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MiTek 20/20 Engineering 4.7.346.0

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PRODUCER STATEMENT for MiTek 20/20[®] TRUSS DESIGN - Version 4.7

ISSUED BY: **MiTek New Zealand Limited**

TO: **PlaceMakers - Frame & Trusses**

IN RESPECT OF: **MiTek[®] Truss Designs**

This producer statement covers the MiTek 20/20[®] truss design and the structural performance of the GANG-NAIL[®] connector plate for the job reference **252947D** and may be used by a Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

The MiTek 20/20[®] truss design program has been developed by MiTek New Zealand Limited for the design of MiTek[®] timber roof, floor and attic trusses in New Zealand. The truss designs computed by MiTek 20/20[®] are prepared using sound and widely accepted engineering principles, and in accordance with compliance documents of the New Zealand Building Code and Verification Method B1/VM1; and internationally accepted standard ANSI/TPI 1 - 2002 as an alternative solution, to satisfy the requirements of Clause B1 of the New Zealand Building Code.

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

- i) All proprietary products meeting their performance specification requirements
- ii) The provision of adequate roof bracing and overall building stability
- iii) Correct selection and placement of GANG-NAIL connector plates
- iv) Correct input of Truss Design Data as shown in the Fabricator Design Statement for this job
- v) The design being undertaken by the accredited fabricator under the terms of the software licence
- vi) Timber is graded to the requirements of NZS 3603:1993
- vii) Minimum timber treatment for these MiTek[®] trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003

I believe on reasonable grounds that the trusses, if constructed in accordance with the MiTek 20/20[®] truss design and shop drawings, will comply with the relevant provisions of the New Zealand Building Code.

MiTek New Zealand Limited holds a current policy of Professional Indemnity Insurance no less than \$500,000.

On behalf of MiTek New Zealand Limited,

Date: Monday, 5 August 2024

In Ling Ng, BE (Hons), CPEng, IntPE, MIPENZ (ID: 146585)
TECHNICAL SERVICES MANAGER, MiTek New Zealand Limited

Job: 252947D

Client: Sentinel Homes
Phone:Site: Sentinel Homes
Burgess & Allen
7 Whitehaven St
OamaruDescription:
Building Consent No.: WDC 24009002
MiTek 20/20 Engineering 4.7.346.0

Phone:

Printed: 15/21/01/05 Aug 2024

MITEK FABRICATOR DESIGN STATEMENT

This statement is issued by MiTek accredited fabricator **PlaceMakers - Frame & Trusses**, being licensed to use the MiTek 20/20® software, to the client listed above and may be used by the Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

MiTek 20/20® TRUSS DESIGN DATA

The MiTek 20/20® computer design for this job is based on the following design parameters entered into the program. The Fabricator shall ensure that these job details are current and relevant to the project for the design of the MiTek ® trusses.

Job Details		Importance Level :	2	Design Working Life :	50 years
Roof Truss					
Timber Group:	DFTNZOH1.2	Pitch:	5.000 deg	Nominal Overhang:	600 mm
Roof		Ceiling		Wind	
Material:	Longrun Iron .55mm	Material:	Rondo on clips	Area:	High (44.0 m/s)
Dead Load:	0.210 kPa	Dead Load:	0.200 kPa	Pressure Coeff:	Cpe = varies; Cpi = -0.30, 0.20
Restraints:	900 mm centres	Restraints:	1800 mm centres	Snow	
Live Load:	Qur = 0.250 kPa	Live Load:	Qc = 1.400 kN	Location:	Oamaru (N4) at 100 m
	Qc = 1.100 kN			Open Ground Load:	0.900 kPa
				Basic Roof Load:	0.630 kPa

The minimum timber treatment for these MiTek® trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003. The timber for these MiTek® trusses shall be graded to the requirements of NZS 3603:1993. Proprietary fixings and timber connectors shall be selected in accordance with NZS3604:2011 Section 4 - Durability.

MiTek® Truss List

Legend: * = detail only, ? = input only, ✕ = failed design, Ø = non certified, Unmarked trusses = designed successfully, LB = lateral bracing required
GB = gable brace required, CF = Chemical Free Treatment

Roof Truss

Treatment: Top Chords - H1.2					Bottom Chords - H1.2					Webs - H1.2				
Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
EN01	1D	3940	5.000	900	HTG01	1D	4180	5.000	900	T04	3	8030	5.000	900
EN02	1D	4880	5.000	900	J01	1	3605	5.000	900	T05	2	6630	5.000	900
EN03	1D	6600	5.000	900	J01A	1	3605	5.000	900	T05A	1	6630	5.000	900
EN04	1D	1820	5.000	900	J01B	1	3605	5.000	900	T06	1	5270	5.000	900
*FR1	2	4390	5.000	255	J02	1	905	5.000	900	T07	1	5970	5.000	900
*FR2	2	5140	5.000	255	*OR1	26	210	0.000	869	T08	1	4880	5.000	900
*FR3	2	1730	5.000	255	*R09	1	13433	3.540	900	T08A	1	5970	5.000	900
*FR4	2	7800	5.000	255	*R10	1	871	5.000	900	T09	1	4180	5.000	900
HT01	1	8330	5.000	900	*R11	1	820	5.000	900	T10	1	3605	5.000	900
HT02	1	8330	5.000	900	T01	6	6600	5.000	900	T11	1	1390	5.000	900
HT03	1	8330	5.000	900	T02	4	8330	5.000	900	T11A	1	1390	5.000	900
HT04	1	6025	5.000	900	T03	1	8730	5.000	900	T12	1	1390	5.000	900

Roof Truss quantity : 76

Total quantity : 76

The computer design input has been carried out by:

Signed Name of Detailer: **Craig Murphy**

On behalf of: PlaceMakers - Frame & Trusses

Date: ...Monday, 5 August 2024....

Qualifications and Title:



Job: 252947D

Client: Sentinel Homes

Site: Sentinel Homes

Description:
Building Consent No.: WDC 24009002
MiTek 20/20 Engineering 4.7.346.0

Phone:

Burgess & Allen
7 Whitehaven St
Oamaru

Phone:

Printed: 15/21/21 05 Aug 2024

**TRUSS FIXING SELECTION REPORT - Characteristic
Loads**

Fixings are selected from the LUMBERLOK Brochure 08/2014 (Timber Connectors Characteristic Loadings Data)

MiTek® Truss List

Legend: * = detail only, ? = input only, ✕ = failed design, Ø = non certified, Unmarked trusses = designed successfully

Truss	Qty	Span (mm)	Joint	Down (kN)	Uplift (kN)	Bearing	----- Fixing -----	
							Qty	Selected
T05A	1	6630	J	6.594	3.325	Cross	1	Single CPC40
			O	6.467	4.071	Cross	1	CT200 pair
			H	1.905	1.245	Cross	1	Single CPC40
T05	2	6630	J	6.600	3.326	Cross	2	Single CPC40
			O	6.361	4.054	Cross	2	CT200 pair
			D	2.181	1.654	Cross	2	Single CPC40
T04	3	8030	I	7.699	4.096	Cross	3	CT200 pair
T03	1	8730	N	7.379	3.914	Cross	3	Single CPC40
			J	3.318	4.532	Cross	1	CT200 pair
EN01	1D	3940	P	6.961	3.598	Cross	1	Single CPC40
			K	12.863	8.379	Cross	1	CT200 pair
			N	3.269	2.321	Wide		No fixing selected
			X	2.897	2.322	Wide		No fixing selected
			W	1.767	0.762	Wide		No fixing selected
			V	0.642	0.425	Wide		No fixing selected
			U	0.640	0.421	Wide		No fixing selected
			T	0.628	0.408	Wide		No fixing selected
			S	0.633	0.415	Wide		No fixing selected
			R	0.632	0.405	Wide		No fixing selected
			Q	0.622	0.437	Wide		No fixing selected
			P	0.726	0.317	Wide		No fixing selected
			O	1.663	2.652	Wide		No fixing selected
			AA	0.545	0.195	Wide		No fixing selected
			O	0.865	0.360	Wide		No fixing selected
EN02	1D	4880	Z	0.679	0.341	Wide		No fixing selected
			Y	0.623	0.424	Wide		No fixing selected
			X	0.633	0.413	Wide		No fixing selected
			W	0.631	0.412	Wide		No fixing selected
			V	0.632	0.413	Wide		No fixing selected
			U	0.632	0.412	Wide		No fixing selected
			T	0.632	0.413	Wide		No fixing selected
			S	0.631	0.407	Wide		No fixing selected
			R	0.633	0.433	Wide		No fixing selected
			Q	0.628	0.326	Wide		No fixing selected
			P	0.797	0.702	Wide		No fixing selected
			I	2.989	1.244	Cross	4	Single CPC40
			K	7.483	4.931	Cross	4	CT200 pair
			N	4.698	2.120	Cross	4	Single CPC40
			I	3.031	1.267	Cross	1	Single CPC40
HT01	1	8330	K	7.391	4.840	Cross	1	CT200 pair
			N	3.834	2.193	Cross	1	Single CPC40
HT02	1	8330	J	2.889	1.238	Cross	1	Single CPC40
			L	7.625	5.002	Cross	1	CT200 pair
HT03	1	8330	P	3.713	2.146	Cross	1	Single CPC40
			J	2.886	1.210	Cross	1	Single CPC40
EN04	1D	1820	L	7.661	5.024	Cross	1	CT200 pair
			Q	3.722	2.082	Cross	1	Single CPC40
			H	3.695	1.708	Wide		No fixing selected
			M	2.988	2.676	Wide		No fixing selected
			L	2.226	0.879	Wide		No fixing selected
EN03	1D	6600	K	0.694	0.543	Wide		No fixing selected
			J	0.631	0.369	Wide		No fixing selected
			I	2.037	3.744	Wide		No fixing selected
			AL	2.747	1.737	Wide		No fixing selected
			U	4.266	2.297	Wide		No fixing selected
			AC	0.632	0.412	Wide		No fixing selected
			AK	1.001	0.639	Wide		No fixing selected
			AJ	0.661	0.414	Wide		No fixing selected
			AI	0.634	0.419	Wide		No fixing selected
			AH	0.630	0.409	Wide		No fixing selected
			AG	0.632	0.413	Wide		No fixing selected
			AF	0.631	0.412	Wide		No fixing selected
			AE	0.632	0.412	Wide		No fixing selected
			AD	0.632	0.412	Wide		No fixing selected
			AB	0.632	0.412	Wide		No fixing selected
			AA	0.632	0.412	Wide		No fixing selected
			Z	0.631	0.413	Wide		No fixing selected
			Y	0.636	0.410	Wide		No fixing selected
			X	0.614	0.421	Wide		No fixing selected
			W	0.879	0.380	Wide		No fixing selected
T01	6	6600	V	1.419	2.493	Wide		No fixing selected
			I	6.149	3.334	Cross	6	Single CPC40
T06	1	5270	N	6.235	3.219	Cross	6	Single CPC40
			J	5.543	2.626	Cross	1	Single CPC40
			N	5.135	3.145	Cross	1	Single CPC40
			G	0.838	0.824	None		No fixing selected. Specific engineering design required for down and uplift loads.
			H	2.039	1.251	None		No fixing selected. Specific engineering design required for down and uplift loads.

PlaceMakers - Frame & Trusses

Fixing Report : Page 2

Job: 252947D

Client: Sentinel Homes

Site: Sentinel Homes

Description:
Building Consent No.: WDC 24009002
MITek 20/20 Engineering 4.7.346.0

Phone:

Burgess & Allen
7 Whitehaven St
Oamaru

Phone:

MITek New Zealand Limited

Printed: 15/21/21 05 Aug 2024

Truss	Qty	Span (mm)	Joint	Down (kN)	Uplift (kN)	Bearing	----- Fixing ----- Qty Selected	
T07	1	5970	I	0.941	1.610	Cross	1	Single CPC40
			M	4.825	3.060	Cross	1	Single CPC40
			J	6.765	4.384	Cross	1	CT200 pair
			G	2.189	1.428	None		No fixing selected. Specific engineering design required for down and uplift loads.
T08A	1	5970	I	5.112	2.973	Cross	1	Single CPC40
			N	5.607	2.906	Cross	1	Single CPC40
T08	1	4880	H	4.233	2.368	Cross	1	Single CPC40
			L	4.942	3.027	Cross	1	Single CPC40
			G	0.405	0.327	None		No fixing selected. Specific engineering design required for down and uplift loads.
T09	1	4180	G	4.765	2.139	Cross	1	Single CPC40
			J	3.475	1.951	Cross	1	Single CPC40
HTG01	1D	4180	G	7.561	4.241	Cross	1	CT200 pair
			K	6.804	4.486	Cross	1	CT200 pair
HT04	1	6025	H	3.146	1.337	Cross	1	Single CPC40
			J	5.689	3.751	Cross	1	Single CPC40
			M	1.769	0.847	Cross	1	Single CPC40
T10	1	3605	G	3.809	1.754	Cross	1	Single CPC40
			J	3.709	2.305	Cross	1	Single CPC40
			F	0.284	0.268	None		No fixing selected. Specific engineering design required for down and uplift loads.
J01B	1	3605	F	3.867	1.755	Cross	1	Single CPC40
			J	2.574	1.531	Butt	1	JH 47x90
J01	1	3605	F	3.780	1.798	Cross	1	Single CPC40
			I	1.791	1.417	Butt	1	JH 47x90
J01A	1	3605	F	3.826	2.015	Cross	1	Single CPC40
			I	2.437	1.748	Butt	1	JH 47x90
J02	1	905	E	2.520	1.440	Cross	1	Single CPC40
			H	0.828	0.533	Butt	1	JH 47x90
T11	1	1390	F	2.834	2.081	Cross	1	Single CPC40
			H	1.656	1.251	Butt	1	JH 47x90
			E	0.492	0.393	None		No fixing selected. Specific engineering design required for down and uplift loads.
T11A	1	1390	F	2.871	2.165	Cross	1	Single CPC40
			H	0.906	0.537	Butt	1	JH 47x90
T12	1	1390	E	2.778	2.022	Cross	1	Single CPC40
			G	0.822	0.587	Butt	1	JH 47x90
*R09	1	13433						Refer NZS3604:2011 Tables 15.6
*FR4	2	7800						Refer NZS3604:2011 Tables 15.6
*FR2	2	5140						Refer NZS3604:2011 Tables 15.6
*FR1	2	4390						Refer NZS3604:2011 Tables 15.6
*FR3	2	1730						Refer NZS3604:2011 Tables 15.6
*R10	1	871						Refer NZS3604:2011 Tables 15.6
*R11	1	820						Refer NZS3604:2011 Tables 15.6
*OR1	26	210						Refer NZS3604:2011 Tables 15.6

Fixing List

Qty	Selected Fixing
58	Single CPC40
18	CT200 pair
7	JH 47x90
54	No fixing selected

Note:

- 1) Fixings have been selected based on loading only. Please check that selected fixings are practical for each situation and that appropriate nailing can be applied on site.
- 2) Fixings are selected from the LUMBERLOK Brochure 08/2014 (Timber Connectors Characteristic Loadings Data) with down and uplift characteristic loads of at least the values shown for each joint.

Job: 252947D

Client: Sentinel Homes
Phone:

Site: Sentinel Homes
Burgess & Allen
7 Whitehaven St
Oamaru

Description:
Building Consent No.: WDC 24009002
MiTek 20/20 Engineering 4.7.346.0

Phone:
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TRUSS BEARINGS EXCEEDING 8KN REPORT - Ultimate
Limit State Loads

MiTek® Truss List

Legend: ? = input only, Txx = failed design, Ø = non certified, Unmarked trusses = designed successfully

Critical Trusses	Qty	Span (mm)	Joint	Bearing Reactions (kN)	
				Down	Uplift
T03	1	8730	K	8.232	6.703

Note:
1) Select appropriate Slab Thickening Detail from the MiTek 'Internal Load Bearing On Concrete Floor Slabs' brochure.