

Title: Impact Assessment on the introduction of Second Staircases in residential buildings above 18m, following the Consultation on sprinklers in Care Homes, removal of national classes, and staircases in residential buildings. IA No: N/A RPC Reference No: N/A Lead department or agency: Department for Levelling Up, Housing and Communities. Other departments or agencies:	Impact Assessment (IA)
	Date: 22/03/2024
	Stage: Final
	Source of intervention: Domestic
	Type of measure: Statutory guidance
	Contact for enquiries: buildingassurance@levellingup.gov.uk
Summary: Intervention and Options	RPC Opinion: Not Applicable

Cost of Preferred (or more likely) Option (in 2023 prices, 2024/25 present year)			
Total Net Present Social Value	Business Net Present Value	Net cost to business per year	Business Impact Target Status
-£2,670.1m	-£2,428.3m	£282.1m	Non qualifying provision

What is the problem under consideration? Why is government action or intervention necessary?

Making provision for an independent second staircase in tall buildings is part of the department's post-Grenfell building safety programme. A second staircase will provide additional capacity in a building to reduce congestion, support egress and facilitate additional access for firefighting and rescue. Occupants will benefit from an alternative means of escape if one route is blocked or filled with smoke. A second staircase will facilitate evacuation if a Stay Put recommendation needs to be overridden. There is public support, including from professional bodies, to make provision for a second staircase in new tall buildings; Government is addressing the issue by making amendments to the statutory guidance that accompanies the Building Regulations in Approved Document B, *Fire Safety*.

What are the policy objectives of the action or intervention and the intended effects?

The introduction of second staircases in buildings above 18m is a considered and gradual evolution of building standards which, when taken with the other measures that have been introduced, combine to ensure high levels of safety in all tall residential buildings. Intervention to make provision for a second staircase in tall buildings will offer additional capacity for egress and access for Fire and Rescue Services in an incident, helping to reduce congestion, evacuation time, and casualty rates. This intervention will also help to synchronise national standards by aligning to rules in Scotland.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

- Option 0: Do Nothing. Under the Do-Nothing scenario, a second staircase will not be recommended in the statutory guidance in any residential building based on a height threshold. Developers can still voluntarily add a second staircase to their building. Under this scenario, it is expected that at minimum, a single firefighting shaft, as outlined in Approved Document B (ADB), which includes a firefighting lift and firefighting staircase is required, alongside compliance with all other provisions outlined in ADB.
- Option 1 (Preferred Option): Second staircase to be provided in all new high rise residential buildings with storeys above 18m+ in height. Aligned with Option 0, the provision of a firefighting shaft, alongside the inclusion of a protected staircase is expected, alongside all other provisions outlined in ADB.
- Option 2: In all new high rise residential buildings with storeys above 18m+ in height, a second staircase is to be provided, including one firefighting shaft and one protected staircase, two lifts, one with each staircase, that can operate as evacuation lifts (and assumes a firefighting lift can have dual functionality alongside additional provisions as outlined in ADB).
- Option 3: In all new high rise residential buildings with storeys above 18m+ in height, a second staircase is to be provided, including two firefighting shafts in addition to two evacuation lifts (one with each staircase, but must be independent of the firefighting lifts) alongside additional provisions as outlined in ADB.
- Option 4 (Consultation Proposal Option): In all new high rise residential buildings with storeys above 30m+ in height, a second staircase is to be provided in line with the specifications set out in Option 1. All other provisions outlined in ADB must be complied with.

The preferred option is Option 1. This will allow for enhanced means of exit and improved fire-fighting access from 18m+ buildings at all times, with particular benefits in a rare, potentially catastrophic incident while causing the least disruption to developers plans/housing supply.

Will the policy be reviewed? It will .

The PIR would be designed in conjunction with evaluation plans so as to make use of existing data collection activity and will be reviewed on a continual basis as Approved Document B is.

Is this measure likely to impact on international trade and investment?		No		
Are any of these organisations in scope?	Micro Yes	Small Yes	Medium Yes	Large Yes
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)	Traded: N/A		Non-traded: N/A	

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Minister

Lee Rowley Date: 28/03/2024

Summary: Analysis & Evidence: Policy Option 1 (Preferred)

Description: Second staircase to be provided in all new high rise residential buildings with storeys above 18m+ in height. Aligned with Option 0, the provision of a firefighting shaft, alongside the inclusion of a protected staircase is expected, alongside all other provisions outlined in ADB must be complied with. (Preferred).

FULL ECONOMIC ASSESSMENT

Price Base Year	PV Base Year	Time Period	Net Benefit (Present Value (PV)) (£m)		
2023	2024/25	10 Years	Low: -£3,244.5m	High: -£2,045.1m	Best Estimate: -£2,670.1m

COSTS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	£176.0m	4	£194.2m	£2,117.5m
High	£332.3m		£291.3m	£3,245.3m
Best Estimate	£252.0m		£242.7m	£2,679.2m

Description and scale of key monetised costs by 'main affected groups' (Maximum of 5 lines)

- Capital costs to implement a second staircase (Annual Cost), estimated at: **£2.4bn**
- Value of Lost Net Internal Area as a result of implementing provisions (Transition Cost), estimated at: **£170m**
- Cost of maintenance of lift provisions (Annual Cost), estimated at: **-£4m**.
- Cost of purchasing land to expand Gross External Area (Annual Cost), estimated at: **£7m**
- Other Transition costs (redesign, delay and familiarisation costs), estimated at: **£10m, £44m, £28m respectively.**

Other key non-monetised costs by 'main affected groups' (Maximum of 5 lines)

- Energy costs to run a second staircase or lift provisions.
- Lost amenity space: expanding the footprint of the building may mean that space used otherwise for amenities such as gardens is lost, reducing visual appeal of the surrounding area of the building.

BENEFITS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	N/A	0	£0.08m	£0.8m
High	N/A		£7.24m	£72.4m
Best Estimate	N/A		£0.91m	£9.1m

Description and scale of key monetised benefits by 'main affected groups'

- Avoided fatalities and injuries in 'major' incidents estimated at: **£6.7m**.
- Avoided fatalities and injuries in 'catastrophic' incidents estimated at: **£2.3m**.
- Avoided trips and fall injuries estimated at: **£0.2m**.

Other key non-monetised benefits by 'main affected groups'

- Improved effectiveness and/or flexibility for fire and rescue services, which can aid active firefighting, evacuation and rescue. This could result in reduced property damage from fires.
- Wellbeing benefits through feeling of safety amongst residents from having multiple escape routes.

Key assumptions/sensitivities/risks	Discount rate (%)	See below
-------------------------------------	-------------------	-----------

Four representative buildings are used to map costs accordingly to different ways of designing an 18-30m, 30-50m, and 50m+ building to comply with the second stair or lift provisions. Not all building designs will fully map onto these designs and hence there is variation in the costs. Sensitivities of around +/-30% in costs are used to reflect confidence in the cost estimates. Benefits vary significantly by the likelihood of injury and major/catastrophic incidents due to limitations. However, the monetised benefits are not significant compared to cost. Switching analysis indicates the changes in benefit assumptions needed for the policy to have a net present benefit. Impacts are discounted, for non-health impacts, at 3.5% for the first 30 years and 3.0% for subsequent years, and, for health impacts, at 1.5% for the first 30 years and 1.286% for subsequent years.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:
Costs: £282.1m	Benefits: N/A	Net: -£282.1m	N/A

Summary: Analysis & Evidence: Policy Option 2

Description: In all new high rise residential buildings with storeys above 18m+ in height, a second staircase is to be provided, including one firefighting shaft and one protected staircase, two lifts, one with each staircase, that can operate as evacuation lifts (and assumes a firefighting lift can have dual functionality alongside additional provisions as outlined in ADB).

FULL ECONOMIC ASSESSMENT

Price Base	PV Base	Time Period	Net Benefit (Present Value (PV)) (£m)		
2023	2024/25	10 Years	Low: -£4,866.3m	High: -£3,108.2m	Best Estimate: -£4,011.7m

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	£215.9m	£296.5m	£3,180.6m
High	£408.3m	£445.9m	£4,867.0m
Best Estimate	£309.1m	£371.2m	£4,020.8m

Description and scale of key monetised costs by 'main affected groups' (Maximum of 5 lines)

- Capital Costs to implement a second staircase and lift provisions, estimated at: **£3.7bn**
- Value of Lost Net Internal Area as a result of implementing provision, estimated at: **£199m**
- Cost of maintenance of lift provisions, estimated at: **£40m**
- Cost of purchasing land for to expand Gross External Area, estimated at: **£7m**
- Transition costs (redesign, delay and familiarisation costs), estimated at: **£14m, £68m, £28m respectively.**

Other key non-monetised costs by 'main affected groups' (Maximum of 5 lines)

- Energy costs to run a second staircase or lift provisions.
- Lost amenity space: expanding the footprint of the building may mean that space used otherwise for amenities such as gardens is lost, reducing visual appeal of the surrounding area of the building.

BENEFITS (£m)	Total Transition (Constant Price)	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	N/A	£0.08m	£0.8m
High	N/A	£7.24m	£72.4m
Best Estimate	N/A	£0.91m	£9.1m

Description and scale of key monetised benefits by 'main affected groups'

- Avoided fatalities and injuries in 'major' incidents estimated at: **£6.7m**
- Avoided fatalities and injuries in 'catastrophic' incidents estimated at: **£2.3m**
- Avoided trips and fall injuries estimated at: **£0.2m.**

Other key non-monetised benefits by 'main affected groups'

- Improved flexibility and effectiveness for fire and rescue services during active firefighting, evacuation and rescue. This could result in reduced property damage from fires. Scale likely bigger than for option 1.
- Wellbeing benefits through feeling of safety amongst residents from having multiple escape routes. Scale likely bigger than for option 1.
- Evacuation lifts are expected to improve the ability of the mobility-impaired to escape their home, and bring wellbeing benefits to those who are mobility impaired through confidence in escaping their home.

Key assumptions/sensitivities/risks	Discount rate (%)	See below
-------------------------------------	-------------------	-----------

Four representative buildings are used to map costs accordingly to different ways of designing an 18-30m, 30-50m, and 50m+ building to comply with the second stair or lift provisions. Not all building designs will fully map onto these designs and hence there is variation in the costs. Sensitivities of around +/-30% in costs are used to reflect confidence in the cost estimates. Benefits vary significantly by the likelihood of injury and major/catastrophic incidents due to limitations. However, the monetised benefits are not significant compared to cost. Switching analysis indicates the changes in benefit assumptions needed for the policy to have a net present benefit. Impacts are discounted, for non-health impacts, at 3.5% for the first 30 years and 3.0% for subsequent years, and, for health impacts, at 1.5% for the first 30 years and 1.286% for subsequent years.

BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:
Costs: £426.4m	Benefits: N/A	Net: -£426.4m	N/A

Summary: Analysis & Evidence: Policy Option 3

Description: In all new high rise residential buildings with storeys above 18m+ in height, a second staircase is to be provided, including two firefighting shafts in addition to two evacuation lifts (one with each staircase, but must be independent of the firefighting lifts) alongside additional provisions as outlined in ADB.

FULL ECONOMIC ASSESSMENT

Price Base Year 2023	PV Base Year 2024/25	Time Period 10 Years	Net Benefit (Present Value (PV)) (£m)		
			Low: -£6,908.5m	High: -£4,438.8m	Best Estimate: -£5,697.9m

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)	
Low	£335.9m	4	£417.5m	£4,511.2m
High	£631.8m		£627.7m	£6,909.3m
Best Estimate	£480.6m		£522.6m	£5,707.0m

Description and scale of key monetised costs by 'main affected groups' (Maximum of 5 lines)

- Capital Costs to implement a second staircase and lift provisions, estimated at: **£5.2bn**
- Value of Lost Net Internal Area as a result of implementing provision, estimated at: **£367m**
- Cost of maintenance of lift provisions, estimated at: **£46m.**
- Cost of purchasing land for to expand Gross External Area, estimated at: **£12m**
- Transition costs (redesign, delay and familiarisation costs), estimated at: **£15m, £71m, £28m respectively.**

Other key non-monetised costs by 'main affected groups' (Maximum of 5 lines)

- Energy costs to run a second staircase or lift provisions.
- Lost amenity space: expanding the footprint of the building may mean that space used otherwise for amenities such as gardens is lost, reducing visual appeal of the surrounding area of the building.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)	
Low	N/A	0	£0.08m	£0.8m
High	N/A		£7.24m	£72.4m
Best Estimate	N/A		£0.91m	£9.1m

Description and scale of key monetised benefits by 'main affected groups'

- Avoided fatalities and injuries in 'major' incidents estimated at: **£6.7m**
- Avoided fatalities and injuries in 'catastrophic' incidents estimated at: **£2.3m**
- Avoided trips and fall injuries estimated at: **£0.2m.**

Other key non-monetised benefits by 'main affected groups'

- Improved flexibility and effectiveness for fire and rescue services during active firefighting, evacuation and rescue. This could result in reduced property damage from fires. Scale likely bigger than for option 2.
- Wellbeing benefits through feeling of safety amongst residents from having multiple escape routes. Scale likely bigger than for option 2.
- Evacuation lifts are expected to improve the ability of the mobility-impaired to escape their home, and bring wellbeing benefits to those who are mobility impaired through confidence in escaping their home.

Key assumptions/sensitivities/risks	Discount rate (%)	See below
--	--------------------------	-----------

Four representative buildings are used to map costs accordingly to different ways of designing an 18-30m, 30-50m, and 50m+ building to comply with the second stair or lift provisions. Not all building designs will fully map onto these designs and hence there is variation in the costs. Sensitivities of around +/-30% in costs are used to reflect confidence in the cost estimates. Benefits vary significantly by the likelihood of injury and major/catastrophic incidents due to limitations. However, the monetised benefits are not significant compared to cost. Switching analysis indicates the changes in benefit assumptions needed for the policy to have a net present benefit. Impacts are discounted, for non-health impacts, at 3.5% for the first 30 years and 3.0% for subsequent years, and, for health impacts, at 1.5% for the first 30 years and 1.286% for subsequent years.

BUSINESS ASSESSMENT (Option 3)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:	
Costs: £641.8m	Benefits: N/A	Net: -£641.8m	N/A	

Summary: Analysis & Evidence: Policy Option 4

Description: In all new high rise residential buildings with storeys above 30m+ in height, a second staircase is to be provided in line with the specifications set out in Option 1. All other provisions outlined in ADB must be complied with.

FULL ECONOMIC ASSESSMENT

Price Base Year 2023	PV Base Year 2024/25	Time Period 10 Years	Net Benefit (Present Value (PV)) (£m)			
			Low: -£1,802.0m	High: -£1,116.2m	Best Estimate: -£1,483.5m	
COSTS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)		Total Cost (Present Value)	
Low	£75.2m	4	£110.8m		£1,182.8m	
High	£141.6m		£166.1m		£1,802.5m	
Best Estimate	£107.6m		£138.4m		£1,491.8m	
Description and scale of key monetised costs by 'main affected groups' (Maximum of 5 lines)						
<ul style="list-style-type: none"> Capital Costs to implement a second staircase and lift provisions, estimated at: £1.4bn Value of Lost Net Internal Area as a result of implementing provision, estimated at: £55m Cost of maintenance of lift provisions, estimated at: -£4m Cost of purchasing land for to expand Gross External Area, estimated at: £2m Transition costs (redesign, delay and familiarisation costs), estimated at: £4m, £30m, £19m respectively. 						
Other key non-monetised costs by 'main affected groups' (Maximum of 5 lines)						
<ul style="list-style-type: none"> Energy costs to run a second staircase or lift provisions. Lost amenity space: expanding the footprint of the building may mean that space used otherwise for amenities such as gardens is lost, reducing visual appeal of the surrounding area of the building. 						
BENEFITS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)		Total Benefit (Present Value)	
Low	N/A	0	£0.05m		£0.5m	
High	N/A		£6.66m		£66.6m	
Best Estimate	N/A		£0.83m		£8.3m	
Description and scale of key monetised benefits by 'main affected groups'						
<ul style="list-style-type: none"> Avoided fatalities and injuries in 'major' incidents estimated at: £6.7m Avoided fatalities and injuries in 'catastrophic' incidents estimated at: £1.5m Avoided trips and fall injuries estimated at: £0.1m. 						
Other key non-monetised benefits by 'main affected groups'						
<ul style="list-style-type: none"> Improved effectiveness and/or flexibility for fire and rescue services, which can aid active firefighting, evacuation and rescue. This could result in reduced property damage from fires. Wellbeing benefits through feeling of safety amongst residents from having multiple escape routes. 						
Key assumptions/sensitivities/risks					Discount rate (%)	See below
<p>Four representative buildings are used to map costs accordingly to different ways of designing an 18-30m, 30-50m, and 50m+ building to comply with the second stair or lift provisions. Not all building designs will fully map onto these designs and hence there is variation in the costs. Sensitivities of around +/-30% in costs are used to reflect confidence in the cost estimates. Benefits vary significantly by the likelihood of injury and major/catastrophic incidents due to limitations. However, the monetised benefits are not significant compared to cost. Switching analysis indicates the changes in benefit assumptions needed for the policy to have a net present benefit. Impacts are discounted, for non-health impacts, at 3.5% for the first 30 years and 3.0% for subsequent years, and, for health impacts, at 1.5% for the first 30 years and 1.286% for subsequent years.</p>						

BUSINESS ASSESSMENT (Option 4)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:	
Costs: £160.1m	Benefits: N/A	Net: -£160.1m	N/A	

Contents

<i>Impact Assessment (IA)</i>	1
<i>Summary: Intervention and Options</i>	1
<i>RPC Opinion:</i>	1
<i>Summary: Analysis & Evidence: Policy Option 1 (Preferred)</i>	3
<i>Summary: Analysis & Evidence: Policy Option 2</i>	4
<i>Summary: Analysis & Evidence: Policy Option 3</i>	5
<i>Summary: Analysis & Evidence: Policy Option 4</i>	6
<i>Policy background</i>	11
Problem under consideration and rationale for intervention	11
Description of options considered	12
Policy objective	13
Summary and preferred option with description of implementation plan	13
<i>Analytical Approach</i>	15
Rationale and evidence to justify the level of analysis used in the IA	15
Impact Assessment structure	15
Differences between Consultation and Final Stage Impact Assessment	15
Main analytical assumptions	15
Representative Buildings	16
Baseline staircase and lift assumptions for each Representative Building	16
Height Bands	18
Number of buildings in scope across the policy appraisal period (2024/25-2033/34)	18
Counterfactual / buildings in scope	19
Transition Period for Policy Options	20
Expected developer response to policy options	21
Monetised and non-monetised costs and benefits of each option (including administrative burden)	23
Monetised costs	23
Capital cost of each policy option (Annual Cost)	24
Value of lost Net Internal Area (NIA) (Transition Cost)	25
Land cost of increasing building footprint (Gross External Area) to recoup lost NIA (Annual Cost)	26
Maintenance Costs (Annual Cost)	27
Familiarisation Costs (Transition Cost)	28
Redesign costs (transition costs)	30
Delay Costs (Transition Cost)	31
Non-monetised costs	32
Monetised benefits	32
Methodological approach	32
Major incident	33
Catastrophic incident	37
Trips, falls and other injuries sustained during voluntary evacuations	39
Non-monetised benefits	40
Non-monetised benefits which apply to all options	40
Additional non-monetised benefits under Policy Option 2	41
Additional non-monetised benefits under Policy Option 3	42
Net costs to society	42
Thresholds analysis (Policy Option 1 versus Policy Option 4)	44
Cost to housing associations, private, public sector and direct costs to businesses	46
Sensitivity analysis	47
Switching analysis	48
Risks and assumptions	49

Forecasting the number of 18m+ buildings with a 2nd staircase or evacuation lift in the counterfactual	49
Impact on small and micro businesses	50
Wider impacts	51
Housing Supply	51
Environmental impact	52
Public Sector Equality Duty	52
A summary of the potential trade implications of measure	53
Monitoring and Evaluation	54
<i>Annex A: Assumptions Table</i>	55

Contents: Tables

Table 1: Number of staircases or lifts under Single Staircase design, by representative building	17
Table 2: Number of staircases or lifts under Policy Option 1 design, by representative building	17
Table 3: Number of staircases or lifts under Policy Option 2 design, by representative building	17
Table 4: Number of staircases or lifts under Policy Option 3 design, by representative building	17
Table 5: Estimated number of new buildings in England, by representative building. 2024/25 to 2033/34	18
Table 6: Estimated proportion of new buildings per year, by representative building and region.	19
Table 7: Counterfactual assumptions (Do Nothing Option) for each year across the appraisal period (%)	20
Table 8: Phase-in assumptions under Policy Option 1 (18-30m), 2024/25 to 2033/34	21
Table 9: Phase-in assumptions under Policy Option 2 (18-30m), 2024/25 to 2033/34	21
Table 10: Phase-in assumptions under Policy Option 3 (18-30m), 2024/25 to 2033/34	21
Table 11: Capital costs of counterfactual and each policy option per representative building and by whether footprint is retained or increased.	24
Table 12: Additional capital cost of each policy option on counterfactual (per building)	25
Table 13: Estimated additional increase in capital costs over the single staircase option by building height, and policy option (£)	25
Table 14: Estimated lost Net Internal Area in m ² per building and value of lost Net Internal Area per building (£), by representative building, height, and policy option. (Years 1 to 5)	26
Table 15: Estimated additional increase in Lost Net Internal Area costs over the single staircase option by building height, and policy option (£).	26
Table 16: Estimated increase in Ground Floor Gross External Area per building (m ²) and land cost per building (£), by representative building, height, and policy option.	26
Table 17: Estimated additional increase in land costs over the single staircase option (£) by building height band, and policy option.	27
Table 18: Annual maintenance cost per lift, by building height & lift type	28
Table 19: Annual maintenance cost per building, by building height & representative building (London)	28
Table 20: Annual maintenance cost per building, by building height & representative building (Rest of England)	28
Table 21: Estimated additional increase in maintenance costs over a single staircase building by building height, and policy option.	28
Table 22: Number of employees requiring familiarisation by profession	28
Table 23: Familiarisation cost per person	29
Table 24: Total cost of familiarisation	30
Table 25: Number of building planning permissions by building height expected to need redesigns	31
Table 26: Total redesign costs by building height band, 2023 prices	31
Table 27: Delay cost per month per building	31
Table 28: Total delay cost across the appraisal period, by policy option.	31
Table 29: 'What-if' fatality and injury assumptions (major incident)	33
Table 30: Number of avoided fatalities / injuries per building (individual incident) – major incident – central scenario	34
Table 31: Number of avoided fatalities / injuries per building (individual incident) – major incident – low scenario	34
Table 32: Number of avoided fatalities / injuries per building (individual incident) – major incident – high scenario	34
Table 33: Estimated value of avoided fatalities/injuries per building – major incident – central scenario (2023 prices, undiscounted)	35
Table 34: Estimated value of avoided fatalities/injuries per building – major incident – low scenario (2023 prices, undiscounted)	35
Table 35: Estimated value of avoided fatalities/injuries per building – major incident – high scenario (2023 prices, undiscounted)	35
Table 36: Number of people evacuated from fires in buildings 4 storeys or more, 2010 – 2022 (Home Office)	35
Table 37: Expected value of avoided injuries across 70-year period by likelihood – major incident - 2023 prices	36
Table 38: 'What-if' fatality and injury assumptions (catastrophic incident)	37
Table 39: Number of avoided fatalities / injuries per building – catastrophic incident - central scenario	37
Table 40: Number of avoided fatalities / injuries per building – catastrophic incident – low scenario	38
Table 41: Number of avoided fatalities / injuries per building – catastrophic incident – high scenario	38
Table 42: Estimated value of avoided fatalities/injuries per building – catastrophic incident – central scenario (2023 prices, undiscounted)	38
Table 43: Estimated value of avoided fatalities/injuries per building – catastrophic incident – low scenario (2023 prices, undiscounted)	38
Table 44: Estimated value of avoided fatalities/injuries per building – catastrophic incident – high scenario (2023 prices, undiscounted)	39

Table 45: Expected value of avoided injuries across 70-year period by likelihood – catastrophic incident - 2023 prices	39
Table 46: Expected value of avoided trips and falls across 70-year period – central scenario (2023 prices)	40
Table 47: Net cost to society compared to Single Stair option, broken down by cost and benefit for each option, central scenario, discounted, 2023 prices	43
Table 48: Equivalent annual net cost to society compared to counterfactual, broken down by cost and benefit for each option, central scenario, discounted, 2023 prices	44
Table 49: Cost benefit analysis by building height and 18m+ and 30m+ threshold, 2023 prices	45
Table 50: Preferred Option costs to developers, split by housing association, private and public, and by building height band. (Present Value, 2023 prices)	46
Table 51: Net Present Costs to Business and EANDCBs, by Policy Option (2023 prices)	46
Table 52: Net Present Value Summary under Central, Low and High scenario for each Policy Option (2023 prices)	47
Table 53: Net Present Value, Equivalent Annual Net Value and Benefit-Cost Ratios under Central, Low and High scenario for each Policy Option (2023 prices)	48
Table 54: Assumptions Table and Quality Definitions	55

Policy background

Problem under consideration and rationale for intervention

1. Making provision for an independent second staircase in new tall residential buildings¹ is part of the department's post-Grenfell building safety programme. In an emergency incident, a second staircase will provide additional capacity in a building to reduce congestion, support egress and facilitate additional access for firefighting and rescue. Occupants will benefit from an alternative means of escape if one route is blocked or filled with smoke. A second staircase will facilitate evacuation if a Stay Put recommendation needs to be overridden. There is public support, including from professional bodies, to make provision for a second staircase in new tall residential buildings; Government is addressing the issue by making amendments to the statutory guidance that accompanies the Building Regulations in Approved Document B (*Fire Safety*) Volume 1: *Dwellings*. This work sits alongside the ongoing technical review of Approved Document B and commissioned research that are intended to strengthen coverage of fire safety issues in the Building Regulations regime.
2. Currently, neither Building Regulations nor Approved Documents specify a height threshold for the provision of a second staircase in new tall residential buildings. Responses to the *Sprinklers in care homes; removal of national classes; and second staircases in residential buildings* consultation held between December 2022 and March 2023 demonstrated public appetite for an evolution of fire safety building standards in England. Introduction of a provision for second staircases in new tall residential buildings also requires specification of a threshold height at which that provision applies; setting the threshold at 18m aligns with statutory definitions of higher risk buildings at s.120D of the Building Act 1984 and s.65 of the Building Safety Act 2022. Furthermore, establishing an 18m threshold for a second staircase in England aligns with standards applicable in Scotland, advancing a common approach across nations. Taken with other post-Grenfell measures to enhance building safety, such as the ban on combustible materials in and on the external walls of new residential buildings, hospitals, student accommodation, hotels, hostels and boarding houses higher than 18 metres; restriction of certain materials in and on the external walls of new residential buildings between 11 metres and 18 metres in height; installation of sprinkler systems in new blocks of flats taller than 11 metres; and an outright ban on metal composite materials with an unmodified polyethylene core – the type of cladding used on Grenfell – on the external walls of all new buildings at any height, making provision for second staircases in new, tall residential buildings will be a further enhancement of building standards that make people safe.
3. In considering this impact assessment it should be recognised that the rationale for this policy cannot solely be based on the costs set against the monetised benefits. High consequence incidents which result in the loss of a building and significant loss of life such as the Grenfell Tower tragedy are rare and unexpected. Nevertheless, they have significant knock-on economic and societal impacts in the form of remediation costs to address related issues across the housing stock, physical and mental health costs across society and adverse market impacts in the insurance and housing sectors. Taken together, these effects can have a significant adverse impact on a large number of people. Whilst the expected economic benefits of a second staircase are estimated to be low in comparison to the cost, the second staircase represents another policy in our range of measures aimed at minimising the risk and impact of these rare but high-consequence incidents.

¹ Approved Document B considers the purpose of a building to be residential if it provides a flat. The preferred option will therefore apply to all buildings with flats with a storey above 18m.

Description of options considered

4. This impact assessment assesses four different policy options against a baseline position (counterfactual) that extends the status quo policy position (i.e. “do nothing”). Modelled analysis calculates benefits expressed as Net Present Values in low, high and best estimate scenarios. Ministers also take into account a wider universe of policy considerations including risk to life safety, market reaction, impact on housing markets and supply. The preferred option is Option 1; this will provide new tall residential buildings with additional resilience to support exit from the building and enhanced options for fire-fighting in the rare event of a catastrophic incident. This evolution of safety standards will be a helpful addition to existing building safety measures which we have already introduced and will minimise housing supply impact relative to options 2 and 3.

- **Option 0: Do Nothing (Counterfactual):** Under the Do-Nothing scenario, a second staircase will not be recommended in the statutory guidance in any residential building based on a height threshold. Developers can still voluntarily add a second staircase to their building. **This option is used as the counterfactual.**

Under this scenario, it is expected that at minimum, a single firefighting shaft, as outlined in Approved Document B, which includes a firefighting lift and firefighting staircase is required, alongside compliance with all other provisions outlined in ADB.

It is expected that most 18m+ new build designs will include at least two lifts for day-to-day use. Some buildings may also provide a second staircase voluntarily.

- **Option 1 (Preferred):** Second staircase to be provided in all new high rise residential buildings with storeys above 18m+ in height. Aligned with Option 0, the provision of a firefighting shaft, alongside the inclusion of a protected staircase is expected, alongside all other provisions outlined in ADB must be complied with.
 - **Option 2:** In all new high rise residential buildings with storeys above 18m+ in height, a second staircase is to be provided, including one firefighting shaft and one protected staircase, two lifts, one with each staircase, that can operate as evacuation lifts (and assumes a firefighting lift can have dual functionality alongside additional provisions as outlined in ADB).
 - **Option 3:** In all new high rise residential buildings with storeys above 18m+ in height, a second staircase is to be provided, including two firefighting shafts in addition to two evacuation lifts (one with each staircase, but must be independent of the firefighting lifts) alongside additional provisions as outlined in ADB.
 - **Option 4 (Preferred Option under the consultation):** In all new high rise residential buildings with storeys above 30m+ in height, a second staircase is to be provided in line with the specifications set out in Option 1. All other provisions outlined in ADB must be complied with.
5. Making provision for a second staircase in tall residential buildings is likely to have an impact on the design and layout of proposed developments. Commercial unviability could have an impact on provision of affordable housing in high rise residential schemes, while market uncertainty during a period of policy development has reportedly led to projects being stalled and slower delivery. Transitional arrangements will aim to secure the viability of schemes that are already underway. Projects will have 30 months to submit building regulations applications, from the point of Approved Document B being updated, that may still conform to previous guidance; they will then have 18 months after submitting their building regulation application to ‘progress work’ on site.

Policy objective

6. This policy intends to:
7. Continue the Department's post Grenfell building safety measures programme in a considered and gradual evolution of building standards which, when taken with the other measures introduced, combine to ensure high levels of safety in all tall residential buildings. This policy will provide new tall residential buildings with proportionate, additional resilience to support egress and enhanced options for firefighting.
8. Deliver an appropriate balance of safety improvements when considered against the potential impact of the change proposed on housing supply, including affordable housing.
9. Enhance life safety provision for residents with an alternative means of escape if another route is blocked.
10. Enhance life safety provision by giving fire fighters and first responders alternative access to the building without congesting in-use escape routes.
11. Align the statutory guidance for England with other countries that already make provision for a second staircase.

Summary and preferred option with description of implementation plan

12. The preferred option is to make provision for a second staircase in new multi-occupancy residential buildings that have a top occupied storey above 18 metres. This option will be implemented by updating guidance in Approved Document B. The preferred option assumes that the firefighting shaft in tall buildings (i.e. the 'first staircase') is provided in line with existing guidance.
13. Approved Document B offers practical guidance on how compliance with the fire safety functional requirements of Building Regulations can be met in common building situations. Industry tends to adopt Approved Documents guidance as a default minimum standard. Government anticipates that when Approved Document B is updated, provision of a second staircase will become the industry norm. In non-standard building situations, robust fire safety provisions will need to demonstrate compliance with Building Regulations Part B; such situations are likely to require a bespoke, detailed fire engineering analysis.
14. The Department for Levelling Up, Housing and Communities' Secretary of State's written statement² of 24 October 2023 set out transitional arrangements that will accompany the change to Approved Document B. Developers will have 30 months during which they may submit new building regulations applications that conform to either existing or updated guidance. When those 30 months have elapsed, all applications will need to conform to the new guidance. Developers will then have 18 months after submitting their building regulation application to 'progress work' on site. If a project does not progress work, they will need to submit a new building regulations application, following the new guidance. Sufficient progress, for this purpose, will match the definition set out in the Building (Higher-Risk Buildings Procedures) (England) Regulations 2023, and will therefore be when the pouring of concrete for either the permanent placement of trench, pad or raft foundations or for the permanent placement of piling has started. A publication timeline of the end of March 2024 for updated guidance in Approved Document B, was publicised in the Secretary of State's written statement³ of 19 February 2024.

² <https://questions-statements.parliament.uk/written-statements/detail/2023-10-24/hcws1090>

³ <https://questions-statements.parliament.uk/written-statements/detail/2024-02-19/hcws264>

15. For planned projects coming onstream during the transition period it is possible that, on sites where boundaries and planning considerations allow an extension of the building footprint, a developer may choose to compensate for marketable space lost to a second core by extending the area and saleable floorspace of the building (i.e. increasing the footprint) or by increasing the height. Site limitations and boundaries may mean that some new builds have limited scope to extend the building footprint and may lose net internal area or saleable floor space. Once the transition period is over, it is expected that projects may increase their build footprint, through either purchase of additional land or adjusting number of units within the boundary limitations of the development plot, to achieve a desired amount of net internal and saleable floor area for the building. This was not reflected previously at consultation stage. See **'Expected developer response to policy options'** for more detail.

Analytical Approach

Rationale and evidence to justify the level of analysis used in the IA

Impact Assessment structure

16. This impact assessment includes a discussion of the main analytical assumptions, monetised costs and non-monetised costs, monetised benefits and non-monetised benefits, net present value, and sensitivity and switching analysis. It then considers risks and assumptions, impacts on small and micro businesses, wider impacts, trade implications and monitoring and evaluation.
17. The main section runs through the differences in costs and benefits of the three implementation methods according to Policy Options 1, 2 and 3, with the costs and benefits split out by height band.
18. At consultation stage, the preferred option was for a second staircase for buildings above 30m in height (Option 4). A separate comparison between Policy Options 1 and 4 is included to assess the differences between the two preferred options at consultation and final stage impact assessment, after the discussion on Policy Options 1, 2 and 3.

Differences between Consultation and Final Stage Impact Assessment

19. For this final stage impact assessment, consideration has been given to additional implementation methods of the second staircases proposal, such as including a firefighting shaft and/or evacuation lift within the options assessments. At consultation the focus was on provisions for a second staircase at different height thresholds.
20. For analytical purposes, the impact assessment uses four representative buildings to represent the majority of buildings in scope of the policy. Since consultation, representative buildings were revised to more confidently represent high-rise buildings that would be affected by the second staircase and other egress methods. This allows for a more accurate assessment of the costs impacts of the policy options on different types of buildings.
21. The cost benefit analysis below excludes 11-18m residential buildings as they are not within the scope of any of the policy options considered.

Main analytical assumptions

22. The analysis is based on estimates prepared by the Adroit Economics Consortium, which comprises economics expertise from Adroit, combined with industry expertise from PRP (architects), planning and viability expertise from Quod, and cost expertise from MGAC (cost consultants) with input from DLUHC and the Building Safety Regulator. All estimates are for England only. Estimates for policy options 1 through 4 are relative to the Do Nothing (counterfactual).
23. The analysis is based on a 70-year appraisal period, comprising a 10-year policy implementation period (2024/25-2033/34) and a further 60 years to 2093/94, to capture on-going cost and benefits of the policy (assuming 60 years is the lifetime of a building). Costs and benefits are presented in 2023 prices and are in discounted terms unless specified otherwise. Impacts are discounted to present value terms based on the HMT Green Book using a 2024/25 base year as follows:
 - Non-health impacts – 3.5% for the first 30 years and 3.0% for the subsequent years;

- Health impacts – 1.5% for the first 30 years and 1.286% for the subsequent years.
24. All estimates are assumed to stay constant in real terms, assuming costs and benefits will increase in line with the GDP deflator throughout the appraisal period.

Representative Buildings

25. Four representative buildings (RBs) were chosen to assess the cost impact of the policy options outlined above. These were derived from existing high-rise building schemes which the Adroit Consortium and the BSR agreed were representative of current high-rise residential new build designs. Using these representative buildings enables an understanding of how the policy options might be implemented in new high-rise residential buildings, both those that are currently in design and planning phases, and future projects, across England. These are:

- **Representative Building 1:** This building represents an efficient or dense residential scheme (i.e.: limited lobby space, maximising the space for flats) designed using standard flat types for a housing association. This represents a simple rectangular building, which was deemed relevant at all height bands but is used for 18-30m and 30-50m height bands in this analysis.
- **Representative Building 2:** This building is an example of a very tall building on an unconstrained site that could accommodate the expansion of the building footprint. It includes an unusual form to provide aesthetic value to achieve planning approval. This type of design is relatively common for tall buildings but can result in less efficient flat and corridor design. This building is only representative of 50m+ buildings.
- **Representative Building 3:** This building was used to understand two common design practices within London; dual aspect and stepped building forms. Dual aspect flats are encouraged by guidance within the London Housing Design Guide. A stepped building form is a common design technique used in urban situations where the building form will match the height of a neighbouring building, before stepping up in height, in order to maximise density on the site. This building's site would only be representative of 18-30m height schemes.
- **Representative Building 4:** This building was selected as another example of a very tall building that can accommodate expansion of the building footprint. This represents a efficient residential scheme designed using standard flat types, for a high-end London focused housing developer. This building is suitable within the 30-50m and 50m+ height bands.

Baseline staircase and lift assumptions for each Representative Building

26. The number of staircases and lifts assumed differs within and across Representative Buildings based on the location and design of the building. Types of lift that can be installed include a standard lift, a fast lift, a firefighting lift, and an evacuation lift. In London, under the counterfactual, in addition to a firefighting lift, planning policy requires that all 18m+ buildings have an evacuation lift.
27. Under the counterfactual, it is assumed that all high-rise residential buildings will have at least two lifts (for instance, one standard/fast lift and one firefighting shaft) to aid exit of the building. In London, it is assumed that the standard or fast lift will be replaced by an evacuation lift.
28. In some instances, a building may remove a lift from their design to incorporate a second staircase to minimise loss of net internal area. This occurs under Representative Building 4, where four lifts are initially provided, but one is replaced with the second staircase. Under this

scenario it is expected that any standard lift would be replaced by a fast lift to retain the speed to enter and exit the building.

Table 1: Number of staircases or lifts under Single Staircase design, by representative building

Single Staircase Design		Rest of England		London	
		Staircases	Lifts	Staircases	Lifts
RB1		1 FF	1 St, 1 FF	1 FF	1 Ev, 1 FF
RB2		1 FF	3 St, 1 FF	1 FF	2 St, 1 Ev, 1 FF
RB3		1 St, 1 FF	1 St, 1 FF	1 St, 1 FF	1 Ev, 1 FF
RB4		1 FF	3 St, 1 FF	1 FF	2 St, 1 Ev, 1 FF

St – standard staircase or lift
 Fa – fast lift
 Ev – evacuation stair or lift
 FF – firefighting stair or lift

Table 2: Number of staircases or lifts under Policy Option 1 design, by representative building

Policy Option 1 Design		Rest of England		London	
		Staircases	Lifts	Staircases	Lifts
RB1		1 St, 1 FF	1 St, 1 FF	1 St, 1 FF	1 Ev, 1 FF
RB2		1 St, 1 FF	3 St, 1 FF	1 St, 1 FF	1 St, 2 Ev, 1 FF
RB3		1 St, 1 FF	1 St, 1 FF	1 St, 1 FF	1 Ev, 1 FF
RB4		1 St, 1 FF	2 Fa, 1 FF	1 St, 1 FF	2 Ev, 1 FF

Note that RB4's lifts are considered fast lifts in the Rest of England and London.

Table 3: Number of staircases or lifts under Policy Option 2 design, by representative building

Policy Option 2 Design		Rest of England		London	
		Staircases	Lifts	Staircases	Lifts
RB1		1 St, 1 FF	1 Ev, 1 FF	1 St, 1 FF	1 Ev, 1 FF
RB2		1 St, 1 FF	2 St, 1 Ev, 1 FF	1 St, 1 FF	1 St, 2 Ev, 1 FF
RB3		1 St, 1 FF	1 Ev, 1 FF	1 St, 1 FF	1 Ev, 1 FF
RB4		1 St, 1 FF	1 Fa, 1 Ev, 1 FF	1 St, 1 FF	2 Ev, 1 FF

Note that RB4's lifts are considered fast lifts in the Rest of England and London.

Table 4: Number of staircases or lifts under Policy Option 3 design, by representative building

Policy Option 3 Design		Rest of England		London	
		Staircases	Lifts	Staircases	Lifts
RB1		2 FF	2 Ev, 2 FF	2 FF	2 Ev, 2 FF
RB2		2 FF	2 Ev, 2 FF	2 FF	2 Ev, 2 FF
RB3		2 FF	2 Ev, 2 FF	2 FF	2 Ev, 2 FF
RB4		2 FF	2 Ev, 2 FF	2 FF	2 Ev, 2 FF

Note that RB4's lifts are considered fast lifts in the Rest of England and London.

Height Bands

29. Three height bands are used in the analysis for each representative building: 18-30m, 30-50m, and 50m+. These bands were chosen to represent different thresholds at which additional provisions are made under the Approved Documents. This ensures any cost and benefit differences due to building height can be captured within this assessment.
30. The analysis assumes an average number of storeys within each height band, with cost estimates calculated based on these sizes:
- **18-30m:** 8 Storeys
 - **30-50m:** 15 Storeys
 - **50m+:** 37 Storeys

Number of buildings in scope across the policy appraisal period (2024/25-2033/34)

31. To understand the number of new builds each year, planning application data across April 2017 to March 2023 was analysed to estimate the number of units (flats) built in 2022/23 at different storey bands, 7-10 storeys, 11-30 storeys and 31+ storeys.
32. This is then converted to the 18-30m, 30m-50m, and 50m+ building height bands based on the following assumptions derived from industry experience:
- **18-30m:** All 7-10 storey buildings fall under this height band.
 - **30m-50m:** Half of 11-30 storey buildings fall under this height band.
 - **50m+:** Half of 11-30 storey buildings and all 31+ storey buildings fall under this height band.
33. The analysis then makes assumptions about the proportion of new units that were built in each representative building, with differences depending on location (either London or the Rest of England), and on height band. The assumptions are based on the Adroit Consortium's industry experience. The total number of units were then divided by the assumed average number of flats per representative building per height band, to reach the total number of new builds in 2022/23, around 436 new builds.
34. To account for changes in economic climate over the 10 year appraisal period (2024/25 to 2033/34), an index is applied based on OBR forecasts⁴. The estimated number of buildings per year across the appraisal period is as below in **Table 5**.

Table 5: Estimated number of new buildings in England, by representative building. 2024/25 to 2033/34

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
18-30m	196	187	195	201	208	225	242	242	242	242
30m-50m	99	94	98	102	105	114	122	122	122	122
50m+	60	57	60	62	64	69	74	74	74	74
Total	355	339	353	364	378	408	439	439	439	439

Number of buildings in base year based on number of planning applications from April 2017- March 2023.

Forecasted to 2033 using a base year of 2022, with a housing index based on OBR forecasts. Forecasts from 2030 onwards assumed to return to three-year average of 2020/21-2022/23

⁴ Indexed based on forecasts for net additional housing. Net additional housing estimates are assumed to return to the three year average of 2020/21, 2021/22 and 2022/23. OBR (2023), Economic and fiscal outlook – November 2023, Supplementary economy tables, Net additional housing

35. Amongst these new high-rise buildings, the representative buildings are apportioned out to these new builds, based on analysis of planning applications in England. **Table 6** below shows the expected distribution of the buildings across the appraisal period.

Table 6: Estimated proportion of new buildings per year, by representative building and region.

	London				Non London				Total
	RB1	RB2	RB3	RB4	RB1	RB2	RB3	RB4	
18-30m	25%	0%	3%	0%	23%	0%	5%	0%	55%
30-50m	12%	0%	0%	7%	8%	0%	0%	2%	28%
50m+	0%	2%	0%	9%	0%	1%	0%	4%	17%
Total	37%	2%	3%	16%	30%	1%	5%	6%	100%

Counterfactual / buildings in scope

36. The counterfactual accounts for the current design implementation of a building, and whether they would be designed with either a single staircase or to the different implementation methods of a second staircase outlined in Policy Options 1 (or 4), 2, and 3, under the Do Nothing option.

37. Under the counterfactual, the majority of new builds are expected to only install single staircases without intervention. This proportion varies with the size of the buildings, with a significant increase in 2nd staircases above the 30m height threshold, and this is assumed to be consistent across both London and the rest of England. The counterfactual is based on the following assumptions:

- Government has not made a statement on the intention to require 2nd staircases – so there is no market reaction or early adoption.
- Local authority planning requirements will still apply, for instance:
 - At least one evacuation lift will be provided within London 18m+ buildings under London Plan Policy D5(B5). Evacuation lifts are estimated to cost around £170,000, £330,000 or £900,000 to implement, based on the three height bands. These costs are not counted as an additional build cost of the policy under Policy Option 2 for London. A single evacuation lift is assumed under the counterfactual, and so this cost will only represent one additional evacuation lift for Policy Option 3.
- Existing practices of the Fire and Rescue Services will continue
- Schemes are being built out to market or client requirements the counterfactual assumptions by building height band.

38. **Table 7** below shows the counterfactual assumptions by building height band.

Table 7: Counterfactual assumptions (Do Nothing Option) for each year across the appraisal period (%)

Specifications built to under the counterfactual (Do Nothing option)					
	Single Staircase	Policy Option 1 (Second Staircase)	Policy Option 2 (Second Staircase, 1 Evacuation Lift and 1 Firefighting Shaft)	Policy Option 3 (Second Staircase, 2 Evacuation Lifts and 2 Firefighting Shafts)	Total %
18-30m	85%	15%	0%	0%	100%
30-50m	60%	40%	0%	0%	100%
50m+	56%	42%	2%	0%	100%

Transition Period for Policy Options

39. The Government has announced a transition period of four years, consisting of 30 months to submit building control plans, and 18 months for construction to progress. Any schemes that can make progress by the end of the transition period may use the previous version of Approved Document B guidance.

40. It is assumed that only a small proportion of buildings built to the pre-policy guidance will commence just before the end of the transition period. Given that 18m+ schemes will be under construction for several years, some building will therefore be built to previous guidance even after the 4-year transition period has concluded. Therefore, the analysis assumes that buildings will be built to the previous guidance up until 2029/30 of the policy period. The phase-in of the post-policy standard therefore assumes:

- During the first five years of the policy appraisal period, a reducing proportion of schemes will be built out to the pre-policy standard, with an increasing proportion building to the post-policy standard.
- From the sixth year onwards (2029/30), the vast majority of schemes will be built in line with the updated guidance.

41. These assumptions take account of increased pressure from insurers for developers to meet the proposed ADB requirements, and the lengthy build time for high-rise buildings. These proportions are as follows:

- 2024/25, 2025/26, 2026/27: 0% of schemes that under the counterfactual would not have been built to policy, will be built to the relevant policy option.
- 2027/28: 50% of schemes that under the counterfactual would not have been built to policy, will be built to the relevant policy option.
- 2028/29: 75% of schemes that under the counterfactual would not have been built to policy, will be built to the relevant policy option.
- 2029/30 onwards: 100% of schemes that under the counterfactual would not have been built to policy, will be built to the relevant policy option.

42. The phase-in assumptions for each policy option and proportions of buildings building to each of the policy options is set out below in

43. **Table 8, Table 9 and Table 10.** These tables show how quickly developers will transition their new schemes over to the chosen policy option, using 18-30m buildings as an example.

Table 8: Phase-in assumptions under Policy Option 1 (18-30m), 2024/25 to 2033/34

FY: Apr-Mar	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Single Stair Policy	85%	85%	85%	43%	21%	0%	0%	0%	0%	0%
Option 1 Policy	15%	15%	15%	58%	79%	100%	100%	100%	100%	100%
Option 2 Policy	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Option 3 Policy	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Table 9: Phase-in assumptions under Policy Option 2 (18-30m), 2024/25 to 2033/34

FY: Apr-Mar	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Single Stair Policy	85%	85%	85%	43%	21%	0%	0%	0%	0%	0%
Option 1 Policy	15%	15%	15%	8%	4%	0%	0%	0%	0%	0%
Option 2 Policy	0%	0%	0%	50%	75%	100%	100%	100%	100%	100%
Option 3 Policy	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Table 10: Phase-in assumptions under Policy Option 3 (18-30m), 2024/25 to 2033/34

FY: Apr-Mar	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Single Stair Policy	85%	85%	85%	43%	21%	0%	0%	0%	0%	0%
Option 1 Policy	15%	15%	15%	8%	4%	0%	0%	0%	0%	0%
Option 2 Policy	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Option 3 Policy	0%	0%	0%	50%	75%	100%	100%	100%	100%	100%

Expected developer response to policy options

Expected specifications built to under each policy option

44. This impact assessment does not assume developers will choose to develop to a greater specification than the policy option being assessed, unless otherwise expected to do so under the counterfactual. For instance, a small number of buildings above 50m in height are assumed to build to the policy option 2 specification under the counterfactual and are therefore assumed to continue to build to this specification under policy option 1 and 2. The majority of new builds are therefore assumed to build to the policy option assessed.

Adjusting the building footprint

45. It is assumed that in response to the requirements under each policy option, developers will implement the most cost-effective design that meets Approved Document B.

46. The analysis also assumes that the number and size of flats within the building is optimised to market requirements under the counterfactual. This means that developers are assumed to adopt the least additional cost design, and where feasible, it is assumed that developers will seek to increase the size of the footprint of the building to adopt the policy proposals whilst retaining net internal area or saleable/lettable space. For the analysis, it is assumed that all schemes will retain their net internal area at steady state.

47. However, some building designs will not be able to expand the size of the footprint to retain net internal area or saleable/lettable space, under the transition period due to space constraints, will therefore lose net internal area. This is because the land for a building has already been purchased and the building design's footprint is maximised under the original building design. This is expected more often with lower height buildings (18-30m or 30-50m), where the building footprint maximises the amount of land purchased. In this analysis, this impacts Representative Buildings 1 and 3. Once the transition period ends, it is assumed that these new schemes will purchase additional land to retain their net internal area under the representative building's original design, and hence no net internal area or saleable floor area will be lost compared to the original building design under the Do Nothing.
48. Developers of tall towers, for instance, in this assessment, Representative Buildings 2 and 4, are more likely to maintain NIA and increase footprint during the transition period. This is because they are typically built in sites that can accommodate a small increase in footprint, and reducing NIA will have a significant impact on viability. Developers will seek to maximise the number of flats per floor within the constraints of fire safety restrictions and planning restrictions, and flat sizes will be optimised for profit. This optimisation is one reason that tall tower buildings could technically be larger in footprint, with larger flats. Reducing Net Internal Area would significantly affect the income of a developer due to the lost saleable area across multiple storeys, and is not expected to outweigh the cost of expanding the footprint of a building. Therefore, Representative Buildings 2 and 4 are expected to be able to expand the footprint of the building to accommodate each of the Policy Options regardless of the transition period to maintain their Net Internal Area, and therefore incur no loss or value loss to Net Internal Area. Historical industry experience from PRP also suggests this would be the main approach.
49. In some cases, a lift is removed from a building, and is replaced with a second staircase to optimise the usage of space in the building and retain the net internal area as far as possible. This means under some cases and policy options the costs of lift maintenance will be lower than under the counterfactual or original design of the building.

Monetised and non-monetised costs and benefits of each option (including administrative burden)

Monetised costs

50. Developers must install second staircases to the specification laid out in each of the policy options outlined above. Costs are based on the most cost-effective design to incorporate each of the policy options, based on these costs for representative buildings.
51. All costs are calculated for each representative building at their associated heights, and all costs are additional to the counterfactual from implementing either Policy Options 1, 2, 3 or 4. The costs covered are categorised into two groups, annual costs and transition/one off costs.
52. Annual costs will persist throughout the course of the policy appraisal period, and will continue to have cost implications for as long as the policy is in place. This includes additional capital and build costs to incorporate the policy, the cost of additional land, and additional lift maintenance costs once these have been installed.
53. Transition costs will only persist throughout the transition period. For instance, the transition period means that some schemes will not be subject to the policy option taken. New build schemes that fall outside of the transition period, which are already in the design phase, but have not already designed in the policy option, will need to redesign work and return to planning. This results in additional industry redesign and delay costs of being unable to sell their building at the originally intended time. Lost net internal area as a result of some buildings being unable to expand their footprint under the transition period, are also counted under transition costs, as this is not expected to persist throughout the whole policy period.
54. The split of the individual costs into each category is as follows:

Annual costs⁵

- Additional capital cost of each policy option, for buildings built within the 10 year appraisal period.
- Additional cost of purchasing land or additional Gross External Area, for buildings built within the 10 year appraisal period.
- Additional lift maintenance costs, lasting the lifetime of the building (60 years).

Transition / one-off costs

- Cost of the loss of net internal area (NIA) as a result of implementing each policy option, where buildings (RB1 & RB3) are unable to expand the footprint of the building in the transition period.
 - Redesign costs,
 - Delay costs,
 - Familiarisation costs.
55. These costs are scaled up to reflect the total number of affected buildings (except for familiarisation costs, where this is per affected person) and discounted to present value.

⁵ From the perspective of a developer or business, capital costs and cost of purchasing land or additional GEA will only be a one off cost per building. Maintenance costs will be an annual cost that will need to be paid per building. However, as the impact assessment assesses costs of the policy overall, given that buildings will be developed year on year, capital costs and the cost of purchasing land or additional GEA are captured as annual costs within this impact assessment.

Capital cost of each policy option (Annual Cost)

56. The method used to estimate the capital and build costs of each policy option in new builds was as follows:
- Design policy option into representative building 1, 2, 3, 4, accounting for whether the developer can or cannot extend the building footprint.
 - Assess cost breakdown of implementing representative building 1, 2, 3, 4.
 - Understand cost uplift of implementing the policy option, over and beyond the counterfactual.
57. The capital costs of a new staircase are dependent on the design of the single stair building. Changes to a building to accommodate a second staircase will vary across building to building, this is captured through the four representative buildings used for this analysis.
58. The total capital cost per building is below in **Table 11**. The per building costs are separated by buildings that could not expand footprint and buildings that could expand to recoup net internal area to the original the building under a single stair scenario. Therefore, the additional cost of building to a greater footprint is also captured here. The additional cost ranges significantly depending on the size and shape of the building, and the policy option, ranging from around £0.5m to £12.0m, shown in **Table 12**.
59. **Scaling these per building costs across all new buildings in the appraisal period, under the preferred option it is expected that there will be £2.4bn in capital cost, increasing to £3.7bn under Policy Option 2, and £5.2bn for Policy Option 3. This is broken down in greater detail in Table 13.**

Table 11: Capital costs of counterfactual and each policy option per representative building and by whether footprint is retained or increased.

	Height Band	RB1 - Footprint Retained (Y1-Y5)	RB1 - Footprint Increased (Y6-10)	RB2 - Footprint Increased (Y1-Y10)	RB3 - Footprint Retained (Y1-Y5)	RB3 - Footprint Increased (Y6-Y10)	RB4 - Footprint increased (Y1-Y10)
Single Staircase	18-30m	£14.0m	£14.0m		£9.4m	£9.4m	
	30-50m	£27.2m	£27.2m				£35.3m
	50m+			£88.4m			£93.7m
Policy Option 1	18-30m	£14.5m	£15.2m		£9.9m	£10.6m	
	30-50m	£28.0m	£29.2m				£36.4m
	50m+			£100.0m			£96.1m
Policy Option 2	18-30m	£14.7m	£15.7m		£10.0m	£10.7m	
	30-50m	£28.3m	£30.1m				£36.9m
	50m+			£100.1m			£97.4m
Policy Option 3	18-30m	£15.6m	£16.2m		£10.4m	£11.6m	
	30-50m	£29.7m	£30.9m				£37.4m
	50m+			£100.4m			£98.4m

Table 12: Additional capital cost of each policy option on counterfactual (per building)

	Height Band	RB1 - Footprint Retained (Y1-Y5)	RB1 - Footprint Increased (Y6-10)	RB2 - Footprint Increased (Y1-Y10)	RB3 - Footprint Retained (Y1-Y5)	RB3 - Footprint Increased (Y6-Y10)	RB4 - Footprint increased (Y1-Y10)
Policy Option 1	18-30m	£0.5m	£1.2m		£0.5m	£1.3m	
	30-50m	£0.8m	£2.0m				£1.1m
	50m+			£11.7m			£2.3m
Policy Option 2	18-30m	£0.7m	£1.7m		£0.6m	£1.3m	
	30-50m	£1.1m	£2.9m				£1.6m
	50m+			£11.7m			£3.7m
Policy Option 3	18-30m	£1.5m	£2.2m		£1.0m	£2.2m	
	30-50m	£2.5m	£3.7m				£2.1m
	50m+			£12.0m			£4.7m

Table 13: Estimated additional increase in capital costs over the single staircase option by building height, and policy option (£)

Additional PV Capital Costs	Policy Option 1	Policy Option 2	Policy Option 3
18-30m	£1,038.2m	£1,500.5m	£2,206.0m
30-50m	£549.1m	£950.5m	£1,439.7m
50m+	£837.2m	£1,214.4m	£1,522.3m
Total Additional PV Capital Cost	£2,424.6m	£3,665.3m	£5,168.0m

Value of lost Net Internal Area (NIA) (Transition Cost)

60. Net internal area is the usable area within a building measured to the internal finish of the perimeter walls at each floor level. Staircases and lift wells are excluded from net internal area, and therefore all single stair buildings will lose some usable area upon fitting in a second staircase and/or the firefighting shafts and evacuation lifts. As discussed above, some representative buildings have been considered to increase their building footprint to retain the original NIA value.

61. Only Representative Building 1 and 3 are expected to lose net internal area during the transition period (Y1 to Y5), as these developers are expected to have already maximised their building footprint on the site.

62. For Representative Buildings 1 and 3, **Table 14** breaks down the estimated lost NIA and its associated value, measured at £7,500⁶ per m². This gives a range of around £600k to £2.1m in costs per building, depending on the size and shape of the build.

63. **Under the preferred option, it is expected that there will be £170m in lost value, with this increasing to £199m under Policy Option 2, and £367m for Policy Option 3. The totals are broken down in greater detail in Table 15.**

⁶ This estimate is a weighted average value of schemes in scope, based on relevant comparables and market knowledge from Quod. This is based on the estimated value of net internal area per sqm in 7 storey+ schemes across three height bandings (7-10 storey, 11-30 storey, and 31+ storey) and three locations in England (London, Birmingham and Leeds).

Table 14: Estimated lost Net Internal Area in m² per building and value of lost Net Internal Area per building (£), by representative building, height, and policy option. (Years 1 to 5)

		Lost Net Internal Area (m ² per building)		Value of lost Net Internal Area (£7500 per m ²)	
		RB1	RB3	RB1	RB3
18-30m	Policy Option 1	77.8	91.0	£583,500	£682,500
	Policy Option 2	91.8	91.0	£688,500	£682,500
	Policy Option 3	151.8	152.0	£1,138,500	£1,140,000
30-50m	Policy Option 1	153.4		£1,150,500	
	Policy Option 2	167.4		£1,255,500	
	Policy Option 3	276.4		£2,073,000	

Table 15: Estimated additional increase in Lost Net Internal Area costs over the single staircase option by building height, and policy option (£).

PV Cost of Lost Net Internal Area	Policy Option 1	Policy Option 2	Policy Option 3
18-30m	£115.0m	£135.7m	£237.9m
30-50m	£55.3m	£63.7m	£129.2m
50m+	£0.0m	£0.0m	£0.0m
Total PV of Lost Net Internal Area	£170.4m	£199.4m	£367.2m

Land cost of increasing building footprint (Gross External Area) to recoup lost NIA (Annual Cost)

64. In order to return the level of net internal area to the same as the original single staircase design of a building, it is assumed that once buildings have fully transitioned towards the policy options or the transition period has ended, that they would increase their Gross External Area (GEA). The increase in GEA required depends on the representative building where the policy options are being implemented, whereas the cost of the build depends on the height of the building. The additional construction or build cost is already captured within the capital costs, however the additional cost of land is captured here.

65. All Representative Buildings required an increase to their total Gross External Area except for Representative Building 4. Three of the four Representative Buildings required an increase in GEA on the ground floor (their footprint), in order to increase the Gross External Area of the upper floors. Representative Building 4 does not require the ground floor to change in overall size, because under the original design, the ground floor has a greater floor area than the upper floors.

66. Based on average land values, the cost of purchasing land to expand the footprint per m² is estimated at £500 for an 18-30m building, £600 per 30m-50m building, and £1,250 for a 50m+ building. The increase in GEA in m² and the respective cost per building is provided for each Representative Building in **Table 16** below.

67. Under the preferred option and Policy Option 2, it is expected that there will be around £7m in increased land costs, and £12.1m for Policy Option 3. This is broken down by height band in **Table 17**.

Table 16: Estimated increase in Ground Floor Gross External Area per building (m²) and land cost per building (£), by representative building, height, and policy option.

		Increase to Gross External Area (m ² per building)				Land cost of increase to Gross External Area (£)			
		RB1	RB2	RB3	RB4	RB1	RB2	RB3	RB4
18-30m	Policy Option 1	11.9	13.1	12.1	0.0	£5,940	£6,545	£6,050	£0
	Policy Option 2	11.9	13.1	12.1	0.0	£5,940	£6,545	£6,050	£0
	Policy Option 3	19.6	13.1	22.0	0.0	£9,790	£6,545	£11,000	£0
30-50m	Policy Option 1	11.9	13.1	12.1	0.0	£7,128	£7,854	£7,260	£0
	Policy Option 2	11.9	13.1	12.1	0.0	£7,128	£7,854	£7,260	£0
	Policy Option 3	19.6	13.1	22.0	0.0	£11,748	£7,854	£13,200	£0
50m+	Policy Option 1	11.9	13.1	12.1	0.0	£14,850	£16,363	£15,125	£0
	Policy Option 2	11.9	13.1	12.1	0.0	£14,850	£16,363	£15,125	£0
	Policy Option 3	19.6	13.1	22.0	0.0	£24,475	£16,363	£27,500	£0

Table 17: Estimated additional increase in land costs over the single staircase option (£) by building height band, and policy option.

Additional PV Cost of increase to Gross External Area	Policy Option 1	Policy Option 2	Policy Option 3
18-30m	£4.7m	£4.7m	£8.5m
30-50m	£1.4m	£1.4m	£2.9m
50m+	£0.7m	£0.7m	£0.7m
Total PV Cost of Additional Gross External Area	£6.8m	£6.8m	£12.1m

Maintenance Costs (Annual Cost)

68. It is expected that building owners will need to perform checks and maintenance to ensure the safety of the staircase and lift shafts required under the policy options across the lifetime of the building.

69. Maintenance costs are expected to differ by the size of the building or number of lifts and the type of lift required. In some cases, for instance Representative Building 4, a lift was removed from the design assumed under the Do Nothing. This means there are cost savings to maintenance costs from the counterfactual to some of the policy options under this building.

70. Buildings within London are mandated to have an evacuation lift under the London Plan. This does not apply outside of London, and therefore the assumption is that buildings outside of London will only utilise a standard or fast lift in Policy Option 1, outside of any mandated firefighting lifts.

71. The annual maintenance costs per lift increase with the height of the building to account for different capacities these lifts can take, and the capability of each lift (standard, fast, firefighting or evacuation).

- Standard Lift: £2,000 to £3,000
- Fast Lift: £3,000 to £4,000
- Evacuation Lift: £4,000 to £5,000
- Firefighting Lift: £4,000 to £5,000

These estimates are broken down further in building height band in **Table 18**.

72. The expected cost per building is assumed to vary from £8,000 to £20,000 in London, and £6,000 to £20,000 outside of London, depending on the policy option. This is broken down in greater detail in **Table 20**.

Table 18: Annual maintenance cost per lift, by building height & lift type

	Standard Lift	Fast Lift	Evacuation Lift	Fire Fighting Lift
18-30m	£2,000	£3,000	£4,000	£4,000
30-50m	£2,500	£3,500	£4,500	£4,500
50m+	£3,000	£4,000	£5,000	£5,000

Table 19: Annual maintenance cost per building, by building height & representative building (London)

	18-30m		30-50m		50m+	
	RB1	RB3	RB1	RB4	RB2	RB4
Single Staircase	£8,000	£8,000	£9,000	£14,000	£16,000	£16,000
Policy Option 1	£8,000	£8,000	£9,000	£13,500	£18,000	£15,000
Policy Option 2	£8,000	£8,000	£9,000	£13,500	£18,000	£15,000
Policy Option 3	£16,000	£16,000	£18,000	£18,000	£20,000	£20,000

Table 20: Annual maintenance cost per building, by building height & representative building (Rest of England)

	18-30m		30-50m		50m+	
	RB1	RB3	RB1	RB4	RB2	RB4
Single Staircase	£6,000	£6,000	£7,000	£12,000	£14,000	£14,000
Policy Option 1	£6,000	£6,000	£7,000	£11,500	£14,000	£13,000
Policy Option 2	£8,000	£8,000	£9,000	£12,500	£16,000	£14,000
Policy Option 3	£16,000	£16,000	£18,000	£18,000	£20,000	£20,000

73. Under the preferred option, it is expected that there will be a reduction in maintenance costs of around -£4.2m across the appraisal period. This increases to £40m under Policy Option 2 and £451.9m under Policy Option 3. This is broken down by height band in Table 21 below.

Table 21: Estimated additional increase in maintenance costs over a single staircase building by building height, and policy option.

Additional PV Maintenance costs	Policy Option 1	Policy Option 2	Policy Option 3
18-30m	£0.0m	£30.7m	£277.5m
30-50m	-£1.4m	£8.1m	£128.2m
50m+	-£2.8m	£0.8m	£46.2m
Total Additional PV Maintenance costs	-£4.2m	£39.6m	£451.9m

Familiarisation Costs (Transition Cost)

74. With the proposed changes to Building Regulations and Approved Document B, each profession will need to familiarise with the requirements to implement a second staircase. This has been costed for a range of professions. The amount of time spent familiarising and proportion of professions familiar with 2nd stairs and working on high rise buildings is based on assumptions based on industry experience from Adroit and PRP. See **Table 22**, **Table 23**.

75. In total familiarisation cost is expected to cost £27.8m. This is broken down by profession in Table 24.

Table 22: Number of employees requiring familiarisation by profession

Profession ⁷	Number in employment	Proportion assumed to require further knowledge on and work on 2nd staircases	Workforce working on buildings
Developers	105,000	5%	5,250
Principal Contractors	259,000	10%	25,900
Architects	77,000	20%	15,400
Planners and Building Control	11,000	20%	2,200
Design Engineers	52,000	5%	2,600
MEP Consultants (Mechanical, Electrical and Plumbing)	6,500	5%	325
Fire Consultants/Specialists	6,500	50%	3,250

Table 23: Familiarisation cost per person

Profession	Familiarisation time (hours)	Cost per hour	Cost per person
Developers	15	20.29	£388
Principal Contractors	22.5	17.59	£504
Architects	22.5	21.13	£606
Planners and Building Control	7.5	17.29	£165
Design Engineers	7.5	24.67	£236
MEP Consultants (Mechanical, Electrical and Plumbing)	7.5	24.67	£236
Fire Consultants/Specialists	22.5	24.67	£707

⁷ Wages are based on the 2022 January to December ASHE data, this has been scaled up with wage inflation and uplifted for other costs of labour at 18.23%, based on ONS (2022), Index of Labour Costs per hour. Number of businesses based on Adroit Consortium assumptions using NOMIS (2023), UK Business Counts, and NOMIS (2023), Business Register and Employment Survey. SOC/SIC codes used are: Developers: SOC1122/SIC41100, Principal Contractors: SOC 2455/SIC 41202, Architects: SOC 2451/SIC 71111, Planners and Building Control: SOC 2452/SIC 71112, Design Engineers, MEP Consultants, Fire Consultants/Specialists: SOC 2123 / SIC 71122, split by 80%, 10%, 10% respectively, based on Adroit Consortium assumptions.

Table 24: Total cost of familiarisation

Profession	Number requiring familiarisation	Familiarisation cost per person	Total Familiarisation cost by profession
Developers	105,000	£388	£2,040,000
Principal Contractors	259,000	£504	£13,060,000
Architects	77,000	£606	£9,330,000
Planners and Building Control	11,000	£165	£360,000
Design Engineers	52,000	£236	£610,000
MEP Consultants (Mechanical, Electrical and Plumbing)	6,500	£236	£80,000
Fire Consultants/Specialists	6,500	£707	£2,300,000
		Total PV Cost	£27,780,000

Redesign costs (transition costs)

76. The principal transition cost derives from those buildings that already have planning permission but have not yet submitted for building regulations approval. This means that all buildings with planning permission but that do not yet have building regulations approval, will have to revisit the design to include a second stair and then submit for an amendment to planning permission (for example via a Section 73 application). This will give rise to redesign costs. It is assumed that the majority of schemes facing redesign or delay will be before their scheme has been fixed. More buildings are expected to require redesign under Policy Options 2 and 3 due to the greater requirements, which is also reflected under the counterfactual assumptions. Under the preferred option, around 331 schemes will require redesign, increasing to 452 under Policy Option 2, and 485 under Policy Option 3. See **Table 25** for a breakdown by height band.

77. Redesign costs per building have been estimated based on the consultants' experience of how long the redesign process will take for a typical building, which professions will be involved and how much time will be required from each. The hours involved have then been costed using hour rates.

78. It is estimated that the redesign process will take around 16 – 47 weeks, with the central scenario being 34 weeks. This includes redesigning, the planning period, and redrafting legalities. This accumulates to around 398 hours, with a low estimate of 273 hours, and a high estimate of around 700 hours. Based on a blended hourly rate of around £61-£90/hour depending on the profession⁸, the typical wage cost per building is expected to be around £20,000 to £54,000, with a central estimate of £31,000.

⁸ The blended wage is a mix of call out hourly rates based on industry assumptions and typical salaried wages from ASHE data. Professions include Architects, Civil Engineers, Mechanical or Electrical Engineers, Fire Engineers, Planners, Fire Officers, Quantity Surveyors, Environmental professionals, Managers and Directors in Construction.

Table 25: Number of building planning permissions by building height expected to need redesigns

Number of schemes needing to redesign	PO1	PO2	PO3
18-30m	212	250	280
30-50m	74	123	123
50m+	45	80	81
Total, by policy option	331	452	485

79. The total cost of a redesign is calculated by multiplying the redesign cost per building by the number of schemes requiring redesign. **The total redesign costs are therefore expected to be around £10.2m under the preferred option 1, increasing to £13.9m under Policy Option 2, and £14.9m under Policy Option 3.** This is broken down by height band in **Table 26**.

Table 26: Total redesign costs by building height band, 2023 prices

Redesign cost by policy option	PO1	PO2	PO3
18-30m	£6.5m	£7.7m	£8.6m
30-50m	£2.3m	£3.8m	£3.8m
50m+	£1.4m	£2.4m	£2.5m
Total PV redesign cost	£10.2m	£13.9m	£14.9m

Delay Costs (Transition Cost)

80. As a result of needing to redesign buildings, there will be additional before a building reaches completion and is ready for occupation. This cost represents the delay and is based on the cost of the developer's capital to fund the works for the extended period. The number of buildings affected is expected to be the same as those requiring redesigns, covered in **Table 25** above. This could cost around £400 per month per flat⁹. This means that depending on the building height, the cost could vary from £19,000 to £130,000.

81. **In total, it is expected that under the preferred option 1, the present value delay cost is around £44m. This increases to £68m under option 2 and £71m in option 3. This is broken down by height band in Table 28.**

Table 27: Delay cost per month per building

Cost of Delay Per Month Per Flat	£400	
Delay cost per building	Number of flats	Delay cost per month per building
18-30m	49	£19,460
30-50m	113	£45,369
50m+	324	£129,600

Table 28: Total delay cost across the appraisal period, by policy option.

Delay cost by policy option	PO1	PO2	PO3
18-30m	£13.5m	£15.9m	£17.9m
30-50m	£11.0m	£18.3m	£18.3m
50m+	£19.1m	£33.8m	£34.6m
Total PV delay cost	£43.6m	£68.0m	£70.7m

⁹ Based on Quod estimate of cost of delay per flat at £100 per week, based on an estimation of the cost to purchase land and typical planning costs (fees, application and management).

Non-monetised costs

82. Some annual costs have not been monetised under this cost benefit assessment. These include:

- Lost amenity space
 - o Expanding the footprint of the building may mean that space used otherwise for amenities such as gardens is lost. This reduces the visual appeal of the surrounding area of the building. This cost has not been monetised.
- Energy costs
 - o Energy costs have not been monetised due to similarities in costs between a communal space and a second staircase. Energy costs will arise from sufficient lighting for the second staircase, this is not expected to be significantly different to lighting a communal area.
 - o It is also assumed that the energy costs of a lift do not differ significantly when upgrading from a standard/fast lift to an evacuation or firefighting lift.
 - o Therefore, it was considered disproportionate to measure the cost of energy.

Monetised benefits

83. There is currently limited evidence on the benefits of a second staircase for reducing the likelihood of injuries or fatalities. The analysis below utilises the limited evidence available to where possible estimate and monetise the benefits.

84. We have been unable to establish a meaningful and accurate way to distinguish between the monetised benefits of the policy options. Therefore, this Impact Assessment does not contain different monetised benefits of each policy option. This approach was taken after testing alternative approaches to differentiating between the policy options, with the alternative approaches lacking robustness and accuracy. The differences in the benefits each option provides is set out qualitatively in a non-monetised benefits section below.

85. The principal monetised benefits that are expected to derive from implementation of second stairs policy proposals are avoided fatalities and injuries to residents (and visitors), through more effective and safer evacuation from building fires and/or buildings suffering through structural incident.

Methodological approach

86. To estimate the potential benefits of the second stairs policy proposals, the following steps were completed. Firstly, a typology of 'incident types' (major and catastrophic) has been developed, representing examples of the types of incidents that may occur in 18m+ residential buildings that require occupants to evacuate. For major incidents, the number of fatalities and injuries has been estimated for both the counterfactual (single stair scenario) and the inclusion of a second stair. The impact of the second stairs policy is the difference between the single stair and second stair scenarios. For catastrophic incidents, only the fatalities and injuries that might be avoided by the inclusion of a second stair have been estimated.

87. The likelihood of these incident types is then estimated for buildings in scope, generating a total number of expected incidents over the appraisal period. The final number of avoided fatalities and injuries is calculated by multiplying the number of incidents by the number of avoided fatalities and injuries as a result of more effective and safer evacuation from the policy.

88. Further, separate analysis was completed on slips, trips and falls during evacuations. The limited existing data on non-fatal injuries during fires is related to different evacuation scenarios in 18m+ buildings. An estimate of how many injuries might occur each year is

generated, and then a proportion of these are assumed to be avoided by the inclusion of a second stair.

Major incident

89. The major incident reflects a scenario where fire spreads beyond the place of origin (the residence or communal area) and is not controlled. This results in wide scale smoke spread including in the primary stair, such that residents become trapped and can suffer serious smoke inhalation, which without breathing apparatus/smoke hoods, can be fatal. Such an incident is likely to be very rare.
90. The analysis estimates the number of people who become trapped during this type of incident in both single stair and two stair scenarios. The number of trapped individuals is from analysis conducted by OFR consultants, that utilises information on escape time for residents of tall buildings against fire and smoke spread, analysing how stair width, number of stairs and building height impacts evacuation time. The analysis finds that fewer people become trapped in the second stair scenarios when compared to the single stair scenario in the 18-30m and 30-50m ranges. The analysis uses buildings of different heights as a reference building for each category, with the building analysed for the 50m+ bracket being 140m tall. It suggests that as buildings get taller the number of trapped individuals increases markedly. In the case of the 140m tall building, having two stairs produces one third the number of trapped residents compared to a single stair building. A decrease in evacuation time may result in fewer people becoming trapped in the case of a major incident (and therefore fewer fatalities and injuries) and may enable more people to evacuate before the building becomes inescapable.
91. Following on from the number of trapped residents, 'What-if' assumptions are used to estimate the number of trapped people that become casualties, and from that the number of fatalities, major injuries, and minor injuries. These assumptions are estimated for both the one and two stair scenarios. The analysis assumes 10% of the trapped residents become casualties. Of that 10%, it is assumed that 70% suffer minor injuries, 20% major injuries and 10% are fatalities (central scenario). **Table 29** below presents the what-if assumptions for the low, central and high scenario. The fatalities and type of injuries in this incident are unspecified, and could include smoke inhalation, varying degrees of burns and so on. The residual in each case (the difference between the figures for the one stair scenario and the two stairs scenario) is the estimate of benefits, as it provides the estimated number of reduced casualties and injuries from the inclusion of a second stair.

Table 29: 'What-if' fatality and injury assumptions (major incident)

	Low	Central	High
Number of people trapped that become casualties	5%	10%	15%
<i>Of these, assumed proportion that are:</i>			
Fatalities	5%	10%	15%
Major Injuries	15%	20%	25%
Minor Injuries	80%	70%	60%

92. **Table 30** through **Table 32** present estimates of the average number of trapped people, fatalities and injuries that are avoided via the introduction of a second staircase. The figures

are presented for the central scenario first (with the low and high scenarios following) and across 3 building height bands.

Table 30: Number of avoided fatalities / injuries per building (individual incident) – major incident – central scenario

	No. residents that avoid becoming trapped	Avoided fatalities	Avoided major injuries	Avoided minor injuries
18-30m	0.4	0.004	0.011	0.025
30-50m	0.4	0.006	0.016	0.038
50m+	1083 ¹⁰	10.83	29.23	68.20

Table 31: Number of avoided fatalities / injuries per building (individual incident) – major incident – low scenario

	No. residents that avoid becoming trapped	Avoided fatalities	Avoided major injuries	Avoided minor injuries
18-30m	0	-	-	-
30-50m	0	-	-	-
50m+	12.9	0.032	0.123	0.490

Table 32: Number of avoided fatalities / injuries per building (individual incident) – major incident – high scenario

	No. residents that avoid becoming trapped	Avoided fatalities	Avoided major injuries	Avoided minor injuries
18-30m	2.8	0.063	0.143	0.214
30-50m	4.8	0.108	0.245	0.367
50m+	2085.8	46.93	106.38	159.56

93. The values for fatalities, major and minor injuries are based on Department for Transport (DfT) transport analysis guidance (TAG) (2023 prices, values). These are estimated at:

- Fatality: £2.5m
- Major Injury: £275,000
- Minor Injury: £21,000

94. **Table 33** through **Table 35** below present the monetised value of fatalities and injuries avoided across all three scenarios (based on the TAG figures), rounded to the nearest thousand¹¹.

¹⁰ The substantial jump in residents that avoid becoming trapped is down to the number of residents becoming trapped due to fire in the first place being considerably higher in 50m+ buildings compared to the 30-50m bracket. The estimated evacuation time in buildings in the 50m+ bracket is slower than smoke and fire spread. Further details can be found in the OFR report.

¹¹ With the exception of values <£1,000 and values >£1,000,000

Table 33: Estimated value of avoided fatalities/injuries per building – major incident – central scenario (2023 prices, undiscounted)

	Estimated value of avoided fatalities	Estimated value of avoided major injuries	Estimated value of avoided minor injuries	Total avoided fatality-injury value per incident
18-30m	£10,000	£3,000	£500	£13,000
30-50m	£15,000	£4,000	£800	£20,000
50m+	£26.8m	£8m	£1.4m	£36.3m

Figures are calculated by multiplying TAG values by the number of relevant incidents in **Table 30**.

Table 34: Estimated value of avoided fatalities/injuries per building – major incident – low scenario (2023 prices, undiscounted)

	Estimated value of avoided fatalities	Estimated value of avoided major injuries	Estimated value of avoided minor injuries	Total avoided fatality-injury value per incident
18-30m	£0	£0	£0	£0
30-50m	£0	£0	£0	£0
50m+	£80,000	£34,000	£10,000	£124,000

Table 35: Estimated value of avoided fatalities/injuries per building – major incident – high scenario (2023 prices, undiscounted)

	Estimated value of avoided fatalities	Estimated value of avoided major injuries	Estimated value of avoided minor injuries	Total avoided fatality-injury value per incident
18-30m	£156,000	£39,000	£5,000	£200,000
30-50m	£267,000	£67,000	£8,000	£342,000
50m+	£116.1m	£29.3m	£3.4m	£148.8m

95. Estimating the probability of a major incident is particularly challenging given the fact that there are no incidents in practice that are appropriately comparable. When the Fire and Rescue Services (FRS) responds to fires in 18m+ buildings, they either instruct the majority of the residents to 'stay put' (not to leave their residence) or they assist with evacuation. When assisting residents with evacuation, they either evacuate residents to floors below the location of the fire, or out of the building completely. FRS responses to these fires are effective to the point that mass evacuation via the stairwell is an extremely rare occurrence (they will only need to evacuate some residents, or will instruct residents to stay put). In these instances, the FRS has been able to evacuate everyone via a single stairwell.

96. **Table 36** below presents Home Office data¹² on evacuations of fires in buildings of 4 storeys or more. There has only been one instance in the 13-year period 2010-2022 where more than 250 people needed to be evacuated, and 3 instances where between 101 and 250 people needed to be evacuated.

Table 36: Number of people evacuated from fires in buildings 4 storeys or more, 2010 – 2022 (Home Office)

¹² Fire statistics incident level datasets - <https://www.gov.uk/government/statistics/fire-statistics-incident-level-datasets#full-publication-update-history>

	Number of people evacuated in a single instance						
	0	Up to 5	6 to 20	21 to 50	51 to 100	101 to 250	251 to 1,000
Instances	33,762	1,697	186	35	5	3	1
%	94.6%	4.8%	0.5%	0.1%	0.01%	0.01%	0.003%

97. Fire statistics from the Home Office indicated an average of 2 buildings a year experience a fire where the fire spread¹³ affects the whole building. This frequency forms the basis of major incident likelihood in the analysis. Incidents where the fire spread impacts the entire building is not a direct comparator to what we are classing as major events for this analysis, however given the limitation that there are no current events that would match the description of major incident (requiring everyone to evacuate and the stairwell becomes impassable due to smoke spread), whole building fires come the closest to estimating a similar event.

98. Two 18m+ buildings per year experiencing a whole building fire is a 1 in 6,750 probability per building (per year) for the current stock. This number is then adjusted to 1 in 50,000 in the central scenario (low scenario – 25,000, high scenario – 100,000) to reflect that the policy only impacts new buildings, which are much less likely to have a whole building fire compared to older buildings due to current buildings regulations being designed to prevent these instances (sprinklers, no flammable cladding, fire doors, compartmentation etc.). The addition of the improved Building Control process as part of the 2022 Building Safety Act should improve fire safety in new buildings even further. Not only will buildings be built with a much greater consideration of safety, but the Building Safety Regulator will also have oversight and input throughout both the build process and management of the building. This oversight will mean that any potential safety issues are much more likely to be caught before they develop, further reducing the likelihood of major events occurring. We have modelled these likelihood assumptions as best estimates, and have provided switching analysis below to further explore changes to the likelihood.

99. **Table 37** below presents the estimated value of benefits for major incidents, including low and high estimates for incident likelihood. These assumptions are best estimates and are based on limited data.

Table 37: Expected value of avoided injuries across 70-year period by likelihood – major incident - 2023 prices

Likelihood of major incident (per building per year)	Expected Total Present Value
Low (1 in 100,000)	£11,000
Central (1 in 50,000)	£6.7m
High (1 in 25,000)	£55.2m

Note that the 1 in 50,000 likelihood of a major incident is based on limited evidence and is a broad assumption. The total value is based on a 70 year appraisal period.

¹³ Spread of fire is defined as the extent of flame and heat damage only at the fire's stop. This does not include smoke or other damage (such as water damage).

Catastrophic incident

100. The catastrophic incident reflects a scenario where fire and/or structural damage rapidly spreads through a significant portion of the building, requiring large scale evacuation, with the primary stair compromised or seriously damaged such that it cannot be used for evacuation. This can potentially result in a significant number of fatalities and injuries from the fire, smoke and structural issues as people become trapped. Such an incident is likely to be extremely rare, especially given the higher standards new buildings will be built to.

101. The approach taken for catastrophic incidents is slightly different to the one taken for major incidents. There is a higher level of uncertainty with catastrophic incidents, and the approach taken does not have a basis in the OFR report (like the major incident approach did). The catastrophic incident analysis starts with estimates for the average number of residents in 18m+ buildings, split into three height bands. ‘What if’ assumptions are then used to estimate the number of fatalities, major injuries and minor injuries that could be avoided in a catastrophic incident due to the inclusion of second stairwell. In the central scenario, we assume a rate of 5% avoided fatality, 20% minor injuries, 15% major injuries (these are judgement-based estimates). The fatalities and type of injuries in this incident are unspecified, and could include smoke inhalation, varying degrees of burns and so on. **Table 38**, through **Table 41** below presents the what-if assumptions for avoided fatalities and injuries.

Table 38: ‘What-if’ fatality and injury assumptions (catastrophic incident)

Number of residents in the building	Low	Central	High
18-30m	92		
30-50m	216		
50m+	616		
<i>Of these, assumed proportion that are:</i>			
Avoided Fatalities	3%	5%	8%
Avoided Major Injuries	8%	15%	23%
Avoided Minor Injuries	10%	20%	30%

Table 39: Number of avoided fatalities / injuries per building – catastrophic incident - central scenario

	No. residents in building	Avoided fatalities	Avoided major injuries	Avoided minor injuries
18-30m	92	4.62	13.87	18.49
30-50m	216	10.78	32.33	43.10
50m+	616	30.78	92.34	123.12

Table 40: Number of avoided fatalities / injuries per building – catastrophic incident – low scenario

	No. residents in building	Avoided fatalities	Avoided major injuries	Avoided minor injuries
18-30m	92	2.31	6.93	9.24
30-50m	216	5.39	16.16	21.55
50m+	616	15.39	46.17	61.56

Table 41: Number of avoided fatalities / injuries per building – catastrophic incident – high scenario

	No. residents in building	Avoided fatalities	Avoided major injuries	Avoided minor injuries
18-30m	92	6.93	20.80	27.73
30-50m	216	16.16	48.49	64.65
50m+	616	46.17	138.51	184.68

102. The values for fatalities, major and minor injuries are based on DfT TAG. **Table 42** through **Table 44** below present the monetised value of fatalities and injuries avoided across all three scenarios.

Table 42: Estimated value of avoided fatalities/injuries per building – catastrophic incident – central scenario (2023 prices, undiscounted)

	Estimated value of avoided fatalities	Estimated value of avoided major injuries	Estimated value of avoided minor injuries	Total avoided fatality-injury value per incident
18-30m	£11.4m	£3.8m	£391,000	£15.6m
30-50m	£26.7m	£8.9m	£912,000	£36.5m
50m+	£76.1m	£25.4m	£2.6m	£104.2m

Table 43: Estimated value of avoided fatalities/injuries per building – catastrophic incident – low scenario (2023 prices, undiscounted)

	Estimated value of avoided fatalities	Estimated value of avoided major injuries	Estimated value of avoided minor injuries	Total avoided fatality-injury value per incident
18-30m	£5.7m	£1.9m	£196,000	£7.8m
30-50m	£13.3m	£4.5m	£456,000	£18.2m
50m+	£38.1m	£12.7m	£1.3m	£52.1m

Table 44: Estimated value of avoided fatalities/injuries per building – catastrophic incident – high scenario (2023 prices, undiscounted)

	Estimated value of avoided fatalities	Estimated value of avoided major injuries	Estimated value of avoided minor injuries	Total avoided fatality-injury value per incident
18-30m	£17.1m	£5.7m	£587,000	£23.5m
30-50m	£40.0m	£13.4m	£1.4m	£54.7m
50m+	£114.2m	£38.1m	£3.9m	£156.3m

103. As noted above, catastrophic events are extremely rare. Major incident likelihood (1 in 50,000 chance per building per year) is used as a starting point for estimating catastrophic incident likelihood. Catastrophic incidents are far less likely to happen than major incidents. In the central case we estimate for a given building each year, a roughly 1 in 1,000,000 chance per year (low scenario – 2,000,000, high scenario – 200,000) of a catastrophic event. These figures were primarily informed by the likelihood of fire incident (see section on major incidents); however consideration was given to structural collapse when estimating the frequency of catastrophic incidents. It is important to note that new buildings (those that will be in-scope of the policy) will be built with a much greater consideration of safety, and the Building Safety Regulator will also have oversight and input throughout both the build process and management of the building. This oversight will mean that any potential safety issues are much more likely to be caught before they develop, further reducing the likelihood of major events occurring. We have modelled these likelihood assumptions as best estimates, but they are highly uncertain, so we have completed switching analysis below to further explore the impact of changes to the likelihood.

104. **Table 45** below presents the estimated value of benefits for catastrophic incidents, including low and high estimates for incident likelihood. These assumptions are best estimates and are based on limited data.

Table 45: Expected value of avoided injuries across 70-year period by likelihood – catastrophic incident - 2023 prices

Likelihood of major incident (per building per year)	Expected Total Present Value
Low (1 in 2,000,000)	£565,000
Central (1 in 1,000,000)	£2.3m
High (1 in 200,000)	£17.0m
Note that the 1 in 1,000,000 likelihood of a major incident is based on limited evidence and is a broad assumption. The total value is based on a 70 year appraisal period.	

Trips, falls and other injuries sustained during voluntary evacuations

105. During some instances of fire, residents of a building may choose to voluntarily evacuate when they are made aware of the fire (through a fire alarm or similar). In some cases, voluntary evacuation is unnecessary, and potential injuries can occur as a result of voluntary self-evacuation during a building fire. This part of the analysis captures instances where a second staircase could help avoid accidental injuries whereby residents self-evacuating could use an alternative staircase for evacuation to the one used for fire-fighting.

106. There exists no meaningful data on the incidence of slips, trips and falls during evacuations of high-rise residential buildings. The limited available general data on non-fatal injuries from fires was related to different evacuation scenarios in tall buildings. The analysis estimates there are 38 injuries per annum across the entire building stock (12,500¹⁴). This results in 0.003 casualties per building per year. This figure is then weighted based on building height (more floors mean more flights of stairs to potentially get injured on).
107. The casualty per building estimates are then combined with the estimates on number of new builds for each building height band to estimate the total number of casualties in a given year. It is assumed that none of these casualties resulted in fatalities, and that 90% of them were minor and 10% major injuries. These figures are monetised using DfT TAG.
108. We assume a proportion of the injuries have been avoided due to the inclusion of a second staircase. This figure is 20% of injuries avoided in policy option one. With no data upon which to base the assumptions, this percentage is a judgement-based estimate. The total expected present values are presented in **Table 46** below.

Table 46: Expected value of avoided trips and falls across 70-year period – central scenario (2023 prices)

	Expected Total Present Value
Minor injuries	£2,700
Major injuries	£203,000
Total	£205,000

Non-monetised benefits

Non-monetised benefits which apply to all options

109. We have been unable to establish a meaningful and accurate way to distinguish between the quantified impacts of the policy options. Therefore, this Impact Assessment does not contain different monetised benefits of each policy option. The following sections provide a qualitative discussion of the difference between the benefits of each policy option.
110. The likelihood and magnitude of the non-monetised benefits discussed below are uncertain. In practice a number of factors will influence whether these benefits are realised or not on a building-by-building basis, with height of the building being a substantial factor.
111. The monetised benefits of policy option one are shared across all of the options (as all options include a second staircase).
112. A second stairwell can improve the effectiveness and/or flexibility of fire and rescue services in the event of a fire. Firefighters can benefit from the choice of stairwell to use on initial attendance, allowing them to opt for the most appropriate stair when considering active firefighting, evacuation and rescue. Multiple stairways can also provide the potential to use a second line of fire attack by utilising both stairways in the event of changing fire conditions. Therefore, a second stairwell could aid active firefighting, evacuation and rescue. This may

¹⁴ DLUHC (2023), Building Safety Programme: monthly data release – September 2023. The total number of high-rise residential multi-occupied buildings of 18 metres or more in height, or at least seven storeys (whichever is reached first) in England is estimated as of April 2020 to be 12,500

result in an increase in lives saved and avoided injuries and reduced property damage from fire spread.

113. The inclusion of a second stairwell may mean that some residents in the building feel safer. There are potential wellbeing benefits from the feeling of safety that some residents may experience from having multiple escape routes. An improved feeling of safety can reduce the level of anxiety of residents and improve their happiness and health. This should result in improved productivity and reduced load on health care services.
114. Major and Catastrophic incidents can have very significant negative impacts on the mental health of those within the surrounding area of the affected building, those close to victims of the incident such as relatives and friends. These mental health impacts are not captured within the value of avoided fatalities or injuries as a result of these incidents. Reducing the impact of these incidents through improved egress would therefore also reduce the negative impact on wellbeing and the associated disbenefits.
115. Major and Catastrophic incidents also have significant broader economic impacts such as the mental health costs across society for those that might consider themselves similarly at risk and adverse market impacts in the insurance and housing sectors. Taken together, these effects can have a significant and disproportionate adverse impact on a large number of people. None of these impacts have been monetised in this assessment but have been considered in the broader policy rationale. The second staircase intervention is part of an ongoing broader set of measures which, taken together, seek to reduce both the likelihood and impact of this sort of event.

Additional non-monetised benefits under Policy Option 2

116. Policy option 2 may result in additional benefits over policy option 1 from the inclusion of an evacuation lift. An additional evacuation lift will allow residents that are unable to independently use the stairs an alternative means of escape. This could result in avoided fatalities and injuries, as those residents unable to independently use the stairs now have an alternative evacuation route. We are unable to quantify the difference in fatalities and injuries avoided due to the inclusion of the evacuation lift, or specify the likelihood of whether these benefits would be realised, so they have not been monetised.
117. An additional lift will also allow all residents of the building an alternative route of evacuation. The additional lift could potentially cut evacuation time through both usage of the lift itself and less crowding on the stairs. A decrease in evacuation time may result in less people becoming trapped in the case of a major incident (and therefore fewer fatalities and injuries) and may enable more people to evacuate before the building becomes inescapable in the case of a catastrophic incident.
118. If more residents (for instance, people with limited mobility) can effectively escape via an evacuation lift, this could potentially reduce the number of people Fire and Rescue Services (FRS) need to assist out of the building during the rescue phase of firefighting operations. This could result in more lives saved (and avoided fatalities and casualties) and allow for an increased amount of time to focus on residents that are immobile and need FRS assistance to evacuate. Furthermore, increased time to respond to the fire, instead of supporting rescue operations, for the FRS may result in more effective fire-fighting, meaning greater benefits from avoided property damage.
119. Having an evacuation lift means that an associated lobby for that lift is required. These lobbies reduce the risk of smoke ingress into the stairways. This can result in slower smoke spread to the stairway, which in turn gives residents longer to escape before the stairway

becomes impassable due to smoke. Considering the major incident in the monetised benefits section above, increased evacuation time due to slower smoke spread into a stairway would mean that fewer people become trapped, which may result in fewer fatalities and injuries.

120. An evacuation lift may also result in wellbeing improvements to residents who are less abled. They may feel safer in a building with an evacuation lift as opposed to a building with just a second staircase. These wellbeing benefits may spill over on to carers or family and friends, who may have improved wellbeing from knowing there is an evacuation lift available for less abled residents, as well as potentially reduced dependency in case of evacuation.

Additional non-monetised benefits under Policy Option 3

121. Policy option 3 may result in additional benefits over policy option 2 from the inclusion of a second firefighting shaft. An additional lift may provide an alternative route to approach the fire, which may allow the FRS to tackle it more effectively. More effective firefighting may result in less fatalities and injuries and reduced property damage.

122. Similarly, a second firefighting shaft will add redundancy in the event that the primary shaft is unavailable (if it is undergoing maintenance, for example). This redundancy may allow (in specific situations) the FRS to tackle a fire more effectively. Again, more effective firefighting may result in less fatalities and injuries and reduced property damage.

Net costs to society

123. **Overall, the preferred policy option 1 is estimated to provide a total net present cost of £2.7bn to society, with an equivalent annual net direct cost to society of around £310m. The benefit cost ratio is around 0.0034.**

124. One of the primary reasons for the low benefit cost ratio is the very low risk of incident in new build 18m+ buildings. A combination of improved safety during construction and increased fire safety regulation means that the estimated likelihood of a catastrophic or major incident is very low. Additional benefits of an evacuation lift were also not quantified, and so no additional benefits are monetised under Policy Options 2 or 3.

125. Moving to Policy Option 2 has a net cost of £4.0bn, and Policy Option 3 increases this cost further to £5.7bn. The equivalent annual net cost to society (EANCS) estimated increases to £466m under Policy Option 2 and increases further to £662m under Policy Option 3. The benefit cost ratio under Policy Option 2 is 0.0023 and under Policy Option 3 is 0.0016.

126. Summaries of the Present Cost for each option is broken down in **Table 47** below. Equivalent annual net cost is broken down in **Table 48** below.

Table 47: Net cost to society compared to Single Stair option, broken down by cost and benefit for each option, central scenario, discounted, 2023 prices

		Second Staircase (Policy Option 1)	Second Staircase & 1 Evacuation Lift & 1 Firefighting Shaft (Policy Option 2)	Second Staircase & 2 Evacuation Lifts & 2 Firefighting Shafts (Policy Option 3)
Costs (PV)	Capital Costs	£2,424.6m	£3,665.3m	£5,168.0m
	Value of Lost NIA	£170.4m	£199.4m	£367.2m
	Land Cost of GEA	£6.8m	£6.8m	£12.1m
	Maintenance Costs	£-4.2m	£39.6m	£46.2m
	Redesign Costs	£10.2m	£13.9m	£14.9m
	Delay costs	£43.6m	£68.0m	£70.7m
	Familiarisation costs	£27.8m	£27.8m	£27.8m
	Total Present Value Cost	£2,679.2m	£4,020.8m	£5,707.0m
Benefits (PV)	Major Incidents	£6.7m	£6.7m	£6.7m
	Catastrophic Incidents	£2.3m	£2.3m	£2.3m
	Trips, falls and other injuries sustained during voluntary evacuations	£0.2m	£0.2m	£0.2m
	Total Present Value Benefit	£9.1m	£9.1m	£9.1m
Net	Net cost to society (discounted)	£2,670.1m	£4,011.7m	£5,697.9m
	Equivalent annual net cost to society (EANCS)	£310.3m	£466.1m	£662.0m
	Benefit cost ratio to society	0.0034	0.0023	0.0016

Table 48: Equivalent annual net cost to society compared to counterfactual, broken down by cost and benefit for each option, central scenario, discounted, 2023 prices

		Second Staircase (Policy Option 1)	Second Staircase & 1 Evacuation Lift & 1 Firefighting Shaft (Policy Option 2)	Second Staircase & 2 Evacuation Lifts & 2 Firefighting Shafts (Policy Option 3)
Costs (EA)	Capital Costs	£281.7m	£425.8m	£600.4m
	Value of Lost NIA	£19.8m	£23.2m	£42.7m
	Land Cost of GEA	£0.8m	£0.8m	£1.4m
	Maintenance Costs	£-0.5m	£4.6m	£5.4m
	Redesign Costs	£1.2m	£1.6m	£1.7m
	Delay costs	£5.1m	£7.9m	£8.2m
	Familiarisation costs	£3.2m	£3.2m	£3.2m
	Total Cost	£311.3m	£467.1m	£663.0m
Benefits (EA)	Major Incidents	£0.71m	£0.71m	£0.71m
	Catastrophic Incidents	£0.24m	£0.24m	£0.24m
	Trips, falls and other injuries sustained during voluntary evacuations	£0.02m	£0.02m	£0.02m
	Total Benefit	£0.98m	£0.98m	£0.98m
Net	Equivalent annual net cost to society (EANCS)	£310.3m	£466.1m	£662.0m

Thresholds analysis (Policy Option 1 versus Policy Option 4)

127. In July 2023, the government announced the intention to make provisions for a second staircase in buildings above 18m.¹⁵

128. The analysis below breaks down the costs and benefits of the preferred policy option across the three height bands (18-30m, 30-50m, 50m+). Policy Option 4 has no differences to Policy Option 1 in implementation, differing only in the height threshold for implementing a second staircase.

129. The analysis suggests there is a significant cost for a second staircase at all heights, with the greatest cost at 18-30m at £1.2bn. This is due to the proportionally higher number of 18-30m buildings compared to 30-50m and 50m+ buildings. There are relatively limited benefits under 18-30m as opposed to 30m+, with the greatest benefit being from major incidents through 50m+ buildings.

130. **The increase in net cost of moving the threshold to 18m+ (Policy Option 1) from 30m+ (Policy Option 4) is approximately £1.2bn, raising the Net Present Cost from £1.5bn to £2.7bn. The benefit cost ratio falls from 0.0056 to 0.0034 as a result. Summaries of the cost and benefits between height bands are broken down in Table 49 below.**

¹⁵ <https://www.gov.uk/government/news/long-term-plan-for-housing>

Table 49: Cost benefit analysis by building height and 18m+ and 30m+ threshold, 2023 prices

		Value by Height Band for Second Staircase			Total Value By Threshold (Policy Option 1 / 4)	
		18-30m	30m-50m	50m+	Policy Option 1 (18m+)	Policy Option 4 (30m+)
Costs (PV)	Capital Costs	£1,038.2m	£549.1m	£837.2m	£2,424.6m	£1,386.4m
	Value of Lost NIA	£115.0m	£55.3m	£0.0m	£170.4m	£55.3m
	Land Cost of GEA	£4.7m	£1.4m	£0.7m	£6.8m	£2.1m
	Maintenance Costs	£0.0m	-£1.4m	-£2.8m	-£4.2m	-£4.2m
	Redesign Costs	£6.5m	£2.3m	£1.4m	£10.2m	£3.7m
	Delay Costs	£13.5m	£11.0m	£19.1m	£43.6m	£30.1m
	Familiarisation Costs	£9.3m	£9.3m	£9.3m	£27.8m	£18.5m
	Total Present Value Cost	£1,187.3m	£627.0m	£864.9m	£2,679.2m	£1,491.8m
Benefits (PV)	Major Incidents	£0.01m	£0.01m	£6.7m	£6.7m	£6.7m
	Catastrophic Incidents	£0.7m	£0.6m	£1.0m	£2.3m	£1.5m
	Trips, falls and other injuries sustained during voluntary evacuations	£0.1m	£0.1m	£0.1m	£0.2m	£0.1m
	Total Present Value Benefit	£0.8m	£0.7m	£7.7m	£9.1m	£8.3m
Net	Net cost to society (discounted)	£1,186.5m	£626.3m	£857.2m	£2,670.1m	£1,483.5m
	Equivalent annual net cost to society (EANCS)	£137.9m	£72.8m	£99.7m	£310.3m	£172.4m
	Benefit cost ratio to society	0.0007	0.0010	0.0089	0.0034	0.0056

For proportionality, familiarisation costs are assumed to be divided equally across height bands.

Cost to housing associations, private, public sector and direct costs to businesses

131. The total cost of implementing the preferred option is likely to be split amongst different types of developers, across private developers, housing associations, and public sector developers. It is expected that private developers will be impacted the most, given they have the most planning permissions for 18m+ buildings¹⁶.

132. In summary, the total cost is around £236m to housing associations, around 9% of the cost, around £251m to the public sector, around 9% of the total cost, and £2.2bn to private developers, around 82% of the total cost¹⁷. This is broken down by height band in Table 50 below.

Table 50: Preferred Option costs to developers, split by housing association, private and public, and by building height band. (Present Value, 2023 prices)

	Policy Option 1 (Preferred)		
	Housing Association	Private	Public
18m-30m	£151.3m	£899.2m	£127.6m
30m-50m	£45.6m	£508.4m	£63.7m
50m+	£39.1m	£756.9m	£59.6m
Total Cost	£236.0m	£2,164.5m	£250.9m
% of Total Cost	8.9%	81.6%	9.5%

133. All costs are expected to be direct costs to businesses as a result of the proposed policy options. Based on the cost for housing associations and private developers above, **the net present cost to business for Policy Option 1 is around £2.4bn. The equivalised annual net direct cost to business (EANDCB) is £282m.** Table 51 below shows the net present cost to business and EANDCBs by policy option¹⁸.

Table 51: Net Present Costs to Business and EANDCBs, by Policy Option (2023 prices)

	Net Present Cost to Business	EANDCB
Policy Option 1	£2,428.3m	£282.1m
Policy Option 2	£3,669.9m	£426.4m
Policy Option 3	£5,524.6m	£641.8m
Policy Option 4	£1,377.8m	£160.1m

¹⁶ Analysis based on Glenigan Planning Permission data, based on number of units granted permission across April 2017 to March 2023, and converted into units across 18-30m, 30-50m, and 50m+ height bands. 84% of 18m+ buildings granted permission were owned by private developers, 7% by housing associations, and 9% by local authorities, these estimates exclude blank data.

¹⁷ Cost is apportioned based on the proportion of units granted permission across April 2017 to March 2023 to housing associations, private sector and the public sector. The split in additional cost may vary in reality for different reasons, for instance: one group of developers may be more often already compliant with the policy requirements compared to other groups of developers; joint ventures could not be captured, and some sites may change ownership after permission has been granted. Lift maintenance costs also may not necessarily apply to the original developer, and would only apply to the building owner, however for proportionality due to the low level of lift maintenance costs, this is not accounted for. Familiarisation costs have been excluded from this analysis.

¹⁸ Note that this assumes all familiarisation costs apply to the private sector and has not been apportioned, given this is a low cost, this has been done for proportionality.

Sensitivity analysis

134. Sensitivity analysis has been performed based on the confidence level in each of the costs and the level of confidence in the number of injuries/fatalities in an incident and likelihood of an incident to occur. The low and high cost scenarios are as follows:

- Capital costs: +/- 20%
- Value of lost Net Internal Area: +/- 30%
- Land Cost of GEA: +/- 30%
- Maintenance costs: +/-30%
- Redesign costs: +80% to -30%
 - Redesign costs are based on different scenarios, for high cost this is being stuck in planning, having difficulties with viability of the building, several redesigns. Low cost is based on a quick redesign, with work happening in parallel to reduce the time needed.
- Delay costs: +/-30%
- Familiarisation costs: +/-30%

135. The benefits section has detailed the sensitivities and assumptions in depth, in summary the factors which vary are:

- Likelihood of injuries varies under catastrophic and major incident scenarios
- Likelihood of catastrophic and major incidents
- Likelihood of residents becoming trapped

136. **Under the preferred option, the net present cost varies from £2.0bn to £3.2bn, with the Equivalent annual net cost to society varying from £240m to £380m. The benefit-cost ratio varies from 0.0342 to 0.0002, due also to high variance in benefits. This is broken down further in Table 52 below.**

Table 52: Net Present Value Summary under Central, Low and High scenario for each Policy Option (2023 prices)

		Central NPV Scenario	Low NPV Scenario	High NPV Scenario
Costs (Present Value)	Capital Costs	£2,424.6m	£2,909.6m	£1,939.7m
	Value of Lost NIA	£170.4m	£221.5m	£119.3m
	Land Cost of GEA	£6.8m	£8.9m	£4.8m
	Maintenance Costs	-£4.2m	-£5.5m	-£2.9m
	Redesign Costs	£10.2m	£18.0m	£6.8m
	Delay costs	£43.6m	£56.7m	£30.5m
	Familiarisation costs	£27.8m	£36.1m	£19.4m
	Total Present Value Cost	£2,679.2m	£3,245.3m	£2,117.5m
Benefits (Present Value)	Major Incidents	£6.7m	£0.01m	£55.2m
	Catastrophic Incidents	£2.3m	£0.6m	£17.0m
	Trips, falls and other injuries sustained during voluntary evacuations	£0.2m	£0.2m	£0.2m
	Total Present Benefit	£9.1m	£0.8m	£72.4m
Net Summaries	Net cost to society (discounted)	£2,670.1m	£3,244.5m	£2,045.1m
	Equivalent annual net cost to society (EANCS)	£310.3m	£376.9m	£238.3m
	Benefit cost ratio to society	0.0034	0.0002	0.0342

137. Similar trends occur with the other options, for instance, the net present cost under policy option 2 varies from £3.1bn to £4.9bn, policy option 3 varies from £4.4bn to £6.9bn, and policy option 4 varies from £1.1bn to £1.8bn. All of the policy options are broken down in more detail in **Table 53** below.

Table 53: Net Present Value, Equivalent Annual Net Value and Benefit-Cost Ratios under Central, Low and High scenario for each Policy Option (2023 prices)

	NPV Scenario	Policy Option 1	Policy Option 2	Policy Option 3	Policy Option 4
Net Present Value to Society	Central	£2,670.1m	£4,011.7m	£5,697.9m	£1,483.5m
	Low	£3,244.5m	£4,866.3m	£6,908.5m	£1,802.0m
	High	£2,045.1m	£3,108.2m	£4,438.8m	£1,116.2m
Equivalent Annual Net Value to Society	Central	£310.3m	£466.1m	£662.0m	£172.4m
	Low	£238.3m	£565.3m	£802.6m	£209.3m
	High	£376.9m	£361.8m	£516.4m	£130.3m
Benefit-Cost Ratio	Central	0.0034	0.0023	0.0016	0.0056
	Low	0.0002	0.0002	0.0001	0.0003
	High	0.0342	0.0228	0.0160	0.0563

Switching analysis

138. Switching analysis illustrates the change needed for a neutral net present value. Assumptions in the monetised benefits analysis are changed until the policy reaches a net neutral point (where the benefit cost ratio equals 1, and the present value of the costs are the same as the benefits). All of the switching analysis below is for policy option 1 (central scenario).

139. The first approach looks at the change required to the likelihood of major and catastrophic incidents (respectively). Starting from a 1 in 50,000 per building per year likelihood, the frequency of incident is increased until the present value benefits equal the present value costs. An increase in the likelihood of a major incident by a factor of around 400 in the central scenario is needed for the monetised benefits to be equal to the costs. For likelihood of catastrophic incident, starting from a 1 in 1,000,000 per building per year likelihood there would have to be an increase by a factor of around 1,200 in the central scenario for the monetised benefits to be equal to the costs.

140. The switching point can also be assessed through a simultaneous increase of the likelihood of incident for both major and catastrophic incidents (starting from 1 in 50,000 and 1 in 1,000,000 respectively). An increase in the likelihood of both incidents by a factor of around 300 in the central scenario is necessary for the monetised benefits to be equal to the costs.

141. An alternative set of switching analysis is based on residents' willingness to pay for a second staircase. A second stair could improve wellbeing amongst residents due to feelings of increased safety. The total amount residents would be willing to pay for these wellbeing improvements can be seen as an indication of their (private) economic value. For policy option 1 to be net neutral each resident must be willing to pay an average of £136 every year for the appraisal period (70 years) for the inclusion of a second stair in their building.

Risks and assumptions

142. The data and assumptions used in the analysis have been sourced from a variety of sources mostly comprising of assumptions from the Adroit Consortium, including PRP architects, MGAC, and Quod. Each assumption used in the model and subsequent analysis has been outlined and divided into four categories; the assumption itself, its scope, the year it was collected, and the quality of the information informing it. This is detailed in **Annex A: Assumptions Table** below.
143. The majority of assumptions are categorised as of medium quality, i.e. they are based on internal data and/or calculations typically from live projects or reference buildings our external consultants work on. A few assumptions have been categorised as low quality, such as the *Number of 18m+ buildings with a 2nd staircase / evacuation lift in the counterfactual*, because they are not based on as firm underlying data. The majority of data in the benefits are subject to high levels of uncertainty, and are classed as low. Whilst these assumptions may have limited evidentiary data, they are considered the best proportionally available data with which to estimate the impacts of this policy at the time of this Impact Assessment.
144. The most influential assumptions are the Representative Buildings and the additional costs and benefits resulting from the inclusion of a second staircase or evacuation lifts. These drive the overall costs and benefits of each policy. Cost and benefit ranges have been provided within the Sensitivity analysis section.

Forecasting the number of 18m+ buildings with a 2nd staircase or evacuation lift in the counterfactual

145. To meet the functional requirements of the Building Regulations designers can, where applicable, use the guidance contained within Approved Document B. They can also utilise other guidance, such as Industry Guidance, e.g: BS 9991, or demonstrate compliance with the functional requirements through details Fire Risk Analysis. It is therefore difficult to accurately predict which approach will be taken due to every building being unique in it's design.
146. Forecasting the number of buildings that will build to the preferred policy option (or options 2 and 3) in the future under the counterfactual is difficult and a potential risk to accurately estimating the impact of the policy. This is due to the influence of recommendations made by local authorities or fire and rescue services, the funders motivations or other, non building regulation related influences. The costs per building have been broken out under each individual section for transparency.

Impact on small and micro businesses

147. There is little evidence to suggest that small and micro businesses (SMBs) are contracted as the primary constructors of buildings taller than 18m. It is assumed that the capital cost alone is too great for small or micro businesses to be the primary contractor of a high-rise, as the capital cost of an 18-30m building is estimated at around £10m. Since an SMB is defined as having a turnover of less than £10m¹⁹, any business leading the construction of a high rise is unlikely to be classified as an SMB and unlikely to feasibly manage the project due to its size and added cost demands, eliminating them from contention. Where there are rare cases where an SMB is the primary contractor, the additional cost of the preferred option is estimated at around an additional £1.2m in capital²⁰, based on the representative buildings used in this impact assessment, and is unlikely to differ by the size of the firm.
148. It is possible that SMBs are sub-contracted for more bespoke or specific parts of the construction process. For example, in the pre-construction phase, small architectural or engineering firms can be sub-contracted when designing aspects of the building that are not foundational such as decorative, electrical or accessibility considerations that require specialist expertise. Similarly, these SMBs may be included in the construction or implementation of these designs either as overseers or as the engineers themselves. In the post-construction phase, SMBs might be contracted for ongoing maintenance of the buildings systems and supervision of the building's integrity. There are therefore several ways that SMBs are involved in the pre-construction, construction and post-construction phases of these buildings even if large and medium businesses are the primary agents in building them.
149. This bears a duality of impact where specialist SMBs could benefit from this change as they are needed by larger businesses to aid in the adjustment to the new requirements and any increase in electrical maintenance/considerations around fire-fighting lifts. Alternatively, the new requirements may reduce the number of new buildings coming forward, reducing demand for SMB services.
150. Furthermore, there is the consideration of familiarisation costs. Larger companies with more employees are more likely to have a wider range of experience and expertise held internally. This means that when businesses go through an adjustment phase of starting to build multiple staircases or fire-fighting lifts in 18m+ buildings, non-SMBs are more likely to already have the relevant expertise already within the company. Already having this knowledge internally allows these employees to assist in training others which can, relative to the number of employees in the company, reduce the amount of time taken to effectively familiarise with the new requirements and potentially reduce the cost of external training courses per affected employee.

¹⁹ A small business is defined as having less than 50 headcount, less than or equal to €10 million in turnover or balance sheet total. See Definition of an SME, [BEIS small and medium enterprises \(SMEs\) action plan: 2022 to 2025 \(accessible webpage\) - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/444242/BEIS_small_and_medium_enterprises_SMEs_action_plan_2022_to_2025_accessible_webpage.pdf)

²⁰ Based off RB1 and RB3 cost for Policy Option 1, post-transition period.

Wider impacts

Housing Supply

151. There will be impacts on housing supply from all policy options because they increase build costs and are likely to reduce saleable floorspace of developments. These effects reduce the revenue of a housing development relative to costs, making it unviable for some sites to come forward. The Department worked with specialist planning and viability experts from Quod to complete national viability analysis of the policy options on housing supply.
152. Using planning pipeline data, it is estimated that around 49,000 homes each year are in scope of an 18m+ threshold, equivalent to just under 25% of new build completions in recent years. Of these, 31,000 (64%) are estimated to be in London and 12,000 (25%) are estimated to be affordable.
153. A bespoke viability model was used to appraise housing supply impacts, testing the four representative building typologies set out above across three height thresholds (7-10 storeys; 11-30 storeys and 31+ storeys). Viability was tested across three different location groupings to consider the national impact: “London” - high value location supporting very high-rise development; “31+ Storey City” - other cities outside of London that have at least one 31+ storey tower; “Region” – other areas of England with lower rise towers within the scope of the policy.
154. Housing supply impacts could occur through three channels:
- A. Buildings which no longer come forward at all because they are made unviable. New homes, including affordable homes, are lost altogether where this is the case. In the long run this channel would occur through reductions in site residual land values, which decreases the probability a site will be viable for residential development.
 - B. There being a lower proportion of affordable homes than there otherwise would have been in buildings which do still come forward. This channel would only occur where planning authorities are willing to accept (or required to, given existing national policy on viability and affordable housing) a lower affordable home proportion than they otherwise would have, to maintain viability where possible. This channel affects the tenure but not total amount of housing supply.
 - C. There being less housing space (and saleable area) in buildings which do still come forward. Based on industry expertise we expect this is typically likely to materialise through smaller housing units (potentially with fewer bedrooms) as opposed to fewer housing units because we expect developers are more likely to reduce the size rather than number of homes. This channel only occurs if it is assumed buildings cannot increase in size (gross internal area, GIA) relative to what they would otherwise have been, such that housing space (net internal area, NIA) is maintained.
155. The analysis suggests that housing supply impacts would be significantly higher for Option 2 than Option 1, and significantly higher again for Option 3. This is because build cost increases and saleable floorspace reductions are both expected to be larger under Options 2 and 3.
156. The relative impact of all options is likely to vary geographically. For example, baseline viability is likely to be higher, and so housing supply impacts relatively lower, on sites in London. This is because saleable value relative to build costs tends to be higher in London. Additionally, as a result of higher baseline viability, baseline affordable housing provision in London is likely to be higher, meaning more of the impact in London is likely to come through channel B, before housing sites are lost completely through channel A.

157. The magnitude and type of housing supply impact of all options depends on how developers and the planning system respond to the policy change:

- The analysis suggests that supply impacts will be more severe in scenarios where there can be less flexibility in building size (that is, in scenarios whereby channel C occurs).
- Similarly housing supply impacts will vary based on the extent to which the proportion of affordable housing can be reduced in response (i.e. to what extent viability impact evidence is submitted to evidence a lower level of affordable housing). The analysis suggests that if affordable housing provision is allowed to reduce in this way (relative to what it would otherwise have been) to maintain viability, the overall housing supply impact of all options will be substantially less significant. Local planning authorities may also adjust their policies on other planning obligations, outside of affordable housing contributions. This could have an impact on contributions towards various types of infrastructure including green, educational and health. However, we expect the proportion of affordable housing is most likely to be renegotiated.
- Developers could increase the sale price of homes to partially offset the viability reduction. This is assumed not to be possible as sale prices are maximised in the base case.
- It could be that where costs are small, developers may make other minor scheme or appraisal changes or simply reduce their rate of return.

158. The magnitude and type of housing supply impact of all options also depends on a wide range of other factors and assumptions:

- The above is an assessment of impacts in steady state. With the transition policy in place we would not expect transitional impacts to be significantly larger.
- Housing market conditions, particularly in areas which can potentially support high rise development, could affect the marginal effect of each option on viability. In a significant market downturn, baseline viability will be lower and marginal policy impacts could vary.
- Other incoming regulatory or tax measures on these development types could also decrease viability.
- The types of in-scope buildings which get developed. The Representative Buildings used throughout the Impact Assessment are considered to reasonably reflect a range of development typologies being delivered. However, good data on the relative frequency of each building in housing delivery does not exist.
- The point at which sites are assumed to become unviable contains assumptions and expert judgements. They can be estimated based on local market knowledge but given they tend to be site-specific, estimating them for aggregated assumptions at the national level is difficult.

Environmental impact

159. The Environmental Principals Duty requires that government should assess the environmental impact of the policy. It is not expected that the policy will have a disproportionate impact on the environment. There will likely be an impact to the level of embodied carbon where developers need to extend the footprint of the building or increase the number of floors to their building to retain viability of the building. This increase in embodied carbon is not expected to be significant or disproportionate compared to ensuring the safety of new build high rise residential buildings. An Environmental Principal Duty assessment has been conducted and will be published.

Public Sector Equality Duty

160. Government is required to understand assess whether the policy has a disproportionate negative impact on those with protected characteristics under the Public Sector Equality Duty. It is not expected that the policy will have any additional negative impact on any protected demographics.. A Public Sector Equalities Duty has been conducted and will be published.

A summary of the potential trade implications of measure

161. This policy will instruct new high-rise buildings above a specific threshold to install second staircases in England. It is not expected to have any impact on international trade.

Monitoring and Evaluation

162. The department will seek to identify and collect monitoring data on the number and characteristics of new residential buildings over 18m, to assess the impact that the regulations has had on dimensions, and number of units. The department will endeavour to collect measures retrospectively so that these can be developed into a benchmark to compare against. Benchmarking will need to account for possible pre-emptive business adjustments made by developers upon seeing signals of upcoming policy change. This policy change will also occur within the wider context of regulatory reform, including the Future Homes Standard, and the Building Safety Act, which can be expected also to add to costs for developers; and have positive impacts to residents of tall buildings.
163. Impact to residents and fire and rescue services will be more challenging to assess, due to the long timeframes inherent in the development of tall residential buildings. Data will be collected from fire and rescue services, as this information is collected for each incident (headline data is published annually by the Home Office). We might expect buildings impacted by the new requirements to take up to a decade to 'complete', so the stock of buildings to draw on for incidents to assess *performance* against will be limited. Residents could be surveyed on their attitudes to safety, but this source can be expected to be a weak indicator. The department can also look to collect further information, where relevant, from the monitoring activities of the Building Safety Regulator, which is responsible for the regulation of buildings of this type. The Building Safety Regulator will have detailed data on buildings construction and approach to safety and management. Which can be made use of if deemed necessary.
164. An additional challenge in attempting to assess the impact of the policy is the lack of clear counterfactual. All buildings over 18m will be expected to include a second staircase so it will not be possible to compare two similar buildings' performance. An alternative approach would be to compare buildings over 18m with those marginally under (so without a second staircase). This approach, known as a regression discontinuity design, is a common approach in evaluation but relies on a clear policy cut off point. However, we can expect development plans on the margin to respond to policy directly, and developers may adjust building design so as to avoid the requirement entirely. This behaviour would make regression discontinuity design potentially unviable. To that end, we would propose developing a strong case study approach – supported by descriptive analysis of fire service data – with the aim of collecting detailed information on the circumstances surrounding buildings with a second staircase. As the policy is developed, it will be important to understand the effects it might have on all relevant stakeholders so that these can be explored through this method.
165. Should we decide that a quantitative approach is necessary, this may be possible by using buildings that are under the threshold for a second staircase as a counterfactual, but this approach would need to be assessed by means of a feasibility study, which would also assess the timeframes required for a robust assessment.

Annex A: Assumptions Table

Table 54: Assumptions Table and Quality Definitions

High	Published data from a statistical authority e.g. ONS
Medium	Internal data from within DLUHC, Adroit, PRP, MGAC, Quod etc.
Low	Assumptions based on judgement calls

Assumption	Scope	Timing	Quality
Conversion of number of units to number of buildings by height band	New build estimates are based on the number of units coming through at different height bands (7-10 storey, 11-30 storey, 31+ storeys). These have been converted based on assumptions with the height bands (18-30m, 30-50m and 50m+).	2023	Low (Conversion based on Adroit Consortium's analysis of Glenigan's planning data)
Number of new 18m+ builds per annum	A mid estimate of the number of high-rise buildings above 18m in scope of the policy based on a six-year average (2017/18-2022/23) of Glenigan's planning data.	2022 /2023	Medium (Quod Analysis of Glenigan's Planning Data)
Change in the number of new builds per annum	The growth rate of the number of high-rise buildings above 18m in scope of the policy.	2023	Medium, based on DLUHC analysis and OBR Net additional housing forecasts.
Number of 18m+ buildings with a 2 nd staircase / evacuation lift in the counterfactual	Estimate of the number of 18m plus buildings who would build a 2 nd staircase / evacuation lift during the appraisal period in the counterfactual scenario based on a portfolio of live scenarios and assumed behaviour of overseeing bodies (e.g: FRS/GLA)	2023	Low (Based on PRP experience)
Transition phase in assumptions of the policy	Estimate of the phase in assumptions of the policy with respect to the transition period.	2023	Low (Judgement agreed with Adroit Consortium)
Representative Buildings for including a 2 nd stair in buildings above 18m in height	Representative Buildings were chosen to represent typical 18m+ new builds as of 2023. Assumptions based on industry experience were used to understand the proportion of new builds following each RB type.	2023	Medium (PRP Designs on live projects)
Capital Costs for each Representative Building	Estimates of the capital costs were worked through by MGAC, based on PRP Architects' designs for the default building design, and designs to implement Policy Options 1, 2 and 3.	2023	Medium (MGAC costings based on Representative Building designs from PRP Architects)
The average number of floors and flats in each of the building height categories	Estimate of the average number of floors and flats in each of the building heights in scope of the	2023	Medium (Adroit Consortium estimate based on Glenigan's Planning data)

	policy, this is based on the number off Glenigan's Planning data.		
Expected developer response – increase in building footprint to retain net internal area.	Developers are expected to increase the building footprint or increase the number of storeys in a building in order to retain the net internal area of a building. For proportionality, it is assumed that the building footprint will increase.	2023	Medium (Adroit Consortium judgement based off experience)
Amount of increased gross external area and cost of purchasing the land.	Estimate of the amount and cost of increased gross external area is based off designs for implementing Policy Options 1, 2 and 3, over and above the original building designs of all the representative building designs.	2023	Medium (PRP Architects designs and Quod cost estimate)
Amount and value of lost net internal area (saleable floor area) to accommodate 2 nd staircase	Estimate of the change in net internal area and reduced value of the building for Representative Buildings 1 and 3 as a result of implementing Policy Option 1/2/3 relative to the original building design.	2023	Medium (PRP Architects designs and Quod cost estimates)
Maintenance costs	Cost estimate based on the charge to maintain a 13 person or 22 person standard/fast/evacuation/firefighting lift. Maintenance costs and energy usage costs for a staircase are estimated to be net zero / minimal difference compared to other communal areas.	2023	Medium (Data from PRP)
Number of buildings requiring redesigns	The number of buildings needing to redesign their scheme under the counterfactual is based on the average amount of time for a 7-10, 11-30, and 30+ storey building to be developed based on Quod analysis of Glenigan’s planning data. This analysis suggests that no buildings that have had their scheme fixed will need to redesign with the transition period, however schemes in their inception may still need to make some redesigns.	2023	Medium (Quod analysis based on Glenigan Planning Data)
Cost of redesign	Costs are based on PRP Architects’ expectations of the cost of redesigning an 18m+ building. This includes the time taken to redesign, planning period and redrafting 106/legalities.	2023	Medium (Costs based on industry experience from PRP Architects).

Number of people trapped – major incident	Estimations from analysis completed for an internal report on the means of escape in residential buildings, with a focus on developing methods to quantify the effectiveness of evacuation strategies	2023	Medium (Estimations from OFR report completed for the BSR)
Fatality and injury rate – major incident	Estimates on the percentages of trapped residents that result in fatalities and major and minor injuries. Judgement based estimates.	2023	Low (Judgement agreed with Adroit consortium)
Incident likelihood – major incident	Utilised whole building fires from current HO data as a starting point. Likelihood was revised down substantially to reflect new builds, built and regulated under the BSR, are expected to be better designed and operated to prevent spread of fire.	2023	Low (some published data but also judgement based)
Residents per building – catastrophic incident	Estimate of residents per flat taken from published EHS data (2019), combined with estimates of the number of flats take from reference buildings used for different height bands in the cost analysis	2023	Low-medium (a combination of published data and internal reference buildings)
Avoided fatality and injury rate – catastrophic incident	Estimates on the percentages of residents that avoid in fatalities and major and minor injuries as a result of the inclusion of a second stair. Judgement based estimates.	2023	Low (Judgement agreed with Adroit consortium)
Incident likelihood – catastrophic incident	Used the estimated major incident likelihood as a starting point. Revised downwards to reflect the expected infrequency of these type of events. Almost entirely judgement-based estimates.	2023	Low (Judgement agreed with Adroit consortium)
Trips, falls and other injuries sustained during voluntary evacuations – injury likelihood	There exists no meaningful data on the incidence of slips, trips and falls during evacuations of high-rise residential buildings. There is some evidence on the number of injuries incurred as a result of requested evacuations, suggesting a very small incidence of injury. The limited available generic data on non-fatal injuries from fires was related to different evacuation scenarios in tall buildings.	2023	Low (utilising limited pieces of existing information with some judgement agreed with Adroit consortium)
Trips, falls and other injuries sustained during voluntary evacuations –	There is no clear evidence on the extent to which provision of a 2nd stair (and the associated combination of fire fighting and evacuation lifts) would reduce the	2023	Low (Judgement agreed with Adroit consortium)

Reduction from second stairs	small number of unnecessary trips and falls resulting from voluntary evacuation – however, the additional means of escape should mean that fewer people are using the same staircase during an evacuation – so it is less crowded, and those with mobility issues have alternative means of escape than using the stairs – i.e. an evacuation lift. This information was used to inform a judgment-based estimate.		
------------------------------	--	--	--