NAYLOR
LINTELS

Cl/SfB
31.9

Prestressed Lintels

NAYLOR CONCRETE
SPECIFICATION RANGES

Specifiers' Handbook

email: lintels@naylor.co.uk web: www.naylorlintels.co.uk

Index of **Products**

Useful **Contacts**

Technical Hotline **0800 5424192**

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www.naylor.co.uk/concrete
for brochure downloads & case studies

Specifications@naylor.co.uk
For drawing emails and schedule requests

Technical@naylor.co.uk
For specific bespoke requirements and to request a visit from our technical staff

Enquiries@naylor.co.uk
For sales, prices and delivery requirements

Lintels@naylor.co.uk
For orders or to request information.

Introduction

Naylor, a manufacturer of building materials since 1890, combines a wealth of experience in manufacturing techniques and in-depth ranges with a reputation for quality products, service and value for money.

The Naylor Lintel range has been continually improved and enhanced over the last 45 years in response to ever changing customer requirements and needs. The result: an unrivalled range of lintels to suit every application, backed up by a speedy and efficient specials service.

Naylor produce annually over 1 million metres of lintels. We specialise in major projects and since the 1960's have supplied many of Britain's most prestigious construction projects with our specialist ranges, including:

- Flats - including Canary Wharf tower
- Sports Stadia - including Wembley, Cardiff Millenium and the Olympic Stadium

Specifiers' Handbook

This handbook has been prepared to assist in the specification of Naylor Lintels.

Nationwide Stockists

Naylor Lintel Stockists are located throughout the UK to give back-up and local supply facilities to the end user.

As well as having stocks of over 100 standard sections of lintels, Naylor are also able to supply specials at short notice. Naylor Lintel Stockists are therefore offered an unrivalled range of prestressed concrete lintels for both industrial and commercial use.

Technical Services

A free design and technical service is available and advice is given for particular requirements and applications. Lintel schedules and calculations can be provided from working drawings.

Naylor Lintels can be specified from the NBSPlus Clause F30:740.

Drawings may be e-mailed directly to:
specifications@naylor.co.uk

Features and Benefits

- Widest range of Prestressed Lintels available from any UK manufacturer
- Unrivalled specials service where we can manufacture any design, length or strength of lintel that you require
- Nationwide delivery service regardless of site location
- Quality and consistency: Excellent quality control procedures in our modern and innovative factory guarantee achievement of strengths and fire tolerances
- Simple pricing policy: You only pay per metre so there are no extra charges for a specific length*
- All lintels are clearly marked, removing the risk of site building in the wrong lintel
- Free technical support and help to any anywhere in the UK
- Free scheduling service
- Technical Hotline and Backup service

*Conditions apply to lengths over 3.6m

Standards and Design

The design of Naylor Prestressed Lintels complies with BS8110: part 1: 1997: Section 4.

Naylor Lintels are manufactured in accordance with BSEN845 part 2: 2003.

Materials used in the manufacture of Naylor Prestressed Lintels comply with BSEN206 and BS8500. The prestressing wire complies with BS5896.

Naylor Lintels have a low water absorption as a result of the dense concrete mix used in the manufacturing process. They can be used underground providing that the ends of the units are encased in a minimum of 45mm of mortar to the ends of the reinforcing strands.

All Naylor Lintels are wet cast and have a concrete strength of 50 kN/mm^2. They are suitable to accept fixings providing that the tendons contained inside the unit remain undamaged.

All fire rated lintels produced by Naylor Lintels comply with BS8110:table 4.3:secton 2:1985.

All L-Strip is manufactured from steel complying with BSEN10025 with a minimum yield stress of 275n/mm^2. Zinc coating is galvanised to BS2989z2. Stainless Steel L-Strip is also produced, conforming to grade 304:S15:BS1449: Part 2.

Naylor Concrete Products Ltd operate to Certified ISO 9001 quality assurance standards.

Lengths

Naylor lintels are available in lengths from 600mm to 3600mm as standard. Longer and intermediate lengths are available on request.

Scope of Manufacture

Limitations	Weight	max 7.5 tonnes
	Length	max 8 metres
	Width	max 2 metres

Fixings, channels, inserts etc can easily be accommodated. Recent projects have included lift shafts with cast in channels.

Load Bearing

Lintels are usually supplied with the following allowances for bearing at each end:

100mm for openings up to/including 1000mm

150mm for openings up to/including 3000mm

200mm for openings over 3000mm.

It is however, the responsibility of the building designer to ensure that these are sufficient to avoid over-stressing the masonry at the supports.

Typical Projects

Typical projects where Naylor lintels are specified and used include:

- Hospitals
- Schools
- Nursing homes
- Sheltered and student accommodation
- Flats
- Offices
- Industrial developments
- Sports stadia

Thermal Bridging

For further information on Thermal Bridging please contact the technical hotline.

New Regulations

Implementation of the amendments to Parts E and L of the building regulations came into force in 2002. Amongst the new measures it is required that the thermal bridging and fabric insulation be improved (Part L) and the required Resistance to Sound Reverberation, especially at low frequencies, (Part E) be increased.

Compliance with the new requirements can easily be achieved using our HI-SPEC range of Lintels and L-STRIP.

Less Stress with Prestressed

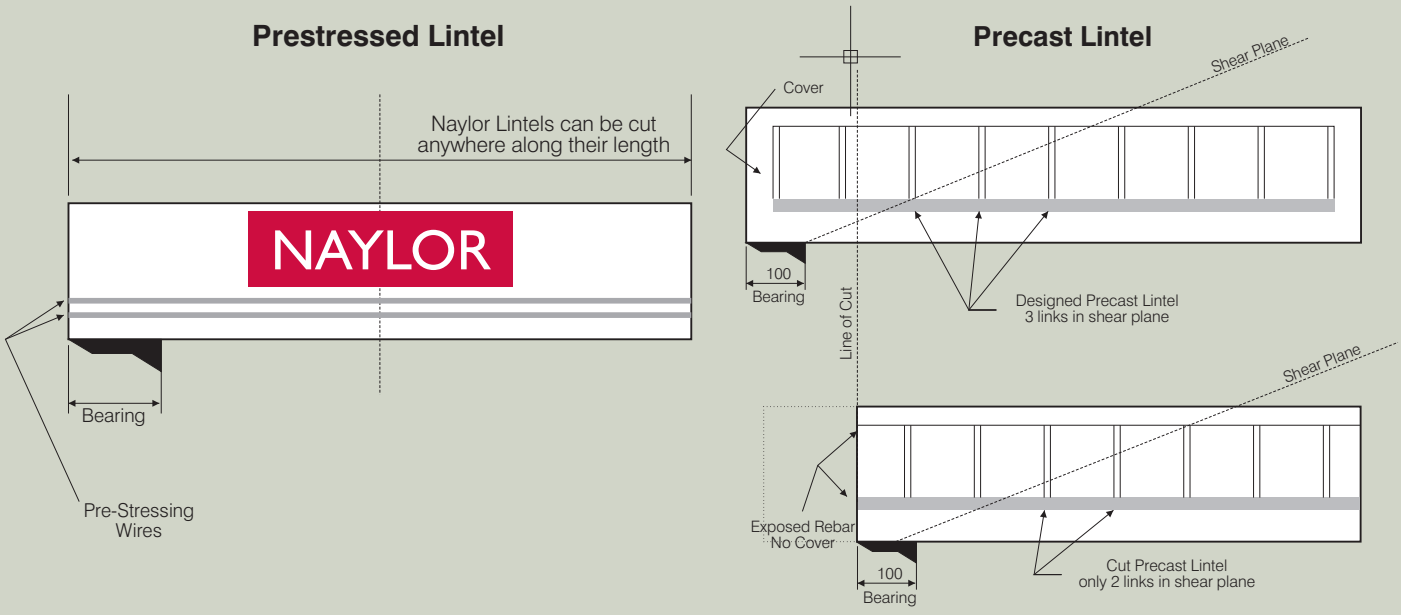
The allowable load carrying capacity (kN/m) of all concrete lintels is generally limited by the shear resistance of the cross section. All Naylor Lintels are manufactured as prestressed concrete sections giving several distinct advantages to the precast equivalent.

Quality Assurance in Manufacture

- All Naylor Products are manufactured to an approved Quality Assurance procedure audited to ISO 9001.
- Naylor Lintels have an inherently high resistance to shear due to the prestressed nature of their manufacture. Unlike precast products, Naylor Lintel sections do not require shear reinforcement and rely entirely on the prestressing wires for structural capacity. The need for less components in a Naylor Lintel greatly reduces the possibility of error in manufacture.
- As the prestressing wires of a Naylor Lintel are tensioned in a fabricated steel mould to specific tolerances it is not possible for the structure wires to be misplaced or miss-aligned. This can occur in precast sections that rely on the placement of individual bars fixed with steel or plastic spacers often in timber moulds that have a limited manufacturing life.
- Unlike the precast equivalent, the internal reinforcement of a Naylor Lintel is not reliant on plastic or concrete spacers to ensure accurate and consistent cover to the reinforcement throughout the whole length of section.
- Fair-faced products specified to section F31 of the National Building Specification (NBS) can prohibit the use of reinforcement spacers on visible faces. Meeting this required specification can realistically only be achieved using a Naylor prestressed lintel as the production method guarantees no spacers will be used.

Versatility on Site

- With continuous prestressing strands, Naylor Lintels can be cut on site to suit ANY length without affecting the load-carrying capacity of the section.
- A precast lintel should not be cut on site for several reasons;
  - On-site cutting will compromise the internal reinforcement and result in no cover being provided to the end of the reinforcing bar which is not a problem with a prestressed section.
  - Cutting may compromise the shear reinforcement of a cross section and dramatically reduce the section capacity of certain loading conditions.
- Precast lintel sections therefore need to be ordered either to exact known lengths, not always possible when providing a take-off from un-dimensioned drawings. Alternatively, construction on site needs to be adapted to suit the length of section provided; this is often impracticable. Naylor Lintels carry a wide variety of stock lengths that can be cut to length on site, allowing inevitable site changes to be made without the need to delay the works and re-order specific non-stock lengths of precast lintels.



Naylor Lintels Range

Hi-Spec Range

All units are prestressed to ensure optimum performance and come with 30 minutes fire rating as standard. The standard range comprises 19 different sections and lengths up to 6200mm on certain sections. Due to dense mix, these units are suitable for use below ground. Hi-Spec lintels have a different reinforcement type and position than that used in our economy range.

Finish
An ex-steel mould finish and made from wet cast concrete. Possibility of small air holes on the surface, aggregate and concrete fines to bottom arrises. For use normally in plastered situations rather than exposed situations.

Order/Specification Code
Use the Hi-Spec reference on our load tables (e.g. S5)

Fair Faced Range

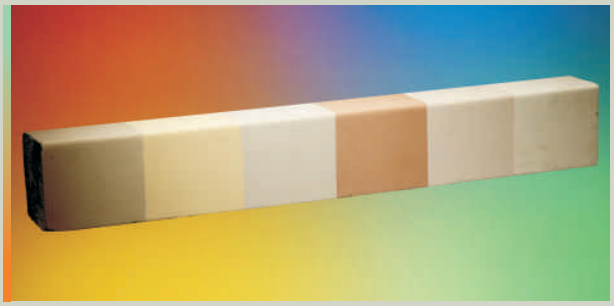
A range of lintels with the same performance and fire rating as the standard Hi-Spec range but with a smooth, consistent finish.

Finish
Type C Fair Faced finish.

All corners and arrises and faces on the lintel are perfect.

Order/Specification Code
Prefix the Hi-Spec reference with the word Faced (e.g. Faced S5)

Colour-Spec Range



A range of lintels to suit a specific site requirement. The units can be coloured to over 500 different colours to match stone or blockwork. The colour penetrates the surface and gives consistency of colour.

Finish
Coloured finish, perfectly smooth with perfect corners arrises and faces: All units are hand finished.

Order/Specification Code
Prefix Hi-Spec reference with the word Colour (e.g. Colour S5)

Chem-Spec Range

A range of special lintels which can withstand aggressive and contaminated ground conditions. These units can also be used in effluent situations due to the additives that are used in this mix of concrete.

Finish
As per the Hi-Spec Range

Order/Specification Code
Prefix Hi-Spec reference with the words Chem (e.g. Chem S5)

Fire-Spec & Faced Fire Spec Range

A range of lintels with enhanced fire resistance. 140mm wide units can achieve 90 minutes, 190mm and 215mm wide units can achieve 120 minutes fire resistance. All units comply with BS8110 Table 4.3 section 2 and as a result have a slightly lower load bearing capacity when compared with the Hi-Spec Range

Finish - Fire Spec
An ex-steel mould finish and made from wet cast concrete. May see small air holes on the surface and concrete fines to bottom arrises. For use normally in plastered situations rather than exposed situations.

Finish - Faced Fire Spec
Type C Fair Faced finish.

All corners and arrises and faces on the lintel are perfect: All units are hand finished.

A range of lintels with the same fire resistance properties as our Fire-Spec range but with the same finish as our Fair Faced units that are designed to be used in fair faced, paintgrade and blockwork situations, These units can also be coloured upon request.

Order/Specification Codes
Prefix Hi-Spec reference with the words Faced Fire (e.g. FacedFire S5) or for Fire Spec, Prefix Hi-Spec reference with the word Fire (e.g. Fire S5)

Padstone Range

A comprehensive range of dense concrete Padstones is also available.

Non standard sections and profiles are available upon request.

Ultra-Fire Spec Range

Our newest range of lintels with an enhanced fire resistance. Due to the special coating applied in this dual cast product, 100mm wide units can achieve 90 minutes fire resistance as standard, and 140mm wide and 215mm wide units can achieve 240 minutes. The lintels also comply with BS8110 table 4.3 section 2.

Finish
These lintels have a slightly different texture to concrete but are smooth and are ideally suited to paint grade or exposed situations. They can also be left natural but we would advise the use of a waterproof sealant to reduce surface dusting.

Order/Specification code
As per the product range (e.g. Ultra-Fire 100-6,Ultra-Fire 100-9, Ultra-Fire 140-9, Ultra-Fire 215-9.)

Specials Service

Naylor are innovators in prestressed and pre-cast concrete. We do not only manufacture lintels, but pride ourselves in offering solutions to the industry, whether it be curved on plan, curved on elevation: special sizes, particular strength or section requirement, special application or just a need to reduce the risks with on site casting. All units are cast to B.S. tolerances, with a wide range of finishes and casting details available. We can manufacture lengths up to 8 mtrs long and 2 mtrs wide with the maximum weight available per unit of 7.5 tonnes. We work with you to find a solution at a competitive price and our technical team can visit you either on site or at your offices and manage the order from start to finish.



Technical Terms

Explanations of
Technical Data Sheet

MS
Serviceability Moment of Resistance.

MU
Ultimate Moment of Resistance.

MU/1.5
Where separate values of live and dead loads are not known a partial safety factor may be used when checking against unfactored loads.

Limiting MR
This is the lowest value of MS & MU/1.5. Used to generate load span tables.

VCO100
Ultimate Shear Capacity of the section for 100mm Bearing.

VCO100/1.5
Ultimate Shear Capacity divided by a partial safety factor for 100mm bearing.

VCO150
Ultimate Shear Capacity of the section for 150mm bearing.

VCO150/1.5
Ultimate Shear Capacity divided by a partial safety factor for 150mm bearing.

VCO200
Ultimate Shear Capacity of the section for 200mm bearing.

VCO200/1.5
Ultimate Shear Capacity divided by a partial safety factor for 200mm bearing.

Effective Depth
Depth to centroid of strand(s) from top of lintel, used to determine effective span.

Self Weight
Weight per linear metre of lintel.

(A)
Allowable load calculated from Limiting MR minus self weight.

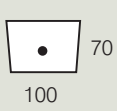
(B)
Allowable load calculated from shear resistance with 100mm or 150mm bearing.

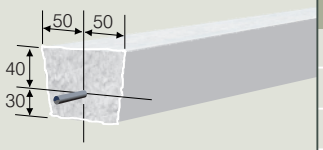
(C)
Lowest of (A) or (B)



P100

Also
ChemP100





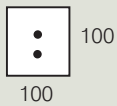
Section Properties			
Height	70mm	Vco 100	14.15 kN
Width	100mm	Vco 100/1.5	9.45 kN
Ms	1.092 kNm	Vco 150	15.33 kN
Mu	1.832 kNm	Vco 150/1.5	10.22 kN
Mu/1.5	1.221 kNm	Effective Depth	40mm
Limiting MR	1.092 kNm	Self Weight	17 kg/m

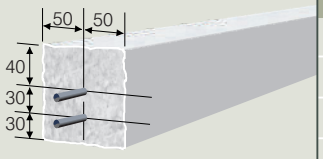
Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	740	17.67	25.53		17.67
1100	900	940	10.89			10.89
1200	1000	1040	8.86			8.86
1500	1200	1240	6.18			6.18
1800	1500	1540	3.95			3.95
2100	1800	1840	2.72			2.72
2400	2100	2140	1.96			1.96
2700	2400					
3000	2700					
3300	3000					
3600	3200					

S4

Also
FacedS4
ChemS4
ColourS4





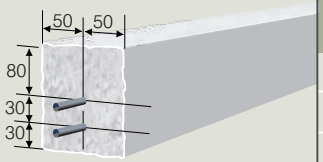
Section Properties			
Height	100mm	Vco 100	20.21 kN
Width	100mm	Vco 100/1.5	13.47 kN
Ms	2.815 kNm	Vco 150	21.39 kN
Mu	5.525 kNm	Vco 150/1.5	14.26 kN
Mu/1.5	3.683 kNm	Effective Depth	80mm
Limiting MR	2.815 kNm	Self Weight	26 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	780	36.75	34.27		34.27
1100	900	980	23.18	27.22		23.18
1200	1000	1080	19.04			19.04
1500	1200	1280	13.48			13.48
1800	1500	1580	8.75			8.75
2100	1800	1880	6.10			6.10
2400	2100	2180	4.47			4.47
2700	2400	2480	3.39			3.39
3000	2700	2780	2.64			2.64
3300	3000					
3600	3200					

R6

Also
FacedR6
ChemR6
ColourR6
GroundR6



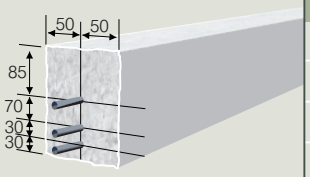
Section Properties			
Height	140mm	Vco 100	30.46 kN
Width	100mm	Vco 100/1.5	20.31 kN
Ms	5.564 kNm	Vco 150	32.28 kN
Mu	9.609 kNm	Vco 150/1.5	21.52 kN
Mu/1.5	6.406 kNm	Effective Depth	95mm
Limiting MR	5.564 kNm	Self Weight	35 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	795	70.07	50.74		50.74
1100	900	995	44.61	40.47		40.47
1200	1000	1095	36.77	36.74		36.74
1500	1200	1295	26.19		32.88	26.19
1800	1500	1595	17.14			17.14
2100	1800	1895	12.04			12.04
2400	2100	2195	8.89			8.89
2700	2400	24.95	6.80			6.80
3000	2700	2795	5.34			5.34
3300	3000	3095	4.29			4.29
3600	3200	3295	3.75			3.75

R9

Also
FacedR9
ChemR9
ColourR9
GroundR9



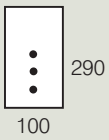
Section Properties			
Height	215mm	Vco 100	47.22 kN
Width	100mm	Vco 100/1.5	31.48 kN
Ms	12.396 kNm	Vco 150	49.39 kN
Mu	23.867 kNm	Vco 150/1.5	32.93 kN
Mu/1.5	15.912 kNm	Effective Depth	141.67mm
Limiting MR	12.396 kNm	Self Weight	52 kg/m

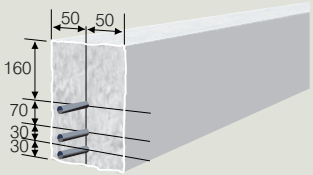
Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	800	154.43	78.18		78.18
1100	900	1000	98.65	62.44		62.44
1200	1000	1100	81.44	56.72		56.72
1500	1200	1341.67	54.57		48.57	48.57
1800	1500	1641.67	36.27		39.60	36.27
2100	1800	1941.67	25.78			25.78
2400	2100	2241.67	19.21			19.21
2700	2400	2541.67	14.83			14.83
3000	2700	2841.67	11.76			11.76
3300	3000	3141.67	9.53			9.53
3600	3200	3341.67	8.36			8.36

R12

Also
FacedR12
ChemR12
ColourR12
GroundR12





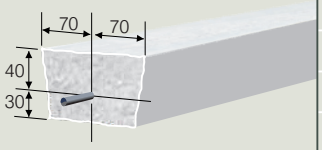
Section Properties			
Height	290mm	Vco 100	60.45 kN
Width	100mm	Vco 100/1.5	40.30 kN
Ms	20.505 kNm	Vco 150	62.33 kN
Mu	37.237 kNm	Vco 150/1.5	41.55 kN
Mu/1.5	24.825 kNm	Effective Depth	205mm
Limiting MR	20.505 kNm	Self Weight	69 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	800	255.61	100.05		100.05
1100	900	1000	163.34	79.90		79.90
1200	1000	1100	134.87	72.53		72.57
1500	1200	1350	89.31		60.85	60.85
1800	1500	1650	59.55		49.66	49.66
2100	1800	1950	42.44		41.91	41.91
2400	2100	2250	31.70		36.23	31.70
2700	2400	2550	24.53			24.53
3000	2700	2850	19.49			19.49
3300	3000	3150	15.83			15.83
3600	3200	3400	13.49			13.49

P140

Also
ChemP140



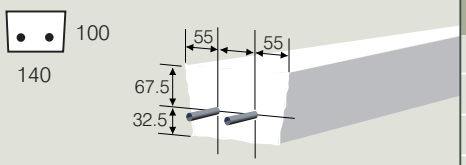
Section Properties			
Height	70mm	Vco 100	18.32 kN
Width	140mm	Vco 100/1.5	12.21 kN
Ms	1.258 kNm	Vco 150	19.65 kN
Mu	2.299 kNm	Vco 150/1.5	13.10 kN
Mu/1.5	1.533 kNm	Effective Depth	40mm
Limiting MR	1.258 kNm	Self Weight	24 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	740	18.14	32.76		18.14
1100	900	940	11.15			11.15
1200	1000	1040	9.06			9.06
1500	1200	1240	6.31			6.31
1800	1500	1540	4.00			4.00
2100	1800	1840	2.73			2.73
2400	2100	2140	1.96			1.96
2700	2400					
3000	2700					
3300	3000					
3600	3200					

R3

Also
FacedR3
ChemR3
ColourR3



Section Properties			
Height	100mm	Vco 100	28.51 kN
Width	140mm	Vco 100/1.5	19.00 kN
Ms	3.906 kNm	Vco 150	30.52 kN
Mu	6.757 kNm	Vco 150/1.5	20.34 kN
Mu/1.5	4.505 kNm	Effective Depth	67.5mm
Limiting MR	3.906 kNm	Self Weight	34 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	767.5	52.71	49.17		49.17
1100	900	967.5	33.04	38.94		33.04
1200	1000	1067.5	27.08			27.08
1500	1200	1267.5	19.11			19.11
1800	1500	1567.5	12.38			12.38
2100	1800	1867.5	8.62			8.62
2400	2100	2167.5	6.31			6.31
2700	2400	2467.5	4.79			4.79
3000	2700	2767.5	3.74			3.74
3300	3000					
3600	3200					

R3

Also
FireR3
FacedFireR3
1.0 Hr

Section Properties			
Height	100mm	Vco 100	29.19 kN
Width	140mm	Vco 100/1.5	19.46 kN
Ms	2.926 kNm	Vco 150	31.30 kN
Mu	4.916 kNm	Vco 150/1.5	20.87 kN
Mu/1.5	3.277 kNm	Effective Depth	55mm
Limiting MR	2.926 kNm	Self Weight	34 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	755	40.72	51.21		40.72
1100	900	955	25.32			25.32
1200	1000	1055	20.69			20.69
1500	1200	1255	14.52			14.52
1800	1500	1555	9.34			9.34
2100	1800	1855	6.46			6.46
2400	2100	2155	4.70			4.70
2700	2400	2455	3.54			3.54
3000	2700	2755	2.74			2.74
3300	3000					
3600	3200					

R3

Also
FireR3
FacedFireR3
1.5 Hr

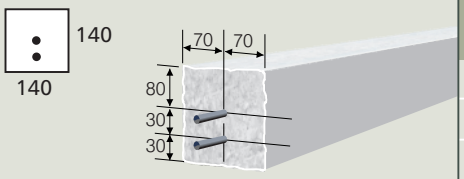
Section Properties			
Height	100mm	Vco 100	24.66 kN
Width	140mm	Vco 100/1.5	16.44 kN
Ms	1.455 kNm	Vco 150	26.06 kN
Mu		Vco 150/1.5	17.37 kN
Mu/1.5		Effective Depth	40mm
Limiting MR	1.455 kNm	Self Weight	34 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	740	20.92	44.09		20.92
1100	900	940	12.83			12.83
1200	1000	1040	10.42			10.42
1500	1200	1240	7.23			7.23
1800	1500	1540	4.57			4.57
2100	1800	1840	3.10			3.10
2400	2100	2140	2.20			2.20
2700	2400	2440	1.61			1.61
3000	2700	2740	1.21			1.21
3300	3000					
3600	3200					

S5

Also
FacedS5
ChemS5
ColourS5
GroundS5



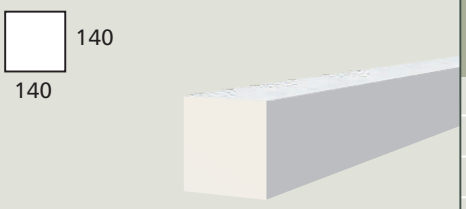
Section Properties			
Height	140mm	$V_{CO\ 100}$	38.04 kN
Width	140mm	$V_{CO\ 100/1.5}$	25.36 kN
M_S	6.349 kNm	$V_{CO\ 150}$	40.14 kN
M_U	11.976 kNm	$V_{CO\ 150/1.5}$	26.76 kN
$M_{U/1.5}$	7.984 kNm	Effective Depth	95mm
Limiting M_R	6.349 kNm	Self Weight	47 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	795	79.89	63.32		63.32
1100	900	995	50.83	50.50		50.50
1200	1000	1095	41.89	45.84		41.89
1500	1200	1295	29.81			29.81
1800	1500	1595	19.49			19.49
2100	1800	1895	13.67			13.67
2400	2100	2195	10.07			10.07
2700	2400	2495	7.68			7.68
3000	2700	2795	6.03			6.03
3300	3000	3095	4.83			4.83
3600	3200	3295	4.20			4.20

S5

Also
FireS5
FacedFireS5
1.0 Hr



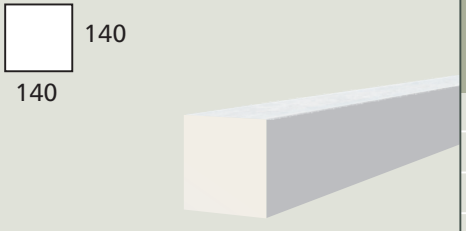
Section Properties			
Height	140mm	$V_{CO\ 100}$	38.04 kN
Width	140mm	$V_{CO\ 100/1.5}$	25.36 kN
M_S	6.349 kNm	$V_{CO\ 150}$	40.14 kN
M_U	11.976 kNm	$V_{CO\ 150/1.5}$	26.76 kN
$M_{U/1.5}$	7.984 kNm	Effective Depth	95mm
Limiting M_R	6.349 kNm	Self Weight	47 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	795	79.89	63.32		63.32
1100	900	995	50.83	50.50		50.50
1200	1000	1095	41.89	45.84		41.89
1500	1200	1295	29.81			29.81
1800	1500	1595	19.49			19.49
2100	1800	1895	13.67			13.67
2400	2100	2195	10.07			10.07
2700	2400	2495	7.68			7.68
3000	2700	2795	6.03			6.03
3300	3000	3095	4.83			4.83
3600	3200	3295	4.20			4.20

S5

Also
FireS5
FacedFireS5
1.5 Hr



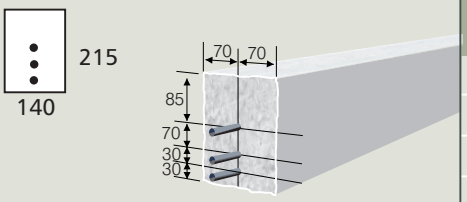
Section Properties			
Height	140mm	$V_{CO\ 100}$	32.80 kN
Width	140mm	$V_{CO\ 100/1.5}$	21.86 kN
M_S	3.444 kNm	$V_{CO\ 150}$	34.18 kN
M_U	5.989 kNm	$V_{CO\ 150/1.5}$	22.79 kN
$M_{U/1.5}$	3.993 kNm	Effective Depth	80mm
Limiting M_R	3.444 kNm	Self Weight	47 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	780	44.81	55.58		44.81
1100	900	980	28.21			28.21
1200	1000	1080	23.15			23.15
1500	1200	1280	16.34			16.34
1800	1500	1580	10.56			10.56
2100	1800	1880	7.32			7.32
2400	2100	2180	5.32			5.32
2700	2400	24.80	4.00			4.00
3000	2700	2780	3.09			3.09
3300	3000	3080	2.43			2.43
3600	3200	3280	2.09			2.09

R8

Also
FacedR8
ChemR8
ColourR8
GroundR8



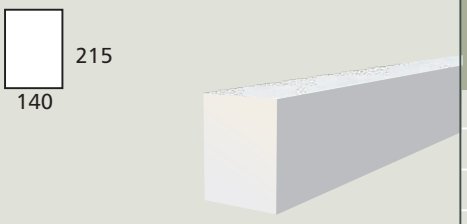
Section Properties			
Height	215mm	$V_{CO\ 100}$	60.79 kN
Width	140mm	$V_{CO\ 100/1.5}$	40.52 kN
M_S	14.259 kNm	$V_{CO\ 150}$	63.35 kN
M_U	25.71 kNm	$V_{CO\ 150/1.5}$	42.23 kN
$M_{U/1.5}$	17.14 kNm	Effective Depth	141.67mm
Limiting M_R	14.259 kNm	Self Weight	72 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	177.51	100.57		100.57
1100	900	1000	113.35	80.31		80.31
1200	1000	1100	93.55	72.95		72.95
1500	1200	1341.67	62.64		62.22	62.22
1800	1500	1641.67	41.60		50.72	41.60
2100	1800	1941.67	29.53			29.53
2400	2100	2241.67	21.97			21.97
2700	2400	2541.67	16.93			16.93
3000	2700	2841.67	13.40			13.40
3300	3000	3141.67	10.83			10.83
3600	3200	3341.67	9.49			9.49

R8

Also
FireR8
FacedFireR8
1.0 Hr



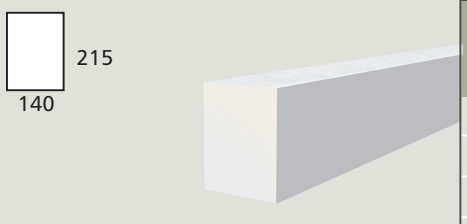
Section Properties			
Height	215mm	$V_{CO\ 100}$	60.79 kN
Width	140mm	$V_{CO\ 100/1.5}$	40.52 kN
M_S	14.259 kNm	$V_{CO\ 150}$	63.35 kN
M_U	25.710 kNm	$V_{CO\ 150/1.5}$	42.23 kN
$M_{U/1.5}$	17.140 kNm	Effective Depth	141.67mm
Limiting M_R	14.259 kNm	Self Weight	72 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	177.51	100.57		100.57
1100	900	1000	113.35	80.31		80.31
1200	1000	1100	93.55	72.95		72.95
1500	1200	1341.67	62.64		62.22	62.22
1800	1500	1641.67	41.60		50.72	41.60
2100	1800	1941.67	29.53			29.53
2400	2100	2241.67	21.97			21.97
2700	2400	2541.67	16.93			16.93
3000	2700	2841.67	13.40			13.40
3300	3000	3141.67	10.83			10.83
3600	3200	3341.67	9.49			9.49

R8

Also
FireR8
FacedFireR8
1.5 Hr



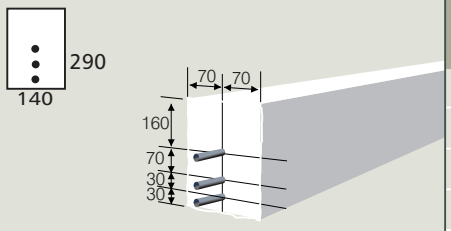
Section Properties			
Height	215mm	$V_{CO\ 100}$	61.35 kN
Width	140mm	$V_{CO\ 100/1.5}$	40.90 kN
M_S	12.257 kNm	$V_{CO\ 150}$	63.95 kN
M_U	20.619 kNm	$V_{CO\ 150/1.5}$	42.63 kN
$M_{U/1.5}$	13.746 kNm	Effective Depth	126.67mm
Limiting M_R	12.257 kNm	Self Weight	73 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	152.49	101.52		101.52
1100	900	1000	97.33	81.07		81.07
1200	1000	1100	80.31	73.64		73.64
1500	1200	1326.67	54.98		63.73	54.98
1800	1500	1626.67	36.33			36.33
2100	1800	1926.67	25.69			25.69
2400	2100	2226.67	19.05			19.05
2700	2400	2526.67	14.63			14.63
3000	2700	2826.67	11.55			11.56
3300	3000	3126.67	9.30			9.30
3600	3200	3326.67	8.13			8.13

R11

Also
FacedR11
ChemR11
ColourR11
GroundR11



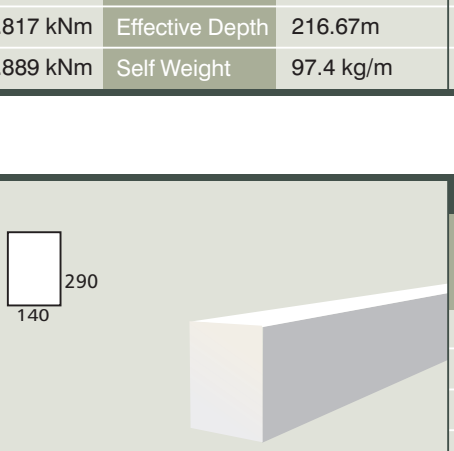
Section Properties			
Height	290mm	$V_{CO\ 100}$	77.39 kN
Width	140mm	$V_{CO\ 100/1.5}$	51.59 kN
M_S	24.889 kNm	$V_{CO\ 150}$	79.54 kN
M_U	47.725 kNm	$V_{CO\ 150/1.5}$	53.03 kN
$M_{U/1.5}$	31.817 kNm	Effective Depth	216.67m
Limiting M_R	24.889 kNm	Self Weight	97.4 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	310.13	128.00		128.00
1100	900	1000	198.13	102.20		102.20
1200	1000	1100	163.58	98.82		98.82
1500	1200	1350	108.27		77.58	77.58
1800	1500	1650	72.16		63.30	63.30
2100	1800	1950	51.38		53.41	51.38
2400	2100	2250	38.35			38.35
2700	2400	2550	29.64			29.64
3000	2700	2850	23.53			23.53
3300	3000	3150	19.09			19.09
3600	3200	3400	16.25			16.25

R11

Also
FireR11
FacedFireR11
1.0 Hr



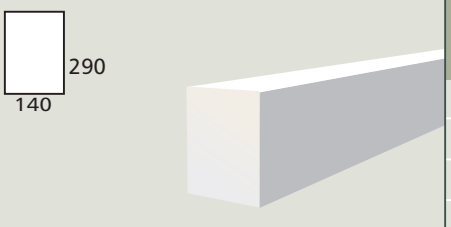
Section Properties			
Height	290mm	$V_{CO\ 100}$	77.39 kN
Width	140mm	$V_{CO\ 100/1.5}$	51.59 kN
M_S	24.889 kNm	$V_{CO\ 150}$	79.54 kN
M_U	47.725 kNm	$V_{CO\ 150/1.5}$	53.03 kN
$M_{U/1.5}$	31.817 kNm	Effective Depth	216.67m
Limiting M_R	24.889 kNm	Self Weight	97.4 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	310.13	128.00		128.00
1100	900	1000	198.13	102.20		102.20
1200	1000	1100	163.58	98.82		98.82
1500	1200	1350	108.27		77.58	77.58
1800	1500	1650	72.16		63.30	63.30
2100	1800	1950	51.38		53.41	51.38
2400	2100	2250	38.35			38.35
2700	2400	2550	29.64			29.64
3000	2700	2850	23.53			23.53
3300	3000	3150	19.09			19.09
3600	3200	3400	16.25			16.25

R11

Also
FireR11
FacedFireR11
1.5 Hr



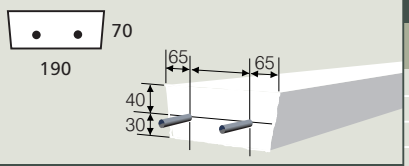
Section Properties			
Height	290mm	$V_{CO\ 100}$	78.18 kN
Width	140mm	$V_{CO\ 100/1.5}$	52.12 kN
M_S	22.941 kNm	$V_{CO\ 150}$	80.39 kN
M_U	43.377 kNm	$V_{CO\ 150/1.5}$	53.59 kN
$M_{U/1.5}$	28.918 kNm	Effective Depth	200mm
Limiting M_R	22.941 kNm	Self Weight	97.4 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	285.78	129.32		129.32
1100	900	1000	182.55	103.26		103.26
1200	1000	1100	150.70	93.78		93.78
1500	1200	1350	99.72		78.41	78.41
1800	1500	1650	66.43		63.98	63.98
2100	1800	1950	47.29		53.99	47.29
2400	2100	2250	35.26			35.27
2700	2400	2550	27.25			27.25
3000	2700	2850	21.62			21.62
3300	3000	3150	17.52			17.52
3600	3200	3400	14.90			14.90

P190

Also
ChemP190



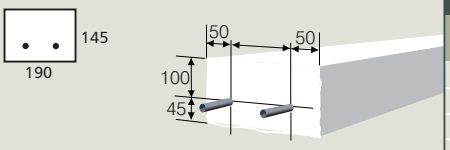
Section Properties			
Height	70mm	Vco 100	27.29 kN
Width	190mm	Vco 100/1.5	18.19 kN
Ms	2.136 kNm	Vco 150	29.52 kN
Mu	3.529 kNm	Vco 150/1.5	19.68 kN
Mu/1.5	2.353 kNm	Effective Depth	40mm
Limiting MR	2.136 kNm	Self Weight	32 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	740	30.88	49.16		30.88
1100	900	940	19.02			19.02
1200	1000	1040	15.48			15.48
1500	1200	1240	10.79			10.79
1800	1500	1540	6.88			6.88
2100	1800	1840	4.72			4.72
2400	2100	2140	3.41			3.41
2700	2400					
3000	2700					
3300	3000					
3600	3200					

R2

Also **FacedR2**
ChemR2
ColourR2
GroundR2



Section Properties			
Height	145mm	Vco 100	49.51 kN
Width	190mm	Vco 100/1.5	33.01 kN
Ms	7.681 kNm	Vco 150	51.90 kN
Mu	14.502 kNm	Vco 150/1.5	34.60 kN
Mu/1.5	9.968 kNm	Effective Depth	100mm
Limiting MR	7.681 kNm	Self Weight	66 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	800	95.35	81.86		81.86
1100	900	1000	60.78	65.35		60.78
1200	1000	1100	50.12			50.12
1500	1200	1300	35.69			35.69
1800	1500	1600	23.34			23.34
2100	1800	1900	16.36			16.36
2400	2100	2200	12.03			12.03
2700	2400	2500	9.17			9.17
3000	2700	2800	7.17			7.17
3300	3000	3100	5.73			5.73
3600	3200	3300	4.98			4.98

R2

Also **FireR2**
FacedFireR2
1.0 Hr

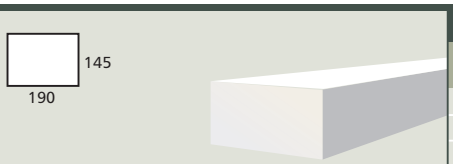
Section Properties			
Height	145mm	Vco 100	49.51 kN
Width	190mm	Vco 100/1.5	33.01 kN
Ms	7.681 kNm	Vco 150	51.90 kN
Mu	14.502 kNm	Vco 150/1.5	34.60 kN
Mu/1.5	9.968 kNm	Effective Depth	100mm
Limiting MR	7.681 kNm	Self Weight	66 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	800	95.35	81.86		81.86
1100	900	1000	60.78	65.35		60.78
1200	1000	1100	50.12			50.12
1500	1200	1300	35.69			35.69
1800	1500	1600	23.34			23.34
2100	1800	1900	16.36			16.36
2400	2100	2200	12.03			12.03
2700	2400	2500	9.17			9.17
3000	2700	2800	7.17			7.17
3300	3000	3100	5.73			5.73
3600	3200	3300	4.98			4.98

R2

Also **FireR2**
FacedFireR2
1.5 Hr



Section Properties			
Height	145mm	Vco 100	49.96 kN
Width	190mm	Vco 100/1.5	33.30 kN
Ms	6.257 kNm	Vco 150	52.41 kN
Mu	11.853 kNm	Vco 150/1.5	34.93 kN
Mu/1.5	7.902 kNm	Effective Depth	85mm
Limiting MR	6.257 kNm	Self Weight	66 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	785	80.56	84.17		80.56
1100	900	985	50.93			50.93
1200	1000	1085	41.85			41.85
1500	1200	1285	29.65			29.65
1800	1500	1585	19.26			19.26
2100	1800	1885	13.42			13.42
2400	2100	2185	9.82			9.82
2700	2400	2485	7.44			7.44
3000	2700	2785	5.79			5.79
3300	3000	3085	4.59			4.59
3600	3200	3285	3.97			3.97

R2

Also **FireR2**
FacedFireR2
2.0 Hr

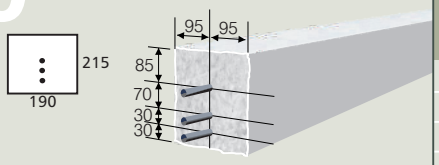
Section Properties			
Height	145mm	Vco 100	50.07 kN
Width	190mm	Vco 100/1.5	33.38 kN
Ms	4.667 kNm	Vco 150	52.53 kN
Mu	-	Vco 150/1.5	35.02 kN
Mu/1.5	-	Effective Depth	70mm
Limiting MR	4.667 kNm	Self Weight	66 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	770	62.31	86.04		62.31
1100	900	970	39.02			39.02
1200	1000	1070	31.94			31.94
1500	1200	1270	22.48			22.48
1800	1500	1570	14.48			14.48
2100	1800	1870	10.01			10.01
2400	2100	2170	7.26			7.26
2700	2400	2470	5.45			5.45
3000	2700	2770	4.20			4.20
3300	3000	3070	3.30			3.30
3600	3200	3270	2.83			2.83

R190

Also
FacedR190
ChemR190
ColourR190
GroundR190



Section Properties			
Height	215mm	$V_{CO\ 100}$	76.48 kN
Width	190mm	$V_{CO\ 100/1.5}$	50.99 kN
M_S	16.121 kNm	$V_{CO\ 150}$	79.37 kN
M_U	26.787 kNm	$V_{CO\ 150/1.5}$	52.92 kN
$M_{U/1.5}$	17.858 kNm	Effective Depth	141.67mm
Limiting M_R	16.121 kNm	Self Weight	98 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	200.53	126.49		126.49
1100	900	1000	127.98	101.00		101.00
1200	1000	1100	105.60	91.72		91.72
1500	1200	1341.67	70.66		77.90	70.66
1800	1500	1641.67	46.87			46.87
2100	1800	1941.67	33.22			33.22
2400	2100	2241.67	24.68			24.68
2700	2400	2541.67	18.98			18.98
3000	2700	2841.67	14.99			14.99
3300	3000	3141.67	12.08			12.08
3600	3200	3341.67	10.56			10.56

R190

Also
FireR190
FacedFireR190
1.0 Hr

Section Properties			
Height	215mm	$V_{CO\ 100}$	76.48 kN
Width	190mm	$V_{CO\ 100/1.5}$	50.99 kN
M_S	16.121 kNm	$V_{CO\ 150}$	79.37 kN
M_U	26.787 kNm	$V_{CO\ 150/1.5}$	52.92 kN
$M_{U/1.5}$	17.858 kNm	Effective Depth	141.67mm
Limiting M_R	16.121 kNm	Self Weight	98 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	200.53	126.49		126.49
1100	900	1000	127.98	101.00		101.00
1200	1000	1100	105.60	91.72		91.72
1500	1200	1341.67	70.66		77.90	70.66
1800	1500	1641.67	46.87			46.87
2100	1800	1941.67	33.22			33.22
2400	2100	2241.67	24.68			24.68
2700	2400	2541.67	18.98			18.98
3000	2700	2841.67	14.99			14.99
3300	3000	3141.67	12.08			12.08
3600	3200	3341.67	10.56			10.56

R190

Also
FireR190
FacedFireR190
1.5 Hr

Section Properties			
Height	215mm	$V_{CO\ 100}$	76.48 kN
Width	190mm	$V_{CO\ 100/1.5}$	50.99 kN
M_S	16.121 kNm	$V_{CO\ 150}$	79.37 kN
M_U	26.787 kNm	$V_{CO\ 150/1.5}$	52.92 kN
$M_{U/1.5}$	17.858 kNm	Effective Depth	141.67mm
Limiting M_R	16.121 kNm	Self Weight	98 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	200.53	126.49		126.49
1100	900	1000	127.98	101.00		101.00
1200	1000	1100	105.60	91.72		91.72
1500	1200	1341.67	70.66		77.90	70.66
1800	1500	1641.67	46.87			46.87
2100	1800	1941.67	33.22			33.22
2400	2100	2241.67	24.68			24.68
2700	2400	2541.67	18.98			18.98
3000	2700	2841.67	14.99			14.99
3300	3000	3141.67	12.08			12.08
3600	3200	3341.67	10.56			10.56

R190

Also
FireR190
FacedFireR190
2.0 Hr

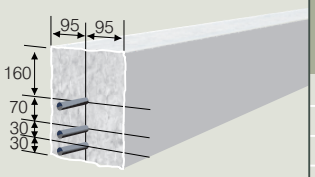
Section Properties			
Height	215mm	$V_{CO\ 100}$	76.80 kN
Width	190mm	$V_{CO\ 100/1.5}$	51.20 kN
M_S	14.692 kNm	$V_{CO\ 150}$	79.73 kN
M_U	27.761 kNm	$V_{CO\ 150/1.5}$	53.15 kN
$M_{U/1.5}$	18.508 kNm	Effective Depth	131.67mm
Limiting M_R	14.692 kNm	Self Weight	98 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	182.67	126.49		127.02
1100	900	1000	116.55	101.00		101.42
1200	1000	1100	96.15	91.72		92.11
1500	1200	1331.67	65.29		78.84	65.29
1800	1500	1631.67	43.16			43.16
2100	1800	1931.67	30.51			30.51
2400	2100	2231.67	22.61			22.61
2700	2400	2531.67	17.35			17.35
3000	2700	2831.67	13.67			13.67
3300	3000	3131.67	11.00			11.00
3600	3200	3331.67	9.60			9.60

R13

Also
FacedR13
ChemR13
ColourR13
GroundR13



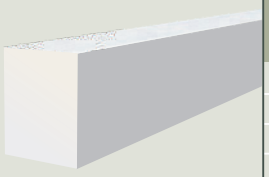
Section Properties			
Height	290mm	$V_{CO\ 100}$	98.12 kN
Width	190mm	$V_{CO\ 100/1.5}$	65.41 kN
M_S	27.598 kNm	$V_{CO\ 150}$	100.56 kN
M_U	48.993 kNm	$V_{CO\ 150/1.5}$	67.04 kN
$M_{U/1.5}$	32.66 kNm	Effective Depth	212mm
Limiting M_R	27.598 kNm	Self Weight	132 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	SR_{100} (B)	SR_{150} (B)	Limiting (C)
900	700	800	343.65	162.20		162.20
1100	900	1000	219.46	129.49		129.49
1200	1000	1100	181.14	117.60		117.60
1500	1200	1350	119.82		97.99	97.99
1800	1500	1650	79.77		79.93	79.77
2100	1800	1950	56.74			56.74
2400	2100	2250	42.28			42.28
2700	2400	2550	32.63			32.63
3000	2700	2850	25.85			25.85
3300	3000	3150	20.92			20.92
3600	3200	3400	17.77			17.77

R13

Also
FireR13
FacedFireR13
1.0 Hr



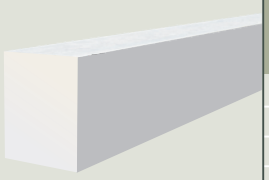
Section Properties			
Height	290mm	$V_{CO\ 100}$	98.12 kN
Width	190mm	$V_{CO\ 100/1.5}$	65.41 kN
M_S	27.598 kNm	$V_{CO\ 150}$	100.56 kN
M_U	48.993 kNm	$V_{CO\ 150/1.5}$	67.04 kN
$M_{U/1.5}$	32.66 kNm	Effective Depth	212mm
Limiting M_R	27.598 kNm	Self Weight	132 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	SR_{100} (B)	SR_{150} (B)	Limiting (C)
900	700	800	343.65	162.20		162.20
1100	900	1000	219.46	129.49		129.49
1200	1000	1100	181.14	117.60		117.60
1500	1200	1350	119.82		97.99	97.99
1800	1500	1650	79.77		79.93	79.77
2100	1800	1950	56.74			56.74
2400	2100	2250	42.28			42.28
2700	2400	2550	32.63			32.63
3000	2700	2850	25.85			25.85
3300	3000	3150	20.92			20.92
3600	3200	3400	17.77			17.77

R13

Also
FireR13
FacedFireR13
1.5 Hr



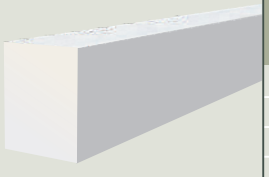
Section Properties			
Height	290mm	$V_{CO\ 100}$	98.12 kN
Width	190mm	$V_{CO\ 100/1.5}$	65.41 kN
M_S	27.598 kNm	$V_{CO\ 150}$	100.56 kN
M_U	48.993 kNm	$V_{CO\ 150/1.5}$	67.04 kN
$M_{U/1.5}$	32.66 kNm	Effective Depth	212mm
Limiting M_R	27.598 kNm	Self Weight	132 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	SR_{100} (B)	SR_{150} (B)	Limiting (C)
900	700	800	343.65	162.20		162.20
1100	900	1000	219.46	129.49		129.49
1200	1000	1100	181.14	117.60		117.60
1500	1200	1350	119.82		97.99	97.99
1800	1500	1650	79.77		79.93	79.77
2100	1800	1950	56.74			56.74
2400	2100	2250	42.28			42.28
2700	2400	2550	32.63			32.63
3000	2700	2850	25.85			25.85
3300	3000	3150	20.92			20.92
3600	3200	3400	17.77			17.77

R13

Also
FireR13
FacedFireR13
2.0 Hr



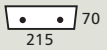
Section Properties			
Height	290mm	$V_{CO\ 100}$	98.46 kN
Width	190mm	$V_{CO\ 100/1.5}$	65.64 kN
M_S	25.186 kNm	$V_{CO\ 150}$	100.92 kN
M_U	46.263 kNm	$V_{CO\ 150/1.5}$	67.28 kN
$M_{U/1.5}$	30.841 kNm	Effective Depth	201.67mm
Limiting M_R	25.186 kNm	Self Weight	132.2 kg/m

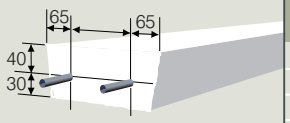
Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	SR_{100} (B)	SR_{150} (B)	Limiting (C)
900	700	800	313.50	162.77		162.77
1100	900	1000	200.16	129.95		129.95
1200	1000	1100	165.19	118.02		118.02
1500	1200	1350	109.23		98.35	98.35
1800	1500	1650	72.68		80.22	72.68
2100	1800	1950	51.66			51.66
2400	2100	2250	38.47			38.47
2700	2400	2550	29.66			29.66
3000	2700	2850	23.48			23.48
3300	3000	3150	18.98			18.98
3600	3200	3350	16.63			16.63

P215

Also
ChemP215



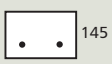


Section Properties			
Height	70mm	$V_{CO\ 100}$	29.97 kN
Width	215mm	$V_{CO\ 100/1.5}$	19.98 kN
M_S	2.252 kNm	$V_{CO\ 150}$	32.34 kN
M_U	3.853 kNm	$V_{CO\ 150/1.5}$	21.56 kN
$M_{U/1.5}$	2.568 kNm	Effective Depth	40mm
Limiting M_R	2.252 kNm	Self Weight	36 kg/m

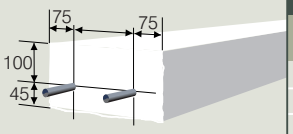
Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	740	32.53	53.63		32.53
1100	900	940	20.02			20.02
1200	1000	1040	16.29			16.29
1500	1200	1240	11.35			11.35
1800	1500	1540	7.23			7.23
2100	1800	1840	4.96			4.96
2400	2100	2140	3.57			3.57
2700	2400					
3000	2700					
3300	3000					
3600	3200					

R7



Also **FacedR7**
ChemR7
ColourR7
GroundR7

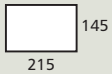


Section Properties			
Height	145mm	$V_{CO\ 100}$	54.54 kN
Width	215mm	$V_{CO\ 100/1.5}$	36.36 kN
M_S	8.077 kNm	$V_{CO\ 150}$	57.03 kN
M_U	14.859 kNm	$V_{CO\ 150/1.5}$	38.02 kN
$M_{U/1.5}$	9.906 kNm	Effective Depth	100mm
Limiting M_R	8.077 kNm	Self Weight	75 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	800	100.21	90.15		90.15
1100	900	1000	63.86	71.97		63.86
1200	1000	1100	52.65			52.65
1500	1200	1300	37.48			37.48
1800	1500	1600	24.49			24.49
2100	1800	1900	17.15			17.15
2400	2100	2200	12.60			12.60
2700	2400	2500	9.59			9.59
3000	2700	2800	7.49			7.49
3300	3000	3100	5.97			5.97
3600	3200	3300	5.18			5.18

R7



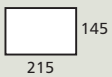
Also **FireR7**
FacedFireR7
1.0 Hr

Section Properties			
Height	145mm	$V_{CO\ 100}$	54.54 kN
Width	215mm	$V_{CO\ 100/1.5}$	36.36 kN
M_S	8.077 kNm	$V_{CO\ 150}$	57.03 kN
M_U	14.859 kNm	$V_{CO\ 150/1.5}$	38.02 kN
$M_{U/1.5}$	9.906 kNm	Effective Depth	100mm
Limiting M_R	8.077 kNm	Self Weight	75 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	800	100.21	90.15		90.15
1100	900	1000	63.86	71.97		63.86
1200	1000	1100	52.65			52.65
1500	1200	1300	37.48			37.48
1800	1500	1600	24.49			24.49
2100	1800	1900	17.15			17.15
2400	2100	2200	12.60			12.60
2700	2400	2500	9.59			9.59
3000	2700	2800	7.49			7.49
3300	3000	3100	5.97			5.97
3600	3200	3300	5.18			5.18

R7



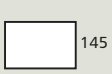
Also **FireR7**
FacedFireR7
1.5 Hr

Section Properties			
Height	145mm	$V_{CO\ 100}$	54.94 kN
Width	215mm	$V_{CO\ 100/1.5}$	36.62 kN
M_S	6.611 kNm	$V_{CO\ 150}$	57.49 kN
M_U	12.223 kNm	$V_{CO\ 150/1.5}$	38.33 kN
$M_{U/1.5}$	8.148 kNm	Effective Depth	85mm
Limiting M_R	6.611 kNm	Self Weight	75 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	785	85.07	92.55		85.07
1100	900	985	53.76			53.76
1200	1000	1085	44.17			44.17
1500	1200	1285	31.28			31.28
1800	1500	1585	20.30			20.30
2100	1800	1885	14.13			14.13
2400	2100	2185	10.32			10.32
2700	2400	2485	7.81			7.81
3000	2700	2785	6.07			6.07
3300	3000	3085	4.80			4.80
3600	3200	3285	4.15			4.15

R7



Also **FireR7**
FacedFireR7
2.0 Hr

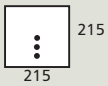
Section Properties			
Height	145mm	$V_{CO\ 100}$	55.02 kN
Width	215mm	$V_{CO\ 100/1.5}$	36.68 kN
M_S	4.724 kNm	$V_{CO\ 150}$	57.59 kN
M_U	-	$V_{CO\ 150/1.5}$	38.39 kN
$M_{U/1.5}$	-	Effective Depth	70mm
Limiting M_R	4.724 kNm	Self Weight	75 kg/m

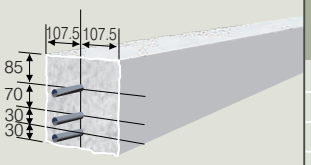
Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	770	62.99	94.52		62.99
1100	900	970	39.41			39.41
1200	1000	1070	32.26			32.26
1500	1200	1270	22.68			22.68
1800	1500	1570	14.58			14.58
2100	1800	1870	10.06			10.06
2400	2100	2170	7.27			7.27
2700	2400	2470	5.44			5.44
3000	2700	2770	4.17			4.17
3300	3000	3070	3.26			3.26
3600	3200	3270	2.78			2.78

S8

Also
FacedS8
ChemS8
ColourS8
GroundS8





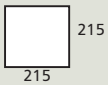
Section Properties			
Height	215mm	$V_{CO\ 100}$	84.03 kN
Width	215mm	$V_{CO\ 100/1.5}$	56.02 kN
M_S	16.96 kNm	$V_{CO\ 150}$	87.06 kN
M_U	26.257 kNm	$V_{CO\ 150/1.5}$	58.04 kN
$M_{U/1.5}$	17.504 kNm	Effective Depth	141.67mm
Limiting M_R	16.96 kNm	Self Weight	111 kg/m

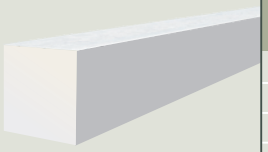
Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	210.89	138.94		138.94
1100	900	1000	134.57	110.93		110.93
1200	1000	1100	93.11	92.25		92.25
1500	1200	1341.67	74.26		85.41	74.26
1800	1500	1641.67	49.23			49.23
2100	1800	1941.67	34.87			34.87
2400	2100	2241.67	25.89			25.89
2700	2400	2541.67	19.89			19.89
3000	2700	2841.67	15.69			15.69
3300	3000	3141.67	12.63			12.63
3600	3200	3341.67	11.04			11.04

S8

Also
FireS8
FacedFireS8
1.0 Hr





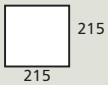
Section Properties			
Height	215mm	$V_{CO\ 100}$	84.03 kN
Width	215mm	$V_{CO\ 100/1.5}$	56.02 kN
M_S	16.96 kNm	$V_{CO\ 150}$	87.06 kN
M_U	26.257 kNm	$V_{CO\ 150/1.5}$	58.04 kN
$M_{U/1.5}$	17.504 kNm	Effective Depth	141.67mm
Limiting M_R	16.96 kNm	Self Weight	111 kg/m

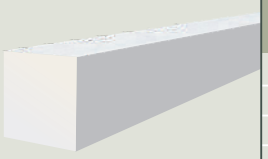
Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	210.89	138.94		138.94
1100	900	1000	134.57	110.93		110.93
1200	1000	1100	93.11	92.25		92.25
1500	1200	1341.67	74.26		85.41	74.26
1800	1500	1641.67	49.23			49.23
2100	1800	1941.67	34.87			34.87
2400	2100	2241.67	25.89			25.89
2700	2400	2541.67	19.89			19.89
3000	2700	2841.67	15.69			15.69
3300	3000	3141.67	12.63			12.63
3600	3200	3341.67	11.04			11.04

S8

Also
FireS8
FacedFireS8
1.5 Hr





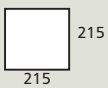
Section Properties			
Height	215mm	$V_{CO\ 100}$	84.03 kN
Width	215mm	$V_{CO\ 100/1.5}$	56.02 kN
M_S	16.96 kNm	$V_{CO\ 150}$	87.06 kN
M_U	26.257 kNm	$V_{CO\ 150/1.5}$	58.04 kN
$M_{U/1.5}$	17.504 kNm	Effective Depth	141.67mm
Limiting M_R	16.96 kNm	Self Weight	111 kg/m

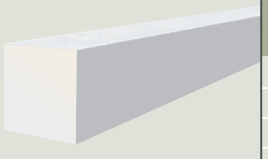
Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	210.89	138.94		138.94
1100	900	1000	134.57	110.93		110.93
1200	1000	1100	93.11	92.25		92.25
1500	1200	1341.67	74.26		85.41	74.26
1800	1500	1641.67	49.23			49.23
2100	1800	1941.67	34.87			34.87
2400	2100	2241.67	25.89			25.89
2700	2400	2541.67	19.89			19.89
3000	2700	2841.67	15.69			15.69
3300	3000	3141.67	12.63			12.63
3600	3200	3341.67	11.04			11.04

S8

Also
FireS8
FacedFireS8
2.0 Hr





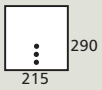
Section Properties			
Height	215mm	$V_{CO\ 100}$	84.33 kN
Width	215mm	$V_{CO\ 100/1.5}$	56.22 kN
M_S	15.492 kNm	$V_{CO\ 150}$	87.38 kN
M_U	28.625 kNm	$V_{CO\ 150/1.5}$	58.26 kN
$M_{U/1.5}$	19.083 kNm	Effective Depth	131.67mm
Limiting M_R	15.492 kNm	Self Weight	111 kg/m

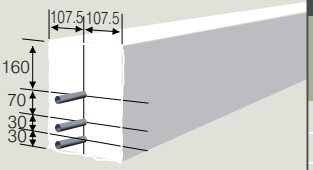
Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	192.54	139.44		139.44
1100	900	1000	122.82	111.33		111.33
1200	1000	1100	101.31	101.10		101.10
1500	1200	1331.67	68.77		86.38	68.77
1800	1500	1631.67	45.44			45.44
2100	1800	1931.67	32.10			32.10
2400	2100	2231.67	23.77			23.77
2700	2400	2531.67	18.22			18.22
3000	2700	2831.67	14.34			14.34
3300	3000	3131.67	11.52			11.52
3600	3200	3331.67	10.05			10.05

R14

Also **FacedR14**
ChemR14
ColourR14
GroundR14





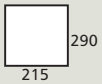
Section Properties			
Height	290mm	$V_{CO\ 100}$	108.06 kN
Width	215mm	$V_{CO\ 100/1.5}$	72.04 kN
M_S	29.08 kNm	$V_{CO\ 150}$	110.60 kN
M_U	49.773 kNm	$V_{CO\ 150/1.5}$	73.73 kN
$M_{U/1.5}$	33.182 kNm	Effective Depth	212mm
Limiting M_R	29.08 kNm	Self Weight	150 kg/m

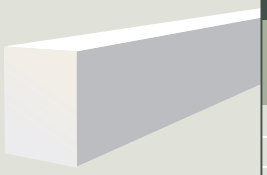
Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m M_R (A)	SR_{100} (B)	SR_{150} (B)	Limiting (C)
900	700	800	362.00	178.60		178.60
1100	900	1000	231.14	142.58		142.58
1200	1000	1100	190.76	129.48		129.48
1500	1200	1350	126.15		107.73	107.73
1800	1500	1650	83.95		87.87	83.95
2100	1800	1950	59.68			59.68
2400	2100	2250	44.45			44.45
2700	2400	2550	34.28			34.28
3000	2700	2850	27.14			27.14
3300	3000	3150	21.94			21.94
3600	3200	3400	18.62			18.62

R14

Also
FireR14
FacedFireR14
1.0 Hr





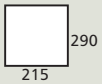
Section Properties			
Height	290mm	$V_{CO\ 100}$	108.06 kN
Width	215mm	$V_{CO\ 100/1.5}$	72.04 kN
M_S	29.08 kNm	$V_{CO\ 150}$	110.60 kN
M_U	49.773 kNm	$V_{CO\ 150/1.5}$	73.73 kN
$M_{U/1.5}$	33.182 kNm	Effective Depth	212mm
Limiting M_R	29.08 kNm	Self Weight	150 kg/m

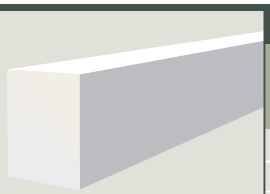
Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m M_R (A)	SR_{100} (B)	SR_{150} (B)	Limiting (C)
900	700	800	362.00	178.60		178.60
1100	900	1000	231.14	142.58		142.58
1200	1000	1100	190.76	129.48		129.48
1500	1200	1350	126.15		107.73	107.73
1800	1500	1650	83.95		87.87	83.95
2100	1800	1950	59.68			59.68
2400	2100	2250	44.45			44.45
2700	2400	2550	34.28			34.28
3000	2700	2850	27.14			27.14
3300	3000	3150	21.94			21.94
3600	3200	3400	18.62			18.62

R14

Also
FireR14
FacedFireR14
1.5 Hr





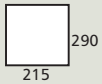
Section Properties			
Height	290mm	$V_{CO\ 100}$	108.06 kN
Width	215mm	$V_{CO\ 100/1.5}$	72.04 kN
M_S	29.08 kNm	$V_{CO\ 150}$	110.60 kN
M_U	49.773 kNm	$V_{CO\ 150/1.5}$	73.73 kN
$M_{U/1.5}$	33.182 kNm	Effective Depth	212mm
Limiting M_R	29.08 kNm	Self Weight	150 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m M_R (A)	SR_{100} (B)	SR_{150} (B)	Limiting (C)
900	700	800	362.00	178.60		178.60
1100	900	1000	231.14	142.58		142.58
1200	1000	1100	190.76	129.48		129.48
1500	1200	1350	126.15		107.73	107.73
1800	1500	1650	83.95		87.87	83.95
2100	1800	1950	59.68			59.68
2400	2100	2250	44.45			44.45
2700	2400	2550	34.28			34.28
3000	2700	2850	27.14			27.14
3300	3000	3150	21.94			21.94
3600	3200	3400	18.62			18.62

R14

Also
FireR14
FacedFireR14
2.0 Hr



Section Properties			
Height	290mm	$V_{CO\ 100}$	108.35 kN
Width	215mm	$V_{CO\ 100/1.5}$	72.23 kN
M_S	27.613 kNm	$V_{CO\ 150}$	110.92 kN
M_U	47.062 kNm	$V_{CO\ 150/1.5}$	73.94 kN
$M_{U/1.5}$	31.375 kNm	Effective Depth	201.67mm
Limiting M_R	27.613 kNm	Self Weight	150 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m M_R (A)	SR_{100} (B)	SR_{150} (B)	Limiting (C)
900	700	800	343.66	179.07		179.07
1100	900	1000	219.40	142.96		142.96
1200	1000	1100	181.06	129.83		129.83
1500	1200	1350	119.71		108.04	108.04
1800	1500	1650	79.64		88.12	79.64
2100	1800	1950	56.59			56.59
2400	2100	2250	42.13			42.13
2700	2400	2550	32.47			32.47
3000	2700	2850	25.70			25.70
3300	3000	3150	20.76			20.76
3600	3200	3400	17.61			17.61

L-Strip

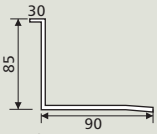
A range of Steel L-Shaped angle lintels suitable for brick and stone to carry the external leaf.

Available in galvanised (Pregalv G600) and stainless steel grade 304. Other specially designed steel lintels available upon request.

L-Strip Steel Range

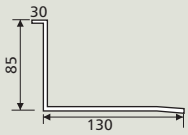
85

LG85
LS85



Self weight 5kg/m

LG85
LS85
Stone



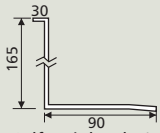
Self weight 6kg/m

Load Table

O/all Length	Clear Span	Allowable Load - kN/m
900	700	22.85
1100	900	14.63
1200	1000	12.09
1500	1200	8.02
1800	1500	5.37
2100	1800	3.42
2400	2100	
2700	2400	
3000	2700	
3300	3000	
3600	3200	

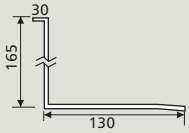
165

LG165
LS165



Self weight 7kg/m

LG165
LS165
Stone



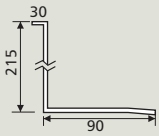
Self weight 8kg/m

Load Table

O/all Length	Clear Span	Allowable Load - kN/m
900	700	62.10
1100	900	39.75
1200	1000	32.85
1500	1200	21.15
1800	1500	13.25
2100	1800	8.51
2400	2100	5.46
2700	2400	3.54
3000	2700	
3300	3000	
3600	3200	

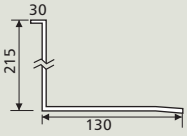
215

LG215
LS215



Self weight 9kg/m

LG215
LS215
Stone



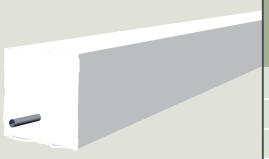
Self weight 10kg/m

Load Table

O/all Length	Clear Span	Allowable Load - kN/m
900	700	32.75
1100	900	20.96
1200	1000	17.32
1500	1200	11.50
1800	1500	7.69
2100	1800	5.51
2400	2100	4.14
2700	2400	3.22
3000	2700	2.58
3300	3000	2.11
3600	3200	1.86

100-6

UltraFire



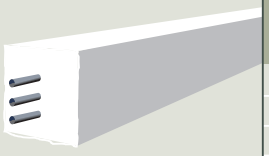
Section Properties			
Height	145mm	$V_{CO\ 100}$	17.93 kN
Width	100mm	$V_{CO\ 100/1.5}$	11.95 kN
M_S	2.736 kNm	$V_{CO\ 150}$	18.99 kN
M_U	4.628 kNm	$V_{CO\ 150/1.5}$	12.66 kN
$M_{U/1.5}$	3.086 kNm	Effective Depth	85mm
Limiting M_R	2.736 kNm	Self Weight	35 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	785	35.17	30.09		30.09
1100	900	985	22.21	23.91		22.21
1200	1000	1085	18.24	21.68		18.24
1500	1200	1285	12.90		19.35	12.90
1800	1500	1585	8.36			8.36
2100	1800	1885	5.81			5.81
2400	2100	2185	4.23			4.23
2700	2400	2485	3.19			3.19
3000	2700					
3300	3000					
3600	3200					

140-9

UltraFire



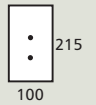
Section Properties			
Height	215mm	$V_{CO\ 100}$	45.26 kN
Width	140mm	$V_{CO\ 100/1.5}$	30.17 kN
M_S	8.818 kNm	$V_{CO\ 150}$	49.54 kN
M_U	14.073 kNm	$V_{CO\ 150/1.5}$	31.65 kN
$M_{U/1.5}$	9.382 kNm	Effective Depth	111.67mm
Limiting M_R	8.818 kNm	Self Weight	72 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	109.50	74.70		74.70
1100	900	1000	69.82	59.61		59.61
1200	1000	1100	57.57	54.13		54.13
1500	1200	1312	40.25		47.58	40.25
1800	1500	1612	26.42			26.42
2100	1800	1912	18.57			18.57
2400	2100	2212	13.69			13.69
2700	2400	2512	10.45			10.45
3000	2700	2812	8.19			8.19
3300	3000	3112	6.56			6.56
3600	3200	3312	5.71			5.71

100-9

UltrFire



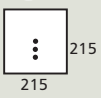
Section Properties			
Height	215mm	$V_{CO\ 100}$	30.46 kN
Width	100mm	$V_{CO\ 100/1.5}$	20.31 kN
M_S	6.368 kNm	$V_{CO\ 150}$	32.02 kN
M_U	11.585 kNm	$V_{CO\ 150/1.5}$	21.34 kN
$M_{U/1.5}$	7.723 kNm	Effective Depth	115.5mm
Limiting M_R	6.386 kNm	Self Weight	51 kg/m

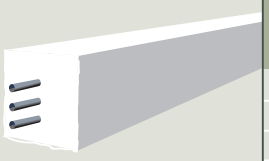
Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	79.32	50.27		50.27
1100	900	1000	50.57	40.11		40.11
1200	1000	1100	41.71	36.42		36.42
1500	1200	1315	29.03		31.95	29.03
1800	1500	1615	19.32			19.32
2100	1800	1915	13.42			13.42
2400	2100	2215	9.90			9.90
2700	2400	2515	7.57			7.57
3000	2700	2815	5.94			5.94
3300	3000	3115	4.76			4.76
3600	3200	3315	4.17			4.71

215-9

UltraFire





Section Properties			
Height	215mm	$V_{CO\ 100}$	71.09 kN
Width	215mm	$V_{CO\ 100/1.5}$	47.39 kN
M_S	11.225 kNm	$V_{CO\ 150}$	74.09 kN
M_U	18.248 kNm	$V_{CO\ 150/1.5}$	49.39 kN
$M_{U/1.5}$	12.166 kNm	Effective Depth	110mm
Limiting M_R	11.225 kNm	Self Weight	111 kg/m

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			M_R (A)	S_{R100} (B)	S_{R150} (B)	Limiting (C)
900	700	800	139.20	117.36		117.36
1100	900	1000	88.69	93.67		88.69
1200	1000	1100	73.10	85.05		73.10
1500	1200	1310	51.21		74.29	51.21
1800	1500	1610	33.53			33.53
2100	1800	1910	23.50			23.50
2400	2100	2210	17.27			17.27
2700	2400	2510	13.14			13.14
3000	2700	2810	10.26			10.26
3300	3000	3110	8.17			8.17
3600	3200	3310	7.08			7.08

Padstones

A comprehensive range of dense concrete Padstones is also available.

Non standard sections and profiles are available upon request.

Padstone Section - (mm)		
100 x 140 x 100	300 x 140 x 215	330 x 215 x 290
215 x 140 x 100	300 x 190 x 215	440 x 100 x 215
330 x 140 x 100	300 x 215 x 215	440 x 140 x 215
440 x 140 x 100	330 x 100 x 215	440 x 190 x 215
140 x 140 x 140	330 x 140 x 215	440 x 215 x 215
215 x 100 x 215	330 x 190 x 215	440 x 100 x 290
215 x 140 x 215	330 x 215 x 215	440 x 140 x 290
215 x 190 x 215	330 x 100 x 290	440 x 190 x 290
215 x 215 x 215	330 x 140 x 290	440 x 215 x 290
300 x 100 x 215	330 x 190 x 290	

Padstone Range

L-Shaped Padstone Section - (mm)	
215/215 x 100 x 215	440/440 x 100 x 215
300/300 x 100 x 215	330/330 x 140 x 215
330/330 x 100 x 215	440/440 x 140 x 215

Specials

A speedy and efficient service offering solutions to difficult site situations. Examples include; large and unusual shaped sections, lintels with inserts cast in and units with chamfers and notches. Individual performance calculations are available upon request.

SPECIALS - To specify units please contact our technical/sales office.

Specials Range

Naylor Industries plc - more than 100 years of production and supply to the Construction Industry

- Vitrified clay pipe systems - for trench and trenchless installation
- Hathernware ''Thermachem'' - Chemical Drainage and Industrial Ceramics
- Band-Seal couplings for the repair of and connections into existing pipelines
- Plastic Land Drainage, Twinwall Drainage Ducting Systems and Access Boxes
- Lintels - Prestressed Concrete Lintels
- Yorkshire Flowerpots - frostproof gardenware

INVESTORS IN PEOPLE

NAYLOR LINTELS

A MEMBER OF THE NAYLOR GROUP OF COMPANIES

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