

Lift Evacuation Communications

Pavel Kotek

2N TELEKOMUNIKACE a.s. Pod Vinicí 20, 143 01 Praha 4, Czech Republic

Keywords: Lift, emergency, communications, VoIP, evacuation, connected cabin.

Abstract. The (imminent) arrival of EN81-76:2025 as a published and applicable new lift standard and the need for implementation of evacuation communications to new and/or modernised lifts is a new challenge for lift companies and extends their responsibilities beyond lift operation. In this paper and symposium presentation, the topic of evacuation communications will be explored in terms of available communication technology, options, and considerations with the goal of providing some foundation for the selection and application of effective solutions. Key findings include the importance of clear communication protocols, the benefits of different technology options, and the necessity of regular testing and training.

1 INTRODUCTION

The development of EN81-76:2025 and its release and publishing as a new addition to the EN standard, when it happens, will have profound effects, both in the scope of lift communications technology to be deployed on affected lift projects, and the addition of responsibilities around evacuation and the stakeholders involved and their respective liabilities. The author believes there may also be pressure to explore to what extent existing lift installations can be retrofitted with evacuation communication solutions to meet in full or in part the objective of that new standard, since new lifts and newly modernised lifts represent a small fraction of the UK installed base, leaving that exposed without any action in this regard. The symposium presentation from which this abstract is derived will seek to give an overview of the technology and deployment issues likely to arise within the lift industry and highlight any grey areas which the published standard will hopefully clarify.

1.1 Objectives

This paper aims to:

- Provide an overview of evacuation communication systems.
- Compare different communication technology options.
- Highlight the importance of regular testing and monitoring.
- Discuss the necessity of comprehensive training for all stakeholders.
- Outline key compliance points and future research directions.

2 EVACUATION COMMUNICATIONS OVERVIEW

In essence, an active communication channel must be established between the designated evacuation lift(s) and a location from which the evacuation will be managed and the instructions as to the routing of the lift picking up evacuees provided to the lift driver(s). In addition, that same location from which the evacuation will be managed should be in communication with all floors from which evacuation might be required, typically all floors above MEEF (Main Elevator Evacuation Floor).

That interaction is critical where the evacuation plan bares some relevance to the tenants/residents on particular floors who perhaps are unable to use the stairs for building egress, or that plan is overridden to some extent by demands coming from landings that

somehow do not align to the plan in position or volume of such tenants/residents to be evacuated from that location.

Clear and effective communication during evacuations is paramount to ensure the safety and timely evacuation of all occupants.

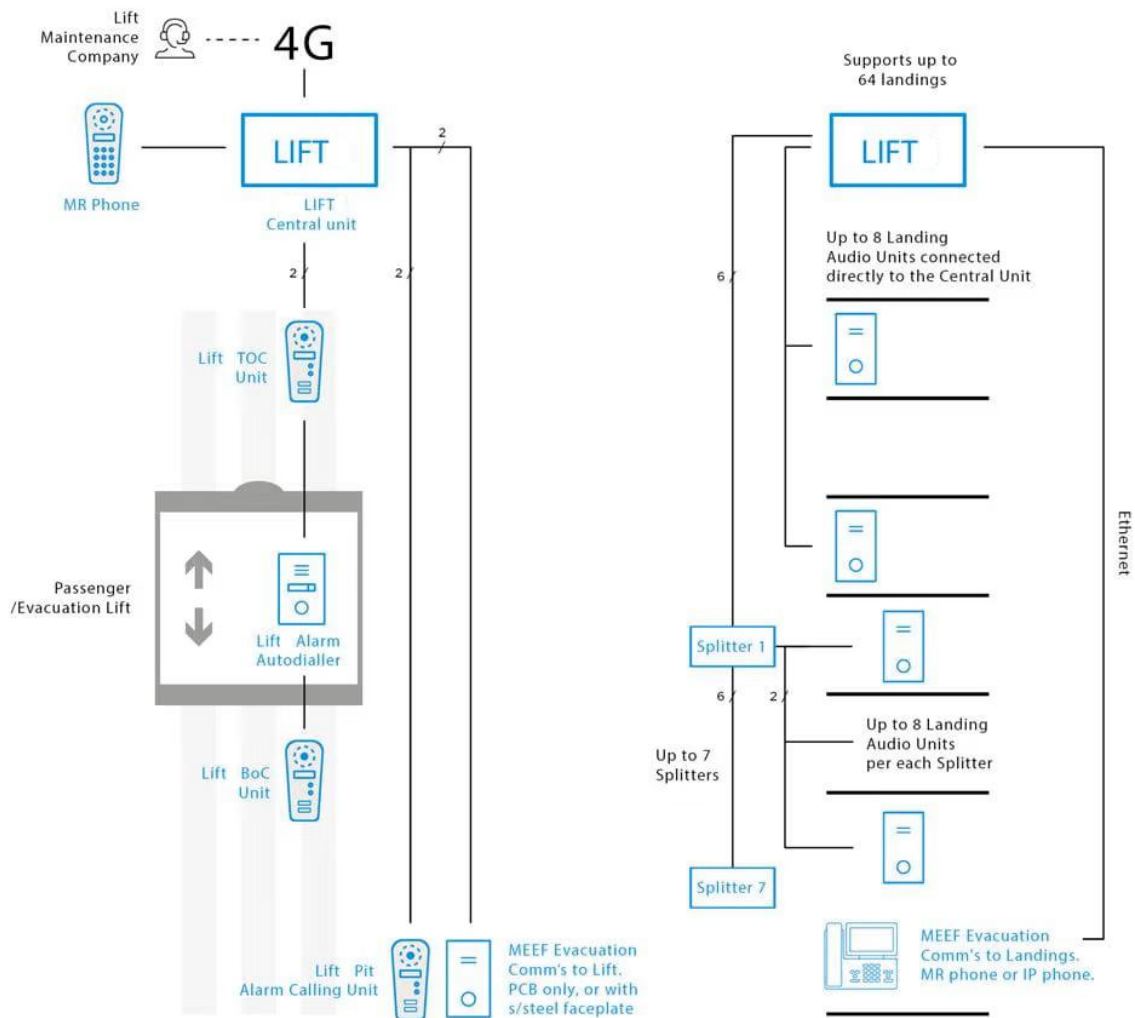


Figure 1 Communication schematics

3 COMMUNICATIONS TECHNOLOGY OPTIONS

There is typically a choice of Analogue, Digital (multi-wire bus), or IP communications technology, with relative advantages and/or disadvantages of each. Importantly, the technology selection should support the use of just one intercom/phone in the lift cabin for any designated evacuation or evacuation/fireman's lift covering those needs and regular emergency calling by trapped passengers. The use of multiple lift cabin communication devices for different purposes is not ideal.

Table 1 Comparison of Communication Technology Options

Technology	Advantages	Disadvantages
Analogue	Simple, widely available	Extensive wiring, prone to interference
Digital	Minimised wiring, robust	Requires multiplexing
IP	Future-proof, scalable	Complex configuration, requires network infrastructure

4 MONITORING & TESTING

It is the opinion of the author that the evacuation communication system should be subject to regular testing, not unlike what EN81-28:2022 provides for lift emergency phone communication. If EN81-76:2025 in published form provides for some form of testing and oversight, then this should be applied. In the absence of guidance, the building evacuation plan should include communications testing on a regular basis by a nominated, responsible party(s).

4.1 Functional monitoring

To maintain reliability, systems should implement both passive and active monitoring mechanisms:

- **Line Monitoring:** Continuous supervision of all wired endpoints (lift cabin, landings, MEEF panel) to detect disconnections, short circuits, or device failures.
- **Heartbeat/Ping Signals:** For IP-based systems, regular heartbeat signals between intercom units and control hubs ensure network integrity and device availability.
- **Power Monitoring:** Uninterruptible Power Supply (UPS) units should be monitored for charge level, runtime, and fault conditions, especially for PoE switches and MEEF panels.

4.2 Regular testing protocol

A structured testing schedule should be embedded into the building's evacuation preparedness plan:

Table 2 Regular testing protocols

Test Type	Frequency	Responsible Party
Functional voice test	Monthly	Building manager / Lift tech
System self-test log	Weekly or daily	Automated / Remote monitoring

Test Type	Frequency	Responsible Party
End-to-end evacuation drill	Annually	Safety officer / Fire service
Battery backup runtime test	Quarterly	Maintenance technician

4.3 Best practices for testing

- Always simulate real conditions — including powered lift shaft, live evacuation mode (if safe), and realistic call sequences.
- Use voice clarity assessments, latency checks (for IP), and verify fallback behaviour if a component fails.
- Document all test results in an evacuation logbook reviewed periodically by facility safety officers.

4.4 Remote diagnostics

Modern systems increasingly support remote diagnostics through cloud-connected panels or SNMP-compatible IP intercom systems. This allows manufacturers and service providers to detect and resolve faults proactively and can reduce time-to-repair during faults or inspections.

5 TRAINING

It cannot be assumed that communication solutions for evacuation are intuitive to the point of not requiring user training. With the wide variety of solutions and aforementioned technology choices on the market, it is imperative that all stakeholders take an interest in the training and support of nominated, responsible party(s) or person(s) expected to use the solution in the event of an evacuation. In addition, manuals should be provided along with clear instructions at or around the MEEF communication control point(s). Landing intercoms will be engraved with lettering signifying their purpose and directing on how to use those units in case of evacuation.

5.1 Who should be trained?

Table 3 Training guide

Stakeholder	Required Knowledge
Evacuation Coordinators	MEEF operation, system prioritisation, call routing
Lift Operators	Cabin communication usage, responding to MEEF instructions
Building Management Staff	System reset, basic fault response, documentation
Occupants (esp. vulnerable)	Use of landing intercoms, basic awareness

5.2 Training methods

- **Hands-On Demonstrations:** Periodic live walkthroughs with MEEF equipment and intercoms.
- **Simulated Drills:** Incorporate communication checks into full building evacuation drills.
- **Quick Reference Guides:** Laminated cards at each MEEF location and at landings with usage steps.
- **Digital Training Modules:** Short e-learning modules or videos for building staff and security teams.
- **Onboarding Sessions:** For new employees or tenants, include evacuation communication usage in safety induction.

5.3 Training documentation and evaluation

Training logs should be maintained, detailing:

- Date, attendees, instructor
- Systems used
- Scenarios simulated
- Lessons learned and issues identified

Evaluations using checklists or short quizzes can help assess comprehension. Training frequency should align with building type and complexity; for example, quarterly for hospitals or high-rise residential towers.

6 KEY COMPLIANCE POINTS

The EN 81-76:2025 draft introduces mandatory requirements for lift-based evacuation communications that are both technically detailed and operationally impactful. In conjunction with EN 81-28:2022, EN 81-72:2020, and BS 9991:2024, these standards define the communication infrastructure, behaviours, and responsibilities for stakeholders during an evacuation.

This section summarises key clauses, offers interpretations based on practical deployment, and highlights unresolved ambiguities. These should be considered as the author's comments.

6.1 Two-way communication between the lift car, MEEF, and landings

EN 81-76:2025, Clause 5.4.1 and 5.4.3

Requirement: “A remote assisted evacuation lift shall have a communication system for interactive two-way speech communication... allowing communication between the remote panel and the evacuation lift car, each lift landing to be evacuated, and the MEEF.”

Interpretation:

- Practical implementation should follow a hub-and-spoke model with the MEEF as the communication hub.
- Direct communication between the lift car and landings is neither required nor practical and should be clarified in the final wording.

- EN 81-72:2020 (Clause 5.2.1) reinforces this hub model for firefighter's lifts, which can be mirrored in evacuation designs.

6.2 Use of built-in microphone and speaker (no handset)

EN 81-76:2025, Clause 5.4.4

Requirement: "Communication equipment in the car and at the landings shall be a built-in microphone and speaker, and not a telephone handset."

Interpretation:

- Supports intuitive, hands-free interaction for passengers during emergencies.
- Does not explicitly prohibit handsets at the MEEF, which may offer operational benefits (e.g., call queue management and privacy).
- EN 81-28:2022, Clause 4.4.1, similarly mandates hands-free operation for emergency call systems in lift cars.

6.3 Controlled activation from the MEEF

EN 81-76:2025, Clause 5.4.2

Requirement: "The communications from the car and the landings to the remote panel shall individually be switched active from the remote panel."

Interpretation:

- Enables the evacuation coordinator to prioritise calls and manage communication traffic.
- Requires selective call handling and queued call displays at the MEEF.
- Aligns with EN 81-28:2022, Clause 5.3.2, which specifies remote activation and acknowledgement of emergency calls.

6.4 Permanently active communication from the lift car to MEEF

EN 81-76:2025, Clause 5.4.3 (a)

Requirement: "The communication from the car to the MEEF shall be permanently active during any evacuation operation... without pressing a control button."

Interpretation:

- A passive system design is required: the communication channel is auto-enabled in evacuation mode.
- Ensures lift drivers or evacuees are immediately reachable and do not need to initiate calls.
- Systems should indicate when the channel is active and log all audio activity for auditability.

6.5 Communication with the machine room or the emergency panel

EN 81-76:2025, Clause 5.4.3 (b)

Requirement: "...the microphone shall only be made active by pressing a control button."

Interpretation:

- Limits activation of technical intercoms (e.g., in machine rooms) to trained users.
- The definition of “control button” remains ambiguous — could include keypad input or GUI command.
- EN 81-72:2020, Clause 5.3.1 defines similar logic for firefighter intercoms.

6.6 Optional communication to the central command point

EN 81-76:2025, Clause 5.4.3 (c)

Requirement: “Microphones for other locations shall only be made active by pressing a control button on the intercom unit.”

Interpretation:

- Allows connection to fire control rooms or facility security desks.
- Systems must provide multi-channel routing and role-based access, especially in hospitals, campuses, or airports.

6.7 Integration with EN 81-72:2020 firefighter lift requirements

EN 81-76:2025, Clause 5.4.5

Reference: “The communication system may be the same as the communication system required in EN 81-72.”

Interpretation:

- Allows reuse of certified firefighter communication hardware for evacuation purposes.
- Systems must be designed for dual-mode operation with clearly defined role separation (e.g., evacuation vs. fire response).
- EN 81-72:2020, Clause 5.2 outlines audio communication between the lift car and firefighter panel; this can be mirrored for MEEF communication.

6.8 Strategy-driven lift role expansion

BS 9991:2024, Clause 10.5.2

Requirement: “For buildings with floors over 50m high and a ‘stay-put’ strategy, every lift should be a firefighter’s lift and have the ability to function as an evacuation lift.”

Implications:

- Expands the number of lifts that may require evacuation communication systems.
- Increases complexity of MEEF coordination and system scalability.
- Necessitates greater integration with fire systems, lift monitoring, and building management systems (BMS).
- Raises the need for enhanced operator training, as discussed in Section 5.

6.9 EN 81-28:2022 monitoring applicability

Though EN 81-76:2025 does not (yet) define a comprehensive monitoring protocol, EN 81-28:2022 offers a well-established reference:

- Clause 6.3 requires functional periodic testing of the emergency alarm system.
- Clause 4.7 mandates remote fault detection and alerting.

These concepts should be applied analogously to evacuation communication — especially when powered by shared hardware.

6.10 Additional Considerations from Other Standards

- **ISO 8102-20:2023 (Lift IoT and remote management):** Specifies diagnostic interfaces and smart monitoring — relevant for cloud-based evacuation comms.
- **EN 54-16:2008 (Fire alarm voice communication):** May provide guidance for public address integration where evacuation announcements and intercoms coexist.

7 CONCLUSION

The need for evacuation communications and effective, appropriate evacuation guidance for building occupants was clearly demonstrated by the Grenfell tragedy [1]. Extending responsibilities and understanding the roles and responsibilities of all stakeholders in the evacuation and communication process will be critical. In addition, whilst mandating new standards of evacuation for new buildings or modernised lifts is a big step, that only represents a small fraction of the market and so it begs the questions as to what can or should be done for existing properties and whether discretionary upgrades to facilitate evacuation can and should be retrofitted along with all supporting processes, evacuation plans and award of responsibilities.

7.1 Next steps and future research directions

- Explore the feasibility and cost-effectiveness of retrofitting existing lift installations with evacuation communication solutions.
- Develop standardised training programs and certification processes for stakeholders involved in evacuation communications.
- Conduct further research on the psychological and behavioural aspects of evacuation communications to improve user experience and compliance.

REFERENCES

[1] Grenfell Tower Inquiry, Phase 1 Report (2019)

- BS9991:2024
- EN81-28:2022
- EN81-76:2025
- EN81-72:2020
- ISO 8102-20:2023
- EN 54-16:2008

BIOGRAPHICAL DETAILS

Pavel Kotek is the Lift Sales Director responsible for all 2N sales in the elevator sector as well as the OEM partnerships around the globe. With 13 years of experience in the field of elevator emergency communication, he holds expertise in the field and can provide the manufacturer's view as well as experience from implementation in different parts of the world. Pavel holds a Master's degree from the University of Economics in Prague in the field of International Business.



