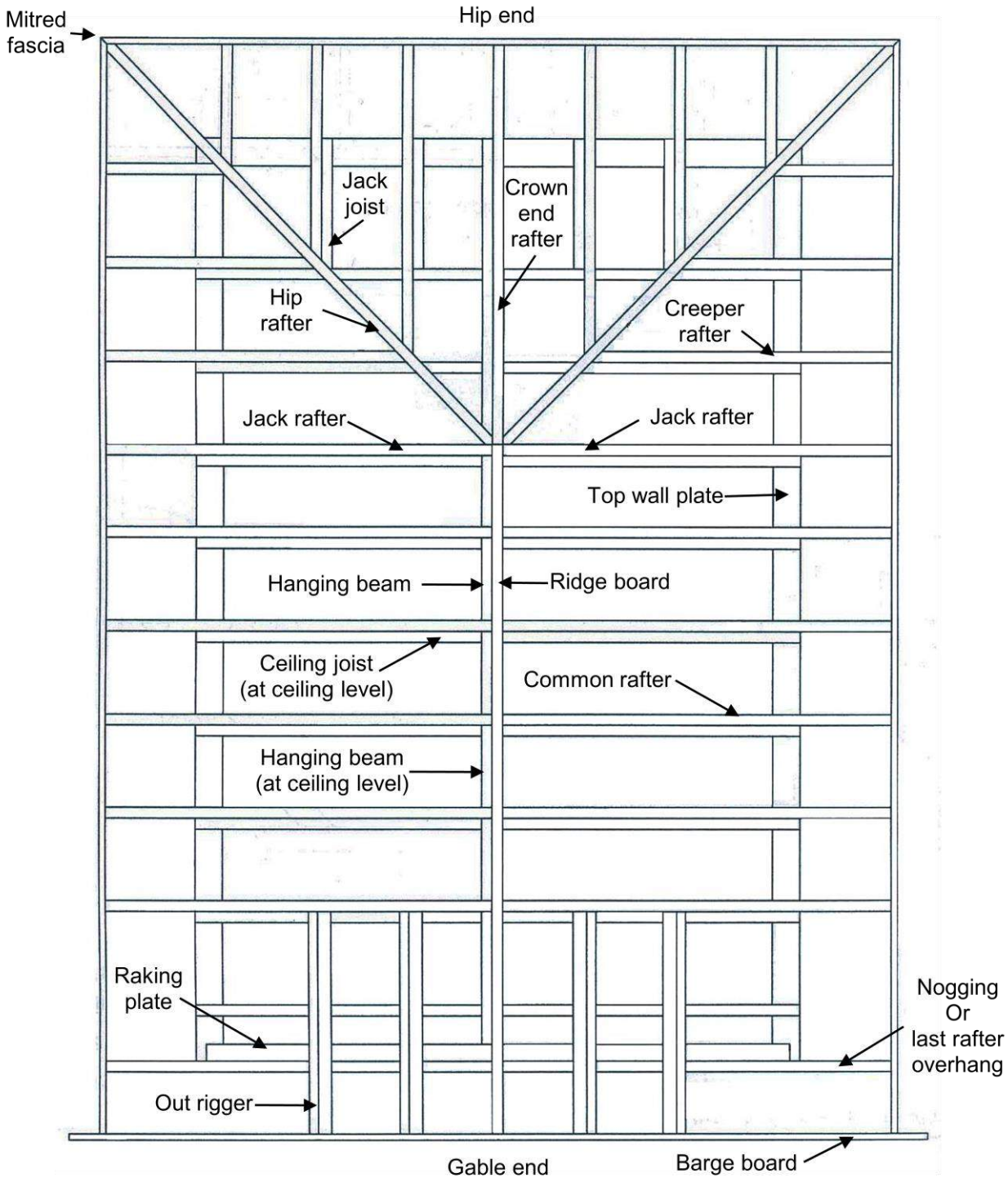
HIP AND GABLE ROOF COMPONENTS

Plan view of the hip and gable roof that you are going to build.

Again, don't be tempted just to look the names, put in a bit more effort to try to remember all the names of the individual components.

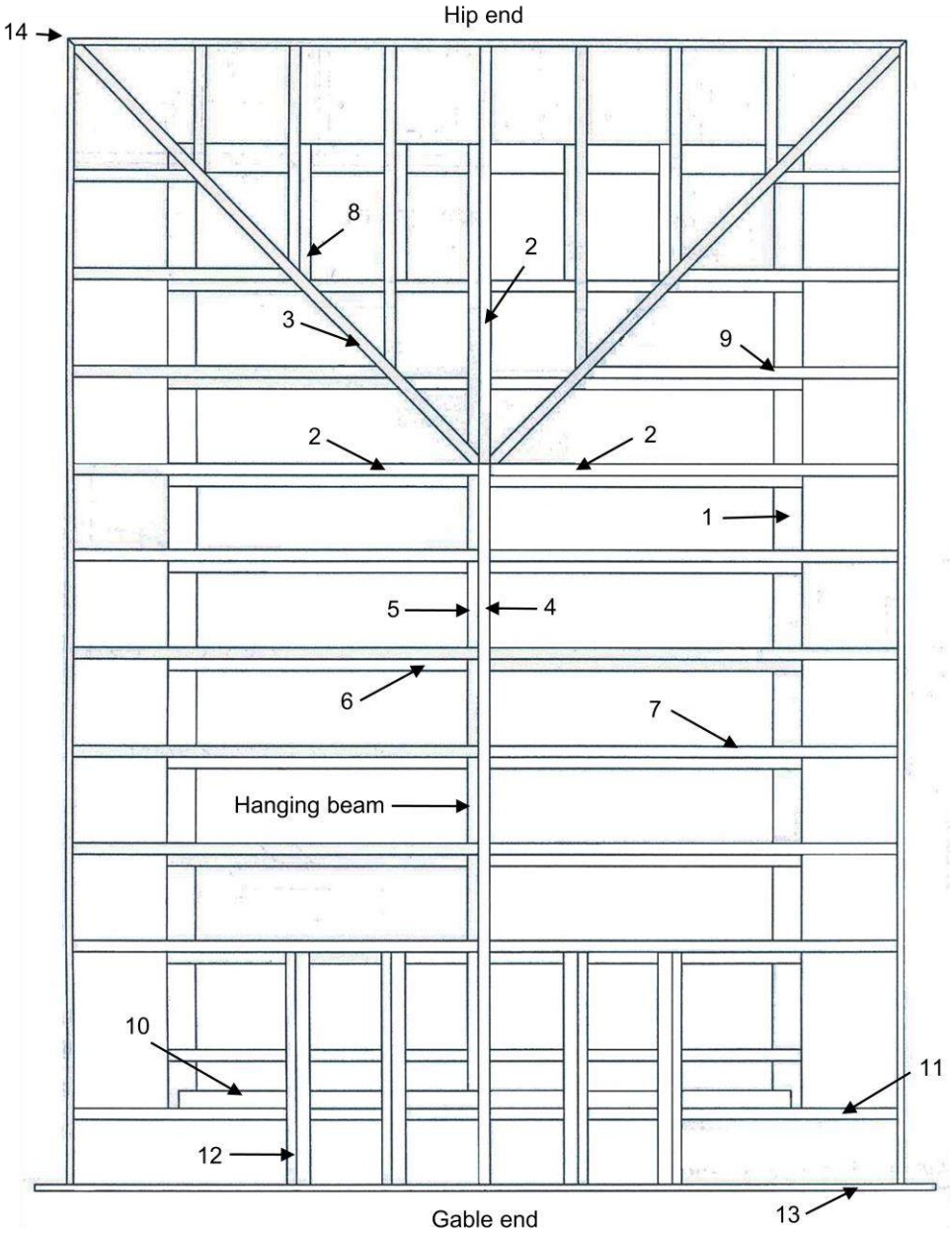


Hip and gable roof components

ASSESSMENT 2: ROOF FRAMING COMPONENTS

How: A roof protects the building and contents from the element. Identify below the individual components that make up a hip and gable roof.

Again don't be tempted just to write the names in, put in a bit more effort to try to remember all the names of the components.



1 ..... 2..... 3.....

4 ..... 5..... 6.....

7 ..... 8..... 9.....

10 ..... 11..... 12.....

13 ..... 14.....

PARTS OF A ROOF

The main structural parts of a roof are ceiling joists, ridge board, jack rafter, hip rafter, common rafters, creeper rafters, raking plates, out riggers and noggings or last rafter overhang.

Tie-down fixings

Tie-down fixings are used to resist uplift and shear forces (lateral loads) in floor framing, wall framing and roof framing.

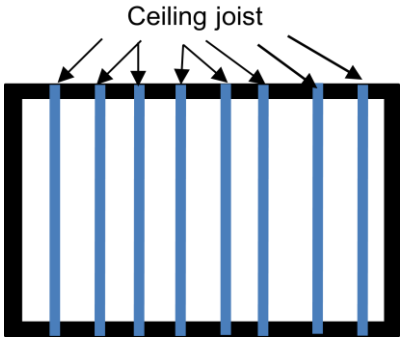
The components are introduced in the order that you install them in the roof construction sequence.

Ceiling joist

Ceiling joists are the horizontal beams that run parallel from one wall to the opposite wall of the structure.

The ceiling joists are attached to the top plate and tie the walls of a structure or a room together and supports the ceiling lining of the structure, or room.

To provide strength and even spacing a hanging beam is nailed to the top of the ceiling joists (not shown). The hanging beam reduces the span of the ceiling joists.

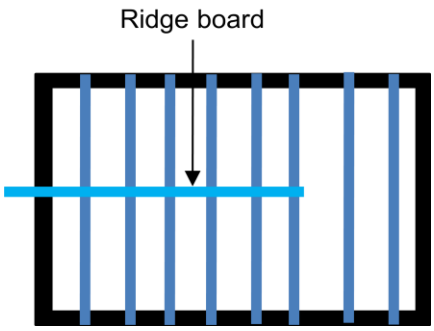


Ceiling joists

Ridge board

The ridge board is level and positioned in the centre of the roof span.

The centre of the ridge thickness is positioned directly over half span (half the width of the building).

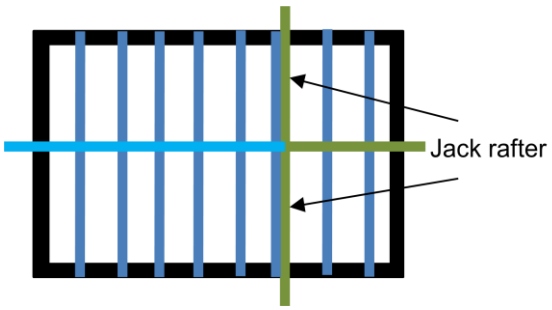


Ridge board

Jack rafter

The jack rafter in the centre of the hip end and the common rafters on each side are all equal in length, with the same birds mouth and plumb cut.

Jack rafters are fixed to the top wall plate and also to the hip end of the ridge



Jack rafter (crown end rafter)

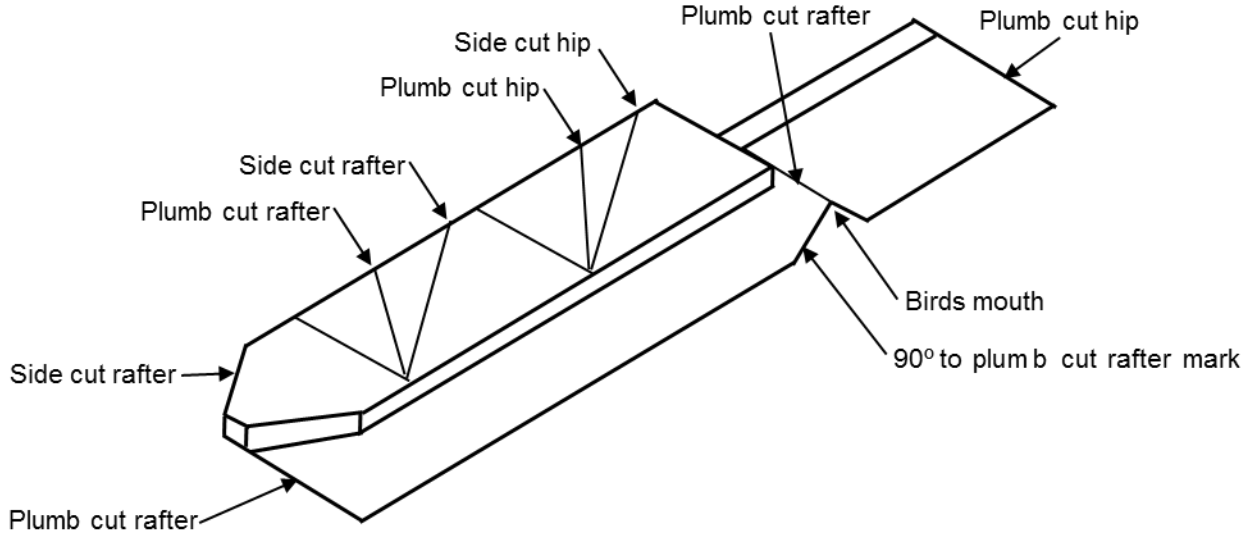
MAKE A ROOF BOAT AND A PATTERN RAFTER

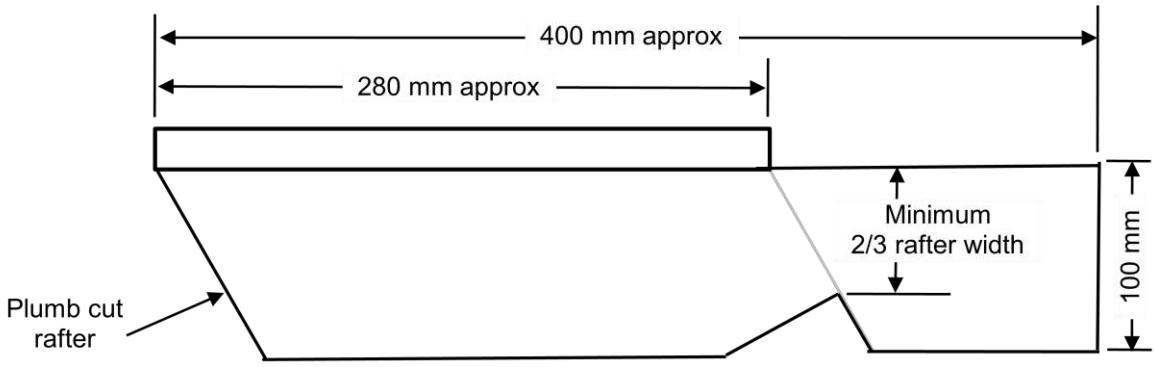
ASSESSMENT 11: MAKE A ROOF BOAT AND A PATTERN RAFTER

How:
1. Make a roof boat from the material supplied.
2. Refer to roof table to mark out the roof bevels on the top of the boat.
3. Refer to the roof table to determine the rafter length.
4. Mark out and cut a pattern rafter.

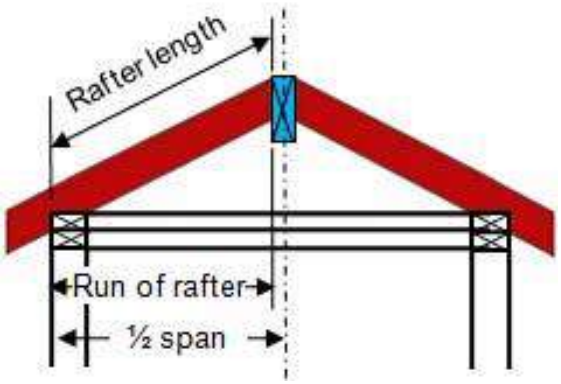
Assessment criteria:

- Set out to plans +/- 2 mm.
- All work must be in accordance with 1648 Residential timber-framed construction.
- All work practices adopt current OHS requirements.

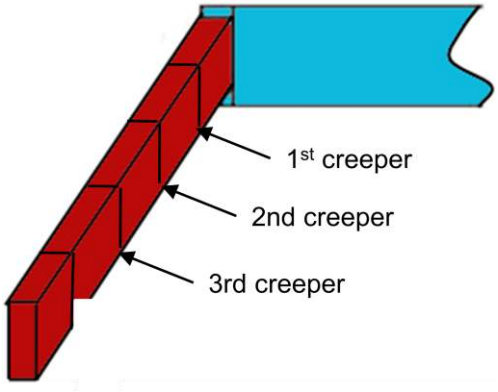




Roof boat



Rafter length



Pattern rafter

ROOF SETOUT – STEP 11

ASSESSMENT 17: FIT REMAINING INFILL GABLE STUDS

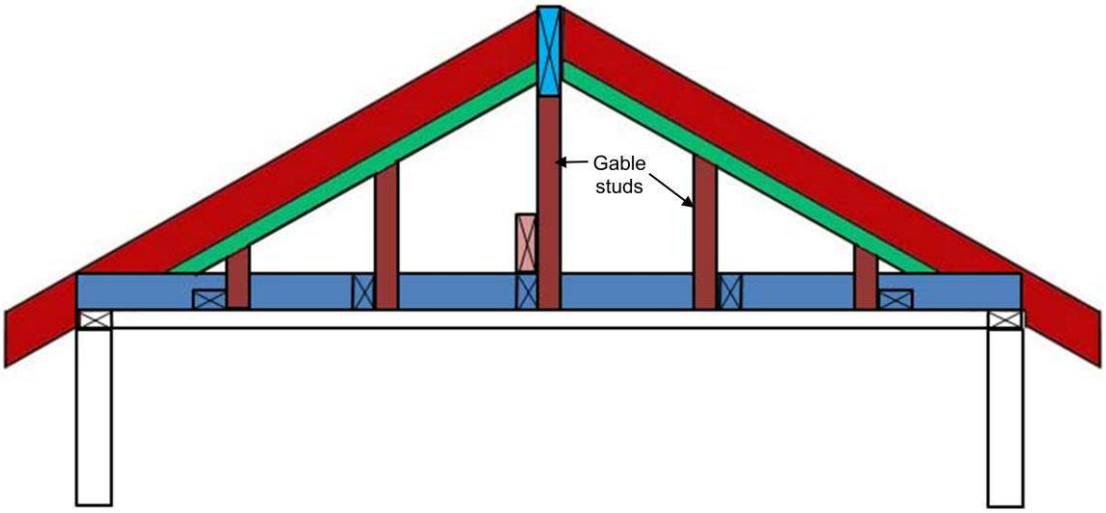
How: Cut and fit the remaining infill gable studs on the gable end.

NOTE: Following the procedures on page 35 will make this task easier.

Reference: Building a house, Framing Practices. Pages 161 – 163.

Assessment criteria:

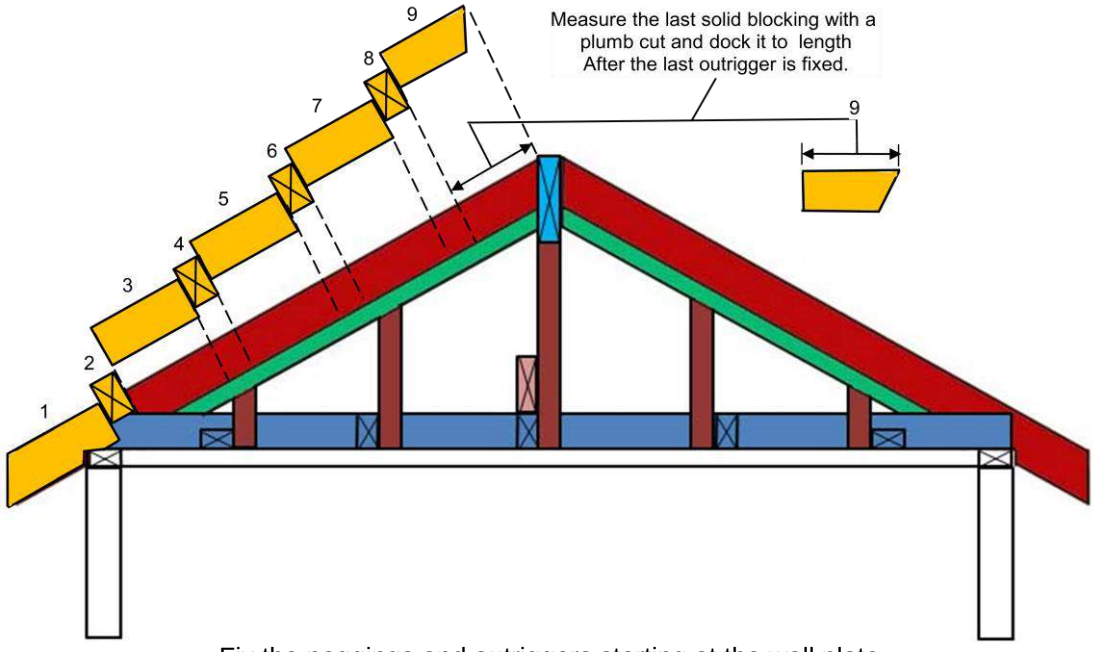
- All joints must be tight. (eg. Infill stud to bottom of raking plate maximum gap 2 mm)
- All work must be in accordance with 1648 Residential timber-framed construction.
- All work practices adopt current OHS requirements.



Gable infill studs

HOW TO FIT GABLE OUTRIGGERS AND SOLID BLOCKING

It is easier and safer to fix the solid blocking and outriggers starting at the wall plate and finishing at the ridge.



Fix the noggings and outriggers starting at the wall plate

ROOF SETOUT – STEP 12

ASSESSMENT 18: ASSEMBLE GABLE END

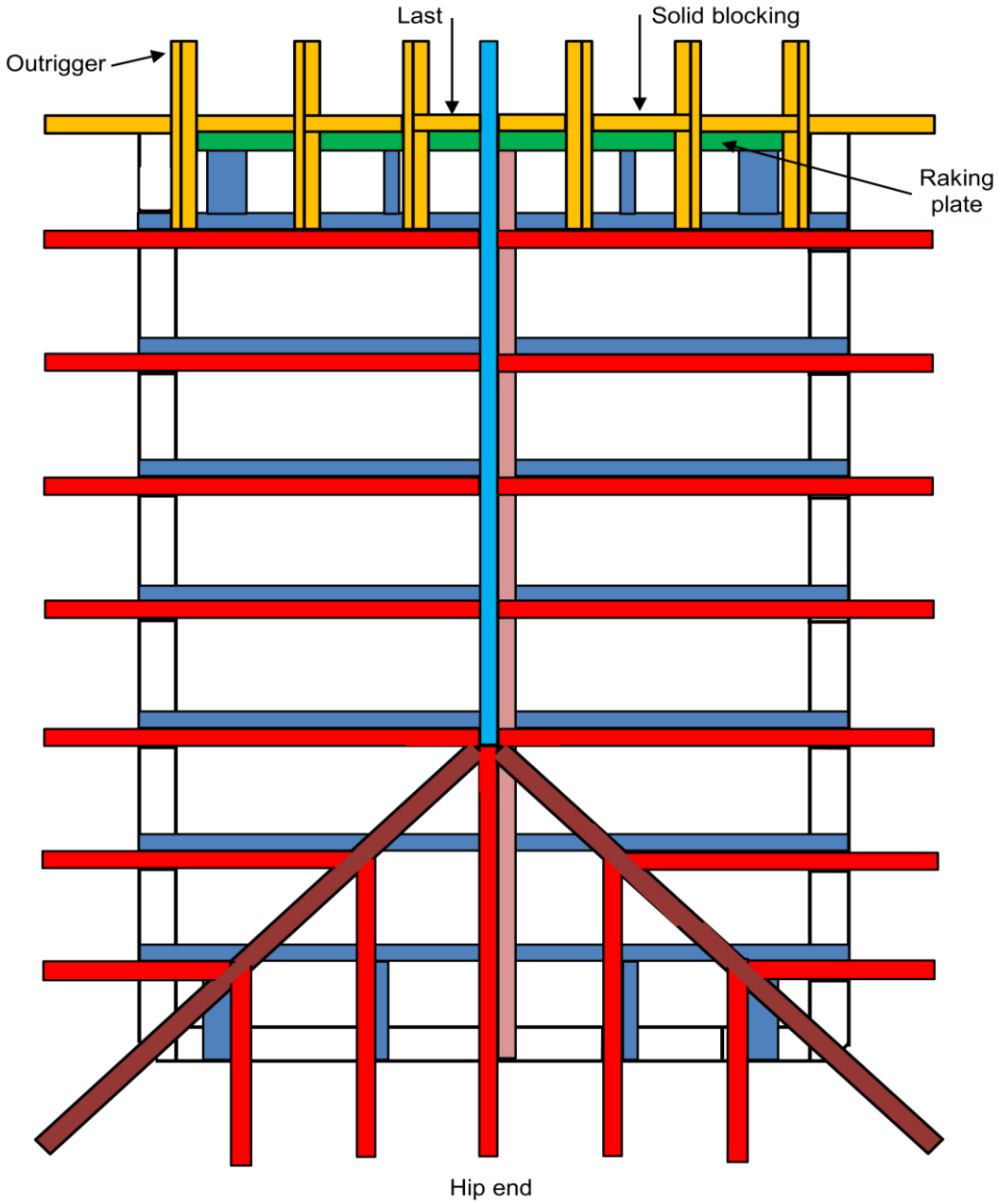
How:

1. Pre-cut all the outriggers and noggings except for the last two noggings that need a plumb cut to fit against the ridge.
2. Fix the nogging with the overhang and birds mouth first, then an outrigger followed by a nogging and so on. After the last outriggers are fixed, measure the length of the last two noggings on the job that fit against the ridge, cut and fir them.

NOTE: ***Pre-cutting all the outriggers and as many noggings as possible and fixing them all at once is easier and saves time and money.***

Assessment criteria:

- All joints must be tight. (eg. stud to top and bottom plate maximum gap 2 mm)
- All work must be in accordance with 1648 Residential timber-framed construction.
- All work practices adopt current OHS requirements.



Student Learning Guide & Record

TASK	PAGE	TASK TITLE	DATE COMPLETED	INSTRUCTOR'S SIGNATURE
Assessment 1	17	Identify various types of roofs		
Assessment 2	19	Roof framing components		
Assessment 3	23	Identify and explain roof framing components		
Assessment 4	25	Identify roofing definitions		
Assessment 5	26	Build a support frame for a hip and gable roof		
Assessment 6	28	Mark the position of the three jack rafters		
Assessment 7	29	Set out the common and creeper rafter positions		
Assessment 8	30	Mark the ridge board rafter positions		
Assessment 9	31	Ceiling joists		
Assessment 10	32	Cut and fit the hanging beam		
Assessment 11	33	Make a roof boat and a pattern rafter		
Assessment 12	35	Cut and pitch roof		
Assessment 13	36	Fit the remaining common rafters		
Assessment 14	37	Cut and fit hip rafters		
Assessment 15	38	Cut and fit creeper rafters		
Assessment 16	39	Gable end raking plate		
Assessment 17	41	Fit remaining infill gable studs		
Assessment 18	42	Assemble gable end		
Assessment 19	43	Fit fascia and barges		
Assessment 20	44	Under purlins and struts		

