

RAMS PRO ZONE

RaMsProZone

Professional Technical Documentation

METHOD STATEMENT

LIFT / ELEVATOR INSTALLATION

Complete End-to-End Installation Procedure

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Prepared by	RaMsProZone Technical Team
Approved by	Project Manager / HSE Manager
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1. SCOPE

This Method Statement outlines the complete installation procedure for a passenger/goods lift (elevator) system from initial site preparation through to final handover. It applies to all personnel involved in lift installation activities and must be read in conjunction with the relevant project-specific Risk Assessment.

This document complies with internationally recognised standards including:

- ISO 9001:2015 – Quality Management Systems
- ISO 45001:2018 – Occupational Health & Safety Management Systems
- EN 81-20:2014 / EN 81-50:2014 – Safety Rules for Lifts
- OSHA 29 CFR 1926 (USA) – Construction Industry Safety Standards
- IOSH Managing Safely Framework
- Local statutory regulations and building codes as applicable

2. REFERENCES

The following documents form an integral part of this Method Statement:

- EN 81-20:2014 – Safety rules for the construction and installation of lifts
- EN 81-50:2014 – Examination and testing of lift components
- ISO 9001:2015 – Quality Management Systems requirements
- ISO 45001:2018 – OH&S Management Systems
- OSHA 29 CFR 1910.147 – Control of Hazardous Energy (Lockout/Tagout)
- OSHA 29 CFR 1926.552 – Material Hoists, Personnel Hoists and Elevators
- IEC 60364 – Electrical Installations of Buildings
- BS 7671 / NEC 70 – Wiring Regulations
- Manufacturer's Installation Manuals and Shop Drawings
- Project-specific Risk Assessment and HSE Plan
- Permit to Work Procedures

3. EQUIPMENT & TOOLS

The following equipment and tools shall be available on site prior to commencement of work:

EQUIPMENT / TOOL	SPECIFICATION	QTY
Construction Hoist / Chain Block	Min. 2T capacity rated SWL	1
Plumb Bobs / Laser Level	Precision alignment grade	2
Template Boards	Project specific	2 sets
Spirit Level (1m)	EN 13927 certified	2
Scaffolding / Working Platform	EN 12811 compliant	1 set
Torque Wrenches	Calibrated, 0-300 Nm	2
Electric Drill / Impact Driver	110V/220V double insulated	2
Angle Grinder	4.5-inch, guarded	1

Multimeter / Insulation Tester	CAT III rated	1 each
Oscilloscope / Drive Analyzer	Commissioning grade	1
Personal Protective Equipment	Full set per EN 397 / ANSI Z89	Per person
Fall Arrest System	EN 363 / ANSI Z359 compliant	Per person
Fire Extinguisher	CO2 type, 2kg min.	2
First Aid Kit	BS 8599-1 / ANSI Z308	1

4. ROLES & RESPONSIBILITIES

ROLE	RESPONSIBILITIES	QUALIFICATIONS
Project Manager	Overall accountability for safe execution, resource planning, client liaison	Degree in Engineering / PMP Certified
HSE Manager	Enforcing safety protocols, conducting toolbox talks, incident investigation	NEBOSH / IOSH / OSHA 30-hr certified
Lift Installation Supervisor	Technical supervision of all installation activities, quality checks	5+ yrs lift experience, manufacturer certified
Lift Mechanic (Lead)	Execution of mechanical installation tasks, alignment, assembly	Manufacturer trained, competency card holder
Electrician (Licensed)	Electrical wiring, panel connections, commissioning support	Licensed Electrician, IEE / NEC qualified
Rigger / Crane Operator	Material handling, hoist operation, rigging activities	LEEA / OPITO certified rigger
Quality Inspector	ITP compliance, NCR management, final inspection sign-off	QMS auditor, ISO 9001 trained

5. GENERAL REQUIREMENTS

5.1 Health, Safety & Environment (HSE)

- A valid Permit to Work (PTW) must be obtained before commencement of any activity.
- A Task-Specific Risk Assessment must be reviewed and signed by all operatives.
- Toolbox Talks (TBT) to be conducted daily before works commence.
- All personnel to wear mandatory PPE: hard hat, safety shoes, high-vis vest, safety glasses, and gloves.
- Working at height requires full body harness, lanyard, and approved anchorage points per EN 363 / ANSI Z359.
- LOTO (Lockout/Tagout) procedures per OSHA 1910.147 to be strictly followed for electrical isolation.
- Housekeeping to be maintained throughout; all debris removed daily.
- No lone working permitted inside shaft or pit.

5.2 Quality Management

- All materials to be verified against approved submittals and manufacturer's documentation.
 - Inspection and Test Plans (ITP) to be followed at each stage of installation.
 - Non-Conformance Reports (NCRs) to be raised immediately for any deviations.
 - All measuring equipment to carry valid calibration certificates.
 - Progressive sign-off by Supervisor and QA Inspector at each key stage.
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6. PLUMBING

The plumbing phase establishes the datum references for the entire lift installation. Accuracy at this stage is critical.

- Verify shaft dimensions match approved drawings (width, depth, height).
- Establish and mark the centreline of the car and counterweight (CWT) on the pit floor using a theodolite or precision laser.
- Install plumb lines from top to bottom of shaft. Minimum 2 plumb lines for car guides and 2 for CWT guides.
- Verify plumb bob clearances meet EN 81-20 requirements.
- Record all measurements on the Plumbing Inspection Record Form.
- Obtain supervisor sign-off before proceeding to guide rail installation.

NOTE: Minimum guide rail plumb tolerance: ± 0.5 mm per metre as per EN 81-20 Annex G.

7. INSTALLATION OF HOIST & HOIST TEST

- Install temporary construction hoist (chain block or electric hoist) at top of shaft or machine room.
 - Hoist anchorage to be designed and approved by a competent structural engineer.
 - Rated SWL (Safe Working Load) of hoist must exceed maximum single lift weight by minimum factor of 1.5.
 - Conduct static load test at 110% SWL and dynamic load test per LEEA 050 / ASME B30 requirements.
 - Issue Hoist Test Certificate before commencing material lifting operations.
 - Display SWL placard on hoist at all times.
 - Hoist operator must be LEEA certified.
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8. FIRST GUIDE RAIL & 2ND LEVEL GUIDE RAIL

- Using established plumb lines, position first car guide rail in pit, aligning to template.
 - Fix bottom guide rail bracket using approved fixings per manufacturer specification.
 - Torque all fixing bolts to manufacturer's specified values using calibrated torque wrench. Record values.
 - Install fish plates at rail joints; align joint gap to < 0.5 mm per EN 81-20.
 - Progress upwards installing rail brackets at maximum centres specified in approved drawings.
 - Repeat process for CWT guide rails maintaining parallel alignment throughout.
 - Check rail alignment using straight edge and feeler gauges at every joint.
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- Complete second level and proceed upwards, re-positioning templates as required (refer Section 14).
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9. PIT INSTALLATION

- Pit must be clean, dry, and well-lit before works commence.
 - Install pit buffer supports for car and CWT buffers, aligning to centreline marks.
 - Fix car buffer base plate to pit floor; grout if required. Verify level.
 - Install CWT buffers per manufacturer's clearance specifications.
 - Install pit ladder (fixed steel) per EN 81-20 requirements – rungs at 300mm centres, minimum 150mm toe clearance.
 - Install pit lighting (min. 50 lux) and 13A/16A pit socket outlet.
 - Install pit stop switch and pit inspection control station per EN 81-20.
 - Verify pit depth and overhead clearances match approved layout drawings.
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10. SLING INSTALLATION

- Assemble car sling (frame) on ground floor or in pit as per manufacturer assembly instructions.
 - Identify and verify all sling components against manufacturer's parts list.
 - Attach car safety gear (safety gear / catching device) to lower sling member.
 - Verify safety gear jaws move freely and align with car guide rails.
 - Lift assembled sling into shaft using construction hoist. Ensure tag lines used for control.
 - Hang sling from construction hoist and position over guide rails.
 - Attach sling guide shoes to guide rails; do not tighten fully at this stage.
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11. INSTALLATION OF CAR FLOOR

- Install car floor (platform) onto sling cross-member using approved fastenings.
 - Verify floor panel alignment and level. Tolerance: ± 1 mm.
 - Fit rubber isolation pads between floor and sling per manufacturer specification.
 - Torque all floor fixing bolts to specification.
 - Temporarily secure a working platform / protective roof over car floor (refer Section 13).
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12. INSTALLATION OF TEMPORARY OVER SPEED GOVERNOR

- A temporary overspeed governor is MANDATORY for all construction hoist phases.
- Install temporary OSG on top of car sling or designated bracket per manufacturer instructions.
- Route temporary governor rope vertically through shaft to pit, attaching to pit tension device.
- Test OSG operation by manually triggering – verify safety gear engages guide rails positively.
- Issue Temporary OSG Test Certificate. Record in Quality Dossier.

NOTE: The temporary OSG must be inspected daily during construction hoist operation. Replace with permanent OSG at roping stage – refer Section 21.

13. INSTALLATION OF WORKING PLATFORM / PROTECTIVE ROOF

- Assemble car roof (protective roof) components on car floor as per manufacturer's drawings.
- The protective roof must cover the full plan area of the car with a minimum overhang.
- Roof structure to withstand minimum 200 kg/m² live load as per EN 81-20.
- Install handrails around all four sides of the working platform at 1.1m height.
- Install safety chains/gates at access points.
- Connect working platform inspection panel and emergency stop per EN 81-20.
- Inspect and sign-off protective roof before any person works from the roof.

14. ATTACHING THE HOIST TO SLING / SAFETY PEDAL

- Attach construction hoist chain/rope to designated lifting lug on top of sling.
- Verify shackles are moused and rated correctly for the SWL.
- Install safety pedal / dead man's pedal on working platform inspection station per manufacturer requirements.
- Test safety pedal function: release pedal must immediately stop hoist movement.
- Demonstrate and record safety pedal test in the construction hoist commissioning record.

15. CAR GUIDE INSTALLATION (INTERMEDIATE FLOORS) & REPOSITIONING TEMPLATES

- Working from the protective roof, continue car and CWT guide rail installation at each floor level.
- Re-position template boards at each landing using the established plumb lines as datum.
- Maintain strict guide rail alignment at all joints; record joint gap measurements on ITP.
- Install guide rail brackets at centres per approved drawings; torque to specification.
- Staged installation: complete guides for a minimum of two floors above current platform position before advancing.
- Carry out progressive alignment checks every 3 metres of guide rail.

16. INSTALLATION OF TOP MOST CAR GUIDE / CWT PLUMB LINES

- Install final (topmost) car guide rail bracket in the overhead.
- Verify overall plumb of car guide rail assembly from pit to overhead. Maximum deviation per EN 81-20: see Table of Tolerances in project documents.
- Drop CWT plumb lines from CWT guide rail positions at top of shaft to pit.
- Verify CWT plumb lines clear of car sling and rope fastenings at all levels.
- Lock off plumb lines and record final positions on as-built drawings.

17. CWT GUIDE INSTALLATION

- Install CWT guide rails following the same procedure as car guides (Sections 8 and 15).
 - CWT guides must be parallel to car guides within manufacturer's specified tolerance.
 - Ensure sufficient clearance between car and CWT at all levels per EN 81-20 Section 5.
 - Install CWT guide shoes on CWT frame; adjust clearance to manufacturer's specification.
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18. LANDING ENTRANCES & LANDING DOORS

- Install landing entrance door frames at each floor, aligning to sill datums. Verify plumb and level.
 - Fix sill support brackets; install landing sill at correct height relative to finished floor level.
 - Hang landing door panels on upper door track. Adjust top hangers for smooth operation.
 - Install door bottom guides; adjust to prevent door sway.
 - Install inter-lock mechanism on each landing door. Test: door must not open without car present.
 - Adjust all door locks to manufacturer's tolerance. Record gap measurements.
 - Test each landing door per EN 81-20 Section 7.4 – mechanical strength and inter-lock test.
 - Install landing door restrictors per EN 81-20 where required for reduced side clearance.
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19. MACHINE INSTALLATION & MACHINE ROOM WIRING

- Position traction machine on machine room beam/frame as per approved layout drawing.
 - Level machine to $\pm 0.5\text{mm}$ using shims and precision level.
 - Bolt machine to beam using specified fastenings; anti-vibration mounts as specified.
 - Install controller panel in machine room; ensure adequate working clearance per EN 81-20.
 - All machine room wiring to be completed by a licensed electrician.
 - Wire power supply to controller per approved wiring diagrams (IEC 60364 / BS 7671 compliant).
 - Install main supply isolation switch adjacent to machine room entry.
 - Label all circuits per approved cable schedule.
 - Insulation resistance test all circuits before energising: minimum 1 M Ω at 500V DC.
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20. INSTALLATION OF TRAVELLING CABLE

- Identify and uncoil travelling cable; verify specification matches approved design.
 - Attach one end of travelling cable to car sling bracket at mid-travel position.
 - Route cable through shaft to machine room controller.
 - Secure cable with approved clips at 600mm maximum centres on car and shaft walls.
 - Ensure adequate free loop at mid-travel to prevent tension or snagging.
 - Terminate travelling cable at controller and car junction box per wiring diagrams.
 - Insulation test travelling cable; record results on ITP.
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21. INITIAL COMMISSIONING TO RUN THE MACHINE

- Verify all mechanical, electrical, and safety device installations are complete before initial run.
- Energise controller with car at lowest landing; observe for faults or abnormal noise.
- Carry out initial inspection run in Inspection Mode (low speed, ≤ 0.63 m/s) per EN 81-20.
- Verify all limit switches, final limit switches, and safety circuits operate correctly.
- Record initial commissioning data: motor current, voltage, drive parameters.

NOTE: No passengers or unauthorised personnel in shaft during initial commissioning phase.

22. ROPING & PERMANENT OVER SPEED GOVERNOR

- Remove temporary OSG and rope after permanent roping is confirmed complete.
 - Rope lift per manufacturer's roping diagram. Use only approved ropes per EN 81-20 Section 9.
 - Verify rope diameter, grade, and construction match specification.
 - Equalise rope tensions using calibrated tension gauge. Maximum deviation: 5% between ropes.
 - Install permanent overspeed governor (OSG) in machine room on designated mounting.
 - Route permanent governor rope through shaft to pit tension device.
 - Set OSG trigger speed per EN 81-20 / manufacturer's specification.
 - Conduct OSG trip test: verify safety gear engages at correct speed. Record test results.
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23. CAR & CAR DOOR INSTALLATION

- Assemble car walls, ceiling, and front return panels per manufacturer's sequence.
 - Verify car internal dimensions match specification.
 - Install car door track, hanger, and door panels.
 - Adjust car door opening speed, closing speed, and closing force per EN 81-20 Section 7.5.
 - Install door motor, operator arm, and door operator control board.
 - Wire door operator per wiring diagram; test full open/close cycle.
 - Test reopening device (light curtain / door edge): door must reopen on obstruction detection.
 - Measure door closing force: must not exceed 150N per EN 81-20.
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24. CAR, SHAFT & PIT ELECTRIFICATION

- Complete all car top wiring: limit switches, car roof socket, car top inspection station.
 - Install shaft lighting at maximum 2.5m centres; minimum 50 lux at floor level.
 - Connect pit lighting, pit socket, pit inspection station, and pit stop switch.
 - Complete travelling cable terminations at car junction box.
 - Insulation resistance test all circuits: minimum 1 M Ω per circuit.
 - Earth continuity test: all metalwork < 0.1 Ω to earth.
 - Record all test results on Electrical Test Record Form.
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25. COMMISSIONING FOR SERVICE DRIVE

- Configure drive parameters: acceleration ramp, deceleration ramp, nominal speed.
- Carry out floor levelling commissioning: adjust floor level accuracy to $\leq \pm 5\text{mm}$ per EN 81-20.
- Test all door safety functions at every landing.
- Verify overload device operates correctly.
- Test manual lowering operation in event of power failure.
- Carry out rescue operation test per EN 81-20.

26. SIGNALISATION & CAR DECORATION

- Install landing push button stations and display indicators at each floor.
- Install car operating panel (COP): buttons, indicators, intercom, alarm bell.
- Wire and test all signalisation devices.
- Install car interior finishes: mirrors, handrails, floor finish, ceiling panels.
- Verify car interior lighting level: minimum 100 lux at floor per EN 81-20.
- Test emergency lighting: must illuminate for minimum 1 hour on battery backup.
- Test intercom/alarm system: verify two-way communication to emergency response point.

27. BALANCING OF CAR & COUNTERWEIGHT

- Calculate car + 40-50% rated load for CWT balance (per EN 81-20 recommendation).
- Add or remove CWT filler weights to achieve specified balance percentage.
- Verify balance by measuring motor current at 50% rated load travelling up and down.
- Current difference between up and down runs must be within $\pm 5\%$.
- Record final balance weights and motor current readings on Balance Record Form.

28. COMMISSIONING FOR NORMAL SPEED

- Increase drive speed progressively from inspection speed to full contract speed.
- Verify all safety devices operate correctly at full speed.
- Carry out car deceleration accuracy check: floor level within $\pm 5\text{mm}$ across all landings.
- Perform rated load ride quality test: measure acceleration, deceleration, jerk to EN 12016/ISO 18738.
- Carry out overspeed test: trigger OSG and verify safety gear engagement.
- Carry out buffer test per EN 81-20 Annex D.
- Complete all EN 81-20 Annex A inspection checklist items.

29. QUALITY INSPECTION & HANDOVER

The following documents must be completed and submitted at handover:

DOCUMENT	REFERENCE	STATUS
Plumbing Inspection Record	ITP-PLB-01	Required
Hoist Test Certificate	ITP-HT-01	Required

Temporary OSG Test Certificate	ITP-OSG-01	Required
Electrical Test Records (Insulation/Earth)	ITP-ELEC-01	Required
Permanent OSG Trip Test Record	ITP-OSG-02	Required
Balance Record Form	ITP-BAL-01	Required
EN 81-20 Annex A Inspection Checklist	QF-EN81-001	Required
Commissioning Data Record	ITP-COM-01	Required
Non-Conformance Register	QF-NCR-01	Required
As-Built Drawings	Project Specific	Required
Operation & Maintenance Manual	Manufacturer Provided	Required
Client Acceptance / Handover Certificate	QF-HAC-01	Required

DOCUMENT APPROVAL & SIGN-OFF

ROLE	NAME & SIGNATURE	DATE
Prepared by: Installation Supervisor		
Reviewed by: HSE Manager		
Approved by: Project Manager		