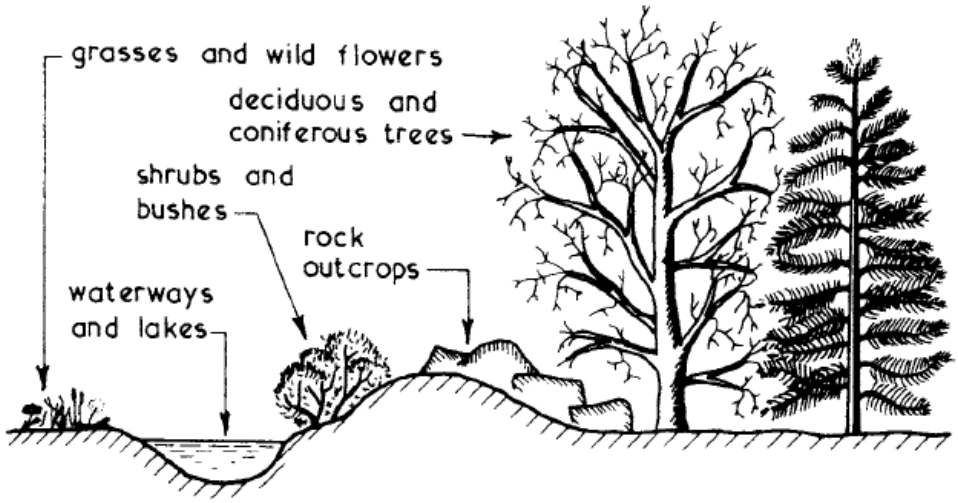
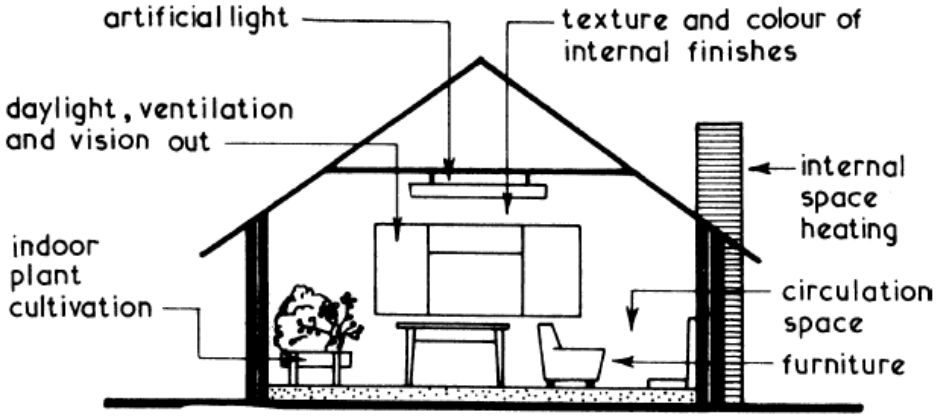
FAQ's

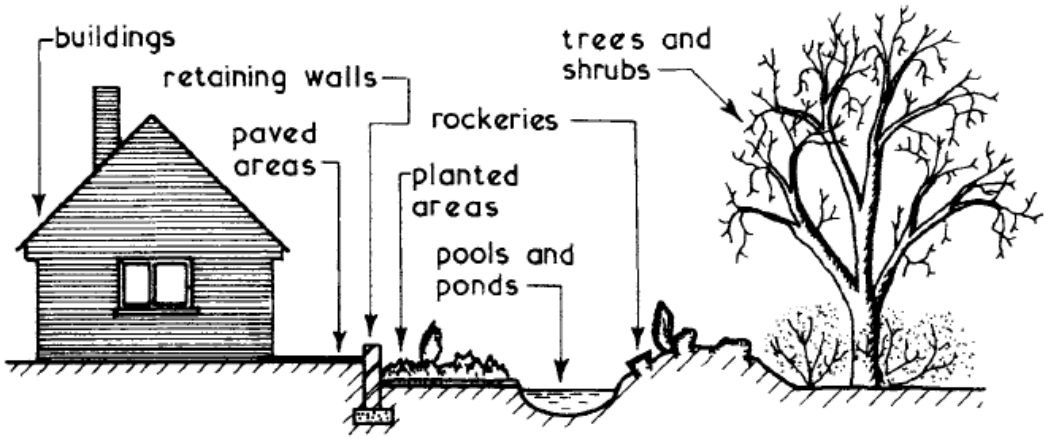
1. What do you understand by Environment? Explain in detail about types of Environment and its components with illustrations.



ELEMENTS of the NATURAL ENVIRONMENT



ELEMENTS of the BUILT ENVIRONMENT (INTERNAL)



ELEMENTS of the BUILT ENVIRONMENT (EXTERNAL)

Environment:

Surroundings which can be natural, manmade or combination of these.

Built Environment:

Created by man with or without the aid of natural environment.

Natural Environment:

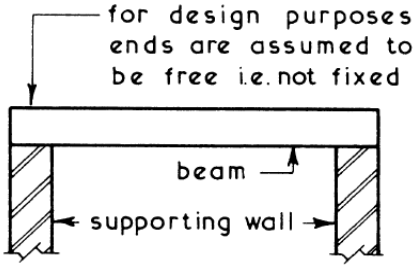
The natural environment encompasses all living and non-living things occurring naturally. The term is most often applied to the Earth or some part of Earth. This environment encompasses the interaction of all living species, climate, weather, and natural resources that affect human survival and economic activity.

2. Explain different type of structures with illustrations.

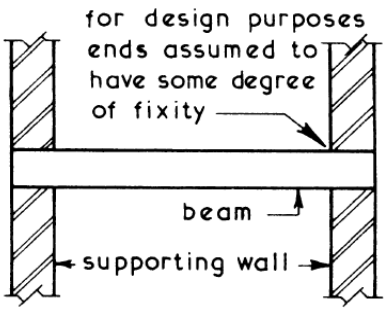
Structure: A structure is an arrangement and organization of interrelated elements in a material object or system or a built environment.

Structural System: The term structural system or structural frame refers to load-resisting sub-system of a structure. The structural system loads through interconnected structural components or members.

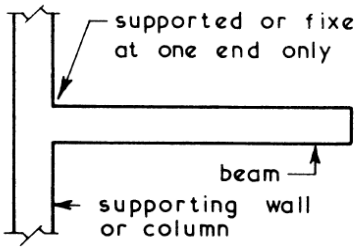
Basic Types of Structure:



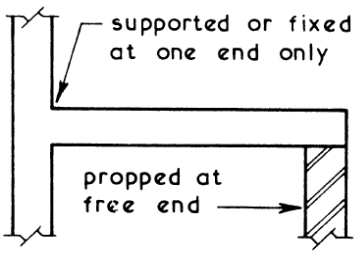
SIMPLY SUPPORTED BEAM



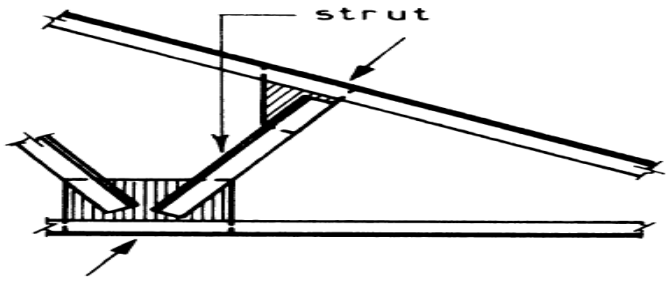
BUILT-IN BEAM



CANTILEVER BEAM

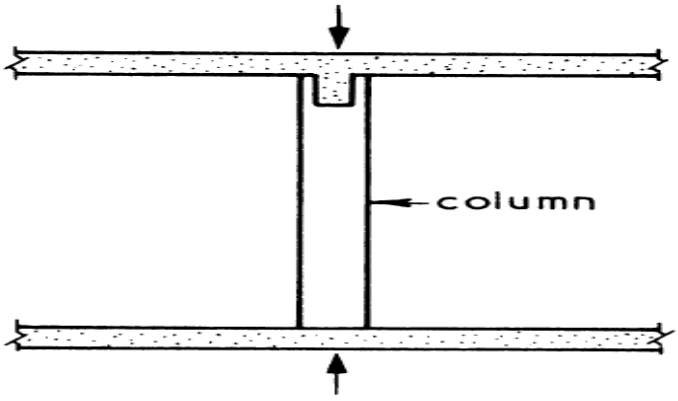


PROPPED CANTILEVER



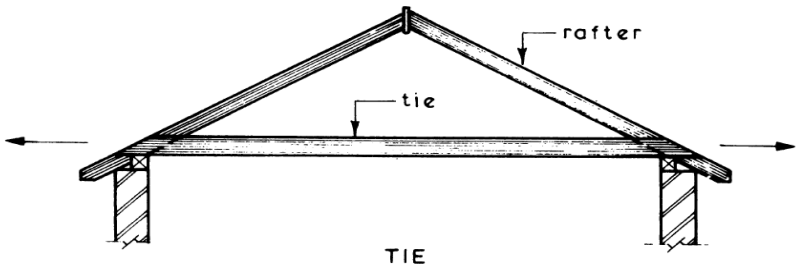
STRUT

structural member which is subjected mainly to compression forces



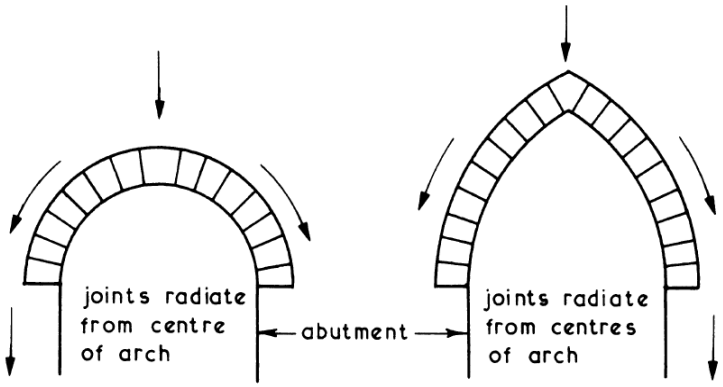
VERTICAL STRUT

usually called a column stanchion or pier



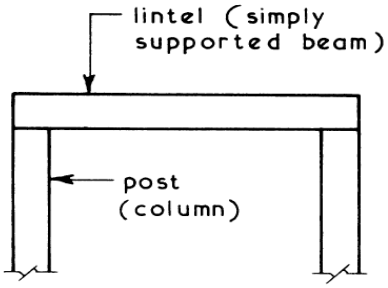
TIE

a structural member which is subjected mainly to tension forces

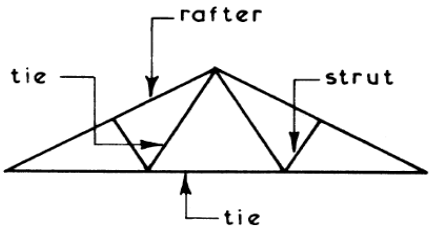


ARCHES

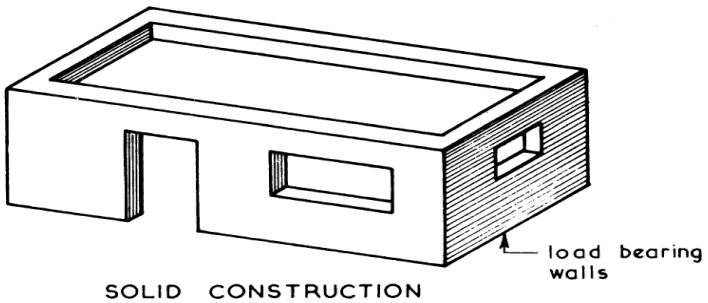
loads are transmitted around arch to the abutments



POST AND LINTEL

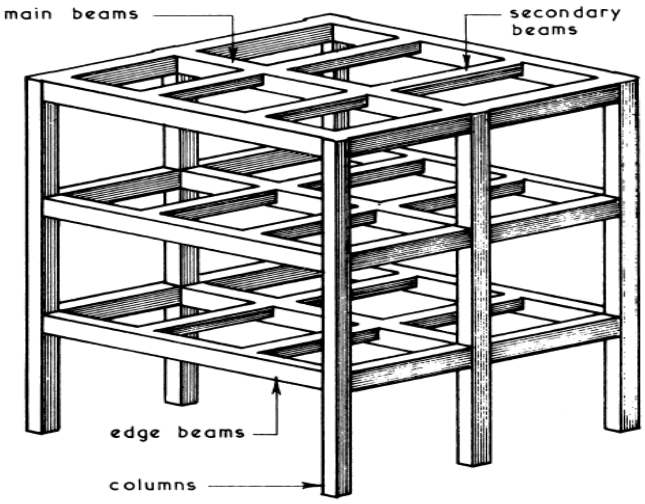


PLANE FRAME

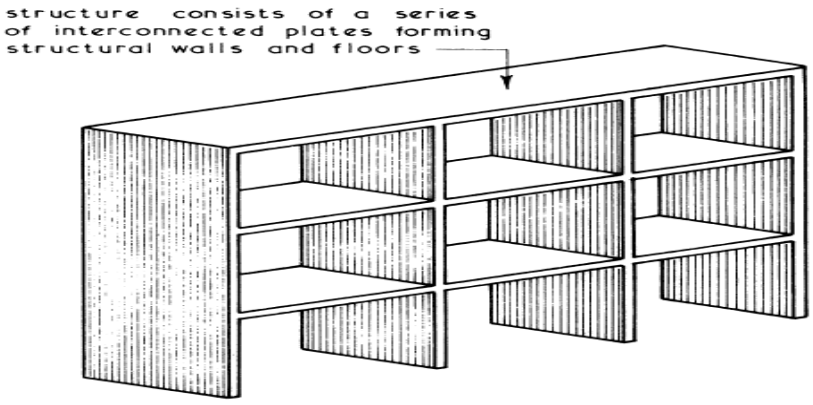


SOLID CONSTRUCTION

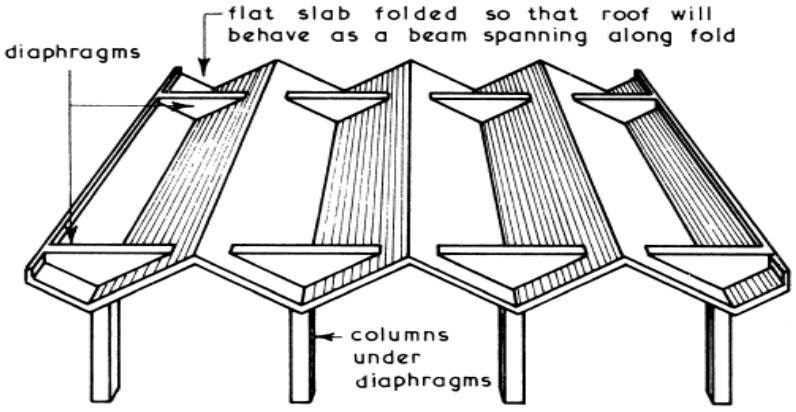
structurally limited confined usually to buildings of low height and short spans



FRAMED OR SKELETAL CONSTRUCTION



PANEL OR BOX CONSTRUCTION

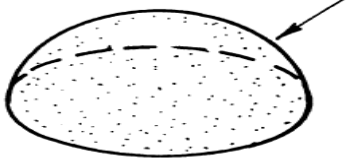


FOLDED PLATE CONSTRUCTION

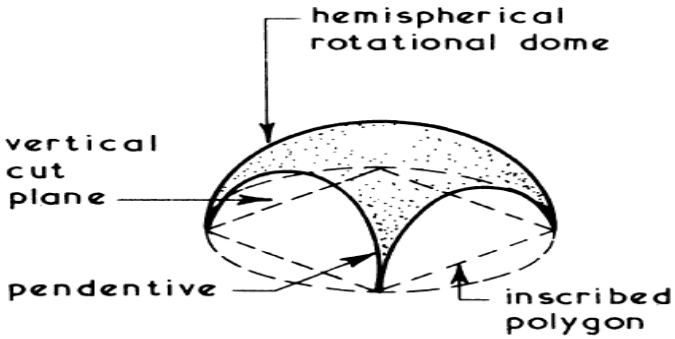
Shell Roofs ~ these are formed by a structural curved skin covering a given plan shape and area.

Examples ~

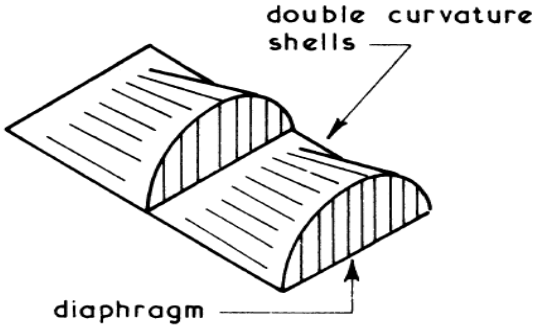
double curvature shell formed by rotating a plain curved shape about a vertical axis



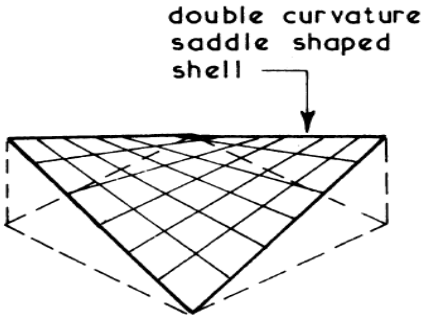
DOME OR ROTATIONAL SHELL



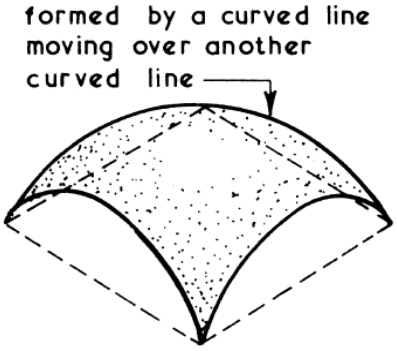
PENDENTIVE DOME



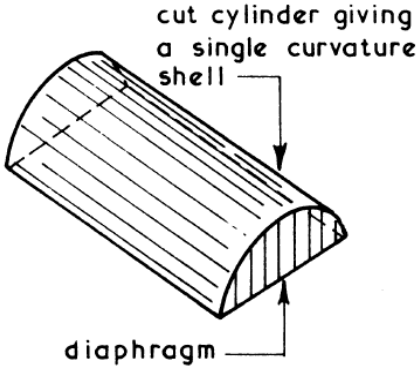
CONOID SHELLS



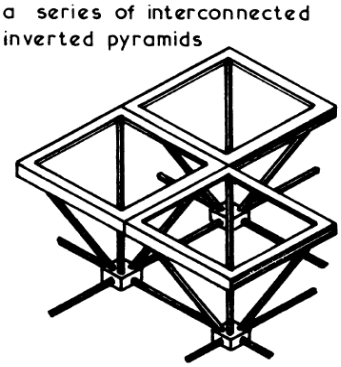
HYPERBOLIC PARABOLOID



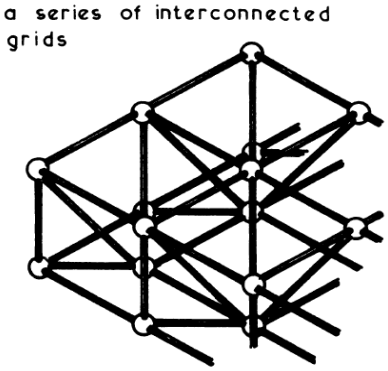
TRANSLATIONAL DOME



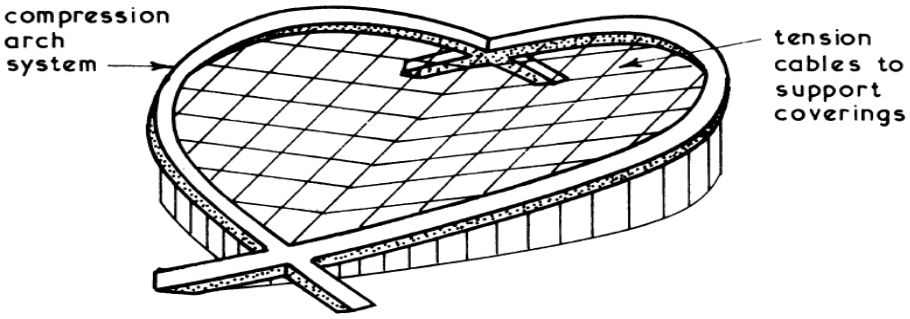
BARREL VAULT



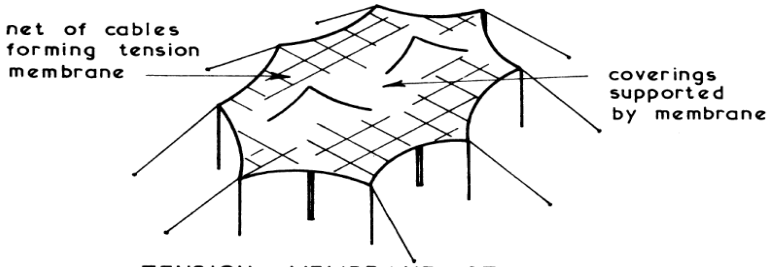
SPACE DECK



SPACE FRAME



TENSION CABLE STRUCTURE

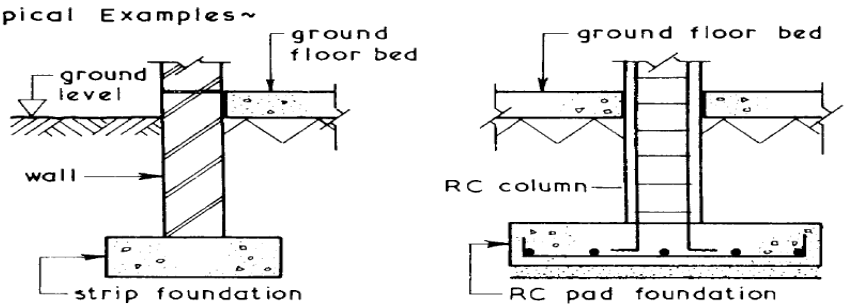


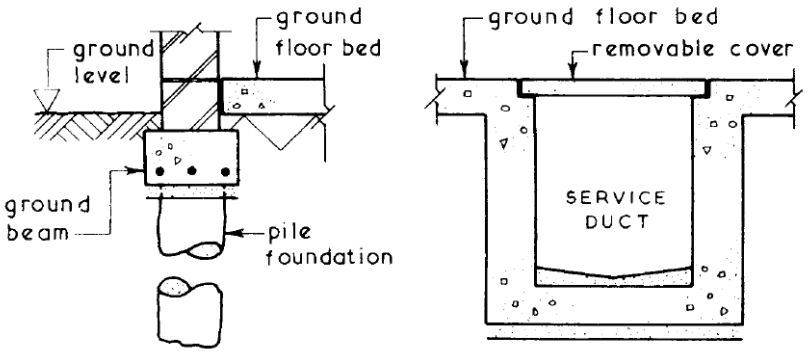
TENSION MEMBRANE STRUCTURE

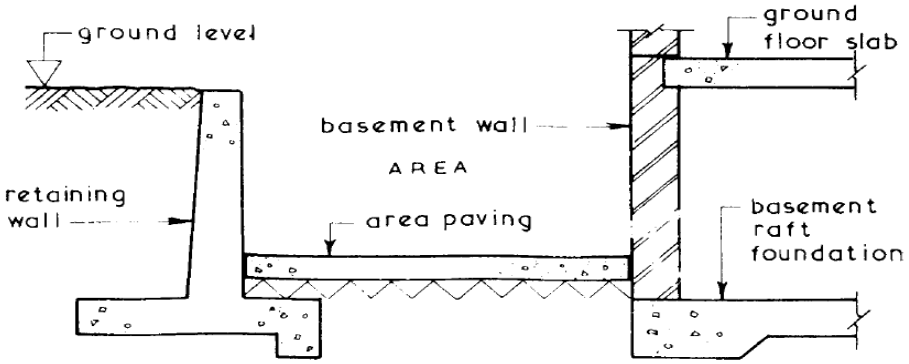
Substructure:

Substructure ~ can be defined as all structure below the superstructure which in general terms is considered to include all structure below ground level but including the ground floor bed.

Typical Examples~



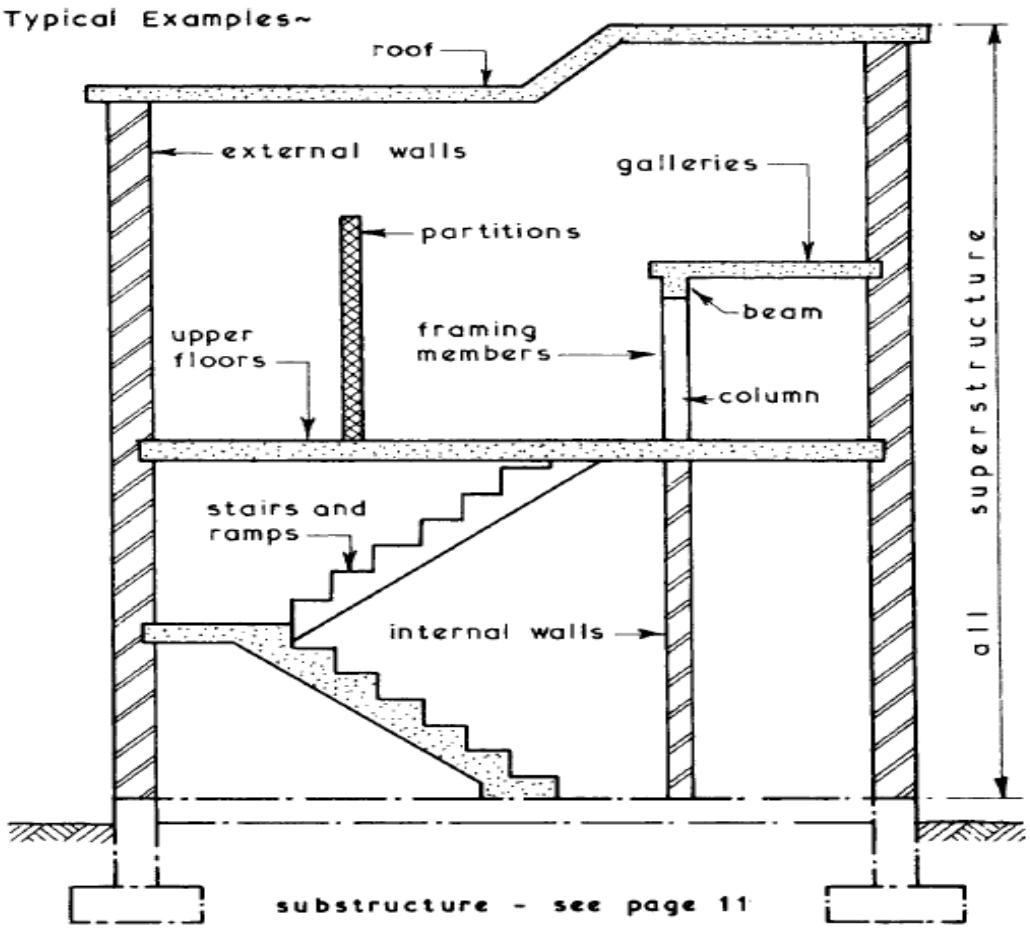




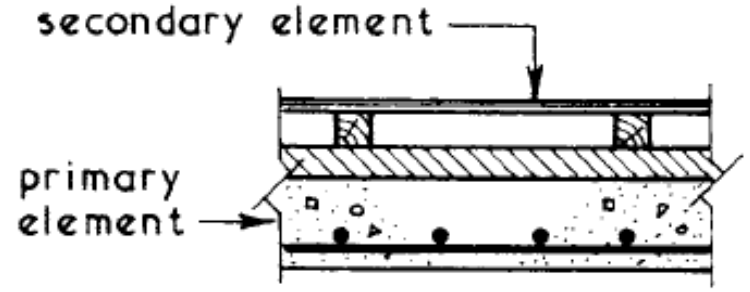
Primary Elements ~ basically components of the building carcass above the substructure excluding secondary elements, finishes, services and fittings.

Superstructure ~ can be defined as all structure above substructure both internally and externally.

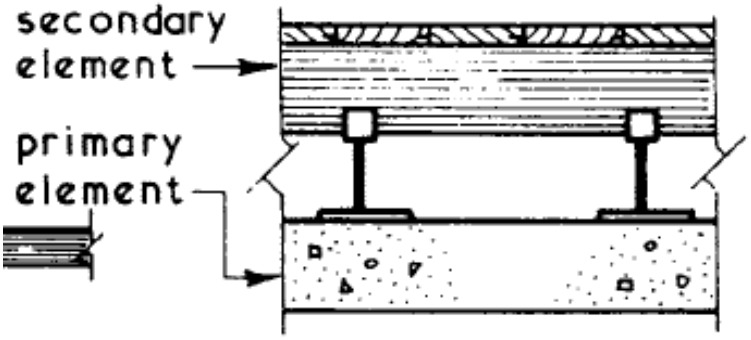
Primary elements of Super Structure



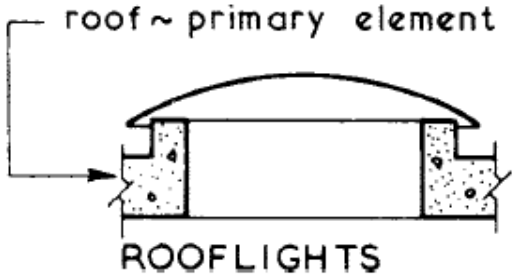
Secondary Elements ~ completion of the structure including completion around and within openings in primary elements.



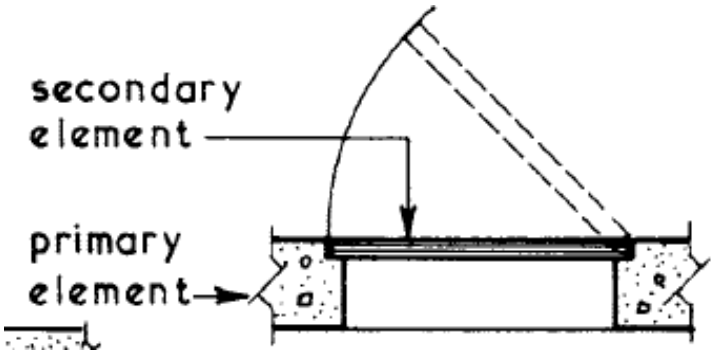
FLOATING FLOORS

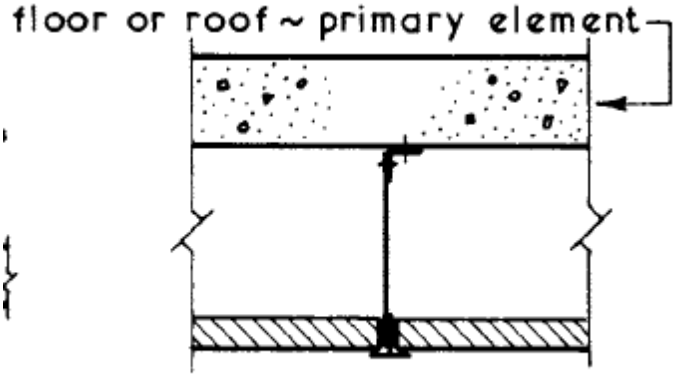


CAVITY FLOORS

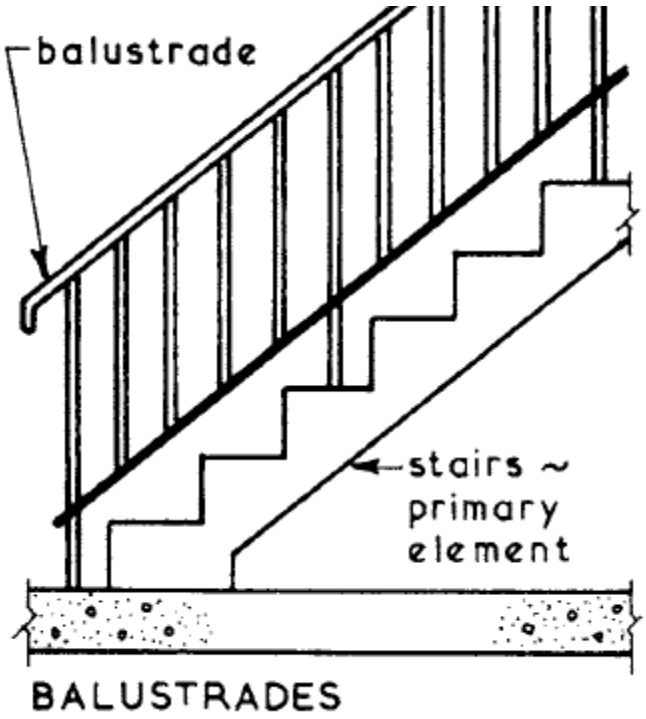


ROOFLIGHTS

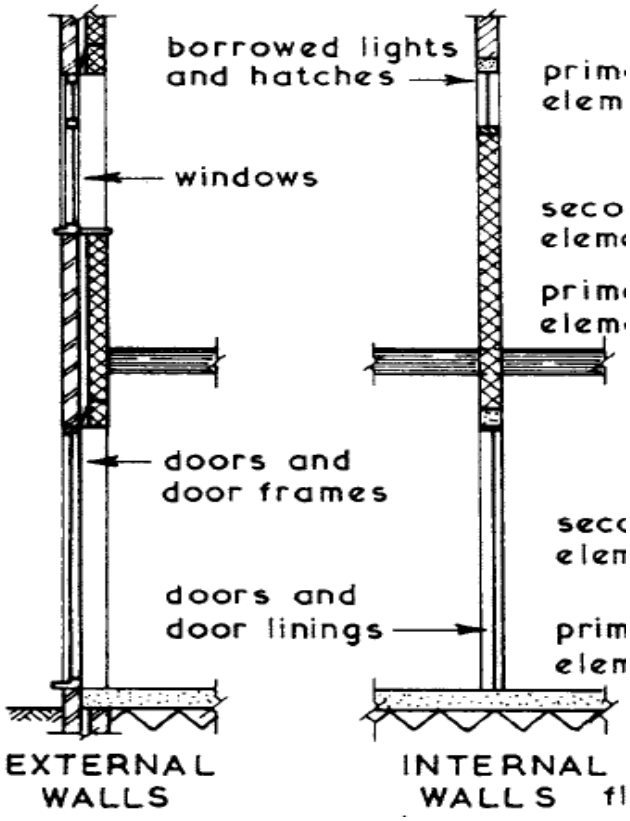




SUSPENDED CEILINGS

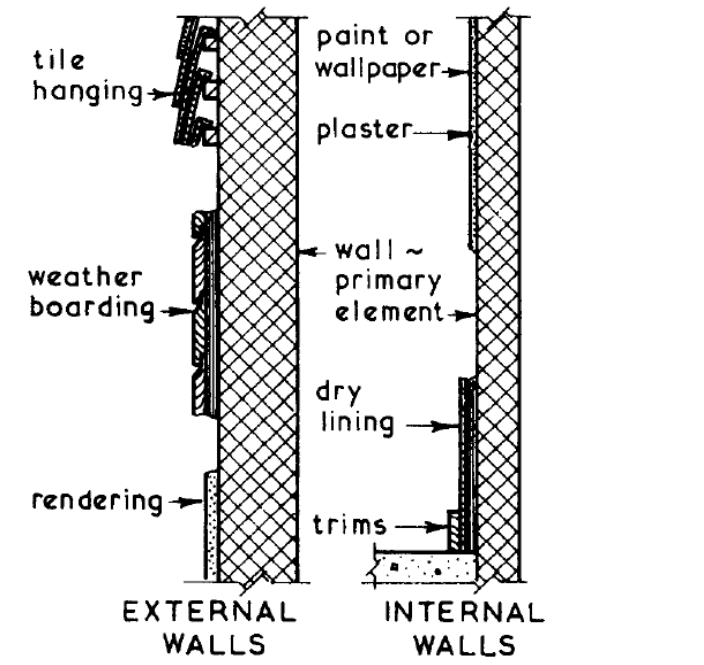


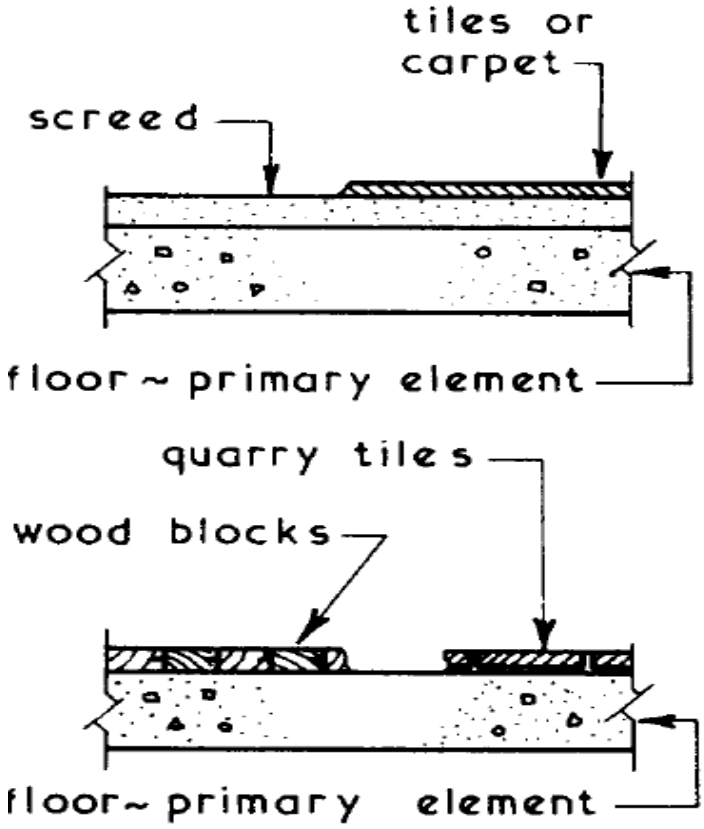
BALUSTRADES



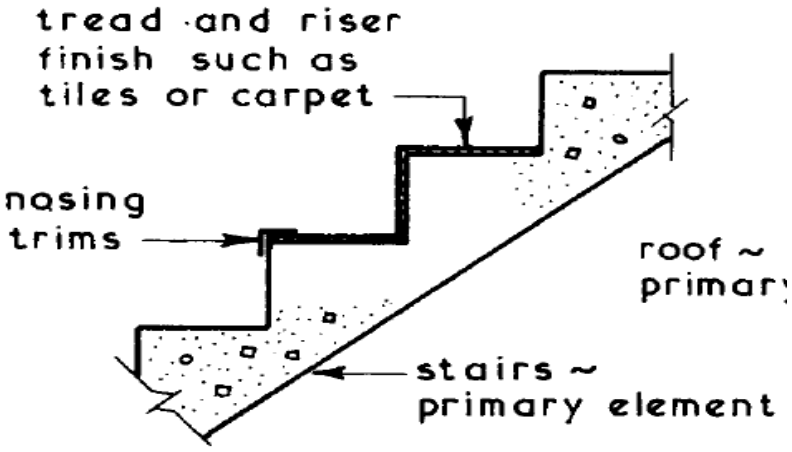
Finish:

Finish ~ the final surface which can be self finished as with a trowelled concrete surface or an applied finish such as floor tiles.

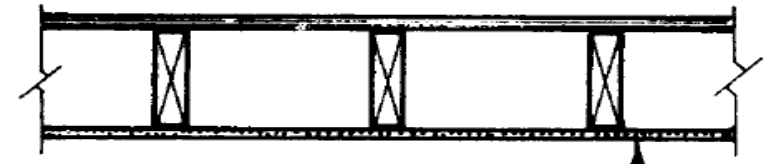

tile hanging
weather boarding
rendering
paint or wallpaper
plaster
wall ~ primary element
dry lining
trims
EXTERNAL WALLS
INTERNAL WALLS


tiles or carpet
screed
floor ~ primary element
quarry tiles
wood blocks
floor ~ primary element

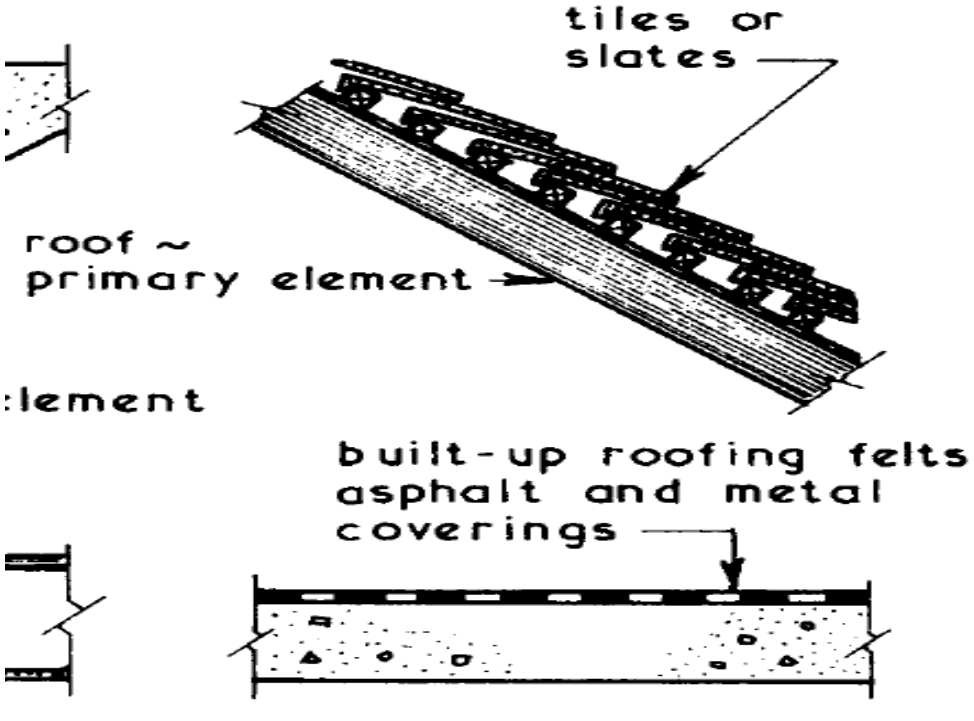
FLOORS



STAIRS



CEILINGS

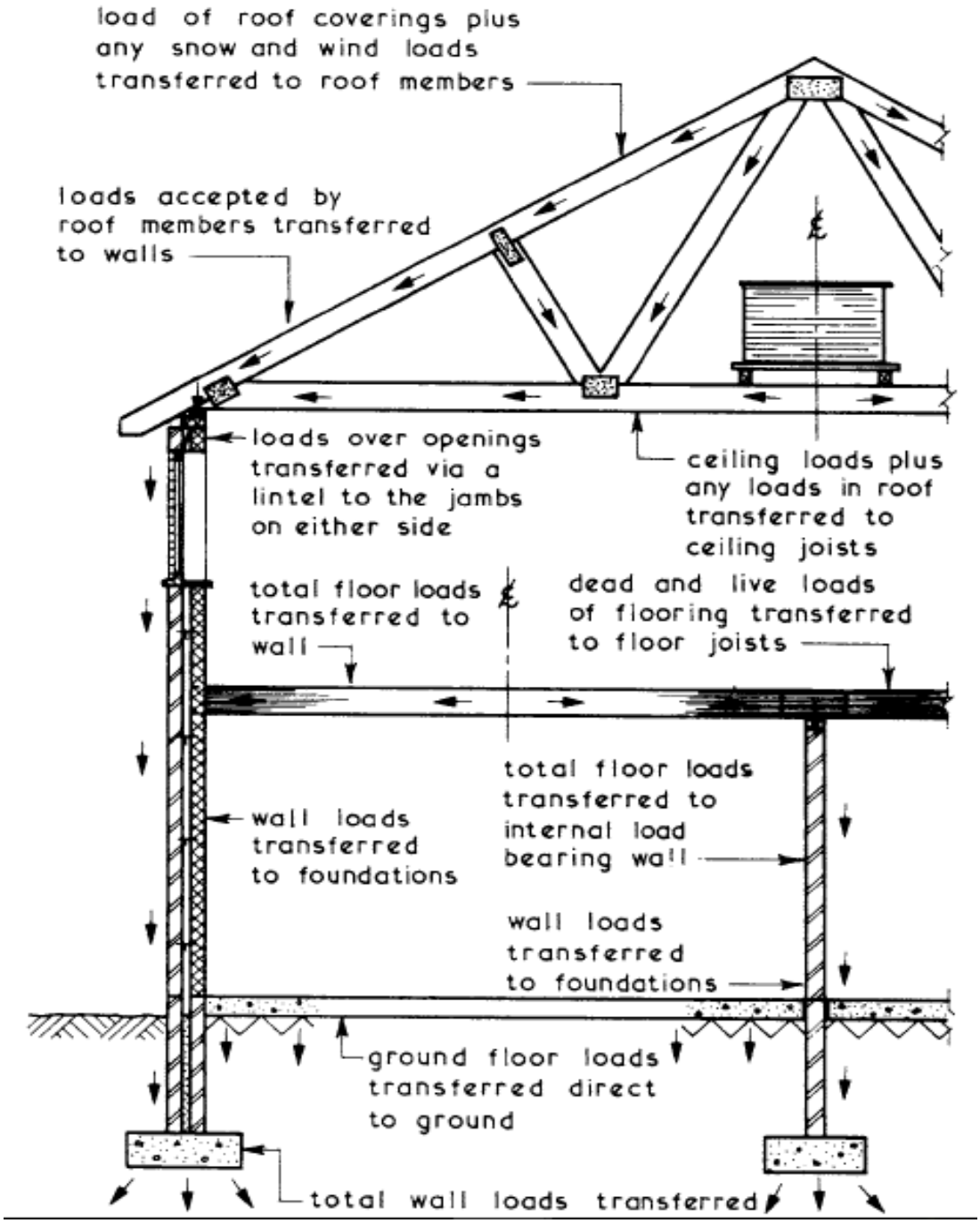


ROOFS

Component Parts & Functions:

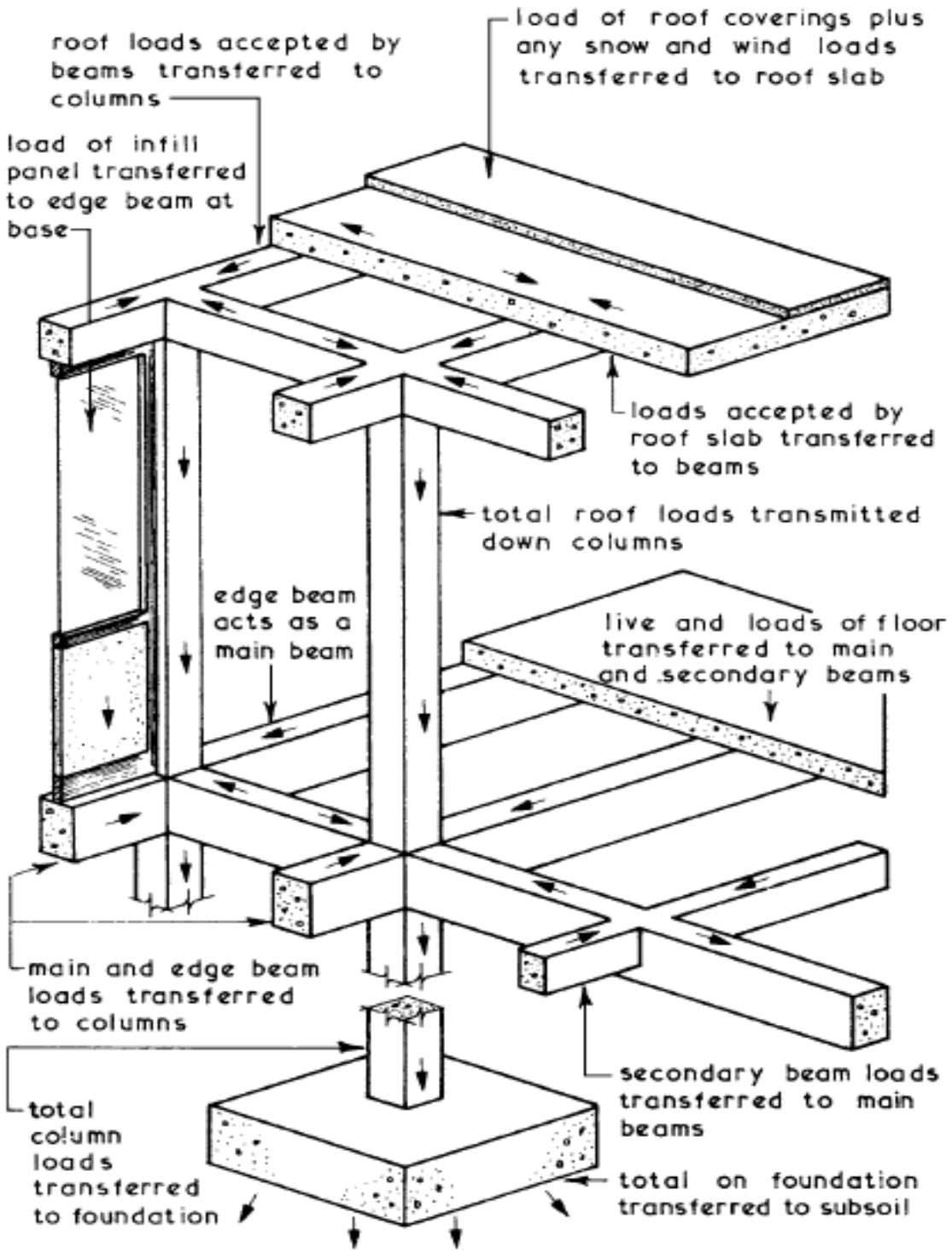
Example:

Typical Domestic Structure

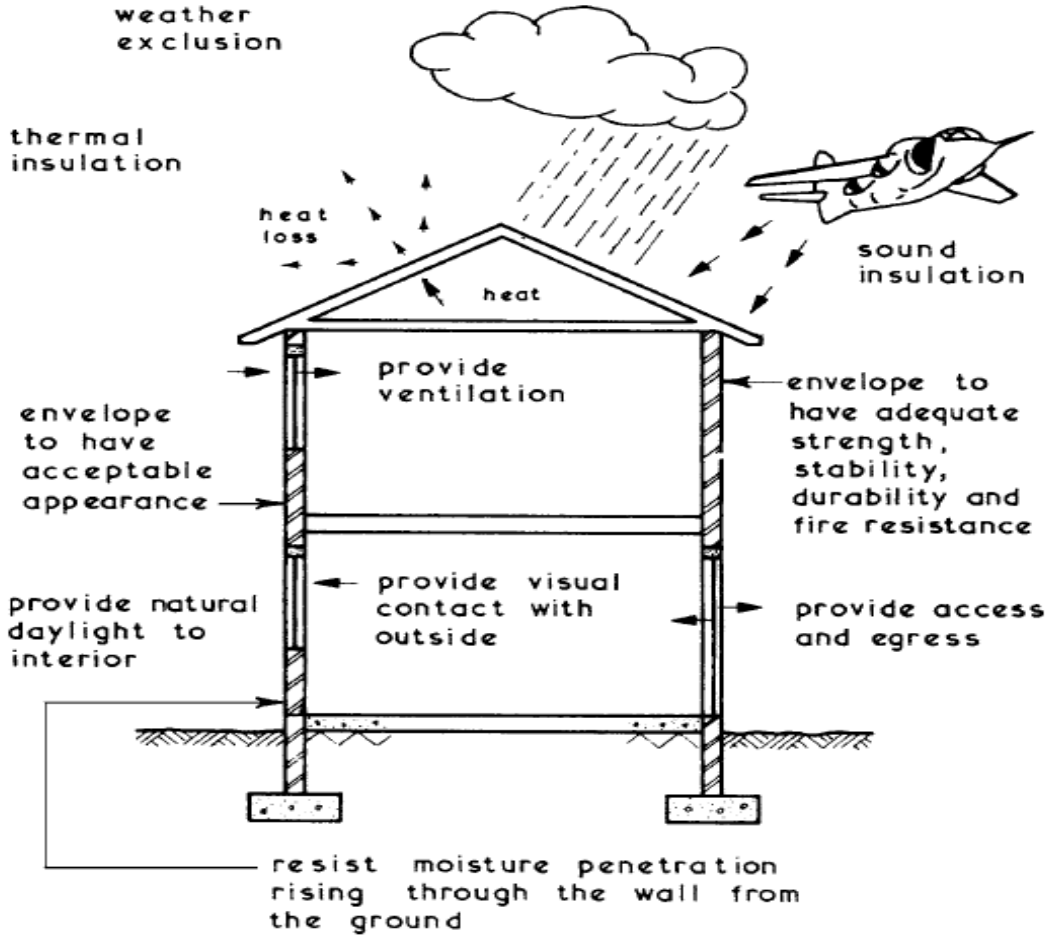


Example:

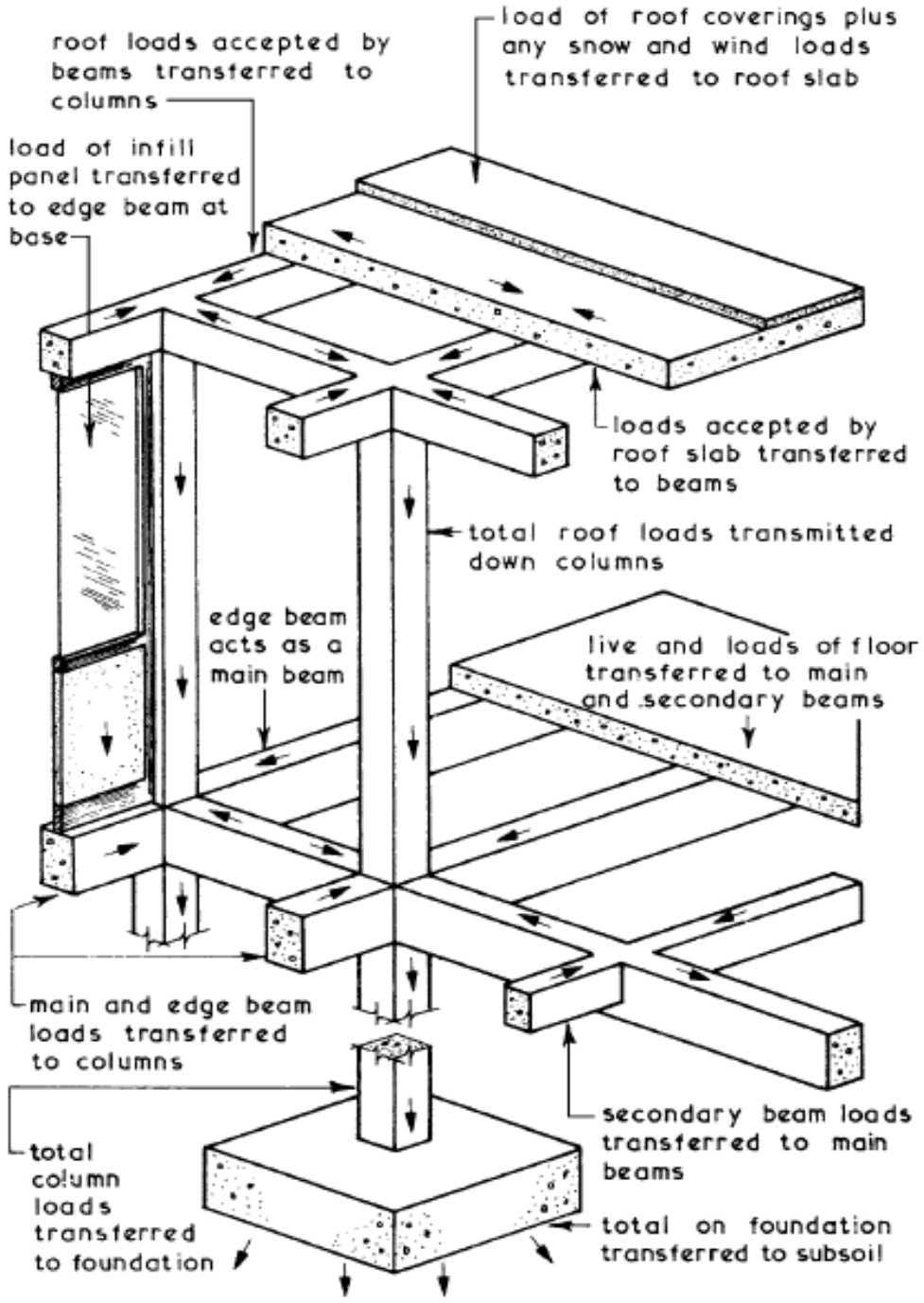
Typical Framed Structure

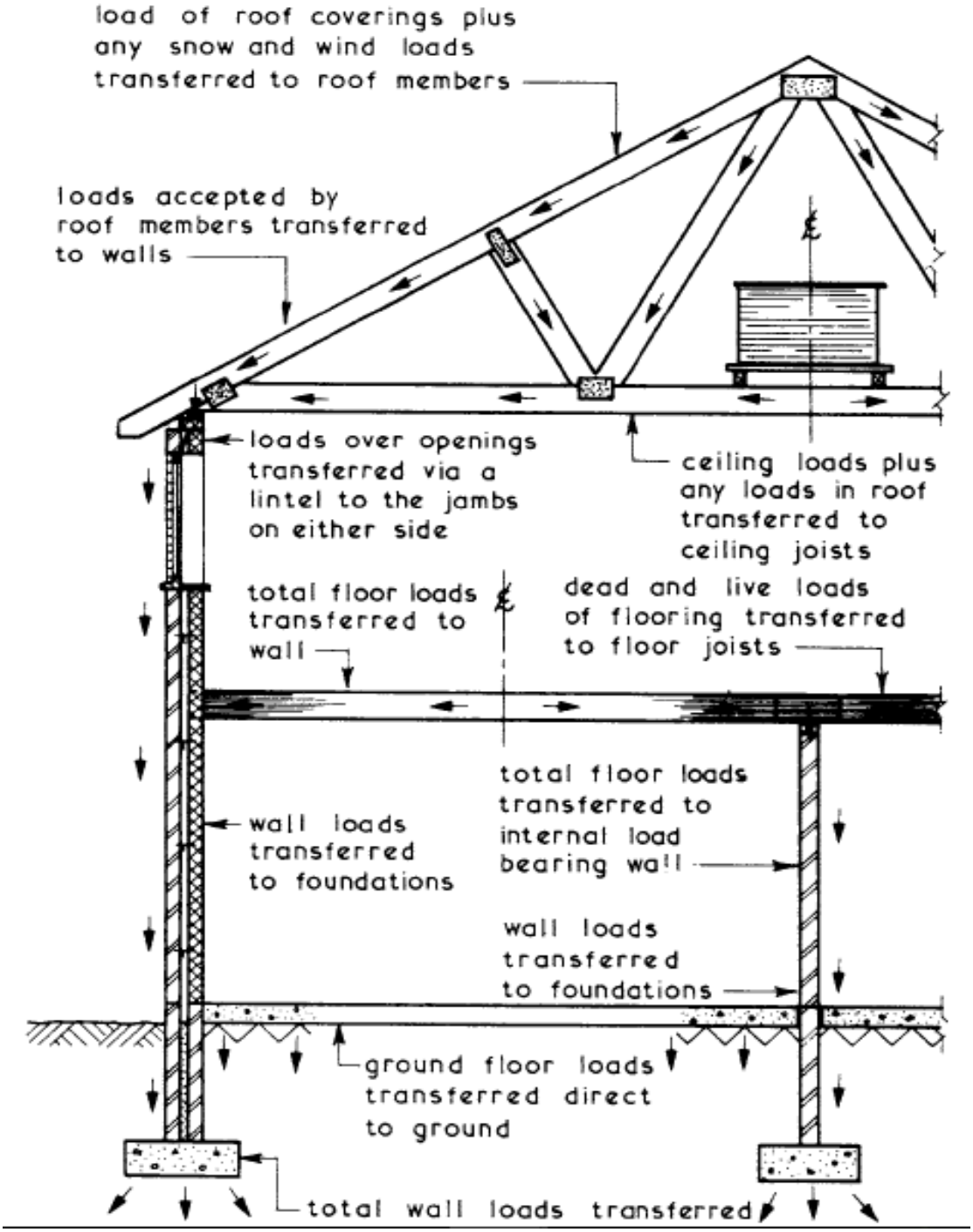


External Envelope ~ consists of the materials and components which form the external shell or enclosure of a building. These may be load bearing or non-load bearing according to the structural form of the building.



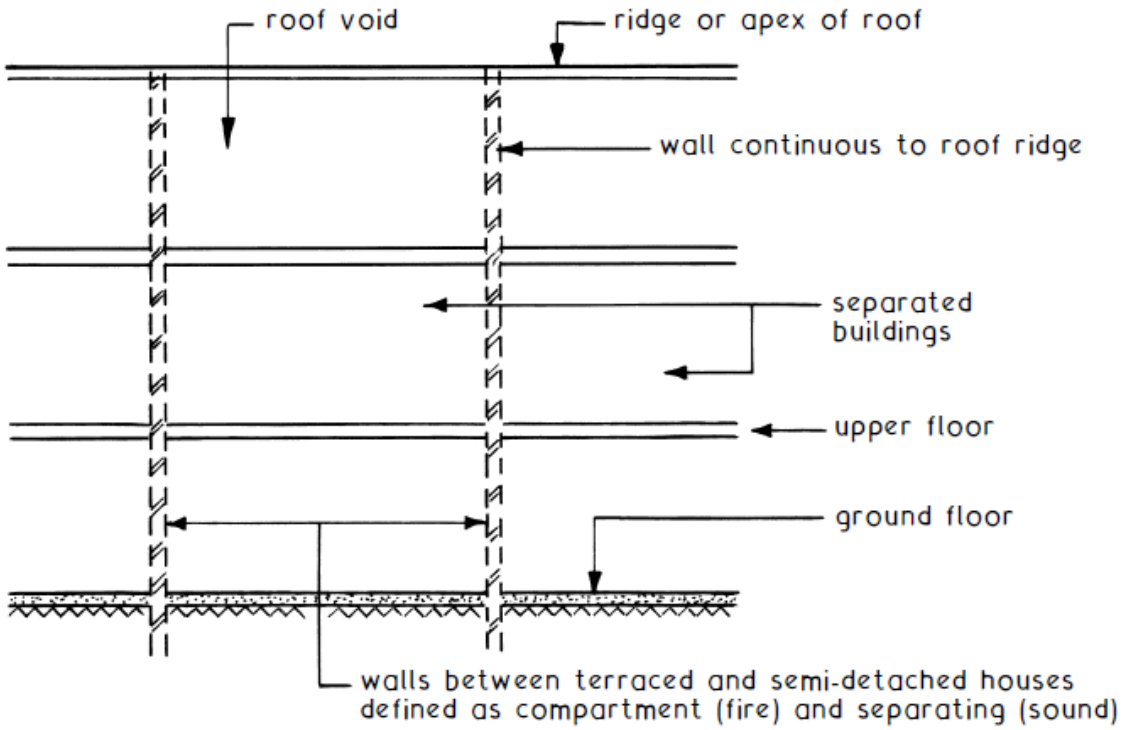
3. Explain load distribution in structures with examples of a Framed Structure and a Conventional Dwelling unit.



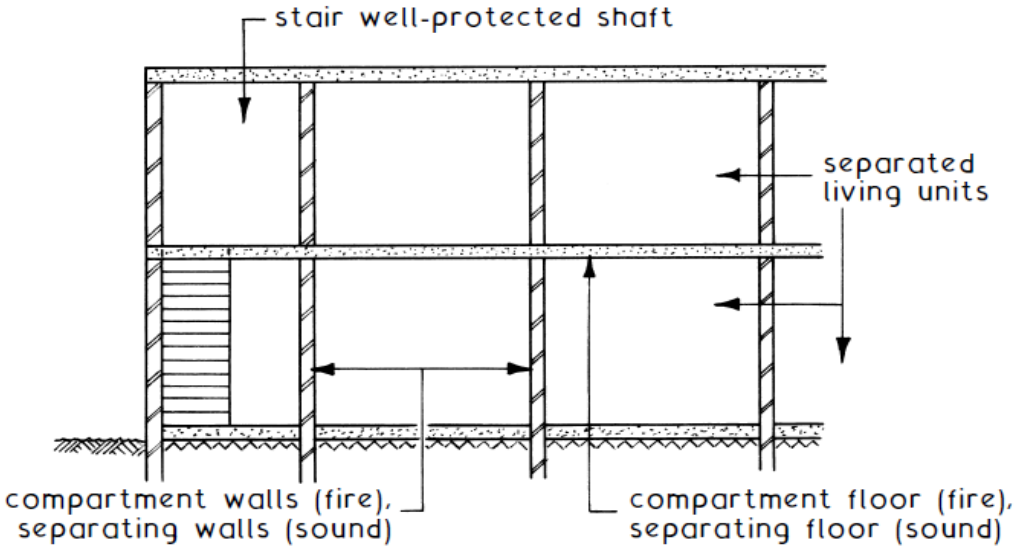

load of roof coverings plus any snow and wind loads transferred to roof members
loads accepted by roof members transferred to walls
loads over openings transferred via a lintel to the jambs on either side
ceiling loads plus any loads in roof transferred to ceiling joists
total floor loads transferred to wall
dead and live loads of flooring transferred to floor joists
total floor loads transferred to internal load bearing wall
wall loads transferred to foundations
wall loads transferred to foundations
ground floor loads transferred direct to ground
total wall loads transferred

4. Briefly explain the concept of Compartmentation.

Dwelling Houses



Flats



For non-residential buildings, compartment size is limited by floor area depending on the building function (purpose group) and height.

Compartment ~ a building or part of a building with walls and floors constructed to contain fire and to prevent it spreading to another part of the same building or to an adjoining building.

Separating floor/wall ~ element of sound resisting construction between individual living units.