

Second Staircases

Understanding the impact
on tall building design

make

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core five





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Helical



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Motcomb Estates



Ziggo Dome
Live Nation



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Aston Villa FC



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Integrity

Innovation

Independence

Collaboration

Partnership

Tall building experience

Residential projects



The legislation

Implementation and timeline

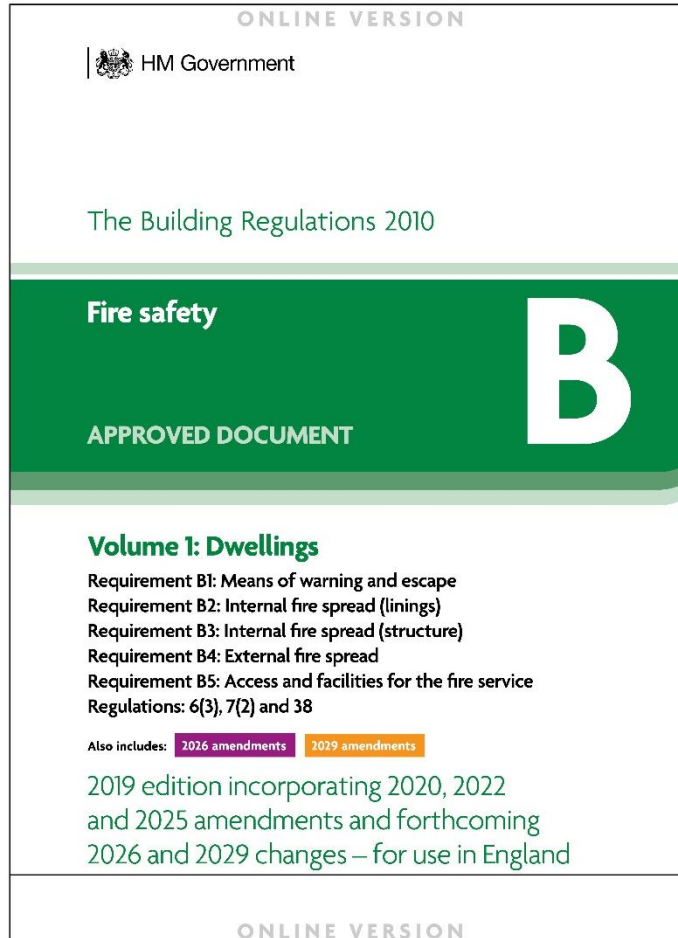


The legislation

- **Feb 2023** – Mayor requires buildings over 30m to have two stairs.

The legislation

Implementation and timeline



The legislation

- **Feb 2023** – Mayor requires buildings over 30m to have two stairs.
- **March 2024** – Part B updated to require second stair in buildings over 18m.
- **30 September 2026** – Legislation comes into effect nationwide.

Understanding the impact

The reason behind the research

Background

- Clients asking about the impact of a second stair on efficiency and build costs prior to the additional legislative changes.

Aim and objectives

- Understanding the impact on residential tall building design.
- How can we optimise design to mitigate loss of efficiencies and help maximise values?
- Implications on construction costs and returns (sales values).

Basis

- London-centric
- Private sales residential developments.
- Study looks at the impact of a second stair, including the additional requirements of Part B and London Plan associated with the introduction of the second stair.
- Research based on a selection of residential tall building projects.

Impact of a second stair

Key points

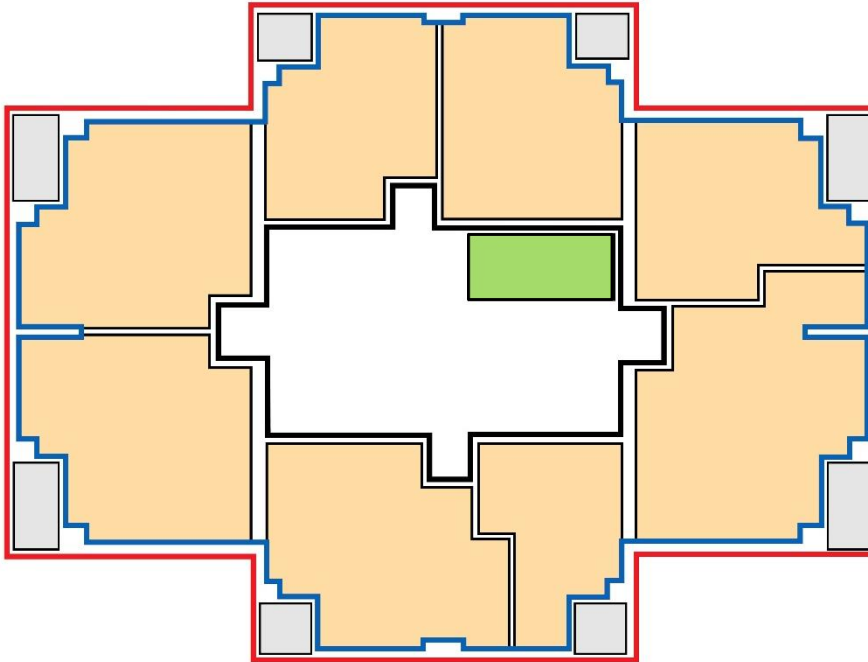
Impact on design

- Impact on areas and associated loss of NIA/NSA.
- Reduction in typical efficiencies for tall residential buildings.
- Impact on residential layouts and mix.
- Increased construction costs.



Typical residential floor plan

Areas and efficiencies



GEA (m²) - 777.0m²

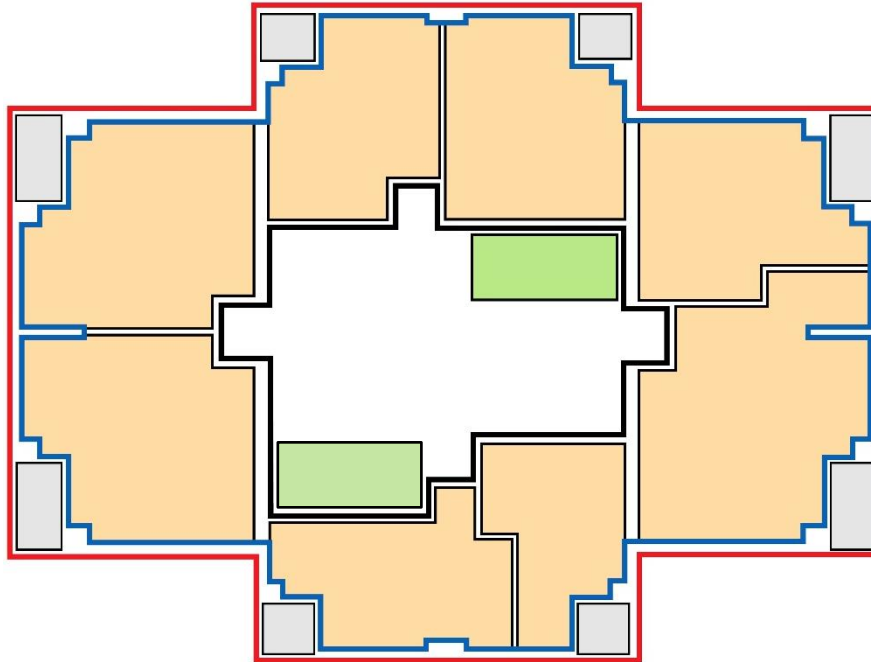
GIA (m²) - 734.0m²

NIA (m²) - 545.0m²

NIA/GIA - 74.3%

Typical residential floor plan

Areas and efficiencies



GEA (m²) - 777.0m²

GIA (m²) - 734.0m²

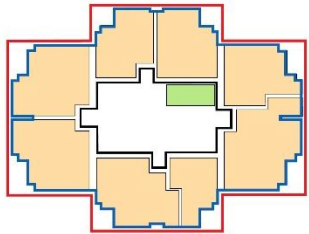
NIA (m²) - 522.8m²

NIA/GIA - 71.2%

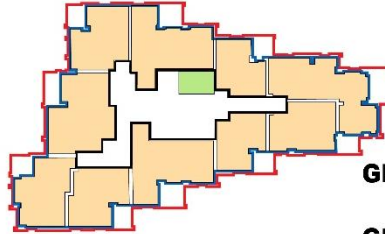
(-3.1%)

Project comparison

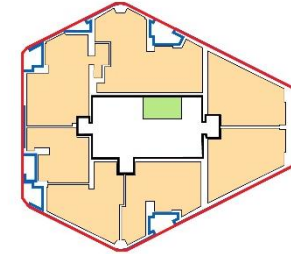
Impact of a second stair



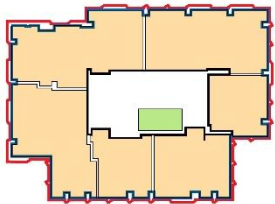
GEA (m²) -	777.8m ²
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NIA (m²) -	545.0m ²
NIA/GIA -	74.3%



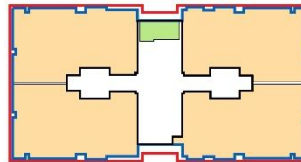
GEA (m²) -	796.8m ²
GIA (m²) -	759.1m ²
NIA (m²) -	582.2m ²
NIA/GIA -	76.7%



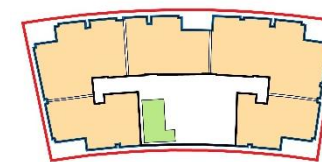
GEA (m²) -	803.3m ²
GIA (m²) -	760.0m ²
NIA (m²) -	565.9m ²
NIA/GIA -	74.5%



GEA (m²) -	770.5m ²
GIA (m²) -	717.8m ²
NIA (m²) -	568.0m ²
NIA/GIA -	79.1%



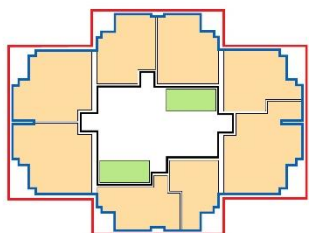
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NIA (m²) -	569.9m ²
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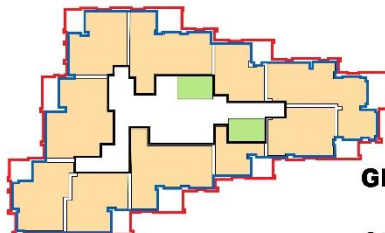
GEA (m²) -	673.45m ²
GIA (m²) -	556.5m ²
NIA (m²) -	415.4m ²
NIA/GIA -	74.6%

Project comparison

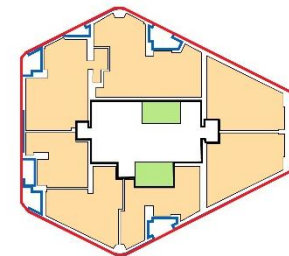
Impact of a second stair



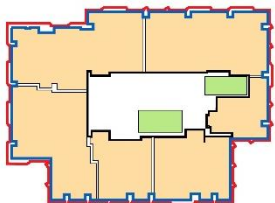
GEA (m²) -	777.7m ²
GIA (m²) -	734.0m ²
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NIA/GIA -	71.2% (-3.0%)



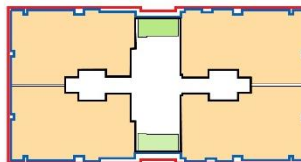
GEA (m²) -	796.8m ²
GIA (m²) -	759.1m ²
NIA (m²) -	560.0m ²
NIA/GIA -	73.8% (-2.9%)



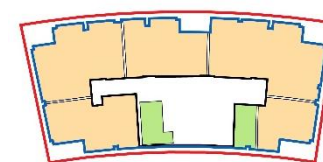
GEA (m²) -	803.3m ²
GIA (m²) -	760.0m ²
NIA (m²) -	543.7m ²
NIA/GIA -	71.5% (-2.9%)



GEA (m²) -	770.5m ²
GIA (m²) -	717.8m ²
NIA (m²) -	554.7m ²
NIA/GIA -	77.3% (-1.9%)



GEA (m²) -	781.9m ²
GIA (m²) -	728.8m ²
NIA (m²) -	562.9m ²
NIA/GIA -	77.1% (-2.0%)

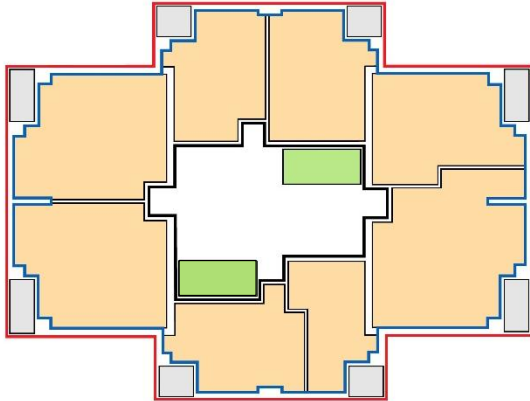


GEA (m²) -	673.45m ²
GIA (m²) -	556.5m ²
NIA (m²) -	405.2m ²
NIA/GIA -	72.8% (-1.8%)

Second stair

Addressing the impact

Internal second stair



Loss of NIA/NSA.



Challenging unit design
around stairs.

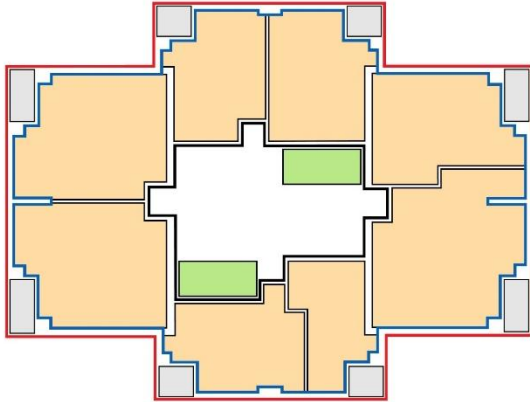


Retaining facade for
apartments.

Second stair

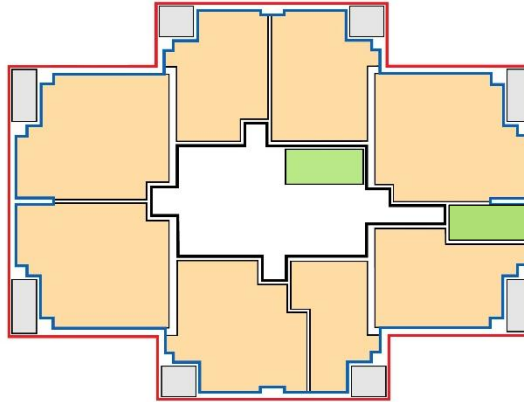
Addressing the impact

Internal second stair



- ✗ Loss of NIA/NSA.
- ✗ Challenging unit design around stairs.
- ✓ Retaining facade for apartments.

Stair against the facade

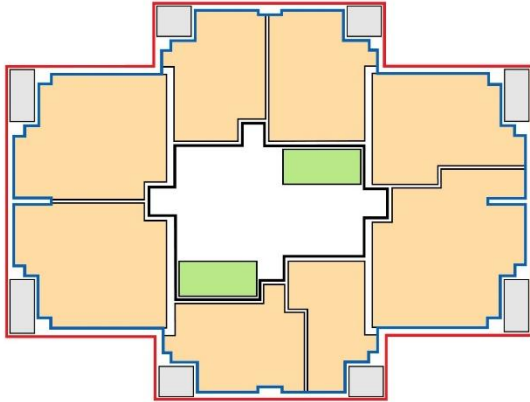


- ✗ Loss of NIA/NSA.
- ✗ Increased corridor length leads to additional area loss.
- ✗ Loss of usable facade.
- ✓ Opportunity to naturally light and ventilate internal corridor.

Second stair

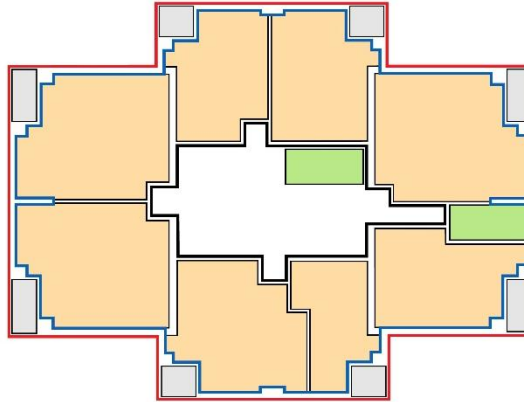
Addressing the impact

Internal second stair



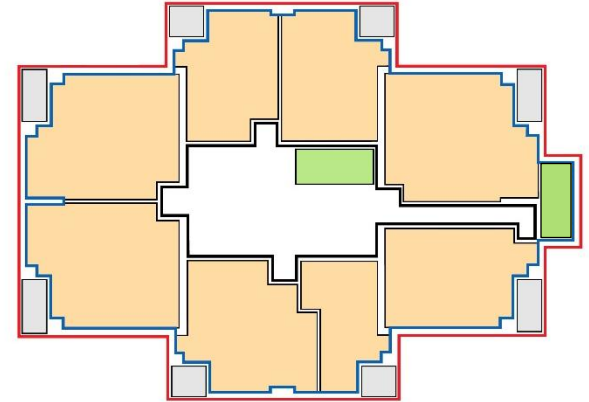
- ✗ Loss of NIA/NSA.
- ✗ Challenging unit design around stairs.
- ✓ Retaining facade for apartments.

Stair against the facade



- ✗ Loss of NIA/NSA.
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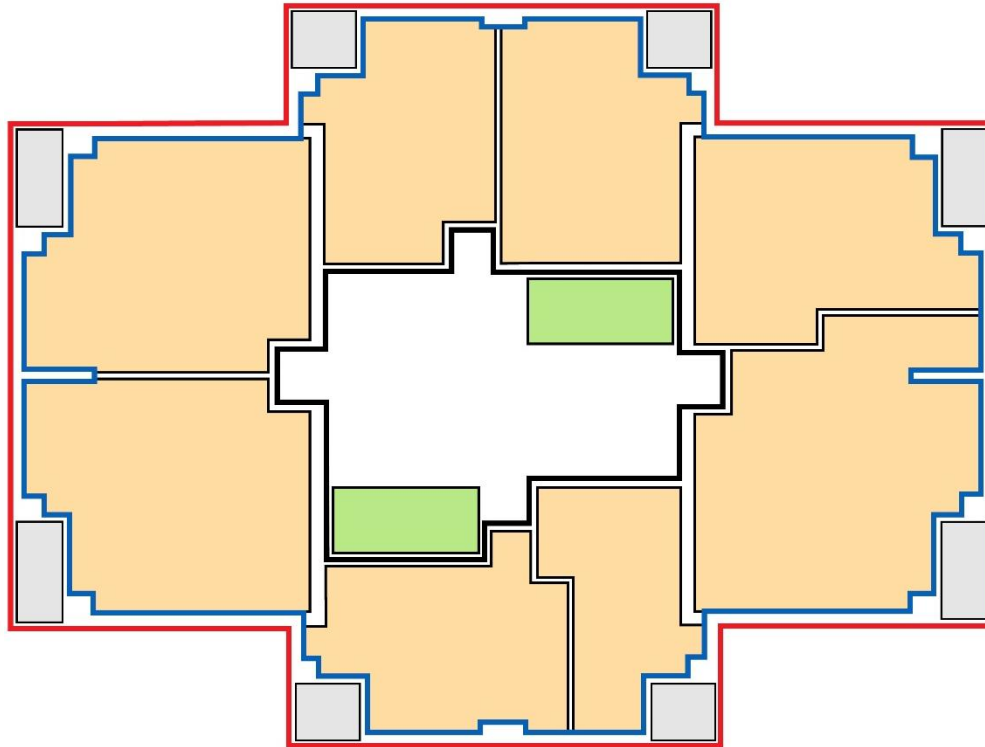
Minimising loss of NIA



- ✗ Increase in GEA & GIA.
- ✗ Increased corridor leads to loss of NIA.
- ✗ Loss of facade impacts on unit layouts.
- ✓ Opportunity to naturally light and ventilate internal corridor.

Addressing the impact

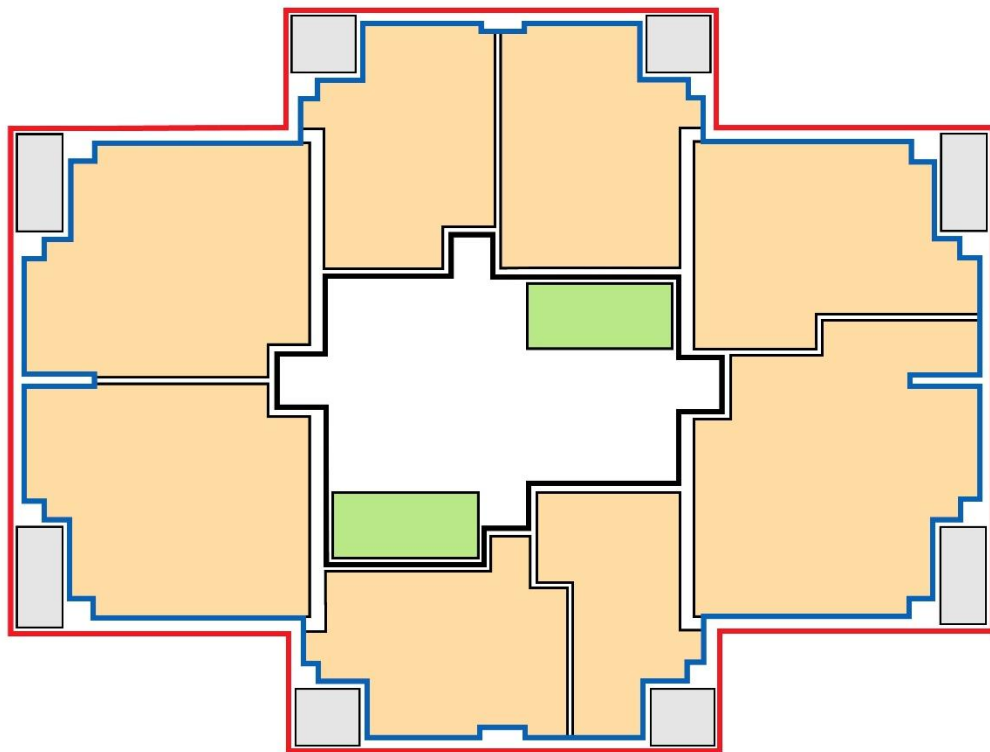
Realigning the efficiency



GEA (m²)	-	869.1m ²
		<i>(+91.4m²)</i>
GIA (m²)	-	820.2m ²
		<i>(+86.2m²)</i>
NIA (m²)	-	609.0m ²
		<i>(+64.0m²)</i>
NIA/GIA	-	74.3%
		<i>Original N:G retained</i>

Realigning the efficiency

Unlocking value



Facade length - 140.6m

Increased - 147.9m

(+7.3m)

NIA (m²) - 545.0m²

Inc. NIA (m²) - 609.0m²

(+64.0m²)

Ave. flat size - 68.1m²

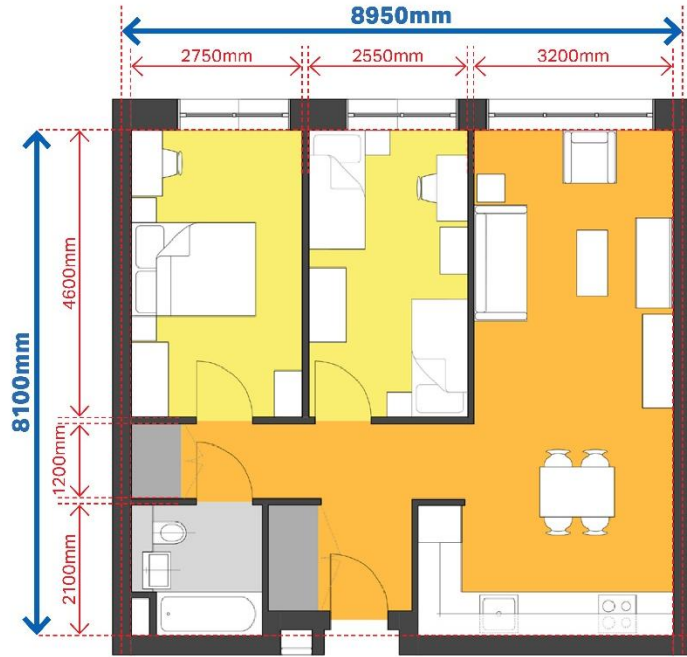
Inc. flat size - 76.1m²

(+8m²)

NIA increase - +11.7%

Realigning the efficiency

Unlocking value



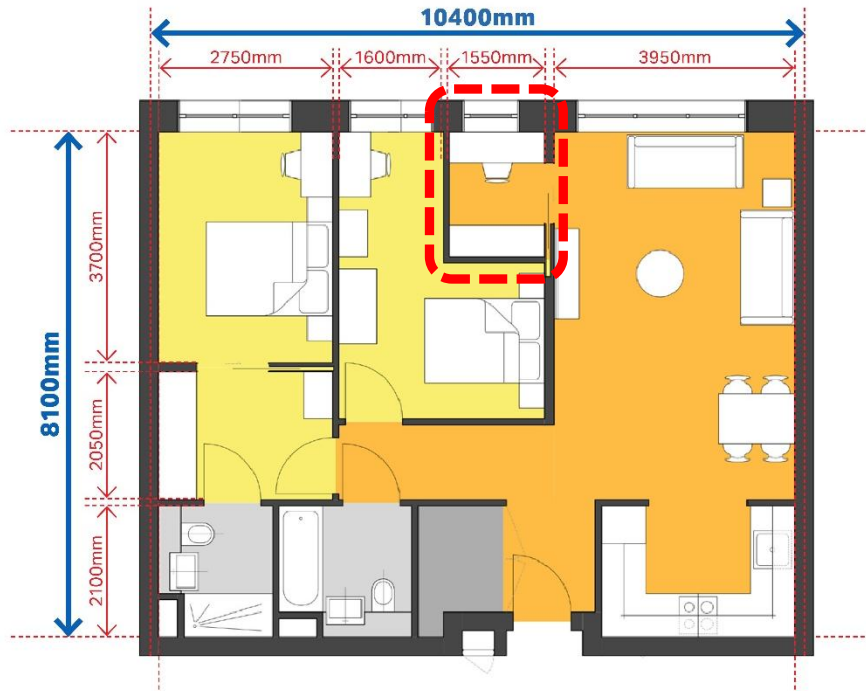
2 Bed 4 Person

NIA - 70 m²
(+20 m²)

Facade length - 8.95 m
(+2.5 m)

Realigning the efficiency

Unlocking value



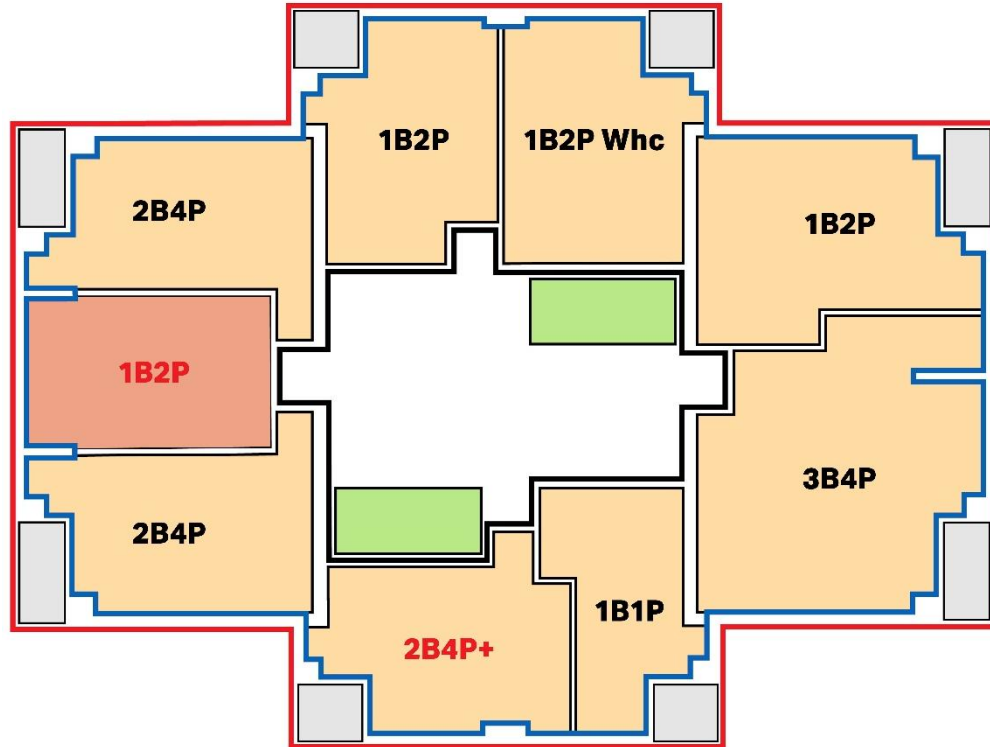
2 Bed 4 Person (+)

NIA - 82.2m²
(5.7m²)

Facade length - 10.4m
(0.7m)

Realigning the efficiency

Adjusting the mix



1No.	1B1P
3 No.	1B2P (+1 No.)
1No.	1B2P Whc
1No.	2B3P
1No.	2B4P (-1 No.)
1No.	2B4P + (+1 No.)
1No.	3B4P
9No.	TOTAL

Realigning the efficiency

Indicative build cost Vs value

The challenge

- To recover additional build cost of second stair and additional GIA.
- To recover loss of NIA value.

Optimal response

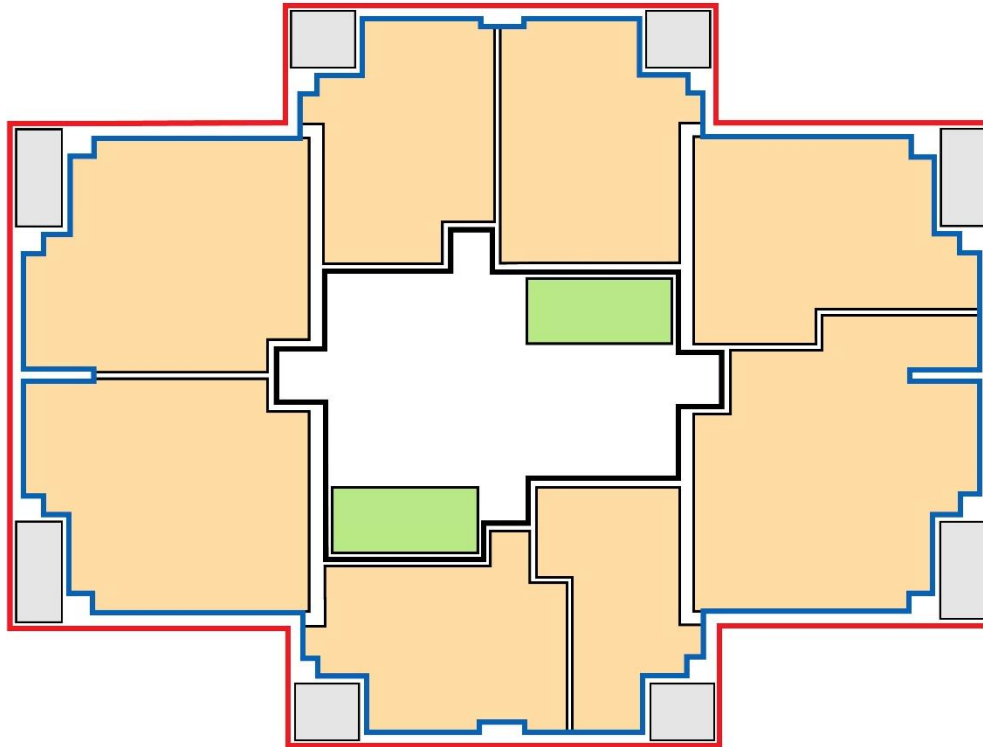
- Increase floorplate size where site constraints / planning allow to maintain NIA to GIA relationship, i.e. 74%.
- Adjust unit mix / number of units to ensure no oversized units.

Approach to assessing impact

- 'Per Floor' basis of comparison of indicative build costs and added value.
- Net Value gain exclude any other development costs incurred e.g. professional fees, additional CIL payments etc.

Realigning the efficiency

Indicative build cost Vs value



GEA (m²) - 869.1m²

(+91.4m²)

GIA (m²) - 820.2m²

(+86.2m²)

NIA (m²) - 609.0m²

(+64.0m²)

NIA/GIA - 74.3%

Original N:G retained

Additional build cost

c. £250,000 @ 29/ft² GIA

Additional value

c. £550,000 @ 800/ft² NIA

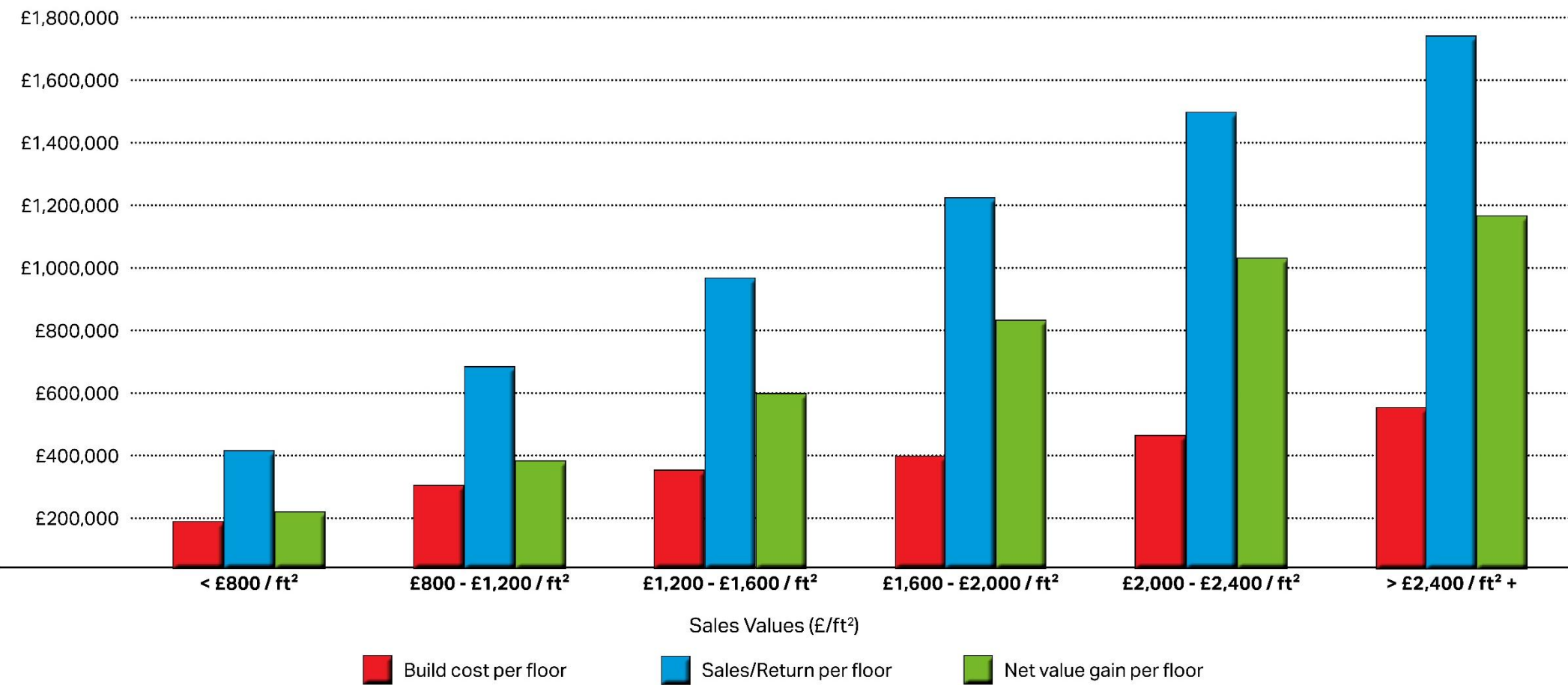
Net uplift in value

c. £300,000 / per floor

(Costs expressed are per typical floor)

Impact on cost and return

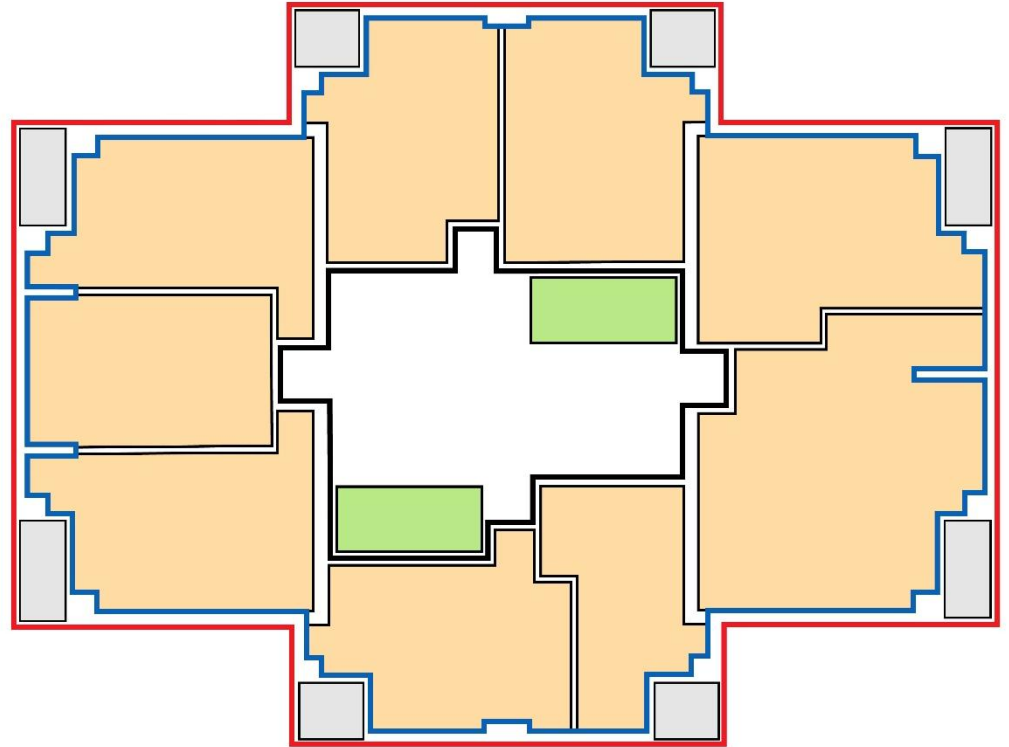
Build cost Vs sales return Vs net value gain (per floor)



The impact of a second stair

To conclude

- A second stair is mandatory in all tall residential buildings.
- Project viability is still linked to efficiency, and an additional stair reduces efficiency by circa 2% - 3%.
- The impact of a second stair is addressed by enlarging the building footprint by approximately 11% to return to pre-second stair efficiencies.
- Increased GIA increases NIA and net sales area.
- Additional NSA can more than offset the additional construction and fit-out cost (at the right sales price levels).
- Increased NIA provides more flexibility in the design and variety in the unit mix.



Thank you



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