**Laseau, Paul: From "Graphic Thinking for Architects and Designers"**
Source: Graphic Thinking for Architects and Designers
Wiley, 2000

## Physical Site Analysis

Site features can include macro- and micro-climates, topography, natural circulation, views, and landscaping elements such as trees, bushes, rocks, or water. These site features must be considered in order to place and design a house. Abstract sketches can uncover problems and opportunities by showing the site features simultaneously. The illustration used here focuses on general site characteristics rather than on specific details. Focusing on generalities helps the designer to form a visual memory of the important site considerations. With the aid of these sketches, other perceptions can be derived, such as wind, privacy buffers, or the best site for building. For this recreational house, the sun pattern, the ridge of the land, and the summer breeze suggest the general orientation of the building. The existing site entry, disposition of the trees, and the small river to the south set up the prominent views and basic site circulation. This site analysis can be further extended, taking into account program area needs to explore some preliminary alternatives for building massing, as shown at the far right.

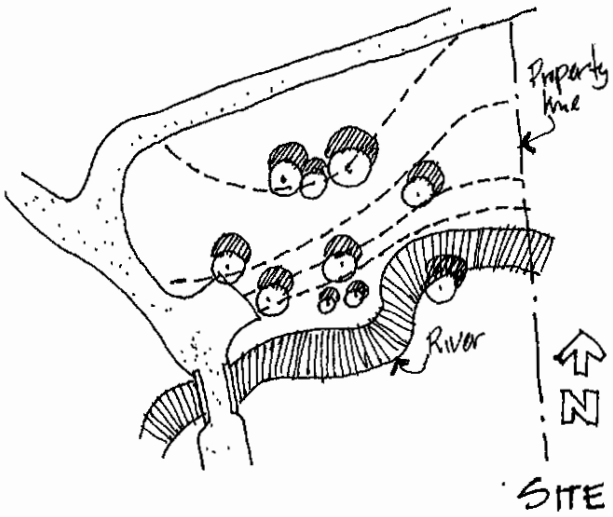



Figure 6-27a

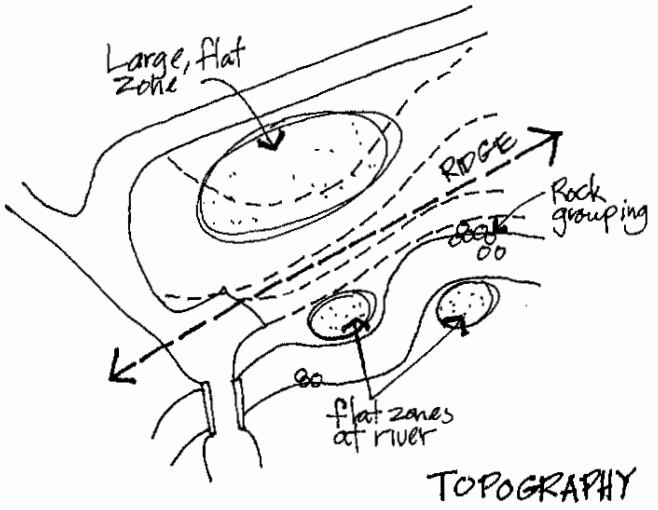



Figure 6-27b

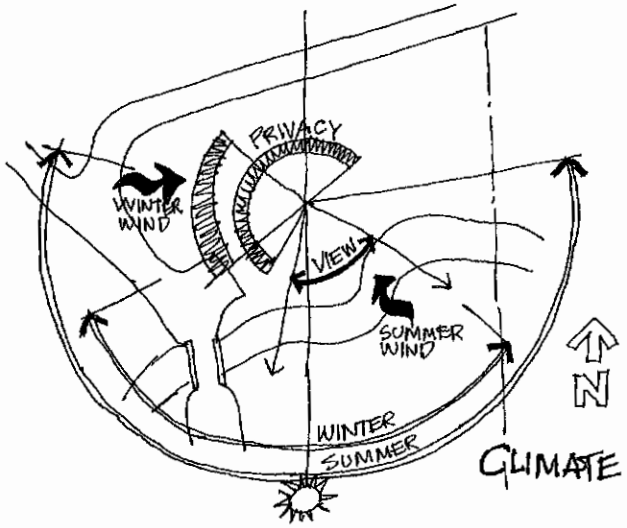



Figure 6-27c

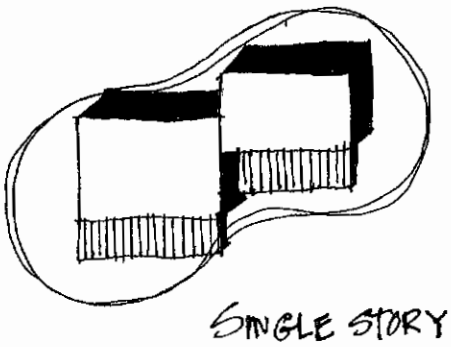



Figure 6-28a

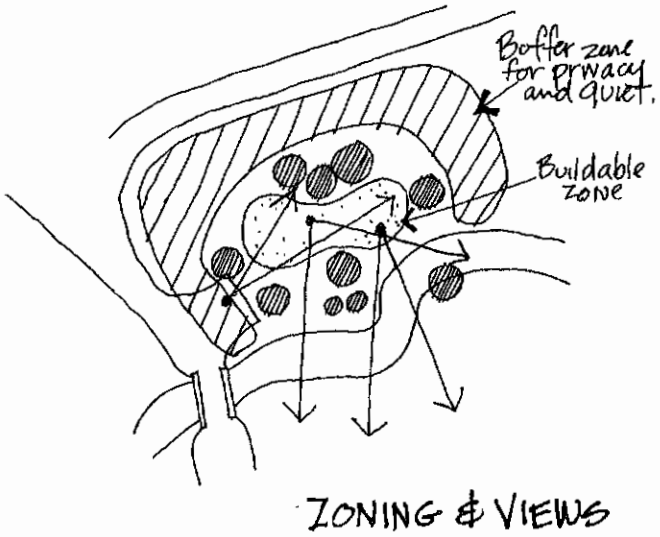



Figure 6-27d

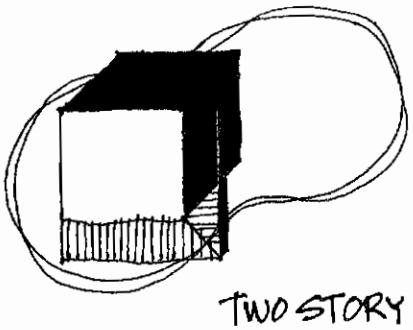



Figure 6-28b

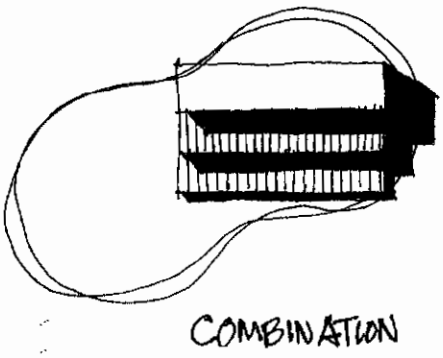
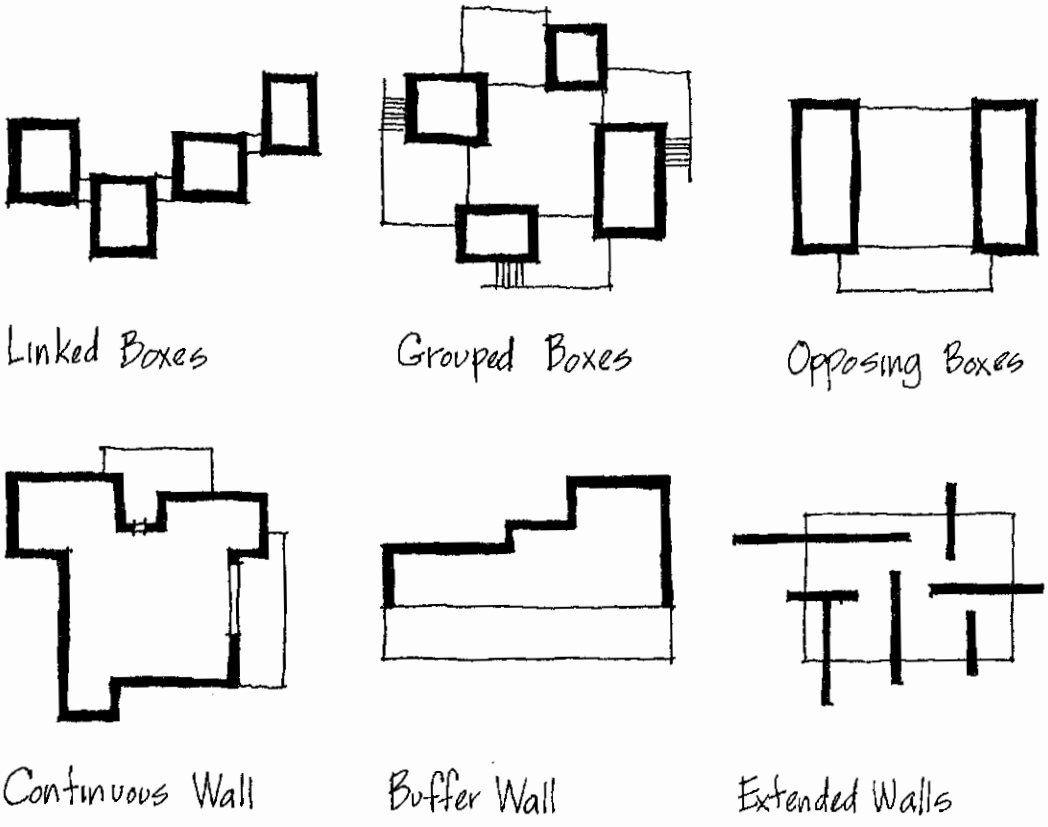



Figure 6-28c




## FORM

The third set of variables, form, is under the control of the designer. In this area he can help the client make decisions after the need and context variables have been identified. But remember that the solution to the design problem is basically an agreement between need, context, and form. In a sense, all three sets of variables are flexible until a fit is achieved. Some designers expect the client's program and the context alone to dictate the solution, but form is equally important because there are a number of viable forms that meet specific needs. The architect must be as familiar with form variables as with those of need or context. The abstract sketches that follow are used to build a visual memory of form variables.

### Space/Order

Variations of the spatial organization of a house are numerous. A few examples are shown here in plan diagrams using a similar drawing style to facilitate an easy comparison. The walls are drawn with heavy lines so the diagrams can emphasize space by clearly defining solid and void. Furthermore, titles are given to each organizational type as an important aid for easy recall.

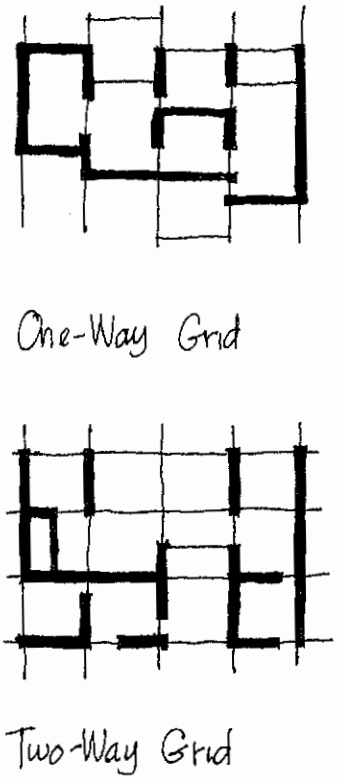



Figure 6-29 Alternative spatial organizations shown in plan view.

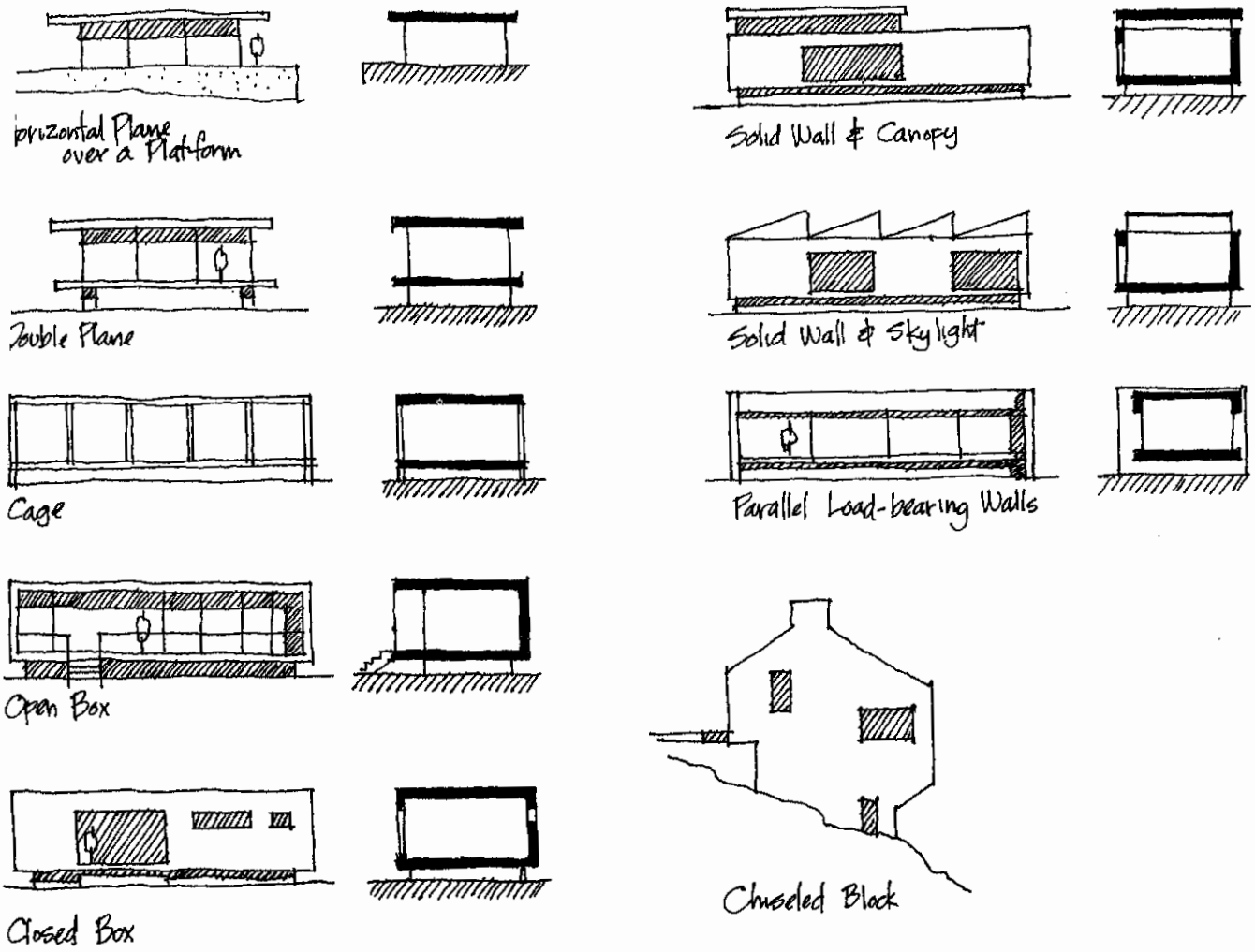



Figure 6-30 Alternative enclosure types.

Above, a range of organizational types shows three-dimensional options for spatial order and the implications for appearance. Structure and materials are also considered. Note how different approaches to enclosure can lead to variety in formal expression or aesthetic.

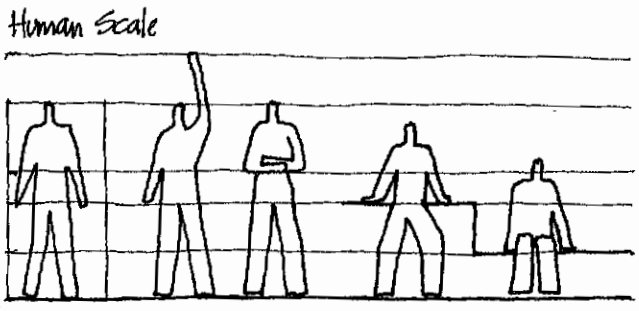



Figure 6-31 Important human-related sizes.

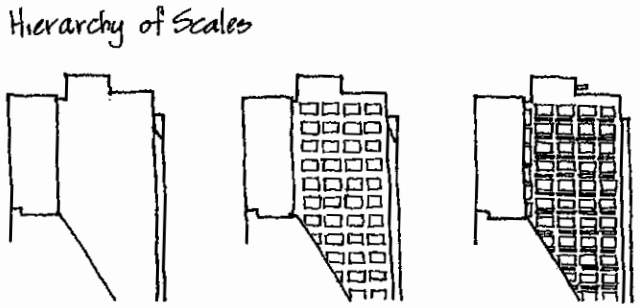



Figure 6-32 Dormitory building, New York University, I. M. Pei and Associates, architects.

## Scale/Proportion

Although they can enjoy the qualities of form, architects do not automatically perceive how the form variables are arranged to achieve a specific effect. In addition to their formal education, most architects spend a lifetime gathering insights or perceptions about such qualities.

One effective way of increasing perception is through visual analysis. The emphasis of a specific variable such as scale or rhythm in a sketch can be abstracted from the context of the building. Scale implies a relationship of sizes. The size of people is the handiest reference for other sizes; this is called *human scale.* Although it is obvious that all structures cannot be within our scale, we can feel more comfortable with a large building if certain of its features range in size from human scale to the overall building. Through graphic analysis, we can begin to understand how scale is handled in different buildings.

The effect of proportions on the design of a building can be represented for analysis in a similar way. Proportion is the relationship between dimensions (horizontal–vertical). Through abstraction, the impact of proportions on existing buildings can be better understood.

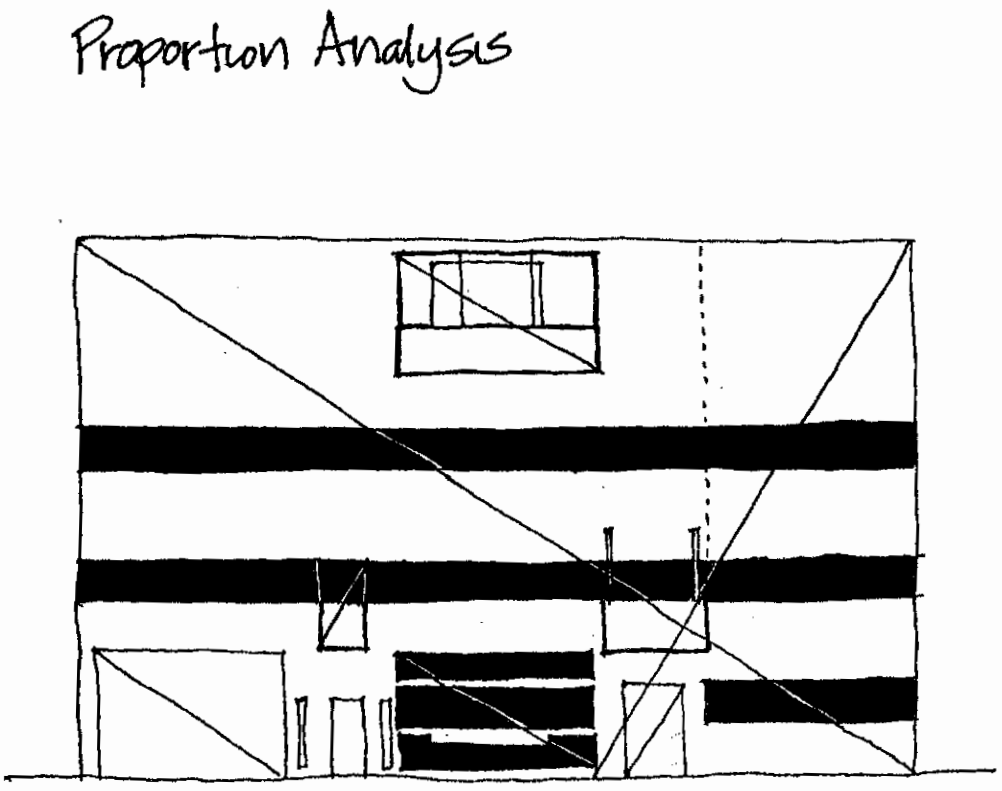



Figure 6-33 Entrance facade, villa at Garche, LeCorbusier.

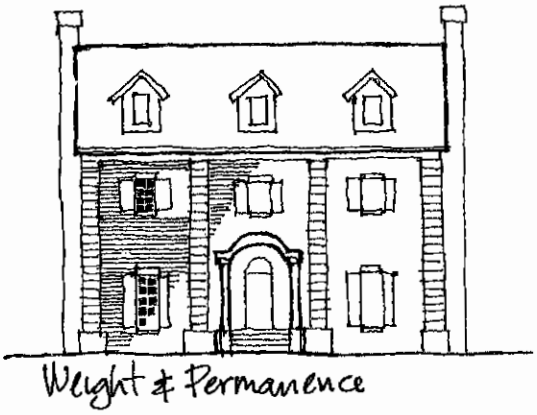



Figure 6-34 Traditional brick construction.

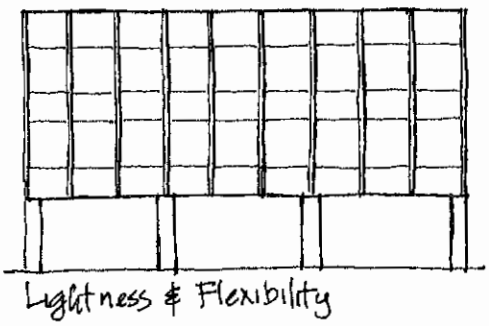



Figure 6-35 Curtain wall construction.

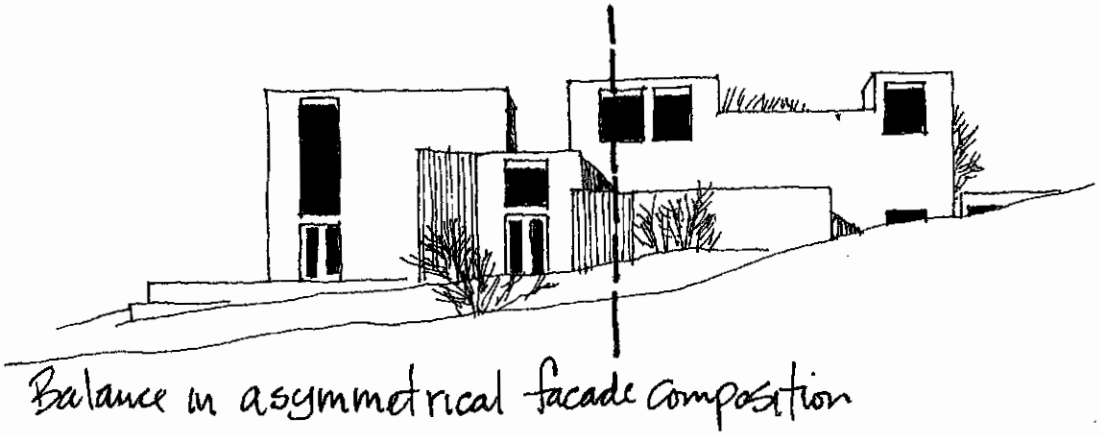



Figure 6-36 White Residence, Mitchel/Giurgola, architects.

## Mass/Balance

Anyone who has taken up jogging is well aware of the importance of mass and balance in human experience. We all have a built-in sense of these qualities, causing us to respond to them in buildings. Furthermore, mass and balance are associated with many other feelings, such as security and flexibility. In a building, a sense of mass can convey security or permanence; a sense of airiness can convey flexibility or freedom. Throughout architectural history, many methods have been discovered for varying the apparent mass of buildings. By analyzing buildings that have clear sensations of mass, the use of such formal devices as horizontality, verticality, and emphasis can be uncovered.

Walking is a tremendous feat of balance. Much of the enjoyment of walking, riding a bike, skiing, and the like is derived from the tension between stability and instability. We have a finely tuned sense of balance that carries over into our visual perception. The different ways of articulating balance in building design can be also highlighted through abstract sketches. The sketches shown here deal with symmetrical and asymmetrical balance in composition and three-dimensional balance, an important part of architecture.

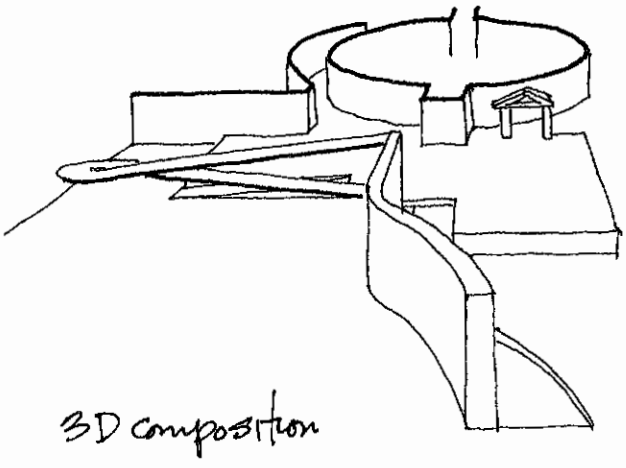



Figure 6-37 Grabbeplatz at Dusselporf, James Stirling, architect.

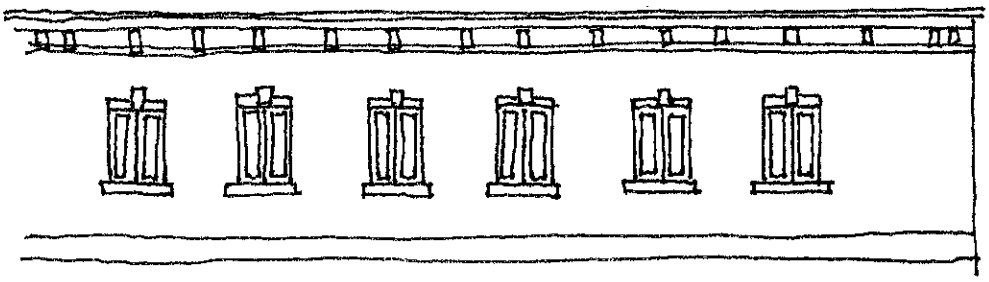


Figure 6-38 Evenly spaced windows.

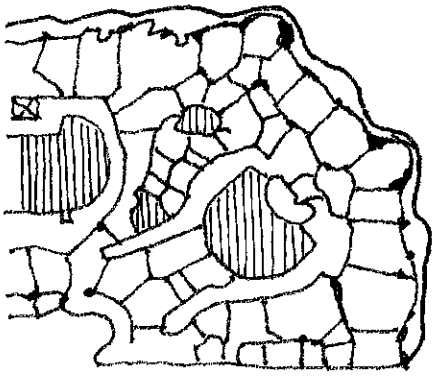


Figure 6-39 Casa Mila, Antonio Gaudi, architect.

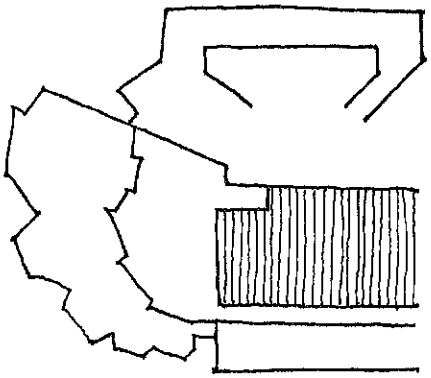


Figure 6-40 Wolfsberg Center, Alver Aalto, architect.

## Repetition/Rhythm

One way of achieving unity in a building is through repetition of parts that are alike, such as windows or columns. Similarity of objects, even if only partially similar, is a way of emphasizing association. Members of the human race are recognized by a number of similar features in spite of the great diversity in their individual appearance.

The importance of rhythm in architecture is based upon its relationship to the human rhythms, walking or breathing, and the natural rhythms, the tide or the seasons. Just as music presents audio rhythms, architecture displays visual rhythms. In architecture, the principal means of achieving rhythm is spacing of parts; this is comparable to the intervals between beats or notes. The character of visual rhythms in a building depends on the size of both the intervals and the parts. Two basic types of rhythm can be identified. Staccato rhythm is formed by clear distinction between intervals and parts, such as mullions on a curtain wall. Legato rhythm is softer, formed by more subtle transitions between intervals and parts, as in the curvilinear architecture of Gaudi. There are also rhythms distinguishable by patterns of interval or part sizes, as in a facade by Palladio. And there are accelerating or decelerating rhythms, as in the Wolfsberg Center by Aalto.

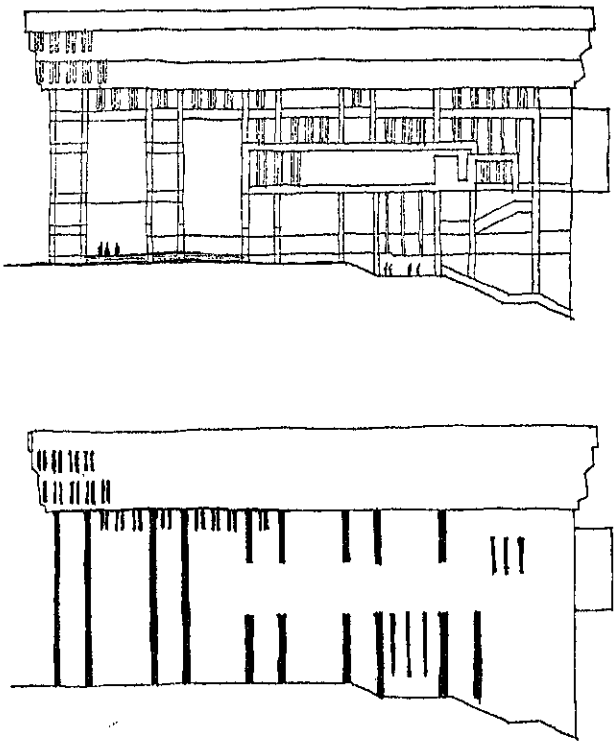


Figure 6-41 Boston City Hall.

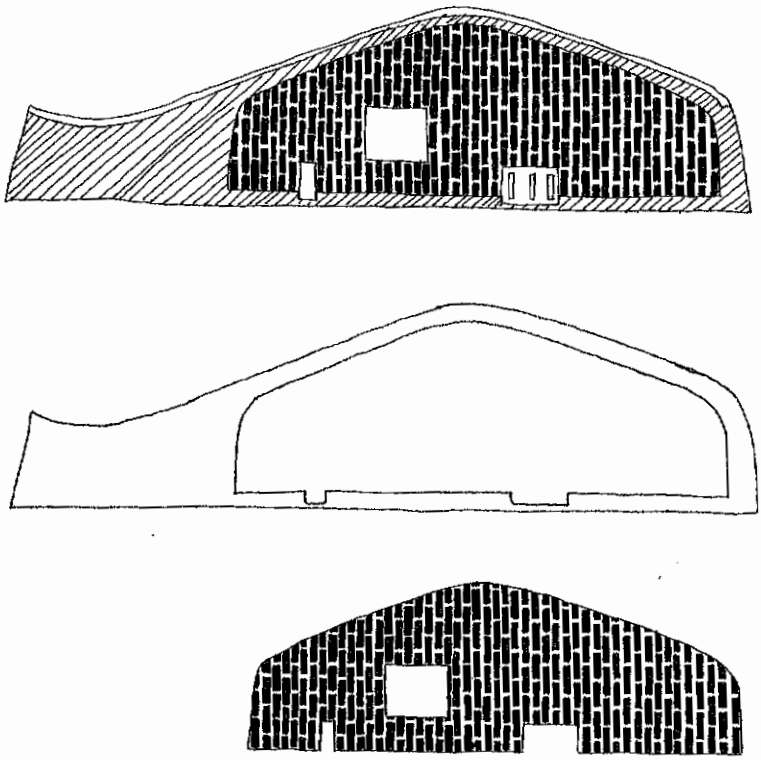


Figure 6-42 South facade, Litchfield High School Gymnasium, Marcel Breuer and O'Connor & Kilham, architects.

## Unity/Diversity

The degree of unity or diversity expressed in a building constitutes another class of form variables. The other variables (scale, proportion, mass, balance, repetition, or rhythm) can be used to achieve unity or diversity. Some of the ways of increasing unity include framing or emphasizing a border; using a continuous pattern, modular grid, or a single shape, which is at the same scale as the building; and maintaining independence between the parts and the whole.

Diversity can be achieved by planned violation of the rules of unity: avoiding framing or consistent pattern; varying rhythms or modules; using multiple grids; and breaking up the dominating geometry.

Unity and diversity are not mutually exclusive; it is possible to overlay them and thereby increase the intensity of both attributes.

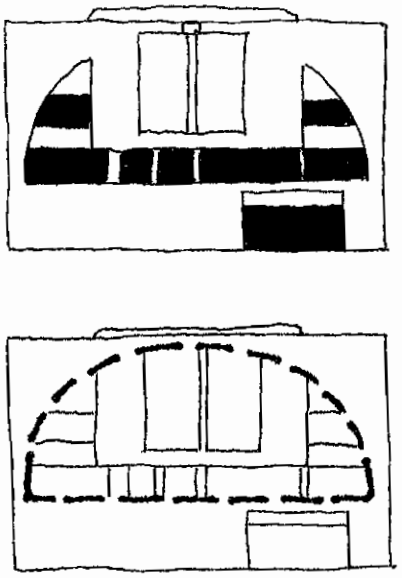


Figure 6-43 Ohio Town Hall project, Venturi and Rauch.

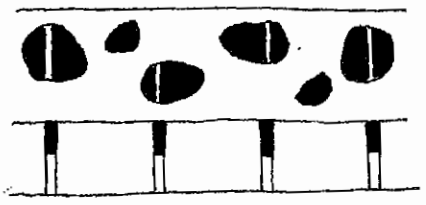


Figure 6-44 Assembly building at Chandigarh, LeCorbusier.

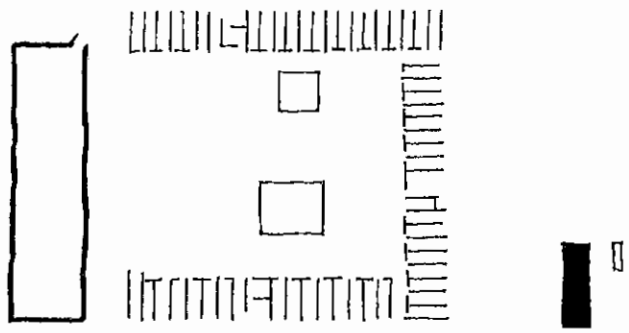


Figure 6-45 LaTourette monastery, LeCorbusier, architect.

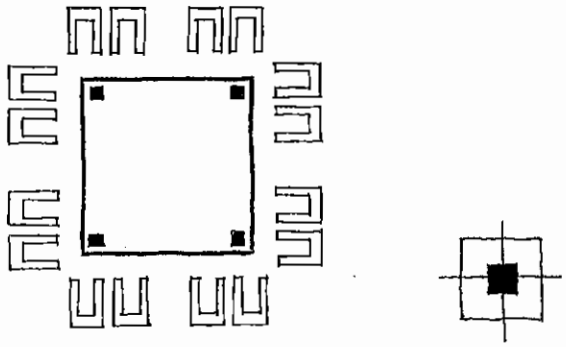


Figure 6-46 Hurva Synagogue project, Louis Kahn, architect.

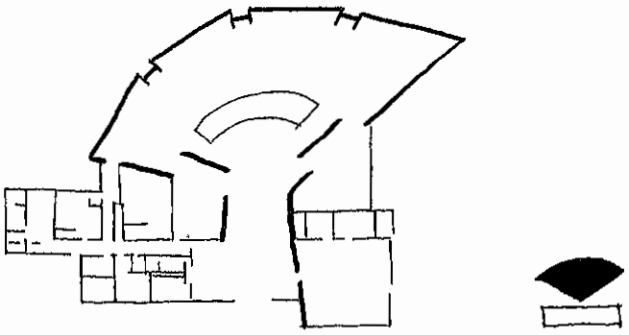


Figure 6-47 Mt. Angel Library, Alva Aalto, architect.

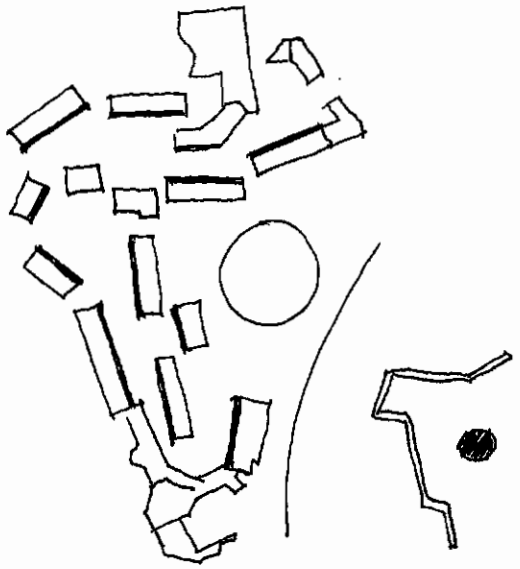


Figure 6-48 Kresge College, University of California, Santa Cruz, MTLW/Moore Turnbull, architects.

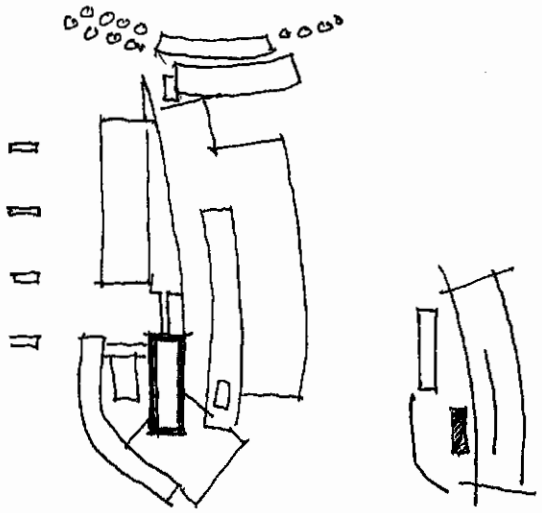


Figure 6-49 Amerika-Gedenkbibliothek, Berlin, Morphosis, architects.

## Hierarchy

Conceptual strength and clarity often play an important role in the experience and use of a building. A sense of hierarchy can contribute much to the conceptual presence of architecture. Whether as analysis of existing buildings or as speculation about an emerging design, intentions can be highlighted by the use of abstract sketches such as those shown here. In corresponding sequence, starting at the top, the sketches in Figures 6-45, 6-46, and 6-47 present three approaches to hierarchy: dominant size, central location, and unique shape. As reflected in Figures 6-48, and 6-49, approaches to hierarchy are often combined to achieve greater impact.

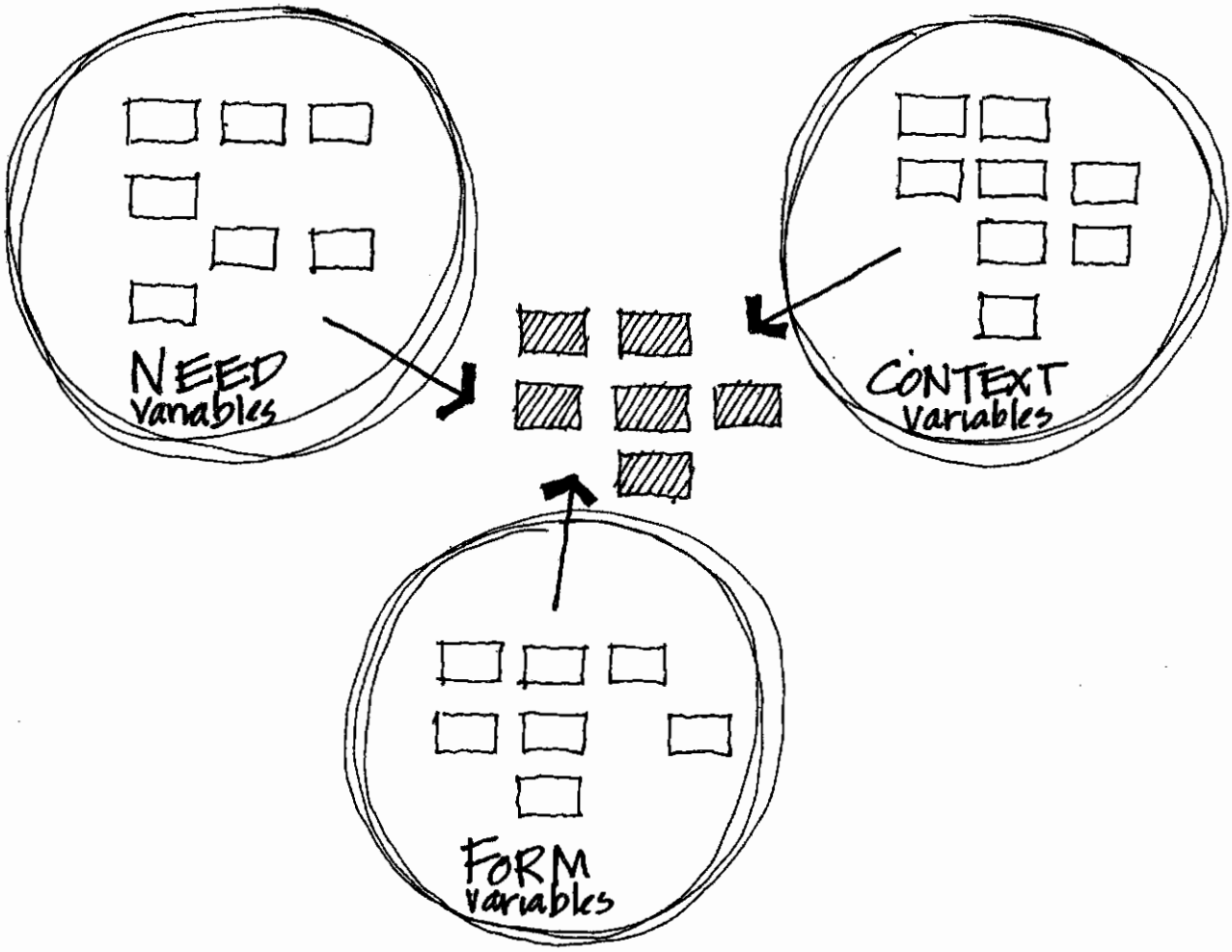



Figure 6-50

## SOURCES OF SOLUTIONS

As was pointed out before, the origin of a design solution may be found in any one of the three types of variables: need, context, or form. On the following pages are case studies based on the recreational house example. In each study, an abstract diagram of one of the variables is used as the source of a basic organizing idea for the house; then constraints or considerations from the other types of variables are introduced to modify the concept. These studies should make clear some of the following advantages of abstract diagrams:

1. The variety of ideas visible at one time is very stimulating for thinking.
2. The differences in the three types of variables promote a variety of solution alternatives.
3. Attention is focused on general issues instead of details.

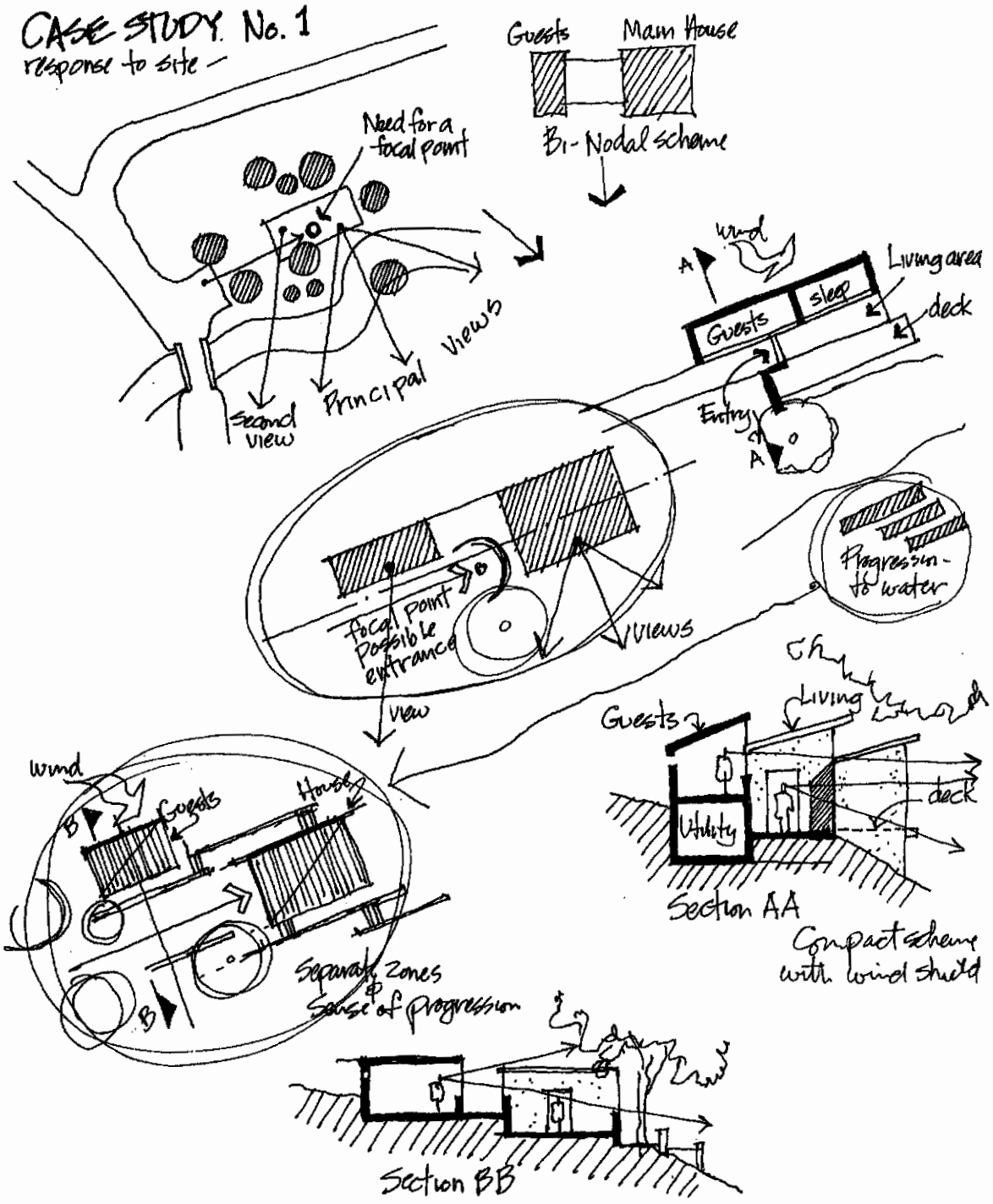

CASE STUDY No. 1
response to site –
Guests
Main House
Bi-Nodal scheme
Need for a focal point
Second view
Principal views
wind
A
Guests
sleep
Living area
deck
Entry
Focal Point
Possible entrance
views
Progression to water
view
wind
B
Guests
House
Separate Zones
Sense of progression
Guests
Living
deck
Utility
Section AA
Compact scheme with wind shield
Section BB

Figure 6-51

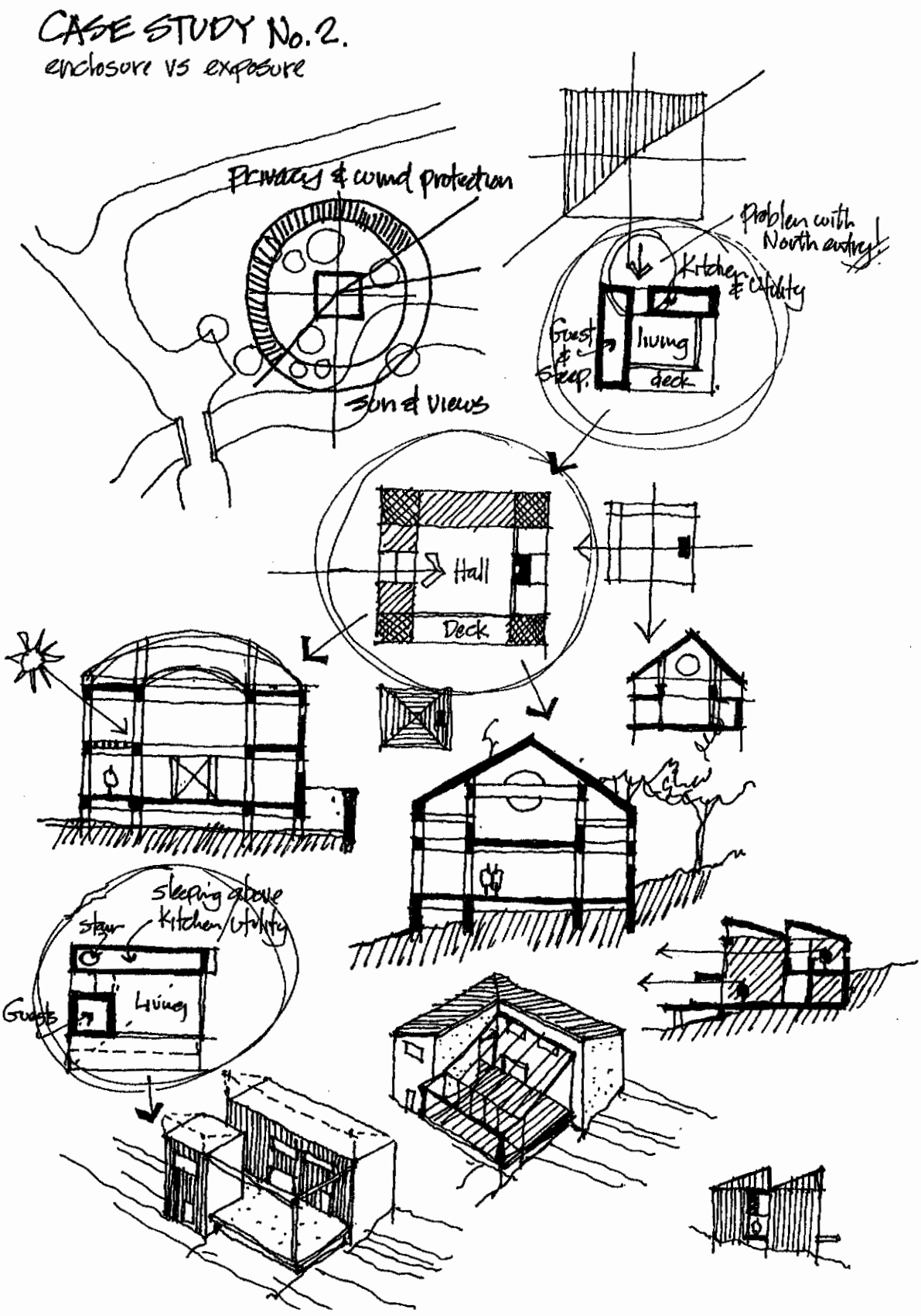

CASE STUDY No. 2.
enclosure vs exposure
Privacy & wind protection
Sun & views
Problem with North entry!
Kitchen & Utility
Guest & Sleep.
living
deck
Hall
Deck
sleeping above
Kitchen/Utility
stair
Guests
Living

Figure 6-52

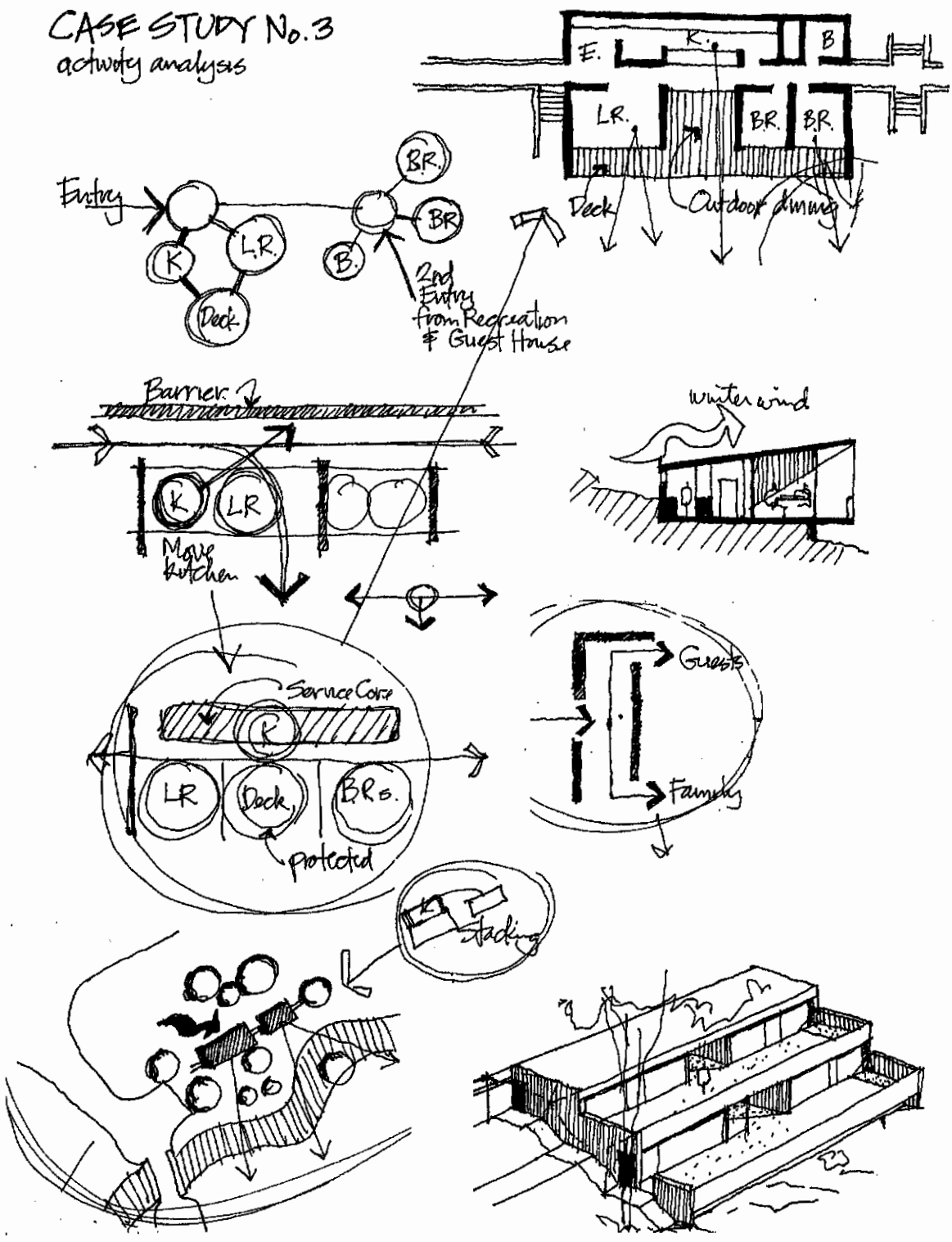

CASE STUDY No. 3
activity analysis
E.
K.
B
LR.
BR.
BR.
Deck
Outdoor dining
Entry
K
L.R.
Deck
B.
BR.
BR
2nd Entry from Recreation & Guest House
Barrier
K
LR
Move kitchen
winter wind
Service Core
R
LR
Deck
BRs.
protected
Guests
Family
Parking

Figure 6-53

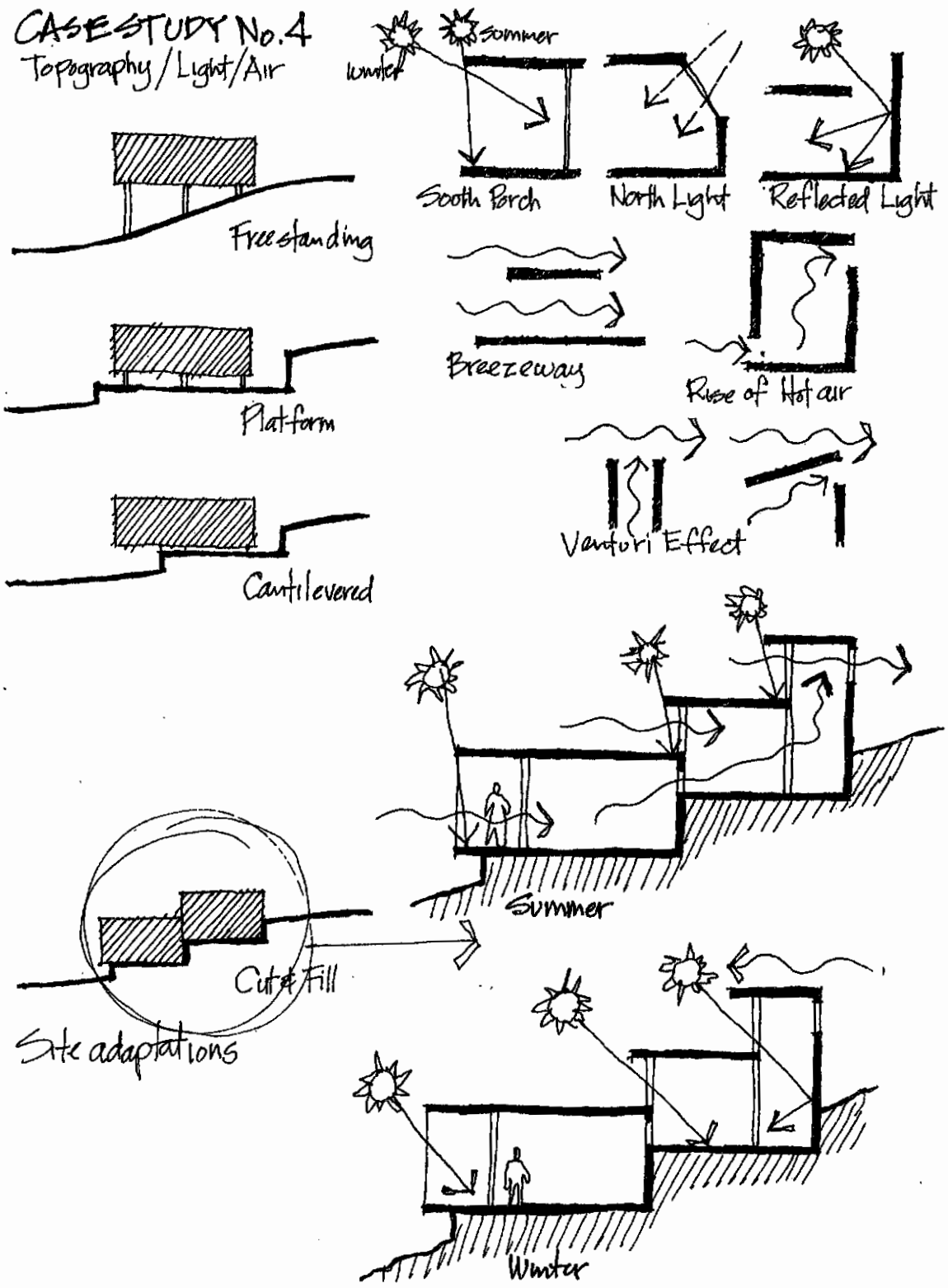

CASE STUDY No.4
Topography / Light/Air
Winter
Sommer
South Porch
North Light
Reflected Light
Freestanding
Breezeways
Rise of Hot air
Platform
Venturi Effect
Cantilevered
Summer
Cut & Fill
Site adaptations
Winter

Figure 6-54

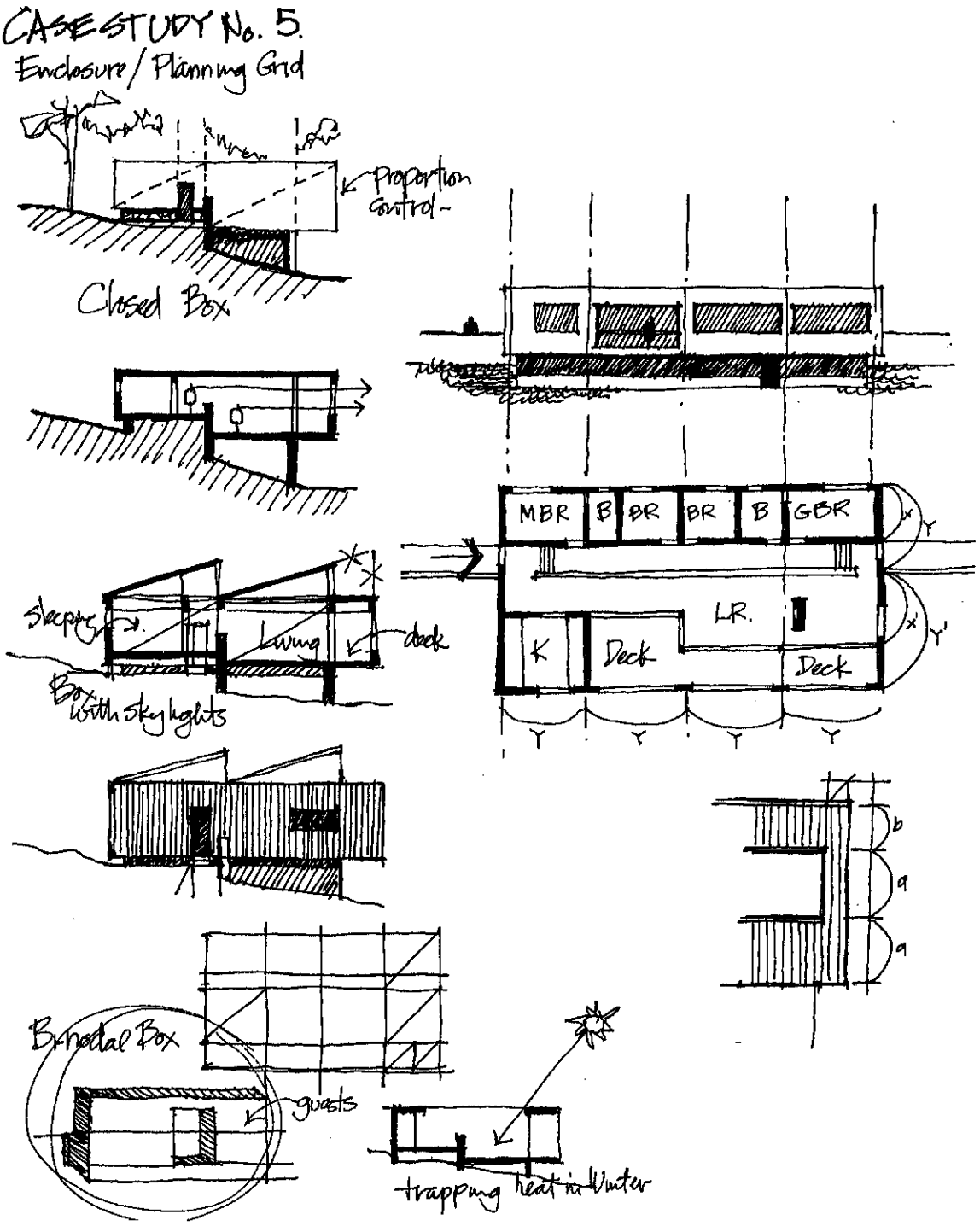

CASE STUDY No. 5.
Enclosure / Planning Grid
Proportion control
Closed Box
MBR
B
BR
BR
B
GBR
LR.
K
Deck
Deck
Sleeping
Living
deck
Box with skylights
Bimodal Box
guests
trapping heat in Winter

Figure 6-55