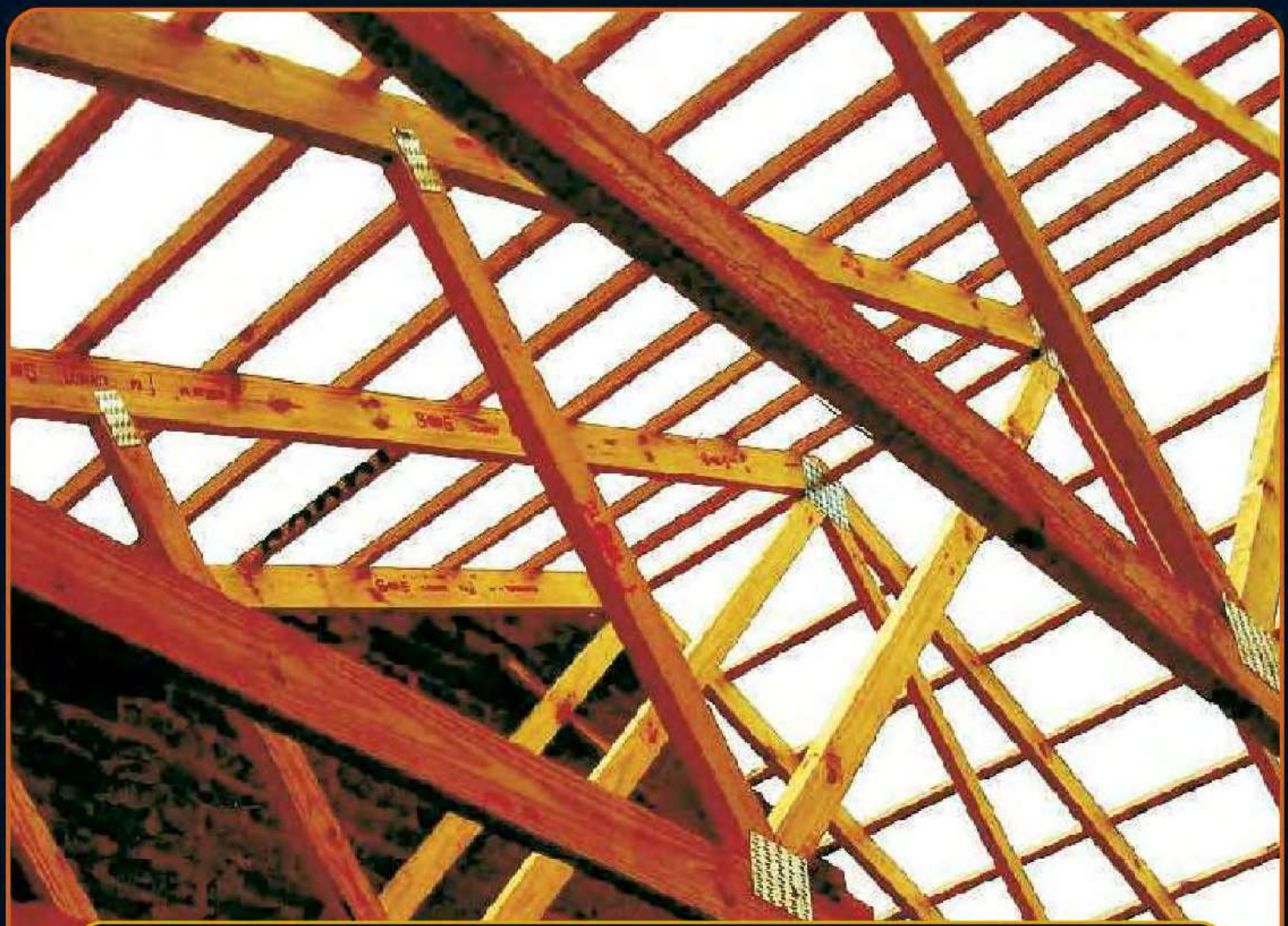

ITC SA Erector

Institute for Timber Construction

Roof Erector's Handbook

For the installation and bracing of pre-fabricated timber roof trusses

Published by the Institute for Timber Construction South Africa

Revised Edition 2022/07

Volume 2

Including large span roofs

ITC SA Erector Member

Institute for Timber Construction South Africa®

Photo / Company Stamp

Erector's name	
Region	
Cell number	
Email address	
Certificate of Competence no.	

FOR A SAFE, LEGAL ROOF!

Roof Erector's Handbook

FOR ERECTING PREFABRICATED TIMBER ROOF TRUSSES

VOLUME TWO - ADVANCED LEVEL

For All Category Carpenters (ITC Rating)

Published by the Institute for Timber Construction - South Africa
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International Truss Systems (Pty) Ltd.
MiTek SA (Pty) Ltd.

First Edition July 2001

INTRODUCTION

The details in this handbook are a compilation of erection and bracing details that are issued with the roof layout supplied by the Prefabricated Timber Truss Fabrication as part of the site documentation or incorporated in the workshop drawings. These details cover nearly all the standard aspects of erecting and bracing all categories of timber roofs.

Alternative details may be issued by the design engineer, in which case these details override those published in this book for the particular structure that they have been designed for.

All trusses and all bracing requirements must be shown on the roof plan supplied by the truss manufacturer.

Prevailing conditions must be considered where it may be necessary for the specification of corrosion proofed nails for securing of metal bracing strap, metal connectors, hangers and fixing of timber members.

The Magisterial districts or towns specified for treatment of sawn timber as published in SANS 1005:2016 could be used as a guideline for use of corrosion proofed nails where doubt exists.

Note: All bracing, hangers, clips and the like must be fixed strictly in accordance with the manufacturer's instructions.

FOREWORD

The Institute for Timber Construction South Africa - ITC - SA's - mission is to:

- Raise standards in the Nail Plated Timber Roof Truss Industry through the development and supportive enforcement of appropriate technical, quality and ethical standards.
- Monitor adherence by ITC-SA members of relevant industry related standards, SANS specifications and Codes of Practice and in so doing act as a protector of consumers interests.
- Foster and promote all ITC-SA members interests through appropriate advertising and publicity by facilitating training and lobbying at all relevant levels and forums.

The ITC-SA Engineering Systems who are members of the ITC-SA, International Truss Systems (Pty) Ltd and MiTek Industries S.A. (Pty) Ltd, have all developed computer software capable of designing timber roof structures in compliance with the relevant design codes of practice. The Systems ensure competent use of their design software through training of their licensed Fabricators. The Systems also manufacture and supply the connector nail plates and other necessary brackets and hardware upon which the software design criteria is based.

ITC-SA gives recognition to engineers with substantial experience and proven competence in timber engineering by accepting them as Engineer members. In order to ensure full compliance with all the provisions of both the National Building Regulations & Building Standards Act [Section 14 (2A)] and National Building Regulations [Clause A19]. These engineers may appoint, train and regularly re-train Inspectors to inspect erected Timber Roof Structures on their behalf

Fabricators/Truss Plants are licensed by the Engineering Systems to design and manufacture pre-fabricated , mono-planar nail-plated roof structures. They are audited according to ITC-SA requirements and the National Building Regulations in order to achieve a Certificate of Competance for Truss Manufacturing.

To further assist in developing the standards within the industry, ITC-SA presents a duel level estimator/designer course which upgrades the quality and competency of personnel in truss plants.

ITC-SA approves Erectors who have undergone work evaluations and training in order to achieve a Certificate of Competence for Erectors. Of particular relevance is their understanding and correct application of the bracing rules as contained in the Roof Erector's Handbook Volumes 1 & 2, which are continuously re-evaluated and updated through ITC-SA facilitation. These bracing details have been included in SANS 10243 (The Manufacture and Erection of Timber Trusses) and some are also included in SANS 10400 "The Application of the National Building Regulations" - part L.

ITC-SA approved Engineers appoint and train Certified Roof Inspectors to inspect roof structures. The Engineers accept responsibility for the design and structural stability of the roofs by the Inspectors. This process is in compliance with Regulation A19 of the National Building Regulations, which then enables the home owner to obtain an occupancy certificate from the local authority.

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DORMER 1		OLD ENGLISH & FRENCH DORMER
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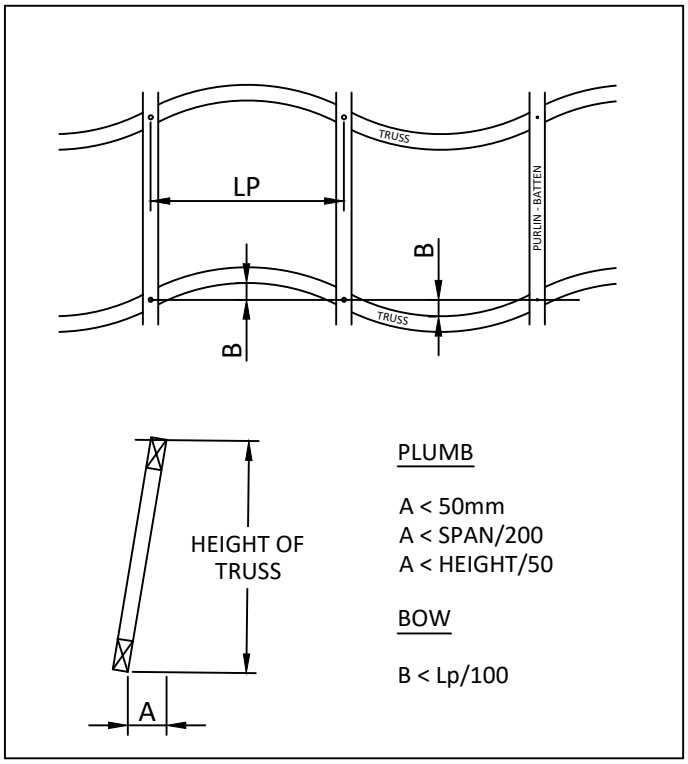
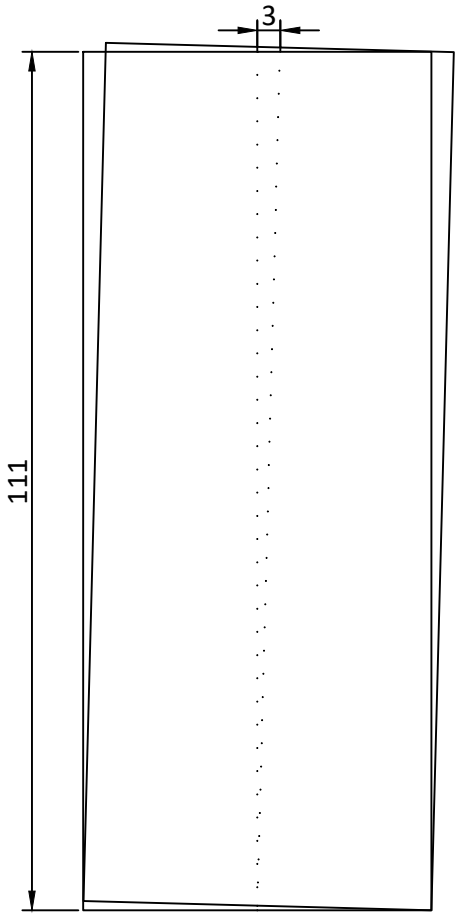
FULL SIZE (SCALE 1:1) SECTION OF 36 x 111 RAFTER AT 30 DEGREE SLOPE SHOWING MAXIMUM OUT OF PLUMB TOLERANCE ALLOWED
= LESS THAN 3mm OFF CENTRE





TOLERANCE IS CRITICAL FOR BOTH A GOOD ROOF LINE AND EFFECTIVE BRACING

A GUTLINE, PLUMBLINE OR LEVEL SHOULD BE USED

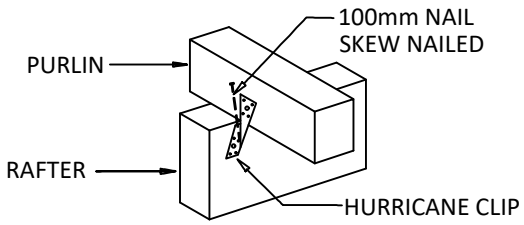
1. TRUSSES TO BE ERECTED WITH OVERALL BOW IN ITS TOTAL RAFTER LENGTH LESS THAN L/200 AND LESS THAN 50mm (L = CHORD LENGTH). THE BOW BETWEEN BATTENS OR PURLINS MUST BE LESS THAN Lp/100 (Lp = BATTEN/PURLIN SPACING).

2. TRUSSES TO BE ERECTED WITH APEX NOT MORE THAN THE LESSER OF SPAN/200 OR HEIGHT/50 FROM A VERTICAL PLANE THROUGH ITS SUPPORTS.

3. AT ANY SECTION, THE LOCAL OUT OF PLUMB SHOULD NOT EXCEED HEIGHT/50 OR 50mm. WHICHEVER IS THE LESSER.

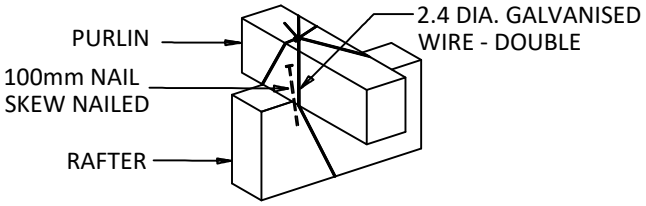
GENERALLY, IF A BOW OR TILT IS EVIDENT TO THE EYE, THE TRUSS HAS PROBABLY BEEN ERECTED OUTSIDE THE TOLERANCES.

HURRICANE CLIP CONNECTION:



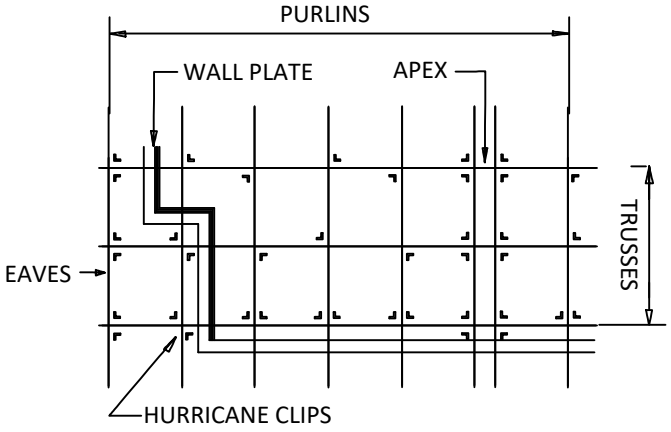
ALL HURRICANE CLIPS TO BE CAREFULLY NAILED WITH CLOUT OR SERRATED NAILS

WIRE BOUND CONNECTION:



1. OFF 100mm SKEW DRIVEN NAIL AND TIED WITH 2.4 DIA. GALVANISED WIRE BOUND TWICE AT EACH CONNECTION

1. OFF FULLY NAILED HURRICANE CLIP PER CONNECTION. AT ALL OTHER CONNECTIONS HURRICANE CLIPS TO BE STAGGERED.

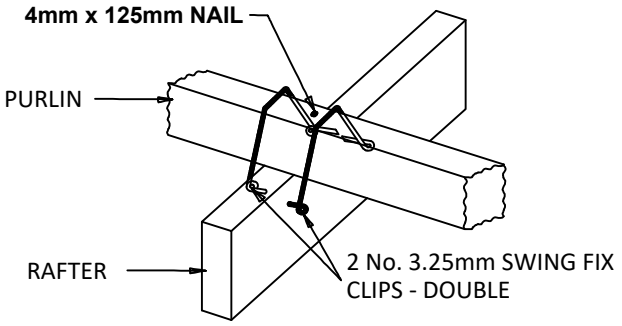


2. OFF FULLY NAILED HURRICANE CLIPS PER CONNECTION AT ALL EAVES, OVERHANG PURLINS, RIDGE PURLINS AND GABLE ENDS. (I.E. PERIMETER CONNECTIONS)

NOTE: SCREW CONNECTION ONLY REQUIRES ONE SCREW PER PURLIN RAFTER CONNECTION AT APEX ON EAVE

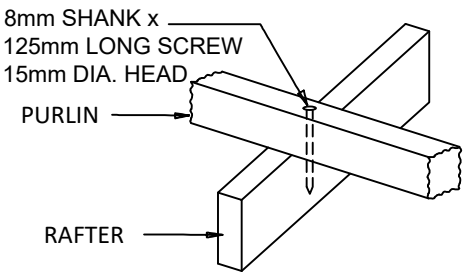
PLAN VIEW ON PURLINS

SWING FIX CLIP CONNECTION:



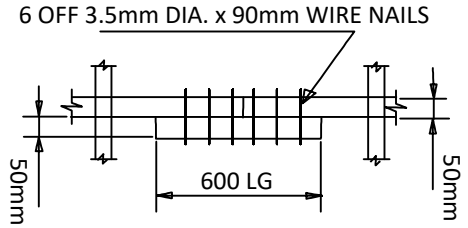
1. OFF 4mm x 125mm VERTICAL NAIL & 2 OFF 3.25mm SWING FIX CLIPS FIXED AT EACH CONNECTION

PURLIN SCREW CONNECTION:

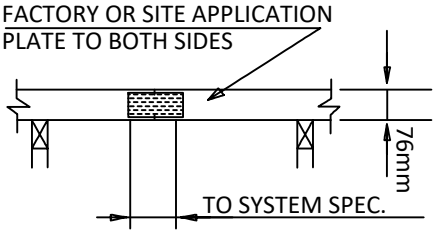


1. 36mm RAFTER/TOP CHORD. ABSOLUTE ACCURATE PLACEMENT IN MIDDLE (WILL SUPPORT RATIONAL DESIGN BY ENGINEER).
2. 50mm RAFTER/TOP CHORD. ABSOLUTE ACCURATE PLACEMENT IN MIDDLE.
3. ONLY CERTIFIED RATIONALLY DESIGNED SCREWS MAY BE USED.
LIMITED FOR USE IN TERRAIN CATEGORY B COASTAL AREAS

VARIOUS 50 x 76 PURLIN CONNECTION OPTIONS



TIMBER BLOCK SPLICE PLAN



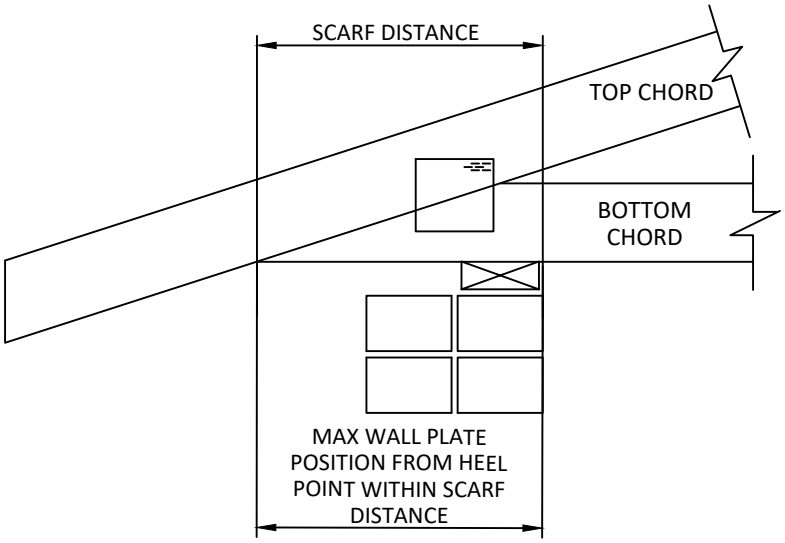
PLATED SPLICE ELEVATION
ONLY PER SUPPLIER DESIGN

PURLIN SPLICE DETAILS

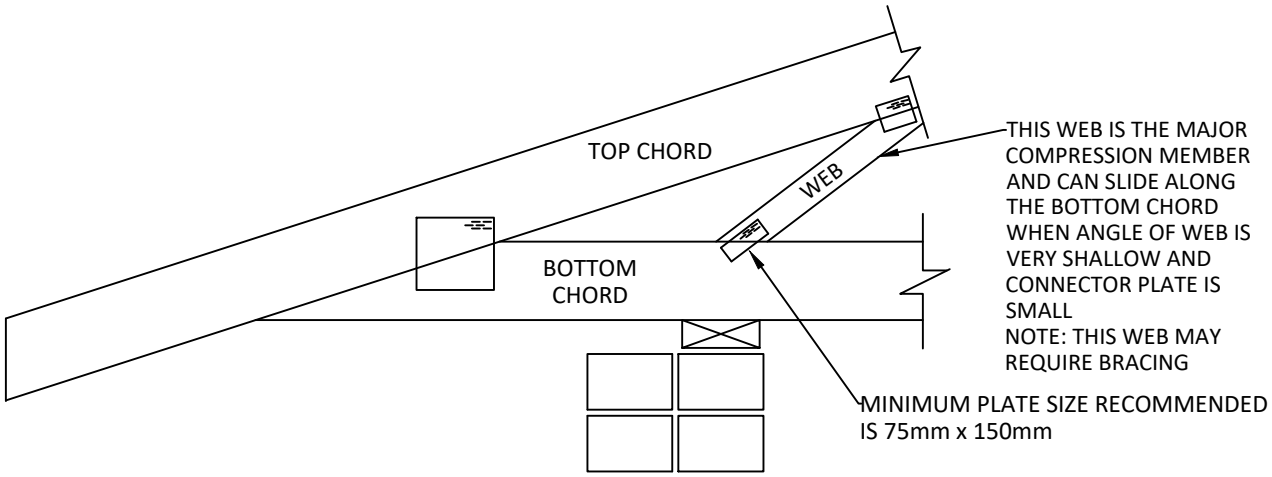
NOTE:

1. ALL PURLINS TO BE PLACED ON EDGE AND ERECTED TO THE CENTRES AS SPECIFIED ON THE TRUSS DESIGN
2. PURLIN SPLICING TO BE STAGGERED. (REFER TO DETAILS ABOVE FOR SPLICING OF PURLINS)
3. ONE OR TWO HURRICANE CLIPS PER CONNECTION AS PER PLAN VIEW ABOVE
4. ALL HURRICANE CLIPS MUST BE FULLY NAILED WITH EITHER CLOUT NAILS OR SERRATED NAILS INTO EACH MEMBER. (I.E. TRUSS AND PURLIN)

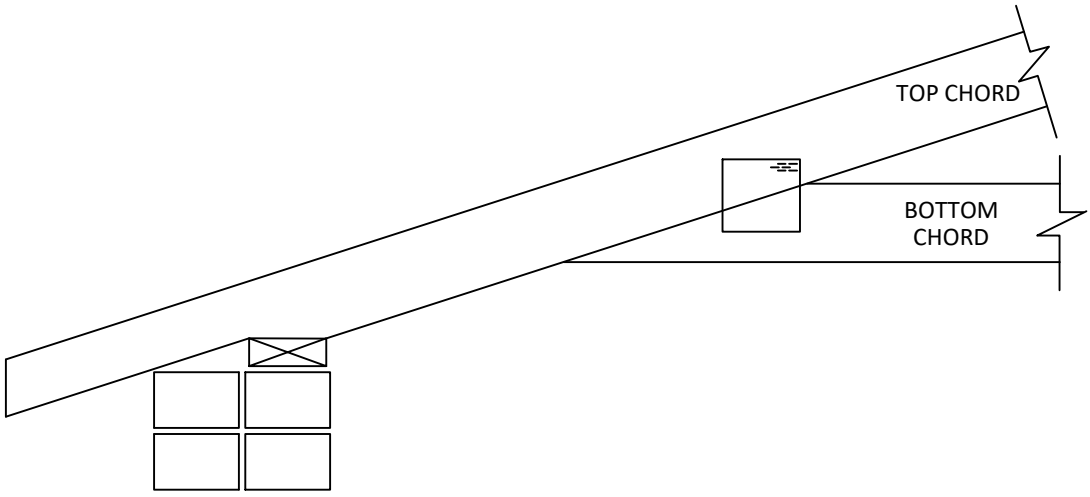
IF ALTERNATIVE DETAILS ARE SUPPLIED BY THE DESIGN ENGINEER, THEY TAKE PREFERENCE TO THE ABOVE



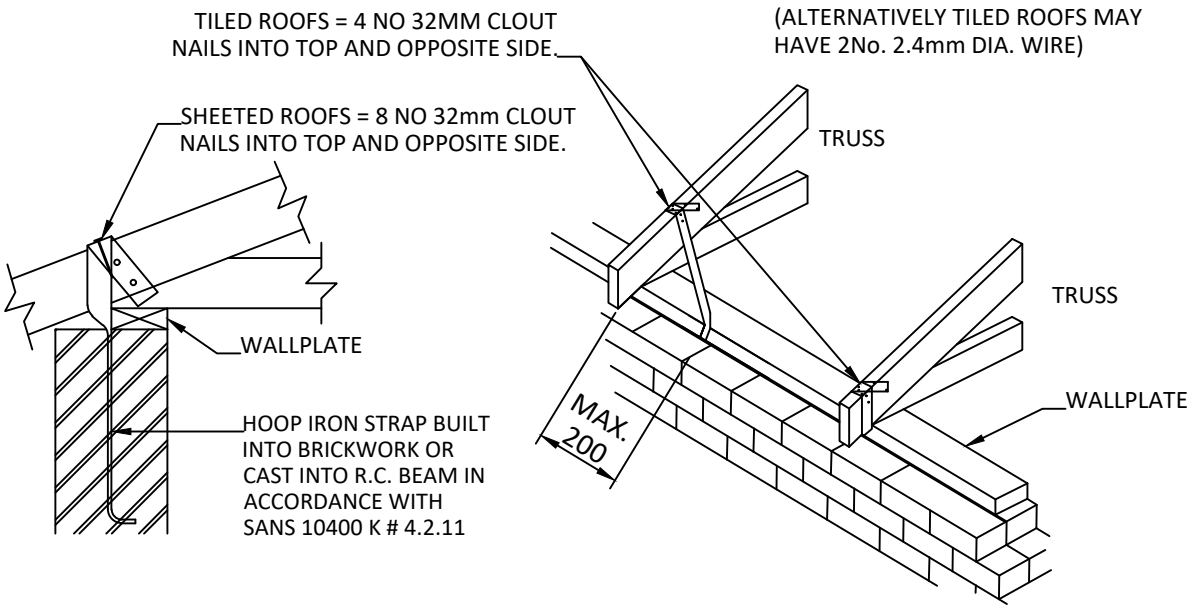
LIMIT OF WALL PLATE POSITIONING
NOTE: ANY SUPPORT OUTSIDE THE SCARF LENGTH IS A SPECIAL SUPPORT CONDITION



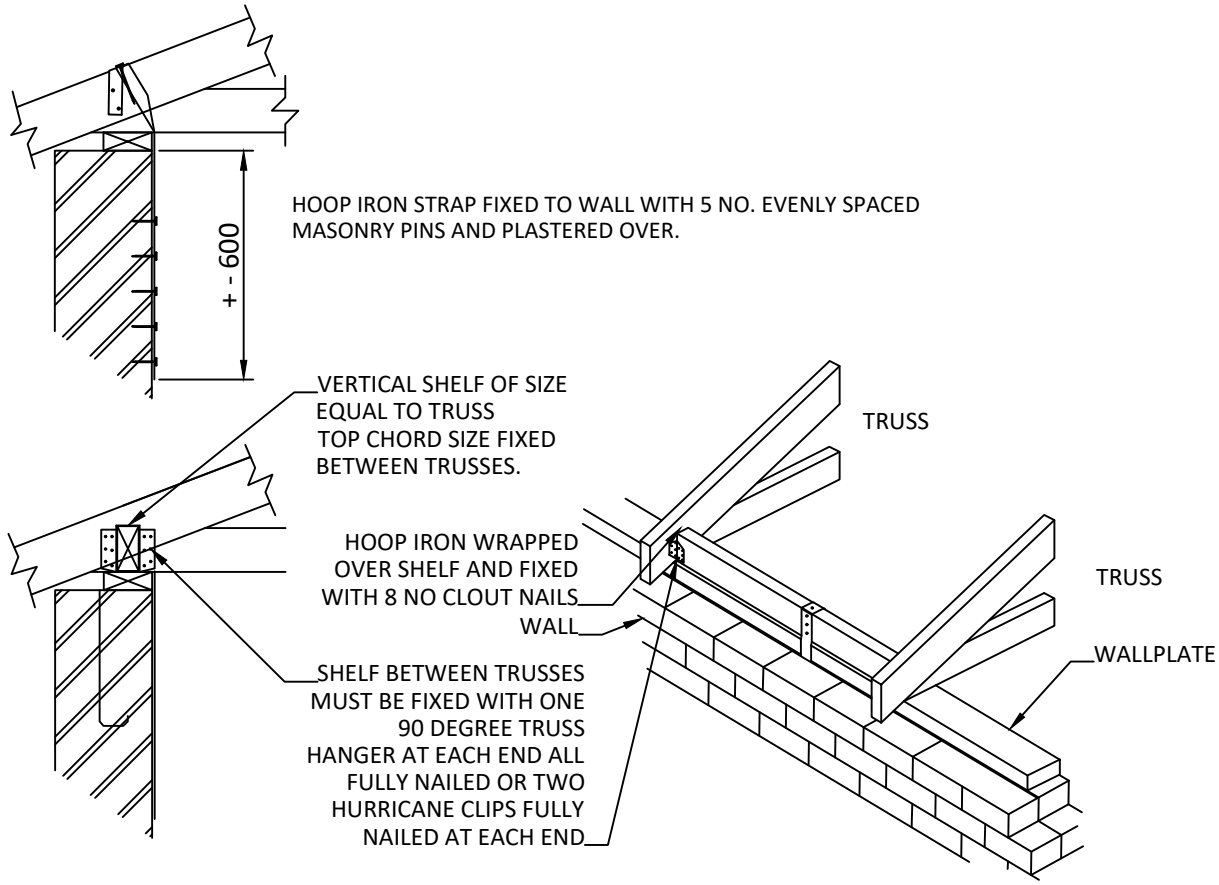
SPECIAL SUPPORT CONDITION BEYOND SCARF = CANTILEVER
NOTE: ALL CANTILEVERS MUST BE DESIGNED AS SUCH



SPECIAL SUPPORT CONDITION ON OVERHANG = TOP CHORD SUPPORT
NOTE: ALL TOP CHORD SUPPORTS MUST BE DESIGNED AS SUCH

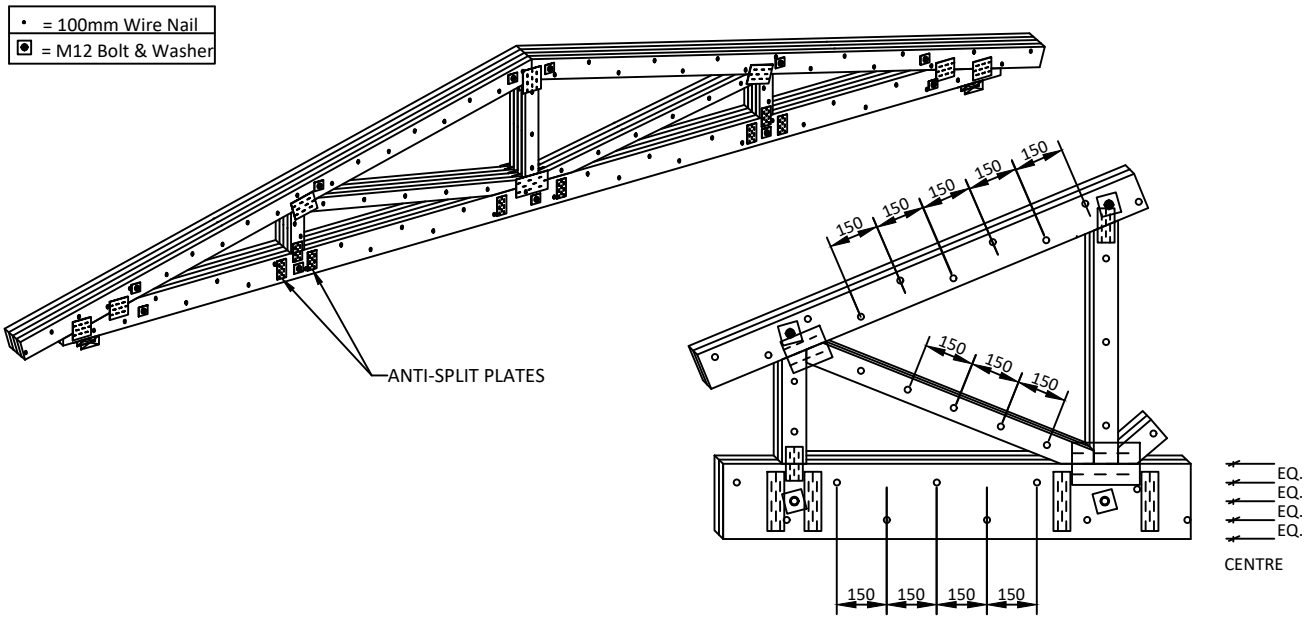


FOR SHEETED ROOFS AT LESS THAN 17.5 DEGREE PITCH AND/OR SPANNING MORE THAN 10m THE HOLD MUST BE DESIGNED.

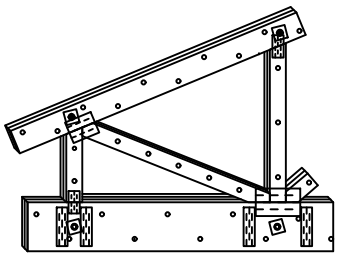


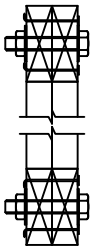
DETAIL TO BE USED WHEN HOOP IRON IS FURTHER THAN 200mm FROM TRUSS

TRUSS HOLDING DOWN DETAILS



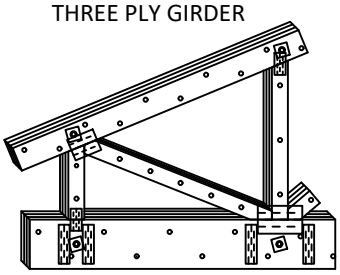
TWO PLY GIRDER

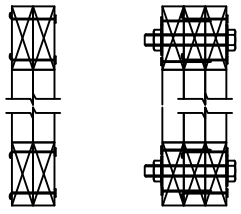




DOUBLE MEMBER GIRDER TO BE NAILED TOGETHER WITH 100mm NAILS CLINCHED OR SCREWED AT 150mm CENTRES REELED PITCH ALONG TOP AND BOTTOM CHORDS AND AT 150mm CENTRES ALONG THE CENTRE LINES OF WEBS. BOLT WITH 1 NO. M12 BOLT AND WASHERS AT EACH JOINT ALONG THE CENTRE LINES OF CHORDS. ALL TRUSS HANGERS AND CLEATS TO BE BOLTED AS PER DESIGNER SPECIFICATIONS. (AS SHOWN ON THE TRUSS DETAILS AND ROOF PLAN)

THREE PLY GIRDER

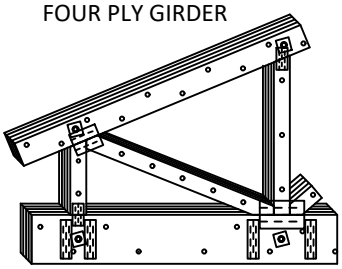


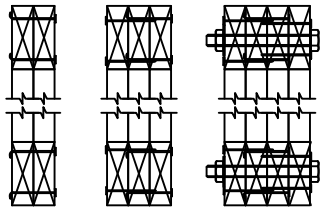


STEP 1 **STEP 2**

TWO TRUSSES TO BE NAILED TOGETHER WITH 100mm NAILS CLINCHED OR SCREWED AT 150mm CENTRES REELED PITCH ALONG TOP AND BOTTOM CHORDS AND AT 150mm CENTRES ALONG THE CENTRE LINES OF WEBS. THIRD MEMBER THEN SIMILARLY BE NAILED OR SCREWED ONTO DOUBLE TRUSS. BOLT WITH 1 NO. M12 BOLT AND WASHERS AT EACH JOINT ALONG THE CENTRE LINES OF CHORDS. ALL TRUSS HANGERS AND CLEATS TO BE BOLTED AS PER DESIGNER SPECIFICATIONS. (AS SHOWN ON THE TRUSS DETAILS AND ROOF PLAN)

FOUR PLY GIRDER



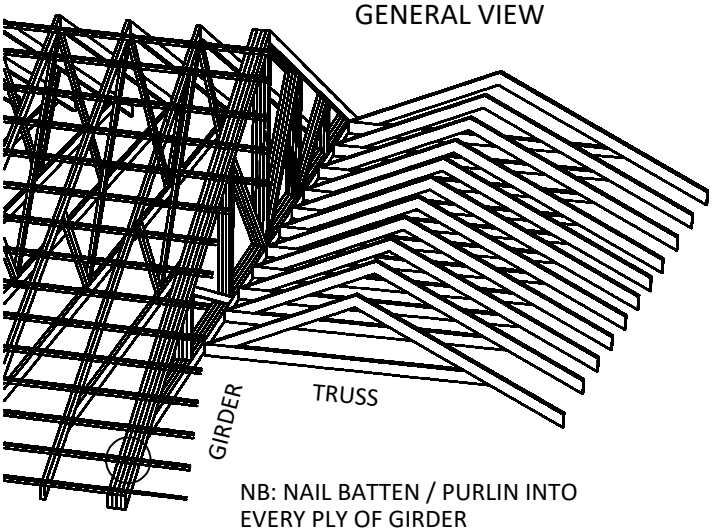


STEP 1 **STEP 2** **STEP 3**

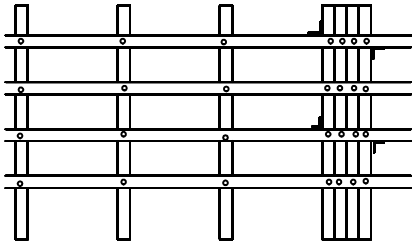
TWO TRUSSES TO BE NAILED TOGETHER WITH 100mm NAILS CLINCHED OR SCREWED AT 150mm CENTRES REELED PITCH ALONG TOP AND BOTTOM CHORDS AND AT 150mm CENTRES ALONG THE CENTRE LINES OF WEBS. THIRD AND FOURTH MEMBER THEN TO BE SIMILARLY NAILED OR SCREWED TO EITHER SIDE OF DOUBLE TRUSS. BOLT WITH 1 NO. M12 BOLT AND WASHERS AT EACH JOINT ALONG THE CENTRE LINES OF CHORDS. ALL TRUSS HANGERS AND CLEATS TO BE BOLTED AS PER DESIGNER SPECIFICATIONS. (AS SHOWN ON THE TRUSS DETAILS AND ROOF PLAN)

CONNECTION DETAILS FOR TWO, THREE AND FOUR PLY GIRDERS
NOTE: BOLT PLACEMENT MUST NOT BE THROUGH NAIL PLATES

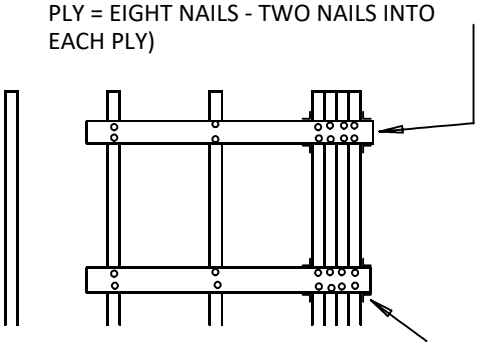
GENERAL VIEW



NB: NAIL BATTEN / PURLIN INTO EVERY PLY OF GIRDER

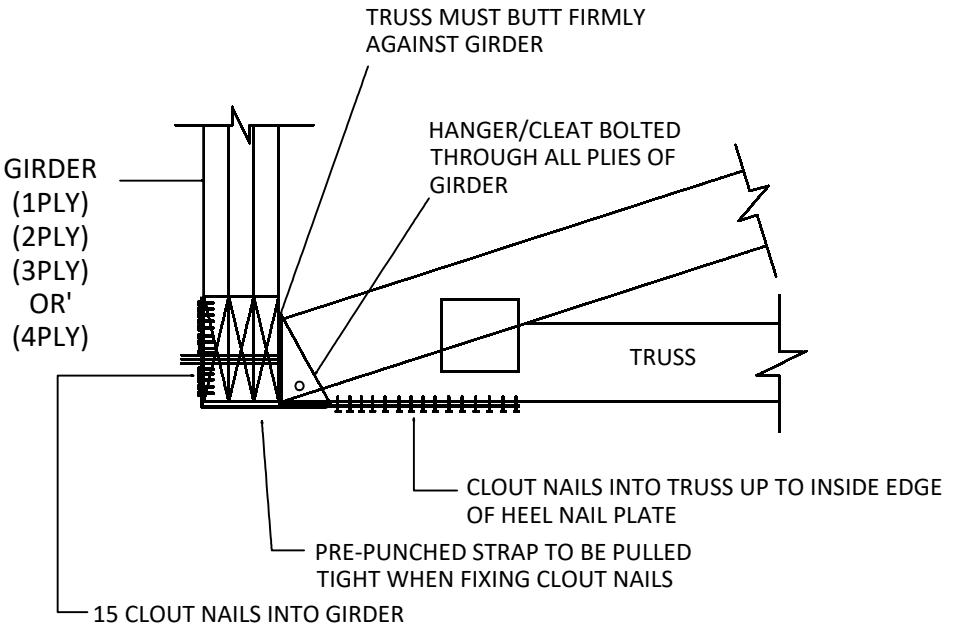


1. FOR BATTENS SPACED AT LESS THAN 400mm c/c CONNECT EVERY 2ND BATTEN TO GIRDER WITH A PAIR OF METAL ANGLE CLIPS OR SIMILAR BRACKETS ON OPOSITE SIDES AS SHOWN. SELECT BATTENS THAT ARE CONTINUOUS OVER BRACED BAYS.
2. WHERE NO CLIPS CAN BE USED DUE TO TILE UNDERLAY / DAMP PROOFING LAYER USE 36 x 73MM (GRADE 5) RUNNERS AT 600mm CENTRES NAILED TO EACH PLY TO UNDERSIDE OF TOP CHORD AND OVER TWO ADJACENT TRUSSES. TWO 75mm WIRE NAILS PER CONNECTION. (I.E. FOUR PLY = EIGHT NAILS - TWO NAILS INTO EACH PLY)

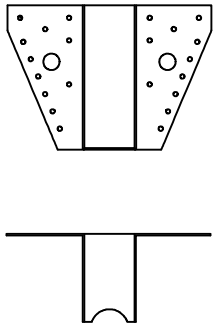


3. MORE PURLINS (USUALLY SPACED AT MORE THAN 800mm c/c) CONNECT EACH PURLIN WITH FOUR HURRICANE CLIPS PER CONNECTION

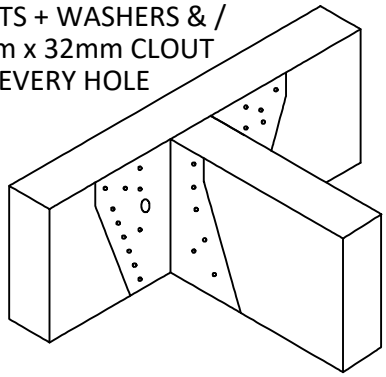
BATTEN/PURLIN CONNECTION DETAIL FOR THREE AND FOUR PLY GIRDERS



TORSIONAL RESTRAINT STRAP DETAIL TO BE INSTALLED WHEN THE INCOMING TRUSS SPAN IS 6.0m OR GREATER ON ALL VALLEY GIRDERS IRRESPECTIVE OF THE NUMBER OF PLIES



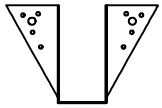
USE:
M12 BOLTS + WASHERS & /
OR 2.8mm x 32mm CLOUT
NAILS IN EVERY HOLE

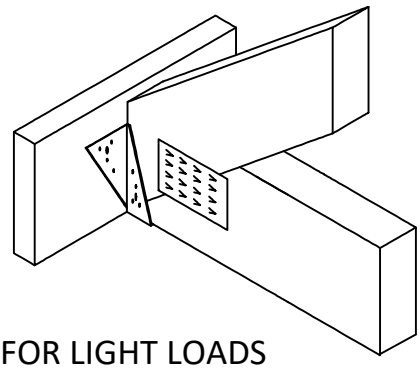


TYPICAL 90 DEGREE TRUSS HANGERS

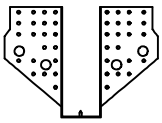
IMPORTANT:
INSTALL ALL HANGERS STRICTLY ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS

THE HANGER TYPE AND SIZE FOR EACH TRUSS CONNECTION MUST BE SHOWN ON THE ROOF LAYOUT PLAN





90 DEGREE MINI-HANGERS FOR LIGHT LOADS



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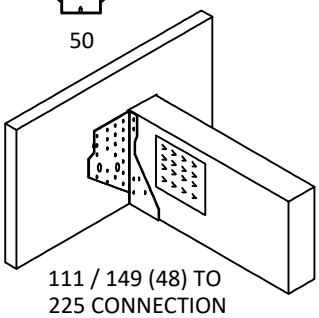
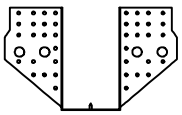
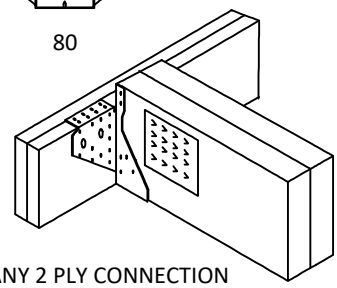


111 / 149 (48) TO
225 CONNECTION



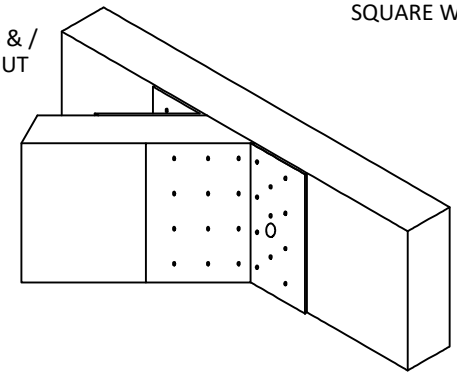
80



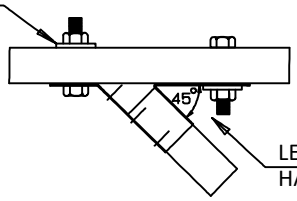
ANY 2 PLY CONNECTION
TO 111 / 149 TIMBER

TYPICAL 90 DEGREE 50 / 80mm WIDE HANGERS

USE:
M12 BOLTS + WASHERS & /
OR 2.8mm x 32mm CLOUT
NAILS FULLY NAILED

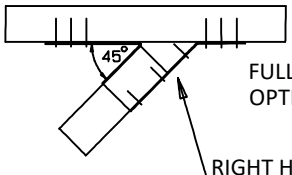


36 x 36 x 4mm
SQUARE WASHER



BOLTED
OPTION

LEFT HAND TRUSS
HANGER

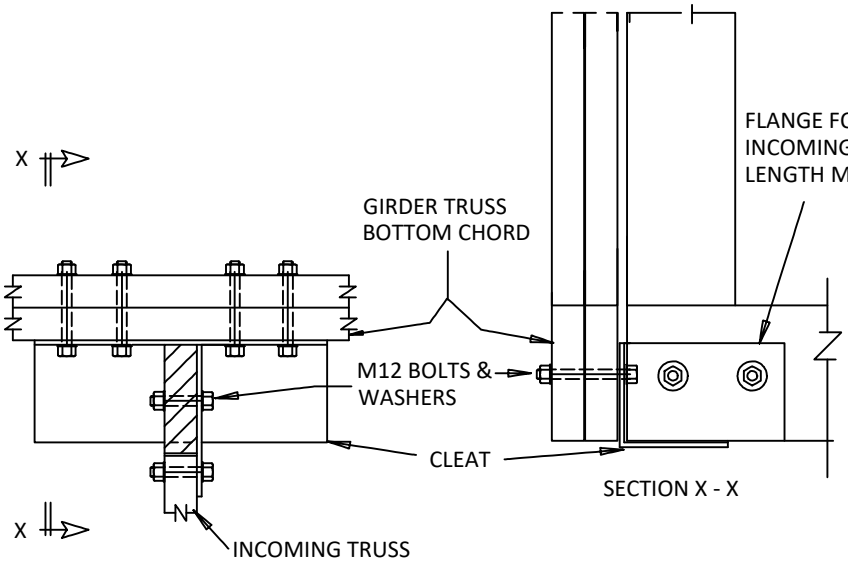


FULLY NAILED
OPTION

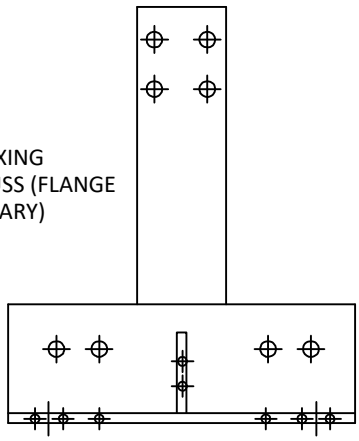
RIGHT HAND TRUSS
HANGER

45 DEGREE TRUSS HANGERS

(TYPICAL APPLICATION - PLY OF INCOMING TRUSSES MAY VARY.)

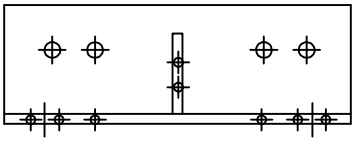


PLAN VIEW

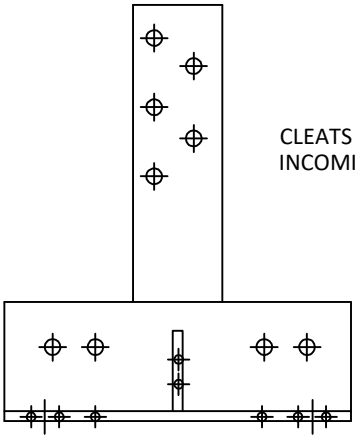


12.2KN CLEAT

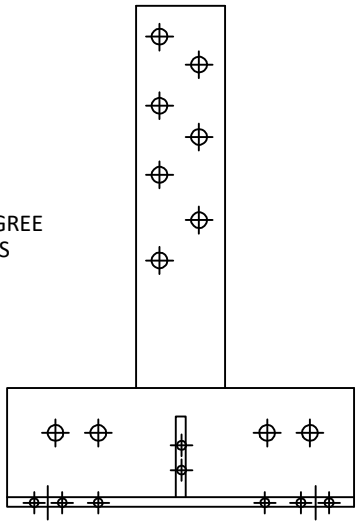
CLEATS FOR 90 DEGREE
INCOMING TRUSSES



(6.8KN CLEAT)

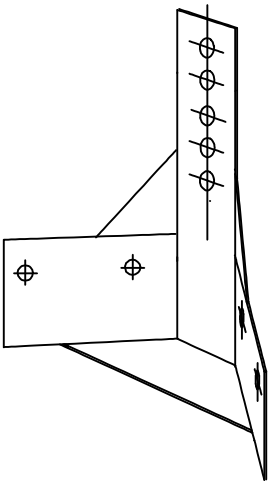


(20.3KN CLEAT)

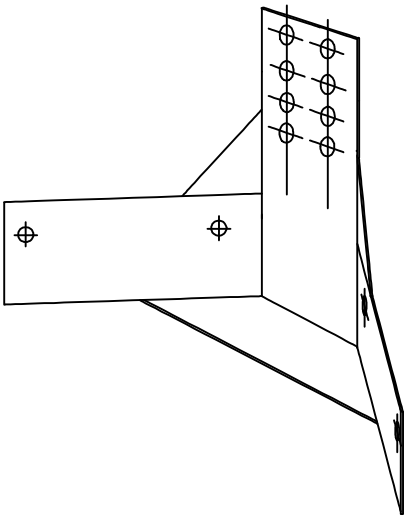


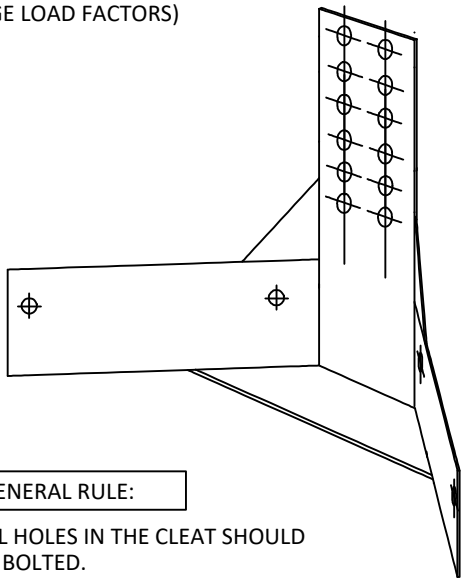
(25.7KN CLEAT)

ALLOWABLE STRESS VALUES
FOR LIMIT STATES MULTIPLY BY 1.5 (AVERAGE LOAD FACTORS)



CLEATS FOR 45 DEGREE
INCOMING HIP GIRDERS

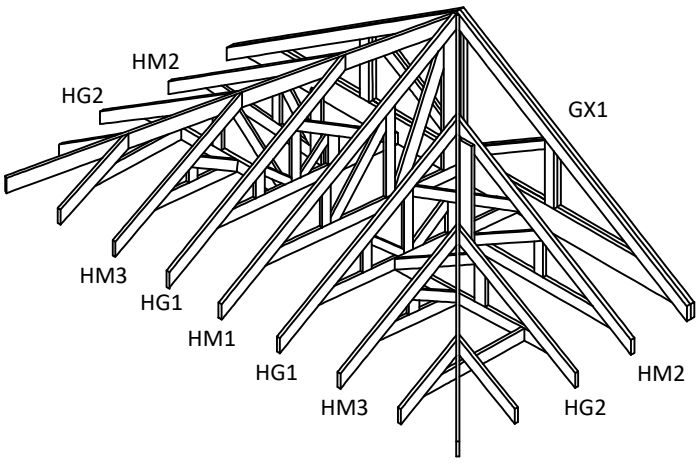




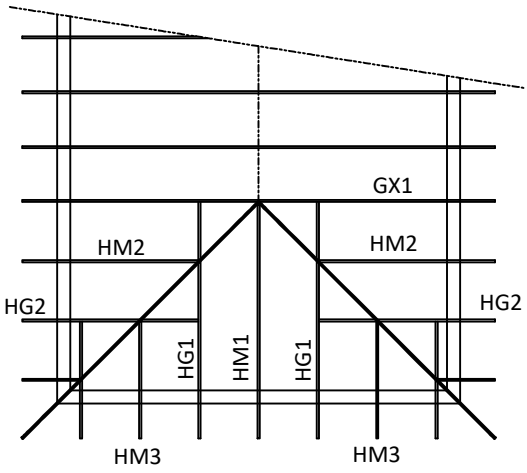
GENERAL RULE:

ALL HOLES IN THE CLEAT SHOULD
BE BOLTED.

VERTICAL FLANGES MUST BE BOLTED TO VERTICAL WEBS ADHERING TO MANUFACTURER'S SPECIFICATIONS
VARIOUS MILD STEEL CLEATS (TYPICAL VALUES CHECK WITH MANUFACTURER)



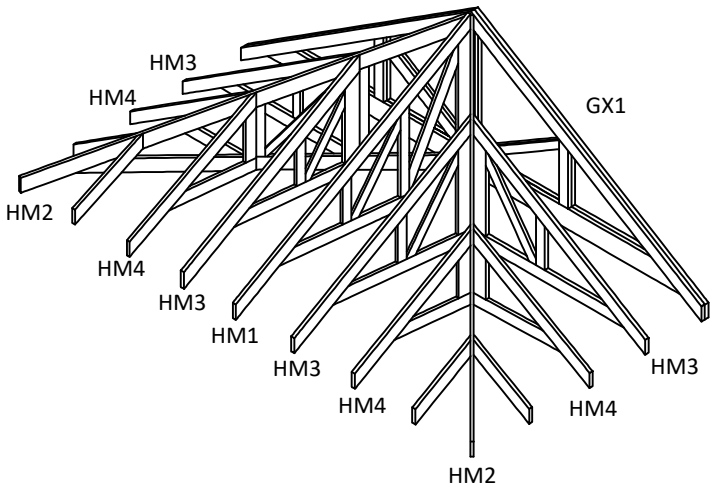
ISOMETRIC VIEW



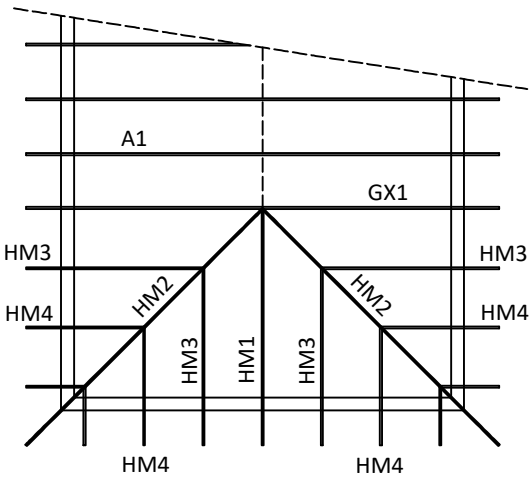
PLAN VIEW

TRUSS MARKS WILL VARY FROM SYSTEM TO SYSTEM

90 DEGREE INFILL HIP



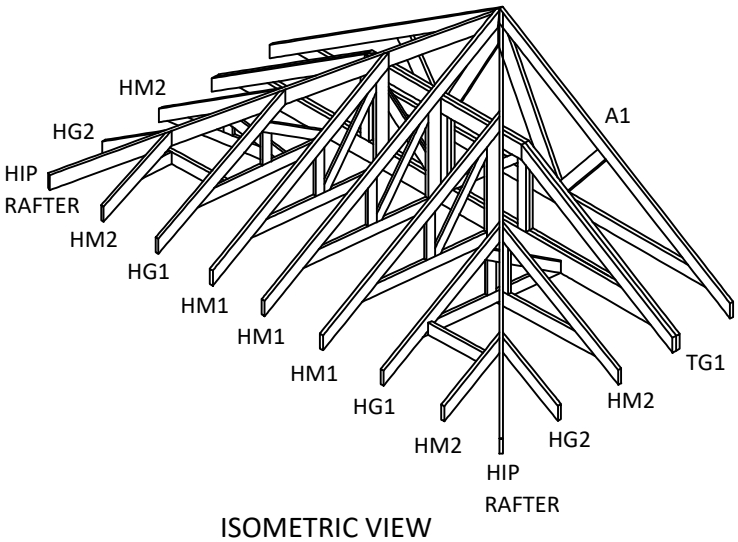
ISOMETRIC VIEW



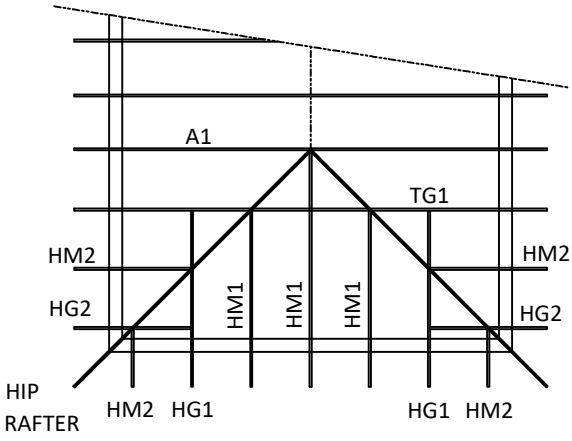
PLAN VIEW

TRUSS MARKS WILL VARY FROM SYSTEM TO SYSTEM

45 DEGREE INFILL HIP



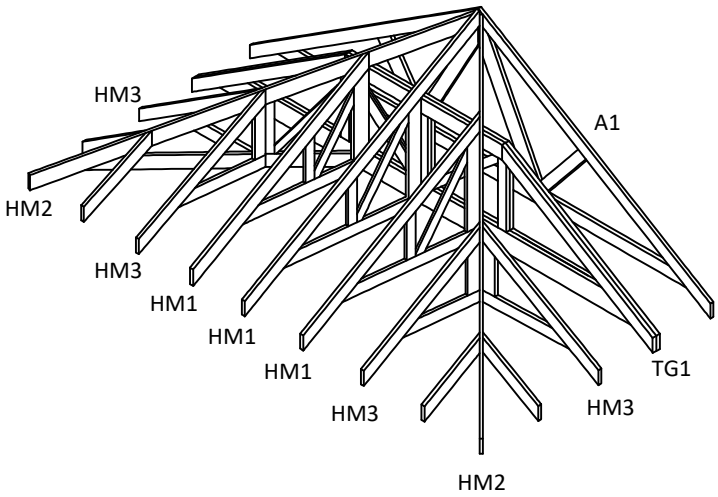
ISOMETRIC VIEW



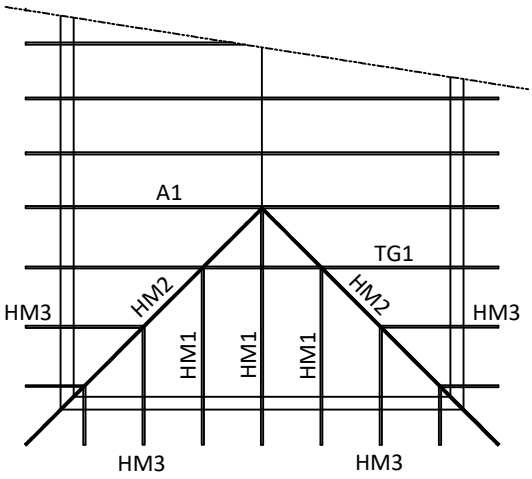
PLAN VIEW

TRUSS MARKS WILL VARY FROM SYSTEM TO SYSTEM

90 DEGREE INFILL TRUNCATED HIP



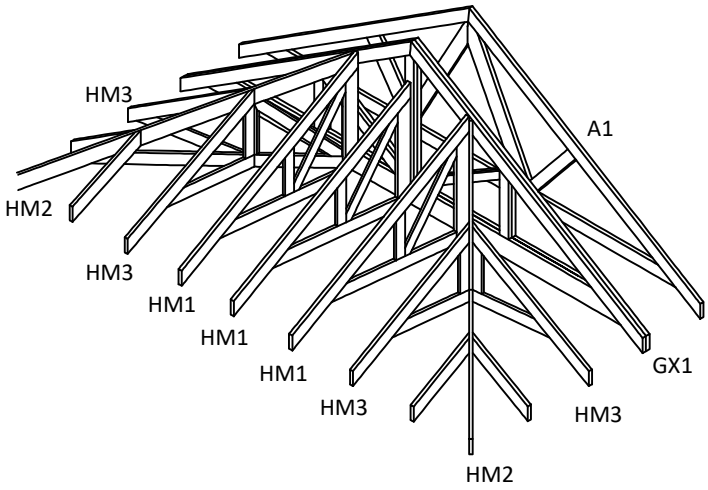
ISOMETRIC VIEW



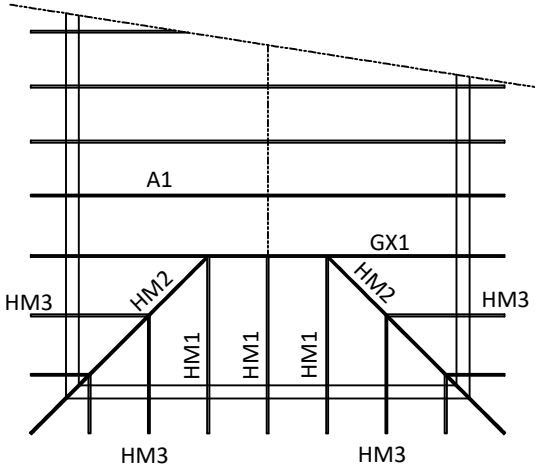
PLAN VIEW

TRUSS MARKS WILL VARY FROM SYSTEM TO SYSTEM

45 DEGREE INFILL TRUNCATED HIP



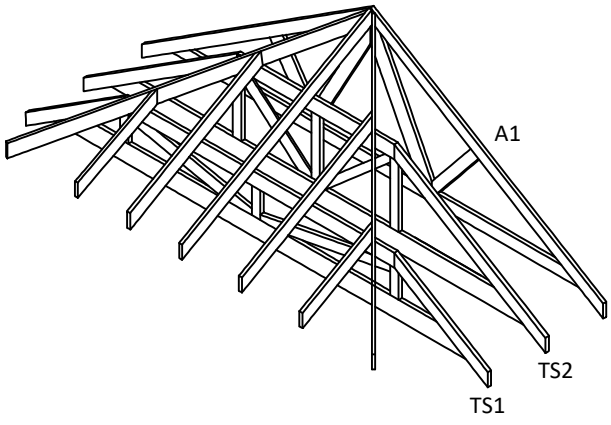
ISOMETRIC VIEW



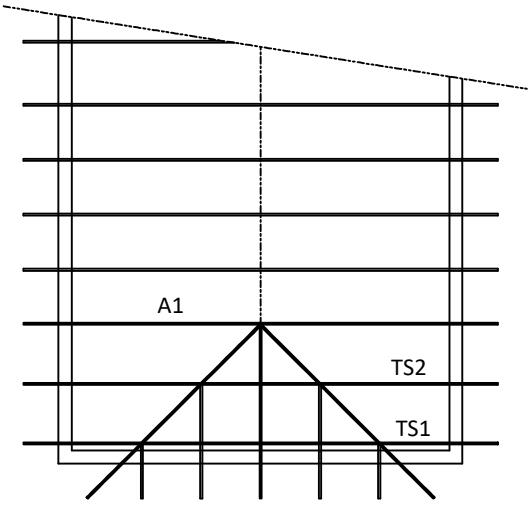
PLAN VIEW

TRUSS MARKS WILL VARY FROM SYSTEM TO SYSTEM

DUTCH OR LOUVRE HIP



ISOMETRIC VIEW

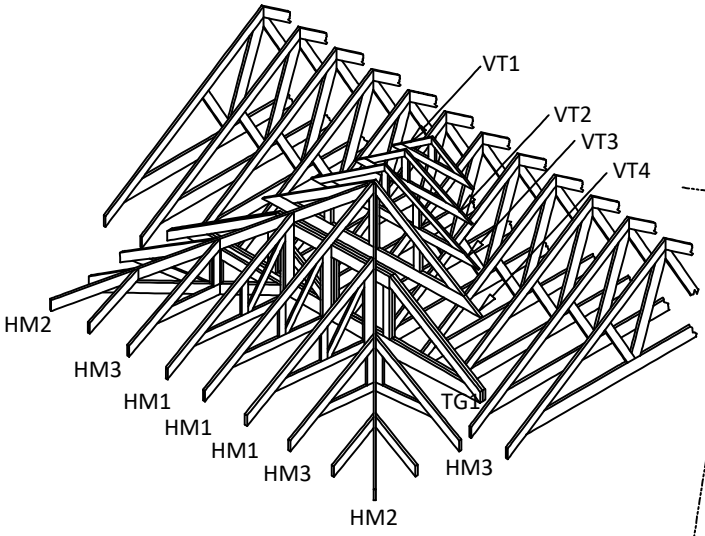


PLAN VIEW

TRUSS MARKS WILL VARY FROM SYSTEM TO SYSTEM

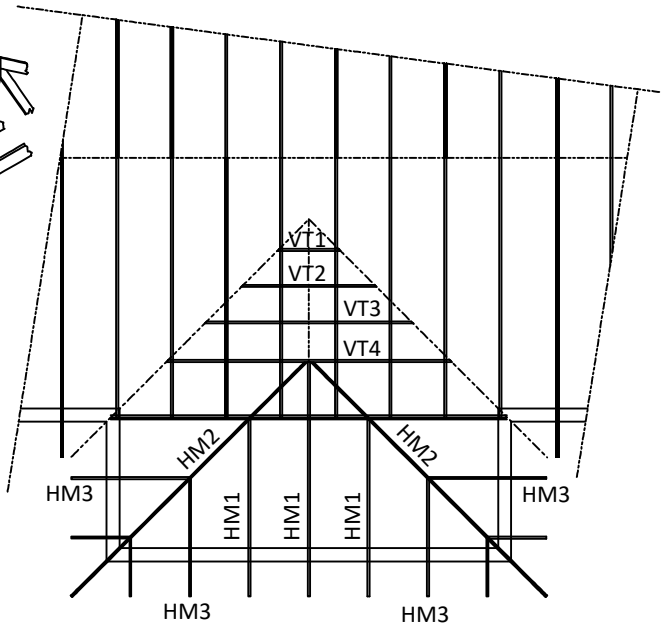
PART GABLE HIP

TRUSS MARKS WILL VARY
FROM SYSTEM TO SYSTEM



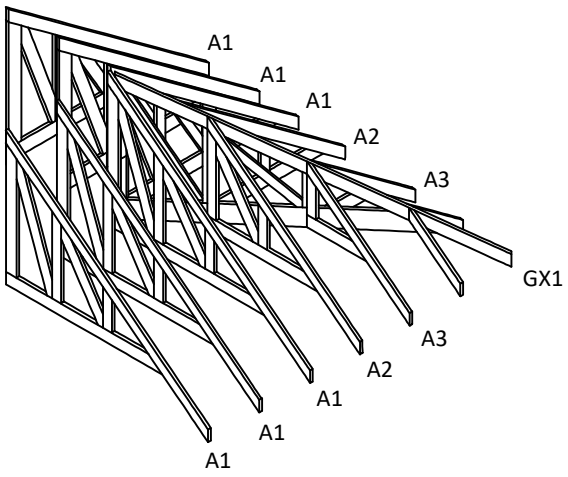
ISOMETRIC VIEW

PLAN VIEW

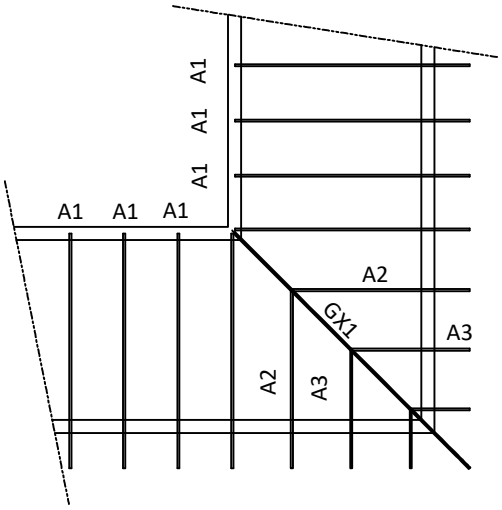


VALLEY BRACING NOT SHOWN FOR CLARITY
SEE DETAILS VALLEY 1/2/3 - PAGE 24/25/26

HIP AND VALLEY COMBINATION



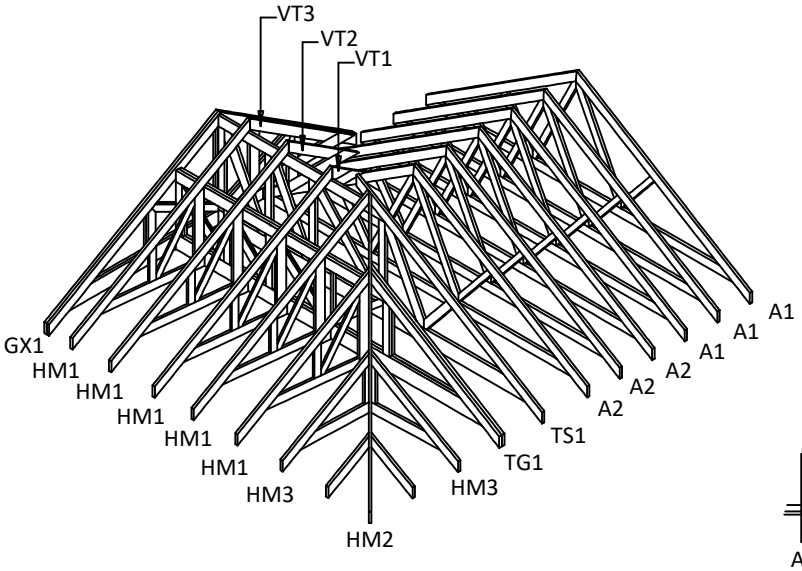
ISOMETRIC VIEW



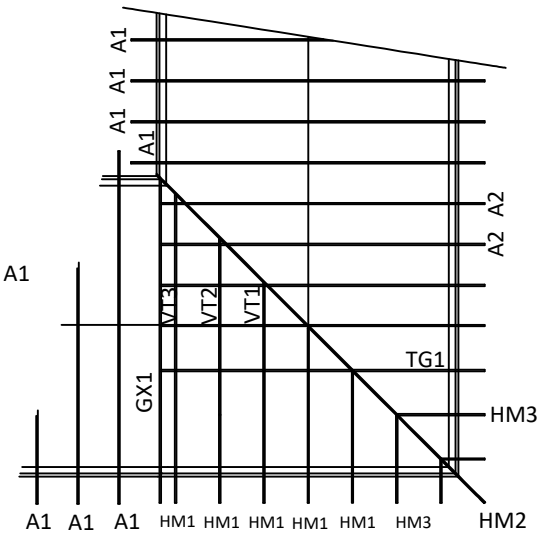
PLAN VIEW

TRUSS MARKS WILL VARY
FROM SYSTEM TO SYSTEM

45 DEGREE INFILL MONO-PITCH HIP



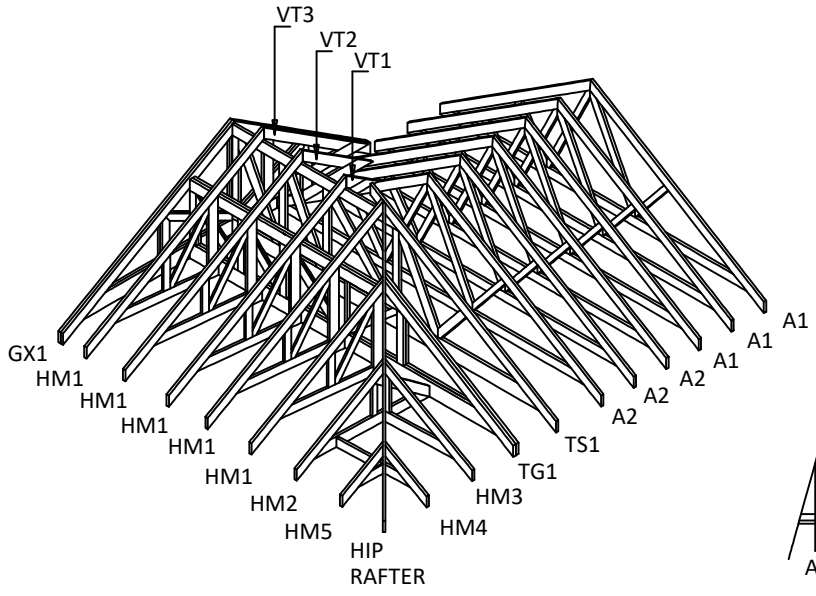
ISOMETRIC VIEW



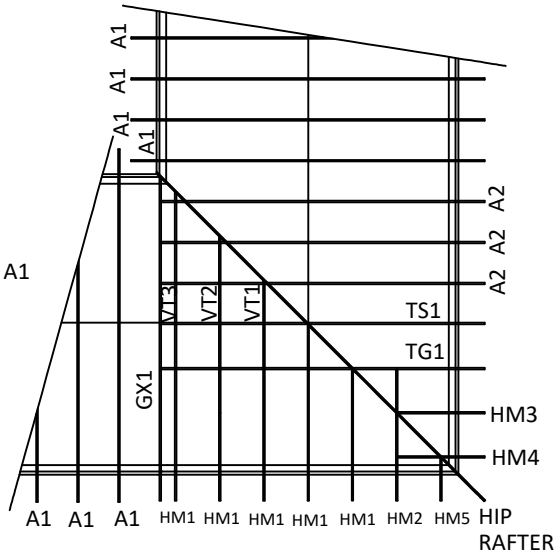
PLAN VIEW

45 DEGREE INFILL TRUNCATED CORNER HIP

TRUSS MARKS WILL VARY FROM SYSTEM TO SYSTEM



ISOMETRIC VIEW

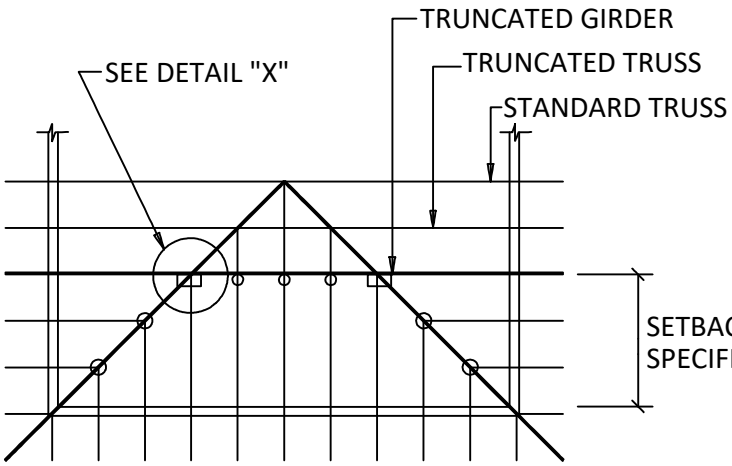


PLAN VIEW

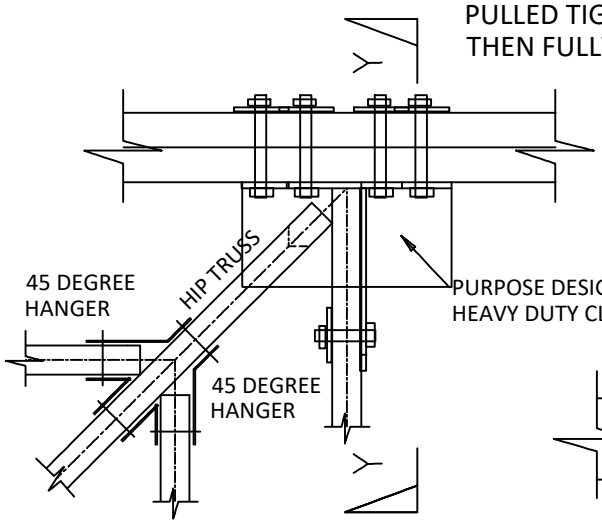
90 DEGREE INFILL TRUNCATED CORNER HIP

TRUSS MARKS WILL VARY FROM SYSTEM TO SYSTEM

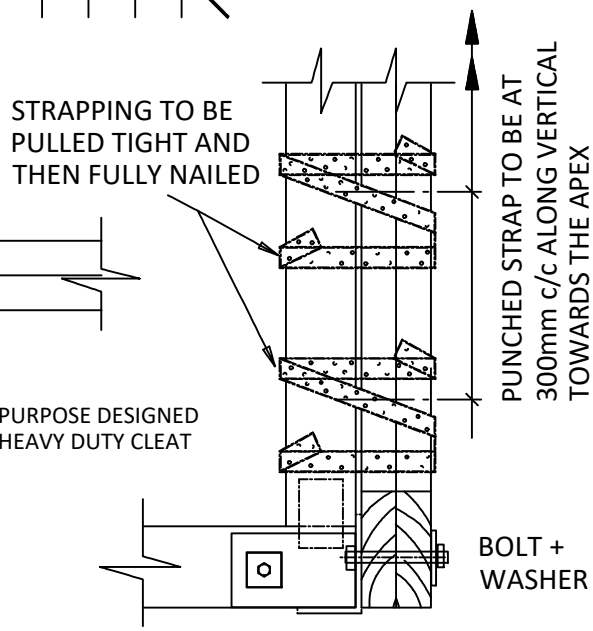
NB:
THE REQUIRED HANGER OR CLEAT TYPE FOR EACH CONNECTION MUST ALWAYS BE SHOWN ON THE ROOF PLAN



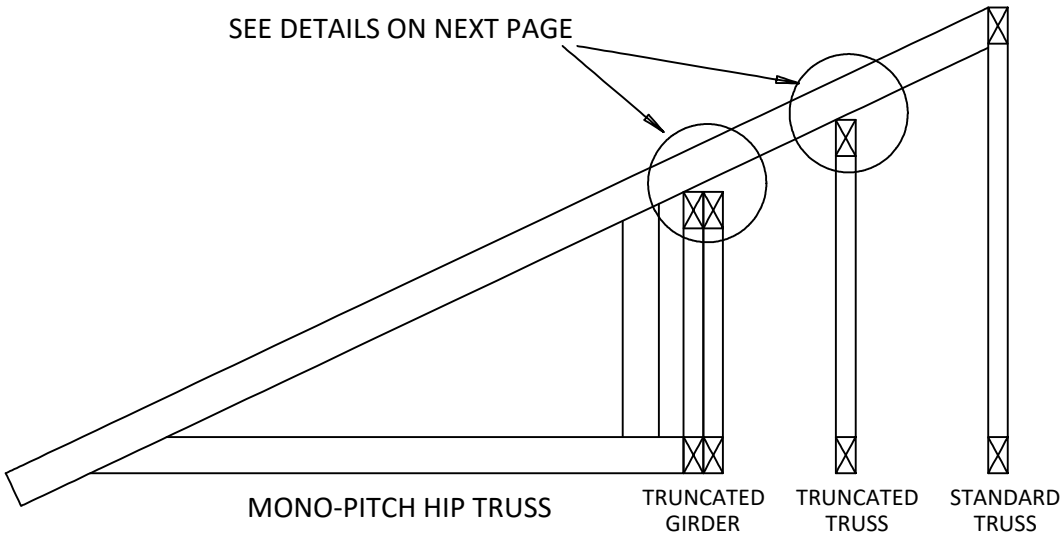
ROOF PLAN



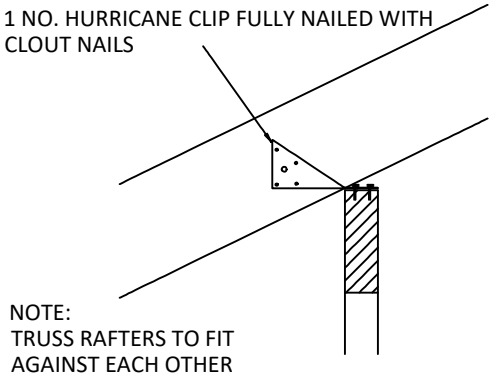
DETAIL X



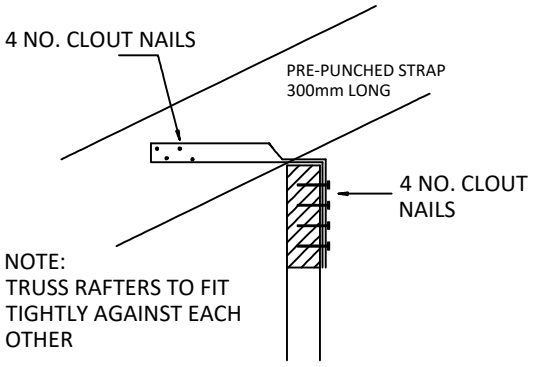
SECTION Y-Y



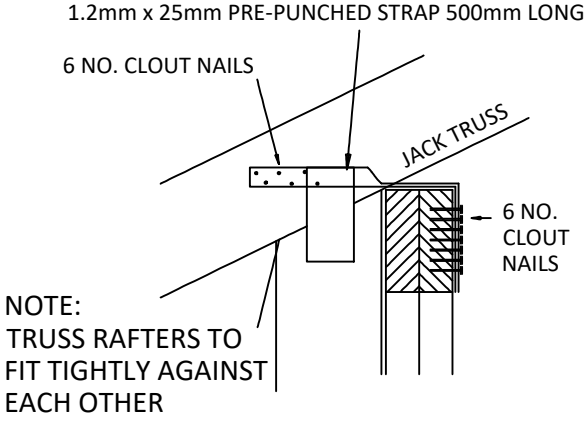
TRUNCATED HIP CONNECTION DETAILS (ALSO APPLIED TO OTHER HIP TYPES)



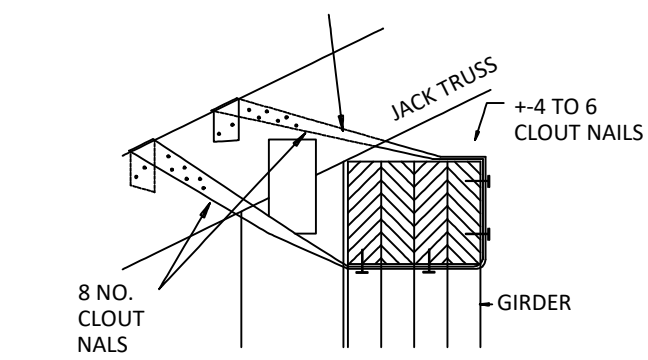
HURRICANE CLIP CONNECTION OF FLY RAFTER & TRUNCATED TRUSS



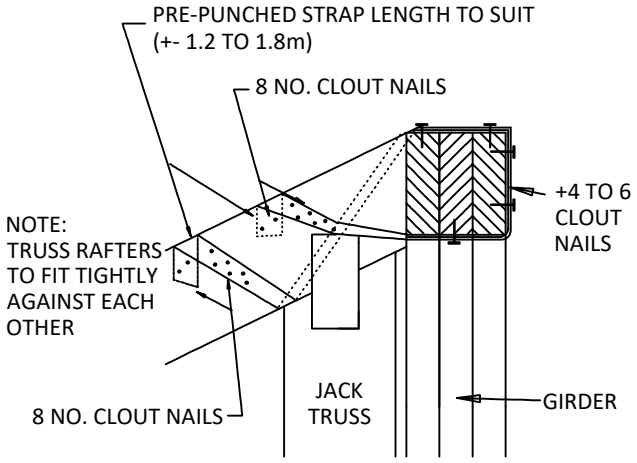
PRE-PINCHED STRAP CONNECTION OF FLY RAFTER& TRUNCATED TRUSS OR SINGLE PLY GIRDERS



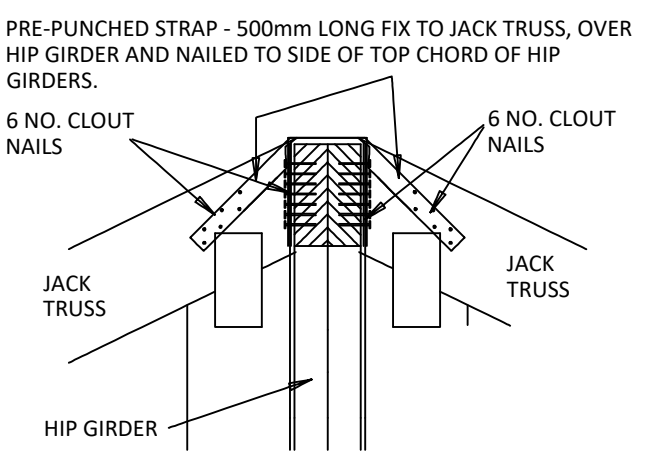
PRE-PUNCHED STRAP CONNECTION OF FLY RAFTER & TRUNCATED 2 PLY GIRDERS



PRE-PUNCHED STRAP CONNECTION OF FLY RAFTER & TRUNCATED THREE & FOUR PLY GIRDERS



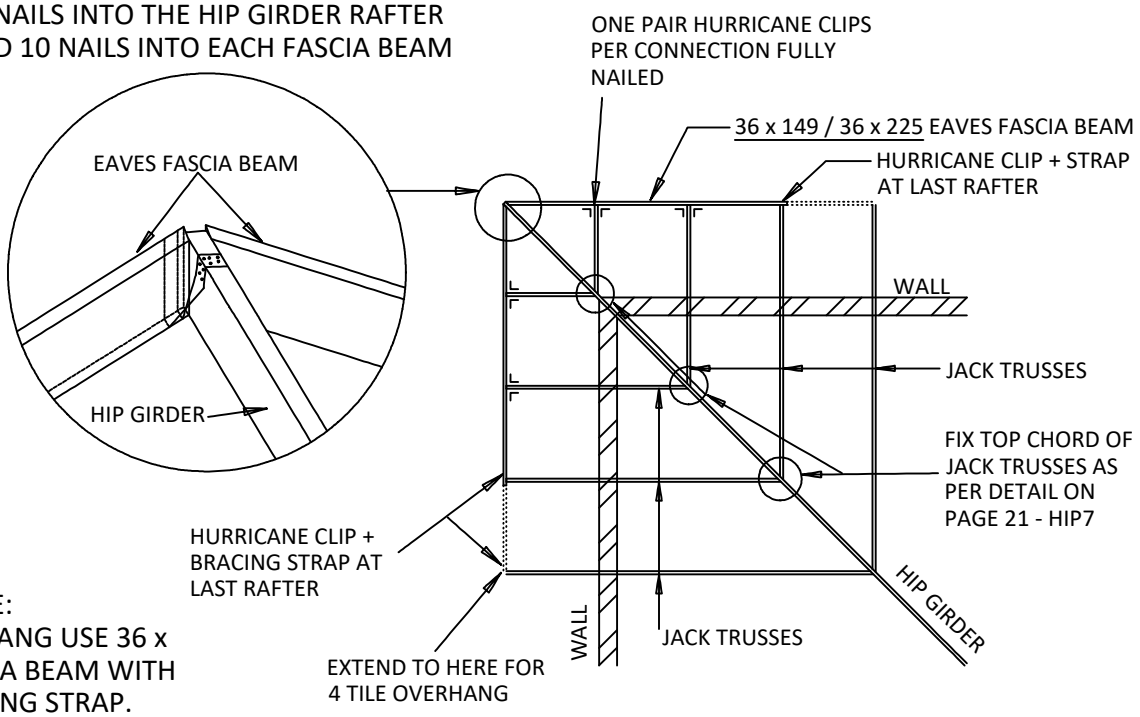
PRE-PUNCHED STRAP CONNECTION OF BUTT RAFTER AND TRUNCATED THREE AND FOUR PLY GIRDERS. (TOP CHORDS AT THE SAME LEVEL)



PRE-PUNCHED STRAP CONNECTION OF JACK TOP CHORD & HIP GIRDERS WHERE HORIZONTAL HOLDING IS NEEDED (CANTILEVER HIP ENDS)

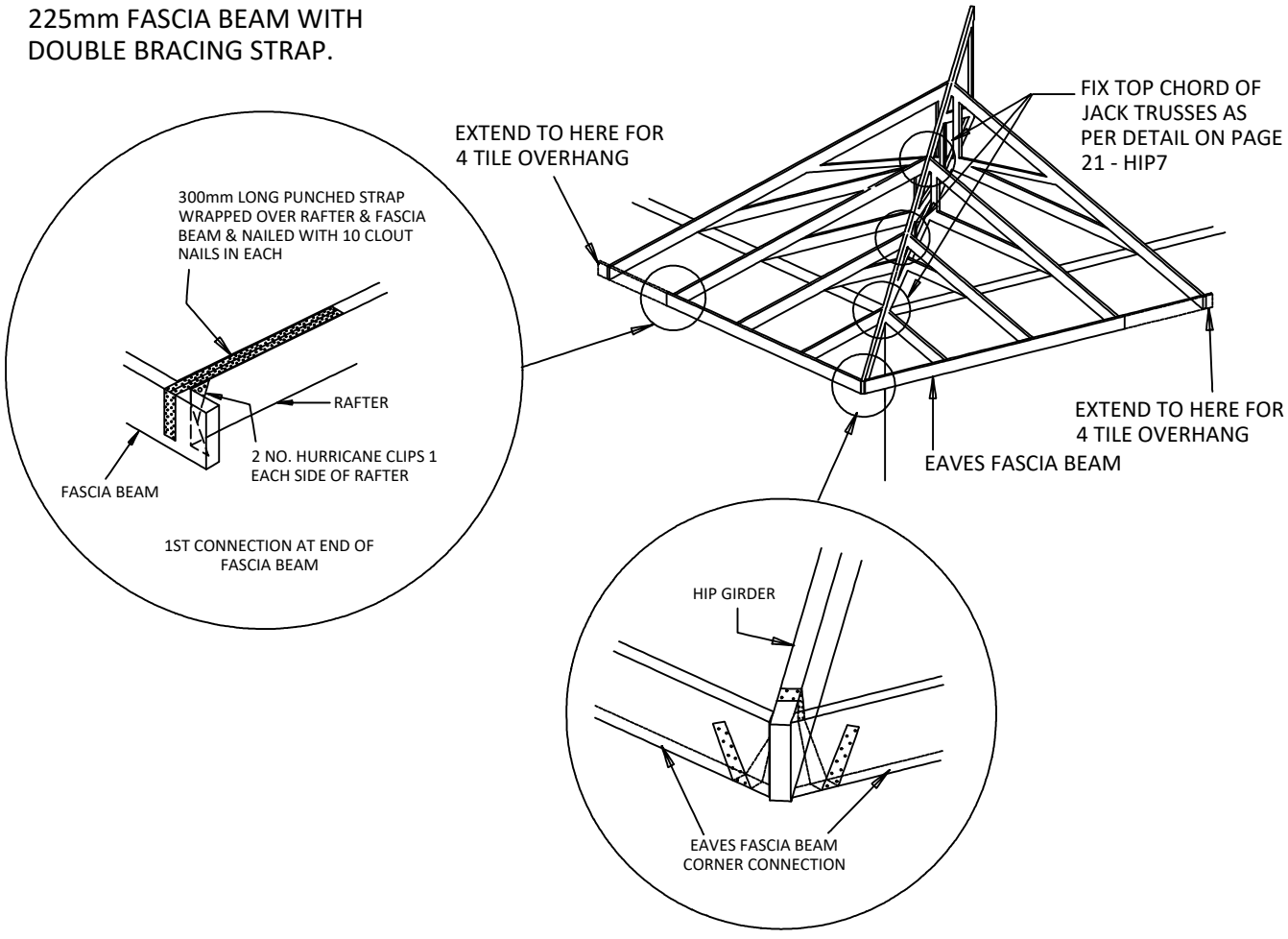
TOP CHORD CONNECTION DETAILS FOR VARIOUS SITUATIONS

USE PUNCHED STRAP AS SHOWN USING
10 NAILS INTO THE HIP GIRDER RAFTER
AND 10 NAILS INTO EACH FASCIA BEAM

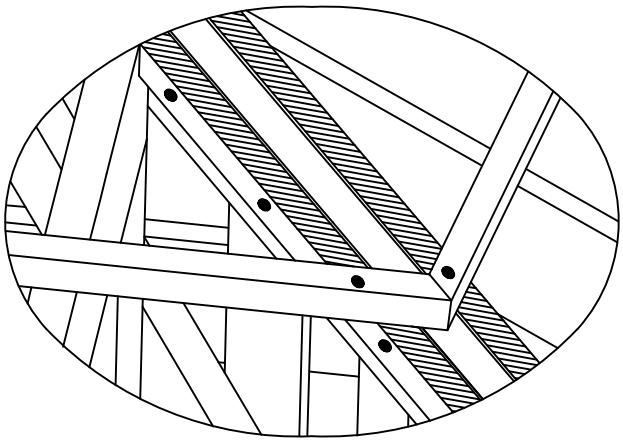


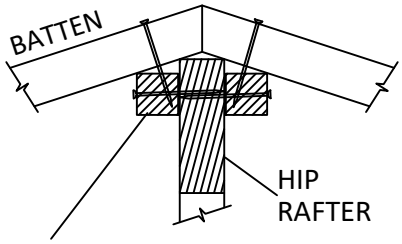
SPECIAL NOTE:
3 TILE OVERHANG USE 36 x 149mm FASCIA BEAM WITH SINGLE BRACING STRAP.

4 TILE OVERHANG USE 36 x 225mm FASCIA BEAM WITH DOUBLE BRACING STRAP.



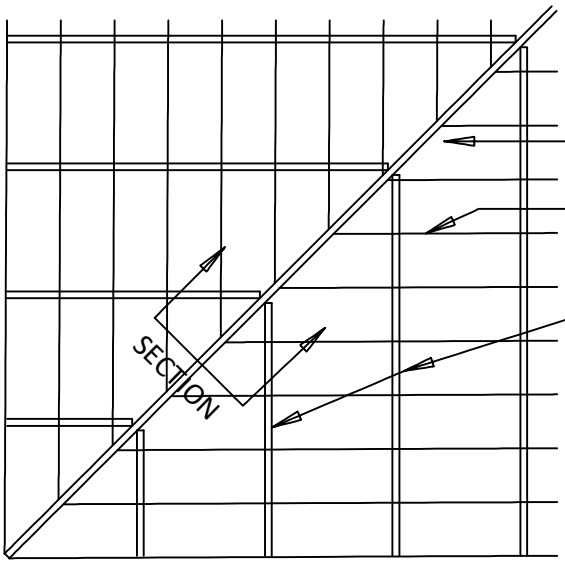
FASCIA BEAM DETAIL TO SUPPORT OVERHANG RAFTERS WHEN OVERHANG EXCEEDS TRUSS SPACING

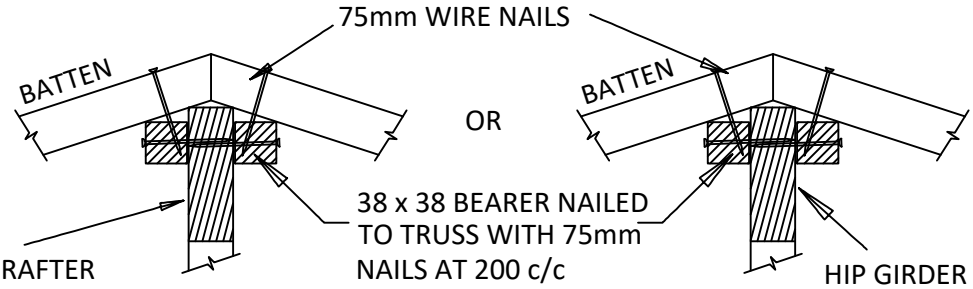




WHEN SPECIFIED OR WHEN BATTEN ENDS SPLIT, 38 x 38 BEARERS NAILED TO SIDE OF HIP RAFTER AT 200mm c/c FOR BATTEN FIXING.

SECTION THROUGH HIP TRUSS RAFTER.



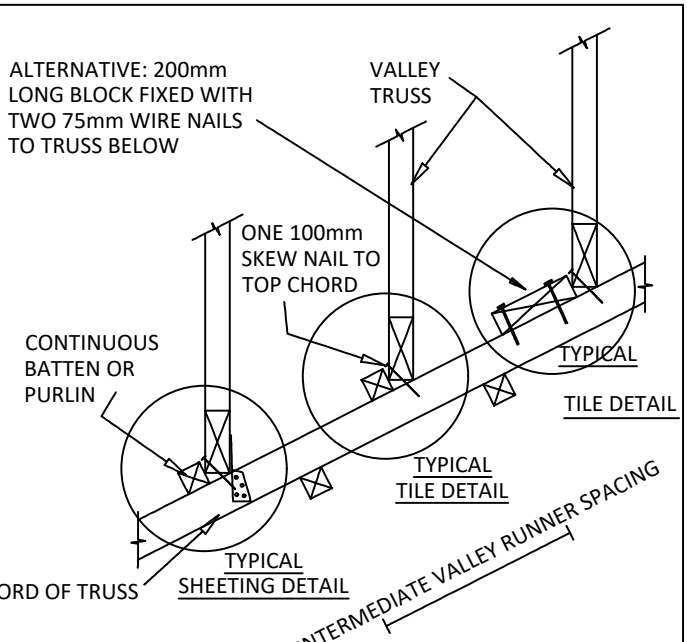


SECTION ON HIP TRUSS

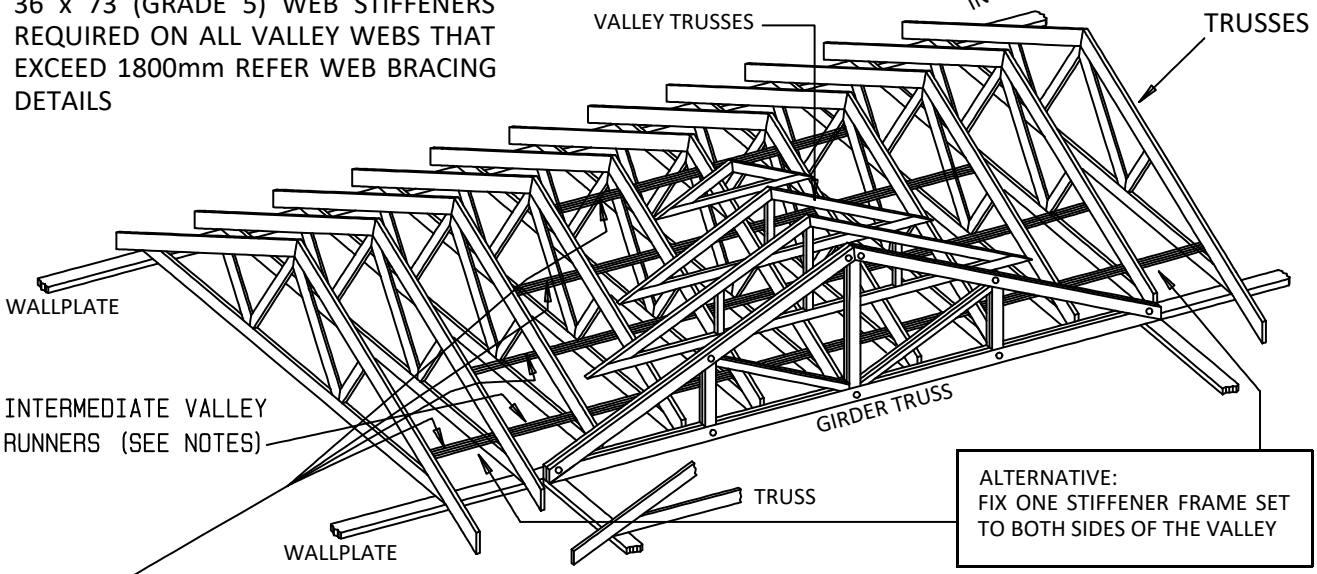
CONNECTION OF BATTEN OR PURLIN TO SINGLE PLY HIP GIRDERS OR RAFTERS

TILED ROOFS UP TO 9.0 METER SPAN CONCRETE, ASBESTOS, METAL, CLAY OR SLATE FIX 38 x 38 RUNNERS BETWEEN VALLEY TRUSSES TO UNDERSIDE OF RAFTER WITH 2 No. 3.5mm DIA. x 75mm NAIL AT EACH CONNECTION , TO EXTEND UP TO AT LEAST ONE FULL TRUSS SPACING PAST VALLEY LINE. (2nd FULL TRUSS PAST VALLEY LINE)

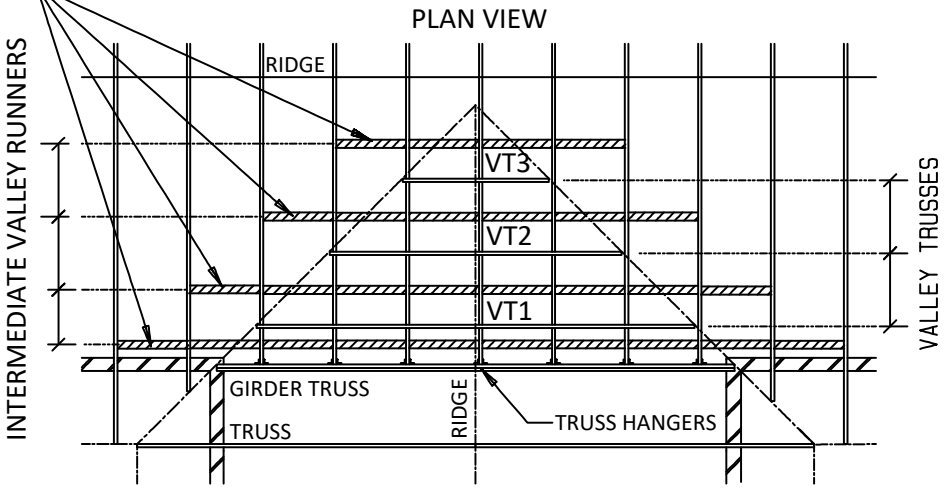
SHEETED ROOFS
WHEN VALLEY TRUSS c/c IS GREATER THAN PURLIN CENTERS INSTALL 36 x 73 (GRADE 5) RUNNERS AS PER TILED ROOFS. FIX VALLEY TRUSSES TO RAFTERS WITH 2 NO. HURRICANE CLIP AT EACH CONNECTION FULLY NAILED WITH 32mm CLOUT NAILS



N.B.
36 x 73 (GRADE 5) WEB STIFFENERS REQUIRED ON ALL VALLEY WEBS THAT EXCEED 1800mm REFER WEB BRACING DETAILS

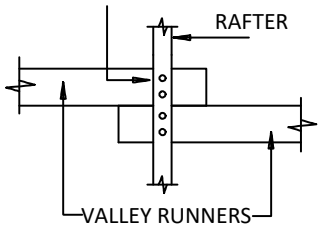


NB PHYSICAL ACCESS THROUGH VALLEY AREA IS DIFFICULT. ACCESS CAN BE MADE EASIER IF THE VALLEY RUNNERS ARE PLACED UNDERNEATH THE VALLEY TRUSSES



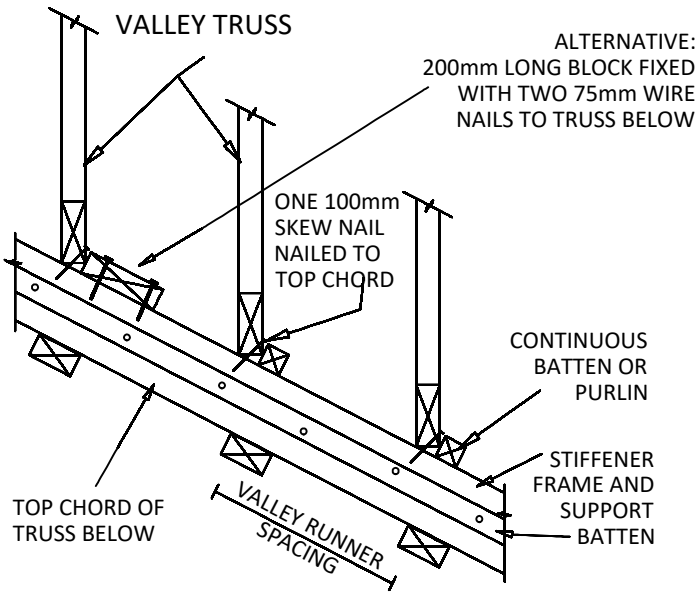
1 NO. 3.5 DIA. 75mm NAILS PER 38 x 38mm RUNNER

2 NO. 3.5 DIA. 75mm NAILS PER 38 x 76mm RUNNER



VALLEY RUNNER SPLICE

INTERMEDIATE VALLEY RUNNERS FOR TILES AND SHEETING

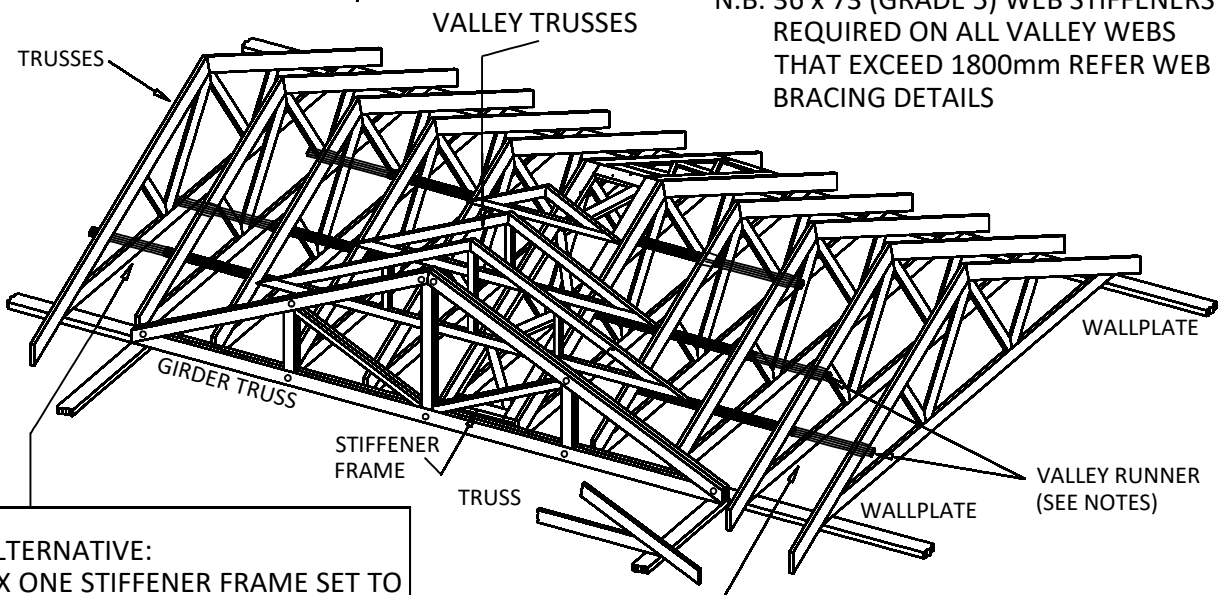


TILED ROOFS OVER 9.0m SPAN
WHEN THE STIFFENER FRAME LIES WITHIN THE VALLEY LINES, 36 x 73 RUNNERS MUST BE FIXED UNDERNEATH THE VALLEY TRUSSES TO THE UNDERSIDE OF RAFTER WITH 2 No. 3.5mm DIA. x 75mm NAILS AT EACH CONNECTION.

THE RUNNERS MUST EXTEND AT LEAST TWO FULL TRUSS SPACINGS PAST THE VALLEY LINE.

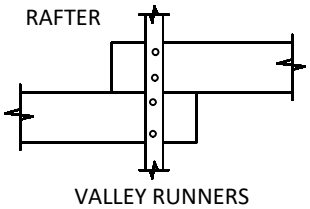
RUNNERS ARE PLACED UNDER THE VALLEY TRUSSES TO MAKE IT POSSIBLE TO GAIN ACCESS TO THE ROOF SPACE BEYOND THE VALLEY AND GIRDER.

N.B. 36 x 73 (GRADE 5) WEB STIFFENERS REQUIRED ON ALL VALLEY WEBS THAT EXCEED 1800mm REFER WEB BRACING DETAILS

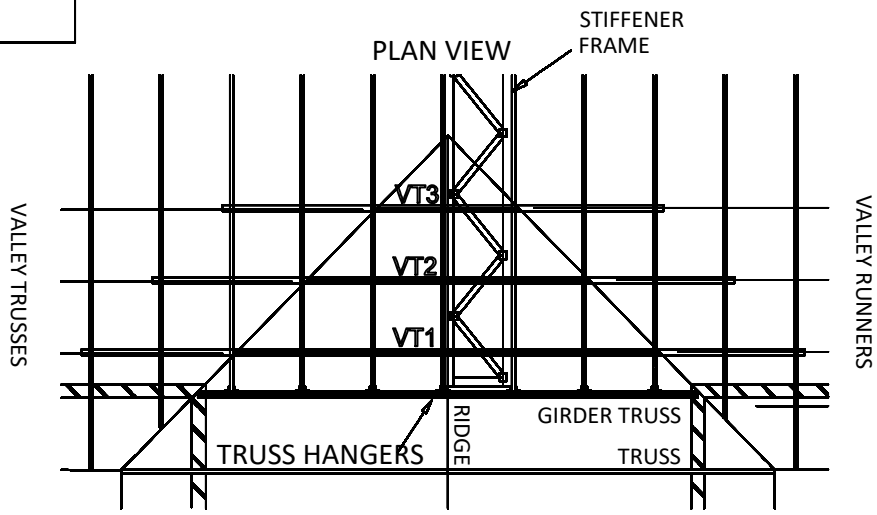


ALTERNATIVE:
FIX ONE STIFFENER FRAME SET TO BOTH SIDES OF THE VALLEY

2 NO. 3.5 DIA. x 75mm NAILS PER 36 x 73 RUNNER

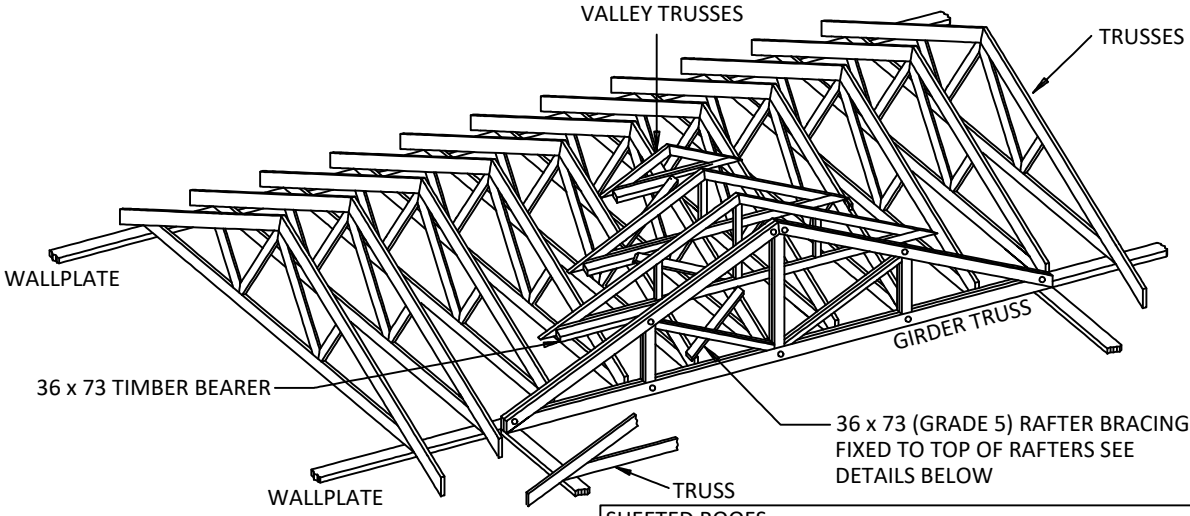


VALLEY RUNNER SPLICE



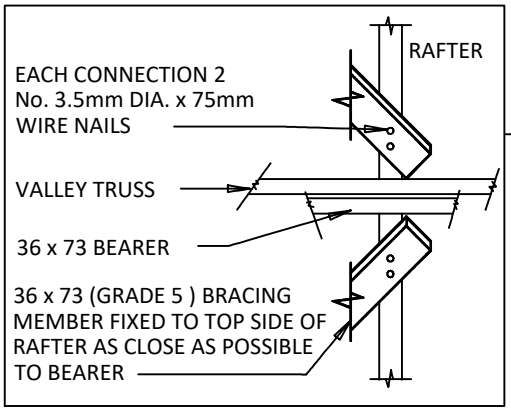
VALLEY RUNNERS FOR TILED ROOFS OVER 9.0m SPAN WHERE THE STIFFENER FRAME IS WITHIN THE VALLEY LINES

VALLEY3 DETAIL REF.:

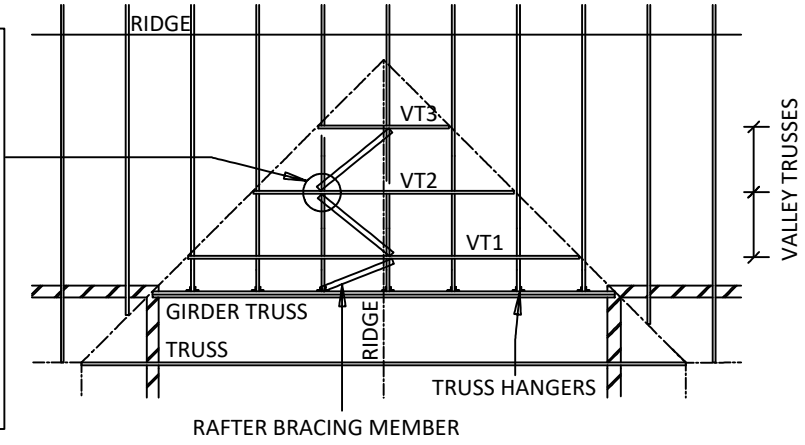


TILED ROOFS
FOR HEAVY TILED ROOFS WHERE WIND UPLIFT WILL NOT OCCUR, THE HURRICANE CLIP CONNECTION OF THE VALLEY TRUSS IS NOT REQUIRED.

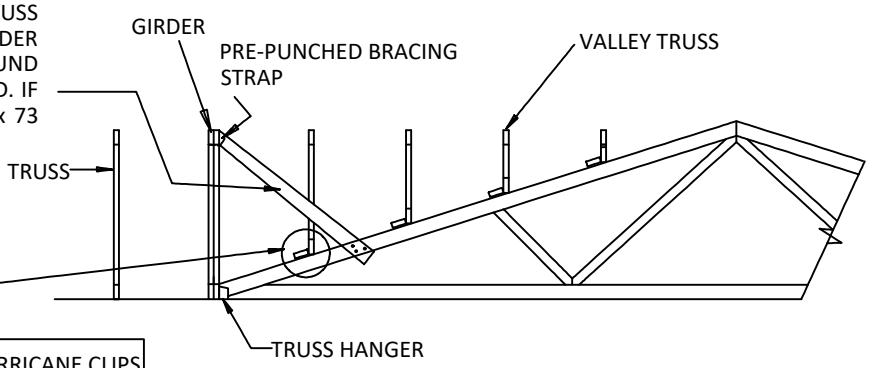
SHEETED ROOFS
WHEN VALLEY TRUSS c/c IS GREATER THAN PURLIN CENTRES INSTALL ADDITIONAL 36 x 73 (GRADE 5) RUNNERS MIDWAY BETWEEN VALLEY TRUSSES AND PROVIDE ADDITIONAL BRACING MEMBER ACCORDINGLY.
2 No. HURRICANE CLIPS AT EACH CONNECTION FULLY NAILED WITH 32mm CLOUT NAILS.

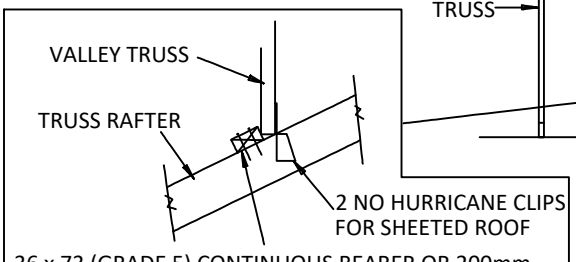


PLAN VIEW



36 x 111 (GRADE 5) GIRDER RAFTER BARCE REQUIRED WHERE NO RAFTER BRACING IS INSTALLED FOR GIRDER. FIX TO EACH TRUSS WITH 3 NO. 76mm NAILS AND FIX TO GIRDER WITH PRE-PUNCHED STRAP WRAPPED ROUND AND FIXED WITH 3 CLOUT NAILS EACH END. IF BRACE IS LONGER THAN 1800mm FIX 36 x 73 (GRADE 5) T-BRACE.

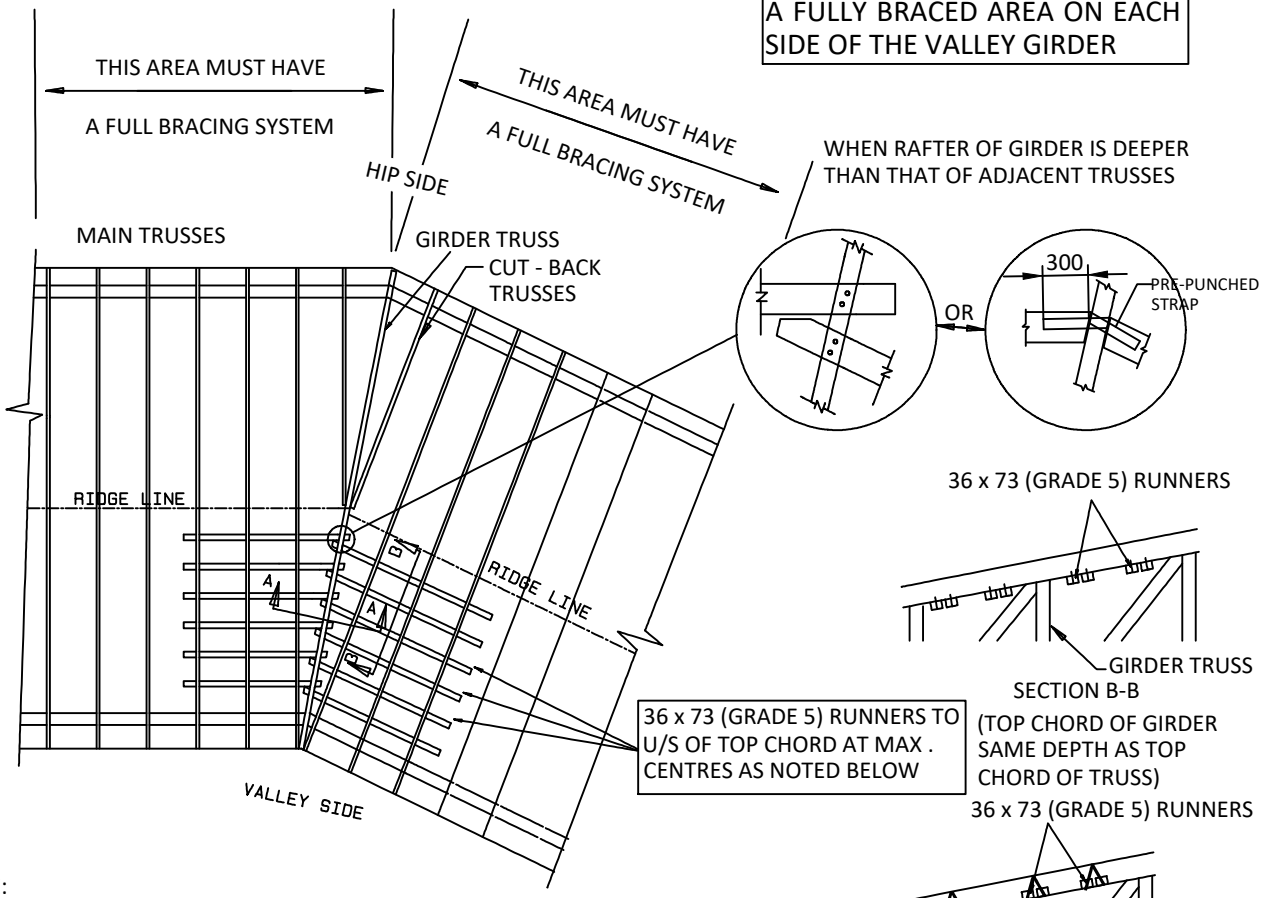




36 x 73 (GRADE 5) CONTINUOUS BEARER OR 200mm BLOCKS FIXED WITH 2 No. 76mm NAILS TO RAFTER. VALLEY TRUSS SKEW NAILED TO TRUSS AT EACH TRUSS CONNECTION

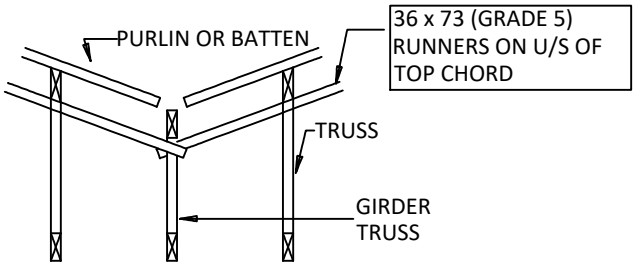
TOP CHORD BRACING OF TRUSSES UNDER VALLEY

THIS DETAIL MUST BE LINKED TO A FULLY BRACED AREA ON EACH SIDE OF THE VALLEY GIRDER

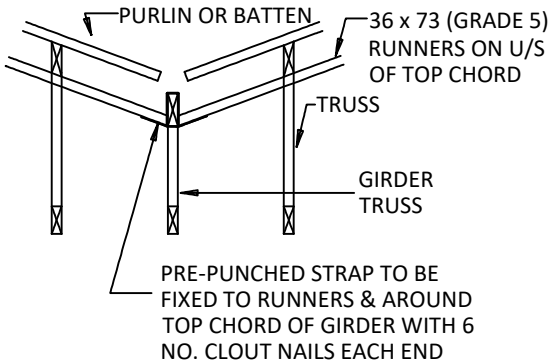


NOTE:
RUNNER FIXED TO UNDERSIDE OF RAFTERS WITH 2 No, 75mm WIRE NAILS OR PUNCHED STRAP AND TO EXTEND OVER A MIN. OF 3 No. TRUSSES, AS SHOWN

RUNNER CENTRES
LIGHT ROOF COVERING = 1200 MAX.
HEAVY ROOF COVERING = 600 MAX.

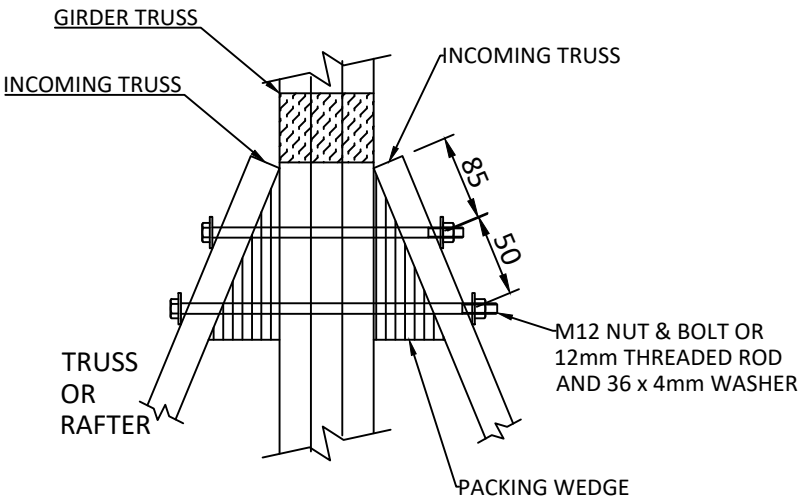


SECTION A-A
(TOP CHORD OF GIRDER SAME DEPTH AS TOP CHORD OF TRUSS)

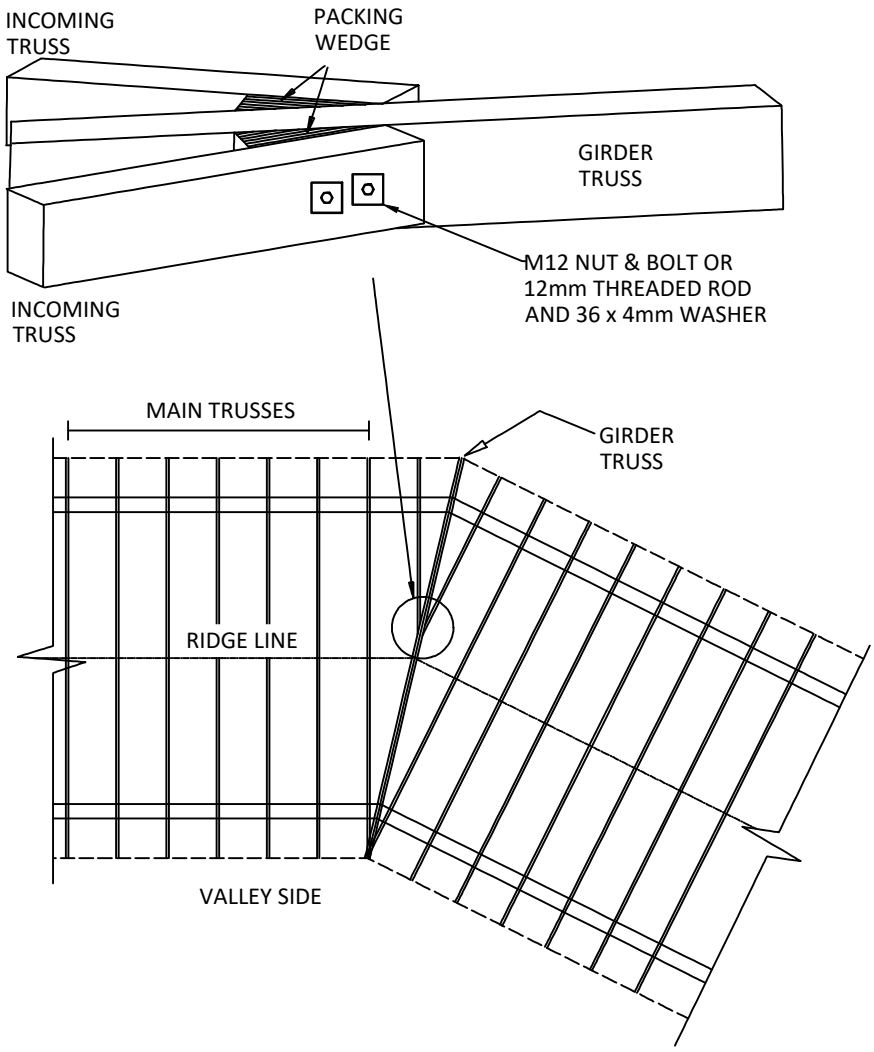


SECTION A-A
(TOP CHORD OF GIRDER DEEPER THAN TOP CHORD OF TRUSS)

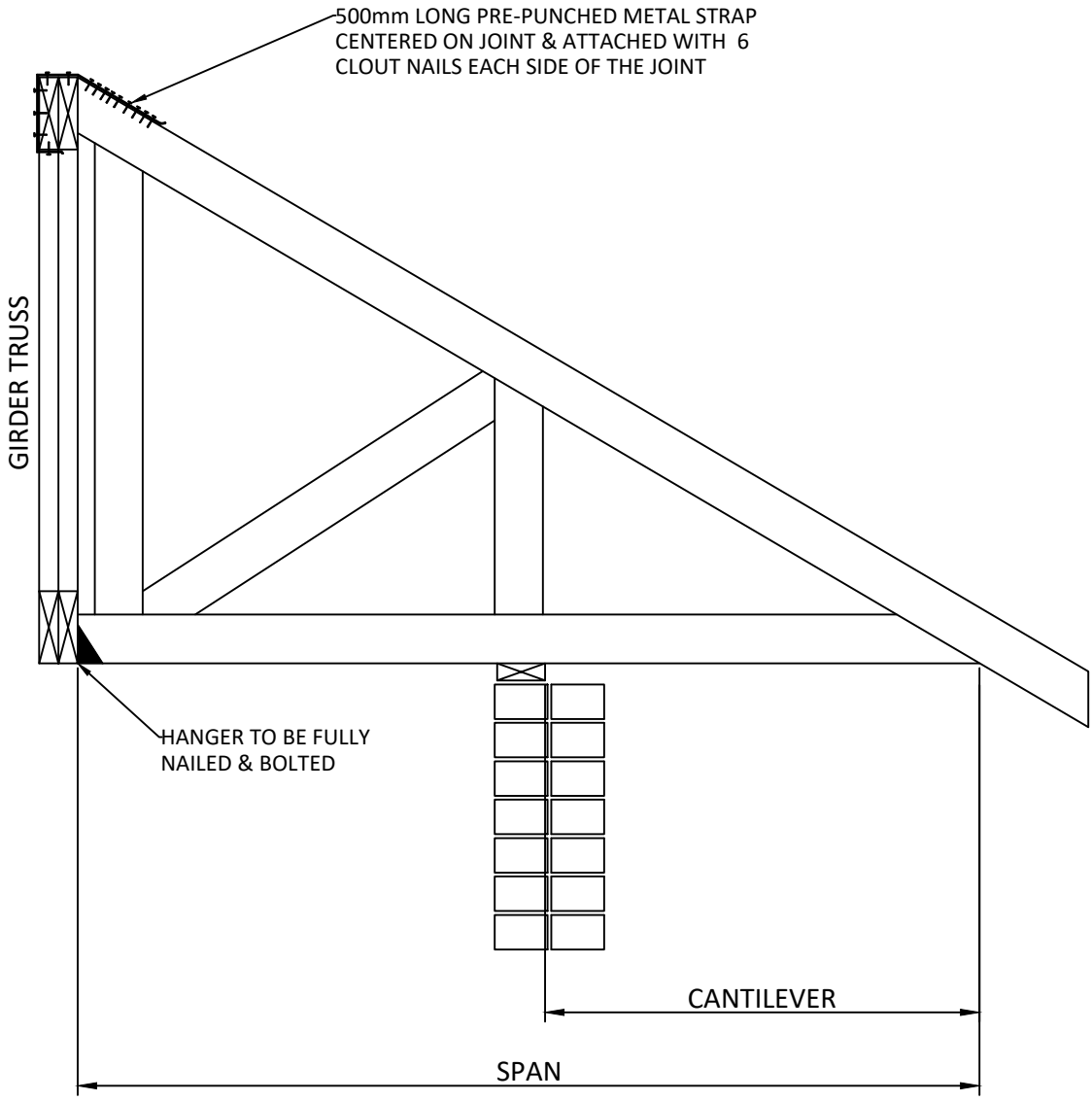
GIRDER TOP CHORD RESTRAINT FOR VALLEY SIDE OF CRANKED ROOF



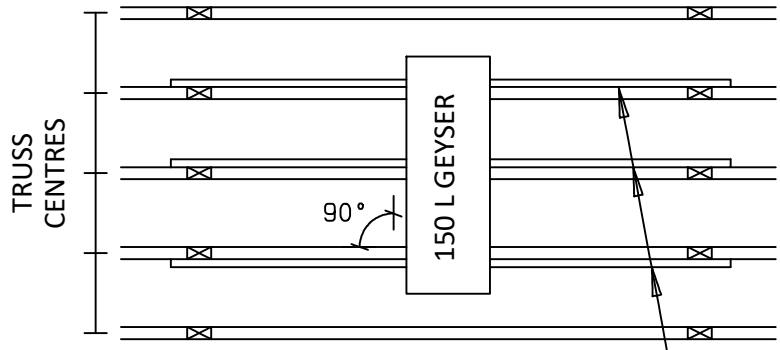
TRUSS CONNECTION AT LESS THAN 30 DEGREE INCOMING ONTO GIRDER



TYPICAL CONNECTION DETAIL FOR INCOMING TRUSSES TO HIP & VALLEY GIRDER OF CRANKED ROOFS REQUIRING RATIONAL DESIGN

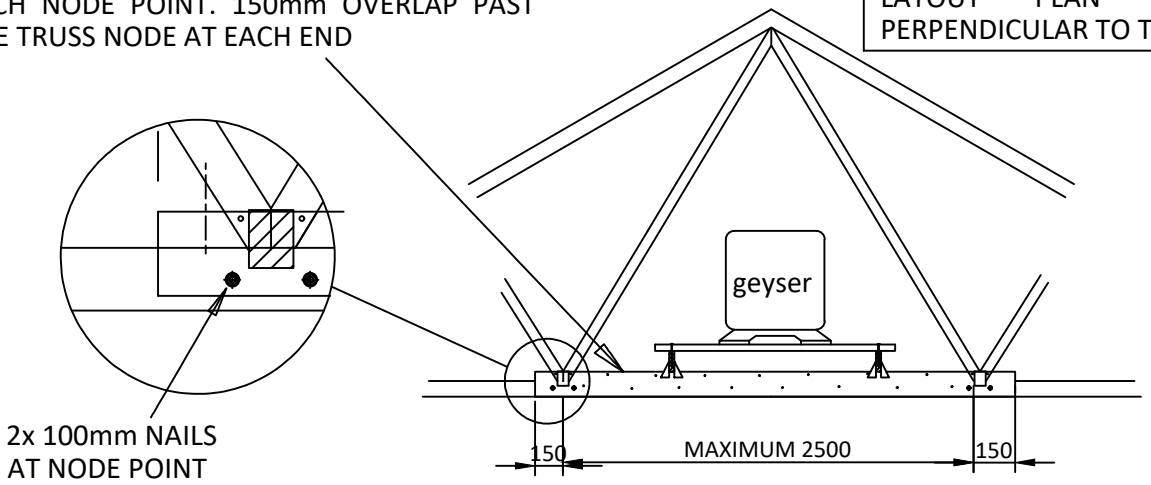


TRUSSES THAT CANTILEVER MORE THAN 0.3 x SPAN & LESS THAN 0.5 x SPAN.
N.B. CANTILEVERS GREATER THAN 0.5 x SPAN ARE TO BE REVIEWED BY AN ENGINEER

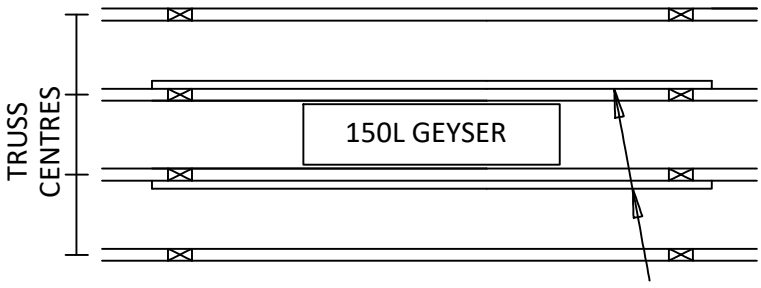


ONE ADDITIONAL BOTTOM CHORD OF AT LEAST 36mm DEEPER AND SAME GRADE TIMBER NAILED ON WITH 75mm WIRE NAILS AT 150mm STAGGERED CENTRES WITH A M12 AND LARGE WASHER OR 2x 100mm NAILS AT EACH NODE POINT. 150mm OVERLAP PAST THE TRUSS NODE AT EACH END

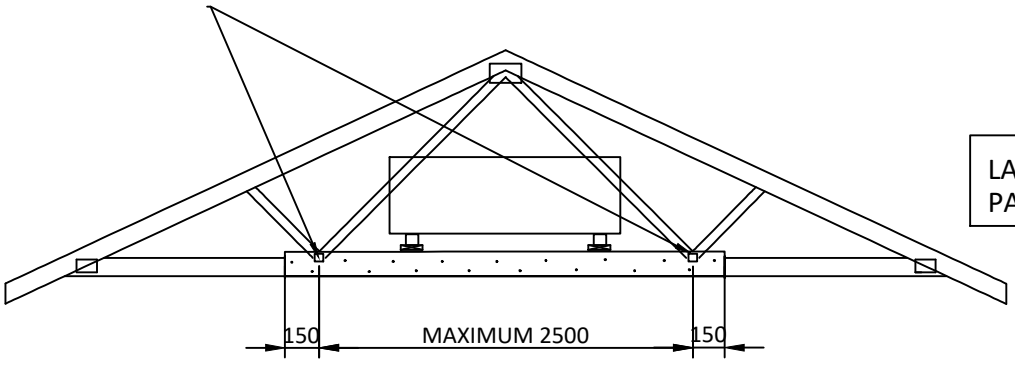
LAYOUT PLAN GEYSER PERPENDICULAR TO TRUSSES



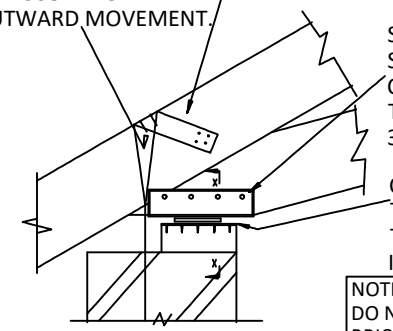
ONE ADDITIONAL BOTTOM CHORD OF AT LEAST 36mm DEEPER AND SAME GRADE TIMBER NAILED ON WITH 75mm WIRE NAILS AT 150mm STAGGERED CENTRES WITH A M12 AND LARGE WASHER OR 2x 100mm NAILS AT EACH NODE POINT. 150mm OVERLAP PAST THE TRUSS NODE AT EACH END



LAYOUT PLAN GEYSER PARALLEL TO TRUSSES



GEYSER SUPPORT DECK FOR GEYSERS UP TO 150 LITRES SUPPORTED ON TRUSSES

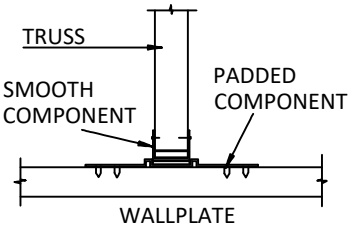


USE MASONITE OR SIMILAR FULL BEARING PACKS IF NECESSARY FOR TRUSS ALIGNMENT (DO NOT USE WEDGE)

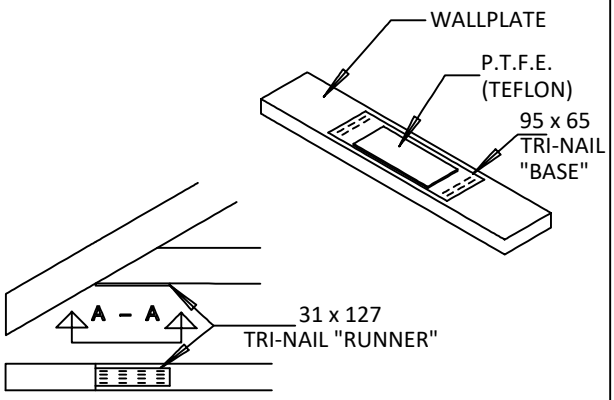
NOTES:
DO NOT BUILD TRUSS INTO BRICKWORK AT SLIDING END. WHERE BRICK BEAMFILL IS INSTALLED PROVIDE MINIMUM 10mm CLEARANCE ALL ROUND. IT IS RECOMMENDED TO USE TEMPORARY REMOVABLE PACKING MATERIAL TO ENSURE UNOBSTRUCTED CLEARANCE

SLIDING SHOE OCCURS AT ONE END OF THE TRUSS ONLY. OTHER END TO BE NORMALLY FIXED. (HOOP IRON OR OTHER SPECIFIED.)

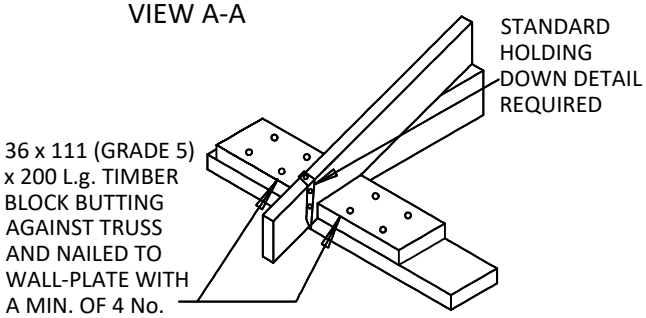
SECTION X-X



MITEK SLIDING SHOE

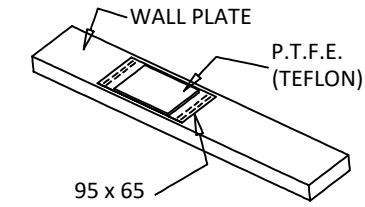


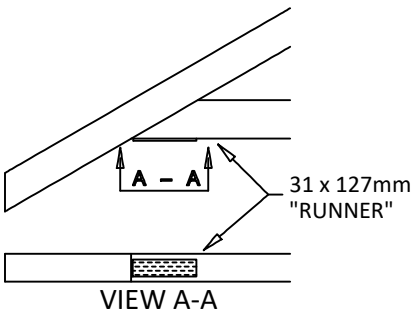
VIEW A-A



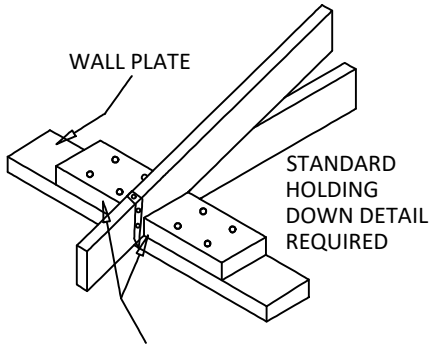
REV 30/09/98

TRI-FIX GLIDE SHOE



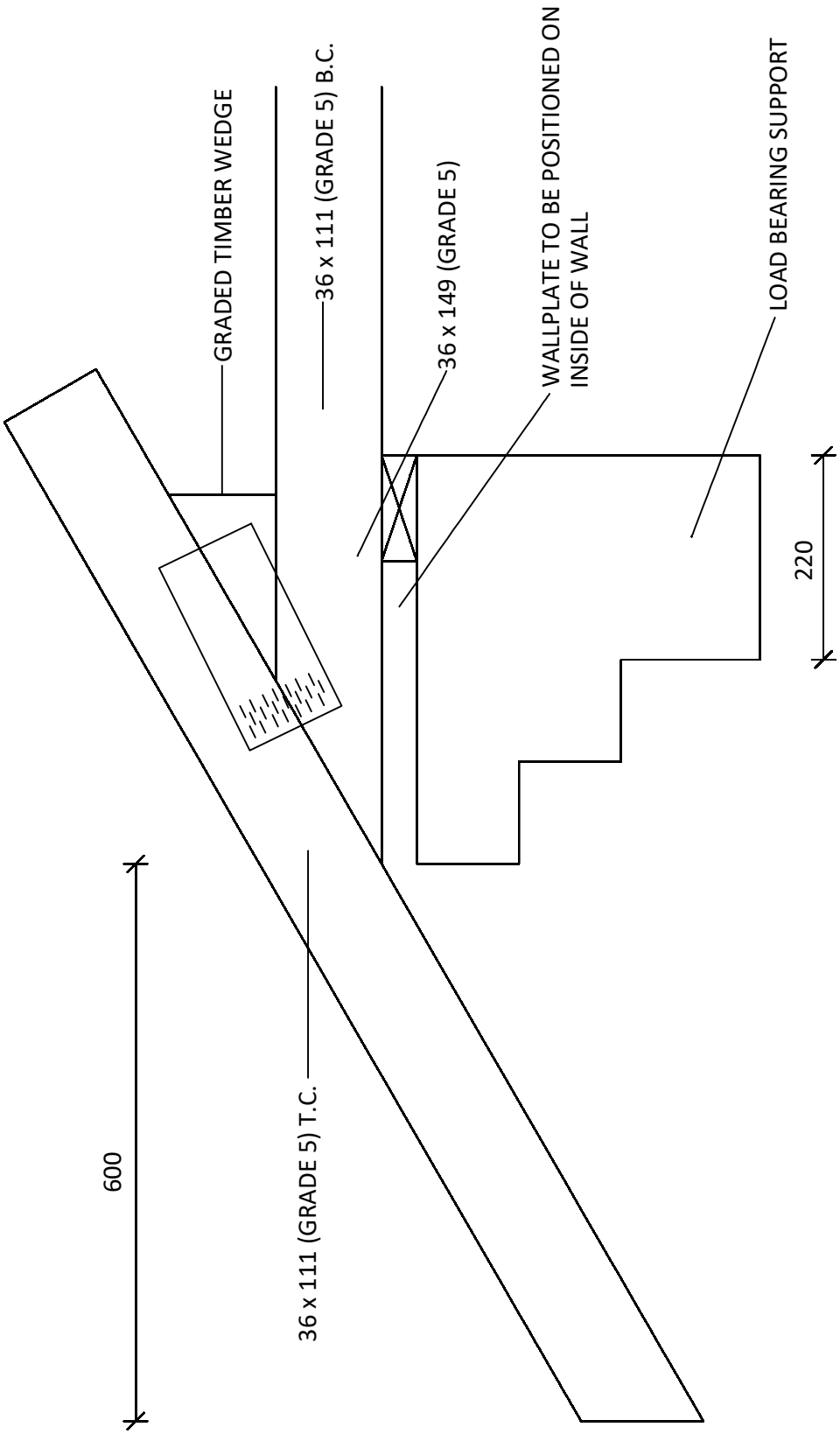


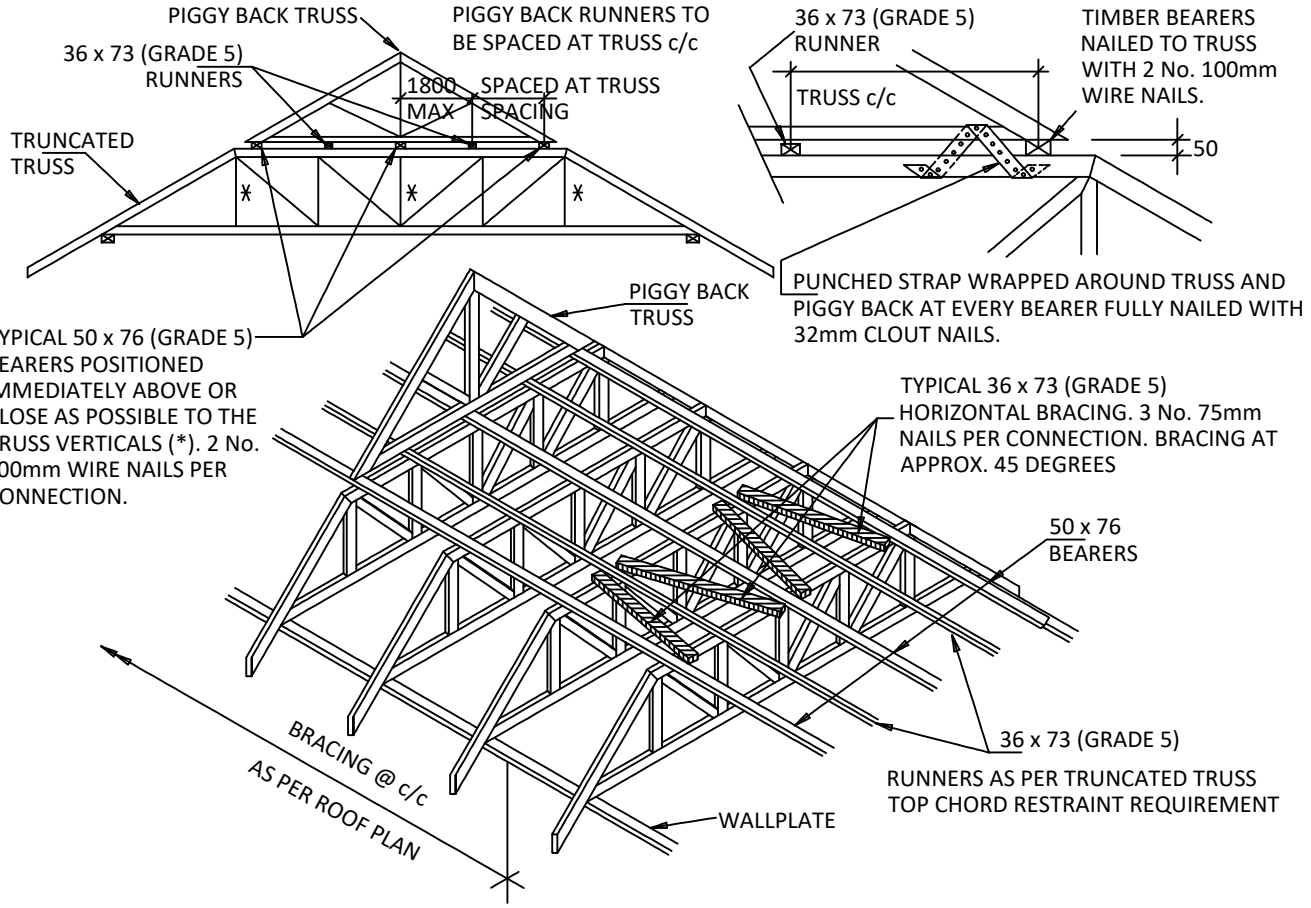
VIEW A-A



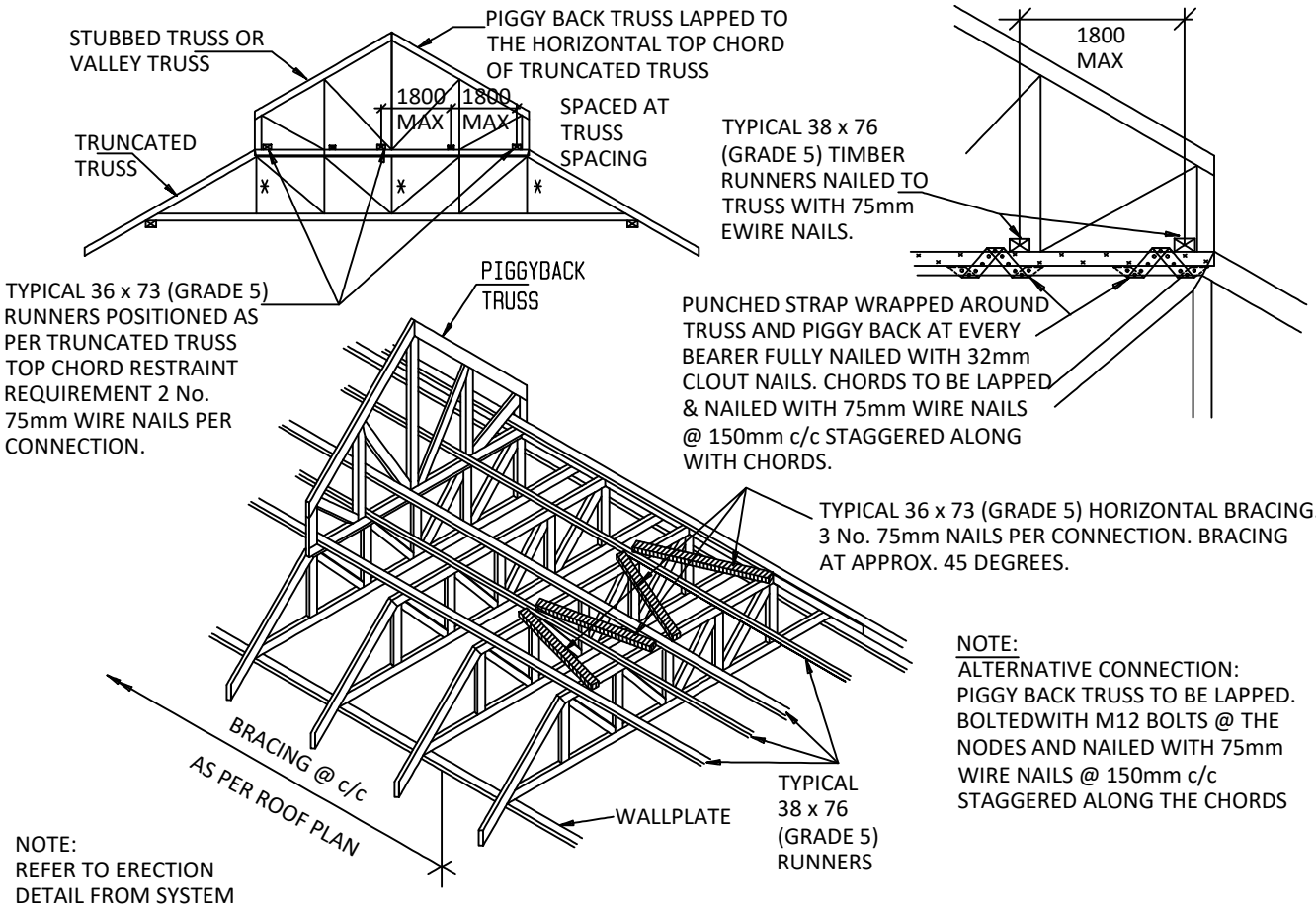
GLIDE SHOE

SLIDING SHOE DETAILS FOR SCISSOR TRUSSES WITH EXCESSIVE HORIZONTAL DISPLACEMENT (MITEK SA, ITS AND ALPINE DETAILS)

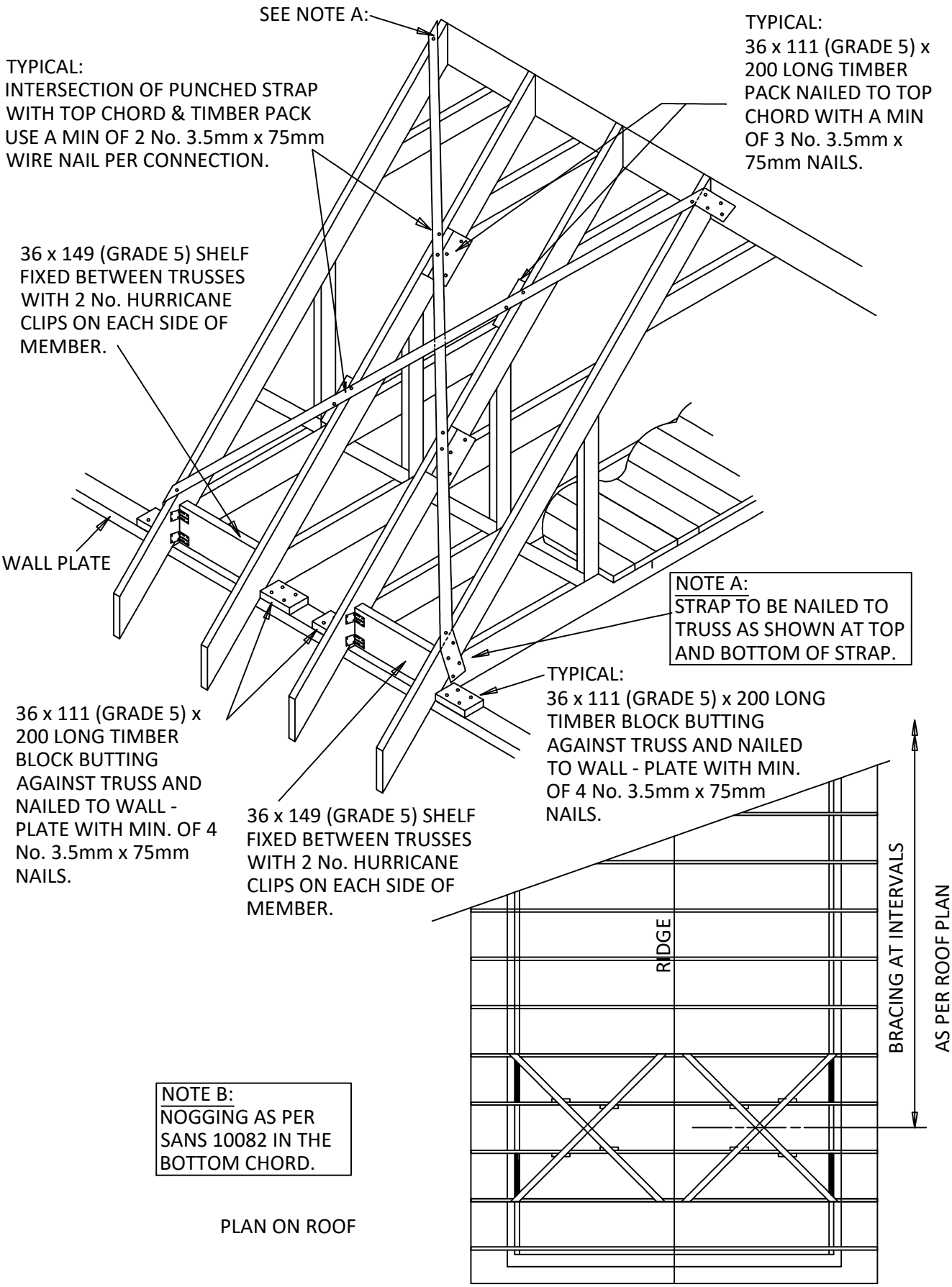

GRADED TIMBER WEDGE
36 x 111 (GRADE 5) B.C.
36 x 149 (GRADE 5)
WALLPLATE TO BE POSITIONED ON INSIDE OF WALL
LOAD BEARING SUPPORT
220
600
36 x 111 (GRADE 5) T.C.



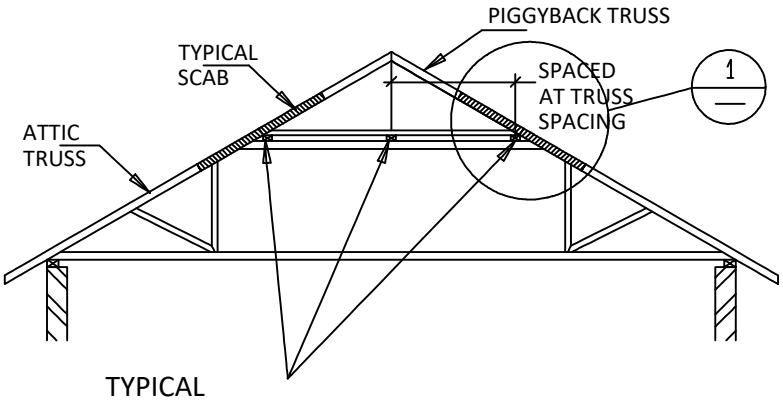
PIGGY BACK DETAILS WITH TOP CHORD BEARER SUPPORT



PIGGY BACK DETAILS WITH LAPPED CHORD CONNECTION

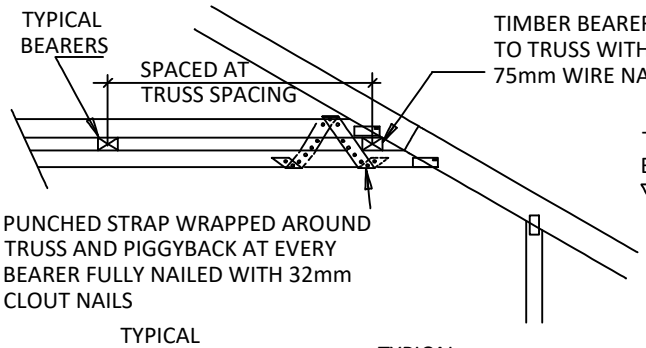


ATTIC HEEL DETAIL & BRACING

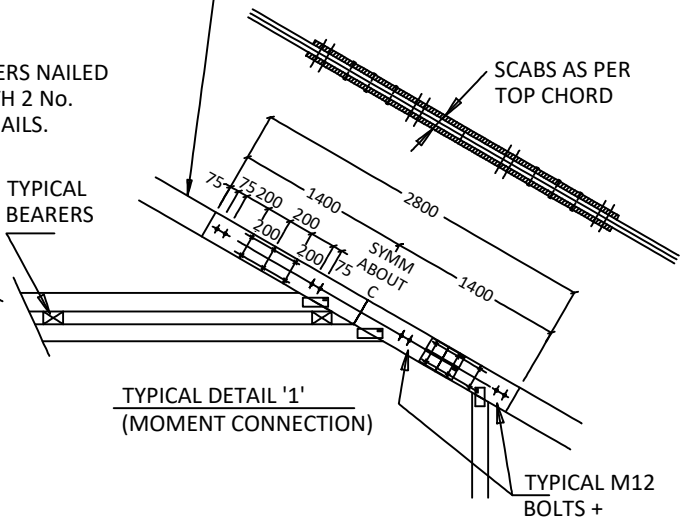


NOTE:
- NAIL AND BOLT TWO SCABS (ONE EACH FACE) TO TWO OR THREE PLY ATTIC TRUSS.
- SCABS TO MATCH TOP CHORD
- BOLTS TO BE 36 x 4mm
- NAILS TO BE 100mm WIRE NAILS.
- NAILING TO BE ALONG BOTH FACES.

TYPICAL
BEARERS POSITIONED IMMEDIATELY ABOVE OR CLOVES AS POSSIBLE TO THE TRUSS VERTICALS 2 No. 75mm WIRE NAILS PER CONNECTION

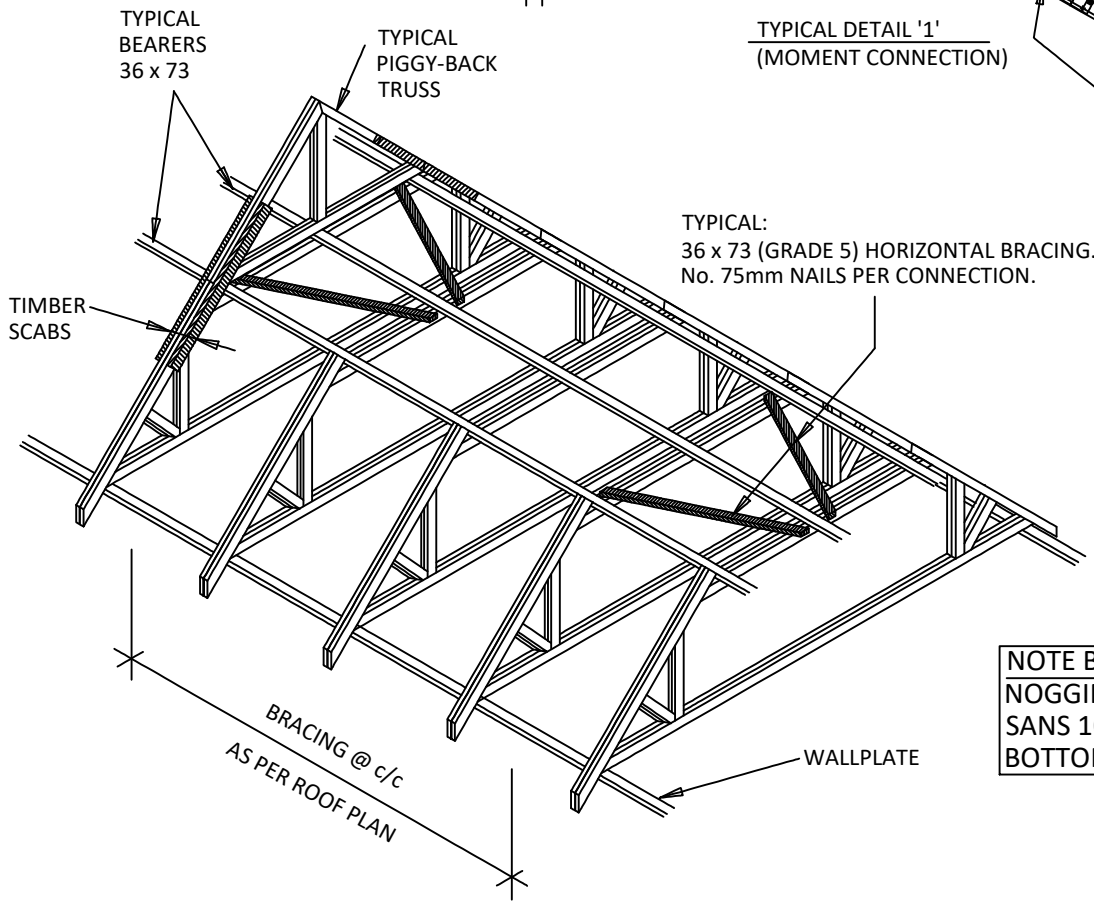


PUNCHED STRAP WRAPPED AROUND TRUSS AND PIGGYBACK AT EVERY BEARER FULLY NAILED WITH 32mm CLOUT NAILS



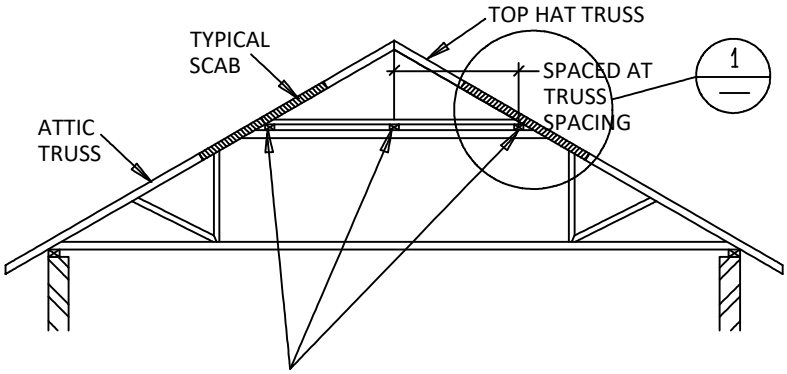
TYPICAL DETAIL '1'
(MOMENT CONNECTION)

TYPICAL M12 BOLTS + WASHERS



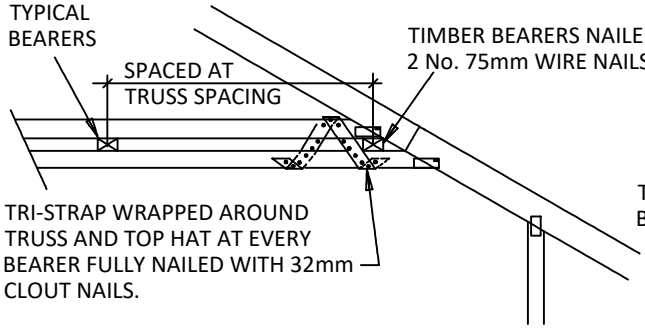
NOTE B:
NOGGING AS PER SANS 10082 IN THE BOTTOM CHORD.

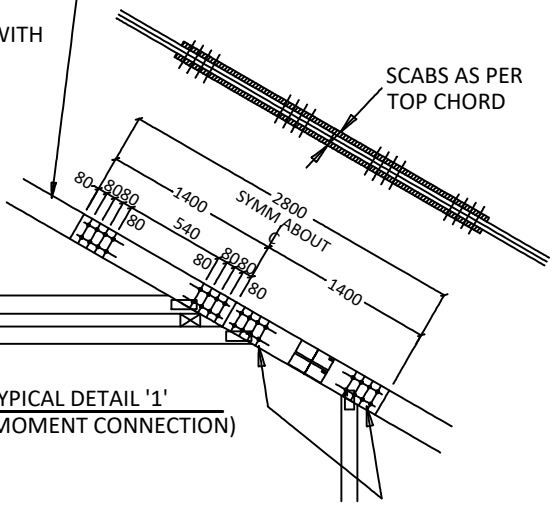
ATTIC PIGGYBACK BOLTED CONNECTION (2 & 3 PLY TRUSSES)



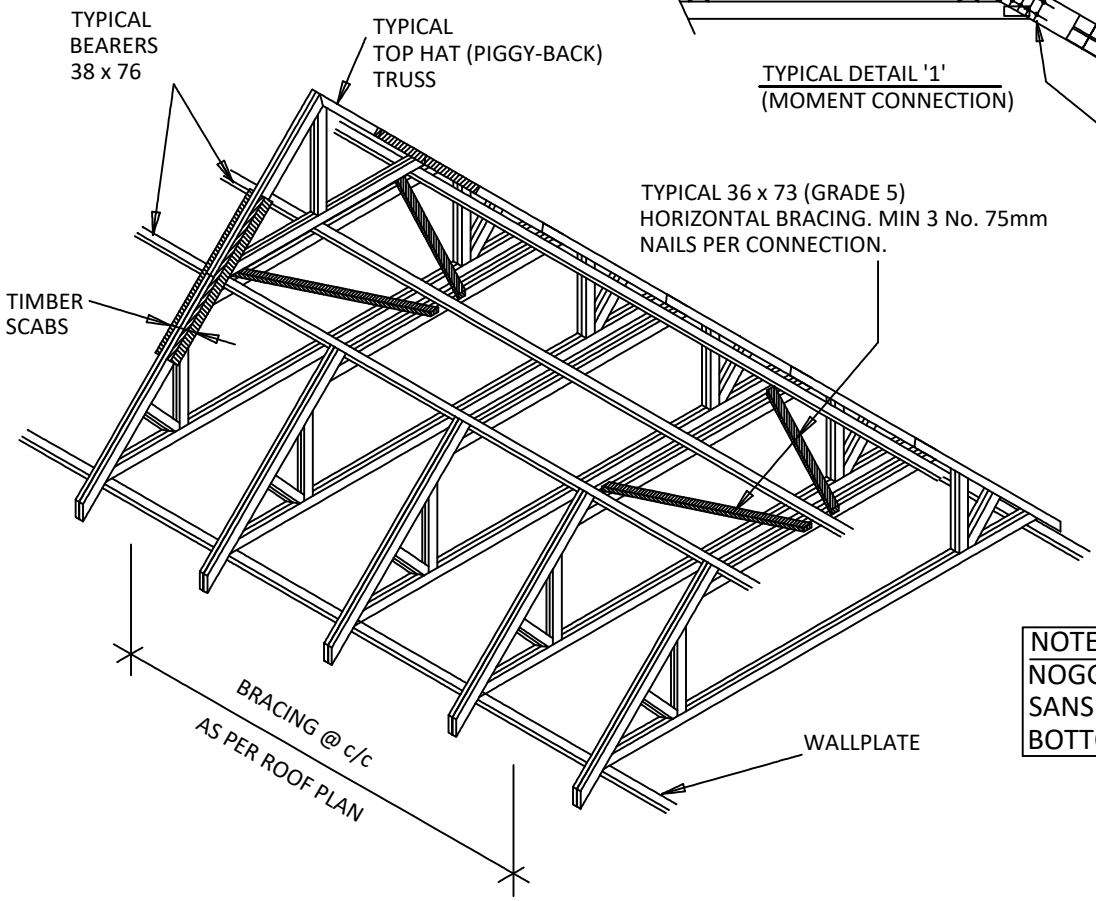
NOTE:
- NAIL TWO SCABS (ONE EACH FACE) TO TWO OR THREE PLY ATTIC TRUSS.
- SCAB TO MATCH TOP CHORD.
- NAILS TO BE 100mm WIRE NAILS.
- NAILING TO BE ALONG BOTH FACES.

TYPICAL BEARERS POSITIONED IMMEDIATELY ABOVE OR CLOSE AS POSSIBLE TO THE TRUSS VERTICALS 2 NO. 75mm WIRE NAILS PER CONNECTION



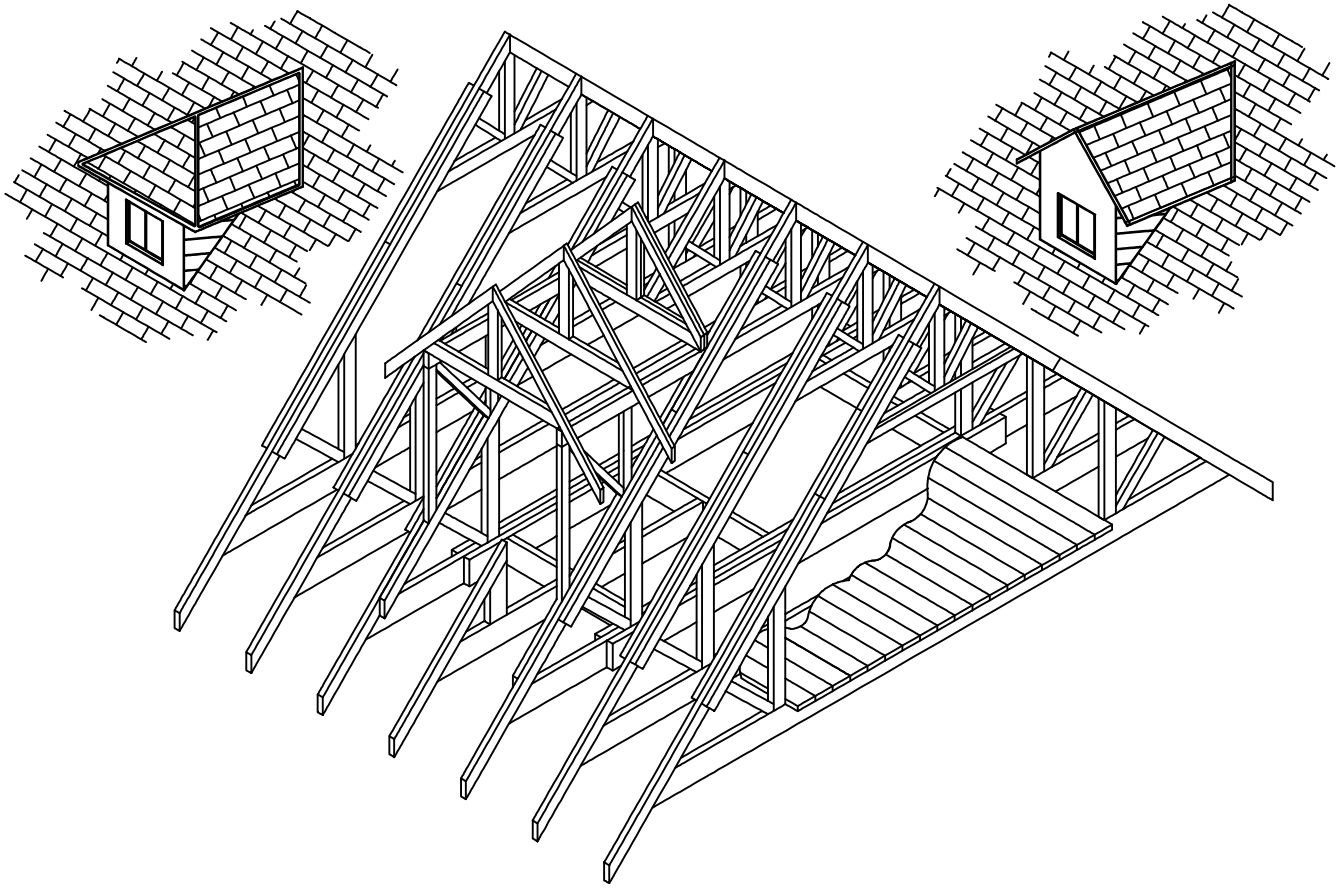


TYPICAL DETAIL '1'
(MOMENT CONNECTION)

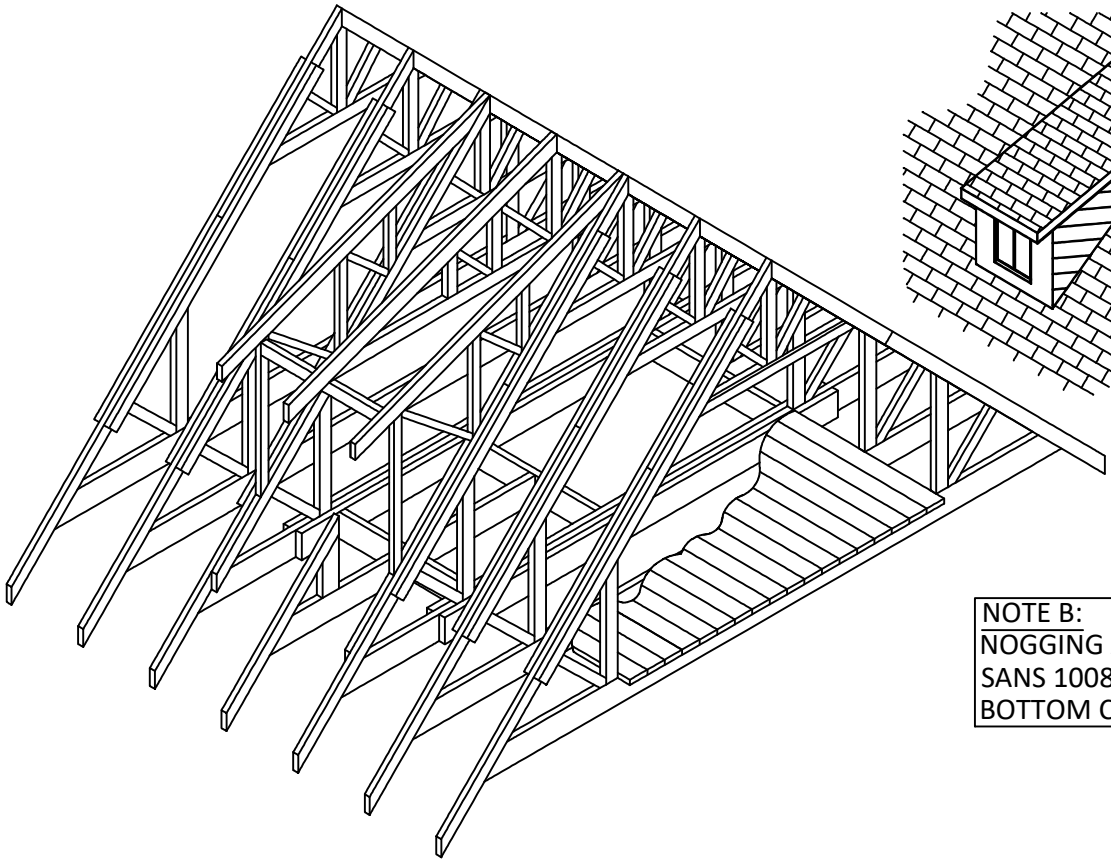


NOTE B:
NOGGING AS PER SANS 10082 IN THE BOTTOM CHORD.

ATTIC PIGGYBACK NAILED CONNECTION (2 & 3 PLY TRUSSES)

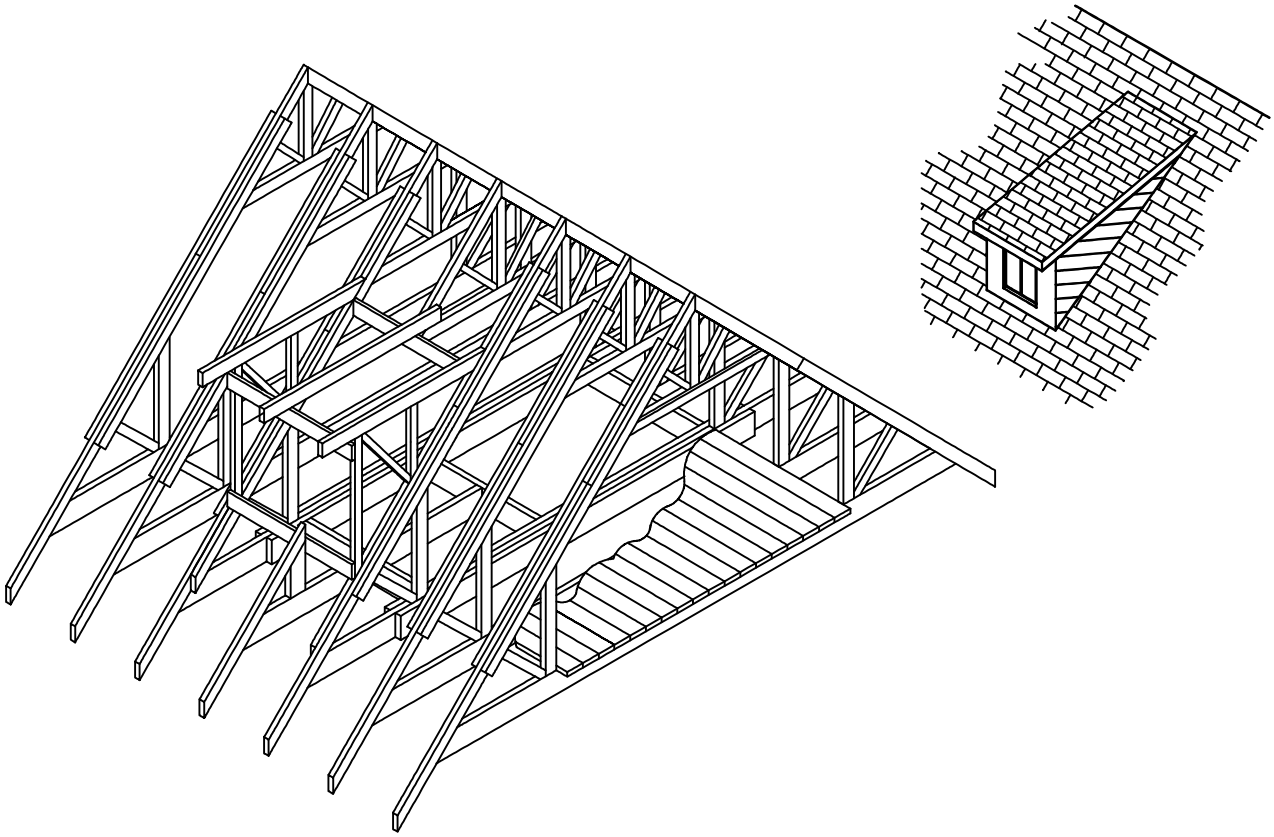


OLD ENGLISH DORMER - GABLE & HIP

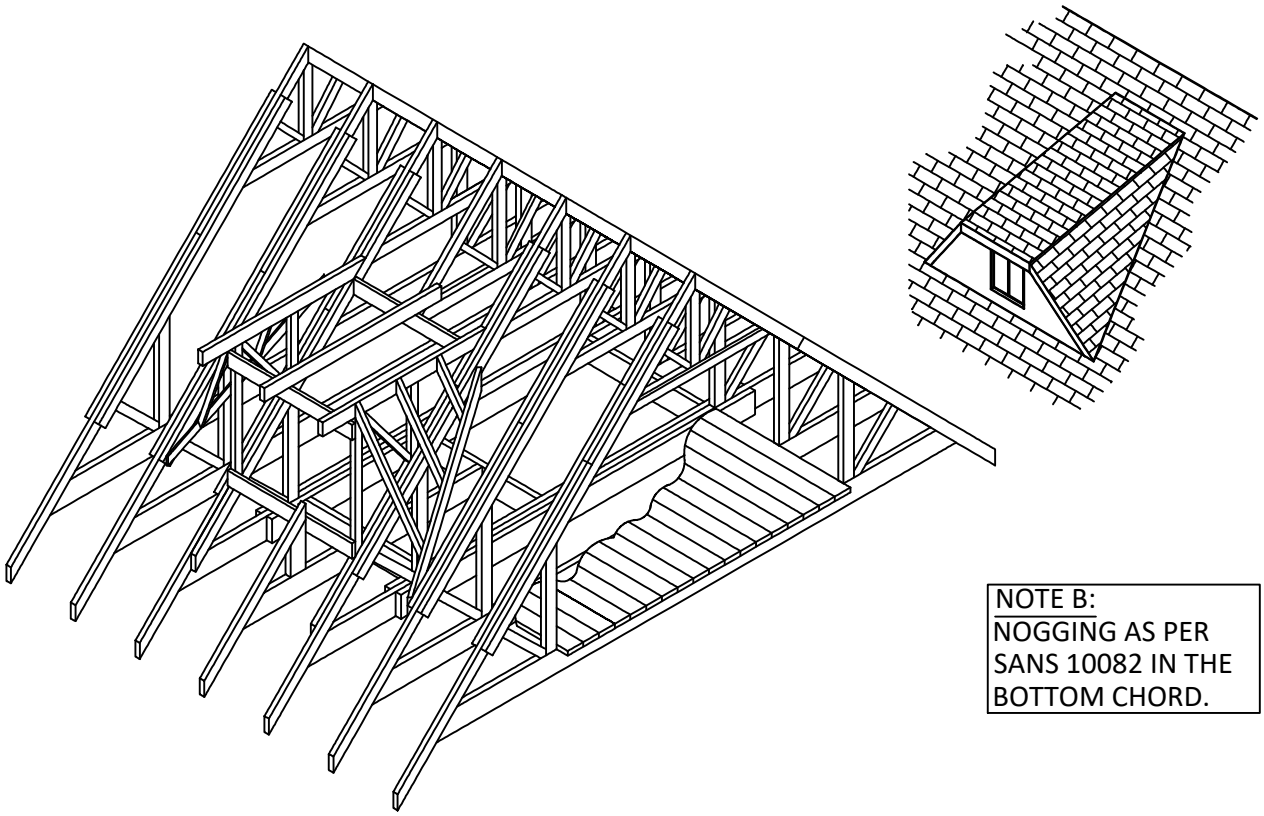


NOTE B:
NOGGING AS PER SANS 10082 IN THE BOTTOM CHORD.

FRENCH DORMER



MODERN ENGLISH DORMER



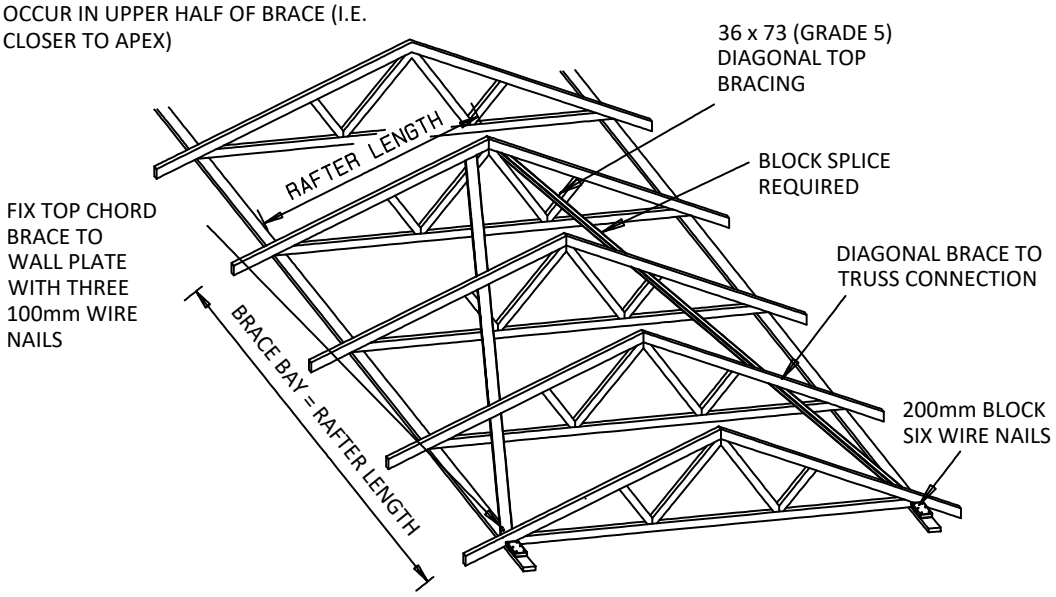
NOTE B:
NOGGING AS PER SANS 10082 IN THE BOTTOM CHORD.

EYEBROW DORMER

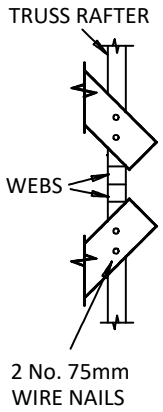
Part Two Bracing Details

DETAIL REF.	DESCRIPTION
TCBRACE 1	T.C. bracing-tiles-<6.6m span
TCBRACE 2	Stub / cantilever heels-tiles- <6.6m
TCBRACE 3	T.C. stability bracing-tiles->6.6m
TCBRACE 4	T.C. stability bracing-tiles- >9.0m
TCBRACE 5	Stub / cantilever heels-tiles ->6.6m
TCBRACE 6	Dutch hip top chord bracing
TCBRACE 9	Top chord bracing-sheeting-15.0m span
TCBRACE 10	Stub & cantilever heels-sheeting
FRAME 1	Bracing/stiffener frame splices
FRAME 2	Bracing/stiffener frame standard heel details
FRAME 3	Bracing/stiffener frame stub heel details
FRAME 4	General runner requirements
RUNNER 1	Runner girder connection & splices
RUNNER 2	Runner girder connection
RUNNER 3	Bottom chord runner & bracing
BCBRACE 1	Web runners & bracing
WEB 1	Web "T"-bracing
WEB 2	Top chord metal brace - general
MBRACE 1	Top chord metal brace batten/purlin
MBRACE 2	Top chord metal brace heels
MBRACE 4	Top chord metal brace dutch hip
MBRACE 5	Bottom chord metal brace details
MBRACE 6	Web metal brace details
MBRACE 7	Bottom chord metal runner details
MRUNNER 1	Web metal runner details
MRUNNER 2	Bottom chord metal runner & brace
MRUNNER 3	Web metal runner & brace
MRUNNER 4	Metal runner special detail
MRUNNER 5	Metal runner special detail
MRUNNER 6	Web metal runner details

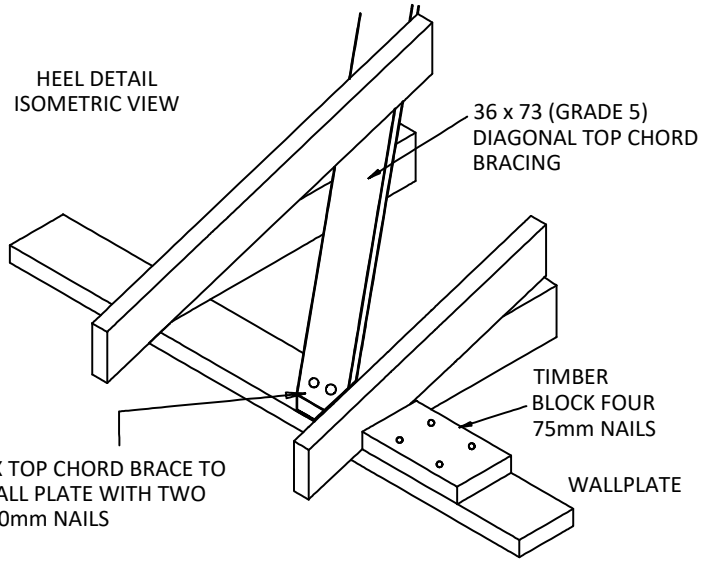
N.B.: SPLICE (WHEN NECESSARY) TO OCCUR IN UPPER HALF OF BRACE (I.E. CLOSER TO APEX)

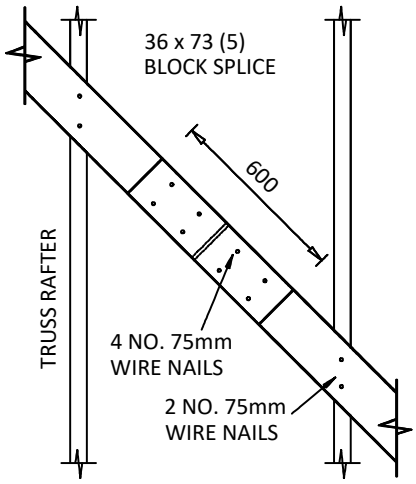


ISOMETRIC VIEW

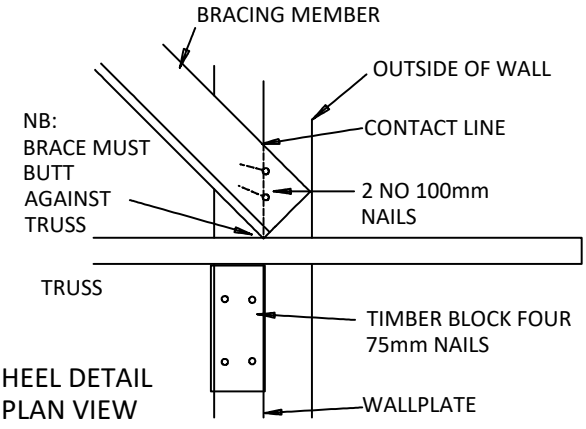


APEX DETAIL

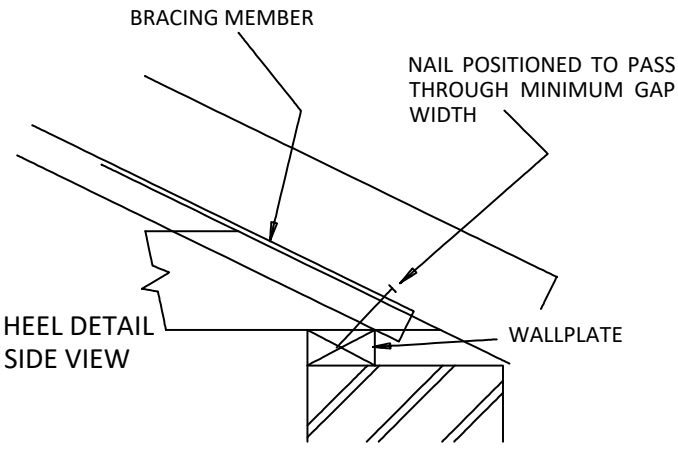




BLOCK SPLICE DETAIL AND BRACE TO TRUSS CONNECTION

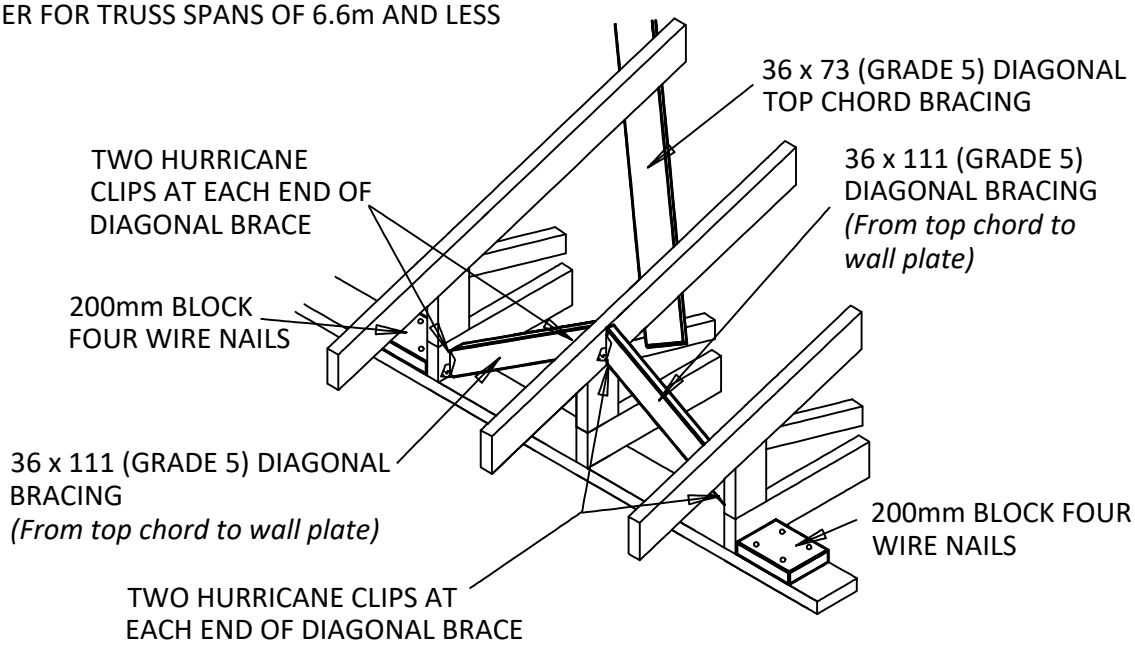


HEEL DETAIL PLAN VIEW



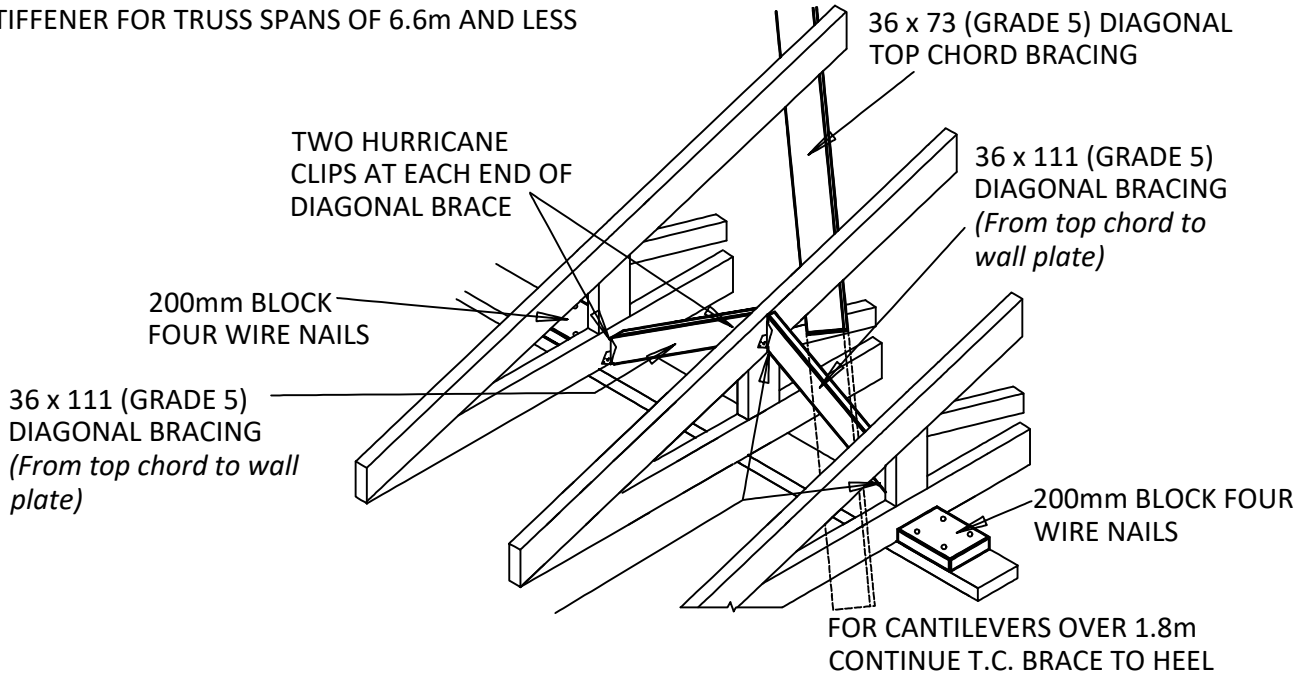
HEEL DETAIL SIDE VIEW

NOTE:
USE THIS DETAIL FOR STABILITY BRACING TOP CHORD STIFFENER FOR TRUSS SPANS OF 6.6m AND LESS

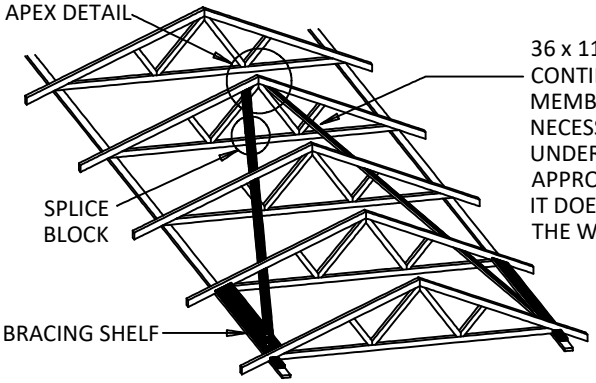


STUB WALL DETAIL OF STABILITY BRACING - TILED ROOFS FOR TRUSS ENDS NOT BUILT INTO BRICKWORK - TRUSS SPANS 6.6m & LESS

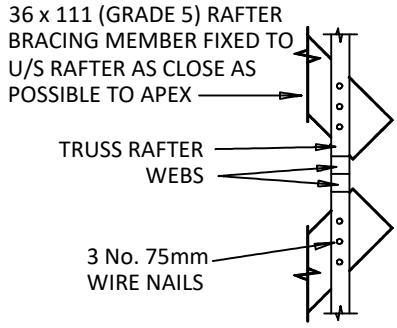
NOTE:
USE THIS DETAIL FOR STABILITY BRACING TOP CHORD STIFFENER FOR TRUSS SPANS OF 6.6m AND LESS



CANTILEVER WALL DETAIL OF STABILITY BRACING - TILED ROOFS FOR TRUSS ENDS NOT BUILT INTO BRICKWORK - TRUSS SPANS 6.6m & LESS

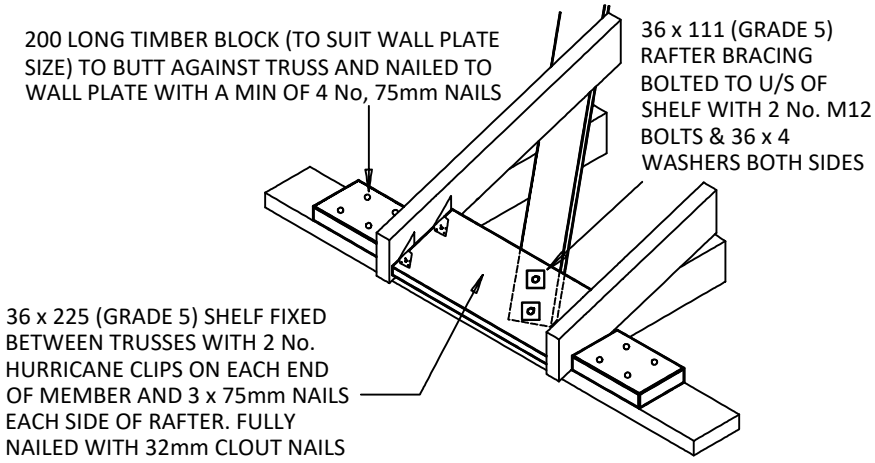


RAFTERS BRACING FOR TILED ROOFS
SPANS OVER 6.6m UP TO 9.0m

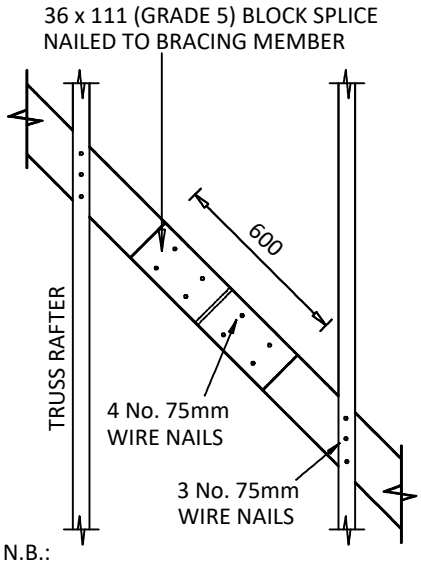


APEX DETAIL

N.B. - IF NO BEAMFILL OCCURS THEN REFER TO DETAIL BELOW

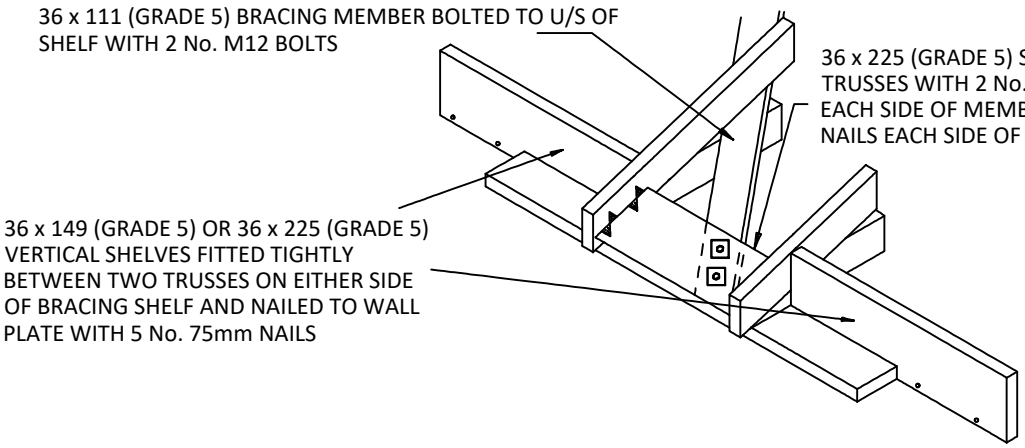


STANDARD-HEEL SHELF BRACING FOR TILED ROOFS
SPANS OVER 6.6m UP TO 9.0m

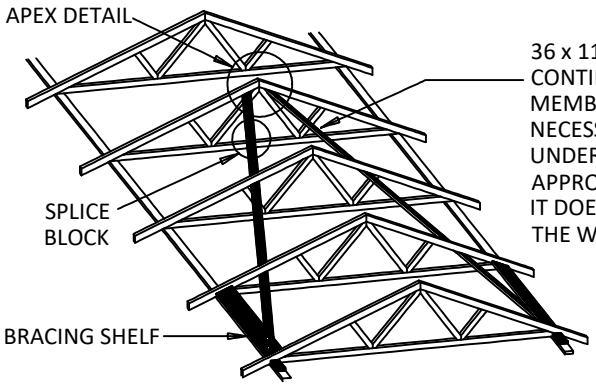


N.B.:
SPLICE (WHEN NECESSARY) TO OCCUR IN UPPER HALF OF BRACE (I.E. CLOSER TO APEX)

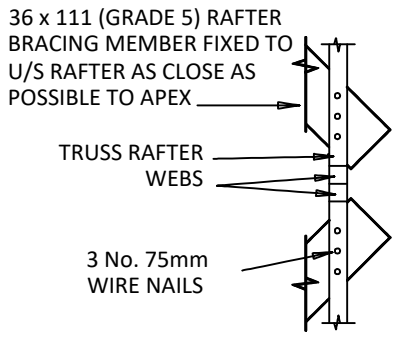
BLOCK SPLICE AND BRACE TO TRUSS CONNECTION



STANDARD-HEEL BRACING CONNECTION WHERE BEAMFILL IS NOT USED. (SPAN OVER 6.6m UP TO 9.0m)

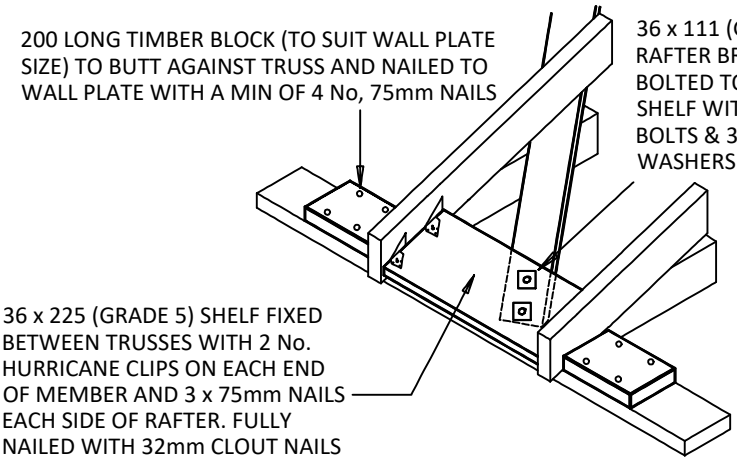


RAFTERS BRACING FOR TILED ROOFS
SPANS OVER 6.6m UP TO 9.0m

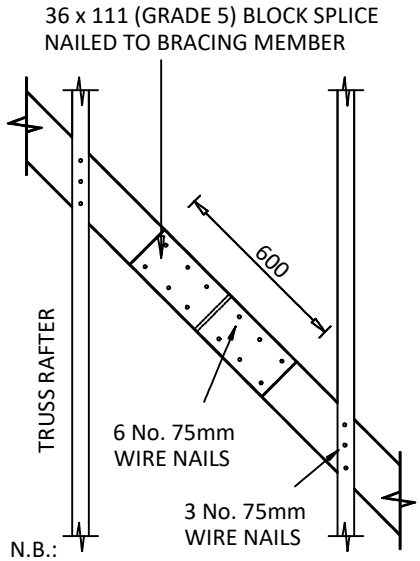


APEX DETAIL

N.B. - IF NO BEAMFILL OCCURS THEN REFER TO DETAIL BELOW

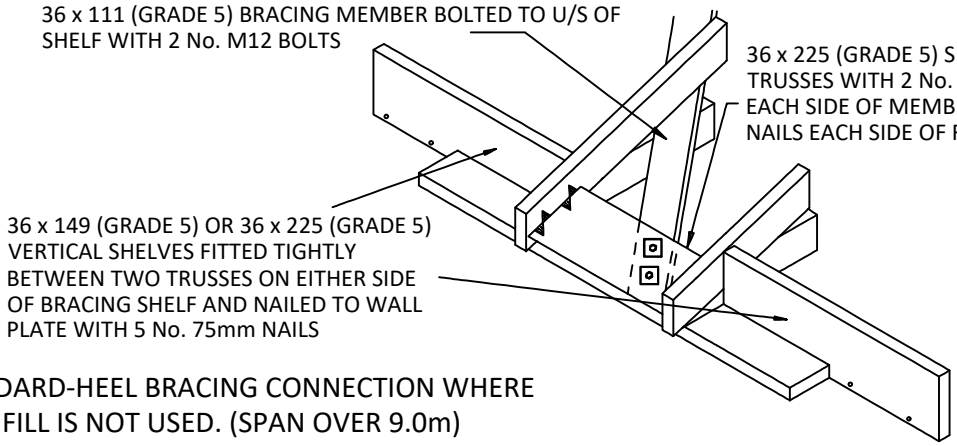


STANDARD-HEEL SHELF BRACING FOR TILED ROOFS
SPANS OVER 9.0m



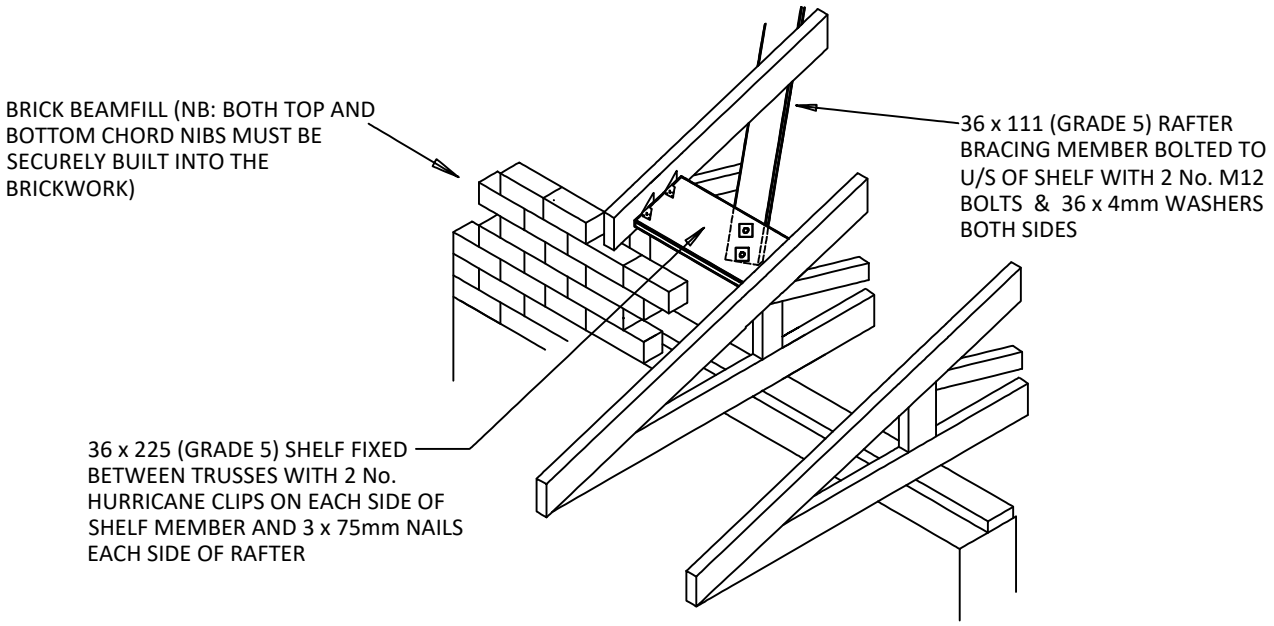
N.B.:
SPLICE (WHEN NECESSARY) TO OCCUR IN UPPER HALF OF BRACE (I.E. CLOSER TO APEX)

BLOCK SPLICE AND BRACE TO TRUSS CONNECTION



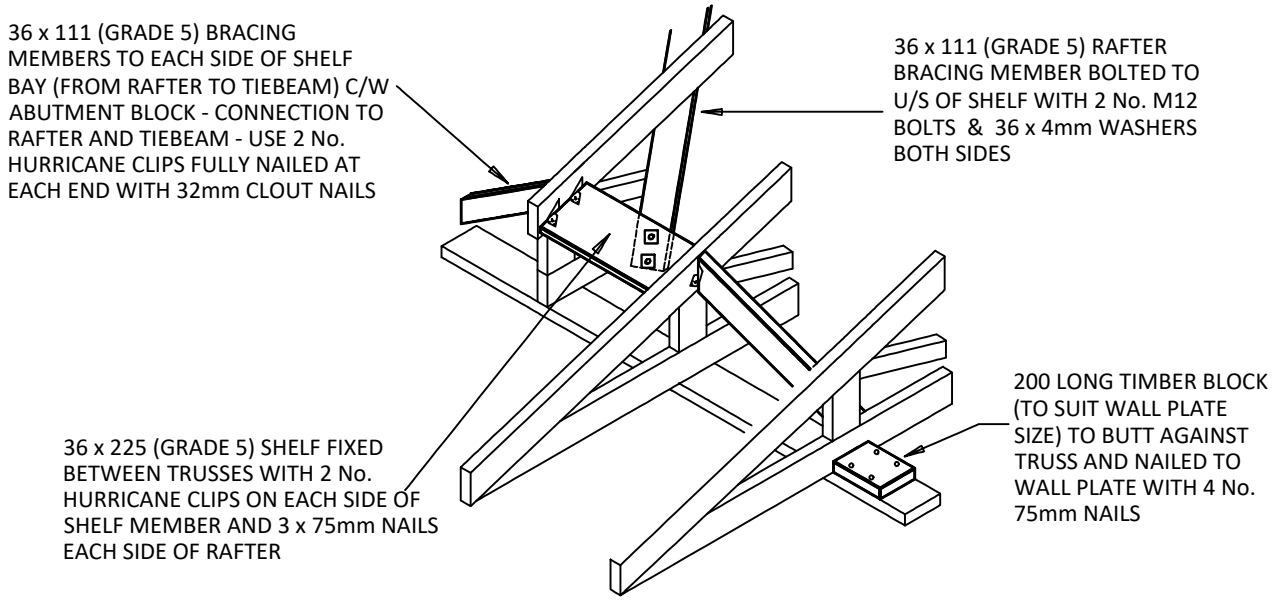
STANDARD-HEEL BRACING CONNECTION WHERE BEAMFILL IS NOT USED. (SPAN OVER 9.0m)

STABILITY BRACING **ONLY** OF TOP CHORD - TILED ROOFS **ALL** TRUSS SPANS OVER 9.0m



STUB OR CANTILEVER SHELF FOR STABILITY BRACING - TILED ROOFS TRUSS ENDS BUILT INTO BRICKWORK - TRUSS SPANS OVER 6.6m

N.B. - IF NO BEAMFILL OCCURS THEN REFER TO DETAIL BELOW

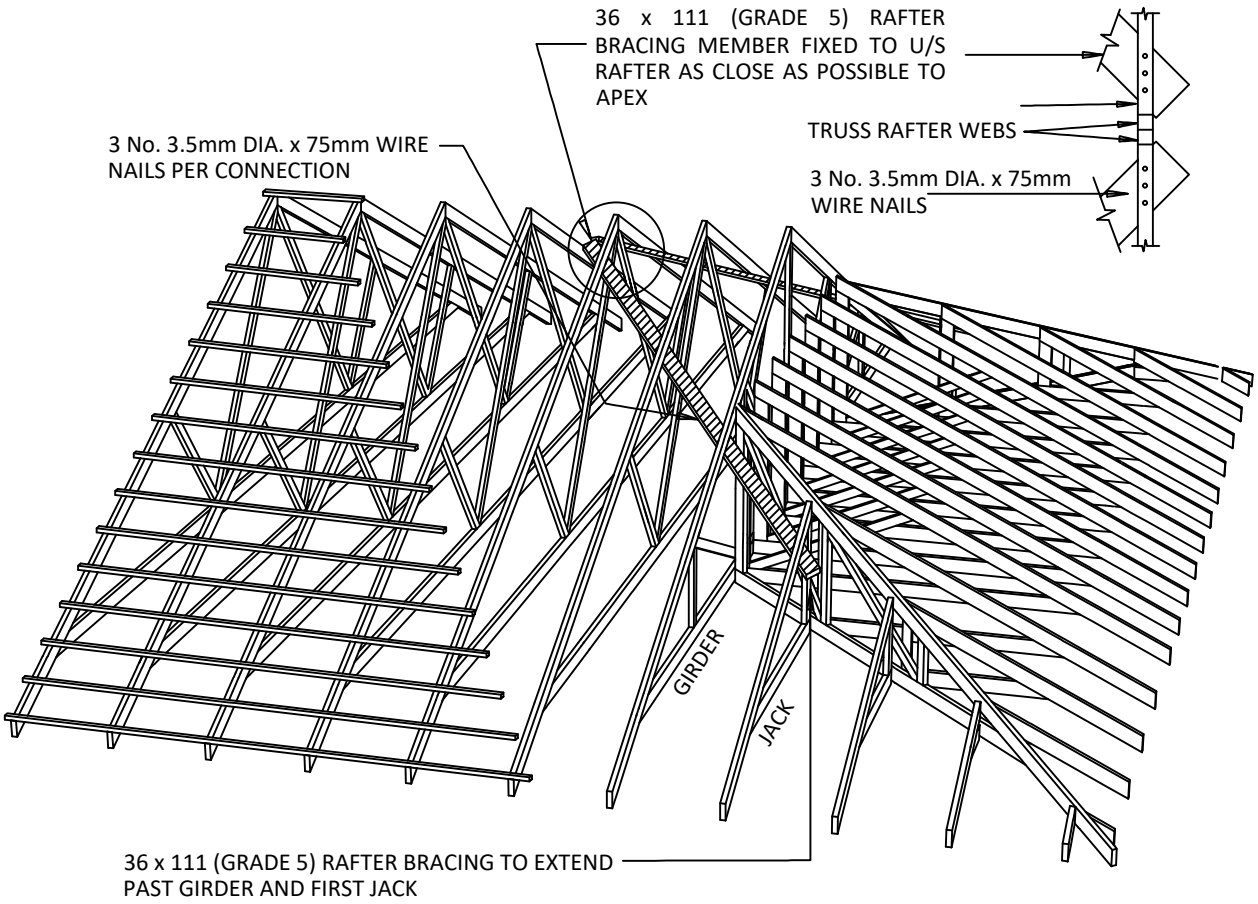


STUB OR CANTILEVER SHELF FOR STABILITY BRACING - TILED ROOFS TRUSS ENDS BUILT INTO BRICKWORK - TRUSS SPANS OVER 6.6m

NOTE: FOR TILED ROOFS

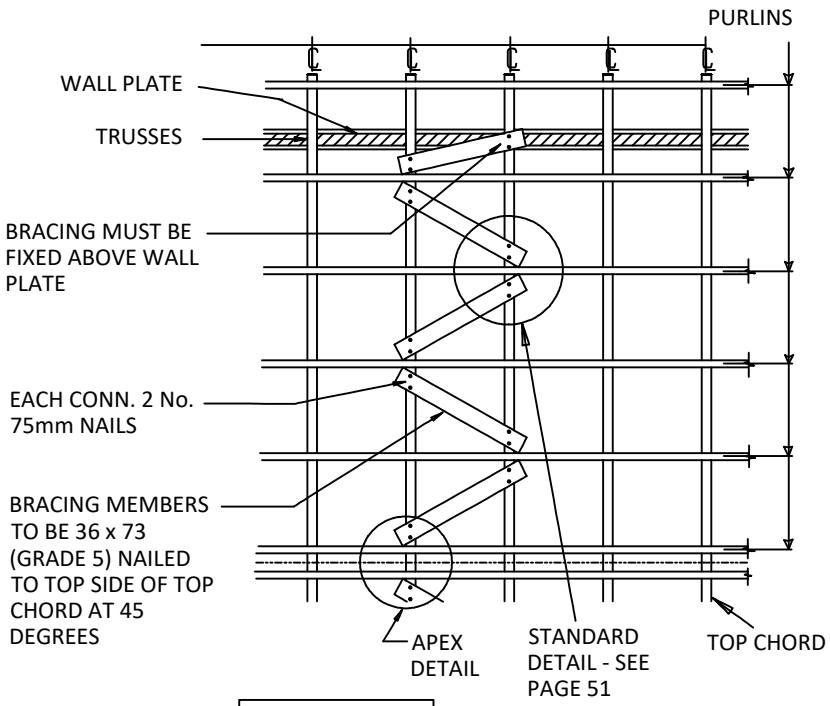
FOR TRUSS SPANS OF 6.6m AND LESS THE HIP AND BRACING WILL ACT AS STABILITY AND ANTI-BUCKLE BRACING. THE HIP AND NEXT DIAGONAL TOP CHORD BRACING WILL BE MAXIMUM OF 5.5m (CENTRE TO CENTRE) APART.

FOR TRUSS SPANS OF GREATER THAN 6.6m THE HIP AND BRACING WILL ACT AS STABILITY BRACING **ONLY**. THE HIP AND NEXT DIAGONAL TOP CHORD BRACING WILL BE A MAXIMUM OF 9.5m (CENTRE TO CENTRE) APART.

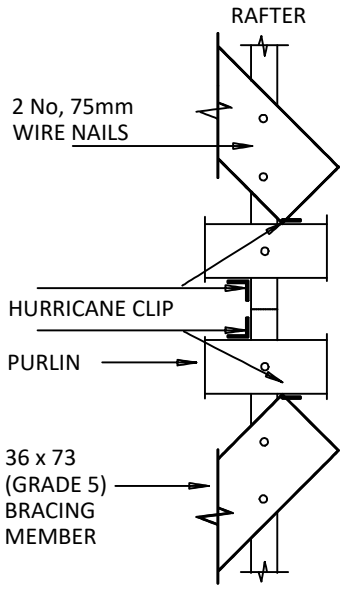


DUTCH GABLE BRACING TO BE INSTALLED WHERE LOUVRE SECTION IS LESS THAN 1/4 SPAN
STANDARD GABLE BRACING TO BE INSTALLED WHERE LOUVRE SECTION IS GREATER THAN 1/4 SPAN

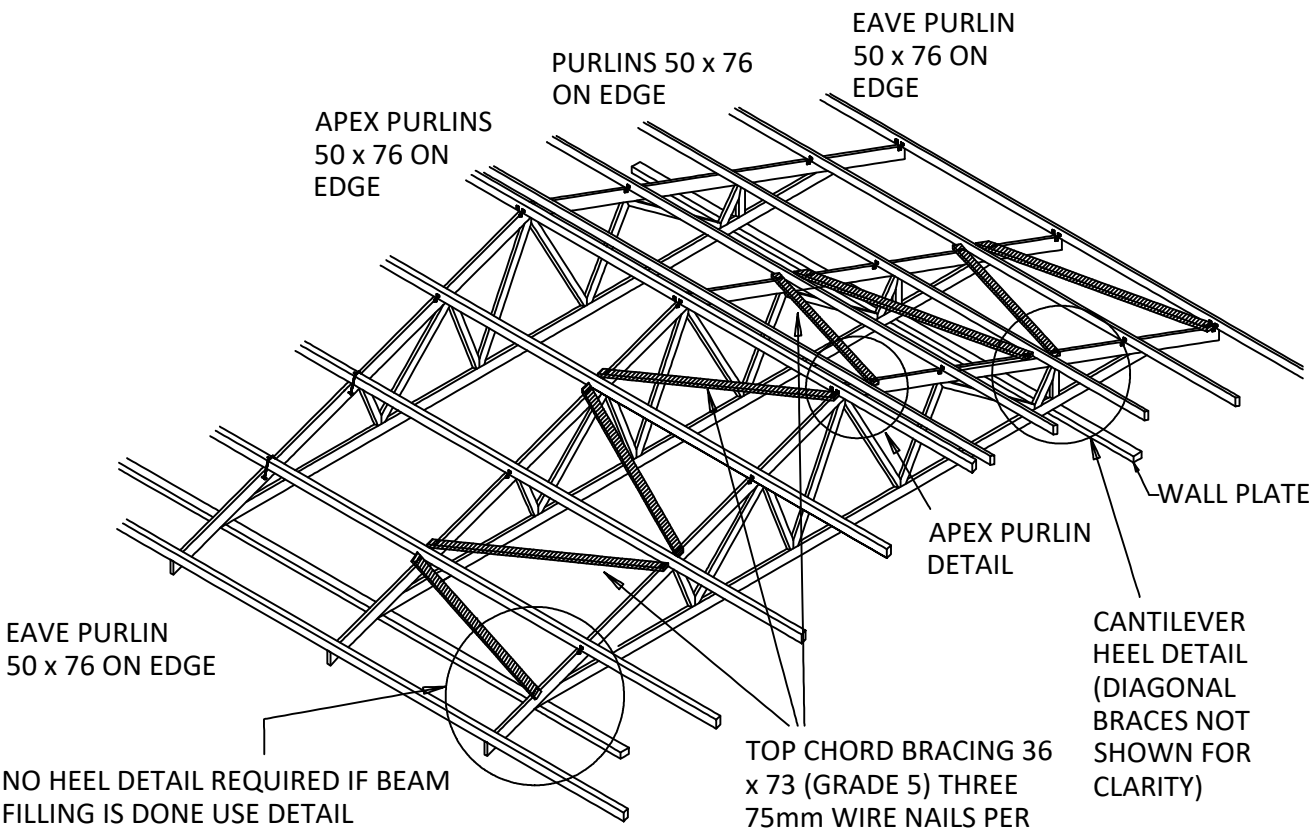
TOP CHORD BRACING OF DUTCH HIP (LOUVRE HIP) END TILED ROOFS AND SHEETED ROOFS (OR USE TOP CHORD BRACING FOR SHEETED ROOFS IN SIMILAR FASHION TO BRACE THE LOUVRE PART)



PLAN VIEW

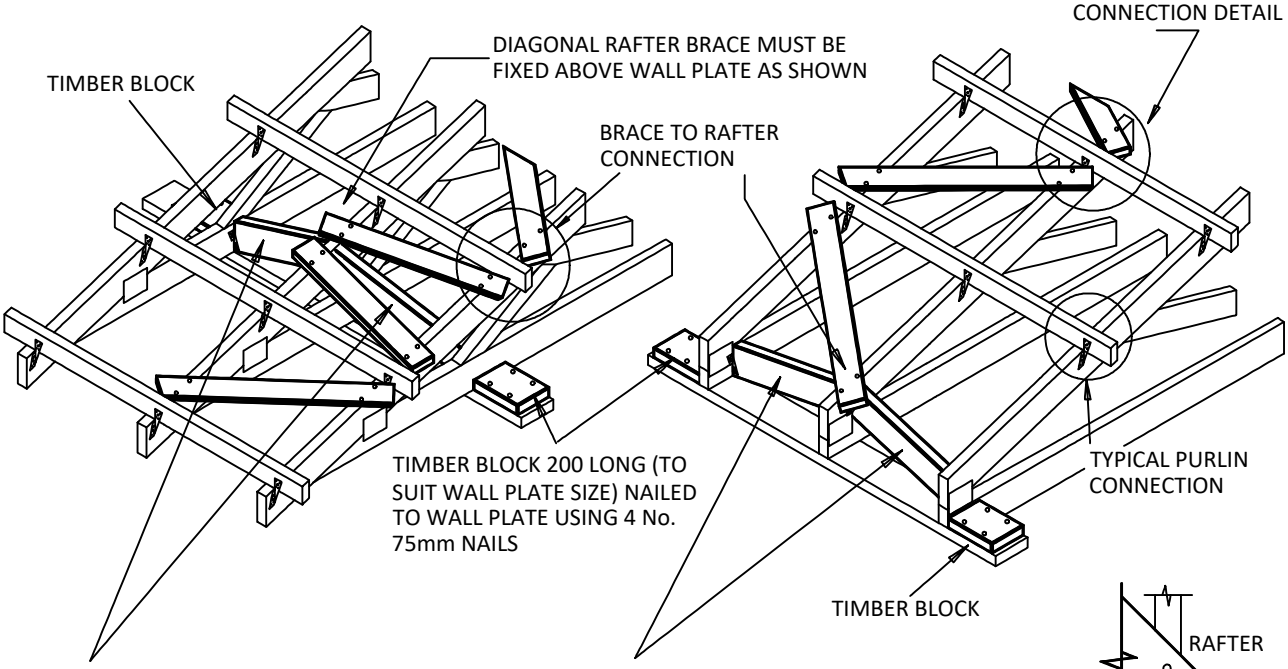


APEX CONNECTION DETAIL

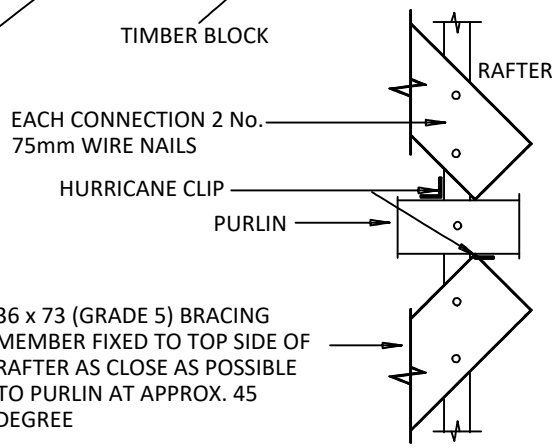


ISOMETRIC VIEW

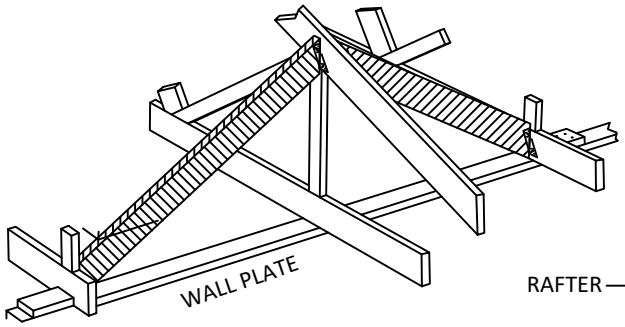
TOP CHORD BRACING FOR SHEETED ROOFS TRUSS SPANS LESS THAN 15m

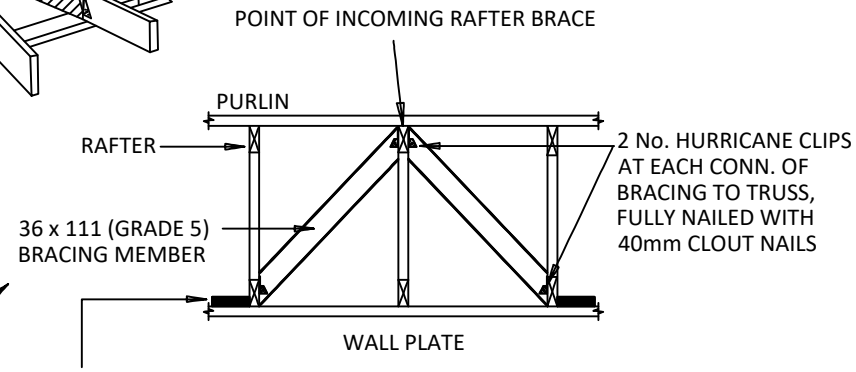


2 No. 36 x 73 (GRADE 5) BRACING MEMBERS TO FIT TIGHTLY BETWEEN 3 TRUSSES AND FIXED TO RAFTER AND TIEBEAM OF TRUSSES. EACH CONNECTION USE 2 No. HURRICANE CLIPS FULLY NAILED WITH 32mm CLOUT NAILS. (WHERE BEAM INFILL OCCURS AND IS OF A STRUCTURALLY ACCEPTABLE CONSTRUCTION THESE 2 No. BRACING MEMBERS MAY BE OMITTED.)



BRACE TO RAFTER CONNECTION



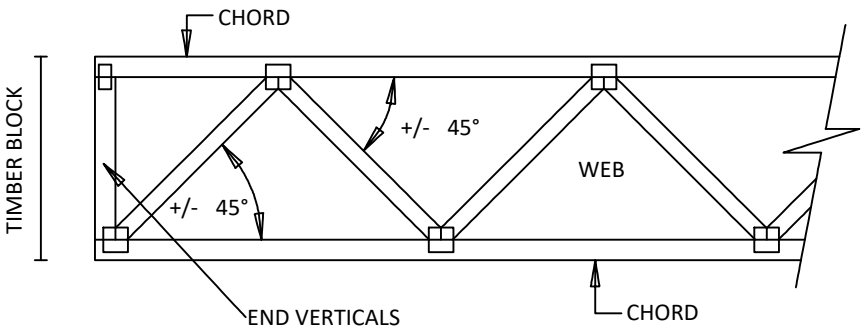


ALTERNATIVE: CAN BE 50 x 76 PURLIN OFF CUT

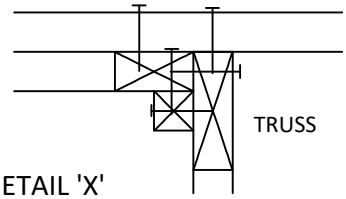
BLOCK 200 LONG (TO SUIT WALL PLATE SIZE) FIXED TO WALL PLATE WITH 4 No. 75mm NAILS. (OMIT IF TRUSS NIB IS SUITABLY BUILT INTO WALL)

NOTE: VERTICAL BRACINGS IS NOT REQUIRED IF BRICKWORK BEAMFILL IS BUILT TO THE TOP OF THE TRUSS

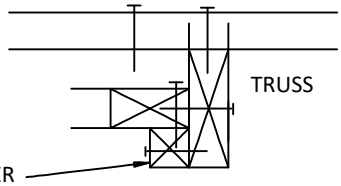
TOP CHORD BRACING FOR SHEETED ROOFS - STUB AND CANTILEVER HEELS - TRUSS SPANS LESS THAN 15m



BRACING FRAME



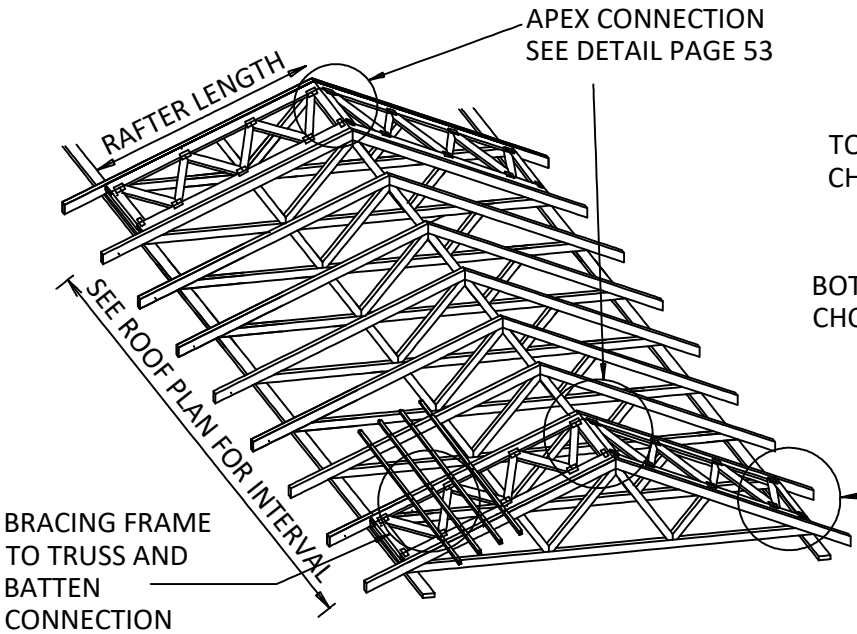
TYP DETAIL 'X'



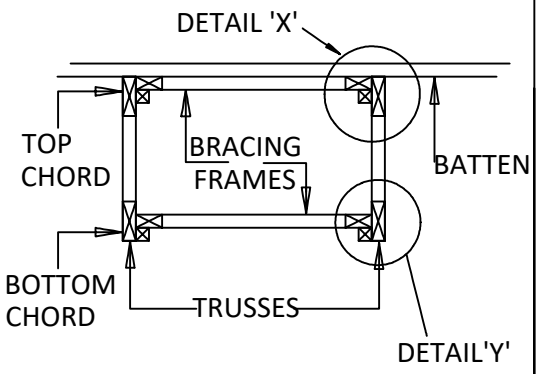
38 x 38 CONTINUOUS BEARER NAILED AT 300 c/c WITH 3.5 x 75mm NAILS

TYP DETAIL 'Y'

ISOMETRIC VIEW SINGLE BAY/TOP CHORD FRAME ONLY

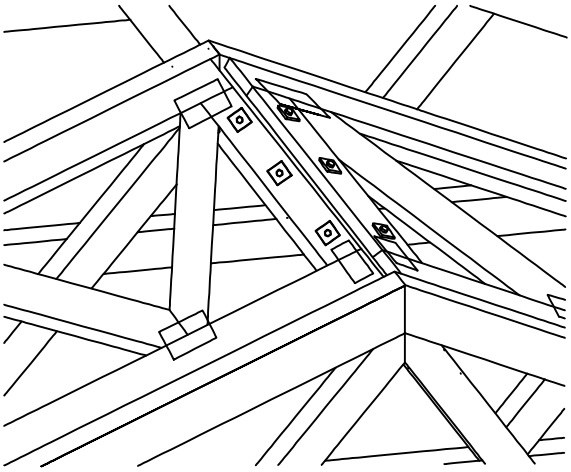


SINGLE BAY FRAME DETAILS

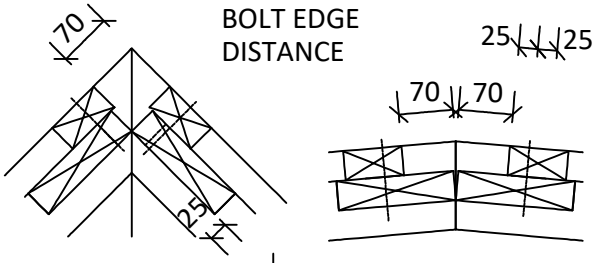


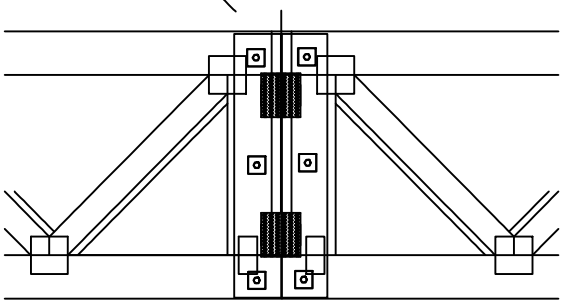
TOP & BOTTOM SINGLE BAY BRACING FRAME DETAILS

TILE ROOF: FRAMES ON TOP CHORD ONLY FOR SPANS > 9.0m
SHEET ROOFS: FRAMES ON BOTTOM AND TOP CHORD FOR SPANS > 15.0m

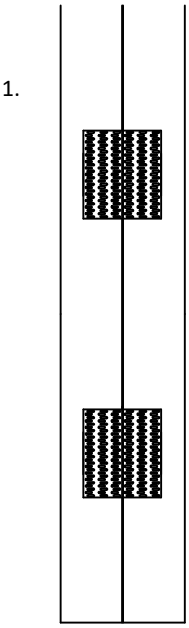


ISOMETRIC VIEW OF APEX SPLICE





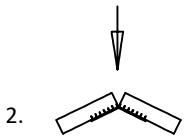
PLAN VIEW OF APEX SPLICE

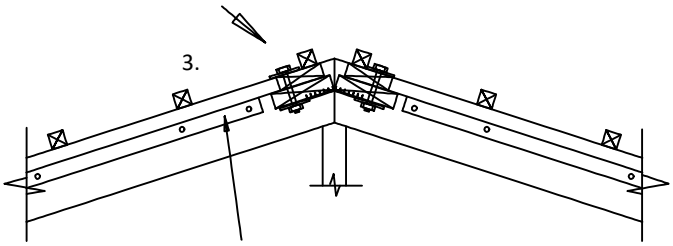


1. TWO PIECES OF 36 x 149 (GRADE 5) TIMBER CONNECTED WITH TWO 150 x 150mm (MINIMUM PLATE SIZE) FACTORY PRESSED NAIL PLATES ON ONE SIDE ONLY

2. MEMBERS BENT TO SUIT TRUSS PITCH

3. CONNECTOR PIECES BOLTED TO THE UNDERSIDE OF THE BRACIG FRAMES WITH M12 BOLTS WITH 36 x 4mm WASHERS EACH SIDE. THREE BOLTS PER FRAME. BOLTS MUST BE POSITIONED TO CLEAR APEX BATTEN. MIN. EDGE DISTANCE OF 25mm.



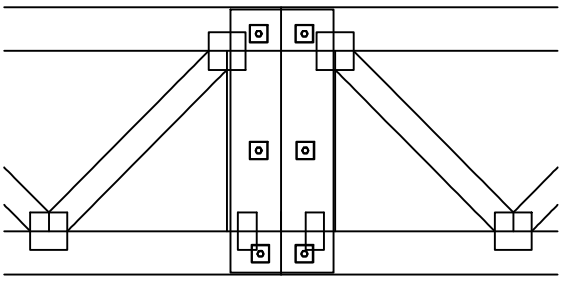


38 x 38 BATTEN SUPPORT BATTEN CUT SHORT OF APEX

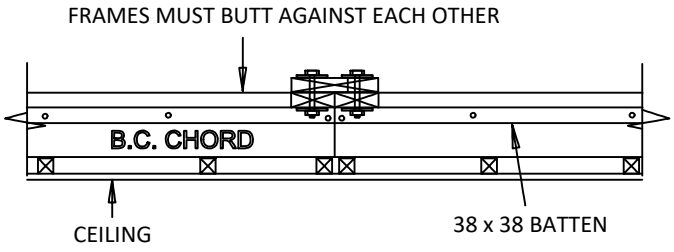
TYPICAL SECTION THROUGH BRACING FRAMES

BRACING/STIFFENER FRAME CONNECTION DETAILS AT APEX

36 x 149 (GRADE 5) 36 x 225 (GRADE 5) OR SPLICE CONNECTOR AS ABOVE

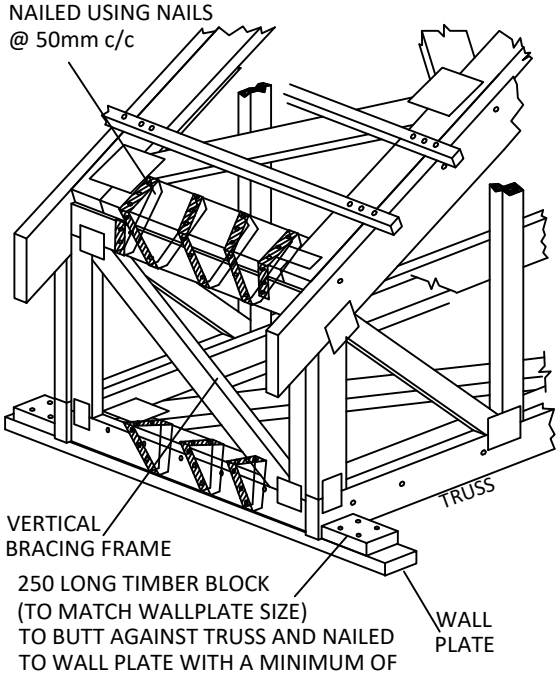


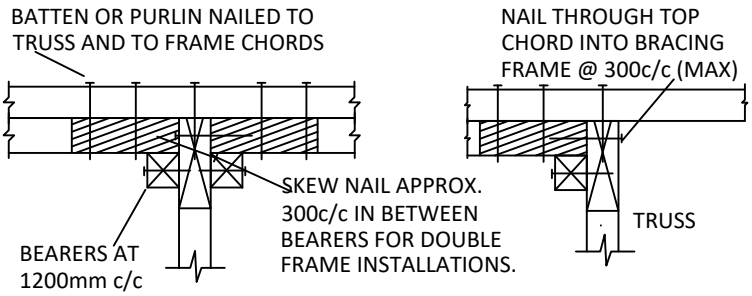
PLAN VIEW ON SPLICE



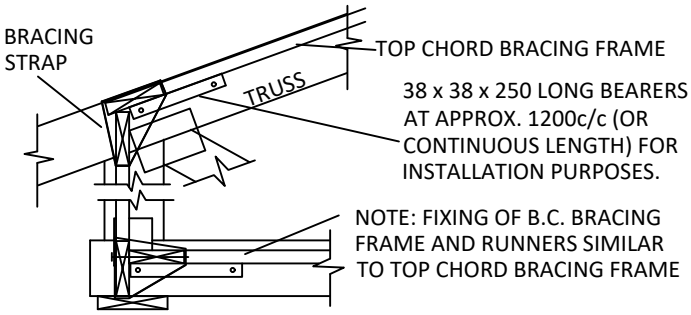
TYPICAL SECTION THROUGH BRACING FRAMES

TYPICAL BOTTOM CHORD BRACING FRAME SPLICE CONNECTION AT CENTRE OF TRUSS BOTTOM CHORDS - SHEETED ROOFS ONLY



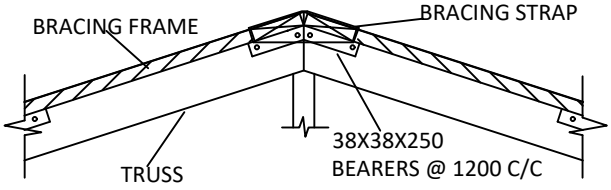


SECTION THROUGH TRUSS TOP CHORDS



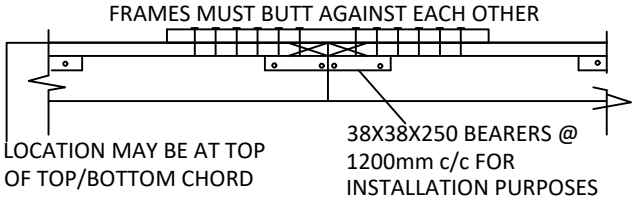
SECTION THROUGH END CONNECTION

BRACING FRAME CONNECTION DETAILS AT STUB END

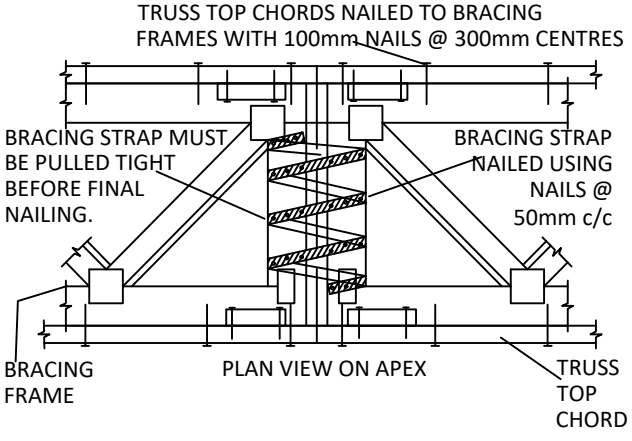


FRAMES MUST BUTT AGAINST EACH OTHER

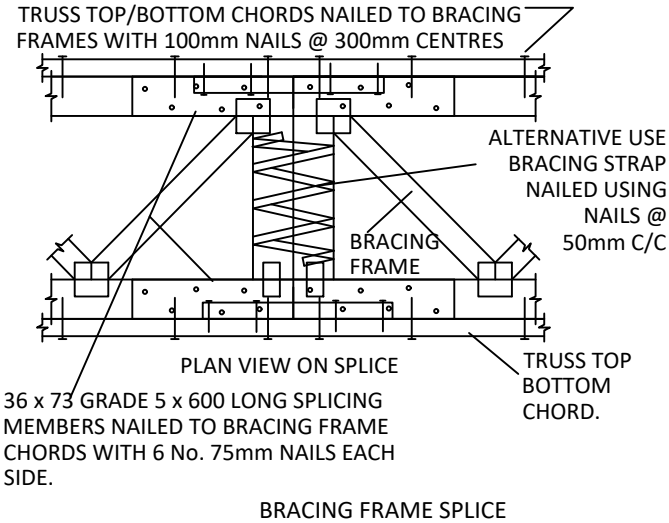
SECTION THROUGH CONNECTION



SECTION THROUGH SPLICE



BRACING FRAME CONNECTION AT APEX



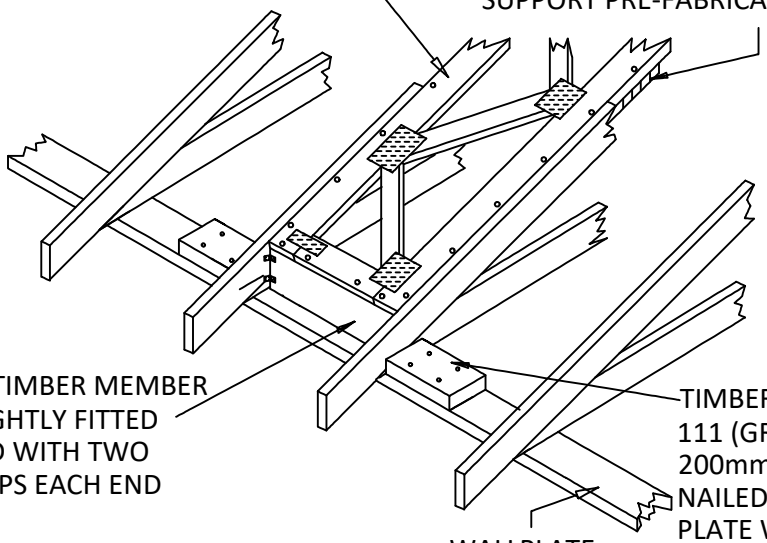
BRACING FRAME SPLICE

BRACING FRAME CONNECTION DETAILS AT APEX AND BOTTOM CHORD SPLICE

BRACING FRAME CONNECTION DETAILS

PREFABRICATED BRACING FRAME TO BE FIXED TO RAFTER AND TIE BEAM ON 38 x 38 MEMBERS WITH 75mm WIRE NAILS AT 300mm c/c

38 x 38 BATTEN TO BE NAILED AT 300 c/c TO RAFTER AND TIE BEAM TO SUPPORT PRE-FABRICATED FRAME



36 x 111/149/225 (GRADE 5) TIMBER MEMBER (TO SUIT TOP CHORD SIZE) TIGHTLY FITTED BETWEEN TRUSSES AND FIXED WITH TWO FULLY NAILED HURRICANE CLIPS EACH END

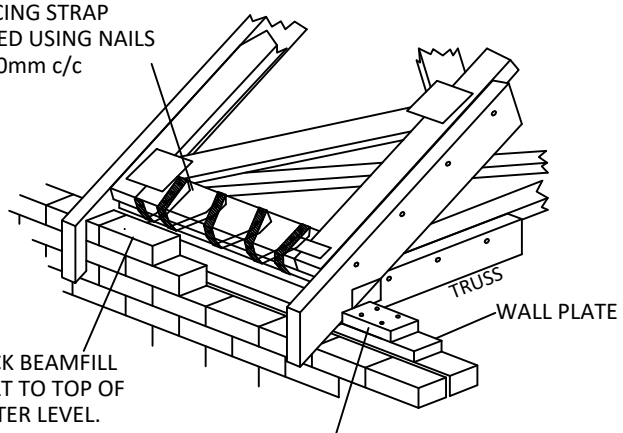
TIMBER BLOCK 36 x 111 (GRADE 5) x 200mm TO BE NAILED TO WALL PLATE WITH 4 x 75mm WIRE NAILS

WALLPLATE

NOTE:
PROCEDURE OF FIXING TOP CHORD BRACING FRAME TO BE APPLIED WHEN FIXING BOTTOM CHORD BRACING FRAME

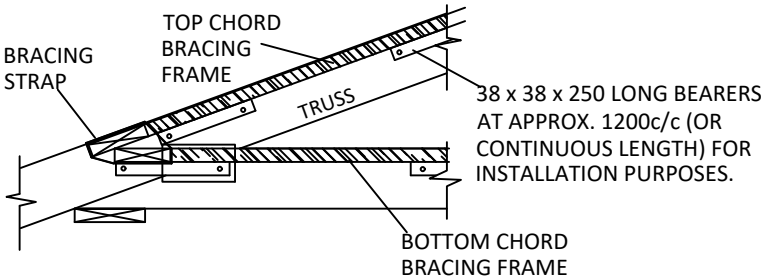
SINGLE BAY PREFABRICATED BRACING/STIFFENER FRAME STANDARD HEEL SUPPORT

BRACING STRAP NAILED USING NAILS AT 50mm c/c



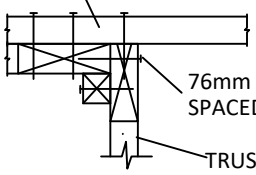
BRICK BEAMFILL BUILT TO TOP OF RAFTER LEVEL.

200 LONG TIMBER BLOCK (TO MATCH WALLPLATE SIZE) TO BUTT AGAINST TRUSS AND NAILED TO WALL PLATE WITH A MINIMUM OF 4No. 76mm NAILS. (REQUIRED IF THERE IS NO BEAMFILLING)



SECTION THROUGH HEEL CONNECTION

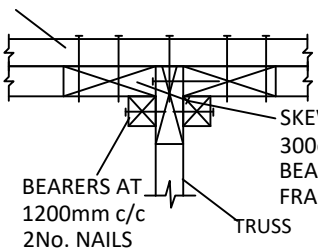
PURLIN/BATTEN/BOTTOM CHORD RUNNER NAIL THROUGH TOP/BOTTOM CHORD AND INTO THE BRACING FRAME



76mm WIRE NAILS SPACED AT 300mm CENTRES

TRUSS

BATTEN OR PURLIN NAILED TO TRUSS AND TO FRAME CHORDS



SKEW NAIL APPROX. 300c/c IN BETWEEN BEARERS FOR DOUBLE FRAME INSTALLATIONS.

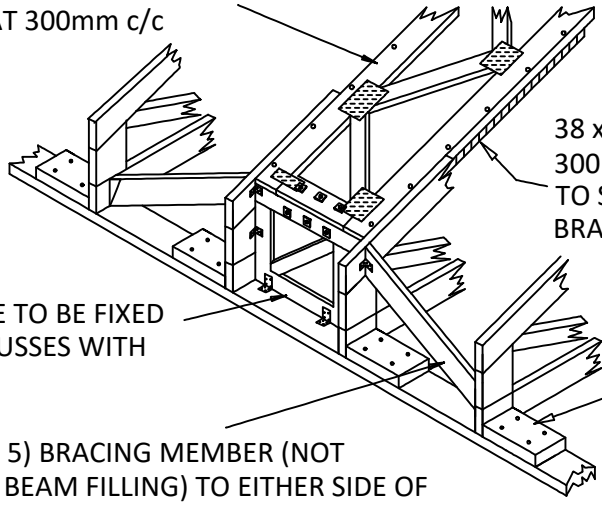
BEARERS AT 1200mm c/c 2No. NAILS EACH.

TRUSS

(NOTE: SIMILAR FIXING FOR B.C. BRACING FRAMES AND RUNNERS)

SECTION THROUGH TRUSS TOP CHORDS

PREFABRICATED BRACING FRAME TO BE FIXED TO RAFTER AND TIE BEAM ON 38 x 38 BEARERS WITH 75mm WIRE NAILS AT 300mm c/c



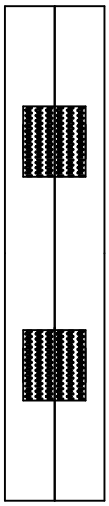
38 x 38 BATTEN TO BE NAILED AT 300 c/c TO RAFTER AND TIE BEAM TO SUPPORT PRE-FABRICATED BRACING FRAME

PRE-FABRICATED FRAME TO BE FIXED BETWEEN STUB-END TRUSSES WITH HURRICANE CLIPS

TIMBER BLOCK 36 x 111 (GRADE 5) x 200mm TO BE NAILED TO WALL PLATE WITH 4 x 75mm WIRE NAILS

36 x 111 (GRADE 5) BRACING MEMBER (NOT REQUIRED WITH BEAM FILLING) TO EITHER SIDE OF SHELF BAY TO BE FIXED WITH 4 x HURRICANE CLIPS

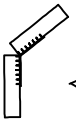
1.



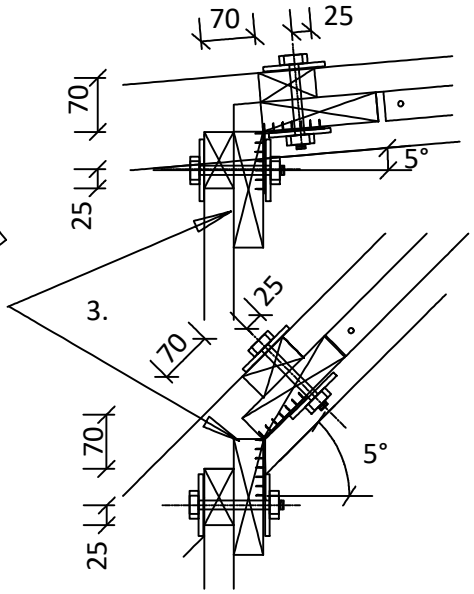
1. TWOPIECES OF 36 x 149 (GRADE 5) TIMBER CONNECTED WITH TWO 150 x 150mm (MINIMUM PLATE SIZE) FACTORY PRESSED NAIL PLATES ON **ONE** SIDE ONLY

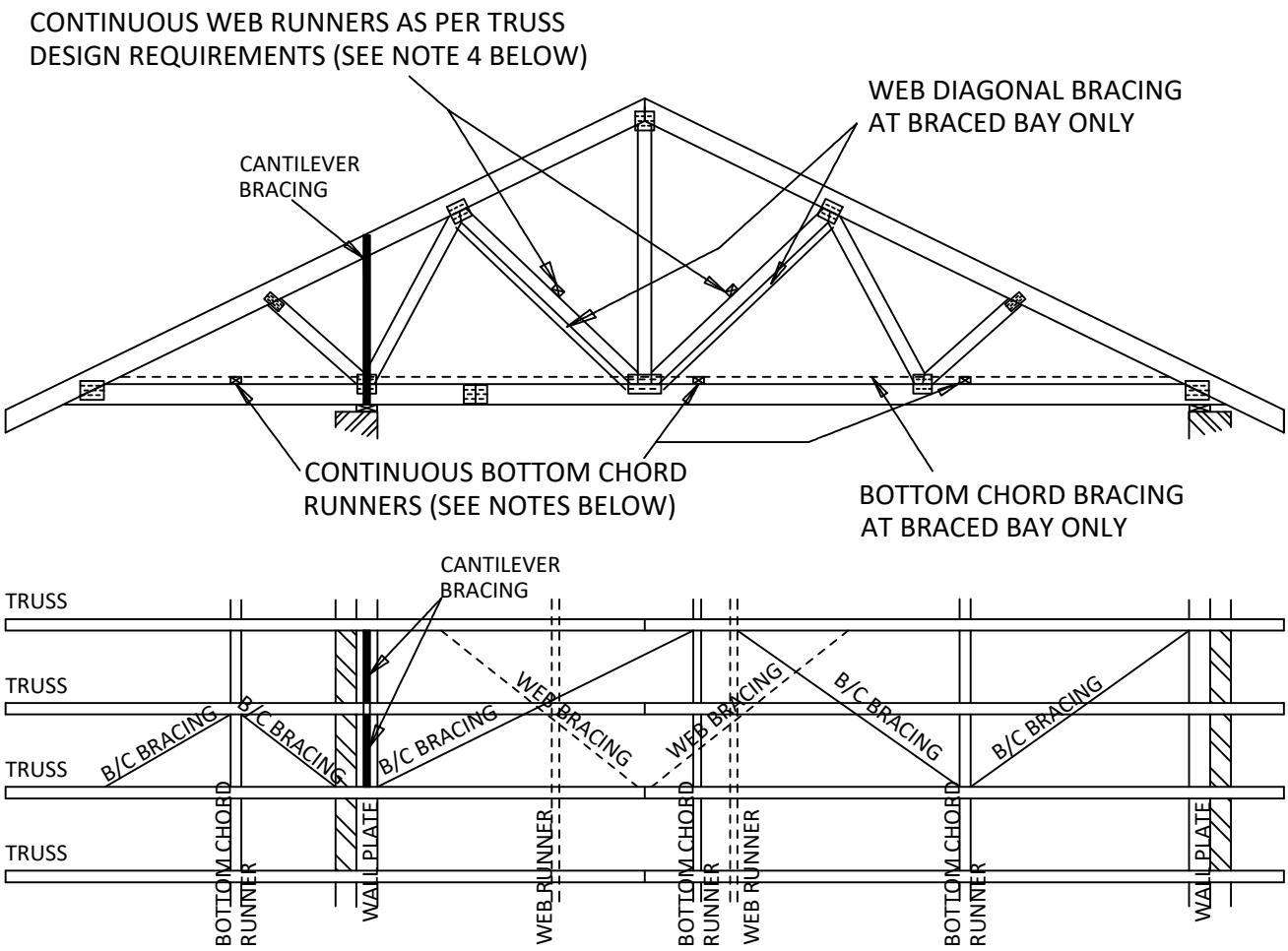
2. MEMBERS BENT TO SUIT TRUSS PITCH

3. CONNECTOR PIECES BOLTED TO THE UNDERSIDE OF BRACING FRAMES WITH M12 BOLTS WITH 4 x 36mm WASHERS EACH SIDE. THREE BOLTS PER FRAME, BOLTS MUST AVOID APEX BATTEN. MIN. EDGE DISTANCE OF 25mm



2.





PLAN VIEW

RUNNERS/BINDERS ARE ESSENTIAL IN THE FOLLOWING CASES.

RUNNERS ARE ALSO REFERRED TO AS BINDERS.

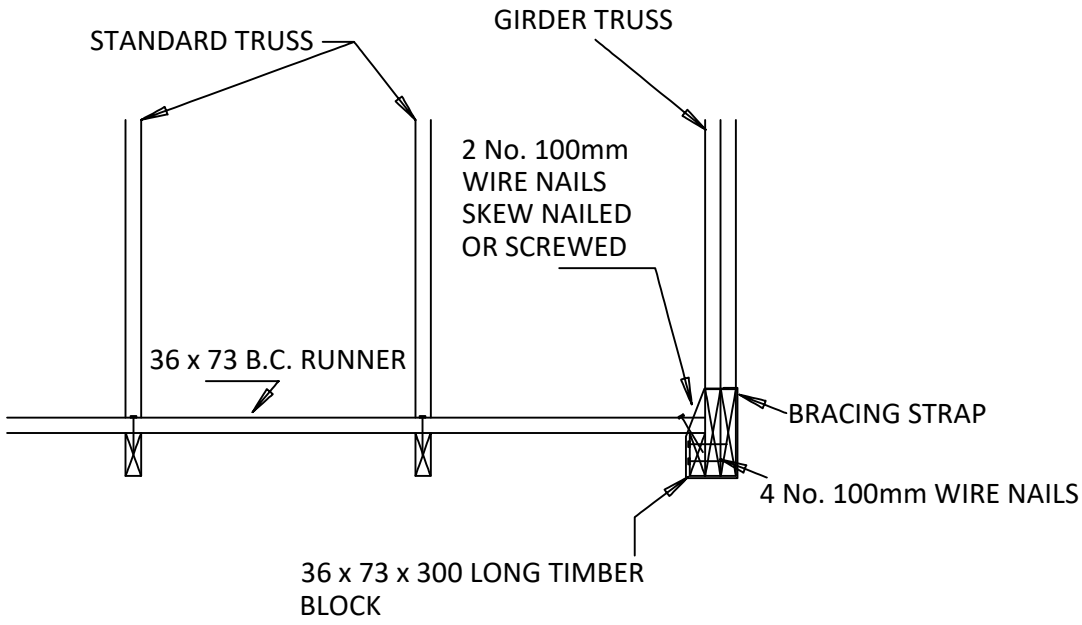
1) ON BOTTOM CHORDS OF CANTILEVER TRUSSES OVER CANTILEVER SECTION AND ADJACENT BAY. HERE THE BOTTOM CHORD IS IN COMPRESSION THEREFORE RUNNERS MUST BE AT 1800mm MAX. CENTRES.
2) ON BOTTOM CHORDS OF TRUSSES WITH LIGHT-WEIGHT ROOF COVERING BEFORE PERMANENT CEILINGS ARE INSTALLED DIRECTLY TO UNDERSIDE OF TIE BEAM. THE BOTTOM CHORD IS IN TENSION THEREFORE RUNNERS MUST BE AT 2600mm MAX. CENTRES.
3) ON BOTTOM CHORDS OF ROOFS WITH SUSPENDED CEILINGS OR WITHOUT CEILINGS. THE BOTTOM CHORDS IS IN TENSION THEREFORE RUNNERS MUST BE AT 2600mm MAX. CENTRES.
4) ON TENSION WEBS LONGER THAN 2600mm AND COMPRESSION WEBS LONGER THAN 1800mm U.O.S.

UNLESS OTHERWISE SHOWN:

1) MAXIMUM SPACING OF RUNNERS FOR 36mm TIE-BEAM = 2600mm
2) MAXIMUM SPACING OF RUNNERS FOR 48mm TIE-BEAM = 3450mm

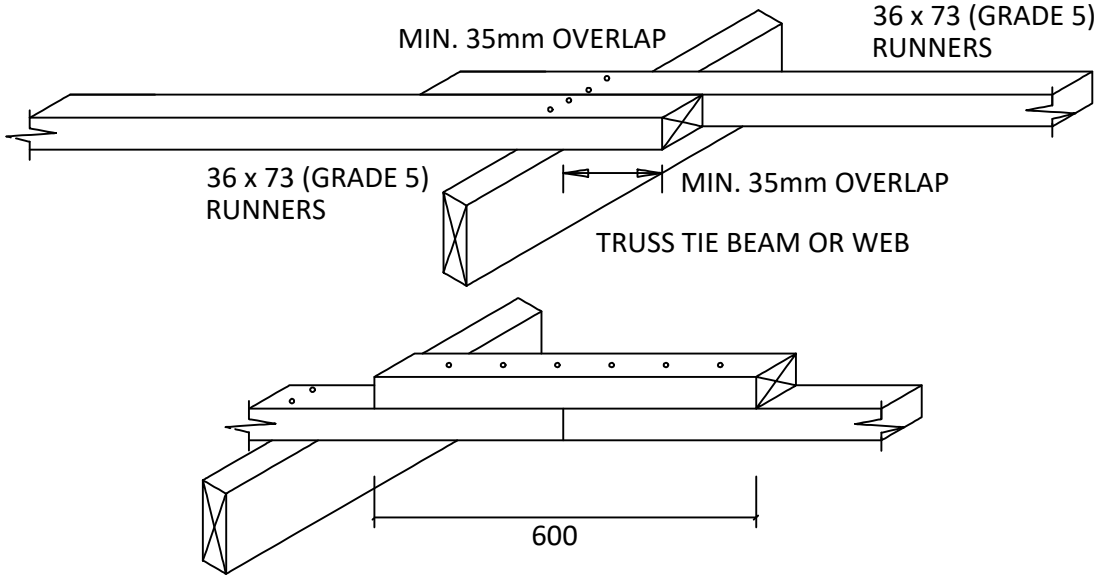
NOTE: THIS IS A TYPICAL DETAIL (REFER TO DESIGNERS REQUIREMENTS)

GENERAL RULES FOR BOTTOM CHORD RUNNER/BINDER AND WEB RUNNER/BINDER REQUIREMENTS



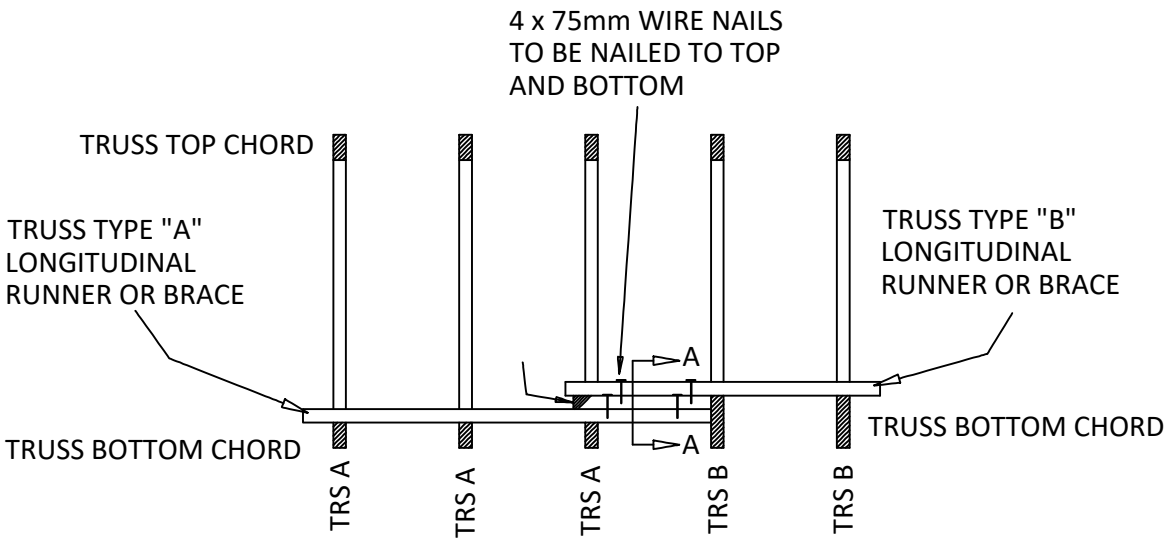
CONNECTION OF B.C. RUNNER/BINDER TO GIRDER B.C.

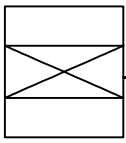
2 No. 75mm WIRE NAILS (PER RUNNER) AT EVERY CONNECTION



36 x 73 (GRADE 5) 600mm
LONG BLOCK SIX 75mm WIRE
NAILS EACH SIDE OF JOINT

RUNNER/BINDER SPLICING DETAILS





36mm OR 2 No. 36mm
PACK TO SUIT DIFFERENCES
IN BOTTOM CHORD DEPTHS

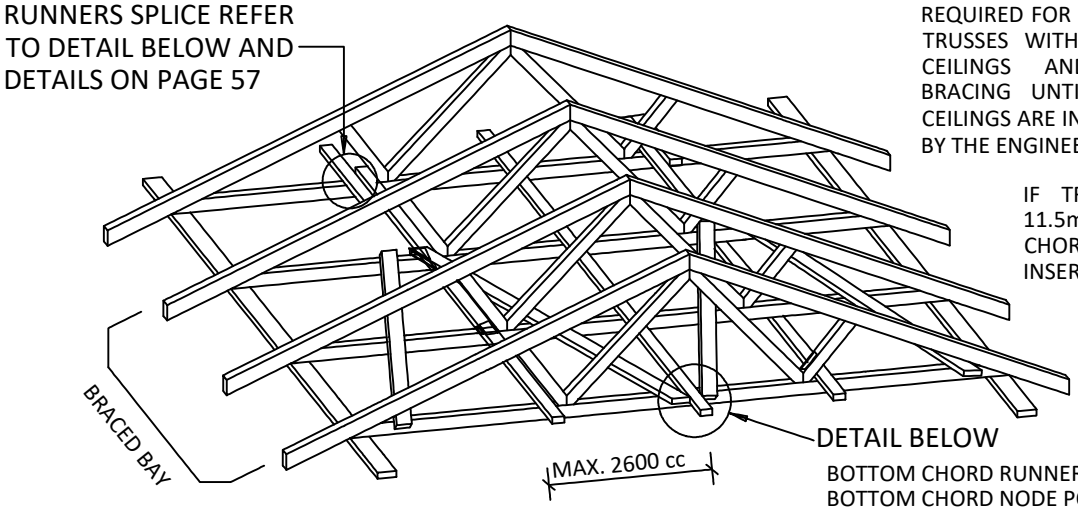
SECTION A-A

CHORD 'A'	CHORD B'	PACK SIZE	LENGTH mm
111	149	NONE	ONE TRUSS SPACE
111	225	50 x 76	
149	225	50 x 38	

RUNNER/BINDER JOINING DETAIL FOR VARYING
CHORD DEPTHS

GENERAL NOTES:
TIEBEAM BRACING AND RUNNERS ARE REQUIRED FOR LIGHT WEIGHT ROOFS, TRUSSES WITH SUSPENDED OR NO CEILINGS AND AS TEMPORARY BRACING UNTIL SUCH TIME THAT CEILINGS ARE INSTALLED (IF REQUIRED BY THE ENGINEER)

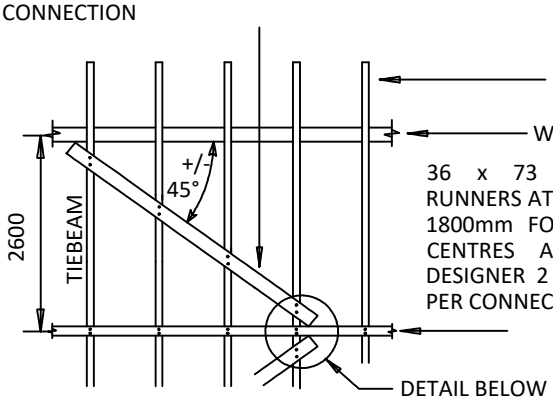
IF TRUSS SPAN EXCEEDS 11.5m THEN BOTTOM CHORD BRACING MUST BE INSERTED IN ALL CASES.



BOTTOM CHORD RUNNERS MUST BE PLACED AT BOTTOM CHORD NODE POINTS. SHOULD THE DESIGNER REQUIRE INTERMEDIATE RUNNERS THESE WILL BE SHOWN AS ADDITIONAL MEMBERS ON THE DRAWINGS

TIEBEAM BRACING AND RUNNERS

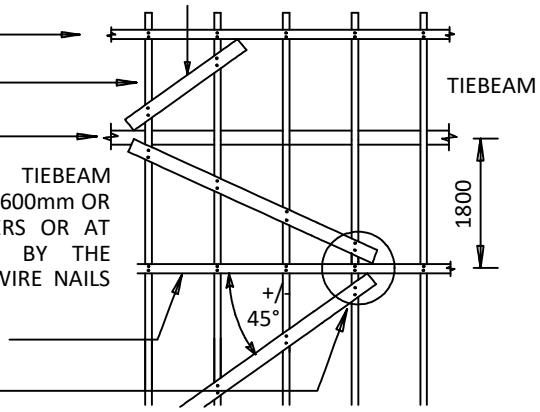
36 x 73 (GRADE 5) BRACING MEMBERS TO BE NAILED TO TOP SIDE OF TIEBEAM OVER THREE OR FOUR TRUSSES AT APPROX. 45 DEGREES. 2 No. 75mm NAILS PER CONNECTION



PLAN VIEW - STANDARD HEEL

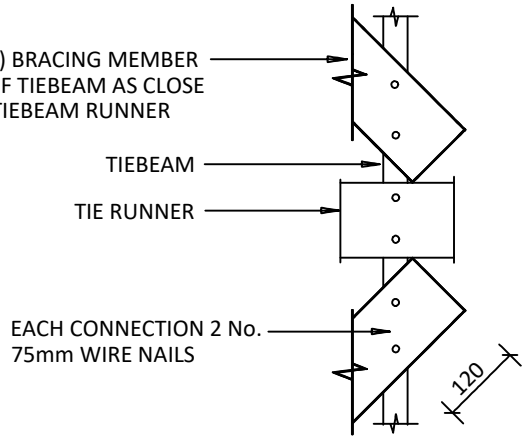
36 x 73 (GRADE 5) CANTILEVER BRACING MEMBER WITH 36 x 73 (GRADE 5) TIEBEAM RUNNER AS SPECIFIED BY THE DESIGNER

36 x 73 (GRADE 5) TIEBEAM RUNNERS AT MAXIMUM 2600mm OR 1800mm FOR CANTILEVERS OR AT CENTRES AS SPECIFIED BY THE DESIGNER 2 No. 75mm WIRE NAILS PER CONNECTION



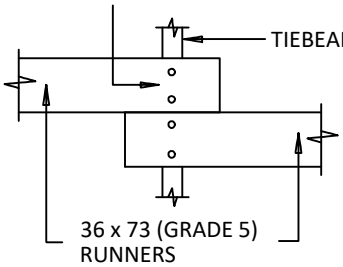
PLAN VIEW - CANTILEVER HEEL

36 x 73 (GRADE 5) BRACING MEMBER FIXED TOP SIDE OF TIEBEAM AS CLOSE AS POSSIBLE TO TIEBEAM RUNNER



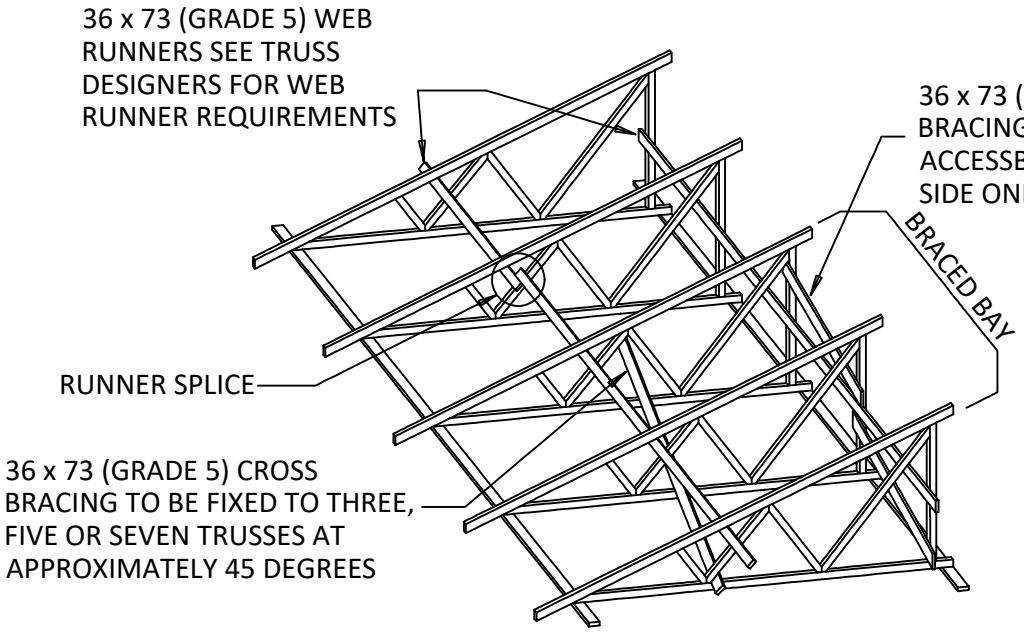
TIEBEAM BRACING CONNECTION

2 No. 75mm WIRE NAILS (PER RUNNER)

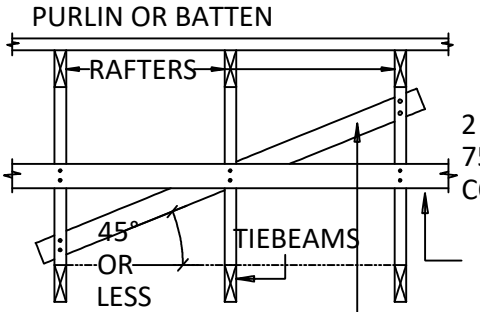


TIEBEAM RUNNER SPLICE

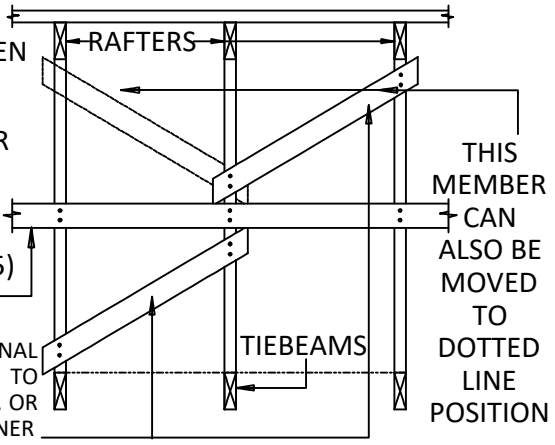
BOTTOM CHORD RUNNER/BINDER AND BRACING DETAILS TILED ROOFS = ALL SPANS; SHEETED ROOFS = MAX 15m SPAN. RUNNER DETAILS REMAIN WHEN BRACING FRAMES ARE SPECIFIED)



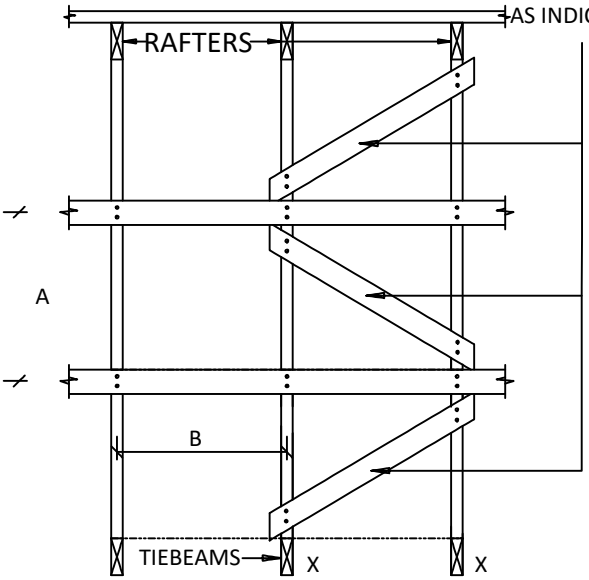
WEB AND RUNNER BRACING



SINGLE WEB RUNNER



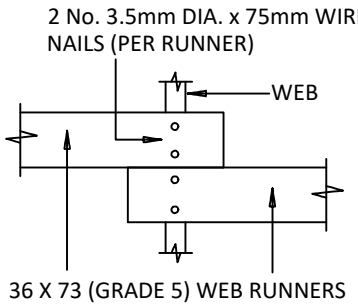
WEB RUNNERS AND BRACE ON THE SAME SIDE



DIAGONAL BRACES TO BE AT APPROX. 45 DEGREES DISTANCE BETWEEN RUNNERS DIVIDED BY TRUSS SPACING, PLUS ONE EQUALS TRUSSES TO CROSS

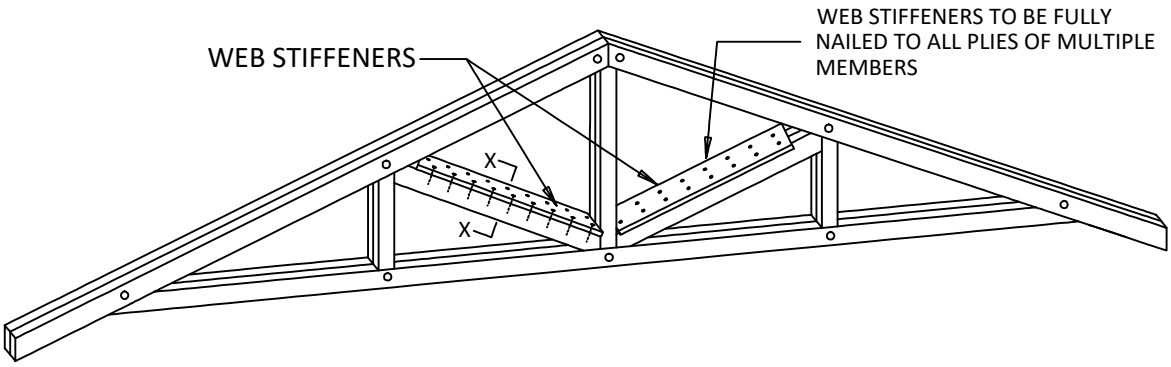
A/B + 1 = No. X

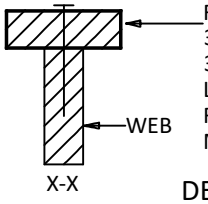
WEB BRACING WHERE TWO RUNNERS OCCUR



WEB RUNNER SPLICE

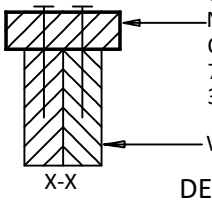
WEB RUNNER/ BINDER AND BRACING DETAILS FOR WEBS NEEDING RESTRAINTS WHERE THREE OR MORE WEBS LINE UP /ARE IN PLANE





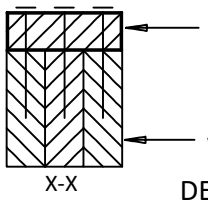
36 x 73 (GRADE 5) CONTINUOUS WEB STIFFENER, NAILED ALONG FULL LENGTH OF WEB WITH 3.5mm DIA. x 75mm NAILS AT 300mm CENTRES. IF TWO LATERAL RESTRAINTS ARE REQUIRED THEN THE T BRACE MUST BE AT 36 x 111

DETAIL (T1)



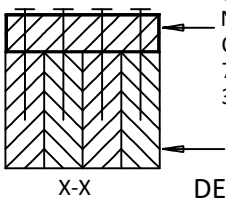
36 x 111 (GRADE 5) CONTINUOUS WEB STIFFENER, NAILED ALONG FULL LENGTH OF WEB WITH 3.5mm DIA. x 75mm NAILS AT 300mm 300mm CENTRES

DETAIL (T2)



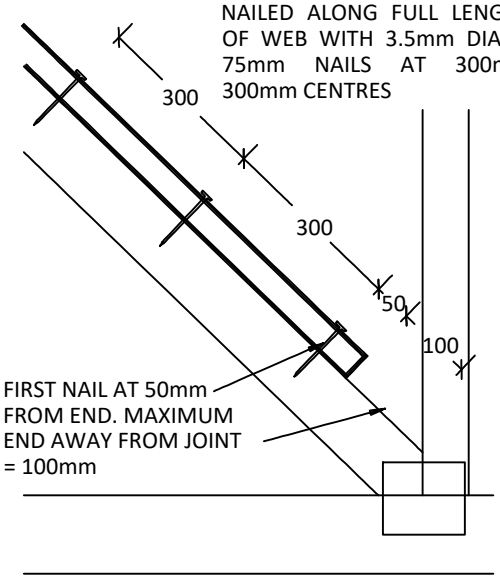
36 x 111 (GRADE 5) CONTINUOUS WEB STIFFENER, NAILED ALONG FULL LENGTH OF WEB WITH 3.5mm DIA. x 75mm NAILS AT 300mm 300mm CENTRES

DETAIL (T3)



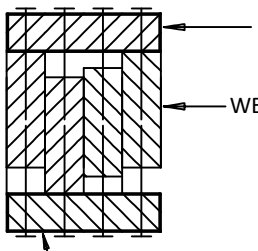
36 x 149 (GRADE 5) CONTINUOUS WEB STIFFENER, NAILED ALONG FULL LENGTH OF WEB WITH 3.5mm DIA. x 75mm NAILS AT 300mm 300mm CENTRES

DETAIL (T4)



36 x 149 (GRADE 5) CONTINUOUS WEB STIFFENER, NAILED ALONG FULL LENGTH OF WEB WITH 3.5mm DIA. x 75mm NAILS AT 300mm 300mm CENTRES

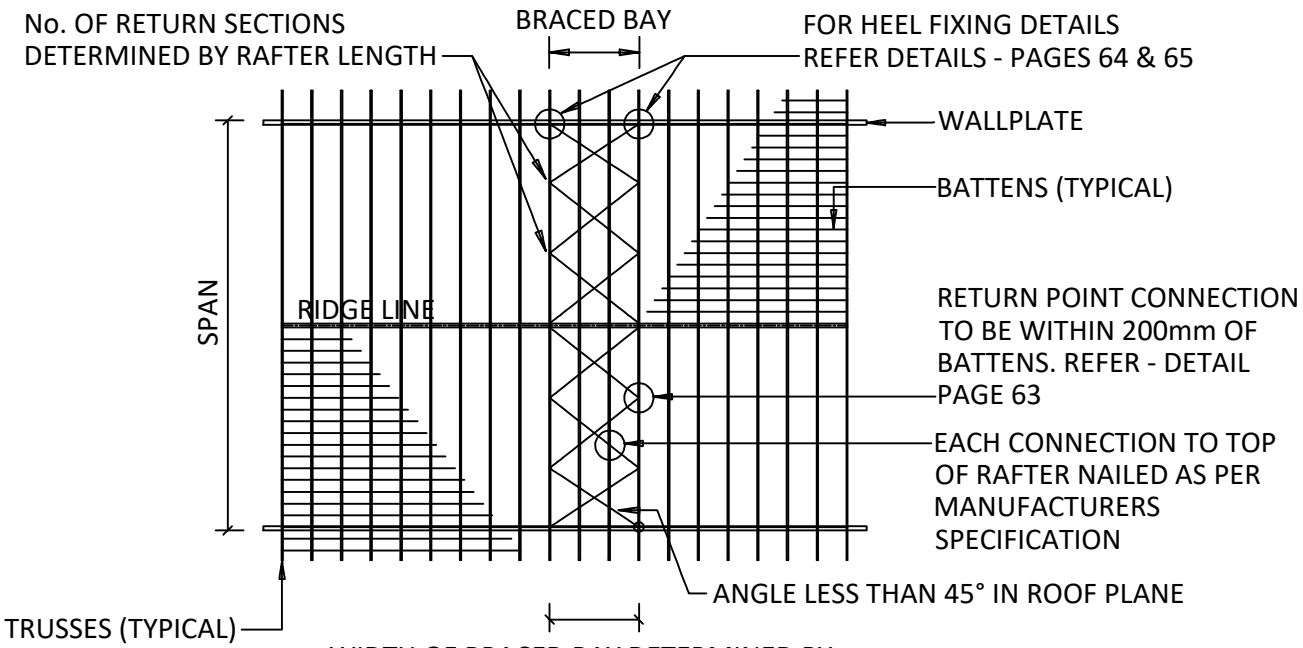
REMEDIAL DETAIL WHEN WEBS DO NOT LINE UP - (MAXIMUM 15mm OUT ALLOWED) USE T-BRACE BOTH SIDES



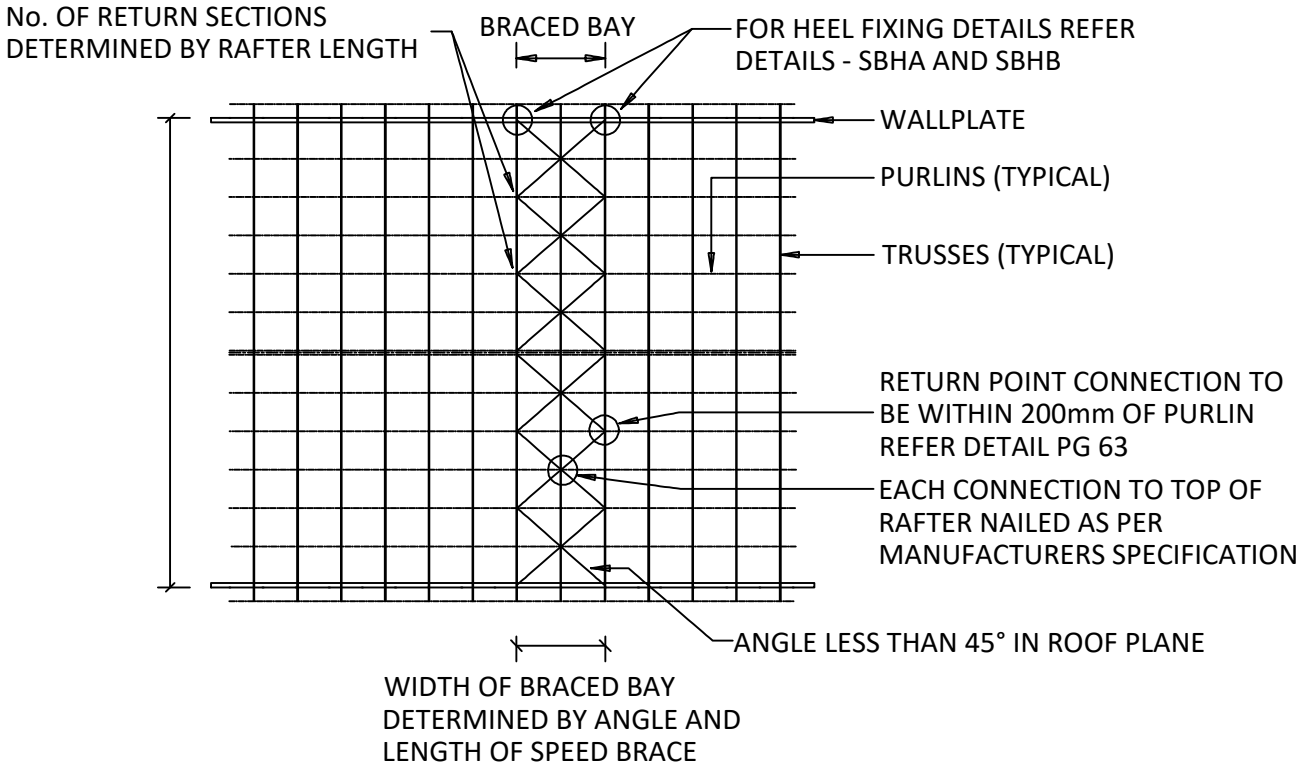
36 x 149 (GRADE 5) CONTINUOUS WEB STIFFENER, NAILED ALONG FULL LENGTH OF WEB WITH 3.5mm DIA. x 75mm NAILS AT 300mm 300mm CENTRES

36 x 149 (GRADE 5) CONTINUOUS WEB STIFFENER, NAILED ALONG FULL LENGTH OF WEB WITH 3.5mm DIA. x 75mm NAILS AT 300mm 300mm CENTRES

WEB STIFFENER OR T-BRACING ON WEBS AS PER TRUSS DESIGN REQUIREMENTS - USED WHEN LESS THAN THREE WEBS NEEDING LATERAL RESTRAINT LINE UP / ARE IN PLANE

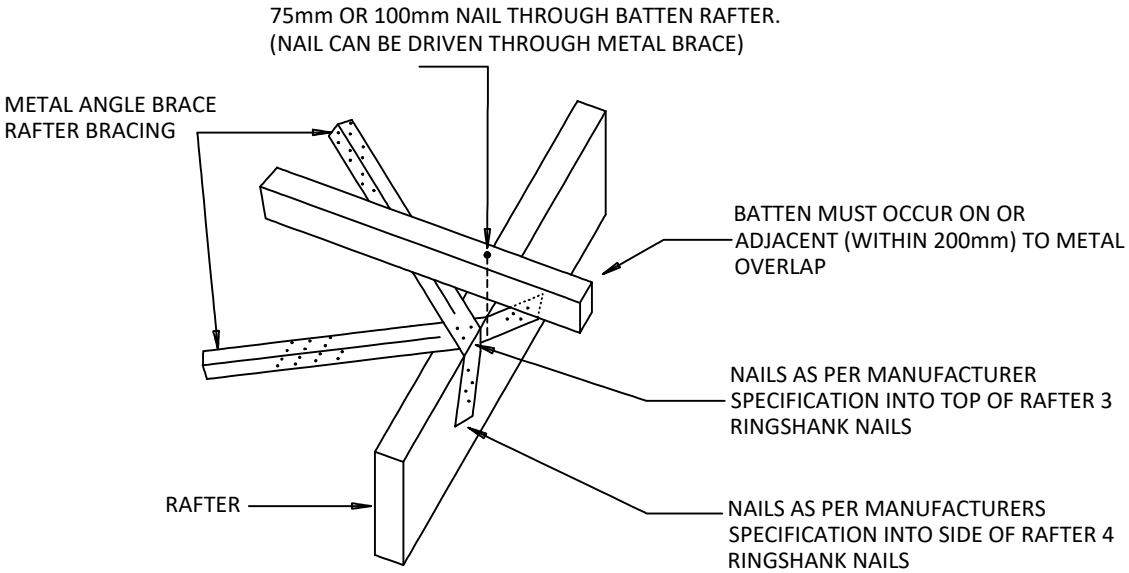


TOP CHORD METAL BRACING LAYOUT FOR TILED ROOFS UP TO 11.5m SPAN
BRACING BAY SPACING AS PER DESIGNER - SEE ROOF PLAN

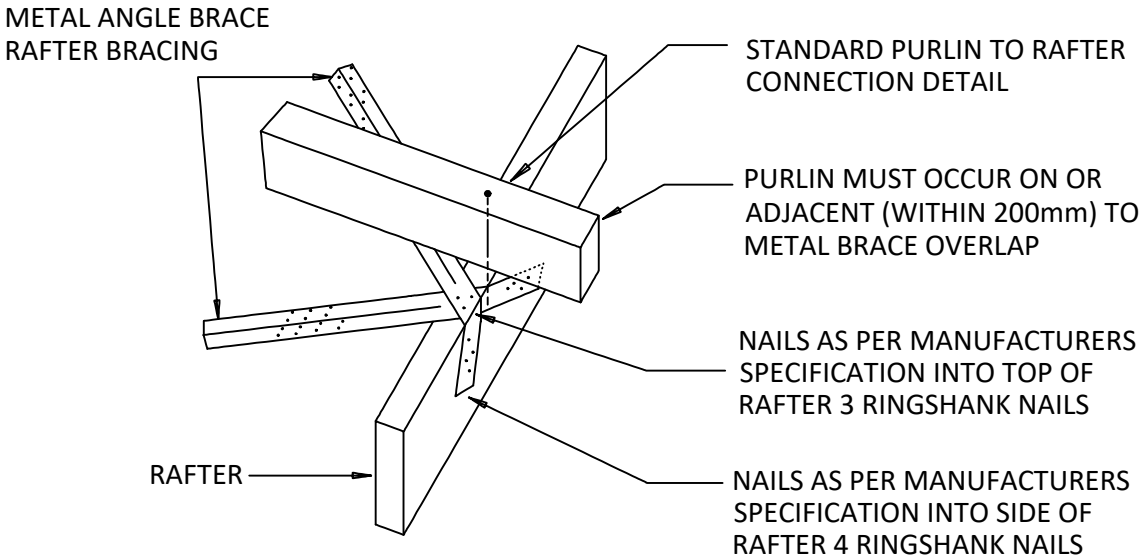


TOP CHORD METAL BRACING LAYOUT FOR SHEETED ROOFS UP TO 15m SPAN BRACING
BAY SPACINGS AS PER DESIGNER - SEE ROOF PLAN

TOP CHORD BRACING WITH METAL ANGLE BRACING FOR TILED
ROOFS AND SHEETED ROOFS

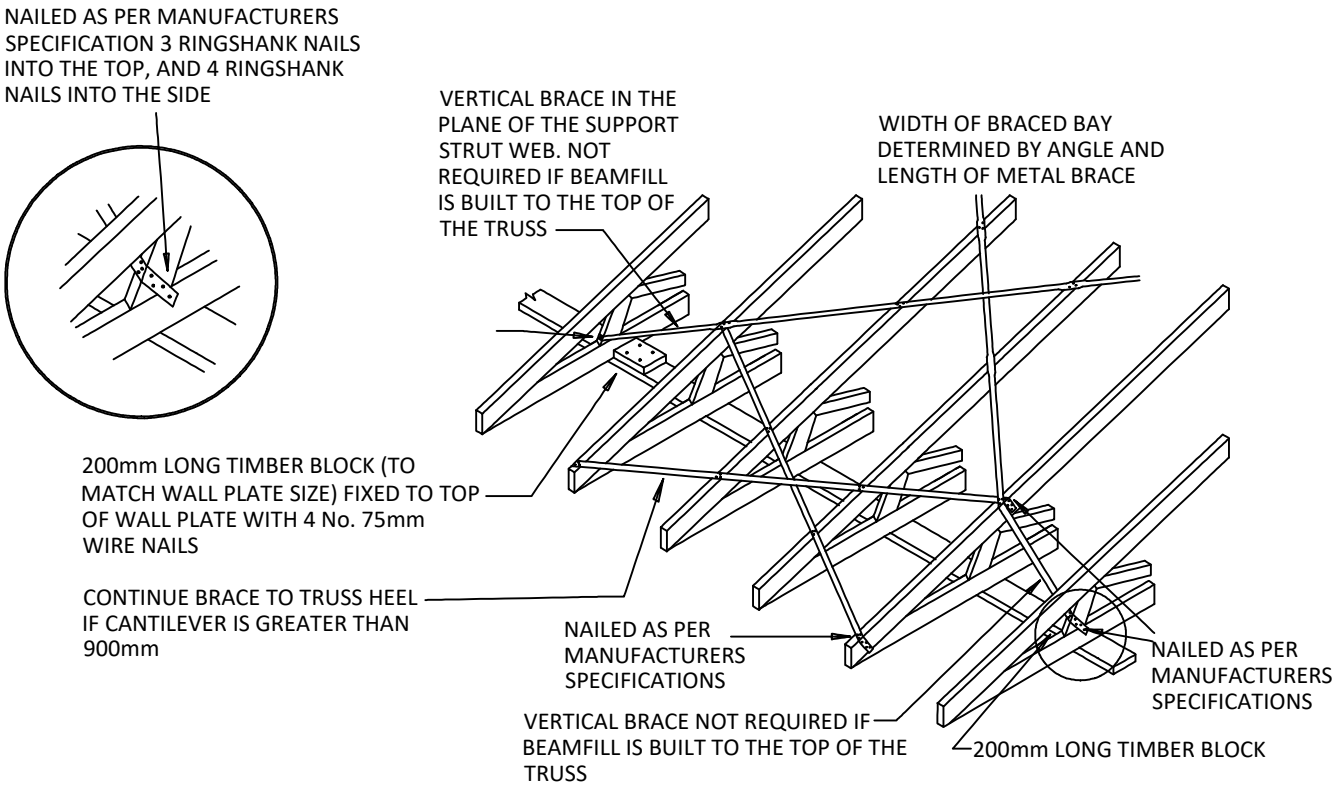


RETURN POINT CONNECTION FOR TILED ROOFS

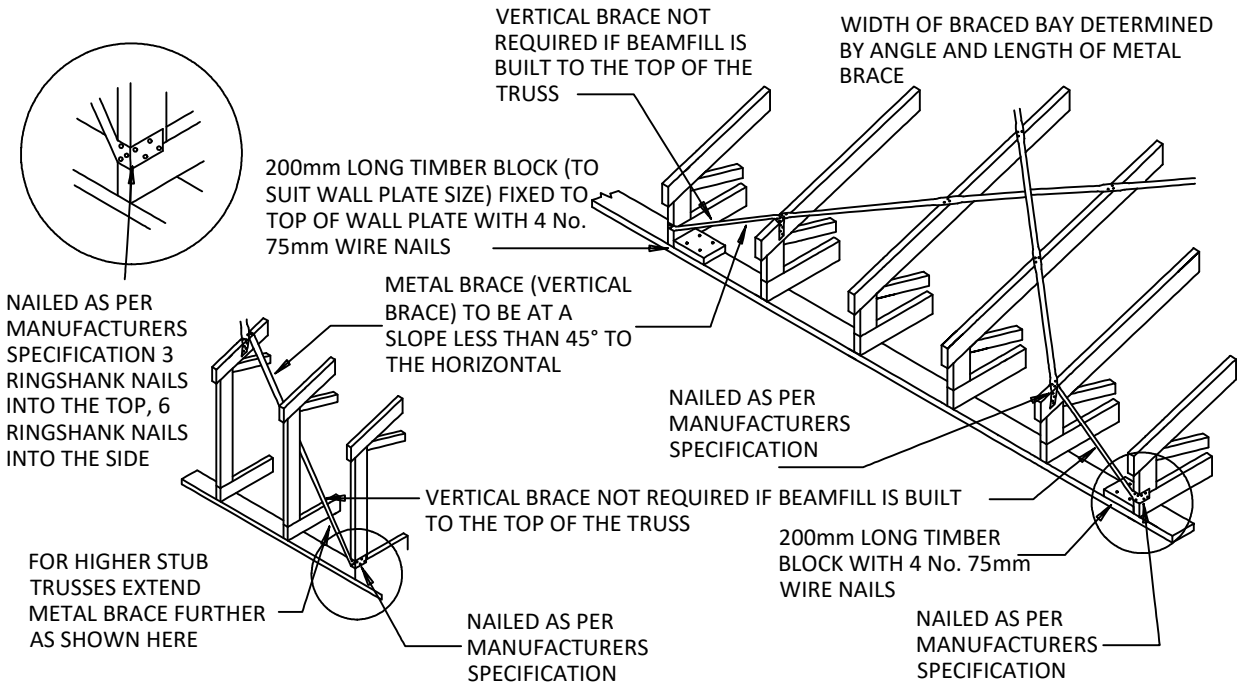


RETURN POINT CONNECTION FOR SHEETED ROOFS

TOP CHORD BRACING WITH METAL ANGLE BRACING FOR
TILED ROOFS AND SHEETED ROOFS

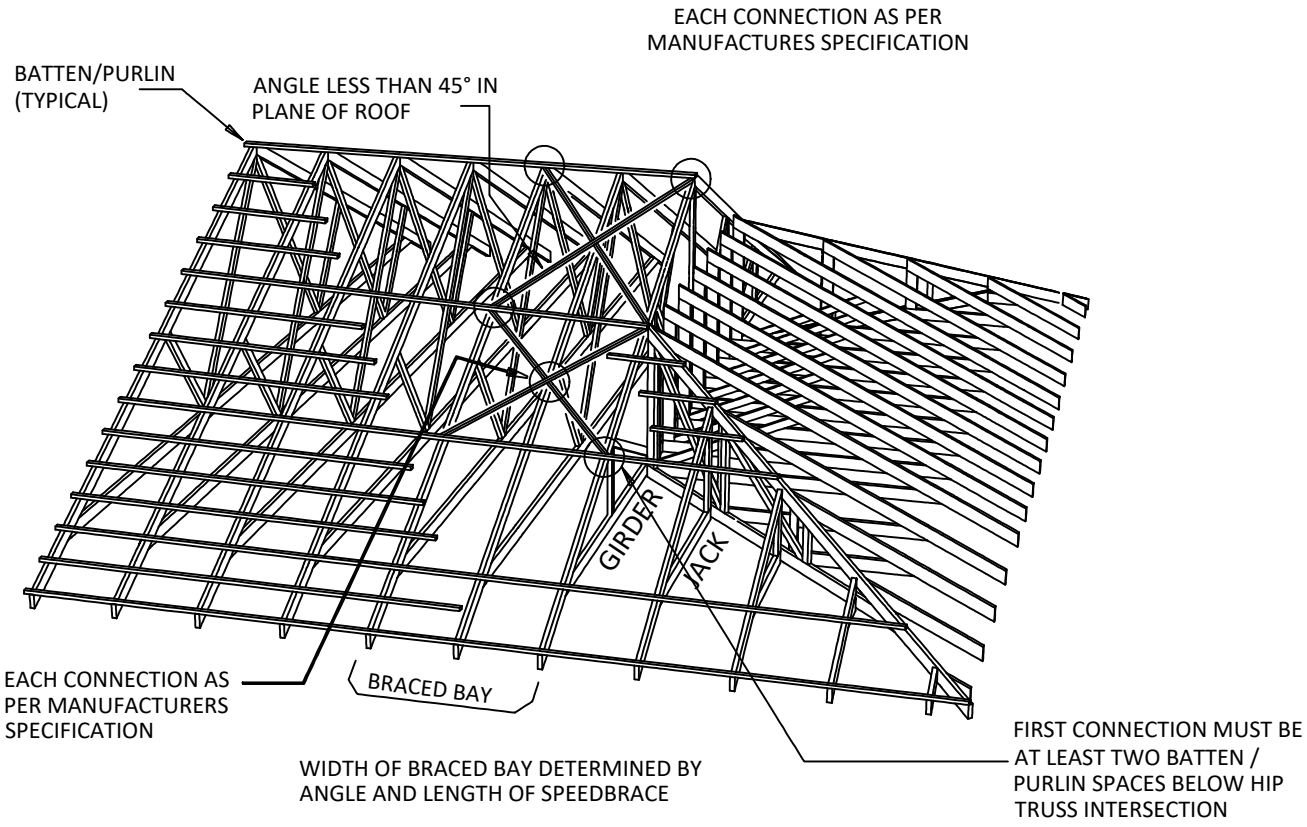


METAL ANGLE BRACE WALL CONNECTION FOR CANTILEVER TRUSSES



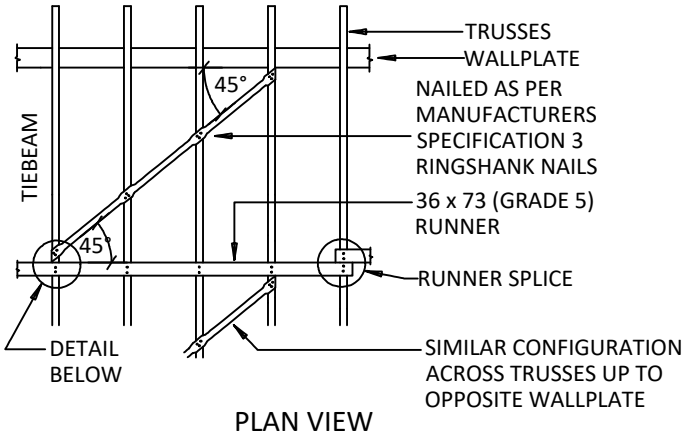
METAL ANGLE BRACE WALL CONNECTION FOR STUB-END TRUSSES

HEEL END CONNECTION OF TOP CHORD BRACING WITH METAL ANGLE BRACING FOR TILED ROOFS AND SHEETED ROOFS

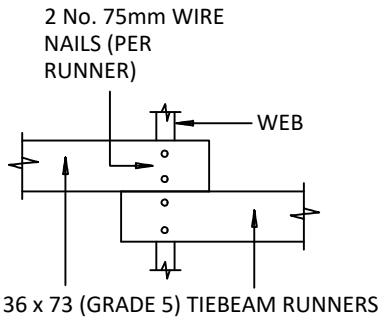


DUTCH GABLE BRACING TO BE INSTALLED WHERE LOUVRE SECTION IS LESS THAN $\frac{1}{4}$ SPAN.
STANDARD GABLE BRACING TO BE INSTALLED WHERE LOUVRE SECTION IS GREATER THAN $\frac{1}{4}$ SPAN.

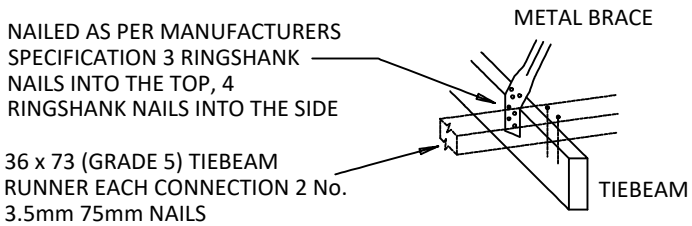
TOP CHORD BRACING OF "DUTCH" HIP END WITH METAL ANGLE BRACING
FOR TILED ROOFS AND SHEETED ROOFS



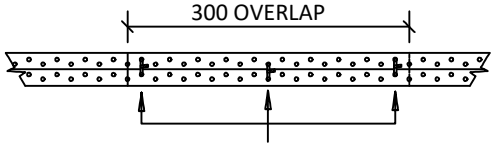
PLAN VIEW



TIEBEAM RUNNER SPLICE



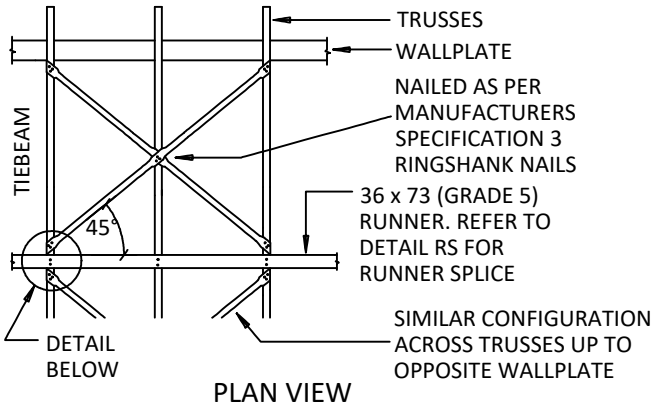
METAL BRACE CONNECTION



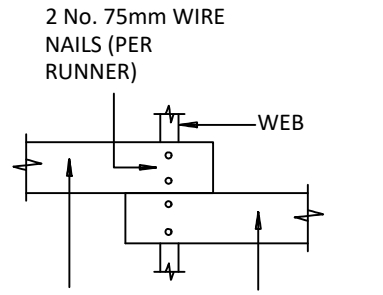
IF REQUIRED, JOIN METAL BRACE USING 3 No. 2.5mm WIRE TIES THROUGH CORRESPONDING HOLES AND TWIST TIGHTLY WITH PLIERS

METAL BRACE SPLICE

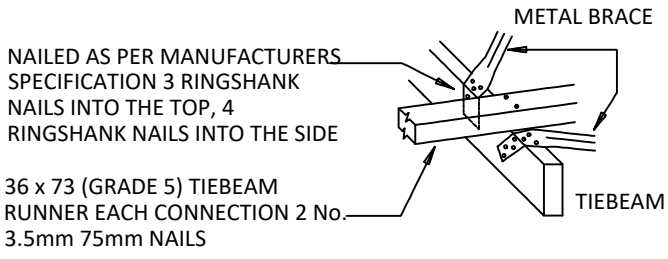
TIEBEAM BRACING WITH METAL BRACE FOR HEAVY TILED ROOFS



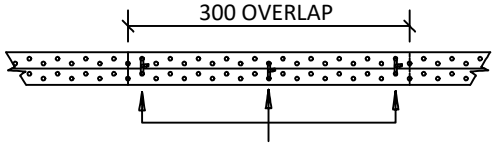
PLAN VIEW



TIEBEAM RUNNER SPLICE



METAL BRACE CONNECTION

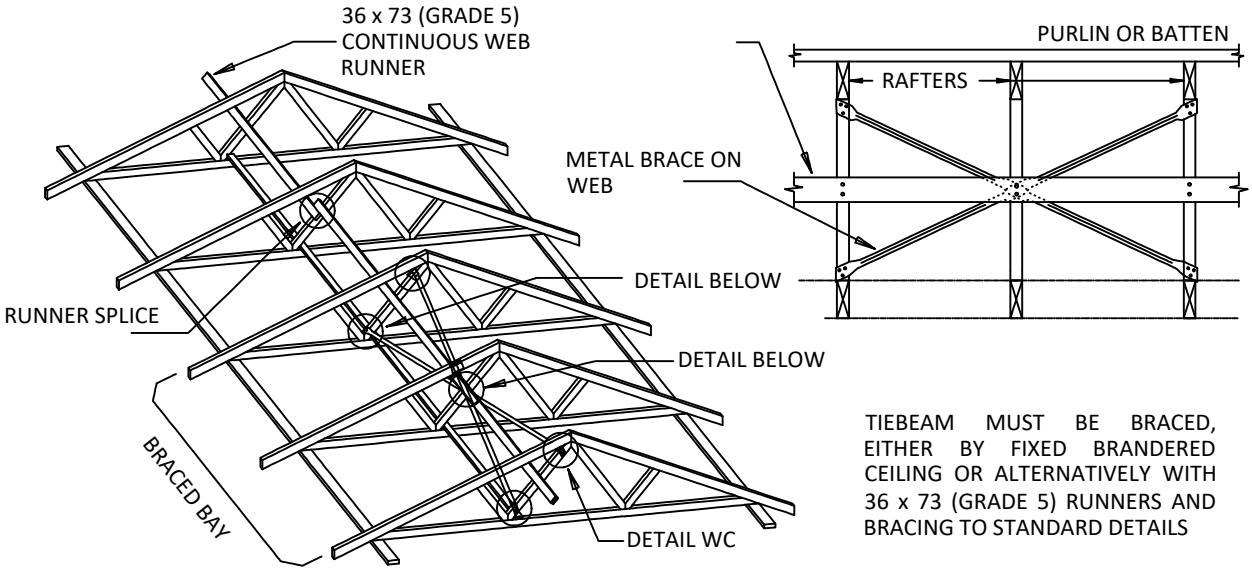


IF REQUIRED, JOIN METAL BRACE USING 3 No. 2.5mm WIRE TIES THROUGH CORRESPONDING HOLES AND TWIST TIGHTLY WITH PLIERS

METAL BRACE SPLICE

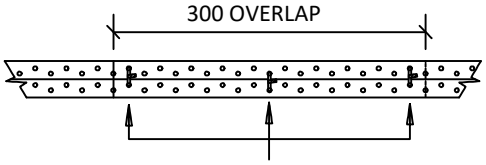
TIEBEAM BRACING WITH METAL BRACE FOR LIGHT WEIGHT ROOFS

BOTTOM CHORD BRACING WITH METAL ANGLE BRACING FOR TILED ROOFS AND SHEETED ROOFS



TIEBEAM MUST BE BRACED, EITHER BY FIXED BRANDERED CEILING OR ALTERNATIVELY WITH 36 x 73 (GRADE 5) RUNNERS AND BRACING TO STANDARD DETAILS

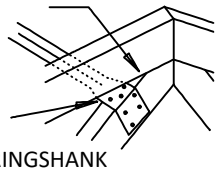
WEB BRACING WITH METAL BRACE - BRACED BAY SPACING AS PER ROOF PLAN



IF REQUIRED, JOIN METAL BRACE USING 3 No. 2.5mm WIRE TIES THROUGH CORRESPONDING HOLES AND TWIST TIGHTLY WITH PLIERS

METAL BRACE SPLICE

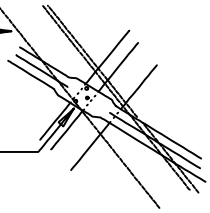
METAL BRACE TO BE AS CLOSE TO END OF WEB INTERSECTION AS POSSIBLE



NAILED AS PER MANUFACTURERS SPECIFICATION 3 RINGSHANK NAILS INTO TOP, 4 RINGSHANK NAILS INTO SIDE

WEB CONNECTION

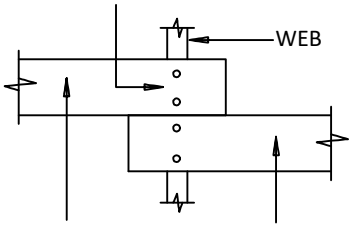
36 x 73 (GRADE 5) RUNNER FIXED WITH 2 No. 75mm WIRE NAILS (CAN BE NAILED THROUGH METAL BRACE)



NAILED AS PER MANUFACTURERS SPECIFICATIONS 3 RINGSHANK NAILS

WEB AND RUNNER CONNECTION

2 No. 75mm WIRE NAILS (PER RUNNER)



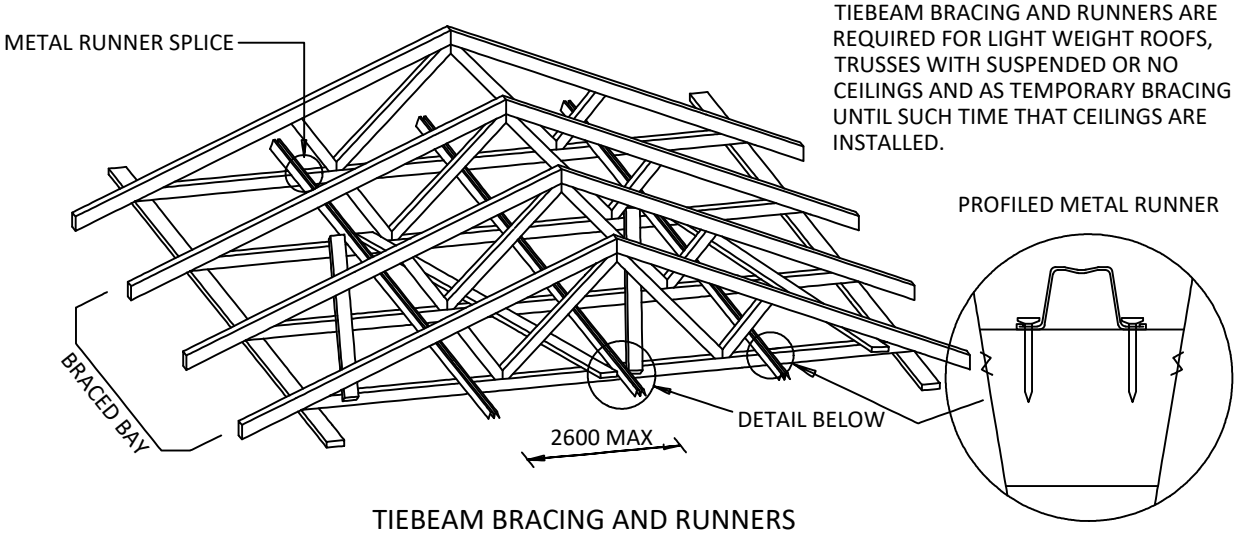
36 x 73 (GRADE 5) WEB RUNNERS

WEB RUNNER SPLICE

WEB BRACING WITH LIGHT GAUGE METAL ANGLE BRACING FOR TILED ROOFS AND SHEETED ROOFS

BRACED BAY INTERVAL AS PER ROOF PLAN

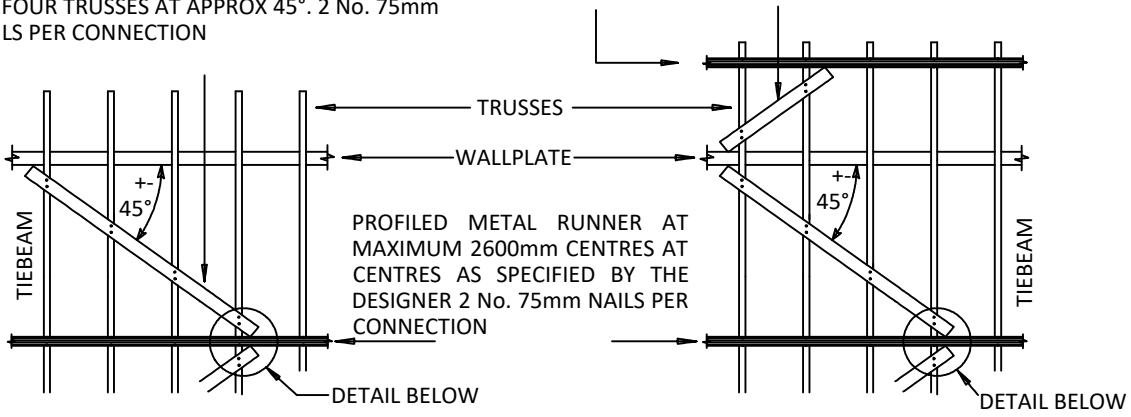
GENERAL NOTES:
TIEBEAM BRACING AND RUNNERS ARE REQUIRED FOR LIGHT WEIGHT ROOFS, TRUSSES WITH SUSPENDED OR NO CEILINGS AND AS TEMPORARY BRACING UNTIL SUCH TIME THAT CEILINGS ARE INSTALLED.



TIEBEAM BRACING AND RUNNERS
TILES - SPANS LESS THAN 11.5m | SHEETING - SPANS LESS THAN 15m

36 x 73 (GRADE 5) BRACING MEMBERS TO BE NAILED TO TOP SIDE OF TIEBEAM OVER THREE OR FOUR TRUSSES AT APPROX 45°. 2 No. 75mm NAILS PER CONNECTION

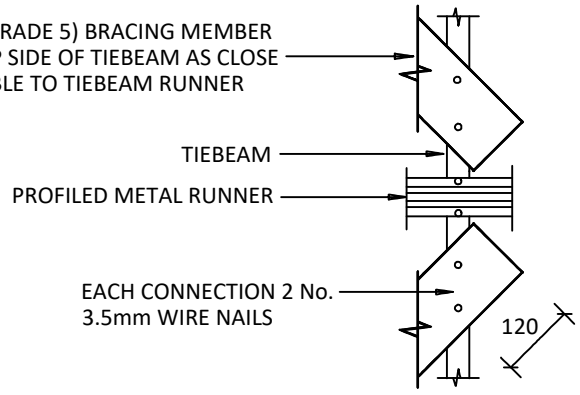
36 x 73 (GRADE 5) CANTILEVER BRACING MEMBER WITH METAL RUNNER AS SPECIFIED BY DESIGNER



PLAN VIEW - STANDARD HEEL

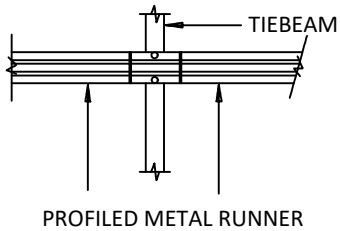
PLAN VIEW - CANTILEVER HEEL

36 x 73 (GRADE 5) BRACING MEMBER FIXED TOP SIDE OF TIEBEAM AS CLOSE AS POSSIBLE TO TIEBEAM RUNNER



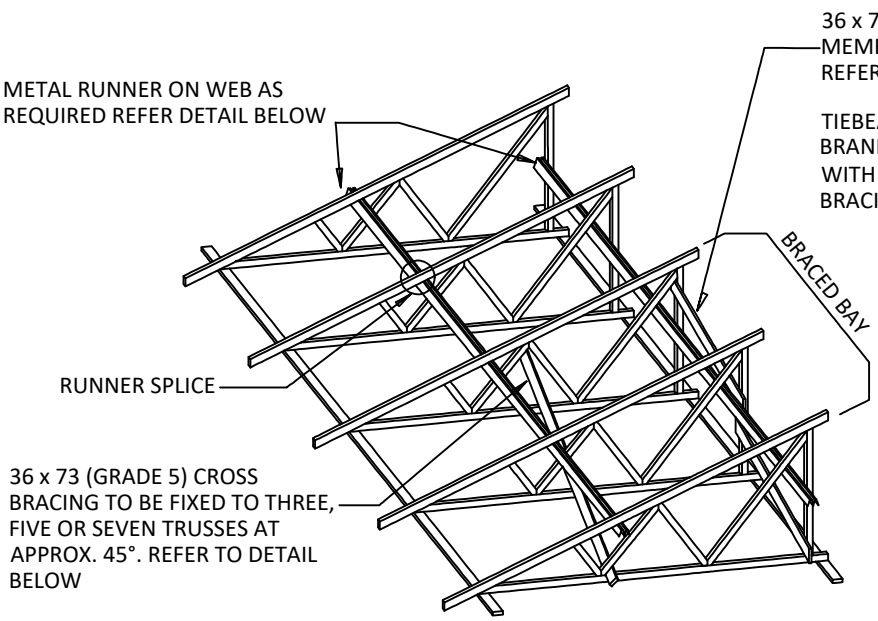
BRACING CONNECTION

2 No. 75mm WIRE NAILS AT EACH CONNECTION. ALWAYS SPLICE ON A BOTTOM CHORD BY OVERLAPPING

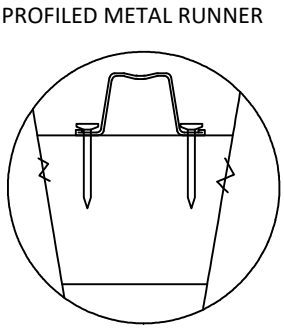


RUNNER SPLICE

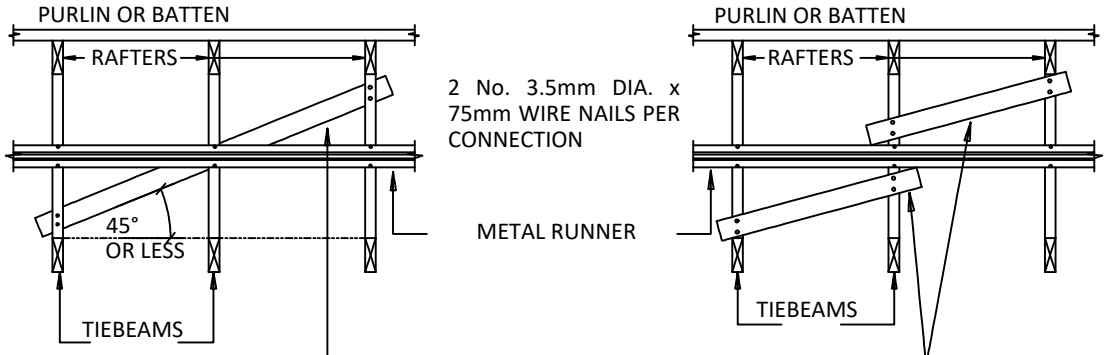
BOTTOM CHORD RESTRAINTS WITH "M" METAL RUNNERS FOR A MAXIMUM TRUSS SPANNING OF 1200mm



PROFILED METAL RUNNER & TIMBER BRACING ON WEBS

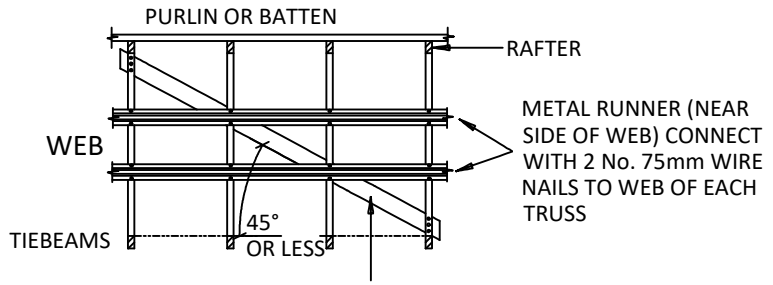


TYPICAL CONNECTION

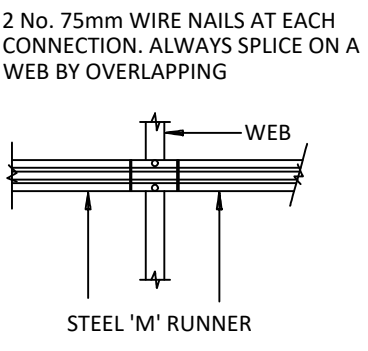


RUNNER & BRACING OPPOSITE SIDES

RUNNER & BRACING ON THE SAME SIDE

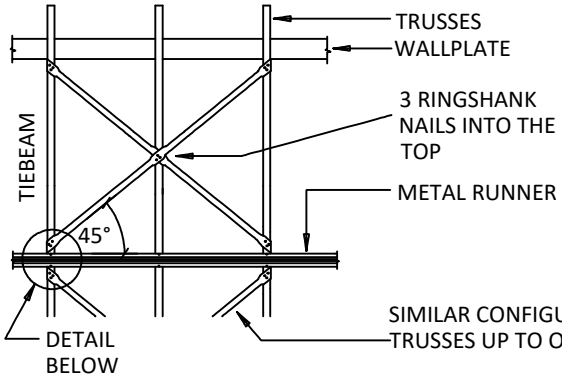


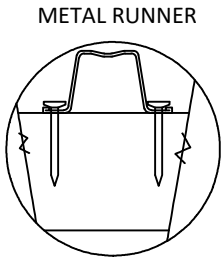
WEB BRACING WHERE TWO RUNNERS OCCUR



RUNNER SPLICE

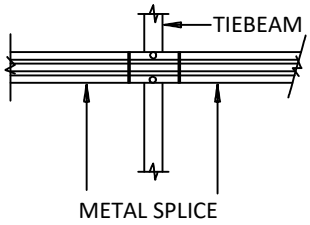
WEB RESTRAINTS WITH PROFILED "M" METAL RUNNERS FOR A MAXIMUM TRUSS SPACING OF 1200mm



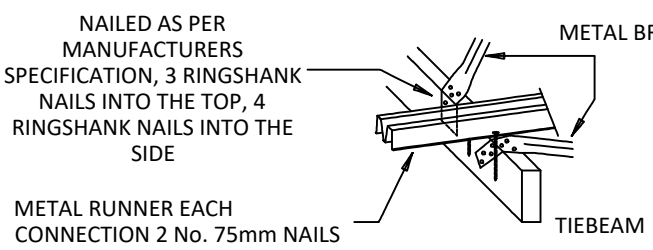


TYPICAL CONNECTION

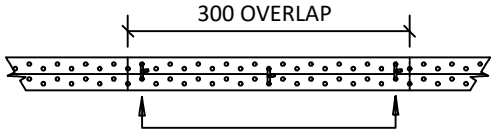
2 No. 75mm WIRE NAILS AT EACH CONNECTION. ALWAYS SPLICE ON A BOTTOM CHORD, BY OVERLAPPING



RUNNER SPLICE



METAL BRACE CONNECTION



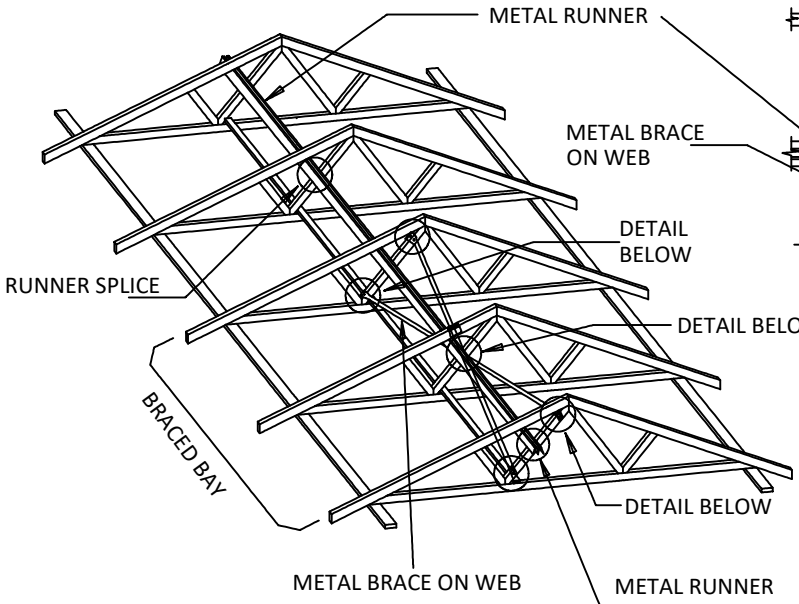
IF REQUIRED, JOIN METAL RACE USING 3 No. 2.5mm WIRE TIES THROUGH CORRESPONDING HOLES AND TWIST TIGHTLY WITH PLIERS

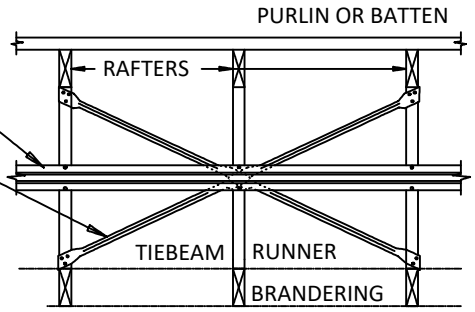
METAL BRACE SPLICE

TIEBEAM BRACING WITH METAL BRACING & RUNNERS FOR ROOFS

BOTTOM CHORD BRACING WITH"M" RUNNERS & SPEEDBRACE BRACING FOR TILED AND SHEETD ROOFS - MAXIMUM TRUSS SPACING 1200mm

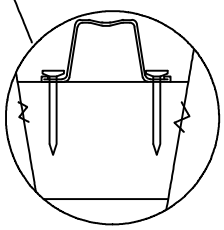
BRACE BAY SPACING AS PER ROOF PLAN





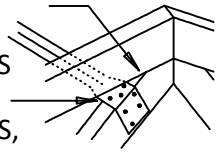
TIEBEAM MUST BE BRACED, EITHER BY FIXED BRANDERED CEILINGS OR ALTERNATIVELY WITH RUNNERS AND BRACING TO STANDARD DETAILS

METAL RUNNERS AND BRACING ON WEBS



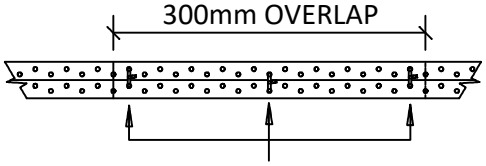
TYPICAL CONNECTION

METAL BRACE TO BE AS CLOSE TO END OF WEB INTERSECTION AS POSSIBLE



NAILED AS PER MANUFACTURERS SPECIFICATION 3 RINGSHANK NAILS, INTO TOP, 4 RINGSHANK NAILS INTO SIDE

WEB CONNECTION

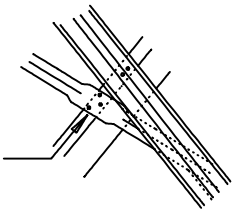


IF REQUIRED, JOIN METAL BRACE USING 3 No. 2.5mm WIRE TIES THROUGH CORRESPONDING HOLES AND TWIST TIGHTLY WITH PLIERS

METAL BRACE SPLICE

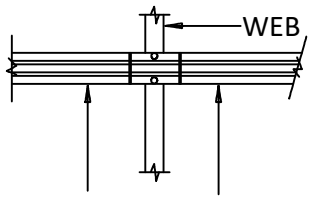
2 No. 3.5mm DIA. 75mm WIRE NAILS AT EACH CONNECTION. ALWAYS SPLICE ON A WEB. BY OVERLAPPING.

METAL RUNNER FIXED WITH 2 No. 75mm WIRE NAILS (CAN BE NAILED THROUGH METAL BRACE.)



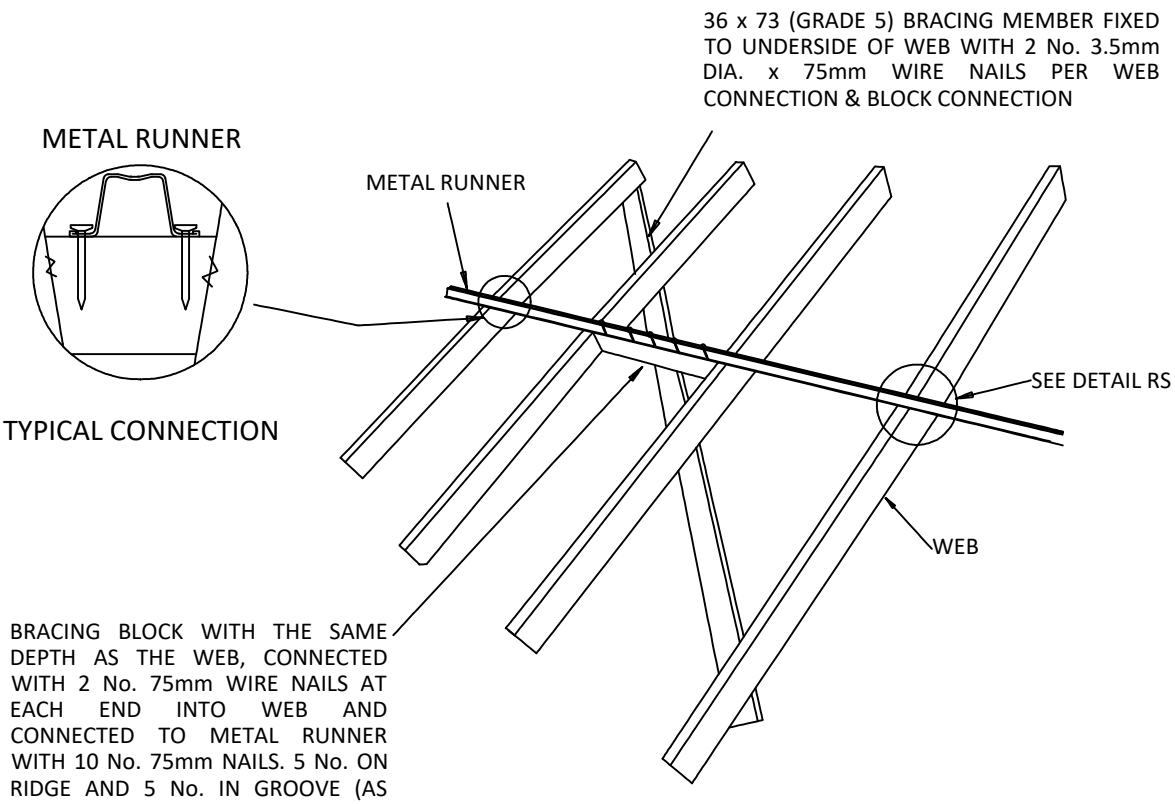
NAILED AS PER MANUFACTURERS SPECIFICATION, 3 RINGSHANK NAILS INTO TOP 4 RINGSHANK NAILS INTO SIDE

WEB AND RUNNER CONNECTION



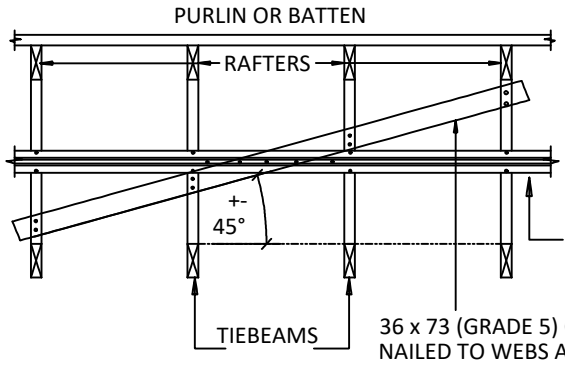
RUNNER SPLICE

WEB BRACING WITH "M" RUNNERS & METAL ANGLE BRACING FOR TILED AND SHEETING ROOFS WITH A MAXIMUM TRUSS SPACING OF 1200mm



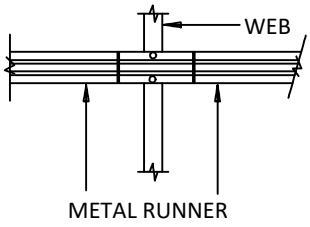
TYPICAL CONNECTION

METAL RUNNER WITH TIMBER BRACING CONNECTION WHERE RUNNERS AND BRACING DO NOT INTERSECT ON A TRUSS MEMBER



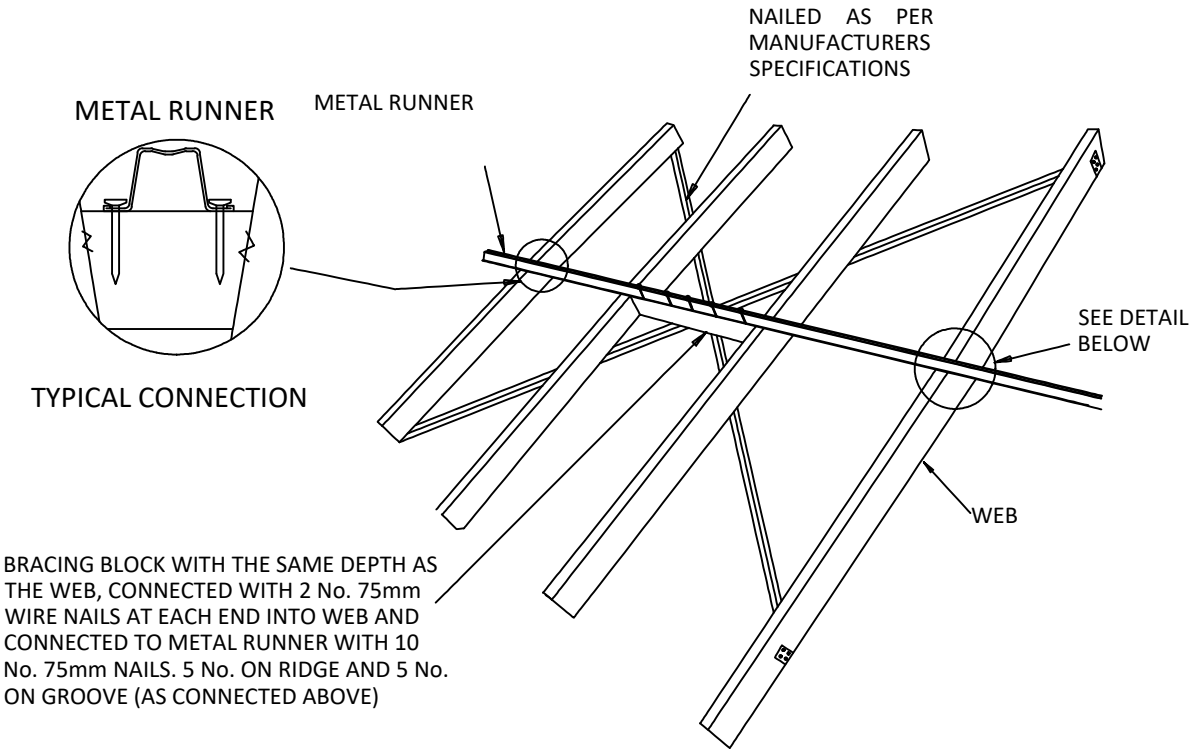
BRACE FIXING DETAIL

2 No. 75mm WIRE NAILS AT EACH CONNECTION. ALWAYS SPLICE ON A WEB BY OVERLAPPING.

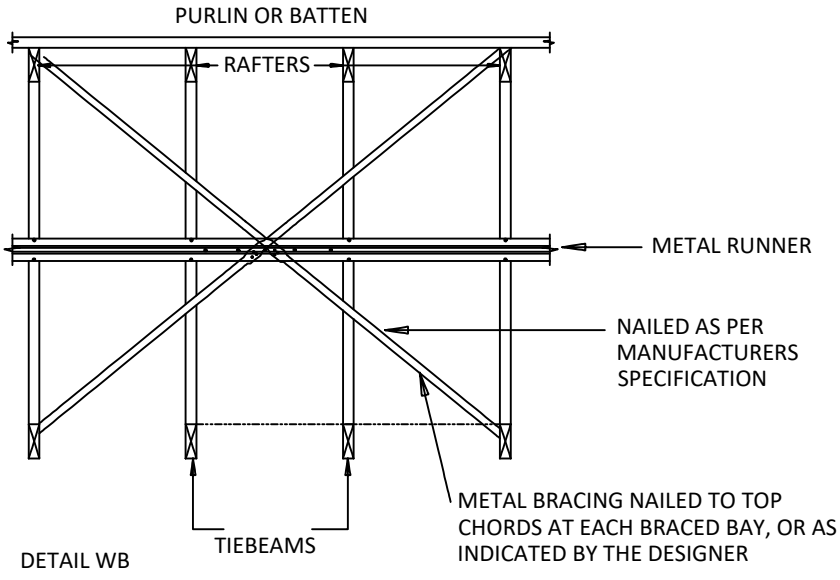


RUNNER SPLICE

WEB RESTRAINTS WITH "M" RUNNERS & TIMBER BRACING WHERE THE RUNNER AND BRACING CROSS AWAY FROM THE TRUSS. MAXIMUM TRUSS SPACING OF 1200mm

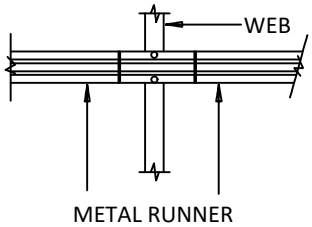


METAL RUNNER & BRACING CONNECTION WHERE RUNNERS AND BRACING DO NOT INTERSECT ON A TRUSS MEMBER



BRACE FIXING DETAIL

2 No. 75mm WIRE NAILS AT EACH CONNECTION. ALWAYS SPLICE ON WEB, BY OVERLAPPING.



RUNNER SPLICE

WEB RESTRAINTS WITH "M" RUNNERS & METAL ANGLE BRACING WHERE THE RUNNER AND BRACING CROSS AWAY FROM THE TRUSS MAXIMUM TRUSS SPACING ON 1200mm

Part 3 Site Inspection Checklist

A: PROJECT INFORMATION

1. NHBRC Enrolment Number
2. Site Address
3. Erf
4. Builders Name, NHBRC Reg. No. & Tel. No.
5. Owner's Name &Tel.
6. Fabricator

B: GENERAL ITEM	CONFORMS TO DESIGN			COMMENTS
1. Loading Information	N/A	YES	NO	_____
2. Truss/Beam to plan	N/A	YES	NO	_____
3. Hangers/cleats to plan	N/A	YES	NO	_____
4. Dimensions to building	N/A	YES	NO	_____
5. Overhang dimensions	N/A	YES	NO	_____

C: STRUCTURAL ITEM	CONFORMS TO DESIGN			COMMENTS
1. TRUSSES				
a. Spacing	N/A	YES	NO	_____
b. Plumbness	N/A	YES	NO	_____
c. Plies as per drawing	N/A	YES	NO	_____
d. Nailing of multiple plies	N/A	YES	NO	_____
e. Internal supports	N/A	YES	NO	_____
f. Holding down detail	N/A	YES	NO	_____
g. Plate positioning	N/A	YES	NO	_____
h. Timber grades	N/A	YES	NO	_____
i. Timber treatment (coast)	N/A	YES	NO	_____
2. GIRDERS				
a. Connections	N/A	YES	NO	_____
b. Nailing of connections	N/A	YES	NO	_____
c. Nailing and bolting of multiple plies	N/A	YES	NO	_____
d. T-bracing (1/2/3/4 ply)	N/A	YES	NO	_____
e. Connection of batten/purlin to each ply	N/A	YES	NO	_____
f. Torsional restraint	N/A	YES	NO	_____
g. Truss to girder strapping	N/A	YES	NO	_____
3. SPECIAL TRUSSES				
a. Valley support detail	N/A	YES	NO	_____
b. Valley runners	N/A	YES	NO	_____
c. Valley web bracing	N/A	YES	NO	_____
d. Cantilever trusses	N/A	YES	NO	_____
B.C. runners & bracing	N/A	YES	NO	_____

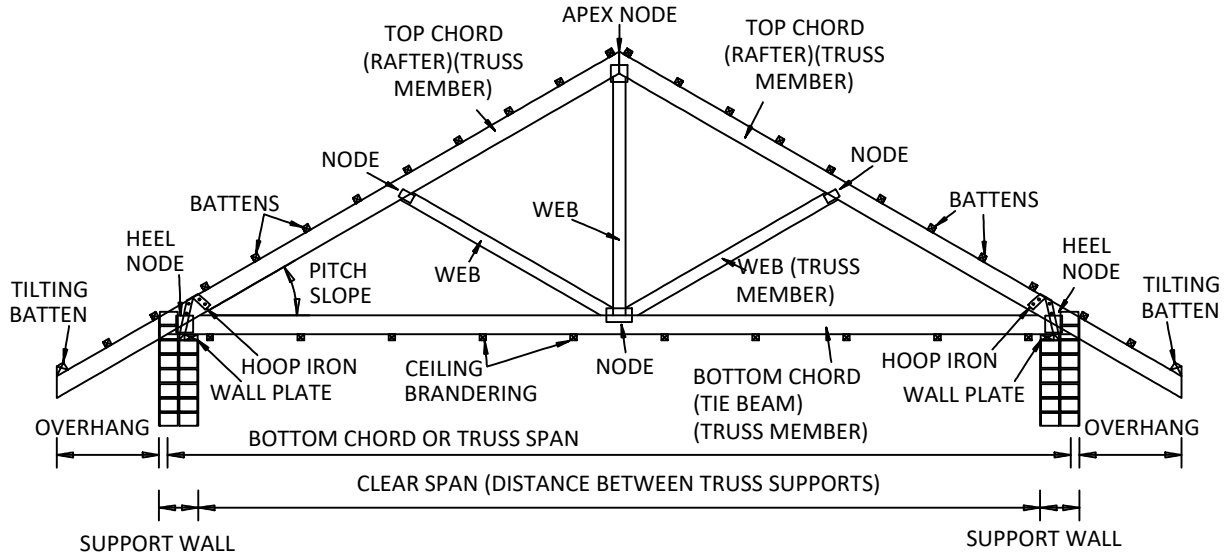
C: STRUCTURAL ITEM	CONFORMS TO DESIGN			COMMENTS
4. TOP CHORD BRACING				
a. Size	N/A	YES	NO	_____
b. Connections	N/A	YES	NO	_____
c. Shelf details and fixing	N/A	YES	NO	_____
d. Prefab-frames apex con.	N/A	YES	NO	_____
e. Prefab-frame to truss con	N/A	YES	NO	_____
f. Prefab-frame vertical bracing installed	N/A	YES	NO	_____
	N/A	YES	NO	_____
5. BOTTOM CHORD BRACING				
a. Size	N/A	YES	NO	_____
b. Connections	N/A	YES	NO	_____
c. Spacing	N/A	YES	NO	_____
d. Splicing	N/A	YES	NO	_____
e. Cross bracing installed	N/A	YES	NO	_____
f. Prefab-frames installed	N/A	YES	NO	_____
g. Ceilings directly attached (heavy roofs)	N/A	YES	NO	_____
	N/A	YES	NO	_____
	N/A	YES	NO	_____
6. SPECIAL TRUSSES				
a. Size	N/A	YES	NO	_____
b. Connections	N/A	YES	NO	_____
c. Cross bracing	N/A	YES	NO	_____
d. Number per web	N/A	YES	NO	_____
e. T-Bracing	N/A	YES	NO	_____
7. PURLINS/BATTENS				
a. Size	N/A	YES	NO	_____
b. Spacing	N/A	YES	NO	_____
c. Splicing	N/A	YES	NO	_____
d. Connections	N/A	YES	NO	_____
e. Holding down details	N/A	YES	NO	_____
8. GENERAL STRUCTURAL DETAILS				
a. Holding down details (wall)	N/A	YES	NO	_____
b. Special bracing for hip/valley crank situation	N/A	YES	NO	_____
c. Batten/Purlin TO 45° hip girder connection	N/A	YES	NO	_____
d. Specialloading condition (geyser, etc.)	N/A	YES	NO	_____
e. Sliding shoes where specified	N/A	YES	NO	_____
f. Site remedials / repairs	N/A	YES	NO	_____
g. Cantilever hip support conditions (eave beam)	N/A	YES	NO	_____
h. Piggy back connections	N/A	YES	NO	_____
i. Piggy back bracing (flat part)	N/A	YES	NO	_____
j. Site splicing	N/A	YES	NO	_____

Part Four GLOSSARY OF TERMS AND DEFINITIONS

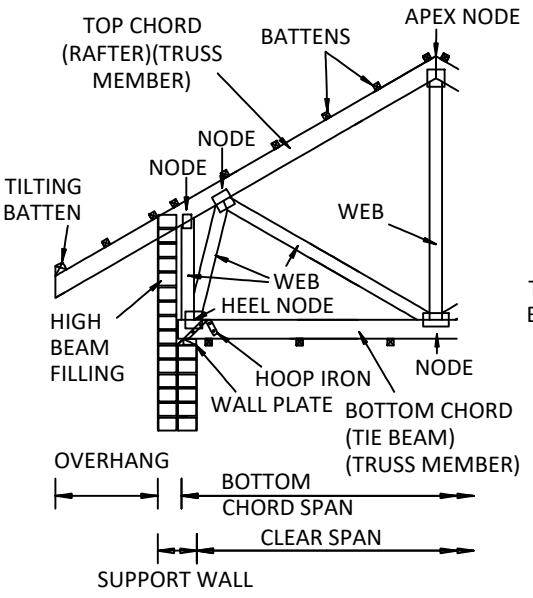
Apex:	The top of the truss where the two top chords meet.
Batten:	Small section timber members (usually 38 x 38 or 38 x 50) nailed across the top chords at a spacing of less than540mm to carry concrete tiles, slates, metal tiles etc.
Binder:	See Runner.
Block Splice:	Nailed timber block used to join butting bracing members and purlins.
Bottom Chord:	Also tie-beam. That of the truss that forms the bottom edge, and joins the two heel joints, supports the ceiling, and usually flat. Sloped in scissor trusses. Abbreviated B.C.
Braced Bay:	That section of roof where the diagonal bracing members are fixed.
Bracket:	See Cleat.
Bracing:	Timber members (or of other material e.g. light gauge mild steel) fixed to several adjacent trusses usually at a 45° angle to make the roof stable, and to prevent buckling of compression members.
Brandering:	Similar to battens but fixed to the bottom chord, to support the ceiling.
Cantilever:	When the truss support on the bottom chord is some distance inside the heel joint.
Clear Span:	The distance between the supporting walls (or inside face of the supports). See also span.
Cleat:	Mild steel heavy-duty bracket fixed with bolts and used to support large heavy trusses / girder on girder.
Crank:	When the support wall direction change is less than 90°. The roof forms a bastard hip on one side, and a valley on the other in double-pitched roofs.
Clout Nails:	Wire nails 32mm long, 2.8mm in diameter, with a large head used to fix hangers, hurricane clips and pre-punched strapping. (i.e. light gauge metal to wood)
Double Pitch:	Trusses where the top chords slope up to the apex at the same angles (pitches) from both ends of the truss.
Dual Pitch:	Trusses where the top chords slope up to the apex at two different angles (pitches) from each end of the truss.
Dutch Hip:	A hip end where the end slope does not reach the apex but the top part of the hip forms a small gable. Also called a louvre hip.
Fly Rafter:	The top chord overhang at the end of a mono pitch jack truss which extends over the truncated hip girder and trusses. (May also be separate loose rafter)
Gable:	When the building end is vertical, the same shape as the truss, usually constructed of brickwork.
Gable Ladder:	To be designed by system engineer.
Gablet:	Small gable on the roof slope, usually formed by a valley set.
Girder Truss:	A truss (single or multiple ply) used to support other trusses.
Hanger:	A U-shaped bracket made of light gauge galvanized steel used to support trusses on a girder, usually fixed with 32mm clout nails or similar. When specified, may also be fixed with bolts and 36 x 36 x 4mm washers.

Heel:	The truss end joint where the top and bottom chords connect, or where the end web joins the bottom chord in stub and mono-pitch trusses.
Heel Shelf:	A means of fixing the diagonal top chord bracing at the wall plate using timber, bolts, washers, nailed hurricane clips and thrust block.
Hip:	When the building ends in a sloped roof (as compared to a gable).
Hoop Iron:	Galvanized metal strips built into brickwork used to hold down trusses.
Hurricane Clip:	A light gauge galvanized mild steel angle bracket used to fix two timber members at 90° to each other.
Jack Rafter:	The smallest end part of a hip corner construction using only single pieces of timber (loose rafter).
Jack Truss:	The mono pitch trusses of the hip, which are supported at the end by the hip girders.
Member:	A part, or component, which together with other members make up the structure. (i.e. truss member are the top chords, bottom chords and webs which form the truss)
Mono Pitch:	A truss where there is only one rafter slope. (half of a double pitch truss)
Multiple Plies:	Two to for trusses nailed and bolted together to form one unit. Usually as girders.
Nails:	See clout nails and Wire nails.
Nib:	Extensions of the bottom chord past the truss end, usually to support in brickwork or on a truss hanger.
Node:	Also node point to joint. The places on the truss where two or more truss members are connected to each other (but not chord splices)
Overhang:	That part of the truss top chord that extends past the truss heel. Measured horizontally from the truss heel on the truss, but also from the outside wall face on the building.
Pitch:	Also slope, the angle between the top chord and the horizontal line from the support point. Can also be the slope of the bottom chord in a scissor truss.
Plumb:	Trusses to be in a straight vertical line, i.e. 90° to the floor (horizontal) level and parallel to the gable wall.
Plumb Cut:	Top chord overhangs cut off vertical, i.e. up/down, to allow the fixing of fascia boards and/or square gutters at the roof truss ends.
Polynesian:	Trusses with a pitch change in each top chord from a lower pitch to steeper pitch going from heel to apex.
Purlin:	Timber sections (usually 50 x 76) fixed across the top chords at a spacing of up to 1200mm to carry metal and fibre cement sheeting.
Rafter:	See Top Chord.
Runner:	Bracing members that are run continuously through the entire roof or set of the same trusses, to connect the same point of each truss. Runners must be diagonally braced at every braced bay to have any effect on the stability of the roof structure.

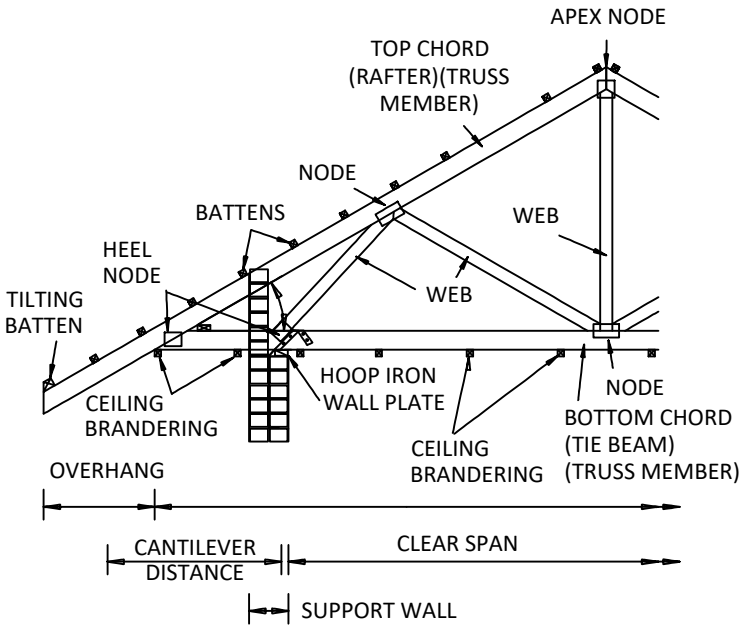
Spacing:	The distance between the centres of two of the same elements i.e. trusses.
Span:	Truss span is the distance along the bottom chord between the truss ends (heels). See also Clear Span.
Splice:	The joining of two members in a straight line so that these members act as one component, e.g. truss top and bottom chords, and runners. Truss webs may not be spliced (Unless approved by an engineer).
Stub End:	Also stub heel. Where the top and bottom chords are some distance apart and are connected by the first truss web.
Support:	The point where the truss is carried by the building below. The wall (or beam) should be built to carry the truss, and there should always be a node at the support point of the truss.
Tie Beam:	See Bottom Chord.
Top Chord:	Also rafter. The part of the truss< which forms the top edge, usually at a slope and has the battens or purlins fixed to it to carry the roof covering. Abbreviated: T.C.
Truncated:	A hip truss or girder, which has a part flat top chord, at a height so that the fly rafters of the jack trusses can just pass over the top. Also the lower truss of the 'piggy-back' or 'top-hat' truss system, i.e. when large high trusses are split horizontally into two halves for manufacturing, handling and transport purposes.
Truss:	A number of timber members joined together in a triangular pattern to form a sturdy frame to carry the roof covering and any other loads that it is designed for.
Labels:	All trusses should be labeled on the roof layout plan and on the truss itself. Common labels are A1, TR1, GX1, TG1, HG1, HM1, etc.
Under-gable:	Formed by two adjacent double pitched trusses of different spans, where both heels are on the same wall on one side only.
Valley:	A set pf special trusses with decreasing spans which are supported on the length of their bottom chord by the top chords of the trusses underneath and fixed at 90° to these trusses.
Valley Truss:	A truss, which is supported by other trusses underneath.
Wall Plate:	A timber member laid flat over the supporting wall to level the bearing surface and spread the load.
Webs:	The truss members that connect the top and bottom chords, usually in a triangular pattern.
Wedges:	Triangular timber blocks used in pairs to level the trusses.
Wire Nails:	75mm or 100mm long, 3 to 4mm diameter wire nails with a head, used to connect two timber members together.
Wire Ties:	Two strands of wire built into the brickwork used to hold down the trusses.



TYPICAL DOUBLE PITCH TRUSS



TYPICAL STUB HEEL



TYPICAL CANTILEVER SUPPORT

NOTES