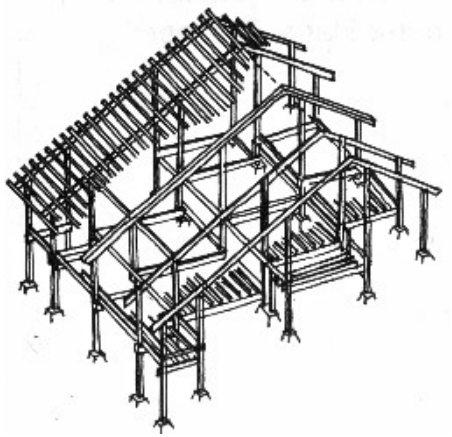
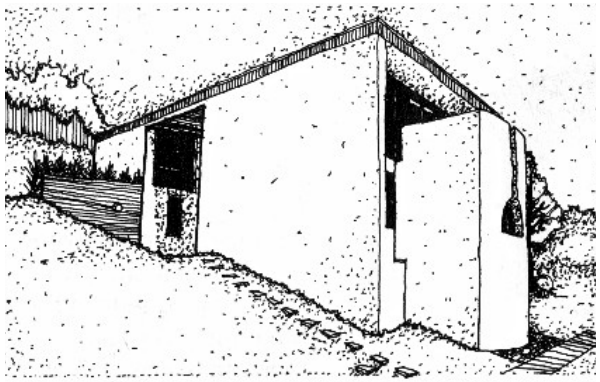
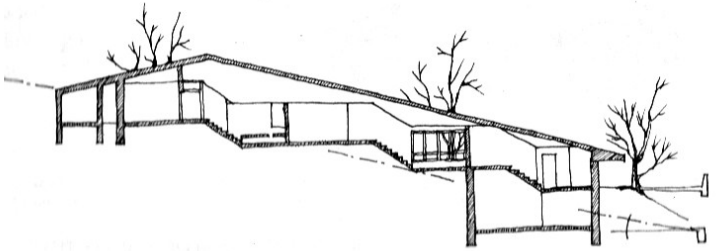
PERENCANAAN TEKNOLOGI & SISTEM BANGUNAN (PTSB) *03*





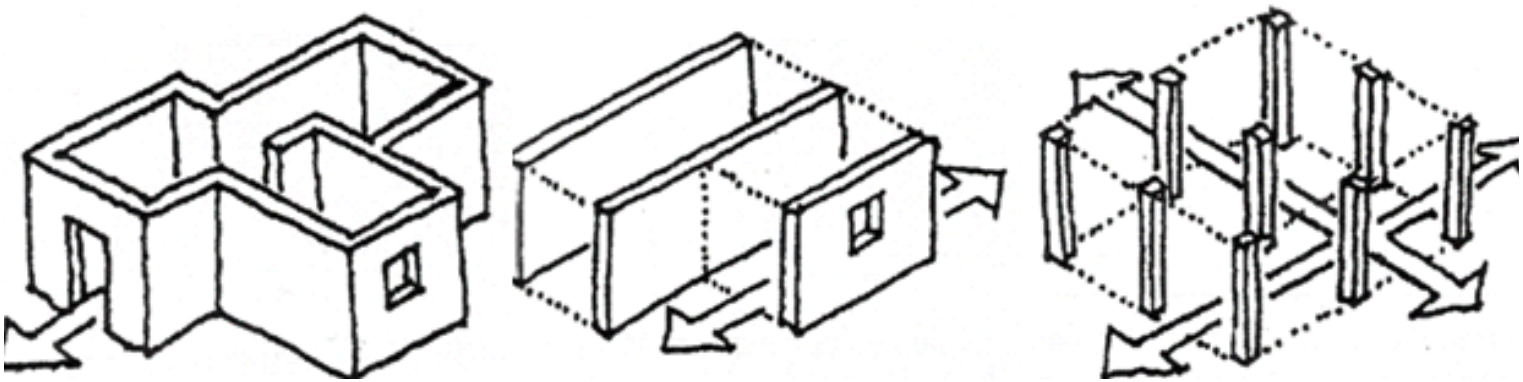


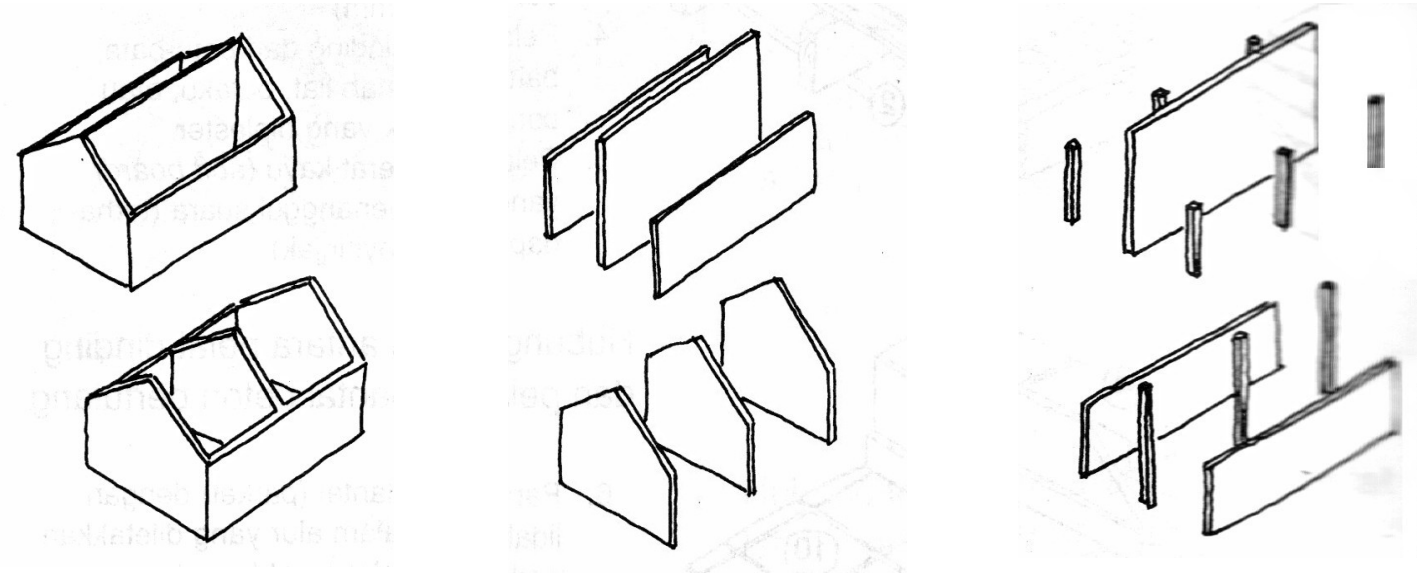
Building adapts the site rather than site adapts the building !

OUTLINE

BUILDING SYSTEMS
Basic concept
Structural systems
Topography

SEISMIC RESISTANT BUILDING
Phenomenon
Design failure
Construction





OUTLINE

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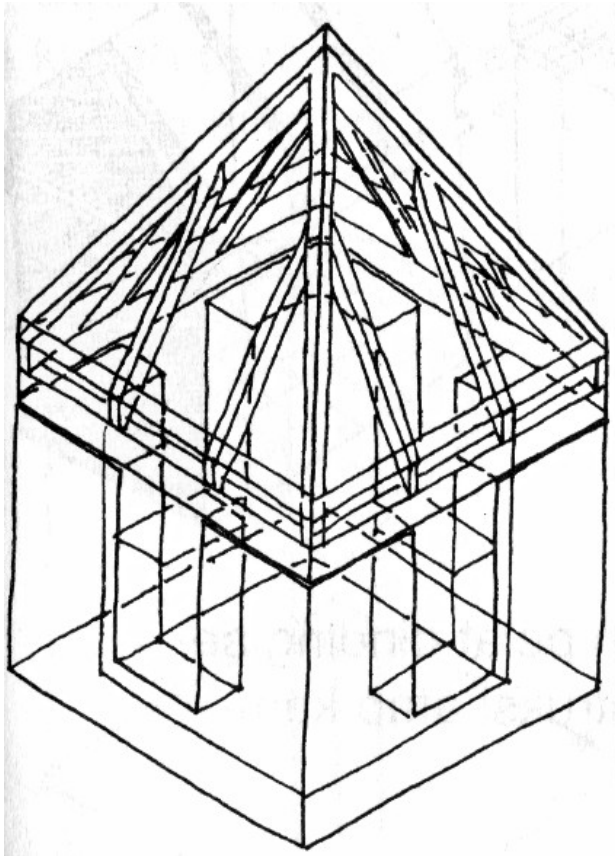

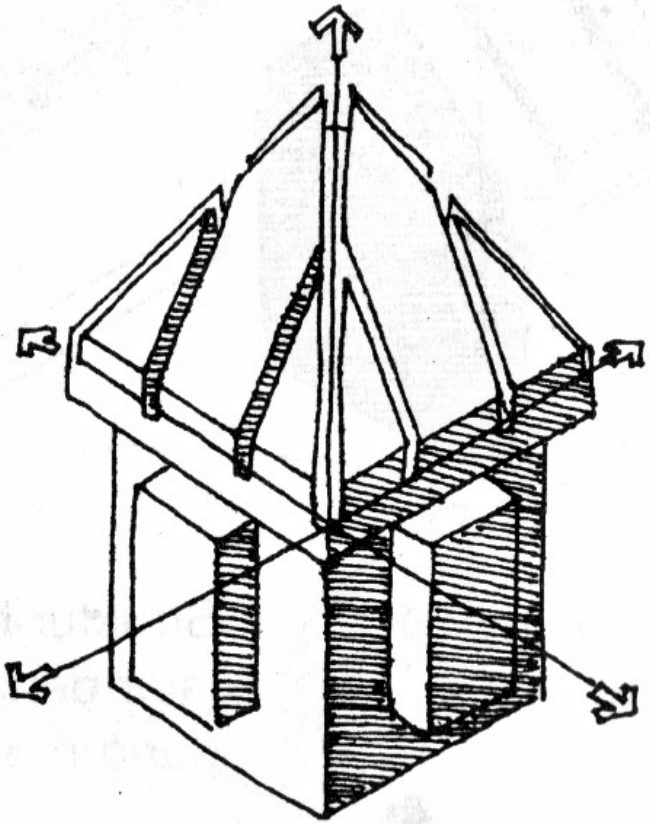

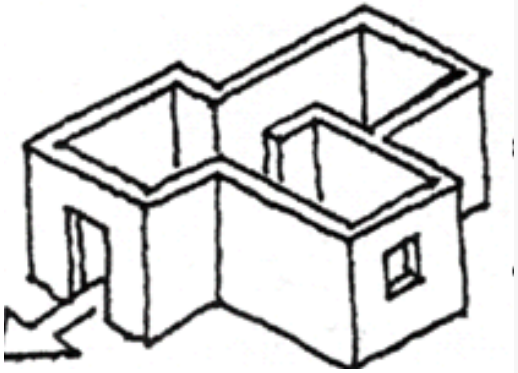

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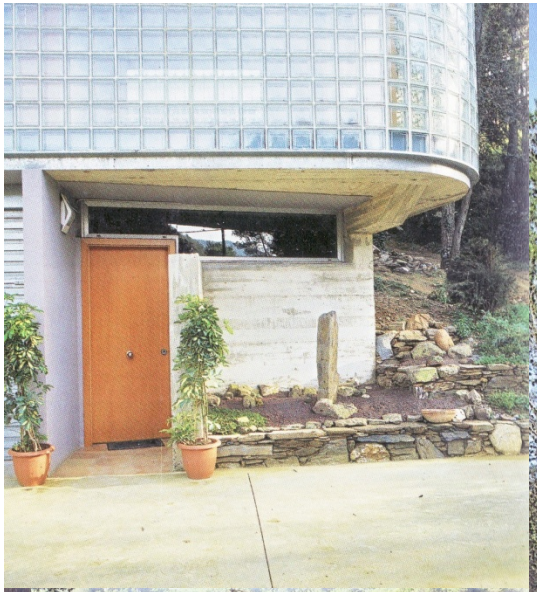

House in Torrelles, Spain – *Rob Dubois*

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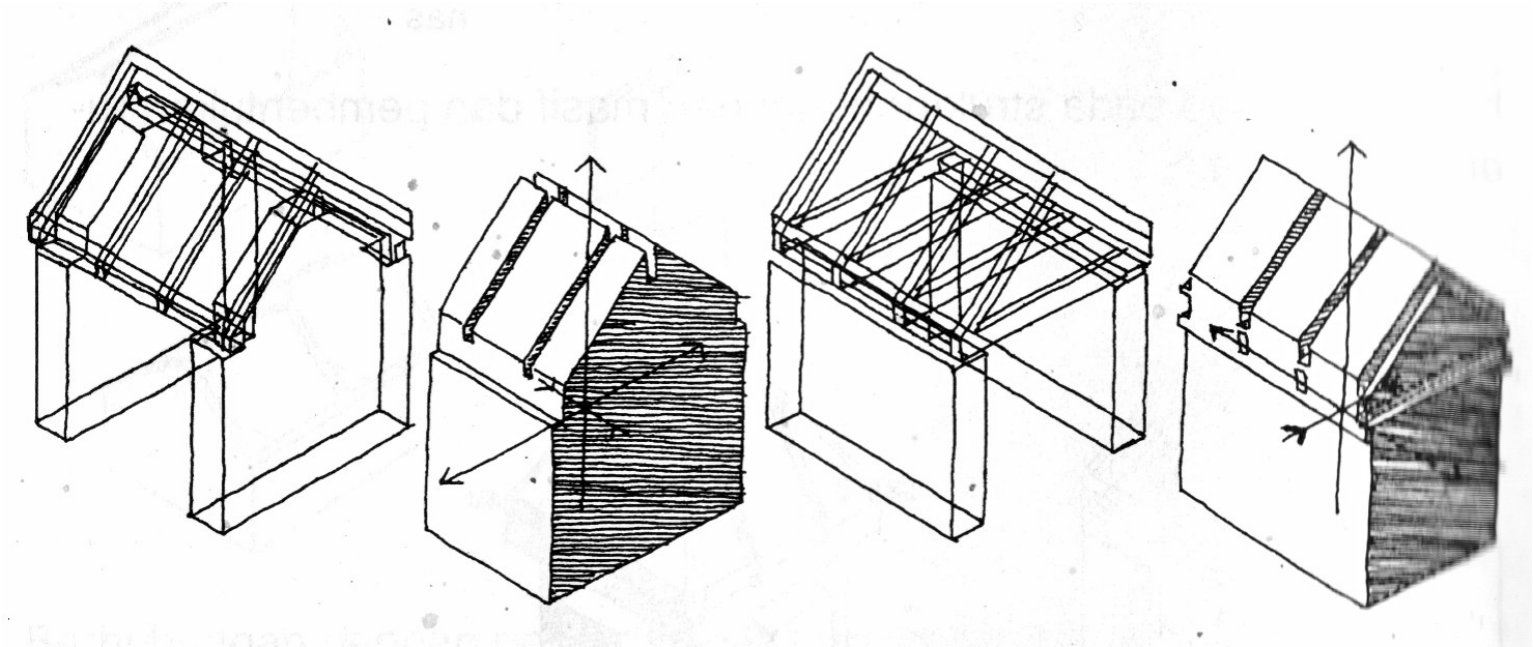
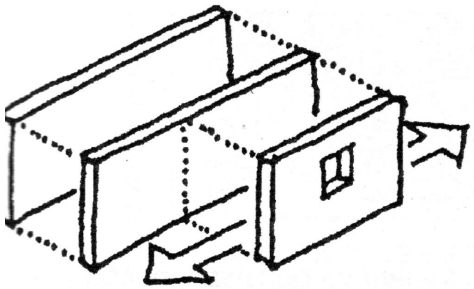


Pararel Walls



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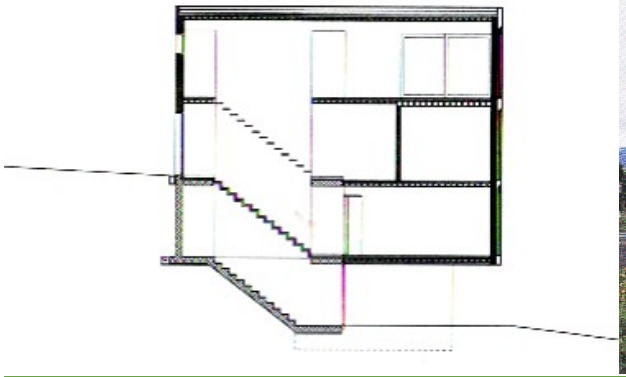

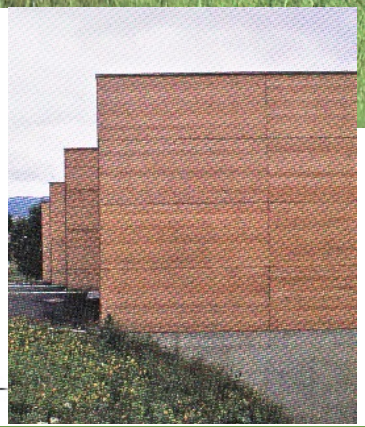

Reihenhäuser
Burghalde
(Stalder & Buol, 1998)

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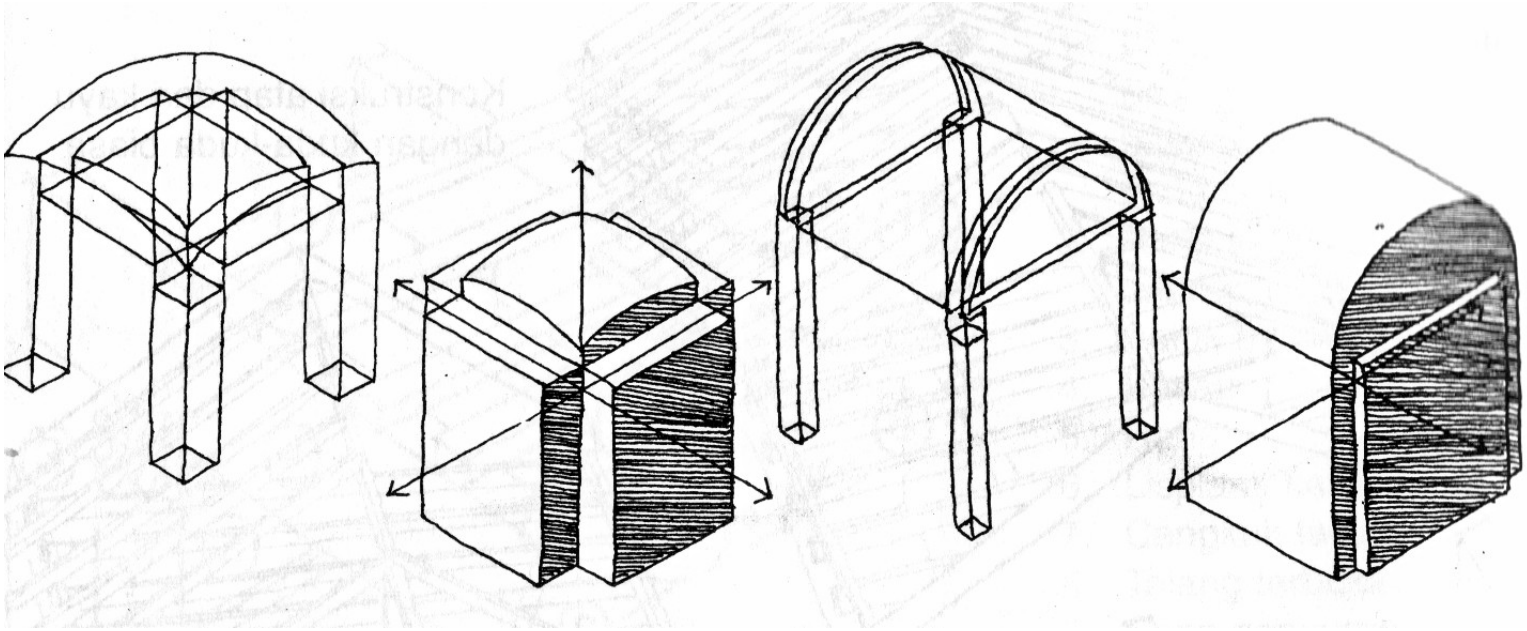
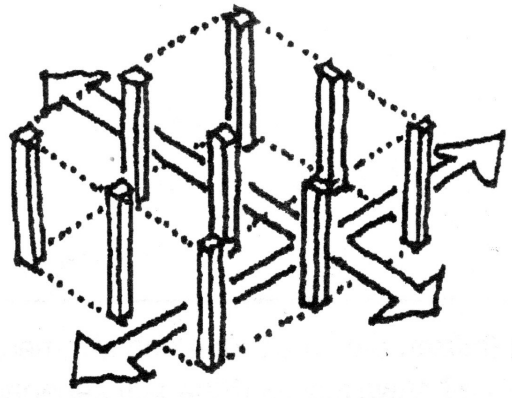


Frame



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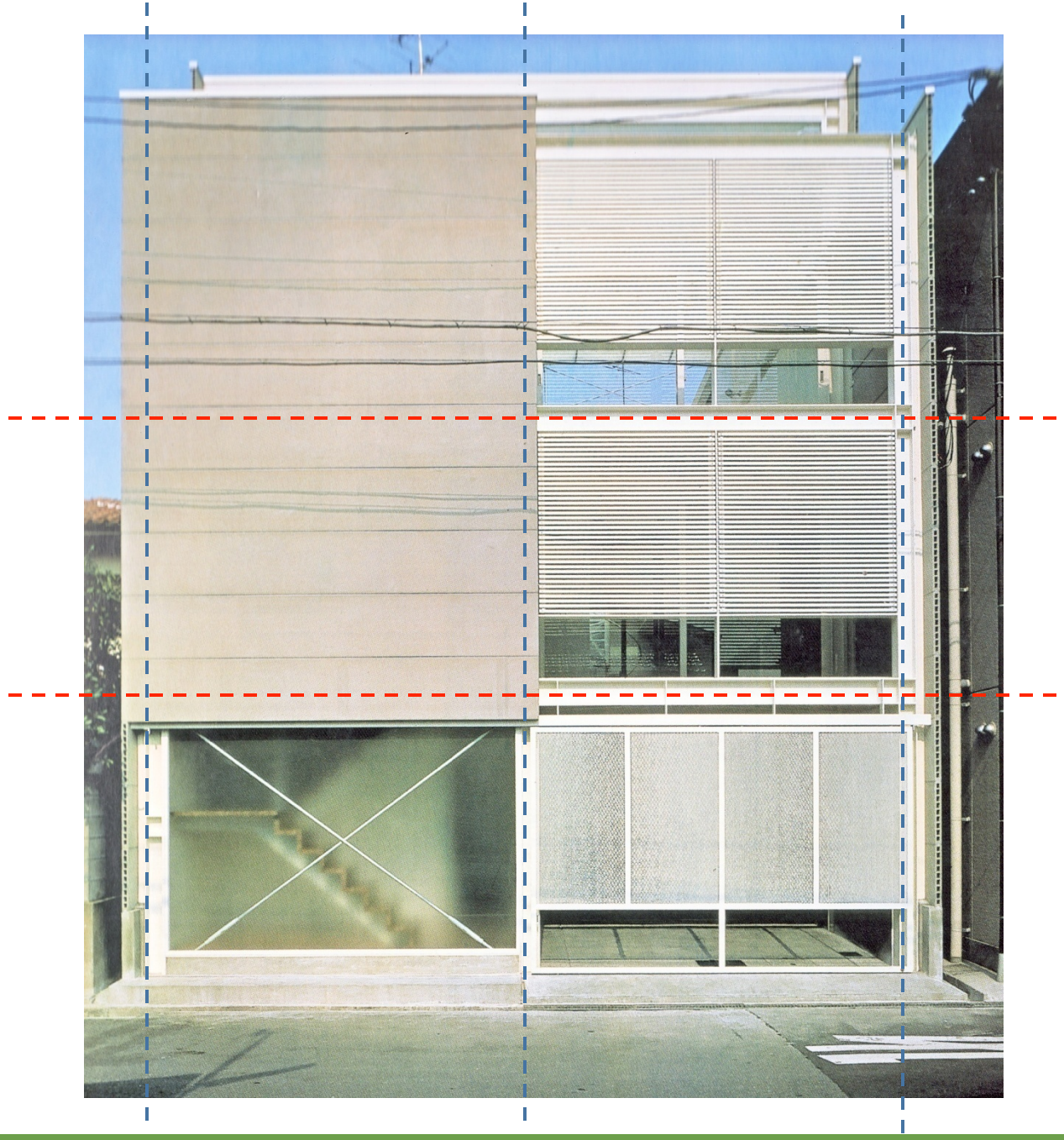

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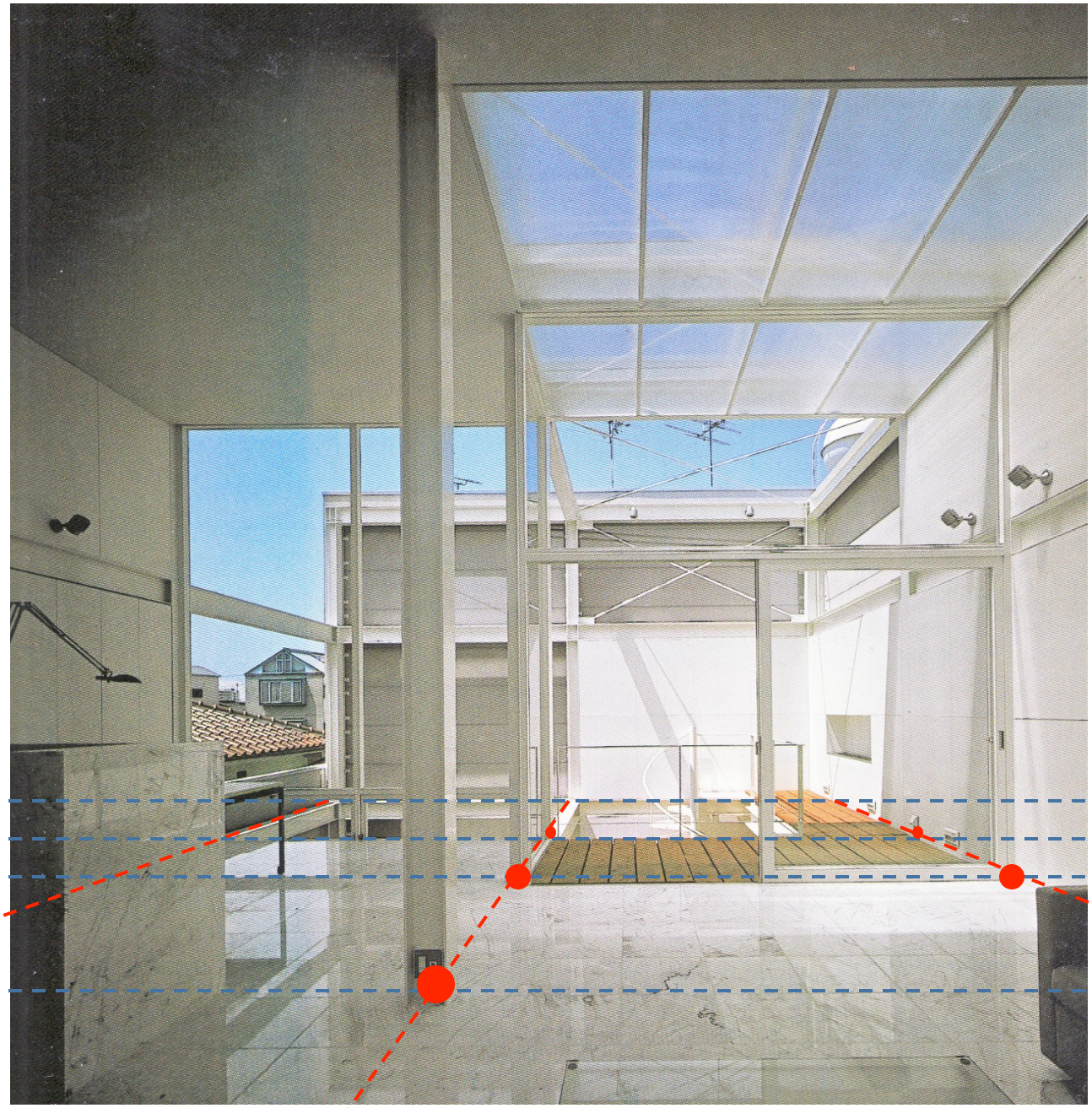

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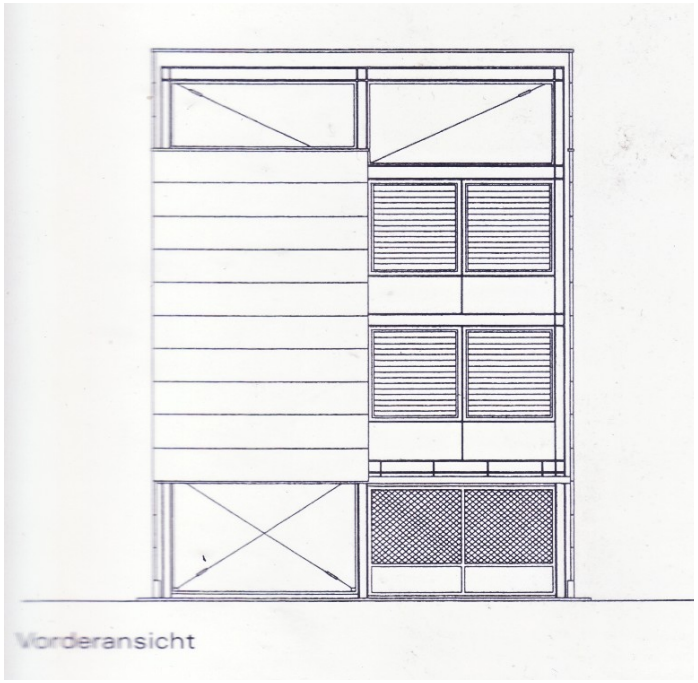

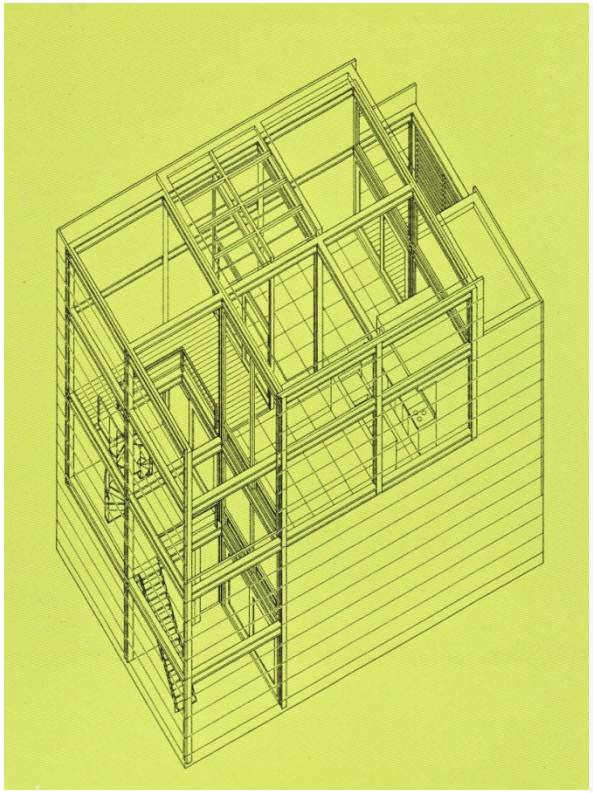

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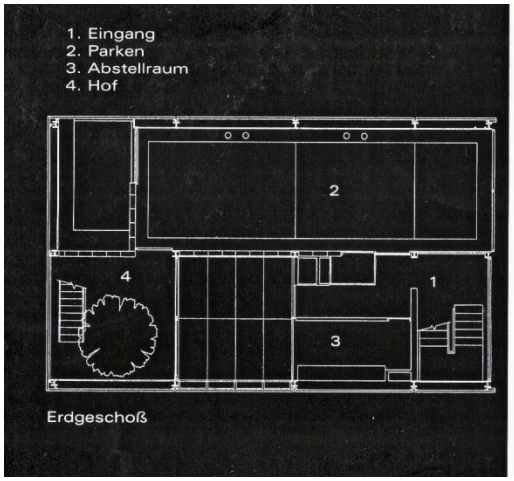

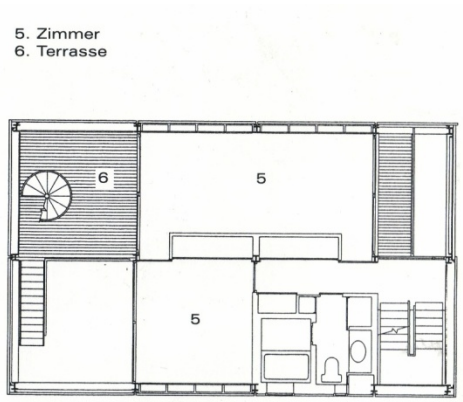

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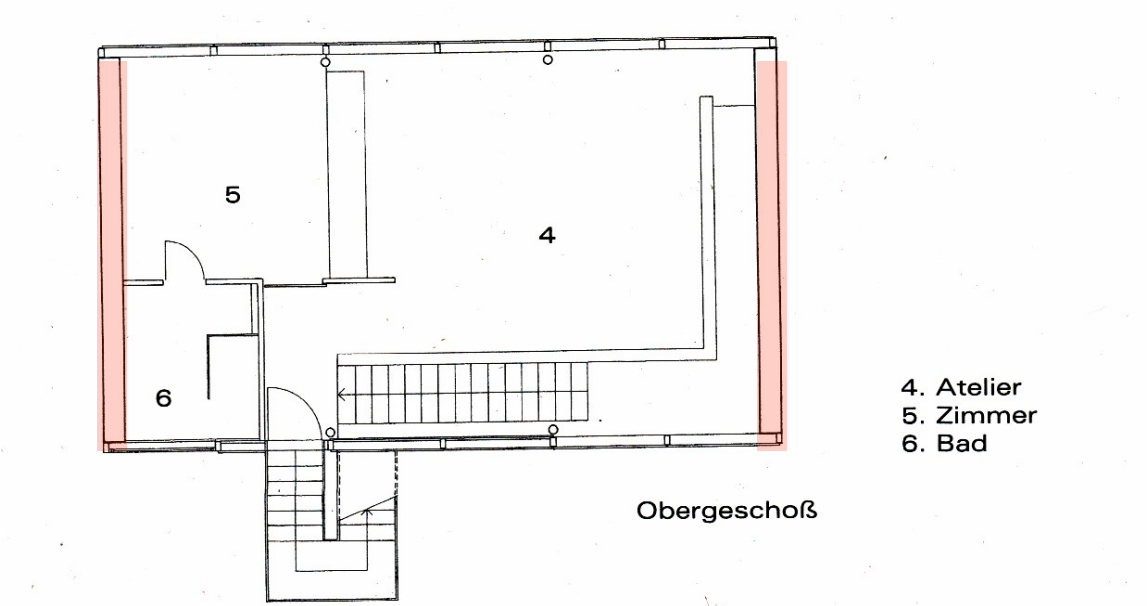

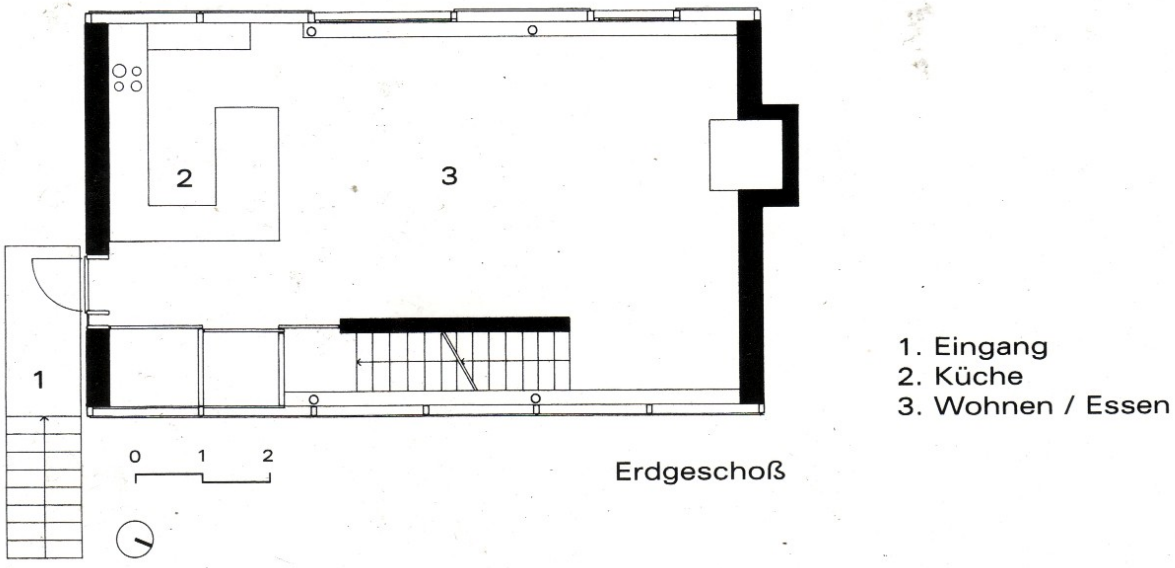

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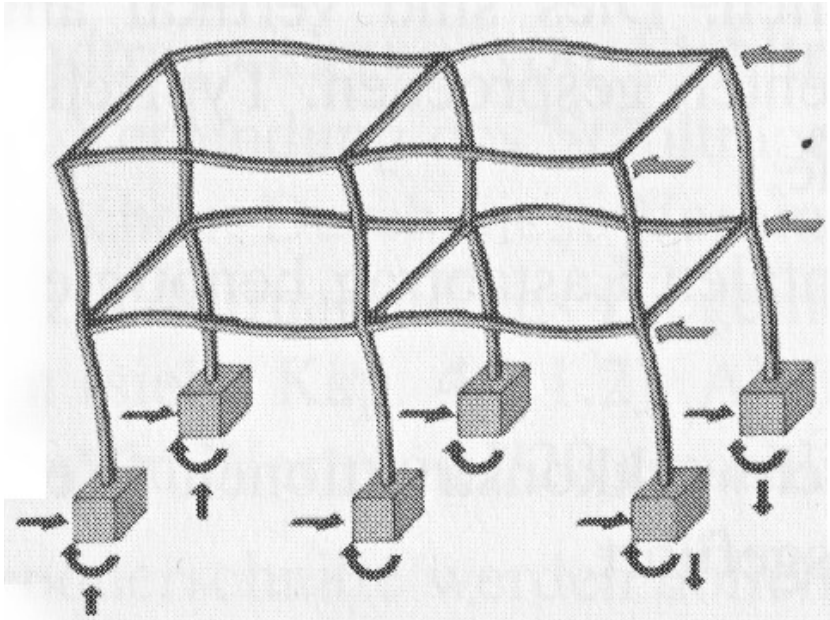
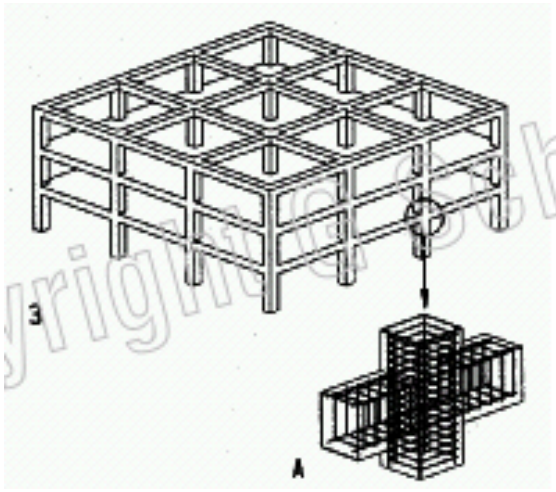
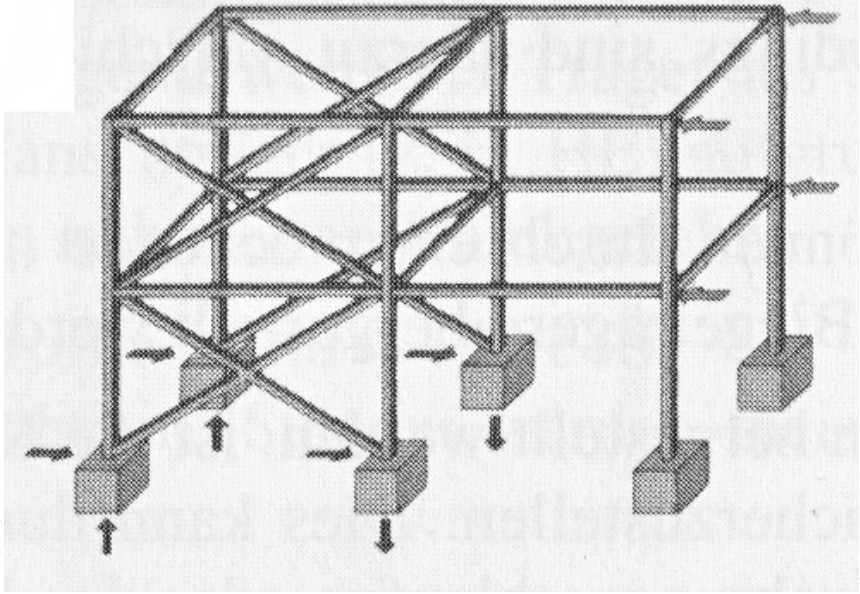
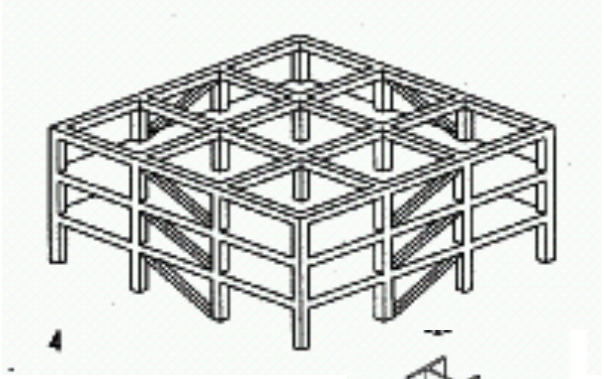
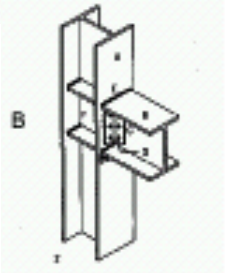




Moment Frame







Braced Frame

OUTLINE

BUILDING SYSTEMS
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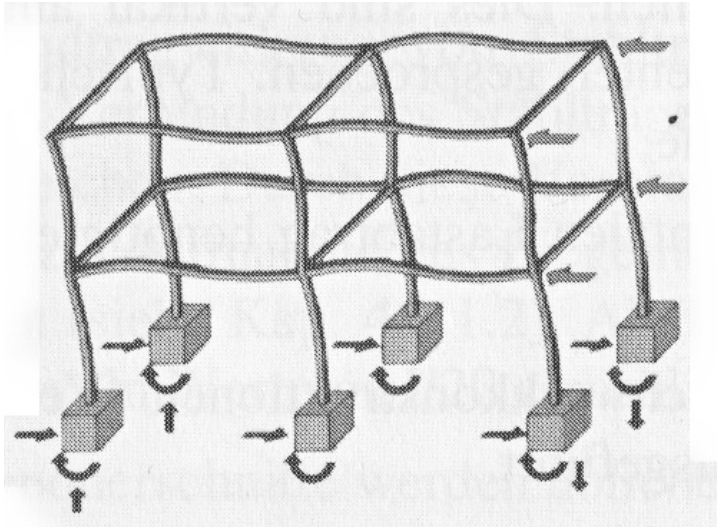

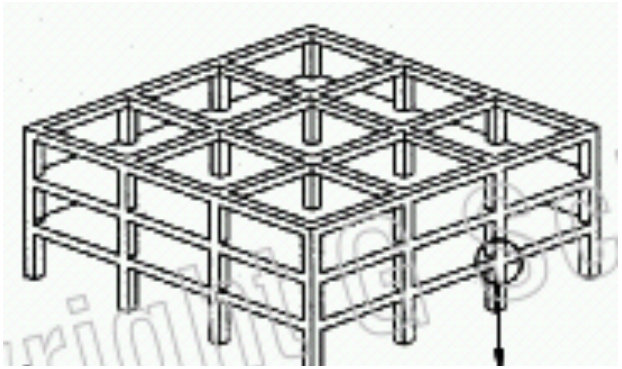

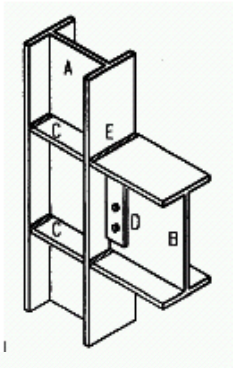

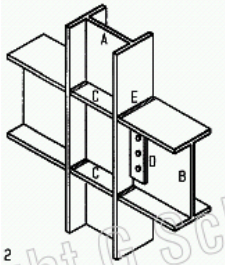

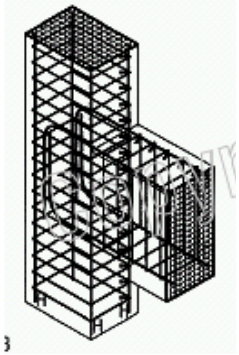

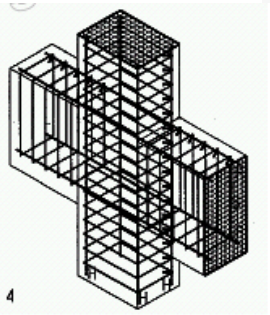

Moment Frames

consist of one or more portals with columns joint to beams by moment resistant connections that transmit bending deformation from columns to beam and vice versa.

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BUILDING SYSTEMS
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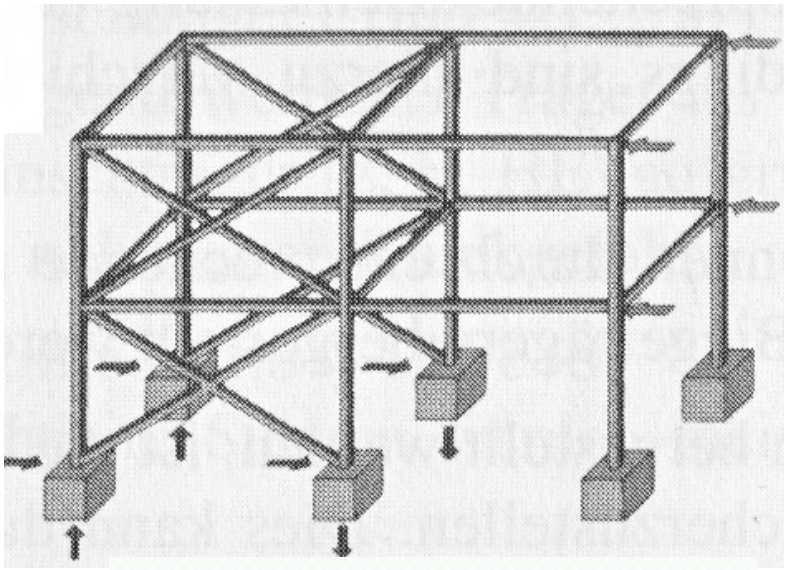

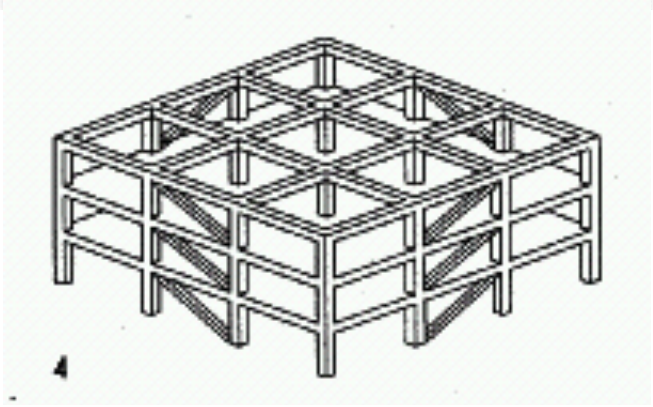

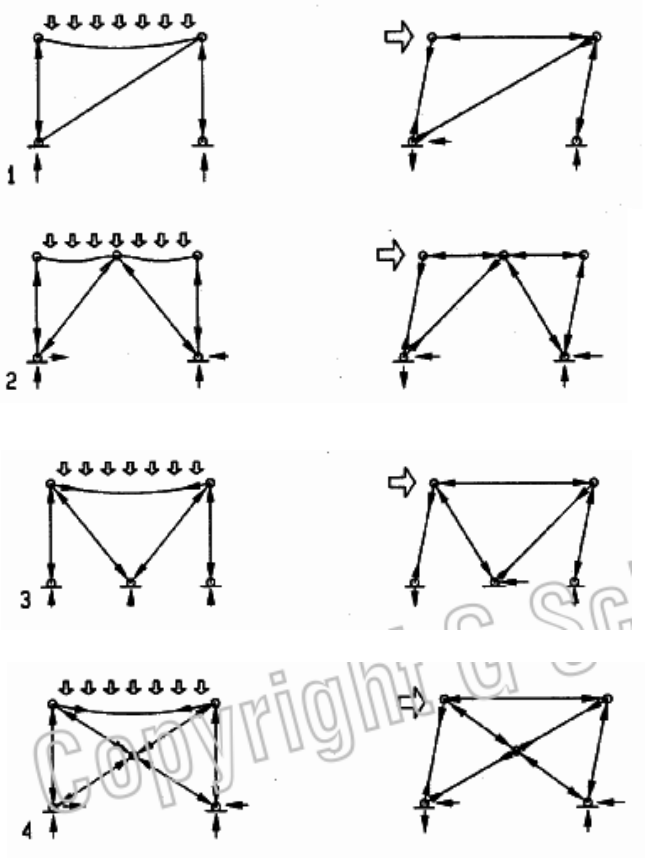

OUTLINE

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SEISMIC RESISTANT BUILDING
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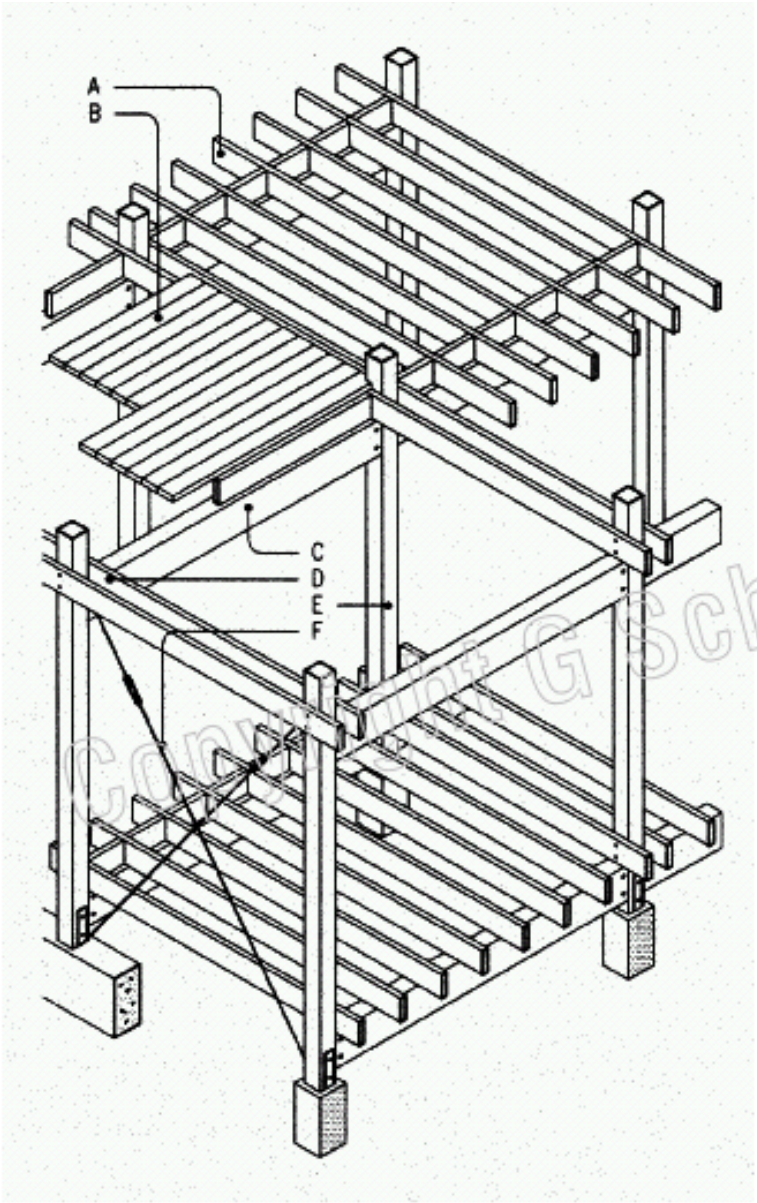
Braced Frames

Resist gravity load in bending and axial compression, and lateral load in axial compression and tension by triangulation, much like trusses



Timber Frame

A. **Joists provide intermediary support floor or roof deck**

B. **Planks directly supported on beams**

C. **Single beams require some device to connect them to column**

D. **Twin beams bolted to column, allow pipes, etc to pass between**

E. **Post**

F. **Cross bracing resist lateral wind and seismic load**

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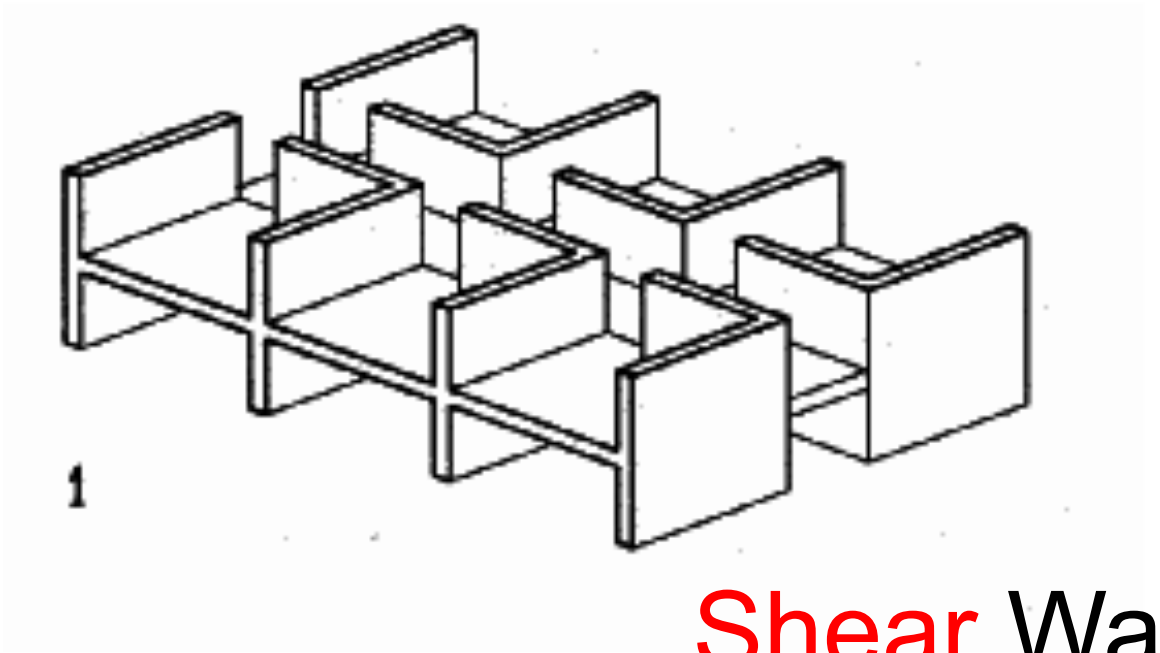
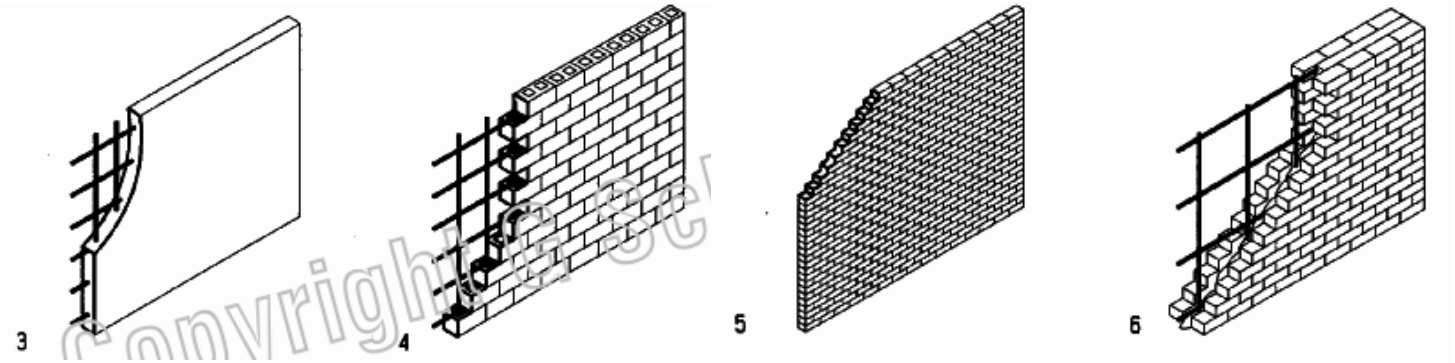


Shear Walls

As`the name imlies, it resists lateral load in shear



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Moment Frame	Most flexible Ductile, absorbs seismic force	Expensive, drift may cause problems Tall structures need additional stiffening
Braced Frame	More flexible than shear walls Very stiff, good for wind resistance	Less flexible than moment frame Stiffness increases seismic forces
Shear Walls	Good for apartment or hotel Very stiff, good for wind resistance	Inflexible for future changes Stiffness increases seismic forces

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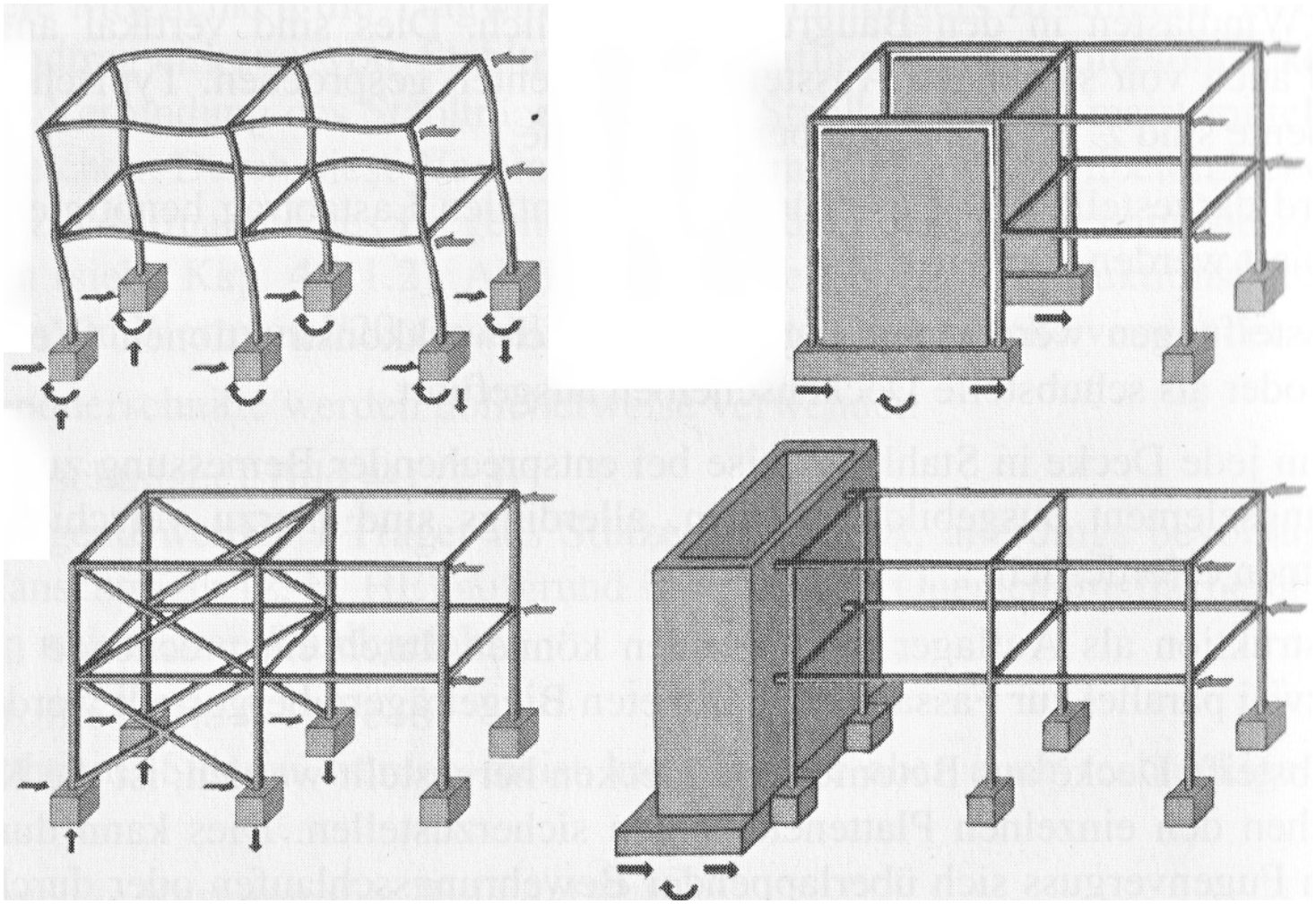

Frame Structure + Shear Walls

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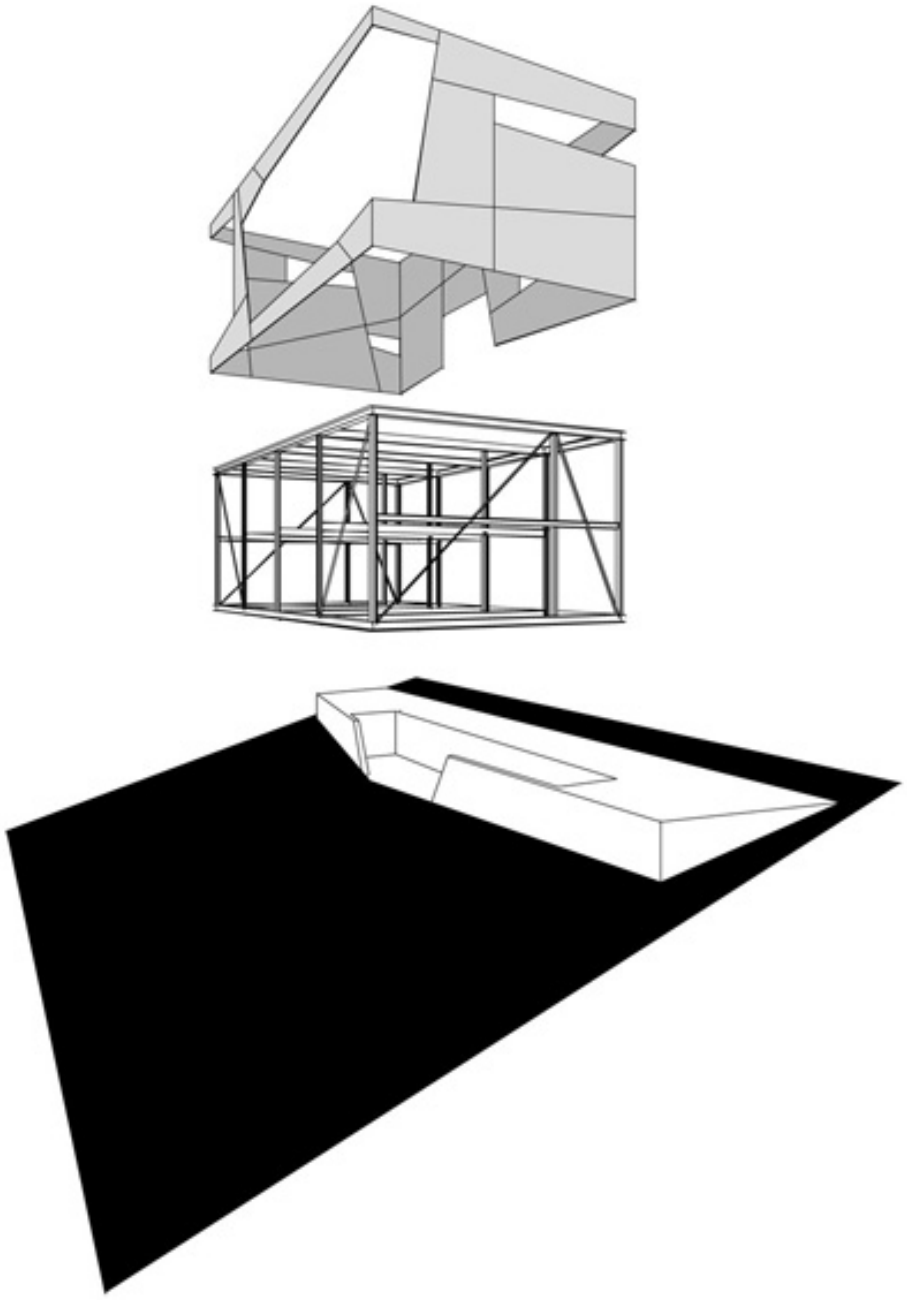

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DRA family house,

a steel construction suspended by *querkraft* architect

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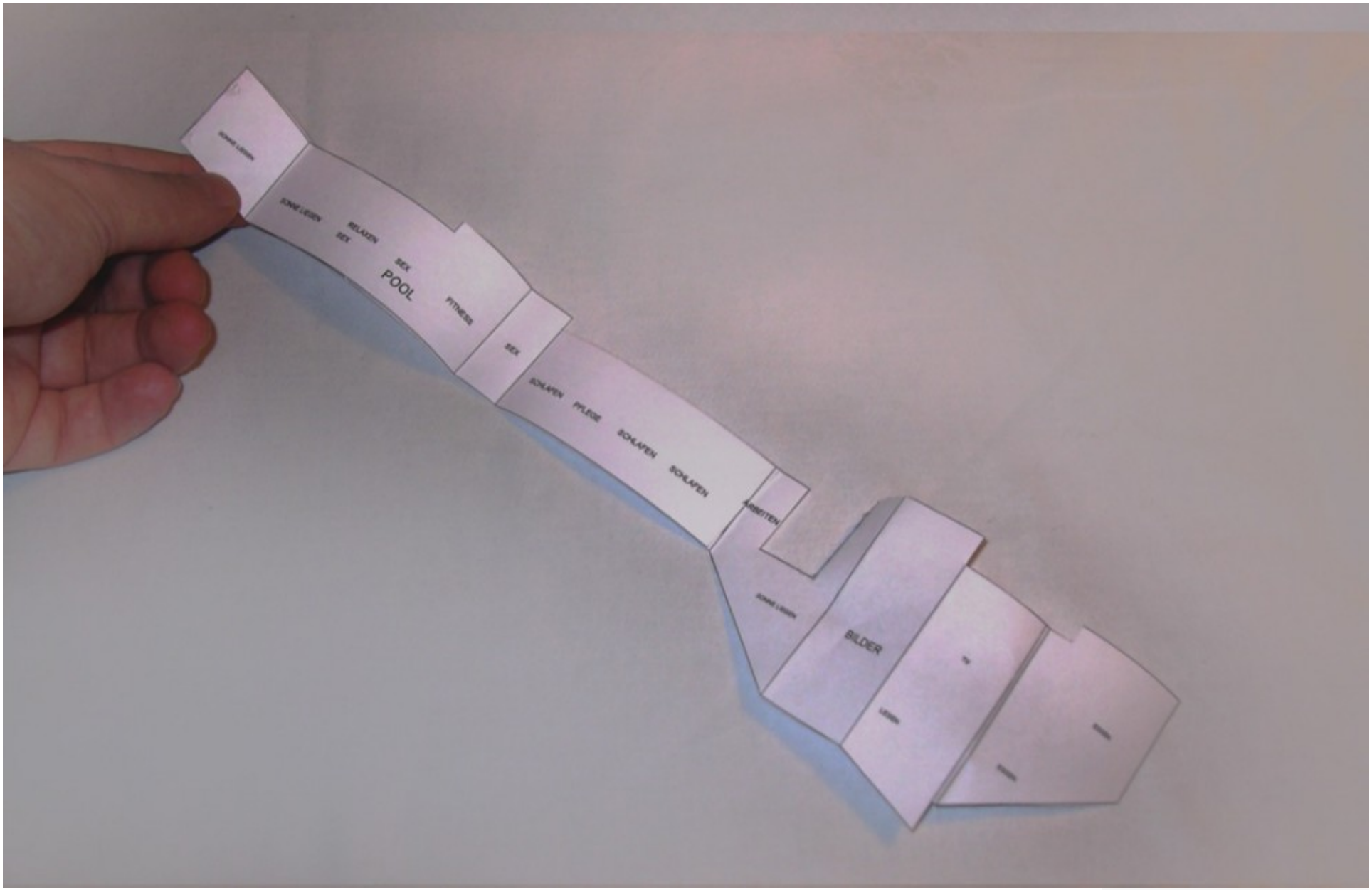
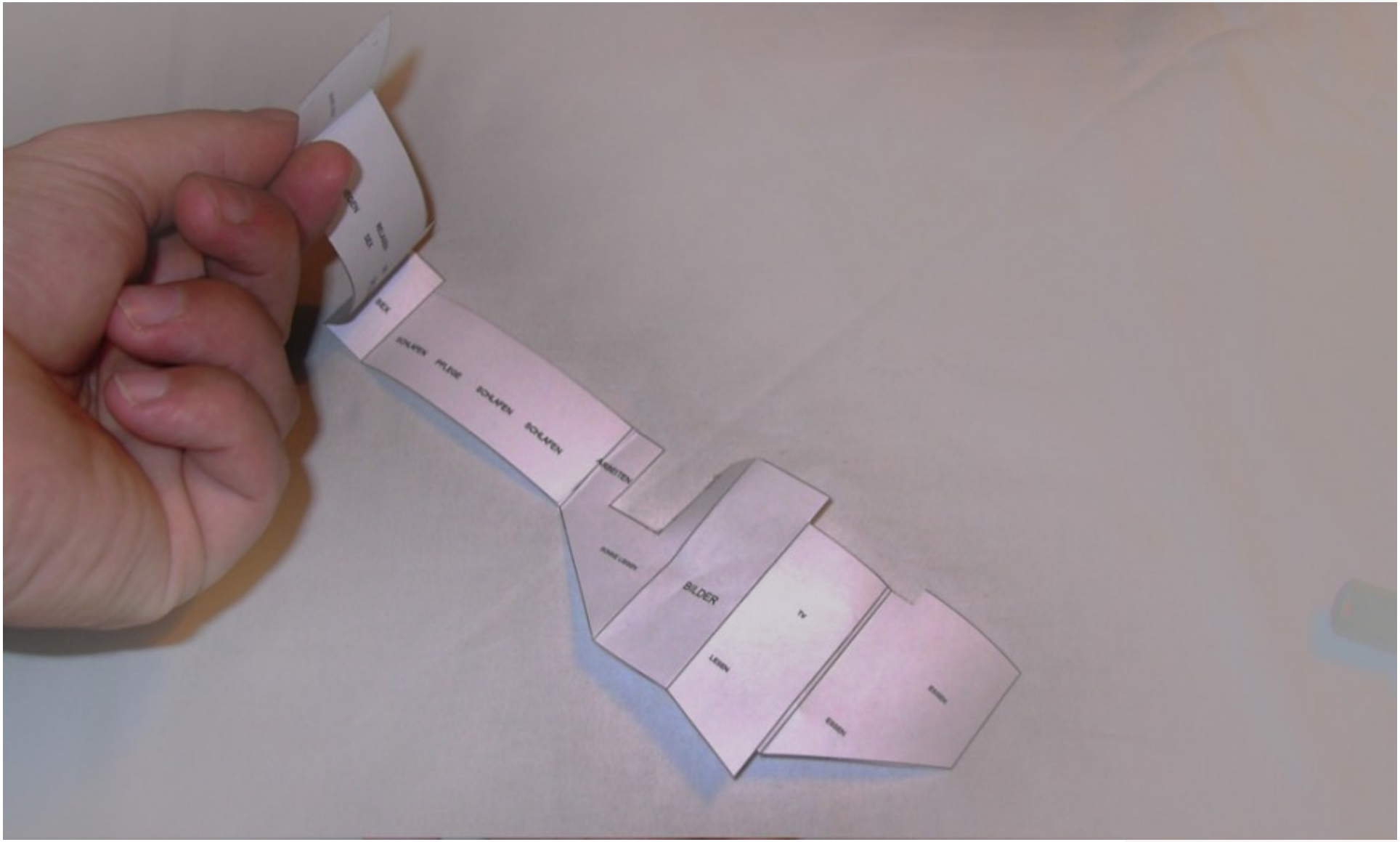
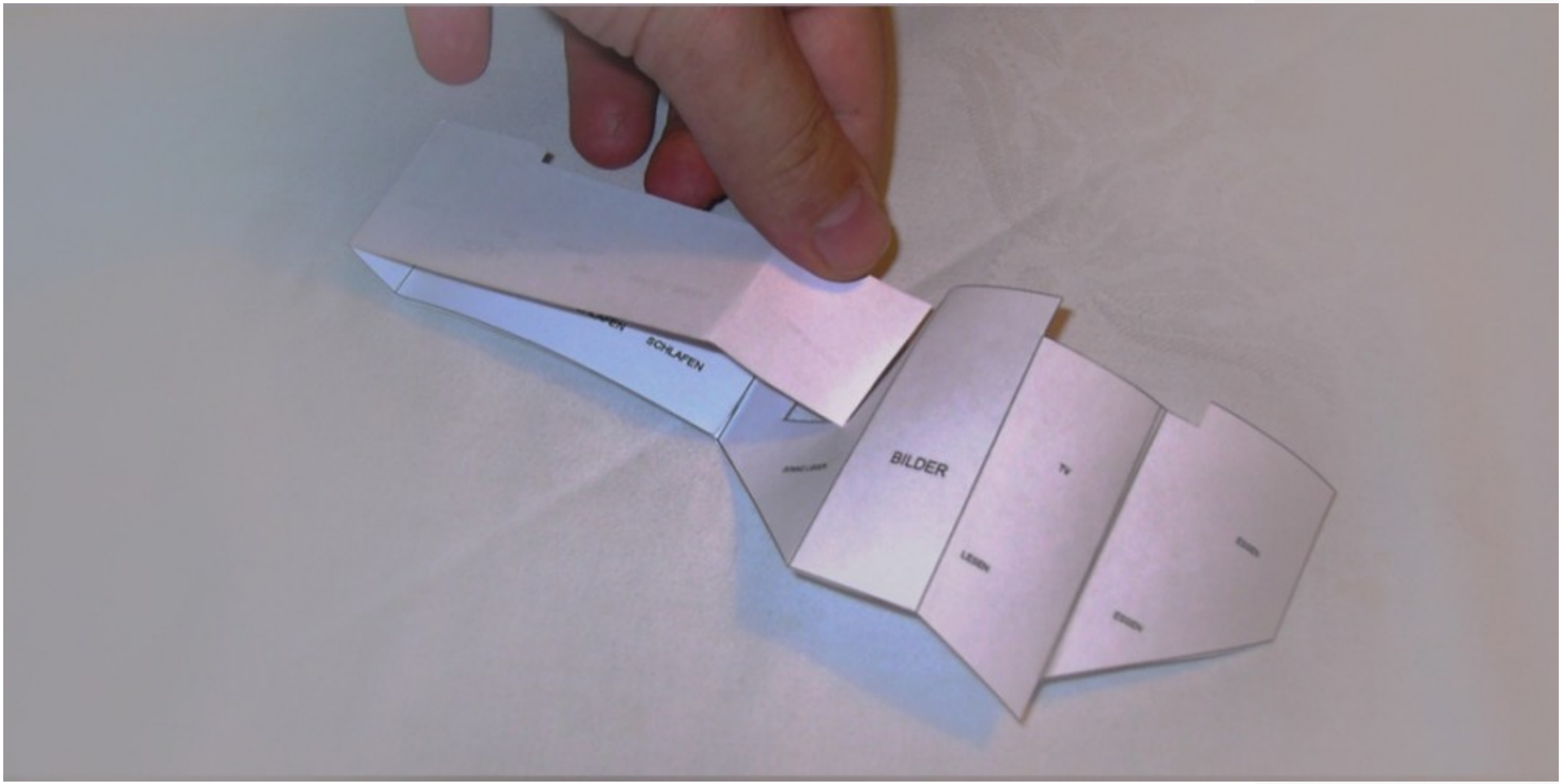



BILDER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