

FRAMETEK
STEEL FRAMING SPECIALISTS

CONSTRUCTION MANUAL | October 2015



FREE PHONE 0800 50 STEEL (78335)

1.

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2.

GENERAL

2.1. A QUICK INTRO

Welcome to the Frametek steel building system. This construction manual outlines key aspects of working with light gauge steel. The building principles are similar to timber except you will find steel framing is light, straight, fast and accurate.

As with learning any new skill, builders should apply a bit of thought and practice when facing the usual challenges of residential and light commercial construction. Above all, do not hesitate to ask questions, we are happy to provide advice to ensure you begin to enjoy all the advantages of our product as quickly as possible.

You should find our panel drawings and layouts easy to follow; we label each component and identify these clearly on our plans to make life easy.

Thank you for choosing Frametek Steel Framing; call us on 0800 50 STEEL. (0800 50 78335)

2.2. SCOPE AND APPLICATION

This Construction Manual provides information and advice for building with FRAMETEK low-rise Steel Framing including houses, residential and commercial low-rise buildings designed in accordance with the National Association of Steel Framed Housing Inc (NASH) Residential and Low-rise Steel Framing Part 1: Design Criteria Version 2: October 2010.

The specifier or other responsible party for the project must ensure that the information and details in this Construction Manual are appropriate for the intended application and that specific design and detailing is undertaken for areas which fall outside the scope of this documentation.

When specifying or installing FRAMETEK Steel Framing, ensure you have the current manual. If you're not sure you do, or you need more information call FRAMETEK on 0800 50 STEEL or 0800 507 833.

2.3. BEWARE OF SUBSTITUTION

Substitution risks non-compliance with the requirements of the NZ Building Code, in particular structural and durability requirements.

The information provided in this Manual must only be used in conjunction with FRAMETEK Steel Framing.

2.4. HEALTH AND SAFETY REQUIREMENTS

Follow all normal health and safety requirements for a building site.

Additionally it is recommended that you provide a temporary electrical earth during erection of frames, even where safety switches are used.

The components weigh about 1/3 the weight of the equivalent timber members but you should still ensure you lift anything in a safe manner. It is recommended that gloves are worn when handling steel.

2.5. OTHER INFORMATION

A good motto to adopt is always use the right tool for the job and where you might use a nail in timber, use a screw for steel. There is no need for a hammer with steel, an impact driver will do the job.

Frametek can access a large range of Tek screws for different purposes. Call us if you need help with getting the right screw for the job.

In most cases where steel to steel fixing is required use a 10x16x16 Hex or Wafer self-drilling Tek screw into each member as can be seen in some of the photos in this manual. It does not matter which side the screws are driven from. Each standard 10g16x16 Tek screw has an average shear strength of 4.38 kN

As the Frametek system uses screw fixing this means that there is NO requirement for strapping to lintels or at the top and bottom stud to plate connections.

The frames can be blown off the slab in high winds, make sure you put a number of concrete drive pins through the plate to hold them in place. Once connected together, all the frames will move as one. If this does happen they can be pushed back in place but prevention is best.

Our unique BRANZ tested in-frame bracing system only requires screw bolt hold downs at the ends of the brace panels without any extra strapping or specialised hold downs.

2.6. PLASTERBOARD

Any type of plasterboard lining can be used and fixing is only required as recommended by the manufacturer.

In some special circumstances where extra bracing is required due to large open spaces or two storeys with a lack of wall space below, we may use the Winstone Wallboards Ltd/NASH Easybrace systems. These only require a bolt down at the brace ends on site but also require the lining to be Winstone Wallboards Ltd product with fixing requirements from the sheet corners of 50,50,50 then 150mm ctrs.

Check your site documentation prior to lining to ensure the correct method is used as specified.

3.

TOOLS

3.1. TOOLS

You will require the following tools

3.2. SCREW GUN

Any standard screw gun available on the market is acceptable. This may be battery or electrical with RCD circuit breaker.



3.3. DRIVE BITS

Typical drive bits.



3.4. TIN SNIPS

A good pair of aviation type tinsnips is essential for modification/alteration of any steel components on site.

NOTE: It is handy to have left, right and 90 degree snips



3.5. NAIL GUN (OPTIONAL)

Used for nailing frames to concrete floors.



3.6. PANEL PIN NAILER (OPTIONAL)

Used for attaching finishing trims. This air nailer has a hardened drive pin required for hardened brads.

Available from MSL Phone 0800 425 262 Code CPTBASTT50 or Senco



3.7. STUD PUNCH (OPTIONAL)

Used for quickly making 34mm service holes with no swarf.



3.8. GRAB STICK (OPTIONAL)

A strong magnetic tool handy for many uses (see Section 13 for examples of how this tool can be used on site).



4.

FRAMES

4.1. WALL MARKERS AND SET OUT

When your frames and joists are delivered you will receive a wall marker layout plan. Use this to match numbering shown on individual frames and joists. Numbering appears at the top of the frame or joist. The wall number and the arrow refer to the position and direction of the frame. All frames, joists and trusses read from the left.

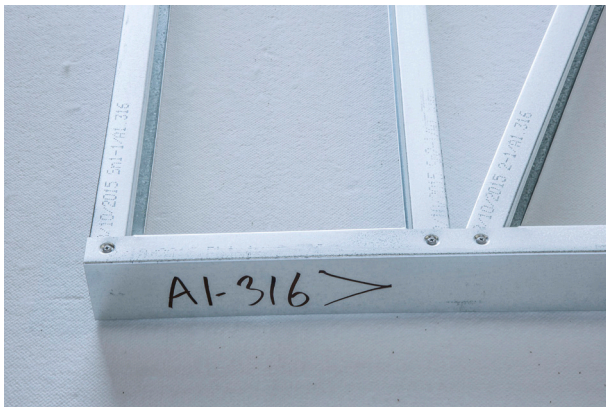


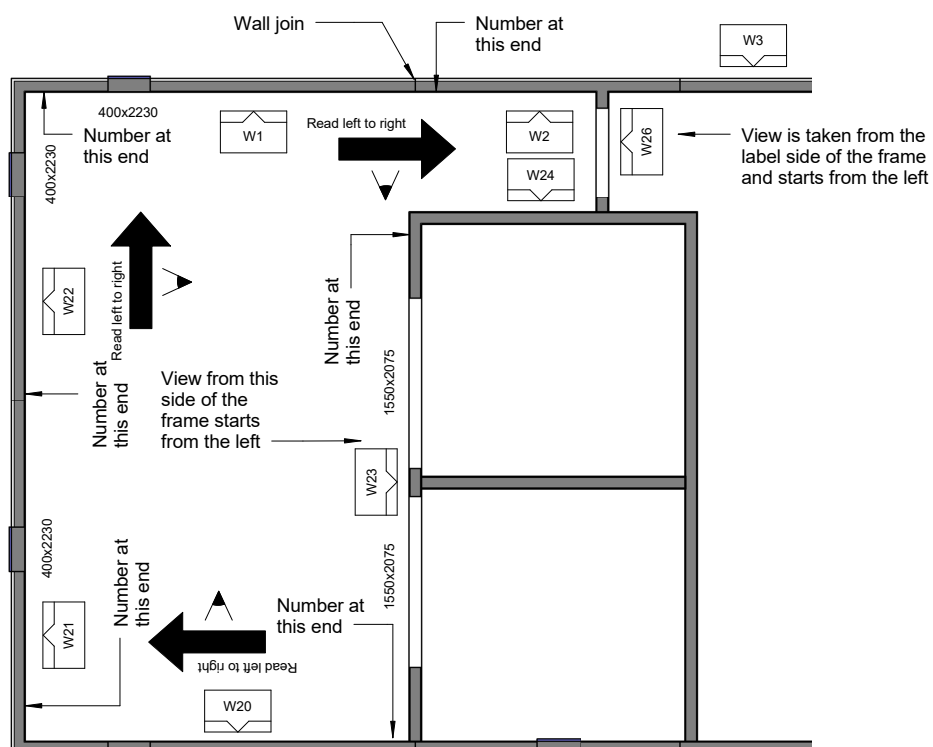
Fig 1 Wellington



Fig 2 Auckland

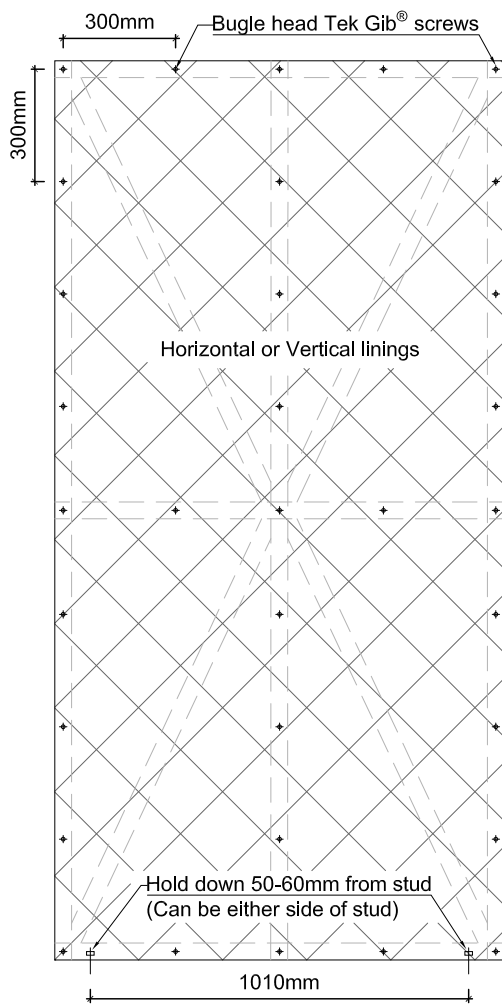
Your Layout Plan will look similar to illustration below.

Note: Please use the printed number if you need to contact Frametek.



4.2. BRACING

Frametek walls are supplied with holddown fixings to the end of each bracing element. There may be other bracing requirements such as ply or plasterboard bracing sheets. Unless shown otherwise all plasterboard can be screwed off at 300mm centres. If the plans specify the 'GIB Ezybrace® System' then refer to NASH bracing systems for GIB® brace requirements. See below for additional hold down point details.



Brace Panel
FTK4 (Lined one side 10mm gypsum board)
FTK4 DL (Lined both sides 10mm gypsum board)

4.3. WALL JUNCTION FIXING

Fix a total of six 10x16 Hex Tek's at each wall junction. Use DPC under all internal and external frames on concrete floors.



Top Plate



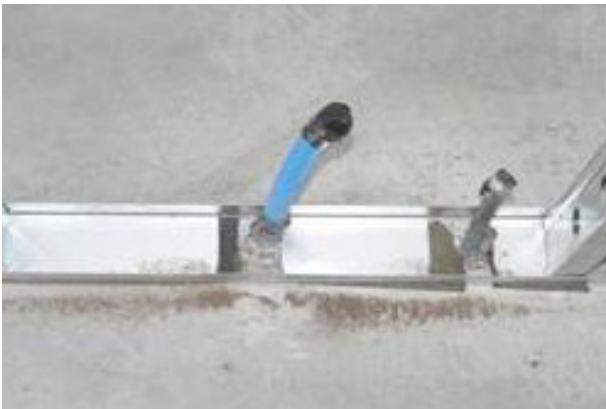
Nog



Bottom Plate

4.4. BOTTOM PLATE NOTCH OUT FOR SERVICES

Drill a hole and use snips to finish (See 12.1. Cutting plate). Just mark and notch out where required. Angle grinder is not recommended.



4.5. BOTTOM PLATE FIXING

Ramset TrackMaster being used to pin the bottom plate to a concrete slab floor.

Note: DO NOT DRAG frames across the concrete floor as this will scratch and damage the galvanised coating and affect its protective properties.



4.6. STRUCTURAL STEEL FIXING.

Use Series 500 Hex Tek 12g24x38 screws for fixing Frametek frames to structural steel. The long cutting head is designed for self drilling into mild structural steel up to 6mm.

4.7. BOTTOM PLATE HOLD DOWN BOLTS

NOTE: ANY PREPUNCHED BOTTOM PLATE HOLES ARE TO DRAIN WATER FROM THE FRAME AND ARE NOT THE LOCATION OF HOLDING DOWN FIXINGS.

Fig 4.9 shows a typical Frametek hold down. It is used on all occasions for external, internal, door openings and brace elements



4.8. BRACING

Hold down points are to be between 50mm and 90mm from the end stud of the bracing element.

4.9. HOLD DOWN

Beside all door and floor to window openings and at 1.2m centres maximum on external walls.



4.10. HOLD DOWN BOLTS AND SCREW TYPES

Fix internal walls (unbraced) to mid floor framing with two 12g14x45 hex head SDS screws at 1200mm crs and within 150mm of all openings. Fix external walls with one M12x40 bolt and 50mm washer at 1200mm crs through bottom plate and flooring into joist or to engineer's specification. Also fix bottom plate with M12 bolt 150mm from all external corners and openings and within 100mm of all bracing panels/systems.

If there is a brace in the way, simply unscrew it from the stud near the nog and place it out of the way as shown in 4.12, to gain better access to the hold down bolt position. Once the bottom plate is bolted down ensure bracing is re-established. Note the hold-down bolt can be placed either side of the stud so where possible it is easier put the hold down point within 50 to 80mm from the stud on the outside of the brace.

Before advancing to the roof or second storey all bottom plates should be bolted down and all bracing hold downs in place (including any temporary bracing if required). Care is to be taken to avoid stripping the threads of the fixings.



4.11. SPEEDFLOOR JOISTS:

Fix internal walls (unbraced) to mid floor framing with 2/12-14x45 hex head SDS screws at 1200mm crs and within 150mm of all openings. Fix external walls with 1/M12 x 40 bolt and 50mm washer at 1200mm crs through bottom plate and flooring into joist or to engineer's specification. Also fix bottom plate with M12 bolt 150mm from all external corners and openings and within 100mm of all bracing panels/systems.

4.12. IF A BRACE IS IN THE WAY

If there is a brace in the way, simply unscrew it from the stud near the nog and place it out of the way as shown, to gain better access to the hold down bolt position. Once the bottom plate is bolted down ensure bracing is re-established. Note the hold-down bolt can be placed either side of the stud so where possible it is easier put the hold down point within 50 to 80mm from the stud on the outside of the brace.

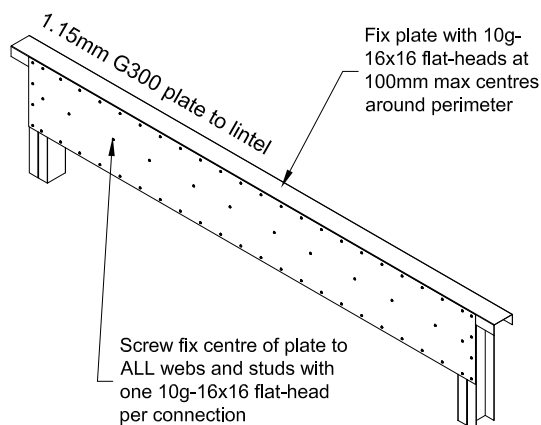
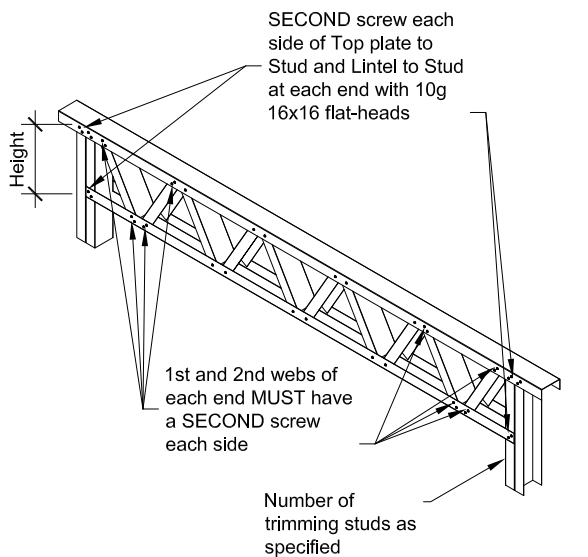
Before advancing to the roof or second storey all bottom plates should be bolted down and all bracing hold downs in place (including any temporary bracing if required).



4.13. LINTELS

NOTE: Lintels above are only typical standard lintels and may have been altered by engineered requests in each job. Refer to engineering documentation before altering/ changing any lintels on site. Do not alter any lintels without first consulting with Frametek and gaining approval to make the alterations.

NOTE: Trimming studs to be as per Engineer's design and detail. If no engineer was used, consult with Frametek personnel to determine number of studs required.



5.

JOISTS & RAFTERS

5.1. WEBBED RAFTERS

Ensure rafters are installed to site plans. Rafters must be fixed and oriented correctly i.e. have markers at the same end as indicated on the layout plan.



5.2. SPEEDFLOOR C-SECTION JOISTS

The Roll Forming Services floor system (trade name Speedfloor Steel Joist System) is a pre-engineered answer to your multi-level flooring requirements. RFS floor joists are made using galvanised steel, which has a durability of 50 years in all environments to coastal moderate.

The joists are fixed inside boundary perimeter channels with specified screw fixings through pre-punched tabs to provide a secure and strong connection. Where tabs are not able to be used (less than 150mm from ends), steel brackets are supplied for fixing.

Perimeter joists have a pre-punched fixing tab. Simply bend these at 90 degrees.



5.3. FLOORING - SPEEDFLOOR

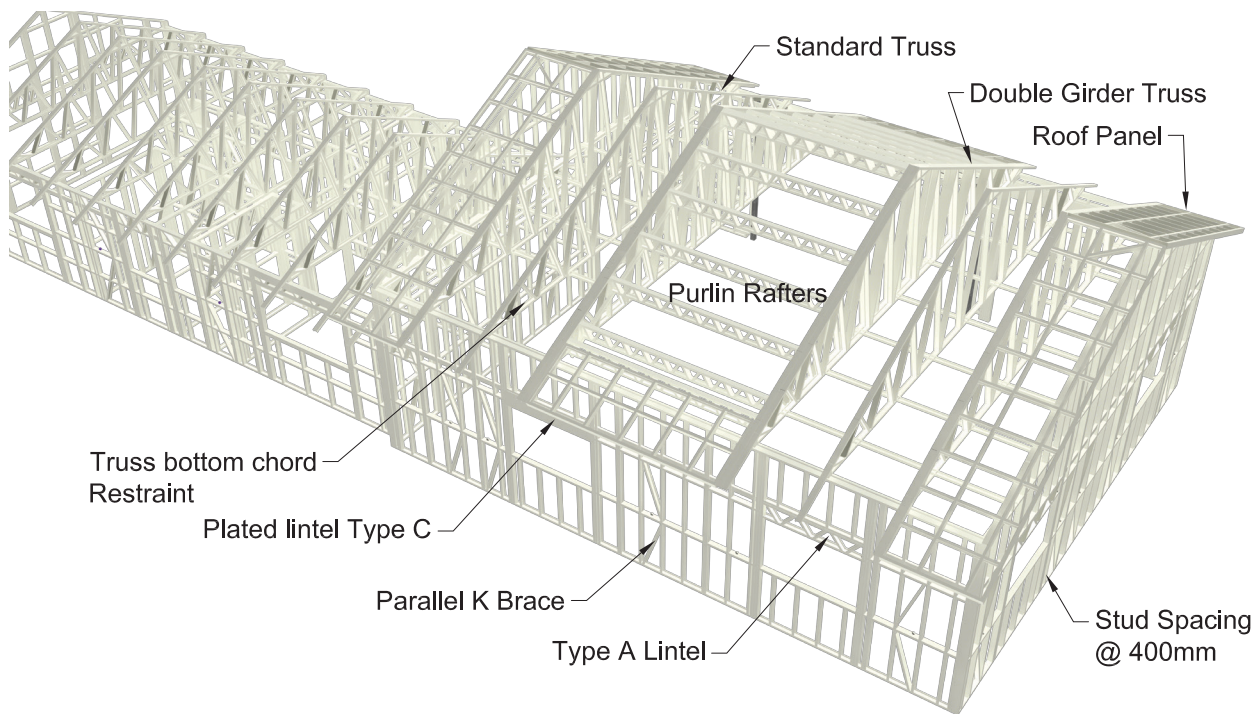
The Speedfloor Steel Joist System has been engineered to work as a complete floor system. Go to www.speedfloor.co.nz for full details on the product.

6.

FRAMETEK ROOF SYSTEMS

6.1. TRUSSES

Trusses Specification



6.2. TRUSS BLOCKS

Trusses sit on a 25mm plastic packer supplied and fitted to truss bottom cords where required.

A Frametek truss block is shown below.



Note for standard conditions: two 10g16x16 Hex Tek screws into truss and 2 into wall top plate on each side of



truss.

Note for very high and extra high wind zones: four 10g16x16 Hex Tek screws into truss and four into wall top plate on each side of truss.

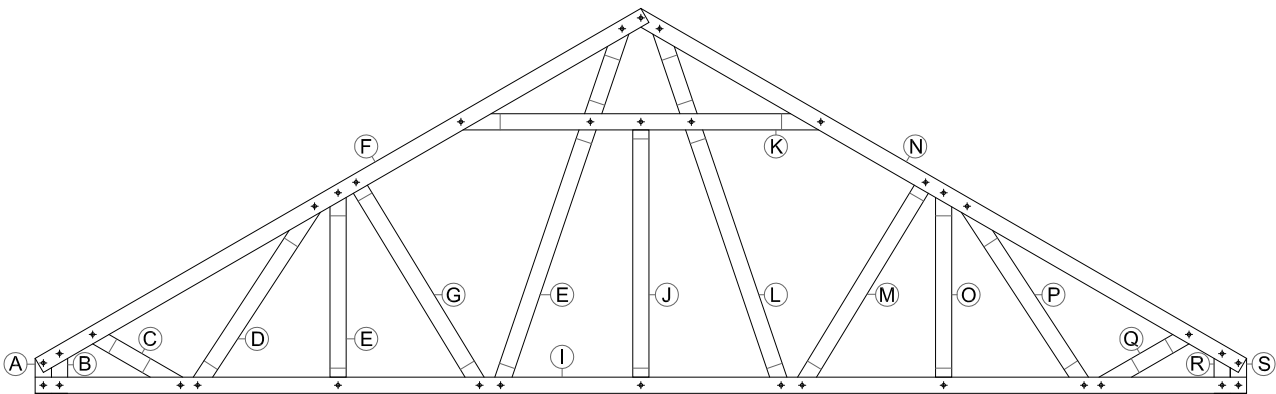
6.3. TRUSS TOP PLATE CONNECTION

Use a multi-grip connection as seen here or the Frametek 'H' bracket - see right. No other strapping is required.

6.4. [TRUSS TO TOP PLATE FIXING REQUIREMENTS](#)

Connector each side of truss and:

Wind Zone	Top Plate fixing	Truss fixing
L/M/H	2/10 x 16 Hextek screws through each connection. (1/ each side of TP)	2/10 x 16 Hextek screws through each connector.
Very High	4/10 x 16 Hextek screws through each connection. (2/ each side of TP)	4/10 x 16 Hextek screws through each connector.
Extra High	Refer to Building Consent issue documentation	Refer to Building Consent issue documentation



Structural Gable Truss as Example only

6.5. [GIRDER TRUSS CONNECTION](#)

Extended heel of truss fixed to girder truss with six 10g16x16 Hex head screws. Vertical uprights in girder truss for screw connections.



6.6. [HIP END PANEL FRAMES](#)

For light roof construction in some cases we will supply a hip panel system if it suits the job. This is a quick and easy way to frame hips using panels.

6.7. [TRUNCATED TRUSS AND HIP PANEL FRAME](#)

Photo showing truncated truss and hip panel frames instead of jack trusses.

Fix with two 10g16x16 Hex Tek screws at max 1.2m centres to truss rafters and at hip connection.



6.8. [HIP END WITH PANEL FRAMES FIXED TO TRUNCATED TRUSS.](#)

Use spare material such as angle or 'C' section for fixing where required.

Use two 10g16x16 Hex Tek screws at each member for fixing.



6.9. [GABLE AND SOFFIT LADDER FRAME](#)

Fix each ladder frame outrigger through wall top plate with 2 off 10 x 16 x 16 Hex Tek screws. Fix fascia with Wing Tek screws.

Note: Plumb brackets are provided for fascia fixing at lower ends.

Fix each ladder frame outrigger through wall top plate with two off 10g16x16 Hex Tek screws.

Fix fascia with Wing Tek screws.



6.10. [FRAMETEK HIP CORNER](#)

For light roof construction in some cases we will supply a hip panel system if it suits the job. This is a quick and easy way to frame hips using panels. Sequences shown as follows:



Roof panels

17/11/15



1. Measure to Truss



5. 'H' Brackets give Toe Height - no need for Thermal Block



2. 1200x1200 Clear open corner



6. Fix tail of overhangs together then at 600 max centres



3. Left Hand panel in position



7. Fix Soffit Sprocket at correct height



4. Both panels in position



8. Finished

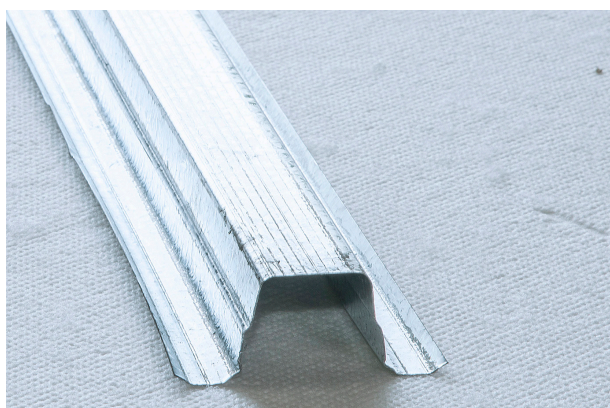
17/11/15

7.

ROOFS

7.1. ROOF BATTENS

Fix 40RB50 Frametek roof battens at 900mm centres (or as per roofing requirement) using two 10g16x16 Hex Tek screws at each connection point. Lap join if required with 600mm lap and fix with six 10g16x16 Hex Tek screws. Strapping of battens to trusses is NOT required.



7.2. TIMBER TILE BATTENS - DIRECT FIXING.

Peg out tile batten locations with a nail gun as shown. Screw fix tile timber battens direct to the truss top cord. Use 10 x 75 Wing Tek Galv CL3 or CL4 Screws.



7.3. CEILING BATTENS

Fix 20CB50 Frametek ceiling battens at 450mm or 600mm centres using 2 off 10g16x16 Hex Tek screws at each truss. Lap joins if required with 400mm lap and 4 10-16x16 Hex Tek screws. Batten runs full length of building over internal walls. 35mm x 35mm angle is fixed at wall at ends of the building to support ceiling battens and lining at wall. Fix using 10g16x16 Wafer Tek screws. Fix internal wall top plates as required to ceiling batten with 12x20 Hex Tek screws. Pack if required.



7.4. SOFFITS

For brick veneer- use 'C' section or angle for soffit ribbon plate.

Fix to each stud with 2 off 10 x 16 x 16 Hex Tek screws.

Other claddings that require lateral fixing at the top use Frametek angle as ribbon plate.

At the hip tail use angle for soffit support or sprockets provided.

Soffits can be screwed into place using 10x16 Wafer Tek screws or Fastfix Fasteners.



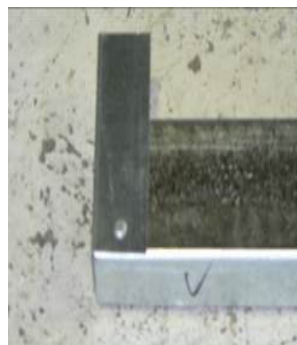
7.5. FASCIA

Timber or James Hardies Axcent® Fascia

7.6. SCREW FIXED FASCIA'S

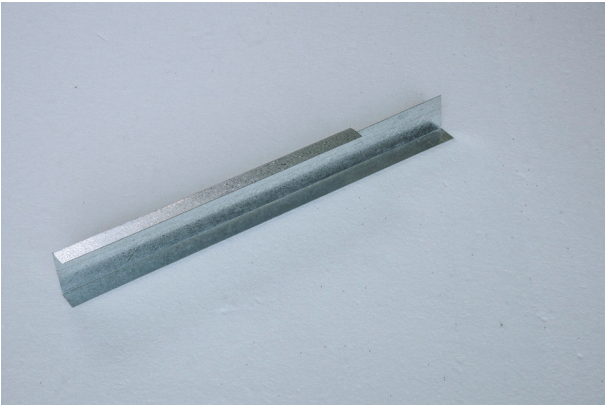
35mm x 35mm angle bracket factory fitted to end of sprocket return. Fit sprocket on site.

Fascia is screw fixed through bracket. Steel to steel fixing use - 10g16x16 Hex Tek or Wafer Tek screws. Timber fascia fixing use - Wing Tek screws.



7.7. STEEL FASCIA

Metal Fascia Soffit sprocket supplied notched and fitted on site with 10g16x16 Wafer Tek screw.



7.8. VALLEY SUPPORT

Direct fix valley boards to rafter (for H3 CCA use DPC)
Use 35mm x 35mm angle bracket or strap bracing as necessary. Note fixing methods in this photo using strap and spare 'C' section or angle where required. Create separation using a DPC.



8.

THERMAL BREAKS AND WRAPS

8.1. THERMAL BREAKS

R Board+ comes with the building wrap already fixed. It can be fitted horizontally or vertically. The sheets are 1.2m x 2.4m in size with a 150mm flap on one side and 1 end. A 75mm strip is also supplied to go around the base of the building. 'R' Board + can be fixed with screws (10x 30 Wafer Tek screws) or nailed on. The lapped sheet joints should be on or near a framing member. Strip thermal break is also available and needs to be applied to every stud, plate, nog and brace.



8.2. WRAPS

Fix building wrap with Wafer Tek screws. Fixing building wrap with hardened staples. Refer to New Zealand Building Standards NZS 2295:2006 on building wraps for correct underlay selection.

9.

ELECTRICAL.

9.1. FLUSH BOXES OR FLUSH PLATES.

Fix at any required height by attaching to stud, nog or spare plate material. (Notch plate section around studs and braces as required.)



9.2. CABLES.

Electrical cable through pre-punched holes in stud and brace with grommets (supplied with job). Hole heights are standard at 200mm, 400mm and 1280mm from the floor and 175mm and 275mm from the top of the frame. Extra holes can be drilled with a 34mm hole saw or stud punch if required.



10. PLUMBING

10.1. STEEL NOGS

Wingbacks fitted to nogging on site are shown in these two photos. DPC or similar should be fitted between brass wingback connection and steel nog to separate. Wingback nogs are only suitable for taps.

Plastic grommets should be fitted to pre-punched holes for all piping.



10.2. TIMBER NOGS

Timber nogs are not necessary under normal conditions.

Waste pipe holes can be drilled into stud and nogging using bluemoor hole saw or similar.

Timber nogs should be H1.2 or if H3.2 should be separated with DPC or similar.



11.

WALLS AND CEILINGS

11.1. PLASTERBOARD FIXING

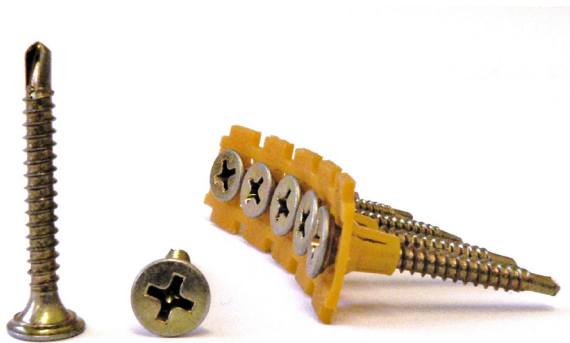
Clean out bottom plates prior to commencing lining. Use Tek point Bugle head gib screws. These can be either loose or collated. Electric screw gun or battery collated screw gun may be used. Screwing at 300mm centres around perimeter unless noted otherwise on job



documentation.

11.2. FINISHING

Refer to Tools section 3 in this manual for details on the recommended nailer and hardened panel pins for fixing skirting, scotia and architraves. Alternatively use Wing Tek screws with length to suit. For best results finishing mouldings should be glued as well.



11.3. FIRE RATED AND NOISE RATED WALLS AND CEILINGS

FRAMETEK Steel Framing designed and specified for use as part of a GIB® Fire Rated System must be installed in accordance with the GIB® Fire Rated Systems Specification and Installation Manual. FRAMETEK Steel Framing designed and specified for use as part of a GIB® Noise Rated System must be installed in accordance with the GIB® Noise Control Systems Manual.

Both these Manuals can be downloaded at www.gib.co.nz.

12. GENERAL

12.1. CUTTING PLATE

Cut each side of the plate then bend back and forwards until plate breaks.



12.2. CUTTING NOG NOTCHES

Start with V cut across the lip. Cut each side of where you want the notch then bend the section between the cuts and it will break off.



12.3. MAKING ANGLE BRACKETS

Cut a piece of angle to the length you require. Cut one side of the angle and bend to desired angle.



12.4. TREATED TIMBER

Separation complying to E2/AS1 is required between CCA treated timber and galvanised steel. Use standard DPC for this. Situation usually occurs where veranda beams are set in to the frame. Refer to non compatible Material Table 21 Es/AS1. An example would be the DPC between H3 CAA timber and galvanised steel.

12.5. CUTTING STEEL

The preferred way to cut steel sections is to use snips. By cutting with a guillotine action (all steel sections produced in the factory are guillotined) in turn creates a galvanic action which acts to seal the cut end. Metal cut off saws etc will leave swarf on the product which will start rusting if not cleaned away and create stains that can be mistaken for early deterioration of the product.

12.6. SWARF

Tek Screwing, nibbling and saw cutting produces small partials of steel. These will rust as they get wet. Clean any excess away whenever possible.



13. TIPS

13.1. FIXING ANGLE

Frametek trim angle can be screwed or just glued in place using an appropriate construction adhesive prior to fixing plasterboard. Fix plasterboard off against stud first before fixing unsupported side of angle.

13.2. SCREWING

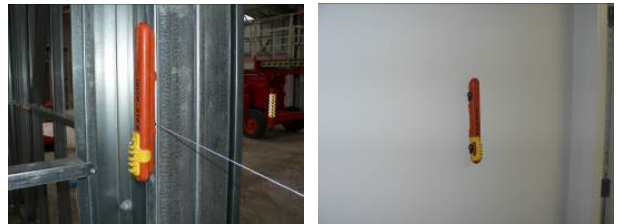
Use the long hex driver as your standard tool. The screw is held on the driver by magnet and it enables you to get to places you can't otherwise reach. Start slowly and gently for the first few turns to let the screw bite then apply pressure and increase speed. This will come with practice. If the screw is at an angle that is too sharp for the screw to bite, use a punch or similar to indent where you want to start your screw.



13.3. MAKING HOLES

Use a stud punch or hole saw application shown below.

13.4. GRAB STICK USE.



14.

FIXINGS AND FASTENINGS

14.1. FIXINGS AND FASTENINGS

The table below should be used as a guide to various cladding types. It is recommended that manufacturers and fixing suppliers literature be consulted for relevant claddings.

Battens to form drained and ventilated Cavity (HD EPS, CAVIBAT or Spec batt Extruded polystyrene)	
Batten to stud	6g x 30 Bugle head Tek 30mm hardened staples 30-40mm harden brads or similar CL3-CL4
Intermediate vertical batten to noggs and plates	
Horizontal (short) battens to noggs and plates	
Thermal break (12mm HD EPS, 5mm Thermax B)	
Batten to stud	6g x 30 Bugle head Tek 30mm hardened staples 30-40mm harden brads or similar CL3-CL4
Intermediate vertical batten to noggs and plates	
Horizontal (short) battens to noggs and plates	
Stucco Plaster	
Rigid backing through batten to stud	Class 3,4 or SS 8g x 32 button head tek 8g x 32 button head needle point or similar
Metal lathe to stud	Class 3,4 or SS 10 x 45 Wing Tek or similar
Fibre cement sheet – joints expressed	
Sheet to stud through batten	Class 3,4 or SS 10g x 45 Csk Wing Tek 6g x 50 Csk Wing Tek or similar
External cover batten to stud or batten (PVC jointer extrusions can also be used)	
Timber weatherboards – paint finish	
Horizontal bevel back to stud or through batten to stud	Class 3,4 or SS 6g x 50 Csk Wing Tek 10g x 45 Csk Wing Tek or similar
Horizontal rebated bevel back to stud or through batten to stud	
Horizontal rusticated to stud or through batten to stud	
Vertical shiplap to dwang or through batten to stud/plate	
Timber weatherboards – stained or bare finish	
Horizontal bevel back to stud or through batten to stud	Class 3,4 or SS 6g x 50 Csk Wing Tek 10g x 45 Csk Wing Tek or similar
Horizontal rebated bevel back to stud or through batten to stud	
Horizontal rusticated to stud or through batten to stud	
Vertical shiplap to dwang or plate or through batten	
Board and batten	
Board to stud or through batten to stud	Class 3,4 or SS 6g x 50 Csk Wing Tek 10g x 45 Csk Wing Tek or similar
Batten to dwang or plate or through batten to stud	

Horizontal corrugate metal	
Corrugate through batten to stud	12g x 40/65 Tek with NEO
Plywood sheet – paint finish	
Plywood to stud	Class 3,4 or SS 6g x 50 Csk wing tek 8g x 32 button head tek 10g x 30 wafer head tek 10g x 45 Csk Wing tek or similar
Plywood through batten to stud	
External cover batten to stud or through batten to stud	6g x 50 Csk Wing Tek or similar
Fibre cement weatherboard	
Weatherboard to stud	Class 3,4 or SS 6g x 50 Csk Wing Tek 10g x 45 Csk Wing Tek or similar
Weatherboard through batten to stud	
Plywood sheet – stained or bare finish	
Plywood to stud or through batten to stud	Class 3,4 or SS 6g x 50 Csk wing tek 8g x 32 Button head Tek 10g x 32 wafer head tek 10g x 45 Csk Wing Tek or similar
External cover batten to stud or through batten to stud	Class 3,4 or SS 6g x 50 Csk Wing Tek or similar
Fibre cement sheet – flush finish	
Sheet to stud or through batten to stud	Class 3,4 or SS 10g x 45 Csk Wing Tek 6g x 50 Csk Wing Tek or similar
EIFS	
Polystyrene sheet through batten to framing	Class 3,4 or SS 5 x 75 steeltight 5 x 90 steeltight or similar

All screws are available through Frametek. Most are standard stock but some, such as Stainless Steel, will need to be ordered in. Please allow at least 2 weeks lead time for non stock items.

15. CONDITIONS OF CONSTRUCTION.

15.1. FRAMETEK PRODUCTS

Frametek products must be installed to all project plans and specifications, Frametek Alternative Solutions Construction System and all relevant Building Code regulations and standards.

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15.3. DISCLAIMER.

The recommendations in Frametek's literature, this document including the detail drawings, and on plans and specifications are based on good building practice but are not a total statement of all relevant information and are subject to the 'Conditions of Construction' as per the specific project.

As the successful performance of the Frametek System relies on numerous factors outside the control of Frametek 2007 Ltd (e.g. quality of workmanship and construction knowledge) Frametek shall not be liable for that literature and workmanship.

16.

APPENDIX 1

16.1. DETAILS

The following detail drawings are published as an information guide only. Due to the many variables affecting different projects it cannot replace the judgement or advice of an architect, engineer or other relevant technical expert. Such experts must be consulted to determine the suitability or otherwise of the details or the necessity for further design or detailing to suit the requirements of your particular project.

Frametek 2007 Ltd accepts no liability in respect to the use of these drawings.

16.2. CHEAT SHEETS

A set of "Cheat Sheets" are available as follows:

- Electrical Cheat Sheet
- Wall Lining Cheat Sheet
- Intertenancy Cheat Sheet
- Plumbing / Gas Cheat Sheet

16.3. DISCLAIMER.

The recommendations in the detail drawings are based on good building practice but are not a total statement of all relevant information and are subject to the 'Conditions of Construction' as per the specific project.

As the successful performance of the Frametek System relies on numerous factors outside the control of Frametek 2007 Ltd (e.g. quality of workmanship and construction knowledge) Frametek shall not be liable for that literature and workmanship.

16.4. NOTE:

IF YOU DO NOT AGREE TO THESE PROVISIONS, DO NOT USE THESE DETAILS.