



使用 TEASPA 4.2，梁兩端不同鋼筋量，可以設兩端不同塑較嗎? 該如何設定?



1. 在 TEASPA Excel 檔案 > 選 4.0.1 Sec.CR.Long > 輸入 End-I 和 End-J 的鋼筋。
 比如說我要輸入 End-I Top : 3D22、End-I Bottom : 3D22、End-J Top : 4D19、End-J Bottom : 4D19。
 所以輸入 B1_I (End-I 的鋼筋) 和 B1_J (End-J 的鋼筋)。(看下圖)

No	ID	BarNo	CoordType	X/R	Y/Phi	Size	Mat	LERP1
2	C1	1 C	1 C	-11.59	-19.09	D19	SD280	
3	C1	3 C	1 C	11.59	-19.09	D19	SD280	1
4	C1	5 C	1 C	11.59	19.09	D19	SD280	3
5	C1	7 C	1 C	-11.59	19.09	D19	SD280	5
6	C1	8 C	1 C	-11.59	0.00	D19	SD280	7
7	G1	1 C	1 C	-11.44	-31.44	D22	SD280	
8	G1	4 C	1 C	11.44	-31.44	D22	SD280	1
9	G1	5 C	1 C	-11.44	31.44	D22	SD280	1
10	G1	8 C	1 C	11.44	31.44	D22	SD280	1
11	B1_I	1 C	1 C	-9.09	-19.09	D22	SD280	
12	B1_I	3 C	1 C	9.09	-19.09	D22	SD280	1
13	B1_I	4 C	1 C	-9.09	19.09	D22	SD280	
14	B1_I	6 C	1 C	9.09	19.09	D22	SD280	4
15	B1_I	1 C	1 C	-9.09	-19.09	D19	SD280	
16	B1_I	4 C	1 C	9.09	-19.09	D19	SD280	1
17	B1_I	5 C	1 C	-9.09	19.09	D19	SD280	
18	B1_I	8 C	1 C	9.09	19.09	D19	SD280	5

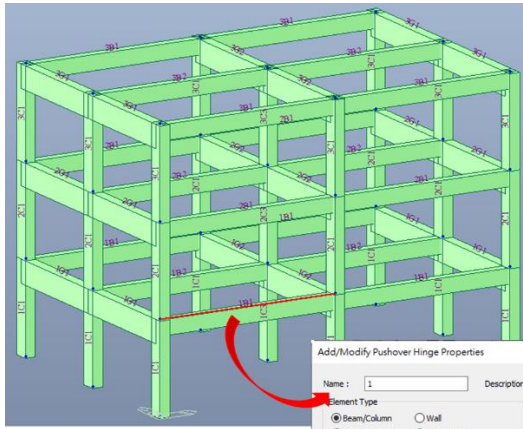
End-I Top : 3D22
 End-I Bottom : 3D22
 End-J Top : 4D19
 End-J Bottom : 4D19

2. 輸入鋼筋以後，在 4.2.1 Sec.CB.Tee 部分，您可以輸入 End-I 鋼筋和 End-J 鋼筋。(看下圖)

No	ID	MatConc	MatLong	MatConf	Width, cm	Depth, cm	ThickWeb, cm	ThickFlange, cm	CRLongIEnd	CRLongJEnd	NumConf	SticConf	Spaning, cm	CoefConf
3	3-1G1	FL2	SD280	SD280	187.50	75.00	35.00	12.00	G1	G1	2	D10	20.00	NC
4	4-1G2	FL2	SD280	SD280	187.50	75.00	35.00	12.00	G1	G1	2	D10	20.00	NC
5	5-1B1	FL2	SD280	SD280	112.50	50.00	30.00	12.00	B1_I	B1_J	2	D10	20.00	NC
6	6-1B2	FL2	SD280	SD280	112.50	50.00	30.00	12.00	B1_I	B1_J	2	D10	20.00	NC
8	12-2G1	FL3	SD280	SD280	187.50	75.00	35.00	12.00	G1	G1	2	D10	20.00	NC
9	14-2B1	FL3	SD280	SD280	112.50	50.00	30.00	12.00	B1_I	B1_J	2	D10	20.00	NC
10	15-2B2	FL3	SD280	SD280	112.50	50.00	30.00	12.00	B1_I	B1_J	2	D10	20.00	NC
11	21-3G1	FL3	SD280	SD280	187.50	75.00	35.00	12.00	G1	G1	2	D10	20.00	NC
12	22-3G2	FL3	SD280	SD280	187.50	75.00	35.00	12.00	G1	G1	2	D10	20.00	NC
13	23-1B1	FL3	SD280	SD280	112.50	50.00	30.00	12.00	B1_I	B1_J	2	D10	20.00	NC
14	24-3B2	FL3	SD280	SD280	112.50	50.00	30.00	12.00	B1_I	B1_J	2	D10	20.00	NC

CRLongIEnd 輸入 B1_I
 CRLongJEnd 輸入 B1_J

3. 您可以做 TEASPA HingeProp 功能。
然後您可以看 1B1 兩端塑較是不同。(看下圖)



Add/Modify Pushover Hinge Properties

Name: 1 Description:

Element Type: Beam/Column Wall Truss General Link Point Spring Support

Material Type: RC / SRC (encased) Steel / SRC (filled) Masonry

Wall Type: Membrane Plate

Definition: Moment - Rotation (M-Theta) Moment - Curvature (M-Phi Lumped) Moment - Curvature (M-Phi Distributed)

Hinge Type: Skeleton Model Fiber Model

Axial-Moment Interaction Type: None P-M Interaction P-M-M in Status Determination

Axial-Shear Interaction Type of RC: None P-Q Interaction

Fiber Section: Auto Generation User Defined

Component Properties:

Component	Hinge Location	Skeleton Curve	Properties...
<input type="checkbox"/> Fx	1B1-end	Trilinear Type	Properties...
<input type="checkbox"/> Fy	1B1-end	Trilinear Type	Properties...
<input type="checkbox"/> Fz	1B1-end	FEMA	Properties...
<input type="checkbox"/> Mx	1B1-end	Trilinear Type	Properties...
<input checked="" type="checkbox"/> My	1B1-end	FEMA	Properties...
<input type="checkbox"/> Mz	1B1-end	Trilinear Type	Properties...

Directional Properties of Pushover Hinge : FEMA

Input Method: Auto-Calculation General Type User Input

Shape of FEMA Curve: Perfect Plastic Type Perfect Plastic Type

Strength Loss: Yes No

Type of I-End & J-End: Symmetric Asymmetric

Unloading Stiffness Type: Select Hyst. Model Energy Dissipation Factors & Unloading Stiffness Factor

Origin-Oriented: Origin-Oriented Origin-Oriented

Total Strength Loss at Point E, ϵ : Yes No

Properties of I-end Properties of J-end

Type: Symmetric Asymmetric

I-end		J-end	
M/M _y	D/D _y	M/M _y	D/D _y
-0.2	0	-0.2	0
0	0	0	0
-1	-1	-1	-1
-1	-1	-1	-1
0	0	0	0
1	1	1	1
0.2	0	0.2	0
0.2	0	0.2	0

Yield Strength (R_y): User Defined User Defined

(+)	(-)
1468130	1310940

Yield Rotation (R_y): User Defined User Defined

(+)	(-)
0.00402425	0.0036199

Acceptance Criteria (Current Deform. / Yield Deform.):

	(+)	(-)
Immediate Occupancy (IO)	100	100
Life Safety (LS)	200	200
Collapse Prevention (CP)	300	300

Unloading Stiffness Parameter: Exponent in Unloading Stiffness Calculation: 0, Pinching Rule Factor (0.01-1.0): 0

End-I 和 End-J 不一樣。

Directional Properties of Pushover Hinge : FEMA

Input Method: Auto-Calculation General Type User Input

Shape of FEMA Curve: Perfect Plastic Type Perfect Plastic Type

Strength Loss: Yes No

Type of I-End & J-End: Symmetric Asymmetric

Unloading Stiffness Type: Select Hyst. Model Energy Dissipation Factors & Unloading Stiffness Factor

Origin-Oriented: Origin-Oriented Origin-Oriented

Total Strength Loss at Point E, ϵ : Yes No

Properties of I-end Properties of J-end

Type: Symmetric Asymmetric

I-end		J-end	
M/M _y	D/D _y	M/M _y	D/D _y
-0.2	0	-0.2	0
0	0	0	0
-1	-1	-1	-1
-1	-1	-1	-1
0	0	0	0
1	1	1	1
0.2	0	0.2	0
0.2	0	0.2	0

Yield Strength (R_y): User Defined User Defined

(+)	(-)
1451150	1264900

Yield Rotation (R_y): User Defined User Defined

(+)	(-)
0.00402724	0.00327476

Acceptance Criteria (Current Deform. / Yield Deform.):

	(+)	(-)
Immediate Occupancy (IO)	100	100
Life Safety (LS)	200	200
Collapse Prevention (CP)	300	300

Unloading Stiffness Parameter: Exponent in Unloading Stiffness Calculation: 0, Pinching Rule Factor (0.01-1.0): 0

Yield Strength 和 Yield Rotation 也不一樣。