

Meeting Record

Date	4 th March 2024 (Mon), 16:30-18:00
Venue	Video conference using Microsoft Teams
Chair	Paul Bussey
Topic	Green Wall & Second Staircase

Attendees	Name	Organisation
1	Paul Bussey (chair)	AHMM
2	Mohamed Merchant (guest speaker)	TÜV SÜD
3	Russ Timpson (guest speaker)	Tall Building Fire Safety Network
4	Agnieszka Ryglowska	Scott Brownrigg
5	Andy Battle	SRA Architects
6	Angelica Piscopello	Murphy Philipps
7	Chris Bracewell	DWA Architects
8	Colin Veitch	Grid Architects
9	Dan Mahony	Studio Egret West
10	Daniel Clift	MacCreanor Lavington
11	Daniela Favero	Daniela Favero
12	Ewa Rams	Purcell
13	Fay Furguson	Morris + Company
14	Fran Watkins-White	Bureau Veritas
15	Gabrielle Flood	Suzie Bridges Architects
16	Gary Walpole	National Federation of Roofing Contractors
17	Gregory Malek	Jo Cowen Architects
18	Hassan Ahmed	DAY Architectural
19	Howard Lindsay	Scott Brownrigg
20	Hugh Wray-McCann	Wray-McCann Architect
21	Ian Burgess	Adamson Associates
22	Ian Simpson	NCR Limited
23	James Denner	ACME
24	James Taylor	Nicholas Hare Architects
25	Jasmine Adley	Currie and Brown
26	Jeffrey Tribich	Jeffrey Tribich Consulting
27	John Heaney	ECD Architects
28	Justin Robinson	BDP
29	Ken Pike	Pike Associates
30	Lee Harvey	Redlines Fire Safety
31	Liesl Dommissie	Bernard Sims Associates
32	Marcus Nelson	MEPK Architects
33	Marina Villalonga Bagan	Scott Brownrigg
34	Mark Reynolds	Boundary Concepts
35	Mark Skinner	Hawkins Brown
36	Mark Webb	PRP
37	Martin Touška	Rolfe Judd
38	Myshkin Clarke Hall	Myshkin Clark Hall
39	Neil Molloy	Levitt Bernstein
40	Nima Shamsipour	Lexton Group
41	Paul Owen	BDP
42	Paul Strudwick	HKS Architects
43	Peter Hegarty	Chapman Taylor
44	Perter Taylor	Leslie Clark Construction Consultants
45	Richard Mills	Reardon Smith Architects
46	Robin Hayes	Veretec
47	Sarah Susman	PRP Architects
48	Stefan von Stempel	Design Delivery Unit

Meeting Record

Date	4 th March 2024 (Mon), 16:30-18:00
Venue	Video conference using Microsoft Teams
Chair	Paul Bussey
Topic	Green Wall & Second Staircase

49	Sundeep Bhavra	GAA Design
50	Suzie Bridges	Suzie Bridges Architects
51	Thomas Futchter	Rolfe Judd
52	Tony Putsman	ICE Health and Safety Panel
53	Tony Zanieri	Architype
54	Wayne McKiernan	rg + p Ltd.
55	Adam Jones	AHMM
56	Agata Murasko	AHMM
57	Ana Popescu	AHMM
58	Andrei Mogos	AHMM
59	Andrea Oneto	AHMM
60	Avery Chen	AHMM
61	Ayo Rosanwo	AHMM
62	Bethan Dix	AHMM
63	Chia-Ying Chou	AHMM
64	Christopher Gaule	AHMM
65	Daniel Lareau	AHMM
66	David Fernandez	AHMM
67	Dannis Nghia Nguyen	AHMM
68	Don Shillingburg	AHMM
69	Emily Foster	AHMM
70	Fearghal Moran	AHMM
71	Gianpiero Bianchi	AHMM
72	Hannah Pether	AHMM
73	Isaac Barraclough	AHMM
74	Jamie Martin	AHMM
75	Jia Wei Huang	AHMM
76	Kay Razak	AHMM
77	Mayce Arebi	AHMM
78	Marian Ripoll Vaquer	AHMM
79	Marko Sherstylo	AHMM
80	Mathew Mellon	AHMM
81	Monika Lobato	AHMM
82	Nikoletta Poulimeni	AHMM
83	Peter Cross	AHMM
84	Peter Shelton	AHMM
85	Ruth King	AHMM
86	Susanna Loddo	AHMM
87	Ummar Rashid	AHMM
88	Vasiles Polydorou	AHMM
89	Yitao Zhu	AHMM
90	Yuxuan Dai	AHMM
91	Zifeng Ye	AHMM
92	James Martin	AHMM
93	Goh Ong	AHMM

Meeting Record

Date	4 th March 2024 (Mon), 16:30-18:00
Venue	Video conference using Microsoft Teams
Chair	Paul Bussey
Topic	Green Wall & Second Staircase

NOTE ON COVID-19: Since 23rd March 2020, all DIOHAS meetings will take place over video conference.

Agenda

We have a lineup of two guest speakers:

1. **Mohamed Merchant** of TÜV SÜD will talk about “Selecting suitable façade access strategies to manage green walls and associated support systems to enhance appearance and function”.
2. **Russ Timpson** of Tall Building Fire Safety Network will discuss his recent article on the case for two staircases in high rise building.

Recording

Link to the recording of the meeting:
https://www.youtube.com/watch?v=Oh_AlDXKfyk

Appendix 1

Presentation slides: Façade Access Strategies to Manage Green Walls by Mohamed Merchant



Façade Access Strategies to Manage Green Walls

Presented by:
Mohamed Merchant



Add value.
Inspire trust.

Agenda

- 1 Introduction / Definitions
- 2 Enhancing Façade Longevity
- 3 Cleaning, Maintenance, Inspection Frequencies
- 4 Access Challenges
- 5 Green Facades / Roofs – Basis of Maintenance
- 6 Façade Access System to Maintain Living Wall
- 7 Range of Access Systems
- 8 Design Coordination Elements



Definition

Dedicated engineered system and associated supports (permanent, temporary or both) designed to meet specific building's features to achieve direct hands-on access for exterior / interior of the building for:

- Cleaning, planned routine inspection, conditional façade survey and maintenance
- Delivery of façade panel (replacement)
- Services repairs & replacement

PV Panels

Louvers, fins, Brise Soleil

CCTV & AV System

Internal Lift shaft (scenic)

Atrium lighting

Signage / Building Logo

Aircraft warning lights

Ceiling mounted ducts, piping



Key Design Principles

- Safety
- Compliance
- Communication

“Eliminate, so far as is reasonably practicable, foreseeable risks to the health or safety of any person ...”



Importance of Façade Access System

- Preserve Asset Value.
- Building Appearance / Image.
- Occupant's interaction beyond building envelope.
- Cater buildings' form and function safely. Maintain façade efficiency.

“Cladding is designed to suit the building and will be expected to be designed to the 50-year life expectancy. It is possible that some components of the cladding, such as membranes and sealants, are unlikely to last this period and have a shorter effective life. This should be made clear in any maintenance manual.”

Ref: IStructE - Structural aspects of cladding, Published Feb 2020



Façade Life expectancy

Component	Design Life (years)	Service Life (years)	Warranty (years)
Secondary steel structure (cold side of building)	50	50	12
Secondary steel structure (warm side of building)	50	50	12
Brackets for the attachment of additional components	50	50	12
Aluminium profiles / frames	50	50	12
Aluminium sheet	50	50	12
Insulation, waterproofing membranes, air & vapour control layers which cannot be removed without dismantling the works	50	50	12
Fire and smoke stops and cavity barriers (cold side of building) - Note that intumescent faced products Service Life is currently limited to 25 years	25	50	12
Fire and smoke stops and cavity barriers (warm side of building)	50	50	12
Sealants and gaskets, which are concealed within the Contract works and which cannot be inspected and replaced without dismantling the Contract Works	50	50	12
Anodising	40	40	12
Structural Sealant	25	25	12
Accessible gaskets (external)	20	30	12
Accessible gaskets (internal)	30	30	12
Insulating glass units	25	25	10
Laminated glass	25	25	12
Monolithic heat-treated glass	25	25	12
Glass coatings	25	25	12
Polyester powder coating (external grade)	25	25	10
Polyester powder coating (internal grade)	30	30	12
Paint systems to mild steel (external grade)	25	25	10
Paint systems to mild steel (internal grade)	30	30	12
Accessible sealants (external)	20	20	12
Non-moving ironmongery	10	5	5
Door mechanisms, pivots and moving parts (inc ironmongery)	5	1	1
Motors and automatic components such as window drives etc	5	1	1

Definition of 'Design Life': *"The period of life that the building and all its components are designed to achieve when subject to relevant maintenance and servicing regimes."*

Definition of 'Service Life': *"The service life is the amount of time that the above components will last before needing to be replaced / serviced. If the service life of a component is shorter than the design life, then consideration must be given to steps required in order to replace / maintain the components so that the design life is achieved"*

Definition of 'Warranty': *"The period of time that the supplier warrants the suitability and serviceability of the product when subjected to the standard maintenance and cleaning regimes as noted in the product warranty document and related O&M information"*

Warranties to motors and automatic components commence from date of site commissioning and not from Practical Completion of the project due to the fact that they are generally in use from this date.

Courtesy: Colorminium (London) Ltd

Façade Cleaning & Maintenance Frequency

Material / Finishes	Cleaning Frequency
Glazing	3 monthly
Anodised aluminium	3 monthly
Powder coated surfaces	3 monthly
Stainless Steel	6 monthly
Concrete Exoskeleton	Bi-annually
Rendered wall	8-12 years



Typical cleaning frequency for window and cladding in London (Courtesy: Cleanability Report; September 2001; Construction livery Group)

Material / Finishes	Maintenance Regime
Periodic inspection	Annually / Bi-annually. [Note: Larger façade components tend to be maintenance free. Panel joints demands more maintenance due to failure of sealants or gaskets leading to water penetration and/or structural failure]
Anodised Aluminium	Apply protective wax coating - yearly
Stainless Steel	It's not maintenance free. Issues with tea-stain (oxidation). Periodic stain cleaning may be required to remedy damage caused by acid pollution NB – Stainless steel does stain!



Façade Inspection Frequency

Inspection	Maintenance Regime
Routine	Continuous regular observations that should be undertaken by the user as part of the occupancy of the building. Feedback resulting from this type of observation should be encouraged.
General	Visual inspections of main elements, made under the supervision of a suitably qualified person at times specified in the maintenance manual or stipulated by façade manufacturer and contractor to maintain warranties
Detailed	A full inspection of the façade by a suitably qualified person at times specified in the maintenance manual, but probably not exceeding a five year period.
Whole life performance	A carefully tailored schedule to reduce the incidence of unplanned repair and thus minimise disruption.

Note: Highly infrequent and long-term maintenance of façades can involve scaffolding. This can be disruptive to occupiers and costly to their businesses. Consider sharing the cost and frequency of access between maintenance activities.

Building FM team can refer to:

BS 8210 - Guide to building maintenance management

BS ISO 15686-1:2000 'Buildings and constructed assets – Service life planning' Part 1 : General principles



Façade Access Challenges

- Access multiple layers between window cleaner and surfaces
- Non-linear façade geometry
- Regional Health and Safety
- Validate façade warranties

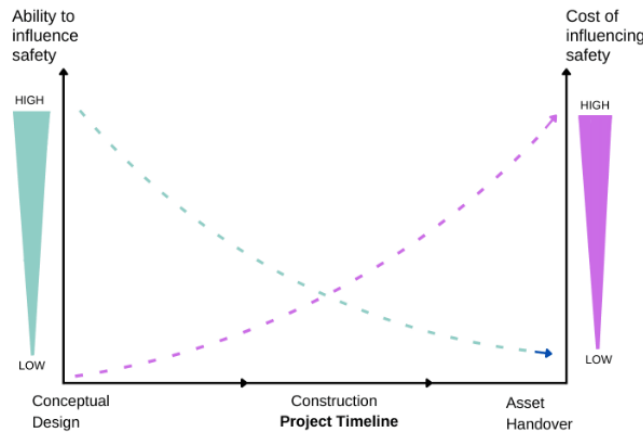


Green Facades / Roofs – Basis of Safe Access for Maintenance

- Work environment is organic and 3-dimensional in some instances.
- Operatives' stability & direct hands-on access (platform v/s suspended ropes).
- Multidisciplinary design approach since early stage.



“Maintenance-heavy green walls tend to be less sustainable than roof gardens or other landscaping.”
(AJ 22.10.21)



- Qualified personnel specific to landscape (limited skill - High OpEx).
- Maintenance zone on roofs and terraces to suit greenery / tree species.
- Post construction tree replacement – BMU or Crane?
- Consider deciduous or evergreen climbers to reduce fire risk. Regular access to remove dead or dry vegetation.
- Install breaks in the vegetation to increase fire resistance.
- Existing greenery become denser and potentially exceed the lifting capacity of project specific BMU.

Green Facades Maintenance Categories

Category Range	Maintenance Regime	Typ. Activities
Establishment maintenance	During the first one to two years post installation.	Early year pruning and irrigation for healthy and vigorous plant growth
Routine or recurrent maintenance	A minimum (generally annual) or required standard of appearance, functionality and safety stipulated by façade manufacturer to maintain warranties.	Weeding, pest control, pruning, removal of leaf litter and, in some cases, 'vertical' mowing
Cyclic maintenance	Low frequent intervals to maintain underlying building structure and specific components of the green facade system.	Formative management of woody vegetation, annual treatment. Maintain supporting components - irrigation system, lighting, pumps, fans, top up nutrients tank etc.
Reactive / Preventative maintenance	Undertake maintenance when component(s) fails suddenly or shows signs of imminent failure.	Blocked drains by tree roots, or sudden damage due to extreme weather event
Renovation maintenance	Change of design intent, remediation of a design failure.	Plant / Tree replacement

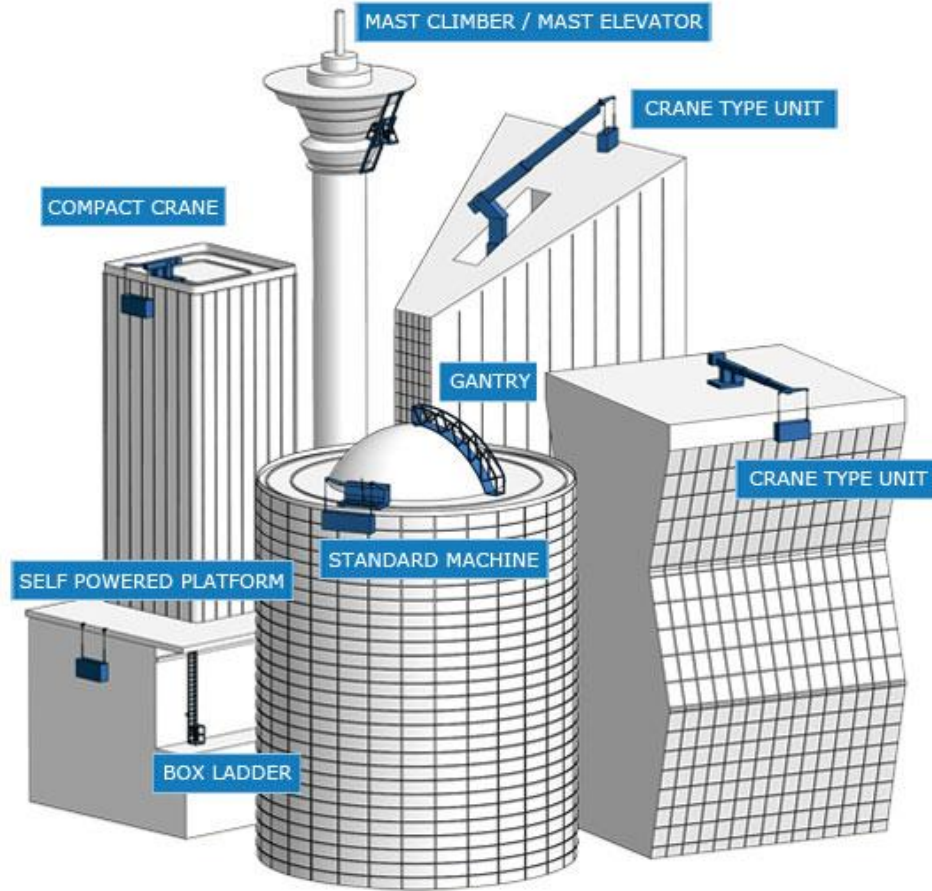
- Typ. Biodiverse / Green roofs generally require bi-annually checks. Additional access during early 1-5 years to repair post strong weather.
- Generally, the maintenance of planters and planted beds at least 2-3 times per annum + extra maintenance during winter.

Façade Access System to Maintain Living Wall

- WAHR prefers access strategy “Designed out”. Multiple personnel will reduce maintenance time.
- Quick & regular visual inspections using ground bases MEWPs. Large coverage from single deployment.
- Arborists and horticulturists will require training/license & skills to use suspended platform, MEWPs, abseiling system.
- Design living wall to cope with platform buffer impact or/and abseiling foot load.
- Increased usage time above general façade cleaning. Typically, it takes 2.5 ~ 3.5 (approx.) hours to maintain approx. 200 ft² living wall subject to façade angle and geometry. (Courtesy: <http://nedlawlivingwalls.com/services-maintenance-importance/>.)
- Seasonal activity can impact façade cleaning cycle. Detailed interface with façade access strategy and define system type & number of systems.
- Vegetation on green walls that receives regular irrigation and maintenance does not pose a fire hazard.



Exploring Range of Systems



PERMANENTLY INSTALLED ACCESS SYSTEMS
BUILDING MAINTENANCE UNIT (BMU)

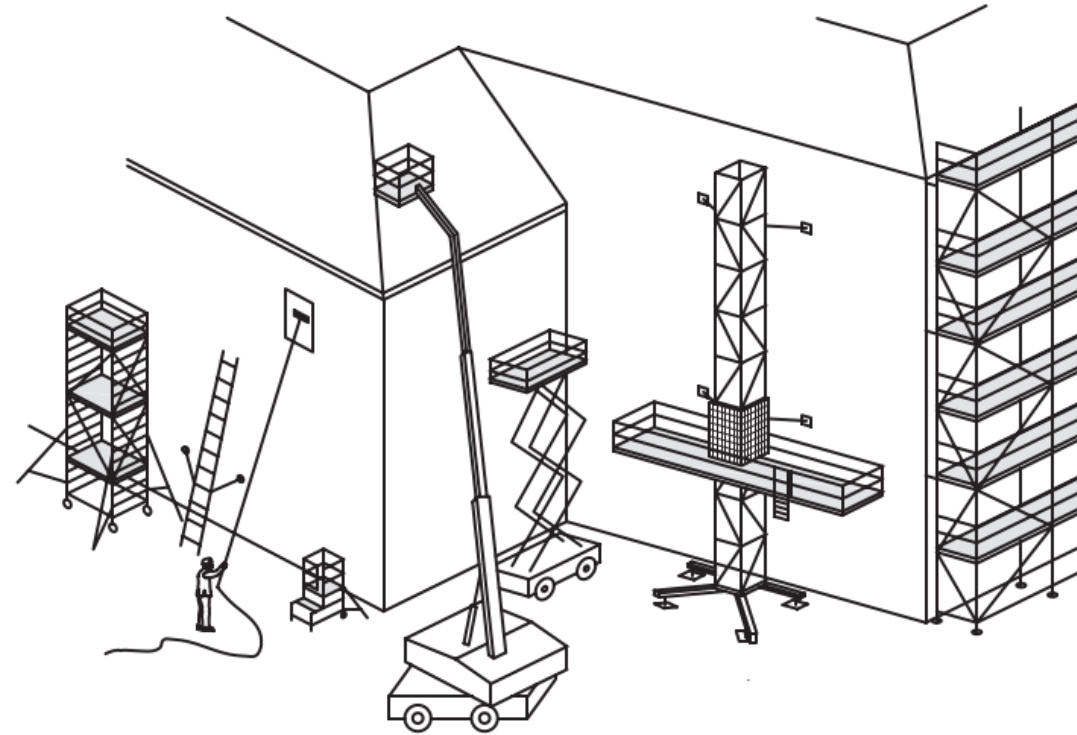
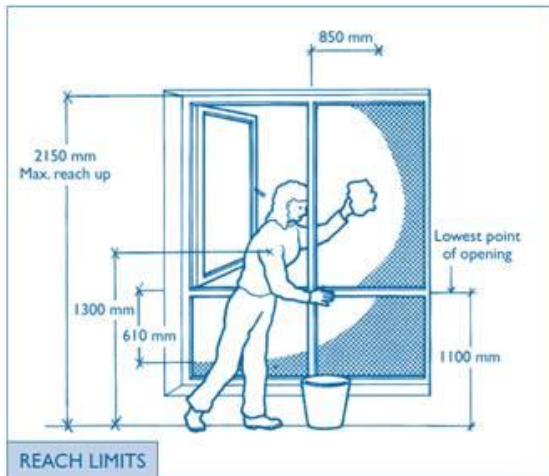
Alternate Access Systems

Ground level access – Purchased or Hired

- Mobile Elevated Work Platforms (MEWP)
- Mobile Scaffold and ladders
- Long poles (water fed / dry pole) – Not suitable for Green Walls.

Direct Access at Height – Architect's Design Scope

- Balconies
- Opening windows
- Walkways (between double skin façade)



No single BMU manufacturer / contractor can provide technical support on all the available equipment range

Façade Access - Cleaning Time Analysis

Calculation Sheet		Calculation Sheet	
Project:	Date:	Project:	Date: Jan-00
Cleaning Calculations	UNITS	Unit location	drop
INPUT VARIABLES		height - metres	hoisting time - minutes
Safe working load	225 kg	cleaning zone - m2	% glass
Number of Persons	2	Number of Operative	cleaning time per drop - minutes
Glass replacement unit	500 kg	set up time - minutes	time / drop - hours
Cradle dimension	3000 x 700 x 1000 mm	time / drop - hours	cumulative time - hours
Hoisting height	130 m		
Track Perimeter	115 m		
Initial setting up times	25 min		
Setting up times	10 min		
Hoisting speed	10 m/min		
Glass	100 %		
Cleaning speed (approx)/ man	90 m2/hr		
CALCULATED RESULTS			
Number of Drops	38		
Hoisting Time (maximum drop)	13.00 Min		
Cleaning Time per Drop	143.00 Min		
	2.38 Hrs		
Total Cleaning Time *	105.38 Hrs		
	12.40 Days		

These times are theoretical but based on our experience in the access industry verified on similar buildings

* Manually change hours to match number of drops (above) when cradle starts



ZONE	Number Drops	Number Floors per drop	Average Cleans per drop	Number Cleans	Traverse Time	Launch Time	Façade Type	Restraint, & Special Activity Time	Descent & Clean Time	Release & Ascent Time	Total Work Time
	D	F	c	C=c.D	T1=Td.D (min)	T2=Tu.D (min)		T3=TR.F.D (min)	T4=F.H.D/S + Tc.C (min)	T5=F.H.D/S + T3 (min)	T=T1+T2+T3+T4+T5 (min)
1	5	20	20	100	25	25	A	50	823	85	1008
2	5	20	20	100	25	25	B	200	823	235	1308
3	10	20	20	200	50	50	B	400	1645	470	2615
4	10	20	20	200	50	50	C	600	1645	670	3015
5	15	20	20	300	75	75	C	900	2468	1005	4523
6	15	20	20	300	75	75	D	1200	2468	1305	5123

Total Work time for the entire façade = 17590 min

Nd = Number of cleaning days = total work time / (efficiency x work time per day)

Nw = Number of cleaning weeks per building clean = Nd/6 =

50.9 working days

8.5 weeks



Rope Access (Abseiling)

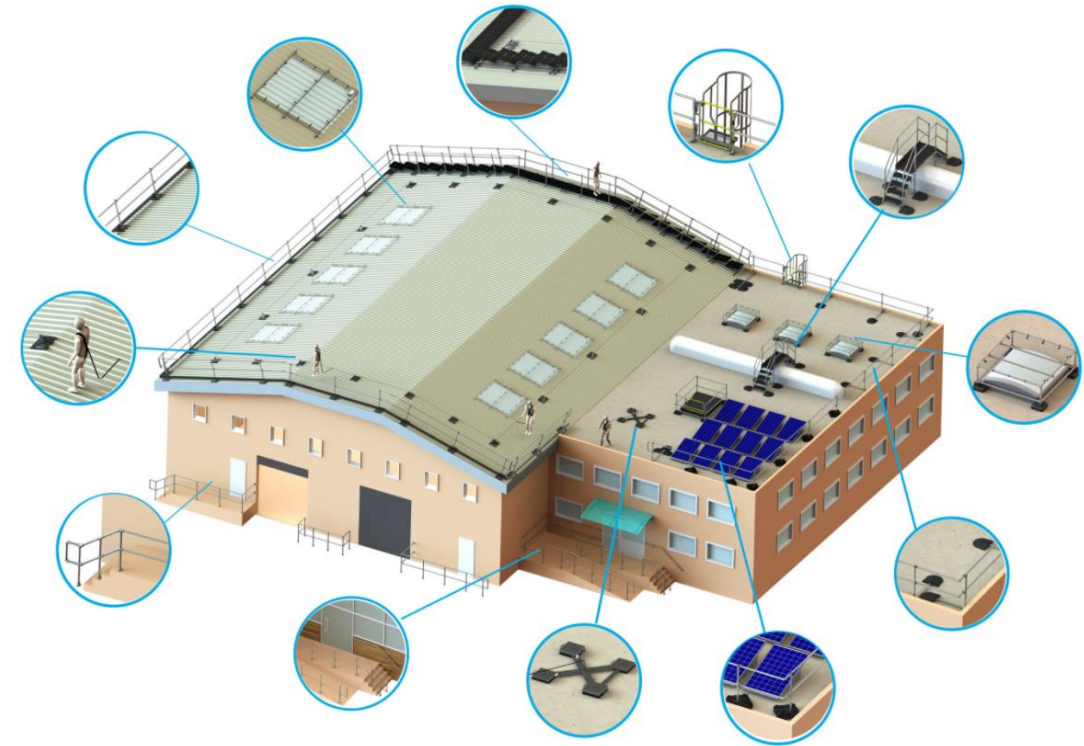
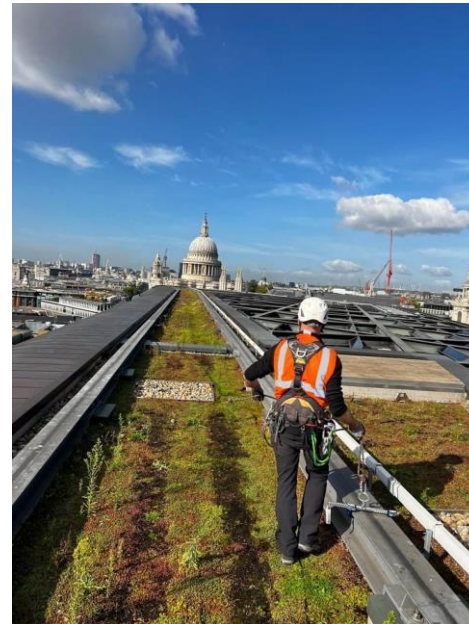
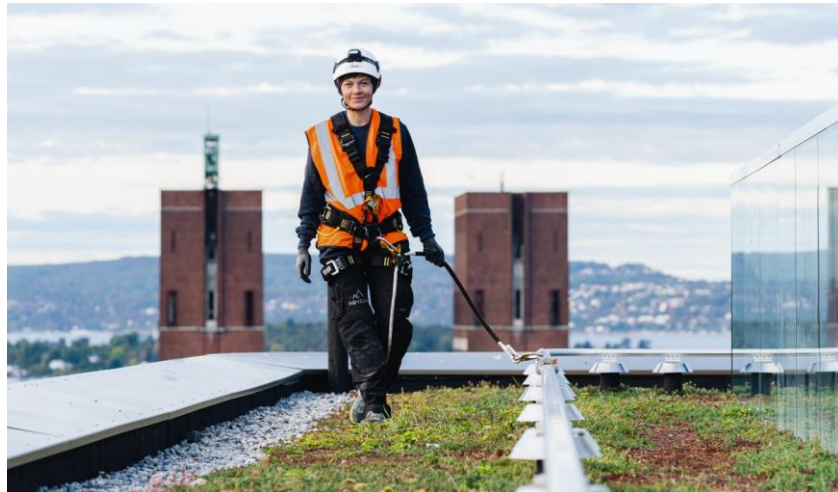
- Rope access seen as an easy ‘kop’ out.
- Legitimate means of access for certain activities limited to light maintenance.
- Often done outside of normal working hours so “invisible” to enforcement.
- Reliance upon Facility Management to avoid HSE breach.



Roof Access (5th Elevation)

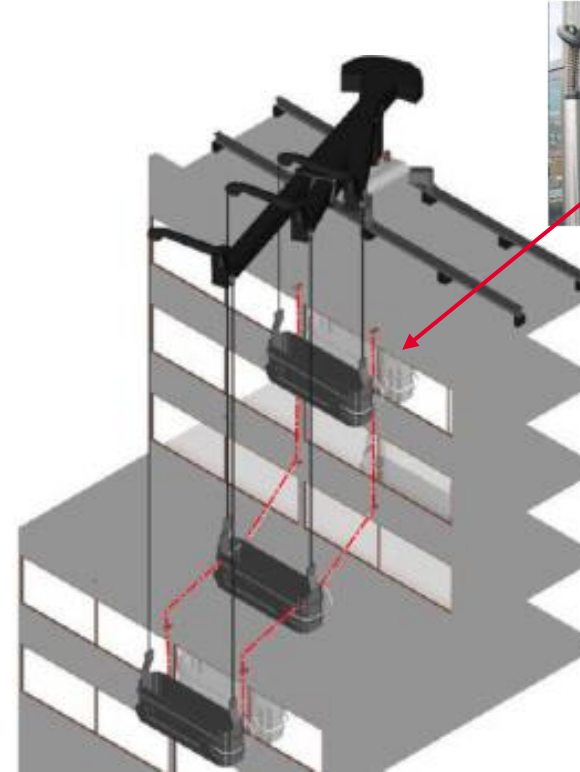
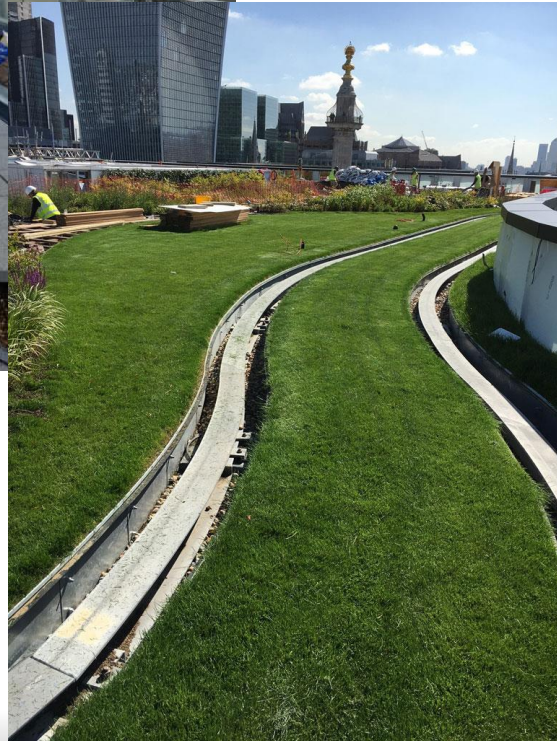
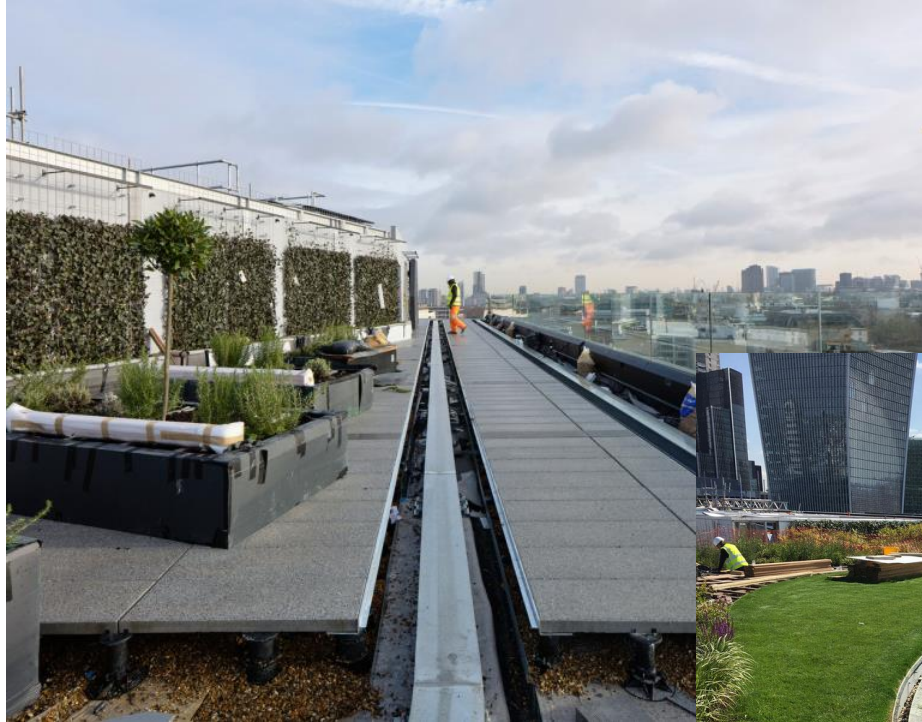
Secondary means of access to and around roof levels:

- Walkways
- Fixed ladders
- Stepped / ramped access
- Edge Protection
- Fall restraint systems / Safety line
- Walkovers
- Maintenance hatches



WAHR Reg 7. – “(1) Every employer, in selecting work equipment for use in work at height, shall - (a) **give collective protection measures priority over personal protection measures**;...”

Façade Access Design Coordination Elements



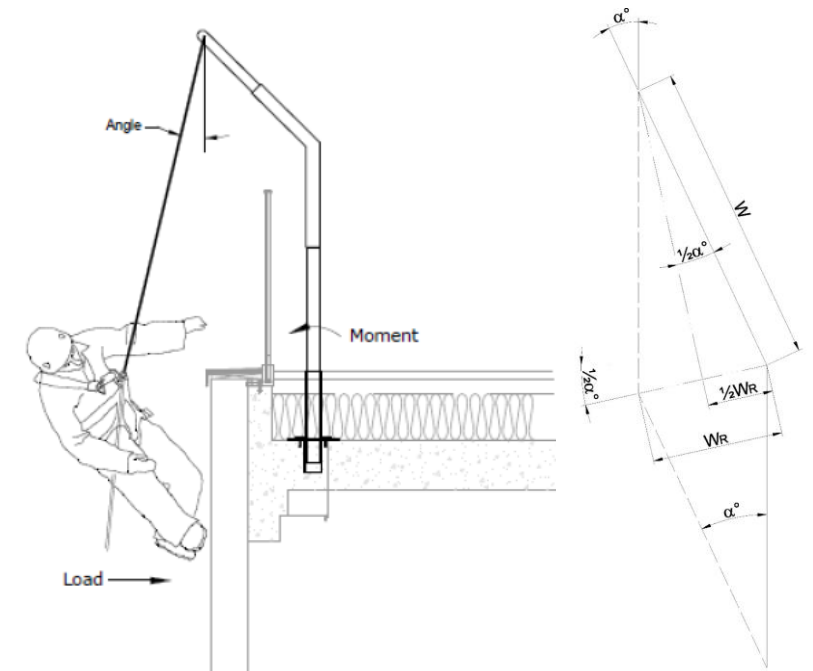
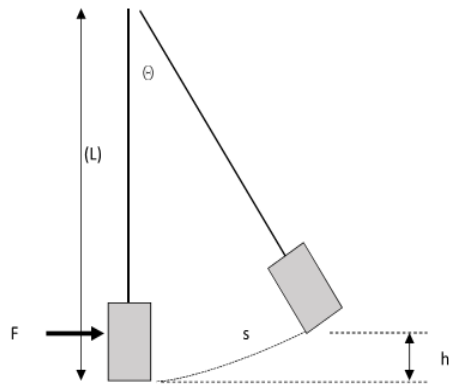
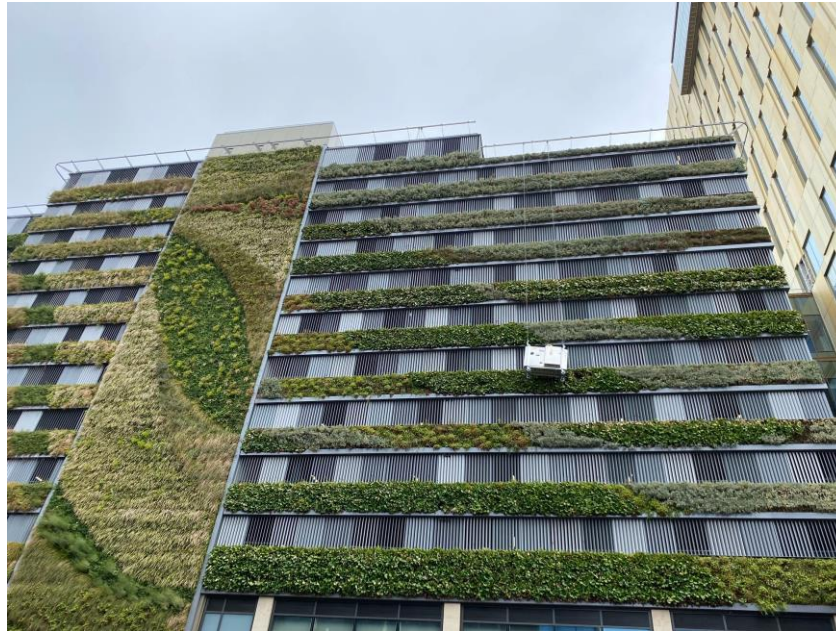
Façade Access – Platform / Direct Operative Loads

Platform Impact on Façade (Calculated as per TN97)

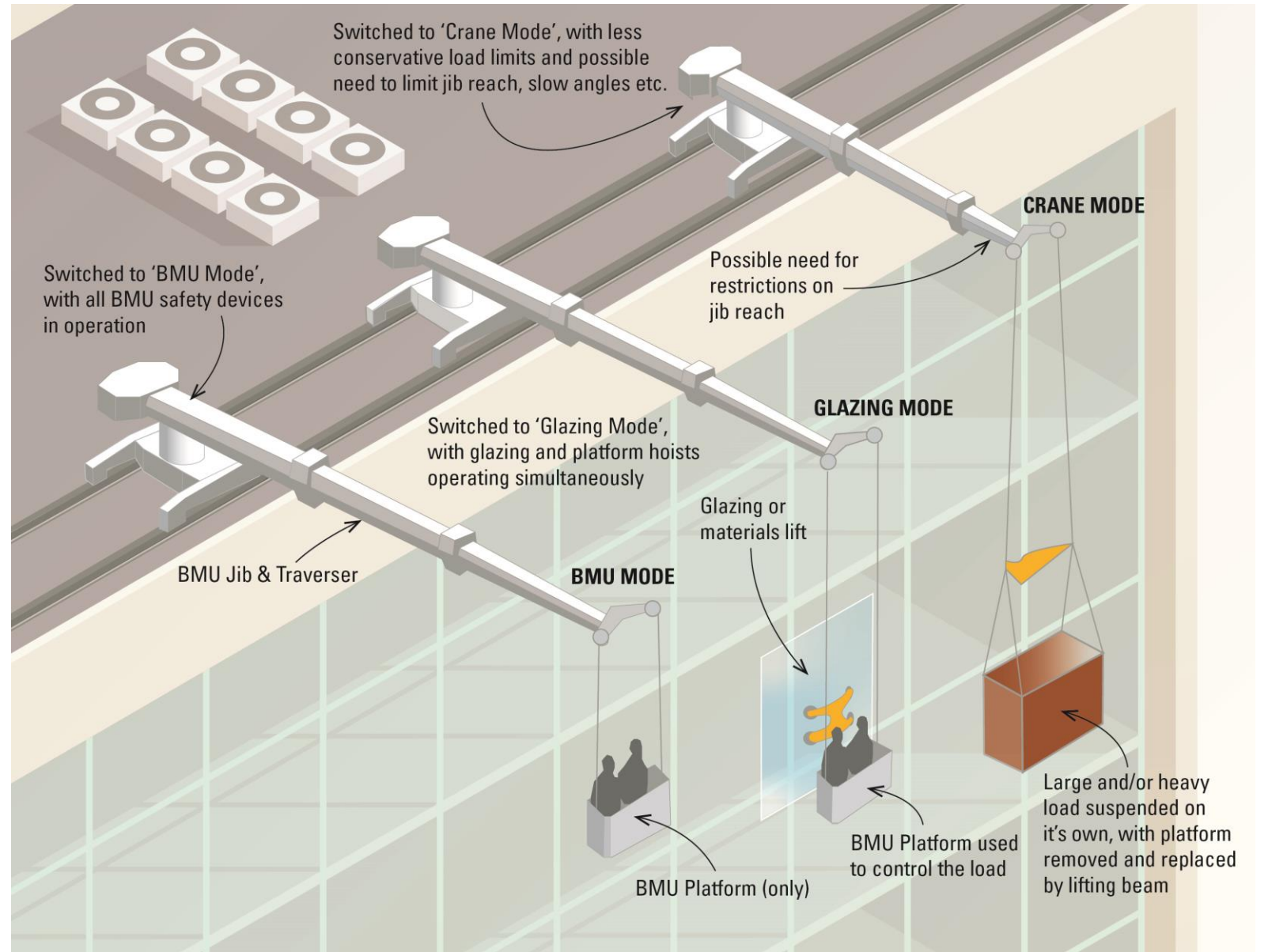
A	Area of cradle (m ²)	3.45
a	Horizontal acceleration of the cradle	
α	inclination suspension cable	
Δt	Time interval (s)	0.01
E	Energy	
g	acceleration due to gravity (m/s ²)	9.81
h	suspension height (m)	20
m	mass of cradle	397.5
p	instantaneous wind pressure on cradle (N/m ²)	
p _{peak}	max wind pressure on cradle (N/m ²)	250
T	period of wind pulse (s)	3
T	horizontal component of tension in suspension cable	Compare results with values 3,4.5
v	horizontal velocity of cradle (m/s)	
W	Horizontal force due to wind pressure (N)	
x	horizontal displacement of cradle from vertical	
n	value calculated at timestep n	

Area of platform elevation	2.75 m ²
Operatives	2
Area of operatives (as per EN 1808)	0.35 m ²
Area of the cradle	3.45 m ²
Weight of the cradle	157.5 kg
Rated load	240 kg
TOTAL WEIGHT	397.5 kg

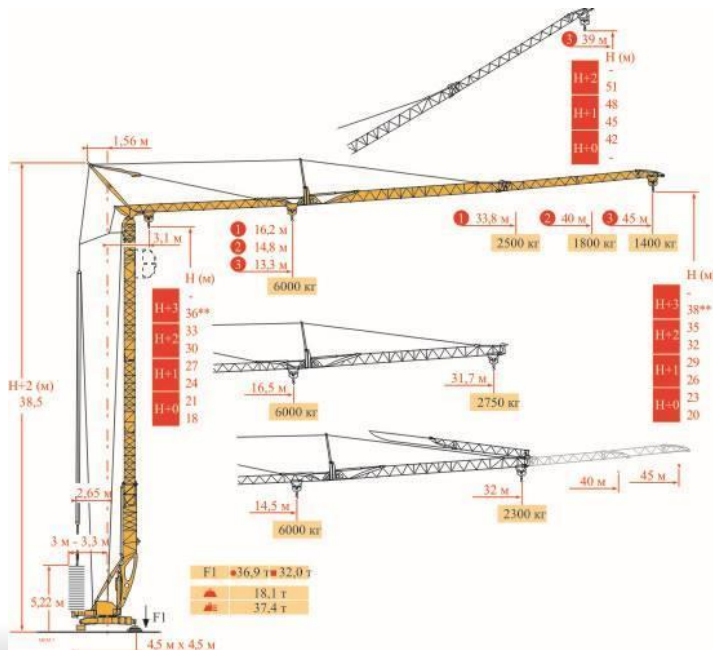
Operating Wind Speed and Pressure as per EN 1808			
	Norm	Non guided	Cont. Restrnd
Speed	12.0	14.0	20.0
Pressure	90.0	122.5	250.0



Façade Access Auxiliary Lifting Strategy



Temporary Lifting



TÜV SÜD Consultancy can offer:

Industry Experience

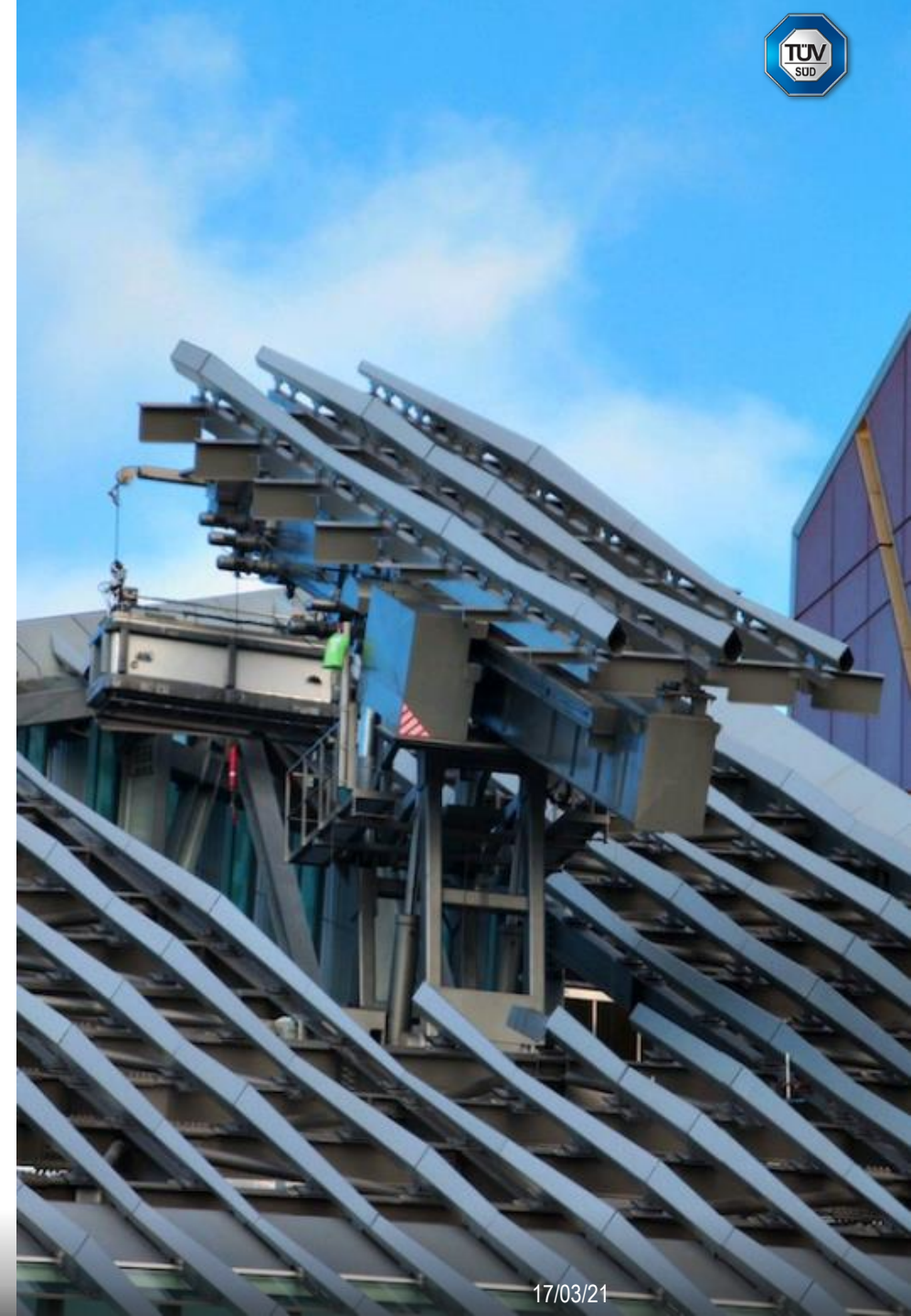
- Efficient access solution
- Lessons learned from past (globally)
- Early design integration
- Standard v/s Bespoke (beyond BS EN)

Unbiased Technical Support

- Maintainability (Cleanability)
- Buildability
- Working at Height
- Access to Services
- Emergency Rescue
- Capital costs v/s Operational Costs
- Discounting BMU as VE process

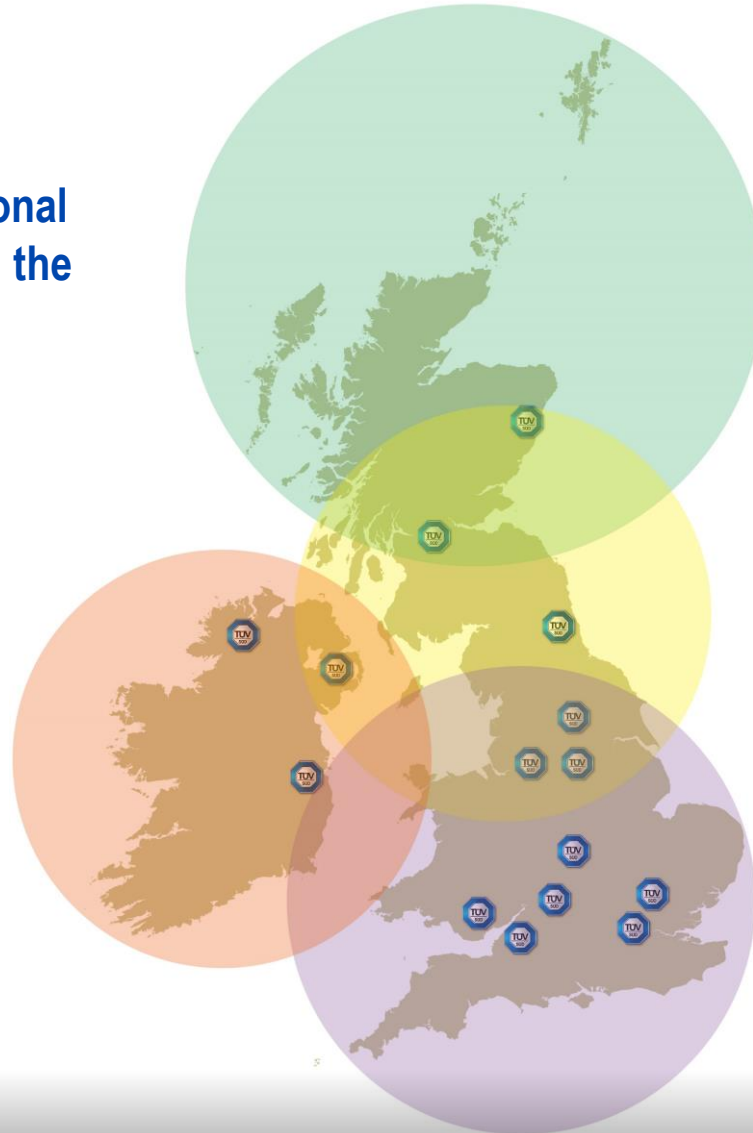
Thinking out of the box

- BMU v/s Rope access
- Foster v/s Rogers!!
- Architectural aspirations v/s Practicality
- Contemporary v/s Historic
- Traditional or Automated
- Dynamic Facade



Company Overview: TÜV SÜD (UK)

All TÜV SÜD regions and locations covered by our national network of local offices within the UK & Ireland



- 15 Offices with the UK & Ireland
- 2 International Offices in Dubai & Mumbai
- 55 Employees in the UK
- 5 Employees in Dubai & Mumbai
- Specialist Lifts & Façade Access teams
- Seamless working between offices

What we do

- Specialise in
 - Vertical Transportation & Façade Access
 - Maintenance Management
 - Façade Energy Performance Analysis
 - Building Information Modelling
- Collaborative knowledge led ethos



Project Management

Our clients can select the level of management they prefer from the following services:

- Feasibility Study
- Design Reviews
- Design Specification Preparation
- Issue of Tender
- Tender Analysis
- Contractor Interviews/Audits
- Off Site Manufacturing Witnessing & Certification
- Site Visits & Meetings during Installation
- Witness of Commissioning
- Issuing of Defects List
- End of Defects Liability Inspection

Overview of our Services

Maintenance Support

- Control Costs
- Improve Operational Standards
- Improve Quality
- Improve Safety
- Establishing Partnering or Framework Agreements with Contractors

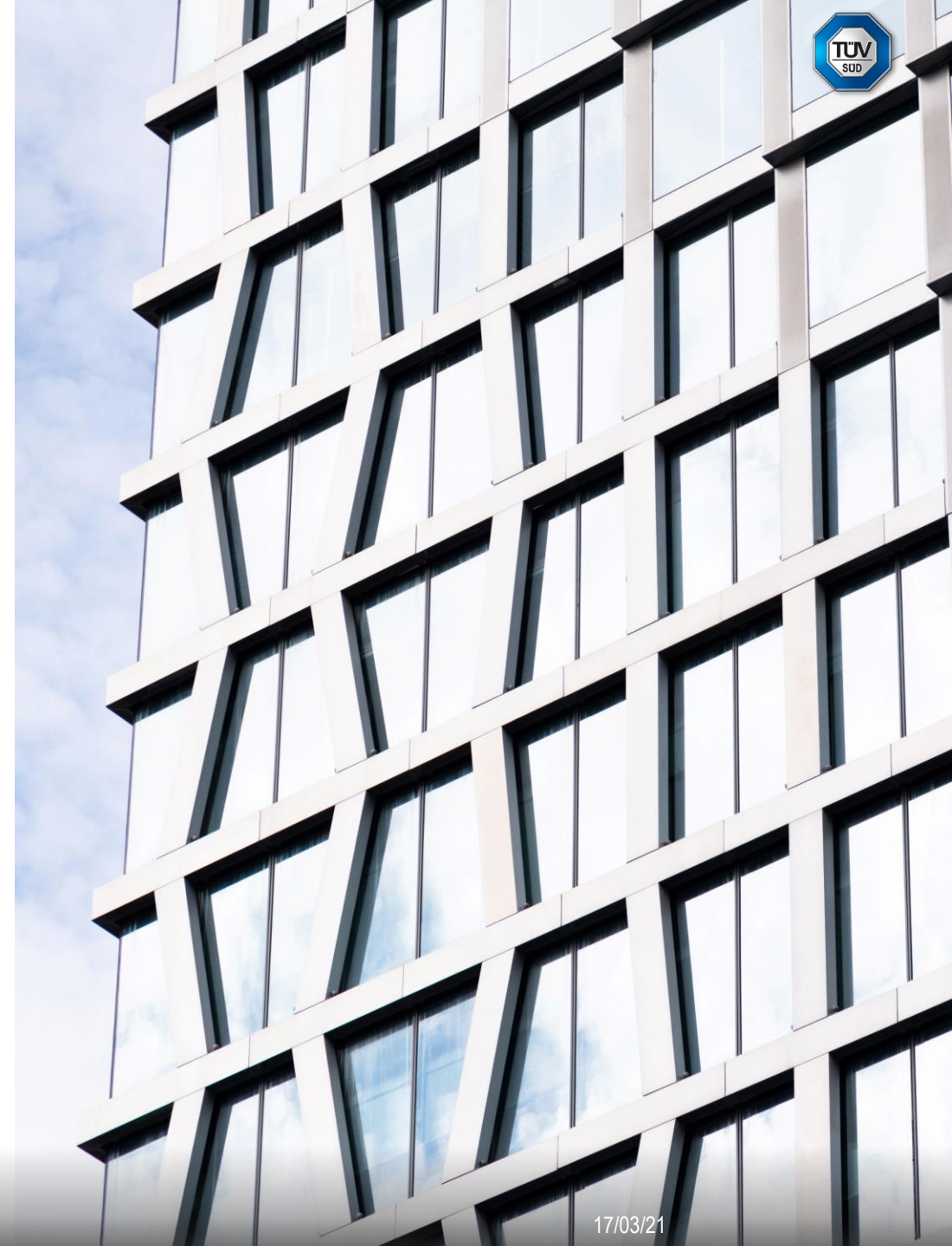
Expert Witness

- Arbitration
- Litigation
- Personal Accidents
- Commercial



CONCLUSION

- Early realisation during design process will produce a sympathetic and an efficient solution.
- No two buildings are the same.
- 'Off-the-shelf' solutions may not be appropriate for intricate building profiles to meet client expectations.
- A poorly considered facade access strategy always results in:
 - High Access & Maintenance costs
 - Poor Quality Façade Maintenance
- A well thought out strategy can reap dividends in terms of whole-life costs.





Dunbar Boardman

Add value.
Inspire trust.

Thank you



Mohamed Merchant

Director Facade Access

+44 (0) 7827 734826

Mohamed.Merchant@tuvsud.com

<https://www.tuvsud.com/en-gb/industries/real-estate/lift-consultancy-services/facade-access-system-design>

Appendix 2

Presentation slides: Tall Building Fire Safety by Russ Timpson

PROPORTIONATE AND PRACTICABLE CDM

DIOHAS



Tall Building Fire Safety

Monday 4th March 2024

www.tallbuildingfiresafety.com
russ.timpson@tallbuildingfiresafety.com



Agenda

1. Green Fire Safety

2. Two Stair Debate

Tall Building Fire Safety Management

- Ideal for anyone tasked with fire safety management of high-rise & risk buildings
- Leads to a recognised qualification via 'Institution of Fire Engineers'
- 5 days of expert tuition from World Class subject experts
- Includes full notes, slides, references, management tools and templates
- Course includes; case studies, Prevention, Detection and Alarm, Escape, Containment, Firefighting and BCP.
Fire strategies, facades, fire risk assessment, lifts, smoke control, car parks, retail, wayfinding, compartmentation. The course also includes details of Building Safety Act and related Regulatory updates, i.e. 'Golden Thread', safety case, etc
- Over 1500 delegates have attended this course since 2011. Many delegates have attended from outside the UK, as the course is 'generic' and seeks to capture International best practice.



Dates for 2024

March	18 – 22	London
April	22 – 26	Malta*
June	17 – 21	London
Sept	16 – 20	Dublin
Oct	21 – 25	Santiago
Nov	4 – 8	London
Dec	9 – 13	London

**Cost for course = £2195 + vat
(*Malta, price to be confirmed)**







'GREENING' OF BUILDINGS





87 Meter Ascent Tower



159 Meter 30 Marsh Wall







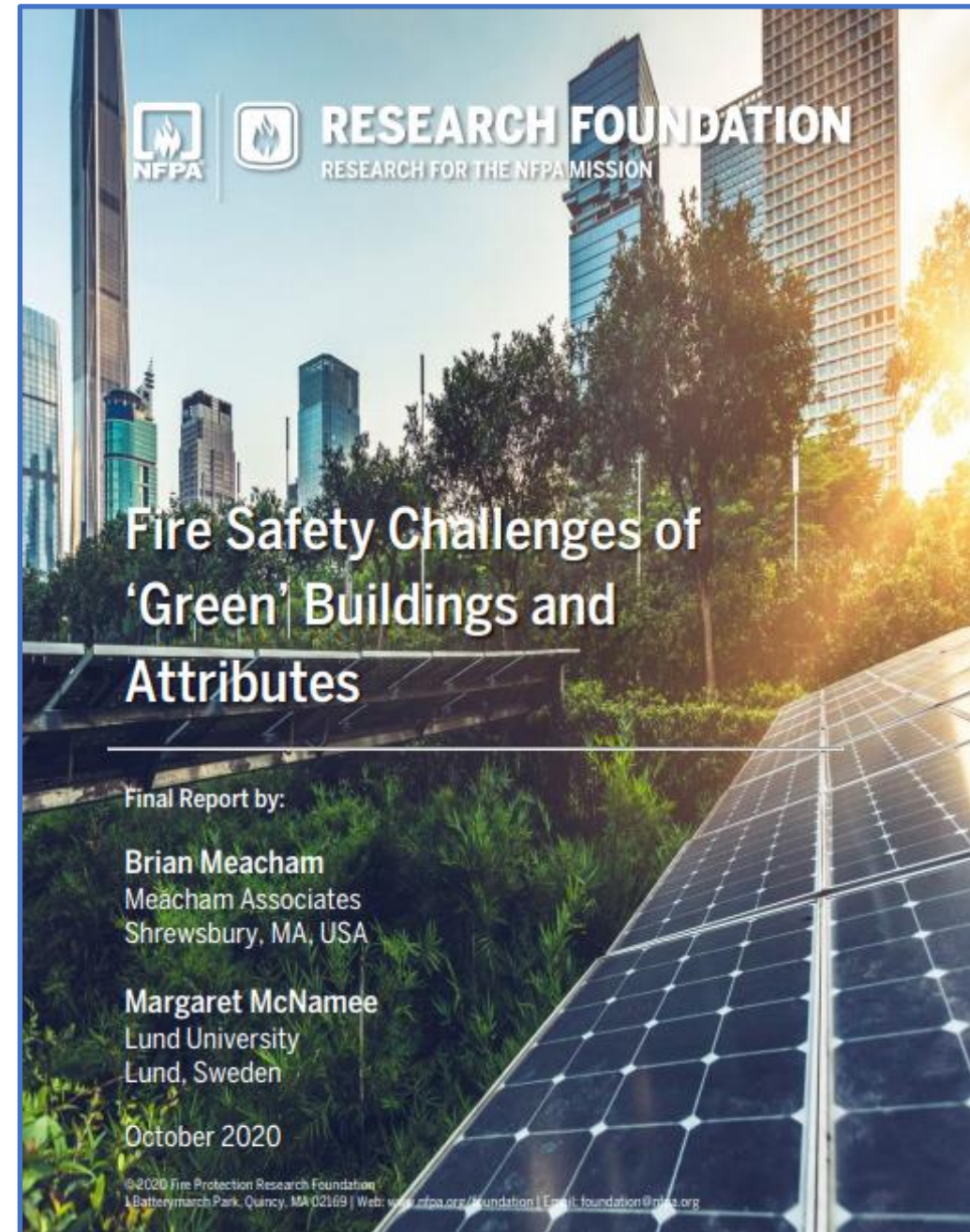


russ.timpson@tallbuildingfiresafety.com

Reference:

The concept of Sustainable And Fire Resilient (SAFR) structures

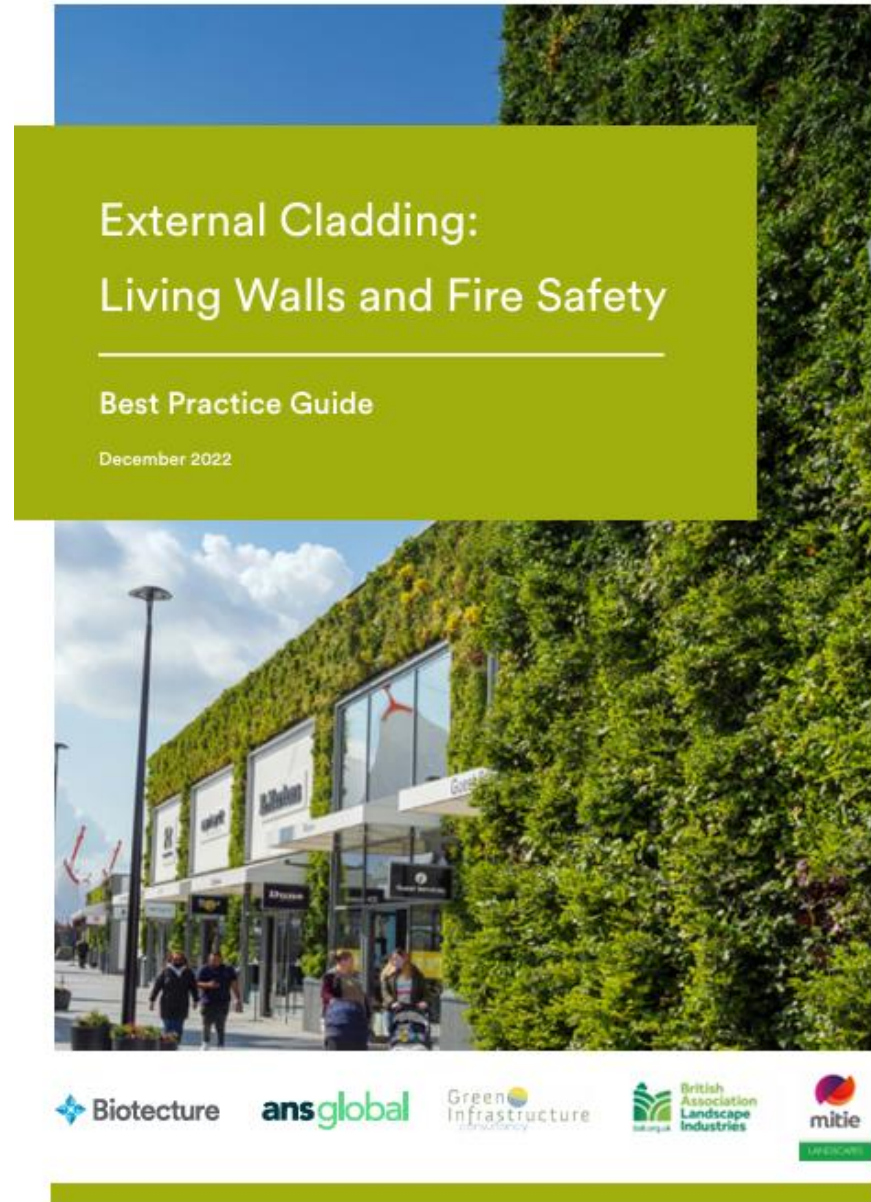
More testing Required!



Recent Publication:

External Cladding: Living Walls and Fire Safety

'The fire guidance for living walls in UK, Fire Performance of Green Roofs and walls, is outdated, inappropriate and confusing'.



2 STAIR DEBATE



Design Assumptions for Fire Escape

1. The building is designed, constructed and commissioned correctly.
2. Occupants can escape if they choose to do so.
3. The building is well managed, and all systems are working correctly in line with the fire strategy.
4. Any fires that do occur conform to foreseeable 'common' scenarios and heat release rates.
5. Arson, terrorism and deliberate fire raising are not considered.
6. The building is occupied and used as designed in the fire strategy, i.e. capacity.
7. There will be a fire service response within agreed timeframes, with adequate resources.

Case for 2 Stairs – Vulnerable Occupants

1. Vulnerable Occupants who may struggle to escape

1.1 Persons under the age of 18

1.2 Elderly persons whose mobility may be reduced due to age

1.3 Persons with a permanent, or temporary, physical or sensory impairment which, in interaction with the building features may hinder their full and effective evacuation

1.4 Persons who have difficulty with social interaction and communication, or responding to fire alarms, evacuation alerts and/or first responders' instructions.

1.5 Persons misusing alcohol, drugs or prescription medicines.

1.6 Persons with mental health problems, learning disabilities or suicidal intent.



Case for 2 Stairs – Ignoring Stay Put

LFB Incident Database Date	Location	Nos of residents self-evacuated prior to arrival of FRS
12/04/2022	Aldgate	30
28/03/2022	Croydon	30
23/03/2022	Shepherd's Bush	26
07/03/2022	Whitechapel	70
06/03/2022	Farnborough	15
13/02/2022	Enfield	15
07/02/2022	Camden	11
04/02/2022	St John's Wood	10
31/01/2022	Purley	100
26/01/2022	Stratford	100
24/01/2022	Dagenham	100
21/01/2022	Roehampton	10
27/12/2021	Hounslow	50
29/11/2021	Sutton	18
20/11/2021	Battersea	10
28/10/2021	Vauxhall	120
26/10/2021	Isleworth	12
18/10/2021	Stratford	40
12/10/2021	Battersea	50
29/09/2021	Erith	40
23/09/2021	Limehouse	50
18/09/2021	Shoreditch	20
24/08/2021	Enfield	50
19/08/2021	Walthamstow	31
02/08/2021	Catford	50
02/08/2021	Tottenham	10
15/07/2021	Colindale	Everyone out
15/07/2021	Elephant & Castle	200
13/06/2021	New Barnet	10
24/05/2021	New Southgate	25
07/05/2021	Poplar	67
29/04/2021	Knightsbridge	10
26/04/2021	Thornton Heath	20
18/04/2021	Islington	50

Social Media Induced Simultaneous Evacuation

Case for 2 Stairs – Degraded Building Systems

1. *‘When we attend a High-Rise Fire, we expect 100% non-availability of building systems’*

1.1 Firefighting Lift

1.2 Smoke Control

1.3 Wet/Dry Riser – Water flow and pressure

1.4 Fire Doors

1.5 Signage and location marking

1.6 Access – bollards, skips, cars, etc.



SunFlower Seed Demonstration using a Fog Nozzle (Simulates tuberculated pipe)



Standpipe System debris from tuberculated pipe is expected.

Case for 2 Stairs – Hoarding

1. *Why Hoarding in High Rise is bad*
 - 1.1 Increases likelihood and severity of fire
 - 1.2 Hinders escape of resident in event of fire
 - 1.3 Hinders access/egress of firefighters in event of fire
 - 1.4 Risk to neighbouring properties
 - 1.5 High fuel loading/ extended burning duration
 - 1.6 Water absorption/structural damage

What is hoarding disorder?







Case for 2 Stairs – Cramming

1. Over population of buildings

CRAMMING



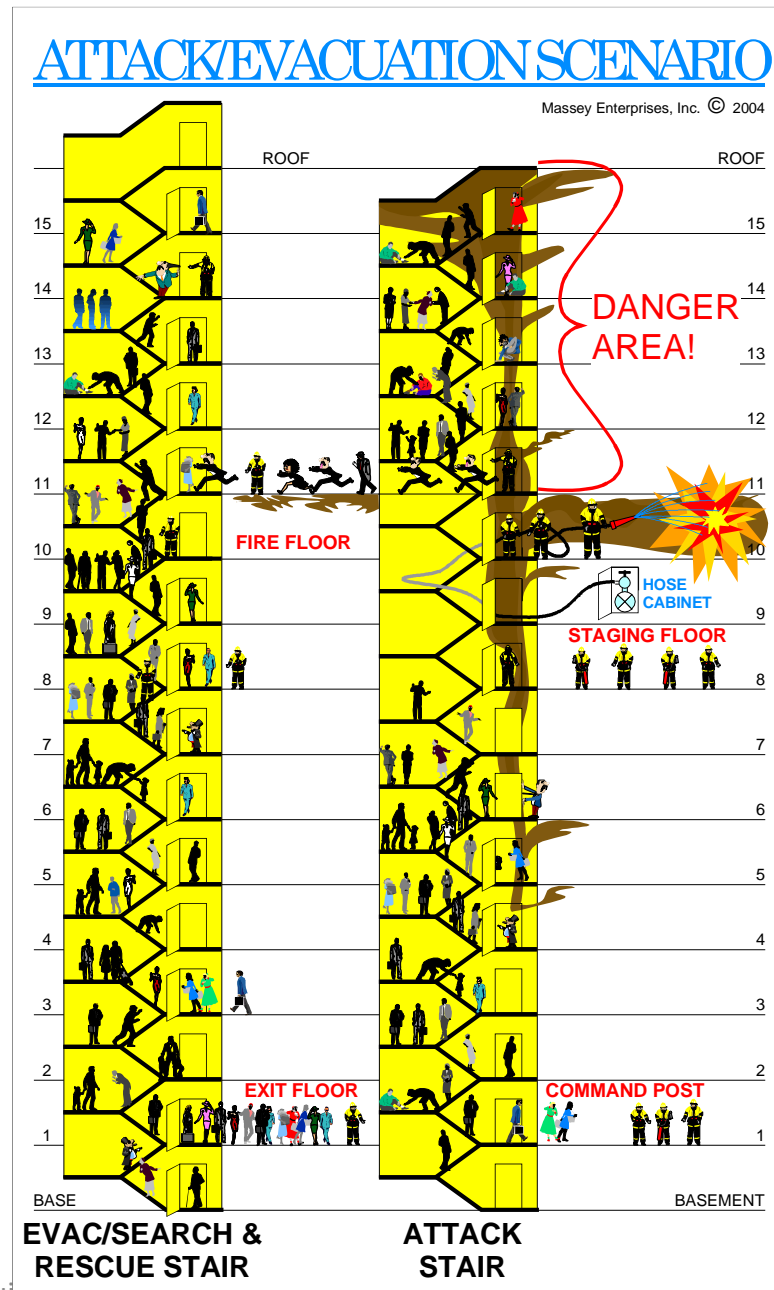
Case for 2 Stairs – Hazard Zone

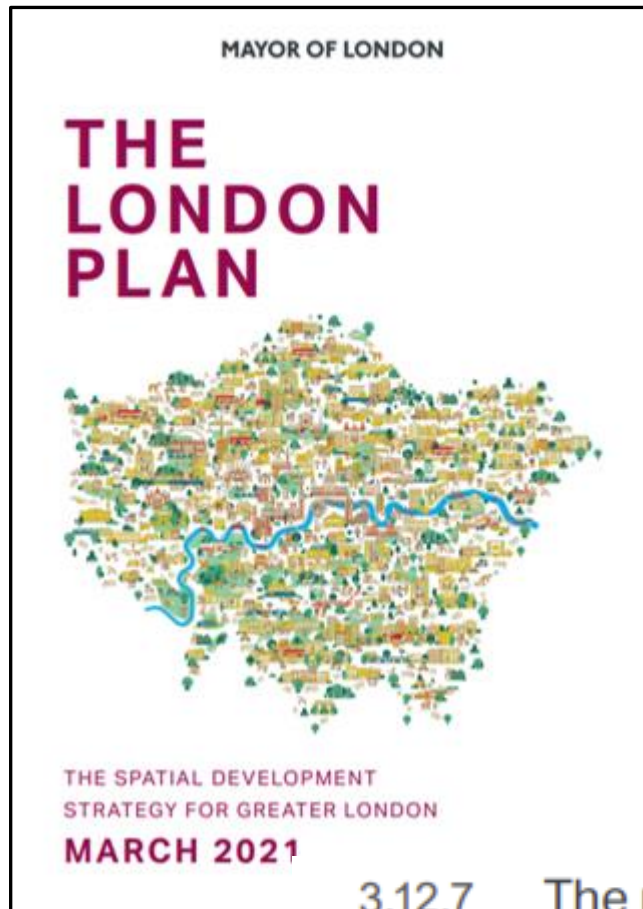


Figure 2. Hazard zone formed by falling facade debris.



Case for 2 Stairs – High Rise Firefighting





Policy D12 Fire safety

- A In the interests of fire safety and to ensure the safety of all building users, all development proposals must achieve the highest standards of fire safety and ensure that they:
- 1) identify suitably positioned unobstructed outside space:
 - a) for fire appliances to be positioned on
 - b) appropriate for use as an evacuation assembly point
 - 2) are designed to incorporate appropriate features which reduce the risk to life and the risk of serious injury in the event of a fire; including appropriate fire alarm systems and passive and active fire safety measures
 - 3) are constructed in an appropriate way to minimise the risk of fire spread
 - 4) provide suitable and convenient means of escape, and associated evacuation strategy for all building users
 - 5) develop a robust strategy for evacuation which can be periodically updated and published, and which all building users can have confidence in

3.12.7

The provision of **stair cores** which are suitably sized, provided in sufficient numbers and designed with appropriate features to allow simultaneous evacuation should also be explored at an early stage and provided wherever possible.



Home Office

Evacuation Guidelines for Fire and Rescue Services during Fire Emergencies

February 2024



NFCC
National Fire
Chiefs Council

The professional voice of the UK Fire & Rescue Service

Provision of multiple routes for evacuation of residential buildings – NFCC Opinion Paper

Version 1.0
Issued on: 30/01/2024



Department for Levelling Up,
Housing & Communities

Department for Levelling Up, Housing and
Communities
2 Marsham Street
London
SW1P 4DF

Our reference: TO2024/05242

Mr Russ Timpson
Email: russ.timpson@tallbuildingfiresafety.com

27 February 2024

Dear Mr Timpson,

Two Stair Debate in Higher Risk Buildings

Thank you for your email of 10 January 2024 to Lord Gascoigne, which included the article supporting the need for a second staircase in tall buildings.

I thought it would be helpful to set out the government's action in this area. In December 2022 we published a consultation which sought views on the inclusion of a second staircase in tall buildings. In July 2023, the DLUHC Secretary of State confirmed his intent that the threshold height beyond which second staircases would be called for was 18m. Proposed transitional arrangements were then published in the Building Safety Update Written Statement of 24 October 2023 (Annex A). These arrangements minimise the impact on housing supply by giving generous, but not excessive, periods for existing projects to progress as planned – if they choose to.

Projects will have 30 months from the point of statutory guidance being updated to submit building regulations applications which conform to either the previous guidance or the updated guidance. After that point, all applications will need to conform to the new guidance; then 18 months from the point that application is submitted to "progress work" on site.

The arrangements have been designed following engagement with the construction industry, local authorities, fire safety services and the financing and insurance industry. We believe the times given for these transitional arrangements will secure the viability of projects which are already underway whilst evolving our fire safety standards as quickly as a practicable for such a significant change to the way in which our tall buildings are constructed.

We recognise that detailed second staircase design guidance is needed for the sector to fully understand the implications for design and viability. We will publish this as soon as possible. Officials will continue to provide updates on the guidance and transitional arrangements where available.

I think it is important that the introduction of second staircases is seen in context with the other significant enhancements in fire safety that this government has introduced. We have banned the use of combustible materials in and on external walls, increased provisions for sprinklers in residential buildings, provided additional signage in new buildings to assist firefighters, and made provision for secure information boxes.

Tall Building Fire Safety Management

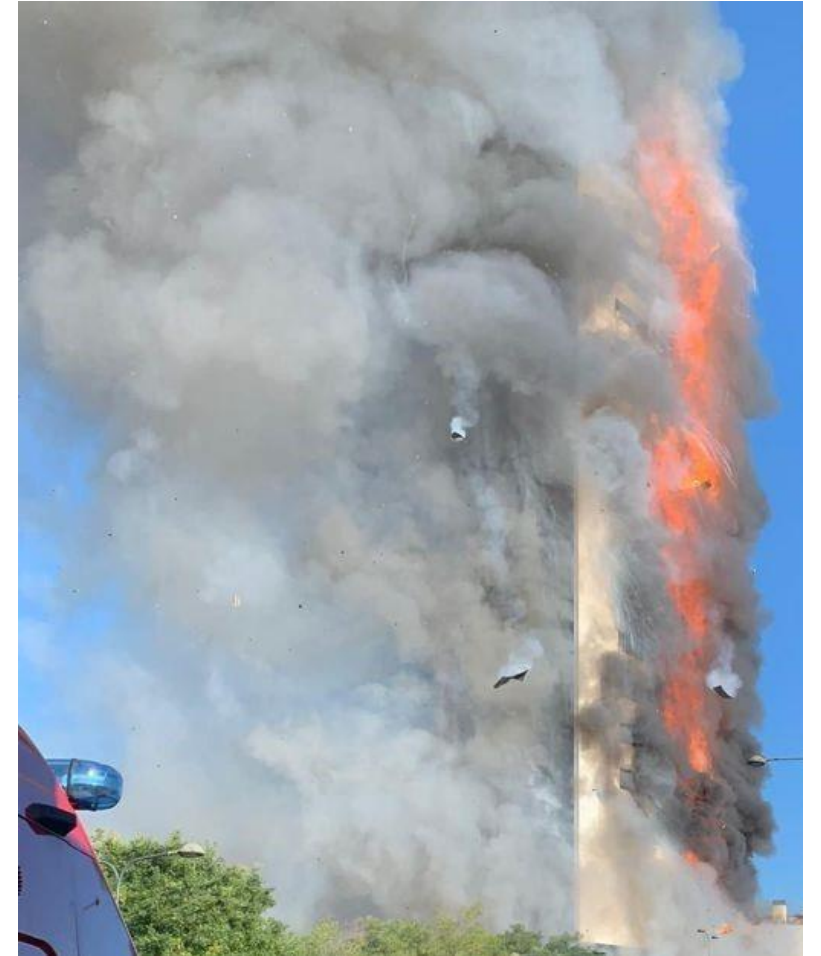
- Ideal for anyone tasked with fire safety management of high-rise & risk buildings
- Leads to a recognised qualification via 'Institution of Fire Engineers'
- 5 days of expert tuition from World Class subject experts
- Includes full notes, slides, references, management tools and templates
- Course includes; case studies, Prevention, Detection and Alarm, Escape, Containment, Firefighting and BCP.
Fire strategies, facades, fire risk assessment, lifts, smoke control, car parks, retail, wayfinding, compartmentation. The course also includes details of Building Safety Act and related Regulatory updates, i.e. 'Golden Thread', safety case, etc
- Over 1500 delegates have attended this course since 2011. Many delegates have attended from outside the UK, as the course is 'generic' and seeks to capture International best practice.



Dates for 2024

March	18 – 22	London
April	22 – 26	Malta*
June	17 – 21	London
Sept	16 – 20	Dublin
Oct	21 – 25	Santiago
Nov	4 – 8	London
Dec	9 – 13	London

**Cost for course = £2195 + vat
(*Malta, price to be confirmed)**



Contact:

- Russ Timpson

Russ.timpson@tallbuildingfiresafety.com

www.tallbuildingfiresafety.com



We deliver Tall Building Fire Safety Management Training.

Appendix 3

Tall Building / High Rise Fire Safety Management Course Overview

Tall Building / High Rise Fire Safety Management Course Overview



Tall Building Fire Safety Network
2024



russ.timpson@tallbuildingfiresafety.com +44 07951 190576

Tall Building Fire Safety Management

- Ideal for anyone tasked with fire safety management of high-rise & risk buildings
- Leads to a recognised qualification via 'Institution of Fire Engineers'
- 5 days of expert tuition from World Class subject experts
- Includes full notes, slides, references, management tools and templates
- Course includes; case studies, Prevention, Detection and Alarm, Escape, Containment, Firefighting and BCP.
Fire strategies, facades, fire risk assessment, lifts, smoke control, car parks, retail, wayfinding, compartmentation. The course also includes details of Building Safety Act and related Regulatory updates, i.e. 'Golden Thread', safety case, etc
- Over 1500 delegates have attended this course since 2011. Many delegates have attended from outside the UK, as the course is 'generic' and seeks to capture International best practice.



Testimonials

- **Scott Kirkwood, a Fire Safety Advisor :**

“The training has definitely helped me get up to speed quickly by going into more detail about vast subjects that I already had knowledge of, however would not necessarily have been able to go into as much detail with, when discussing with a client why certain fire protection measures should be in place. Listening to Russ, and all the guest speakers who delivered the training from Tall Buildings Fire Safety, who are experts in their field and were brilliant, provided very interesting information. Thank you to those who made this programme possible, I really enjoyed the week!”

- **Bernie Cosh, Fire Engineer**

“I attended the training course for fire safety management in tall buildings; although I have been doing fire safety for over 20 years this course really opened my eyes to the plethora of problems that have to be addressed when managing multi occupants in tall buildings and should not be underestimated. The instructors’ were first class they brought their wealth of knowledge and practical experience to all the problems that can occur in these types of buildings and it was illuminating. I would thoroughly recommend this course to any person who has to manage fire safety in tall buildings”.

Testimonials

- **David Adamson, Senior Building Safety Manager :**

“Can I say that this is the best competency based fire safety management course I have attended.

It was an exceptional course and one I would highly recommend. Your delivery of the course content, follow-up presentation materials and supporting documents, and indeed your breadth of knowledge and experience around the management of fire safety was second to none. I appreciate that very much and thank you for all your efforts. Also – appreciated your other presenters and the knowledge and experience they also brought.

I will be involved with Building Safety Manager appointments early 2023 and will be in touch once appointments are made so they can attend one of your next courses.”

- **Wesley Allvey, Head of Facilities and Infrastructure**

“Having just completed the TBSC and associated assignment over the past few months I would like to thank Russ and the team of experts who delivered not only a very practical and enlightening course but using operationally stimulating topics. It made me think about the environments we manage and work in on a daily basis and how we could improve and adapt our processes. I would urge anyone who works in high rise management to attend this worthwhile course ahead of the coming legislative changes”.

References -

- Relevant legislation & equivalents for other countries
- Approved documents (B) & equivalents for other countries
- Relevant British and International codes and standards
- Other related guidance and ACOP's
- Building Safety Act
- BSI FLEX 8670 & related competency guides
- RIBA, FIA, IFE, IFSM
- Council for Tall Buildings and the Urban Habitat
- Fire Service Standard Operating Procedures

Programme - Day 1, Prevention

- What is a Tall Building?
- Characteristics of Tall Buildings
- Fire safety management systems
- Fire safety training needs analysis
- Performance metrics
- Insurance aspects
- Fire risk assessments
- Case study
- Ignition Hazard – electricity
- Thermography

Day 2, Detection and Alarm

- Types of detection and alarm systems
- Human behaviour in fire
- Management of false alarms
- Investigation procedures for alarm signals
- Cause and effect
- Switching evacuation strategies
- Case study
- Management of degraded systems
- Ignition Hazard – catering

Day 3, Escape

- Means of escape basics
- Tall Building escape strategies
- Escape wayfinding & lighting
- Assembly points and evacuate and disperse
- Managing escape for occupants with mobility impairment
- Sweep and search
- Case study
- Car parks & waste management
- Ignition hazard – Hot works

Day 4, Containment

Passive containment:

Fire doors

Floors, walls, penetrations

Management of contractors

Dampers

Active containment:

Sprinklers

Smoke control

Case study

Ignition Hazard – Arson & Smoking

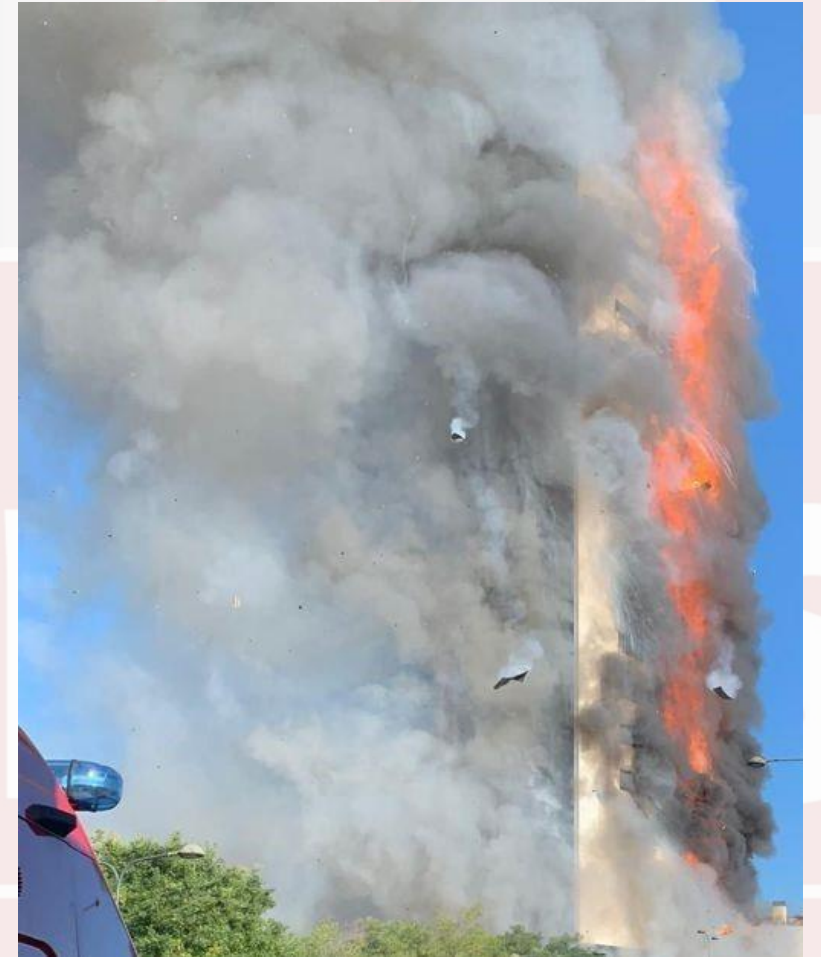
Day 5, Firefighting

- First aid firefighting
- Firefighting equipment:
 - Wet and dry risers
- Access
- Hydrants
- Pre-planning and 'grab packs' for firefighters
- Firefighting procedures
- Case study
- Salvage and BCP planning
- Assessment test and assignments

Dates for 2024

March	18 – 22	London
April	22 – 26	Malta*
June	17 – 21	London
Sept	16 – 20	Dublin
Oct	21 – 25	Santiago
Nov	4 – 8	London
Dec	9 – 13	London

**Cost for course = £2195 + vat
(*Malta, price to be confirmed)**



Contact:

- Russ Timpson

Russ.timpson@tallbuildingfiresafety.com

www.tallbuildingfiresafety.com

We deliver Tall Building Fire Safety Training.

