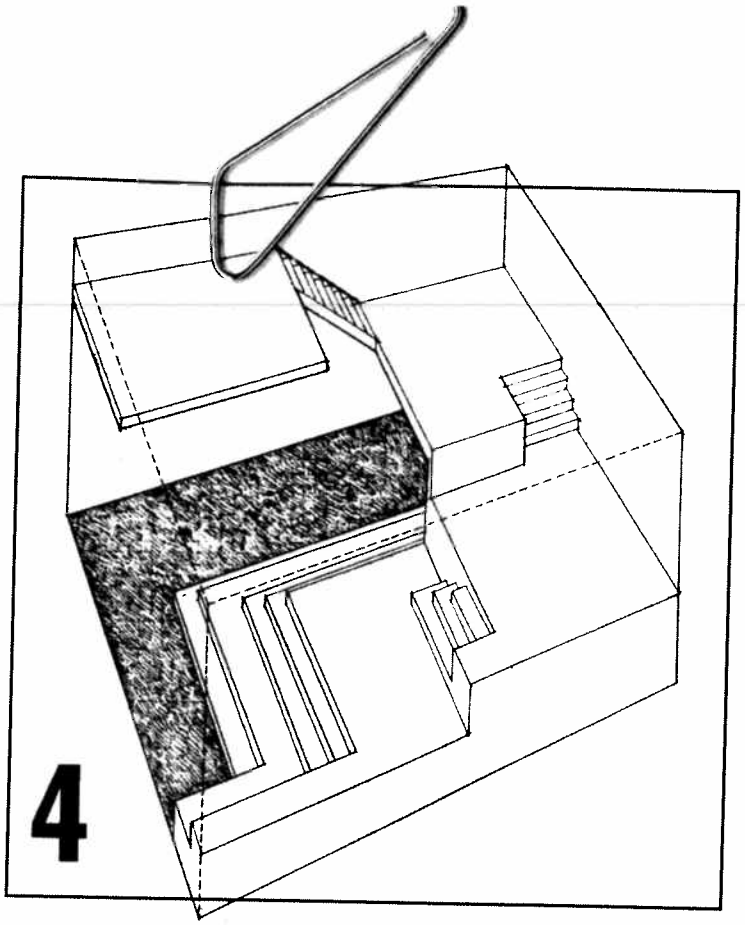
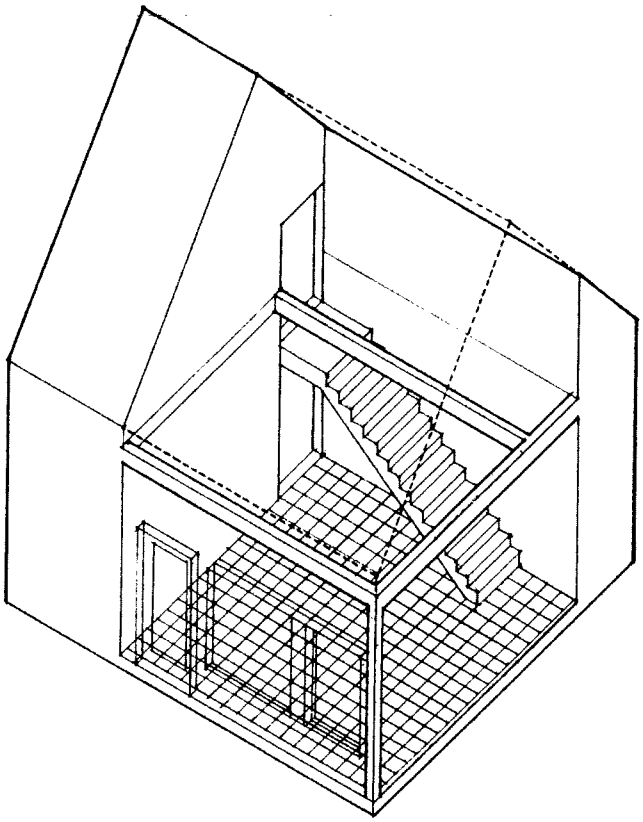


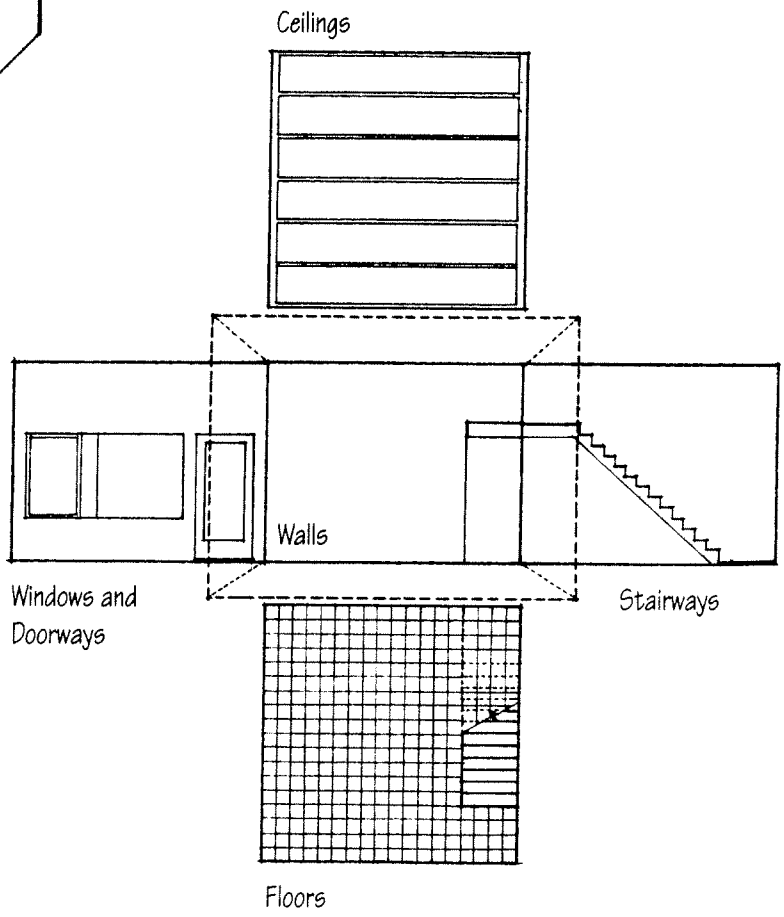
4

Interior Building Elements

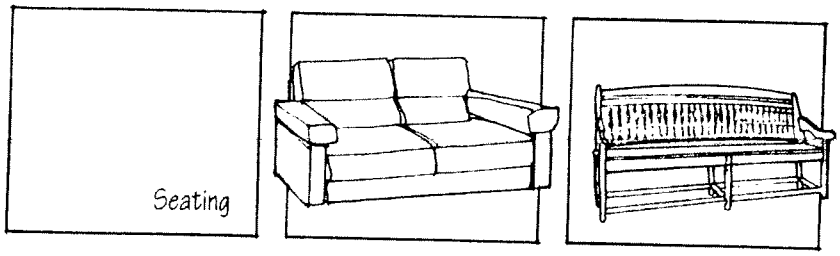
Interior spaces within buildings are defined by the architectural components of structure and enclosure, such as columns, walls, floors, and roofs. These elements give a building its form, demarcate a portion of infinite space and set up a pattern of interior spaces. This chapter outlines the major elements of interior design with which we develop, modify, and enhance these interior spaces and make them habitable, that is, functionally fit, aesthetically pleasing, and psychologically satisfying for our activities.

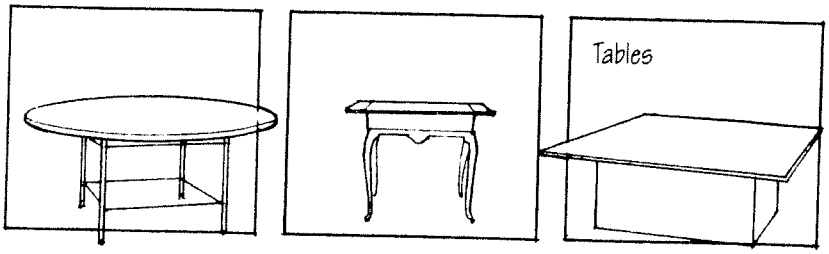


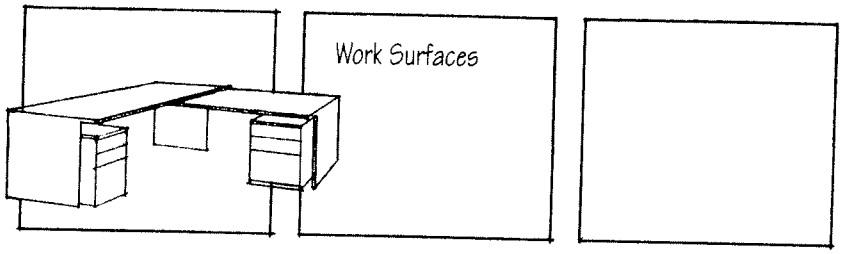
INTERIOR BUILDING ELEMENTS

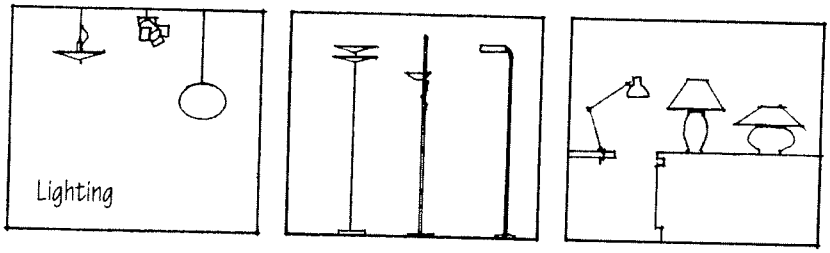


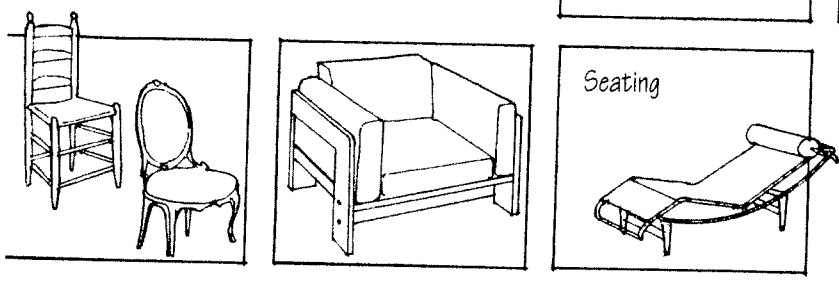
These design elements, and the choices they represent, are the interior designer's palette. The manner in which we select and manipulate these elements into a spatial, visual, and sensory pattern will affect not only the function and use of a space but also its expressive qualities of form and style.

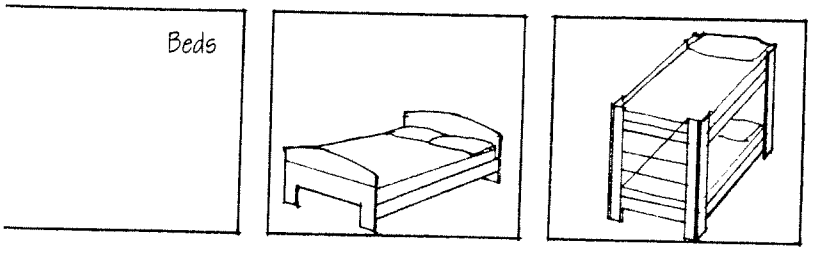


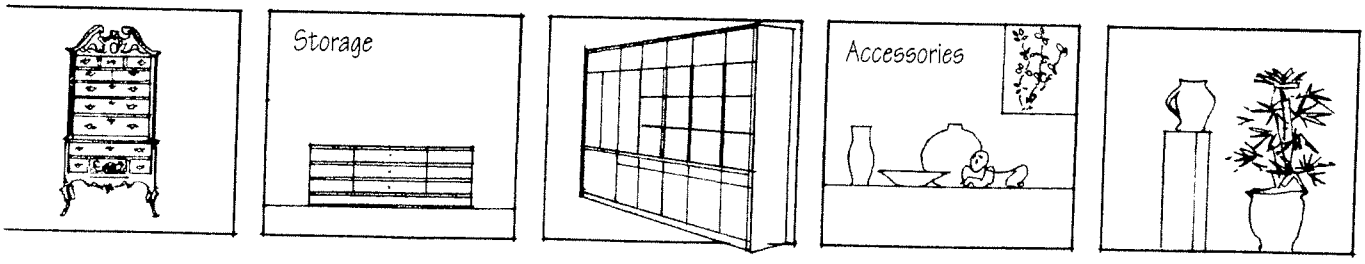




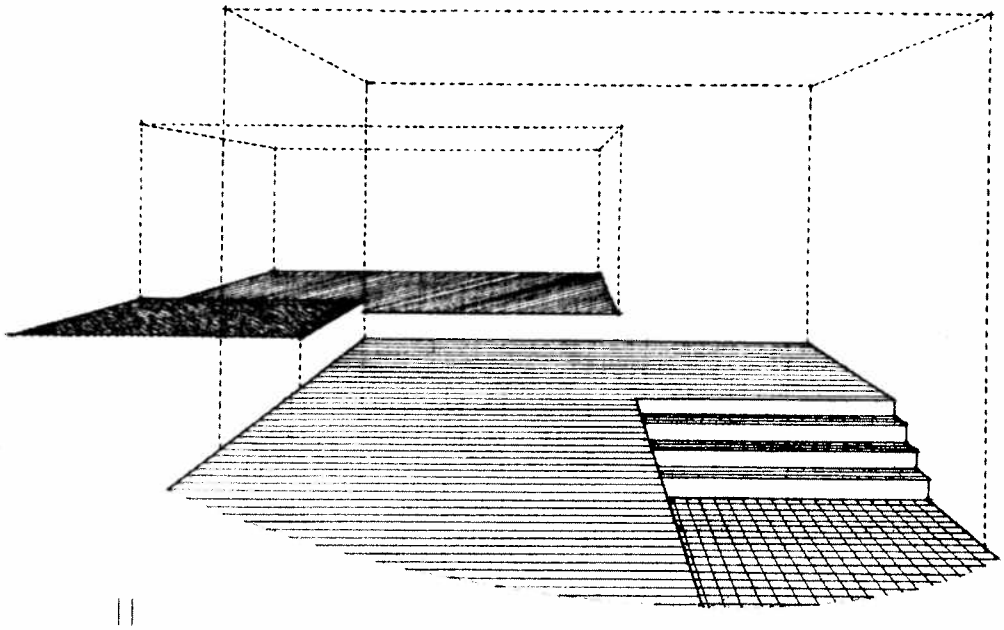


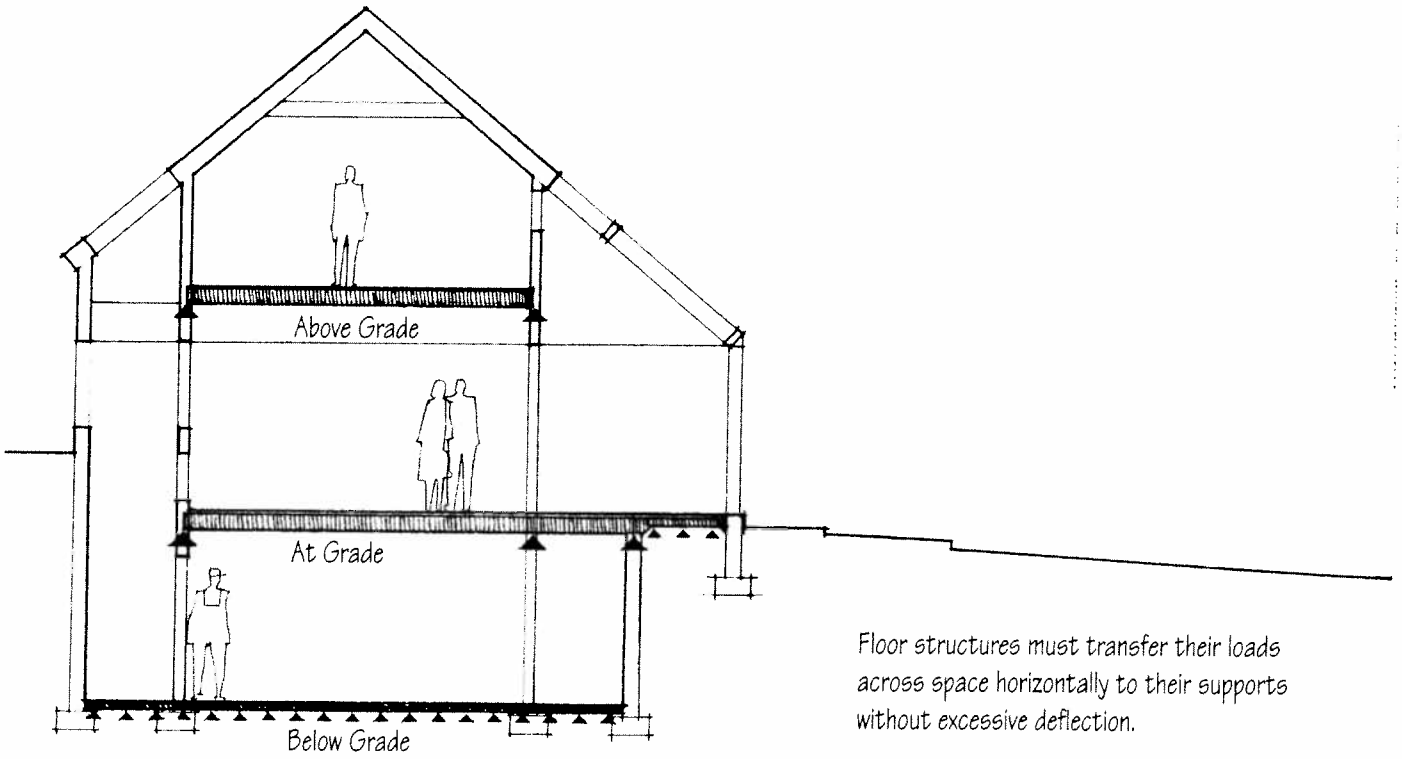






Floors are the flat, level base planes of interior space. As the platforms that support our interior activities and furnishings, they must be structured to carry the resulting loads safely. Their surfaces must be durable enough to withstand continual use and wear.



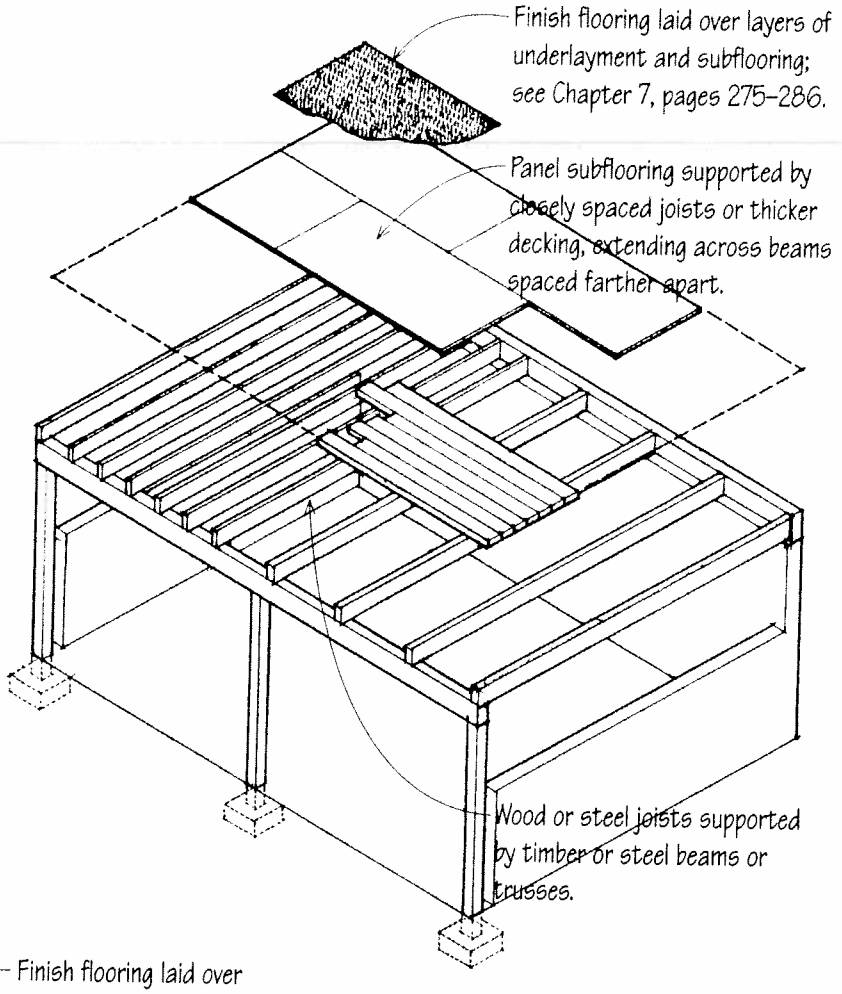


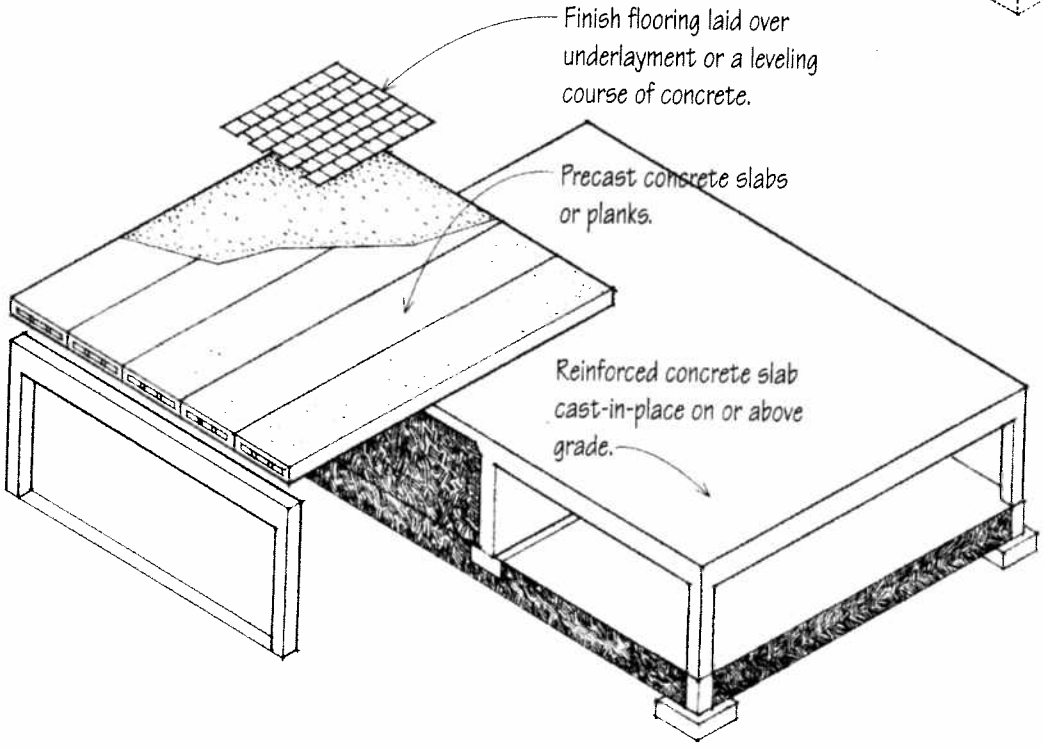
Floor structures must transfer their loads across space horizontally to their supports without excessive deflection.

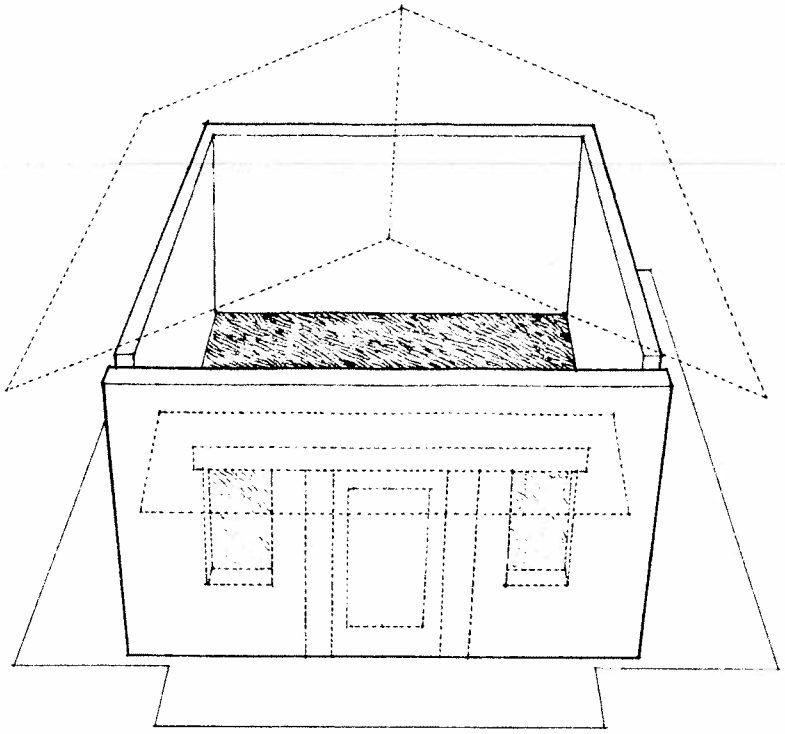
floor may be constructed of a series of parallel ams or joists overlaid with a subfloor—a structural ıterial such as plywood sheathing, concrete planks steel decking capable of spanning the beams or sts. The subfloor and beams or joists are secured that they act together as a structural unit in sisting stresses and transferring loads to their pports.

loor may also consist of a monolithic, steel- nforced concrete slab capable of extending in one two directions. The form of a slab's underside en reflects the manner in which it extends across ace and transfers its loads. Instead of being cast nolithically in place, a slab can also be precast as nks.

ether a floor structure is a monolithic slab or amed assembly, its surface must be smooth, l, and dense enough to receive the finish flooring terial. To compensate for any roughness or venness, a layer of underlayment or a cement ping may be required for some flooring materials.





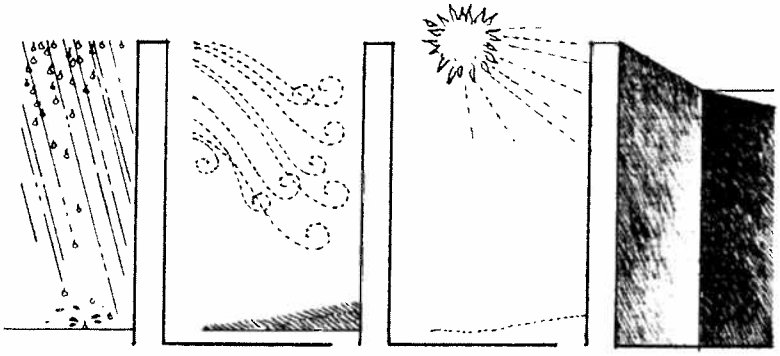


Walls are essential architectural elements of any building. They have traditionally served as structural supports for above-grade floors, ceilings, and roofs. They form the facades of buildings. They enclose, separate, and protect the interior spaces they create.

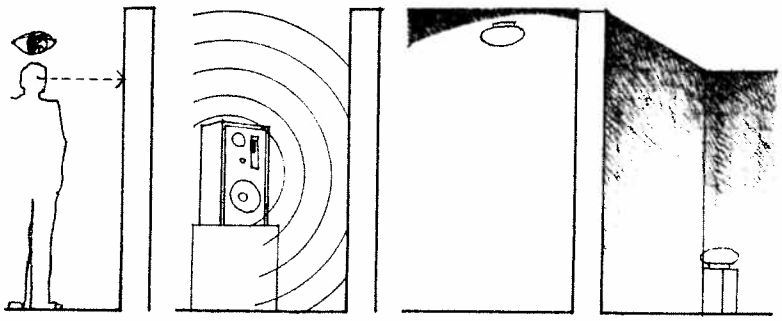
The exterior walls of a building must control the passage of air, heat, moisture, water vapor, and sound. The exterior skin, whether applied to or integral with the wall structure, must also be able to withstand the effects of sun, wind, and rain.

Interior walls subdivide the interior spaces of a building, provide privacy for these spaces, and control the passage of sound, heat, and light from one space to the next.

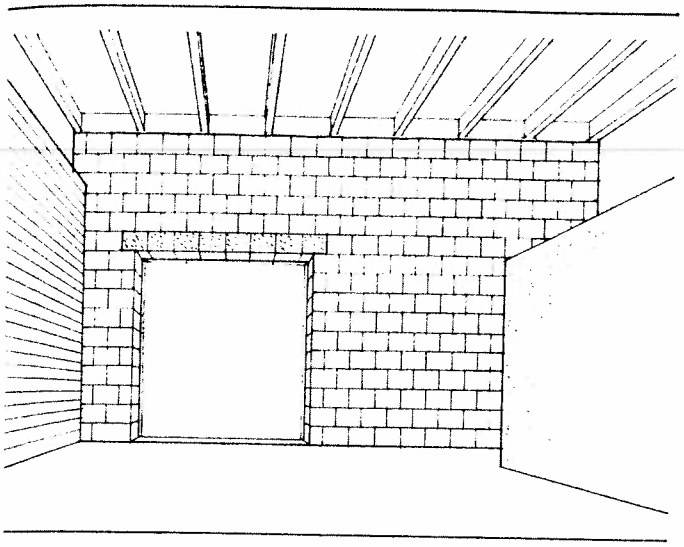
Both exterior and interior walls may be load-bearing structures of homogeneous or composite construction designed to support imposed loads from floors and roofs. They may also consist of a framework of columns and beams with nonstructural panels attached to or filling in between them.



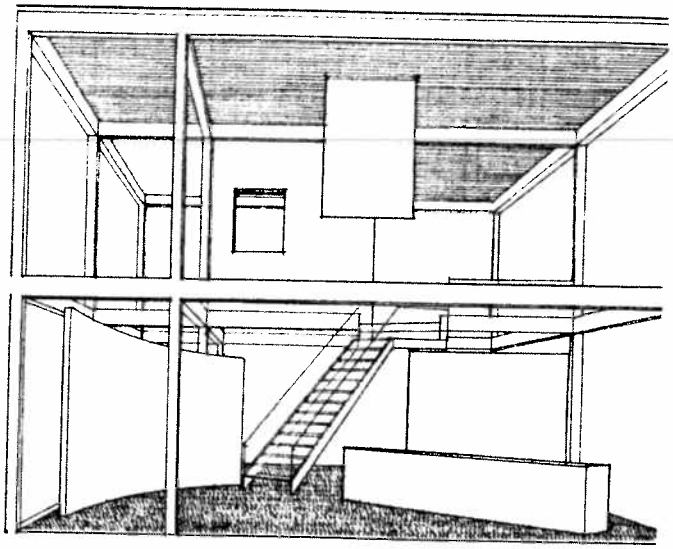
Exterior walls control the passage of air, heat, moisture, water vapor, and sound.



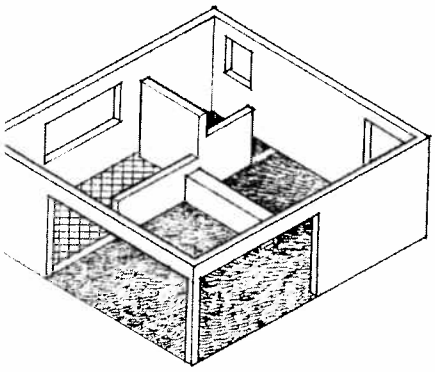
Interior walls control the passage of sound, heat, and light.



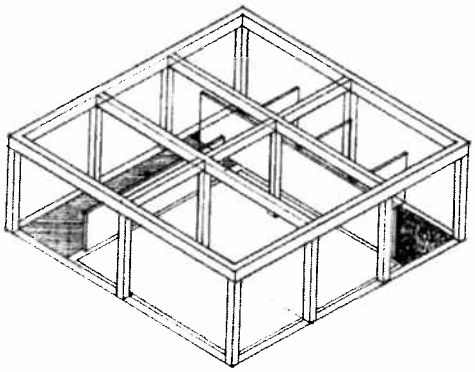
ad-bearing walls define the physical boundaries of space.

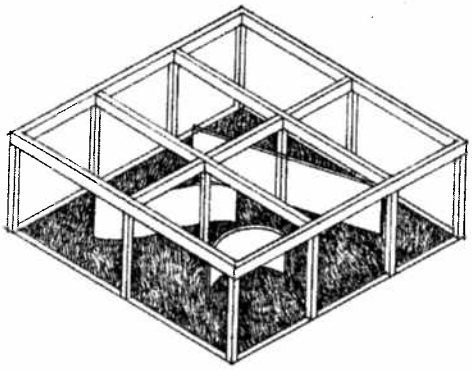


Columns and beams imply the edges of interior space.

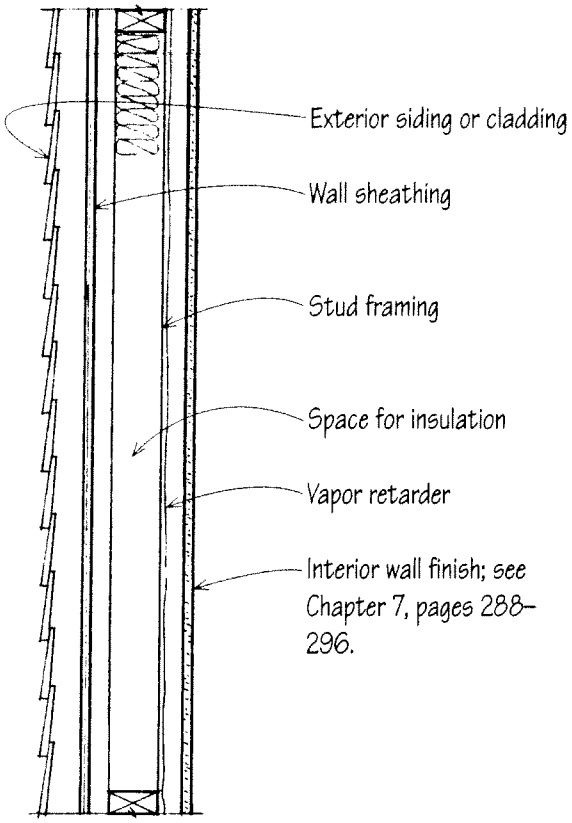


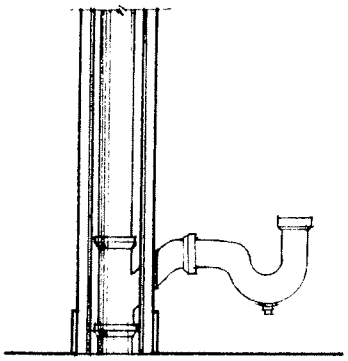
nload-bearing walls and partitions serve subdivide larger interior spaces.





A structural framework of columns and beams establishes a grid of interconnected spaces. Within this grid, partitions can define spaces as required.



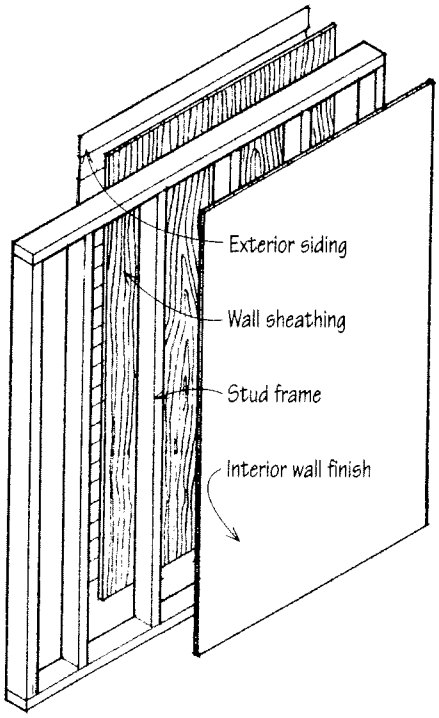


The cavities formed by the stud frame can accommodate thermal and acoustic insulation, vapor retarders, and the distribution of mechanical and electrical services and outlets.

Stud-framed walls may be constructed of wood or metal studs tied together by sole and top plates. Onto this frame are laid one or more layers of a sheet material, such as plywood or gypsum board, which stiffens the plane of the wall.

The sheet material may serve as the finish of interior walls, but more often, it serves as a support for a separate layer of finish material. Exterior cladding of siding, shingles, or stucco must be weather-resistant. Interior wall finishes do not have to withstand climatic elements and can therefore be selected from a wide range of materials.

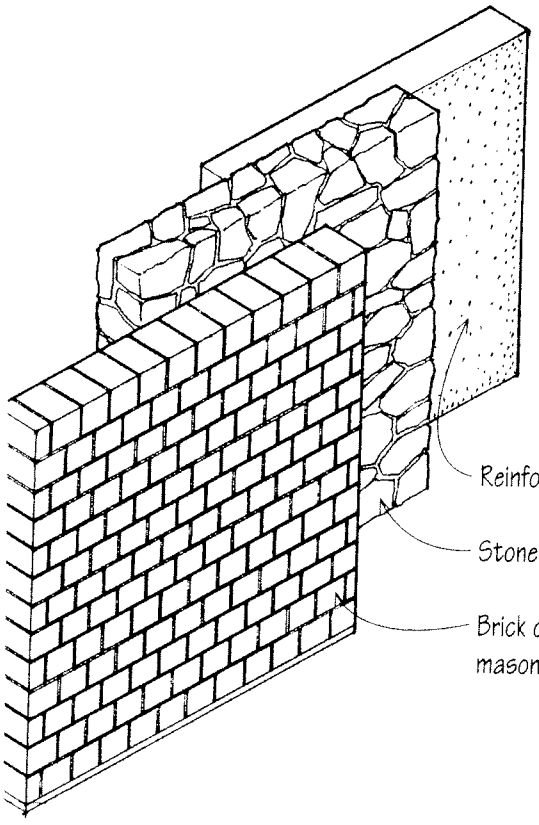
Stud-framed walls are flexible in form due to the workability of the relatively small pieces and the various means of fastening available.

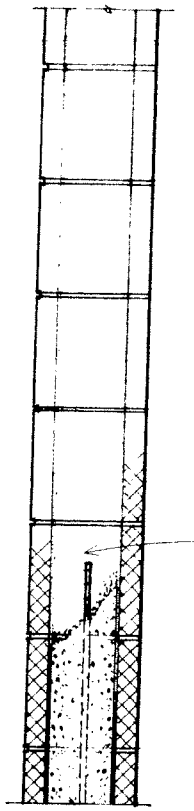


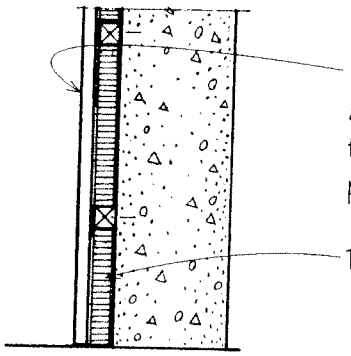
oncrete and masonry walls are typically load-bearing nd qualify as noncombustible construction. They rcefully define the physical boundaries of space and re more difficult to alter than framed walls.

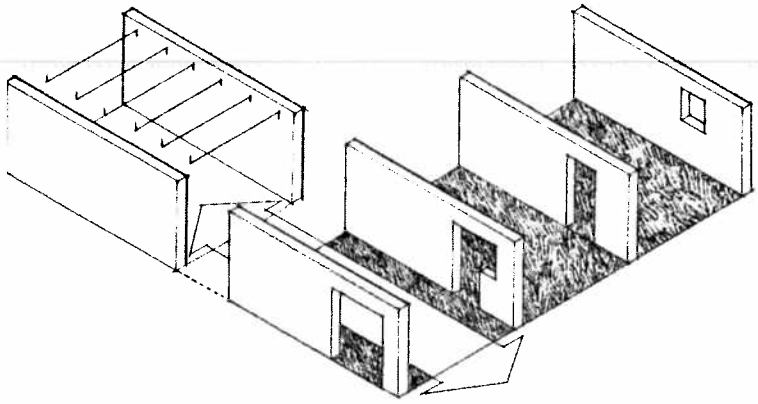
oncrete and masonry walls are usually thicker than tud-framed walls because they depend on their ass for their strength and stability. Cavities are ten used to accommodate thermal insulation and ter the passage of moisture and water vapor.

ncrete and masonry walls may be left exposed. The tractive color and texture of stone and brick are, course, almost always left exposed as the finish ll surface. Even concrete and concrete masonry lls can now be constructed with attractive colors d textures. If a separate finish is desired, an rermediate layer of supporting lath or furring may required.





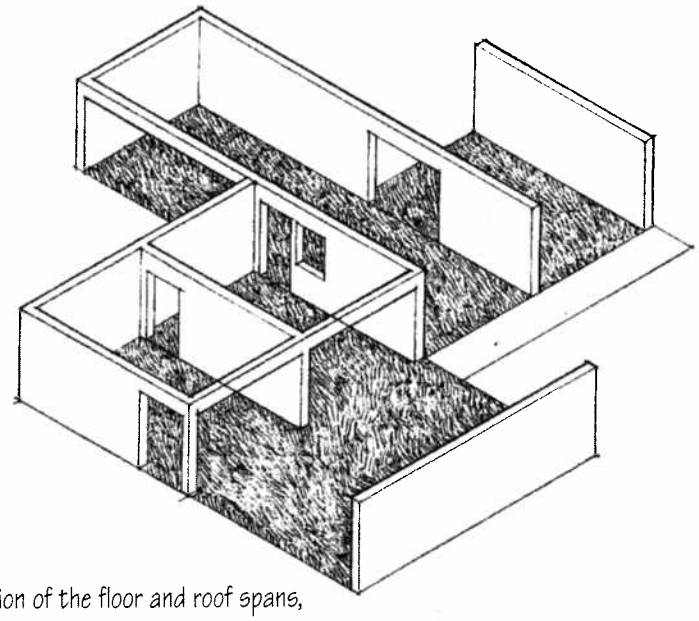




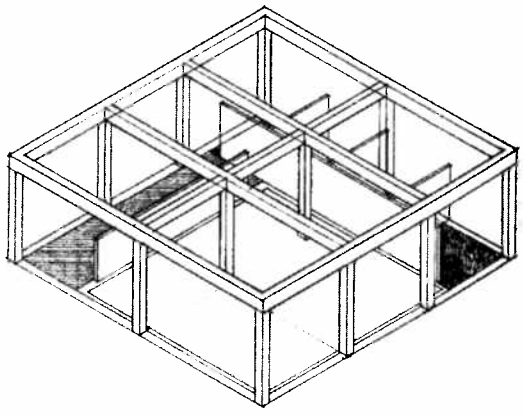
It makes sense to lay out load-bearing walls in a parallel series to support one-way floor and roof structures.

The pattern of load-bearing walls should be coordinated with the spans of floor and roof structures they support. At the same time, this structural pattern will begin to dictate the possible sizes, shapes and layouts of interior spaces.

When the size and shape requirements of interior spaces and the activities they house do not or would not correspond well with a firm pattern of structural walls, a structural framework of columns and beams can be used. Nonstructural walls and partitions could then freely define and enclose interior spaces as required. This is often done in commercial, multistory, and other buildings where flexibility in the layout of spaces is desirable.



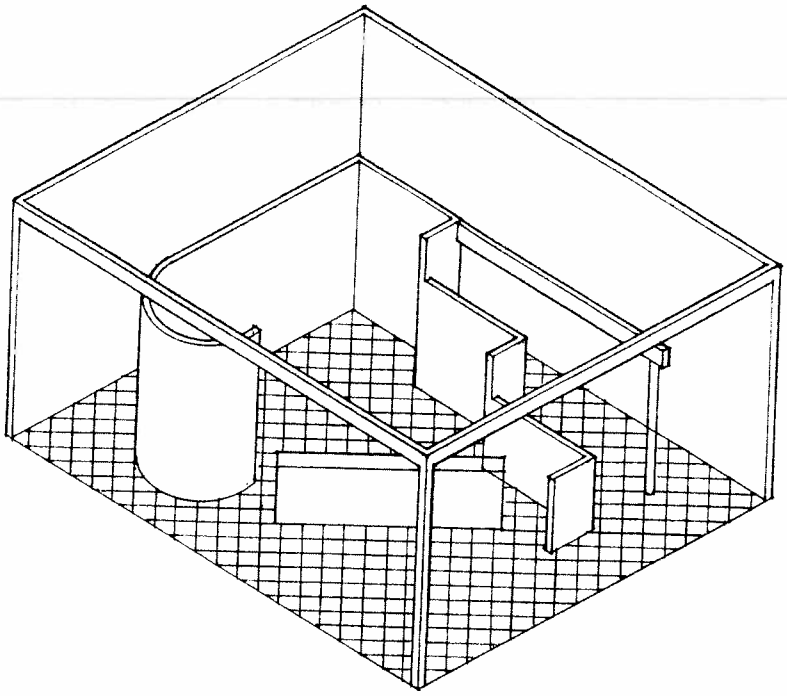
Changing the direction of the floor and roof spans, or using two-way systems, can lead to more complex spatial relationships.



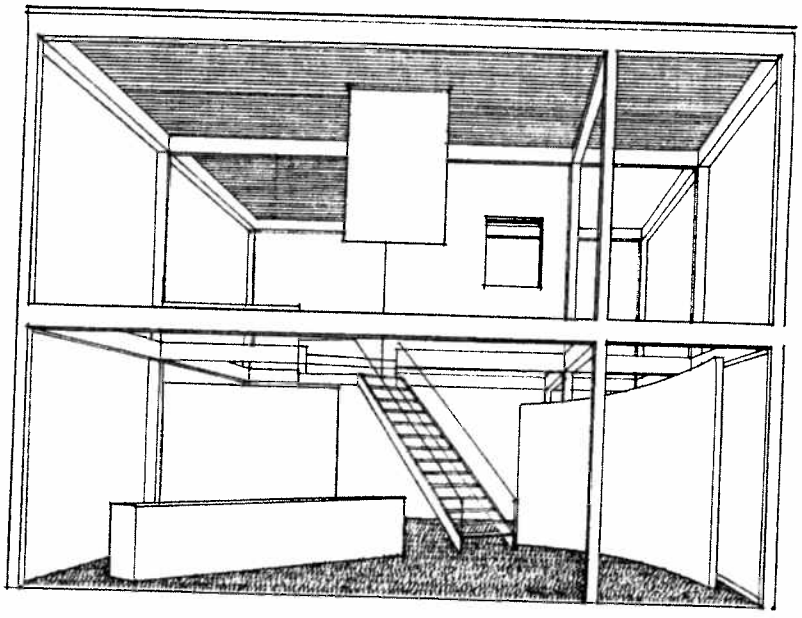
While a column-and-beam structural system suggests a succession of interconnected volumes, the spaces themselves can be organized in harmony with or as a counterpoint to the grid of the structural framework.

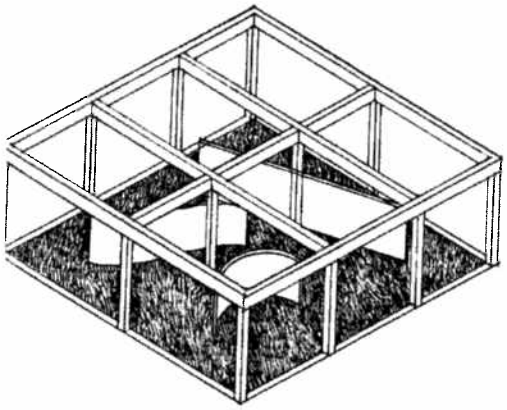
Nonstructural walls need only support themselves and any attachments. They therefore offer more possibilities than do load-bearing walls in shaping and enclosing space.

A nonstructural wall can stop short of the ceiling or adjacent walls and allow the flow of air and light from one space to the next. Spatial continuity between two areas can be reinforced while some degree of visual, but not necessarily acoustical, privacy is maintained.

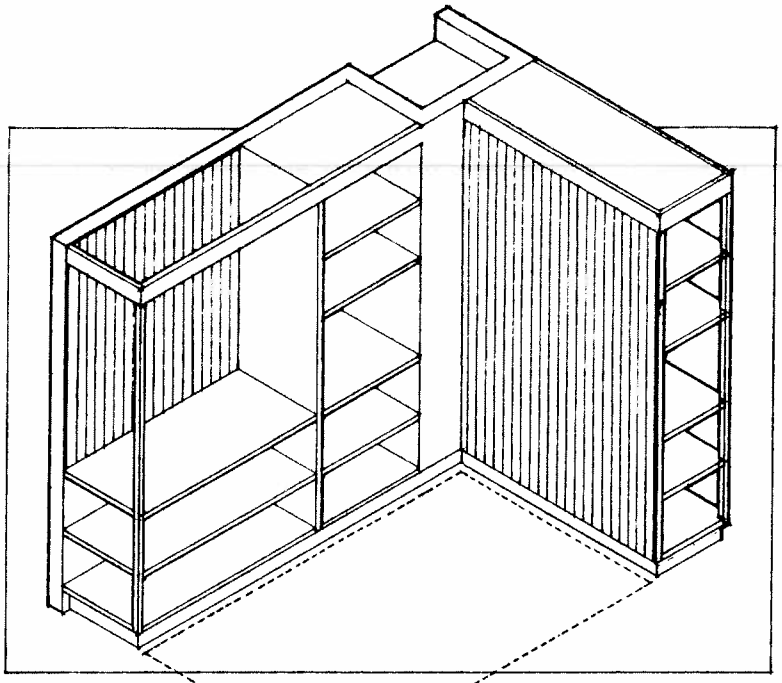


Nonbearing walls or partitions most commonly are supported by the floor system. They can also be secured to columns or bearing wall structures, or they can be hung from the ceiling or roof structure overhead. Whether freestanding on the floor or hung from above, nonbearing walls should be stabilized against lateral forces.



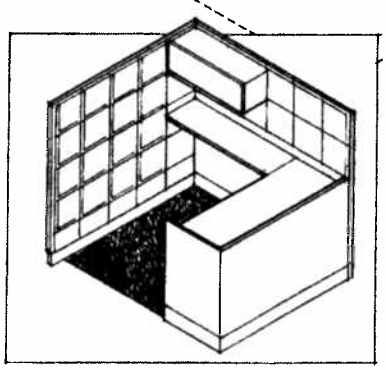


Nonbearing partitions may be attached to or fill in the spaces in the structural frame. An example of interior nonload-bearing walls are the metal or glass curtain-wall systems often used in commerical and institutional buildings.

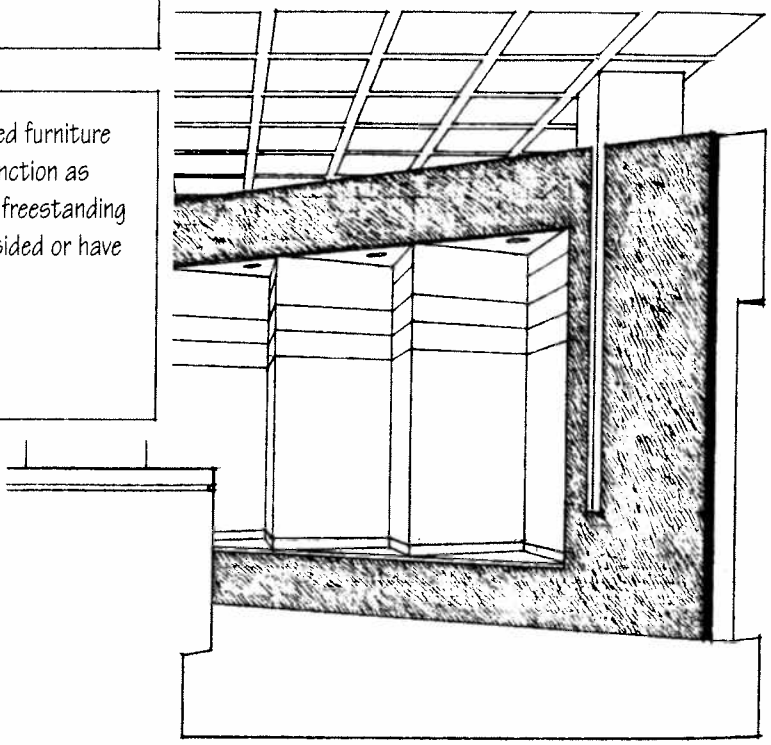


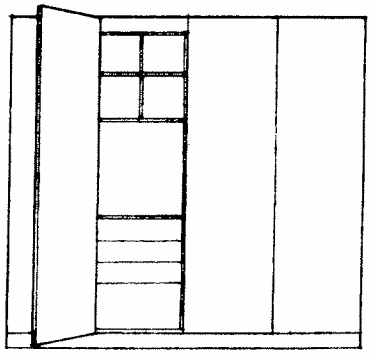
Freestanding walls that stop short of the ceiling and do not connect to adjacent walls on either end require support for lateral stability. Stability may be achieved by utilizing L- and U-shaped configurations or by tying the walls to the structure of the ceiling or adjacent walls.

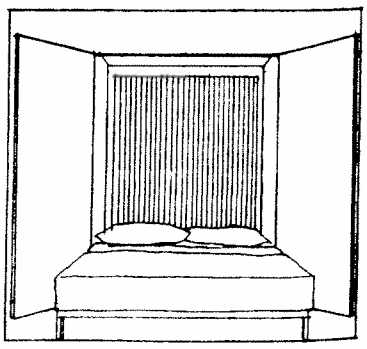
Instead of being strictly a background element in interior space, a wall can also be structured to support furnishing elements, such as seating, shelving, tabletops, and lighting. A wall can also incorporate these elements into its thickness and become itself a piece of furniture.



Vertically oriented furniture elements can function as walls if they are freestanding and are double-sided or have finished backs.



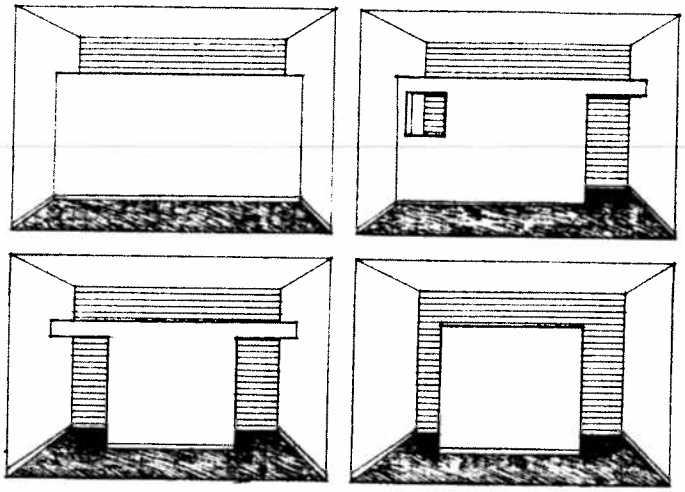


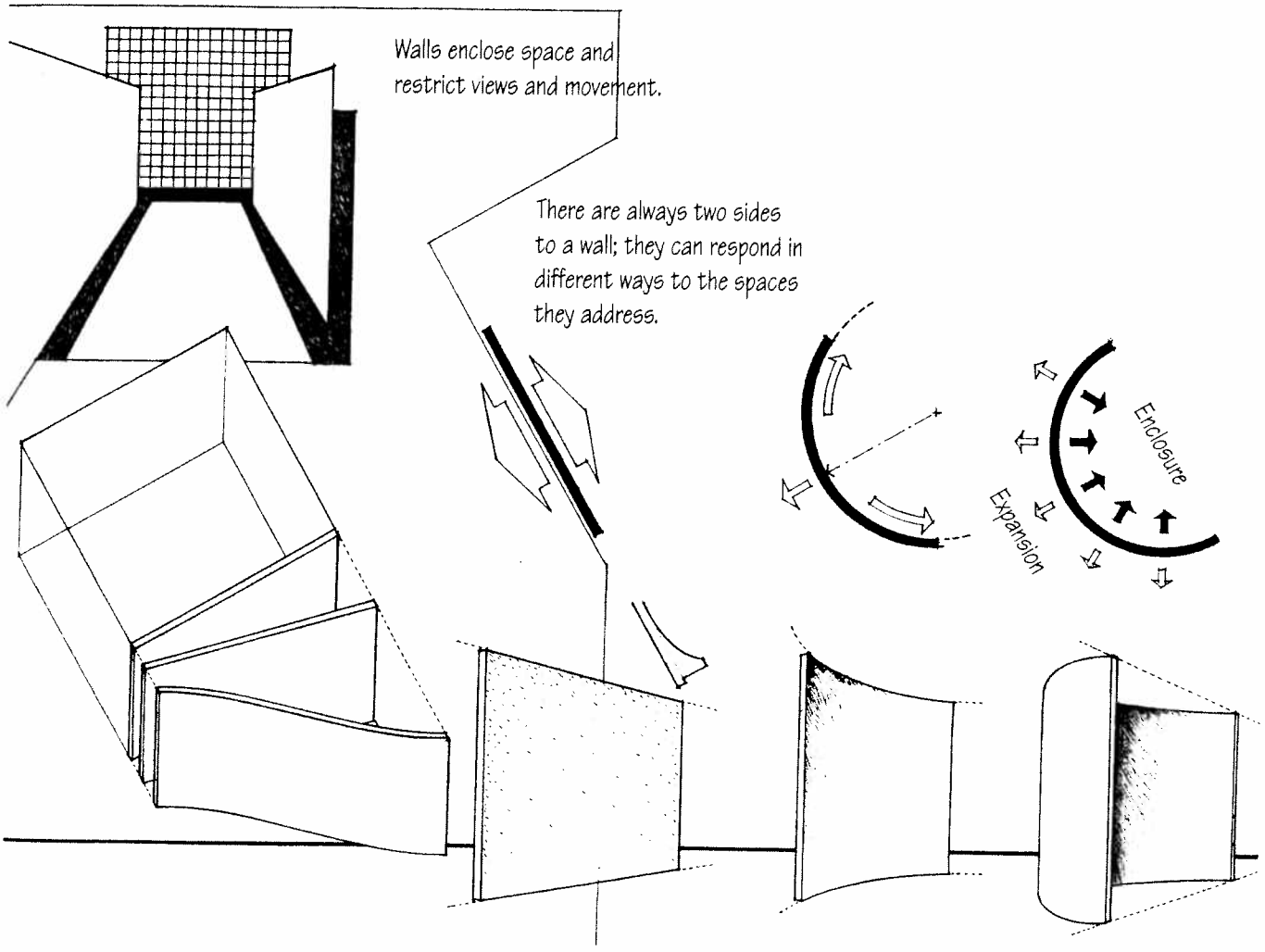


Freestanding walls may be made deep to incorporate spaces within their thickness.

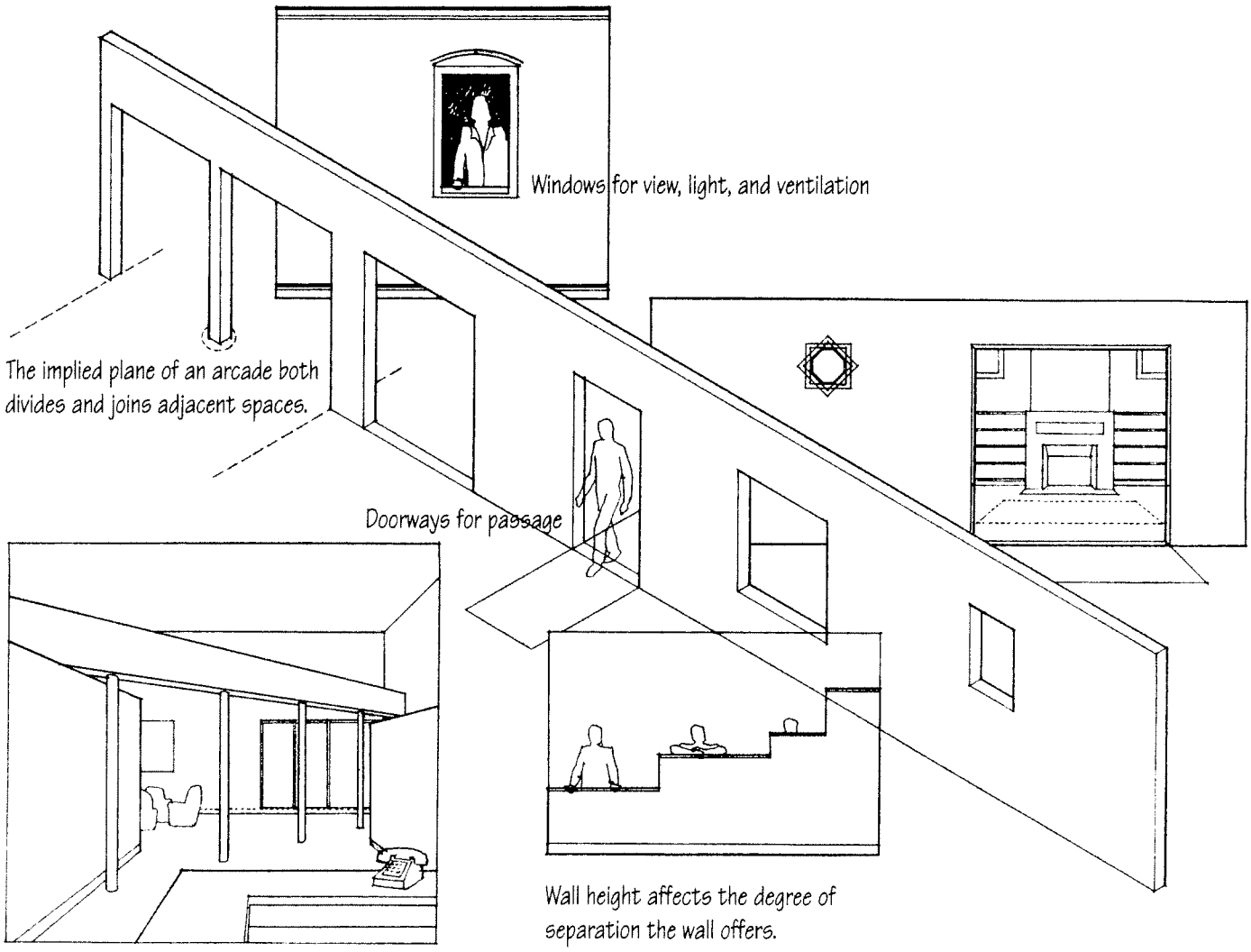
Walls are the primary elements with which we define interior space. Together with the floor and ceiling planes that complete the enclosure, walls govern the size and shape of a room. They can also be seen as barriers that limit our movement. They separate one space from the next and provide the occupants of a space with visual and acoustical privacy.

Rectilinear space defined by flat, rectangular walls is clearly the norm. Wall planes can also be curved, with the amount of curvature being determined in part by the materials and method of construction. The concave aspect of a curved wall encloses while its convex side expands space.





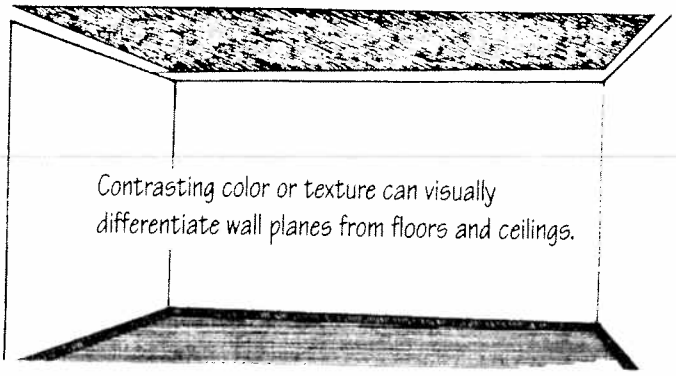
Openings within or between wall planes allow for continuity and our physical movement between spaces, as well as the passage of light, heat, and sound. As they increase in size, the openings also begin to erode the sense of enclosure the walls provide and visually expand the space to include adjacent spaces. Views seen through the openings become part of the enclosed space. Enlarging the openings further would result ultimately in an implied separation of space defined by a framework of columns and beams.



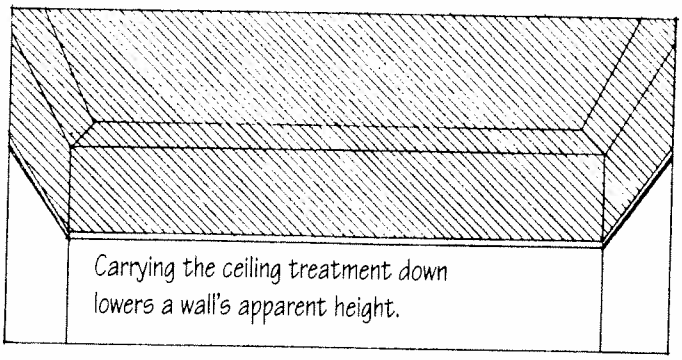
A wall can be visually differentiated from either the adjoining wall or ceiling plane by a change of color, texture, or material. The distinction can be made clearer with either trimwork or a reveal.

Trimwork, such as base and crown moldings, serves to conceal the unfinished construction joints and gaps between materials and to embellish architectural surfaces. Trim moldings can be simple or complex, depending on their profile and finish. Much of their impact depends on their scale, color, and the shadow lines cast by their profile.

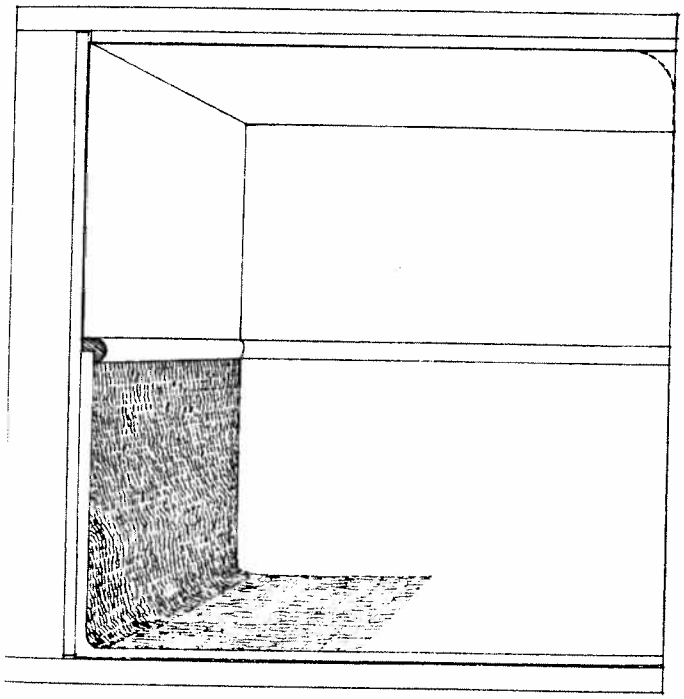
A reveal is a continuous recess that visually separates the meeting of two planes and articulates their edges by the shadow lines they create. When two planes meet in this manner, their surfaces must have finished or trimmed edges when exposed to our view.



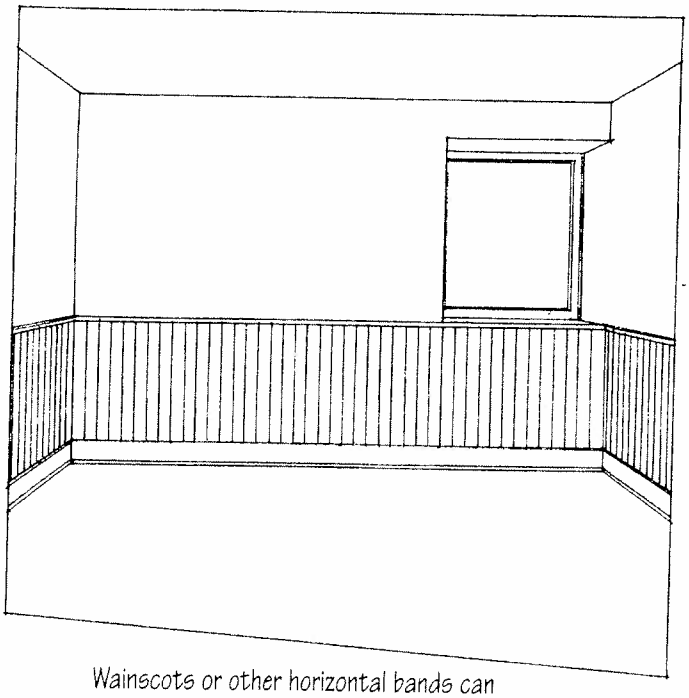
Contrasting color or texture can visually differentiate wall planes from floors and ceilings.



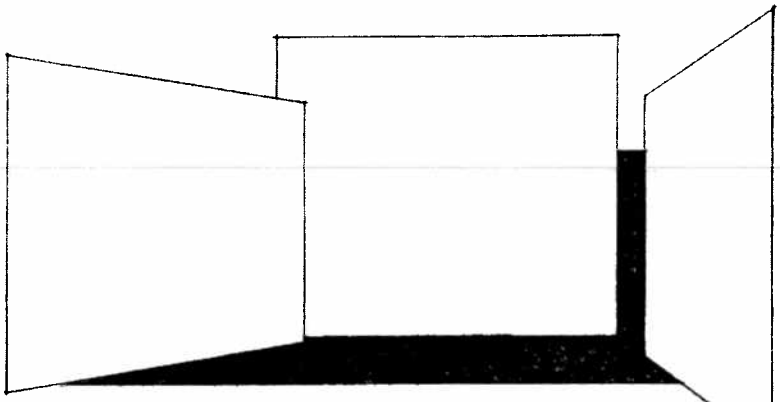
Carrying the ceiling treatment down lowers a wall's apparent height.



Continuing the floor treatment up the lower portion of a wall can visually enlarge the floor area while reducing the apparent wall height. Continuing the ceiling treatment down a portion of a wall can similarly reduce the vertical scale of the wall.



Wainscots or other horizontal bands can reduce the vertical scale of a room's walls.

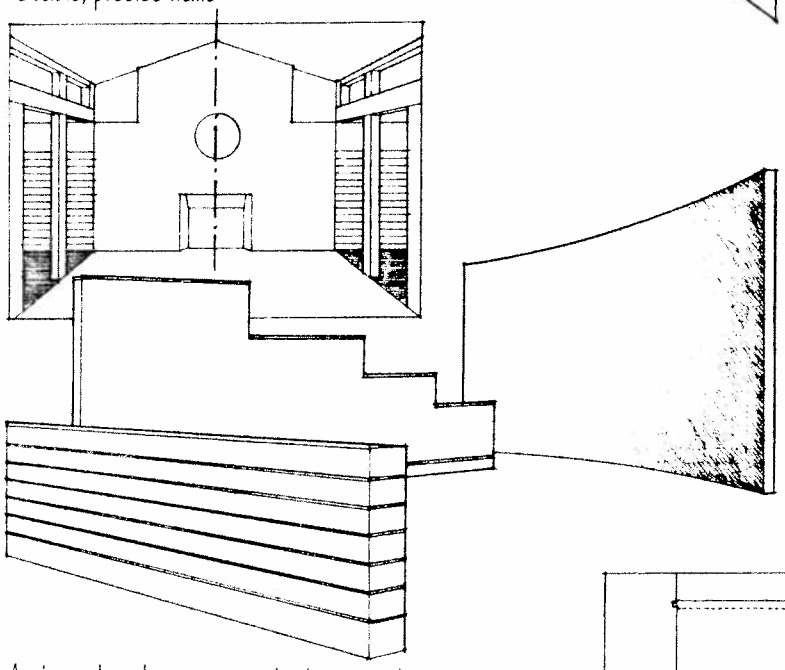


Stable, precise walls

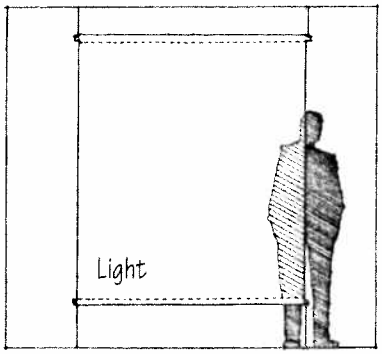
The vertical orientation of walls makes them visually active in our field of vision. In defining the boundaries of a room, they give form and shape to the space and play a major role in determining its character.

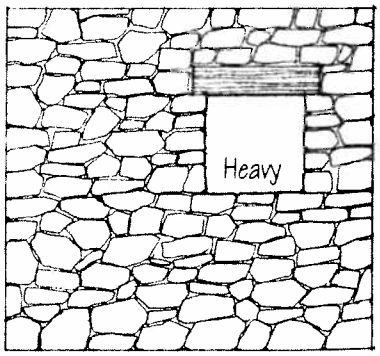
Stable, precise, symmetrical walls convey a feeling of formality that can be considerably enhanced with the use of smooth textures. Irregularly shaped walls, on the other hand, are more dynamic. When combined with a rough texture, they can impart an informal character to a space.

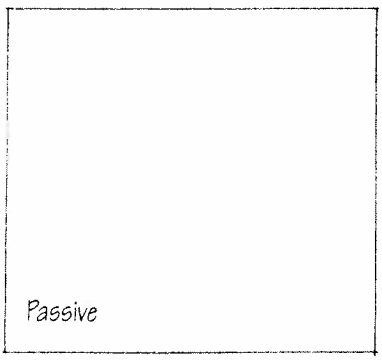
Walls provide a background for a room's furnishings and occupants. If smooth and neutral in color, they serve as passive backdrops for foreground elements. When irregular in shape or given a texture, pattern, or a vigorous color, the walls become more active and compete for our attention.

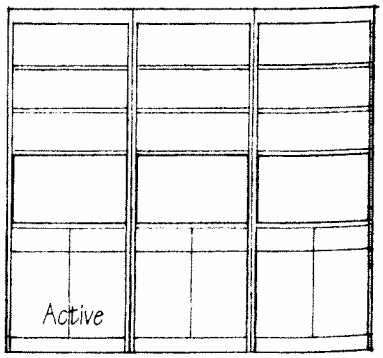


An irregular shape, coarse texture, or strong color can make a wall visually active.





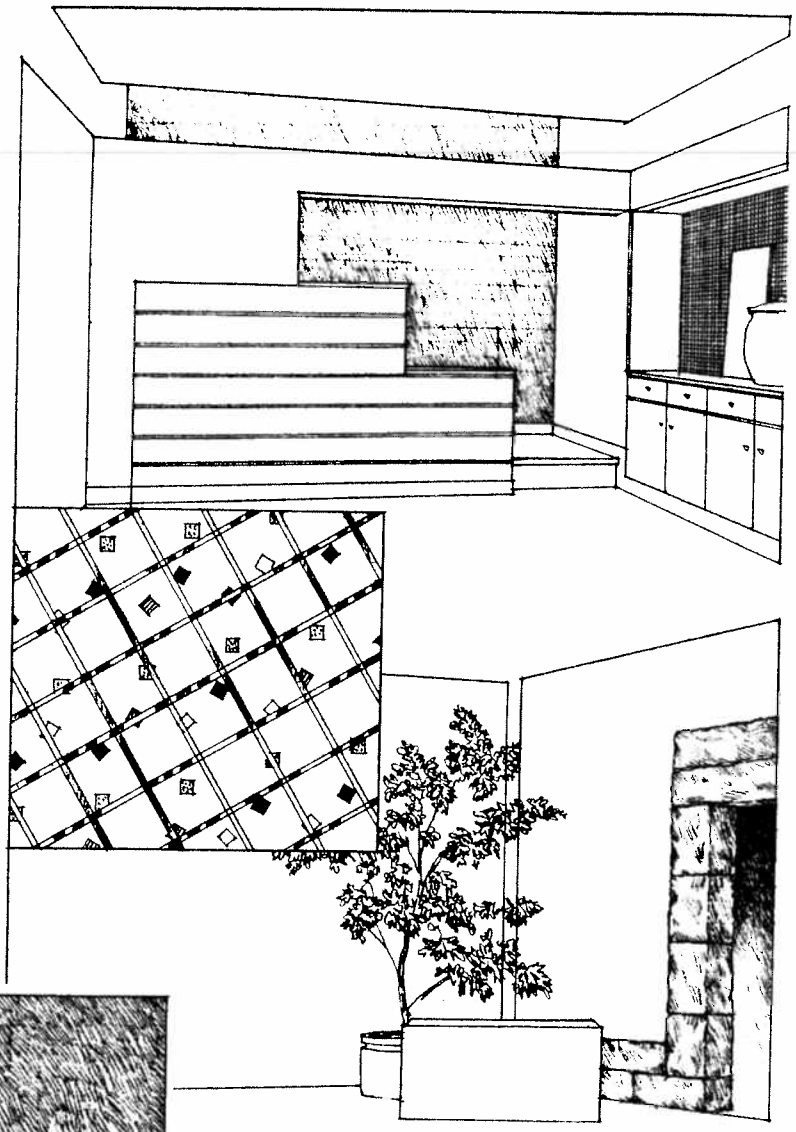


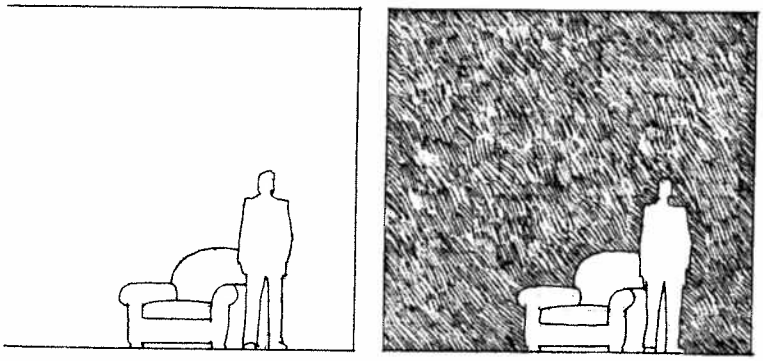


ight-colored walls reflect light effectively and erve as efficient backdrops for elements placed in ront of them. Light, warm colors on a wall exude armth, while light, cool colors increase a room's paciousness.

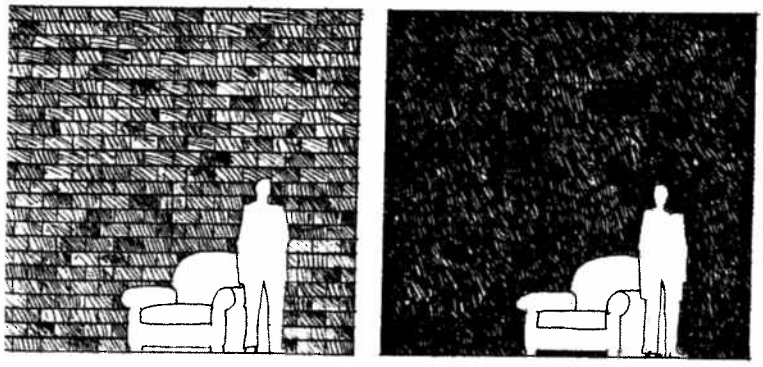
ark-colored walls absorb light, make a room more ifficult to illuminate, and convey an enclosed, timate feeling.

wall's texture also affects how much light it will eflect or absorb. Smooth walls reflect more light ıan textured ones, which tend to diffuse the light triking their surfaces. In a similar manner, smooth, ard wall surfaces will reflect more sound back into a ace than porous or soft-textured walls.



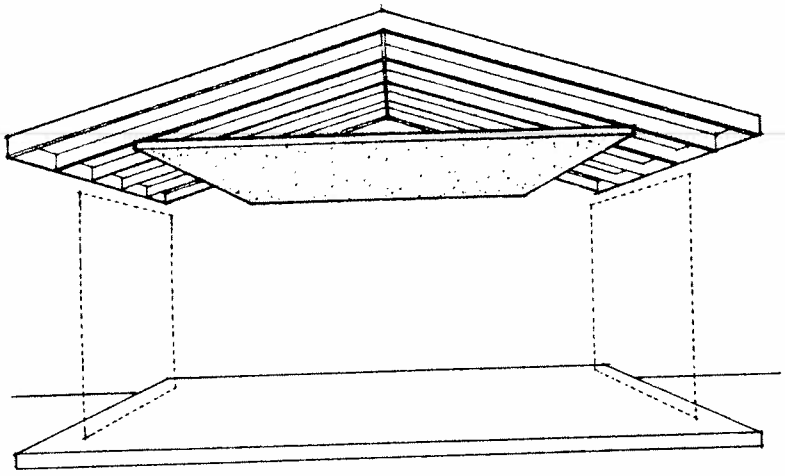


As with color, the juxtaposition of textures enhances both the coarse and the smooth.



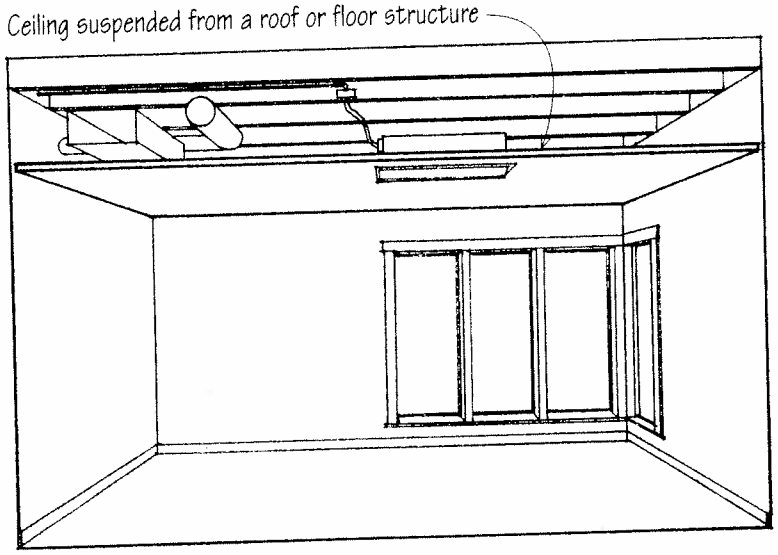
Color, texture, and pattern can be used to differentiate one wall plane from the next and to articulate the form of the space.

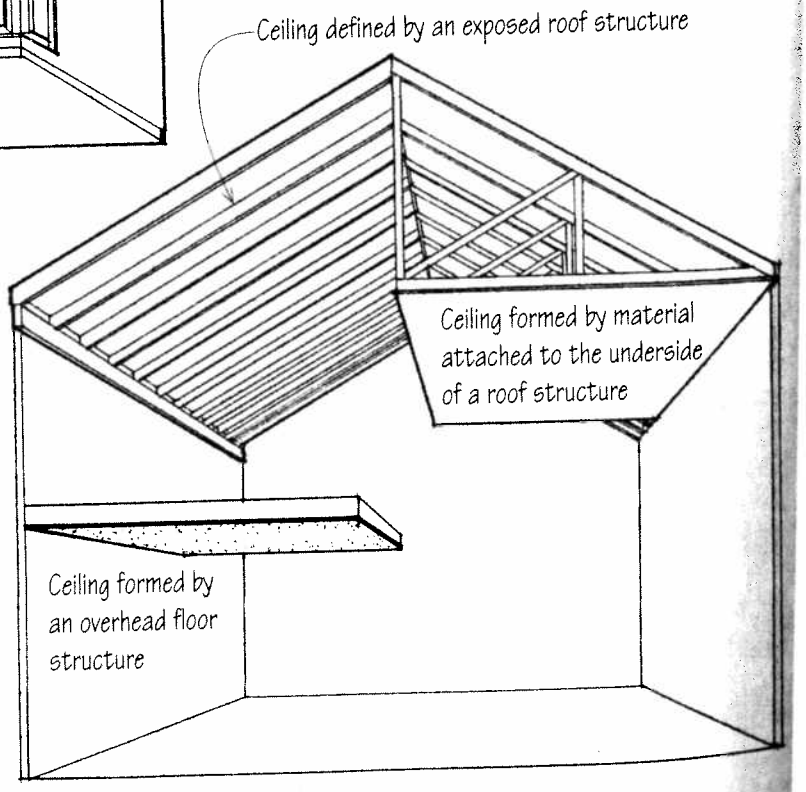
CEILINGS



The third major architectural element of interior space is the ceiling. Although out of our reach and not used in the way of floors and walls, the ceiling plays an important visual role in shaping interior space and limiting its vertical dimension. It is the sheltering element of interior design, offering both physical and psychological protection for those beneath its canopy.

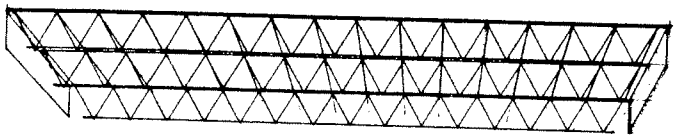
Ceilings are formed by the undersides of floor and roof structures. The ceiling material can be attached directly to the structural frame or be suspended from it. In some cases, the overhead structure can be left exposed and serve as the ceiling.

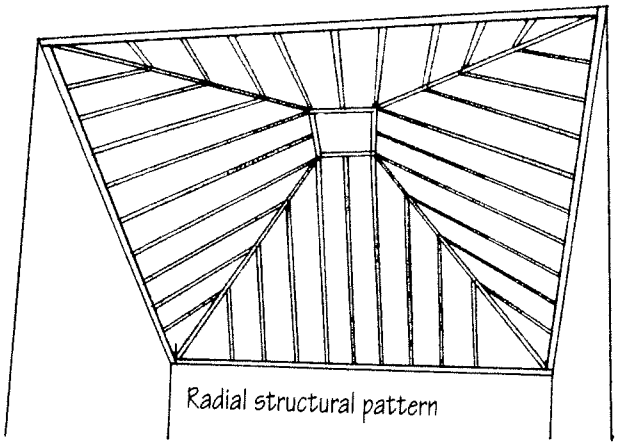




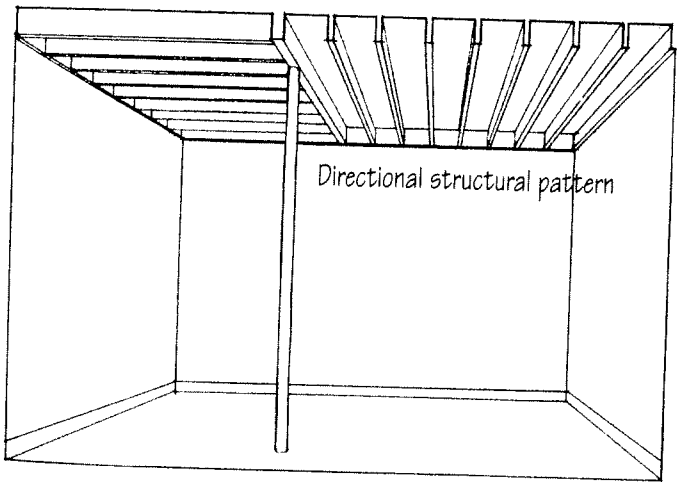
Instead of being surfaced with a smooth, planar material, a ceiling can consist of or express the structural pattern of the floor or roof above. Linear structural members or materials can create parallel, grid, or radial patterns. Any ceiling pattern will tend to attract our attention and appear to be lower than it is because of its visual weight. Since linear patterns direct the eye, they can also emphasize that dimension of space to which they are parallel.

Exposed floor and roof structures provide a ceiling with texture, pattern, depth, and direction. These characteristics attract our attention and are best displayed in contrast to smoother wall planes.

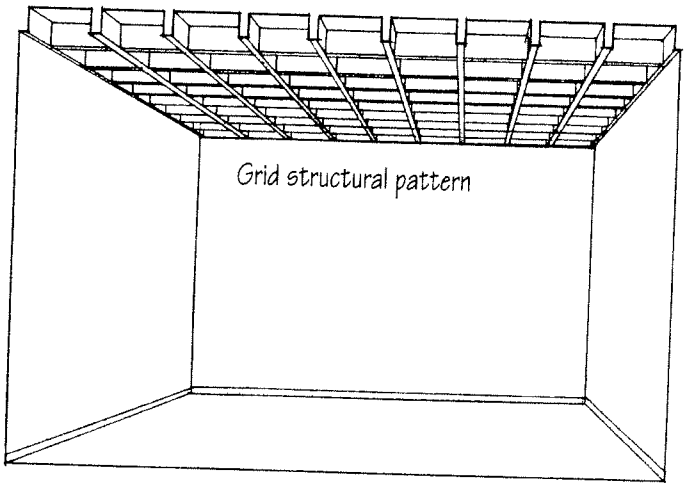




Radial structural pattern



Directional structural pattern



Grid structural pattern