

FLITCH BEAM



December 2007

GANG-NAIL[®] FLITCH BEAM Manual

**GANG-NAIL FLITCH BEAMS are available only through GANG-NAIL
Fabricators throughout New Zealand**

Refer to the MiTek New Zealand website for up to date GANG-NAIL FLITCH BEAM
information and a GANG-NAIL Fabricator listing

www.mitek.nz.co.nz

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Producer Statement - PS1 - Design

ISSUED BY: MiTek New Zealand Limited

TO BE SUPPLIED TO: Building Consent Authorities in New Zealand

IN RESPECT OF: GANG-NAIL FLITCH BEAM Design Manual, 12/2007

AT: Various Locations in New Zealand

MiTek New Zealand Limited has provided engineering design services in respect of the requirements of Clause B1 of the NZ Building Code for

☐ All

☒ Part only as specified – GANG-NAIL FLITCH BEAM

of the proposed building work.

The selection charts within this design manual have been prepared in accordance with **Compliance Documents and Verification Method B1/VM1** of the NZ Building Code and in accordance with sound and widely accepted engineering principles.

On behalf of MiTek New Zealand Limited, and subject to:

1. The verification of the design assumptions within this manual
2. All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds that the use of GANG-NAIL FLITCH BEAM in the proposed building, if constructed in accordance with the drawings, specifications and other documents provided, will comply with the relevant provisions of the Building Code.

MiTek New Zealand Limited holds a current policy of Professional Indemnity Insurance of not less than \$500,000.

On behalf of MiTek New Zealand Limited

Date: January 2010



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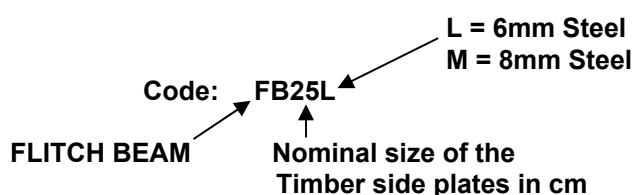
Description

The GANG-NAIL FLITCH BEAM is a composite beam formed with a steel plate sandwiched between timber. The beam is manufactured with shot fired nails, fired through the timber into the steel.

The use of the GANG-NAIL FLITCH BEAM system eliminates the variations in timber performance and allows large openings to be spanned, such as garage doors, while keeping the lintel depth to an acceptable minimum.

Each beam is custom-made to measure and can be cambered to suit the application.

Sizes and Codes



See page 5 for beam sizes.

Storage and Handling

Consideration for the storage and handling of GANG-NAIL FLITCH BEAMS is the same as for trusses in general. However, particular care is required to ensure the beams stay dry by avoiding exposure to wet weather. The beams are marked to identify the right way up and special load bearing points if any.

Stability

Top Edge Restraint

All GANG-NAIL FLITCH BEAMS are to be restrained along their top edge at 900mm centres maximum for heavy roof and 1200mm centres maximum for light roof. Floor beams are restrained along their top edge at 600mm centres maximum.

Timber Specification

Normal: MSG8 / VSG8, MSG 6 or Unverified No. 1 Framing.

Treatment: Refer to NZS 3602:2003.

Moisture Content: **All GANG-NAIL FLITCH BEAMS are made dry**, 18% or less at time of fabrication.

Durability

GANG-NAIL FLITCH BEAMS used in internal situations ("closed" as defined by NZS 3604) require no further protection to satisfy 50 year durability requirements.

GANG-NAIL FLITCH BEAMS are not suitable for sheltered or exposed environments.

Steel Specification

Steel flitch plates to be sourced from MiTek New Zealand Limited and ordered as:
FB15L, FB20M, FB25L, FB25M, FB30M.

Pin Specification

The pins shall have a hardened tip to achieve full penetration through the steel flitch plate. They must have at least 75% bearing on the timber thickness. They must be driven from both timber faces with spacings as per GANG-NAIL manufacturing details.

The pin shall be a minimum 4.0mm shank diameter powder driven, 40mm to 65mm length range and applied by a licensed powder actuated tool operator. Washers may be used to get even penetration.

Design Data

The tables herein have been designed according to the following loads;

	LOAD	EXAMPLE	DISTRIBUTED
Roof	Dead Load	Lightweight roof Heavyweight roof Ceiling	0.25 kPa 0.65 kPa 0.20 kPa
	Live Load	0.25 kPa uniform	1.0kN point load

- Note:**
- 1) 750mm overhang has been included in the derivation of the tables.
 - 2) Spans are horizontal measurements.
 - 3) For heavy roofs over 30° pitch, multiply the roof span by 1.17 before using the tables:

$$\text{Nominal Roof Span} = 1.17 \times \text{Actual Roof Span}$$

Floor	LOAD	EXAMPLE	DISTRIBUTED	CONCENTRATED
	Dead Load	Particle board floor (including ceiling)	0.5 kPa (Distributed)	
	Basic Live Load	Domestic - (Tables 4, 8, 9A)	1.5 kPa	1.8kN
		Offices for general use - (Table 9B)	2.5 kPa	2.7kN
		Class and lecture rooms, library reading areas, assembly areas, fixed seating - (Table 9C)	3.0 kPa	2.7kN

Wall Light framing as per NZS 3604. A cladding having a mass not exceeding 30kg/m² (typical examples are timber or fibre-cement weather boards).

Snow Snow load has been allowed for in the charts. S = 0.5 kPa.
For higher snow loads up to 1.0 kPa, multiply the actual roof span by the figure below before using the tables:

$$\text{Light Roof: Nominal Roof Span} = 1.53 \times \text{Actual Roof Span}$$

$$\text{Heavy Roof: Nominal Roof Span} = 1.37 \times \text{Actual Roof Span}$$

Wind The tables are applicable for wind zones up to HIGH WIND, as defined by NZS3604. For VERY HIGH WIND load conditions select the lintel using the HEAVY roof weight.

FLITCH BEAM



Specification

Deflection Criteria	Load Combination	Deflection Criteria	Tables
	k_2G	10mm max	Tables 1, 3, 4, 5, 6, 7A, 7B, 8
	$G + \Psi_s Q$	15mm max	Table 2
	W_s	Span / 400	All Tables
	$G + S_s$	10mm max	Tables 4, 9A, 9B, 9C
	1.0kN Point Load	Span / 200	Tables 1, 2, 3, 5, 6, 7A, 7B
		Span / 250	Tables 1, 2, 3, 5, 6, 7A, 7B
		2mm max	Tables 9A, 9B, 9C

Camber The maximum recommended camber is span / 600 at mid-span. No camber is required for cantilever beams. Some beams may be supplied with no camber if on site packing is to be used to provide an acceptable finish.
A Creep Factor (k_2) = 1.3 has been used in the derivation of the charts.

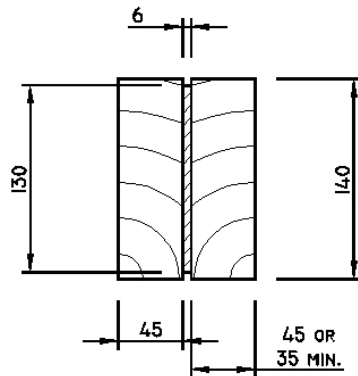
Availability

MiTek New Zealand Ltd is pleased to advise on the application of this product. Please note that **GANG-NAIL FLITCH BEAMS** are manufactured throughout New Zealand only by accredited **GANG-NAIL** Fabricators.

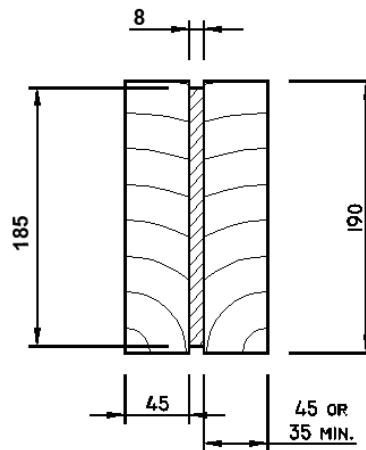
FLITCH BEAM



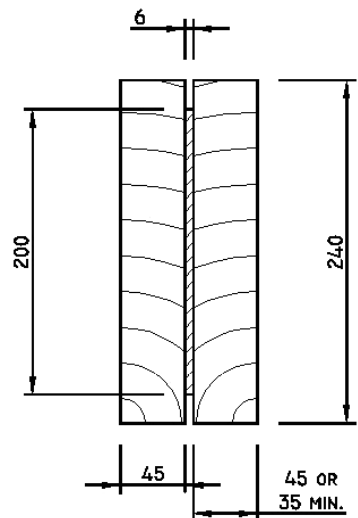
Beam Sizes



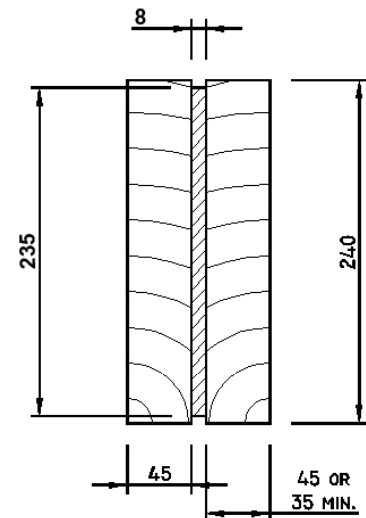
FB15L



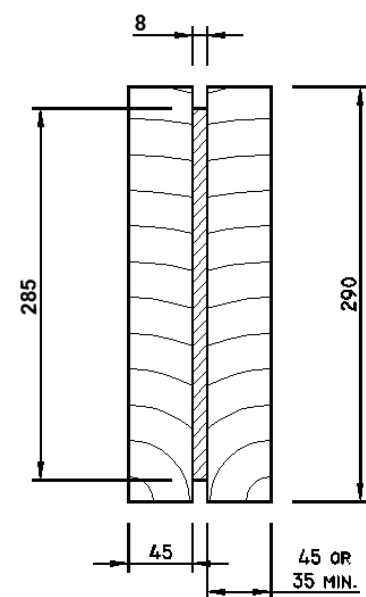
FB20M



FB25L



FB25M



FB30M

NOTE:

Timber side plates minimum overall thickness of 80mm (i.e. 35mm + 45mm).

FLITCH BEAM



Selection Charts

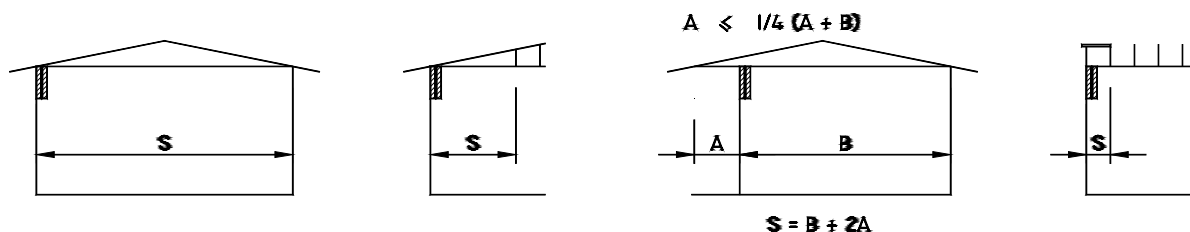


TABLE 1: MSG8, VSG8, MSG6 or Unverified No. 1 Framing
LINTELS SUPPORTING ROOF AND CEILING ONLY

	LINTEL SIZE	MAXIMUM LINTEL SPAN (m)												
		SUPPORTED ROOF SPAN 'S' (m)												
		3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
LIGHT ROOF	FB15L	3.44	3.21	3.03	2.89	2.75	2.60	2.47	2.36	2.26	2.17	2.10	2.03	1.96
	FB20M	4.93	4.68	4.48	4.32	4.15	4.00	3.87	3.73	3.58	3.44	3.32	3.21	3.11
	FB25L	5.17	4.91	4.70	4.53	4.26	4.02	3.82	3.65	3.50	3.37	3.25	3.14	3.04
	FB25M	5.90	5.59	5.36	5.16	5.00	4.86	4.74	4.63	4.53	4.37	4.22	4.08	3.95
	FB30M	6.81	6.46	6.19	5.96	5.78	5.61	5.47	5.35	5.23	5.13	5.04	4.95	4.79
HEAVY ROOF	FB15L	2.92	2.72	2.57	2.45	2.30	2.17	2.06	1.97	1.89	1.82	1.75	1.69	1.64
	FB20M	4.21	3.99	3.82	3.68	3.52	3.39	3.26	3.12	2.99	2.87	2.77	2.68	2.59
	FB25L	4.41	4.19	4.01	3.79	3.56	3.36	3.19	3.05	2.92	2.81	2.71	2.62	2.54
	FB25M	5.03	4.77	4.57	4.41	4.27	4.15	4.04	3.95	3.80	3.65	3.52	3.40	3.30
	FB30M	5.81	5.51	5.28	5.09	4.93	4.79	4.67	4.56	4.47	4.38	4.27	4.13	4.00

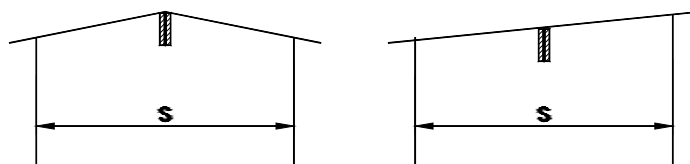


TABLE 2: MSG8, VSG8, MSG6 or Unverified No. 1 Framing
FLITCH BEAM RIDGE BEAM SUPPORTING ROOF AND SARKING OR CEILING
(RAFTERS @ 1200mm CRS MAX)

	LINTEL SIZE	MAXIMUM LINTEL SPAN (m)										
		SUPPORTED ROOF SPAN 'S' (m)										
		5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
LIGHT ROOF	FB15L	3.03	2.89	2.75	2.60	2.47	2.36	2.26	2.17	2.10	2.03	1.96
	FB20M	4.55	4.34	4.15	4.00	3.87	3.73	3.58	3.44	3.32	3.21	3.11
	FB25L	4.85	4.54	4.26	4.02	3.82	3.65	3.50	3.37	3.25	3.14	3.04
	FB25M	5.78	5.50	5.27	5.07	4.90	4.74	4.55	4.37	4.22	4.08	3.95
	FB30M	6.85	6.60	6.39	6.15	5.94	5.75	5.52	5.30	5.12	4.95	4.79
HEAVY ROOF	FB15L	2.57	2.45	2.30	2.17	2.06	1.97	1.89	1.82	1.75	1.69	1.64
	FB20M	3.86	3.68	3.52	3.39	3.26	3.12	2.99	2.87	2.77	2.68	2.59
	FB25L	4.08	3.79	3.56	3.36	3.19	3.05	2.92	2.81	2.71	2.62	2.54
	FB25M	4.90	4.66	4.47	4.30	4.15	3.96	3.80	3.65	3.52	3.40	3.30
	FB30M	5.84	5.63	5.42	5.21	5.03	4.81	4.61	4.43	4.27	4.13	4.00

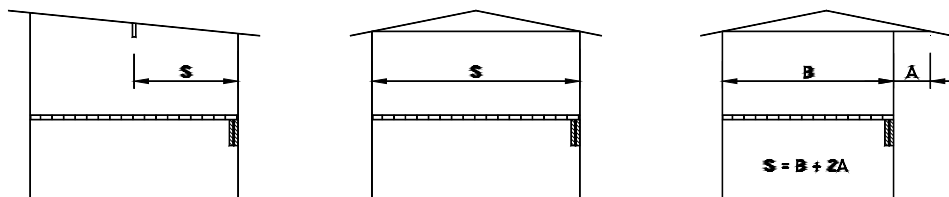


TABLE 3: MSG8, VSG8, MSG6 or Unverified No. 1 Framing
LINTEL SUPPORTING ROOF AND LOAD-BEARING WALL
(2.4m MAX WALL HEIGHT)

	LINTEL SIZE	MAXIMUM LINTEL SPAN (m)												
		SUPPORTED ROOF SPAN 'S' (m)												
		3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
LIGHT ROOF	FB15L	2.79	2.68	2.59	2.51	2.41	2.31	2.22	2.13	2.06	2.00	1.94	1.88	1.83
	FB20M	4.04	3.94	3.85	3.77	3.66	3.57	3.48	3.38	3.26	3.16	3.06	2.97	2.89
	FB25L	4.23	4.13	4.04	3.91	3.73	3.57	3.43	3.30	3.19	3.09	3.00	2.91	2.83
	FB25M	4.83	4.71	4.60	4.51	4.42	4.35	4.27	4.21	4.14	4.01	3.89	3.78	3.68
	FB30M	5.57	5.43	5.31	5.20	5.10	5.01	4.93	4.85	4.78	4.72	4.66	4.59	4.46
HEAVY ROOF	FB15L	2.49	2.33	2.20	2.08	1.99	1.90	1.83	1.76	1.70	1.65	1.60	1.56	1.52
	FB20M	3.71	3.59	3.47	3.30	3.15	3.01	2.90	2.79	2.70	2.61	2.53	2.46	2.40
	FB25L	3.85	3.60	3.40	3.23	3.08	2.95	2.83	2.73	2.64	2.56	2.48	2.41	2.35
	FB25M	4.44	4.29	4.17	4.06	3.97	3.83	3.68	3.55	3.43	3.32	3.22	3.13	3.05
	FB30M	5.13	4.96	4.82	4.69	4.58	4.48	4.40	4.30	4.16	4.03	3.91	3.80	3.70

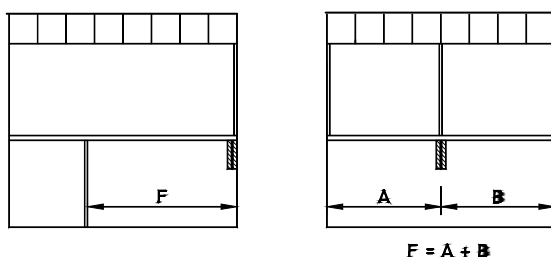
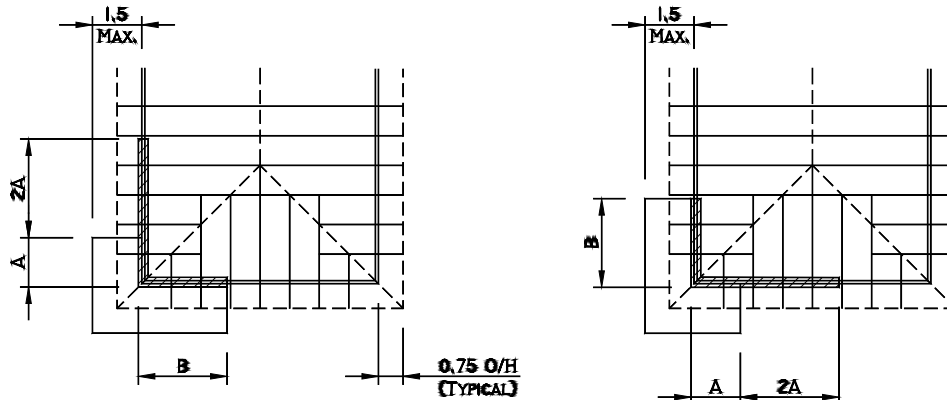


TABLE 4: MSG8, VSG8, MSG6 or Unverified No. 1 Framing
LINTEL SUPPORTING FLOOR AND WALL (2.4m MAX WALL HEIGHT)

LINTEL SIZE	MAXIMUM LINTEL SPAN (m)										
	FLOOR SPAN 'F' (m)										
	2.4	3.0	3.6	4.2	4.8	5.4	6.0	6.6	7.2	7.8	8.4
FB15L	2.70	2.56	2.39	2.25	2.13	2.03	1.94	1.87	1.80	1.74	1.68
FB20M	4.04	3.87	3.72	3.56	3.37	3.21	3.07	2.95	2.84	2.74	2.66
FB25L	4.24	3.96	3.70	3.48	3.30	3.14	3.01	2.89	2.78	2.69	2.60
FB25M	4.83	4.67	4.53	4.41	4.29	4.08	3.91	3.75	3.61	3.49	3.38
FB30M	5.58	5.39	5.23	5.10	4.98	4.87	4.74	4.55	4.38	4.23	4.10

NOTE: THESE LINTELS DO NOT SUPPORT LOADS FROM OTHER BEAMS OR RAFTERS.



**TABLE 5: MSG8, VSG8, MSG6 or Unverified No. 1 Framing
CANTILEVERED LINTEL FOR CORNER BAY UNDER HIP ROOF**

	LINTEL SIZE	MAXIMUM CANTILEVER (DIMENSION A) (m)					
		SUPPORTED LINTEL SPAN (DIMENSION B) (m)					
		1.8	2.4	3.0	3.6	4.2	4.8
LIGHT ROOF	FB15L	1.00	0.85	0.70	0.61	0.54	0.49
	FB20M	1.80	1.70	1.60	1.50	1.40	1.30
	FB25L	1.90	1.80	1.67	1.48	1.30	1.17
	FB25M	2.20	2.10	2.00	1.90	1.55	1.70
	FB30M	2.95	2.78	2.64	2.53	2.44	2.35
HEAVY ROOF	FB15L	0.68	0.57	0.49	0.45	0.38	0.35
	FB20M	1.70	1.40	1.22	1.10	0.96	0.86
	FB25L	1.60	1.36	1.17	1.03	0.92	0.83
	FB25M	1.90	1.80	1.70	1.60	1.50	1.40
	FB30M	2.40	2.25	2.14	2.05	1.97	1.90

NOTE: CHOOSE OPTION WHERE 'A' IS LESS THAN 'B'
SELECT LINTEL 'B' FROM TABLE 1 OR GANGLAM CHARTS TABLE 1.

FLITCH BEAM



Selection Charts

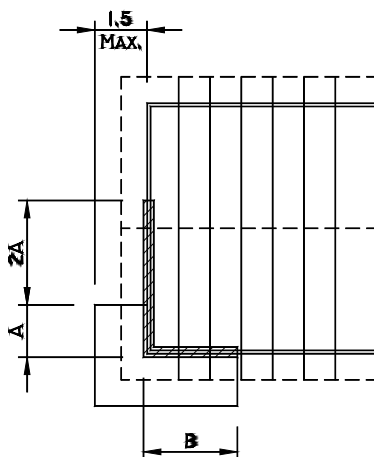


TABLE 6: MSG8, VSG8, MSG6 or Unverified No. 1 Framing
CANTILEVERED LINTEL FOR CORNER BAY UNDER GABLE ROOF

	LINTEL SIZE	DIMENSION B (m)	MAXIMUM CANTILEVER (DIMENSION A) (m)						
			TRUSS SPAN (m)						
			5.0	7.0	9.0	10.0	11.0	13.0	15.0
LIGHT ROOF	FB15L	3.0	0.70	0.55	0.46	0.42	0.39	0.34	0.30
		4.0	0.55	0.43	0.35	0.32	0.30	-	-
		5.0	0.45	0.35	-	-	-	-	-
	FB20M	3.0	1.66	1.34	1.11	1.03	0.95	0.83	0.74
		4.0	1.32	1.05	0.86	0.79	0.73	0.64	0.56
		5.0	1.09	0.86	0.70	0.64	0.59	0.51	0.45
	FB25L	3.0	1.59	1.28	1.07	0.98	0.91	0.80	0.71
		4.0	1.27	1.00	0.83	0.76	0.70	0.61	0.54
		5.0	1.05	0.82	0.67	0.62	0.57	0.49	0.44
	FB25M	3.0	2.55	2.09	1.76	1.62	1.51	1.32	1.18
		4.0	2.07	1.65	1.37	1.26	1.17	1.02	0.90
		5.0	1.73	1.36	1.12	1.03	0.95	0.83	0.73
	FB30M	3.0	2.78	2.28	1.93	1.78	1.66	1.46	1.30
		4.0	2.26	1.82	1.51	1.39	1.29	1.12	1.00
		5.0	1.90	1.50	1.24	1.14	1.05	0.91	0.81
HEAVY ROOF	FB15L	3.0	0.50	0.39	0.32	0.30	-	-	-
		4.0	0.39	0.30	-	-	-	-	-
		5.0	0.32	-	-	-	-	-	-
	FB20M	3.0	1.20	0.96	0.79	0.73	0.68	0.59	0.52
		4.0	0.95	0.74	0.61	0.56	0.52	0.45	0.40
		5.0	0.78	0.61	0.50	0.45	0.42	0.36	0.32
	FB25L	3.0	1.15	0.92	0.76	0.70	0.65	0.56	0.50
		4.0	0.91	0.71	0.59	0.54	0.50	0.43	0.38
		5.0	0.75	0.58	0.48	0.44	0.40	0.35	0.31
	FB25M	3.0	1.87	1.51	1.26	1.16	1.08	0.94	0.84
		4.0	1.49	1.18	0.98	0.90	0.83	0.72	0.64
		5.0	1.24	0.97	0.80	0.73	0.67	0.58	0.52
	FB30M	3.0	2.04	1.65	1.38	1.28	1.19	1.04	0.92
		4.0	1.64	1.30	1.08	0.99	0.92	0.80	0.70
		5.0	1.36	1.07	0.88	0.81	0.74	0.65	0.57

NOTE: CHOOSE OPTION WHERE 'A' IS LESS THAN 'B'
SELECT LINTEL 'B' FROM TABLE 1 OR GANGLAM CHARTS TABLE 1.

FLITCH BEAM



Selection Charts

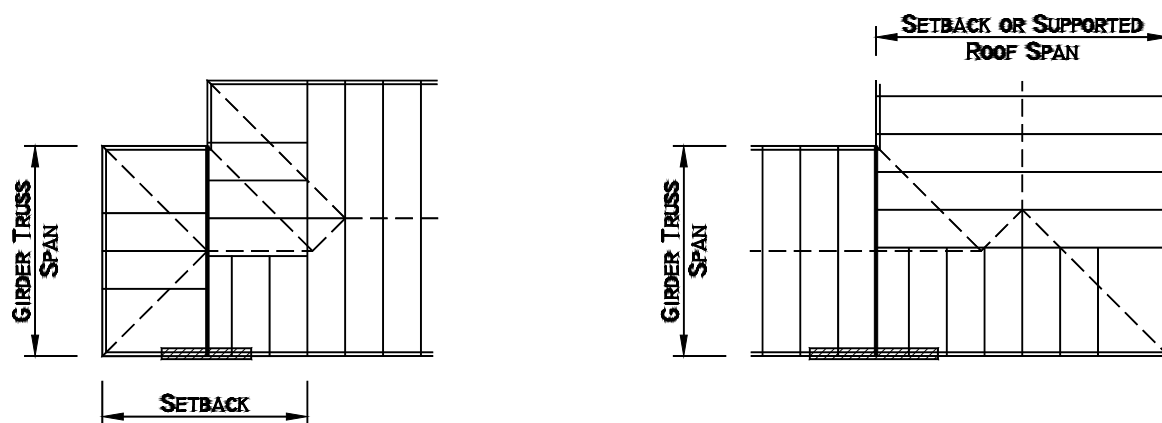


TABLE 7A: MSG8, VSG8, MSG6 or Unverified No. 1 Framing
LINTEL SUPPORTING GIRDER/SETBACK TRUSSES WITH LIGHT ROOF

LINTEL SIZE	SETBACK (m)	MAXIMUM LINTEL SPAN (m)										
		GIRDER TRUSS SPAN (m)										
		5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
FB15L	1.2	3.21	3.02	2.80	2.61	2.44	2.30	2.18	2.07	1.97	1.88	1.80
	2.4	2.73	2.45	2.22	2.04	1.88	1.74	1.63	1.53	1.44	1.36	1.29
	3.6	2.29	2.02	1.80	1.63	1.49	1.37	1.27	1.18	1.10	1.03	0.98
	4.8	1.94	1.69	1.50	1.34	1.21	1.11	1.02	0.95	0.88	0.82	0.77
	6.0	1.68	1.45	1.27	1.13	1.02	0.93	0.85	0.79	0.73	0.68	0.64
	7.5	1.42	1.21	1.06	0.94	0.84	0.76	0.70	0.64	0.60	0.56	0.52
	10.0	1.12	0.95	0.83	0.73	0.65	0.59	0.54	0.49	0.46	0.43	0.40
FB20M	1.2	4.80	4.63	4.48	4.36	4.23	4.06	3.87	3.69	3.54	3.39	3.27
	2.4	4.56	4.38	4.16	3.85	3.60	3.37	3.18	3.01	2.86	2.72	2.59
	3.6	4.35	3.95	3.60	3.30	3.05	2.83	2.65	2.49	2.35	2.22	2.10
	4.8	3.92	3.49	3.14	2.85	2.62	2.41	2.24	2.09	1.96	1.85	1.75
	6.0	3.52	3.10	2.76	2.49	2.27	2.09	1.93	1.79	1.68	1.57	1.48
	7.5	3.10	2.70	2.39	2.14	1.94	1.77	1.63	1.51	1.41	1.32	1.24
	10.0	2.56	2.20	1.93	1.71	1.54	1.40	1.29	1.19	1.10	1.03	0.96
FB25L	1.2	5.04	4.87	4.71	4.42	4.18	3.96	3.77	3.60	3.44	3.31	3.18
	2.4	4.80	4.39	4.04	3.74	3.49	3.28	3.09	2.92	2.77	2.64	2.51
	3.6	4.27	3.84	3.49	3.20	2.95	2.74	2.56	2.41	2.27	2.14	2.03
	4.8	3.80	3.38	3.03	2.76	2.53	2.33	2.16	2.02	1.89	1.78	1.68
	6.0	3.40	2.99	2.67	2.41	2.19	2.01	1.86	1.73	1.61	1.51	1.43
	7.5	2.99	2.60	2.30	2.06	1.87	1.70	1.57	1.45	1.35	1.27	1.19
	10.0	2.46	2.12	1.85	1.65	1.48	1.35	1.23	1.14	1.06	0.99	0.92
FB25M	1.2	5.79	5.59	5.41	5.26	5.13	5.01	4.91	4.81	4.71	4.53	4.37
	2.4	5.53	5.32	5.14	4.99	4.85	4.64	4.39	4.17	3.97	3.79	3.63
	3.6	5.31	5.10	4.91	4.63	4.30	4.02	3.78	3.56	3.37	3.20	3.05
	4.8	5.12	4.90	4.48	4.10	3.79	3.52	3.28	3.08	2.90	2.74	2.60
	6.0	4.95	4.47	4.02	3.66	3.36	3.10	2.88	2.69	2.53	2.38	2.25
	7.5	4.51	3.97	3.55	3.20	2.92	2.68	2.48	2.31	2.16	2.03	1.91
	10.0	3.82	3.32	2.93	2.63	2.38	2.17	2.00	1.85	1.72	1.61	1.51
FB30M	1.2	6.73	6.50	6.30	6.13	5.98	5.84	5.72	5.61	5.50	5.41	5.32
	2.4	6.47	6.23	6.02	5.84	5.69	5.55	5.42	5.31	5.11	4.89	4.70
	3.6	6.24	5.99	5.78	5.60	5.44	5.26	4.96	4.69	4.45	4.24	4.05
	4.8	6.03	5.78	5.57	5.38	5.02	4.69	4.39	4.14	3.91	3.71	3.53
	6.0	5.85	5.59	5.36	4.91	4.53	4.20	3.92	3.68	3.46	3.27	3.10
	7.5	5.64	5.34	4.81	4.37	4.00	3.70	3.43	3.20	3.00	2.83	2.67
	10.0	5.21	4.56	4.06	3.66	3.32	3.05	2.81	2.61	2.44	2.28	2.15

FLITCH BEAM



Selection Charts

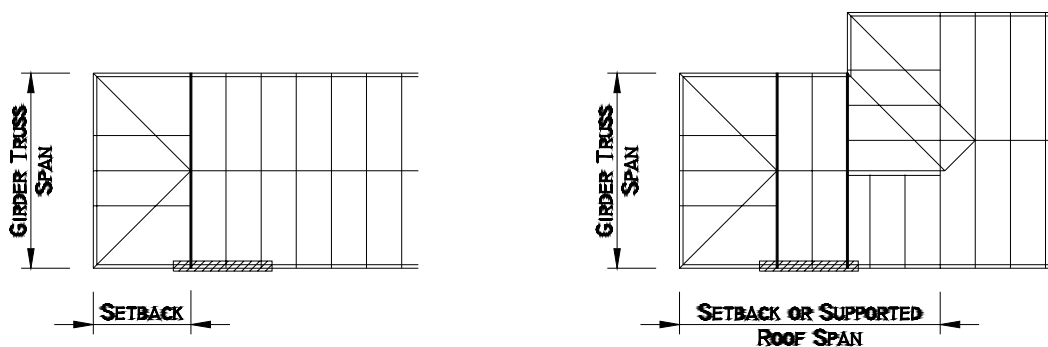


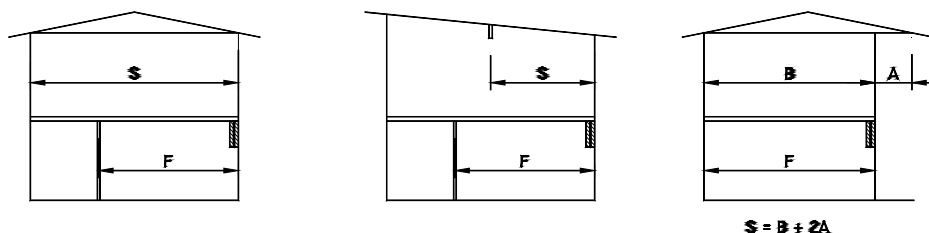
TABLE 7B: MSG8, VSG8, MSG6 or Unverified No. 1 Framing
LINTEL SUPPORTING GIRDER/SETBACK TRUSSES WITH HEAVY ROOF

LINTEL SIZE	SETBACK (m)	MAXIMUM LINTEL SPAN (m)										
		GIRDER TRUSS SPAN (m)										
		5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
FB15L	1.2	2.66	2.43	2.24	2.08	1.94	1.83	1.72	1.63	1.55	1.48	1.41
	2.4	2.14	1.90	1.72	1.56	1.44	1.33	1.23	1.15	1.08	1.02	0.97
	3.6	1.74	1.53	1.35	1.22	1.11	1.01	0.93	0.87	0.81	0.76	0.71
	4.8	1.45	1.26	1.10	0.98	0.89	0.81	0.74	0.69	0.64	0.60	0.56
	6.0	1.24	1.06	0.92	0.82	0.74	0.67	0.61	0.56	0.52	0.49	0.46
	7.5	1.04	0.88	0.76	0.68	0.60	0.55	0.50	0.46	0.43	0.40	0.37
	10.0	0.81	0.68	0.59	0.52	0.46	0.42	0.38	0.35	0.32	0.30	0.28
FB20M	1.2	4.05	3.91	3.78	3.66	3.47	3.29	3.12	2.97	2.84	2.73	2.62
	2.4	3.82	3.60	3.29	3.04	2.83	2.64	2.48	2.34	2.22	2.10	2.00
	3.6	3.45	3.08	2.79	2.54	2.34	2.16	2.02	1.89	1.77	1.67	1.58
	4.8	3.03	2.67	2.38	2.16	1.97	1.81	1.67	1.56	1.46	1.37	1.29
	6.0	2.67	2.33	2.07	1.86	1.68	1.54	1.42	1.32	1.23	1.15	1.08
	7.5	2.32	2.00	1.76	1.57	1.42	1.29	1.19	1.10	1.02	0.95	0.89
	10.0	1.88	1.61	1.40	1.24	1.11	1.01	0.92	0.85	0.79	0.74	0.69
FB25L	1.2	4.26	4.11	3.84	3.59	3.38	3.20	3.04	2.90	2.77	2.65	2.55
	2.4	3.86	3.50	3.20	2.95	2.74	2.56	2.41	2.27	2.15	2.04	1.94
	3.6	3.35	2.99	2.70	2.46	2.26	2.09	1.95	1.82	1.71	1.61	1.53
	4.8	2.93	2.58	2.30	2.08	1.90	1.74	1.61	1.50	1.40	1.32	1.24
	6.0	2.58	2.25	1.99	1.79	1.62	1.48	1.37	1.27	1.18	1.10	1.04
	7.5	2.24	1.93	1.70	1.51	1.36	1.24	1.14	1.05	0.98	0.91	0.86
	10.0	1.81	1.54	1.35	1.19	1.07	0.97	0.89	0.82	0.76	0.71	0.66
FB25M	1.2	4.90	4.72	4.58	4.45	4.33	4.23	4.14	3.99	3.82	3.67	3.54
	2.4	4.65	4.47	4.32	4.18	3.92	3.68	3.47	3.29	3.12	2.98	2.84
	3.6	4.45	4.26	3.94	3.62	3.35	3.12	2.92	2.75	2.59	2.45	2.33
	4.8	4.27	3.83	3.46	3.15	2.89	2.68	2.49	2.33	2.19	2.06	1.95
	6.0	3.88	3.42	3.06	2.77	2.53	2.33	2.15	2.00	1.87	1.76	1.66
	7.5	3.43	3.00	2.66	2.39	2.17	1.98	1.83	1.70	1.58	1.48	1.39
	10.0	2.85	2.46	2.16	1.92	1.73	1.58	1.45	1.34	1.24	1.16	1.09
FB30M	1.2	5.70	5.50	5.33	5.18	5.05	4.94	4.83	4.73	4.65	4.57	4.46
	2.4	5.45	5.24	5.06	4.91	4.77	4.65	4.49	4.26	4.06	3.88	3.72
	3.6	5.23	5.01	4.83	4.68	4.41	4.12	3.88	3.66	3.46	3.29	3.13
	4.8	5.03	4.82	4.59	4.21	3.89	3.61	3.37	3.17	2.98	2.82	2.68
	6.0	4.86	4.59	4.13	3.76	3.45	3.19	2.97	2.77	2.60	2.45	2.32
	7.5	4.64	4.09	3.65	3.30	3.01	2.77	2.56	2.38	2.23	2.09	1.97
	10.0	3.94	3.42	3.02	2.71	2.45	2.24	2.06	1.91	1.78	1.66	1.56

FLITCH BEAM



Selection Charts



$$S = B + 2A$$

TABLE 8: MSG8, VSG8, MSG6 or Unverified No. 1 Framing
LINTEL SUPPORTING ROOF, WALL AND FLOOR JOISTS (2.4m MAX WALL HEIGHT)

	LINTEL SIZE	FLOOR SPAN 'F' (m)	MAXIMUM LINTEL SPAN (m)										
			SUPPORTED ROOF SPAN 'S' (m)										
			5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
LIGHT ROOF	FB15L	2.5	2.14	2.07	2.01	1.96	1.91	1.87	1.82	1.78	1.75	1.71	1.68
		4.0	1.91	1.86	1.82	1.78	1.74	1.71	1.67	1.64	1.61	1.59	1.56
		5.5	1.74	1.70	1.67	1.64	1.61	1.58	1.56	1.53	1.51	1.49	1.46
		7.0	1.61	1.58	1.55	1.53	1.51	1.48	1.46	1.44	1.42	1.40	1.38
	FB20M	2.5	3.38	3.28	3.19	3.10	3.02	2.95	2.89	2.82	2.76	2.71	2.66
		4.0	3.01	2.94	2.88	2.81	2.76	2.70	2.65	2.60	2.55	2.51	2.47
		5.5	2.75	2.69	2.64	2.59	2.55	2.50	2.46	2.42	2.39	2.35	2.32
		7.0	2.54	2.50	2.46	2.42	2.38	2.34	2.31	2.28	2.25	2.22	2.19
	FB25L	2.5	3.30	3.21	3.12	3.04	2.96	2.89	2.82	2.76	2.70	2.65	2.60
		4.0	2.95	2.88	2.81	2.75	2.70	2.64	2.59	2.54	2.50	2.46	2.42
		5.5	2.69	2.64	2.59	2.54	2.49	2.45	2.41	2.37	2.33	2.30	2.27
		7.0	2.49	2.44	2.40	2.37	2.33	2.29	2.26	2.23	2.20	2.17	2.14
	FB25M	2.5	4.28	4.17	4.05	3.94	3.85	3.75	3.67	3.59	3.51	3.44	3.38
		4.0	3.83	3.74	3.66	3.58	3.50	3.43	3.37	3.31	3.25	3.19	3.14
		5.5	3.49	3.42	3.36	3.30	3.24	3.18	3.13	3.08	3.03	2.99	2.94
		7.0	3.23	3.18	3.12	3.07	3.03	2.98	2.94	2.90	2.86	2.82	2.78
	FB30M	2.5	5.07	4.98	4.90	4.79	4.67	4.55	4.45	4.35	4.26	4.18	4.10
		4.0	4.65	4.54	4.44	4.34	4.25	4.17	4.09	4.01	3.94	3.87	3.81
		5.5	4.24	4.15	4.08	4.00	3.93	3.86	3.80	3.74	3.68	3.62	3.57
		7.0	3.92	3.85	3.79	3.73	3.67	3.62	3.56	3.51	3.47	3.42	3.37
HEAVY ROOF	FB15L	2.5	1.95	1.88	1.81	1.76	1.70	1.66	1.61	1.57	1.53	1.50	1.46
		4.0	1.77	1.72	1.67	1.62	1.58	1.54	1.51	1.47	1.44	1.41	1.38
		5.5	1.63	1.59	1.55	1.51	1.48	1.45	1.42	1.39	1.36	1.34	1.31
		7.0	1.52	1.49	1.46	1.43	1.40	1.37	1.34	1.32	1.30	1.28	1.25
	FB20M	2.5	3.09	2.97	2.87	2.78	2.69	2.62	2.55	2.48	2.42	2.37	2.31
		4.0	2.80	2.72	2.64	2.57	2.50	2.44	2.38	2.33	2.28	2.23	2.19
		5.5	2.58	2.52	2.45	2.40	2.34	2.29	2.24	2.20	2.16	2.12	2.08
		7.0	2.41	2.35	2.30	2.25	2.21	2.17	2.13	2.09	2.05	2.02	1.98
	FB25L	2.5	3.02	2.91	2.81	2.72	2.64	2.56	2.49	2.43	2.37	2.32	2.26
		4.0	2.74	2.66	2.58	2.51	2.45	2.39	2.33	2.28	2.23	2.18	2.14
		5.5	2.53	2.46	2.40	2.34	2.29	2.24	2.19	2.15	2.11	2.07	2.03
		7.0	2.36	2.30	2.25	2.21	2.16	2.12	2.08	2.04	2.01	1.97	1.94
	FB25M	2.5	3.92	3.78	3.65	3.53	3.43	3.33	3.24	3.16	3.08	3.01	2.94
		4.0	3.56	3.45	3.35	3.26	3.18	3.10	3.03	2.96	2.90	2.84	2.78
		5.5	3.28	3.20	3.12	3.04	2.98	2.91	2.85	2.79	2.74	2.69	2.64
		7.0	3.06	2.99	2.93	2.87	2.81	2.75	2.70	2.65	2.61	2.56	2.52
	FB30M	2.5	4.66	4.55	4.43	4.29	4.16	4.04	3.93	3.83	3.74	3.65	3.57
		4.0	4.32	4.19	4.07	3.96	3.86	3.76	3.67	3.59	3.51	3.44	3.37
		5.5	3.98	3.88	3.78	3.69	3.61	3.53	3.46	3.39	3.33	3.26	3.21
		7.0	3.72	3.63	3.55	3.48	3.41	3.34	3.28	3.22	3.17	3.11	3.06

FLITCH BEAM



Selection Charts

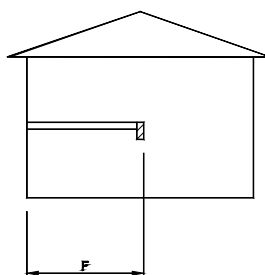
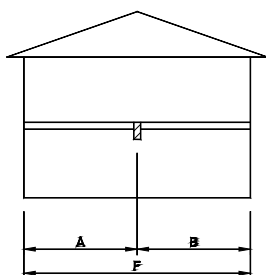


TABLE 9A: MSG8, VSG8, MSG6 or Unverified No. 1 Framing
1.5kPa L.L. FLOOR BEAM SUPPORTING JOISTS

BEAM SIZE	MAXIMUM FLOOR BEAM SPAN (m)					
	JOIST SPAN 'F' (m)					
	2.4	3.6	4.8	6.0	7.2	8.4
FB15L	3.16	2.73	2.36	2.11	1.93	1.79
FB20M	4.64	4.19	3.74	3.34	3.05	2.82
FB25L	4.86	4.22	3.66	3.27	2.98	2.76
FB25M	5.54	5.01	4.66	4.25	3.88	3.59
FB30M	6.40	5.78	5.38	5.09	4.70	4.36

TABLE 9B: MSG8, VSG8, MSG6 or Unverified No. 1 Framing
2.5kPa L.L. FLOOR BEAM SUPPORTING JOISTS

BEAM SIZE	MAXIMUM FLOOR BEAM SPAN (m)					
	JOIST SPAN 'F' (m)					
	2.4	3.6	4.8	6.0	7.2	8.4
FB15L	2.70	2.20	1.91	1.71	1.56	1.44
FB20M	4.22	3.48	3.02	2.70	2.46	2.28
FB25L	4.17	3.41	2.95	2.64	2.41	2.23
FB25M	5.05	4.43	3.84	3.43	3.13	2.90
FB30M	5.83	5.27	4.65	4.16	3.80	3.52

TABLE 9C: MSG8, VSG8, MSG6 or Unverified No. 1 Framing
3.0kPa L.L. FLOOR BEAM SUPPORTING JOISTS

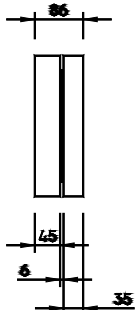
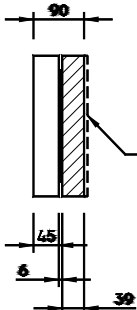
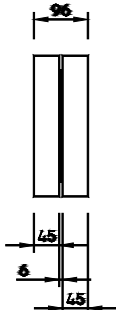
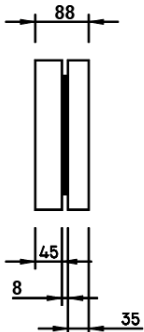
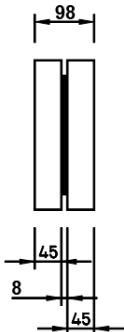
BEAM SIZE	MAXIMUM FLOOR BEAM SPAN (m)					
	JOIST SPAN 'F' (m)					
	2.4	3.6	4.8	6.0	7.2	8.4
FB15L	2.49	2.03	1.76	1.57	1.44	1.33
FB20M	3.94	3.22	2.78	2.49	2.27	2.10
FB25L	3.85	3.15	2.72	2.44	2.22	2.06
FB25M	4.87	4.09	3.54	3.17	2.89	2.68
FB30M	5.62	4.96	4.29	3.84	3.51	3.25

FLITCH BEAM

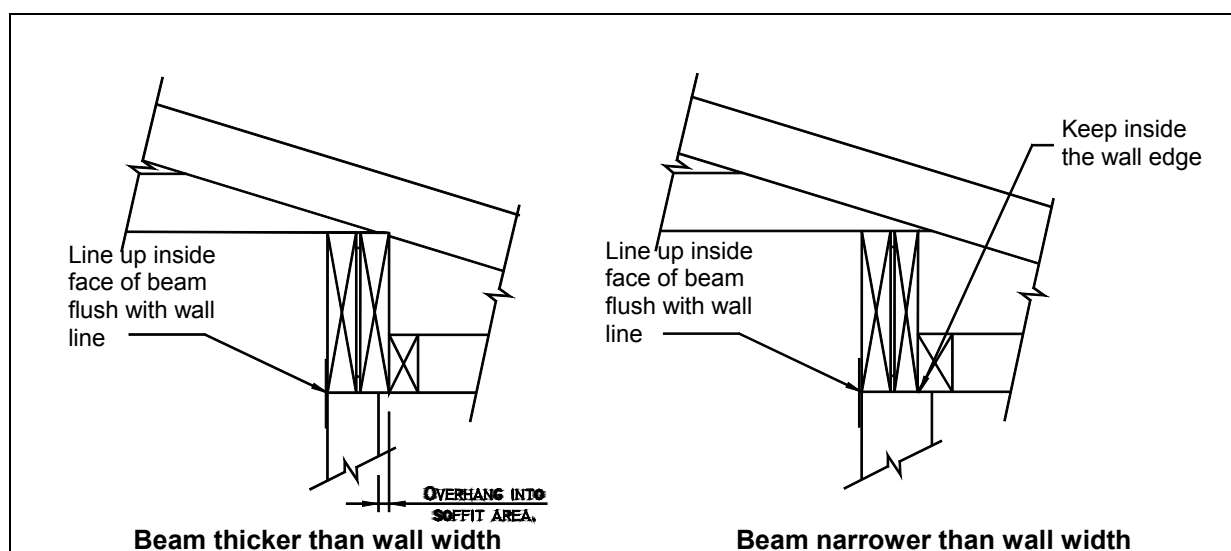


Finished Size and Construction

Finished Size Options

6mm steel	   86mm wide beam 90mm wide beam 96mm wide beam
8mm steel	  88mm wide beam 98mm wide beam
Notes	To allow for the overall thickness to suit the wall framing dimensions, it may be necessary to machine one face of one of the timber components. Design assumes a minimum timber thickness of 80mm (i.e. 35mm + 45mm side plates).

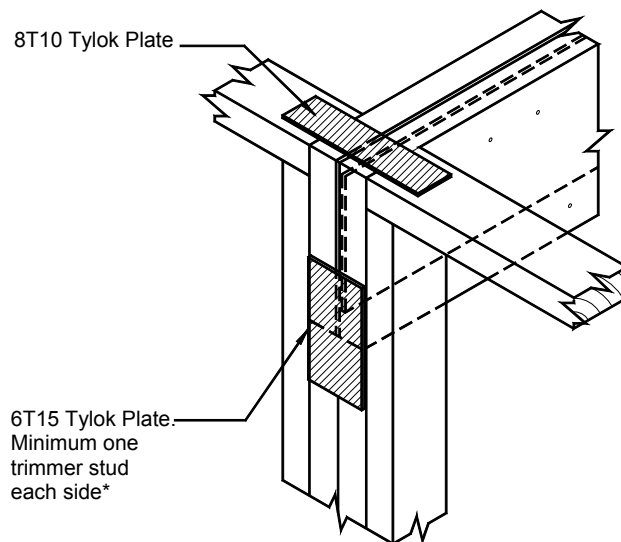
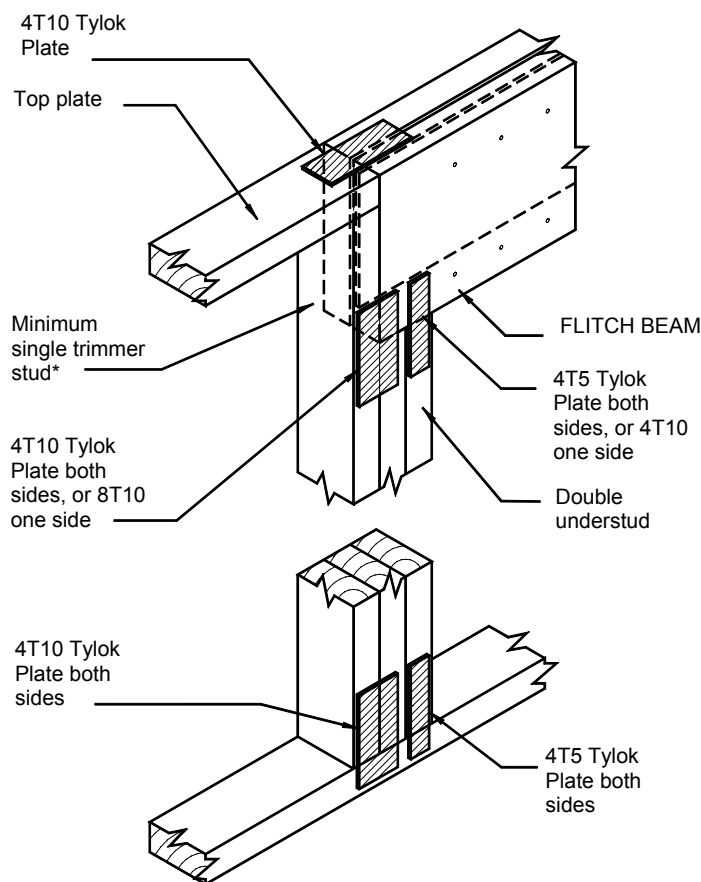
Construction Details



FLITCH BEAM



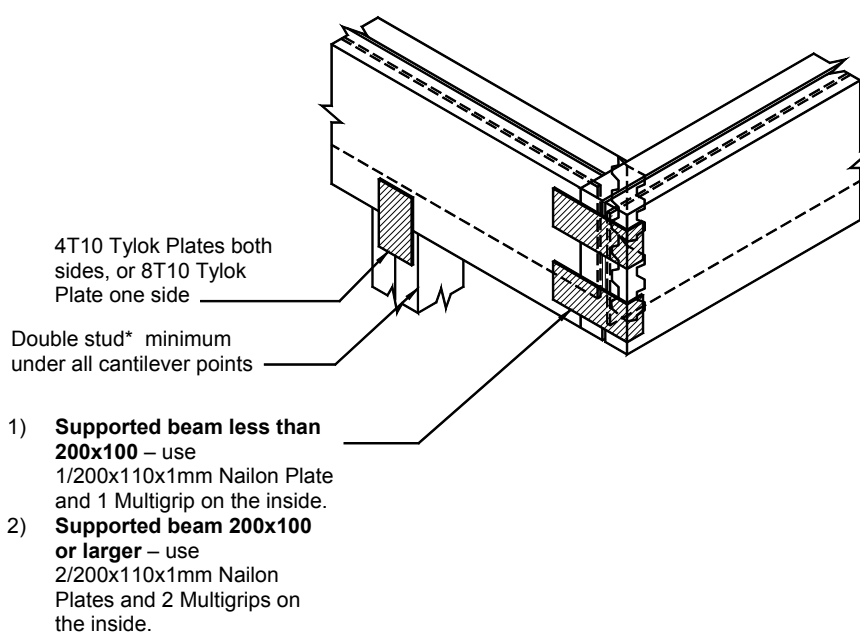
Fixing and Support Details



Beam Pocket

Simply Supported Beam

* Refer NZS3604:1999 Section 8.5.2 for trimming stud requirements.



Cantilever Beam