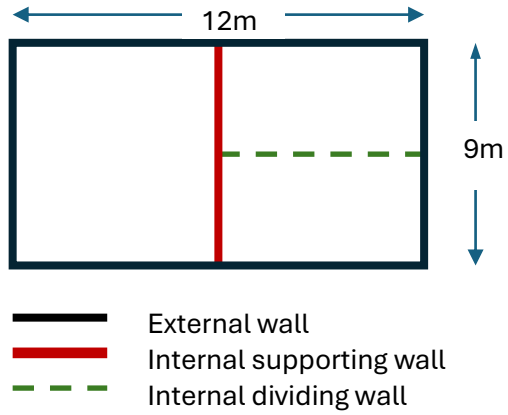
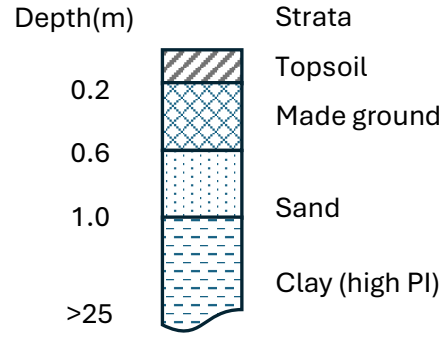
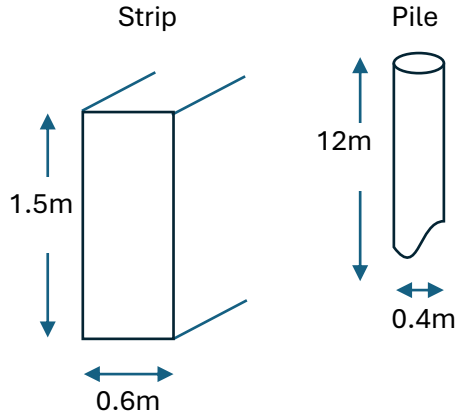
flint FOUNDATION

E1 – Simple detached house

Site arrangements	Input parameters
Site information: Site: Dorking#1 Property: Medium Detached 1 Site size: 40 properties	Site name: Example#1 Property id: Detached house 1 No. new properties onsite: 40
Property schematic (plan view):  External wall Internal supporting wall Internal dividing wall	**Building dimensions** Maximum length (m): 12 Maximum width (m): 9 Total internal supporting wall length (m): 9 Number of additional internal walls: 1
Geology:  	**Geology** Topsoil base (m): 0.2 Made Ground base (m): 0.6 Subsoil / Depth (m) / Description / Add layer Layer #1: 1.0 — Sand Layer #2: 25 — Clay highPI — Delete
Foundations:  	**Foundations** *Strip foundation input* Strip foundation width (m): 0.6 Strip Foundation depth (m): 1.5 Strip foundation reinforced: No *Pile foundation input* Pile foundation diameter (m): 0.4 Pile foundation depth (m): 12 % of pile length the foundation is reinforced: 50

flint FOUNDATION

E1 – Screen Results: Simple detached house 1

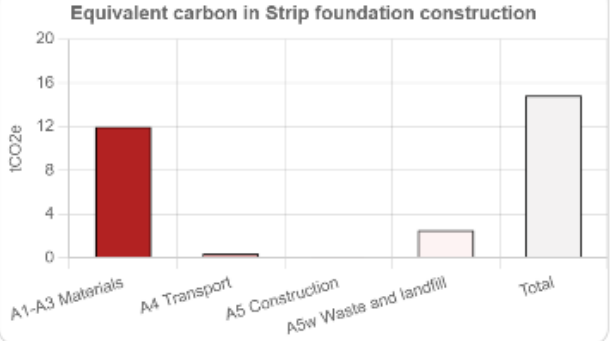
Optimum Foundation

Metric	Value
Optimum foundation to save carbon	Strip
Carbon saved	4.7 tCO_2e
Percent saving	24.2%
Depth of strip when pile foundation becomes optimum	2.0m

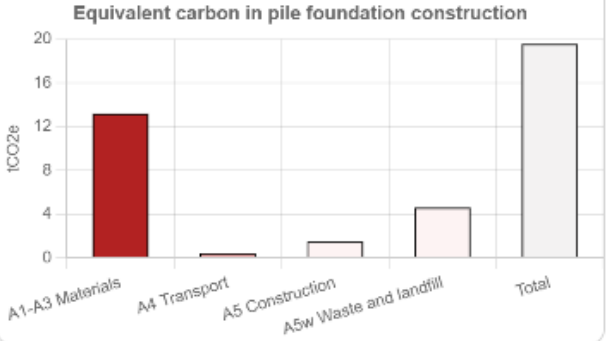
Foundation Comparison

RESULTS tCO_2e	Strip	Pile
A1 - A3 (materials)	12	13
A4 (transport)	0	0
A5 (Construction inc. reuse and waste)	3	6
Total	15	20

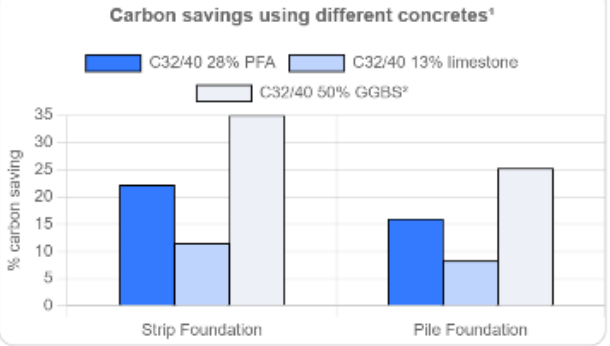
Strip Foundation Results



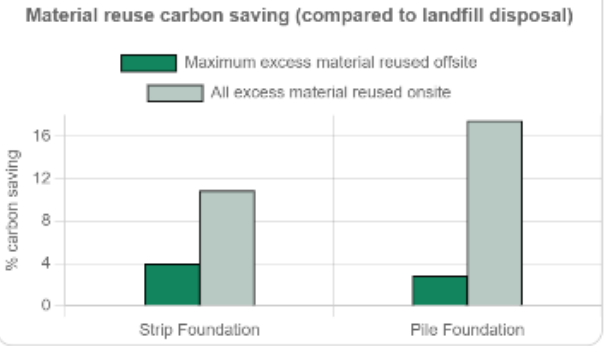
Pile Foundation Results



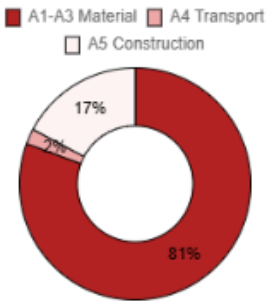
Material Reuse Impact



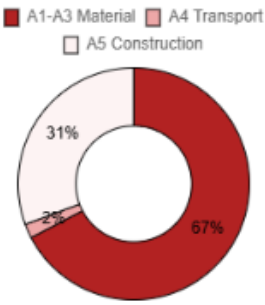
Process Reuse Impact



Life cycle carbon use - Strip



Life cycle carbon use - Pile



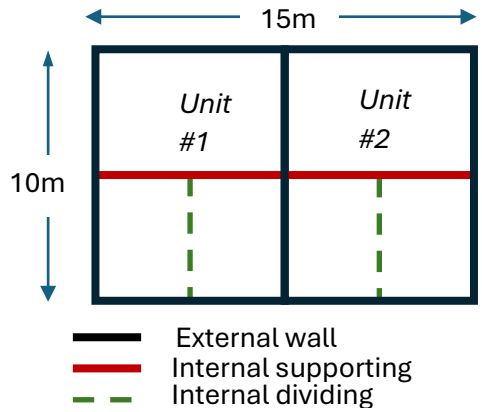
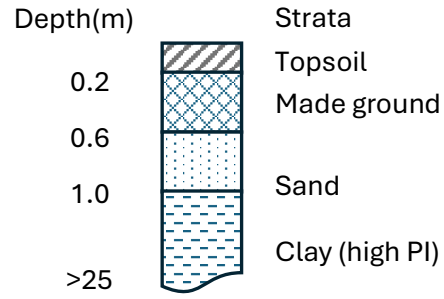
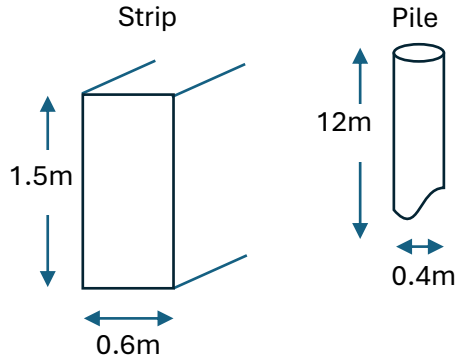
Notes

1. Concrete saving is compared to C32/40 25% GGBS

2. Adding more GGBS or PFA may only improve carbon emissions within the project (not globally) – this is included as indicative of potential concrete savings

flint FOUNDATION

E2 – Semi -detached house

Site arrangements	Input parameters
Site information: Site: Dorking#1 Property: Semi-detached #1 Site size: 40 properties	Site name: Example#2 Property id: Semi-detached house 1 No. new properties onsite: 40 No. new properties = all buildings onsite
Property schematic (plan view):  	**Building dimensions** Maximum length (m): 10 Maximum width (m): 15 Total internal supporting wall length (m): 25 Number of additional internal walls: 3 Note: Total internal supporting length = 10 + 15 = 25m 10 – property dividing wall (black) 15 – additional internal supporting wall (red)
Geology:  	**Geology** Topsoil base (m): 0.2 Made Ground base (m): 0.6 Subsoil / Depth (m) / Description — Add layer Layer #1: 1.0 — Sand Layer #2: 25 — Clay highPI — Delete
Foundations:  	**Foundations** *Strip foundation input* Strip foundation width (m): 0.6 Strip Foundation depth (m): 1.5 Strip foundation reinforced: No *Pile foundation input* Pile foundation diameter (m): 0.4 Pile foundation depth (m): 12 % of pile length the foundation is reinforced: 50

flint FOUNDATION

E2 – Screen Results: Semi-detached house 1

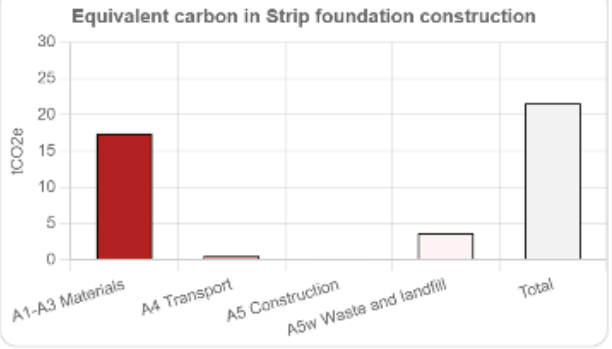
Optimum Foundation

Metric	Value
Optimum foundation to save carbon	Strip
Carbon saved	6.4 tCO_2e
Percent saving	23.0%
Depth of strip when pile foundation becomes optimum	2.0m

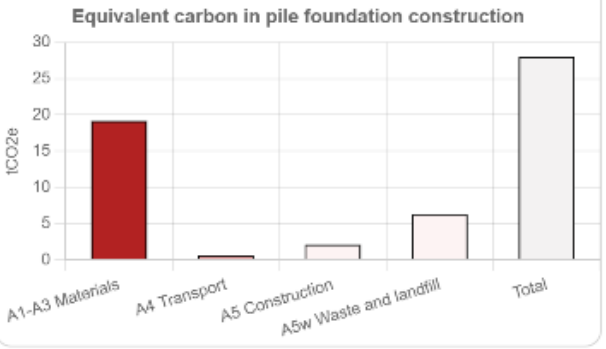
Foundation Comparison

RESULTS tCO_2e	Strip	Pile
A1 - A3 (materials)	17	19
A4 (transport)	0	1
A5 (Construction inc. reuse and waste)	4	8
Total	**22**	**28**

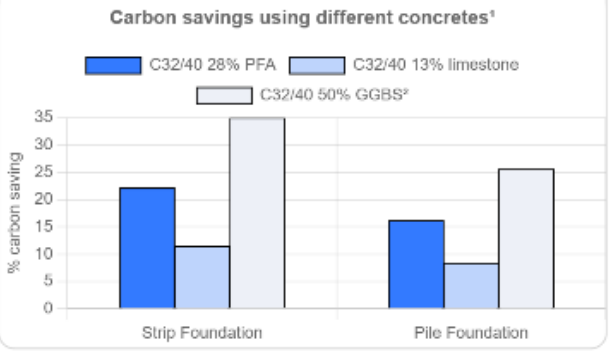
Strip Foundation Results



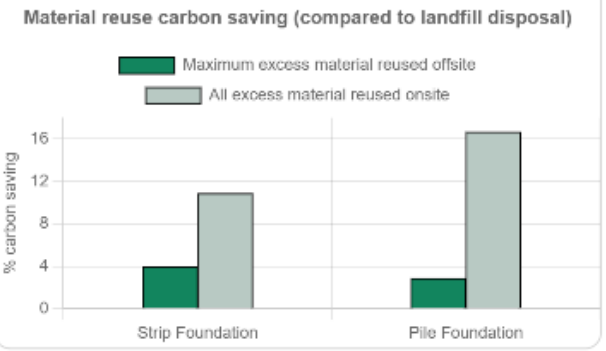
Pile Foundation Results



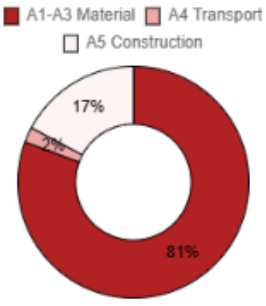
Material Reuse Impact



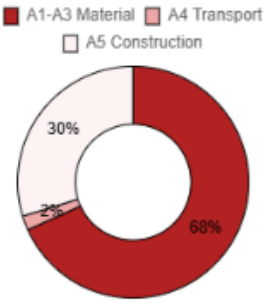
Process Reuse Impact



Life cycle carbon use - Strip



Life cycle carbon use - Pile



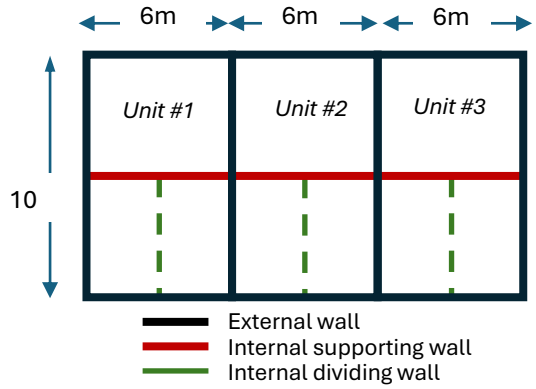
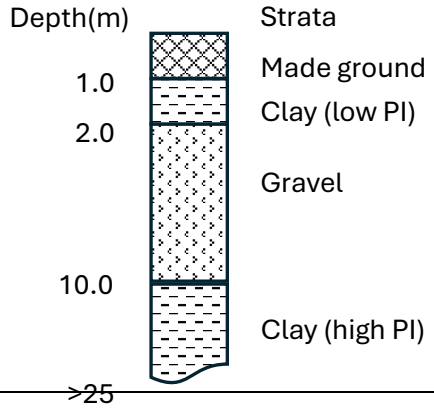
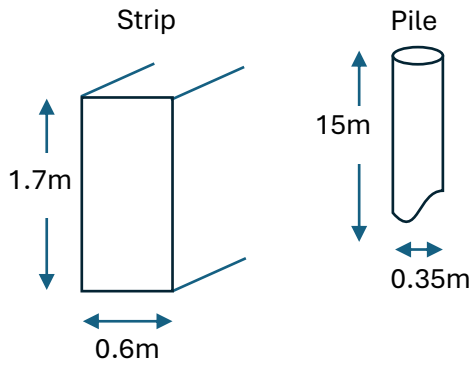
Notes

1. Concrete saving is compared to C32/40 25% GGBS

2. Adding more GGBS or PFA may only improve carbon emissions within the project (not globally) – this is included as indicative of potential concrete savings

flint FOUNDATION

E3 – Terraced houses

Site arrangements	Input parameters
Site information: Site: Example #3 Property: Terraced houses (3) Site size: 12 properties	Site name: Example#3 Property id: Terrace#1 (3) No. new properties onsite: 12
Property schematic (plan view): 	**Building dimensions** Maximum length (m): 18 Maximum width (m): 10 Total internal supporting wall length (m): 38 Number of additional internal walls: 5 Note: Internal walls are shown as 2 black dividing walls and 3 red supporting walls. Total internal supporting wall: 3*6 + 2*10 =38m No internal walls: 3 (red) + 2(black dividing walls) = 5
Geology: 	**Geology** Topsoil base (m): 0.0 Made Ground base (m): 1.0 Subsoil / Depth (m) / Description / Add layer Layer #1: 2.0 — Sand and Gravel Layer #2: 4.0 — Clay lowPI Layer #3: 10 — Gravel Layer #4: 25 — Clay highPI — Delete
Foundations: 	**Foundations** *Strip foundation input* Strip foundation width (m): 0.6 Strip Foundation depth (m): 1.7 Strip foundation reinforced: Yes *Pile foundation input* Pile foundation diameter (m): 0.35 Pile foundation depth (m): 15 % of pile length the foundation is reinforced: 50

flint FOUNDATION

E3 – Screen Results: Terrace house – 3 units

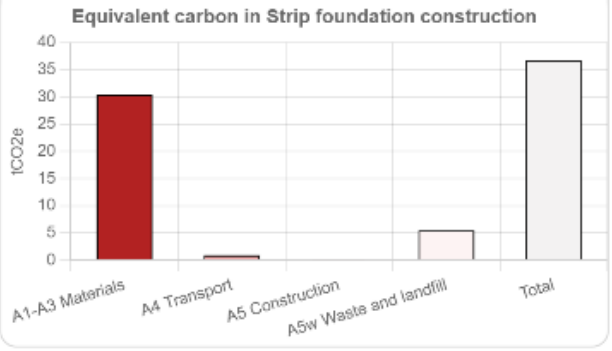
Optimum Foundation

Metric	Value
Optimum foundation to save carbon	Piled
Carbon saved	5.4 tCO_2e
Percent saving	14.6%
Depth of strip when pile foundation becomes optimum	1.5m

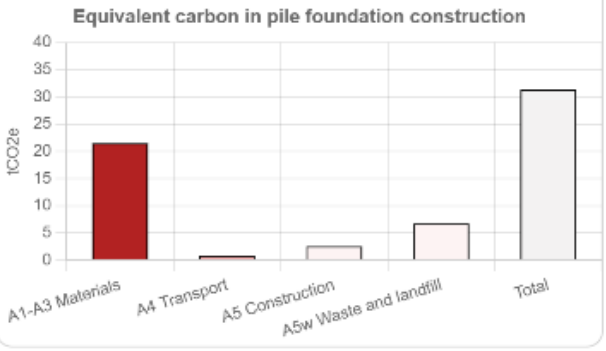
Foundation Comparison

RESULTS tCO_2e	Strip	Pile
A1 - A3 (materials)	30	21
A4 (transport)	1	1
A5 (Construction inc. reuse and waste)	5	9
Total	37	31

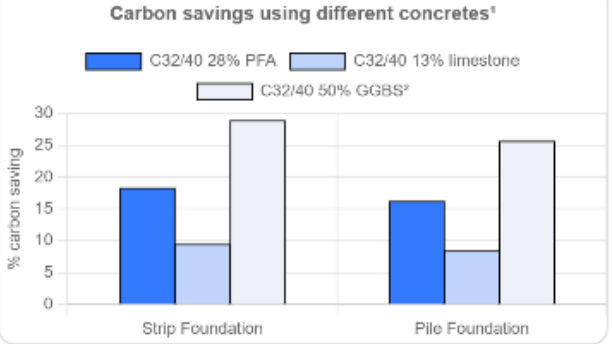
Strip Foundation Results



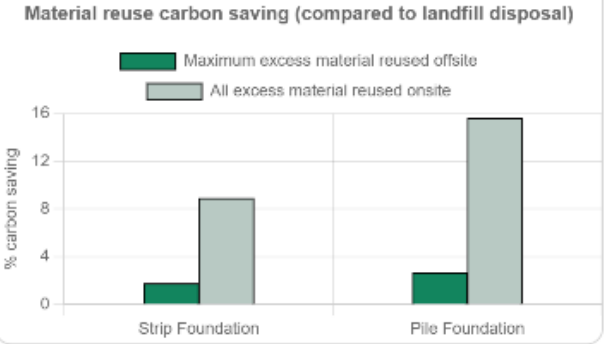
Pile Foundation Results



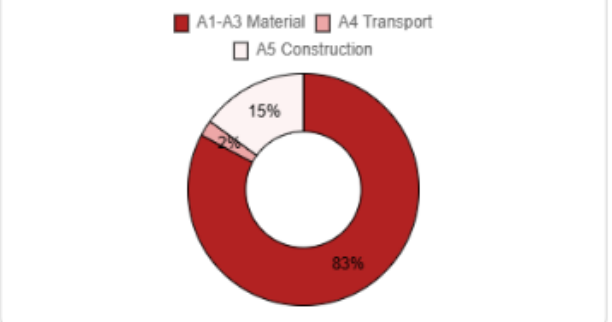
Material Reuse Impact



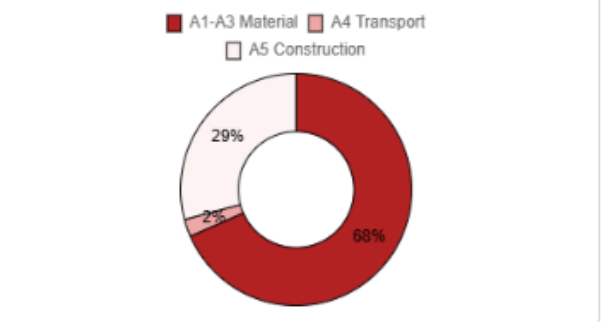
Process Reuse Impact



Life cycle carbon use - Strip



Life cycle carbon use - Pile



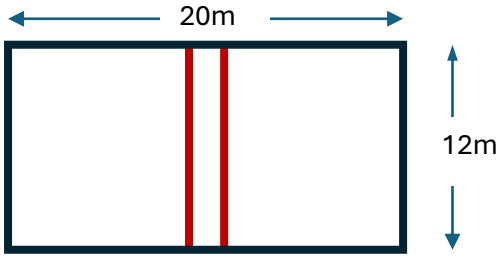
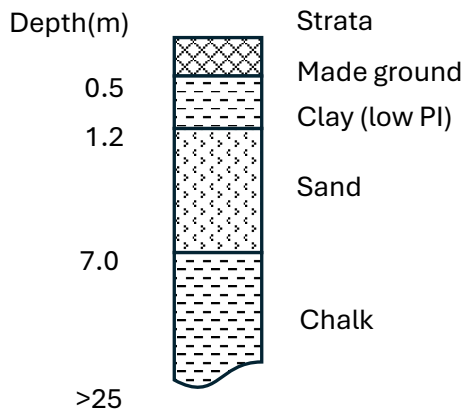
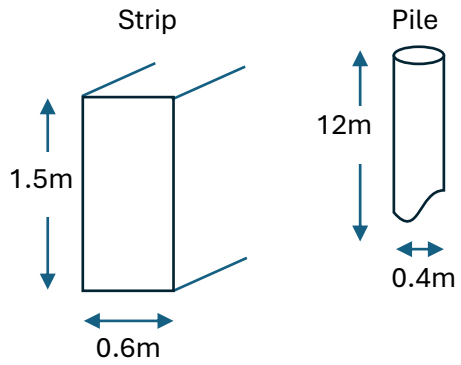
Notes

1. Concrete saving is compared to C32/40 25% GGBS

2. Adding more GGBS or PFA may only improve carbon emissions within the project (not globally) – this is included as indicative of potential concrete savings

flint FOUNDATION

E4 – Apartment block

Site arrangements	Input parameters
Site information: Site: Example #4 Property: Apartment Block Site size: 3 properties	Site name: Example #4 Property id: Apartment block No. new properties onsite: 3
Property schematic (plan view):   External wall Internal supporting wall	**Building dimensions** Maximum length (m): 20 Maximum width (m): 12 Total internal supporting wall length (m): 24 Number of additional internal walls: 2 Note: Total internal supporting length = 12+12 = 24m
Geology: 	**Geology** Topsoil base (m): 0 Made Ground base (m): 0.5 Subsoil / Depth (m) / Description / Add layer Layer #1: 1.2 — Clay lowPI Layer #2: 7 — Sand Layer #3: 25 — Chalk — Delete
Foundations: 	**Foundations** *Strip foundation input* Strip foundation width (m): 0.6 Strip Foundation depth (m): 1.7 Strip foundation reinforced: Yes *Pile foundation input* Pile foundation diameter (m): 0.4 Pile foundation depth (m): 12 % of pile length the foundation is reinforced: 50

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E4 – Apartment block

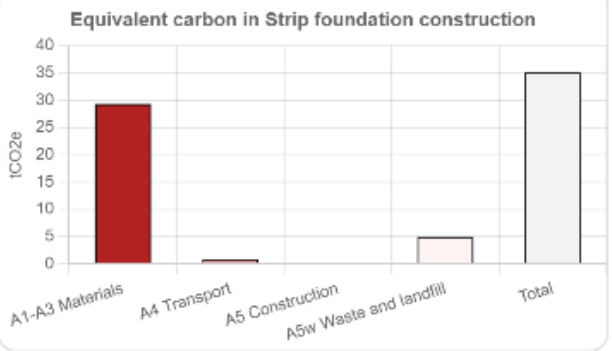
Optimum Foundation

Metric	Value
Optimum foundation to save carbon	Strip
Carbon saved	0.6 tCO_2e
Percent saving	1.6%
Depth of strip when pile foundation becomes optimum	1.8m

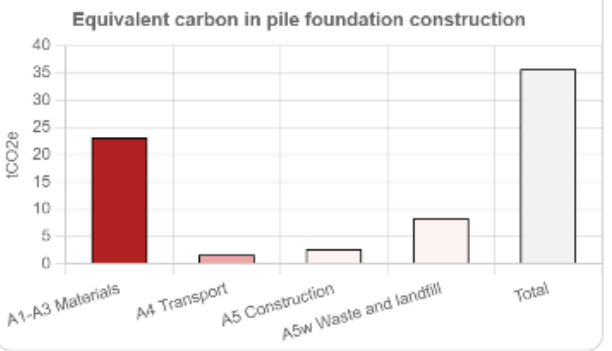
Foundation Comparison

RESULTS tCO_2e	Strip	Pile
A1 - A3 (materials)	29	23
A4 (transport)	1	2
A5 (Construction inc. reuse and waste)	5	11
Total	35	36

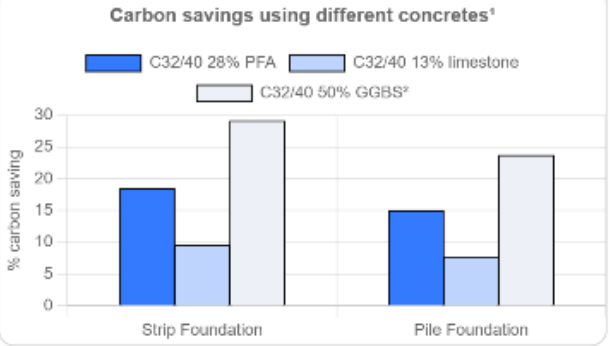
Strip Foundation Results



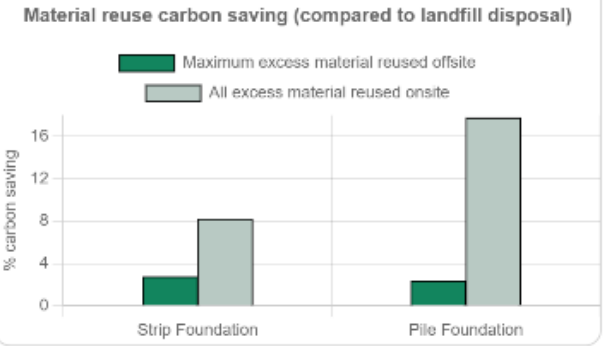
Pile Foundation Results



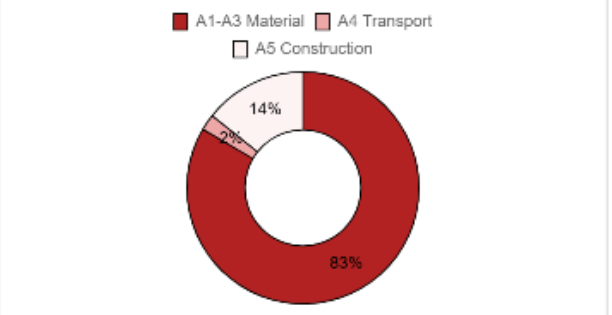
Material Reuse Impact



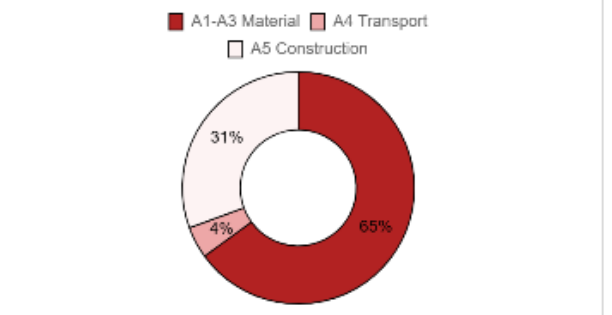
Process Reuse Impact



Life cycle carbon use - Strip



Life cycle carbon use - Pile



Notes

1. Concrete saving is compared to C32/40 25% GGBS

2. Adding more GGBS or PFA may only improve carbon emissions within the project (not globally) – this is included as indicative of potential concrete savings