Secondary Beams

Beam ID	Start Point	End Point	Span	Mmax	Vmax
20	(18,4,3)	(18,8,3)	4	4.65376	4.65376
19	(18,0,3)	(18,4,3)	4	4.65376	4.65376
2	(0,4,3)	(0,8,3)	4	4.65376	4.65376
1	(0,0,3)	(0,4,3)	4	4.65376	4.65376

Design Limit state:

Combo: 1.2D+1.4L

Md: 4.65376 t.m

Vd: 4.65376 ton

Service Limit State

Combo: LIVE

Span: 4 m

Load: -1 t/m'

Design Checks

1-Check Local Buckling

dw/tw= 32.39 < 81.97814749472366 => Compact Web

c/tf= 4.81 < 10.908903091817557 => Compact Flange

2-Check Lateral Torsional Buckling

Luact= 0 m < Lumax= 154.91933384829667 m => Supported (No LTB)

3-Check Bending Stress

Section: IPE 240

fact= 1.4363456790123459 t/cm^2 < Fb= 1.536 t/cm^2

4-Check Shear Stress

qact= 0.31275268817204305 t/cm^2 < qall= 0.84 t/cm^2

5-Check Deflection

dact= 0.4080466805402538 cm < dall= 1.3333333333333333 cm

Beam ID	Start Point	End Point	Span	Mmax	Vmax
16	(14,4,3)	(14,8,3)	4	9.25376	9.25376
15	(14,0,3)	(14,4,3)	4	9.25376	9.25376

14	(12,4,3)	(12,8,3)	4	9.25376	9.25376
13	(12,0,3)	(12,4,3)	4	9.25376	9.25376
12	(10,4,3)	(10,8,3)	4	9.25376	9.25376
11	(10,0,3)	(10,4,3)	4	9.25376	9.25376
17	(16,0,3)	(16,4,3)	4	9.25376	9.25376
9	(8,0,3)	(8,4,3)	4	9.25376	9.25376
8	(6,4,3)	(6,8,3)	4	9.25376	9.25376
7	(6,0,3)	(6,4,3)	4	9.25376	9.25376
6	(4,4,3)	(4,8,3)	4	9.25376	9.25376
5	(4,0,3)	(4,4,3)	4	9.25376	9.25376
4	(2,4,3)	(2,8,3)	4	9.25376	9.25376
3	(2,0,3)	(2,4,3)	4	9.25376	9.25376
18	(16,4,3)	(16,8,3)	4	9.25376	9.25376
10	(8,4,3)	(8,8,3)	4	9.25376	9.25376

Design Limit state:

Combo: 1.2D+1.4L

Md: 9.25376 t.m

Vd: 9.25376 ton

Service Limit State

Combo: LIVE

Span: 4 m

Load: -2 t/m'

Design Checks

1-Check Local Buckling

dw/tw= 37.87 < 81.97814749472366 => Compact Web

c/tf= 5.64 < 10.908903091817557 => Compact Flange

2-Check Lateral Torsional Buckling

Luact= 0 m < Lumax= 206.55911179772892 m => Supported (No LTB)

3-Check Bending Stress

Section: IPE 330

fact= 1.2978625525946703 t/cm^2 < Fb= 1.536 t/cm^2

4-Check Shear Stress

qact= 0.3738892929292929 t/cm^2 < qall= 0.84 t/cm^2

5-Check Deflection

dact= 0.2697198958881202 cm < dall= 1.3333333333333333 cm

Main Beams

Beam ID	Start Point	End Point	Span	Mmax	Vmax
9	(12,8,3)	(18,8,3)	6	18.70246	9.38372
8	(6,8,3)	(12,8,3)	6	18.70246	9.38372
7	(0,8,3)	(6,8,3)	6	18.70246	9.38372
3	(12,0,3)	(18,0,3)	6	18.70246	9.38372
2	(6,0,3)	(12,0,3)	6	18.70246	9.38372
1	(0,0,3)	(6,0,3)	6	18.70246	9.38372

Design Limit state:

Combo: 1.2D+1.4L

Md: 18.70246 t.m

Vd: 9.38372 ton

Service Limit State

Combo: LIVE

Span: 6 m

Load: -1.3333333333333333 t/m'

Design Checks

1-Check Local Buckling

dw/tw= 41.66 < 81.97814749472366 => Compact Web

c/tf= 5.19 < 10.908903091817557 => Compact Flange

2-Check Lateral Torsional Buckling

Luact= 0 m < Lumax= 245.28894525980309 m => Supported (No LTB)

3-Check Bending Stress

Section: IPE 450

fact= 1.2468306666666666 t/cm^2 < Fb= 1.536 t/cm^2

4-Check Shear Stress

qact= 0.2218373522458629 t/cm^2 < qall= 0.84 t/cm^2

5-Check Deflection

dact= 0.31755440765517823 cm < dall= 2 cm

Beam ID	Start Point	End Point	Span	Mmax	Vmax
6	(12,4,3)	(18,4,3)	6	37.209979999999995	18.63748
5	(6,4,3)	(12,4,3)	6	37.209979999999995	18.63748
4	(0,4,3)	(6,4,3)	6	37.209979999999995	18.63748

Design Limit state:

Combo: 1.2D+1.4L

Md: 37.209979999999995 t.m

Vd: 18.63748 ton

Service Limit State

Combo: LIVE

Span: 6 m

Load: -2.6666666666666665 t/m'

Design Checks

1-Check Local Buckling

dw/tw= 43.36 < 81.97814749472366 => Compact Web

c/tf= 4.79 < 10.908903091817557 => Compact Flange

2-Check Lateral Torsional Buckling

Luact= 0 m < Lumax= 271.1088342345192 m => Supported (No LTB)

3-Check Bending Stress

Section: IPE 550

fact= 1.5249991803278686 t/cm^2 < Fb= 1.536 t/cm^2

4-Check Shear Stress

qact= 0.3052822276822277 t/cm^2 < qall= 0.84 t/cm^2

5-Check Deflection

dact= 0.31925761961518817 cm < dall= 2 cm
