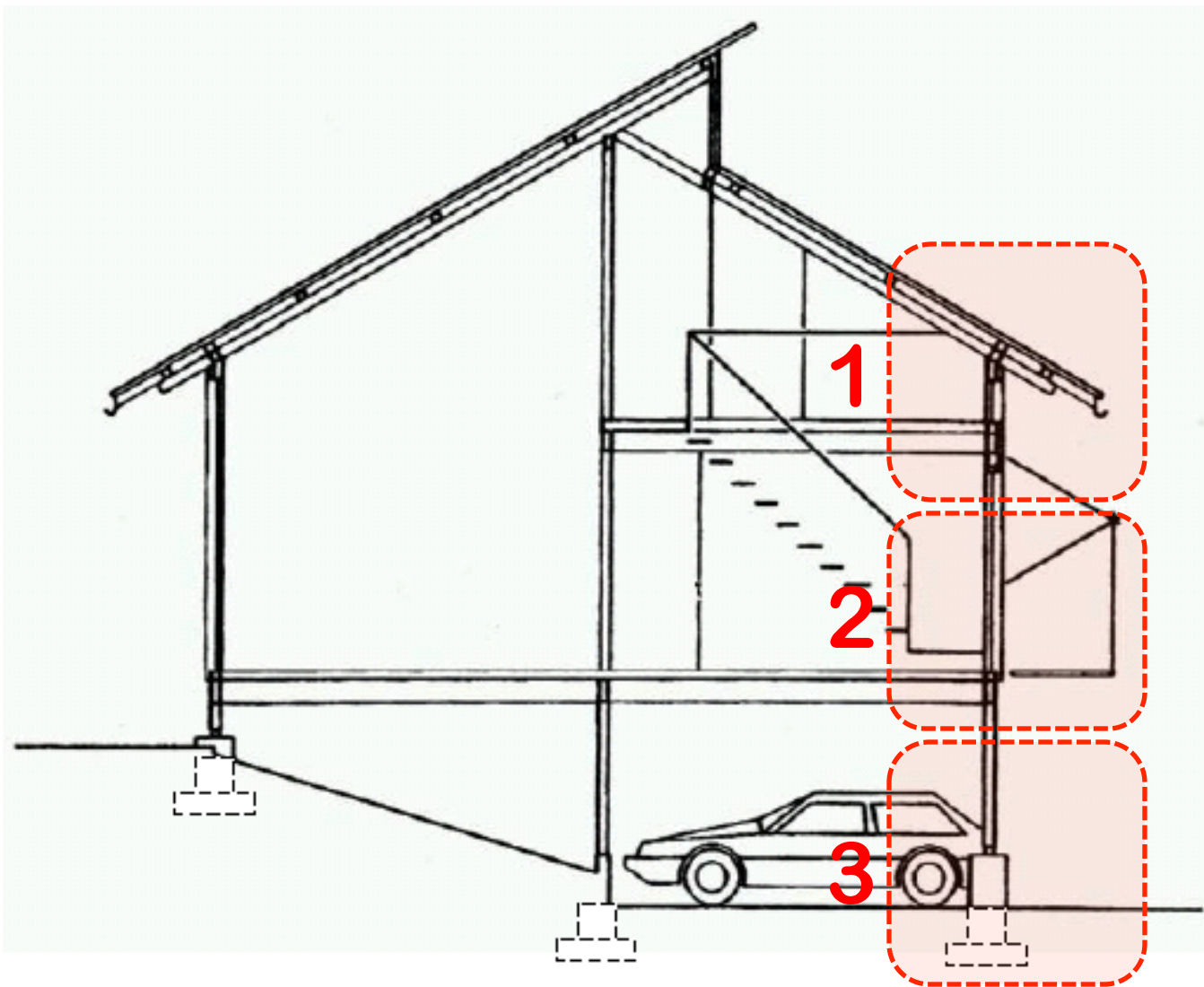
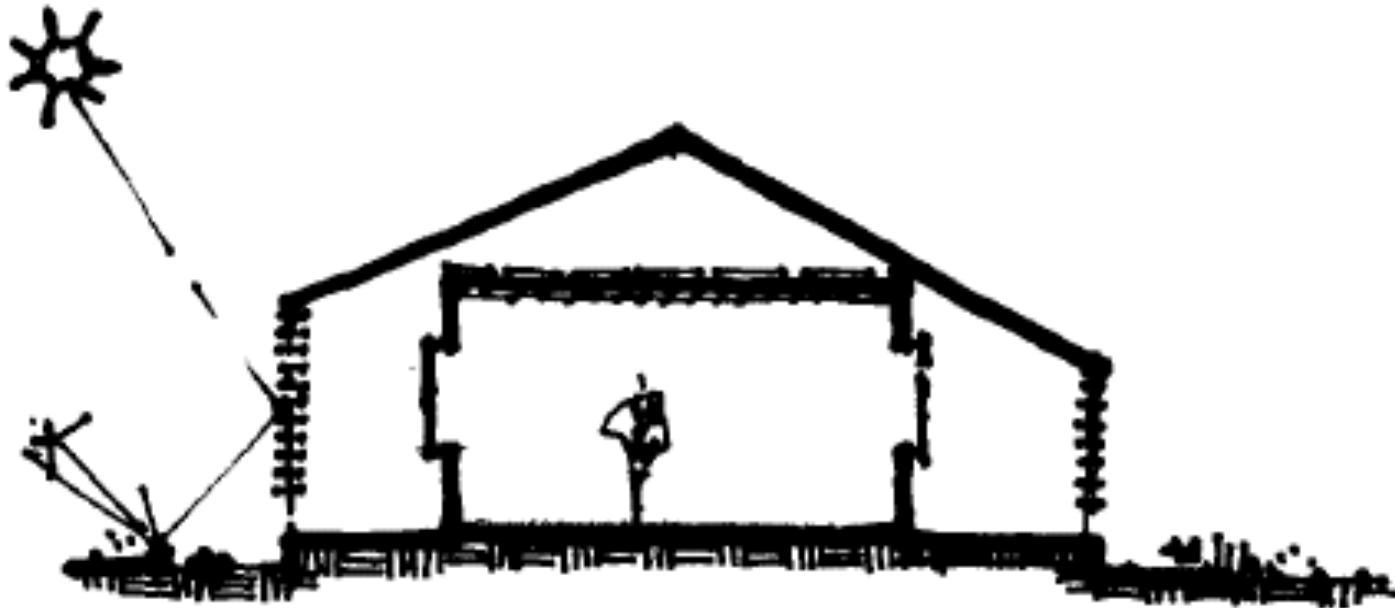


PERENCANAAN TEKNOLOGI & SISTEM BANGUNAN (PTSB) 03



PASSIVE COOLING STRATEGIES FOR A BUILDING PROTOTYPE DESIGN IN A WARM-HUMID TROPIC CLIMATE --- Ife, Nigeria

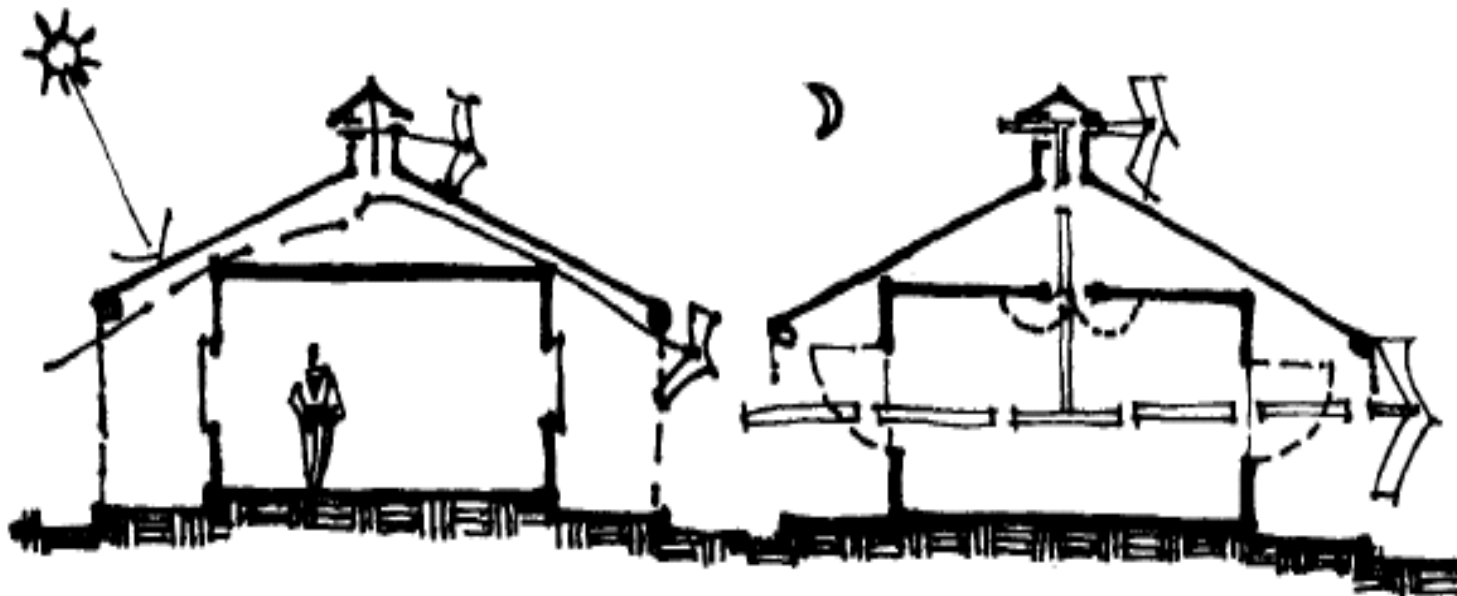
N. BORDA-DIAZ, P. I. MOSCONI and J. A. VAZQUEZ (1989)

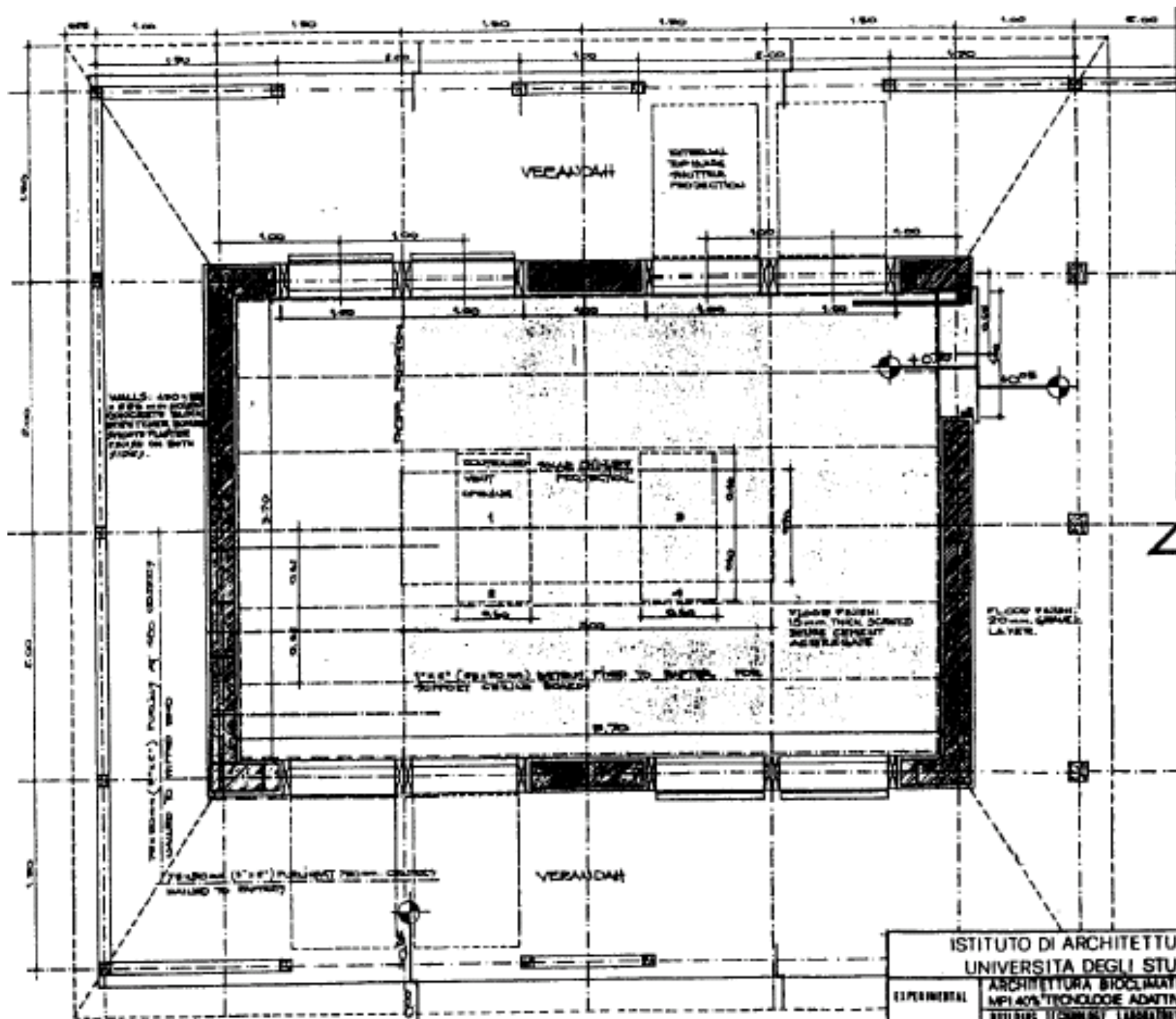


PASSIVE COOLING STRATEGIES FOR A BUILDING PROTOTYPE DESIGN IN A WARM-HUMID TROPIC CLIMATE --- Ife, Nigeria

N. BORDA-DIAZ, P. I. MOSCONI and J. A. VAZQUEZ (1989)

-DIAZ, P. I. MOSCONI and J. A.





ALL DIMENSIONS MUST BE VERIFIED ON SITE.

EXPERIMENTAL MODEL PLAN

ISTITUTO DI ARCHITETTURA E URBANISTICA UNIVERSITÀ DEGLI STUDI DI TRIESTE		2
EXPERIMENTAL	ARCHITETTURA BIOCLIMATICA NUOVE TECNOLOGIE ADATTIVE, Resp. Naz. Prof. R. COSTA	
MODEL	EDILIZIONE TECNOLOGICA LABORATORIO S. ANGELO UNIVERSITY, I.T.C. SIERA	SCALE
DESIGN	DESIGNERS: ABBIS, R. BORDA DIAZ, P. MOSCONI, L. RAJGILL	

DOUBLE PITCH ROOF WITH HIPPED END? TRUSSED RAFTERS?

RAFTER SPACING	RAFTER DEPTH (mm)	RAFTER WIDTH (mm)	RAFTER HEIGHT (mm)
400	120	100	120

CIRCULAR CORRUGATED GALVANIZED IRON SHEET
FIXED TO PURLIN WITH PATENTED DRIVE SCREW?
(LAP & CONNECTIONS).
THICKNESS: 0.50 mm. RADIUS: 75 mm. PITCH: 1/2 mm.
DEPTH: 20 - 30 mm.

TOTAL CHIMNEY: (800 x 400 x 1.20 m) DOUBLE PITCH ROOF. 20 x 27 mm. (27 x 17 mm)
DRAFTED WOOD TO 75 x 20 mm. (8' x 1'2") END OF THRESHOLD. CIRCULAR CORAL
GALV GALVANIZED IRON SHEET TIED TO 25 x 20 mm. (1' x 1") PURLIN
PLACED AT 600 mm CENTER
THRESHOLD SIDE WALL: 75 x 20 mm. (3' x 1'2") WOODEN STUDS AT 1800 mm
CENTER TIED TO HEAD OF THRESHOLD AND BOLTED TO TOP CHIMNEY RAFTERS.
20 x 20 mm. (2' x 2") WOODEN TRUSS/TIMBER AT 200 mm CENTER WALLED TO
SIDE, EXTERNAL VERTICAL CORRUGATED GALVANIZED IRON SHEET
(PITCH: 1/2 mm, DEPTH: 17 mm) FIXED TO THRESHOLD.
A VENT OPENING: 1.20 x 750 mm. ON SOUTH AND NORTH FACIES. 75 x 20 mm.
FIXED WOODEN STUDS, INTERNAL WOODEN SCREWS FIXED TO VENT OPENING
WITH 20 x 25 mm. BOLTS.

15mm THICK OSB/3 BOARD (TOP BOARD
OR INSULATED BOARD) NAIL TO 25 x 20 mm
(1' x 1'2") DRAFTED TIED TO RAFTERS.
THERMAL INSULATION
DOWN?) INSULATED POLYSTYRENE
LAP ON TOP OF OSB/3 BOARD.

DETAIL B

See the CONCRETE END. SHOW
ACTUAL AT THE SAME TIME AS LATER.

VENT OPENING? FOR CROSS-VENTILATION PROVIDED BY SUBJECT DRAWING.
WOODEN STUDS SUPPORTING THE RAFTERS
600 x 600 mm. CONTROLLED VENT OPENING
400 x 250 mm. THERMO CORNER/JUNT FIXED TO WALL/WALL
20 x 27 mm. 75 x 20 mm.
PURLIN AT 750 mm.
RAFTERS NAIL TO RAFTERS

1.20 x 0.75 m. WINDOW OPENING
WOODEN THRESHOLD WITH:
A TOP VENT (PURLIN TIED)
EXTERNAL TOP PLANK FINISH
LIFTED BY PULLEY, AND HORIZONTAL
SCREWS FIXED TO WOODEN POSTS
WITH BOLTS.
POSSIBLE ALTERNATIVE MATERIALS
OF DIFFERENT TYPES OF WOODS
(LARCH, OAK, BIRCH, WILLOW,
ETC.).

25 x 20 mm THRESHOLD
& 20 x 20 mm. TIED TO
THRESHOLD DRAFTED
FULL PROTECTION: SHIELD
THE CHIMNEY

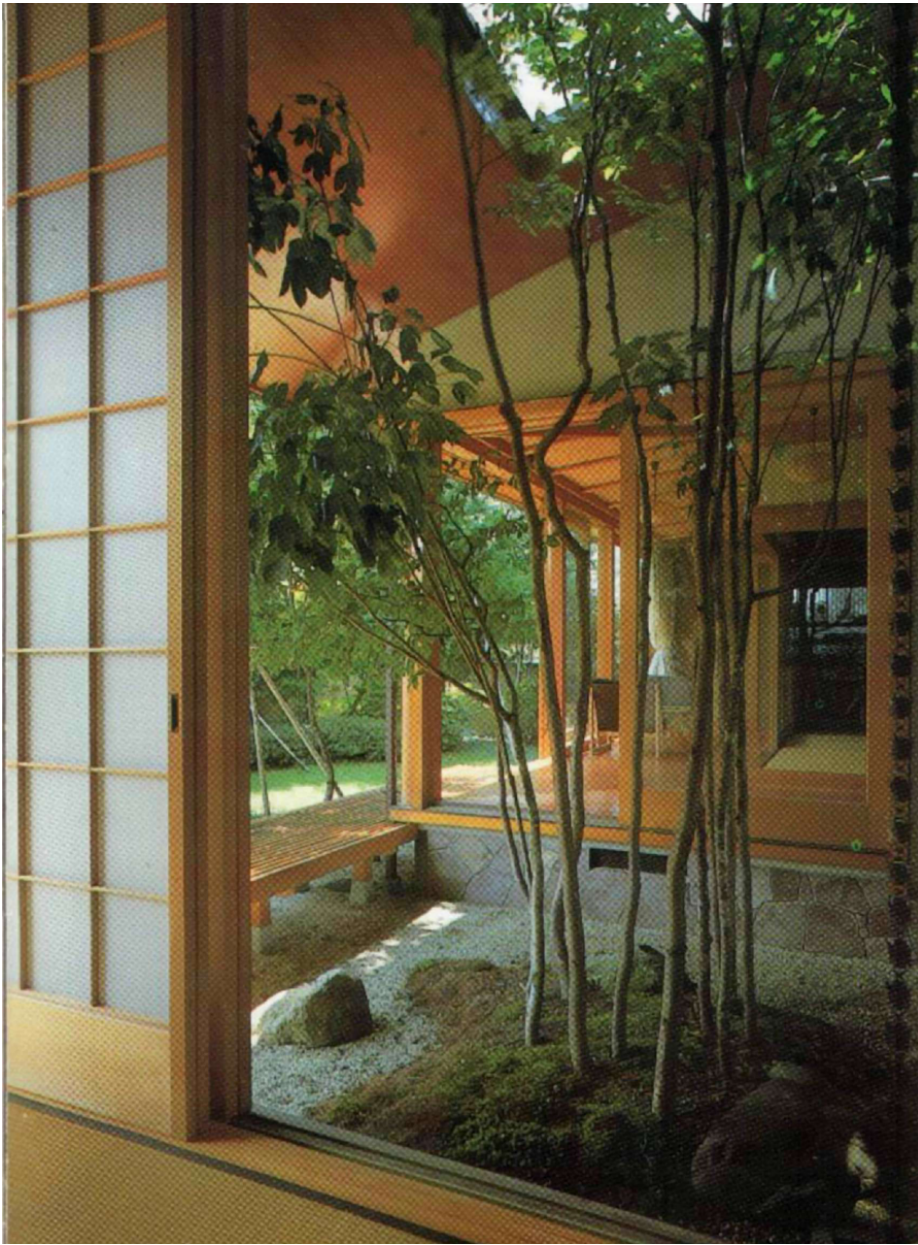
WALLS: 400 x 200 x 200 mm.
SOLID CONCRETE BLOCK FINISH
ROUGH THROUGH PLASTER
PAINT ON BOTH SIDES.

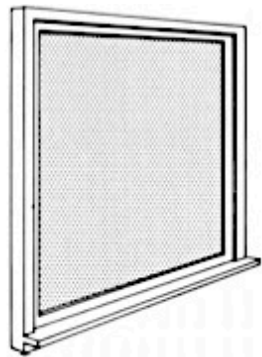
CROSS SECTION

SOLID FLOOR:
SLOPE: 1/10 mm. THICK TERRY DRIVE CURB
ACCESSIBLE (1:1.5 HORIZONTAL CURB). CONCRETE PAD
2100 mm. THICK LIGHT REINFORCED CONCRETE RAFT
FOUNDATION WITH 200 x 200 mm. REINFORCED
STEEL. 2/3 TEND. BLOCKS 4/ SHUT-PROOF
MATERIALS (POLYSTYRENE PUR OR WOOD).
INTERNAL: 1/3 GRAVEL LAYER 2/3 200 mm THICK
LIGHT REINFORCED CONCRETE RAFT FOUNDATION
2/ AND 4/ 100 mm. INTERNAL.

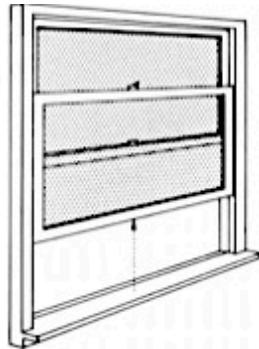
NOTE: ALL MEASURES? MUST BE VERIFIED ON SITE.

ISTITUTO DI ARCHITETTURA E URBANISTICA UNIVERSITA' DEGLI STUDI DI TRIESTE	
EXPERIMENTAL	ARCHITETTURA BIOCLIMATICA
MODEL	APPLICAZIONE TECNOLOGIE ADATTIVE/Resp. Mgr. Prof. R. COSTA
DESIGN	BUILDING TECHNOLOGY LABORATORY S. ANGELO UNIVERSITY, I.T. BIELLA
	DESIGNERS: ARCH. G. BORDA DIAZ, P. MOCIONI, J. VAZQUEZ
	SCALE





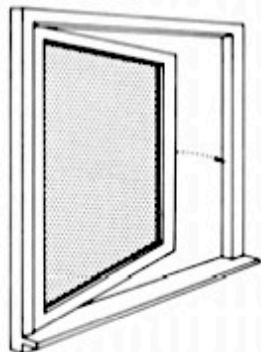
Fixed window



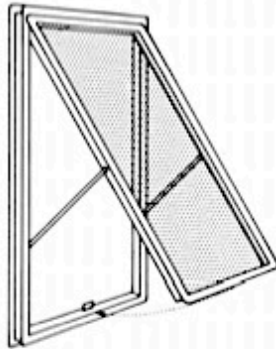
Vertical sliding window



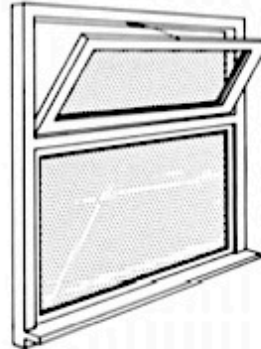
Horizontal sliding window



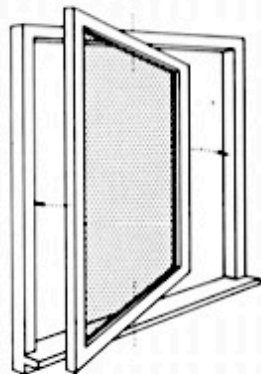
Casement window
(Side-hung window)



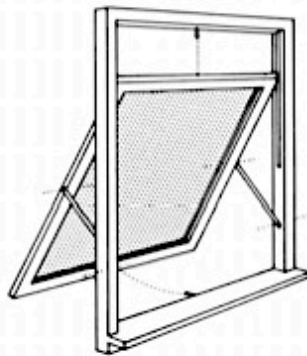
Awning window
(Top-hung window)



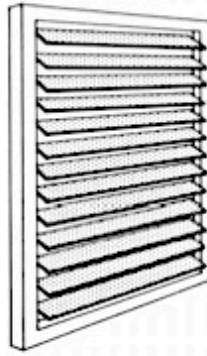
Hopper window
(Bottom-hung window)



Pivoted window

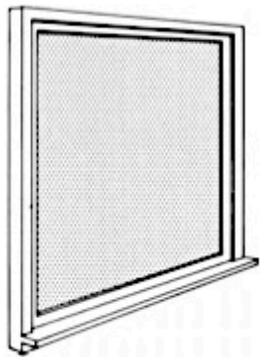


Sliding axis window

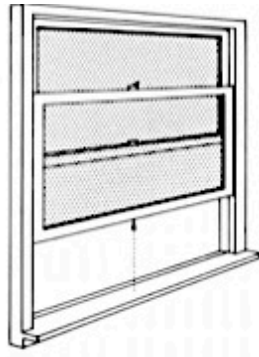


Louvre window

		FIXED	0%
		CASEMENT	100%
PROJECTED		AWNING	50 TO 100%
		HOPPER	
		SLIDING	50 TO 100%



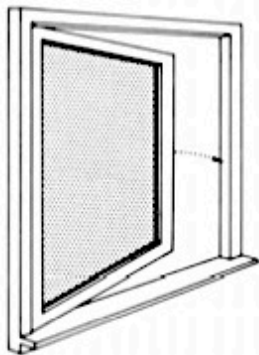
Fixed window



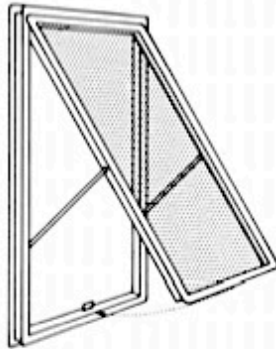
Vertical sliding window



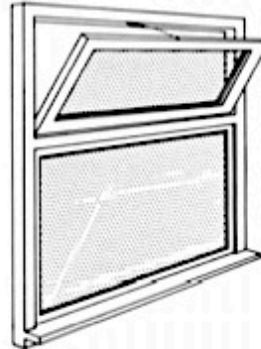
Horizontal sliding window



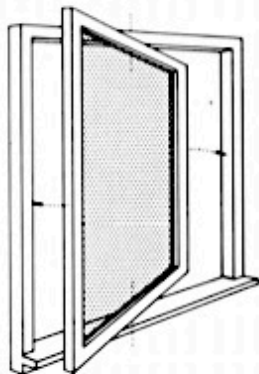
Casement window
(Side-hung window)



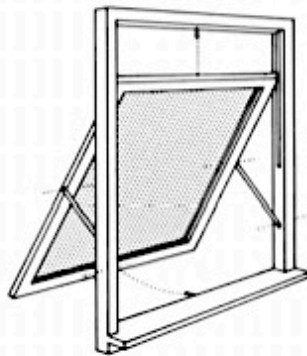
Awning window
(Top-hung window)



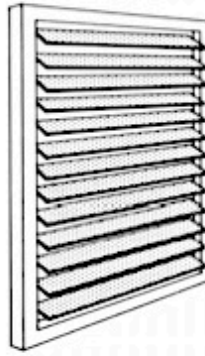
Hopper window
(Bottom-hung window)



Pivoted window

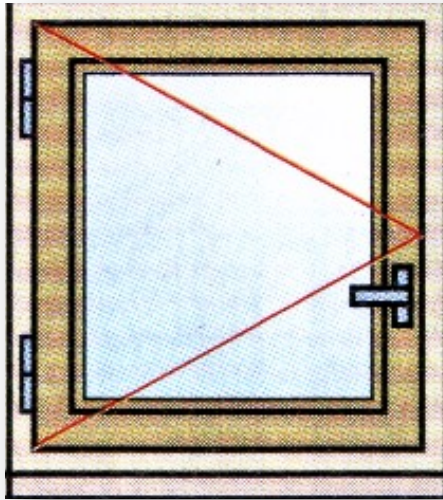


Sliding axis window



Louvre window

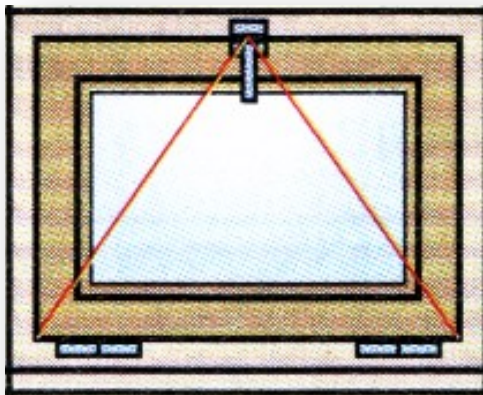
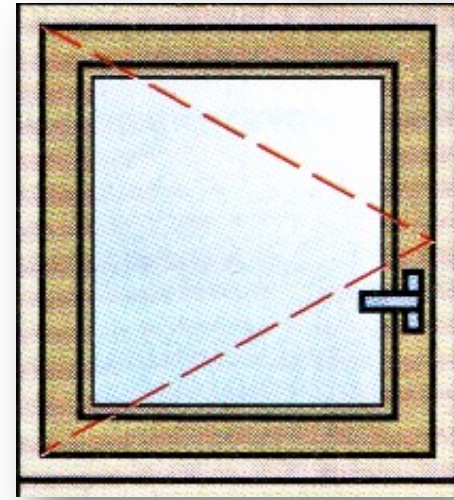
		50%
DOUBLE-HUNG		
		100%
JALOUSIE		
		100%
PIVOTING		



**Tipe-tipe jendela
dengan variasi
mekanisme bukaan**

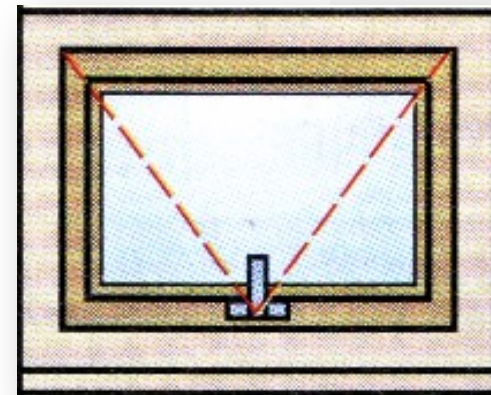
Casements (in)

Casements (out)

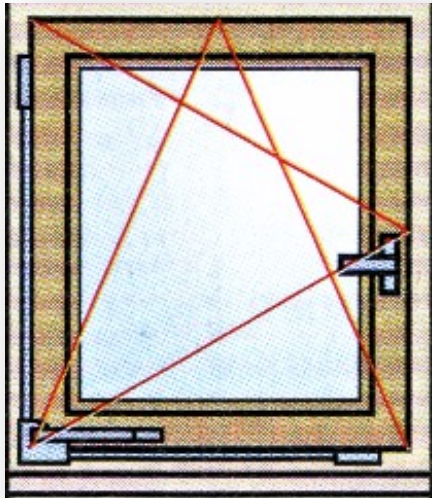


Bottom hung
(hopper -- in)

Top hung
(friction stays -- out)

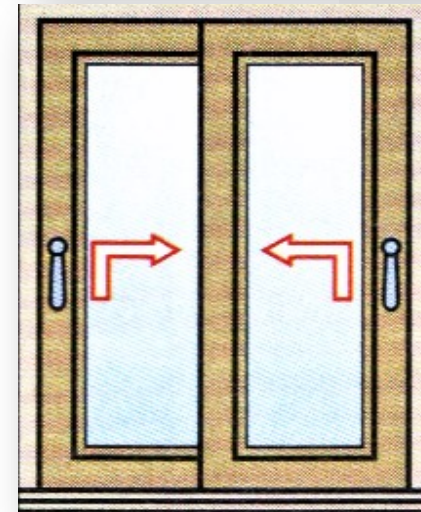
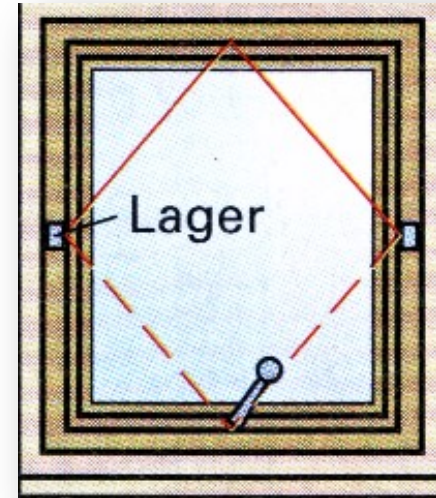


**Tipe-tipe jendela
dengan variasi
mekanisme bukaan**



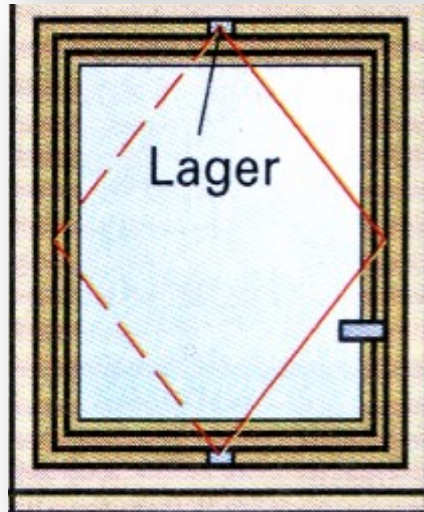
Casement (in)
Hopper (in)

Horizontal pivot



Vertical pivot

Horizontal sliding



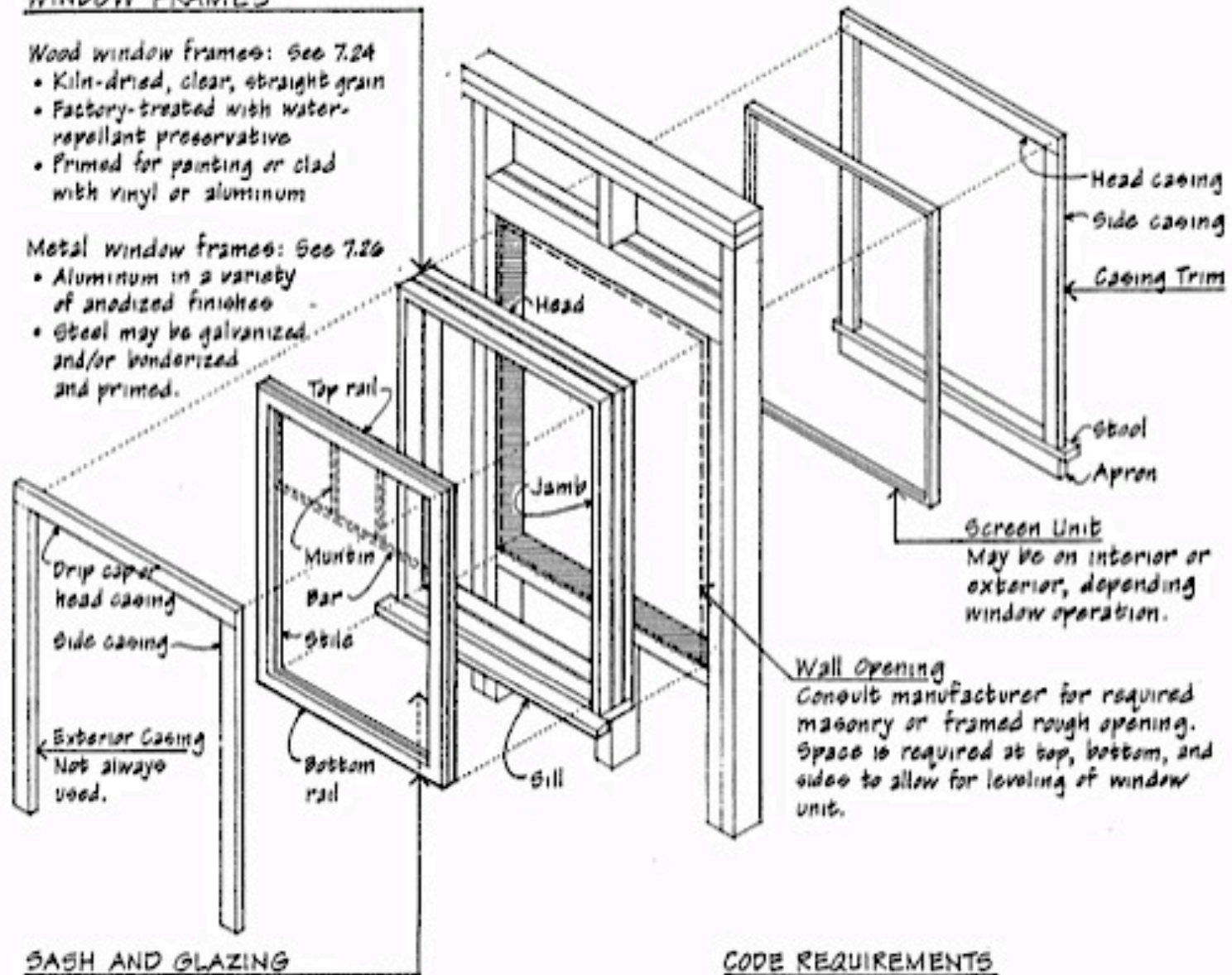
WINDOW FRAMES

Wood window frames: See 7.24

- Kiln-dried, clear, straight grain
- Factory-treated with water-repellant preservative
- Primed for painting or clad with vinyl or aluminum

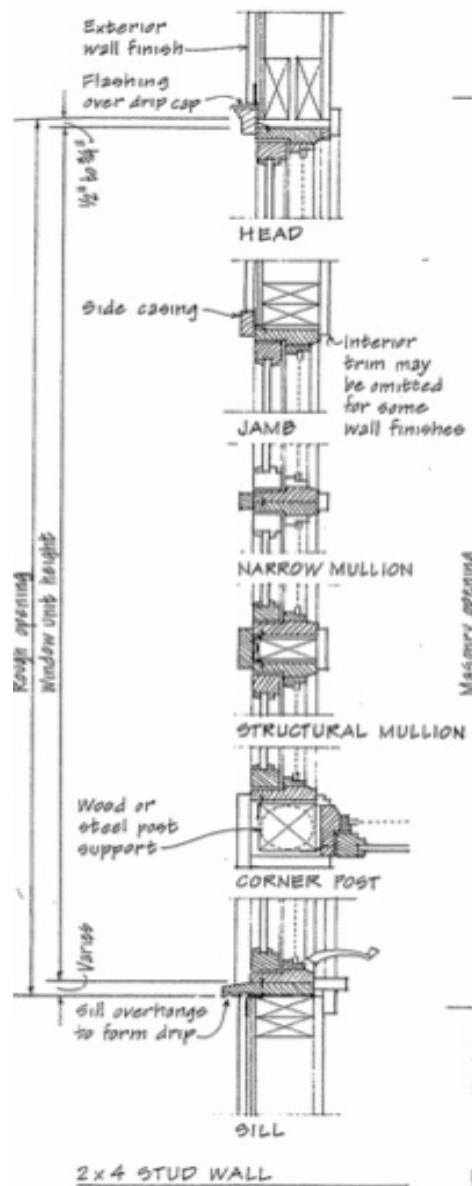
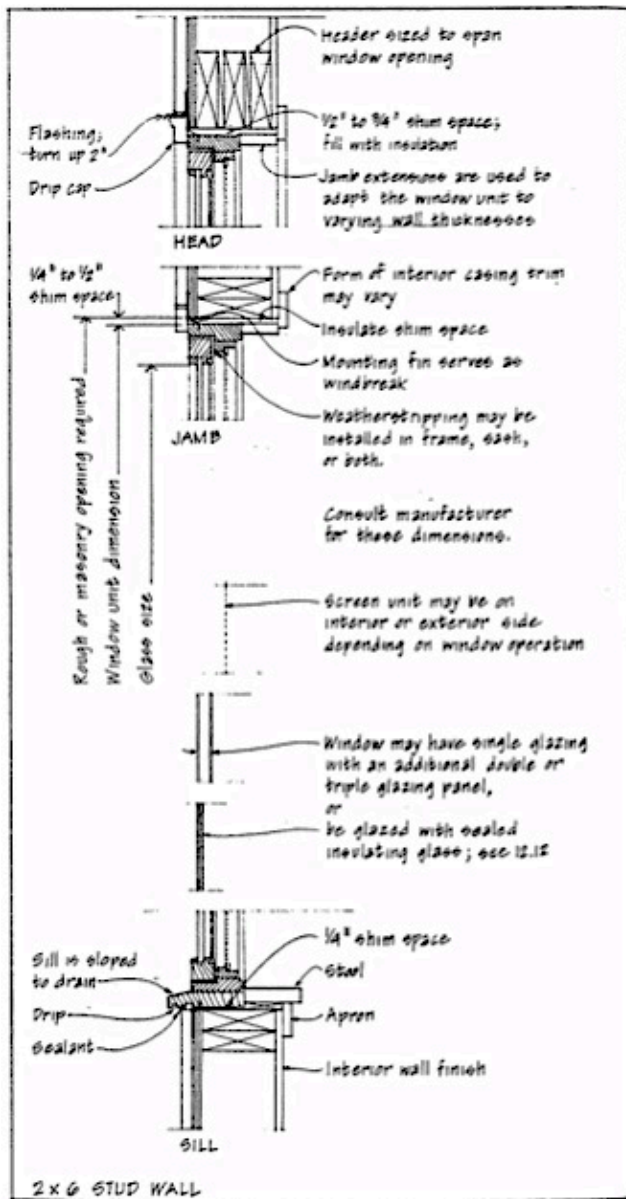
Metal window frames: See 7.26

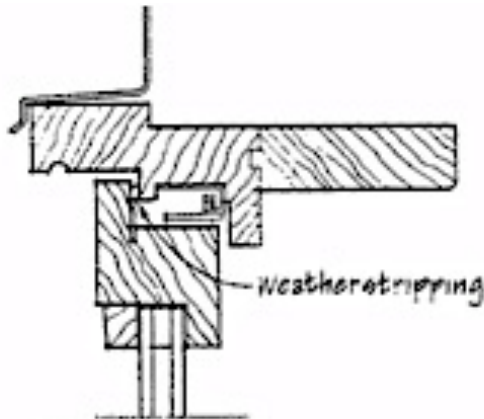
- Aluminum in a variety of anodized finishes
- Steel may be galvanized and/or powdercoated and primed.



SASH AND GLAZING

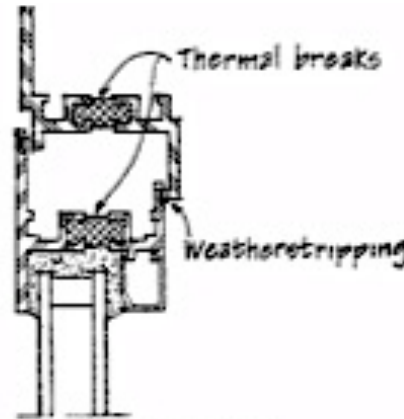
CODE REQUIREMENTS





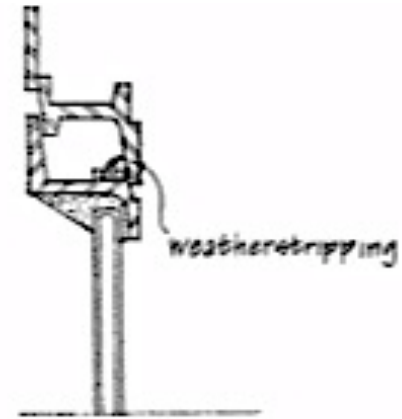
WOOD FRAMES

Wood is a fairly good thermal insulator. The size of the sash section depends on the type and thickness used.



ALUMINUM FRAMES

Aluminum frames should have a plastic or synthetic rubber thermal break to interrupt the flow of heat from the warm to the cool side.



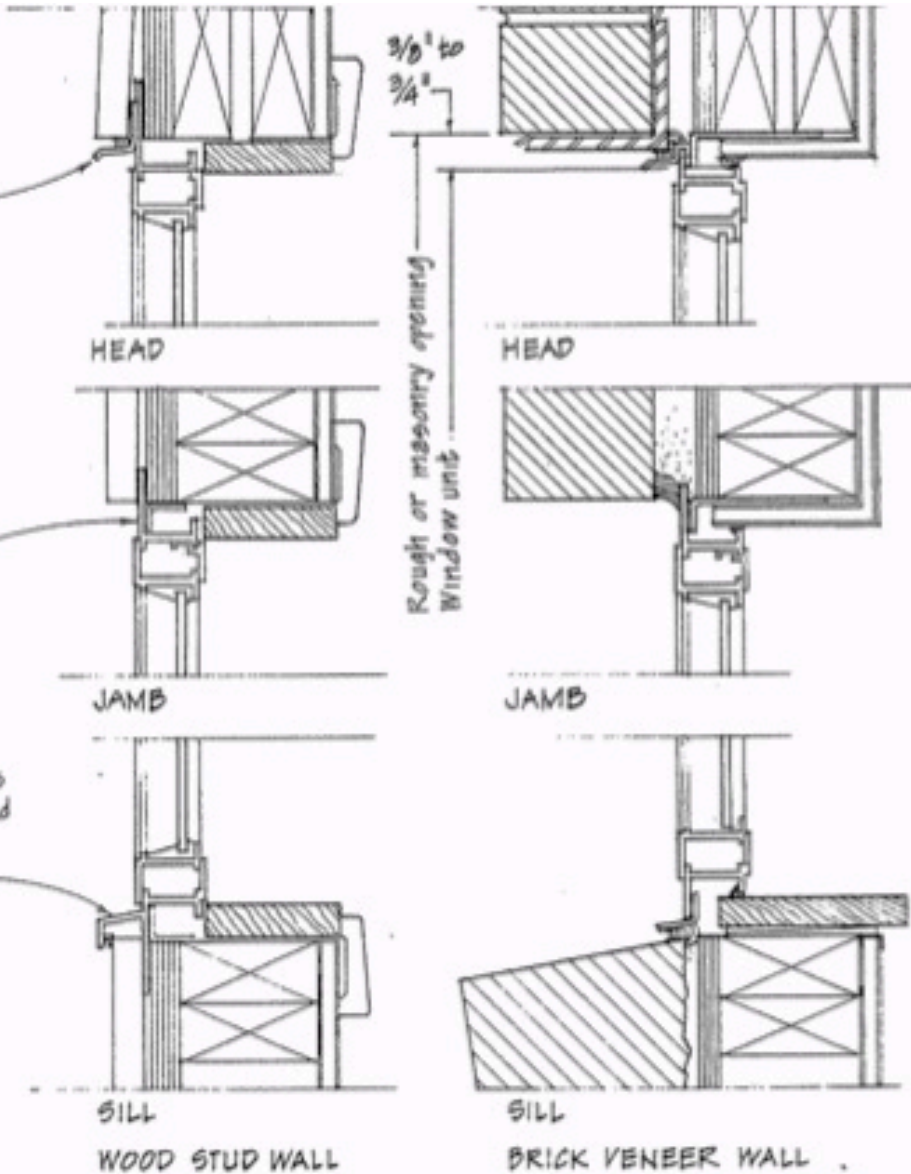
STEEL FRAMES

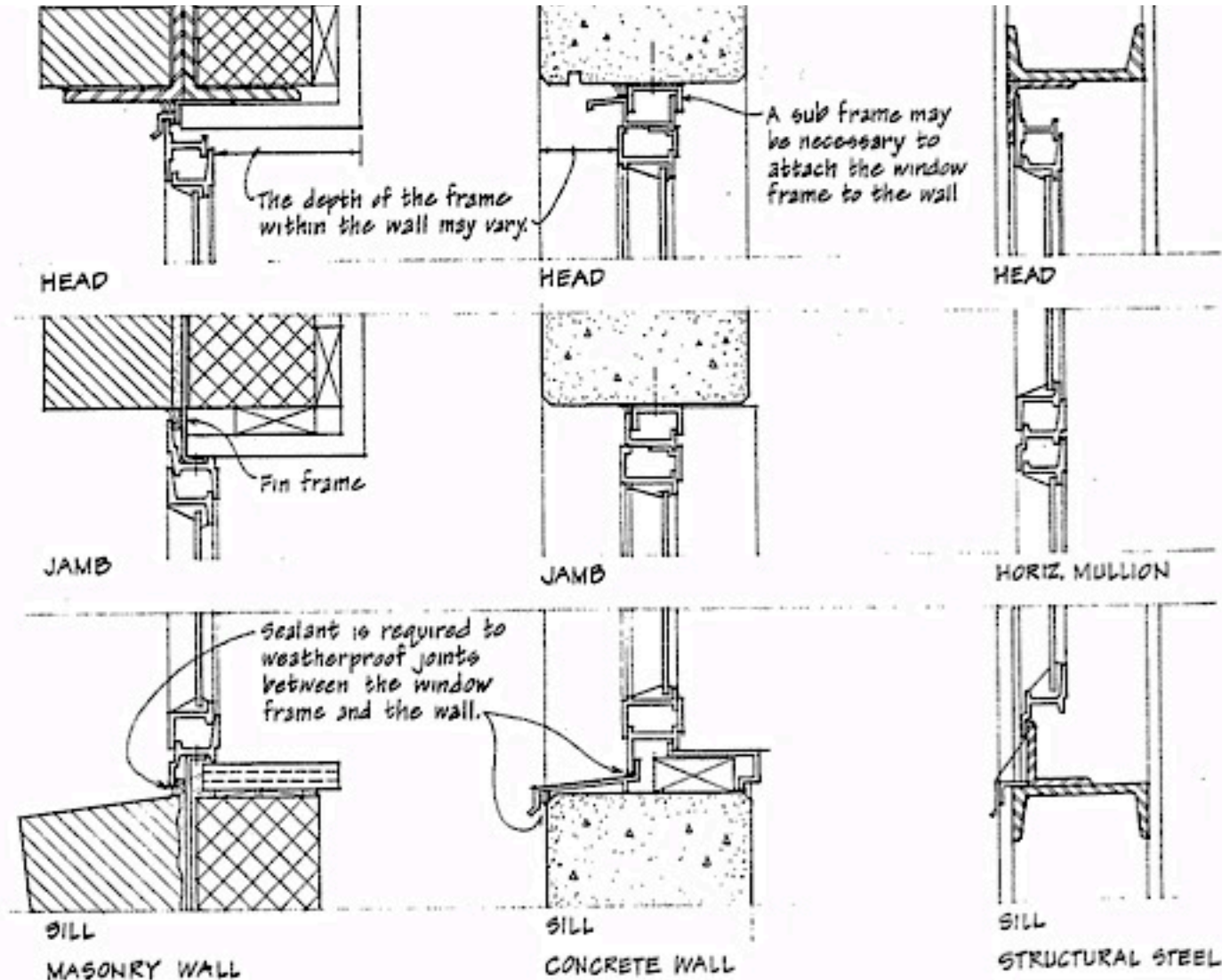
Steel frame and sash sections are more rigid than aluminum sections and are usually thinner in profile.

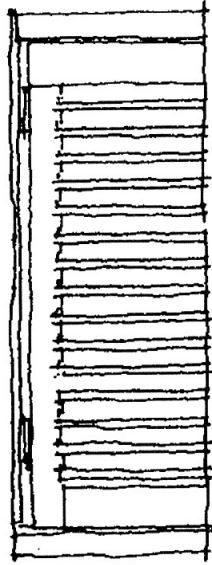
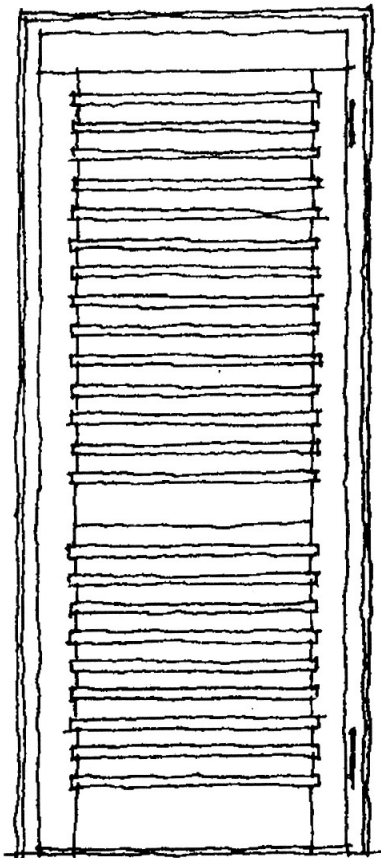
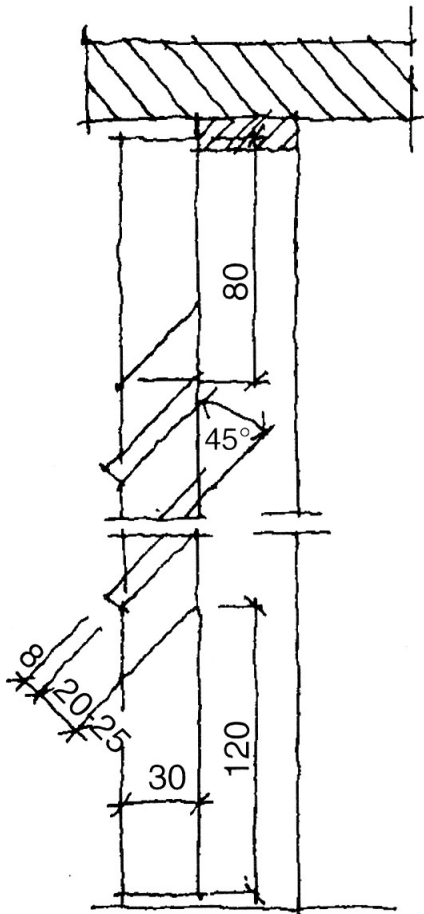
Rain drips are required for windows that are flush with the exterior wall and for transom bars or horizontal mullions.

Metal window frames usually have fins that serve as a windbreak for the joint between the window unit and the wall. The fins may also be used for attaching the frame to the supporting structure.

The head, jamb, and sill sections are usually similar in profile. Head and sill sections, however, may have integral rain drips.













Werksfeuerwehr Vitra, Weil am Rhein
(Architektin Zaha M. Hadid)





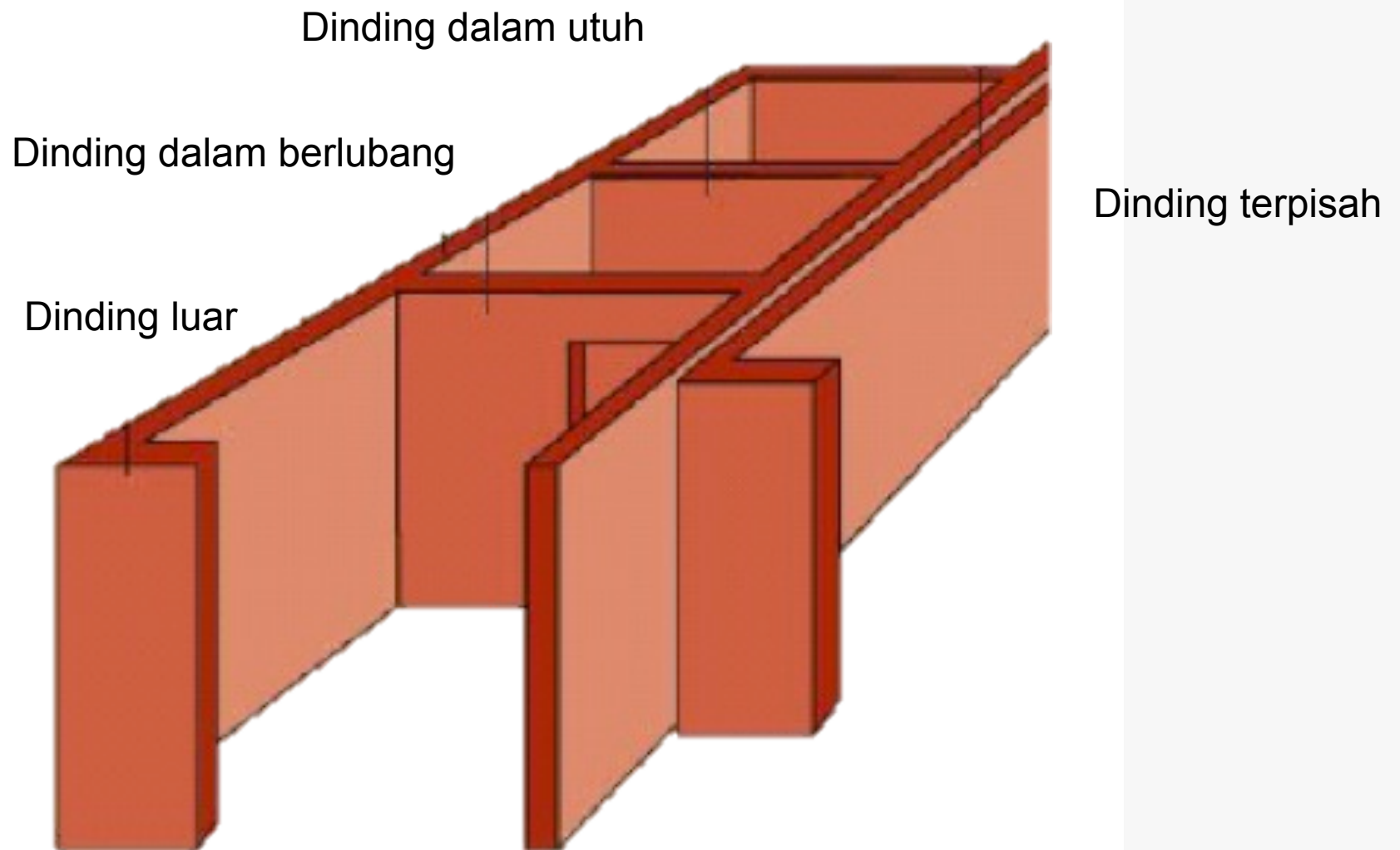


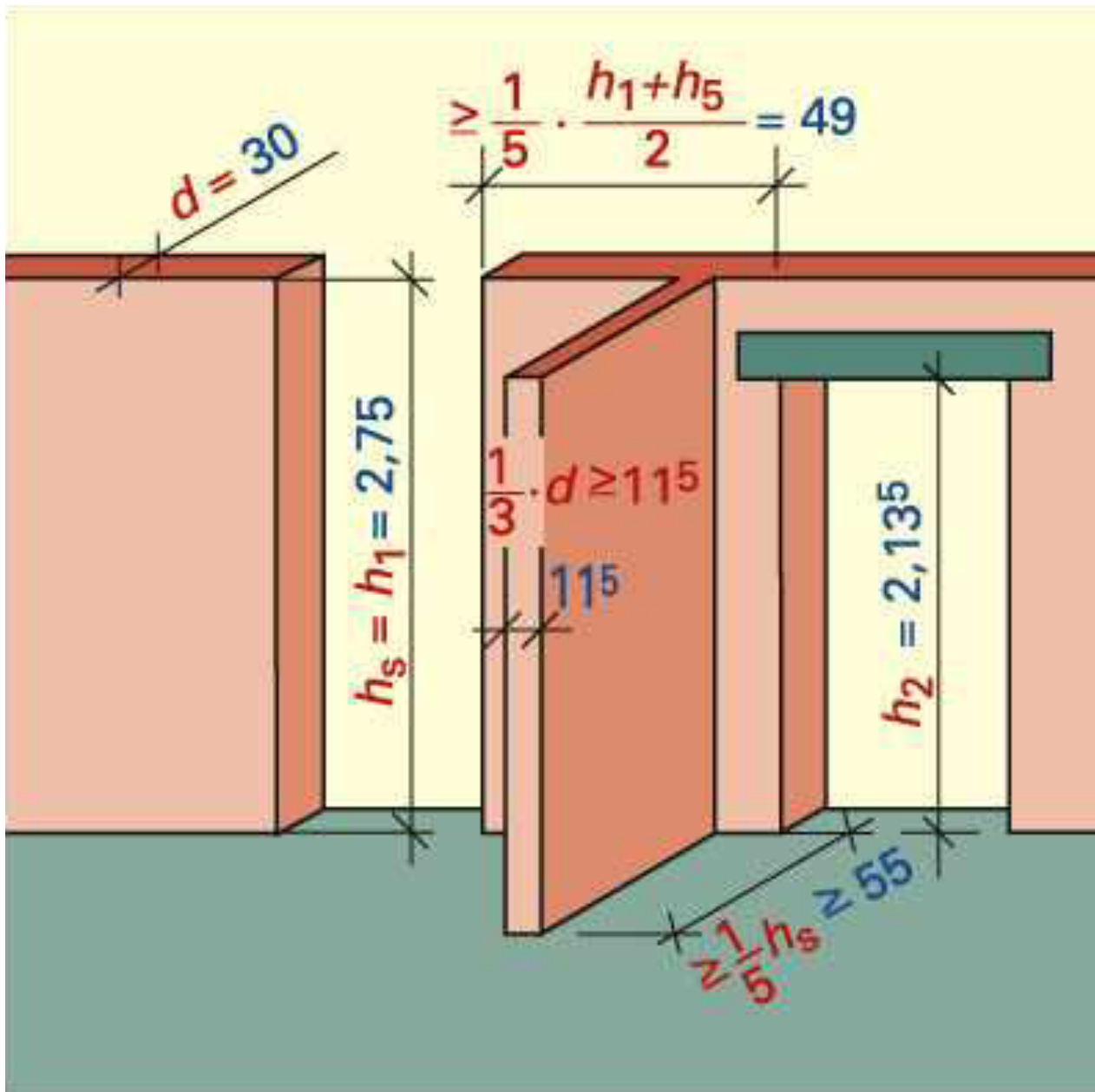


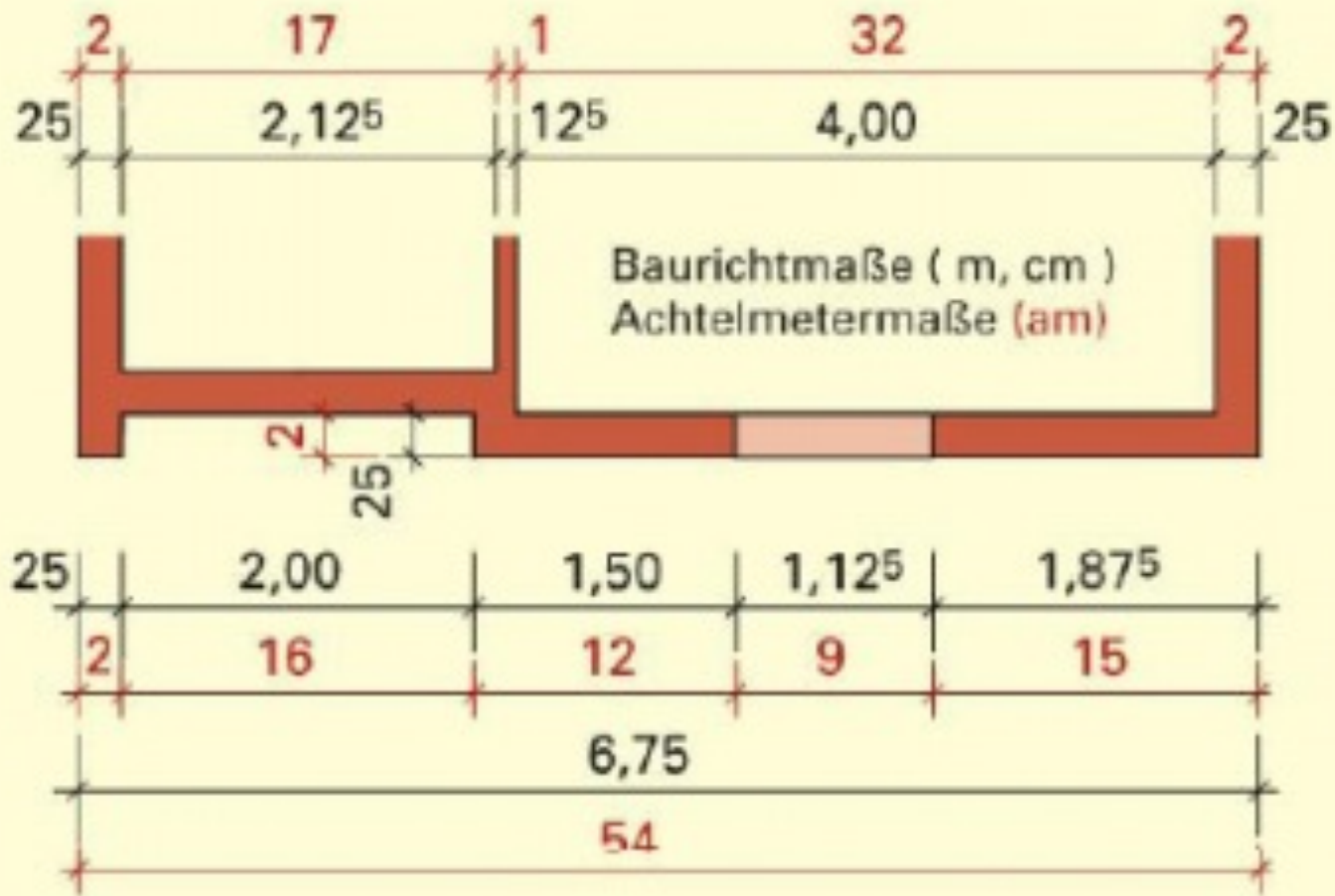


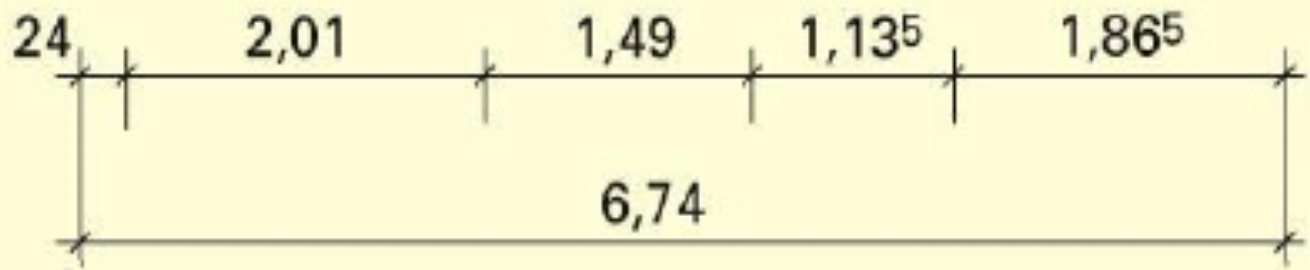
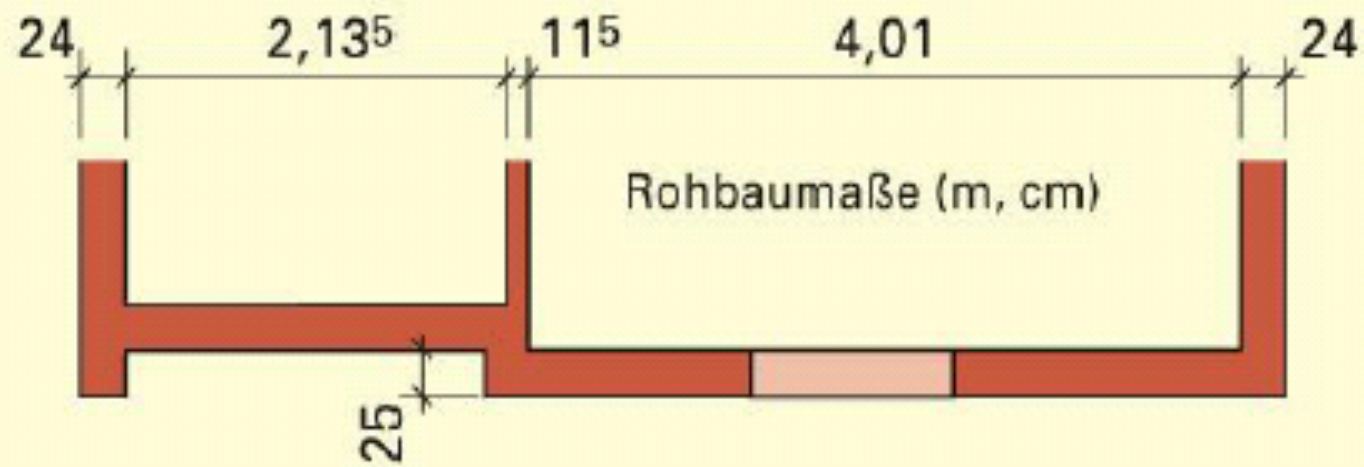


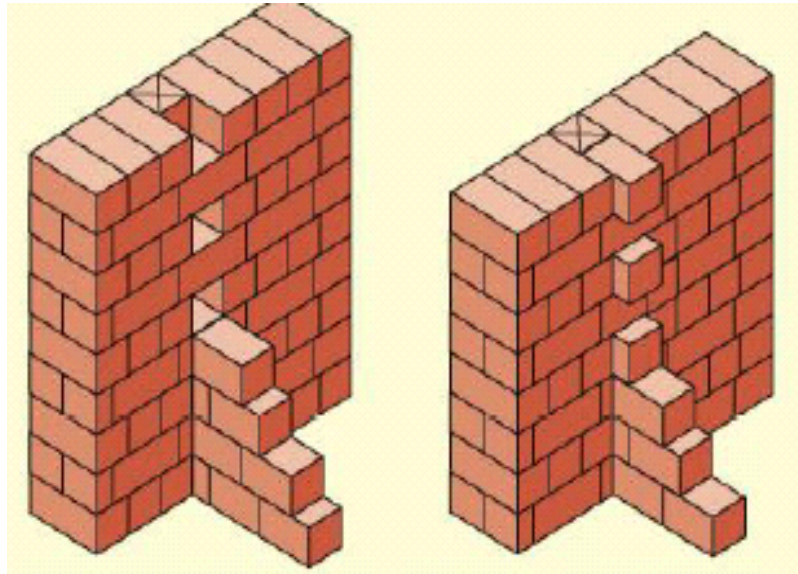
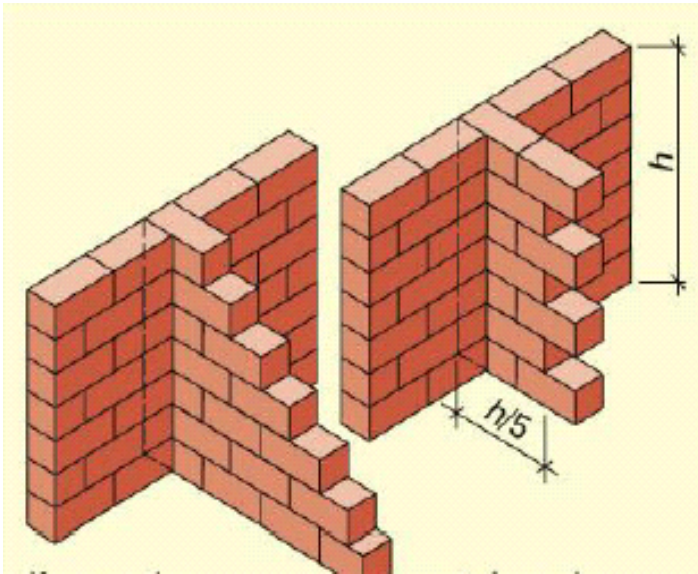
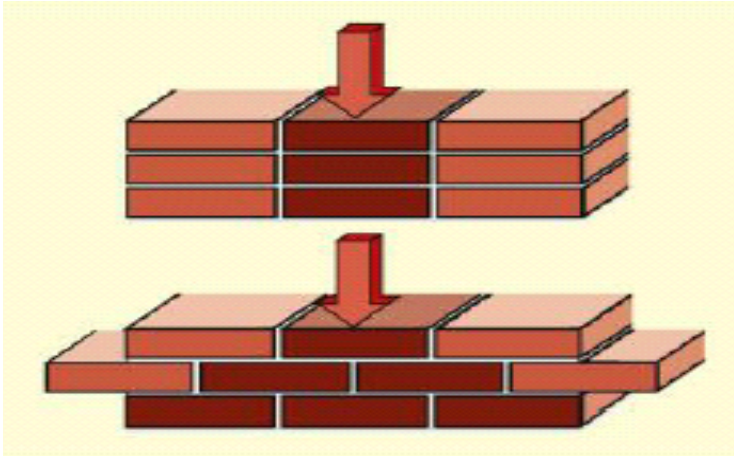


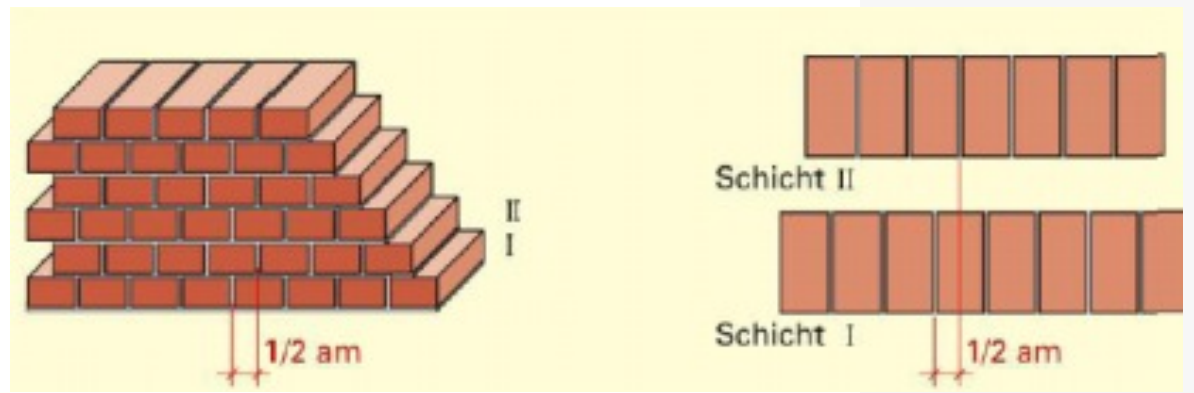
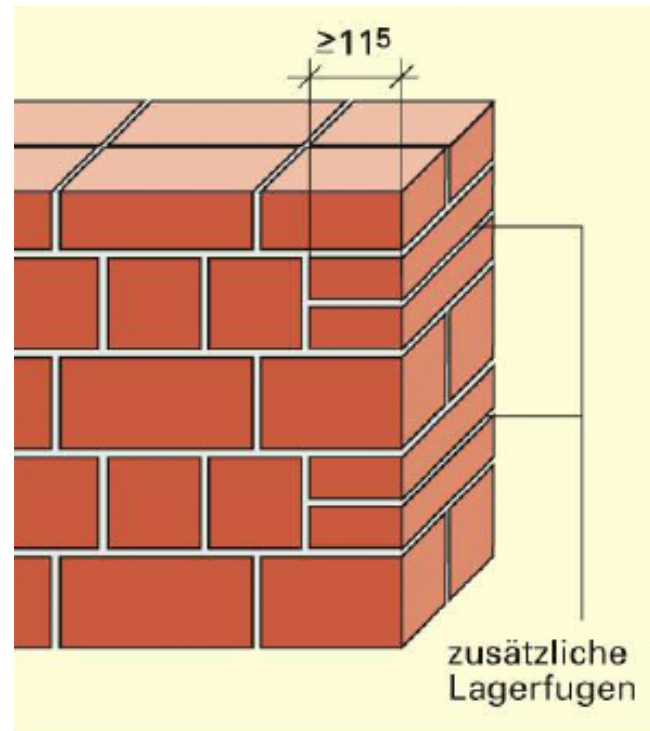
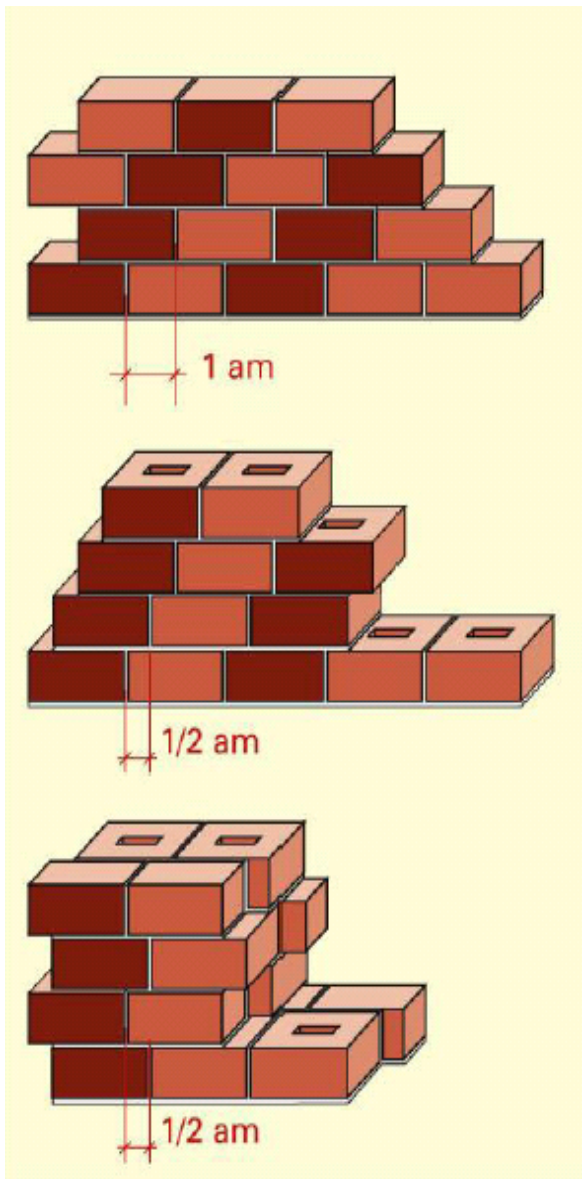


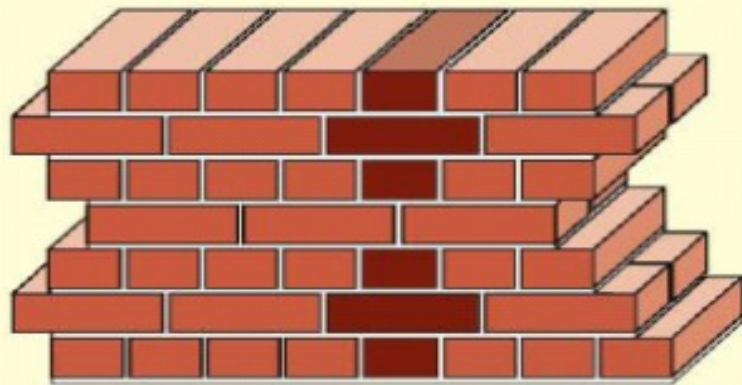




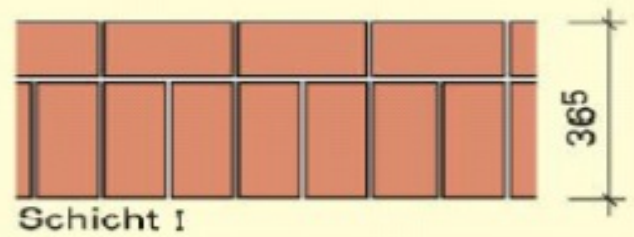
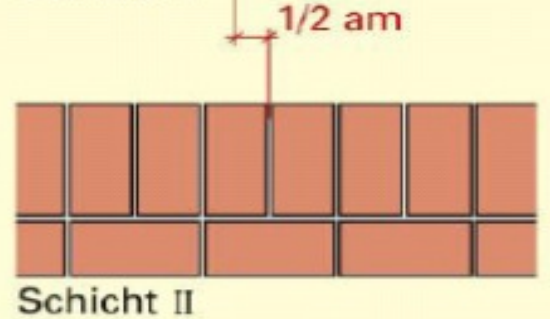
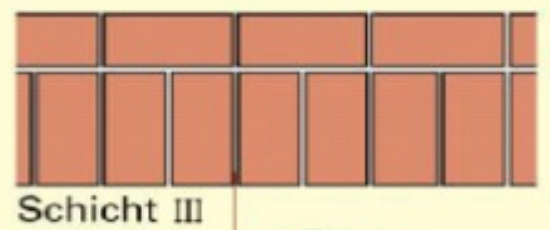
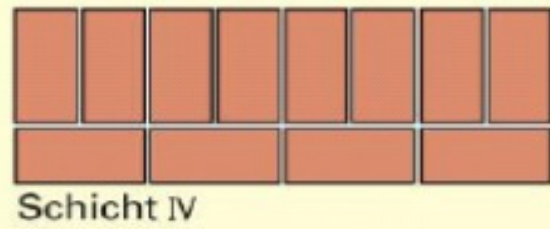
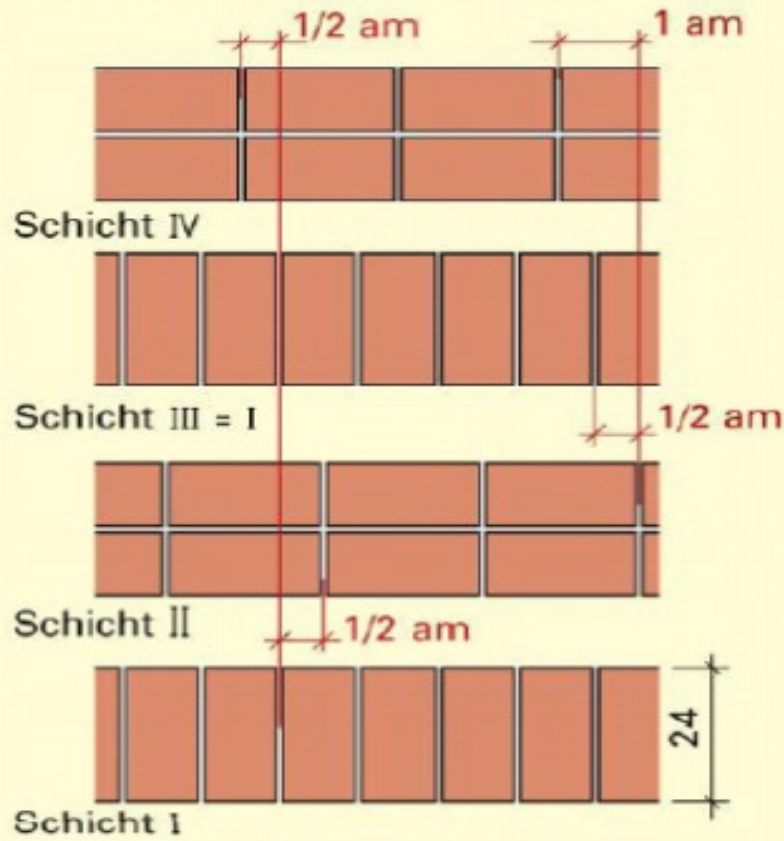


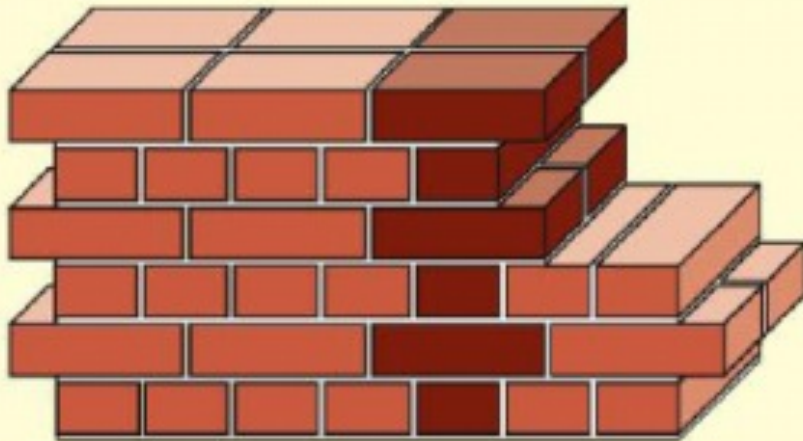




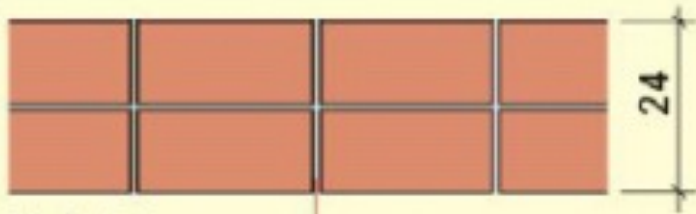


III
II
I
IV
III
II
I

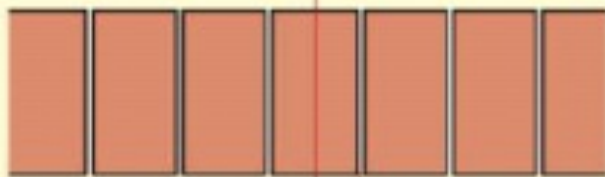




II
I
II
I



Schicht II



Schicht I

1/2 am



Schicht II

1/2 am



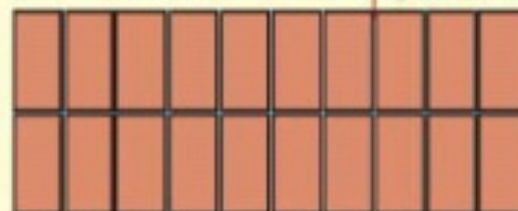
Schicht I

365



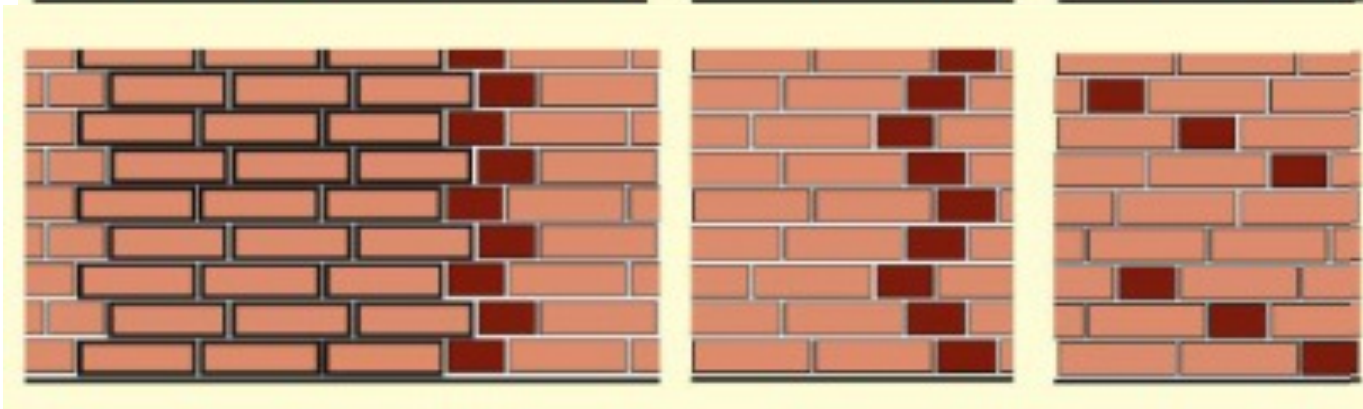
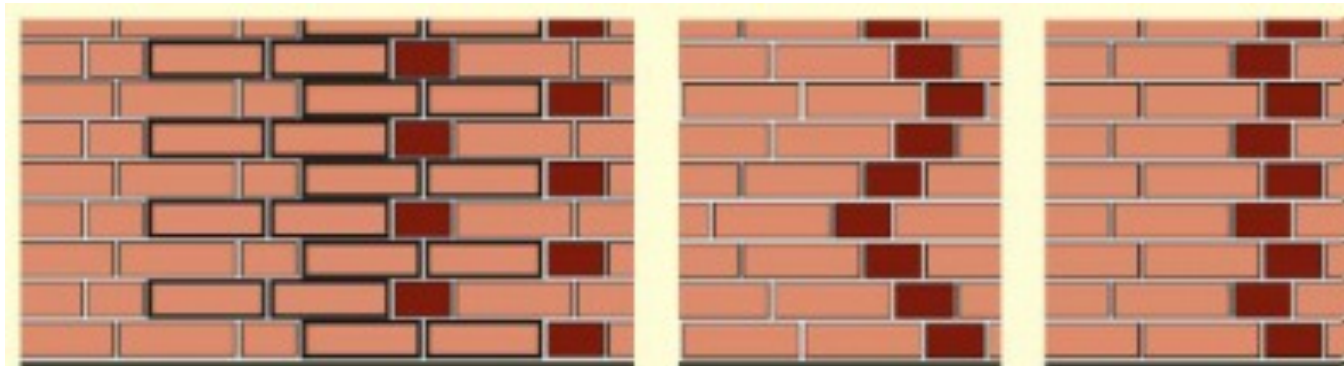
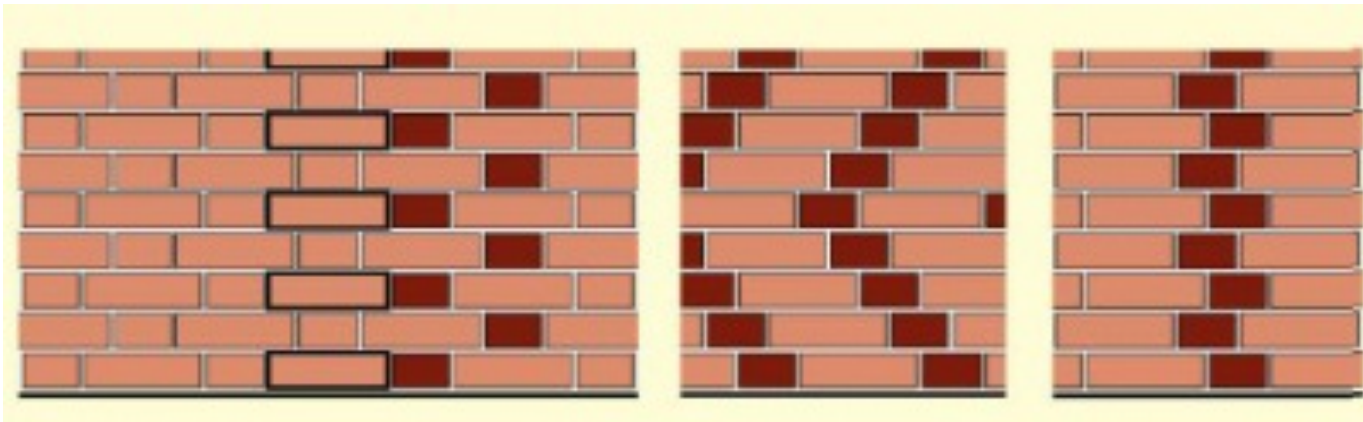
Schicht II

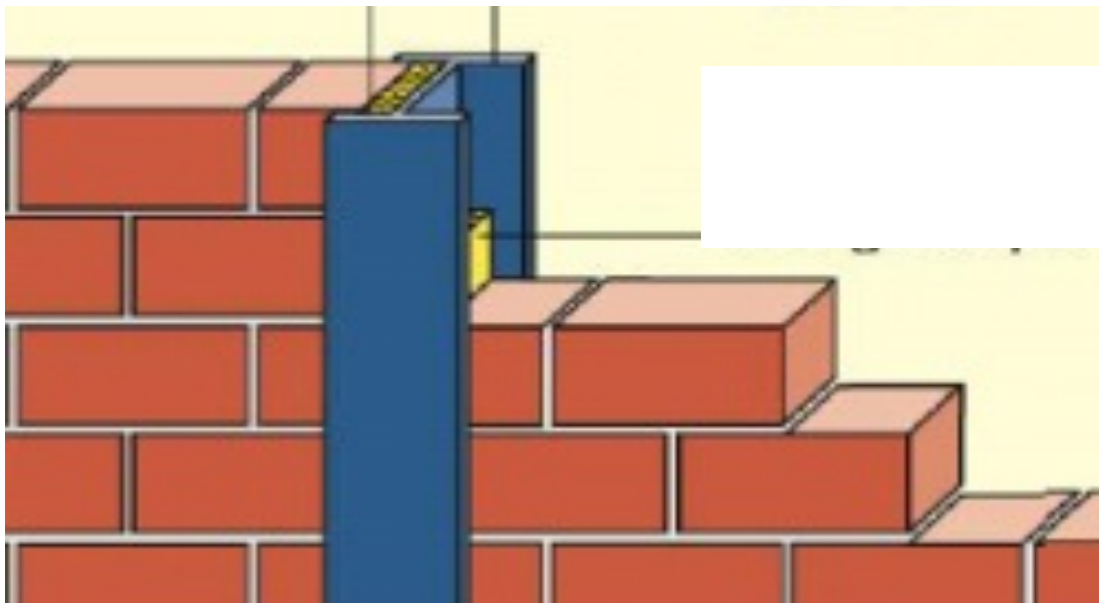
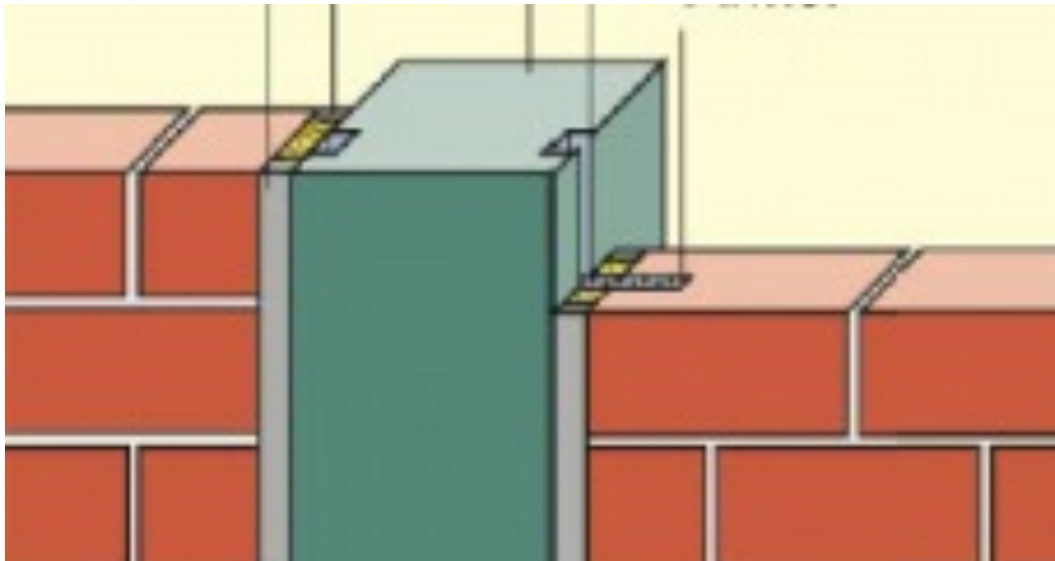
49

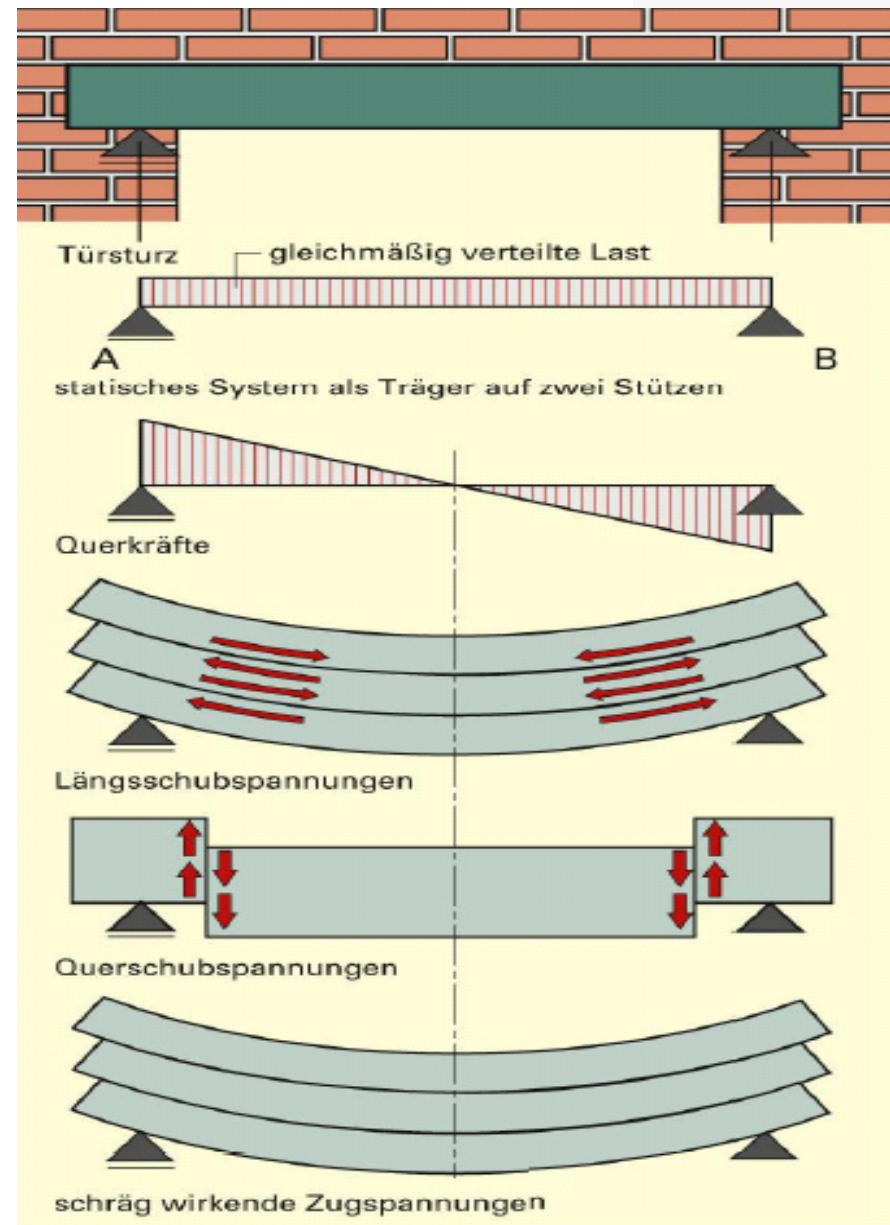
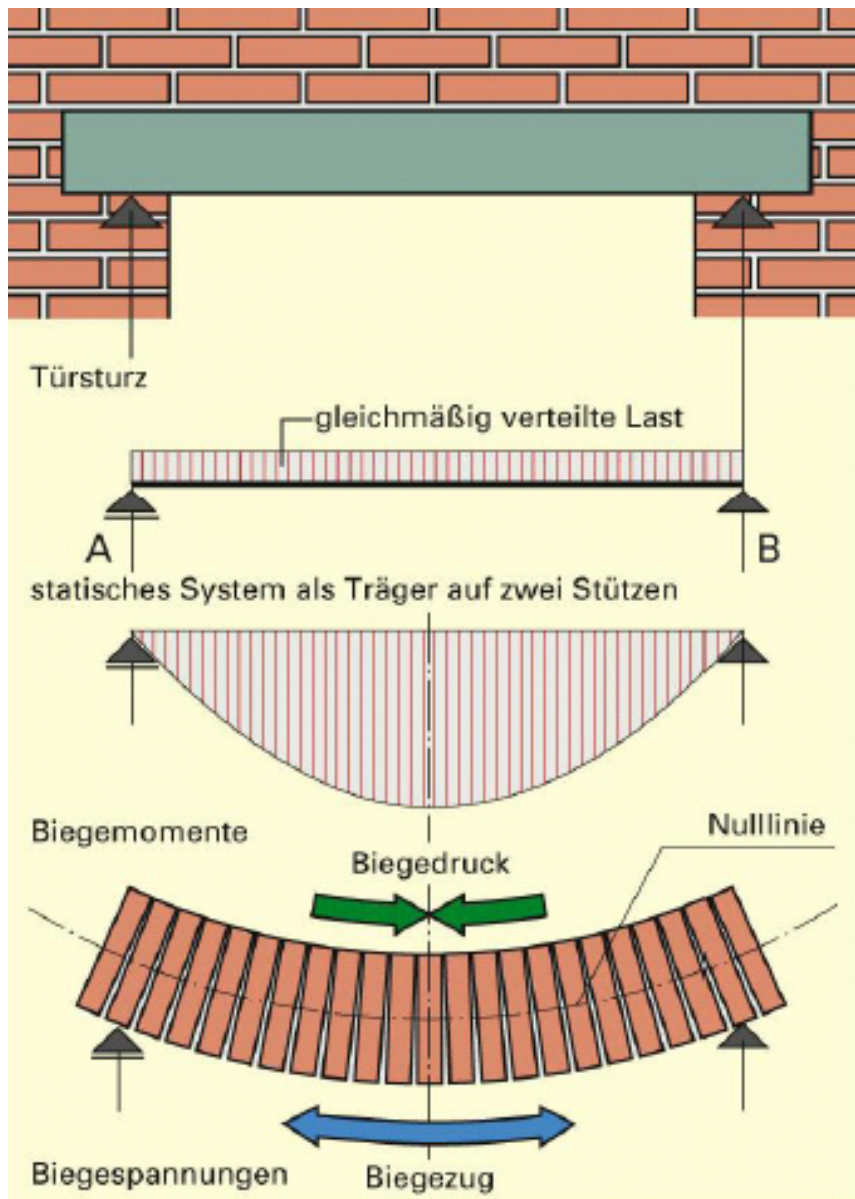


Schicht I

1/2 am







Rumah tinggal keluarga Ir. Daryanto

Jalan Sindirito Selatan VI/16, Cemerlang Barat 50148 70/54 m
Rencana: 1 Dri: Heinz Frits, Anick SA, D. Ramadhani Baet 1/2

Potongan A-A 1:20, Terali jendela 1:20
No. 1.00

1 meter

