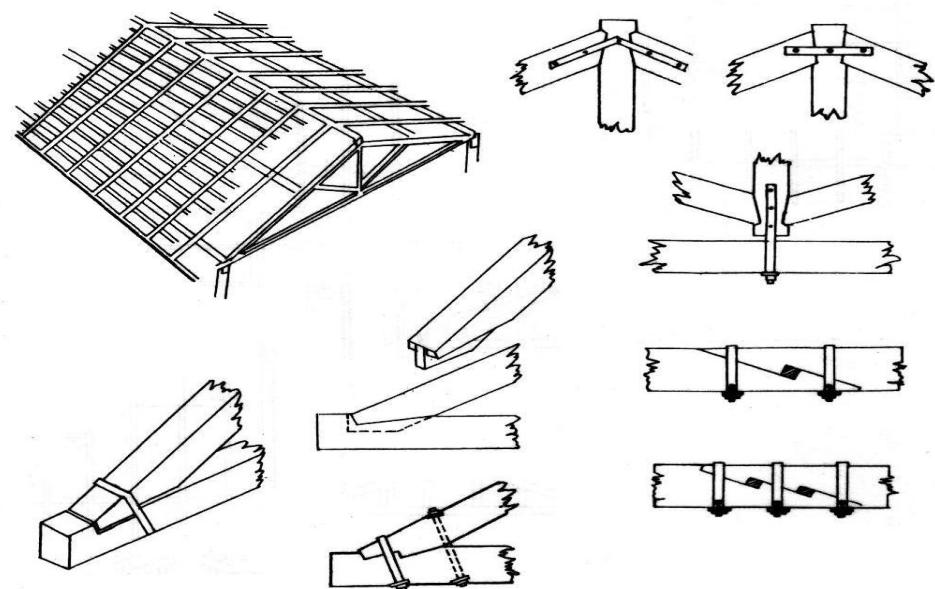
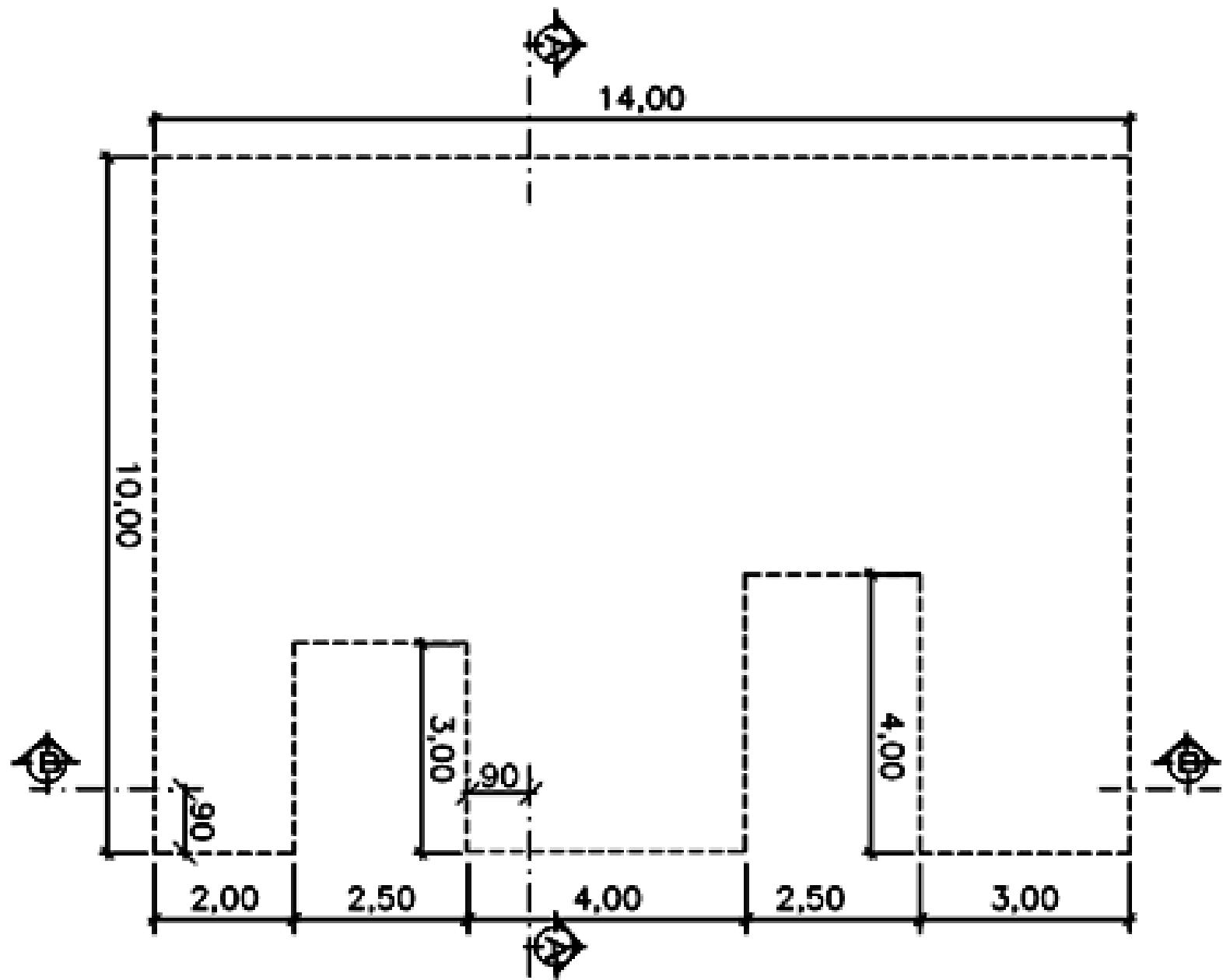
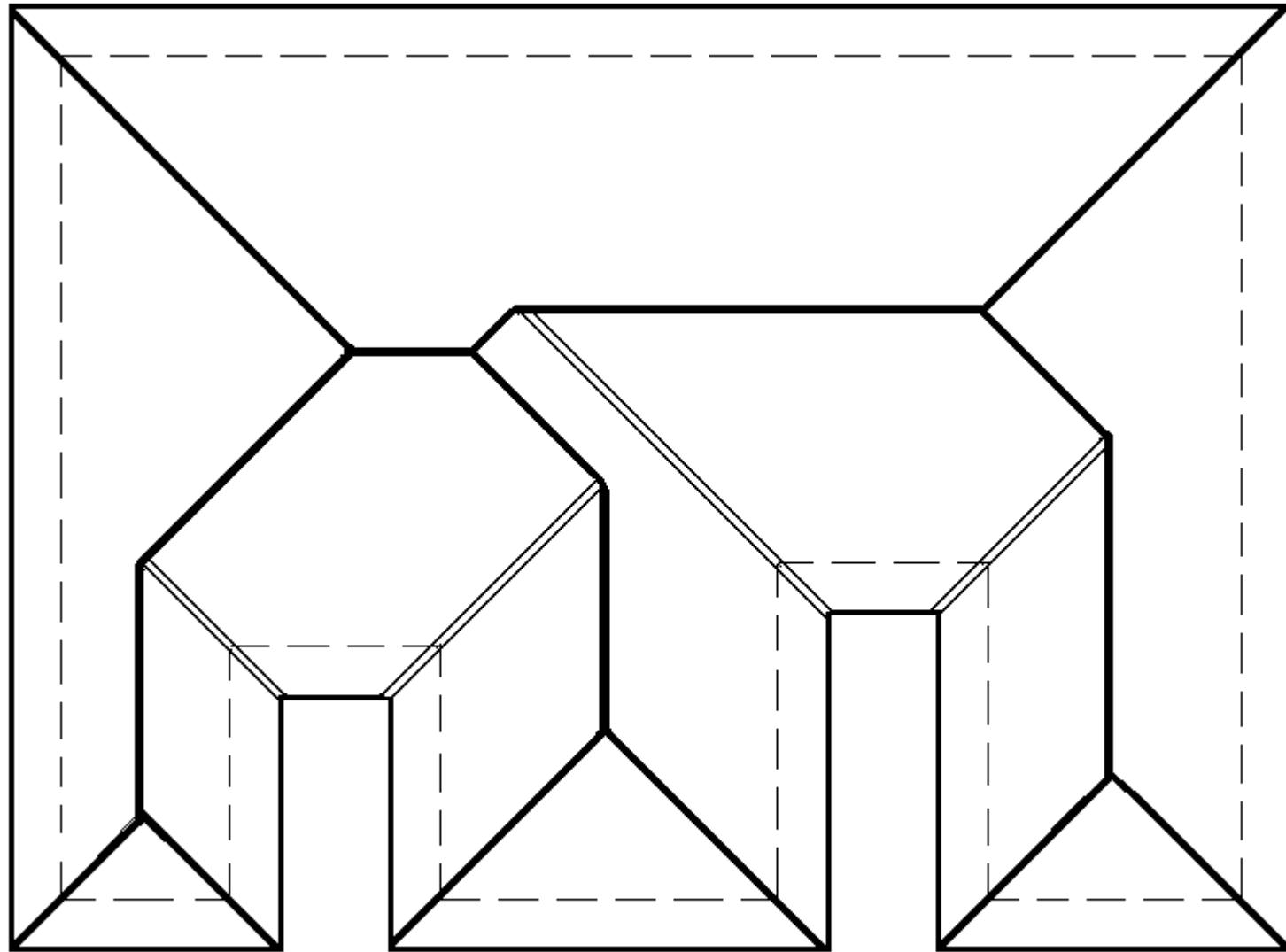


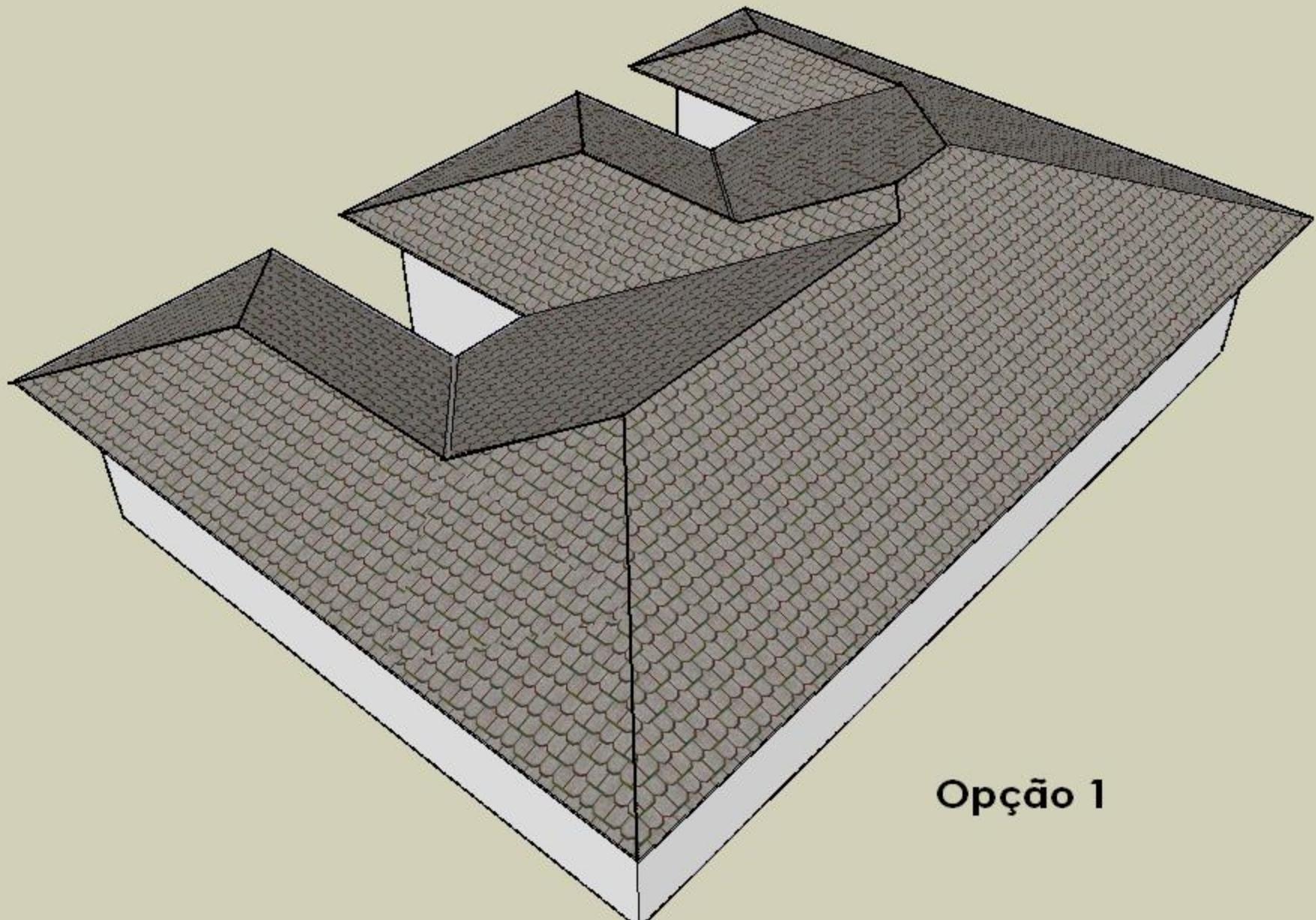
TELHADOS ESTRUTURA DE MADEIRA



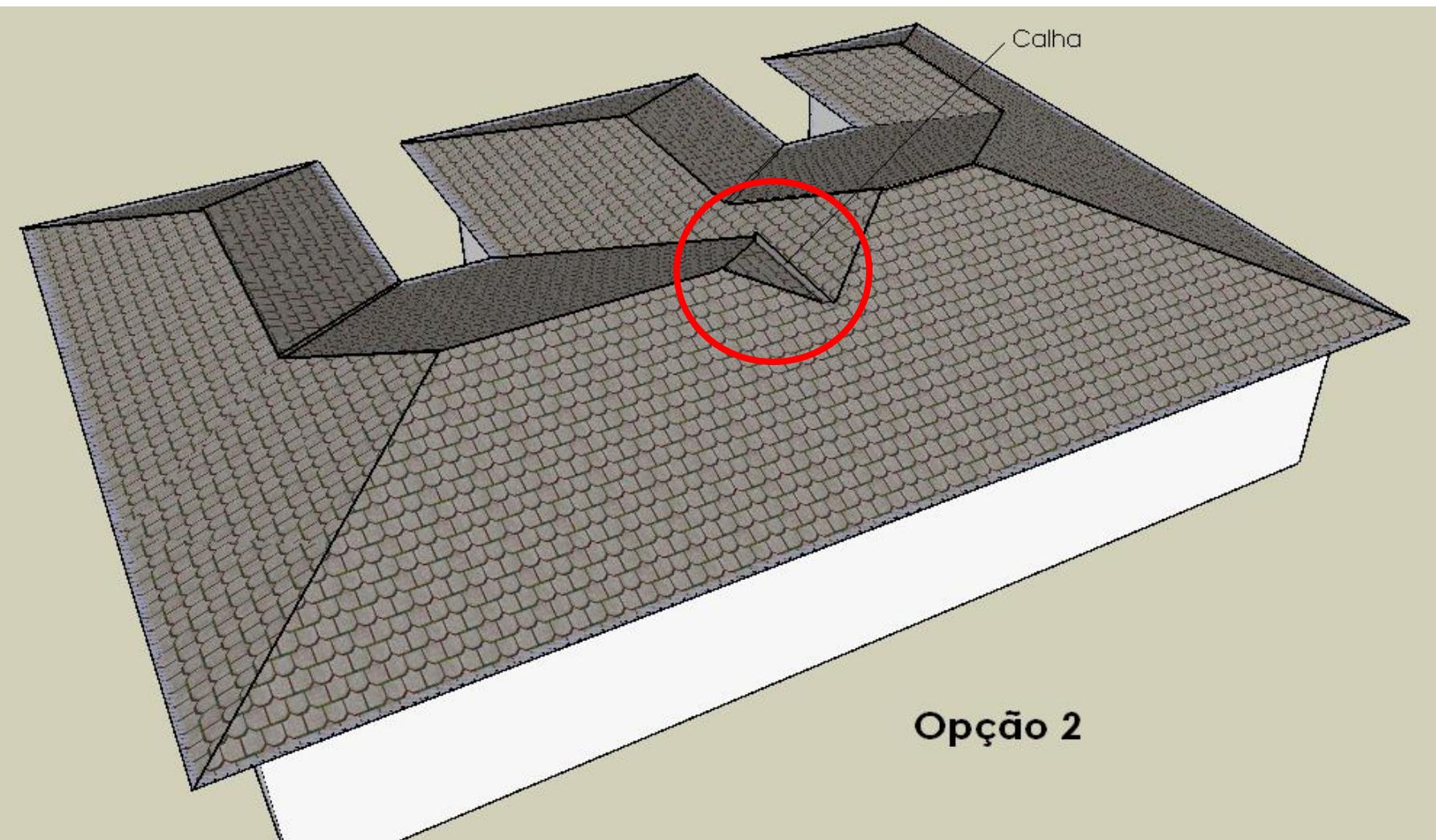
Prof. Carlos Barbosa
Goiânia/ set 2010

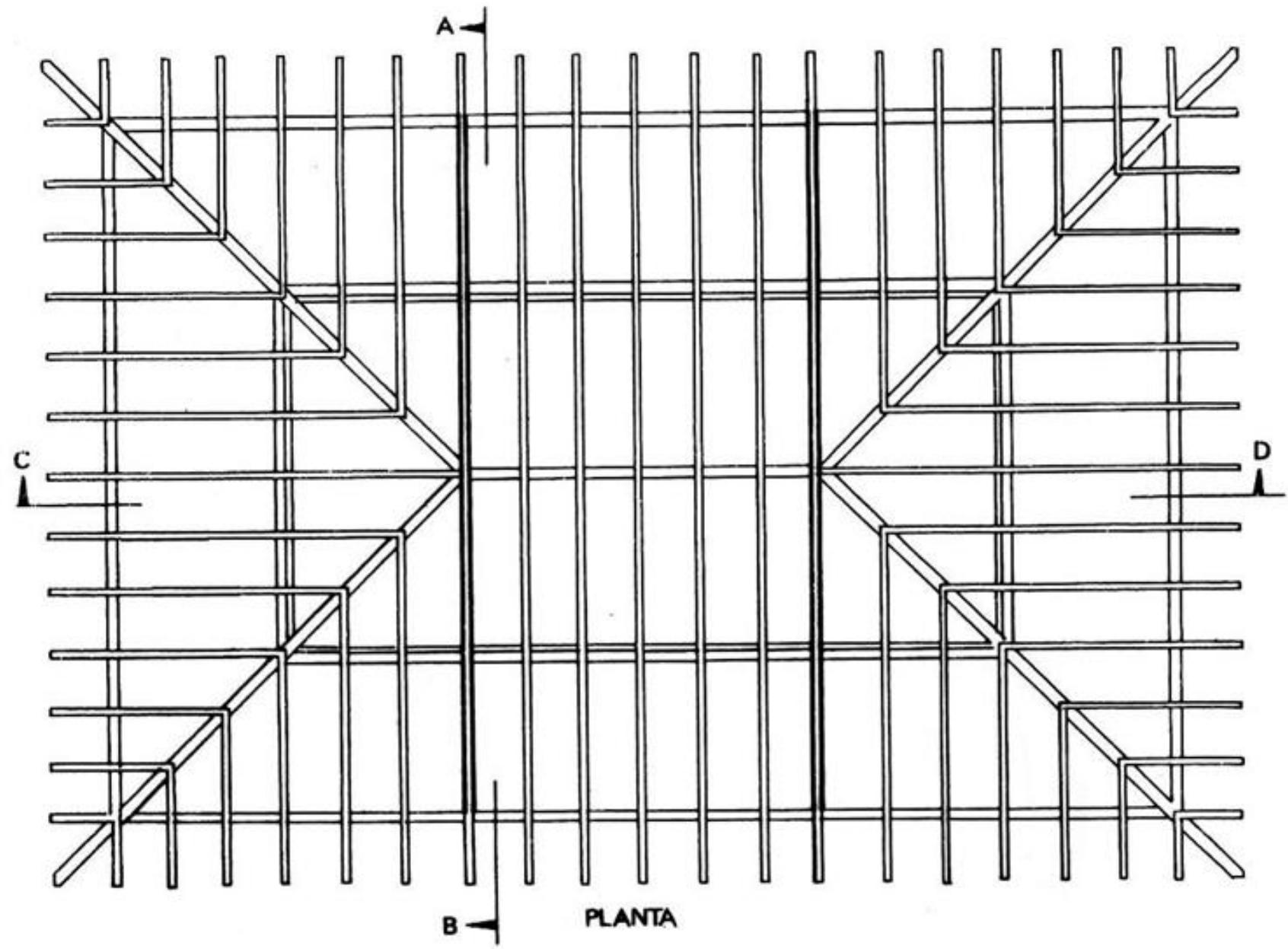


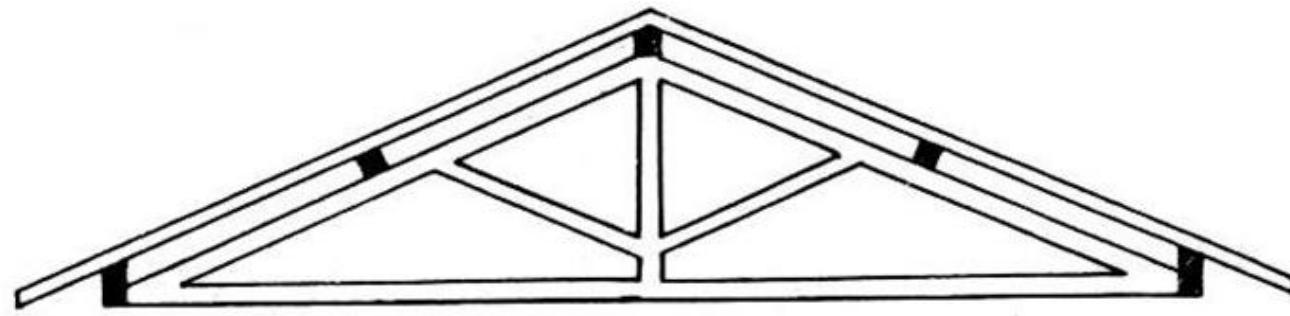




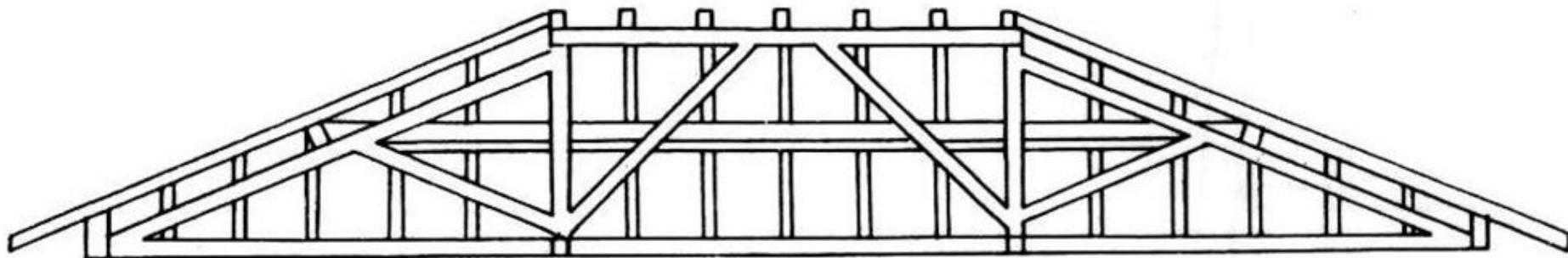
Opção 1



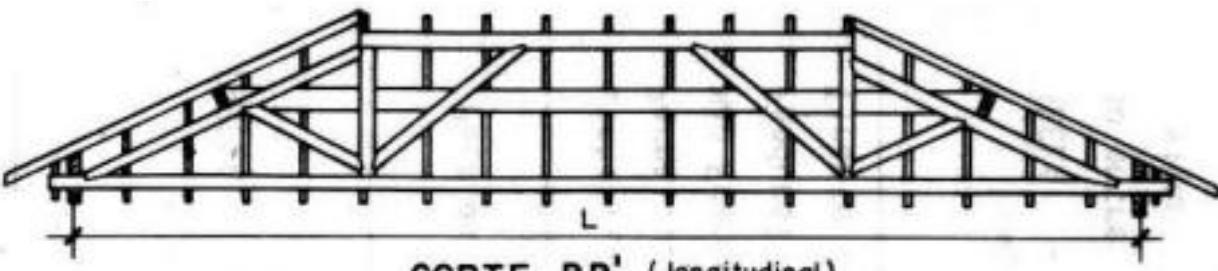




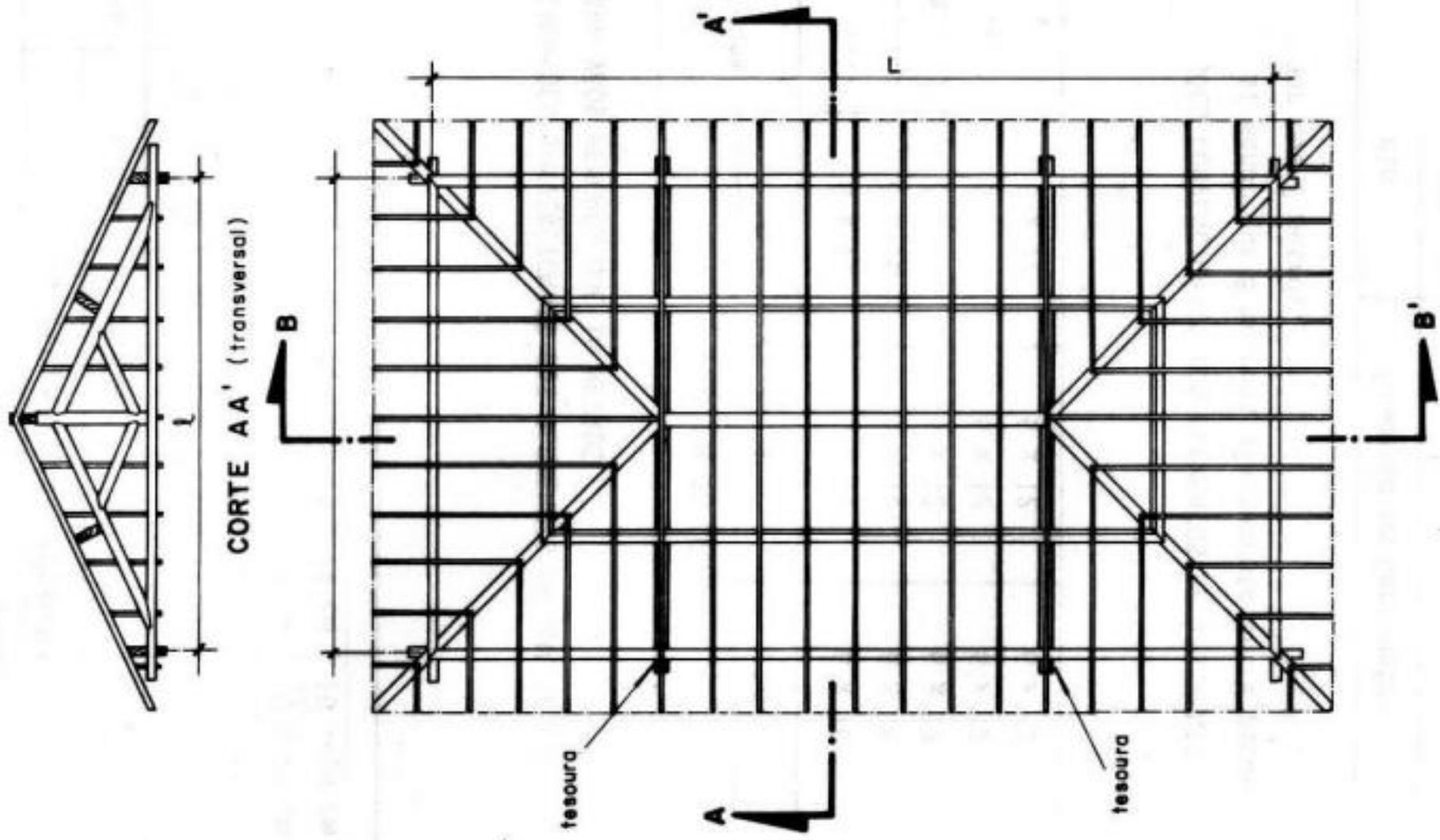
CORTE AB

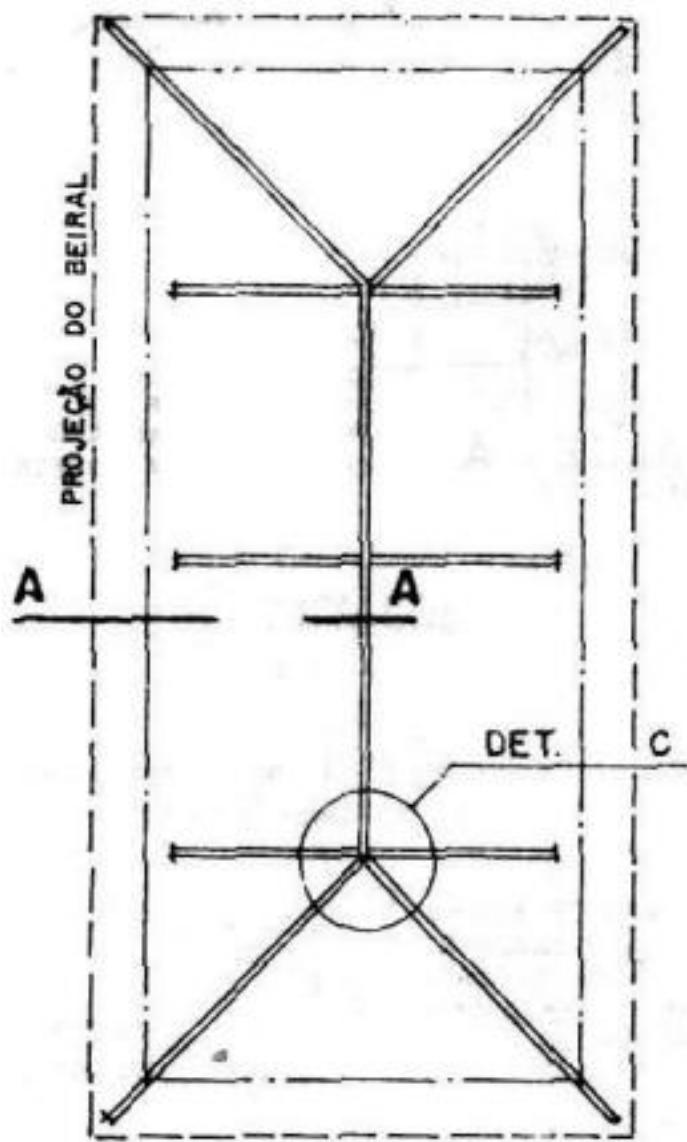


CORTE CD

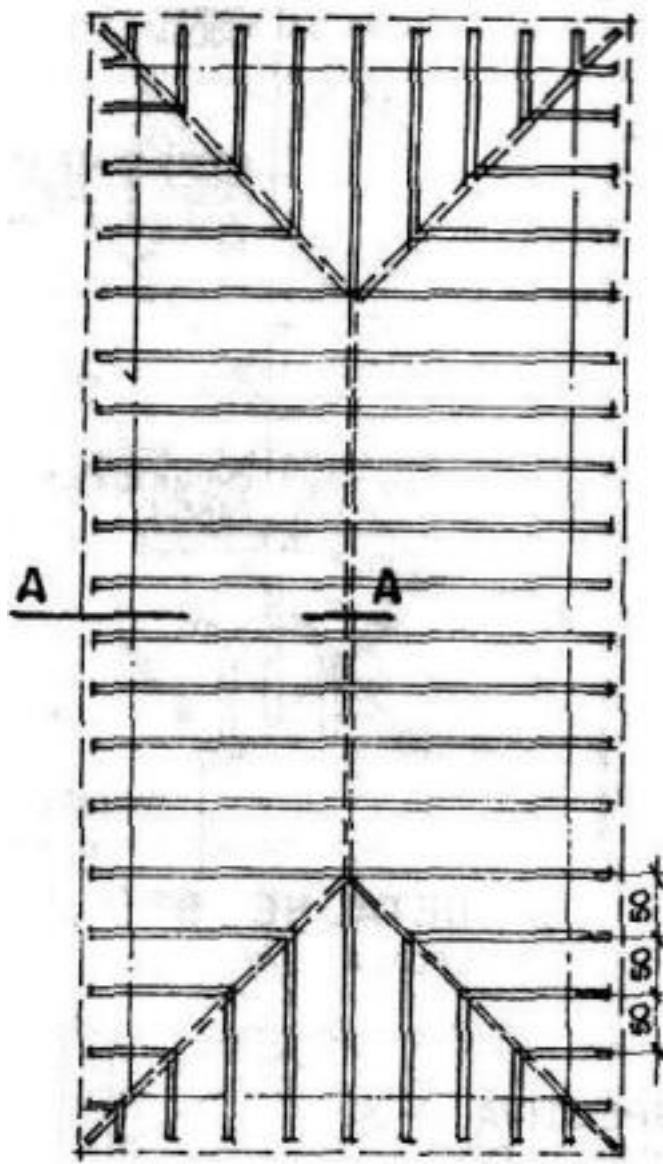


CORTE BB' (longitudinal)

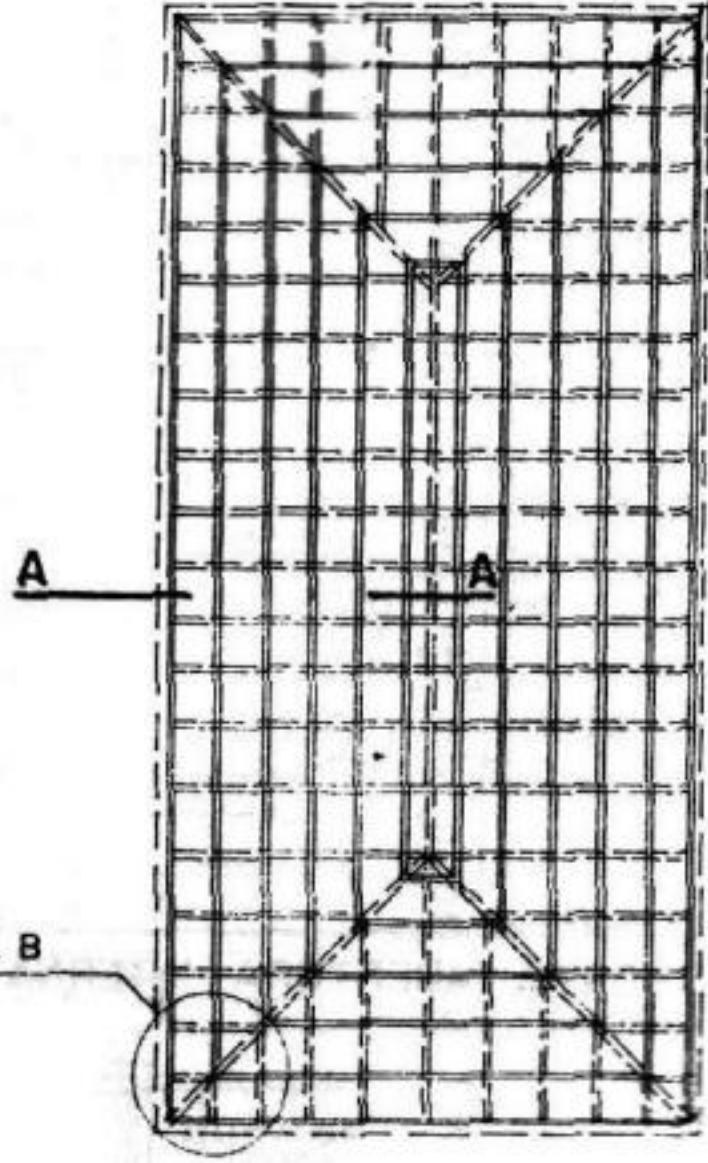




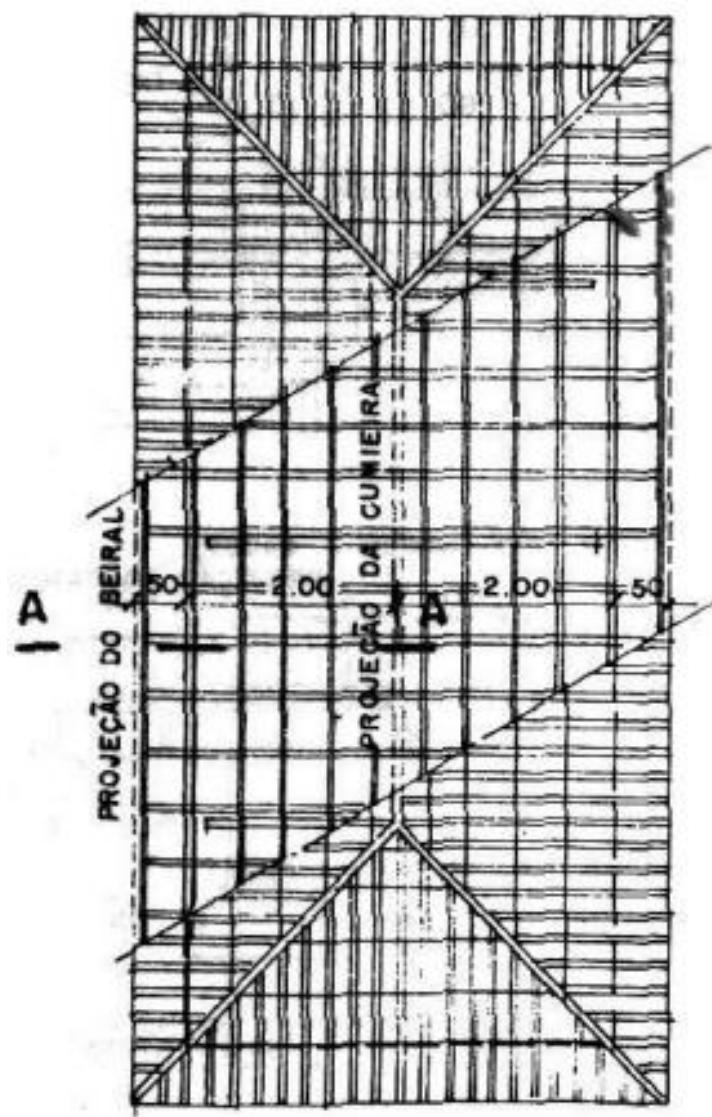
1 **PLANTA BAIXA (TESOURAS)**
ESCALA 1/100



2 **PLANTA BAIXA (CAIBROS)**
ESCALA 1/100

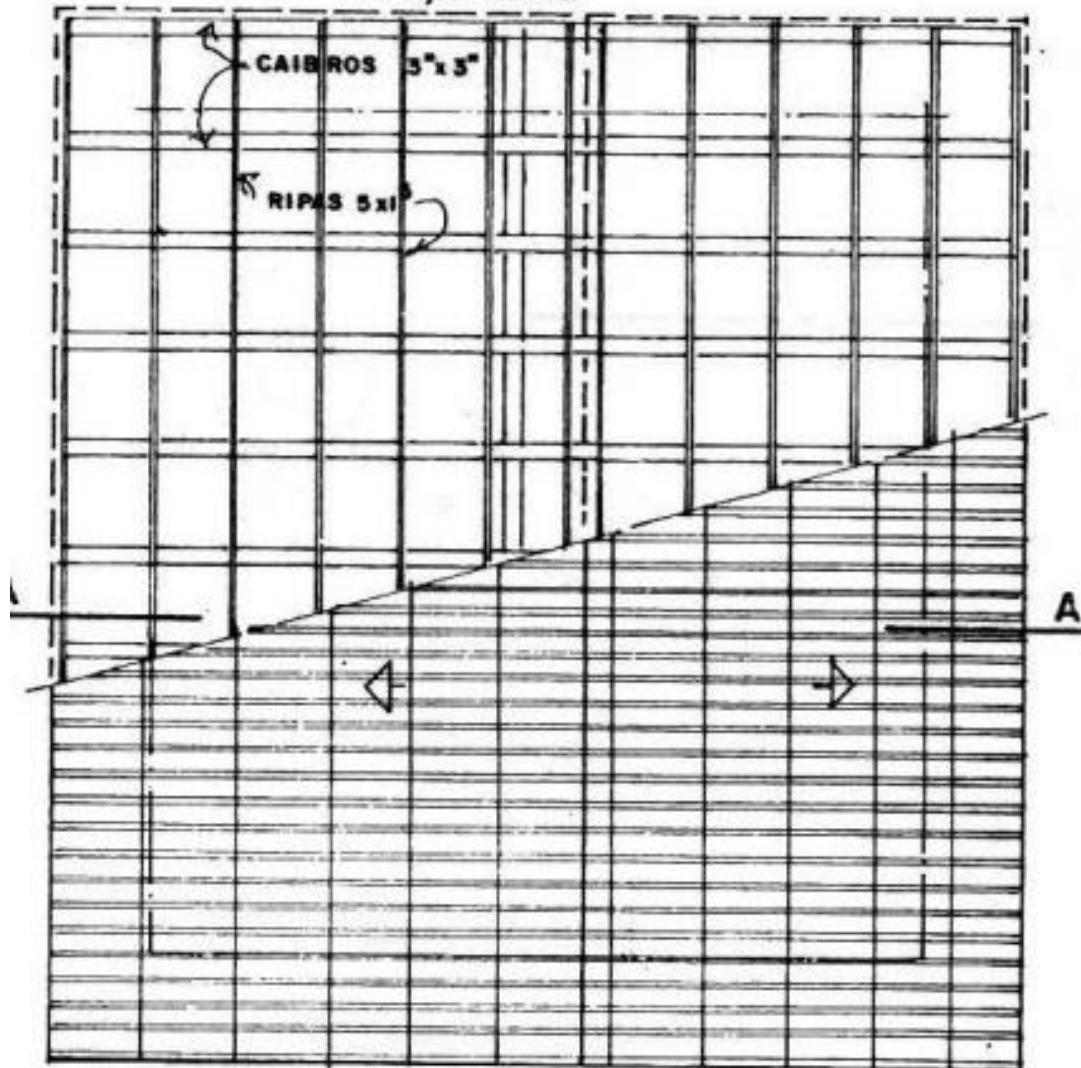


3 PLANTA BAIXA (RIPAS)
ESCALA 1/100



4 PLANTA BAIXA (TELHAS)
ESCALA 1/100

PROJEÇÃO BEIRAL

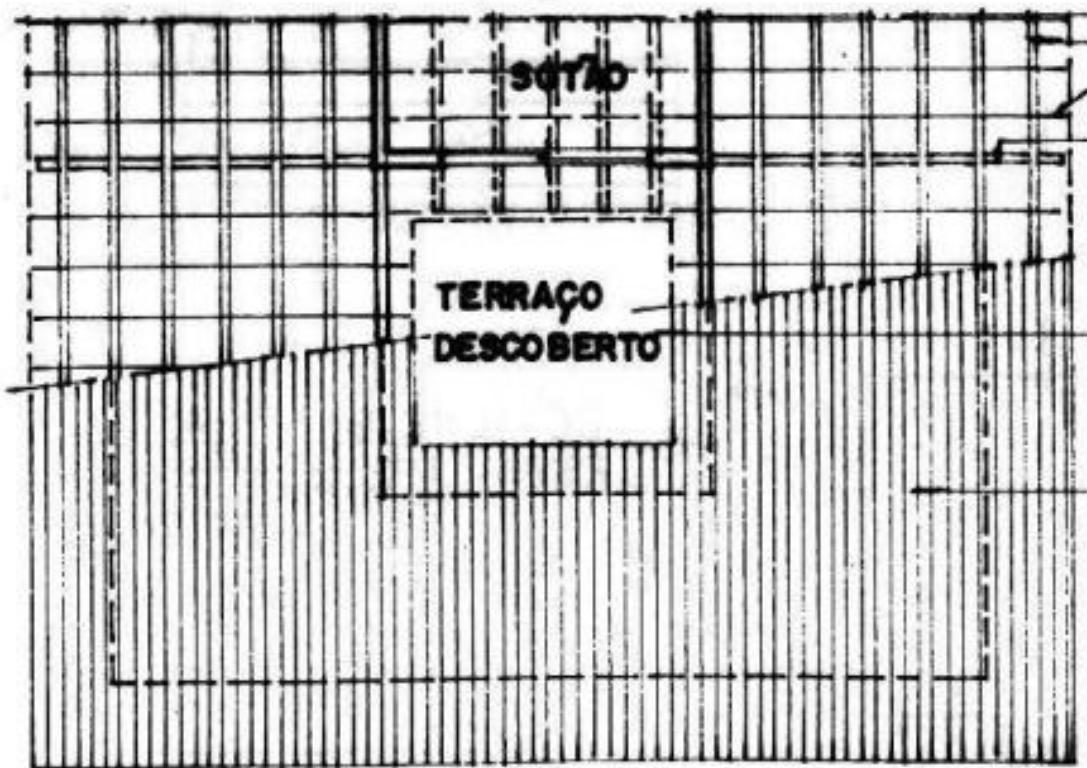


1

PLANTA BAIXA DO TELHADO
ESCALA 1/50

2 CORTE A.A
ESCALA 1/100

A|



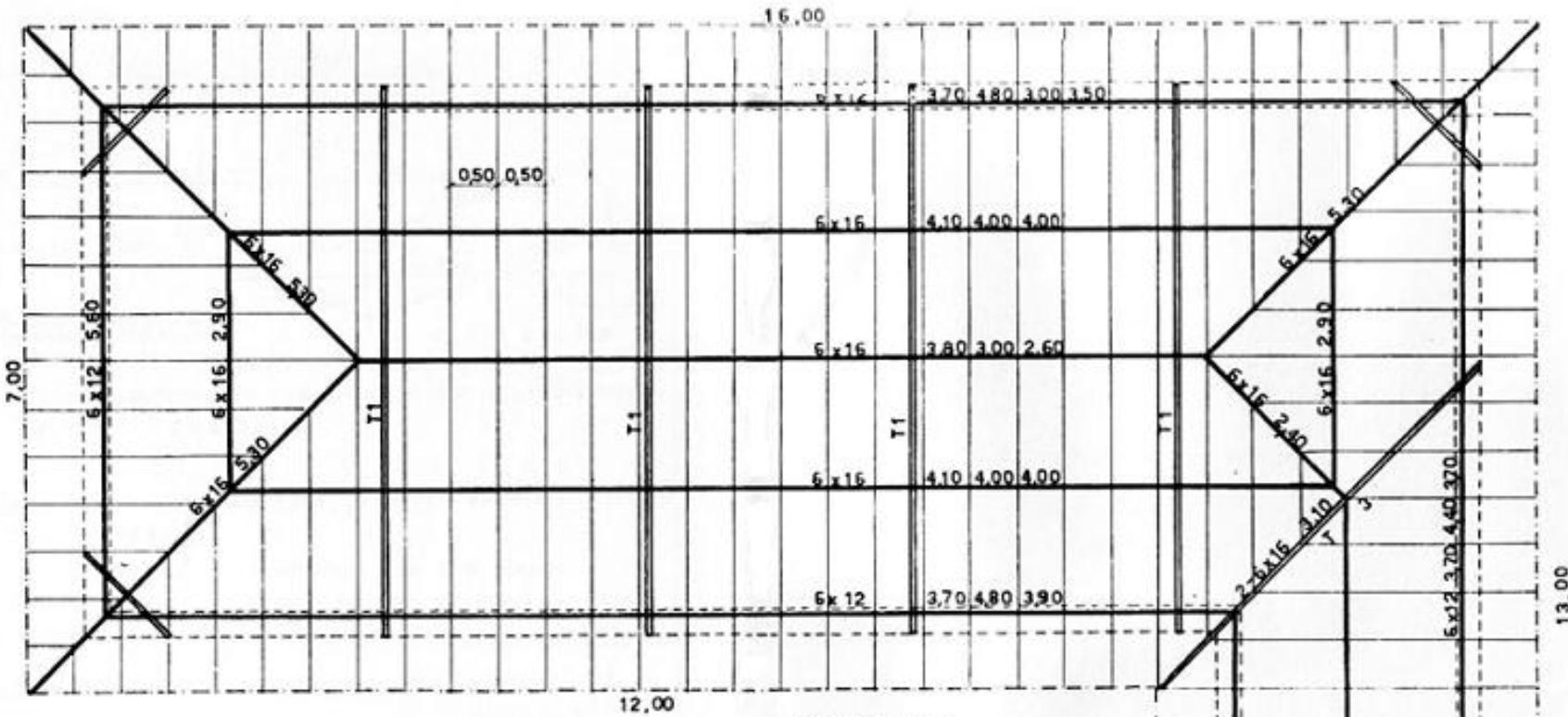
CAIBROS 3" x 3"
RIPAS 1,5 x 4
PEÇA DE MADEIRA 3" x 5"

TERRACO DESCUBERTO

TELHAS COLONIAIS DE BARRO COZIDO

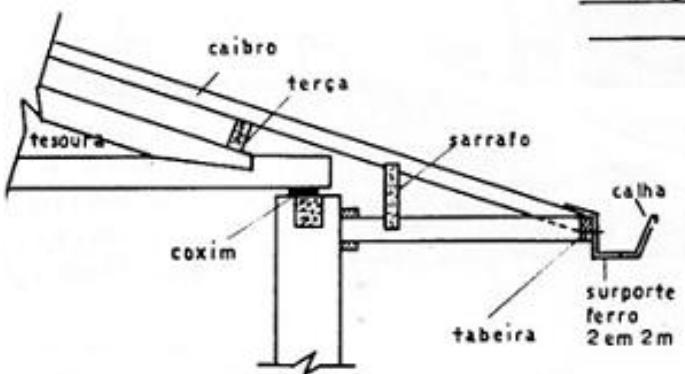
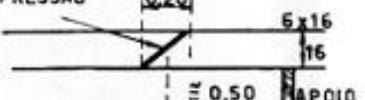
1 PLANTA BAIXA
ESCALA 1/100

A|



ESCALA 1:50

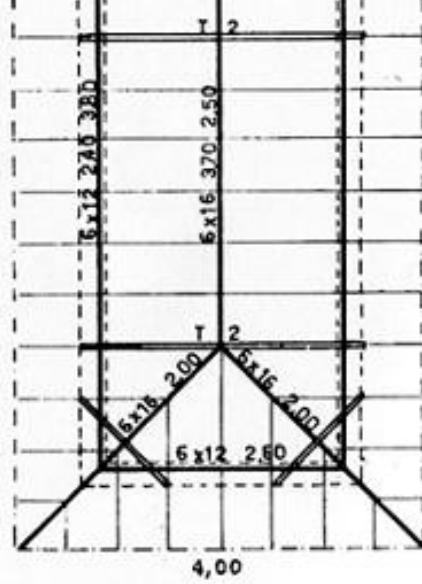
EMENDA TRABALHANDO
"A COMPRESSÃO" 0,20



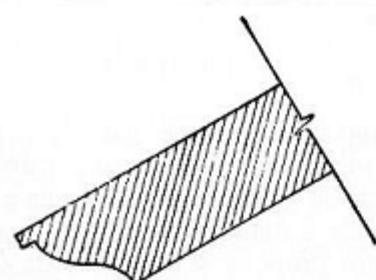
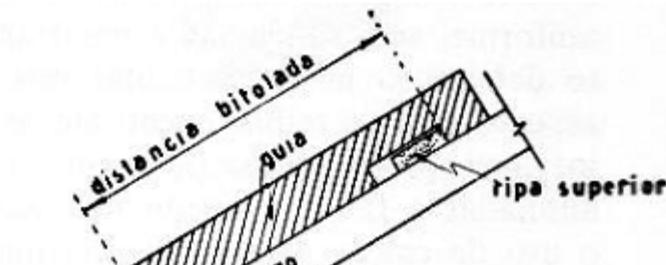
DETALHE DO BEIRAL (sem escala)

LEGENDA

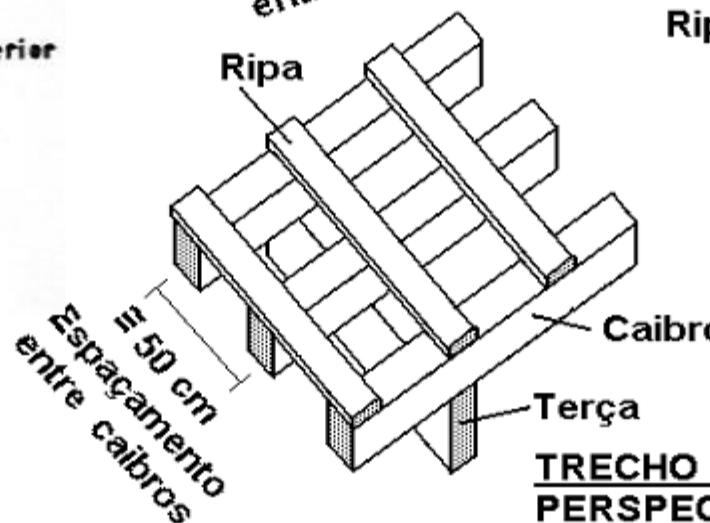
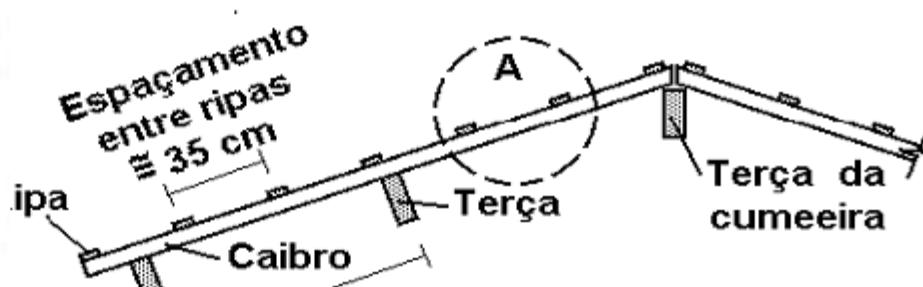
- beiral
- contorno parede
- terças
- canton e tesouras
- caibros



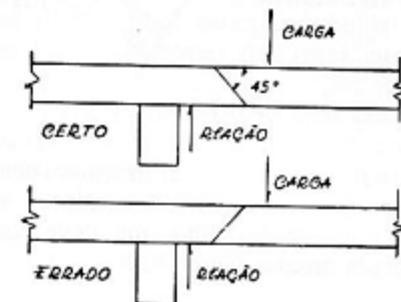
GUIA PARA RIPAMENTO



PONTAS DE CAIBROS E TERÇAS
PARA BEIRAS À VISTA
(SEM REVESTIMENTO)

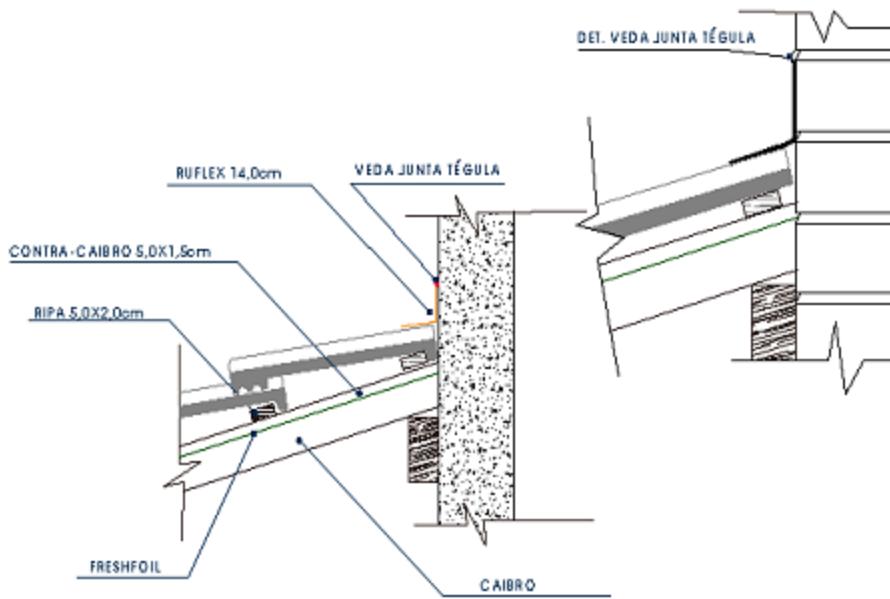
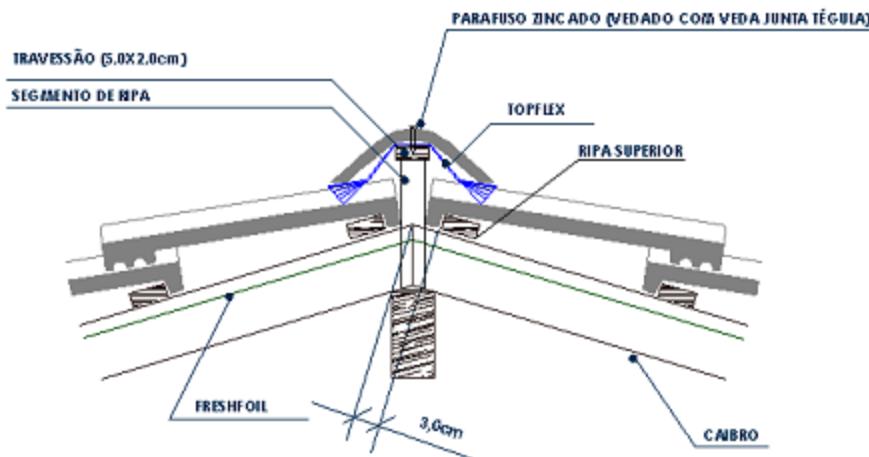
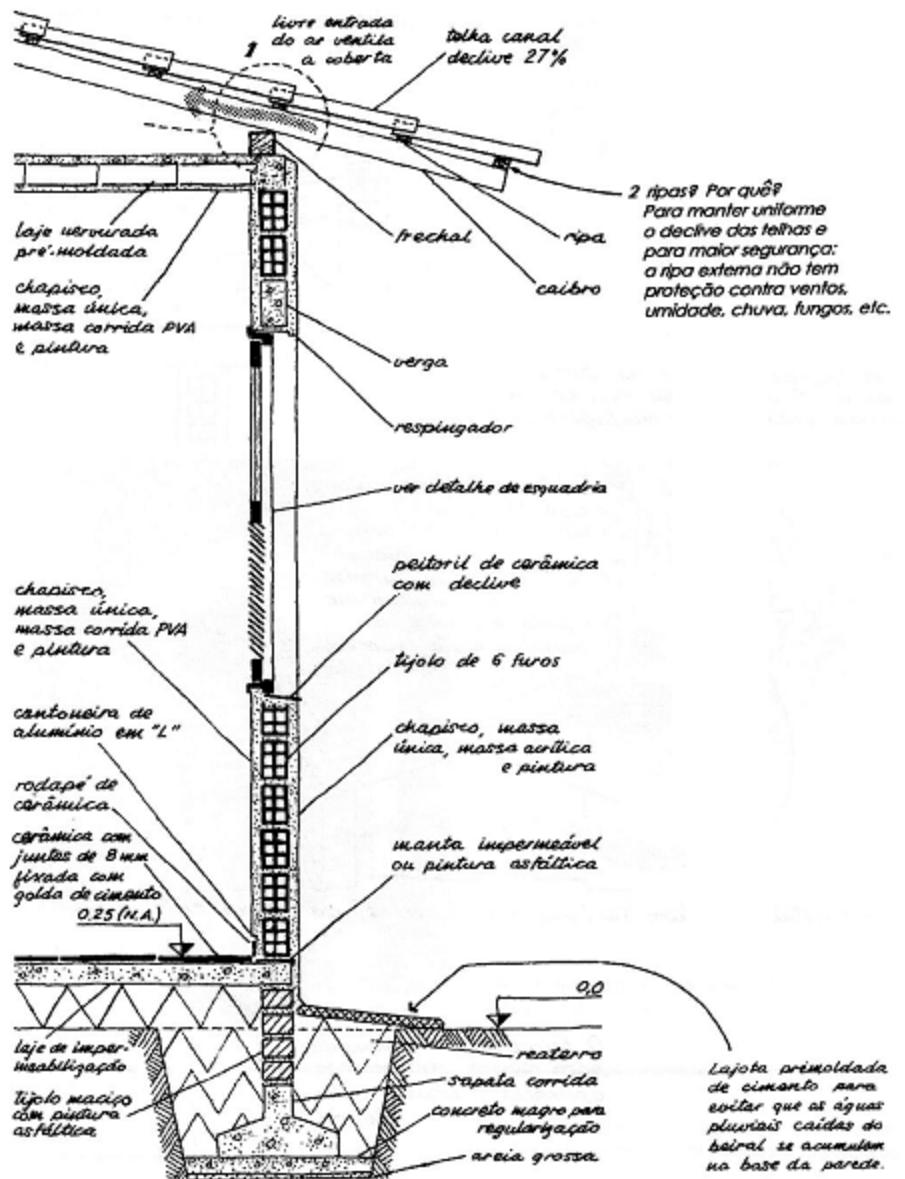


DETALHE A

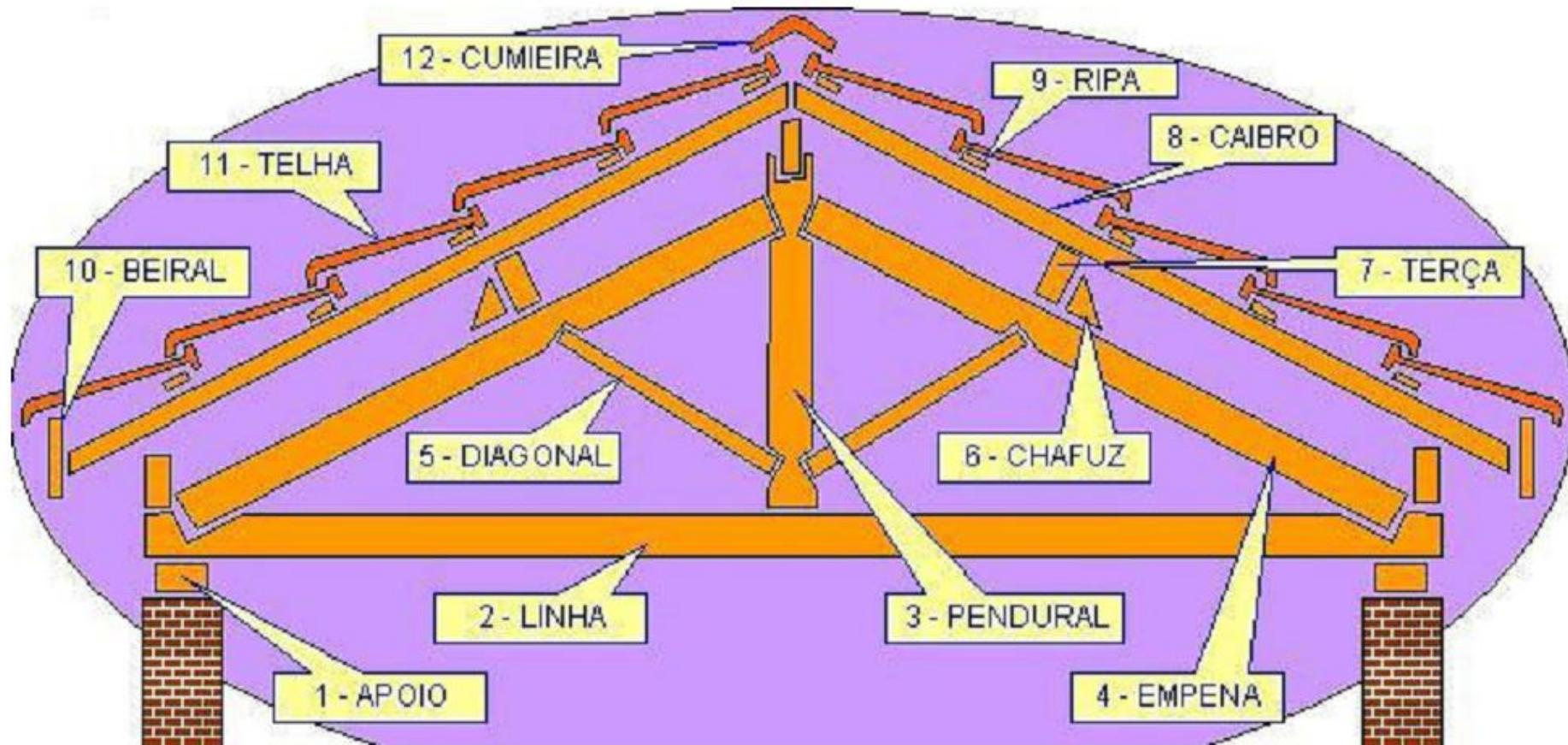


TRECHO EM PERSPECTIVA

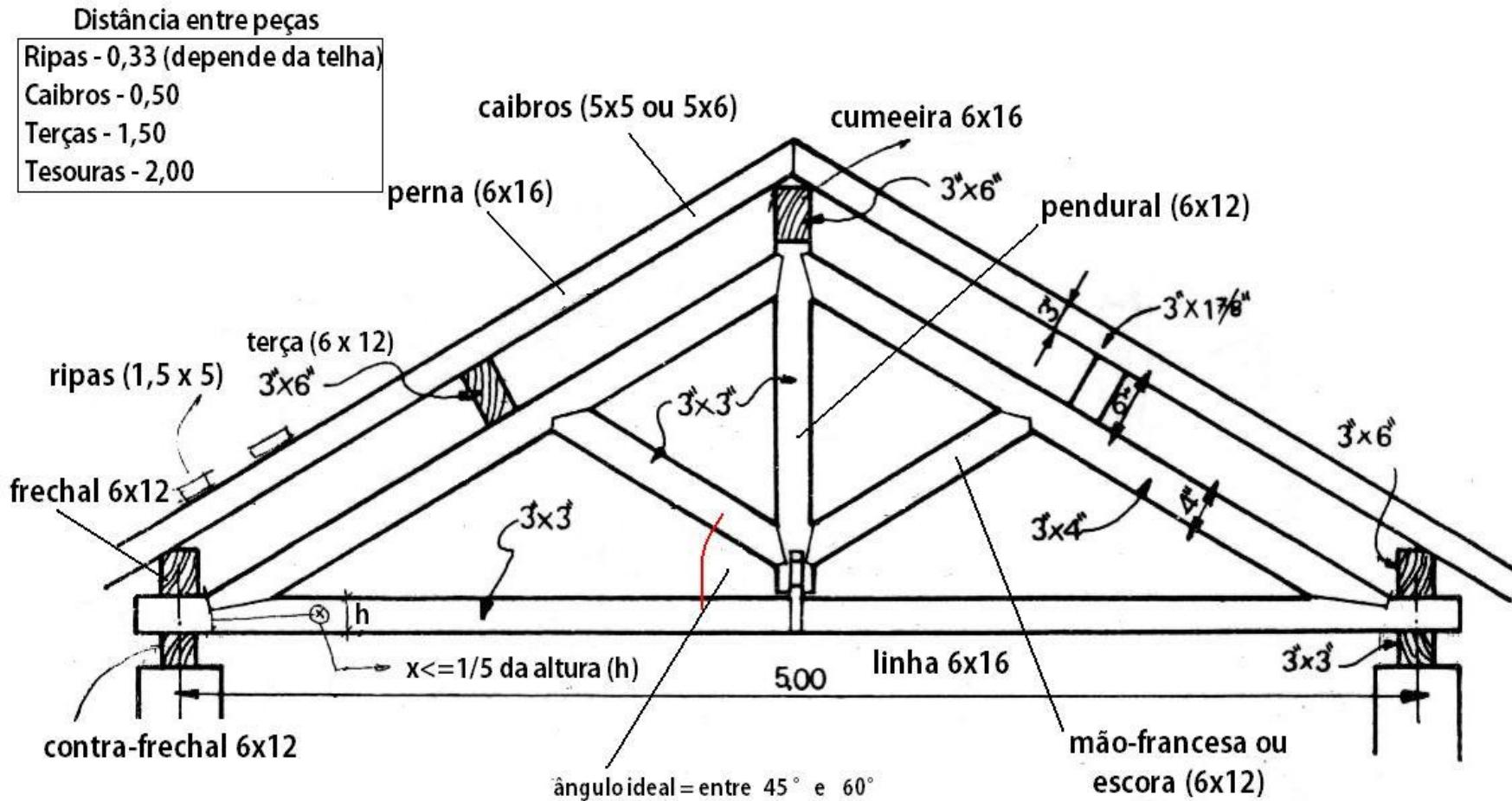
Trama de um telhado convencional com telhas cerâmicas

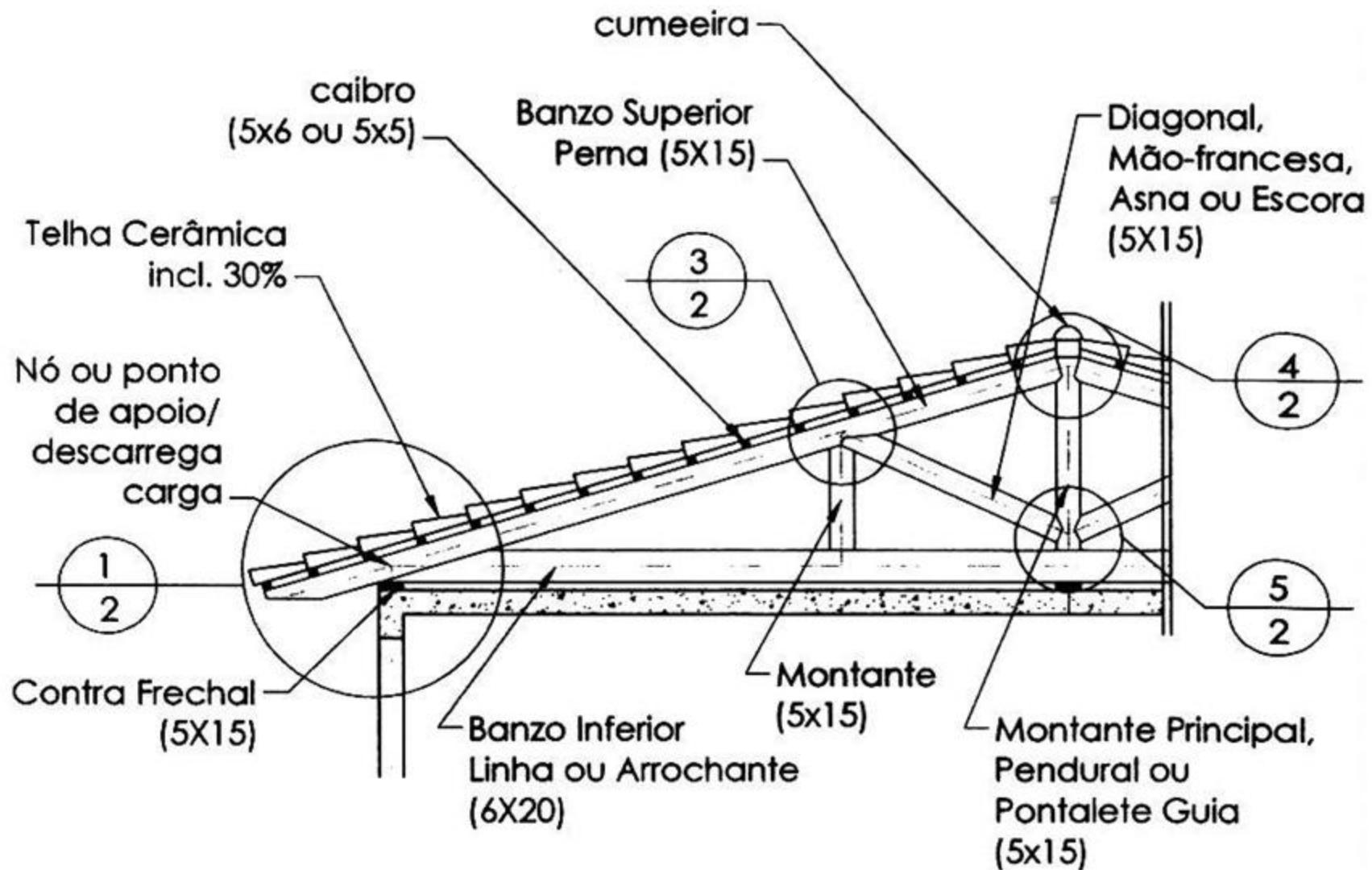


Lajota premoldada de cimento para evitar que as águas pluviais caídas do beiral se acumulem na base da parede.

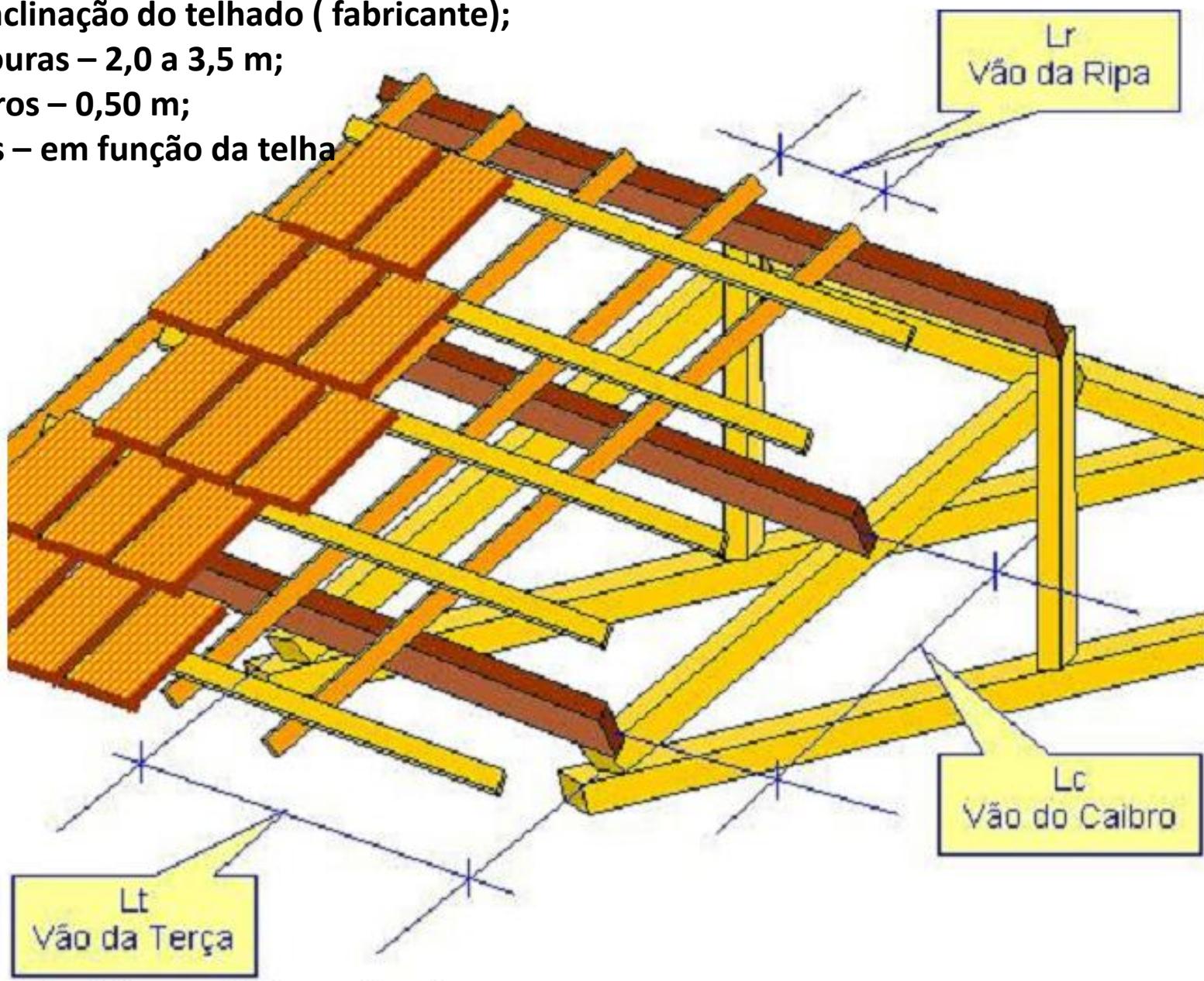


Tesouras e detalhes de encaixe dos componentes





Ponto – inclinação do telhado (fabricante);
entre tesouras – 2,0 a 3,5 m;
entre caibros – 0,50 m;
Entre ripas – em função da telha

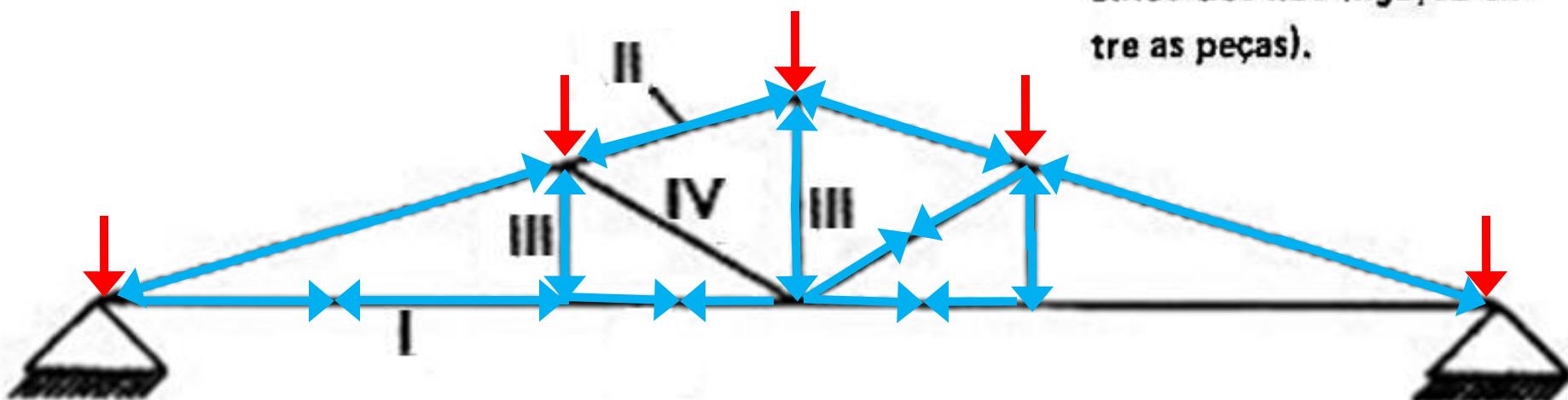


$Lr = \text{Vão da Ripa} = 50$ centímetros.

Para colocar a Diagonal dividi-se o eixo do banzo superior em 3 partes iguais.

Dando um ângulo maior que 45° será necessário a colocação de mais uma escora

A distância entre as terças deverá ser sempre menor ou igual a 3,00 m e de preferência apoiadas nos eixos dos nós (ligação entre as peças).

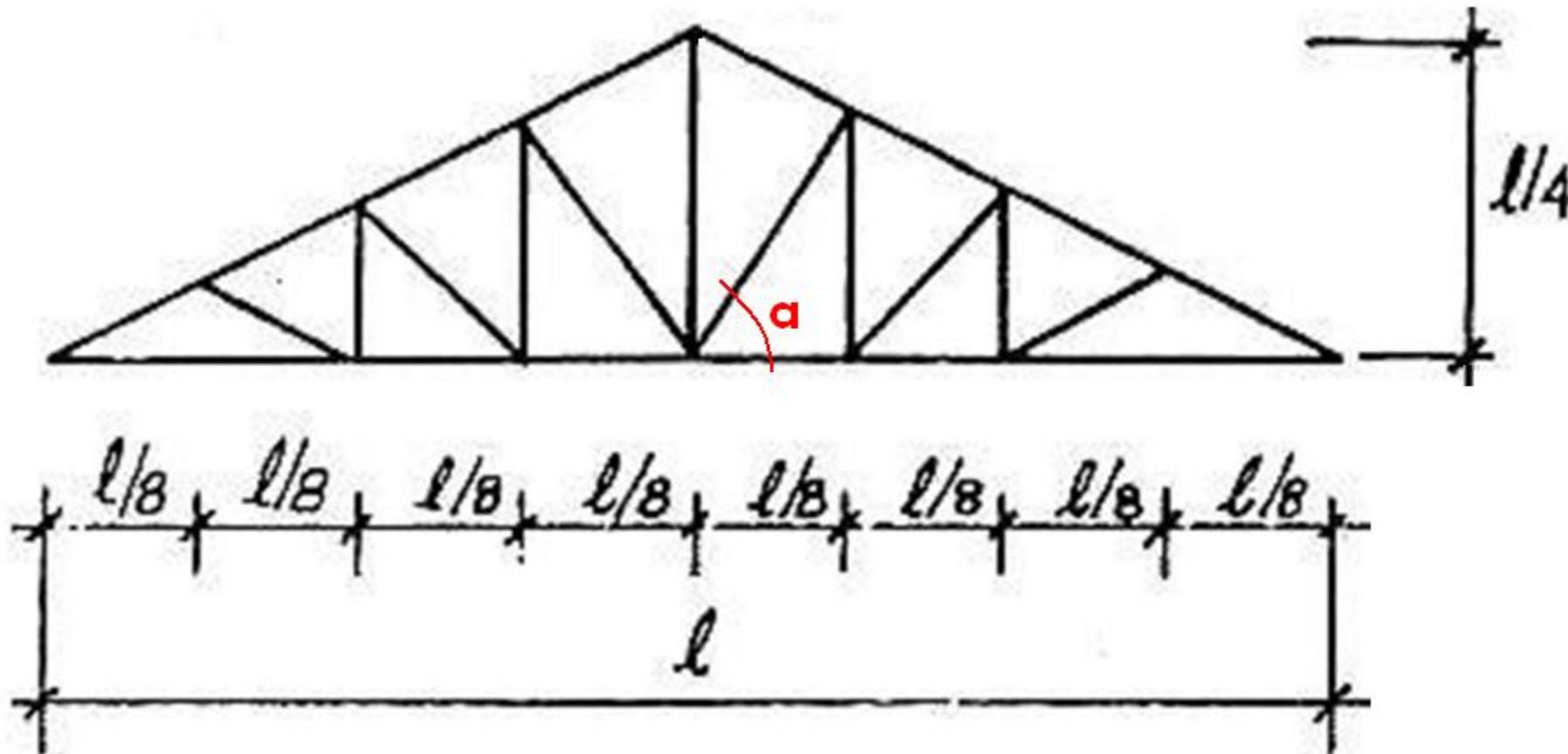


I	Banzo inferior	compressão
II	Banzo superior	tração
III	Montante	tração
IV	Diagonal	compressão

Dimensão do caibro	Espaçamento entre as tesouras
5x6	1,80m
5x5	1,50m

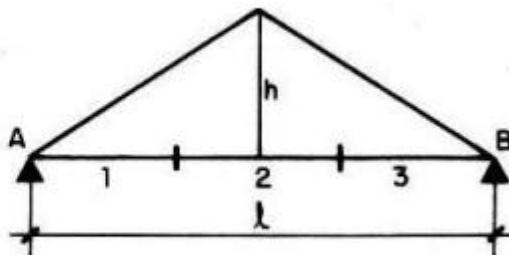
Para colocar a Diagonal dividi-se
o eixo do banzo superior
em 3 partes iguais.

Dando um ângulo maior que
 45° será necessário a colocação
de mais uma escora



TELHADO DE TELHAS PLANAS (Tipo Francesa ou Marselha)

Ponto: $\frac{1}{3} AB$ ($\frac{h}{l} = \frac{1}{3}$)



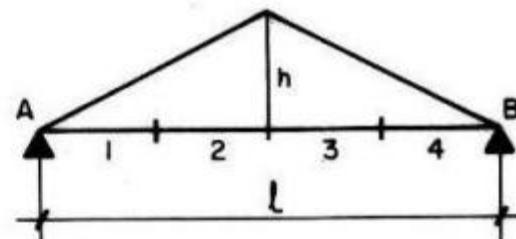
Caimento: 35%

Quantidade: 17 telhas por m^2

TELHADO DE TELHAS CURVAS (Tipo Paulista ou Colonial)

Ponto: $\frac{1}{4} a \frac{1}{5} AB$

Caimento: 20% a 35%

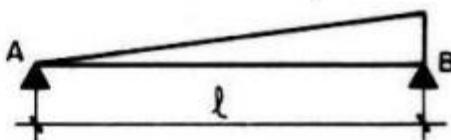


Quantidade: 30 telhas por m^2 (15 canais + 15 capas)

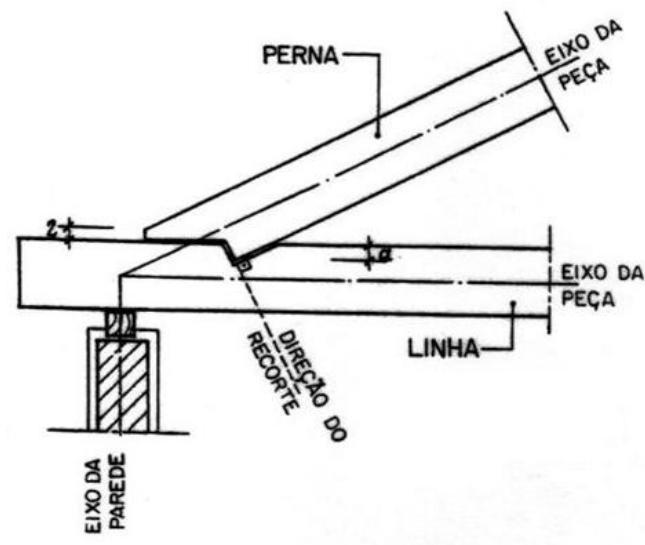
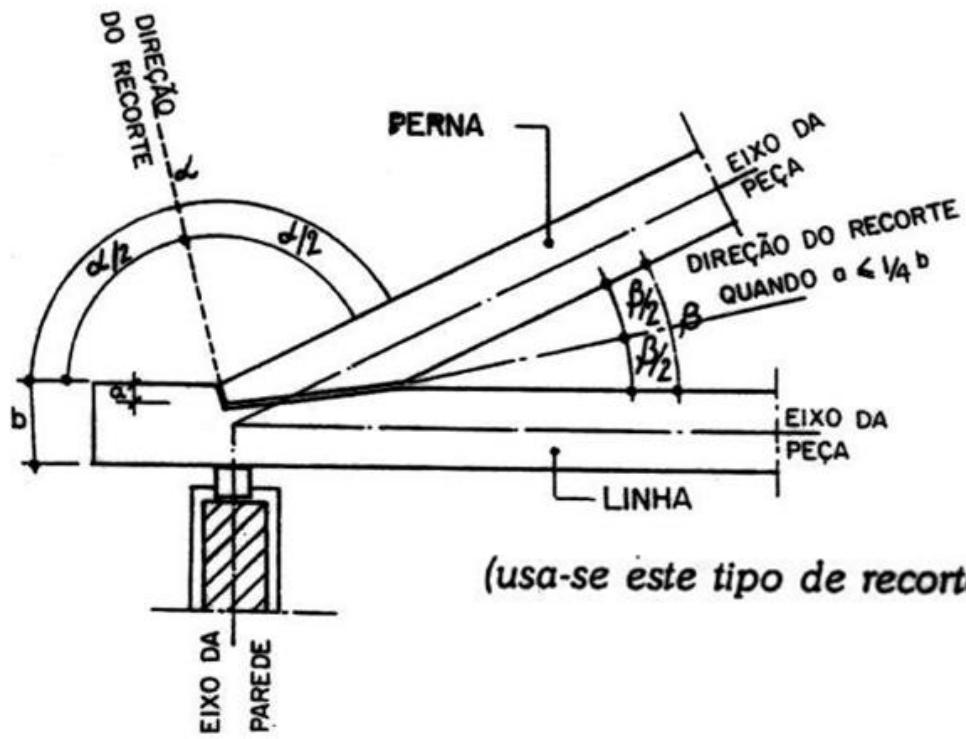
TELHADOS DE TELHAS CHAPAS FIBROCIMENTO (Ondulado, Zinco-Alumínio, Plástico etc.)

Ponto: $\frac{1}{5} a \frac{1}{10} AB$

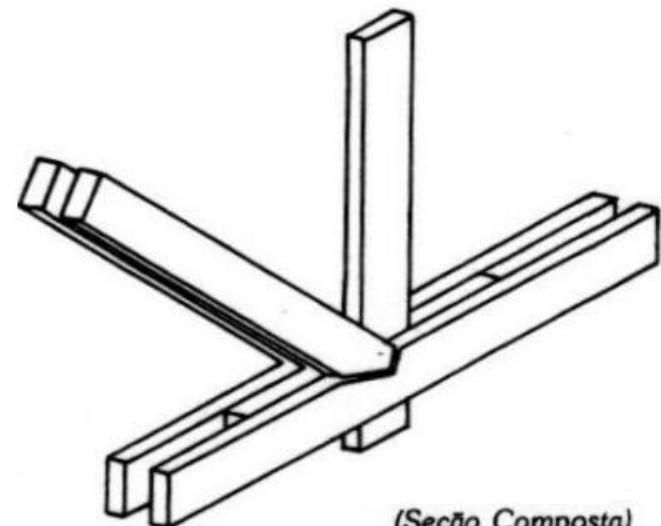
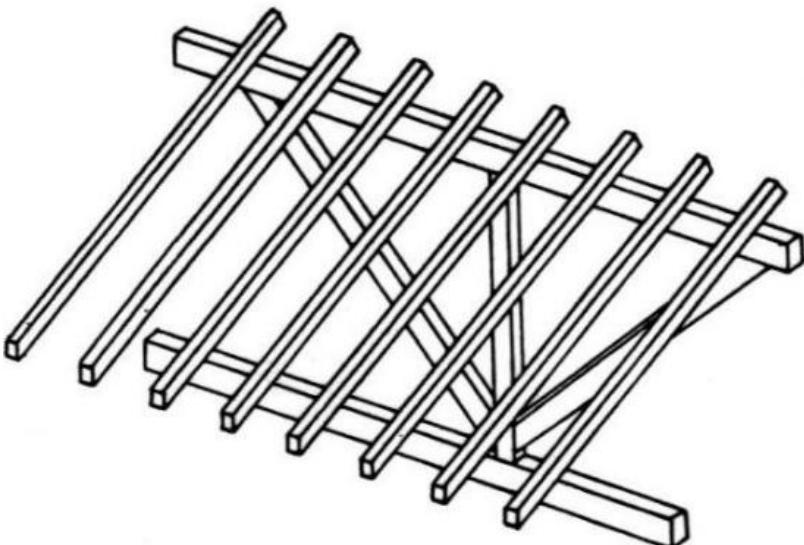
Caimento: 20% a 12%



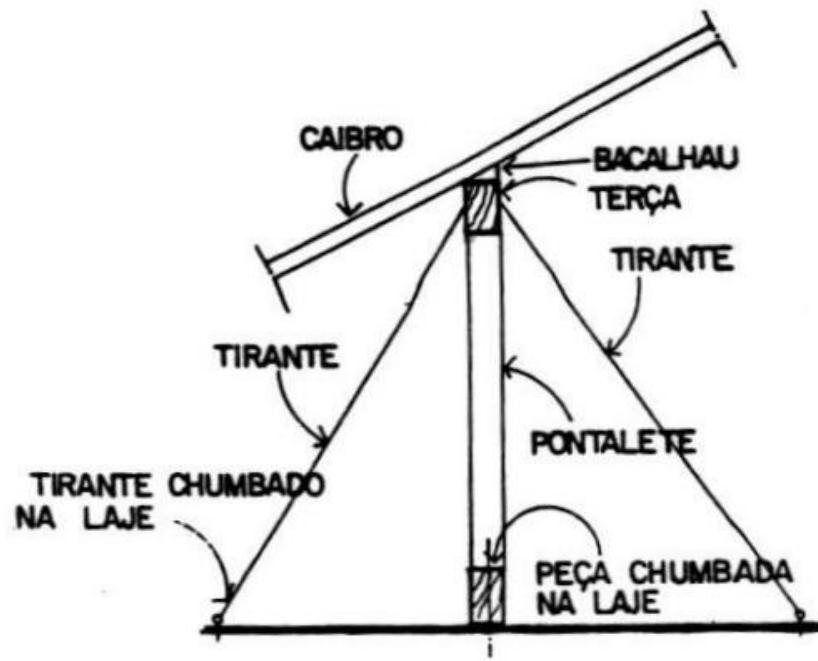
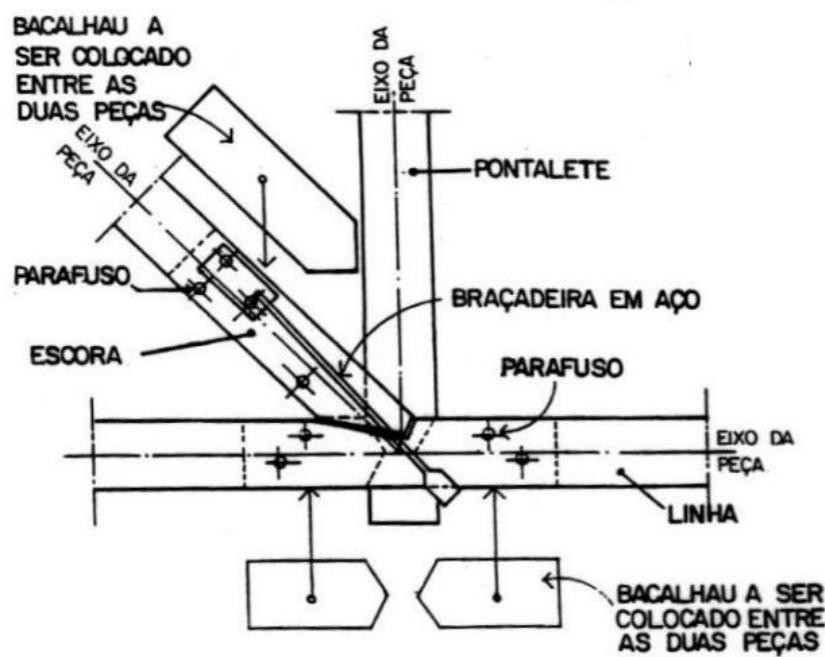
Tesouras e detalhes de recortes, encaixes e emendas dos componentes das tesouras



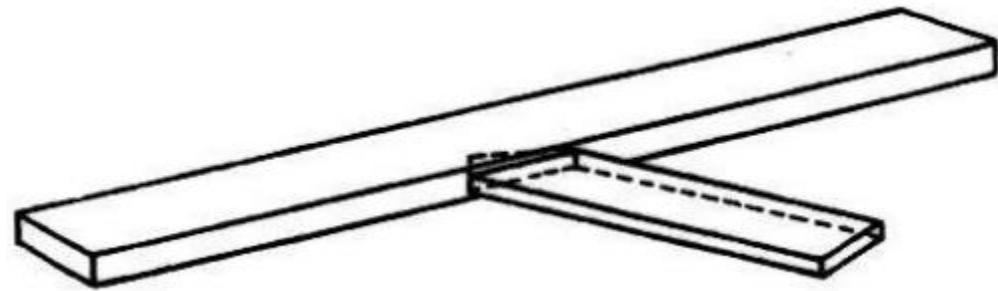
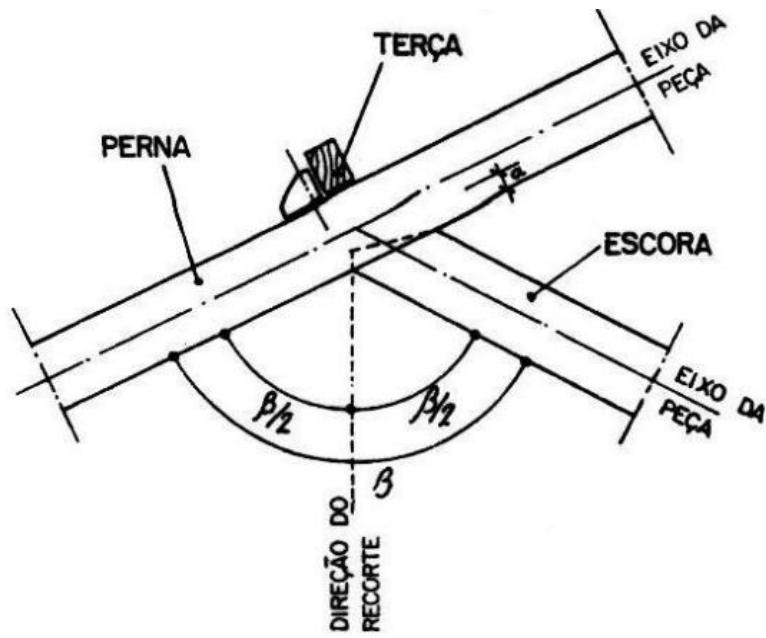
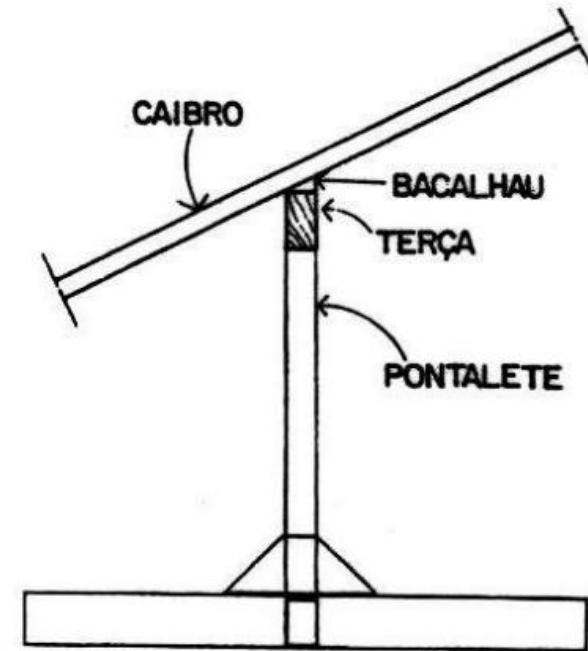
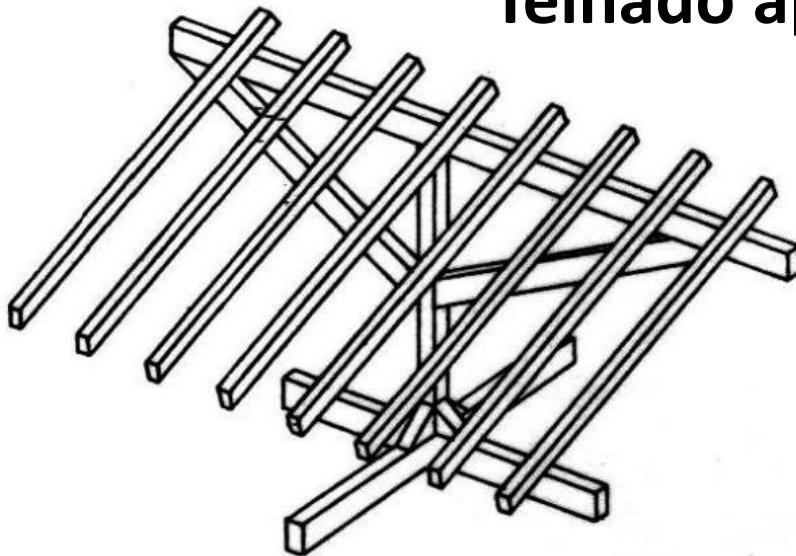
Telhado apoiado sobre pontaletes em lajes

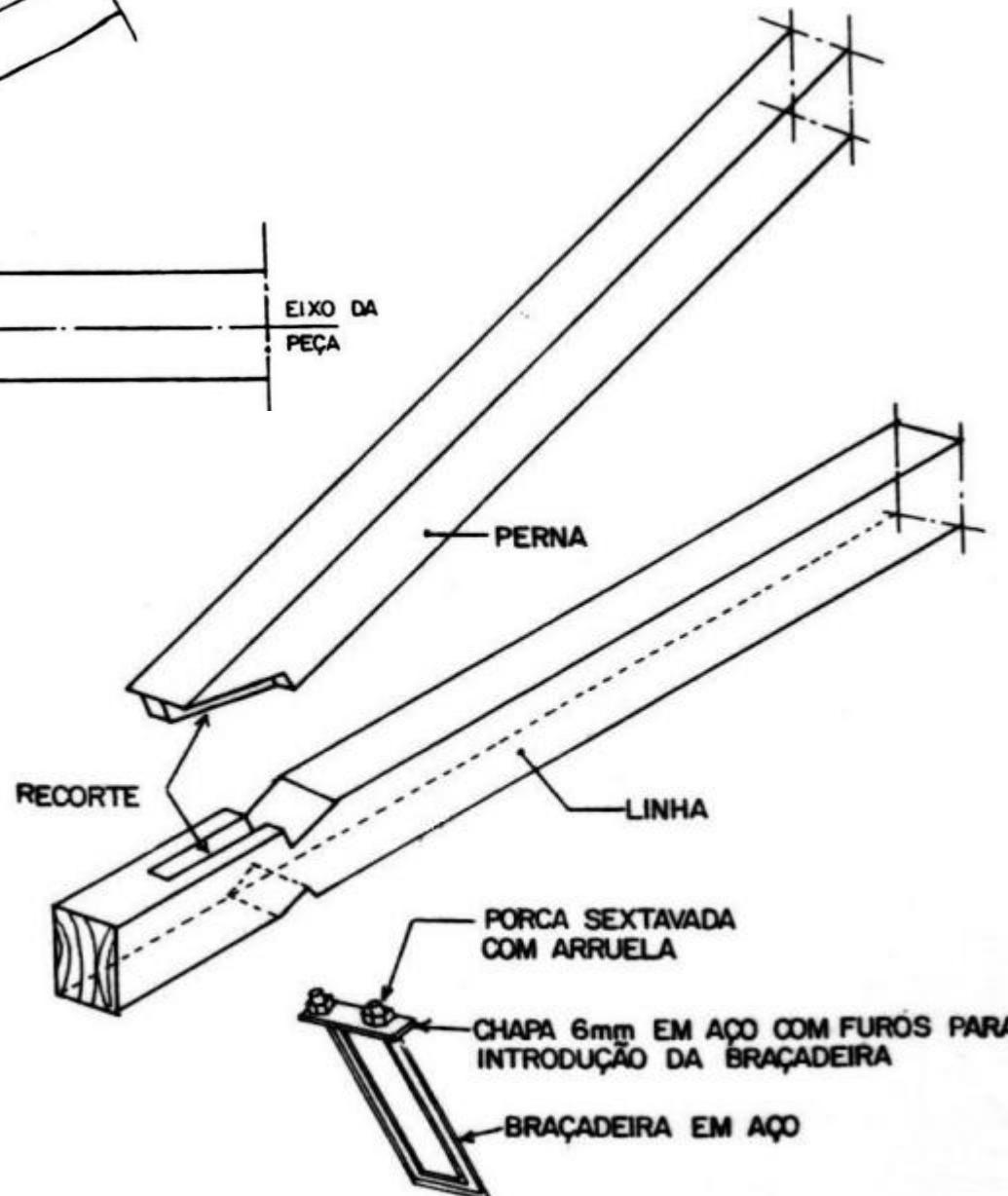
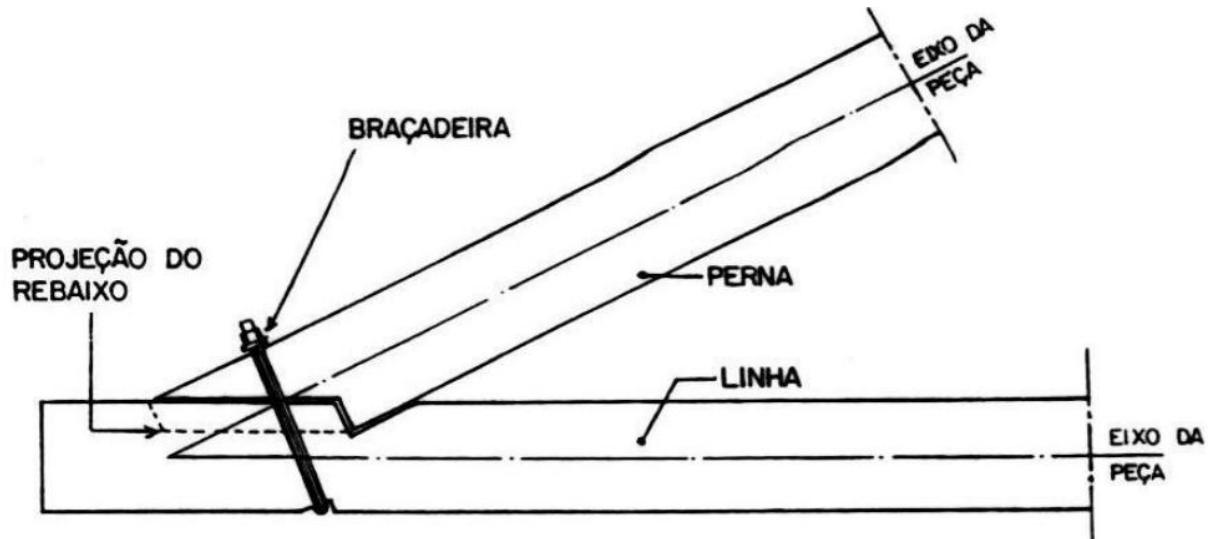


(Seção Composta)



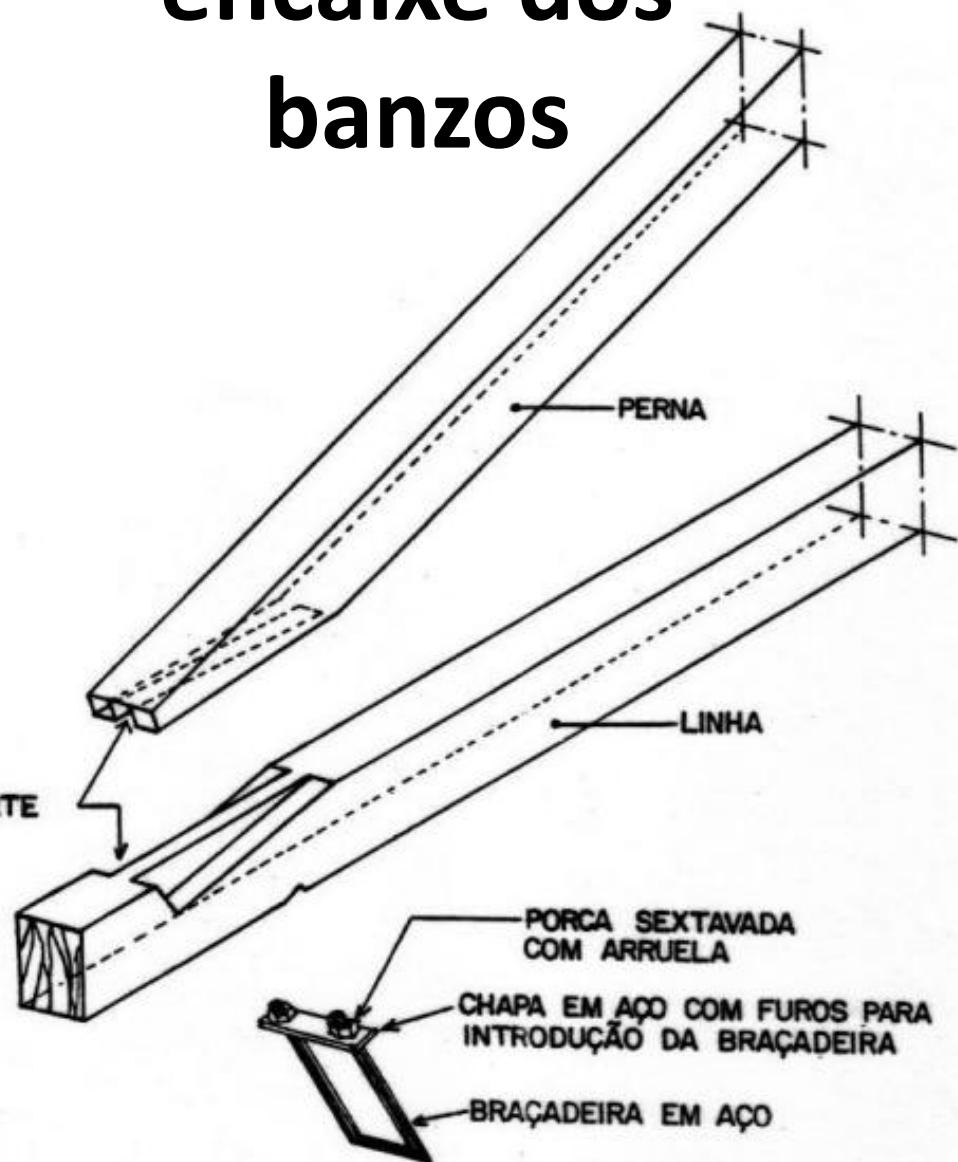
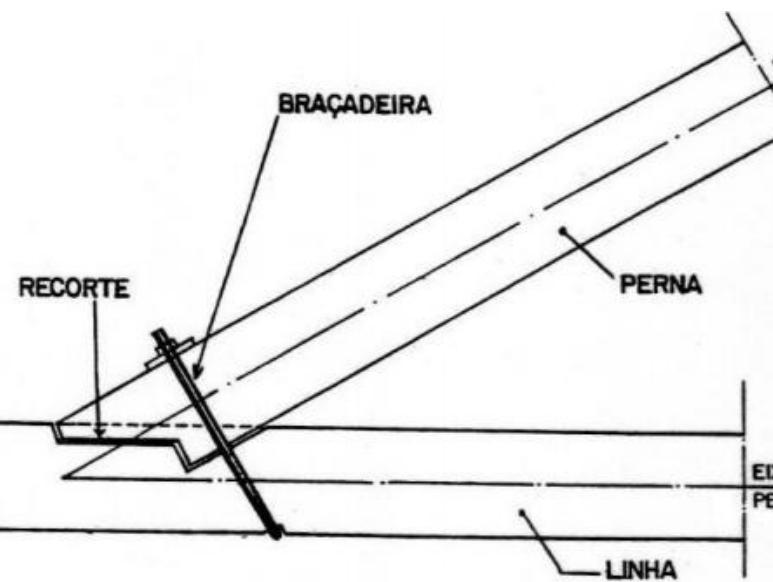
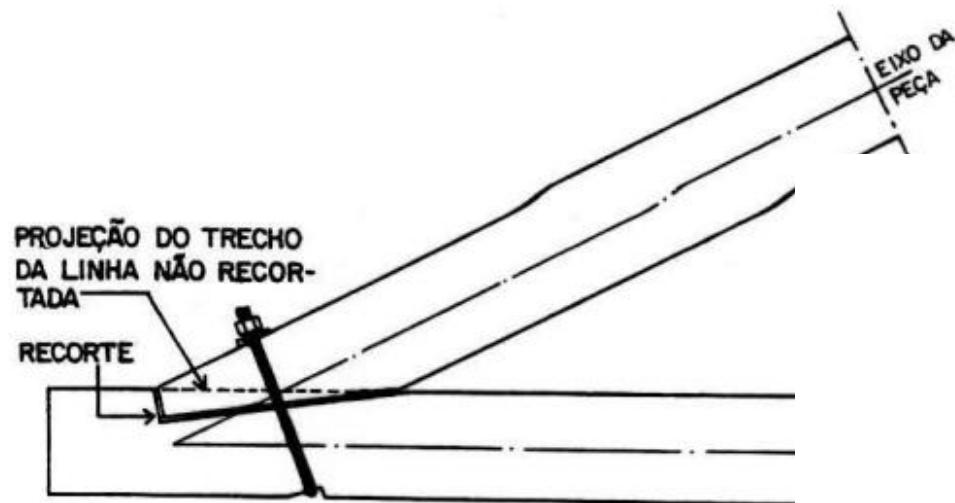
Telhado apoiado sobre pontaletes em lajes



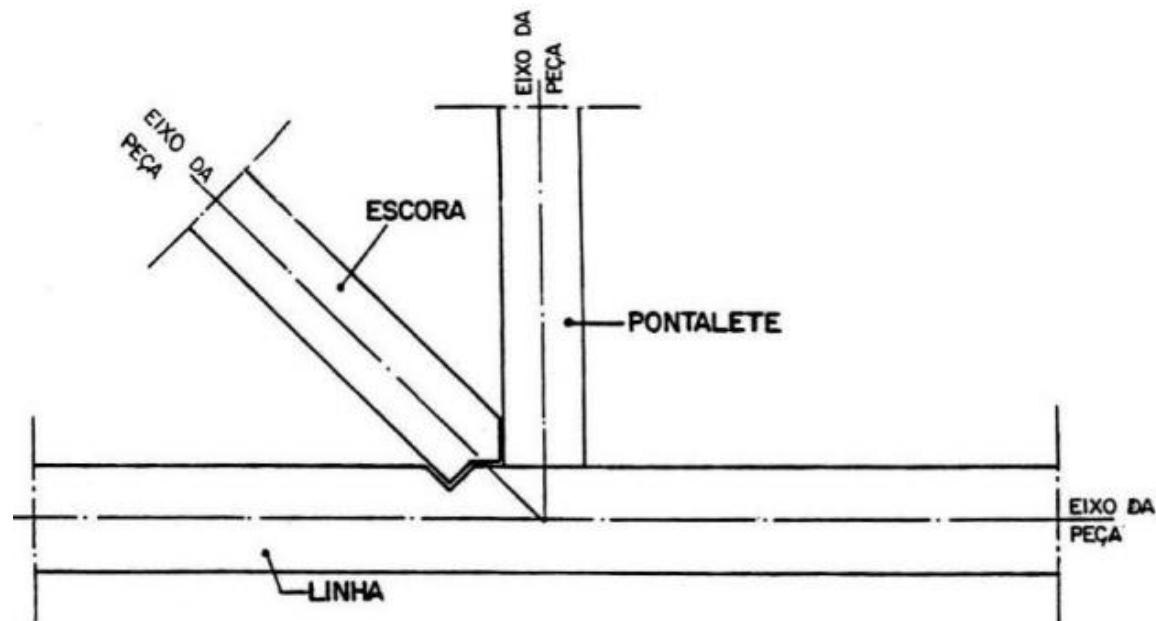
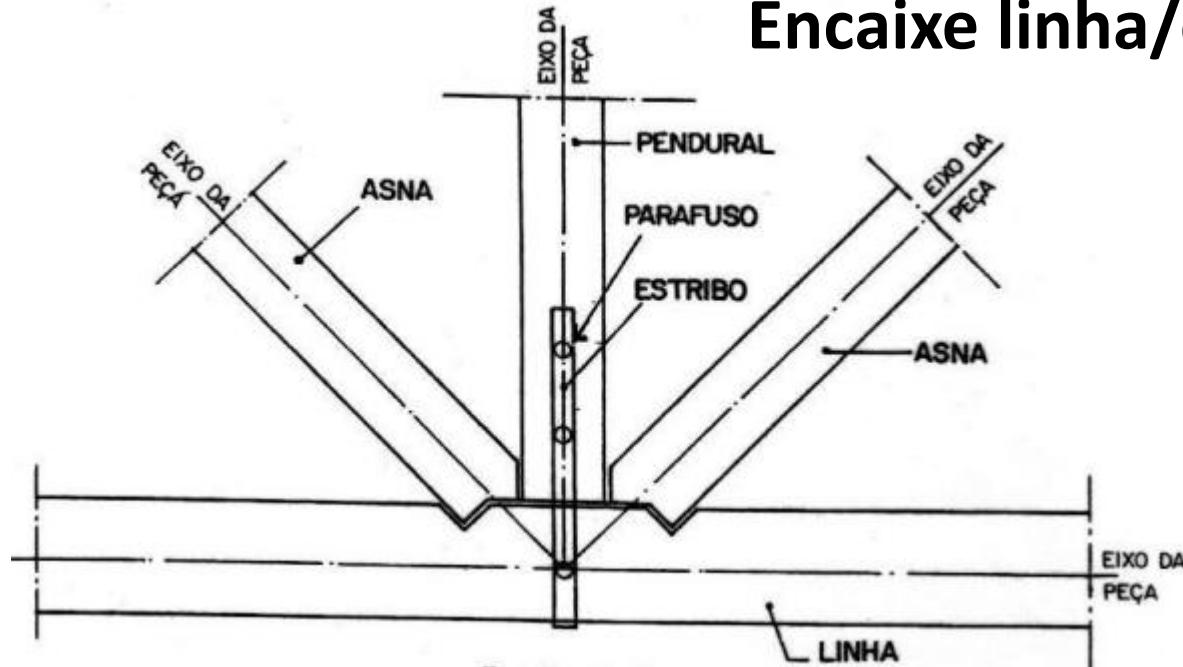


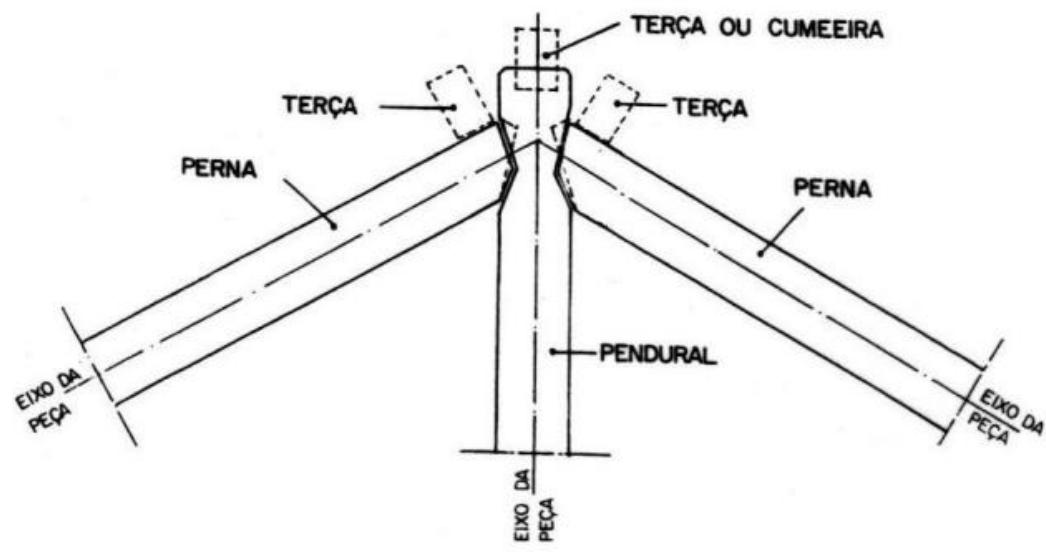
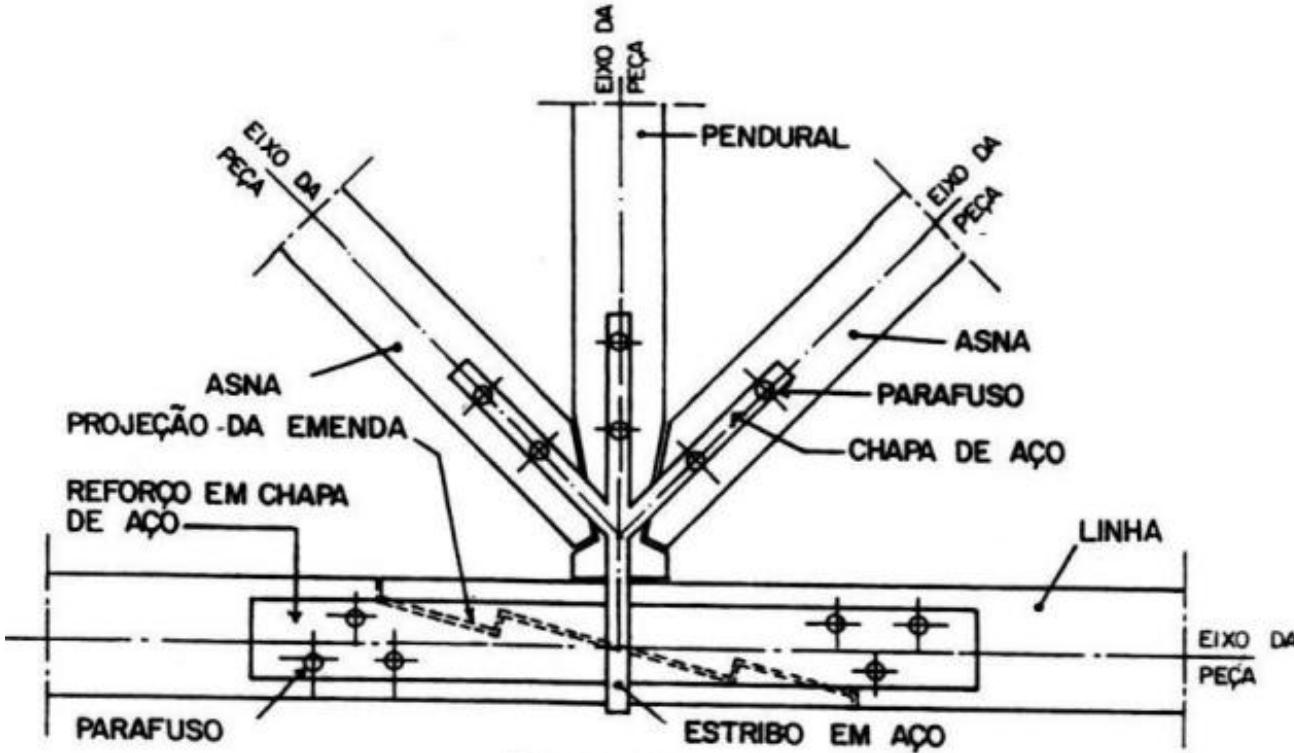
Detalhes do encaixe dos banzos

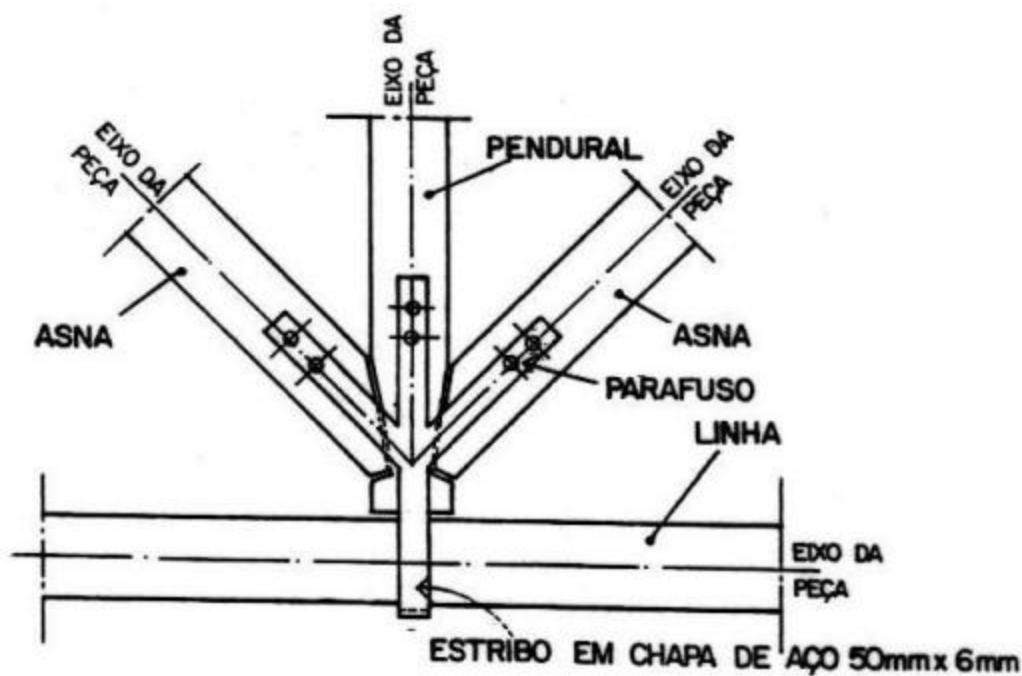
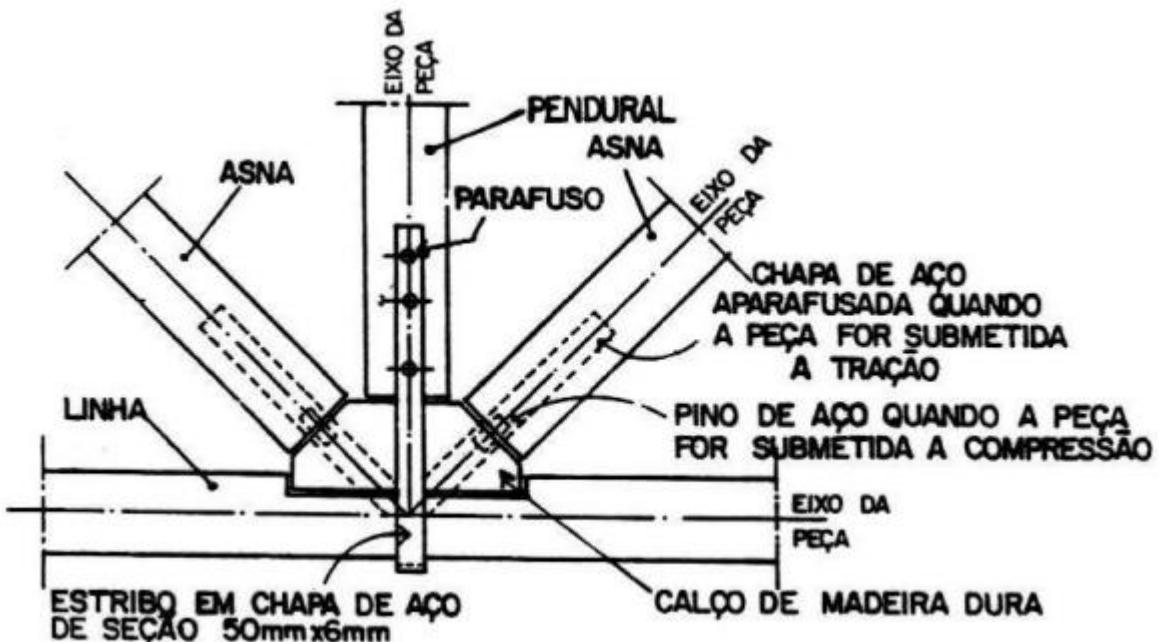
Detalhes do encaixe dos banzos

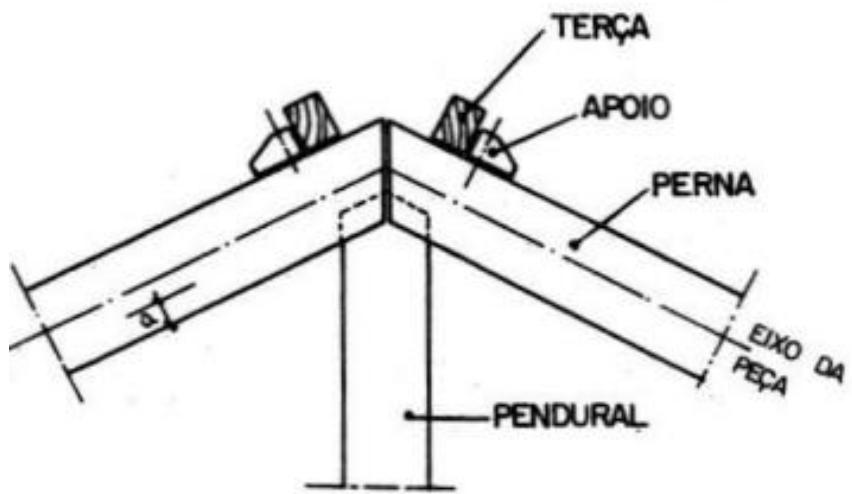
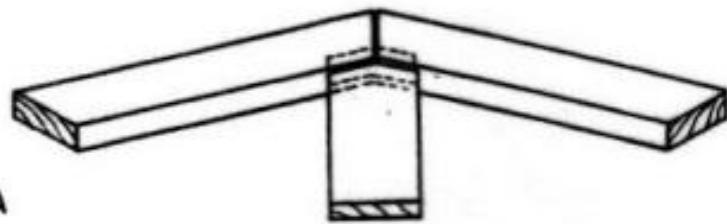
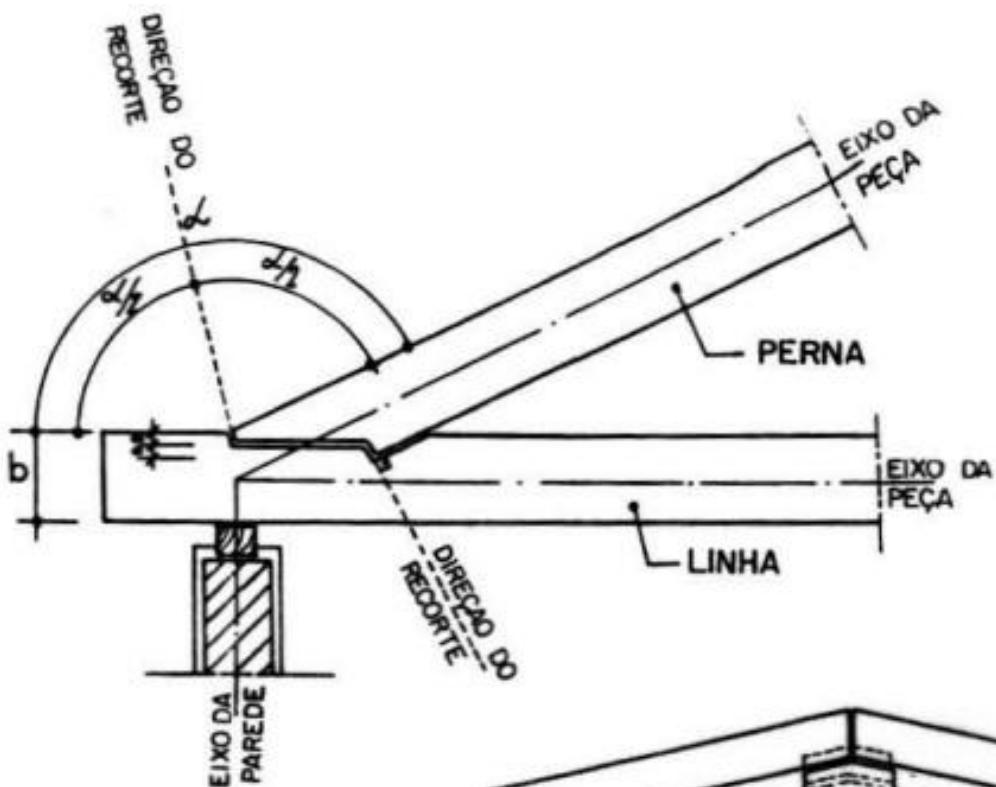


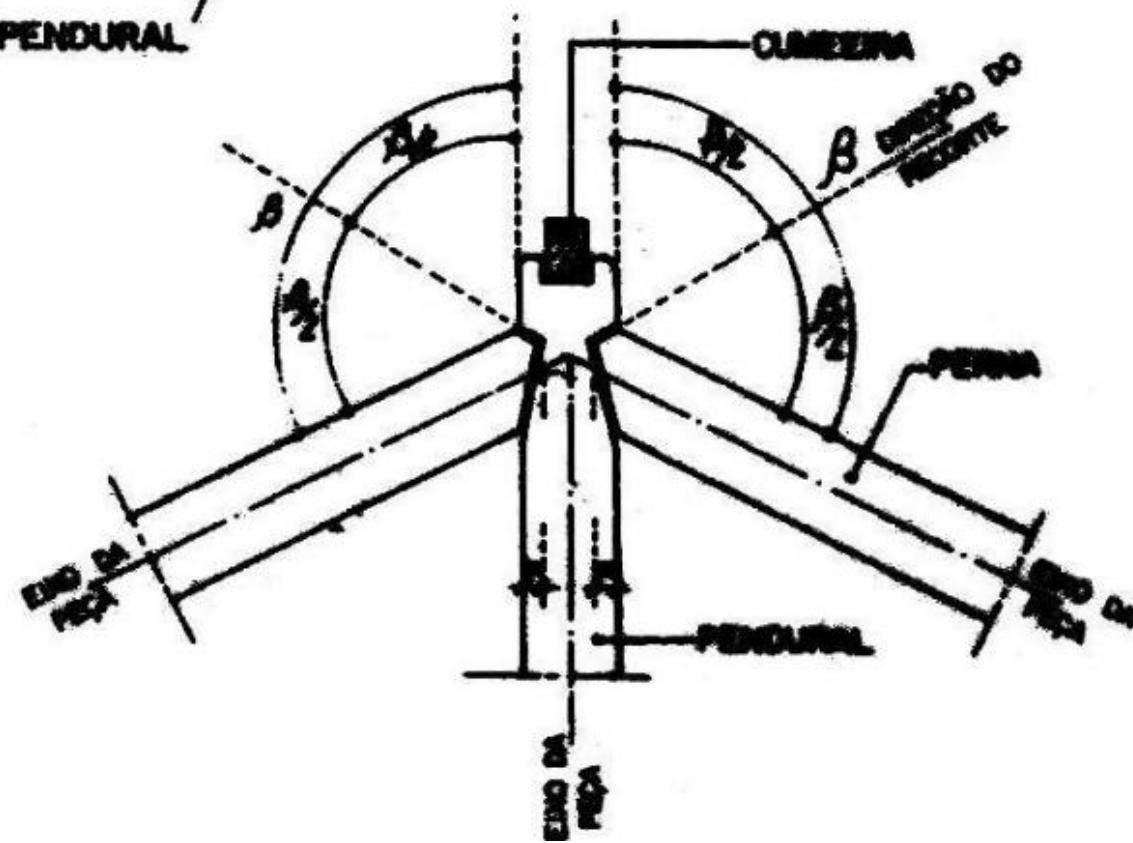
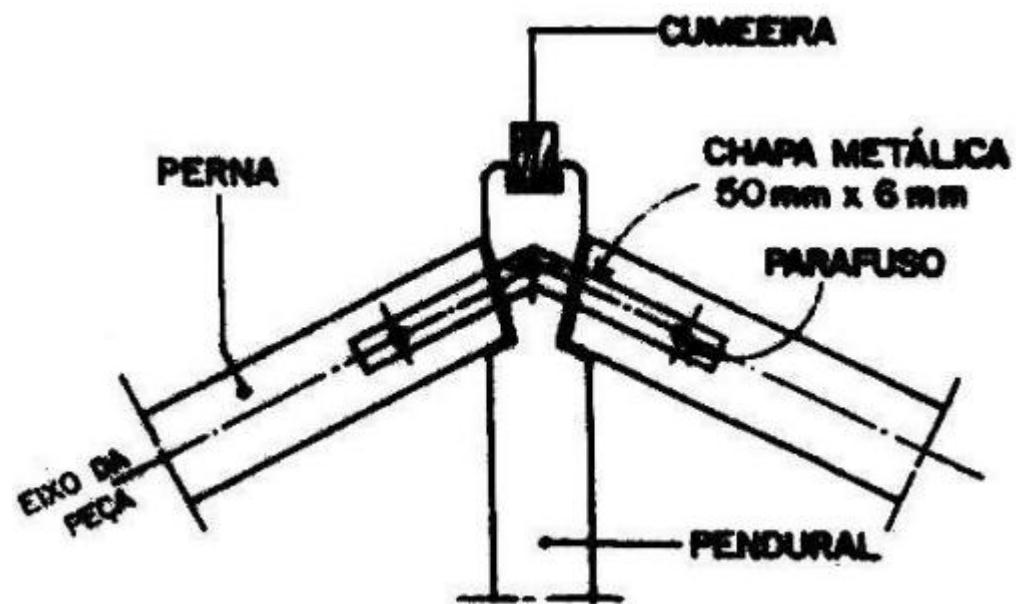
Encaixe linha/escora

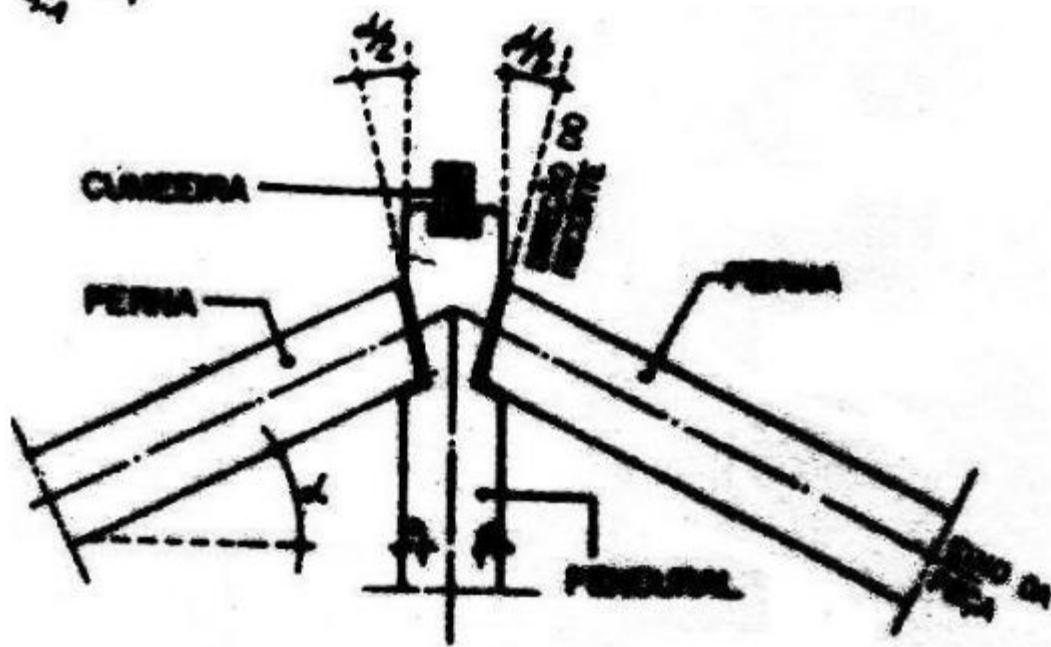
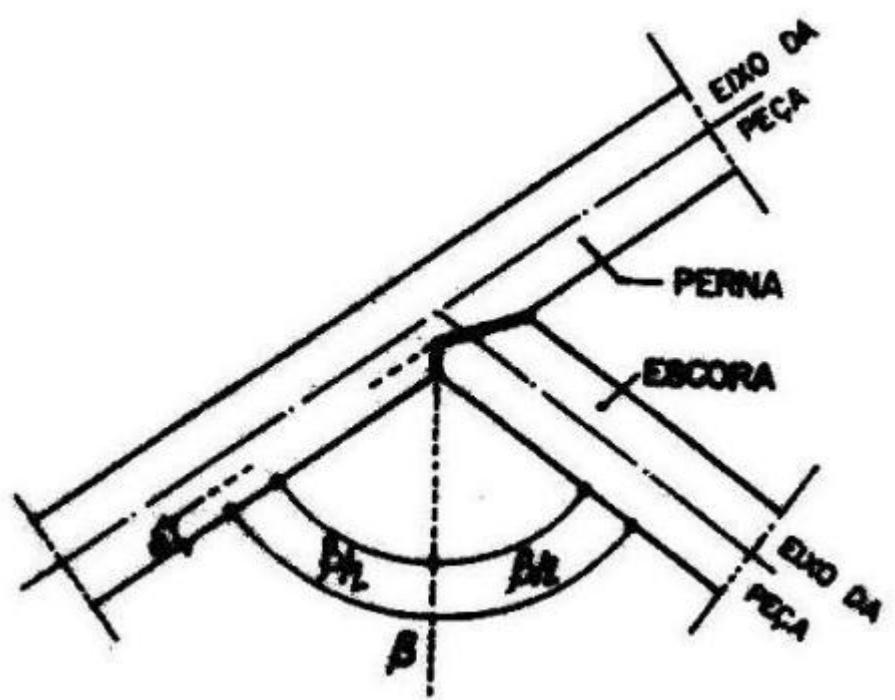




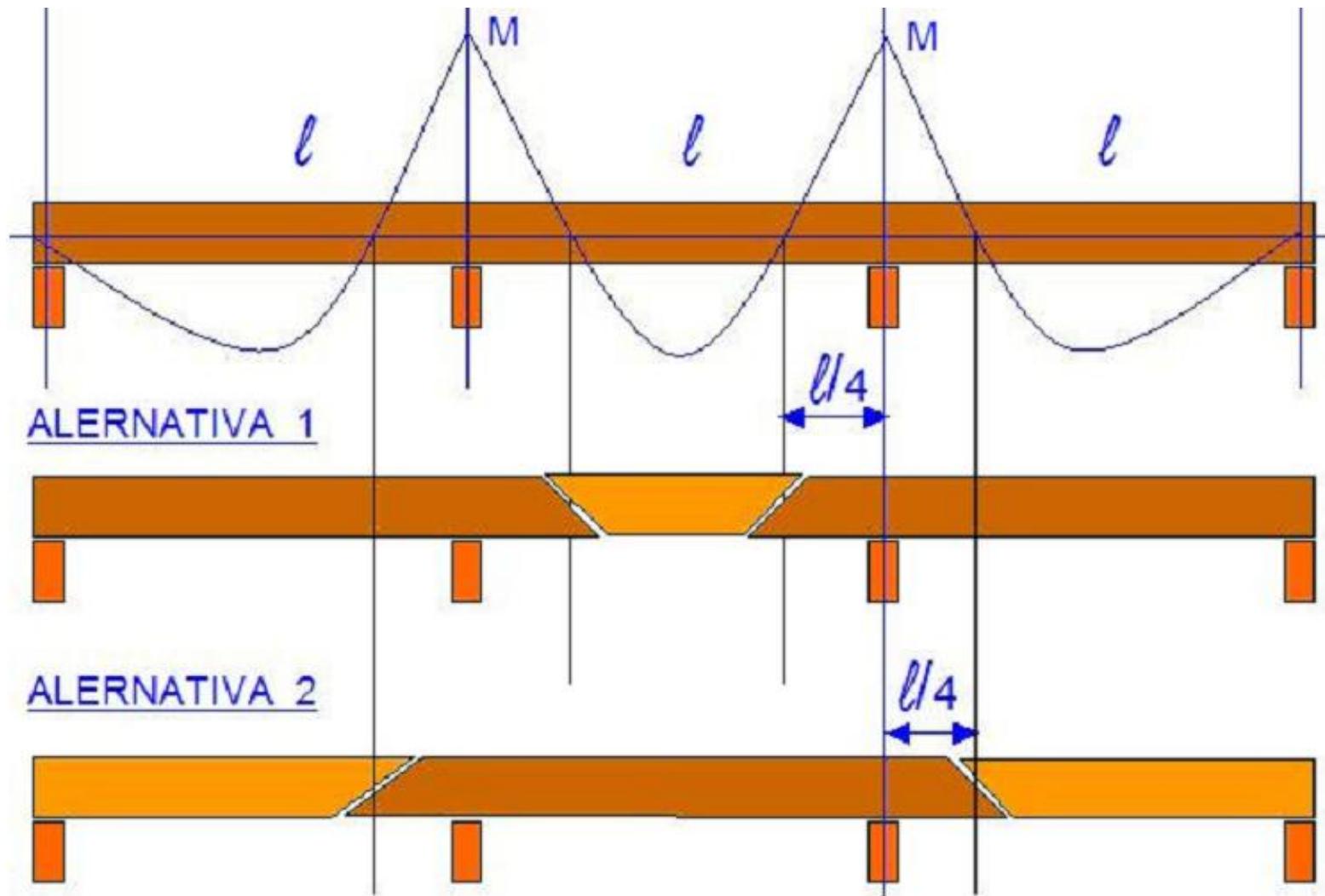








EMENDAS DAS TERÇAS

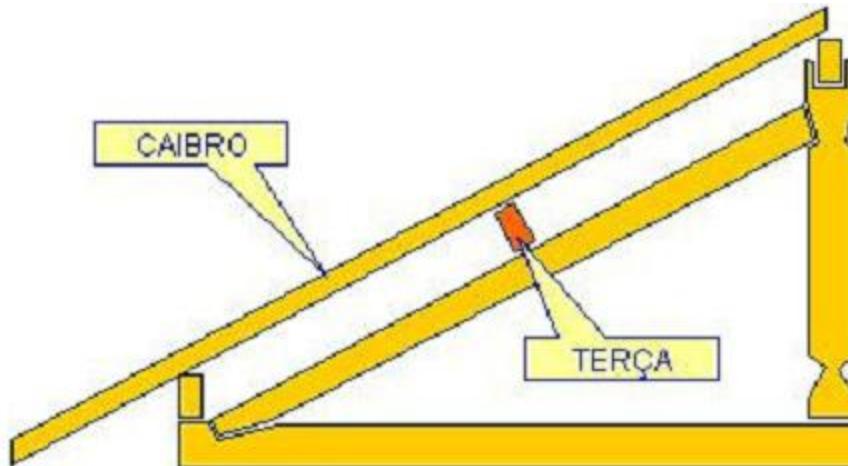


CONSTRUÇÃO DOS CAIBROS

Não deixar vãos muito grandes, pois o caibro não vai aguentar o peso das telhas e vai envergar.

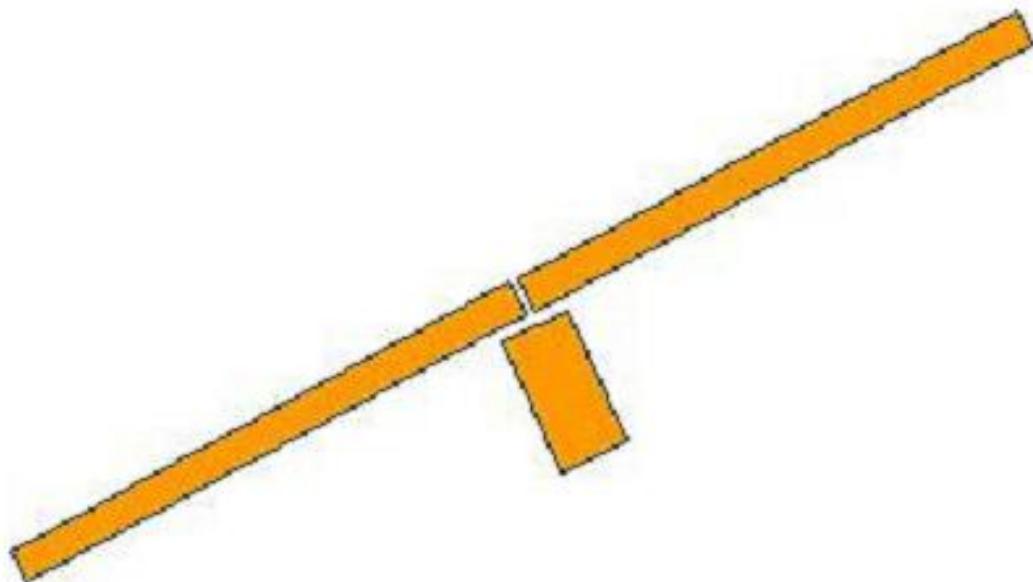


Coloca-se uma terça para evitar que os caibros fiquem abaulados.

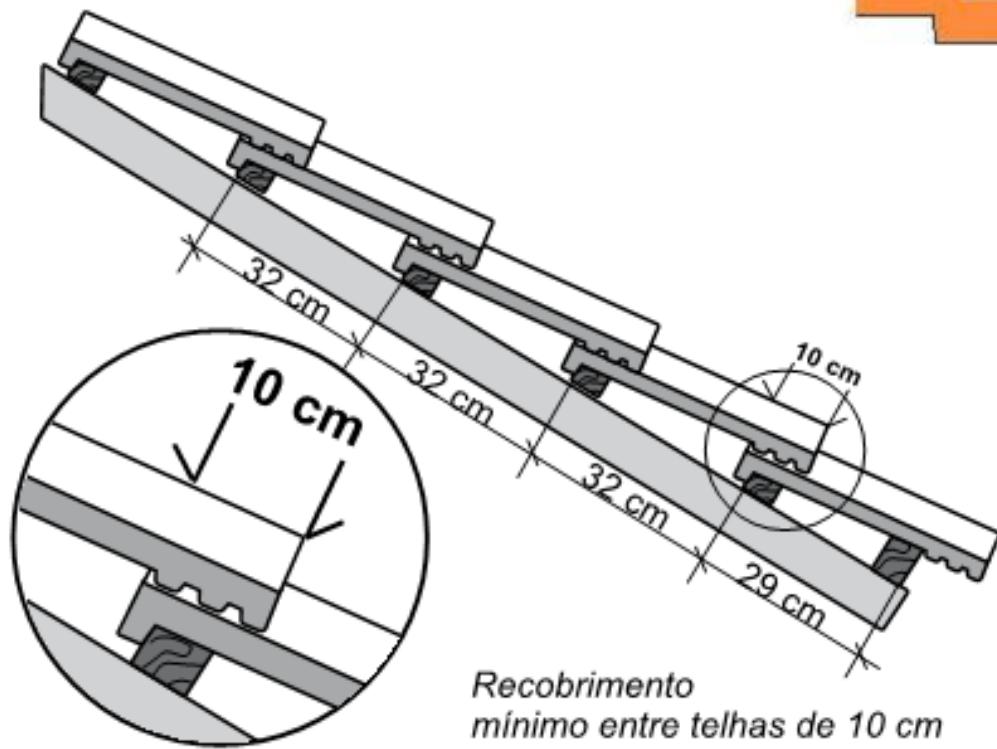
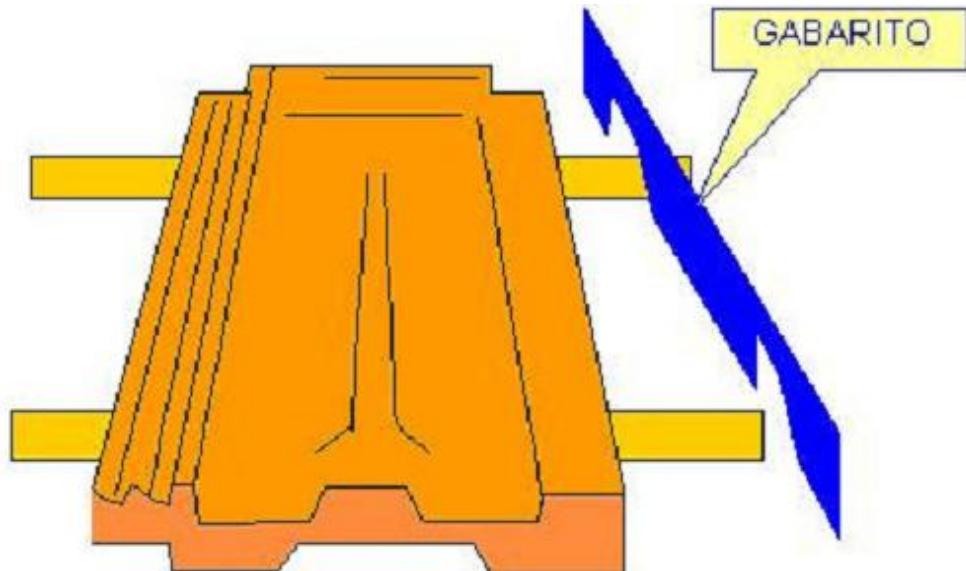


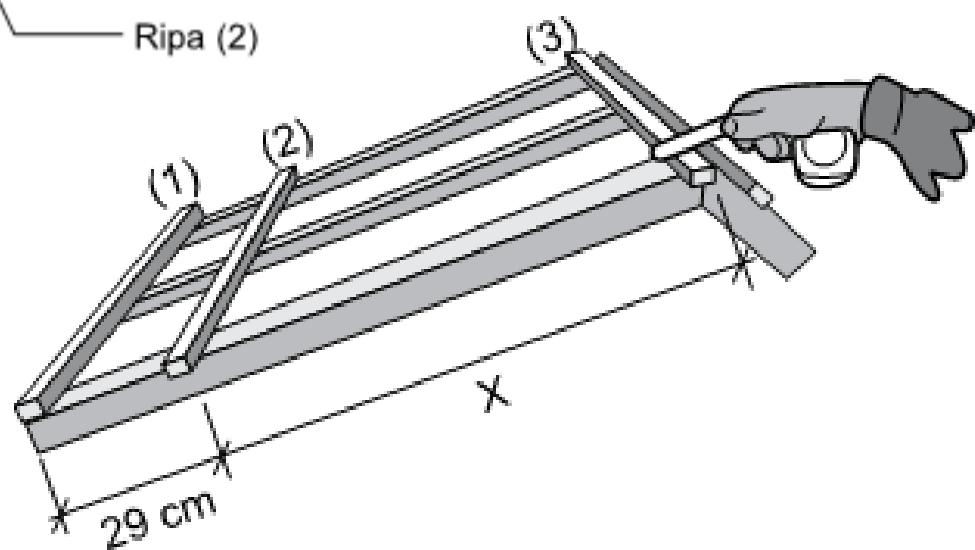
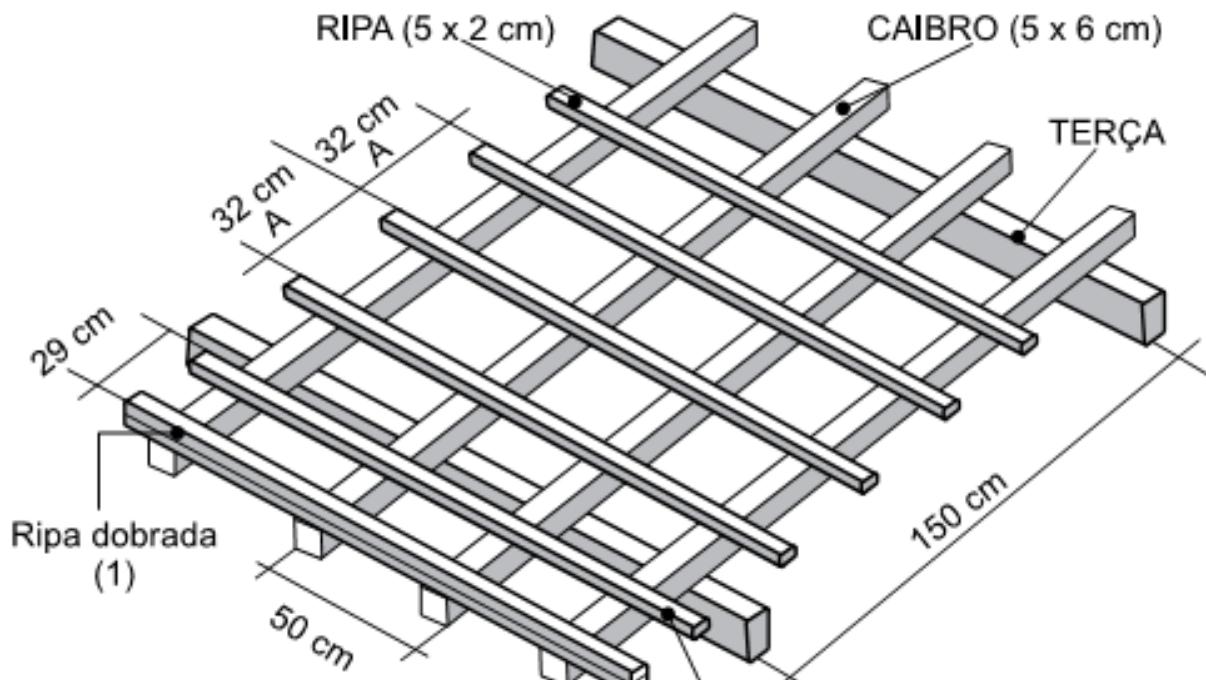
EMENDA DE CAIBROS

Faz-se a emenda em cima de uma terça.



CONSTRUÇÃO DAS RIPAS

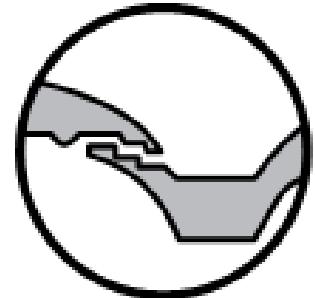




Na montagem das telhas

A sobreposição lateral é sempre fixa, acompanhando o encaixe normal da telha.

A montagem do telhado começa do lado direito para o lado esquerdo do pano, e de baixo para cima, com as telhas sempre alinhadas na horizontal e na vertical.



Detalhe do encaixe



CONSTRUÇÃO DAS FERRAGENS

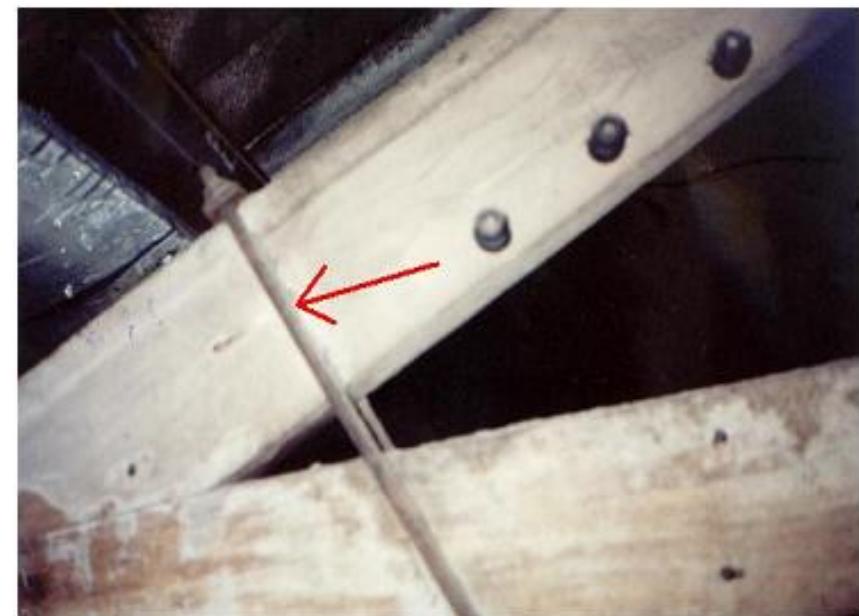


TABELA - DIMENSÕES TÍPICAS SEGUNDO O ESPAÇAMENTO DAS TESOURAS DE TERÇAS

Distância entre terças	DISTÂNCIA ENTRE TESOURAS			
	2,50m	3,00m	3,50m	4,00m
1,50m	6 x 12 cm	6 x 16 cm	6 x 16 cm	6 x 18 cm
2,00m	6 x 16 cm	6 x 16 cm	6 x 18 cm	8 x 24 cm
2,50m	6 x 16 cm	6 x 18 cm	8 x 24 cm	10 x 24 cm
3,00m	6 x 18 cm	8 x 24 cm	10 x 24 cm	10 x 24 cm

TABELA - DIMENSÕES CONVENCIONAIS DOS ELEMENTOS DE UMA TESOURA
PARA VÃOS MENORES QUE 10 METROS

Peça da Tesoura	VÃO EM METROS		
	6 m	8 m	10 m
Linha	6 x 12	6 x 16	6 x 16
Perna	6 x 16	6 x 16	6 x 16
Mão Francesa	6 x 12	6 x 12	6 x 12
Pendural	6 x 12	6 x 12	6 x 12
Tirante	6 x 12	6 x 12	6 x 12

TABELA - DIMENSÕES CONVENCIONAIS DOS ELEMENTOS DE VIGAMENTO
Vão entre tesouras: menor que 3 metros; afastamento entre peças do vigamento: menor que 2 metros.

Peça do Vigamento	Dimensão em Centímetro
Frechal, Térça ou Cumeeira	6 x 16

TABELA - DIMENSÕES CONVENCIONAIS DOS ELEMENTOS DO MADEIRAMENTO
(VÃO ENTRE TERÇAS: MENOR QUE 2 METROS; ESPAÇAMENTO ENTRE CAIBROS: ATÉ 0,5m).

Peças do Madeiramento	Dimensões em Centímetro
Caibro	7 x 5
Ripa	5 x 1,5