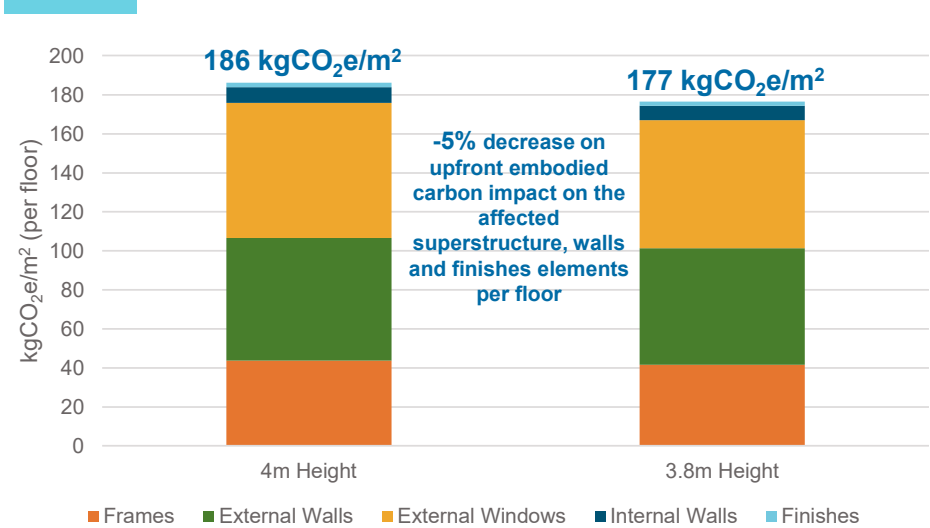
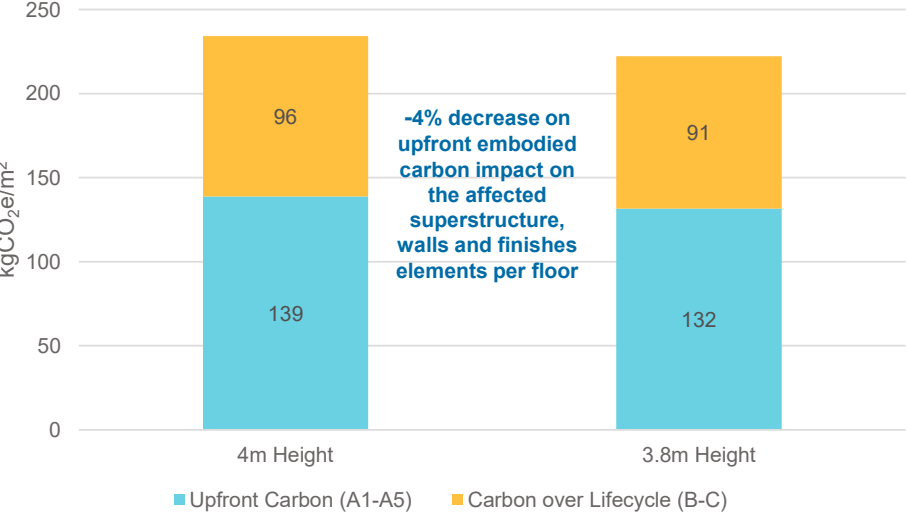


NOMA 2 Angel Square: Embodied Carbon Height Reduction Comparison (14/06/2023)



Upfront Embodied Carbon (A1-A5)	Height 4 m	Height 3.8 m
Frames	44	42
External Wall	63	60
External Windows	69	66
Internal Walls	8	7
Finishes	2	2
TOTAL intensities per floor (kgCO ₂ e/m ²)	186	177

TOTAL intensities Building (kgCO ₂ e/m ²)	139	132
Total Emissions (TCO ₂ e)	3,660	3,360

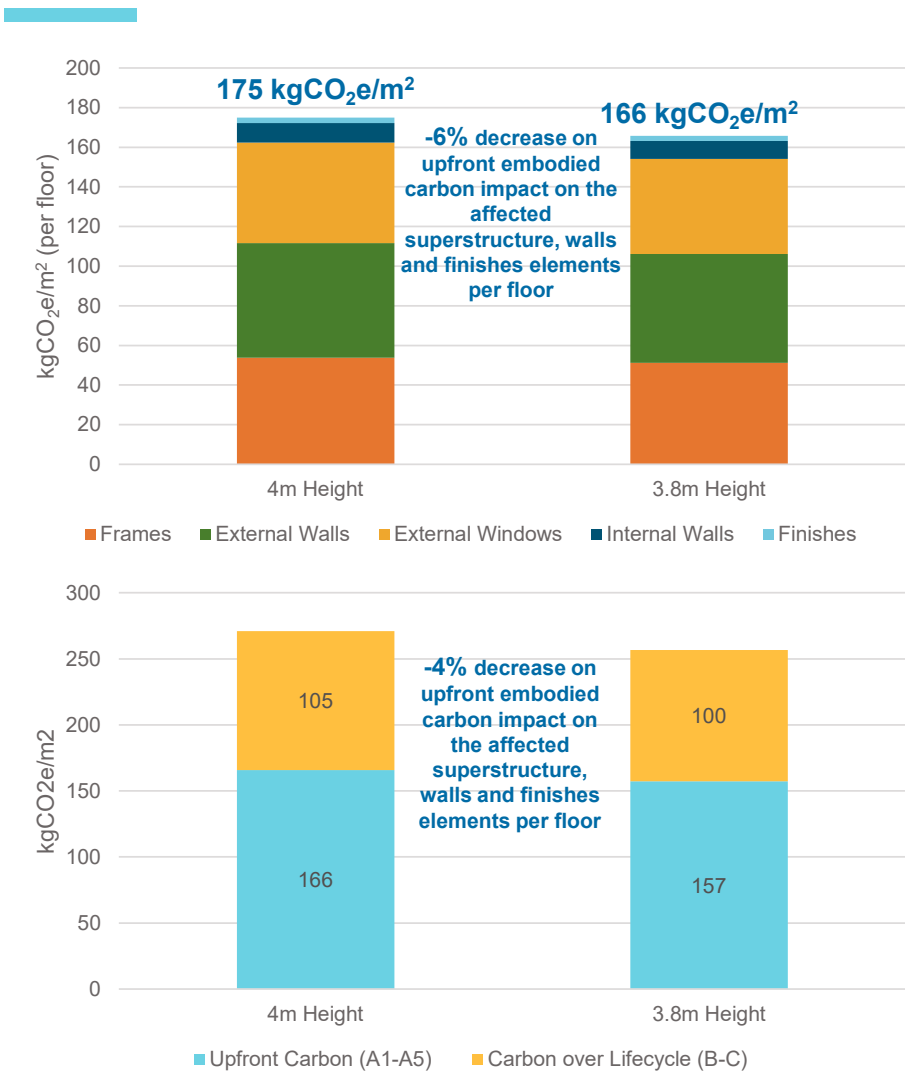
EC calculation notes:

- This study covers the affected building elements only where the height reduction would influence and for the elements where the intensities are reported for a floor area of 1,624.6 m² and per the building's GIA of 26,386 m²
- Considers life cycle modules A1-A5 (up to completion) for the elemental breakdown and provide an estimation of the carbon over the lifecycle (B-C)
- The comparison assumes there is no impact on the foundation of the building.
- The study provide a high level estimation of the carbon intensity of the building, for purposes of supporting the project's planning application

Comments:

- The study suggest a decrease of 5% of the overall carbon intensity of the building per floor if the height is reduced by 200mm
- Significant materials that impacted the carbon emissions reduction come from the unitised curtain walling with profiled terracotta cladding. These are significant carbon emitters reducing almost 6 kgCO₂e/m² of the overall output.
- Information provided by the Structural Engineers, suggest a concrete and reinforcement volume reductions of 1.5 m³ for the columns and 5.9 m³ for the core walls. This provide a carbon intensity reduction of 2 kgCO₂e/m²

NOMA 3 Angel Square: Embodied Carbon Height Reduction Comparison (14/06/2023)



Upfront Embodied Carbon (A1-A5)	Height 4 m	Height 3.8 m
Frames	54	51
External Wall	58	55
External Windows	51	48
Internal Walls	10	9
Finishes	3	3
OTAL intensities per affected floor (kgCO ₂ e/m ²)	175	166

TOTAL intensities Building (kgCO ₂ e/m ²)	16	157
Total Emissions (TCO ₂ e)	5,153	4,886

EC calculation notes:

- This study covers the affected building elements only where the height reduction would influence and for the elements where the intensities are reported for a floor area of 2,434.1 m² and per the building's GIA of 31,075 m²
- Considers life cycle modules A1-A5 (up to completion) for the elemental breakdown and provide an estimation of the carbon over the lifecycle (B-C)
- The comparison assumes there is no impact on the foundation of the building.
- The study provide a high level estimation of the carbon intensity of the building, for purposes of supporting the project's planning application.

Comments:

- The study suggest a decrease of 6% of the overall carbon intensity of the building per floor if the height is reduced by 200mm
- Significant materials that impacted the carbon emissions reduction come from the unitised curtain walling with profiled terracotta cladding. These are significant carbon emitters reducing almost 6 kgCO₂e/m² of the overall output.
- Information provided by the Structural Engineers, suggest a concrete and reinforcement volume reductions of 3 m³ for the columns and 7.2 m³ for the core walls. This provide a carbon intensity reduction of 3 kgCO₂e/m²