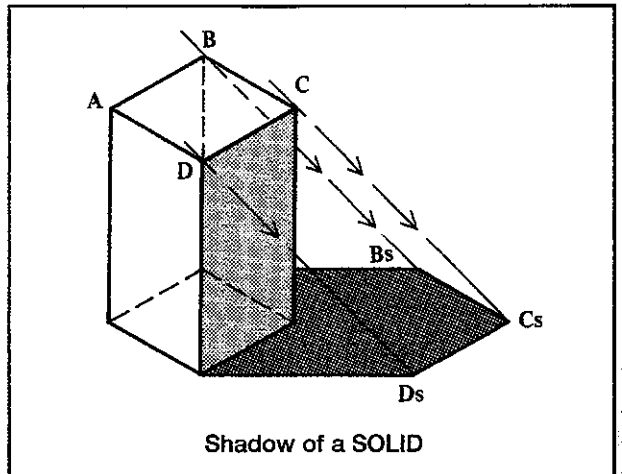
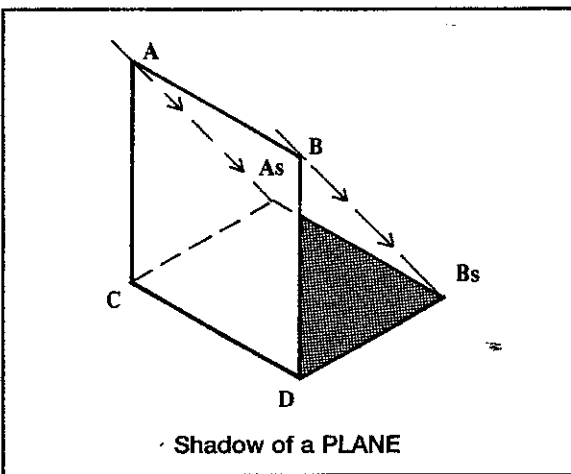
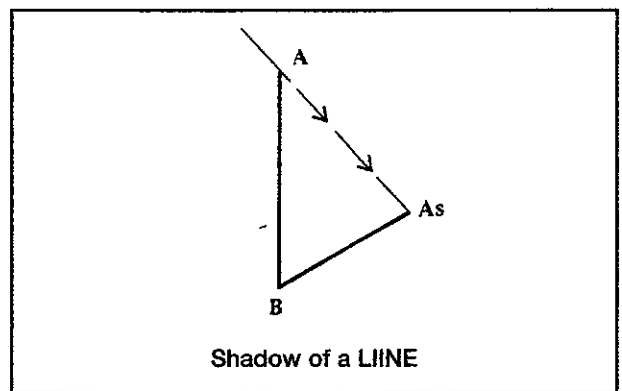
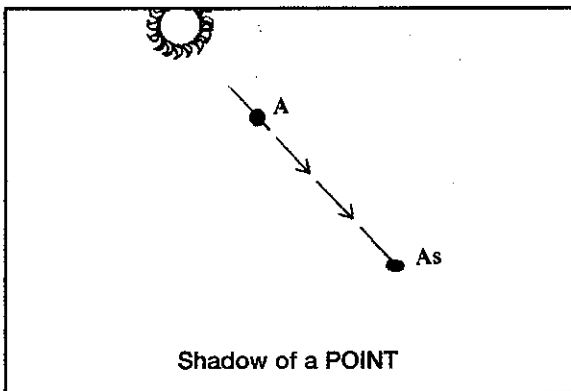




Drawing: West Adams Place, Los Angeles, California  
 36" x 24" (91.4 x 61 cm)  
 Medium: Ink  
 Courtesy of John V. Mutlow FAIA, Architects, and  
 Iraj Yamin Esfandiary, Illustrator

These building solids cast shadows and show shade with a line hatching technique (shadow darker than shade). The foreground road has the heaviest hatching.

SHADOW PRINCIPLES

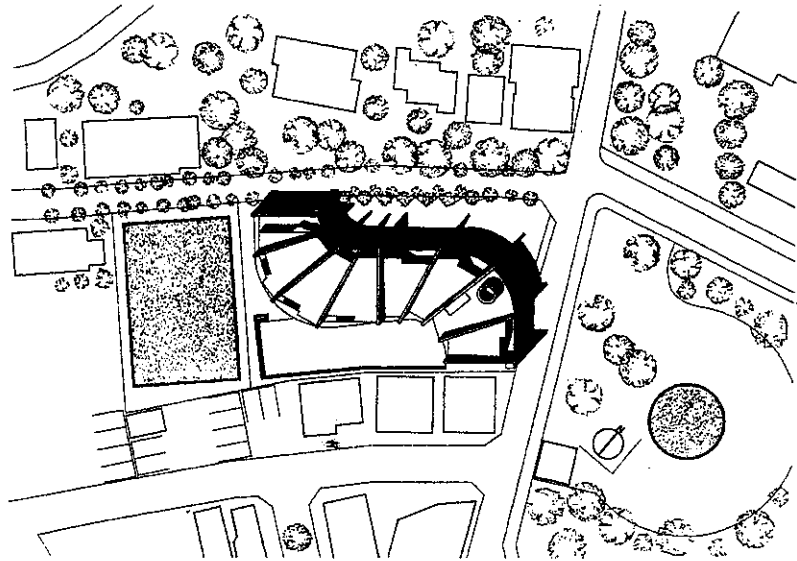


Shadow development can be analyzed by studying shadow progressions from points to lines to planes and finally to solids. Begin by studying point shadows, since a finite series of points will ultimately:

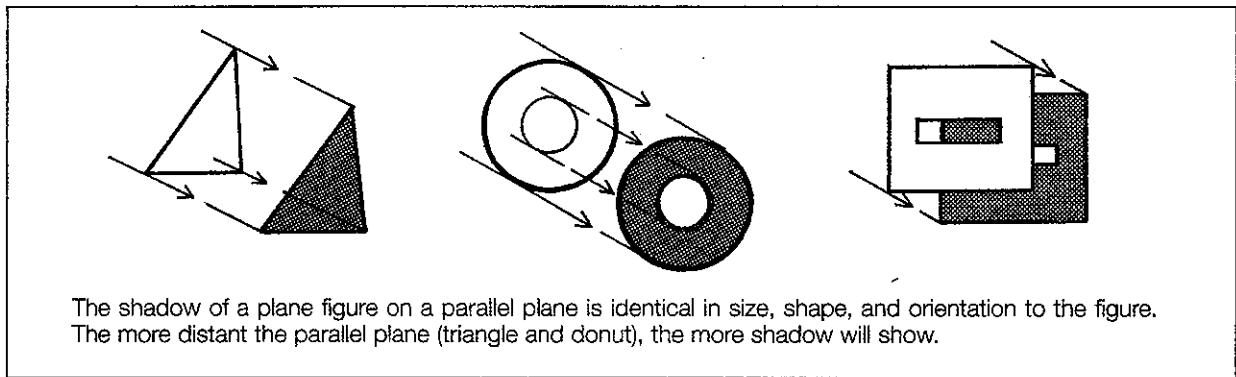
1. Determine shadows of **lines** (lines being composed of points)
2. Determine shadows of **planes** (planes being composed of lines)
3. Determine shadows of **solids** (solids being composed of planes)

The shadow of a line, a plane, or a solid is most efficiently determined by locating the shadows of the **critical** points of the line, plane, or solid.

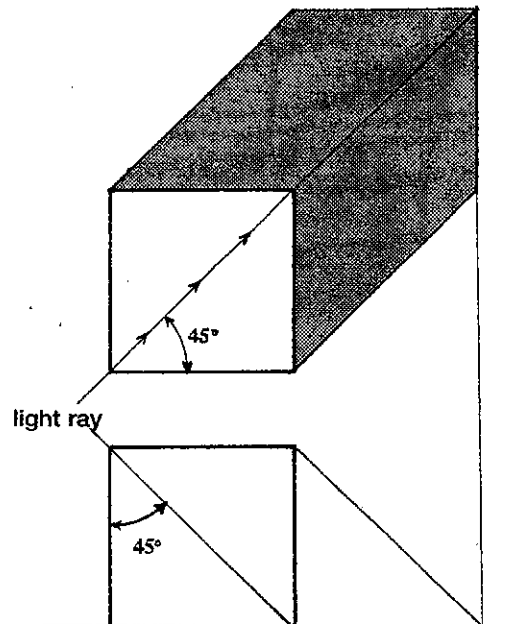
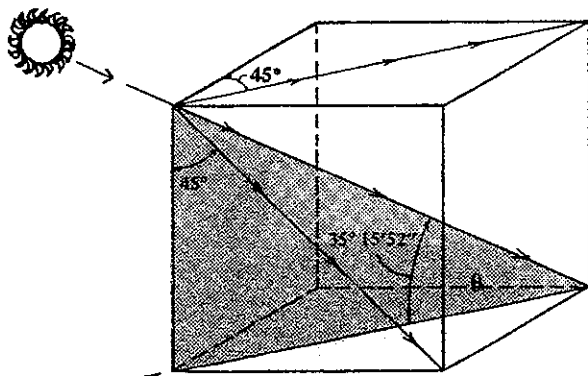
Drawing: Site plan of housing at Shakujii Park  
 Tokyo, Japan  
 Medium: Ink on Mylar  
 Courtesy of Shigeru Ban Architects



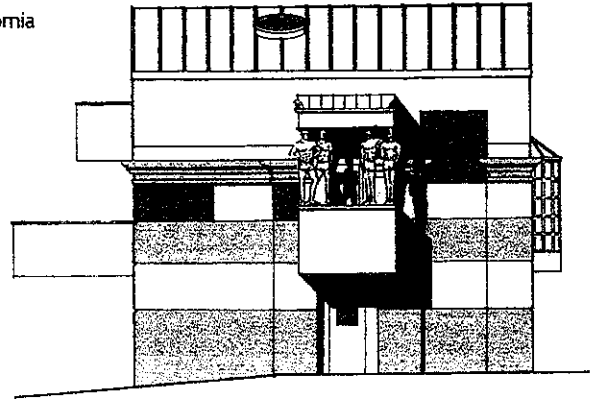
Shadow Principles



For architectural graphics, a 45° angle light ray direction from the left in plan and in elevation is conventionally used. In cubic form this can be represented by the diagonal of a cube with a slope of 35°15'52" ( $\theta$ ). Also commonly used is a 45° angle light ray direction from the right. Note that the **slope** angle of the light ray is the inclination relative to the horizontal plane.



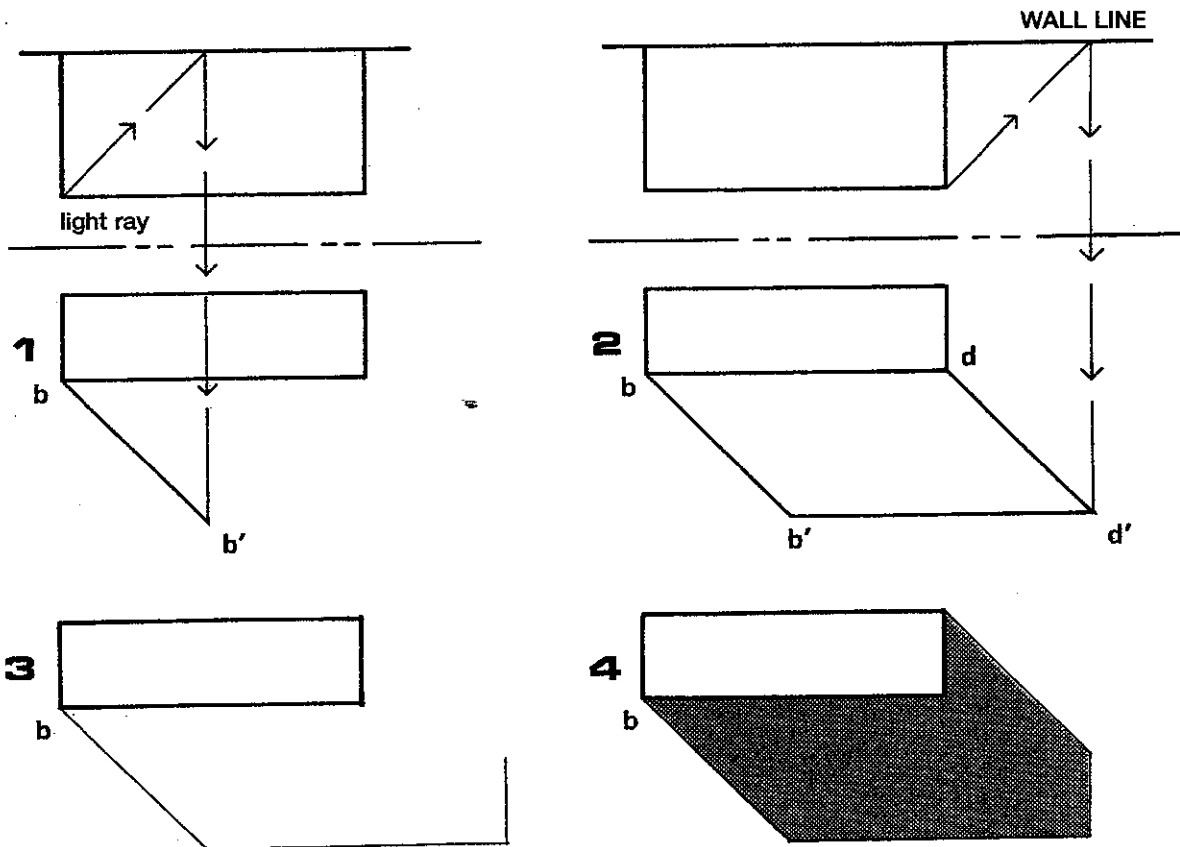
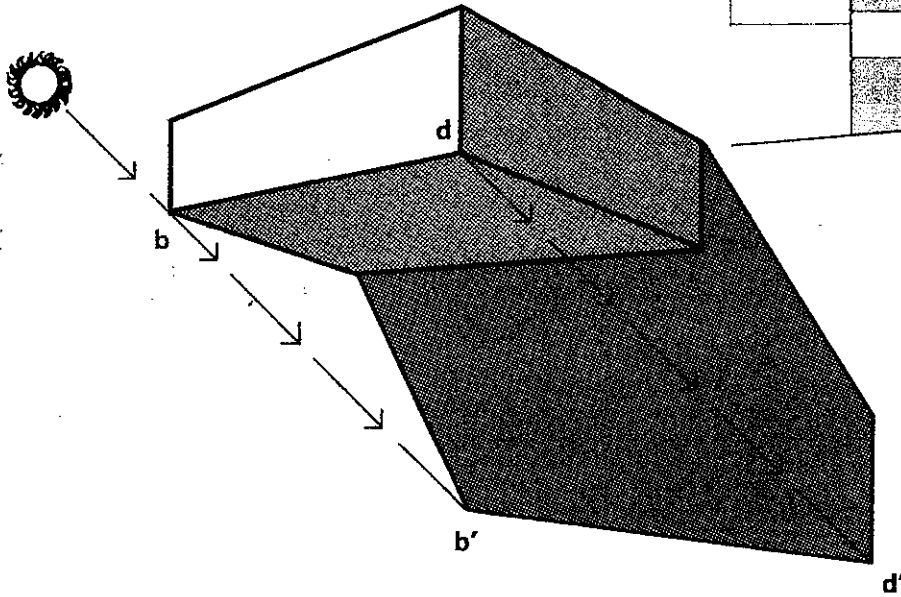
Drawing: Erectheim house, San Francisco, California  
 12" × 20" (30.5 × 50.8 cm), Scale: 1/4"=1'0"  
 Media: Pencil, Prismacolor, pastel, Zipatone  
 Courtesy of Kotas/Pantaleoni, Architects  
 Jeremy Kotas

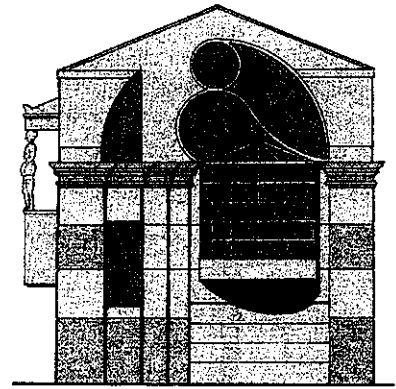
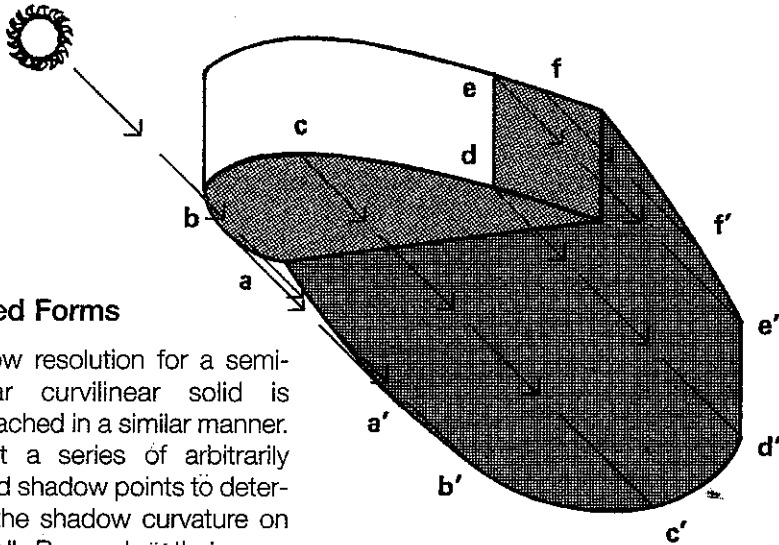


### Rectilinear Forms

The perspective diagram is related to—and the corresponding letters keyed to—the step-by-step orthographic sequence shown below. The top or horizontal view determines where the light ray hits the wall; this location is then transferred to the front or frontal view.

## RECTILINEAR FORMS



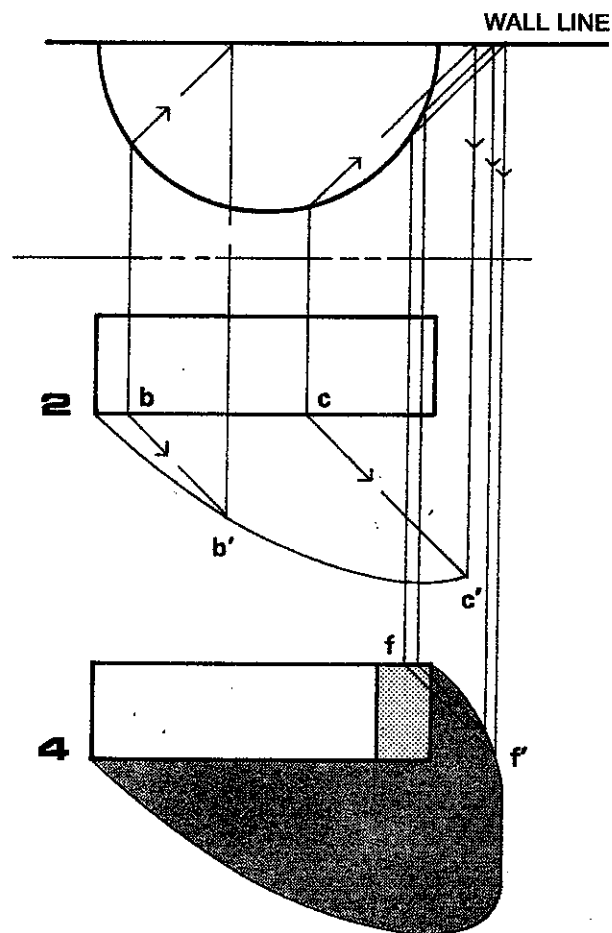
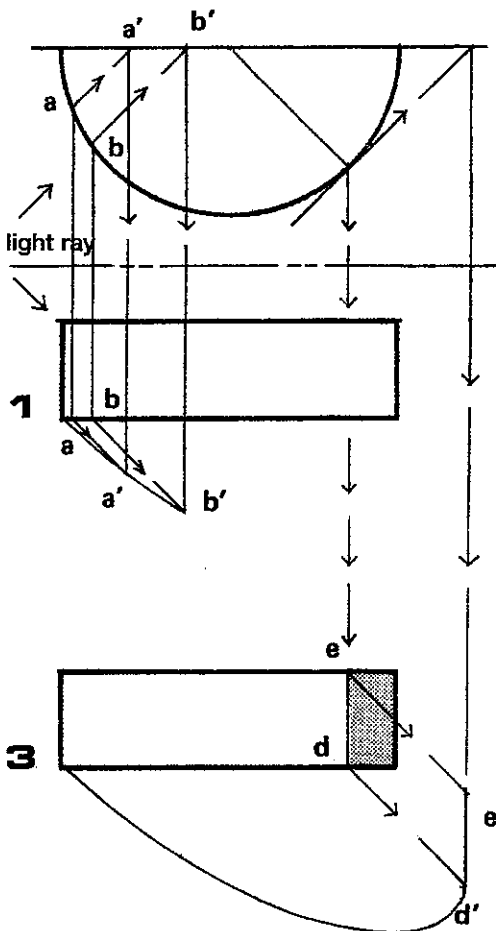


This protruding bay window casts a **curvilinear** shadow on a flat surface.

### Curved Forms

Shadow resolution for a semi-circular curvilinear solid is approached in a similar manner. Project a series of arbitrarily located shadow points to determine the shadow curvature on the wall. Remember that every point on the line that separates light from shade (**shade line**) will cast a shadow point on the **shadow line**.

Drawing: Eretheum house, San Francisco, California  
 12" x 20" (30.5 x 50.8 cm), Scale: 1/4"=1'0"  
 Media: Pencil, Prismacolor, pastel, Zipatone  
 Courtesy of Kotas/Pantaleoni, Architects  
 Jeremy Kotas

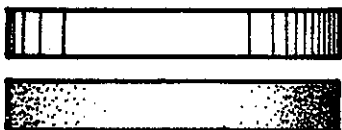


1

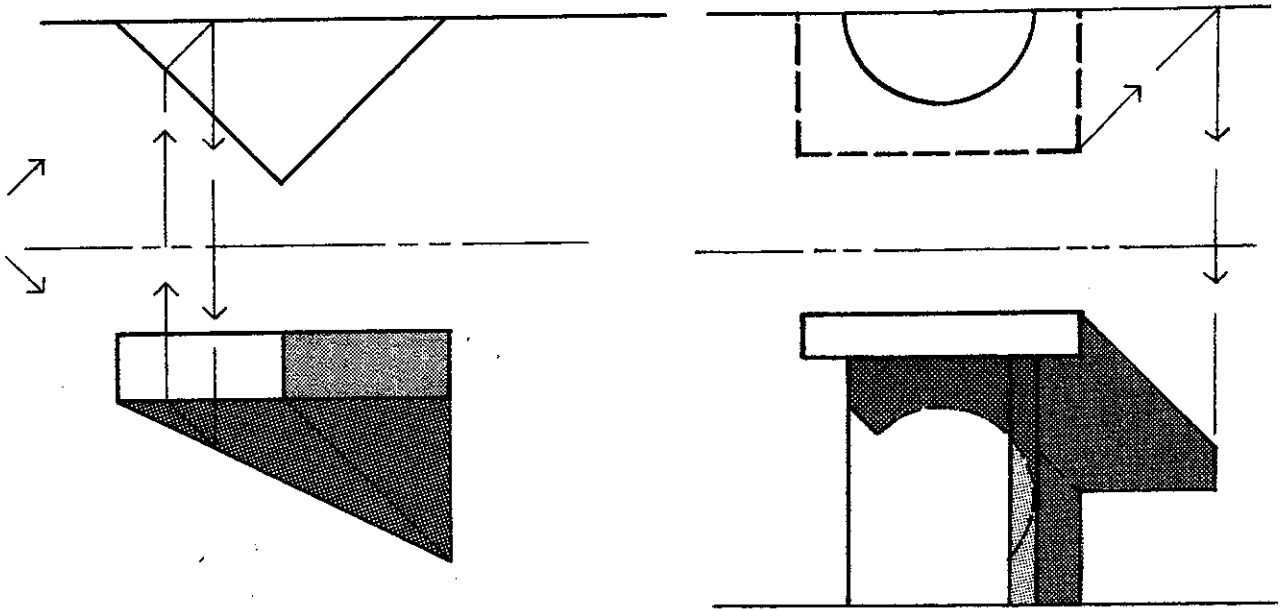
2

3

4

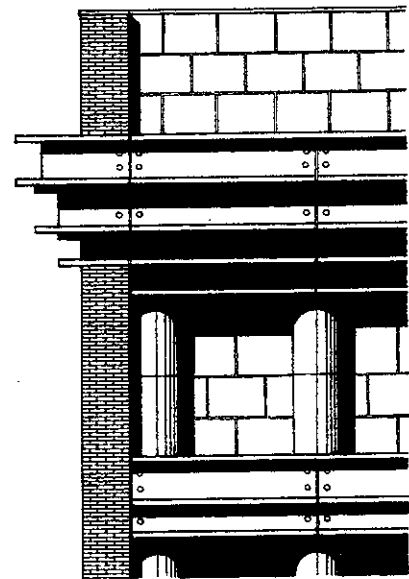
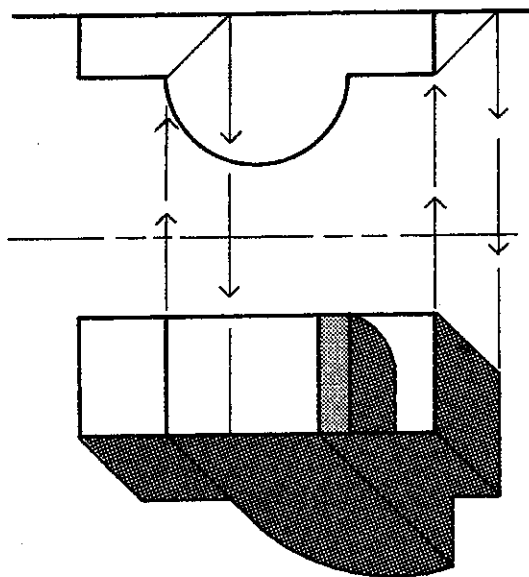


A cylindrical or curvilinear surface always appears flat in the front elevation. Use a series of unequally spaced fine lines or increasing dot density instead of a uniform shade density to create a feeling of depth (see pp. 103-04).

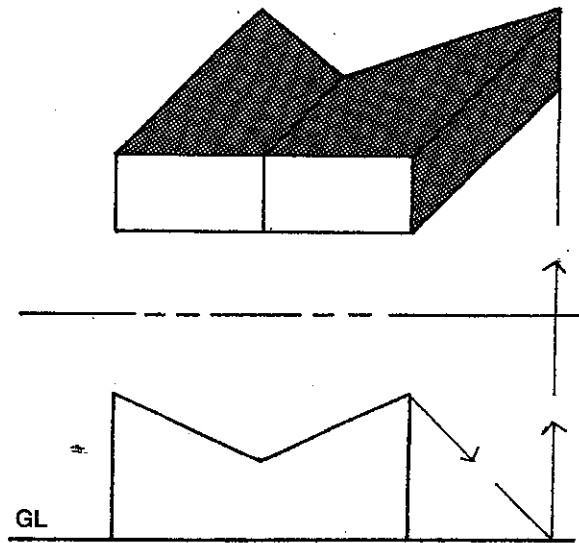
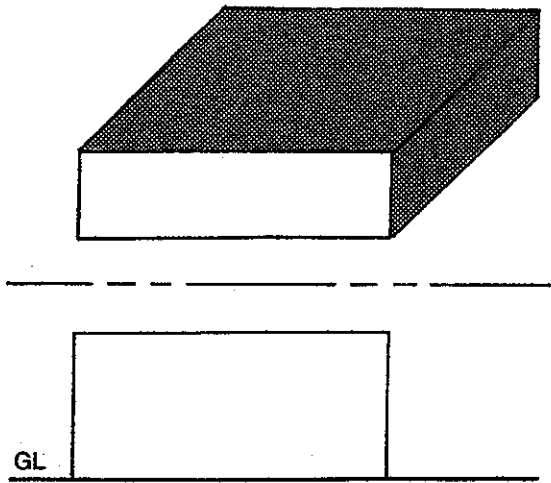


**Elevation View Shadows**

The study of wall condition shadows for various geometric forms, such as the previously described rectilinear and curvilinear forms and the variety shown on this page, provides the necessary framework for the analogous situations encountered in site plan and roof plan shadows. This analogy becomes apparent by turning any wall condition drawing upside down: the "wall line" then becomes the "ground line," and the "wall object" becomes the object seen in the plan view.



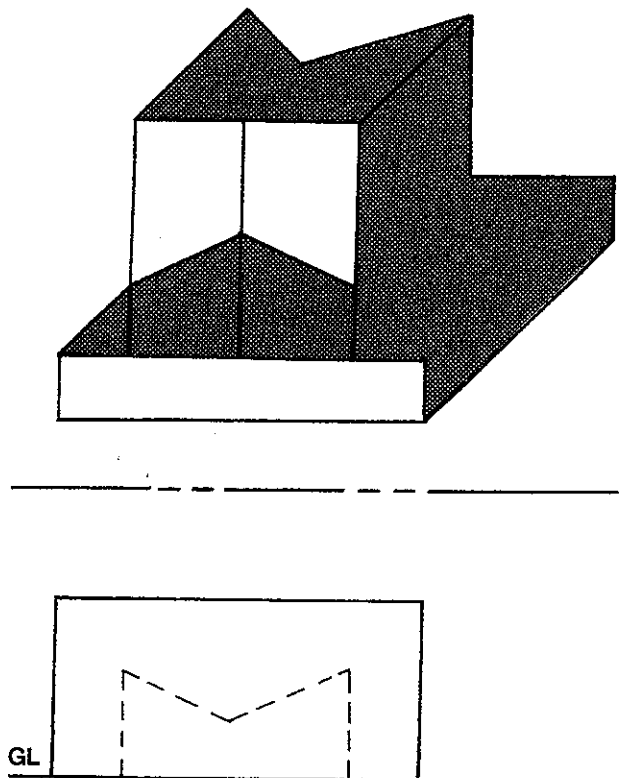
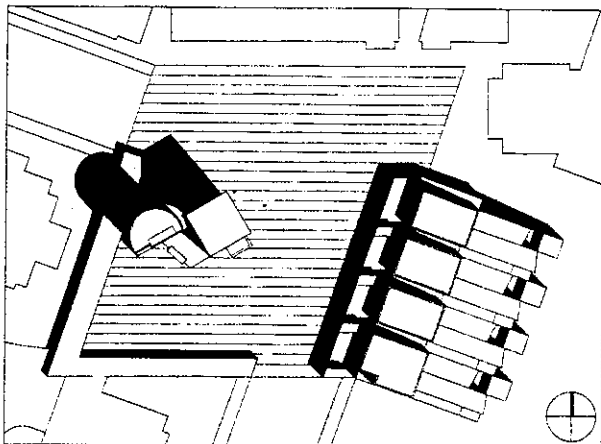
Partial elevation: Hotel Il Palazzo  
 Fukuoka, Japan  
 18" x 24" (45.7 x 61 cm), Scale: 1:50 m  
 Medium: Black ink on Mylar  
 Courtesy of Aldo Rossi, Studio di Architettura  
 New York, Architect



**Plan View Shadows**

These drawings illustrate the analogy between wall elevation shadows and site/roof plan shadows. The height of the solid forms above the "ground line" determines the length of the shadow cast in the plan view. Note that by simply turning the drawing upside down and switching the plan and elevation views, wall elevation conditions result.

Drawing: Town Square, four houses and chapel  
 Port Ludlow, Washington  
 Scale: 1"=40'0"  
 Medium: Pen and ink  
 Courtesy of Steven Holl Architects



PLAN VIEW SHADOWS