



SAMPLE

# Timber Roof Trusses

## Carpentry - Residential Construction

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## TIMBER ROOF TRUSSES OVERVIEW

This text introduces subject matter related to the manufacture and installation of timber roof trusses. It builds on knowledge and skills acquired through training, both off and on-site.

Reference is made to the **National Code of Practice** for the Prevention of Falls in Housing Construction and this should be read in conjunction with these notes.

The scope to be covered will include:

- Truss types
- Erection procedures
- Basic truss plan layout
- Flashings
- Connectors

A comprehensive 'Glossary of Terms' is included at the end of the text, which provides a detailed description of trade terms, technical content and some trade jargon.

## INTRODUCTION

A roof truss may be defined as being an *“unyielding frame designed to span or transfer loads between supports”*.

The trusses that we so commonly see today are frames of triangulated timber joined together with galvanized steel connector plates, commonly referred to as truss plates. The shape of trusses has not changed over the years but their design and span capabilities together with safety implications has changed.

In 1952, in Florida USA, after experimenting with plywood gusset plates and varying blends and combinations of glue, staples, nails and screws, the metal plate connected engineered wood truss was invented and patented. The inventor, A. Carroll Sanford, founder of Sanford Industries, marked the beginning of the truss industry.

Modern roof trusses, clear-spanning between the perimeter walls, allows larger more open room designs. This roof system proved to be faster and more cost effective than earlier practices, uses much less material with less labour cutting and fitting of materials on site.

The design and manufacture/fabrication of metal plate connected timber trusses is, in modern truss operations, accomplished by computer. In design, the first decision to be made is the overall look of the roof to be produced followed by a decision as to the overall span. Then the computerisation of the process takes over.

Common standard engineering principles along with building codes, required roof, roofing material, ceiling and wind loads, as well as any extraordinary loading or stress conditions will be taken into consideration. These technical details are then entered into the computer.

An engineering drawing is produced by the computer detailing the forces that develop in each chord and web under the given design loads. Engineering specifications also include the truss dimensions and pitch, timber sizes, species, dimension/size and grade of timber for each chord and web. The gauge, size and orientation of each metal connector plate is precisely specified as well as the size, strength and location of permanent bracing.

## TRUSS TYPES

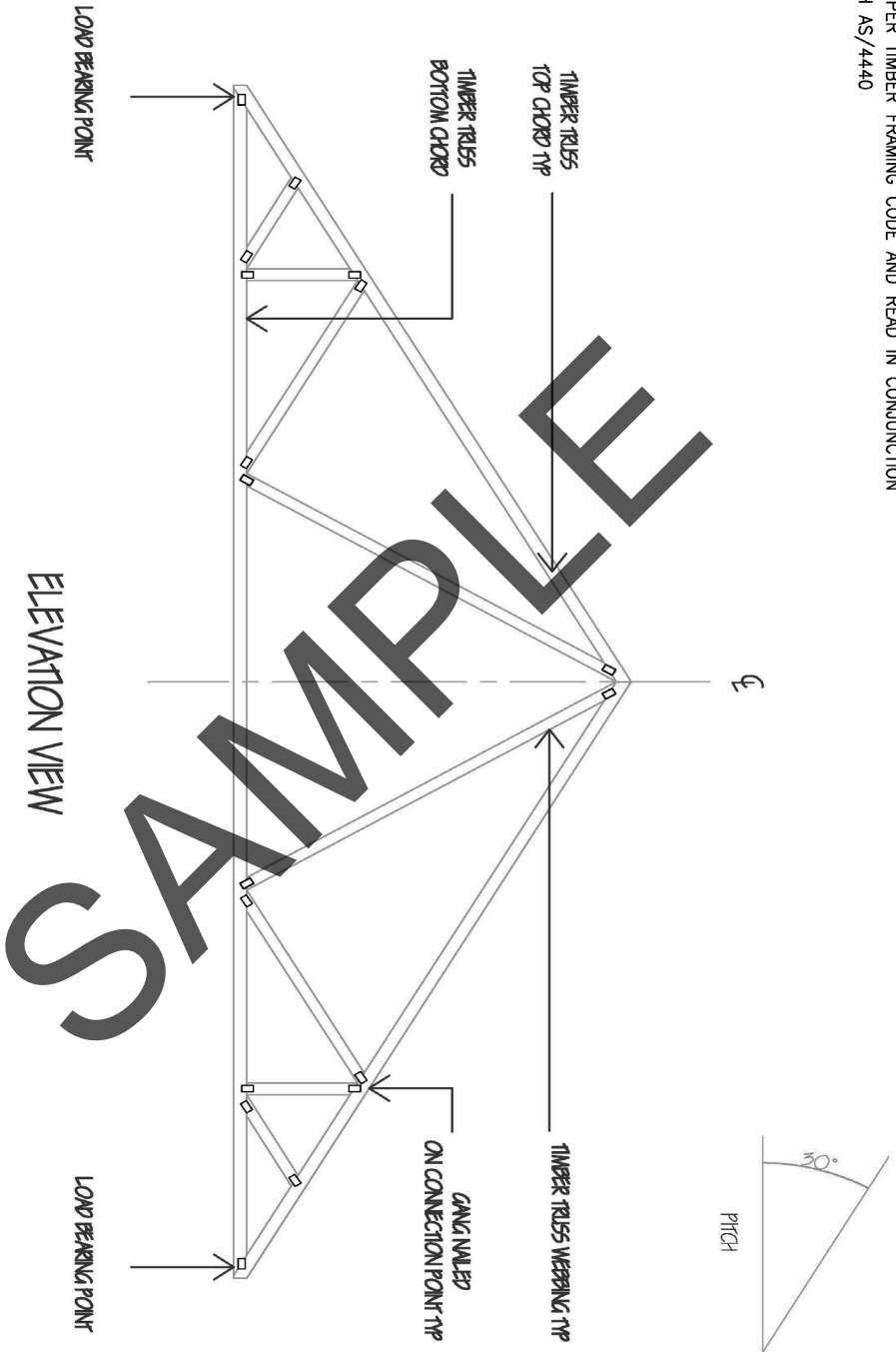
The following elevation drawings have been developed for fabrication, in accordance with the designer/ manufacturer criteria. Once the trusses are assembled they are grouped in order of erection, strapped and loaded to deliver to the job site.



The following elevations describe by name the common trusses used in residential construction:

- Belgian
- Fan
- Fink
- French
- Half Span
- Jack
- Monopitch
- Sail-over

NOTE: AS PER TIMBER FRAMING CODE AND READ IN CONJUNCTION WITH AS/4440



ELEVATION VIEW

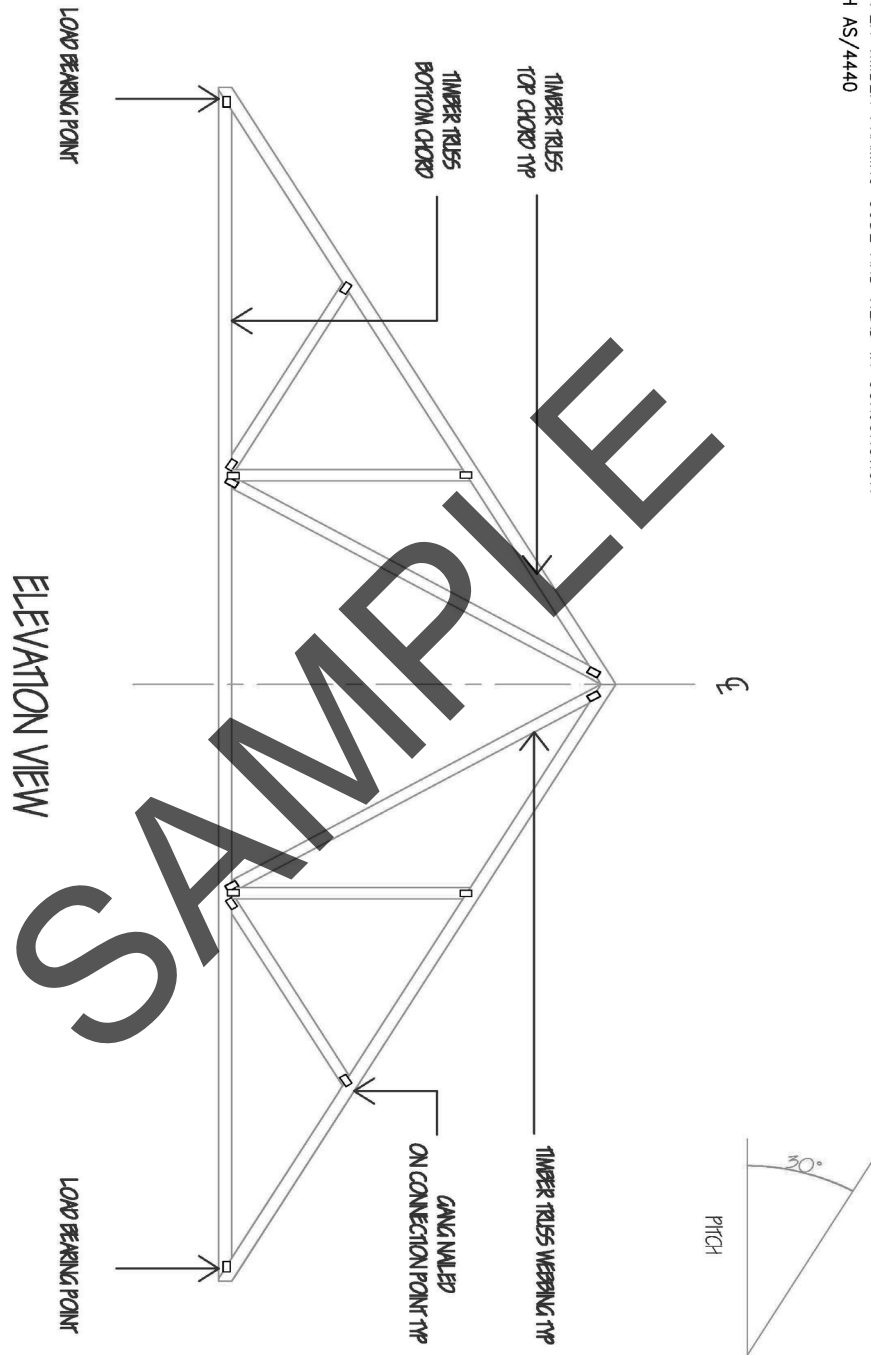


TITLE		SCALE	
BELGIAN TRUSS		A3 / 1:20	
DATE	DRAWN BY	CHECK BY	SUPPLEMENTARY
8.4.12	MR. J.K.A	MR. N.G.H	PAGE 1 OF 1
NOTE: 1 DO NOT SCALE OFF THIS DRAWING.		2 DO NOT SCALE OFF THIS DRAWING FOR EX. ONLY.	

DESCRIPTION  
**Belgian truss**  
 Similar to a Warren truss for longer spans with extra webs added. Also called a double Fink truss

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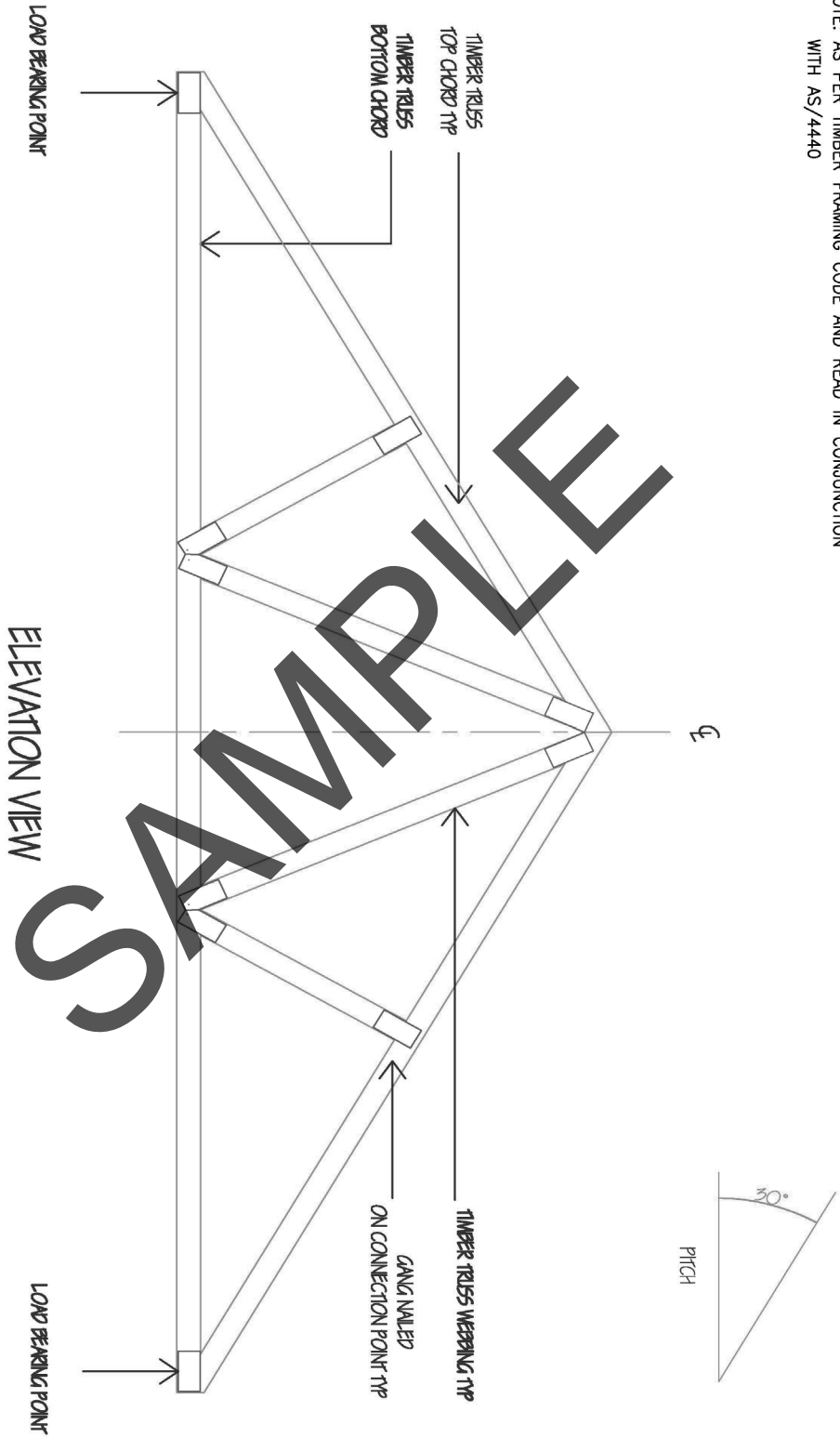
NOTE: AS PER TIMBER FRAMING CODE AND READ IN CONJUNCTION WITH AS/4440



TITLE FAN ROOF TRUSS		SCALE A3/ 1:20	DESCRIPTION Fan truss A truss with struts that radiate like the ribs of a fan, supported at their base by a common suspension member.
DATE 3.6.12	DRAWN BY MR. J.K.A	CHECK BY MR. N.G.H	SUPPLEMENTARY PAGE 1 OF 1
NOTE: 1. DO NOT SCALE OFF THIS DRAWING. 2. DIMENSIONS TAKE PRECEDENCE.			

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ELEVATION VIEW

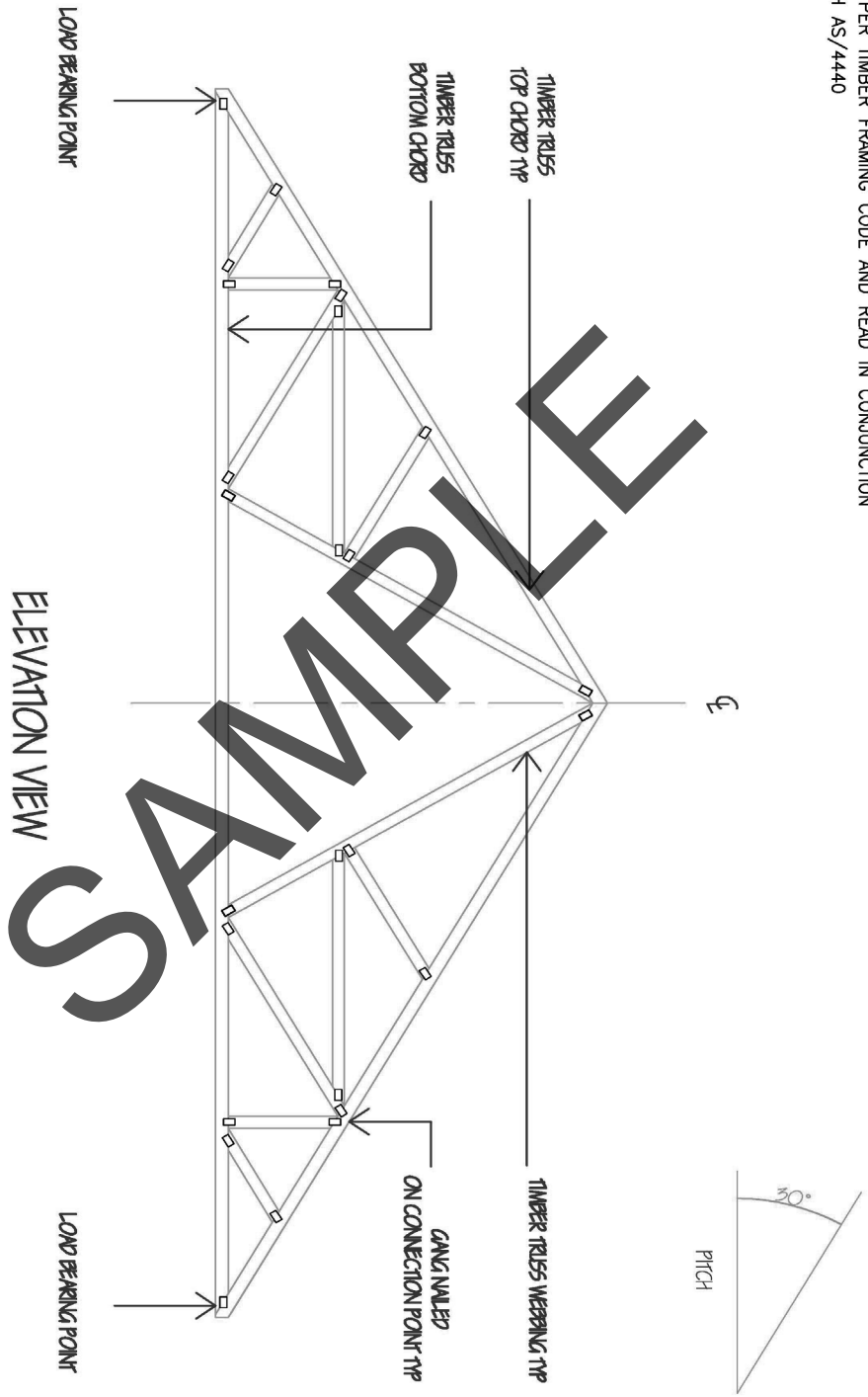


TITLE		SCALE		DESCRIPTION	
FINIK ROOF TRUSS		A3 / 1:20		Fink truss	
DATE	DRAWN BY	CHECK BY	NOTE: 1 DO NOT SCALE OFF THIS DRAWING. 2 FOR MORE INFORMATION, SEE ENCL.	Most of the members are in tension and the struts are short	
3.6.12	MR. J.K.A	MR. N.G.H	PAGE 1 OF 1		

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ELEVATION VIEW

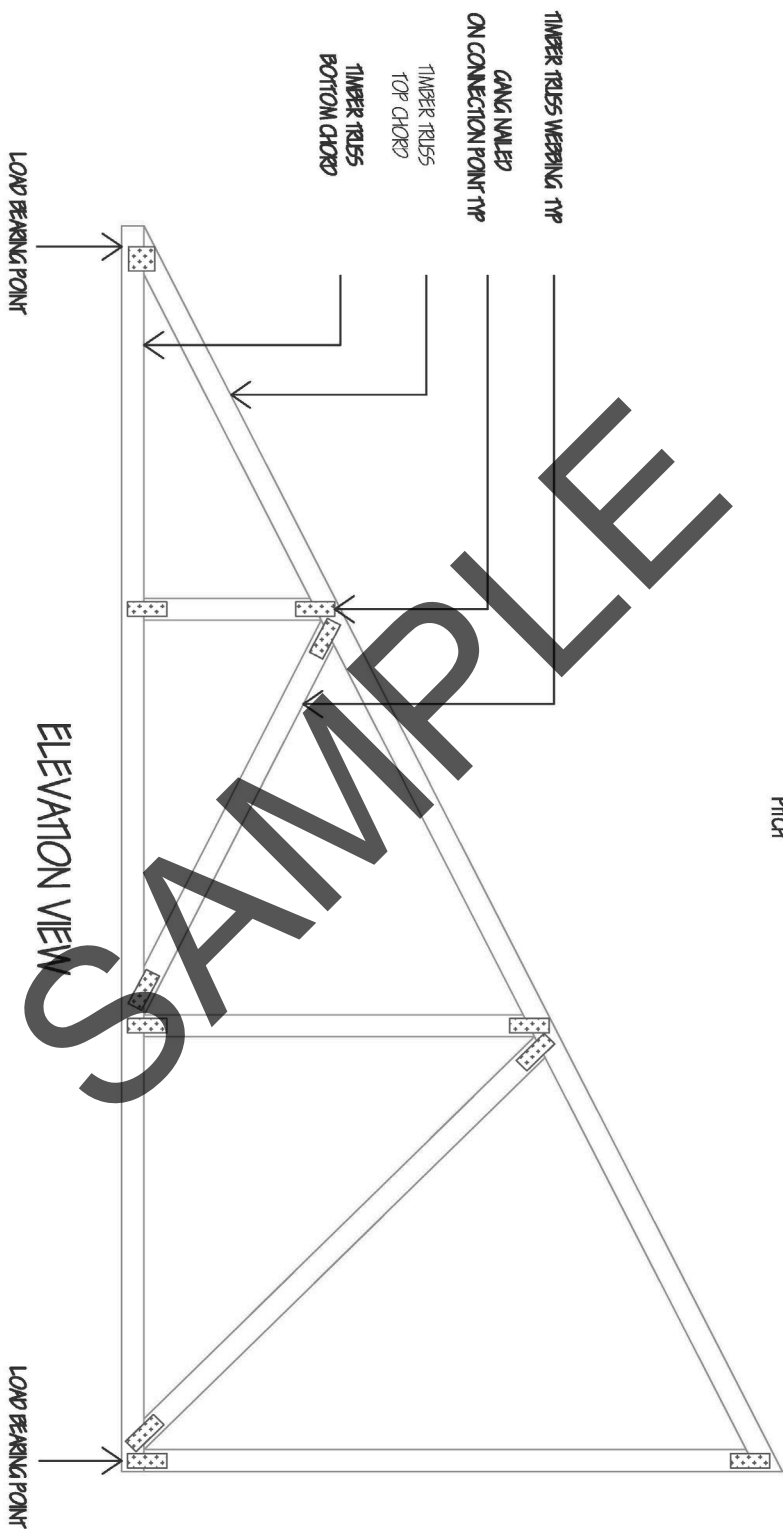
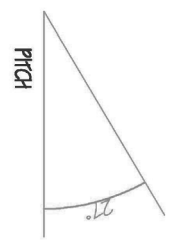


TITLE		SCALE	
FRENCH ROOF TRUSS		A3 / 1:20	
DATE	DRAWN BY	CHECK BY	NOTE
3.6.12	MR. J.K.A	MR. N.G.H	NOTE 1 DO NOT SCALE OFF THIS DRAWING. NOTE 2 FOR NOTES, SEE EX. ONE.
SUPERLEMENTARY		PAGE 1 OF 1	

**DESCRIPTION**  
**French truss**  
 The term "French" appears to be generally given to those trusses in which the tie-beam is raised in the centre

©

NOTE: AS PER TIMBER FRAMING CODE AND READ IN CONJUNCTION WITH AS/4440



ELEVATION VIEW

©



TITLE		SCALE		DESCRIPTION	
HALF SPAN ROOF TRUSS		A3 / 1:20		Half truss	
DATE	DRAWN BY	CHECK BY	NOTE: 1 DO NOT SCALE OFF THIS DRAWING FOR THE WORK. 2 DIMENSIONS FOR E.L. ONLY.		
3.6.12	MR. J.K.A	MR. N.G.H	PAGE 1 OF 1		

A half truss is a full truss, cut off at the apex.