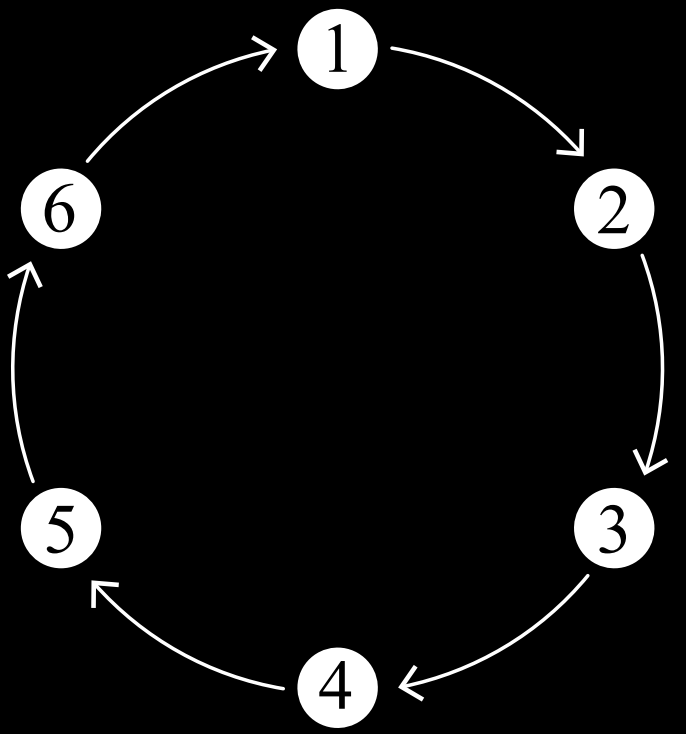
ARUP

After Grenfell

A change framework:

How can we create a more effective and equitable fire safety system?

Rebuilding public trust in the built environment



Who is this report for?

Policymakers, supply chain partners, developers and others across the sector who wish to work together to learn the lessons of this disaster and minimize the risk of another Grenfell ever happening again.

The change framework is relevant for anyone operating in the design, construction, management, maintenance, and/or renovation stages of the life cycle of a building.

Foreword

Dr Barbara Lane

Expert witness to the Grenfell Tower Public Inquiry

Arup Fellow (Fire Safety Engineering)

On 14th June 2017, 72 people died in a fire in Grenfell Tower in London, UK. A public inquiry was initiated by the UK Government to examine the circumstances around the fire, report its findings and make recommendations to try to prevent what went wrong from happening again.

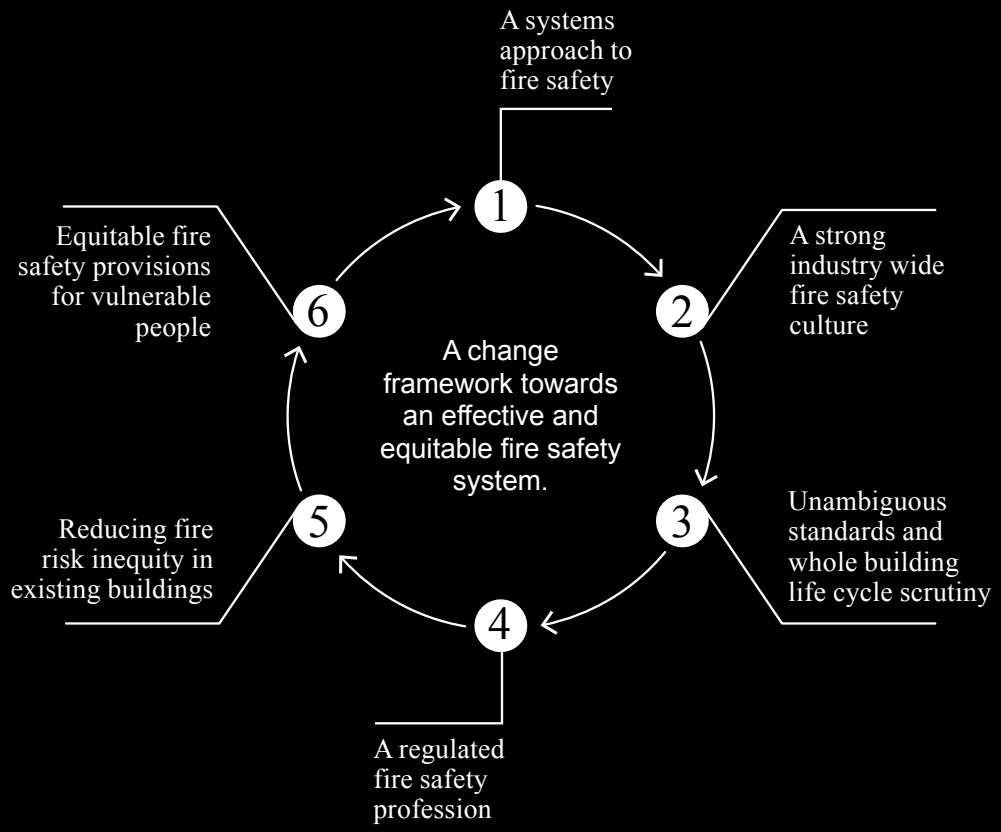
The work of the Grenfell Tower Inquiry has resulted in a profound understanding of the systemic issues in the built environment industry, including behaviours and practices, that left Grenfell Tower in the condition it was the night of the fire. That condition was such that a fire took place, spread rapidly, and with catastrophic consequences for so many. A fire that has subsequently been deemed entirely preventable. The bereaved, survivors and residents of Grenfell Tower must suffer on in the wake of this harsh knowledge.

This change framework was developed by fire safety engineers and complex systems specialists at Arup as part of the analysis and reporting we were tasked with providing to the Grenfell Tower Inquiry.

This year is the 50th anniversary of fire safety engineering at Arup. We have taken the decision to publish this change framework as part of our commitment to the long-term actions and accountabilities needed to create an effective and equitable fire safety system.

We hope this change framework can guide us all in the purposeful work needed in the next 50 years, to shape a safer world for all.

The following pages outline a change framework towards an effective and equitable fire safety system. The framework comprises six key elements.



Overview of the six elements of the change framework: Towards an effective and equitable fire safety system

Background

The six-element change framework was developed to provide context and a change narrative for a suite of recommendations made to the Grenfell Tower Inquiry.

All six elements are key to enabling the built environment industry to move towards creating an effective and equitable fire safety system.

The framework and recommendations are extracted from Dr Lane's report to the Grenfell Inquiry 'Phase 2 Recommendations (2023)', which provides the detailed analysis underpinning the framework and the recommendations laid out on the following pages.

Each of the six elements, its conditions (current and new) and specific recommendations is presented in turn.

Current & new conditions

The current and new conditions are first presented for each element.

Current condition	New condition
First it is presented in its current condition, with a set of prevailing practices indicative of the current condition.	Beside the current condition we show the corresponding new condition – and the operating principles of it. Establishing these new conditions will require the adoption of new operating principles that guide behaviours and decision making.

Recommendations

The Recommendations associated with that specific element then follow. They are provided as a means to begin to shift to the new condition.

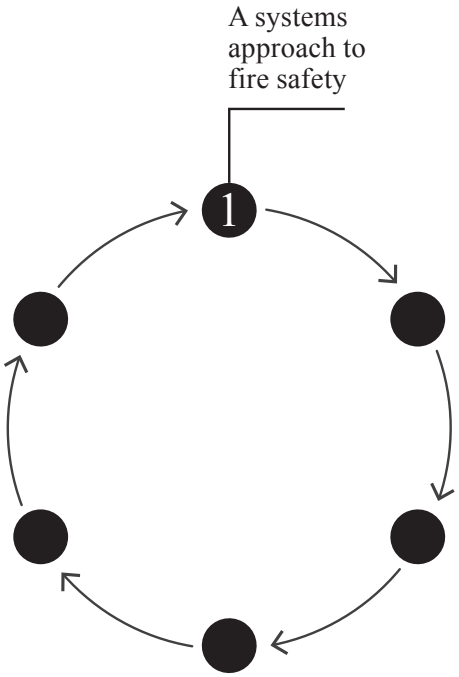
The recommendations are intended to frame a holistic approach and methodology to shift the existing conditions, of a deeply complex system, towards creating a system that consistently produces fire safe buildings and improves risk exposure for vulnerable people.

The recommendations in this report should not be seen as exclusive. With other sector wide endeavors, they could enable an effective and equitable fire safety system in the built environment.

1.

Adopting a systems approach to fire safety

Fires do not just ‘happen’. They start within a wider context – from the immediate (e.g. faulty electrical goods), through to the systemic (e.g. inadequate inspections). Fire safety measures to protect people and prevent fires impact almost all aspects of a building form and require long term management and maintenance. A systems approach asks professionals in the built environment industry to consider how complex, interconnected factors influence fire risk, and it asks professionals to take ownership of their impact on the final condition of fire safety measures. Fire safe buildings are produced through careful consideration and coordination by and across a myriad of disciplines and stakeholders.



1 A systems approach to fire safety

Regarding a systems approach to fire safety, first are the prevailing practices indicative of the current condition. The new condition and its *corresponding* operating principles are then described. These, if adopted, would move the built environment towards an effective and equitable fire safety system.

Current condition	Prevailing practice indicative of the current condition	New condition	Operating principles of an equitable fire safety system
A piecemeal approach to fire safety	Lack of consideration of and response to systemic issues and vulnerabilities of the fire safety ecosystem.	Adopting a systems approach to fire safety	Independent oversight of the fire safety system to proactively monitor, consider and address systemic issues and vulnerabilities.
	Key stakeholders affecting fire safety operating in silos with no rigorous consideration or understanding of the system they are operating in.		The Built Environment industry is viewed and managed as an ecosystem.
	Stakeholders and supply chains do not understand or consider the impact of their discrete work on the performance standard of a building; nor the impact on building users, the emergency services etc.		Building fire safety is understood and managed as a complex system and there is cross trade and cross discipline competence and the regulatory framework and tools to enable this.
	Improvements and changes do not adequately consider the complexity of the built environment and are not designed to enable systems level change.		Proposed changes intended to create an equitable fire safety system are (a) Rigorously considered against their effectiveness in creating systems change (shifting the conditions holding the problem in place and impacting all change levels – structural, relational and transformational); and (b) Rigorously mapped to understand the impact of any changes on the system accompanied by assessment and monitoring of impact across all levels of systems change (Structural, relational, and transformational).

1 A systems approach to fire safety

The following recommendations can help us adopt a systems approach to fire safety.

Recommendations to enable a systems approach to fire safety

Recommendation 1.1: Establish an independent oversight body reporting directly to the Cabinet/Secretary of State to be the single point of accountability to holistically track, monitor, view systemically and advise government both on progress and recommend new or revised interventions - when considering the creation of an equitable fire safety system.

Recommendation 1.2: Adopt an equitable fire safety system framework to manage fire safety in England. This will require a totally different perspective on managing complexity, a recognition that we are dealing with a complex system.

Recommendation 1.3: The Government should commission an independent and multi-disciplinary (e.g. bi-annual) review of the effectiveness of an equitable fire safety system. This should include considering progress on the conditions and levels of systems change (structural, relational, and transformational).

Recommendation 1.4: Conduct an analysis of the fire safety system in order to map it and understand the implications of current and future changes on causing an equitable fire safety system. This mapping needs to include consideration of the conditions and levels needed for systems level change, for e.g., it should map power imbalances and the complex relationships across the complex stakeholders and industry bodies that may lead to conflicts of interest that could drive agendas not in service of equitable fire safety. There are innovative mapping techniques to do this.

Recommendation 1.5: Develop an approach to effectively educate the Built Environment industry about the vision for an equitable fire safety system. This would need to include education about the complexity of the built environment and the need therefore to adopt a systems approach. This needs to be accessible, practical, and educational

Recommendation 1.6: Articulate the role of the key stakeholders and supply chains regarding their impact on the equitable fire safety system and provide training, guidance and tools for stakeholders and key professionals to understand, assess, manage, and mitigate risks and vulnerabilities regarding fire safety from a holistic integrated perspective.

Recommendation 1.7: The capabilities and competencies needed to operate effectively in a complex system and cause an equitable fire safety system should be articulated and embedded in new or existing competency frameworks for key roles.

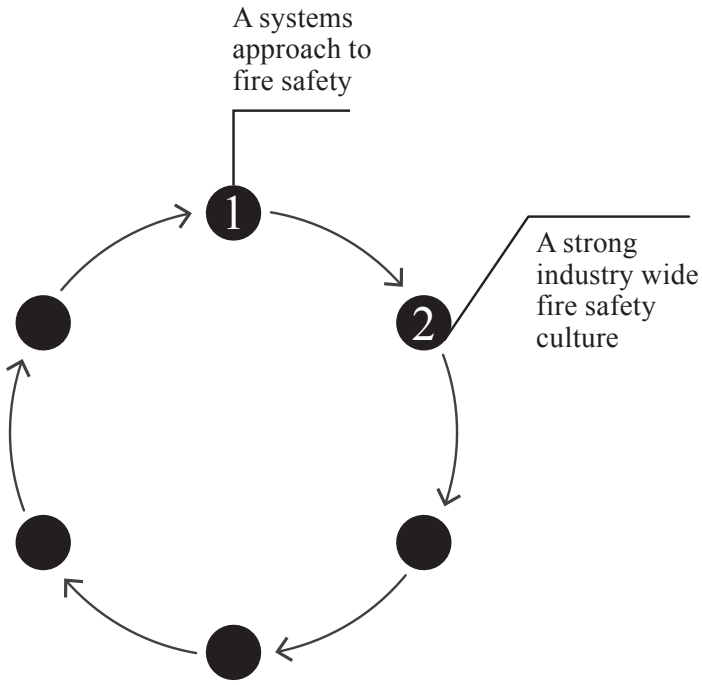
Recommendation 1.8: Create guidance (and where necessary training) for critical roles impacting fire safety in high rise residential buildings to enable a full understanding of their responsibility for the impact of their discrete work or activities on the fire safety system.

> "The system of fire safety should deliver fire safe buildings, and on an equitable basis for the users of that building. Therefore, providing total fire safety to occupants and users of any building goes further than design and construction; it extends to conditions during occupation and the consequences of future changes/ upgrades to the building over its life cycle, as these changes directly impact the building/risk profile over time."
>
> Dr Barbara Lane (2024)

2.

A strong industry wide fire safety culture

We need to regain public trust in the built environment and prove industry's commitment to producing fire safe buildings. The attitudes, values and behaviours around fire safety in the built environment have a significant influence on how all participants in the system behave. In systems with a strong safety culture, all participants are motivated to achieve the highest levels of safety.



2 A strong industry wide fire safety culture

Regarding a strong industry wide fire safety culture, first are the prevailing practices indicative of the current condition. The new condition and its *corresponding* operating principles are then described. These, if adopted, would move the built environment towards an effective and equitable fire safety system.

Current condition	Prevailing practice indicative of the current condition	New condition	Operating principles of an equitable fire safety system
Tolerance of a weak (pathological) fire safety culture	Little awareness as an industry of what safety culture is or how to build a mature safety culture as an industry.	Effectively causing a strong (generative) fire safety culture throughout the Built Environment industry	An industry wide evidence-based evolutionary approach to causing a strong (generative safety culture) is created, adopted, and implemented.
	Tolerance of bad practices and a lack of compliance		Intolerance of bad practice and intolerance of a lack of compliance with all relevant requirements.
	A systemic failure to learn and change.		Intrinsic motivation to change and to learn - including from other industries and professions.
	Fire risk strategies and risk assessments created without sufficient evidence base or understanding the full intent of the relevant legislation, regulation, and guidance.		Fire safety documentation, including fire safety strategy reports and fire risk assessment reports delivered on the basis of agreed minimum acceptable operating standards, conducted based on transparent and freely available information, with the express intent of complying with all relevant requirements.

2 A strong industry wide fire safety culture

The following recommendations can help us cause a strong industry wide fire safety culture.

Recommendations to enable a strong industry wide fire safety culture

Recommendation 2.1: Conduct analysis in order to provide an evidence base about the current culture and barriers to learning and change. This should include:

- An industry wide perception-based safety culture survey that considers all levels of culture (artefacts, espoused values and assumptions). This approach to understanding the culture has been adopted by several fire services and hence the methodology for doing so exists.
- Consideration of the effectiveness and role of professional bodies and other key institutions in driving change and ensuring competence and learning.

Recommendation 2.2: Based on the findings, develop an evidence-based evolutionary approach, guidance, and tools to support the fire industry to effectively build a strong (generative) fire safety culture. Consideration of how to ensure intrinsic motivation for change will be critical.

Recommendation 2.3: To improve the fire safety professions safety culture by being increasingly 'informed', research being commissioned by Government should be published in a timely fashion and in a way that is easy to find. Interim findings should also be published, when appropriate, where they would be of benefit to industry and research.

Recommendation 2.4: Require that the industry demonstrate the steps they are taking to improve safety culture, provide evidence of their approach to learning from what goes wrong and what goes right and provide details of their approach to dealing effectively with bad practice, from an organisational and/or project level perspective, certainly from the perspective that will be most effective given the complex delivery mechanisms and supply chains involved.

Recommendation 2.5: Consider ways to reward organisations demonstrating an intrinsic motivation to learn and change i.e., that go beyond the requirements laid out and genuinely provide leadership at an industry level. This could for example for part of the government procurement process.

Recommendation 2.6: Professional institutions in the fire industry should be required to produce a publicly available annual report that articulates their strategy for proactively improving fire safety culture both internally and within the industry and articulate their approach to eliminating bad practice.

Recommendation 2.7: The role and responsibilities of the fire safety engineer including accountabilities and contractual duties should be clearly defined in legislation with examples of good practice given in guidance on their role in meeting all relevant requirements.

Recommendation 2.8: The registered Chartered fire safety engineer should be responsible from a fire safety perspective for making sure the fire and emergency file and emergency information for occupants is complete and available at handover, is consistent with the fire safety strategy report and that they have briefed the responsible/accountable person(s) on the details of the fire safety plan and their responsibilities within it e.g. to inform the occupants of actions to be taken in a fire.

Recommendation 2.9: The role and responsibilities of the fire safety risk assessor including accountabilities to the responsible person and contractual duties under the RR(FS)O should be clearly defined in legislation with examples of good practice given in guidance.

Recommendation 2.10: The fire safety strategy should inform the safety case required by the BSA 2022 and should be presented to the principal accountable person and their future fire risk assessor by the fire safety engineer at handover so the process of ongoing risk assessment and operation is based on a fundamental understanding of the condition at handover and the fire safety measures relied upon.

Recommendation 2.11: Set out in statutory guidance minimum standards and the level of detail expected for fire safety information necessary at handover so that the responsible person can perform their role under the RR(FS)O.

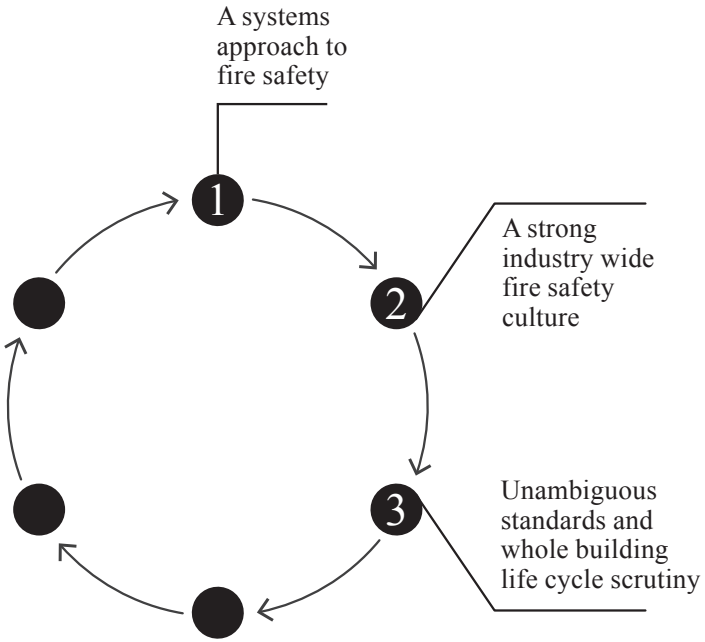
Recommendation 2.12: Section 9 of the FSER to be amended as required to enable a single consistent standard to be applied across all high rise residential buildings.

3.

Unambiguous standards and whole building life cycle scrutiny

We must set fire safety standards through unambiguous regulations, reliable, detailed prescriptive guidance, and a mandatory performance based design framework; enabled with sufficient data and through scrutiny throughout construction and occupation.

Many regulations and guidance documents already exist around fire safety. However, the evidence at the Grenfell Tower Public Inquiry and the post-Grenfell analysis of existing building stock found widespread evidence of poor practice and a cultural tolerance of non-compliance. The built environment industry needs to demonstrate workflows and behaviours that consistently deliver fire safe buildings.



3 Unambiguous standards and whole building life cycle scrutiny

Regarding unambiguous standards and whole building life cycle scrutiny, first are the prevailing practices indicative of the current condition. The new condition and its *corresponding* operating principles are then described. These, if adopted, would move the built environment towards an effective and equitable fire safety system.

(1 of 2 pages)

Current condition	Prevailing practice indicative of the current condition	New condition	Operating principles of an equitable fire safety system
Unclear regulations and non-mandatory inadequate statutory guidance relating to fire safety in design, construction and occupation of buildings	The statutory guidance document AD B is not fit for purpose as a prescriptive guidance document as it is too high level, contains multiple errors and substantially insufficient information regarding the performance requirements for multiple active and passive systems. It provides no basis for its prescription, preventing a clear understanding of when the bounds of the guidance are exceeded. There are too many non-statutory guidance documents requiring differing levels of fire safety and conflicting fire safety solutions.	Setting fire safety standards through unambiguous regulations and reliable, detailed prescriptive guidance, supported by a mandatory performance based design framework, with sufficient data and scrutiny in support of construction and occupation	There is one reliable detailed source of prescriptive fire safety guidance to enable consistent compliance with the full intent of all relevant requirements.
	AD B does not provide prescriptive guidance that sets out how to meet performance-based requirements when undertaking design that deviates from the guidance within AD B. This causes designs being set out that claim a level of rigour and evidence that is unwarranted and do not consistently meet all relevant requirements.		The basis for this prescriptive mandatory guidance is clearly communicated and described in sufficient detail to ensure a common understanding of application, and when the bounds of the mandatory guidance are exceeded.
	Fire safety guidance does not explicitly address operational fire scenarios required to form the basis of design e.g., the impact of doors opening when the fire and rescue service enter the area of the fire.		Standard operational fire scenarios as a basis for design, are clearly described in the statutory prescriptive guidance and can be relied upon and referred to when utilising a performance based design methodology - in order to meet all relevant requirements.

3 Unambiguous standards and whole building life cycle scrutiny

Regarding unambiguous standards and whole building life cycle scrutiny, first are the prevailing practices indicative of the current condition. The new condition and its *corresponding* operating principles are then described. These, if adopted, would move the built environment towards an effective and equitable fire safety system.

Current condition	Prevailing practice indicative of the current condition	New condition	Operating principles of an equitable fire safety system
Unclear regulations and non-mandatory inadequate statutory guidance relating to fire safety in design, construction and occupation of buildings	Fire safety guidance and regulations lag the evolving needs of industry and society as they are updated in a reactive, sporadic, piecemeal fashion, and are ambiguous, especially for the trades upon which fit for purpose construction relies	Setting fire safety standards through unambiguous regulations and reliable, detailed prescriptive guidance, supported by a mandatory performance based design framework, with sufficient data and scrutiny in support of construction and occupation	Statutory prescriptive guidance is kept up to date through frequent periodic reviews, with input from industry, research, residents and the wider public.
	Proof of fire performance of materials, products, assemblies and systems is a nice-to-have; misleading safety information is rewarded with market advantage; it is based on “bench scale” fire tests that bear little resemble to full scale assembly arrangements or fire scenarios.		Evidence of the fire performance of materials, products assemblies and systems is third party certified; all bench scale and full scale test data and certification information are accessible and transparent; a range of performance evidence on large scale testing for typical building products is available; there is mandatory testing for new products or unique project specific assemblies.
	No mandated oversight during construction to ensure that the required fire safety provisions are installed adequately. There is no incentive for scrutiny as it prolongs construction and adds cost, and non-compliance has limited consequence.		A framework that sets out proportionate levels of inspection and oversight to provide assurance that the required protection measures are installed effectively. Taking account of the complexity of the design proposal and the consequences of failure on the expected occupants. Robust penalties are applied after a fair and proportionate investigation.
	Handover process set out in Regulation is ineffective and is considered irrelevant in relation to demonstrating the building fire safety features meet the functional requirements.		Sufficient scrutiny and attention given to the handover process to ensure that the relevant fire safety information is given to the correct recipient. The required fire safety performance is proven as being achieved in the as-built condition via a post occupancy review with the principal designer.

3 Unambiguous standards and whole building life cycle scrutiny

The following recommendations can help us create unambiguous standards and whole building life cycle scrutiny.

Recommendations to enable unambiguous standards and whole building life cycle scrutiny

Recommendation 3.1: Transition to a clear, unambiguous approach for future regulations and mandatory prescriptive standards that govern fire safety in high rise residential buildings in the long term.

Recommendation 3.2: Consolidate AD B and BS 9991 into one primary prescriptive mandatory statutory guidance document to remove multiple routes for an high rise residential building to comply with the Building Regulations Part B. The basis for this prescriptive mandatory guidance must be clearly described and in sufficient detail to ensure a common and consistent approach to compliance; and clearly communicating when the bounds of the mandatory guidance are exceeded.

Recommendation 3.3: Update consolidated statutory guidance in a regular and consistent approach, address feedback from users, new technologies and methods of construction, learning from real fires and research, and other developments in the industry.

Recommendation 3.4: Create a mandatory performance based design framework, for undertaking design that deviates from the prescriptive mandatory guidance. The intention of the framework is to increase the level of rigour and evidence required to demonstrate a fire safety solution can meet all relevant requirements. Standard design basis operational fire scenarios should be prescribed.

Recommendation 3.5: Abolish the Building Control Alliance Guidance notes as this information should be in regular updates to the consolidated statutory guidance.

Recommendation 3.6: The method by which industry guidance is adopted into Statutory Guidance is reformed to ensure a minimum standard of quality assurance checking and technical review both at initial implementation and at regular intervals afterward to ensure the guidance stays relevant.

Recommendation 3.7: Create a process to ensure the statutory prescriptive guidance is kept up to date through frequent periodic reviews, with input from industry, research, residents and the wider public.

Recommendation 3.8: Create an assurance framework such that evidence of the fire performance of materials, products assemblies and systems is third party certified; all bench scale and full scale test data and certification information are accessible and transparent; a range of performance evidence on large scale testing for typical building products is available; there is mandatory testing for new products or unique project specific assemblies. Third party certification bodies should maintain freely accessible digital repositories of 'listed' products and systems that have been tested and certified. All fire test reports should be available for review including fire tests of systems that have passed or failed and any ad-hoc tests undertaken by suppliers.

Recommendation 3.9: Create a framework that sets out proportionate levels of inspection and oversight to provide assurance that the required fire protection measures are installed effectively; ensure sufficient scrutiny of the handover process regarding fire safety information but also proven integrated fire safety systems (active and passive) performance along with a test of the relevant fire safety management arrangements.

"Regulation is primarily used to address market failures. The characteristics of some markets mean that, left to their own devices, they risk failing to produce behaviour or results in accordance with public interest (for example, clean air) or policy objectives."

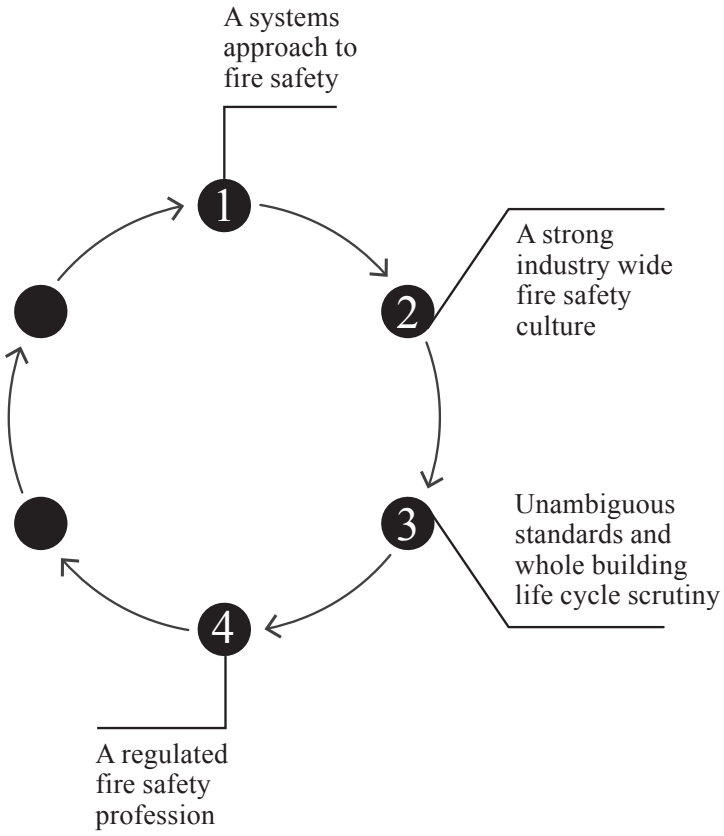
National Audit Office, A Short Guide to Regulations. (2017)

4.

A regulated fire safety profession

Regulating the fire safety profession with entry requirements, regular audits of competence, and consequences for malpractice.

A regulated profession is one where there are legal minimum competency requirements, ongoing accreditation, and registration with professional institutions or the government. Professional accountability and a commitment to fire safe buildings drive purposeful collaboration and outcomes.



4 A regulated fire safety profession

Regarding a regulated fire safety profession, first are the prevailing practices indicative of the current condition. The new condition and its *corresponding* operating principles are then described. These, if adopted, would move the built environment towards an effective and equitable fire safety system.

(1 of 2 pages)

Current condition	Prevailing practice indicative of the current condition	New condition	Operating principles of an equitable fire safety system
Unregulated fire safety profession of variable competence and accountability	Anyone can claim to be a fire safety professional. When things go wrong, no one is responsible or taken to account.	Regulating the fire safety profession: with entry requirements, regular audits of competence, and consequences for malpractice	Only those who can evidence appropriate competence are allowed to do work that impacts fire safety. Roles, responsibilities and accountability are clear across the full set of design and contractor teams including the role requirements, responsibilities and accountability of fire safety engineers and fire risk assessors and those roles are regulated for and thus mandatory.
	Professional and industry bodies do not effectively uphold standards, drive good practice, or enable change.		Professional and industry bodies drive change and competence across the built environment and housing sectors. Ethics are prioritised and malpractice is dealt with fairly and transparently.
	Fire safety professionals are not required to sign-off or take accountability for their designs/works as part of the approvals process.		Design documentation is formally approved by the responsible Chartered engineer/consultant (signed and/or stamped) when submitted to the authorities for approval.
	Engineers and consultants, including fire safety professionals, are not involved enough during construction and handover to check that fire safety measures (passive and active) are fully integrated and comply with the fire safety strategy for the high rise residential buildings.		The responsible Chartered engineer(s)/consultants inspect and check the as-built condition of high rise residential buildings comply with the approved design and formally state their acceptance for future record.

4 A regulated fire safety profession

Regarding a regulated fire safety profession, first are the prevailing practices indicative of the current condition. The new condition and its *corresponding* operating principles are then described. These, if adopted, would move the built environment towards an effective and equitable fire safety system.

Current condition	Prevailing practice indicative of the current condition	New condition	Operating principles of an equitable fire safety system
Unregulated fire safety profession of variable competence and accountability	There is limited independent checking (i.e. building control or Client representatives) that the as-built final condition at handover complies with the fire safety strategy for the high rise residential building.	Regulating the fire safety profession: with entry requirements, regular audits of competence, and consequences for malpractice	Building control (i.e. the BSR) check the as-built condition complies with the fire safety strategy and that the responsible Chartered engineer(s)/consultants have accepted the completed works as compliant with the approved design/fire safety strategy and recorded the same. Noting the fire safety strategy must demonstrate compliance with all relevant requirements.
	Fire risk assessors of existing buildings are not regulated and are at best listing limited defects against a check list. They do not consistently assess and then document for the responsible person the residual risks and the consequential impact on the risk to life for all building occupants.		Fire risk assessors are registered/licensed to undertake fire risk assessment on high rise residential buildings and have the competency to provide the responsible person with a clear evaluation of the impact of residual risks on the overall fire safety of the high rise residential buildings (for all occupants and the fire and rescue service) if a fire were to occur while the defects are in place.

"The engineer must be able to be tested, challenged and deal with matters in a rigorous, analytical and above all honest way"

Margaret Law MBE., What is a Fire Engineer? (1990)

4 A regulated fire safety profession

The following recommendations can help us create a regulated fire safety profession.

Recommendations to enable a regulated fire safety profession

Recommendation 4.1: Make formal accreditation or licensing mandatory for engineers, architects, consultants and fire risk assessors undertaking work impacting fire safety.

Recommendation 4.2: Set specific competency requirements (e.g. technical, behavioural and ethical) for those involved in fire safety work as appropriate for the role and responsibilities. These will vary across the profession, ranging from Chartered Engineer (CEng), Incorporated Engineer (Ieng) and Engineering Technician (EngTech) to fire risk assessors and building safety managers. Define minimum qualifications, training and years of experience for these particular roles and then regulate.

Recommendation 4.3: A registered Chartered fire safety engineer should be required for design and construction of new high rise residential buildings or new works in existing high rise residential buildings. This is to take responsibility for providing a holistic fire safety strategy for high rise residential buildings, including existing buildings, checks of the as-built condition in all areas and the impact of the new works in collaboration with the fire risk assessor and responsible person. The registered Chartered fire safety engineer should also make considered recommendations for upgrades based on risk if the fire safety measures of the existing high rise residential buildings do not meet current statutory fire safety guidance.

Recommendation 4.4: Activate Paragraph (4) of Section 156 of the BSA 2022 making changes to the RR(FS)O to define competence requirements for fire risk assessors.

Recommendation 4.5: Professional Institutions should collaborate to create one guidance document that integrates fire safety at all RIBA stages of a project (for new high rise residential buildings and works on existing high rise residential buildings) and clarifies roles and responsibilities, and key deliverables. Professional Institutions need to hold all professionals to account for their duty to take responsibility for the substantial influence they have on the fire safety features selected for a building during design and the way they are installed during construction and the condition of the fire safety standards at handover.

Recommendation 4.6: Make complaints procedures about registered professionals transparent and consistent, and share outcomes such that professionals are held accountable. Procedures should allow for complaints about both ethical behaviour as well as performance issues.

Recommendation 4.7: Make it a requirement that registered Chartered engineers/consultants responsible for fire safety must sign-off design information before it is submitted to building control for approval.

Recommendation 4.8: Make it a requirement that registered Chartered engineers/consultants responsible for fire safety have formal involvement and oversight of construction and commissioning of high rise residential buildings including formal sign-off and recording of their acceptance that the as-built meets the fire safety strategy/design intent.

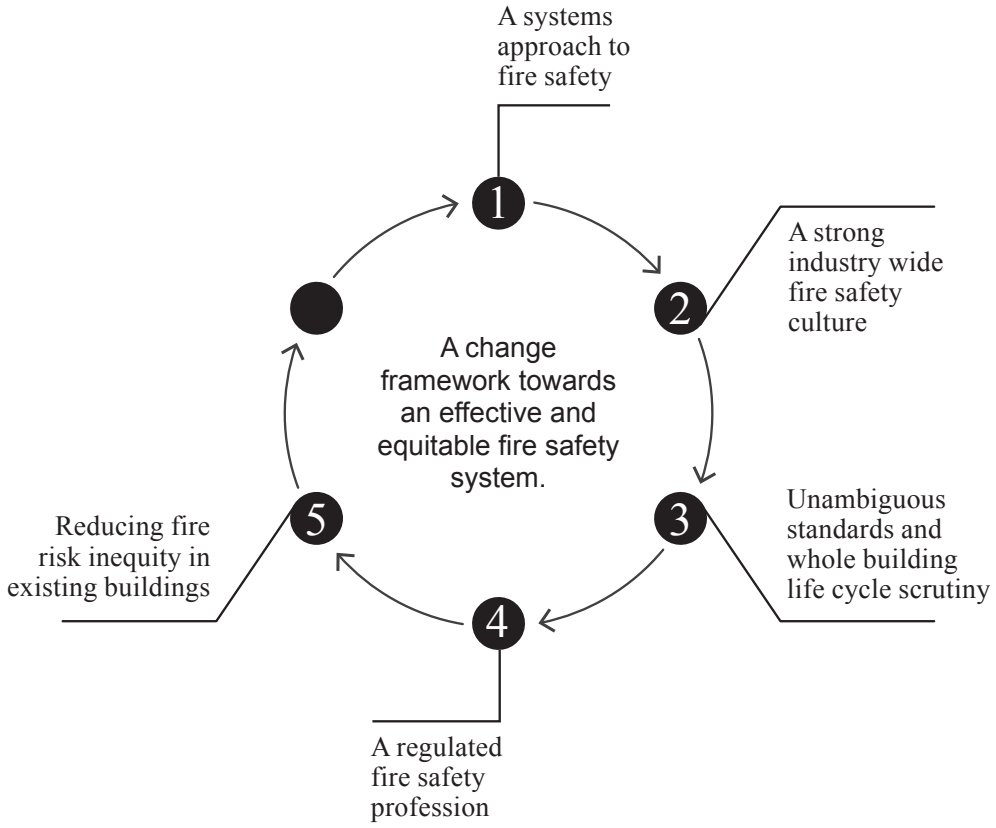
Recommendation 4.9: Make it a requirement that building control have formal involvement and oversight of design, construction and commissioning of high rise residential buildings including formal sign-off and recording of approvals for the future. They must also check that the Chartered engineers/consultants are licensed/registered. I acknowledge the progress in this area made by the recent new Building Regulation process relating to high rise buildings.

Recommendation 4.10: Clarify in the BSA2022 that any fire safety professional giving advice during the design and construction stage of projects is a “designer” under CDM and now also the new dutyholder roles under the Building Regulations.

5.

Reducing fire risk inequity in existing buildings

The current culture of relying on the “grandfathering principle” causes a lower standard of fire safety in existing buildings; in an equitable system the common goal would be to proactively improve fire safety in the existing building stock over time - based on a holistic view of fire safety risks and vulnerabilities.



5 Reducing fire risk inequity in existing buildings

Regarding reduced fire risk inequity in existing buildings, first are the prevailing practices indicative of the current condition. The new condition and its *corresponding* operating principles are then described. These, if adopted, would move the built environment towards an effective and equitable fire safety system.

Current condition	Prevailing practice indicative of the current condition	New condition	Operating principles of an equitable fire safety system
Increasing fire risk inequity in existing high rise residential buildings	Culture of relying on the "grandfathering principle" leading to a lower standard of fire safety solution in existing high rise residential buildings.	Reducing fire safety risk inequity for existing high rise residential buildings over time	A culture of proactively improving fire safety of existing housing stock over time based on a holistic view of fire safety risks and vulnerabilities.
	There is no requirement to consider residual fire safety risk in Fire Risk Assessments of existing buildings. Defective fire safety measures (e.g. damaged fire door) are recorded as needing repair or replacement but the impact of this defect on the fire safety of the occupants or fire and rescue service in the event of a fire is not explained to the responsible person.		A shared understanding of residual fire safety risk by all parties including residents, with appropriate mitigations put in place that are co-created.
	Hence residual fire safety risk is not understood, and therefore neither accepted nor mitigated.		A fire safety strategy is in place for existing high rise residential buildings, is confirmed by inspections of the as-built condition and updated before any new work commences.

5 Reducing fire risk inequity in existing buildings

The following recommendations can help us reduce fire risk inequity in existing buildings.

Recommendations to reduce fire risk inequity in existing buildings

Recommendation 5.1: Make compliance with the functional requirements of B1 Means of warning and escape a requirement for all building work in existing high rise residential buildings.

Recommendation 5.2: Abolish Regulations 3 and 4 of the Building Regulations 2010 and replace them with a requirement that expects improvements, i.e. compliance with current building regulations, as far as reasonably practicable.

Recommendation 5.3: Introduce clear requirements in statutory fire safety guidance setting out the minimum fire safety measures that must be put in place (permanently added as part of upgrade) when working in existing buildings.

Recommendation 5.4: Fire risk assessments must not only list the non-compliance but also explain and record the impact if a fire were to occur while the residual risk is still in place. All credible fire scenarios should be considered as part of the risk assessment.

Recommendation 5.5: Legislate that all high rise residential buildings must have a fire safety strategy in place (retrospectively if required) which has been prepared by a professional which has met certain defined standards. and that this is updated to reflect planned new works and approved by building control before the new works are undertaken.

Recommendation 5.6: Confirm the meaning in practice of taking all reasonable steps whilst also in the context of the current Regulation 3 and 4 removing any ambiguity in interpretation.

"As at 31 July 2024:
2,414 social buildings 11 metres and over in height have been identified as having life-critical fire-safety cladding defects.

As at the end of July 2024:
there are 4,630 residential buildings 11 metres and over in height identified with unsafe cladding whose remediation progression is being reported on."

Building Safety Remediation: Monthly Data Release (July 2024)

6.

Equitable fire safety provisions for vulnerable people

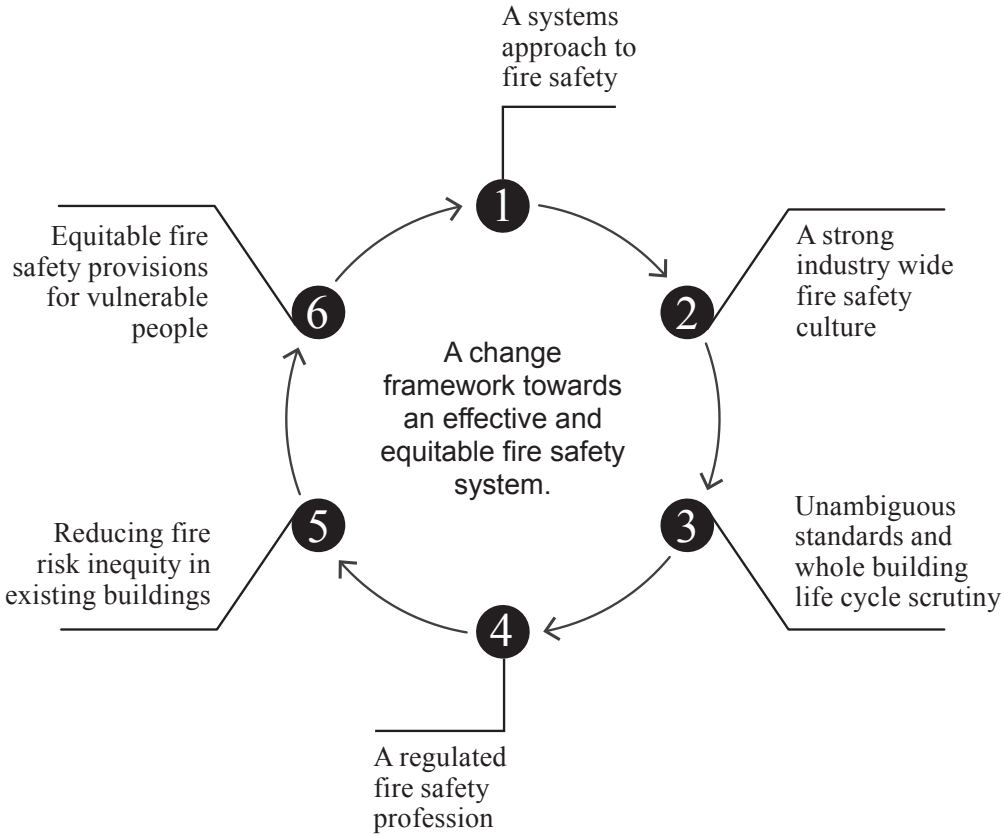
Inequitable risk levels for vulnerable people in high rise residential buildings is overlooked/tolerated.

The Grenfell Tower disaster demonstrated the stark inequities in fire safety for vulnerable people living in high rise residential buildings.

– 25% of the children living in Grenfell Tower died in the fire.

– 41% of vulnerable adult residents, those with sensory, mobility or cognitive impairments, died in the fire.

– Yet 41% of those vulnerable adults had lived in Grenfell Tower for more than 15 years.



6 Equitable fire safety provisions for vulnerable people

Regarding equitable fire safety provisions for vulnerable people, first are the prevailing practices indicative of the current condition. The new condition and its *corresponding* operating principles are then described. These, if adopted, would move the built environment towards an effective and equitable fire safety system.

Current condition	Prevailing practice indicative of the current condition	New condition	Operating principles of an equitable fire safety system
Inequitable risk levels for vulnerable people in new high rise residential buildings is overlooked/ tolerated	Buildings have equality of access, but not equality of emergency egress. Emergency planning is dealt with through an oversimplistic fire action notice based on the false assurance that high rise residential buildings are “simple buildings”.	Improving fire risk equity in new high rise residential buildings over time: Fire safety provisions are equitable for a reasonable range of vulnerabilities	Accessible buildings with arrangements in place to enable inclusive emergency egress in the event of a fire, such as including evacuation lifts that can be used by residents alone or to provide the fire and rescue service with the means to assist with evacuation. Emergency planning communication and engagement between building management/housing associations and the fire and rescue service such that all parties are aware of the needs of vulnerable residents and therefore how to support them in a fire emergency. Appropriate written and verbal communication, to enable ongoing understanding for all building occupants of what arrangements are in place in the event of a fire, are considered important, and full accountability taken for them by the relevant duty holders.
	Demographics are overlooked or selected on an unreasonable basis when formulating the occupancy profile for the purposes of formulating adequate fire safety solutions		Occupancy profiles representative of a reasonable range of vulnerabilities form the basis of design, and fire safety management arrangements.
	Policy, regulations and guidance focus on fire safety statistics based on overall fire deaths and overlook statistics that relate to vulnerable people in the event of fire.		Fire safety statistics relevant to any disability (mobility, sensory and cognitive impairment) gathered in order to be relied upon to drive improved equity in fire safety policy, regulations and guidance.
	Guidance documents that perpetuate the reliance on fire safety provisions which cause inequitable risk levels for vulnerable persons are tolerated mostly without question.		Mandatory statutory guidance documents that provide fire safety solutions which enable equitable fire safety provisions for a reasonable range of vulnerabilities.

6 Equitable fire safety provisions for vulnerable people

The following recommendations can help us create more equitable fire safety provisions for vulnerable people.

Recommendations to enable equitable fire safety provisions for vulnerable people

Recommendation 6.1: Create mandatory guidance for the organisational management of fire risk using an Organisational Risk Management System.

Recommendation 6.2: Set out in statutory guidance minimum standards and the level of detail expected for fire safety information necessary at handover so residents understand the actions they must take in event of a fire. Emergency information should be standardised in a graphical format and posted in common areas.

Recommendation 6.3: Withdraw the LGA guide, PAS 79 and PAS 9980 as they continue to enable the false narrative that fire safety arrangements for general needs housing should consider physical disability only, and even then only if "predominantly occupied by people requiring assistance to escape in a fire" through which PAS 9980 incorrectly labels any other proportion as a "neutral risk factor".

Recommendation 6.4: Change the RR(FS)O to require the responsible person to record as part of the prescribed information set out in Article 9(7)(b) "any person identified by the assessment as being especially at risk, giving particular consideration to disabled people" and confirm the required frequency of assessment in high rise residential buildings.

Recommendation 6.5: Conduct participatory research with end users, fire and rescue services, inclusivity consultants and organisations representing vulnerable people, to determine the demographics and needs of vulnerable people in a fire emergency and then the pragmatic solutions for new and existing high rise residential buildings that would deliver these outcomes.

Recommendation 6.6: Convene a multi-disciplinary group including end-user representation (e.g. residents and the fire and rescue service) dedicated to preparing a holistic approach to an updated AD M, AD B and fire risk assessment guide for existing high rise residential buildings based on the outcomes of the above participatory research.

Recommendation 6.7: Develop specific guidance (adapted from international guidance, as appropriate) on how to safely integrate lift evacuation capabilities retrospectively in existing high rise residential buildings.

Develop specific mandatory guidance setting out egress solutions for all residents of high rise residential buildings.

Recommendation 6.8: The Home Office should review and increase the data gathered about residents of high rise residential buildings (within the boundaries of data protection guidelines), evacuation strategies of high rise residential buildings and fire events to enable statistics reporting that monitors whether fire safety equity is improving over time. All information should be digital.

Vulnerable persons in Grenfell Tower on June 14, 2017

Category	No. present on night of fire	No. who died on the night of fire	No. that survived the night of fire	% that died due to the fire
All persons (including residents and visitors)	297	70[1]	227	24%
Adult resident (categorised as with no impairments for the purposes of this analysis)	157	28	129	18%
Visitors (noting all visitors were adults)	27	6	21	22%
Child residents	67	17	50	25%
Adult residents with sensory, mobility or cognitive impairments	46	19	27	41%

1 The two persons who were not listed on as deceased on the night of the fire were, as described in the Chairman's Phase 1 report, "Logan Gomes was delivered stillborn on 14 June 2017. Pily Burton was evacuated from her flat with the assistance of firefighters. She died in hospital on 29 January 2018."

It is our collective duty to create a safe and equitable built environment.

We must build on the findings from the Grenfell Tower fire and deliver long term systemic change. We must tackle the widespread loss of public confidence in our sector by demonstrating through our decisions and actions that we are delivering on wholescale change.

ARUP

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Additional links

Click here for Dr Lane's full 2023 report which includes this Change Framework.

Click here to download and print a Change Framework poster.

Click here to download a print friendly version of this report.