R BEAMS (28 day concrete strength)

SECTION PROPERTIES

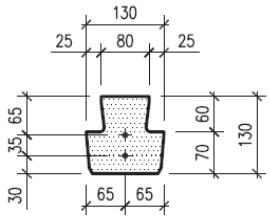
Non Composite Section Properties	Units	130R	150 R	200 R
Mass of Section	kg/m	34	39	54
Gross Area	mm^2	13078	15988	21943
EI	Nmm^2	$8.047 X 10^{11}$	$11.558 X 10^{11}$	$28.452 X 10^{11}$
Positive Moments				
Ultimate Moment capacity (ϕMu^{pos})	kNm	6.95	8.83	19.38
Cracking Moment (Mcr^{pos})	kNm	5.03	6.32	10.41
Reinforcement Shear component ($\phi Vuc.reo^{pos}$)	kN	8.88	9.41	11.67
Moment Shear component ($\phi Mo.max^{pos}$)	kNm	2.69	3.33	5.24
Web Shear capacity ($\phi Vuc.web^{pos}$)	kN	14.60	21.40	33.33
Negative Moments				
Ultimate Moment capacity (ϕMu^{neg})	kNm	4.18	9.27	12.73
Cracking Moment (Mcr^{neg})	kNm	2.14	4.57	6.18
Reinforcement Shear component ($\phi Vuc.reo^{neg}$)	kN	7.05	7.67	9.42
Moment Shear component ($\phi Mo.max^{neg}$)	kNm	0.70	2.22	2.33
Web Shear capacity ($\phi Vuc.web^{neg}$)	kN	14.60	21.40	33.33

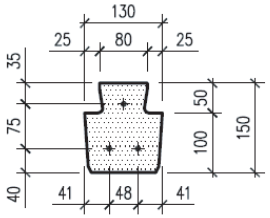
Material Details

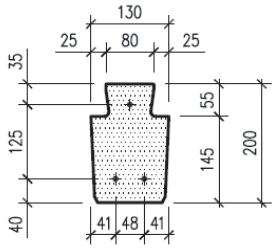
CONCRETE: 65MPa

STEEL TENDONS:

- 7-wire ordinary strand, 9.5mm low-relaxation
- Area = $54.7mm^2$
- Min Breaking Load = 102kN
- Min Tensile Strength (fp) = 1850 Mpa
- Yield Strength = 0.85 x fp (stress relieved wire)
- Modulus of Elasticity = 195×10^3MPa







SHEAR NOTES:

Shear capacity varies along the length of the beam, and is dependent on applied loads. ϕVuc = Lesser of ϕVuc.flexure & ϕVuc.web / ϕVuc.flexure = ϕVuc.reo + ABS [ϕMo(V*/M*)] / ϕMo Varies at the ends of the beams where the strand is developing and is a constant value ϕMo.max outside of this zone.

From 0 to 56mm from the end of the beam : ϕMo = Nil / From 56 to 558mm from the end of the beam : ϕMo = varies from Nil to ϕMo.max / Past 558mm from the end of the beam : ϕMo = ϕMo.max

IMPORTANT NOTE:

Section properties in Western Australia may vary slightly, please contact Ultrafloor on 1800 858 723 for details.

M BEAMS (28 day concrete strength)

SECTION PROPERTIES

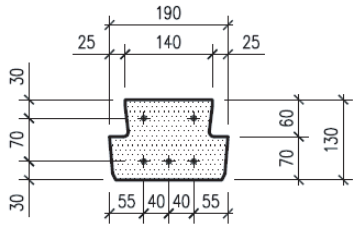
Non Composite Section Properties	Units	130 M	250 M
Mass of Section	kg/m	51	107
Gross Area	mm^2	20878	43143
EI	Nmm^2	12.465×10^{11}	91.782×10^{11}
Positive Moments			
Ultimate Moment capacity (ϕMu^{pos})	kNm	11.28	42.34
Cracking Moment (Mcr^{pos})	kNm	8.62	26.68
Reinforcement Shear component ($\phi Vuc.reo^{pos}$)	kN	14.77	22.44
Moment Shear component ($\phi Mo.max^{pos}$)	kNm	4.93	14.00
Web Shear capacity ($\phi Vuc.web^{pos}$)	kN	27.13	67.10
Negative Moments			
Ultimate Moment capacity (ϕMu^{neg})	kNm	12.59	25.04
Cracking Moment (Mcr^{neg})	kNm	6.58	12.17
Reinforcement Shear component ($\phi Vuc.reo^{neg}$)	kN	12.90	17.80
Moment Shear component ($\phi Mo.max^{neg}$)	kNm	3.54	2.98
Web Shear capacity ($\phi Vuc.web^{neg}$)	kN	27.13	67.10

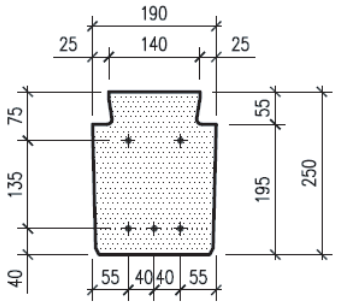
Material Details

CONCRETE: 65MPa

STEEL TENDONS:

- 7-wire ordinary strand, 9.5mm low-relaxation
- Area = $54.7mm^2$
- Min Breaking Load = 102kN
- Min Tensile Strength (fp) = 1850 Mpa
- Yield Strength = 0.85 x fp (stress relieved wire)
- Modulus of Elasticity = 195×10^3MPa





SHEAR NOTES:

Shear capacity varies along the length of the beam, and is dependent on applied loads. ϕVuc = Lesser of ϕVuc.flexure & ϕVuc.web / ϕVuc.flexure = ϕVuc.reo + ABS [ϕMo(V*/M*)] / ϕMo Varies at the ends of the beams where the strand is developing and is a constant value ϕMo.max outside of this zone.

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IMPORTANT NOTE:

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C BEAMS (28 day concrete strength)

SECTION PROPERTIES

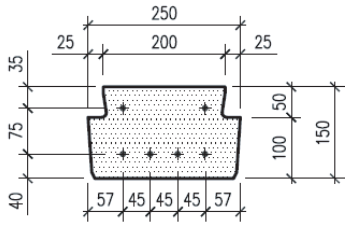
Non Composite Section Properties	Units	150C	200 C	250 C
Mass of Section	kg/m	84	114	145
Gross Area	mm^2	33988	45943	57958
EI	Nmm^2	$26.651 X 10^{11}$	$64.309 X 10^{11}$	$126.904 X 10^{11}$
Positive Moments				
Ultimate Moment capacity (ϕMu^{pos})	kNm	22.22	39.94	68.91
Cracking Moment (Mcr^{pos})	kNm	14.13	22.83	43.88
Reinforcement Shear component ($\phi Vuc.reo^{pos}$)	kN	21.83	27.08	34.97
Moment Shear component ($\phi Mo.max^{pos}$)	kNm	7.81	12.01	24.93
Web Shear capacity ($\phi Vuc.web^{pos}$)	kN	50.11	70.99	91.11
Negative Moments				
Ultimate Moment capacity (ϕMu^{neg})	kNm	18.37	25.31	32.07
Cracking Moment (Mcr^{neg})	kNm	9.39	12.96	15.40
Reinforcement Shear component ($\phi Vuc.reo^{neg}$)	kN	17.79	21.86	28.45
Moment Shear component ($\phi Mo.max^{neg}$)	kNm	4.26	4.51	3.12
Web Shear capacity ($\phi Vuc.web^{neg}$)	kN	50.11	70.99	91.11

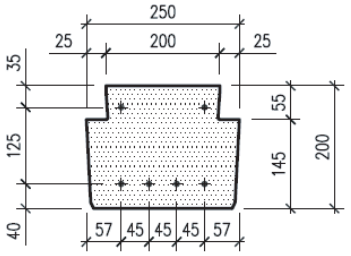
Material Details

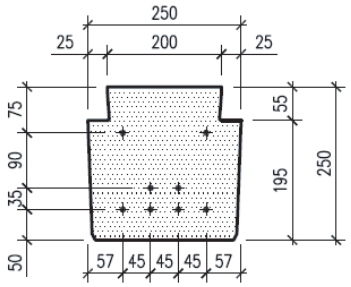
CONCRETE: 65MPa

STEEL TENDONS:

- 7-wire ordinary strand, 9.5mm low-relaxation
- Area = $54.7mm^2$
- Min Breaking Load = 102kN
- Min Tensile Strength (fp) = 1850 Mpa
- Yield Strength = 0.85 x fp (stress relieved wire)
- Modulus of Elasticity = 195×10^3MPa







SHEAR NOTES:

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