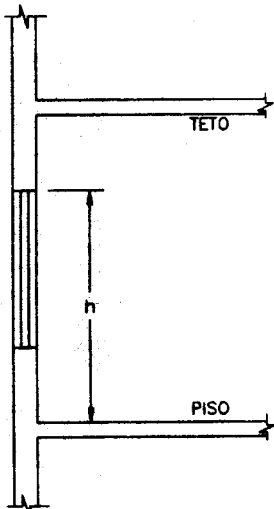
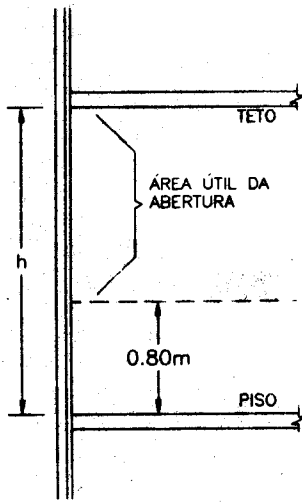


# ABERTURAS ZENITAIS

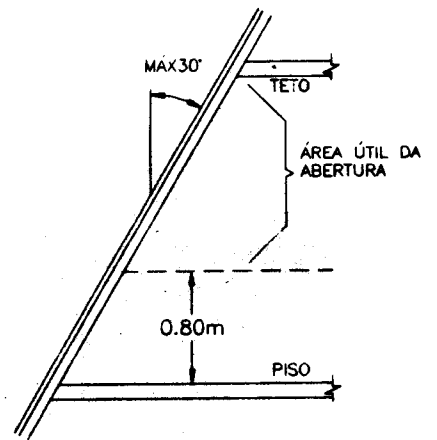
PADRÕES: ABERTURAS LATERAIS



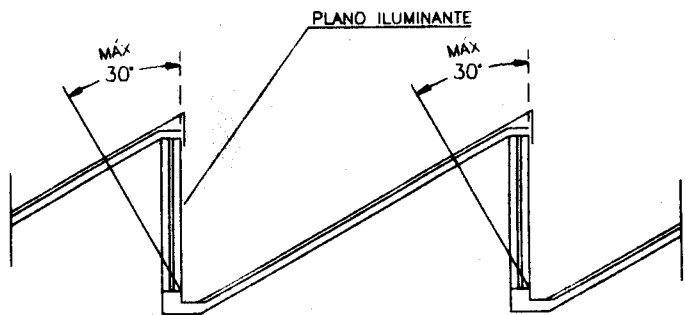
JANELAS  
h=ALTURA JANELA/PISO



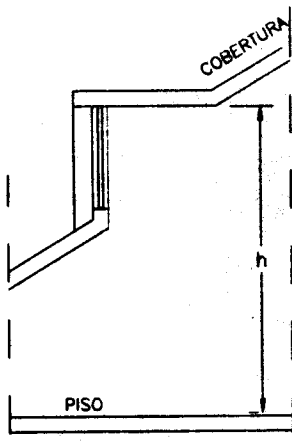
PANOS DE VIDRO



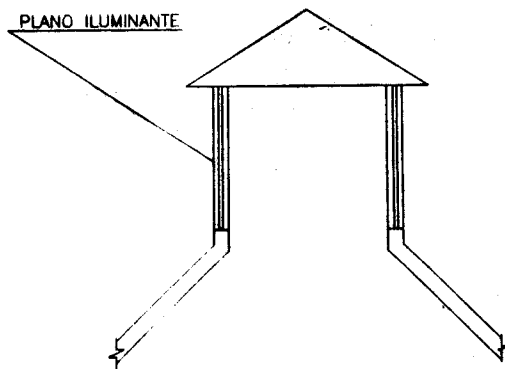
ABERTURAS INCLINADAS  
MÁX. 30°



COBERTURA TIPO SHED



JANELAS DE MANSARDAS



LANTERNIM

# ABERTURAS ZENITAIS

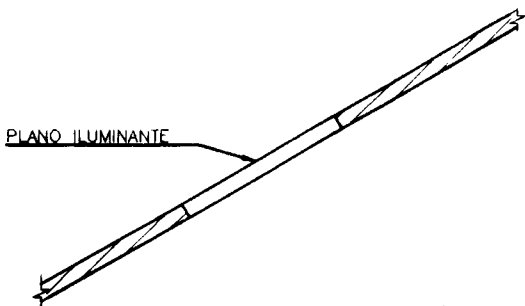
PADRÕES: ABERTURAS ZENITAIS



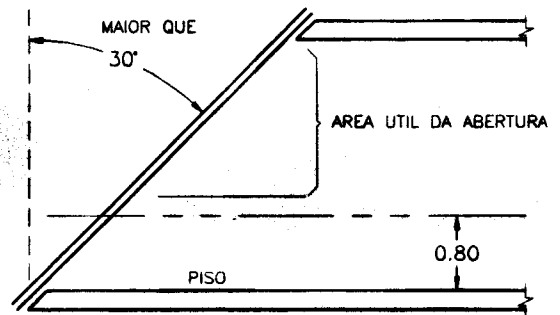
ABERTURA TIPO DOMUS



COBERTURA TRANSPARENTES OU  
TRANSLÚCIDAS



TELHAS TRANSPARENTES OU TRANSLÚCIDAS



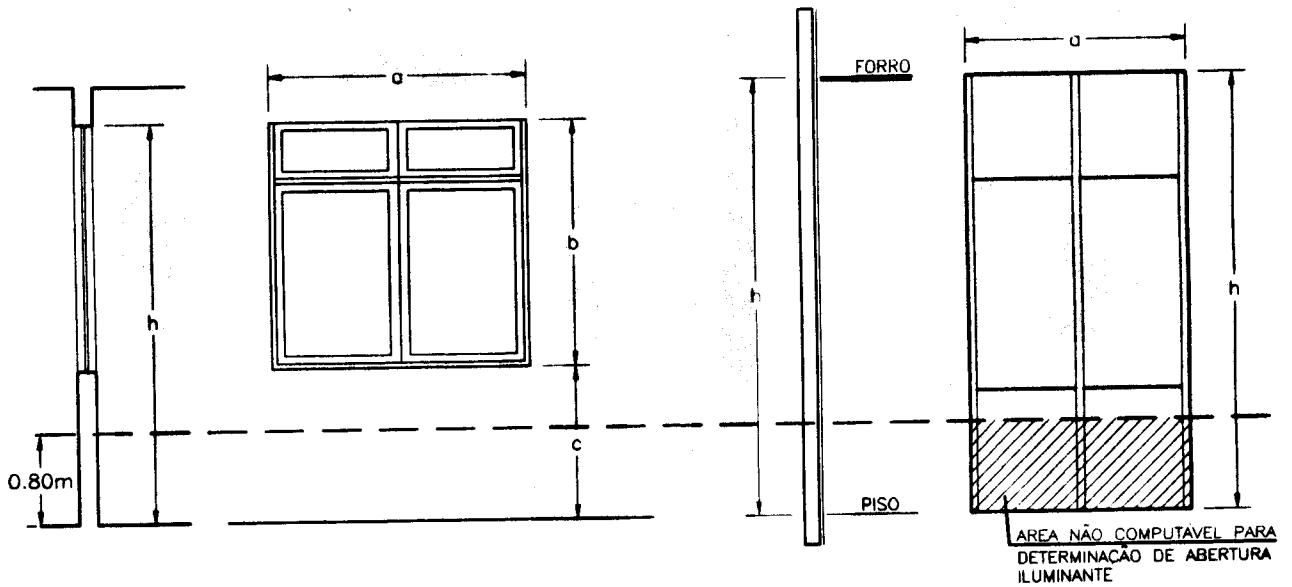
PLANOS ILUMINANTES COM INCLINAÇÃO  
MAIOR QUE 30°

# CALCULO DE ABERTURA LUMINANTE

EXEMPLOS DE CÁLCULO DE A.L.

1º CASO: PEITORIL ACIMA DE 0.80m ( $c > 0.80m$ )

2º CASO: SEM PEITORIL OU PEITORIL ABAIXO DE 0.80m

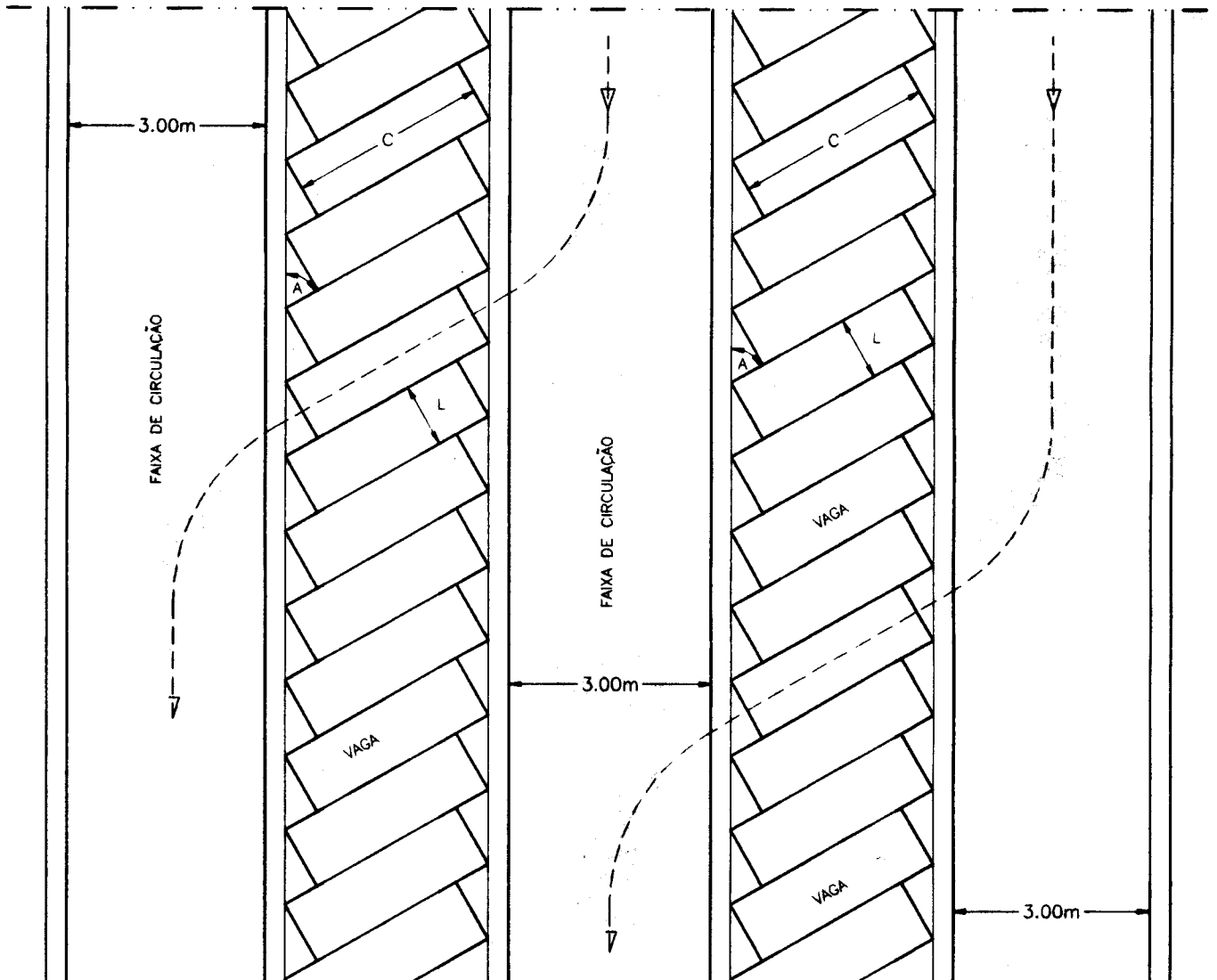


$$AL = a \cdot b$$

$$AL = a (h - 0.80)m$$

# ESPACOS DE MANOBRA

VAGAS A 30°



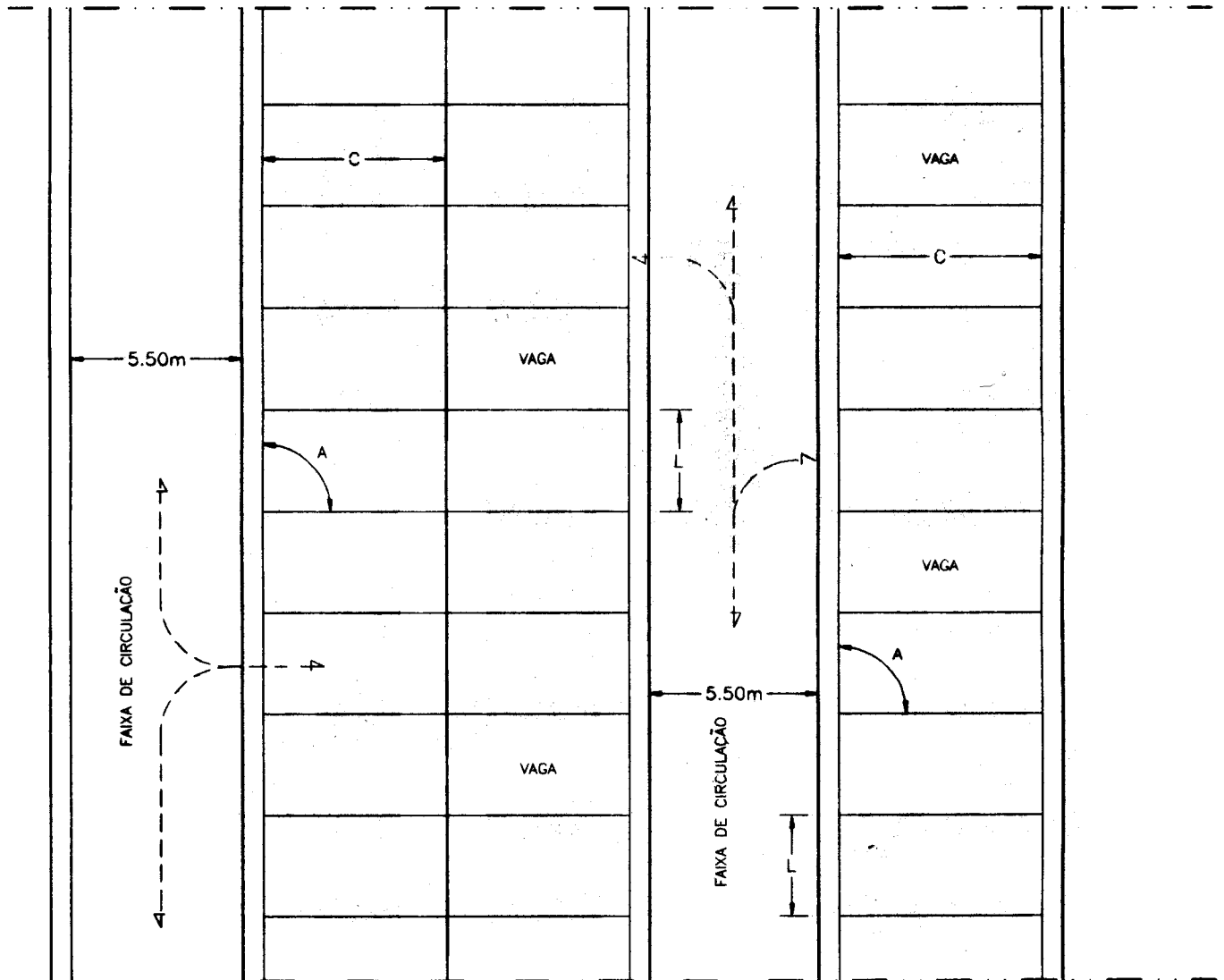
A= ÂNGULO

L= LARGURA

C= COMPRIMENTO

# ESPACOS DE MANOBRA

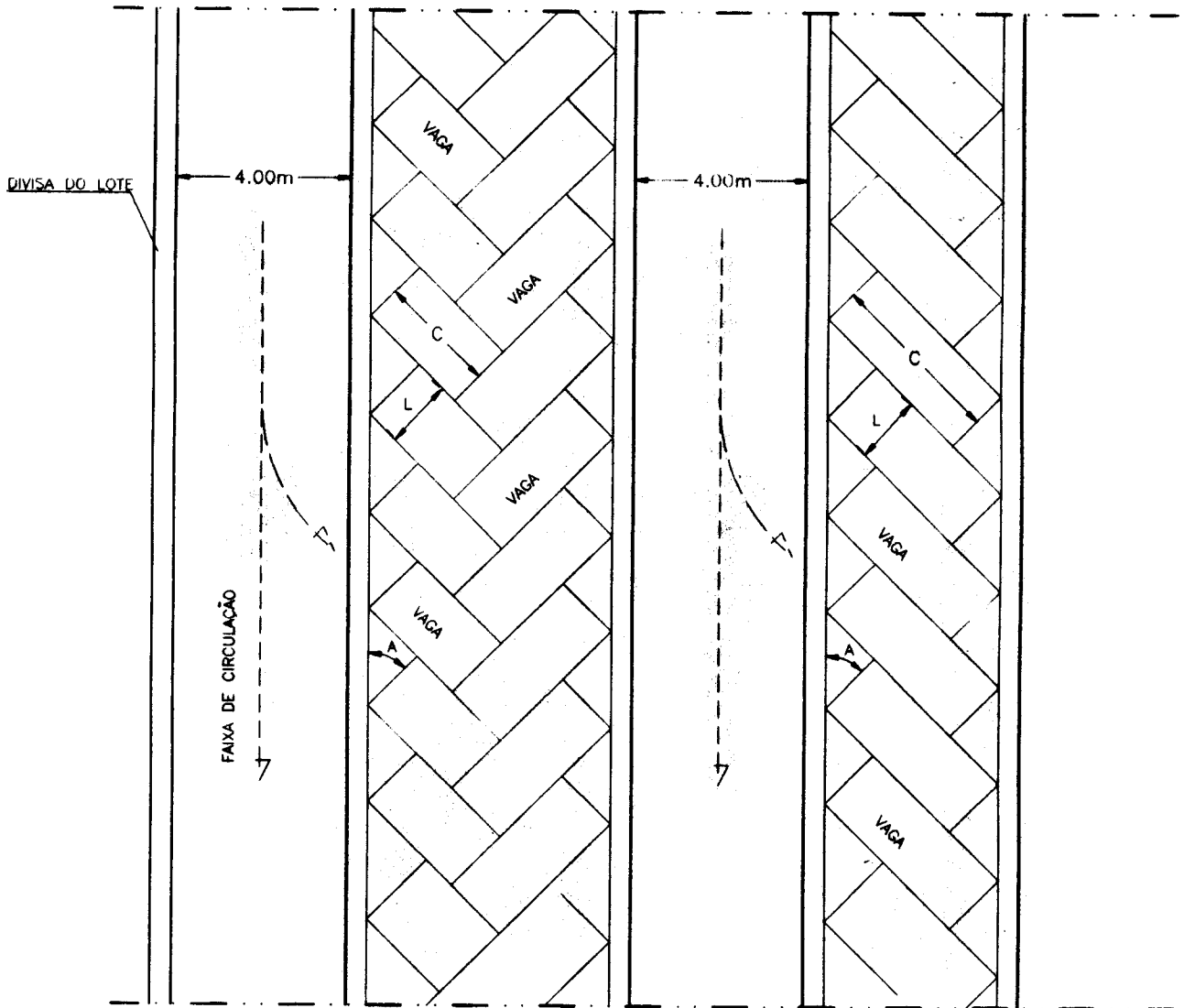
VAGAS A 90°



A= ÂNGULO  
L= LARGURA  
C= COMPRIMENTO

# ESPACOS DE MANOBRA

VAGAS A 45°



- A= ÂNGULO
- L= LARGURA
- C= COMPRIMENTO