks, or other damage; ensure clear vision and proper fit; replace as needed
- Gloves: Check for holes, tears, or excessive wear; ensure proper fit and grip; replace as needed
- Safety shoes: Check for worn soles, damaged uppers, or other defects; ensure proper fit and support; replace as needed
- Hearing protection: Check for damage or deterioration; ensure proper fit and noise reduction; replace as needed
- Fall protection: Check harness, lanyards, and anchors for wear, damage, or defects; ensure proper fit and function; replace as needed

A.2 Lockout/Tagout Checklist

- Identify all energy sources and isolation points
- Notify affected personnel of equipment shutdown
- Shut down equipment using normal operating controls
- Isolate all energy sources using appropriate lockout devices
- Dissipate any stored energy (e.g., capacitors, springs, hydraulic pressure)
- Verify zero energy state by attempting to operate equipment
- Apply personal lock and tag to each isolation point
- Perform maintenance or repair work
- Remove tools, materials, and personnel from work area
- Verify equipment is operationally intact and ready for startup
- Remove locks and tags and restore energy sources
- Notify affected personnel of equipment startup and return to service

A.3 Hoistway Access Checklist

- Obtain authorization from building management and/or supervisor
- Review maintenance logs and equipment history for any known hazards
- Verify that elevator is at desired landing and not in use
- Disable elevator from responding to calls using appropriate means (e.g., hoistway access switch, inspection mode)
- Use appropriate PPE, including hard hat, safety glasses, gloves, and fall protection as needed
- Use designated and approved means of hoistway access (e.g., landing door, access panel)
- Maintain three points of contact and secure footing/positioning at all times
- Test stop switch, inspection controls, and other safety devices before proceeding
- Perform planned maintenance or repair work, keeping clear of moving parts and fall hazards
- Remove tools, materials, and debris from hoistway
- Verify hoistway is clear of personnel and equipment before returning elevator to service
- Close and secure hoistway access points
- Enable elevator to respond to calls and test for proper operation
- Remove any lockout/tagout devices and restore power as needed
- Notify building management and/or supervisor of completion and any issues encountered

A.4 Machine Room Access Checklist

- Obtain authorization from building management and/or supervisor
- Review maintenance logs and equipment history for any known hazards
- Verify that elevator is not in use and is safely stopped
- Disable elevator from responding to calls using appropriate means (e.g., control system, disconnect switch)

- Use appropriate PPE, including hard hat, safety glasses, gloves, and hearing protection as needed
- Check that machine room lighting and ventilation are adequate and functioning
- Inspect machine room for any signs of leaks, spills, or other hazards
- Test stop switch, disconnect switch, and other safety devices before proceeding
- Perform planned maintenance or repair work, keeping clear of moving parts and electrical hazards
- Remove tools, materials, and debris from machine room
- Verify machine room is clear of personnel and equipment before returning elevator to service
- Close and secure machine room access door
- Enable elevator to respond to calls and test for proper operation
- Remove any lockout/tagout devices and restore power as needed
- Notify building management and/or supervisor of completion and any issues encountered

A.5 Pit Access Checklist

- Obtain authorization from building management and/or supervisor
- Review maintenance logs and equipment history for any known hazards
- Verify that elevator is at least two floors above pit floor and not in use
- Disable elevator from responding to calls using appropriate means (e.g., hoistway access switch, inspection mode)
- Use appropriate PPE, including hard hat, safety glasses, gloves, and fall protection as needed
- Check that pit lighting and stop switch are functioning
- Inspect pit for any signs of water, debris, or other hazards
- Use designated and approved means of pit access (e.g., ladder, access door)
- Maintain three points of contact and secure footing/positioning at all times
- Test stop switch and other safety devices before proceeding
- Perform planned maintenance or repair work, keeping clear of moving parts and fall hazards

- Remove tools, materials, and debris from pit
- Verify pit is clear of personnel and equipment before returning elevator to service
- Close and secure pit access points
- Enable elevator to respond to calls and test for proper operation
- Remove any lockout/tagout devices and restore power as needed
- Notify building management and/or supervisor of completion and any issues encountered

Appendix B: Maintenance Checklists

B.1 Daily Inspection Checklist

- Ride elevator and observe operation, noting any unusual sounds, vibrations, or delays
- Check leveling accuracy and smooth stop/start at each floor
- Check doors for proper operation, including speed, force, and reopening devices
- Check buttons, lights, and indicators for proper operation
- Check emergency phone, alarm, and communication systems
- Check for any signs of damage, vandalism, or debris
- Check machine room for cleanliness, organization, and proper lighting and ventilation
- Check pit for any signs of water, oil, or debris accumulation
- Check hoistway doors and frames for damage, misalignment, or excessive wear

B.2 Weekly Maintenance Checklists

B.2.1 Elevators

- Clean and inspect car top equipment, including switches, lighting, and ventilation
- Clean and inspect machine room equipment, including controller, disconnect, and machine
- Clean and lubricate guide rails, governor rope, and other hoistway equipment as needed
- Check and adjust car and counterweight guides for proper alignment and clearance
- Check and adjust door operator, linkages, and rollers for proper operation and clearance
- Check and adjust elevator leveling and stopping accuracy as needed
- Check and test emergency stop switches, alarm bells, and communication systems
- Check and test firefighters' emergency operation and other safety features as required

B.2.2 Escalators

- Clean and inspect machine space equipment, including controller, disconnect, and machine
- Clean and lubricate chains, gears, and other drive components as needed
- Check and adjust handrail tension and tracking for proper operation
- Check and adjust step/pallet alignment and clearance for proper operation
- Check and test stop switches, broken chain switches, and other safety devices
- Check and test emergency stop buttons and alarm systems
- Check lighting, signage, and decking for proper operation and condition
- Check and remove any debris or foreign objects from steps, comb plates, and landings

B.3 Monthly Maintenance Checklists

B.3.1 Elevators

- Perform all weekly maintenance tasks
- Check and lubricate hoistway door tracks, rollers, and linkages
- Check and adjust car door pressure and kinetic energy
- Check and adjust car ventilation system and emergency lighting
- Check and clean machine room and hoistway as needed
- Check and verify proper operation of all safety circuits and devices
- Check and record governor and safety actuation speeds
- Check and record car and counterweight run by and clearances
- Check and record buffer compression and return
- Check and record elevator performance metrics, including flight times, door times, and leveling accuracy

B.3.2 Escalators

- Perform all weekly maintenance tasks
- Check and lubricate main drive bearings, couplings, and other components
- Check and adjust step/pallet level and clearance at landings
- Check and adjust handrail inlet switches and brush guards
- Check and clean machine space and truss interior as needed
- Check and verify proper operation of all safety circuits and devices
- Check and record braking distances and deceleration rates
- Check and record step/pallet running clearances and guidance
- Check and record handrail speed and tension
- Check and record escalator performance metrics, including speed, current draw, and vibration levels

B.4 Quarterly Maintenance Checklists

B.4.1 Elevators

- Perform all monthly maintenance tasks
- Clean and lubricate wire ropes and sheaves
- Check and adjust car and counterweight roller guides and assemblies
- Check and test emergency firefighters' service and recall operation
- Check and test emergency power operation and manual lowering systems
- Check and test unintended car movement and ascending car overspeed protection
- Check and test emergency brake and traction loss detection systems
- Perform general cleaning and touchup of equipment and surfaces
- Review maintenance records and make necessary adjustments to maintenance plan

B.4.2 Escalators

- Perform all monthly maintenance tasks
- Check and lubricate step chain, drive chain, and other chain components
- Check and adjust step upthrust and lateral forces
- Check and test missing step detection and reversal stop devices
- Check and test handrail speed monitoring and broken handrail protection
- Check and test emergency brake and traction loss detection systems
- Perform general cleaning and touchup of equipment and surfaces
- Review maintenance records and make necessary adjustments to maintenance plan

B.5 Annual Maintenance Checklists

B.5.1 Elevators

- Perform all quarterly maintenance tasks
- Check and test all safety devices and functions, including overspeed governor, safety gear, and buffer
- Check and test emergency evacuation system and instructions
- Check and test firefighters' emergency operation and communication systems
- Check and test emergency power and lighting systems
- Perform full-load safety tests and emergency stop tests
- Perform complete cleaning and inspection of all equipment and components
- Review and update maintenance records and equipment inventories as needed
- Schedule and coordinate any necessary repairs, upgrades, or replacements

B.5.2 Escalators

- Perform all quarterly maintenance tasks
- Check and test all safety devices and functions, including broken drive chain, step chain, and handrail devices
- Check and test emergency stop buttons, alarms, and communication systems
- Check and test auxiliary brake and emergency stop systems
- Perform full-load brake tests and emergency stop tests
- Perform complete cleaning and inspection of all equipment and components
- Review and update maintenance records and equipment inventories as needed
- Schedule and coordinate any necessary repairs, upgrades, or replacements

Appendix C: Inspection and Testing Checklists

C.1 Acceptance Inspection Checklists

C.1.1 Electric Elevators

- Verify all required documentation, labels, and signage are present and accurate
- Inspect hoistway, pit, and machine room for proper construction, lighting, and ventilation
- Test emergency stop switches, alarm bells, and communication systems
- Test firefighters' emergency operation and recall systems
- Test car and hoistway door interlocks, closers, and reopening devices
- Test car leveling accuracy, speed, and stopping/starting smoothness
- Test car lighting, ventilation, and emergency systems
- Test car and counterweight guides, safeties, buffers, and other components
- Perform full-load safety tests and emergency power tests
- Verify compliance with applicable codes, standards, and specifications

C.1.2 Hydraulic Elevators

- Verify all required documentation, labels, and signage are present and accurate
- Inspect hoistway, pit, and machine room for proper construction, lighting, and ventilation
- Test emergency stop switches, alarm bells, and communication systems
- Test firefighters' emergency operation and recall systems
- Test car and hoistway door interlocks, closers, and reopening devices
- Test car leveling accuracy, speed, and stopping/starting smoothness
- Test car lighting, ventilation, and emergency systems
- Test car guides, safeties, buffers, and other components
- Test hydraulic system components, including pump, valve, piping, and cylinder
- Perform full-load safety tests and emergency power tests
- Verify compliance with applicable codes, standards, and specifications

C.1.3 Escalators and Moving Walks

- Verify all required documentation, labels, and signage are present and accurate
- Inspect truss, machine space, and landings for proper construction, lighting, and safety clearances
- Test emergency stop buttons, alarms, and communication systems
- Test handrail speed and safety devices
- Test comb plate and step/pallet impact devices
- Test step/pallet chains, tracks, and guidance systems
- Test drive machine, brake, and speed monitoring systems
- Perform full-load brake tests and emergency stop tests
- Verify compliance with applicable codes, standards, and specifications

C.2 Periodic Inspection Checklists

C.2.1 Cat 1 Inspection Checklist

- Perform general inspection of elevator interior, exterior, hoistway, pit, and machine room
- Check car and counterweight guides, safeties, and buffers for proper condition and operation
- Check suspension means and sheaves for wear, damage, and proper alignment
- Check hoistway doors, interlocks, and closers for proper operation and clearances
- Check car doors, gates, and reopening devices for proper operation and force
- Check car and hall buttons, indicators, and communication systems for proper operation
- Check car and counterweight run-by, top and bottom clearances
- Check elevator leveling accuracy, speed, and smoothness of operation

- Check firefighters' emergency operation, emergency power operation, and other safety features
- Document all findings and any corrective actions required

C.2.2 Cat 5 Inspection Checklist

- Perform all items in Cat 1 inspection checklist
- Check governor and safety for proper operation and tripping speeds
- Check buffer and emergency brake system for proper operation
- Check traction drive system for proper operation and lubrication
- Check hydraulic system components for proper operation and leakage
- Witness full-load safety tests, buffer tests, and emergency power tests
- Document all findings and any corrective actions required

C.3 Fire Service Testing Checklist

- Test Phase I recall of all elevators to designated or alternate landing
- Verify that all elevators are removed from normal service and hall call buttons are inoperative
- Test Phase II in-car emergency operation and verify proper functionality of all buttons and switches
- Verify that car call buttons and hall call buttons are inoperative
- Verify that elevators do not respond to smoke detectors after Phase II is activated
- Test hydrostatic pressure of hydraulic elevators and verify proper operation
- Document all findings and any corrective actions required

C.4 Calibration and Testing Checklists for Inspection

Equipment

C.4.1 Tachometer Calibration Checklist

- Inspect tachometer for any physical damage or defects
- Check battery voltage and replace batteries if needed
- Verify that tachometer settings match the intended application (e.g., metric/imperial, contact/non-contact)
- Test tachometer against a known reference or calibrated device
- Verify that tachometer readings are within acceptable tolerance across anticipated range of use
- Document calibration date, results, and next due date

C.4.2 Brake Torque Wrench Calibration Checklist

- Inspect torque wrench for any physical damage or defects
- Check battery voltage and replace batteries if needed
- Verify that torque wrench settings are correct for the intended application (e.g., units, range)
- Test torque wrench against a known reference or calibrated device
- Verify that torque wrench readings are within acceptable tolerance across anticipated range of use
- Document calibration date, results, and next due date

C.4.3 Multimeter Calibration Checklist

- Inspect multimeter for any physical damage or defects
- Verify multimeter model and serial number match calibration records
- Check and replace batteries if needed
- Clean multimeter leads and probes
- Perform zero adjustment for resistance and capacitance ranges
- Verify DC voltage accuracy using a calibrated voltage standard at multiple test points across expected range of use
- Verify AC voltage accuracy using a calibrated AC voltage standard at multiple test points across expected range of use and frequencies
- Verify resistance accuracy using calibrated decade resistance box or precision resistors at multiple test points across each range
- Verify capacitance accuracy using calibrated capacitance meter or known capacitance standards on each range
- Verify DC and AC current accuracy using a calibrated current shunt or probe at multiple test points if equipped with this function
- Confirm correct function of all switches, buttons, and display elements
- Apply calibration label indicating date of calibration, next due date, and reference standards used
- Document calibration results and maintain calibration records for each device

Appendix D: Forms and Templates a

D.1 Maintenance Work Order Form

- Work order number and date
- Equipment identification (e.g., elevator number, location)
- Description of problem or maintenance task
- Priority level (e.g., emergency, urgent, routine)

- Personnel assigned and estimated hours
- Parts and materials required
- Safety precautions and special instructions
- Completion date and actual hours
- Supervisor approval and any additional comments

D.2 Repair Report Form

- Report number and date
- Equipment identification (e.g., elevator number, location)
- Description of problem and troubleshooting steps performed
- Cause of failure and corrective actions taken
- Parts and materials used
- Personnel involved and actual hours
- Safety precautions and special instructions
- Testing and verification of repair
- Recommendations for preventing recurrence
- Supervisor approval and any additional comments

D.3 Incident Investigation Form

- Incident number and date
- Equipment identification (e.g., elevator number, location)
- Description of incident (e.g., injury, property damage, service interruption)
- Personnel involved and witness statements
- Sequence of events and contributing factors
- Corrective actions taken and persons responsible
- Recommendations for preventing recurrence
- Supervisor review and any additional comments
- Notifications made (e.g., building management, insurance, OSHA)

D.4 Management of Change Form

- Change request number and date
- Equipment identification (e.g., elevator number, location)
- Description of proposed change (e.g., alteration, modernization)

- Reason for change and expected benefits
- Impact assessment (e.g., safety, code compliance, performance, cost)
- Design review and approval
- Implementation plan and schedule
- Testing and commissioning requirements
- Training and communication plan
- Close-out and acceptance signatures

D.5 Customer Satisfaction Survey Template

- Survey number and date
- Equipment identification (e.g., elevator number, location)
- Overall satisfaction rating (e.g., 1-5 scale)
- Ratings for specific aspects of service (e.g., responsiveness, communication, quality of work)
- Open-ended comments and suggestions
- Follow-up actions and responses
- Analysis of trends and opportunities for improvement

Appendix E: Quick Reference Guides

E.1 Elevator Rope Tensions

- Hoist ropes: 40-45% of rated breaking strength
- Governor rope: 30-40% of rated breaking strength
- Compensation ropes: 20-25% of rated breaking strength
- Selector ropes: 15-20% of rated breaking strength

E.2 Elevator Oil Viscosity Grades

- ISO VG 32: For moderate duty and operating temperatures
- ISO VG 46: For heavy duty and high operating temperatures
- ISO VG 68: For extreme duty and very high operating temperatures
- Always refer to manufacturer's recommendations for specific equipment

E.3 Escalator Step/Skirt Performance Index

- Maximum loaded gap: 4 mm (0.16 in)
- Maximum unloaded gap: 5 mm (0.2 in)
- Maximum loaded offset: 3 mm (0.12 in)
- Maximum unloaded offset: 4 mm (0.16 in)

E.4 Troubleshooting Guides by Equipment Type (to be developed based on specific equipment and common issues)

Appendix F: Resources

F.1 Industry Standards and Codes

- ASME A17.1/CSA B44 - Safety Code for Elevators and Escalators
- ASME A17.2 - Guide for Inspection of Elevators, Escalators, and Moving Walks
- ASME A17.3 - Safety Code for Existing Elevators and Escalators
- ASME A17.4 - Guide for Emergency Personnel
- ASME A17.5 - Elevator and Escalator Electrical Equipment
- ICC/ANSI A117.1 - Accessible and Usable Buildings and Facilities
- NFPA 70 - National Electrical Code
- NFPA 72 - National Fire Alarm and Signaling Code
- NFPA 101 - Life Safety Code
- IBC - International Building Code

F.2 Regulatory Agencies and Authorities

- U.S. Occupational Safety and Health Administration (OSHA)
- U.S. Access Board
- Canadian Standards Association (CSA)
- Provincial and Territorial Elevator Safety Authorities
- Local Building and Fire Departments

F.3 Industry Associations

- National Elevator Industry, Inc. (NEII)
- National Association of Elevator Contractors (NAEC)
- International Union of Elevator Constructors (IUEC)
- Canadian Elevator Contractors Association (CECA)
- Elevator World, Inc.

F.4 Recommended Books and Publications (to be developed based on specific needs and preferences)

Change Log

REVISION HISTORY

This section records major updates, revisions, and document improvements made to the Fenzi Handbook. It is intended to help readers track the evolution of the handbook and ensure that only the latest approved version is used for reference.

Version	Date	Section Updated	Summary of Change	Updated By	Approved By
1.0	10 Jan 2026	Initial Release	First complete release of the Fenzi Handbook	Documentation Team	CEO
1.1	18 Jan 2026	Safety	Improved safety language	Operations Team	COO
1.2	10 Jan 2026	Appendices	First complete release of the Fenzi Handbook	Documentation Team	CEO
1.0	10 Jan 2026	Quality Assurance	Improved safety language	Documentation Team	CEO

Document Control Notes

- This handbook shall be reviewed periodically and updated when operational, technical, or organizational changes occur.
- Only the latest approved version should be circulated for internal or external use.
- Minor formatting edits may be made without affecting operational intent; major content revisions should be recorded in this log.
- All changes should be reviewed and approved by the relevant management authority before publication.

FENZI TEAM

The following leadership team contributes to the strategic direction, operational oversight, and technical management associated with Fenzi's handbook, systems, and organizational processes.

The leadership team includes:



COPYRIGHT & DOCUMENT OWNERSHIP

© 2026 Fenzi. All rights reserved.

This handbook, including its text, structure, layouts, processes, checklists, forms, graphics, and supporting materials, is the property of Fenzi and is intended for authorized internal and approved operational use only.

No part of this publication may be reproduced, copied, distributed, modified, stored in a retrieval system, transmitted in any form, or disclosed to any third party without prior written permission from Fenzi, except where required for approved internal business, operational, training, or compliance purposes.

The information contained in this handbook is provided for general operational guidance and internal reference. Fenzi reserves the right to update, revise, amend, or withdraw any part of this handbook at any time without prior notice.

Unauthorized use, duplication, or distribution of this document, in whole or in part, may constitute a violation of company policy and applicable intellectual property protections.

For permissions, official use, or document control queries, please contact the authorized management representative of Fenzi.

A photograph of a modern escalator with a central glass railing, viewed from a low angle looking up. The background is split diagonally, with the top-left corner being orange and the rest being a dark, blurred image of the escalator steps and metal railings.

FENZI

KARACHI OFFICE:

4th Floor Building 127-C Street-14
Jami Commercial Phase-7 DHA
Karachi-75500 Pakistan

HEAD OFFICE:

Office # 508, Kohistan Tower,
Mafooz Shaheed Road, Rawalpindi.

UAN : 0317-1117229

INFO@FENZI.PK

 /fenzi-enterprises-pvt-ltd

 Fenzi Enterprises Pvt Limited