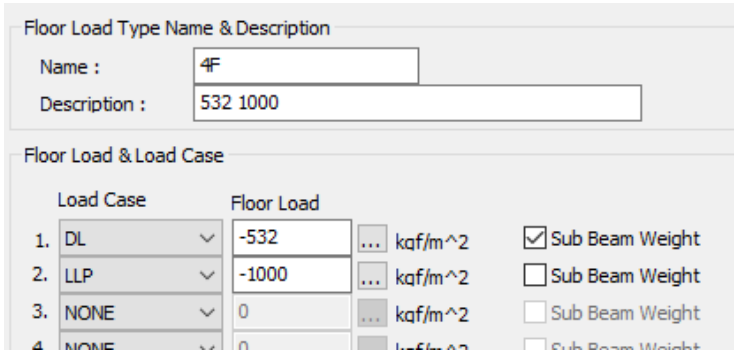
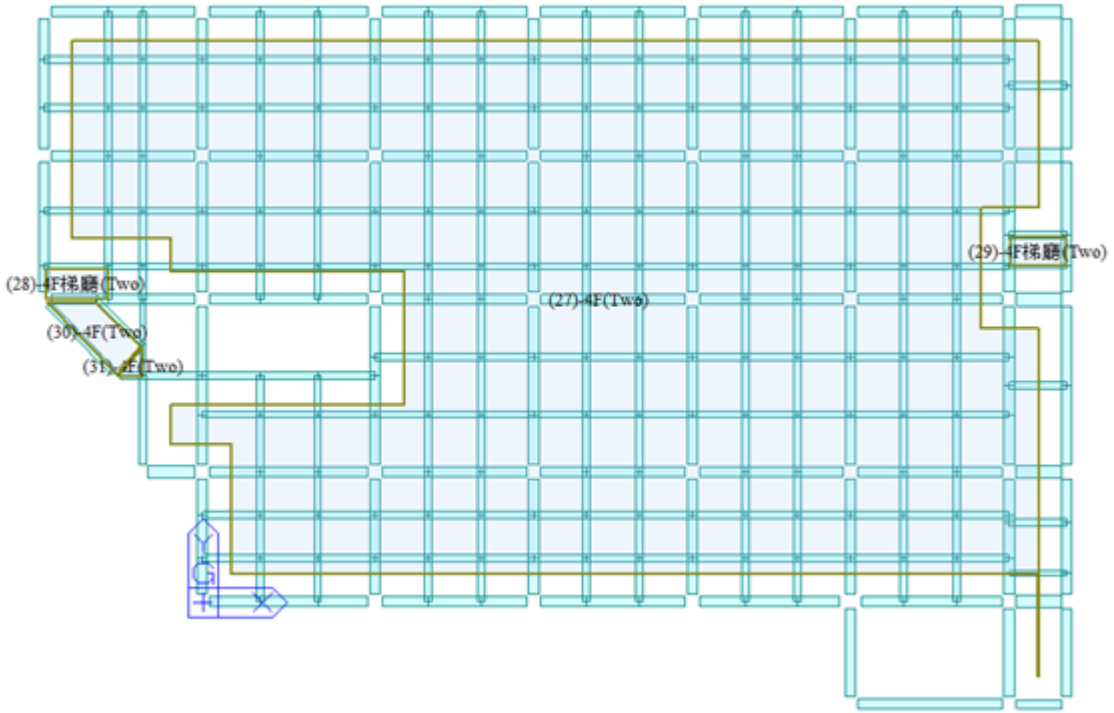
Q

3FL柱以上為RC結構，以四樓為例，樓版厚為18cm，額外載重放100kgf/m2，樓版面載靜重就是532kgf/m2，放置面載時會含括梁的範圍(點線模型)，這樣梁自重再包含進去，建物重量就會重複計算到梁版重疊18公分的重量，此部分有辦法扣除嗎?

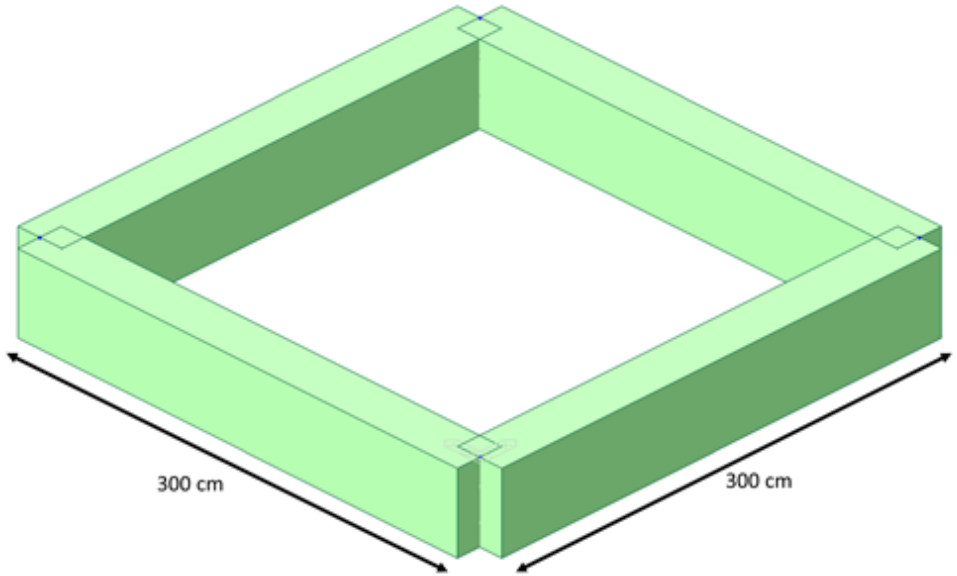
或是需要額外從哪裡做折減或是我每塊面載的重量要自行計算扣除梁的部分?

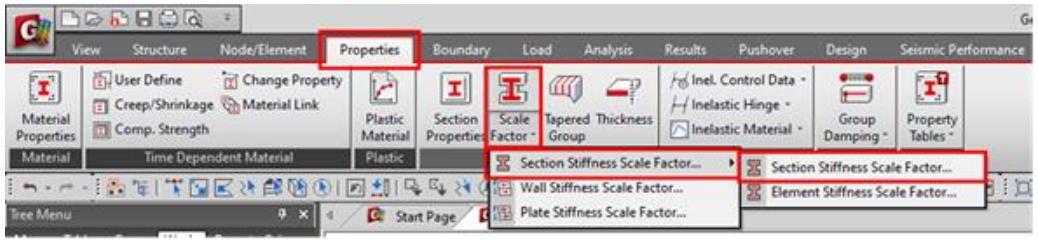




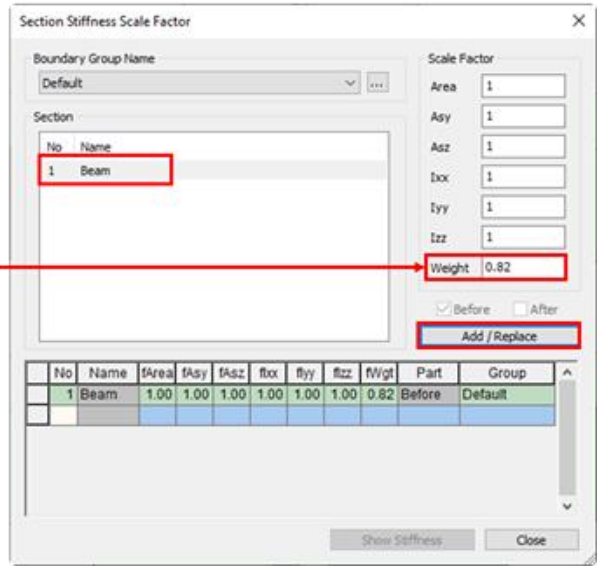
A

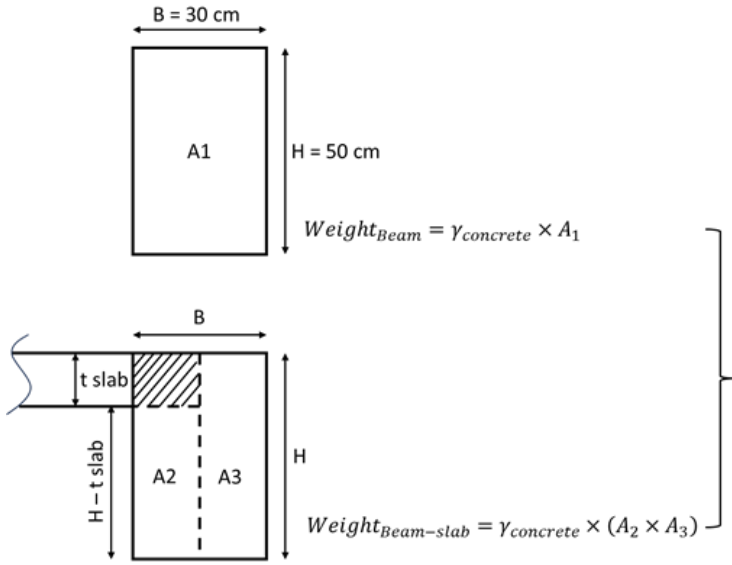
您可以改變 Stiffness Scale Factor。
在 Properties > Scale Factor > Stiffness Scale Factor > Stiffness Scale Factor > 改變 Weight 的 Ratio。
比如說，我的 Beam 尺寸 30x50。然後 Length 是 3 m。
然後我計算 Weight Ratio (Area Beam － Area Slab / Full Area Beam)。
計算 Weight Ratio 以後，在 Properties > Scale Factor > Stiffness Scale Factor > Stiffness Scale Factor > 輸入 Weight 的 Ratio。





$$Weight_{Beam-slab} = 0.82\, Weight_{Beam}$$





$$Weight_{Beam} = \gamma_{concrete} \times A_1$$

$$\frac{Weight_{Beam-slab}}{Weight_{Beam}} = \frac{\gamma_{concrete} \times (A_2 \times A_3)}{\gamma_{concrete} \times A_1}$$

$$\frac{Weight_{Beam-slab}}{Weight_{Beam}} = \frac{(A_2 \times A_3)}{A_1} = \frac{(15 \times (50 - 18) + 15 \times 50)}{30 \times 50} = 0.82$$

$$Weight_{Beam-slab} = \gamma_{concrete} \times (A_2 \times A_3)$$

$$Weight_{Beam-slab} = 0.82\, Weight_{Beam}$$

Beam Specification			Slab Specification		
B	30	cm	Thickness	18	cm
H	50	cm			
L	300	cm			
Concrete Material					
Desnity	0.0024	kgf/cm3			

Weight 1 Beam = B x H x L x Density Concrete	=	1080	kgf
Number Of Beam	=	4	Beams
Total Weight of Beam	=	4320	kgf
Weight of Slab = Thickness x Clear Area x Density	=	3110.4	kgf
Total Weight Beam and Slab	=	7430.4	kgf

自己計算結果是 **7430.4 kgf**。

Start Page | MIDAS/Gen | Story Load

	Load	Story	Level (cm)	Concent (kgf)	Beam (kgf)	Floor (kgf)	Pressure (kgf)	Self Weight (kgf)	Sum (kgf)
▶	DL	Roof	0.0000	0.000	0.000	-3888.000	0.000	-3542.400	-7430.400
	SUMMATION OF STORY LOAD PRINTOUT								
				Concent (kgf)	Beam (kgf)	Floor (kgf)	Pressure (kgf)	Self Weight (kgf)	Sum (kgf)
	DL			0.000	0.000	-3888.000	0.000	-3542.400	-7430.400

Midas Gen 計算結果是 **7430.4 kgf**。

自己計算的結果跟 **midas Gen** 的是一樣。