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Equitable Egress Seminar

Use of lift for evacuation – design considerations



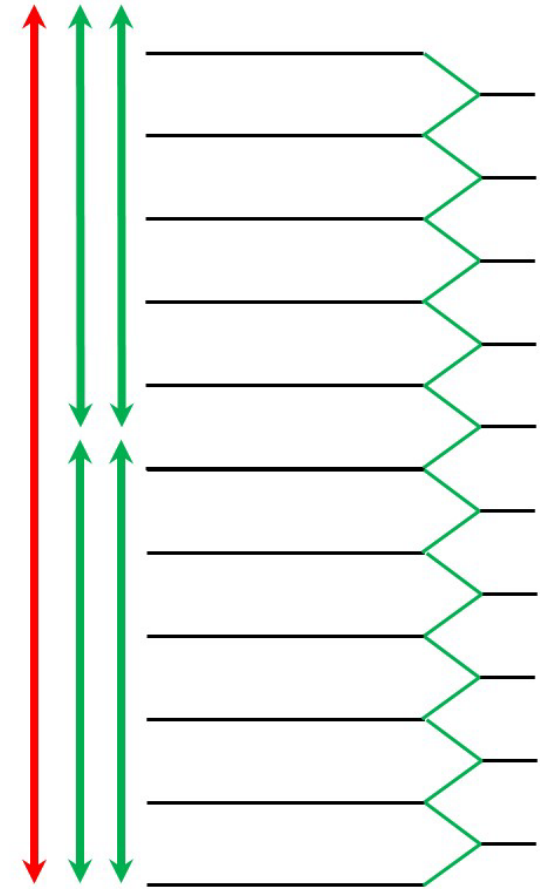
Talking points

- Some context around possible use of lift for evacuation
- Occupant characteristics and needs
- Waiting area
- Design features
- Resilience
- Interfaces



Context – how lifts can fit in

- Occupants requiring assistance only
- Occupants requiring assistance, maybe others
 - In addition to full stair provision
 - Egress design works without lifts
- Occupants requiring assistance plus others
 - To complement stair capacity
 - Configured to building height
 - Very dependent on occupant distribution
- All occupants, instead of stairs



Context (continued)

- Practical examples – high rise
 - Lifts as shuttles from refuge floors
- Modelling studies
 - Benefits can be gained from lift use
 - Requires careful planning
 - Dependent on occupant decision making
 - May be difficult to successfully implement
- In NZ context
 - Likely focus on occupants who require assistance



Lift for those requiring assistance in NZ

- No local prescriptive guidance for lift evacuation
 - International references but no endorsed approach
 - Indicative preference for British Standard
- Relevant British Standards
 - BS 9991 (residential buildings) - BS 9999 (other buildings)
 - Draft BS EN 81-76 – for lift specifications
 - Possibly BS EN 81-72 – firefighting lifts
- Consider other standards or guidance



So, what are we talking about?

- Detailed review of the standard
- Logical step-by-step consideration



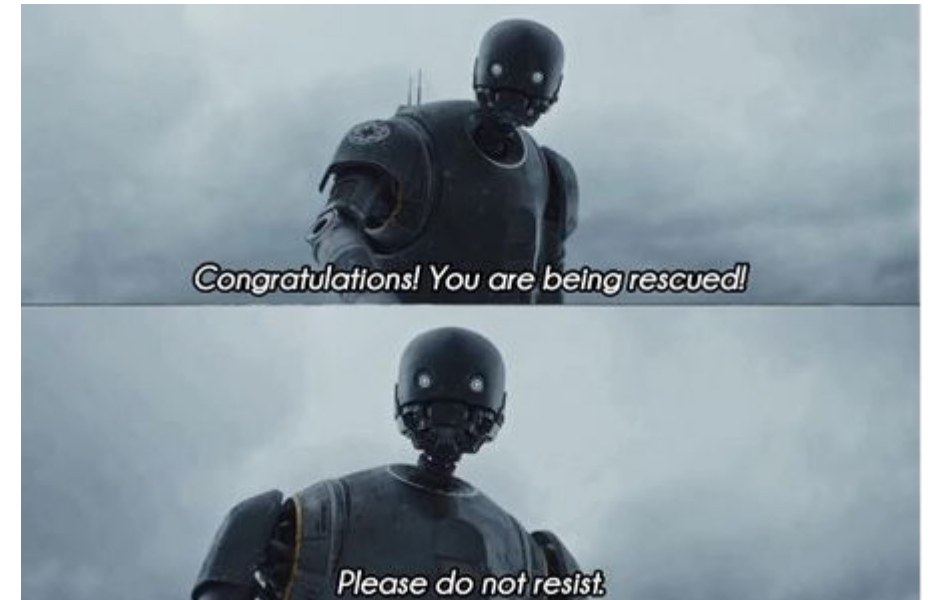
Number and location

- When do you need an evacuation lift?
 - Passenger lift access to any upper floor
 - Does the risk change with height?
- How many?
 - Distance to travel
 - Obstructed access route
 - Number of users
 - Expected evacuation time



Evacuation lift mode

- Manual
 - Staff controlling sequence, manually driving lift
 - Needs good communication
 - Allows adjustments
- Automatic
 - Follows pre-determined sequence
 - Interface with building alarm
 - Less flexible
- Remote



Background image © The Walt Disney Company



General sequence outline

- Alarm activates, interface with lift
- Lift to ground
 - Consider alternative level
 - Occupants leave
 - Staff takes over OR automatic mode
- Lift used to shuttle occupants in order of priority
 - Fire floor, then escalation
 - Continue until building cleared



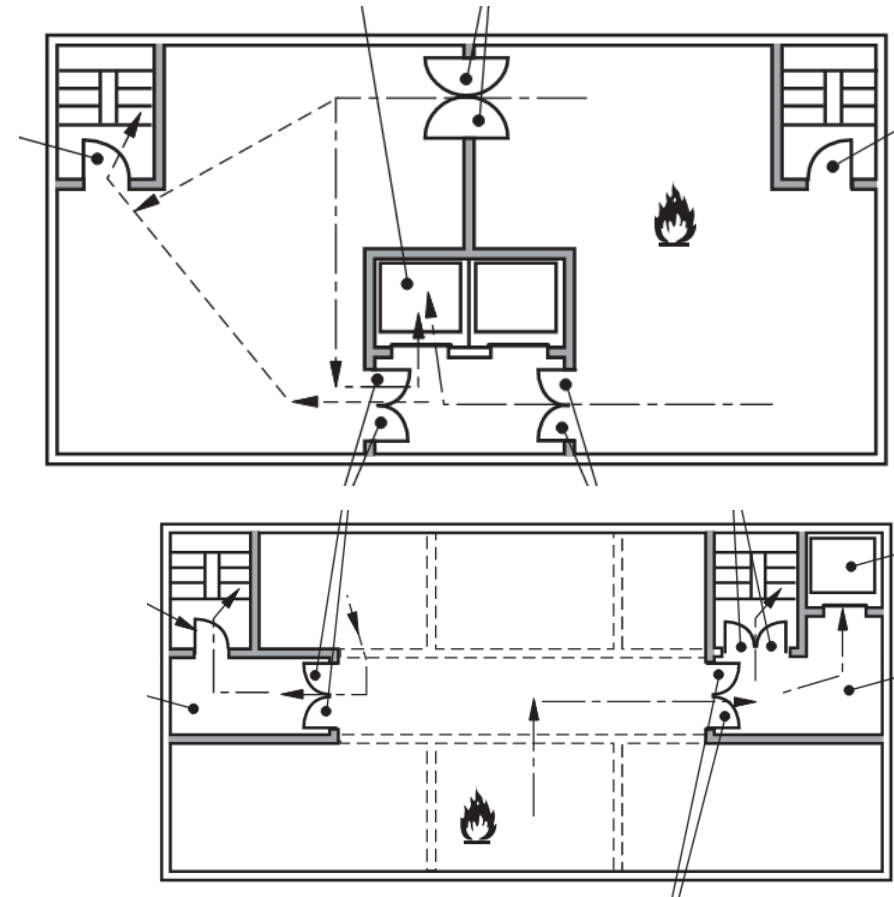
Getting to the lift

- Egress distances
- Safe paths
- Clear signage
- Consider obstructions and obstacles



“Safe” waiting area

- Lack of definition
- What do we expect from occupants?
- Are we making it possible?
 - NZBC tenability criteria?
 - Totally free of smoke?
- How do we facilitate outcomes?
 - Fire separation
 - Smoke management
 - Using the building features vs dedicated elements



Communication

- Occupants can signal their presence
- Acknowledgment for reassurance
- Information is essential
 - What is happening
 - Expected wait time
- More critical for automatic evacuation
 - Lift arrival
 - Egress level



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Lift discharge

- Define egress level
- Plan for alternative floor
- Direct (level) egress
- Clear signage
- Consider full route to *safe place*



Lift reliability considerations

- Goods lifts
 - May be locked out of use?
- Water ingress
 - Location of sprinkler heads?
 - Floor treatment?
- Power failure
 - Power supply?
 - Cabling – routing and specifications?



What's Plan B

- Occupants stranded
 - Avoid re-entry into compromised space
- Alternative egress
 - Lift waiting space should not be landlocked
 - Path to another lift
 - Access to stairs
- Assistance down the stairs
 - Management intervention
 - Evacuation chairs



In summary

- Lift capacity – number, location
- Management strategy – manual vs automatic
- Access to lift – egress paths, signage
- Safe waiting area – fire rating, smoke, communication
- Resilience – water ingress, power
- Lift egress – discharge floor, direct access
- Risk of failure – backup approach



Thank you,

- Questions?

