# Secondary Beams

| Beam ID | Start Point | End Point | Span | Mmax | Vmax |
|---|---|---|---|---|---|
| 4 | (6,0,5) | (6,5,5) | 5 | 3.2089999999999996 | 2.5671999999999997 |
| 1 | (0,0,5) | (0,5,5) | 5 | 3.2089999999999996 | 2.5671999999999997 |

## Design Limit state:

Combo: 1.2D+1.4L

Md: 3.2089999999999996 t.m

Vd: 2.5671999999999997 ton

## Service Limit State

Combo: LIVE

Span: 5 m

Load: -0.5 t/m'

## Design Checks

### 1-Check Local Buckling

dw/tw= 31.06 < 81.97814749472366 => Compact Web

c/tf= 4.66 < 10.908903091817557 => Compact Flange

### 2-Check Lateral Torsional Buckling

Luact= 0 m < Lumax= 142.00938936093863 m => Supported (No LTB)

### 3-Check Bending Stress

Section: IPE 220

fact= 1.2734126984126983 t/cm^2 < Fb= 1.536 t/cm^2

### 4-Check Shear Stress

qact= 0.19778120184899844 t/cm^2 < qall= 0.84 t/cm^2

### 5-Check Deflection

dact= 0.6995032519626383 cm < dall= 1.6666666666666667 cm

| Beam ID | Start Point | End Point | Span | Mmax | Vmax |
|---|---|---|---|---|---|
| 3 | (4,0,5) | (4,5,5) | 5 | 6.334 | 5.0672 |
| 2 | (2,0,5) | (2,5,5) | 5 | 6.334 | 5.0672 |

## Design Limit state:

Combo: 1.2D+1.4L

Md: 6.334 t.m

Vd: 5.0672 ton

## Service Limit State

Combo: LIVE

Span: 5 m

Load: -1 t/m'

## Design Checks

### 1-Check Local Buckling

dw/tw= 34.73 < 81.97814749472366 => Compact Web

c/tf= 5.3 < 10.908903091817557 => Compact Flange

### 2-Check Lateral Torsional Buckling

Luact= 0 m < Lumax= 174.28425057933376 m => Supported (No LTB)

### 3-Check Bending Stress

Section: IPE 270

fact= 1.4764568764568764 t/cm^2 < Fb= 1.536 t/cm^2

### 4-Check Shear Stress

qact= 0.284354657687991 t/cm^2 < qall= 0.84 t/cm^2

### 5-Check Deflection

dact= 0.6693001754530252 cm < dall= 1.6666666666666667 cm

# Main Beams

| Beam ID | Start Point | End Point | Span | Mmax | Vmax |
|---------|-------------|-----------|------|----------|---------|
| 2 | (0,5,5) | (6,5,5) | 6 | 10.32934 | 5.19716 |
| 1 | (0,0,5) | (6,0,5) | 6 | 10.32934 | 5.19716 |

## Design Limit state:

Combo: 1.2D+1.4L

Md: 10.32934 t.m

Vd: 5.19716 ton

## Service Limit State

Combo: LIVE

Span: 6 m

Load: -0.8333333333333334 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= 1.4487152875175315 t/cm^2 < Fb= 1.536 t/cm^2

### 4-Check Shear Stress

qact= 0.20998626262626263 t/cm^2 < qall= 0.84 t/cm^2

### 5-Check Deflection

dact= 0.5689404053890035 cm < dall= 2 cm