

SECOND EDITION

From Concept to Form in
Landscape Design



Grant W. Reid, FASLA

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Preface

Whether you are a beginning designer or a seasoned professional, there is always room for improvement, change, or a fresh approach. Form in the landscape is the ultimate visual expression of the many forces that influence the design of outdoor environments. The site itself expresses opportunities and constraints, the owner or developer usually has budget limitations, and the potential users bring a variety of requirements to the design. Landscape architecture embodies a skillful integration of these forces so that the changes on the land respond to human needs yet remain sensitive to the environment. The process of reaching an appropriate form is the focus of this book.

Form and function are critical elements of this process. Some believe that form follows function, and that form is a logical outgrowth of an initial resolution of functional issues. Others feel that form has its own integrity and can influence how a site is utilized. In other words, form may precede or dictate function. Since concepts usually deal with ideas and functional problems, the title of this book, *From Concept to Form*, may suggest a preference for the form-follows-function process. The author, however, believes that form is an integral part of function and that influences can flow in both directions.

Offered here is an approach to the design of landscapes, an approach that is, for the most part, logical and structured. Geometry and naturalism combine as the basis of

this structure and become a way of thinking about form. This approach encourages you to engage in geometric and natural thinking, to go beyond the visual examples shown here, and to develop creative form that evolves from your own unique experiences. You are invited to use this book as a vehicle for new ideas, a crowbar that can get you out of the box. Design blockages can be frustrating. Overcoming them can be very exciting.

Most of the photographic images and designs are derived from the author's professional experience in Colorado and in New Zealand. The landscape plans therefore have a definite bias toward the arid Colorado environment and Colorado-user patterns. Readers who are working in very different environments such as desert, tropical, wet, coastal, or heavily urban areas should still be able to apply the ideas in this book, with a little creative adaptation.

This book is accompanied by an online supplement. The purpose of the supplement is to allow experimentation with the ideas presented in the book. Although it is included mainly for instructors, it can be used by the individual designer as well. The guide patterns and landscape concept plans can be printed out at a larger size for manual manipulation in the design studio. Alternatively, the same graphics can be downloaded onto the user's computer for digital manipulation. Visit www.wiley.com/go/conceptform to access the online supplement.



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Credits

Models and Illustrations

Figure 2-21, Robert Hill; Figure 2-101, Connie Gunter; Figure 3-10, Jill Burson; and Figure 3-36, Mary Skaggs.

Photographs

Figures 2-15, 2-75, 3-88, 3-89, and 4-60 were taken by EDAW, Inc. Figures 2-78, 3-24, 3-108, 3-117, and 4-16 were supplied by Daniel Nies.

All other photographs and illustrations are by Grant W. Reid.

From Concept to Form in
Landscape Design

The Concept

The traditional approach to landscape architectural design usually begins with research, which investigates the goals of the client, the parameters of the site, and the needs of potential users. Documentation of this phase is expressed in the form of a *written program*, a *site inventory*, or a *site analysis*. Next in the design process is the *landscape concept*, which embodies a series of ideas about how to improve a specific site. Usually these ideas are a logical outcome of the research, but sometimes they precede the research and are later refined or modified by it.

Concepts are ideas that happen at many levels. Before discussing these different levels of conceptualization, let's explore the creative process a little. Where do these ideas come from, anyway?

Creativity

Too often we find ourselves as individual designers falling back on the easy approaches: "I've seen this before and it seems to work just fine"; "I've used this idea successfully on other projects"; "I am familiar with these concepts, plants, patterns, etc., so I'll use them again"; "These materials are inexpensive and readily available."

There is nothing inherently wrong with this kind of fail-safe design attitude. In fact, we have to rely on it constantly to survive. However, from time to time we should balance it with a creative thinking mode: "How do I come up with something new?"

Many ideas come from the information you will be gathering about the landscape project, from particular aspects of the site and requirements expressed by the users. Research and organize the facts. Try to list the problems as opportunities rather than as limitations. Our experiences from reality form images that we store and recall, but to move from "what is" to "what could be," we need to adopt an attitude of openness, of acceptance, and of willingness to consider the unfamiliar and risky direction. It is necessary to put aside some feelings and attitudes that inhibit idea making. These include:

Fear of the unknown

Fear of failure

Need for a perfect solution right away

Preoccupation with practicality

Try these approaches, which have worked for the author:

1. **Choose Comfortable Surroundings** Set up your design space so that you can be both relaxed and focused, with few distractions. A comfortable chair, the right music, limitations on interruptions from other people, no disturbing noises, pleasant views—all help set the stage for generating ideas.
2. **Consider Creative Improvement** Take a familiar idea and see what can be done to make it better. Consider whether there is a simpler, cheaper, quicker, more efficient, more beautiful, or less cumbersome solution.
3. **Use "What-if" Dreaming** Accept the notion that what has been done before may not be the best solution. Allow images to flow, and accept as a possibility ideas that at first may appear to be unlikely, strange, bizarre, or impossible. To be really effective, the dream has to be a fantasy, such as "What if you never had to mow the lawn?" or "What if plants planted themselves?" Is this ridiculous? Perhaps; perhaps not.
4. **Investigate Process** Visualize moving relationships and processes such as ecological succession, recycling, energy conservation, erosion, and water cycles.
5. **Try Manipulation and Transformation** Take familiar objects or forms and try unlikely rearrangements, combinations, subtractions, additions, or distortions (warp, bend, squeeze, pinch, roll, twist, fold, flatten, expand, contract, push, pull).
6. **Accept Flawed Solutions** Let an idea that at first does not seem workable remain in view. Later evaluations

may spark a similar, more feasible idea, or you can cycle back to approach number 2, creative improvement.

7. **Externalize and Communicate Initial Ideas** Most of these suggestions relate to the individual designer. Techniques of brainstorming in large groups bring up many other issues that will not be covered here; however, there are advantages to externalizing weakly defined ideas. Even the roughest quick sketch or diagram can become a stepping-stone for your own mind to evaluate, to expand, and to improve on the idea. Talking things over with a colleague or a friend sometimes triggers a related thought in his or her mind that can reveal opportunities otherwise missed.
8. **Switch Tracks** Try putting the current direction aside and consciously attempting something completely different. Take opposite or negative positions; switch to a different pattern; try a different material, color, or texture. Read more about this technique below in the discussion of lateral thinking.
9. **Time Out and Away** When I have a complete design block or nasty unsolved problem, I will usually either just drop it and go do something else enjoyable or I will sleep on it. Sometimes, at the end of this time-out, the subconscious mind comes up with a solution. Since this is not a very reliable technique, consider it icing on the cake if it works. Besides, it's difficult to justify billable hours while playing or asleep.

If you are serious about learning practical and effective techniques for creative thinking, it would be helpful to read *Serious Creativity* by Edward De Bono (1993). He coined the phrase *lateral thinking*, which has at its core the idea of setting up a provocation. The key to this notion is making a deliberate attempt to provoke the mind to jump sideways away from the main train of thought as a way of coming up with a new idea.

To be effective, the provocation should be somewhat unreasonable. De Bono lists several sources for setting up such a provocation. The two most powerful techniques that have worked for me are *negating* and *random input*.

Negating

Negating involves escaping from what we take for granted by making a simple statement that is the opposite

of, or contrary to, conventional wisdom. Let's illustrate this by using landscape examples. Here is one from my work.

DESIGN CHALLENGE

A creative idea for an interactive sculpture in a public plaza

PROVOCATION

Mix fire with water (not an expected or practical combination).

RESULTING THOUGHTS

For substance, how about adding rock into the mix?

This is looking like a very sensual experience. Can I build on this by including fragrance?

Now we have stone, fire, water, fragrance.

Perhaps the water can be in vapor form. How about fogging nozzles?

Should the fragrance be combined with the fog or separate?

Where would I put them? Can I use rock segments or cut a big natural boulder into pieces, pull them apart, and make gaps?

Would the fog condense on the stone for a tactile experience?

What if red-orange light were used as a metaphor for fire instead of a traditional flame?

Maybe the fog particles would reflect the light. What about a laser source?

IMPLEMENTATION

There came a point where all these questions along with a series of rough sketches began to congeal into one new identifiable idea (Figure 1-1). It was then time to delve into the practicalities of how to make this work. Research followed into rotating stone cutters, pumps, atomizing



Figure 1-1

nozzles, beam- and fan-shaped lasers, support systems, and of course, costs.

EVALUATION

As of this writing the sculpture has not been built. Does that mean it was not a good idea? Not necessarily. There are some as yet unresolved technical issues. Perhaps it was for the wrong client or presented at the wrong time. Perhaps it cost too much. Some day the idea could be revived and find a perfect fit. Anyway, evaluating your ideas is an important part of the creative process. It takes a lot of energy and discipline to pursue creative ideas. Even if they do not become reality immediately, it is worth a bit more time to keep track of these ideas, reuse them later, or keep them on file as possible inspiration for something a bit different.

Here is another example of negating.

DESIGN CHALLENGE

A new type of landscape fence or barrier

PROVOCATION

Barriers are not aboveground structures

RESULTING THOUGHTS

There is a general principle of controlling the movement of people or vehicles.

What could be on or under the ground—project down instead of up?

Dropoffs, trenches, or moats come to mind.

How about communicating a “no go” line by some other means?

Electronic signals and receivers could indicate forbidden territory and administer disincentives.

Could global positioning systems be used to keep people away?

Would uncomfortable or even dangerous stuff on the ground discourage entry?

This brings to mind uneven or unstable surfaces, swamps, mud, or other goopy material.

EVALUATION

This idea was never taken any further, but there is probably a workable idea in there somewhere. The point is that the negative provocation forced the thinking patterns beyond “what is” (fence or wall) into “what could be.”

Random Input

Random input can be achieved by using word association. From a grab bag of miscellaneous words, select one at random and associate it with a phrase from your design brief. For example:

DESIGN BRIEF

New ideas about paving

PROVOCATION

The word “dog” (randomly selected and not related to the brief)

RESULTING THOUGHTS

“Dog” could be associated with obedience.

An obedient pavement; one that changes on command?

Voice sensors, motion sensors, impact sensors

Folds away or rolls up on command

Changes in reflectiveness, color, or texture on command

Responds to weather changes: heats up automatically to melt ice or cools down to provide a comfortable surface in the heat

Makes sounds when walked on

EVALUATION

With further investigation there may be one or more usable ideas here. It is important to take time at the broad, unresolved concept level rather than to move too quickly to find the practical application. This is where most of the new ideas will come from. It is also beneficial to think in fuzzy loops rather than strictly defined channels. When you get down to some well-defined ideas, they may suggest some different broad concepts. Allow your mind to stay fluid and to go in various directions. Emphasize the exploration of positive opportunities in evolving ideas, not the pitfalls or disadvantages.

If you look at the phrases listed under the previous “Resulting Thoughts” headings, you will notice that there are a series of ideas that flow beyond the provocation. De Bono outlines several techniques that can be used to structure this process, which he calls *movement*.

- Extract principles from the provocation.
- Look at the differences and the advantages in comparison to existing conditions.
- Visualize the provocation as if you’re running a video in your mind.

Let’s take a look at a landscape example.

DESIGN BRIEF

Find better ways to deal with urban run-off

PROVOCATION

Bring back the natural stream

In many urban communities this seems unreasonable because all of the natural flowing streams were modified decades ago and are now in underground pipes or concrete-lined channels, some even covered by urban structures. There is usually strong resistance to undoing something that was once thought to be a good idea. Engineering conventions are also being challenged here.

What principles can be extracted from the provocation?

- Streams are natural systems with their own biological ecosystem.
- Water flow levels in natural streams vary; they may vanish or cause flooding.
- Political, social, and economic conditions would need adjustment.

What are the differences and advantages?

- Streams can be seen, heard, and touched (unlike an underground pipe).
- Streams appear more organic, naturalistic, and more appealing.
- Streams slow down, not speed up, run-off.
- Streams allow percolation to the groundwater system.
- Streams provide some natural filtration.

What pictures can be conjured to visualize the provocation?

- Cascading waterfalls
- Pools and meandering channels
- Raging floodwaters
- A dry creek bed
- Fish swimming
- Birds drinking, swimming, feeding, or bathing
- Insects flying around or floating along
- Plants growing in and around the water
- People interacting with the water

During this process of going beyond the provocation, we are using these techniques to make associations, to find new images, and to search for *value* in the developing idea. Some communities in Switzerland have discovered that the cost of recreating natural streams will be offset by the reduced need for new water treatment facilities. Parts of Germany consider the cost of their “stream reopening program” to be justified in terms of added natural amenity. The Colorado community of Breckenridge has seen increased tourist income from the reconstruction of the Blue River, which was buried by gold-mining activities over a century ago.

A concept can be defined as a general idea or understanding. In practice there are many levels of conceptual thinking, from a broad unifying statement about the project down to well-defined relationships between various parts of the project. This book focuses on the part of the design process dealing with making the transition from these more general ideas to specific landscape shapes and

materials. The various layers of conceptual expression often overlap and flow into each other. We need not be too concerned with trying to distinguish among all these levels. However, in order to discuss where these ideas come from and how they are manipulated, it is useful to put them into two groups: *philosophical concepts* and *functional concepts*.

Philosophical Concepts

Philosophical concepts can express the image, purpose, or underlying essence of the project. They are more broad, global, and contemplative in character. Some are without boundaries—sweeping and expansive. For example, the idea of whether a site has an inherent sense of place is a broad philosophical concept. The Romans called this “genius loci,” the prevailing spirit of a site. The designer is in a position to discover and define this spirit, to find out what is unique or magical about the site, to sensitively interpret the indicators into proposed uses and design form, and thereby to release its spirit.

Other concepts may be more directive and unifying, suggesting limitations and opportunities such as “a landscape that conserves energy.” Either way the designer is attempting to bring meaning to the designed environment.

The Search for Meaning

Must a designed landscape tell a story or have a deeper meaning? Not necessarily. Over several decades of practice, I have found that most of my clients were exceedingly happy with an elegant resolution of their concerns,

needs, and site problems. Their expectations were focused on spaces that were practical and that expressed an inherent beauty in some form or other. However, often there is something special about the site or potential user that calls for a stronger relevance beyond functionality and visual appeal. The additional magic that this brings to a designed space is usually well worth the effort. But how does a designer bring a deeper relevance to the landscape or generate a unique memorable experience for the user?

Consider these ideas when searching for meaning in your designs.

Themes Unifying topics or subjects. One of the easiest routes to meaning is to suggest an appropriate theme. For example, “water conservation” could be an overriding theme in an arid environment. “Connect with the river” was the theme for the landscape renovation shown in Figures 1–2 to 1–4.

Symbols Things or forms that represent something else by association, resemblance, or convention. For example, shrubs are pruned to resemble distant hills or trees are sculptured to recall a revered and rare natural place.

Metaphors Objects or ideas used to designate dissimilar objects or ideas in order to suggest comparison. For example, a flowing pattern of white gravel can serve as a metaphor for water in a stream.

Allegories Dramatic or visual devices in which the literal objects or events symbolize ideas. For example, a peace garden may have disturbing images of conflict, sequenced to tell a moral story about the necessity for peaceful coexistence.

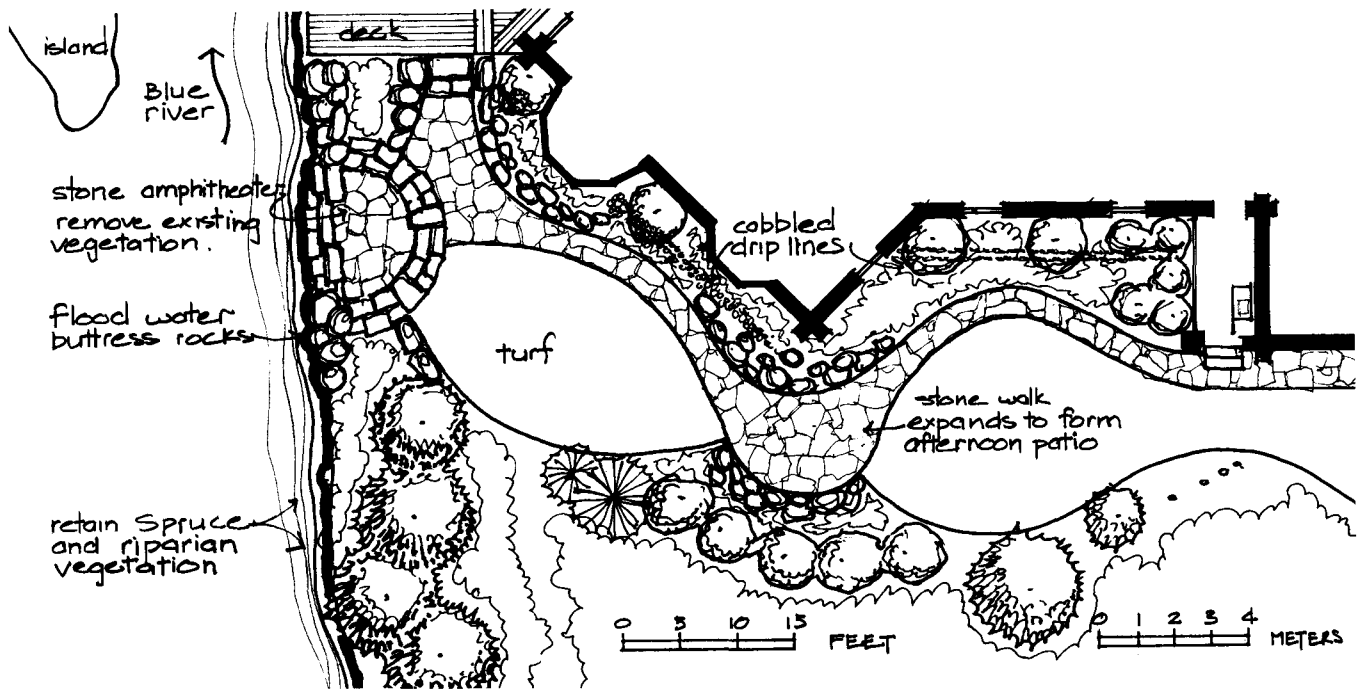


Figure 1-2 Renovation plan



Figure 1-3 Before renovation

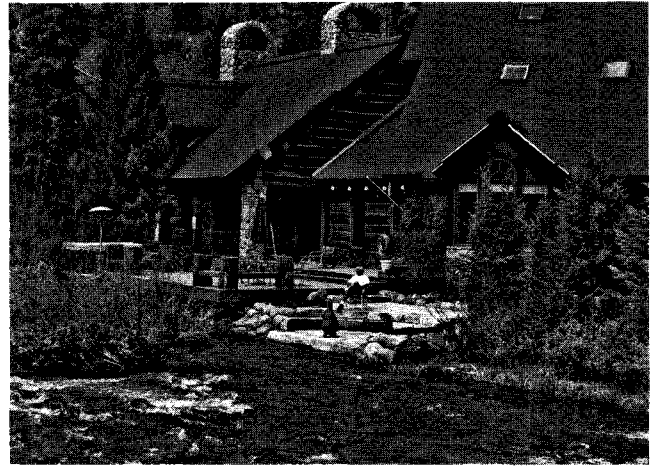


Figure 1-4 After renovation

Potteiger and Purinton (1998) identify several techniques for creating landscape narratives:

- Naming places creates an identity, and with it a message of some sort about that name.
- The sequencing of elements, spaces, openness, and enclosure can tell a story.
- Revealing and concealing elements create a feeling of discovery and suspense.
- Places for gathering foster dialogue with the site and between participants.
- Stories can be embedded in the fabric of the landscape (messages imprinted on stones).

Laurence Halprin's fountain at the Embarcadero Plaza in San Francisco, California (Figure 1-5), contains a cluster of bent and broken rectangular forms. These forms symbolize the chaos and broken urban fabric that might follow a severe earthquake, and serve as a reminder that the city lies on an active fault line.

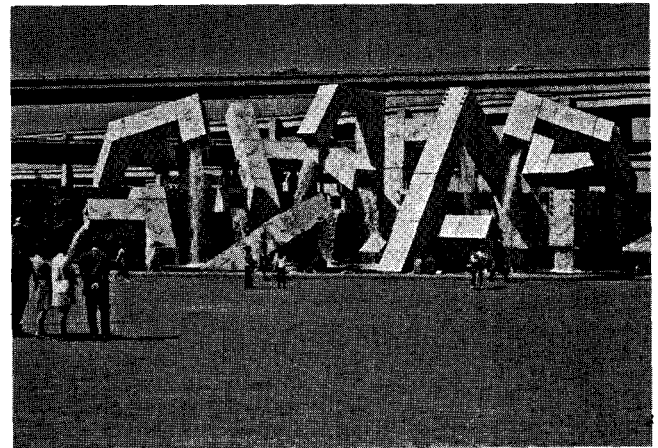


Figure 1-5

A xeriscape demonstration garden designed by the author (Figure 1-6) contains a looped walk symbolizing nature's continuing cycles of life and death. Its close integration with the scalloped stone wall represents the interdependence of different organisms in a natural ecosystem.

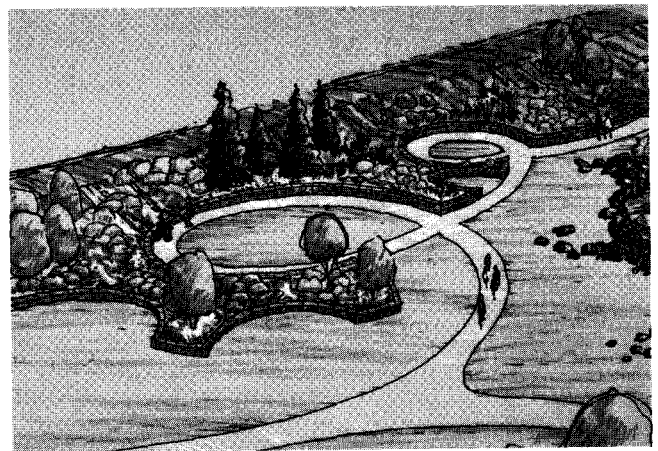
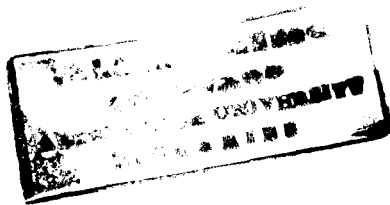


Figure 1-6

To develop these areas a designer should be empathetic. It is necessary to identify with and understand the client's or user's situations, feelings, and motives. What are the ideals, beliefs, or values that they may associate with the project and that can be translated into a physical form to become a true reflection of a cultural or personal context?

The symbolism of the small garden in Figure 1-7 was based on the owner's pending marriage and the joining of two families in a new house and property. A four-pointed star-shaped garden represented the harmonious blending of four people into one new entity, with the solid rock grouping in the middle symbolizing the central unified heart of the family.



Figure 1-7

Symbolic forms bring a unique dimension to space (Figure 1-8), since they often add mystique and can be interpreted differently by each user. Traditional Japanese gardens are rich with symbolism yet open to a variety of interpretations. Rocks in sand may suggest ships on the ocean to one observer, people floating through clouds to another.



Figure 1-8

In general, Western garden design lacks philosophical depth or symbolism, but it does not need to. There are many opportunities for such concepts if designers search for the spirit of the place and probe for meaning.

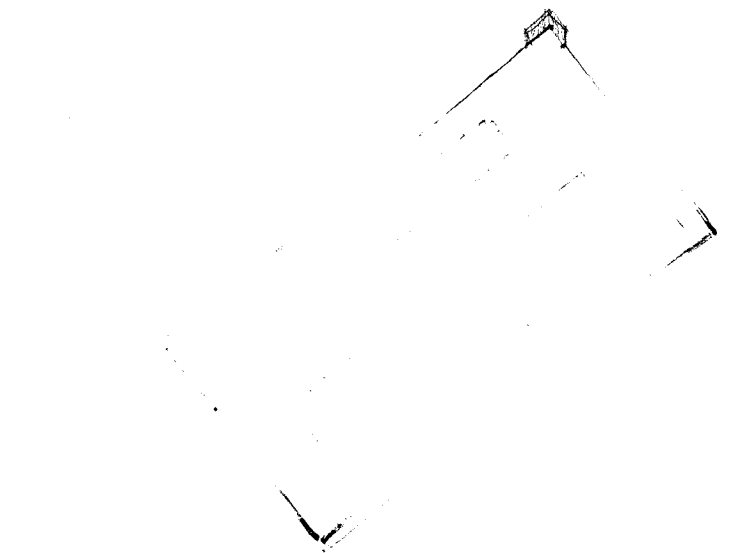
What image does the client or designer want to project? For instance, spatial imagery and symbolism can easily be linked to:

- A place that projects an image of power and success
- A space that demonstrates the importance of technology
- A plaza that embraces a river and celebrates water as a joyous, life-giving element
- A neighborhood redevelopment that recognizes the importance of historic values
- A landscape that above all nurtures and protects the natural ecosystem
- An office complex projecting a message that the companies located there are concerned about conservation and protection of natural resources
- A provocative place that shocks, disturbs, surprises, or disorients the user
- A tranquil place for quiet reflection or meditation
- An entertaining environment where fun is paramount
- A place depicting humanitarian or philanthropic values
- A place that projects an image of progress and innovation
- A space that shows a sense of precision, grace, and simplicity

Once the designer identifies the philosophical concepts appropriate to the site or client, then the challenge is to express those concepts in physical form. By idea association and brainstorming, a number of visual images may emerge. High-tech messages may suggest crisp lines, geometric shapes, and a dominance of man-made materials such as plastic, steel, and concrete. Valuing the environment may suggest organic forms and a dominance of soft materials such as grass, trees, and water. Places for entertainment may demand brightly colored moving elements, whereas a tranquil setting may call primarily for muted tones and static elements. Another abstract area of exploration that can add depth to concept development is the idea of mood. What type of mood best matches the more general goal or belief? The appropriate mood could be:

- Serious or frivolous
- Active or passive
- Surprising or obvious
- Introspective or extroverted
- Cooperative or confrontational
- Stimulating or soothing
- Interactive or solitary

Then we can ask what physical form or materials might evoke such a mood.



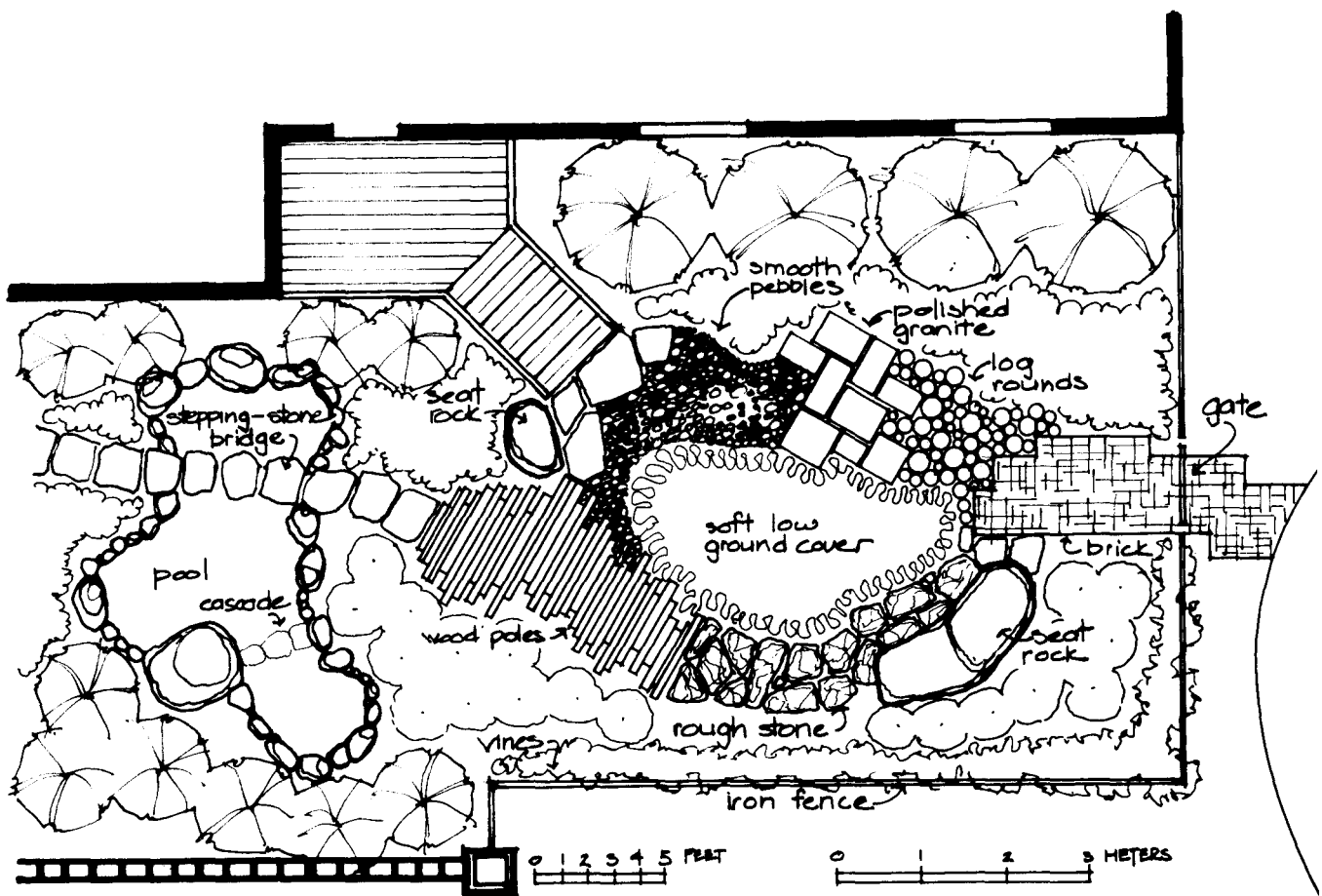


Figure 1-9 Barefoot garden

The following chapters contain many specific form suggestions adaptable to particular abstract ideas and to designed spaces that evolve from a philosophical basis. Most conceptual planning emphasizes the visual realm. Some interesting ideas, however, exploit the other senses as well. Consider the possibilities of engaging the sense of touch. A multitude of tactile experiences can be provided by including textures that are rough, smooth, soft, sharp, moist, hot, dry, or bumpy. Although textures are particularly appropriate in spaces designed for the sight-impaired, they are too often ignored in all outdoor design. Figure 1-9 shows the design by the author for a "Barefoot Garden," to be experienced primarily through the soles of your feet.

Olfactory, auditory, and kinesthetic experiences in the landscape also deserve more attention. Fragrances have a powerful impact on mood. Sounds, especially if manipulated by the user, add an interesting dimension. Moving elements and bodily motion have tremendous potential for adding excitement to the landscape experience. Can the nonvisual senses become part of the designed landscape imagery? Do they inspire design ideas?

Functional Concepts

In every project there are always functional issues to deal with. Some of these issues are more general in nature and may not lend themselves easily to spatial diagramming. They are important design determinants nonetheless, and should be listed early in the design process. It is helpful to consider these as conceptual objectives. Here are some examples:

- To maintain security
- To minimize maintenance
- To keep within a budget
- To reduce vandalism
- To retain the historic character
- To reduce erosion
- To eliminate poor drainage
- To conserve water
- To enhance or block views
- To create privacy and intimacy
- To recreate or protect an ecosystem
- To reduce noise disturbance
- To save energy
- To control damage by animals
- To provide informational or directional signage
- To create lighting for safety and aesthetics

The most common functional constraints and opportunities are those that relate to the spatial use of a site. These are easy to diagram and are the dominant focus for form development discussed in this book. Again, they should be listed as part of the program or design brief. Here are some examples related to the design of private and public landscape spaces:

- Specific activity zones—entertaining, play, sitting and relaxing, recreating, viewing, shelter, food and flower growing, commerce, education, performance, hobbies, pets, picnic, etc. (Think of these as outdoor rooms arranged in a manner to encourage a predominant use or multiple uses.)
- Pedestrian circulation—entries, pathways, stepped areas, bridges (Think of these as linkages between the outdoor rooms.)
- Vehicular circulation—driveways, turnarounds, parking
- Screens, barriers, and gateways
- Storage zones—trash, personal belongings, community assets, snow
- Focal elements—water, sculpture, structures, signs, botanical, etc.
- Wildlife attraction areas
- Conservation, restoration, and protection zones
- Public restrooms

Use areas and activity zones can be shown as amorphous blobs or bubbles, but before they can be drawn, their approximate size must be established. This step is important because when activity areas are manipulated within a scaled site plan, their quantitative values must be in correct proportion to each other. For example, for a parking lot for fifty cars (see Figure 1-10, top illustration), a quick approximation of spatial requirements for that many cars should be made.

Then the spatial needs can be abstracted into a bubble, easily manipulated by eye into one wraparound shape or split into two bubbles.

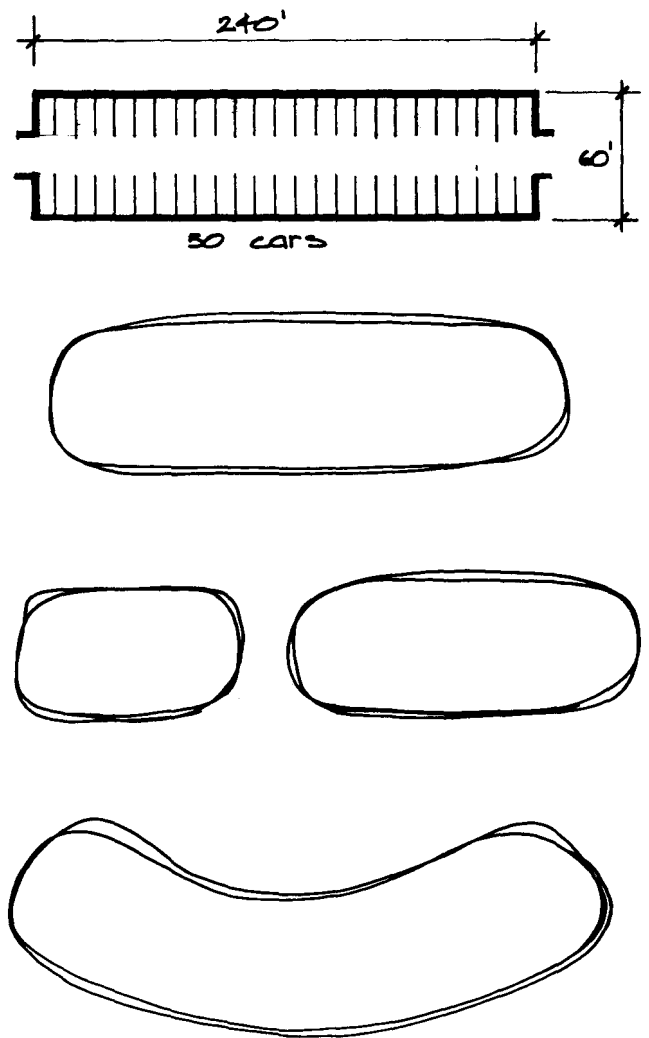


Figure 1-10

Simple arrows can designate corridors and other directional movements (Figure 1-11). For clarity these arrows might have a hierarchy of size or shape to distinguish between major and minor corridors and different modes such as pedestrian and vehicular traffic.

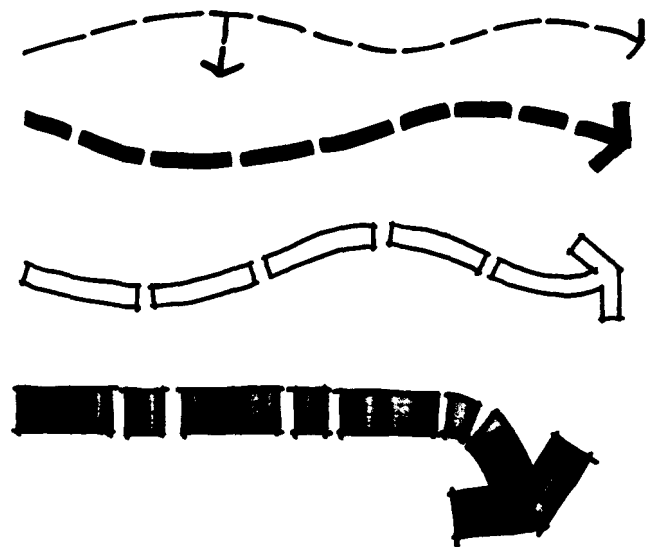


Figure 1-11

Star or cross shapes can represent important focal points, activity nodes, potential points of conflict, and other compact elements with a high degree of significance (Figure 1-12).



Figure 1-12

Jagged or articulating lines can show lineal vertical elements such as walls, screens, barriers, and embankments (Figure 1-13).

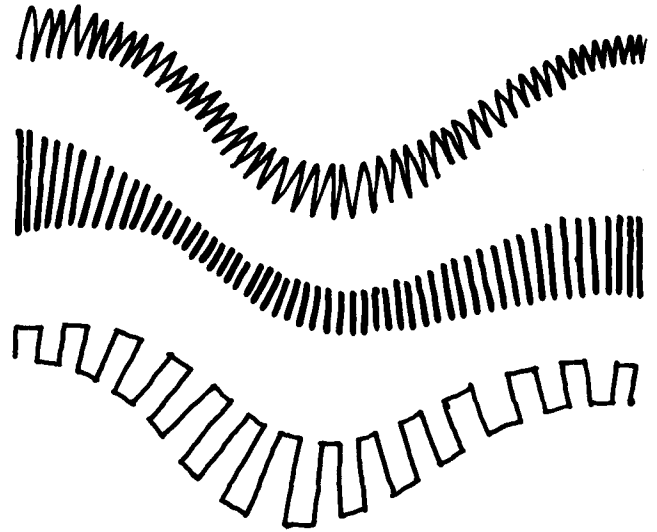
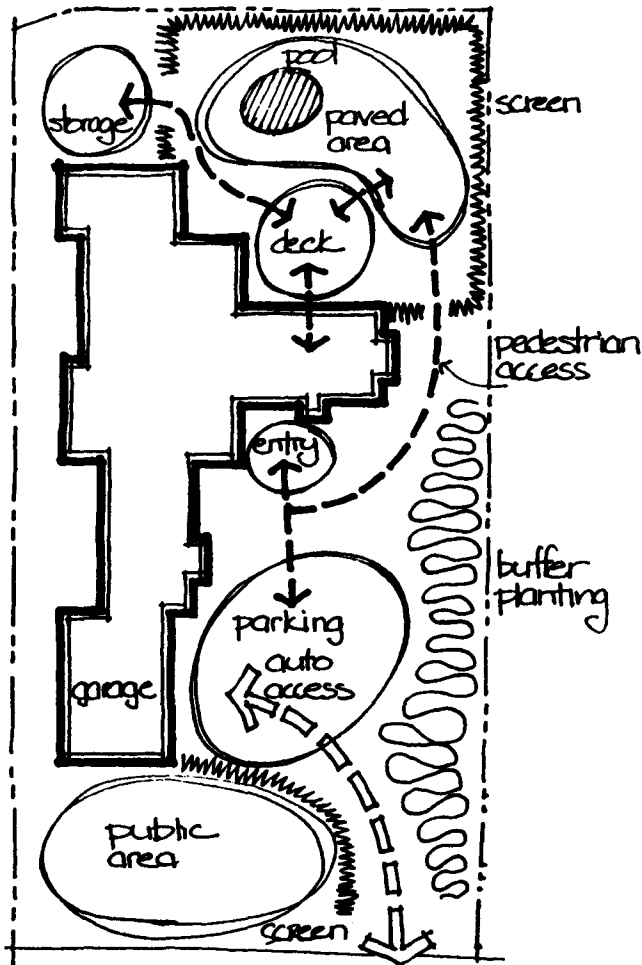


Figure 1-13



CONCEPT PLAN

Figure 1-14

At this stage of design development, it is important to keep the symbols abstract and easy to draw. Being able quickly to reposition and to reorganize helps to focus on the primary purpose of this process, which is to optimize the functional relationships between different use areas, resolve location problems, develop an effective circulation system, and answer questions about where things should be and how they might work together. Generalized spatial quality—whether sunken, raised, walled, canopied, sloped, or bermed—can also be explored in this functional concept phase.

Conceptual graphic symbols can be adapted to any scale. A residential example is shown in Figure 1-14.

A further example of conceptual planning, a development for a community center, might have the following guidelines as a simplified written program:

- Locate the three major building elements in order to minimize disturbing the existing stream and vegetation.
- Include parking for one hundred cars.
- Keep the automobile parking entrance as far away from the intersection as possible.
- Provide easy pedestrian access from adjacent streets.
- Include a multiuse plaza or amphitheater to accommodate occasional performances, outdoor classes, relaxation, art shows, sculpture displays, and so forth.
- Locate a sign to identify the facility.
- Provide an open grass area for unstructured recreation.

Such guidelines can be quickly and easily diagrammed, beginning with a base plan of the site drawn to scale. Although not shown here, two important steps in the design process should precede the concept diagram: a site inventory, which records all the existing conditions; and a site analysis, which records the designer's opinions and evaluations of these conditions. A sheet of tracing paper taped over the scaled inventory and analysis plan is an efficient way to initiate the concept diagram. Such a procedure allows the information about the site and the written program to be considered together.

Figure 1-15 shows the existing site conditions of the future community center site. Figures 1-16 and 1-17 show two alternative concepts for its development. For both concepts, all of the program requirements have been satisfied and the existing site conditions recognized, yet the concepts are very different from each other. A careful comparison of the alternatives reveals the advantages and disadvantages of each and allows an informed choice of the better scheme.

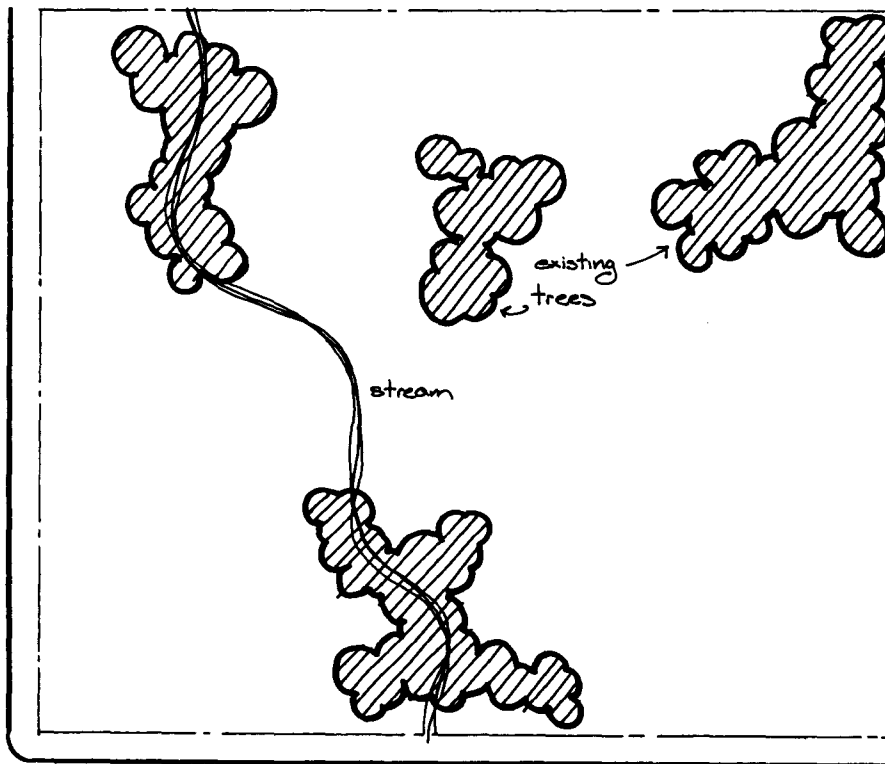


Figure 1-15

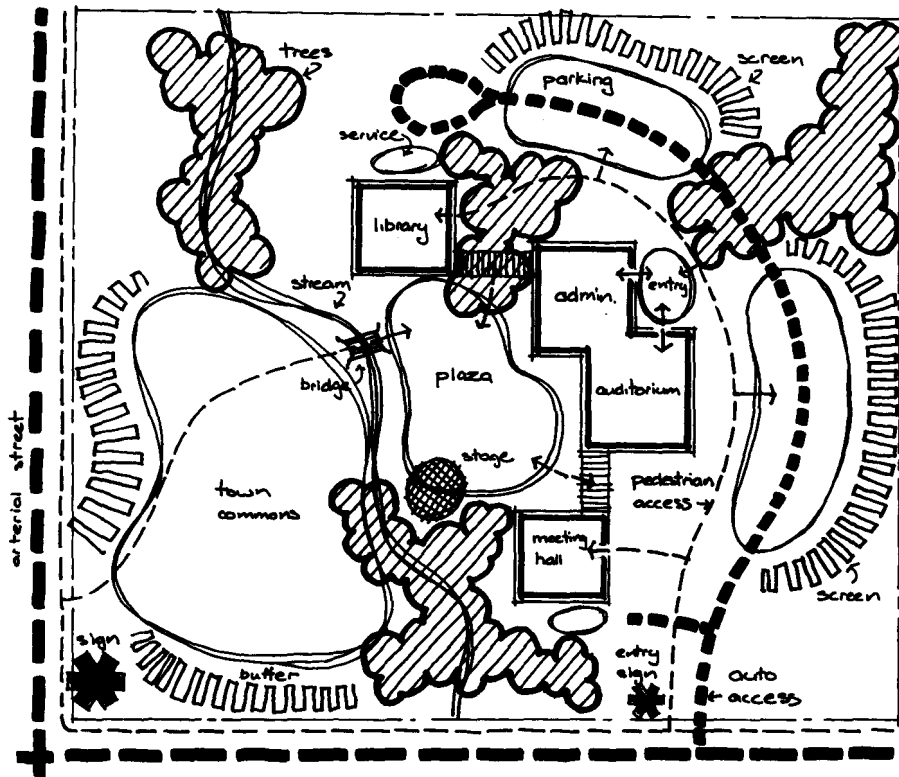


Figure 1-16

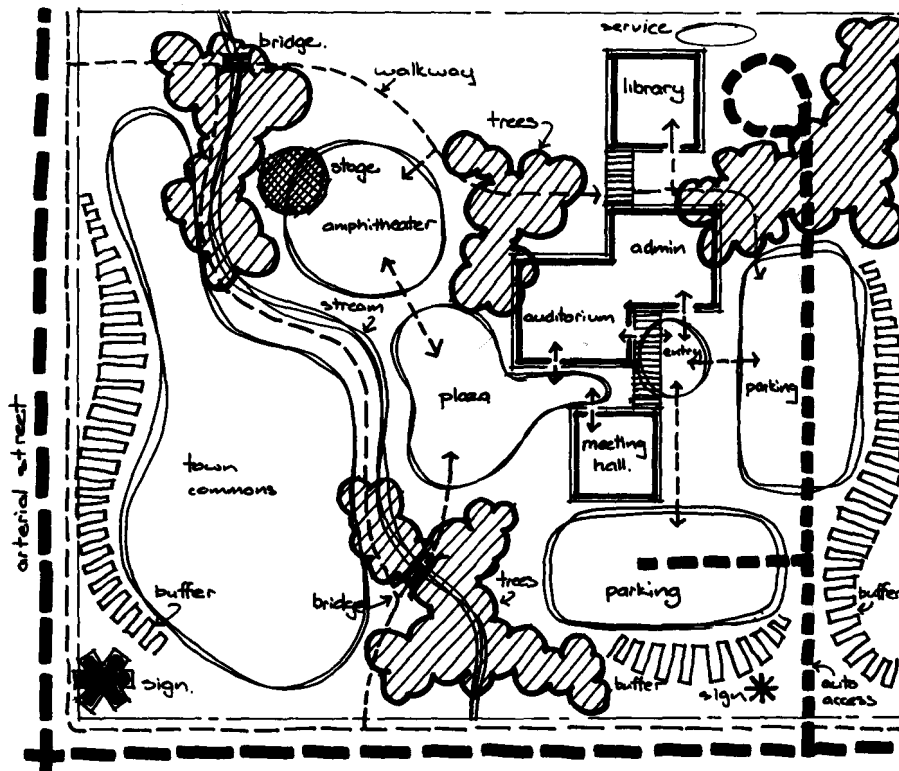


Figure 1-17

It is best to avoid the temptation to introduce specific forms and shapes when developing the concepts. At this stage, the lines of the amorphous bubbles represent the approximate limits of a use area (for example, a multiuse plaza), not the exact edge of a specific material or object. The directional arrows represent corridors of movement, not the edge of a walk or roadway.

At this planning stage of the design process, the first conceptual level of organization has been applied to the site. There can be an indication of types of surface-covering materials such as hardscape, water, open turf, and planted areas, but there is no need to get sidetracked into details of color, texture, pattern, and form. If part of a site demands more complex treatment, it may be necessary to refine the concept plan for just this portion.

The next two chapters explore a variety of forms along with the process that evolves from the conceptual scheme. The process of form development draws upon two different ways of thinking. One is based on the use of *geometric forms* as guiding themes. The components, connections, and relationships follow strict laws of order inherent within the mathematics of the various geometric shapes. Using this approach can result in powerful unified spaces.

But to the pure romanticists, geometric forms may appear dull, boring, ugly, and oppressive. Their way of thinking is to bring meaning to the design through the imagery of more random *naturalistic forms*. Shapes may appear erratic, frivolous, or whimsical, but they will likely have more appeal to the pleasure-seeking, adventurous side of the user.

Both modes have inherent structure and need not be distinguished from one another by structure alone. For instance, part of the joy of randomness is the pleasure of seeing some aspect of pure order, like the circle, but not being able to totally resolve the variety, as in a randomly circular cluster of bubbles (Figure 1-18).

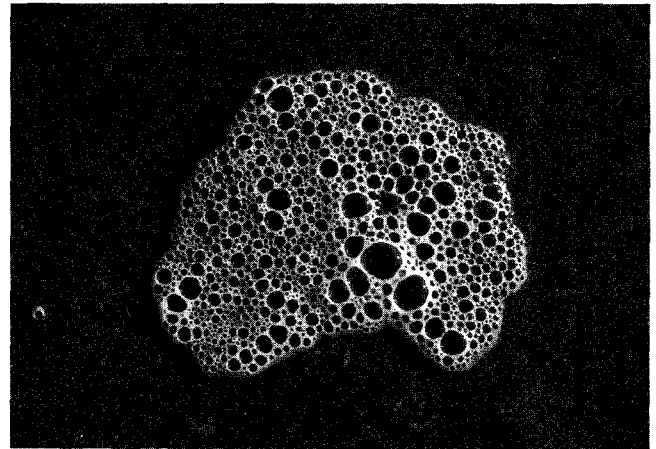


Figure 1-18

Geometric Form Development

The jump from concept to form can be viewed as an organized process of refinement, whereby the loose blobs and arrows of the concept plan are transformed into specific shapes. Recognizable objects appear, realistic spaces evolve, precise edges are drawn, and actual material types, colors, and textures are chosen. How these elements can be creatively manipulated is explained in Chapter 4 (page 81).

One useful principle of organization is repetition. If we take simple geometric or mathematically derived shapes and repeat them in a systematic manner, the resulting overall form will likely exhibit a powerful unity. By varying size and location, an interesting variety of forms evolves from even the most basic shapes.

The starting point for geometric form is the three primary shapes (Figure 2-1): the square, triangle, and circle.

Geometric themes for structuring the landscape can be derived from each primary shape:

- The 90° rectangular theme, derived from the square
- The 135° octagonal theme, derived from the 45°/90° triangle
- The 120° hexagonal theme, derived from the 60° equilateral triangle
- The circles on circles theme
- The arcs and radii theme
- The arcs and tangents theme
- The circle segments theme
- The elliptical theme
- The spiral theme

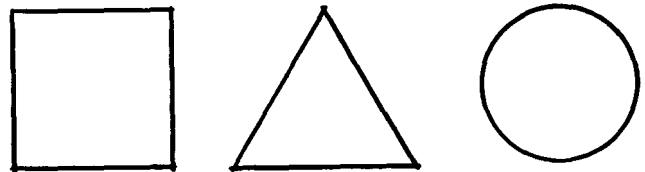
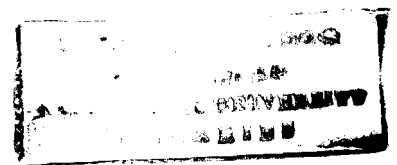


Figure 2-1



One of the most effective methods to incorporate these different structuring themes is to compare various layers of information at the same time. This can be done by using physical transparent overlays or, if designing on

the computer, by placing layers into your CAD program. Either way, you are looking through or simultaneously comparing layers of information, as shown in Figure 2-2.

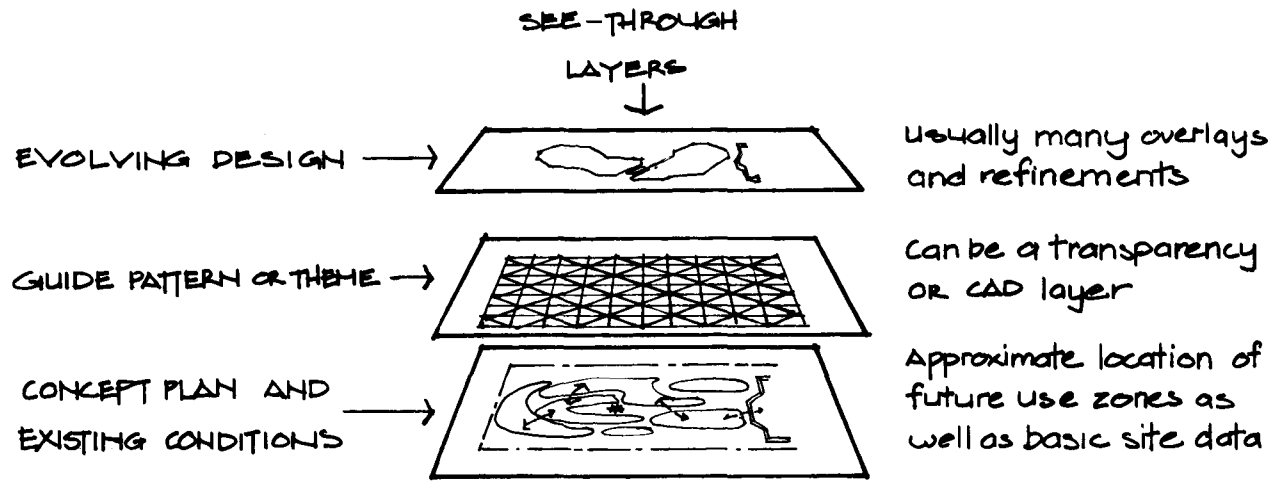


Figure 2-2

Usually the concept plan remains stationary. The guide patterns representing the themes can move around or be changed to a different pattern as needed. Some of these patterns adapt well to direct layering (90°, 135°, 120°, circles on circles, arcs and radii, ellipses). Others (arcs and tangents and all of the naturalistic themes) are best kept beside, not underneath, the evolving design.

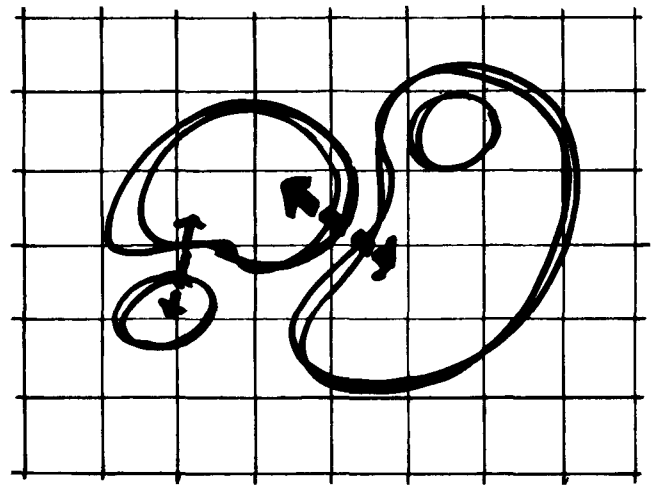


Figure 2-3

The 90° Rectangular Theme

By far the simplest and most useful of all the geometric themes is the 90° rectangular theme. It relates easily to most architectural building shapes and adapts easily to construction materials and methods. The square or rectangle is perhaps the most ubiquitous organizing theme in the built environment.

A 90° grid pattern as an underlay of the concept plan allows a functional diagram to be easily reorganized. The approximate shapes of the concept are redrawn by following the 90° grid as a structuring guide (Figures 2-3 and 2-4).

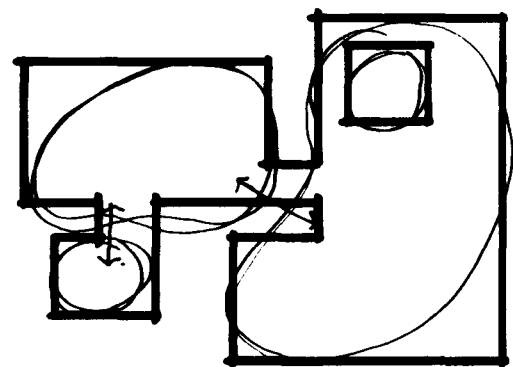


Figure 2-4

Thus, with the areas newly outlined, all boxlike shapes with 90° corners and parallel opposite sides will then have a different meaning. Whereas the contours of the bubbles and arrows within the concept plan represent abstract ideas such as functional zones and corridors of movement, the redrawn lines represent real objects. They now become edges of objects, show changes from one material to another, or illustrate abrupt level alterations. The directional arrow symbols indicated by one line on the concept plan (Figure 2-5) become two lines representing the edges of the walkway (Figure 2-6). The screen symbol (Figure 2-5) becomes a double line representing each side of a brick wall (Figure 2-6), and the focus symbol (Figure 2-5) becomes a small fountain (Figure 2-6).

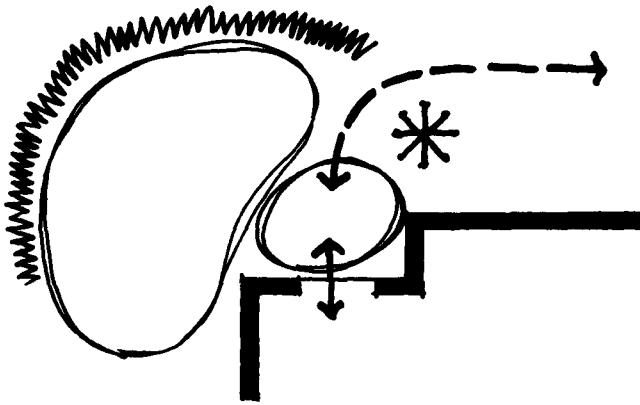


Figure 2-5

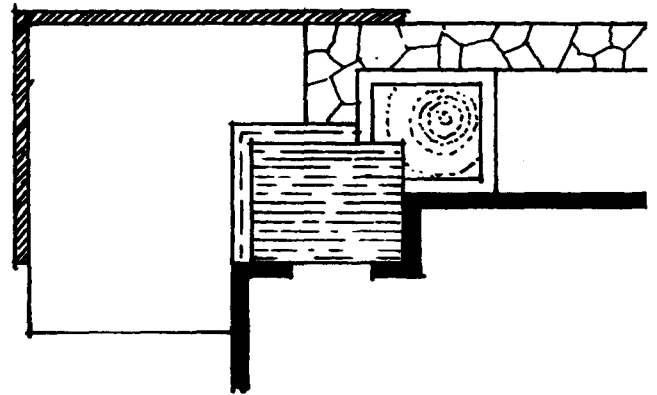


Figure 2-6

The 90° theme, the easiest to develop in conjunction with axial symmetry, is often used as the structural basis for expressing a sense of formality. Although simple in structure, rectangular forms can also result in very interesting informal spaces, especially when two-dimensional forms extend vertically into the third dimension. As shapes are depressed or raised through steps and walls, the level changes reinforce spatial qualities. The following examples (Figures 2-7 to 2-15) illustrate rectangular plans and how similar forms can provide a structure for the walls, roofs, and even site furnishings.



Figure 2-7

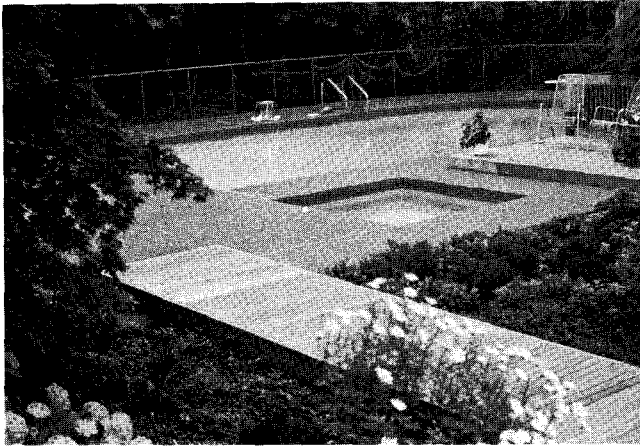


Figure 2-8

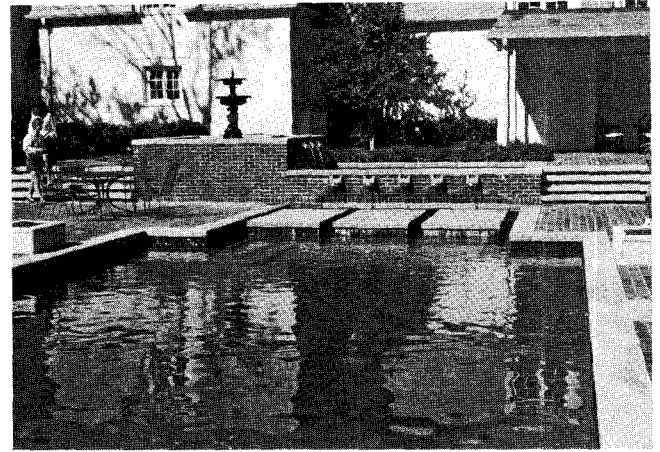


Figure 2-9

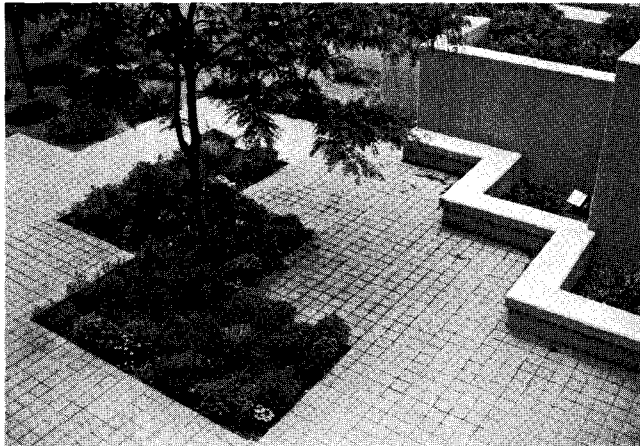


Figure 2-10



Figure 2-11



Figure 2-12

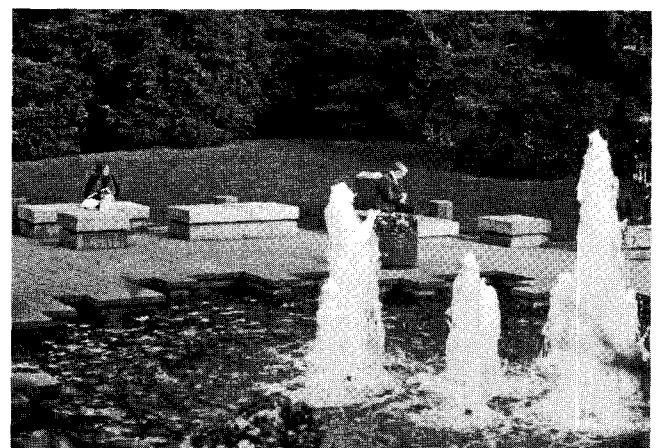


Figure 2-13

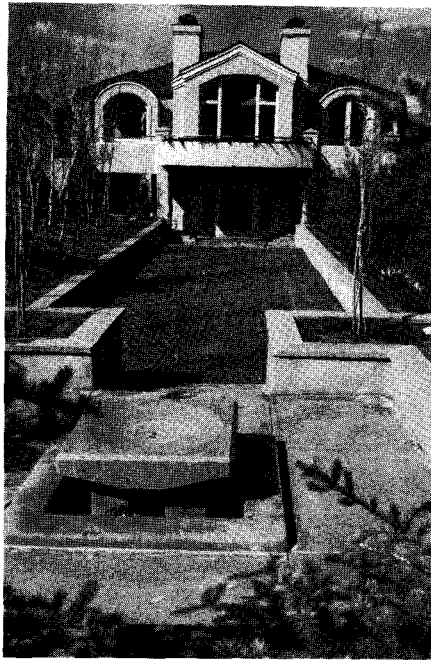


Figure 2-14



Figure 2-15

The 135°/ Octagonal Theme

Angular themes tend to be more dynamic and less formal than the 90° rectangular theme. They bring a greater sense of movement to a space. With the 135°/ octagonal theme, it is possible to use a prepared guide pattern to structure the jump from concept to form. Two rectangular grids placed at a 45° angle to each other serve as the basic theme. To show comparisons between the different themes, the same functional concept plan has been used here. This time it is superimposed onto the 135°/ octagonal grid (Figure 2-16).

Redrawing the lines to represent edges of objects or material and level changes becomes a simple process. Because the pattern underneath is just a guide, it is not necessary to draw exactly on top of the grid lines. It is important, however, to respect the pattern and draw lines parallel to the underlying grid. When changing direction, the predominant angle should be 135° (a few 90° angles are fine but avoid the 45° angle). A summary of suggestions for generating a unified interesting design using the 135° theme can be seen in Figures 2-17 and 2-18.

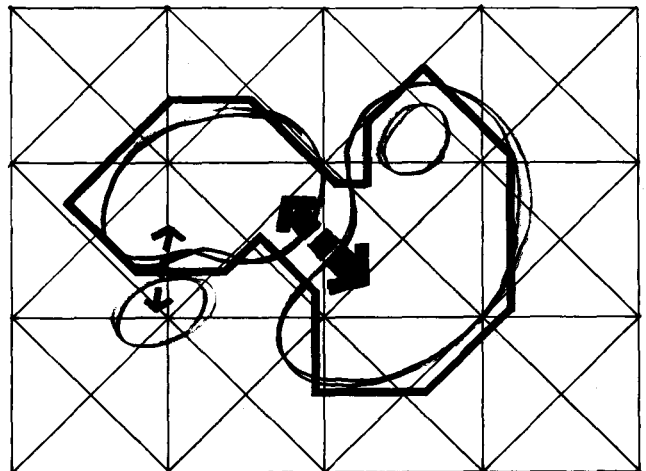


Figure 2-16

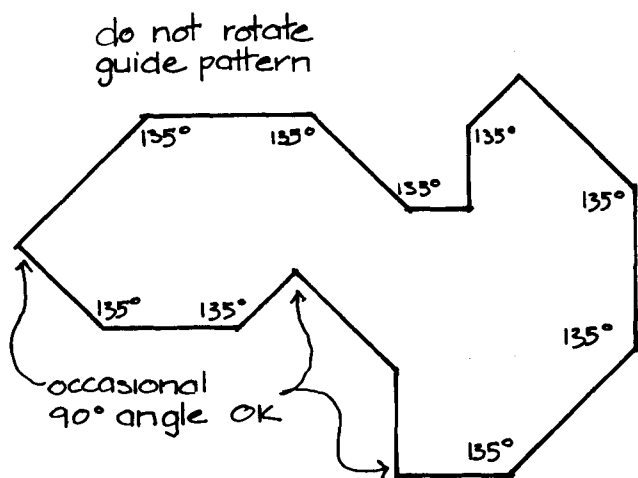


Figure 2-17 Good organization—strive for this

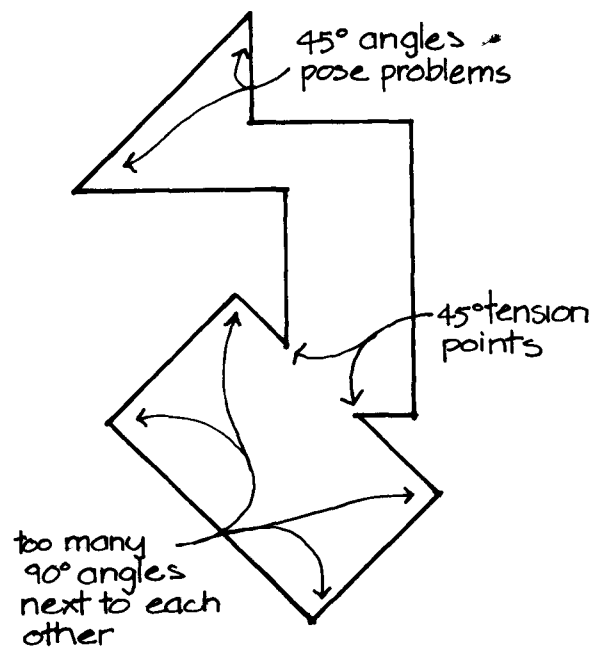


Figure 2-18 Bad organization—avoid this

In most landscape situations, sharp angles result in problems. Points create tension, narrow vertical edges feel uncomfortably knifelike, small wedges are difficult to maintain, and structural breakdown is often associated with tight angles. Figure 2-19 shows a useless and difficult small wedge of turf. Figure 2-20 shows degradation of an acute-angled wall.



Figure 2-19



Figure 2-20

The following illustrations (Figures 2-21 to 2-26) show the spatial impact produced by using the 135° octagonal theme.



Figure 2-21



Figure 2-22

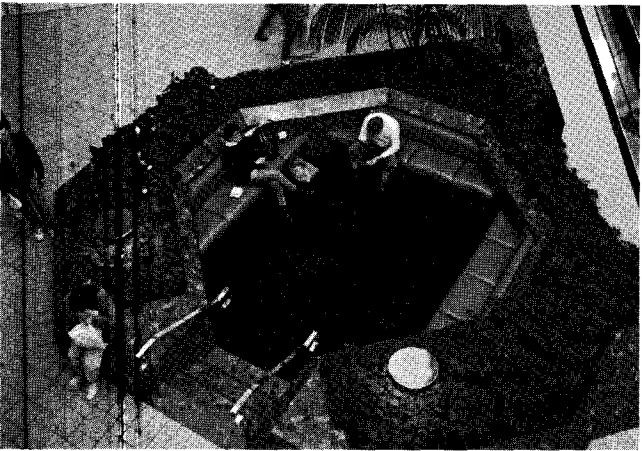


Figure 2-23



Figure 2-24



Figure 2-25

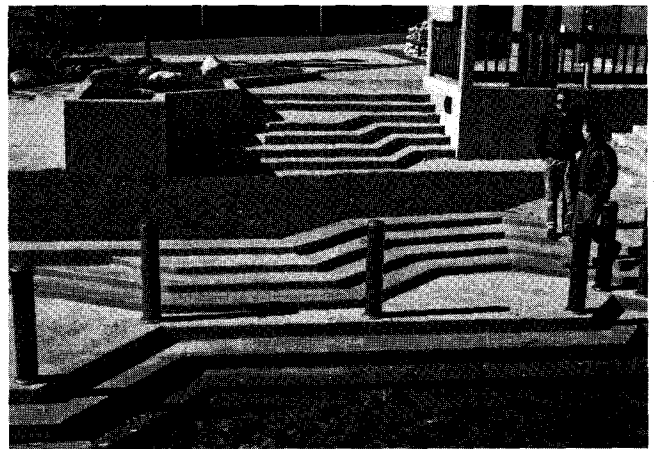


Figure 2-26

The 120°/ Hexagonal Theme

As a guide pattern, this theme could look like a grid of 60° equilateral triangles or like a series of hexagons as shown in Figure 2-27 (see also Figures A-3 and A-4 of the Appendix). Both can be used in a similar manner.

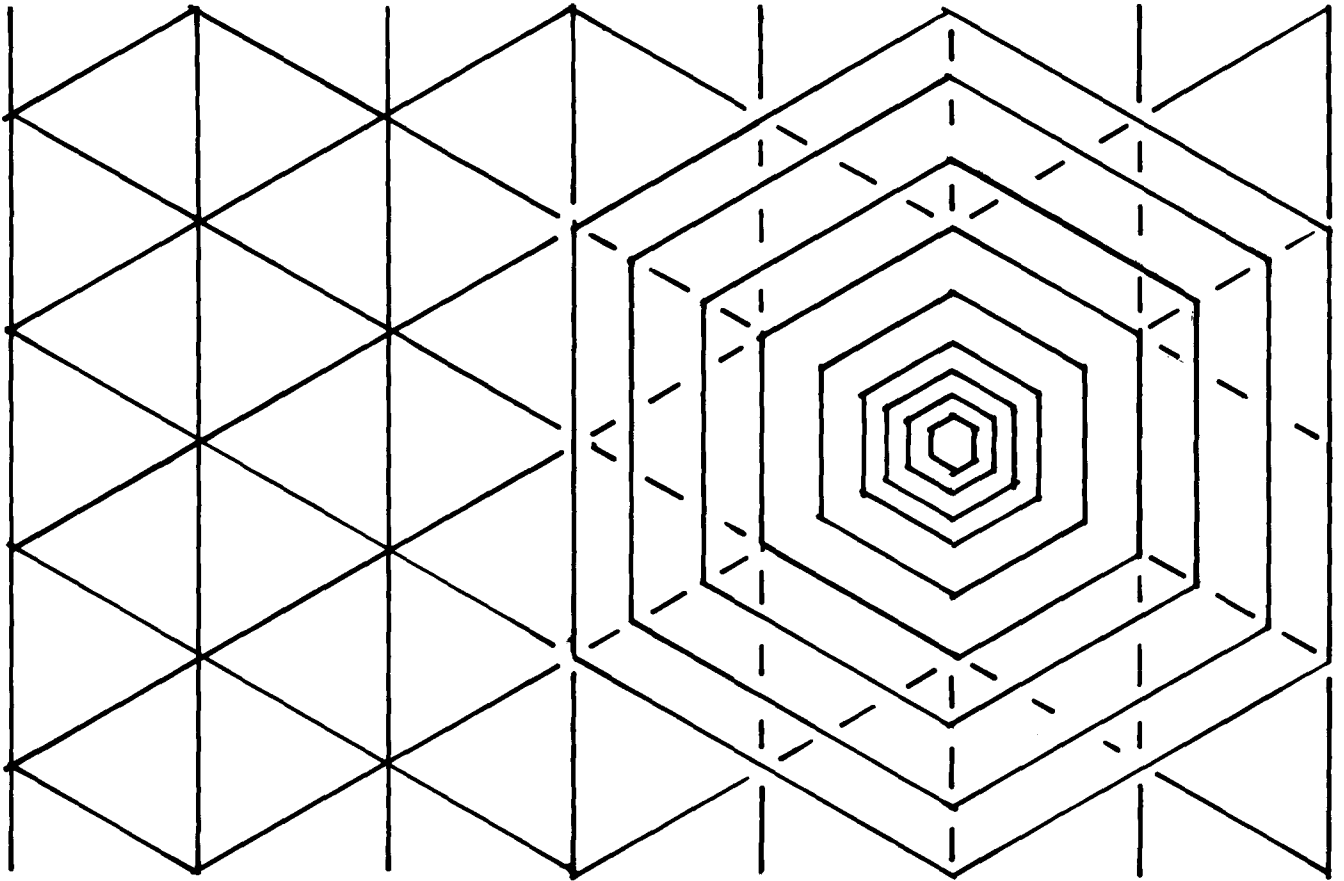


Figure 2-27

By superimposing the guide pattern over the concept plan shown in Figure 2-28, a hexagonal layout of landscape elements can be delineated (Figure 2-29). As with the 135° pattern, the lines delineating the edge of a material need not lie directly on top of a grid line but must run parallel at all times.

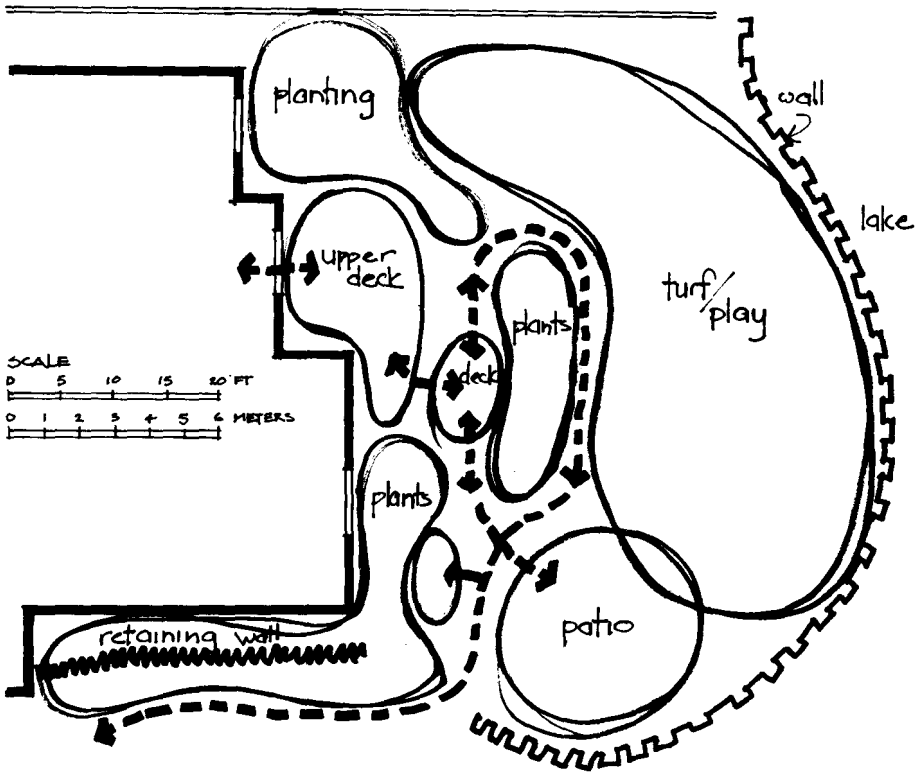


Figure 2-28

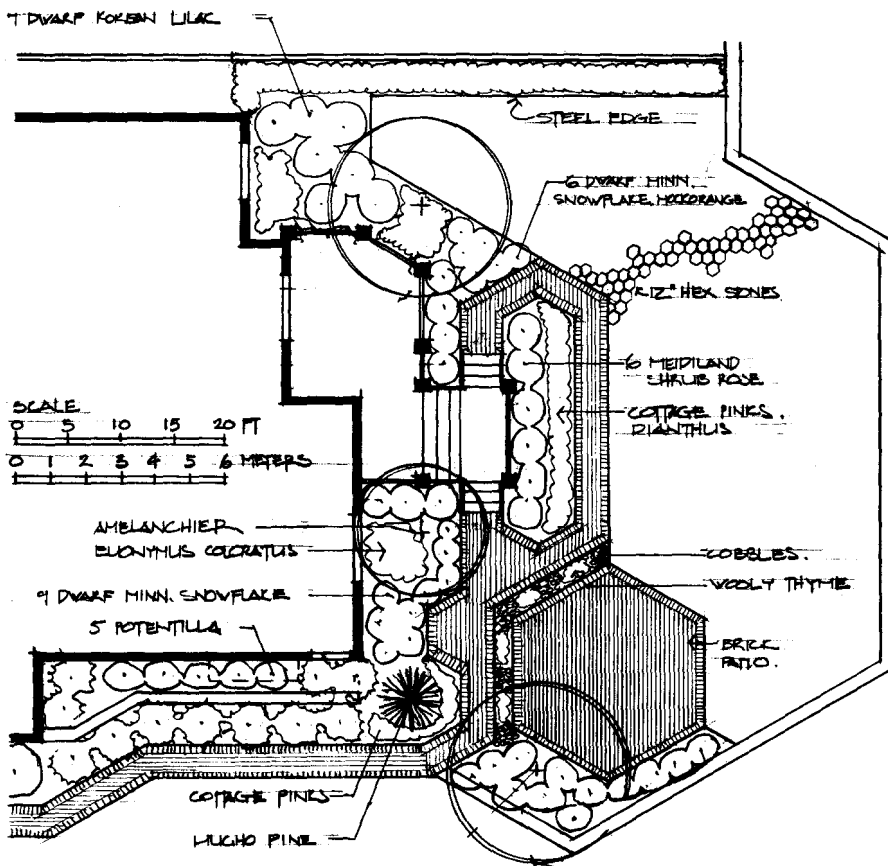
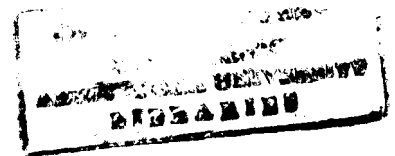


Figure 2-29



When using the pure hexagonal guide, you can trace hexagons at various sizes (Figure 2–30) according to the spatial needs suggested in the functional concept plan. In addition, you can duplicate and slide the hexagons together or apart to elongate, to touch or overlap, or to fit inside each other, but never rotate the pattern. Rotation destroys the unity of the composition.

Let the concept plan (Figures 2–31 and 2–32) suggest locations and spatial arrangement.

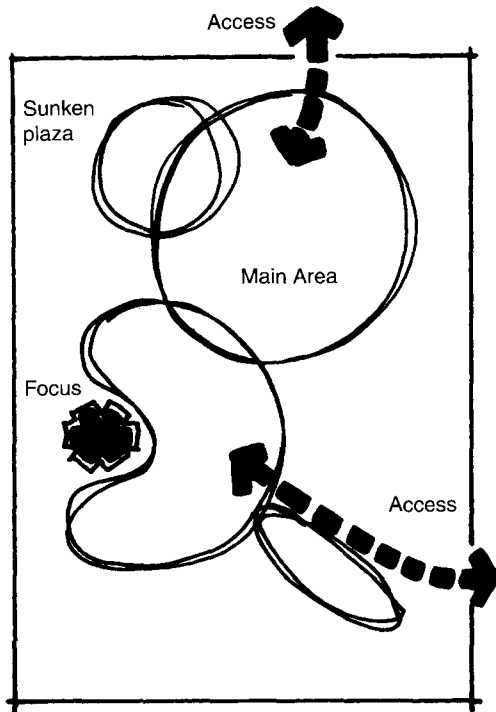


Figure 2–31

Simplify the composition by omitting lines, outlining spaces, or adding connections to make the spaces work. For example, simplify the space as shown in Figures 2–33 and 2–34. Remember that the lines now represent edges of materials. Avoid acute 60° and 30° angles because, as with 45° angles, these can result in uncomfortable, unmanageable, or dangerous corners.

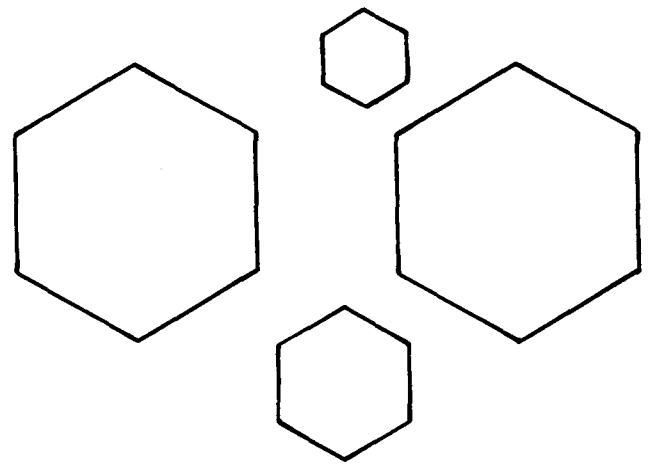


Figure 2–30

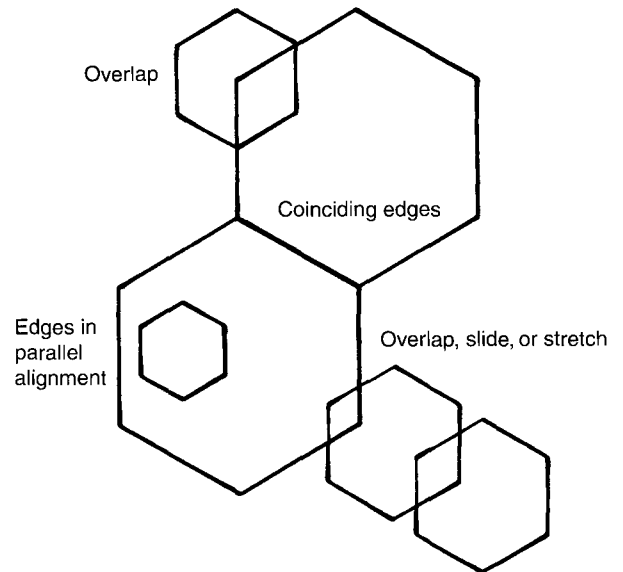


Figure 2–32

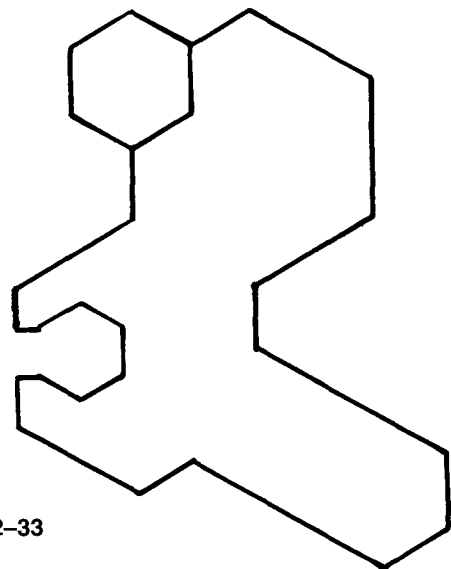


Figure 2–33

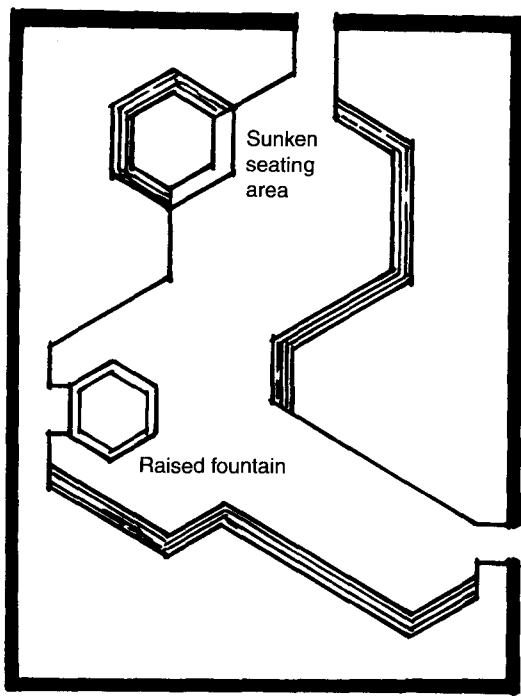


Figure 2-34

Exploit the three-dimensional spatial potential by raising or lowering areas, projecting vertical elements, or developing overhead structures if desirable. Add furnishings and other site amenities to humanize the space (Figure 2-35).

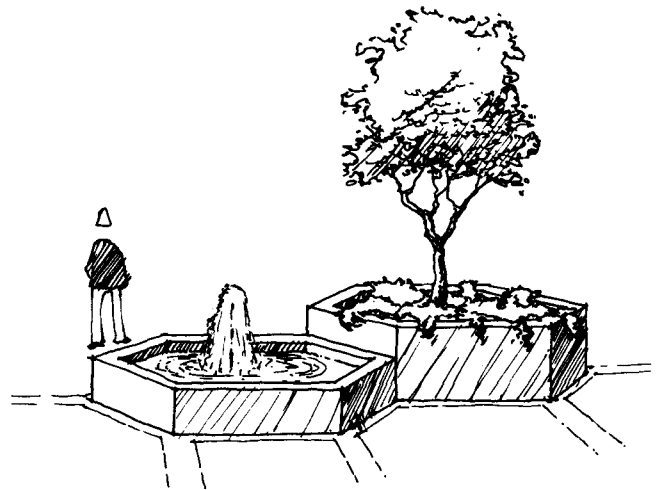


Figure 2-35

A summary of suggestions for generating a unified interesting design using the 120° theme can be seen in Figures 2-36 and 2-37.

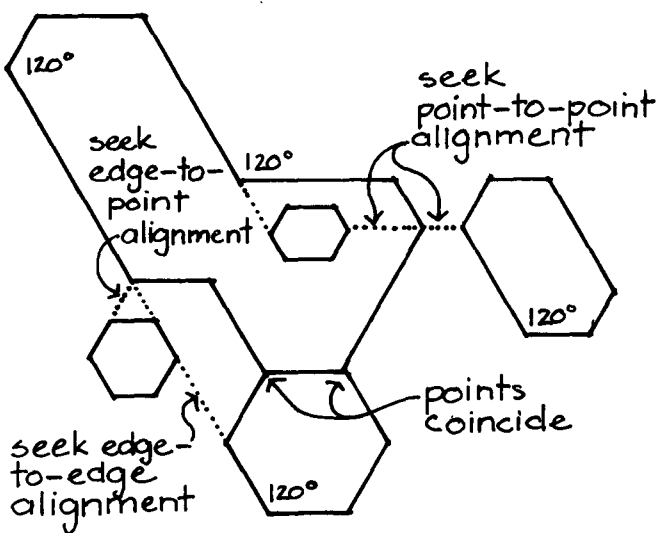


Figure 2-36 Good organization—strive for this

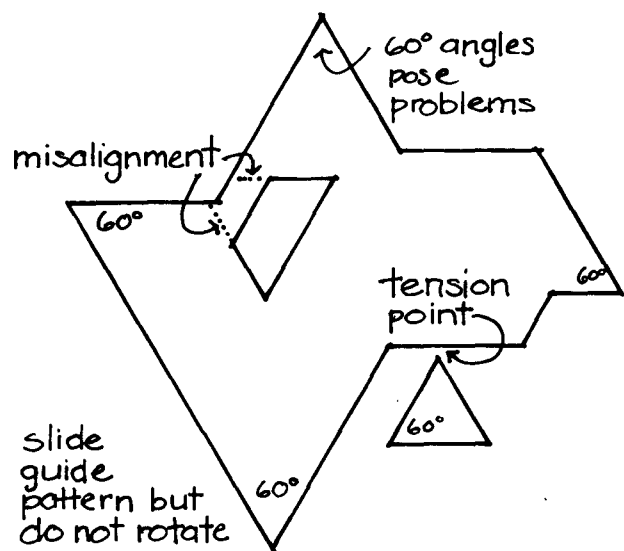


Figure 2-37 Bad organization—avoid this

There are many other possible configurations using the hexagon. See Figures 2-38 and 2-39 for examples.

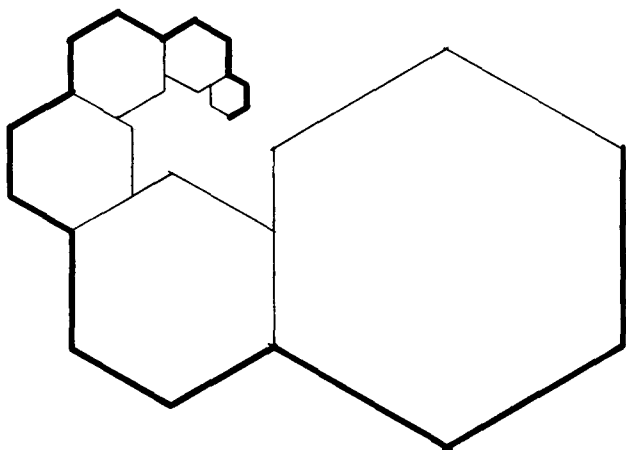


Figure 2-38 Spiral placement

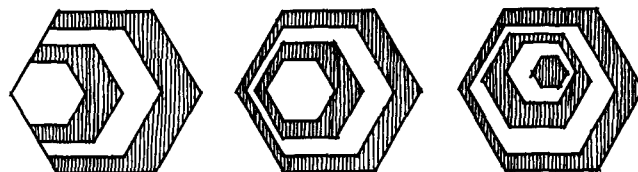


Figure 2-39 Eccentric placement

The following illustrations (Figures 2-40 to 2-43) demonstrate the interesting variety of spatial expression possible using the 120°/hexagonal pattern as the organizing theme. Note in Figure 2-40 how the 30° bend in the build-

ing fits with the hexagonal landscape theme, and in Figure 2-41 how a 120°/hexagonal theme was chosen because of the 60° relationship between the lines of the existing tennis court and clubhouse.

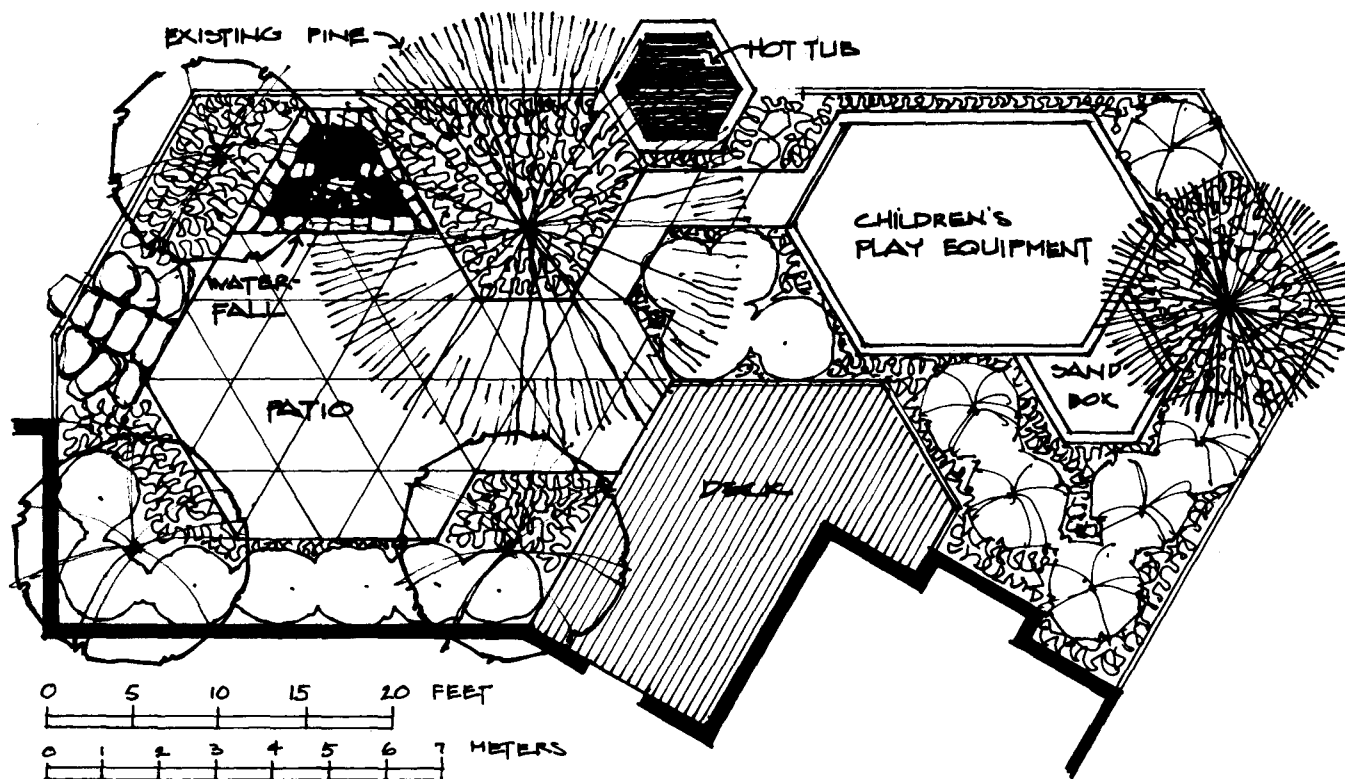


Figure 2-40 Backyard residential design

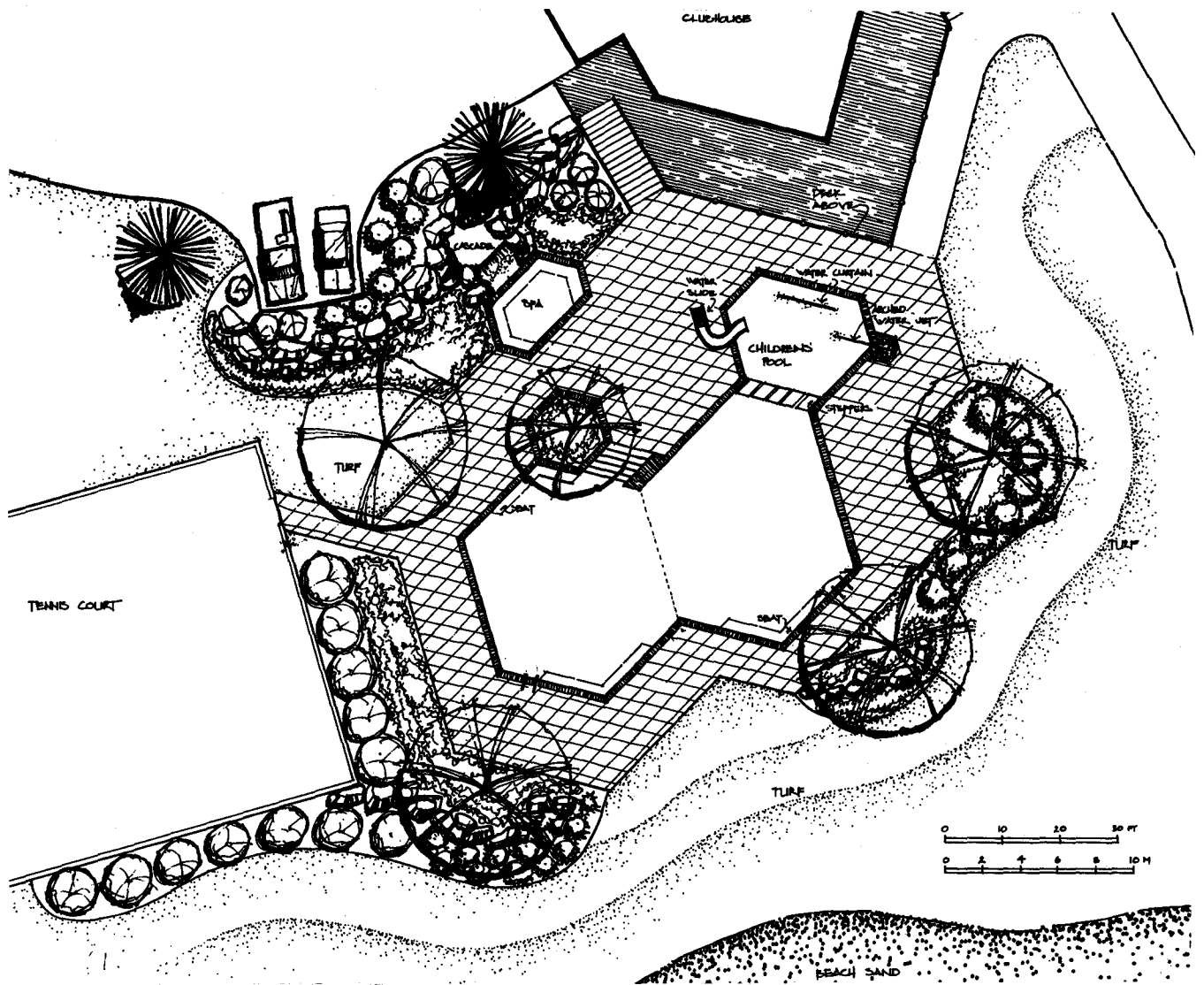


Figure 2-41 Country-club water recreation area



Figure 2-42 Budapest, Hungary



Figure 2-43 Office building, Los Angeles

Before leaving the straight-line themes, consider some of the possibilities that use distorted grids as opposed to simple geometric angles (Figure 2-44).

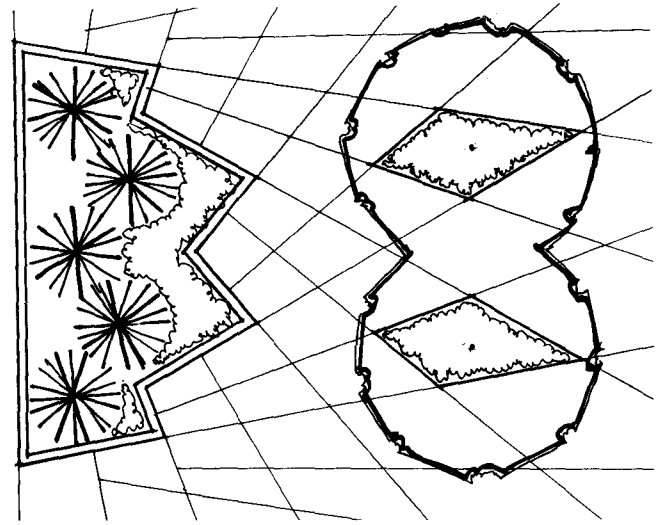


Figure 2-44 Radiating grids

These can create interesting perspective illusions when used on the ground plane (Figure 2-45).

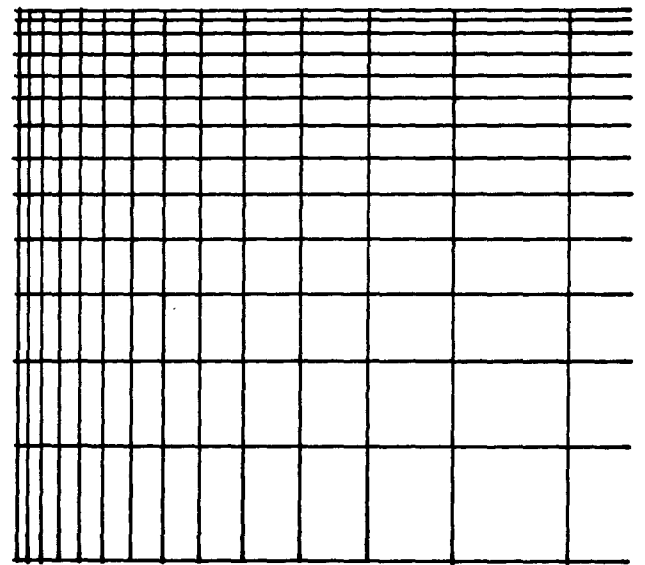


Figure 2-45 Compressed rectilinear grids

Circles on Circles

The power of the circle lies in its simplicity, its feeling of complete unity and wholeness. Yet it also symbolizes the duality of motion and stillness (Figure 2-46). A space designed on the basis of one pure circle will project both simplicity and power, but a multitude of manipulations is possible beyond the single pure circle.

With the circles on circles theme, the basic idea is to place circles of various sizes either inside each other or overlapping.

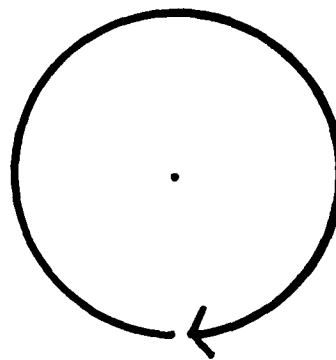


Figure 2-46

Start with the basic form of the circle. Duplicate it; enlarge it; reduce it (Figure 2-47).

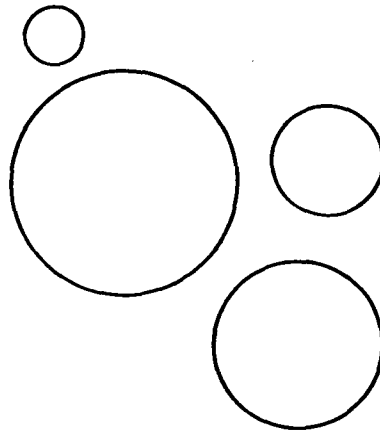


Figure 2-47

Let the concept plan (Figure 2-48) determine the number, size, and location of circles to use. Where necessary, place circles within each other to suggest a different object or material.

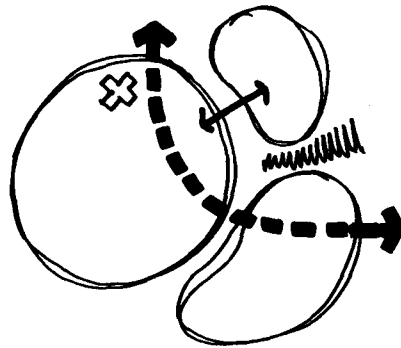


Figure 2-48

When overlapping, adjust the circles so that the arcs intersect at close to 90° to give the strongest visual connection between the circles (Figure 2-49).

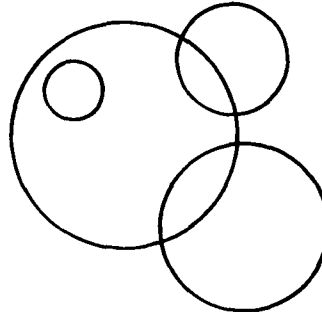


Figure 2-49

Simplify the composition as shown in Figure 2-50 by omitting lines, outlining, and adding connections to non-circular surroundings. Straight connections such as pathways or corridors with parallel edges should be designed with their centerlines aligning with the circles' centers.

Avoid small overlaps, which give rise to acute angles. Also avoid touching circles unless the flow of the spatial edge continues in an S shape. A reversal at the contact point again sets up very sharp angles. See Figures 2-51 and 2-52 for a graphic depiction of these ideas.

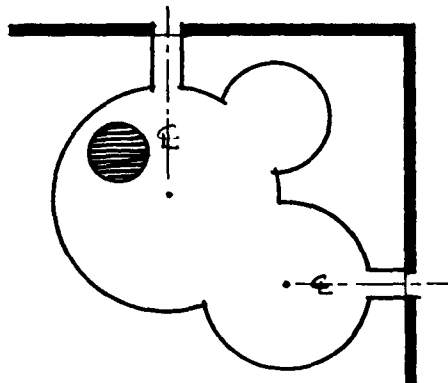


Figure 2-50

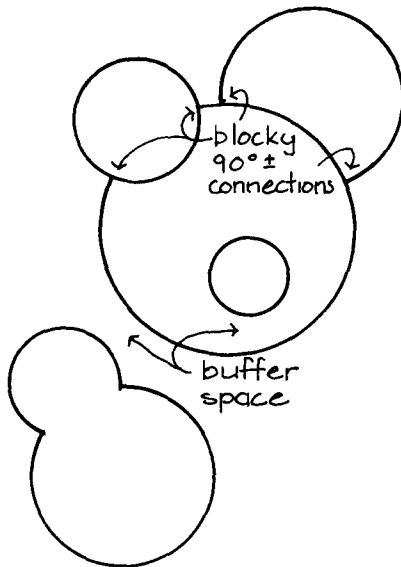


Figure 2-51 Good organization—strive for this

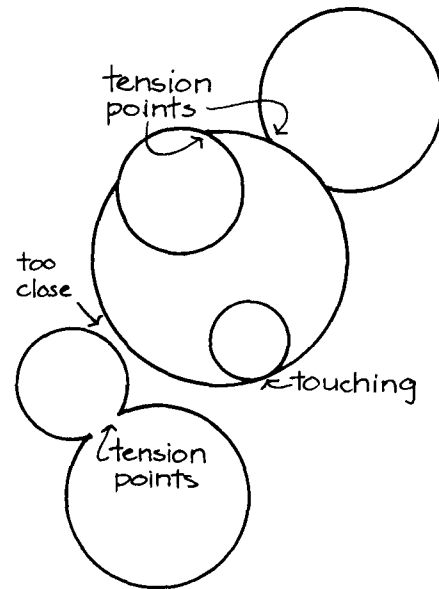


Figure 2-52 Bad organization—avoid this

This aerial view of a hotel plaza (Figure 2-53) shows four circular landscape elements. They are a pool, a raised platform, a thatched umbrella, and a moated pergola. Although separate, they are unified by the paving and walkways.



Figure 2-53

The normal view of the same site shows that the paving around the deep edge of the pool is skillfully warped upward to form a bridge (Figure 2-54).



Figure 2-54

The most compatible volumetric forms in this type of plan organization are cylinders and spheres (Figures 2-55 to 2-58).

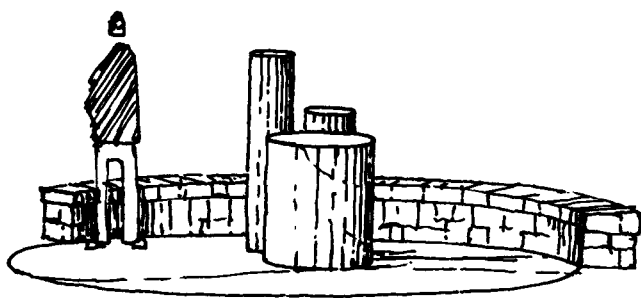


Figure 2-55

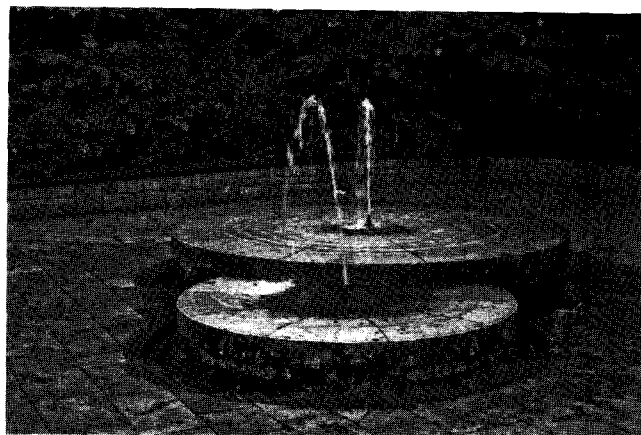


Figure 2-56

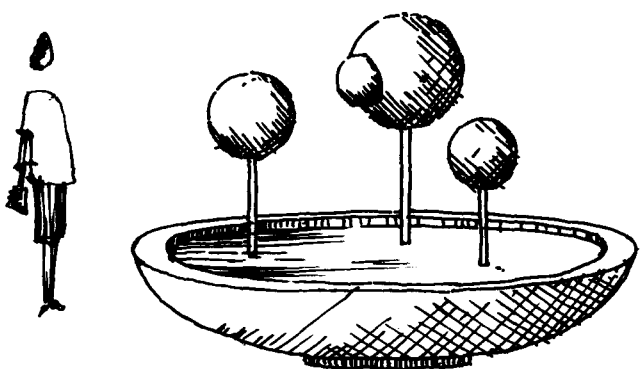


Figure 2-57

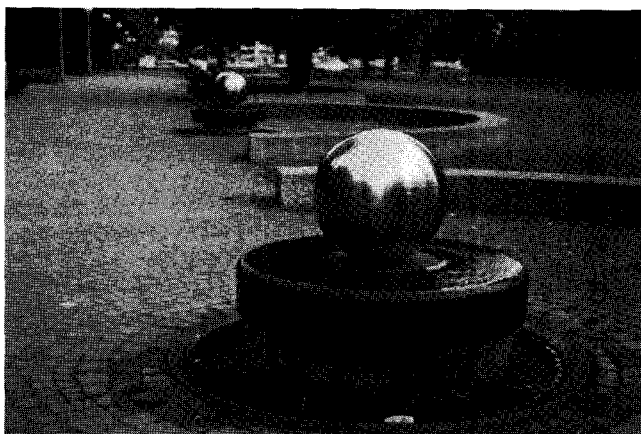


Figure 2-58

In the following illustrations (Figures 2-59 to 2-66), find the parts of circles that make up each whole composition. Also look for level changes, steps, walls, and other three-dimensional spatial expressions.



Figure 2-59



Figure 2-60

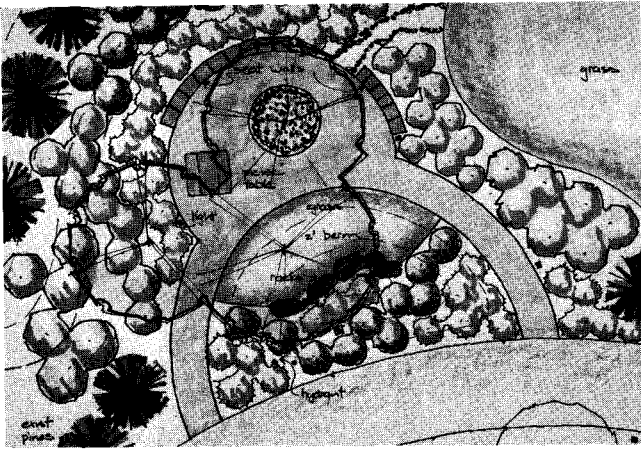


Figure 2-61

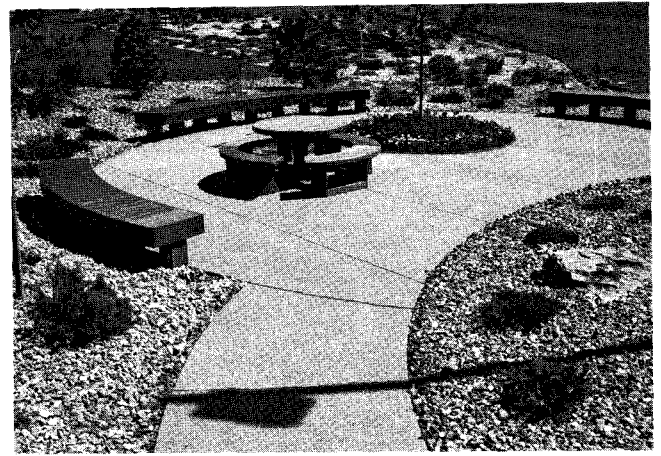


Figure 2-62

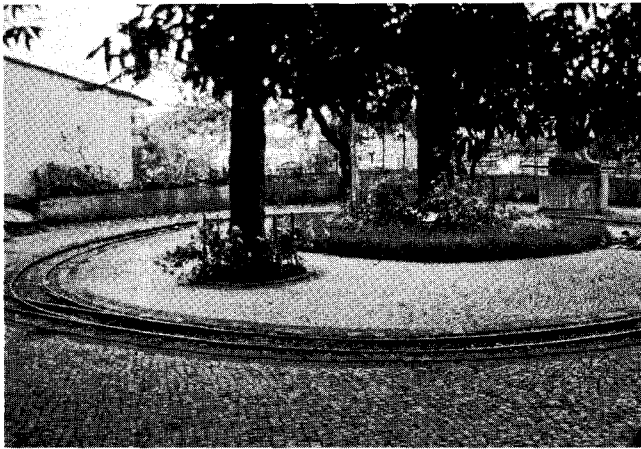


Figure 2-63



Figure 2-64



Figure 2-65

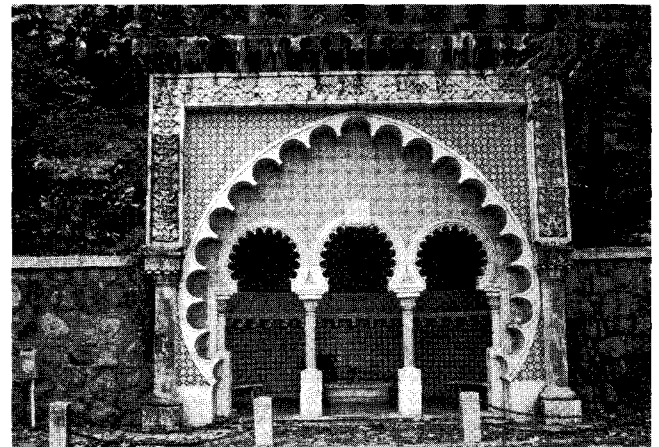


Figure 2-66

A variation would be to explore eccentric positioning of the circles (Figures 2-67 to 2-69).

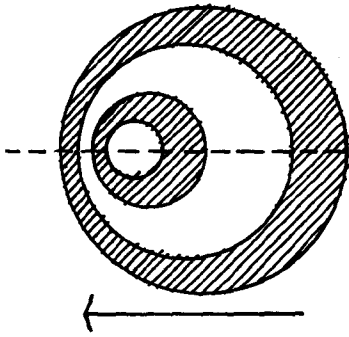


Figure 2-67 Circles moved to one side along an axis

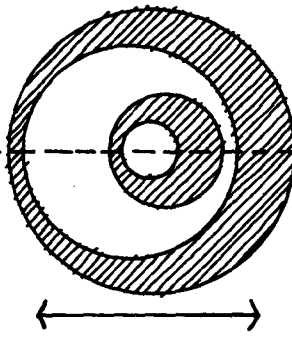


Figure 2-68 Circles moved back and forth along an axis

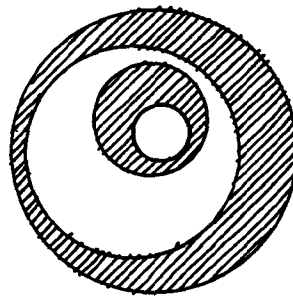
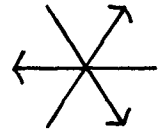


Figure 2-69 Circles moved along several axes



Concentric Circles and Radii

As before, begin with a concept plan (Figure 2-70).

Prepare a “spider web” grid, this time by combining radius lines with concentric circles (Figure 2-71; see also Figure A-5 in Appendix, page 166).

Overlay this grid with the concept plan (Figure 2-72).

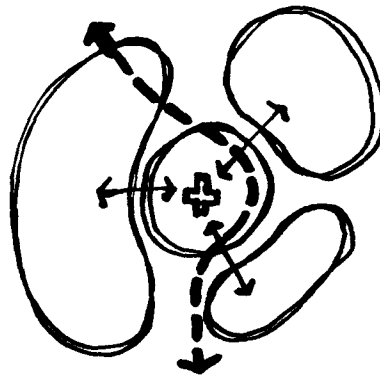


Figure 2-70

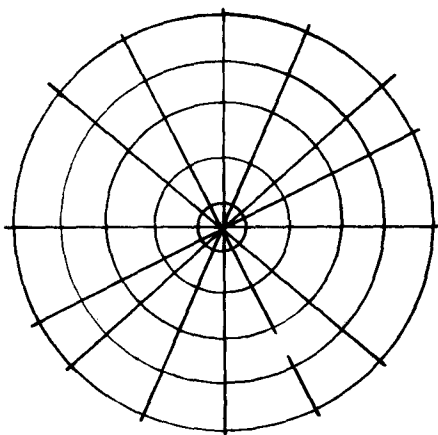


Figure 2-71

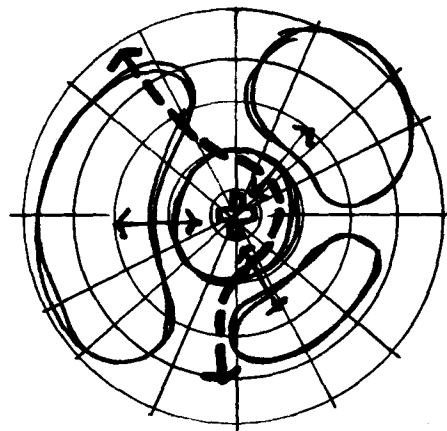


Figure 2-72

Then develop the spatial form by following the character of the web theme, letting the concept plan guide size and location. The lines you draw may not be on top of a grid line, but they must relate to the center point by being either a radial line or a concentric arc (Figure 2-73).

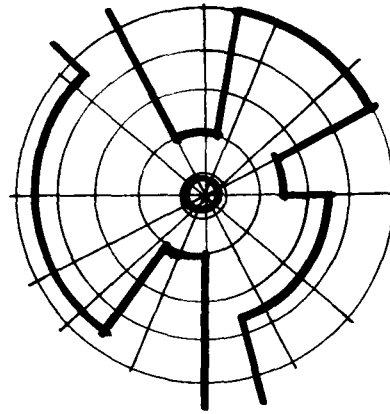


Figure 2-73

Simplify the composition by omitting lines. Add connections to form 90° angles with the surrounding elements (Figure 2-74).

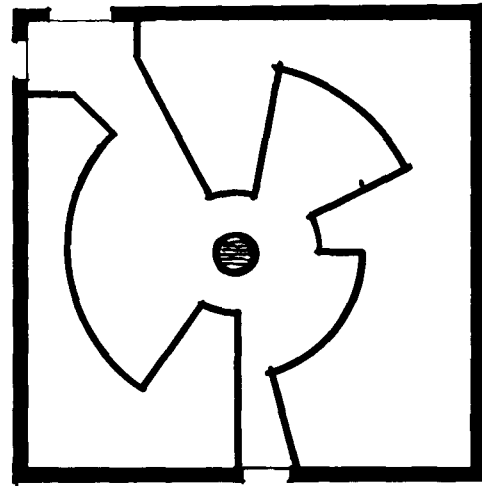


Figure 2-74

The following illustrations (Figures 2-75 to 2-78) show examples of radius and concentric circular designs. Note how the center adapts well to location of focal elements.



Figure 2-75

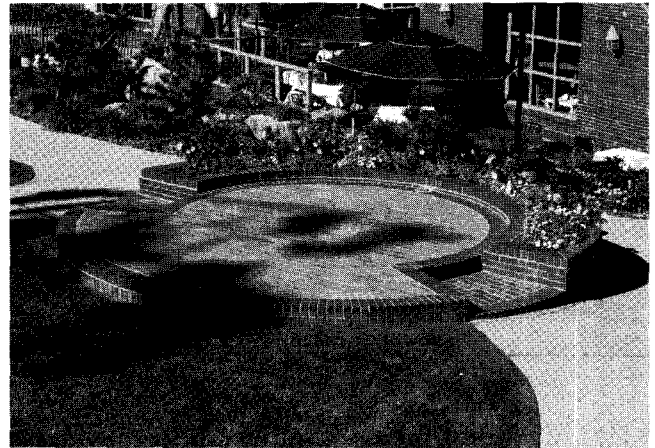


Figure 2-76



Figure 2-77



Figure 2-78

Arcs and Tangents

The next shapes use arcs and tangents as the basic theme.

A straight line that touches the edge of a circle meets the radius at 90° and is a tangent line (Figures 2-79 and 2-80).

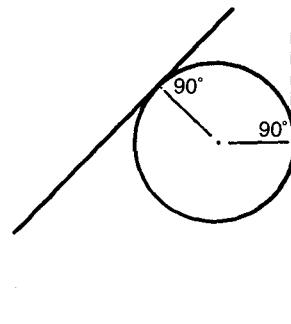


Figure 2-79

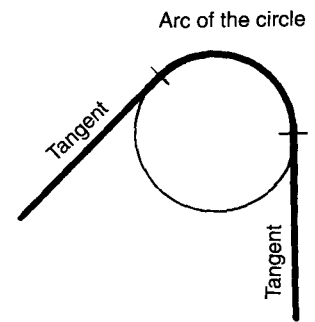


Figure 2-80

Begin by enclosing areas of the concept plan with boxlike shapes (Figure 2-81).

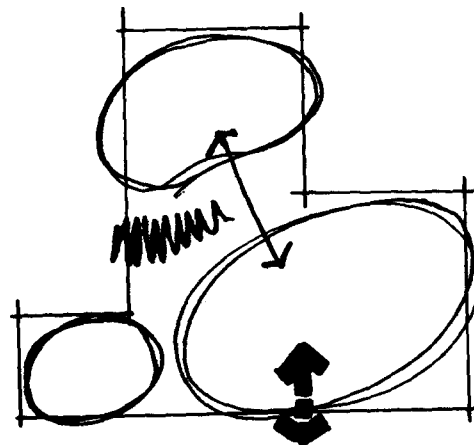


Figure 2-81

Add circles of various sizes at the corners so that the edges of each circle touch the straight lines (Figure 2-82).

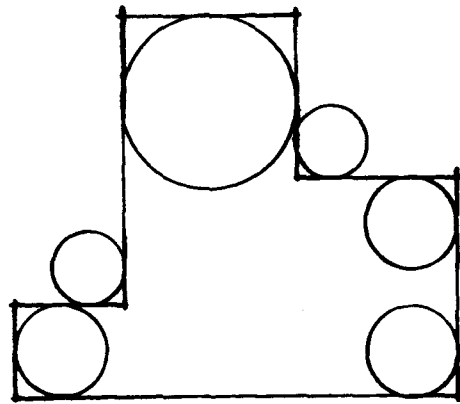


Figure 2-82

Trace around the edges to form a linked series of arcs and tangents (Figure 2-83).

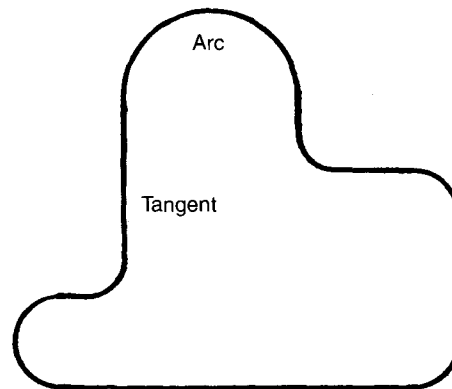


Figure 2-83

The usual finishing touches of simplification and adding connections may be necessary to blend the composition with surrounding forms. Refine the design by adding materials and facilities to match the client's needs (Figure 2-84).

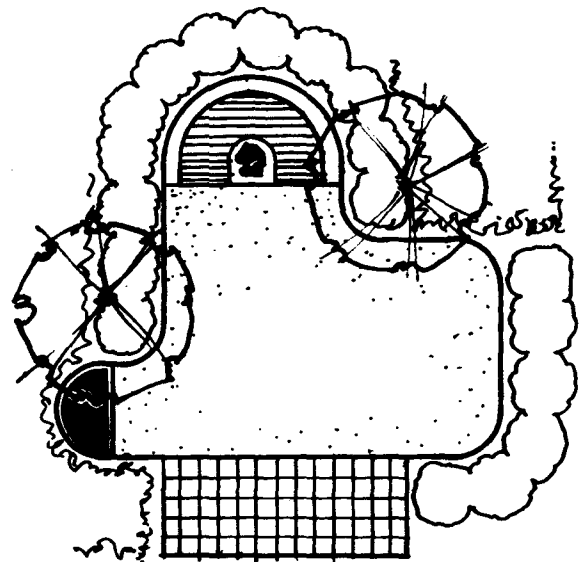


Figure 2-84

If the original boxlike forms were too restricting, another step may be necessary before detailing materials.

The same circles as illustrated above may be pushed in various directions. Reconnect them with tangents so that the design form appears like a belt going around wheels (Figure 2-85 and 2-86).

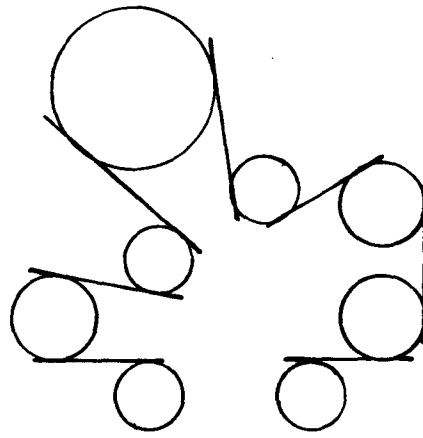


Figure 2-85

The following examples of the arcs and tangents theme (Figures 2-87 to 2-91) show a relaxed flowing form with a hint of formality and crispness.

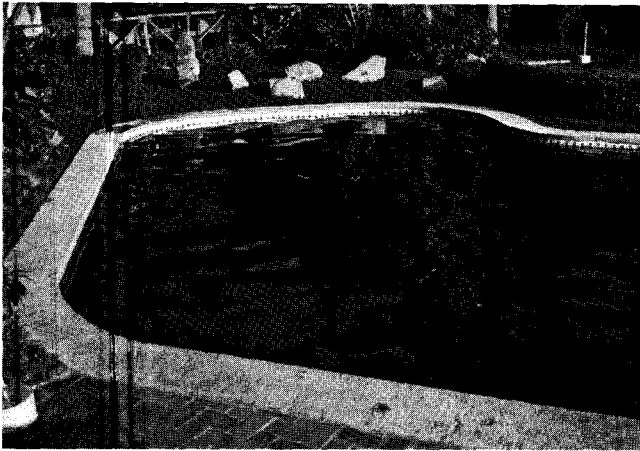


Figure 2-87

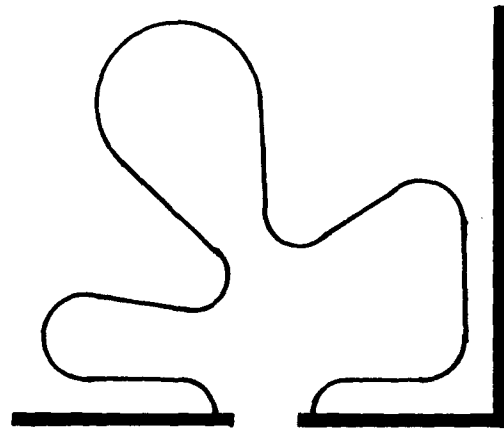


Figure 2-86

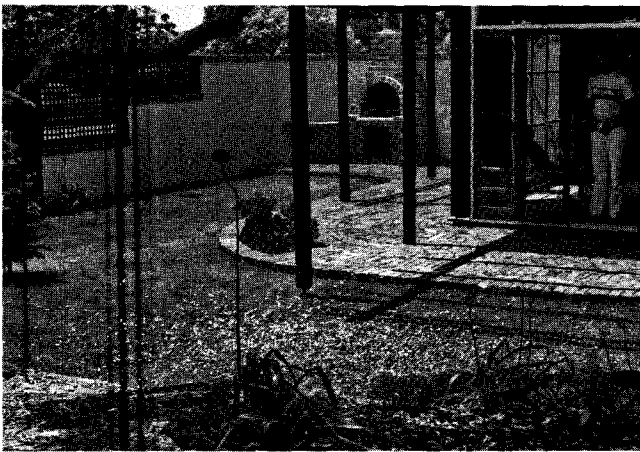


Figure 2-88

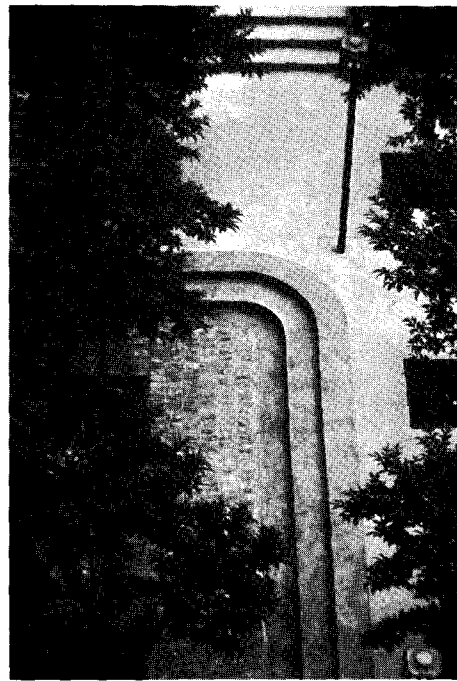


Figure 2-89

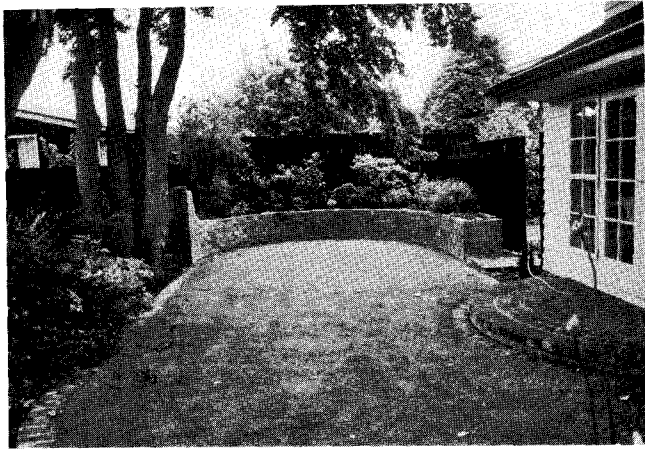


Figure 2-90



Figure 2-91

The arc-tangent patio plan (Figure 2-92) is illustrated with eye-level views in Figures 2-93 and 2-94.

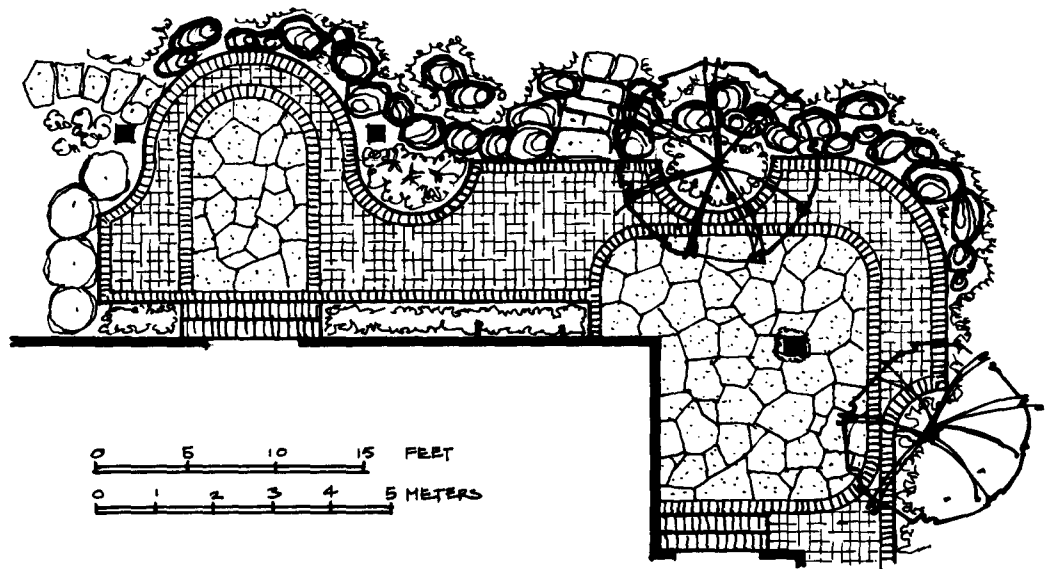


Figure 2-92 Arc-tangent patio plan



Figure 2-93 View of the right side of the arc-tangent patio



Figure 2-94 View from left to right of the arc-tangent patio

Circle Segments

Here the circle is divided into semicircular or quarter-circle, pie-shaped segments and reorganized along the horizontal and vertical axes (Figure 2-95).

Start with the basic form of the circle. Divide it into segments. Separate them (see also Appendix, page 167).

These may now be duplicated, enlarged, or reduced (Figure 2-96).

Let the concept plan (Figure 2-97) suggest the number, size, and location of the segments.

Recombine the segments by sliding segments along coinciding edges or offsetting the parallel edges (Figure 2-98).

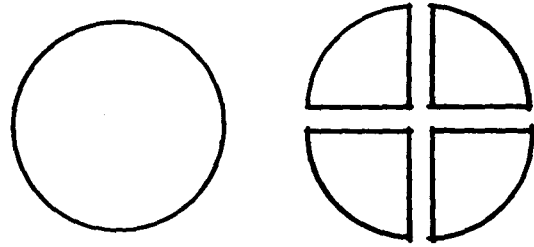


Figure 2-95

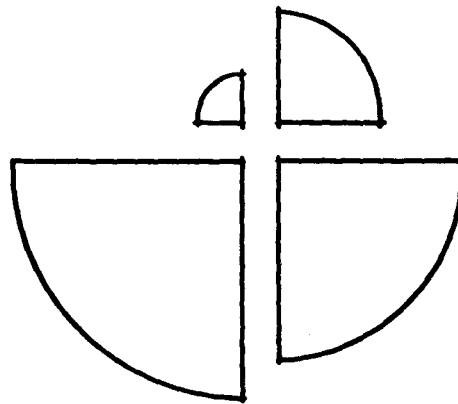


Figure 2-96

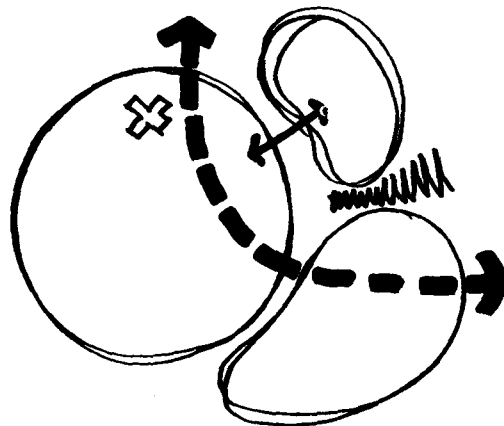


Figure 2-97

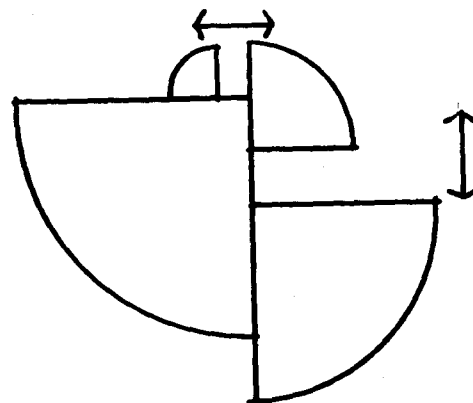
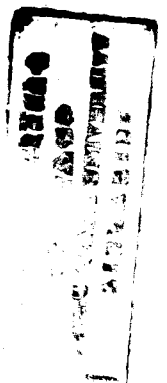


Figure 2-98



Simplify the composition by outlining and omitting unnecessary lines. Add connections or openings to make the spaces work (Figure 2-99).

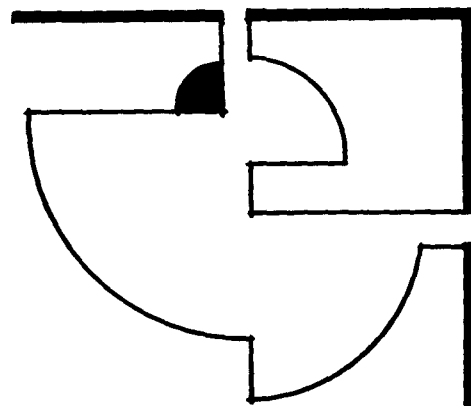


Figure 2-99

Refine and embellish the space with the appropriate materials and level changes (Figure 2-100).

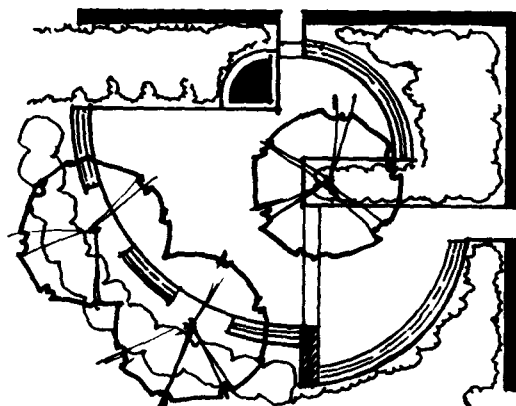


Figure 2-100

Look for the circle segment theme in the following illustrations (Figures 2-101 to 2-104).

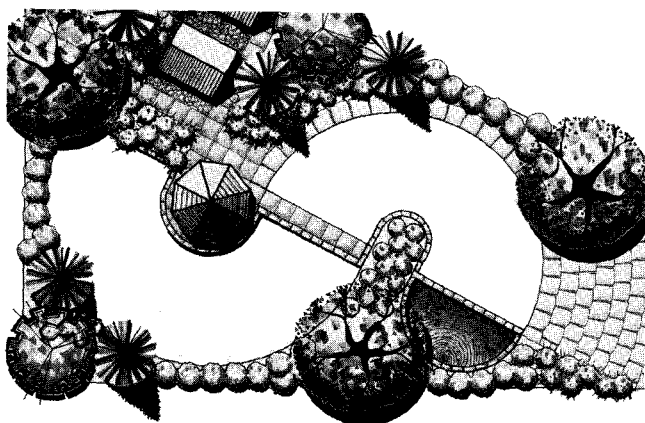


Figure 2-101 Garden plan



Figure 2-102 Urban plaza, San Diego, California



Figure 2-103 Fountain, Del Mar, California



Figure 2-104 Roman courtyard, Conimbriga, Portugal

The Ellipse

The same principles of form evolution described in the section "Circles on Circles" can be used with elliptical or oval shapes. Ellipses can be used alone (ovals on ovals) or they easily mix with circles (Figures 2-105 and 2-106).

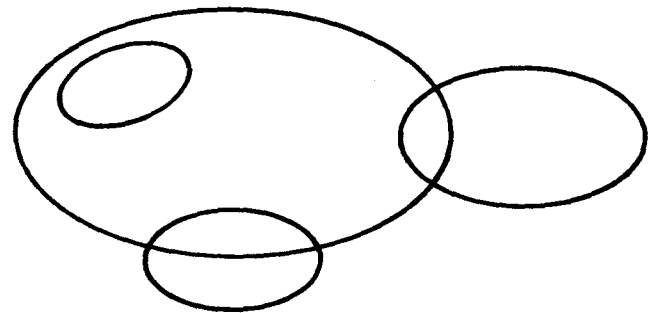


Figure 2-105

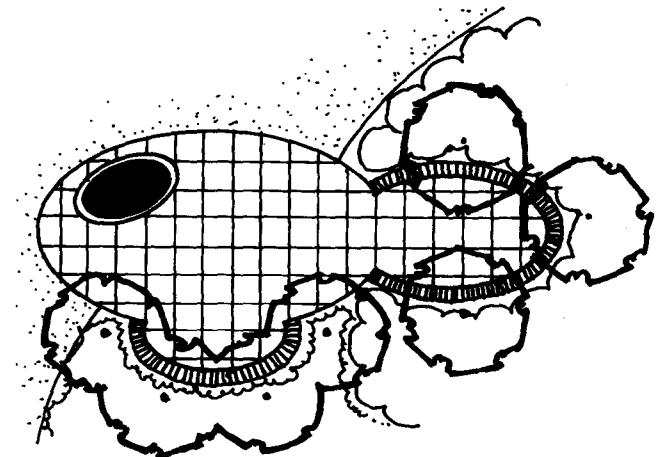


Figure 2-106

In mathematical terms, the ellipse is derived from planes that intersect cones or cylinders (Figure 2-107). The intersections are at set angles not parallel to the main vertical and horizontal axes.

Visualize ellipses as flattened circles. The easiest way to draw geometrically exact ellipses is to use an ellipse template. However, your template may not have the correct sizes, or it may produce ellipses too flattened or too rounded for the spaces you wish to create. Instructions for constructing customized ellipses can be found in the Appendix (page 172).

The ellipse produces a more dynamic feel than the circle, yet still retains the formality of strict mathematical order, as seen in the following examples (Figures 2-108 to 2-111).

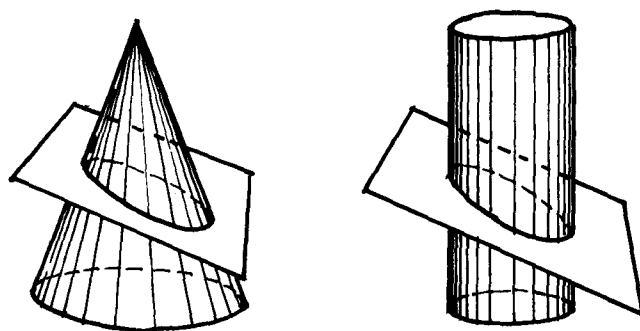


Figure 2-107



Figure 2-108



Figure 2-109



Figure 2-110



Figure 2-111

The Spiral

If an exact logarithmic spiral is needed, it can be geometrically generated from a golden mean rectangle (see Appendix, page 174).

Reduce the golden mean rectangle to a square on its shorter side. This leaves another golden mean rectangle whose longer side is now equal to the previous shorter side. Continue the process of diminution as far as practical, then scribe a series of arcs within each square, as shown in Figure 2-112, to form a spiral (Critchlow, 1970).

Although the mathematical spiral has a fascinating precision, it is the freehand expression of the spiral, or the *free spiral*, that probably has more application in landscape design. Further discussion of the free spiral appears in Chapter 3 (page 48).

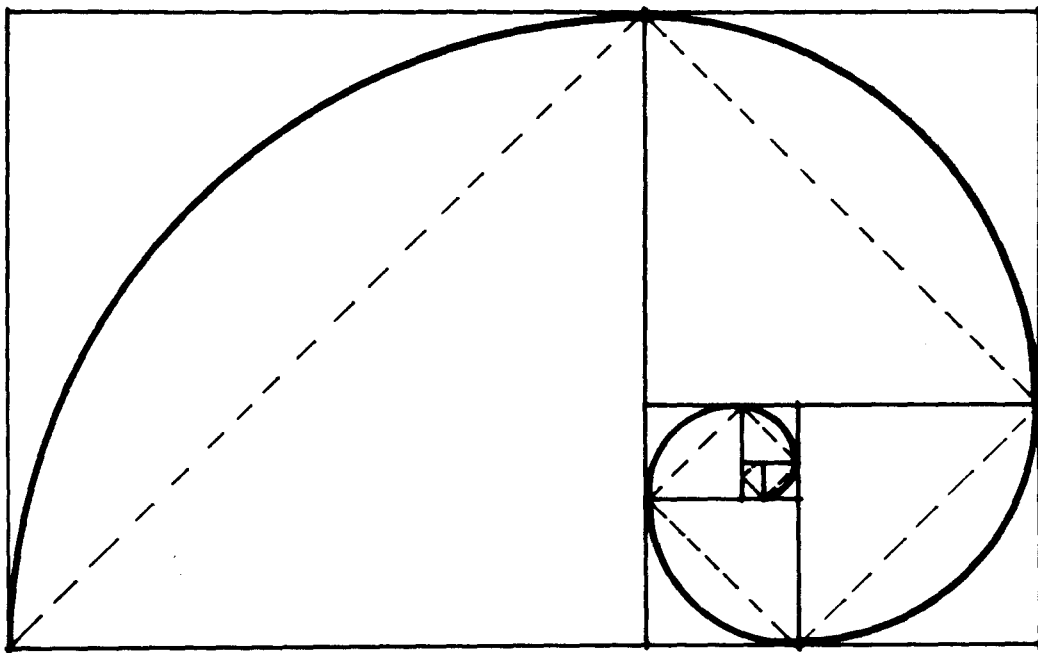


Figure 2-112

To summarize the application of geometric form to site design, a single concept plan for a community plaza (Figure 2-113) has been developed into various themes. Each theme has the identical elements of a sunken stage with a small moat, a main plaza with seating, a bridge, and the essential accessways.

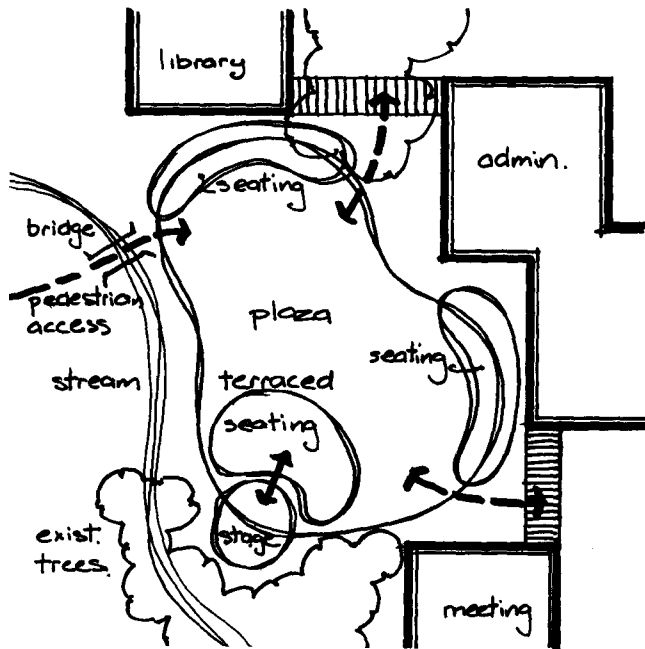


Figure 2-113 Concept plan

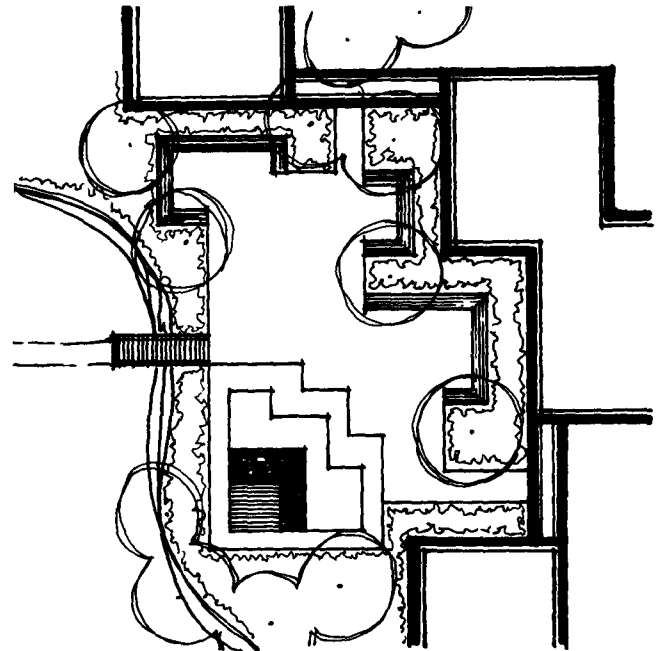


Figure 2-114 90° rectangular theme

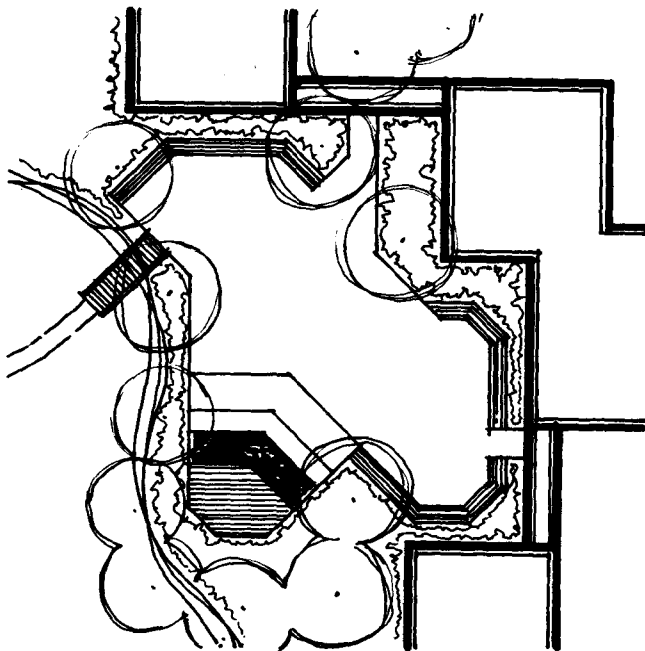


Figure 2-115 135° octagonal theme

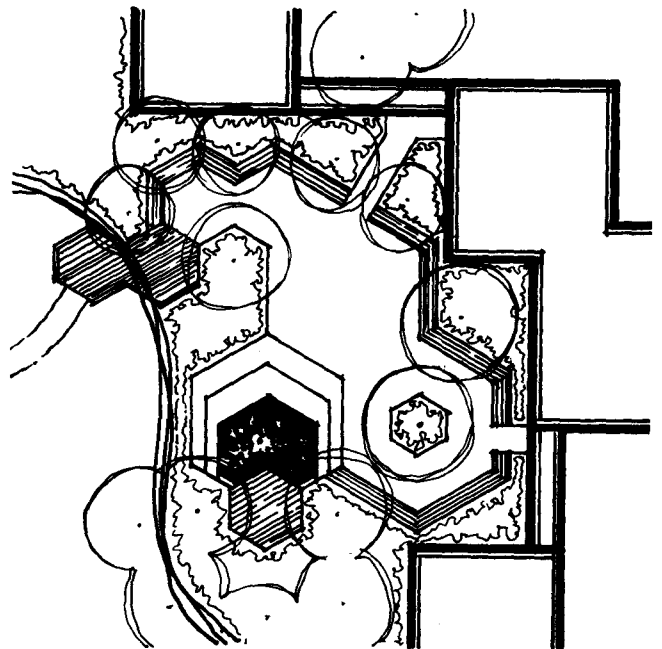


Figure 2-116 120° hexagonal theme

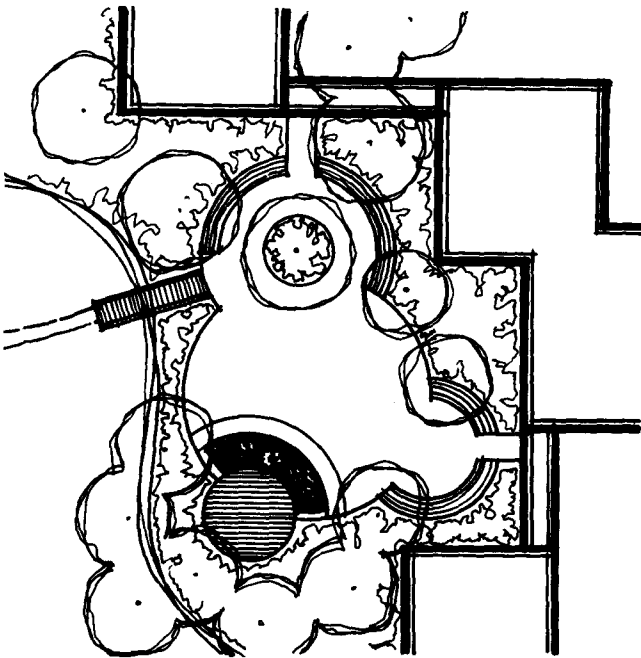


Figure 2-117 Circles on circles theme

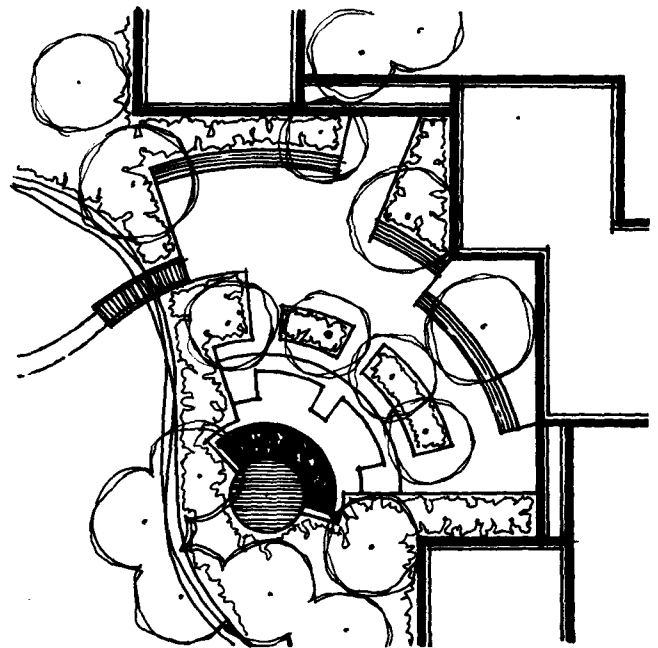


Figure 2-118 Circles and radii theme

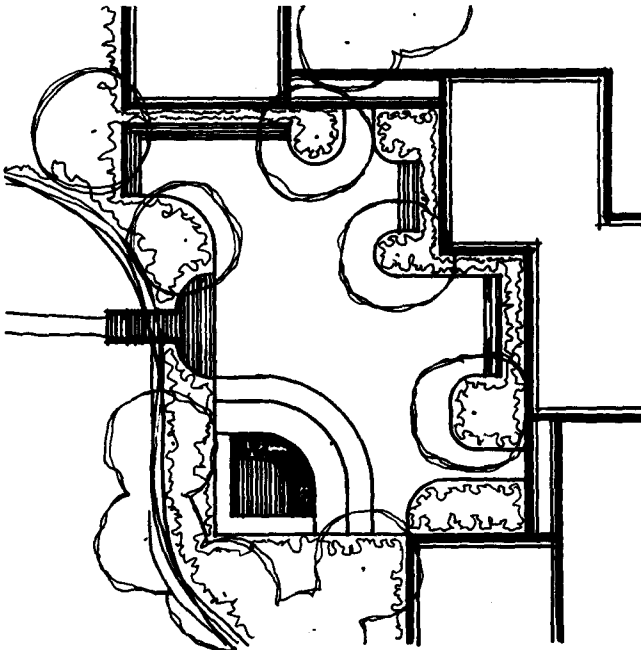


Figure 2-119 Arcs and tangents theme

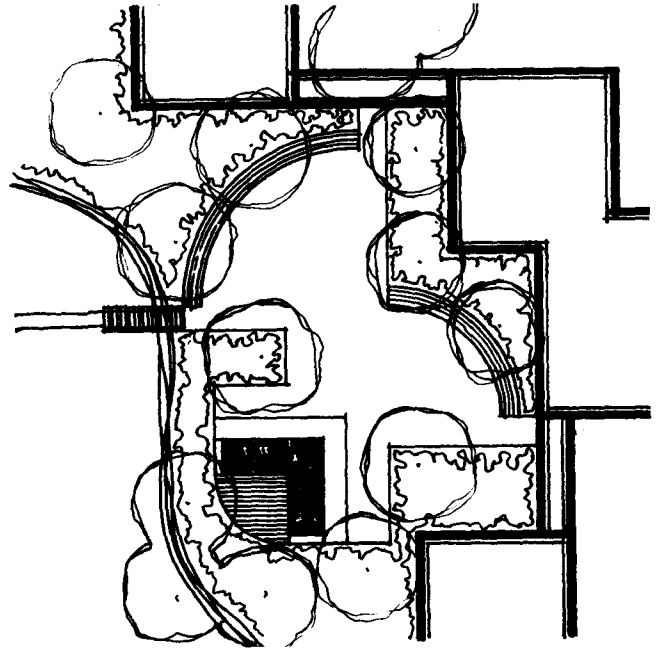


Figure 2-120 Circle segments theme

Naturalistic Form Development

During the research phase of a project, when information and impressions are being assembled about the site and the user, it may become evident that a naturalistic feeling should be pursued to develop the design. For a number of reasons, the designer may decide that the strictly disciplined shape of a pure geometric form may be less appropriate than a looser, more organic form. The site itself may suggest this. Landscapes that originally show little disturbance by man or that contain elements of natural interest may be more receptive to designs that reincorporate the materials and forms of nature.

In other situations, this inclination toward a naturalistic approach may stem from the needs, desires, or aspirations of the user independent of the existing site conditions. Indeed, the site may be a rigid urban environment composed of harsh man-made elements. Yet the client may wish for something new that appears looser, softer, freer, or more naturalistic. Similarly, businesses may wish to project an image of environmental consciousness; they may want the public to think that their services enhance conservation of natural resources. Consequently, the designer's program and conceptual base must ultimately transform some connection to nature into design.

Design Approaches

The strength of the relationship between the built environment and the natural environment depends on the designer's approach and the inherent existing site conditions. This connection to nature may be considered at three levels.

The first level is the essence of ecological design. Not only are the basic processes of nature recognized, but the resulting design requires that human actions be integrated with minimal impact on the ecology of a site or that human actions have a regenerative impact. For instance, when a wetland habitat is re-created from a degraded site, or when a series of buildings is made to fit unobtrusively into a site with all the underlying natural processes intact, then the resulting forms display a true harmony with nature.

The second level creates the feeling of a naturalistic setting when the benefit of a complete system of natural processes is lacking. Artificial controls—such as pumps and recirculating water, irrigation systems that keep plants healthy, or pipes and drains that control erosion—replace nature in most urban environments. Still, the emphasis is on the use of natural materials like plants, water, and rock arranged in patterns that reflect a natural order. Landscape planners in Switzerland use the term *approaching nature* for their process of re-creating streams in the city.

In the third level, the connection to nature is more tenuous. In designed space largely devoid of any semblance to natural processes, composed predominantly of materials crafted by man—such as concrete, glass, brick, and timber—the imagery makes the connection. Shapes and forms must imply a natural order within this artificial framework.

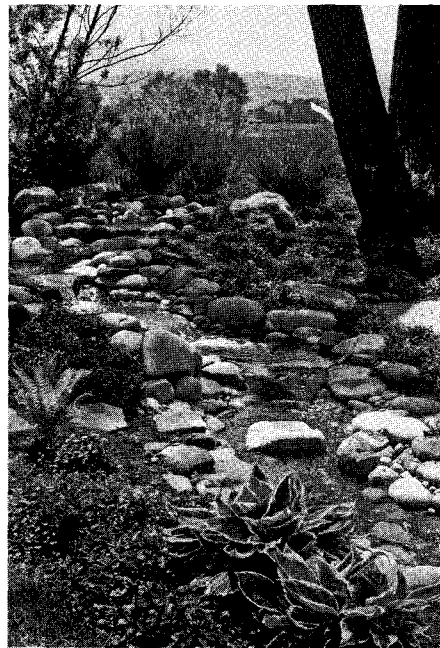


Figure 3-1

Within the realm of nature imagery lies a rich palette of form ideas to use in design. These forms may be imitations, abstractions, or analogues of nature.

An *imitation* copies or mimics the shapes of nature without significant alteration. A recirculating man-made stream may appear very similar to a mountain stream (Figure 3-1).

An *abstraction*, on the other hand, is the natural form used as inspiration and adapted or interpreted by the designer to suit a particular condition. In its final form it may bear little resemblance to the original object. Thus, the smooth-flowing line in the landscape feels naturalistic but might not be recognized as having been derived from the meandering river (Figure 3-2).

An *analogue* is a form that accommodates an essential natural process but is free from the constraints of having to bear any visual resemblance. There occurs a functional analogy between the two; for example, a drain that directs the flow of water across pavement is an analogue of the stream but looks very different (Figure 3-3).

In the following pages, examples of imitations and abstractions of nature are explored in more detail.

The Meander

Just as the square is the most common organizing theme in the built environment, perhaps the most ubiquitous natural form used in landscape site design is the meander, found in many natural realms (Figure 3-4).



Figure 3-2



Figure 3-3



Figure 3-4

The smooth back-and-forth flowing alignment of a riverbed (Figure 3-5) shows the meander's essential form, characterized by gentle transitions from one curve to the next with no straight lines.



Figure 3-5

In a functional context, this meandering shape is the preferred form for landscape elements such as roads or walkways, designed to accommodate a smooth flow of vehicular or pedestrian traffic (Figures 3-6 to 3-9).



Figure 3-6

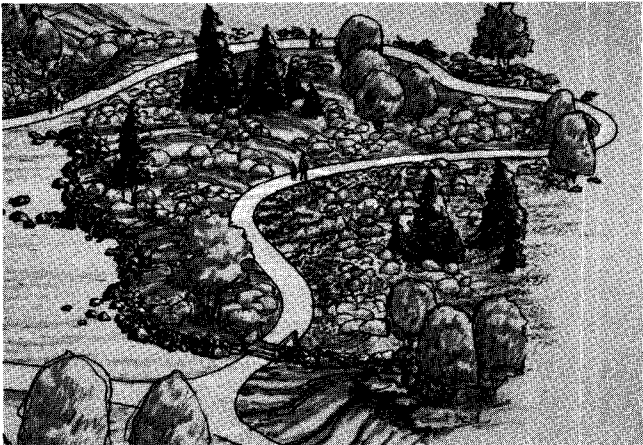


Figure 3-7



Figure 3-8

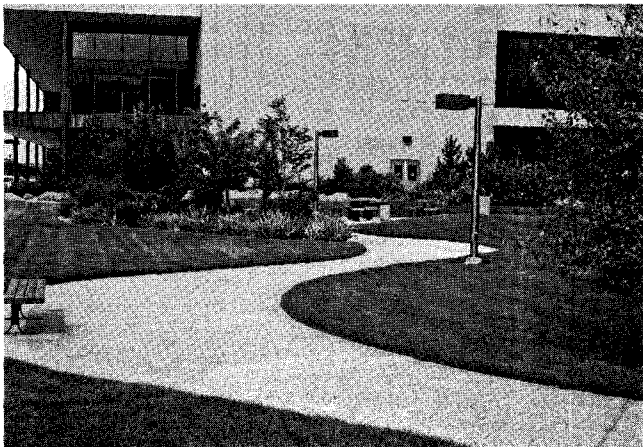


Figure 3-9

In a spatial context, the meander often contributes to a sense of mystery. Viewed from eye level, the lineal space occupied by a meander seems to disappear from view and then reappear, behind subtle elevation changes and vertical elements.

This model of a bridge (Figure 3-10) is patterned after the irregular meander. It contradicts the normal bridge design criteria of the shortest and most direct route.

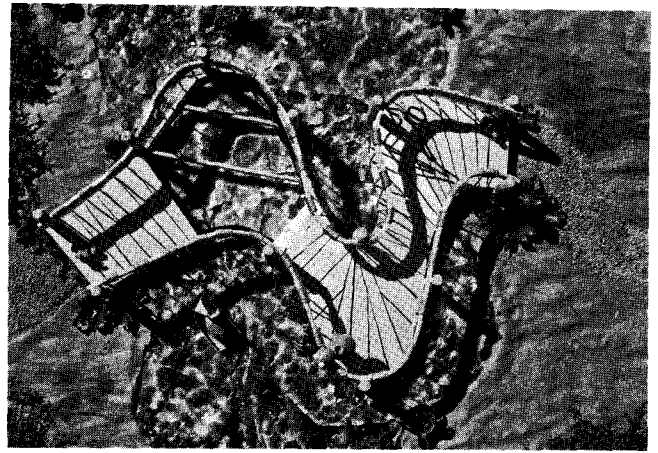


Figure 3-10

Although not a functional pathway, this cobbled meander at the Singapore Airport (Figure 3-11) implies a feeling of gentle motion and disappears behind the grassy mounds.



Figure 3-11

A fairly regular undulation may express a meandering form, similar to the receding waters of this tidal inlet's wavelike pattern worn in the mud (Figure 3-12).



Figure 3-12

A similar but somewhat more exacting regularity occurs in wavelike walkways, as shown in Figures 3-13 and 3-14.



Figure 3-13



Figure 3-14

A variation of the meander exists in this fracture line in a tree trunk (Figures 3-15 and 3-16). The following examples of pavement and grass edging (Figures 3-17 to 3-19) illustrate how the designer, by adding variety to the meander, creates an interesting rhythm in the flowing forms.



Figure 3-15 Natural fracture

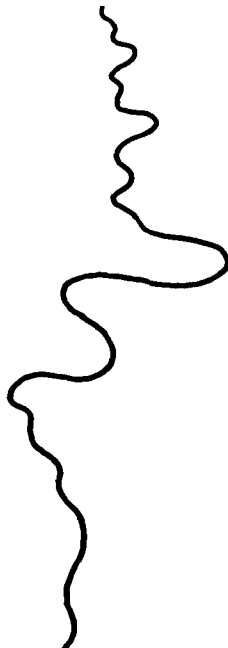


Figure 3-16 The essential form

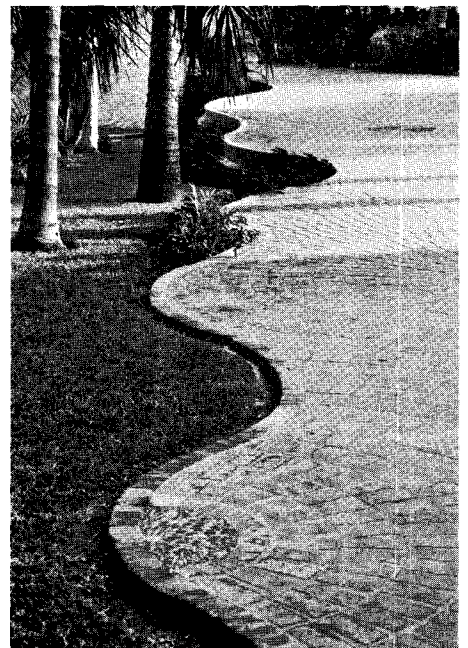


Figure 3-17 Its imitation in design

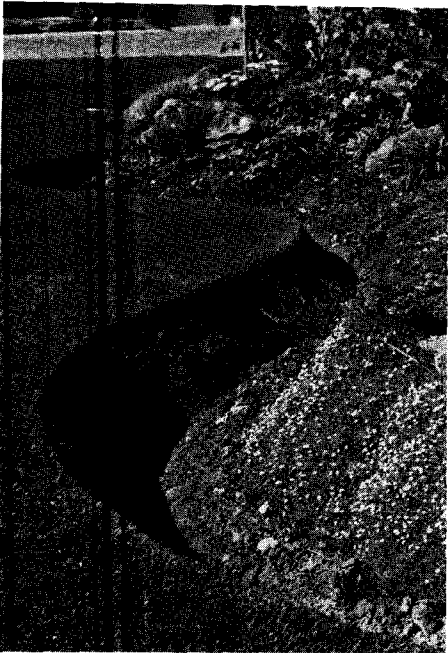


Figure 3-18

Notice the strengthened impact of the horizontal plane meander projected up from ground level in Figures 3-20 to 3-22. In these examples, hedges and seat walls express the meander.



Figure 3-19



Figure 3-20

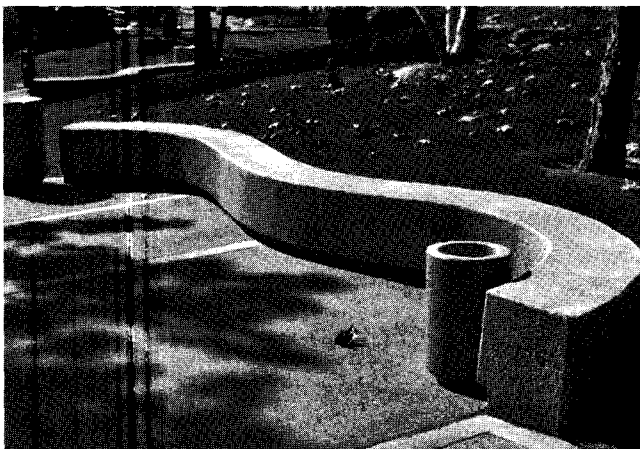


Figure 3-21



Figure 3-22

Now consider the meander as a vertical plane form. Instead of a side-to-side flow, it becomes an up-and-down flow. The top of a wall or the upward undulations and mounding of ground elements can express the vertical meander (Figures 3-23 and 3-24).

The evolution of form from a natural pattern as it is abstracted and then interpreted in a built form is shown in Figures 3-25 to 3-28.

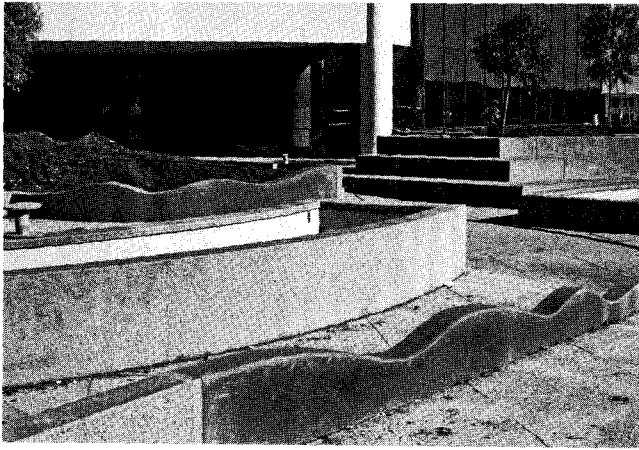


Figure 3-23

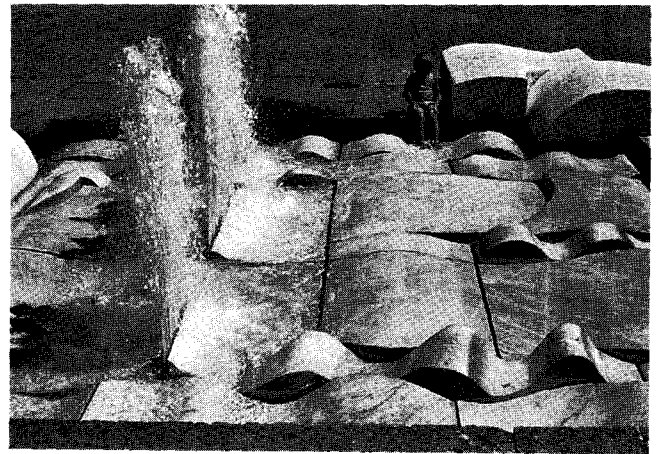


Figure 3-24



Figure 3-25 Natural bark pattern

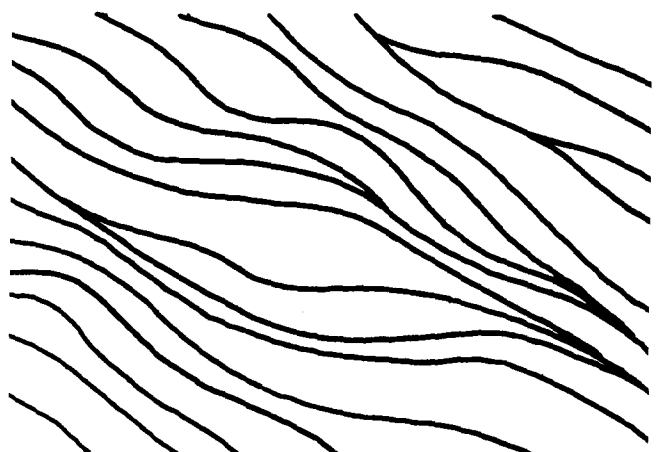


Figure 3-26 The essential form

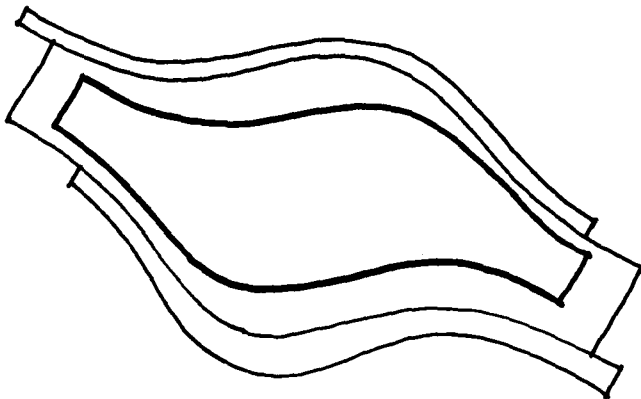


Figure 3-27 Designer's abstraction

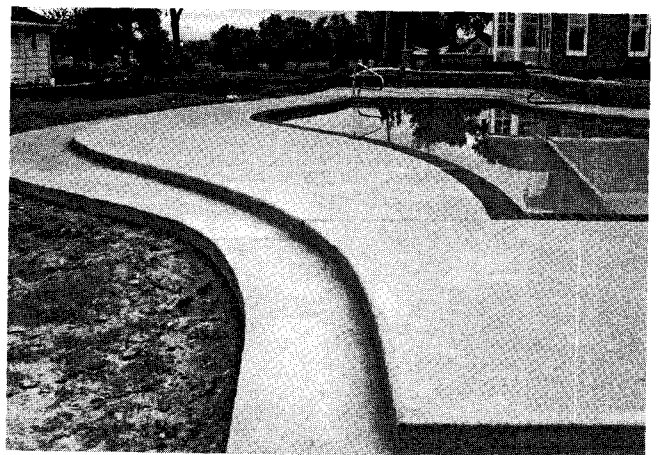


Figure 3-28 Its expression in the built landscape

As ice freezes around trapped air bubbles, an interesting family of smooth lines develops. With a flowing character similar to lineal forms, the lines loop around to form a closed meander (Figures 3-29 and 3-30).



Figure 3-29

Closed meanders, when expressed in landscape materials, can form the edge of contained turf areas, water features, or drifts of plantings (Figures 3-31 to 3-33). In general, these shapes lend a relaxed, informal atmosphere to a space.

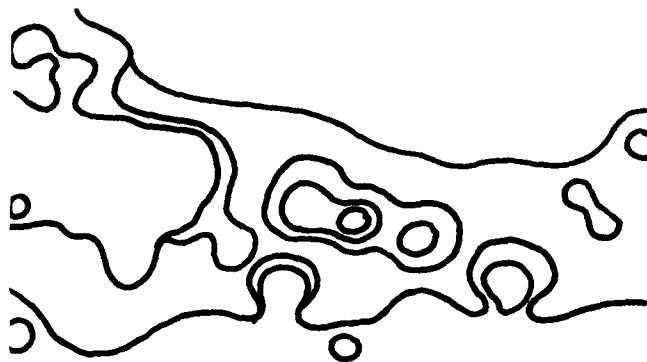


Figure 3-30

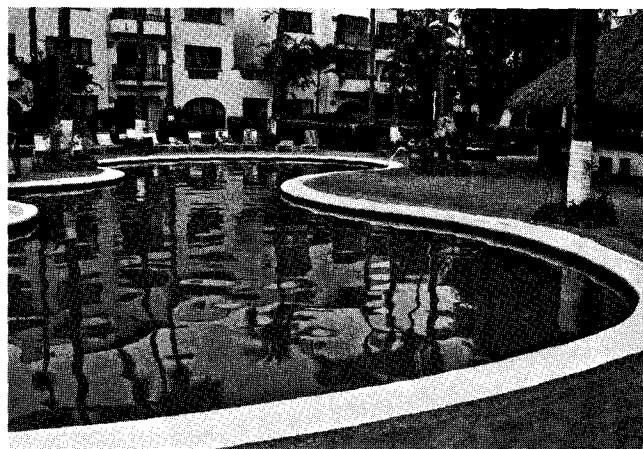


Figure 3-31

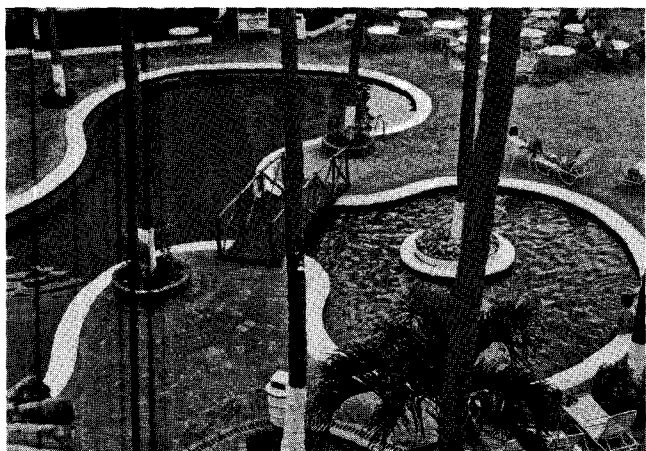


Figure 3-32

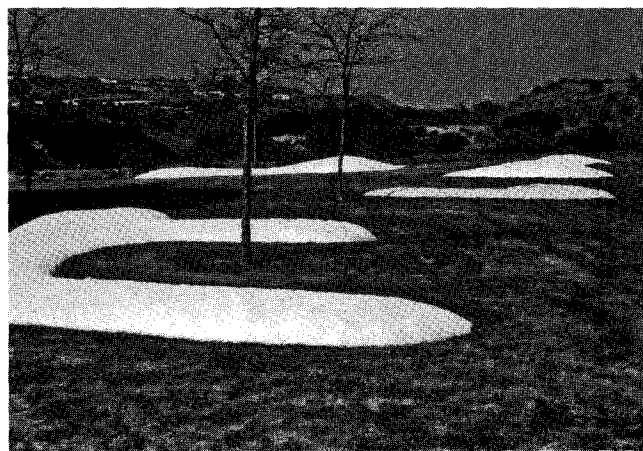


Figure 3-33

This design for a community xeriscape garden shows how the concept plan guides the placement of the meandering edges to create walks, walls, a dry creek, and planting areas (Figures 3-34 to 3-37). Note how important the forms become in defining three-dimensional space.

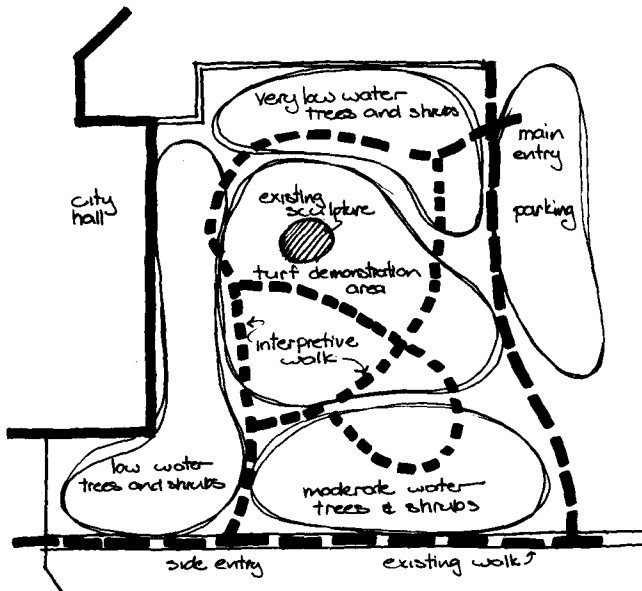


Figure 3-34 Concept plan

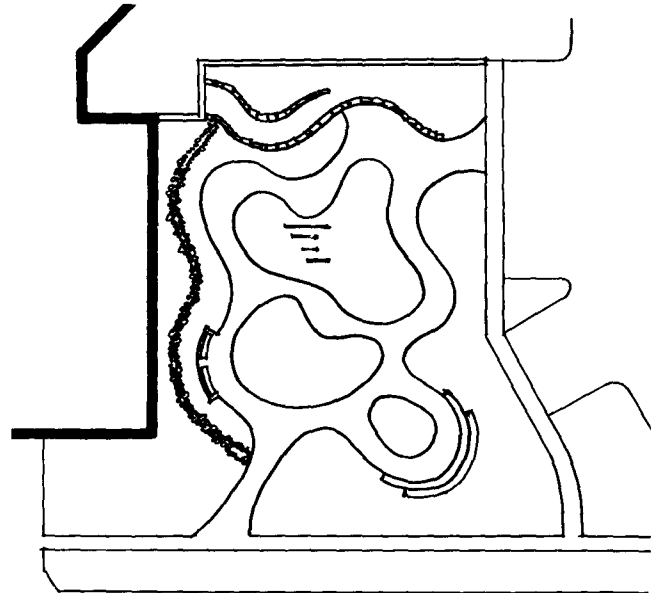


Figure 3-35 Garden form

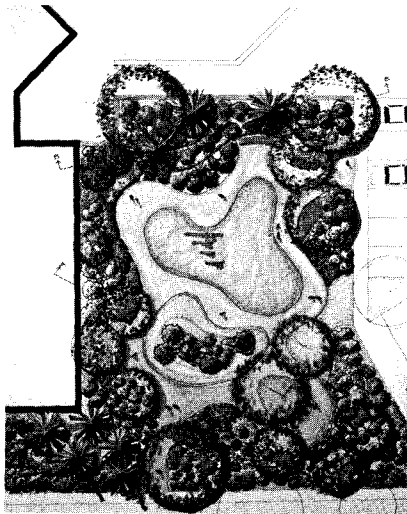


Figure 3-36 Final plan



Figure 3-37 Completed landscape

In developing a meander or free-form design, it is best to draw the lines freehand, fairly rapidly. Keeping fingers still, use shoulder and elbow joints. Strive for strong, smooth, flowing undulations that have no straight lines and no irregular blips or wobbles.

The top of Figure 3-38 shows a weak meandering line with indecisive wobbles.

The bottom of Figure 3-38 shows a strong meandering line with smooth decisive curves and a fluid rhythm.

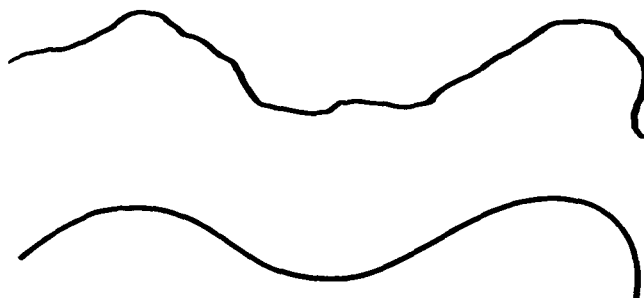


Figure 3-38

The Free Ellipse and Scallops

If we take the ellipse as described in Chapter 2 (page 17) and discard the constraints of pure mathematical exactness, we have a more natural *free ellipse*. Form it very easily by drawing a flattened circle or oval in a loose free-hand technique. These bubblelike shapes are best drawn fairly fast and with several circuits, allowing you to smooth out blips or round out flat parts on the second or third circuit (Figures 3-39 and 3-40).

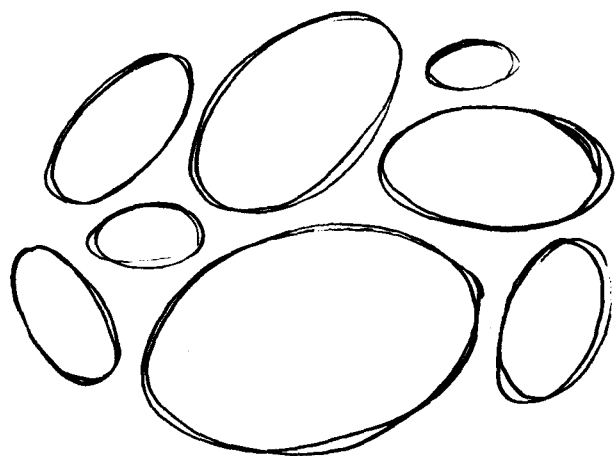


Figure 3-39

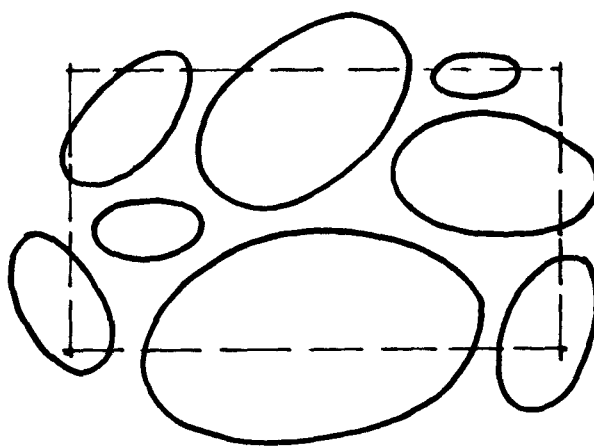


Figure 3-40

Free-floating ellipses adapt well to the design of pedestrian walkways. The spaces and sizes can be adjusted to suit the circulation pattern (Figures 3-41 and 3-42).

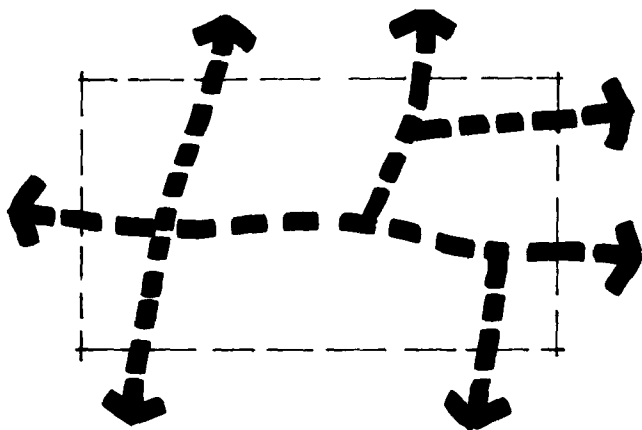


Figure 3-41

The outline from *touching ellipses* sets up dynamic-looking spiked forms (Figure 3-43).

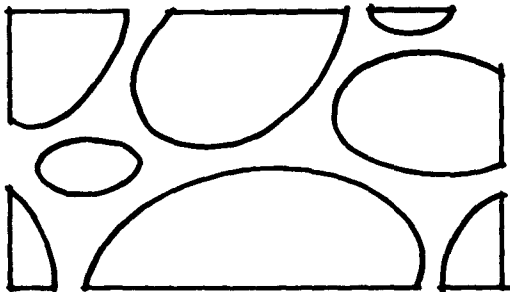


Figure 3-42

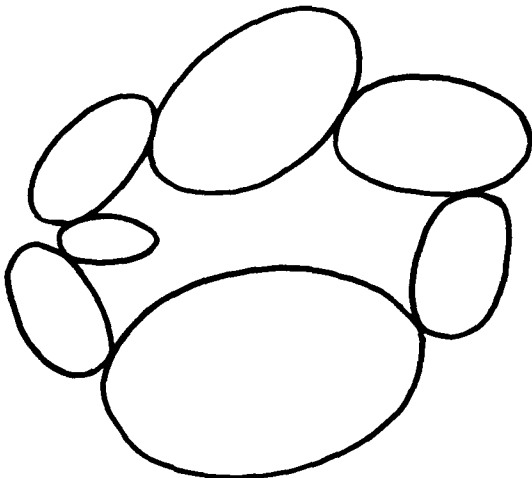


Figure 3-43

Following the outside of a ring of ellipses results in a bulging appearance (Figure 3-44).

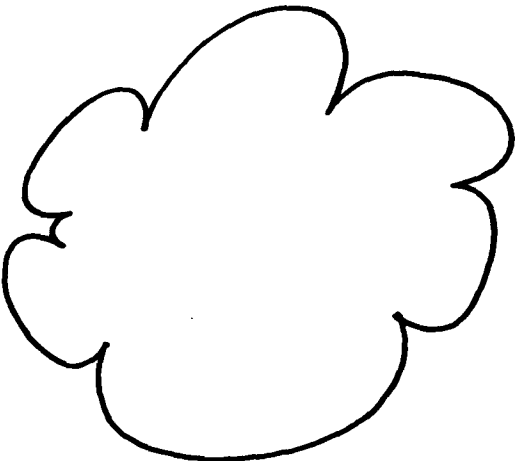


Figure 3-44

Following the inside of the cluster results in a sharply scalloped appearance (Figure 3-45).

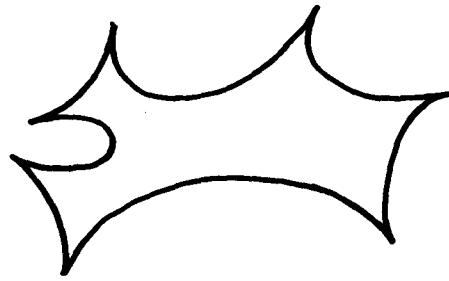


Figure 3-45

The same pointed characteristics in the silhouette of an oak leaf (Figures 3-46 and 3-47) can be adapted to landscape materials, as shown at the end of this section.

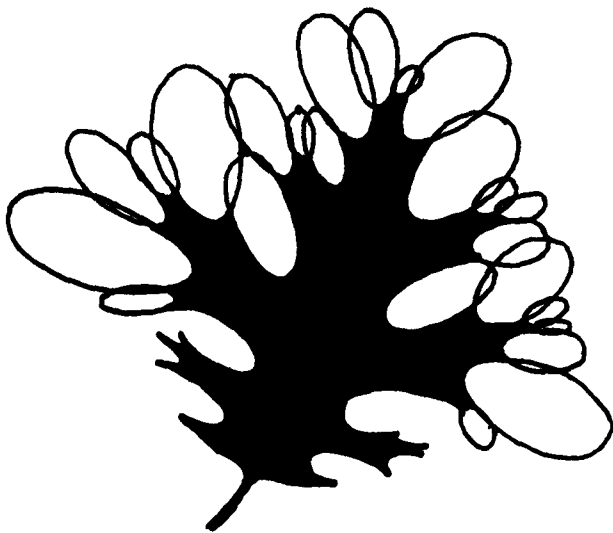


Figure 3-46

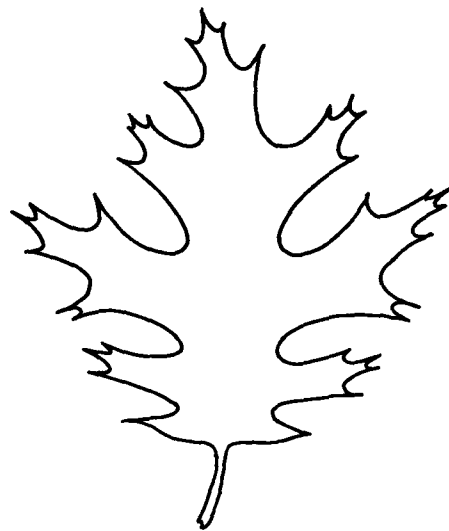
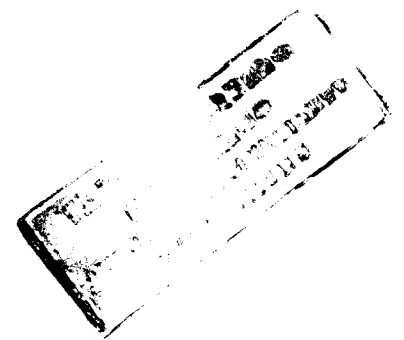


Figure 3-47



Varying the arrangement and size of the bubbles will be necessary to meet the spatial or functional requirements of the concept plan. When forms overlap, the intersecting lines should cross at approximately 90°, or close to it, before you refine the shapes by redrawing the outline and establish the materials they represent (Figure 3-48).

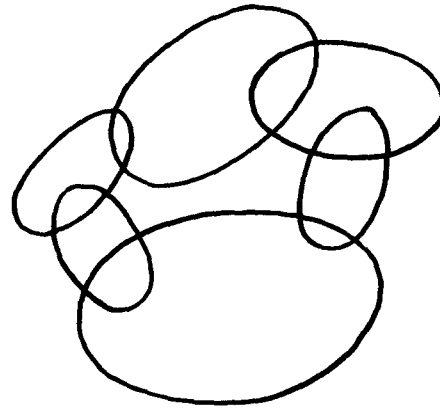


Figure 3-48

Notice the different character that results from tracing around the outside versus around the inside of linked ellipses (Figure 3-49).

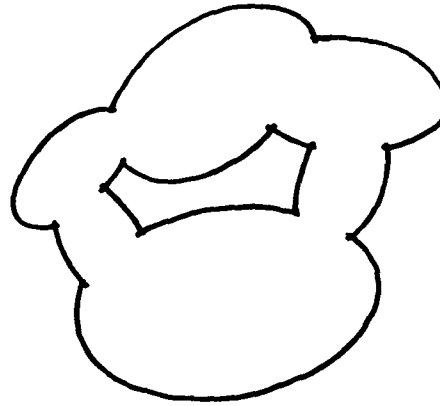


Figure 3-49

If we take the same grouping of linked ellipses and change direction at the intersections, a series of reverse scallops results (Figures 3-50 and 3-51). The partial ellipses reciprocate, or move back and forth, to create interesting possibilities for site design.

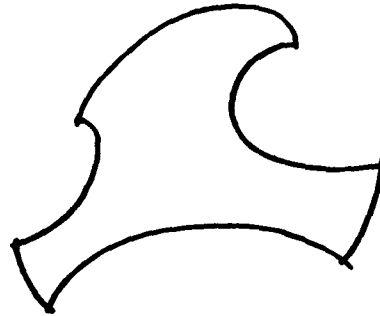


Figure 3-50

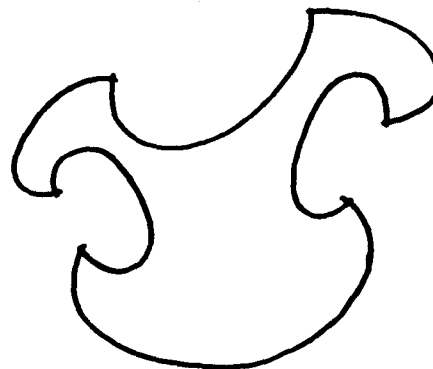


Figure 3-51

The scalloped forms shown in Figure 3-52 have been derived from the pattern of growth seen on the small lichen in Figure 3-53.

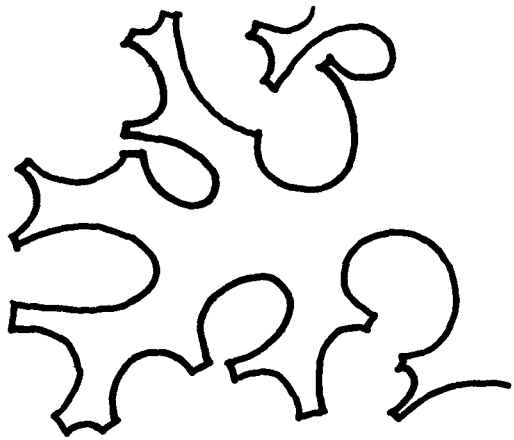


Figure 3-52

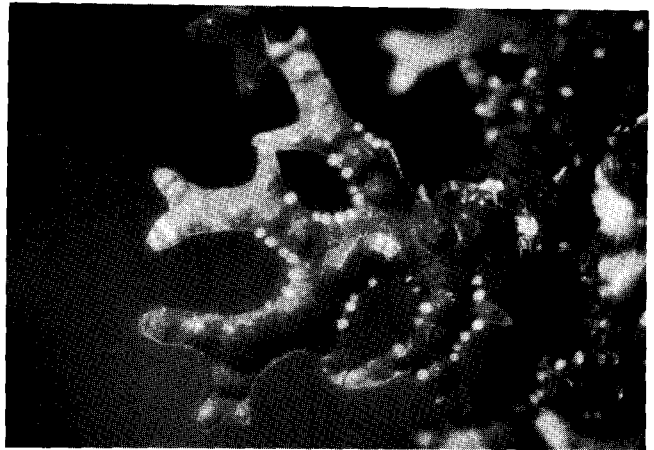


Figure 3-53

Look for the ovals and scallops in the following examples of designed spaces (Figures 3-54 to 3-57).



Figure 3-54

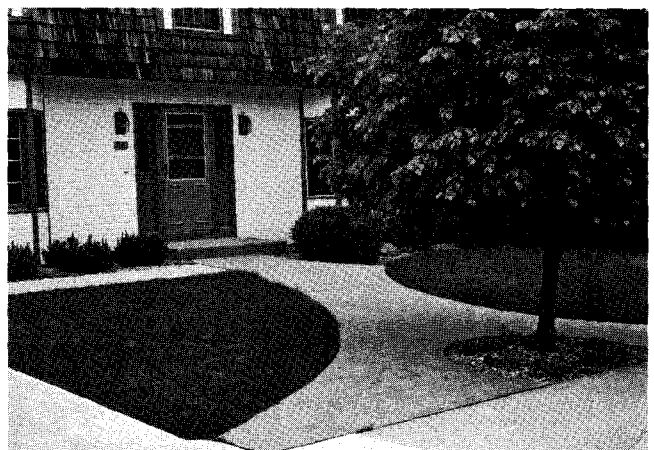


Figure 3-55



Figure 3-56



Figure 3-57

The Free Spiral

Two major types of spirals are important to free-form development. One is the three-dimensional spiral, or helix, typified by the spiral staircase (Figure 3-58), where the spiral shape moves around a central axis, staying the same distance from it.

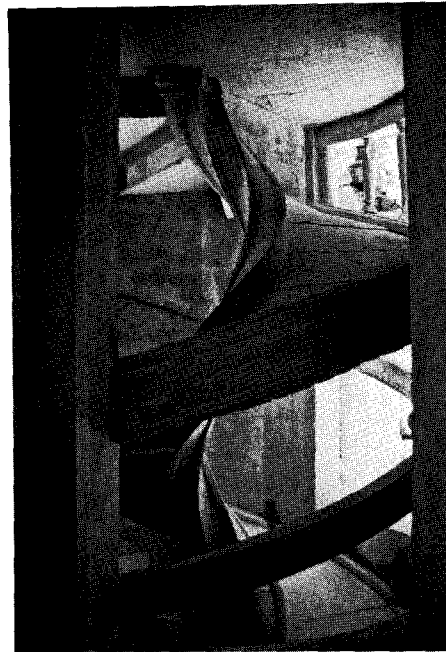


Figure 3-58

The other is the two-dimensional spiral as found in the nautilus shell (Figure 3-59), where the spiral line moves farther and farther away from a central point as it rotates around it.

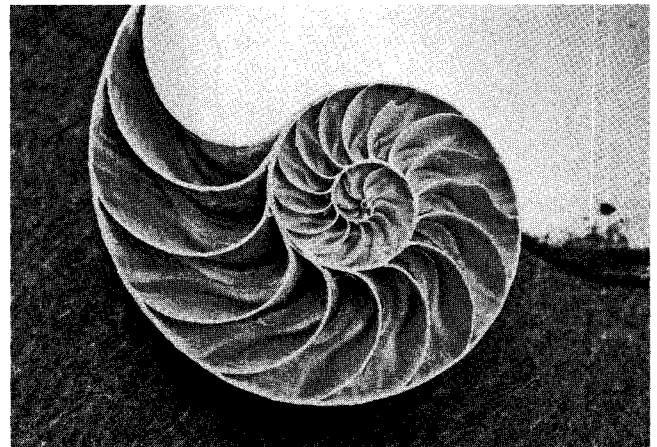


Figure 3-59

Both types of spirals combine in some natural organisms (Figure 3-60).

To keep the concept simple, we will explore only the two-dimensional spiral.

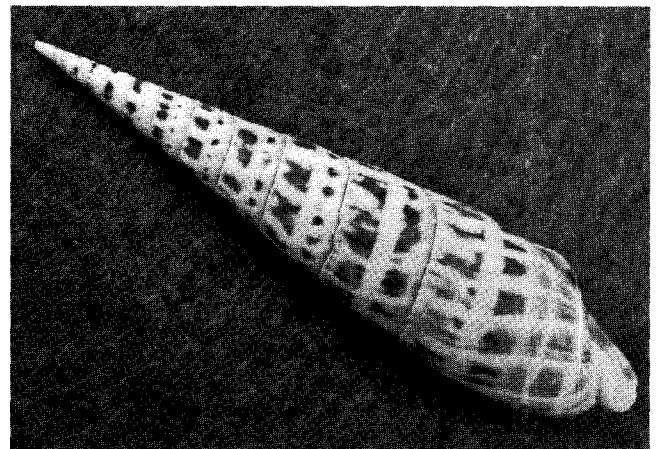


Figure 3-60

A basic design used by the natives of New Zealand, the Maori, is called a *koru*. A spiral stem terminates in a bulb that resembles the unfolding frond of the tree fern (Figures 3-61 and 3-62). It is one of several natural organisms patterned on variations of the logarithmic spiral described earlier.



Figure 3-61



Figure 3-62

By combining the koru in various ways, the Maori painters and carvers produce a variety of interesting designs (Phillips, 1960). The combinations, in turn, evoke images of other natural objects such as waves, flowers, and leaves, as shown in Figure 3-63.

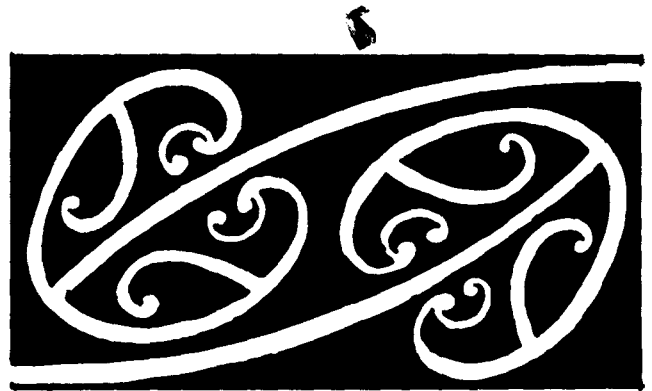


Figure 3-63

The reverse spiral unlocks other possibilities. At any point along a spiral shape, a second spiral can begin with a rotation in the opposite direction. If the transition occurs at an angle close to 90°, a powerful connection results. Some of these shapes can look like breaking waves (Figures 3-64 and 3-65).

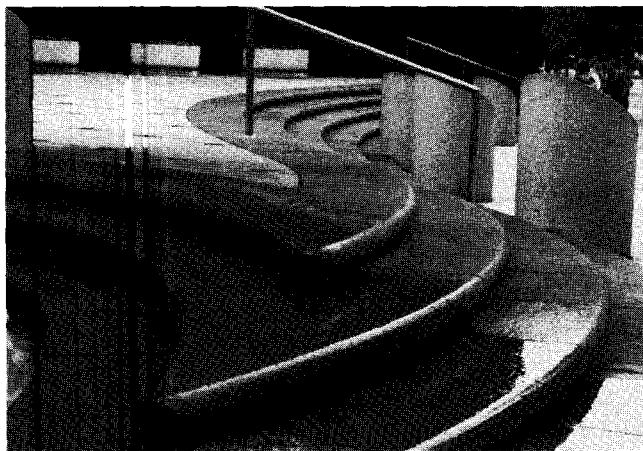


Figure 3-64

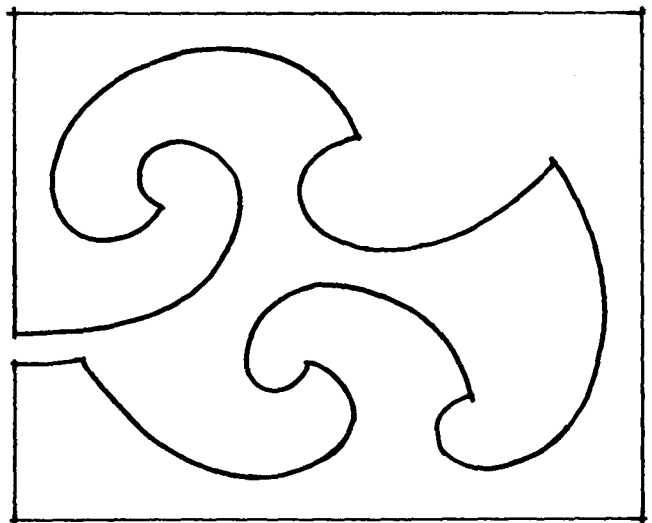


Figure 3-65

64 From Concept to Form in Landscape Design

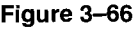


Figure 3-67



Figures 3-70 to 3-72 demonstrate other applications of the spiral in developing landscape form.



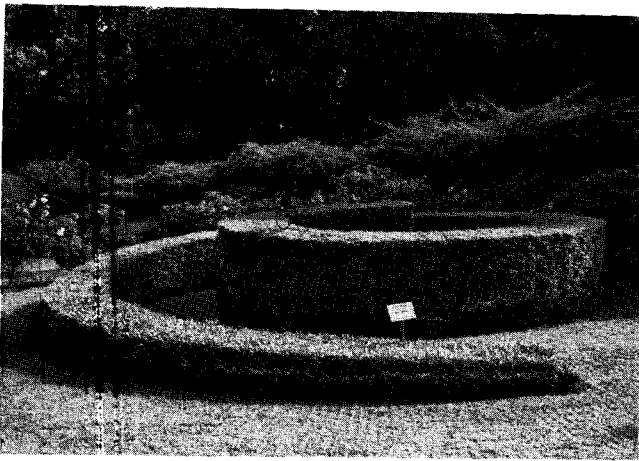


Figure 3-70 Singapore Botanic Gardens

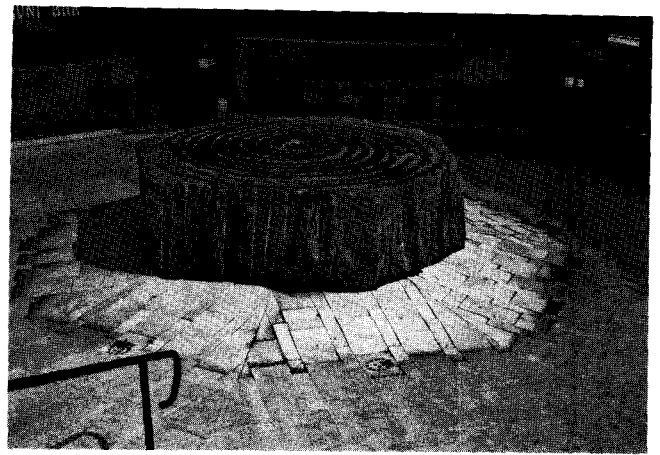


Figure 3-71 Fountain, Slovenia

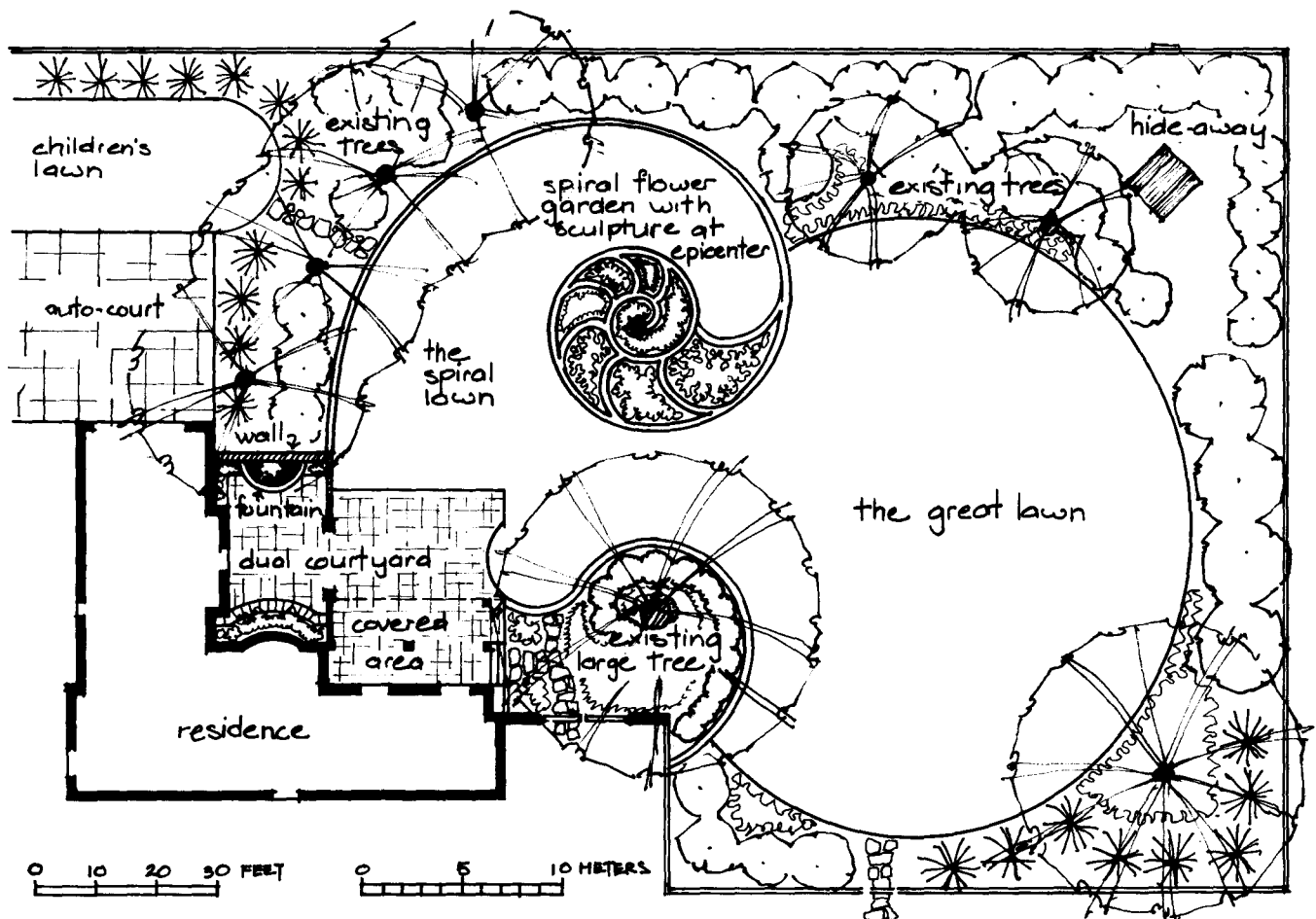


Figure 3-72 Spiral garden design

The Irregular Polygon

Nature contains a multitude of straight-line ordering systems.

Fracture lines in granite boulders (Figure 3-73) show the essential characteristics of a naturalistic irregular line (Figure 3-74). Its length and change of direction appear random. This loose, random quality makes it different from geometric angular patterns.



Figure 3-73

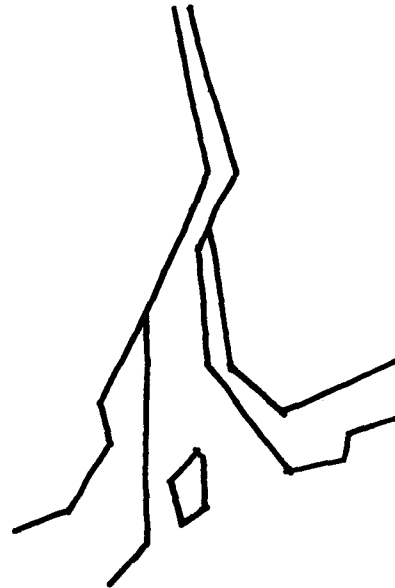


Figure 3-74

When applying such irregular or random design, use many different line lengths and vary the angles within the guidelines below (Figure 3-75).

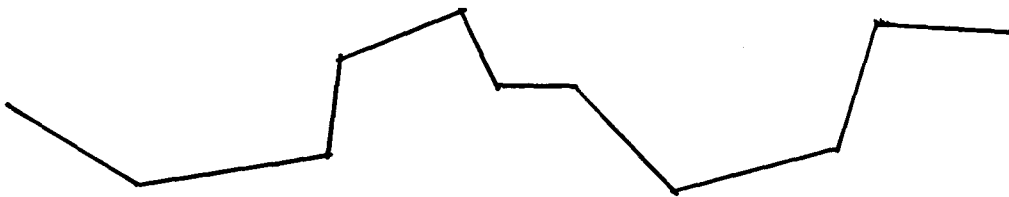


Figure 3-75

Use obtuse angles between 100° and 170° (Figure 3-76).

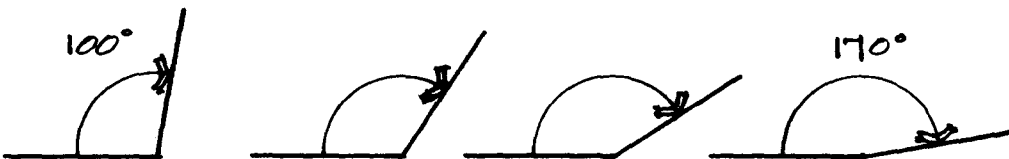


Figure 3-76

Use reflex angles between 190° and 260° (Figure 3-77).

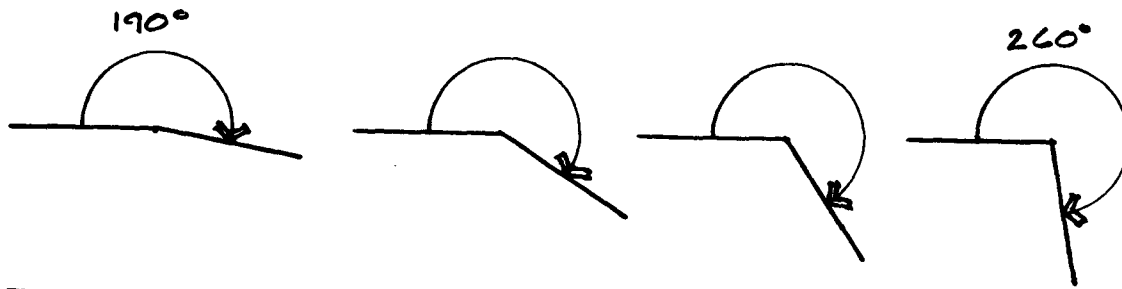


Figure 3-77

Avoid too many angles closer than 10° to a right angle or a straight line, and too many parallel sides (Figure 3-78).

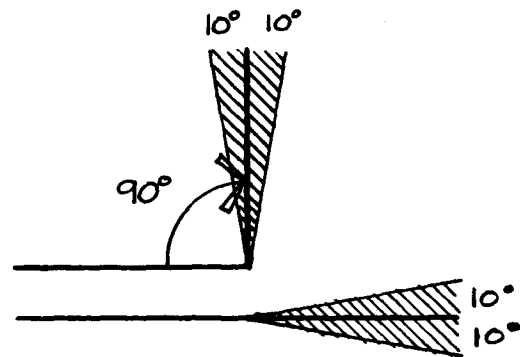


Figure 3-78

Repeated use of parallelism and 90° angles (Figure 3-79) returns the theme to the more rigid character of the rectangular and angular geometric forms discussed earlier.

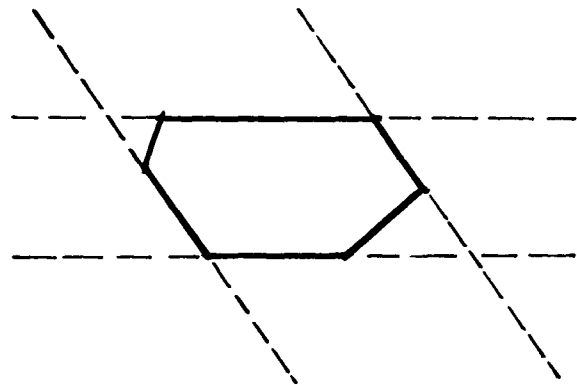


Figure 3-79 Avoid this

Building acute angles into design should be avoided (Figure 3-80). As with the other angular themes, acute angles can give rise to structures that are difficult to build, to pavement that may crack, to confined spaces that are unusable, and to landscapes that are difficult to maintain or irrigate.

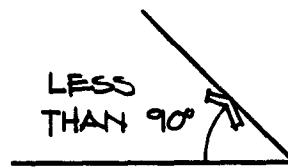


Figure 3-80 Avoid this

The *irregular polygon* arises here in the erosion pattern of coastal sandstone (Figure 3-81). Note the apparent randomness inherent in the line length, the angular change of direction, and the size of the polygons (Figure 3-82).

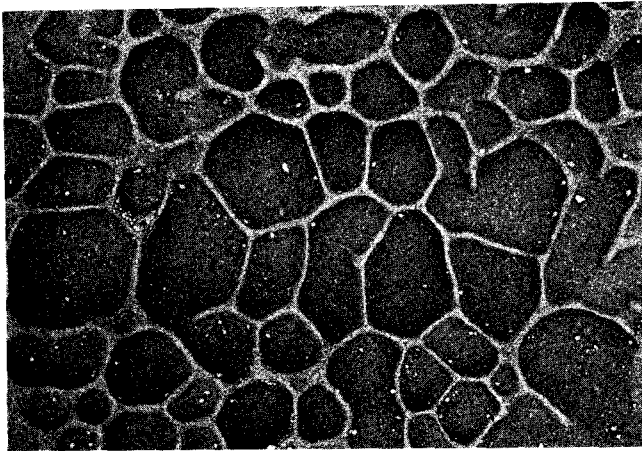


Figure 3-81

The irregular polygon appears in its application to landscape materials in these irregular pool designs (Figures 3-83 to 3-86).

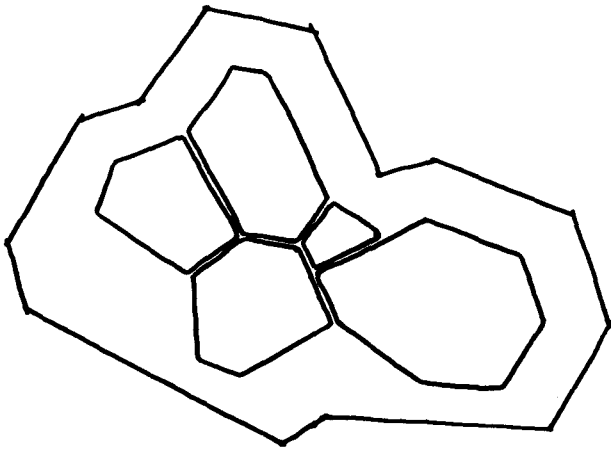


Figure 3-83

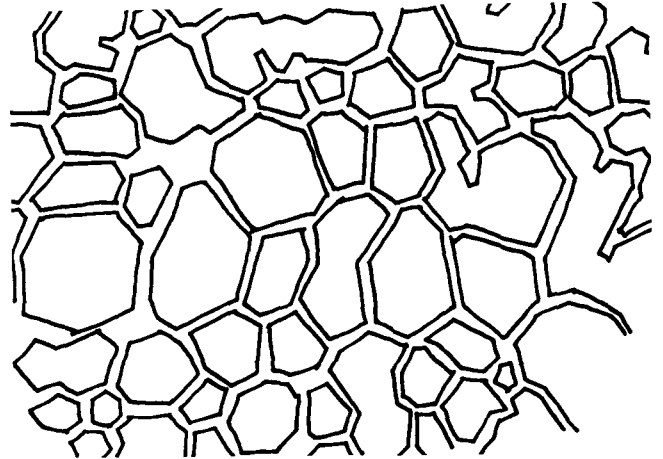


Figure 3-82

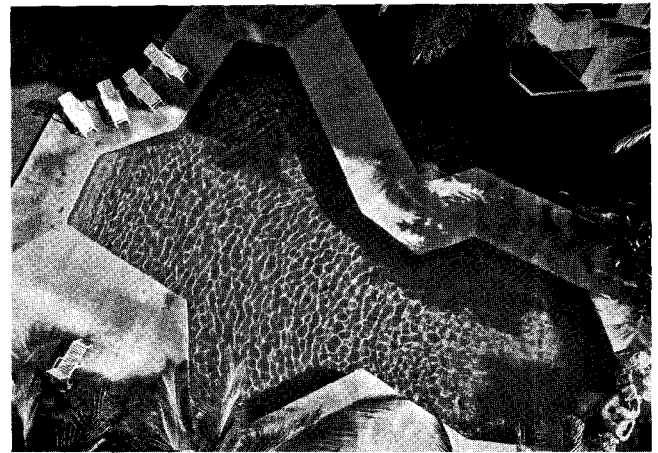


Figure 3-84



Figure 3-85

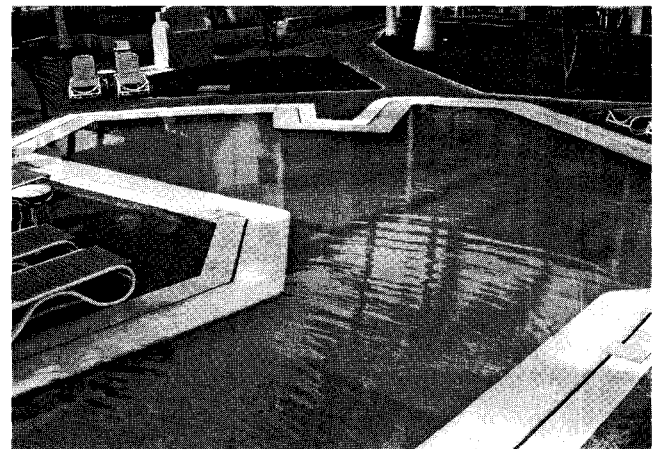


Figure 3-86

Organization of polygons in a lineal context produces semiformal walkways or stepping-stones (Figure 3-87).



Figure 3-87

In this aerial view of the Embarcadero Plaza in San Francisco, California (Figure 3-88), the use of irregular angles appropriately expresses the feeling of brokenness or earthquake damage, one of the original conceptual themes when the plaza was being designed.

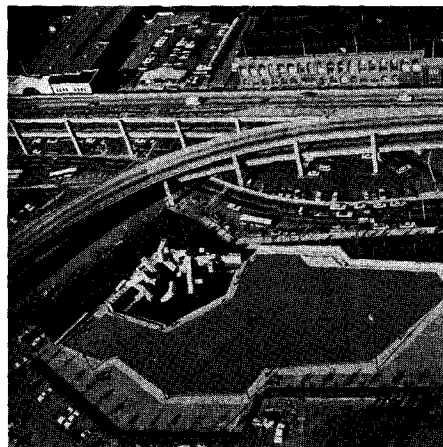


Figure 3-88

In Sausalito, California, a small bayside plaza (Figure 3-89) effectively uses subtle level changes so that the tidal fluctuations sequentially fill and empty irregular polygonal terraces.



Figure 3-89

This streamside plaza in Beaver Creek, Colorado (Figure 3-90), incorporates irregular-shaped platforms that step down into the water.

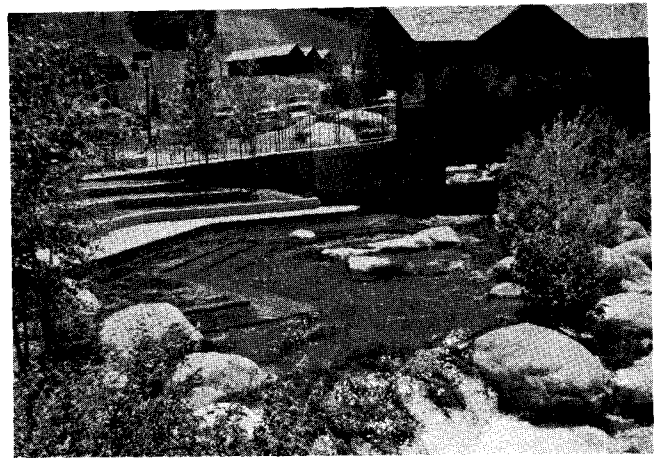


Figure 3-90

A more severe pushing of the vertical dimension, again using irregular angles and planes, produces a powerful drama of spatial experience in this urban water plaza in Texas (Figure 3-91).



Figure 3-91

Though caution is in order concerning acute angles in man-made structures, frequently nature includes acute angles in irregular polygons, as demonstrated in Figures 3-92 and 3-93.

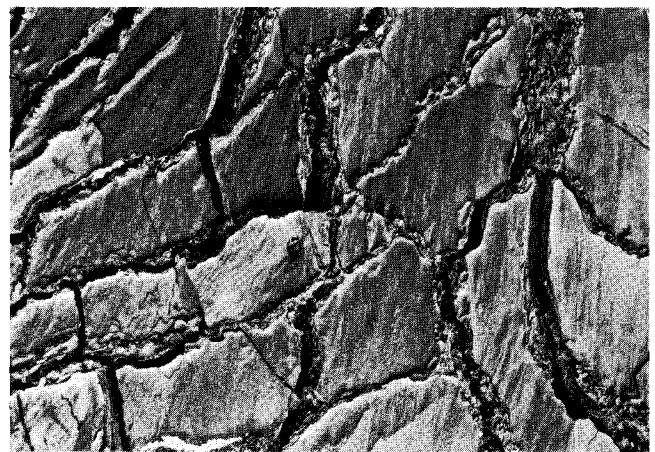


Figure 3-92 The plates of tree bark



Figure 3-93 The lines in drying mud

These forms often appear as informal ground plane patterns in designed landscape spaces (Figure 3-94).



Figure 3-94

The Organic Edge

A simple line allowed to change its direction in total random expression produces a shape so irregular that none of the previous shapes (meander, loose ellipse, spiral, or polygon) seem to apply. Its “organic” quality can best be found by looking at examples from nature.

Lichen growing on rock has a well-defined yet extremely irregular outer edge with unpredictable bends that double back on themselves (Figures 3-95 and 3-96). Such a high degree of complexity and detail is characteristic of the organic edge.

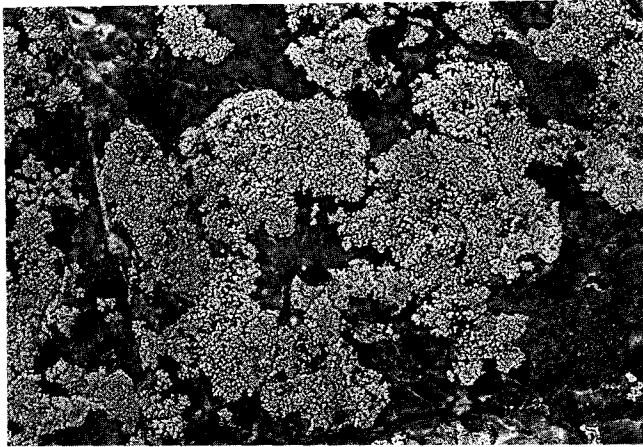


Figure 3-95

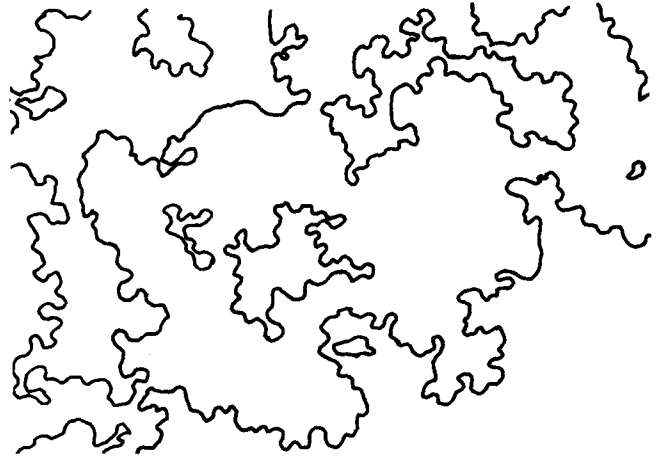


Figure 3-96

Soft, irregular patterns often arise in natural plant communities (Figures 3-97 and 3-98) or fresh snow (Figure 3-99). Although diverse in form, plant communities possess a sense of visual order resulting from each plant's responses to ecological changes—those unpreventable factors such as water regime, soils, microclimates, occasional fires, or animal habits.

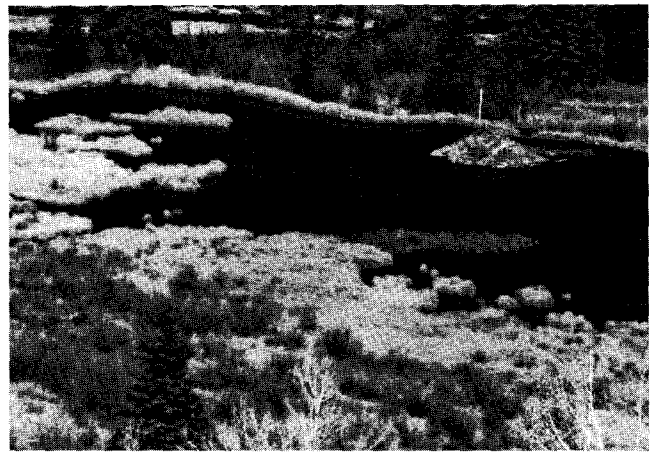


Figure 3-97

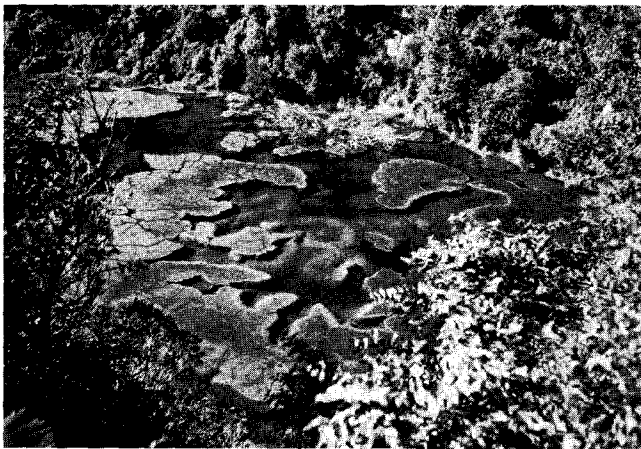


Figure 3-98



Figure 3-99

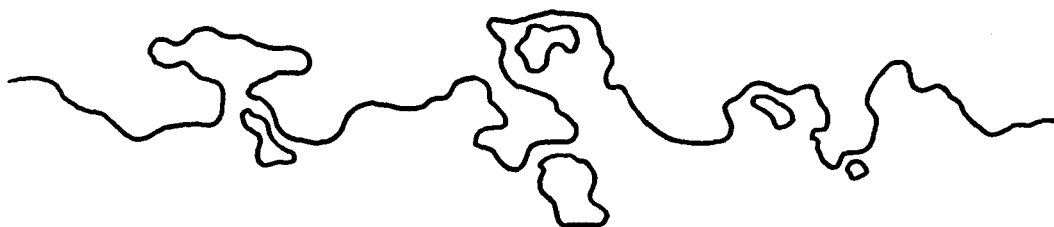


Figure 3-100

The organic theme may be expressed as a soft random edge, as shown in Figures 3-100 and 3-101.



Figure 3-101

Organic themes can also be found as hard random edges (Figure 3-102) such as might be seen in broken rock (Figure 3-103).

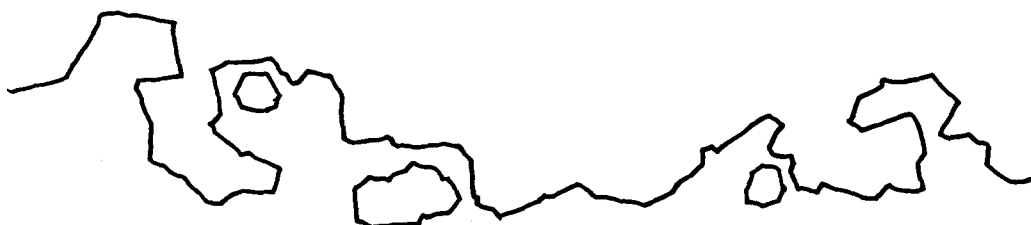


Figure 3-102

Look at the following examples (Figures 3-104 to 3-111) for these random characteristics. Although natural materials such as uncut rock, soil, water, and vegetation achieve organic form easily, man-made moldable materials like concrete, fiberglass, or plastics can also express organic qualities. This higher level of complexity brings an intricacy of movement to a design, adding interest and engaging the viewer's attention.



Figure 3-103



Figure 3-104

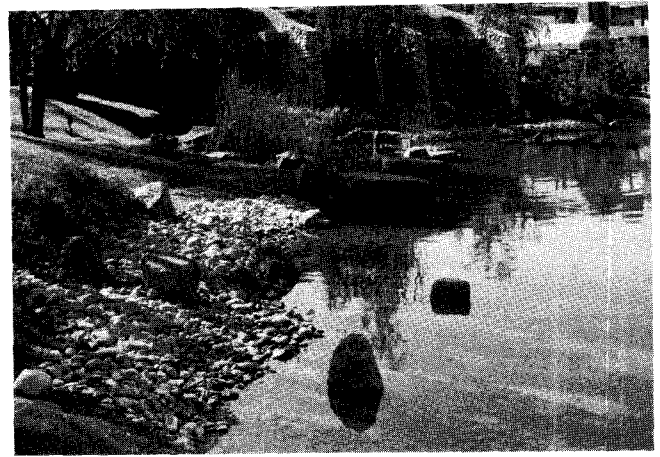


Figure 3-105



Figure 3-106

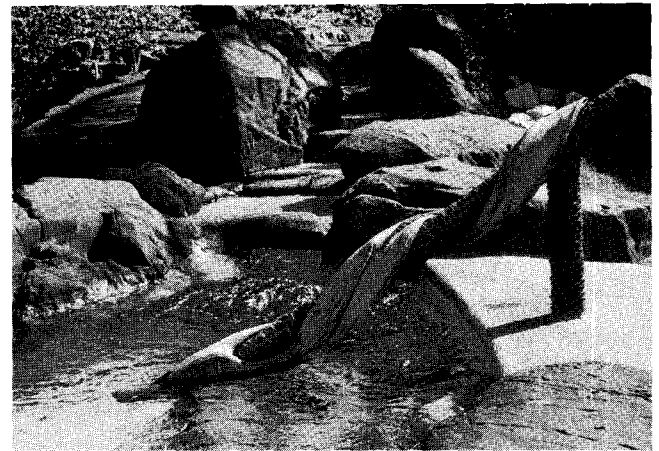


Figure 3-107



Figure 3-108

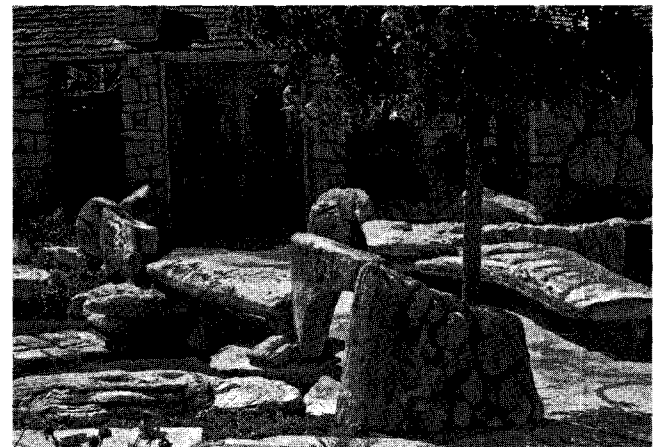


Figure 3-109

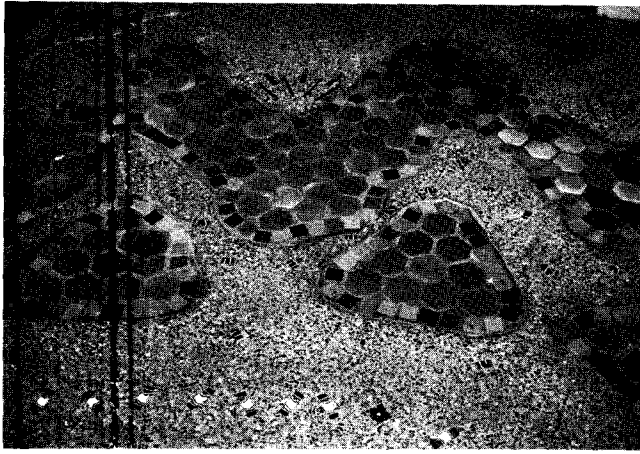


Figure 3-110



Figure 3-111

Clustering and Fragmentation

An interesting duality further characterizes naturalistic form. It tends at once to unite and to disintegrate. On the one hand, elements cluster or draw together, as if magnetized, into irregular groups; on the other, elements disperse or fragment into irregularly spaced segments (Figure 3-112).

Many such forms are explored here as derivations and interpretations of specific images of natural objects.

Landscape architects use clustering and fragmentation in planting design to create informal masses of the same plant or drifts of plant groups that intertwine and wrap around each other (Figures 3-113 and 3-114).

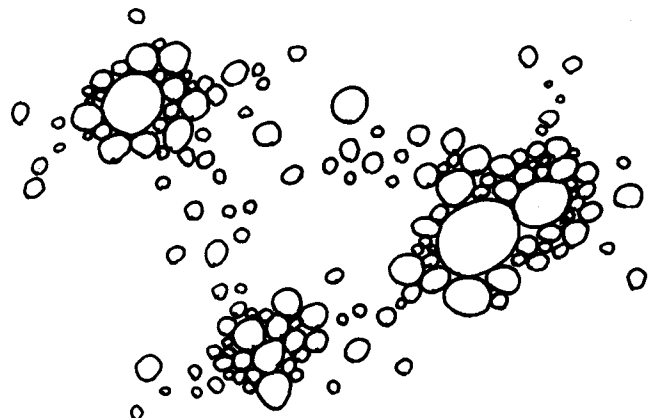


Figure 3-112

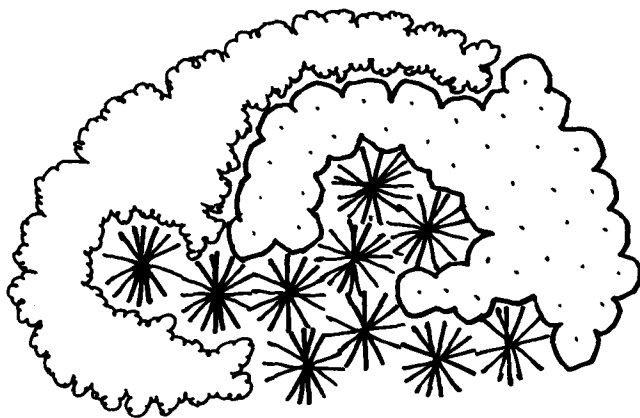


Figure 3-113



Figure 3-114

The key to successful natural clusters is to apply randomness and irregularity within the limit of a unifying whole. For example, rock groupings around a pond can be varied by size, spacing, and shape. Some should be larger than others. Spacing and shape should vary, with some projecting out into the water and others stepping up the bank. Some may show a deep profile while others may appear flat. Unity results from choosing rocks that all have the same general color, texture, form, and orientation. Compare the natural clustering shown in Figures 3-115 and 3-116 with the designed clusters shown in Figures 3-117 and 3-118.



Figure 3-115 Natural cluster



Figure 3-116 Natural cluster



Figure 3-117 Designed cluster



Figure 3-118 Designed cluster

There are also examples of fragmentation that convey a feeling of breaking apart. Inherent in this idea is the concept of gradual transition from very tightly packed elements to very loosely spaced elements (Figures 3-119 to 3-122).

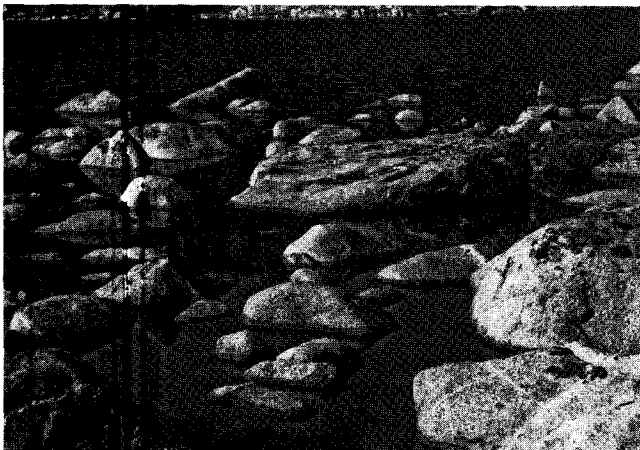


Figure 3-119 Natural fragmentation



Figure 3-120 Natural fragmentation



Figure 3-121 Designed fragmentation

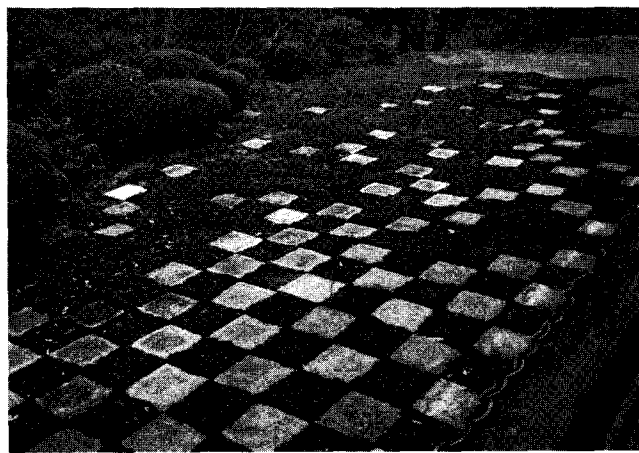


Figure 3-122 Designed fragmentation

Both clusters and fragmentation may be useful in the landscape where the designer wants to achieve gradual transition from hardscape (for example, paving) to softscape (for example, grass) on the ground plane (Figure 3-123), or to create a sense of blending of one plant massing into another (Figure 3-124). In each case, clusters would fragment or disperse into the other at a loose interface.

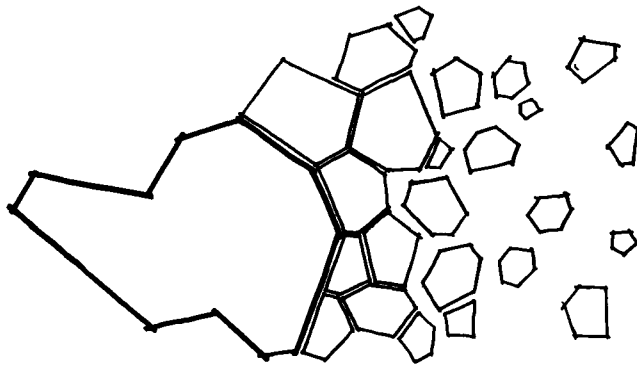


Figure 3-123

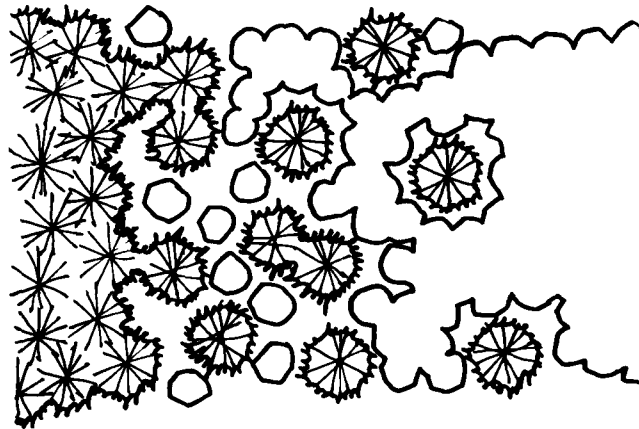


Figure 3-124

Fractal Geometry

In Chapter 2 and this chapter, the distinction is made between geometric form and naturalistic form. This is a somewhat arbitrary distinction made for simplicity of designed form development. In fact they are not separate, mutually exclusive categories. There is a lot of overlap. The natural world displays a myriad of mathematical and geometric systems of order. Take the hexagonal pockets of honeycomb, the radial symmetry of the daisy, or the strict spiral order of the DNA helix. These all conform to the laws of traditional Euclidean geometry.

However, there are many patterns in nature that seem not to conform to Euclidean geometry at all. Picture the forms implicit in the words *branched*, *cloudy*, *clustered*, *dusty*, *eddies*, *fluid*, *fragmented*, *irregular*, *puffy*, *tangled*, *tortuous*, *turbulent*, *wavy*, *whorled*, *wispy*, *wiggly*. You probably imagined amorphous shapes with lots of irregularity and inherent chaos. There is a fairly recent branch of mathematics called fractal geometry, which attempts to bring order to these apparently chaotic naturally occurring patterns.

In his book *The Fractal Geometry of Nature*, Mandelbrot (1982) mathematically systematizes some of these seemingly amorphous, irregular forms. Consider the forms shown in Figures 3-125 to 3-129. The possibilities for application to landscape design imagery are immense.

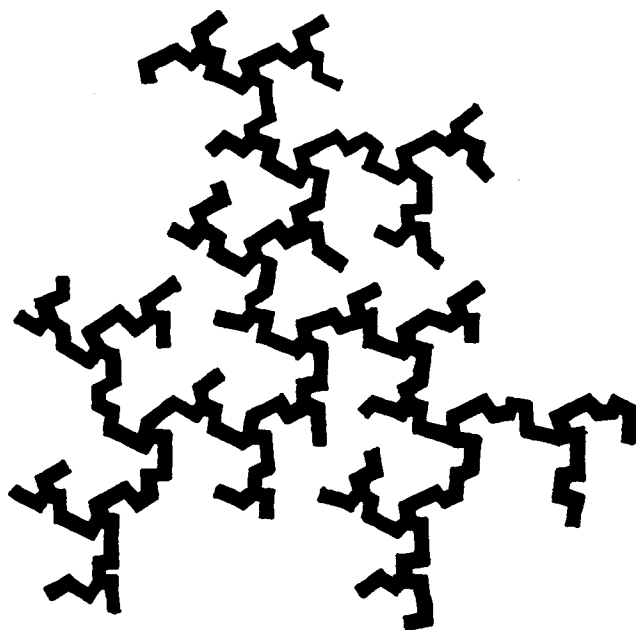


Figure 3-125 Zig-zags



Figure 3-126 Curtains

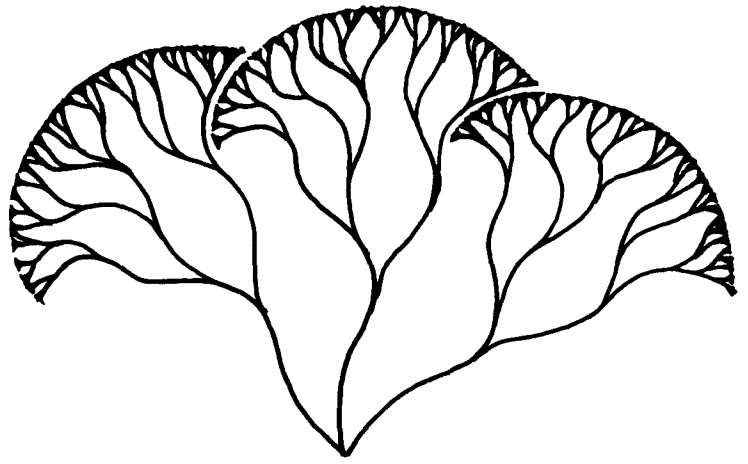


Figure 3-127 Branches



Figure 3-128 Mazes

We do not need to trouble ourselves with the mathematical formulas of fractal geometry. For our purposes, it is sufficient to observe and abstract these more complex patterns of nature. Think of these as displaying irregularity instead of regularity, asymmetry instead of symmetry, randomness instead of predictability, looseness instead of rigidity. Taken together, informal organic shapes evoke feelings of growth, process, frivolity, freedom, and a bit of apparent chaos.

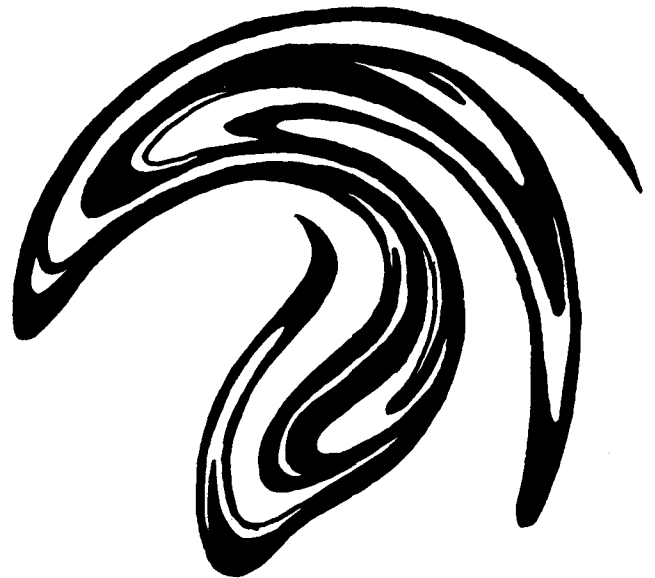


Figure 3-129 Oscillations

Principles of Design

Design in any medium is guided by several important principles. In the overall process of designing landscapes, these principles are constantly in play. But they become especially important during the design development phase. After the initial planning steps of program development, site inventory, and site analysis, as mentioned at the start of Chapter 1 (page 1), the designer must begin to integrate the principles of design into all the steps related to the development and refinement of the final design until the project is finalized. These principles are presented here in a simplified form using landscape examples. The designer manipulates the basic elements of design, using the organizing principles as a guide.

Basic Elements of Design

In this analysis the basic elements of design are identified as ten distinct entities. The first seven are primarily visual. They are point, line, plane, form, motion, color, and texture. The last three—sound, fragrance, and touch—relate to our nonvisual senses.

Point A simple dot is a place in space without dimension (Figure 4-1).

Line When a point is displaced or moved, the result is a one-dimensional line (Figure 4-2).

Plane When a line is displaced, the result is a two-dimensional plane or surface, but still with no thickness. The configuration on this surface is its shape (Figures 4-3).

Form When a plane is displaced, the result is a three-dimensional form. Form can be viewed as a solid object or as a void surrounded by planes (Figure 4-4). Outdoor space receives its form from the planes of surrounding objects defined by vertical, horizontal, or warped planes, just as a room takes its form from walls, floor, and ceiling. By definition, some planes in an outdoor space are either totally open or partially open to allow penetration of light, air, rain, and other natural conditions.

Figure 4-1 Point

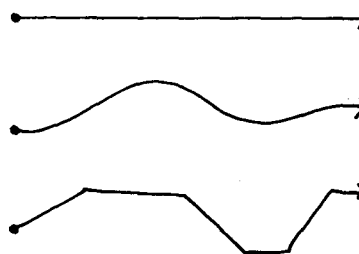


Figure 4-2 Line

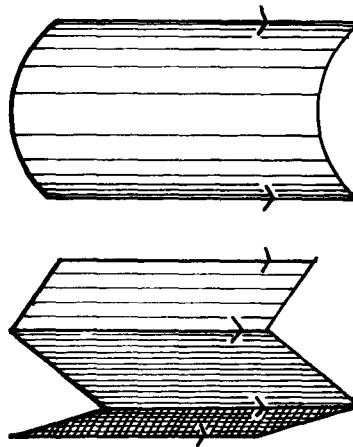


Figure 4-3 Plane

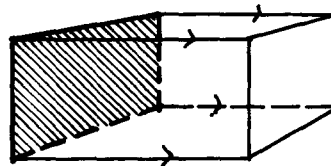


Figure 4-4 Form

Motion When a three-dimensional form is moved, motion is perceived, bringing in the fourth dimension, time, as a design element. Motion here, however, should be considered in relation to the observer. As we move through space, objects appear to pass in front of each other, get smaller or bigger, pass out of and into view, change in detail, and so on. In the design of outdoor space it is these perceptions of the moving observer that have a greater significance than the perceptions of moving objects as seen by the stationary observer.

Color All surfaces have some inherent color, which is perception of different light wavelengths.

Texture The characteristic of surface resulting from the existence of repetitive points or lines makes patterns that are visually relatively coarse or fine (Figure 4-5), or are felt as tactile qualities of texture described under touch. Textures also result from edges of many repeated forms or abrupt transitions between color and reflections.

The remaining three elements relate to the nonvisual senses.

Sound—Auditory Perception Having a profound effect on the way we experience space, sounds can be loud or soft, natural or artificial, pleasant or noisy, and so on.

Fragrance—Olfactory Perception In landscape design the scent of flowers, leaves, or needles most often stimulates our sense of smell, but a wide range of pleasant and unpleasant olfactory perceptions exist.

Touch—Tactile and Kinesthetic Perception Through skin contact we receive a variety of sensations—hot and cold, smooth and rough, sharp and blunt, soft and hard, wet and dry, sticky, malleable, and so on. Kinesthetic feelings relate to movement and are sensed through pressure on our body and also through the balance mechanisms in our ears.

Manipulation of these design elements provides a diverse range of opportunities for the designer, who selects or develops creative forms to fit the unique opportunities of each site and client.



Figure 4-5

Organizing Principles

The discussion of form development in the previous chapters dealt with systematic procedures or *techniques of organization*. Although these forms are very useful, a designer needs to combine them with *principles of organization* in order to create well-designed outdoor spaces. Basics such as unity and harmony have been referred to already, since there is often a relationship between a particular technique and the underlying principle. Application of these principles should begin during the early stages of concept planning and continue through final stages of design refinement.

The observer's grasp and enjoyment of the surrounding world depend on two complementary principles of perception: a need for stimulation through novelty and a need for familiarity. The first is a response to change; the second, a response to constancy. Such responses involve a paradox. Perception demands variety and new information and at the same time seeks security in regularity or repetition. A familiar pattern that contains somewhere within it an unexpected change will likely create aesthetic satisfaction. Design solutions are seldom absolutely right or wrong, all good or all bad. Beauty is perceived in degrees and is also relative to the person's previous experience. Given such variable human response, however, it is still safe to say that a recurring visual organizing principle is *unity and harmony with interest*.

Unity is the coalescing of the separate design elements to allow an easy overall grasp and perception of the whole composition as one. When the forces of nature begin to split a rock apart, the fragments may be very different in size and shape but they are situated within the bounds of the one original rock (Figure 4-6). Unity is this quality of oneness and cohesion, achieved by arranging a variety of landscape elements within an overall organizational theme. Thus, using the thematic techniques suggested in Chapter 2 (page 17) establishes the framework of a unified design.



Figure 4-6

Additional unifying techniques include *repetition* of line, form, texture, or color—particularly effective when used in conjunction with *grouping* similar elements into tight clusters of connected lineal arrangements. See the following examples.

Figure 4-7 shows rectangular paving repeated throughout the space.

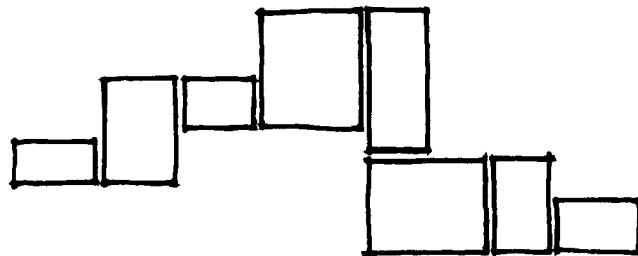


Figure 4-7

In Figure 4-8, a flowing body of water is used as a unifying thread, interspersed with repeated clusters of boulders.

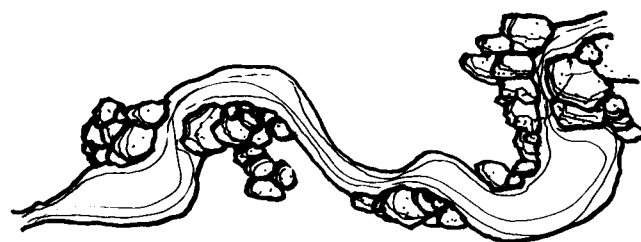


Figure 4-8

Figure 4-9 demonstrates how plants can be organized into strong, well-defined groups of similar species.

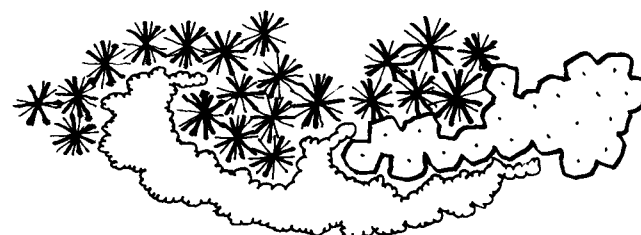


Figure 4-9

Without some measure of unity, a design will be in chaotic disarray such as in this botanical jumble of plants (Figure 4-10) or this large variety of rocks strewn randomly over a gravel plane, or haphazardly dumped in a pile (Figure 4-11).



Figure 4-10

Why wouldn't a pile of dumped rocks work as an effective design? After all, it does have some sense of unity through clustering! The answer lies partially in the meaningless variety of rocks and in the lack of harmony. Perhaps designers can take comfort that nature is never random, for the same reason that Einstein could "never believe that God plays dice with the world."

Harmony is a state of accord among elements and with their surroundings. In contrast to unity, harmony has to do with the relationship between elements as opposed to the overall picture. Elements that blend, mesh, or fit with each other are harmonious. Elements that seem to violate each other's integrity or their settings are disharmonious. Some techniques for achieving harmony are shown beginning on page 96 in the section "Integration of Form." The key ideas are to maintain smooth transitions, strong connections, and adequate buffers between diverse elements.

Authenticity and *functional value* improve harmony. Solving landscape problems by using natural materials executed with sincerity of purpose tends to be more harmonious than by using artificial products with no sense of artistry or function. A general guideline is to avoid solutions that appear incongruous, awkward, or weak.



Figure 4-11

At the risk of promoting a controversy on what might be considered poor design and poor taste, the following illustrations (Figures 4-12 to 4-14) are offered as examples of designs lacking in harmony.

In Figure 4-12, a small bridge in the lawn going nowhere in particular and crossing nothing of significance is incongruous with its surroundings.



Figure 4-12

Figure 4-13 shows weathered stumps placed carefully in a row.

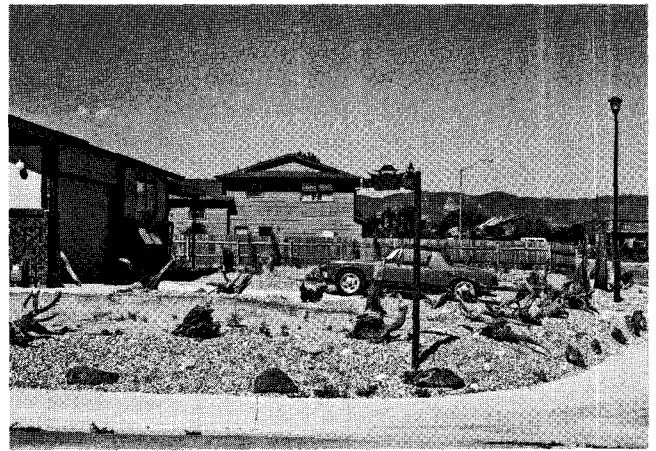


Figure 4-13

In Figure 4-14, ducks, deer, frogs, and swans all vie for attention and fill the space with an awkward clutter.



Figure 4-14

By contrast, twenty flamingos in a group could create a striking and harmonious impact (Figure 4-15).



Figure 4-15

Harmonious compositions are visually comfortable. Compare the harmonious water feature of Figure 4-16 with the disharmonious water feature of Figure 4-17. Similar contrasts can be seen in the front yard landscapes of Figures 4-18 and 4-19. There is, however, validity to compositions that are deliberately disconcerting and filled with tension. Chapter 5 (page 101) offers some applications where the controlled use of discord and deception adds an exciting dimension to outdoor space.



Figure 4-16 Harmonious composition



Figure 4-17 Composition lacking in harmony



Figure 4-18 Harmonious composition



Figure 4-19 Composition lacking in harmony

Interest is the feeling of curiosity, fascination, or absorption. It is not a discrete organizing principle but an essential aspect of aesthetic satisfaction and therefore of successful design. Interest is achieved by introducing variety in shapes, sizes, textures, and colors; and changes in direction, movement, sound, or light quality. It can be heightened further by the use of unusual or unique elements, as well as patterns of organization that foster discovery and surprise.

The graphic sequence in Figures 4-20 to 4-24 has been deliberately oversimplified to show the differences and interdependence of unity, harmony, and interest.

Chaos The composition lacks unity, harmony, or interest. The arrangement is chaotic with weak relationships among the squares.

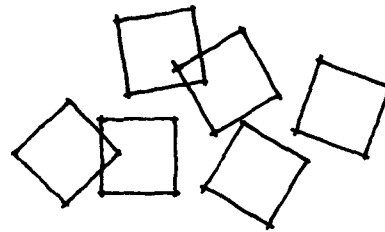


Figure 4-20

Unity The composition is unified by the curved organization and somewhat by the repetition of the squares. But it lacks harmony because of the awkward connections.

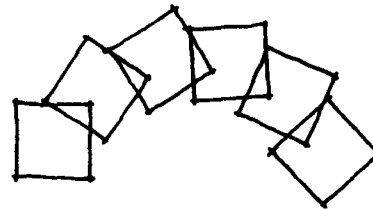


Figure 4-21

Harmony The composition contains harmonious relationships between the squares. All the squares are in parallel relationships, but as a whole it lacks a powerful unity or sense of cohesion among the units.

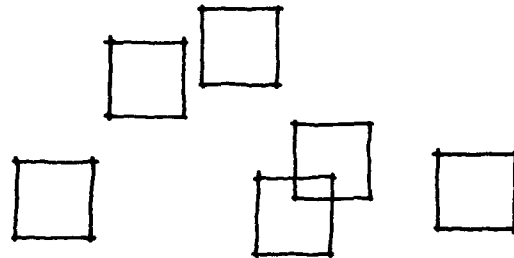


Figure 4-22

Unity and Harmony The composition is now unified through organization within a rectangle and has harmonious relationships, but like the previous compositions it lacks interest.

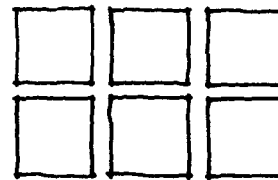


Figure 4-23

Unity and Harmony with Interest Here the composition is unified within an "S" arrangement. All edges are aligned in a harmonious parallel relationship. The size variation of the squares adds interest.

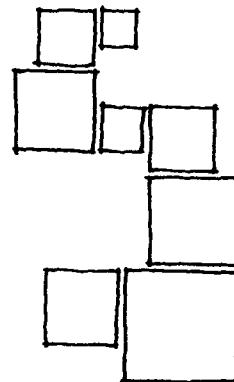


Figure 4-24

Several other organizing principles have value applied separately or in support of this triad.

Simplicity is the result of reducing or eliminating nonessentials. It is an economy of line, form, texture, and color. Therefore, it is a basic form of order helping to bring clarity and purpose to a design (Figure 4–25). Taken to the extreme, however, simplicity can result in monotony.

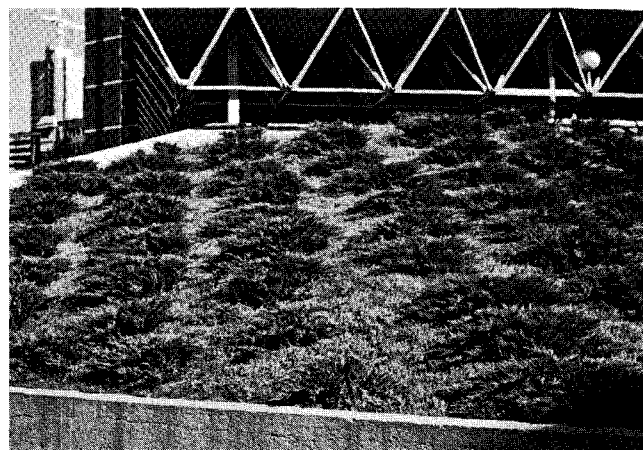


Figure 4–25

Diversity is simplicity's opposite. Taken to the extreme, it can result in chaos unless restrained by a powerful unifying theme. No precise formulas can be given, but it is important to find a comfortable balance between simplicity and diversity, a balance tempered by the site and the program. The compositions shown in Figures 4–26 and 4–27 have been reduced to the essentials, with just enough variety to maintain interest.



Figure 4–26

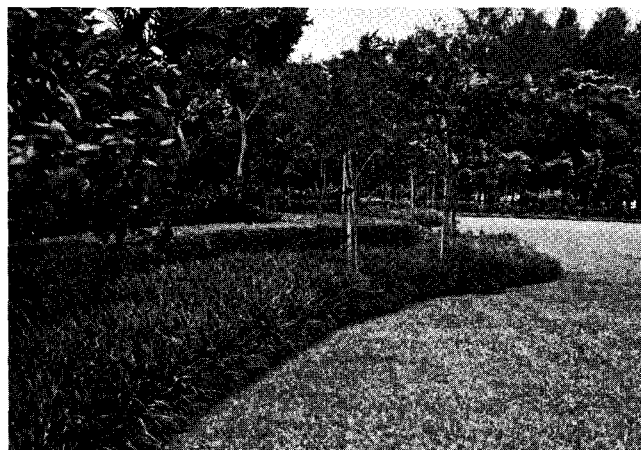


Figure 4–27

Emphasis or dominance is the importance or significance imparted to an element in the landscape. It requires an organization that focuses on the attraction, influence, or power of one element or zone over what surrounds it. Limited use of emphasis provides resting places for the eye and helps in orientation. The overall design becomes more pleasing when a person can easily determine what is most important.

Emphasis is achieved primarily through the decisive use of *contrast*. (See Figures 4-28 to 4-33 as examples.) The element may be a large mass amidst much smaller masses, a bold shape protruding against an amorphous background, a bright color within dull ones, coarse textures surrounded by fine textures, or the use of focused sound as from a waterfall.



Figure 4-28 A brightly colored form against a dark background

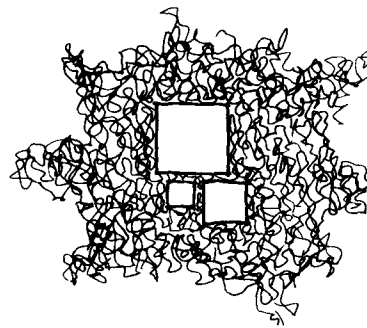


Figure 4-29 A bold shape surrounded by an amorphous background

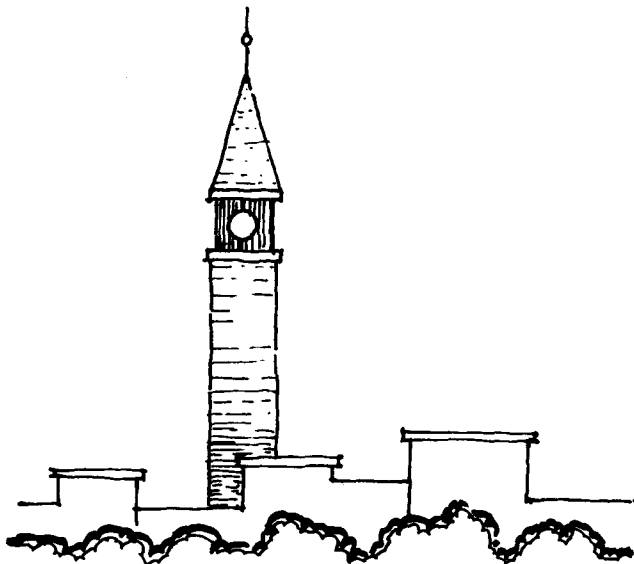


Figure 4-30 A tall mass next to shorter objects



Figure 4-32 A round void within a contrasting square mass

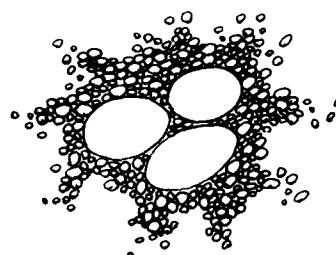


Figure 4-31 Coarse textures surrounded by fine textures



Figure 4-33 A dominant rock outstanding among small rocks

Emphasis is also achieved by the introduction of an unusual or *unique element*, as shown in these scenes (Figures 4-34 to 4-37).



Figure 4-34



Figure 4-35

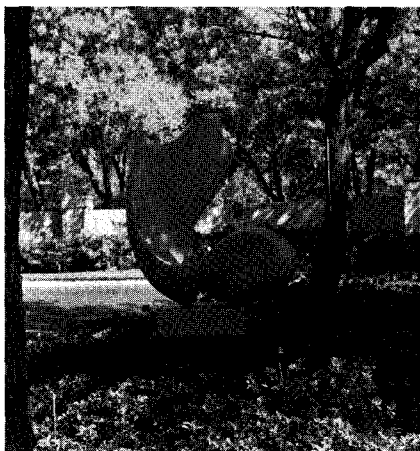


Figure 4-36



Figure 4-37

Enframement and *focalization* complement the principle of emphasis. They are techniques that depend on a supporting peripheral landscape. Focalization occurs when the surrounding elements are structured in a manner that encourages a viewer to look at a particular scene (Figures 4-38 to 4-41). However, care should be taken to make sure that the focal zone is worthy of prolonged attention.

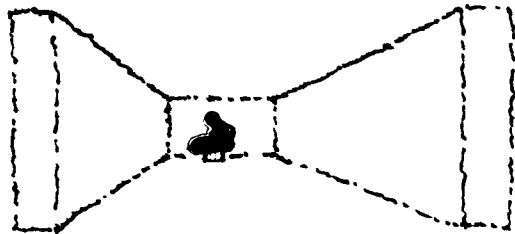


Figure 4-38

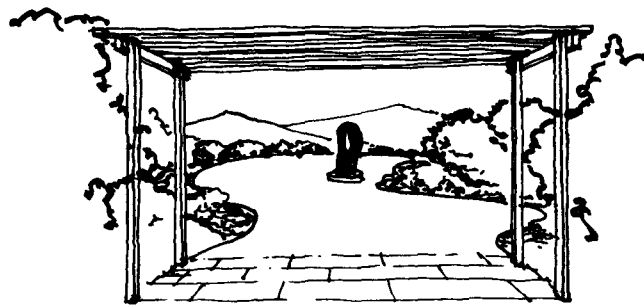


Figure 4-39



Figure 4-40



Figure 4-41

When the principle of emphasis is applied to a lineal landscape element or to a patterned surface, rhythm results. *Rhythm* is a regular repeated emphasis. Breaks, variations, and pulses can bring an exciting sense of movement to the landscape (Figures 4-42 and 4-43).

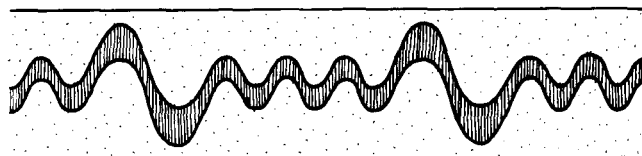


Figure 4-42

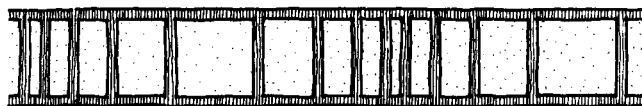


Figure 4-43

Balance is a perceived state of equilibrium. It implies stability and is used to evoke a sense of peace and security. In landscape design it is often applied from a static point of view, such as from a balcony, an entry point, or a resting area. Certain parts of a scene catch our attention more than others because of contrast or association with the unique and unusual. The mind is most at ease when various attractions are balanced on an imaginary fulcrum. In landscape composition, this balance usually means equilibrium of attention around a vertical axis in a perspective.

A formal balance is geometric and symmetrical, and is characterized by repetition of similar elements on either side of a central axis. It is static and predictable, creating a sense of stateliness, dignity, and conquest of nature (Figures 4-44 and 4-45).

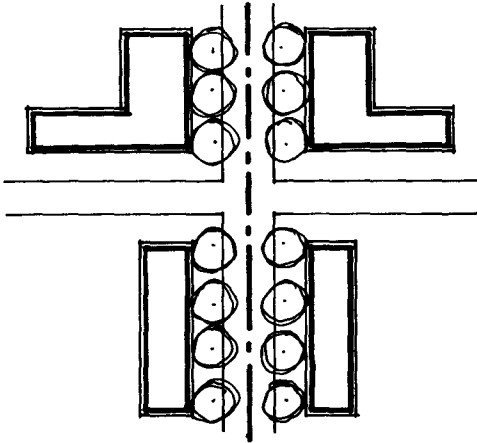


Figure 4-44



Figure 4-45

An informal balance is nongeometric and asymmetrical. It is often fluid, dynamic, and naturalistic, creating a sense of curiosity and movement (Figures 4-46 and 4-47).

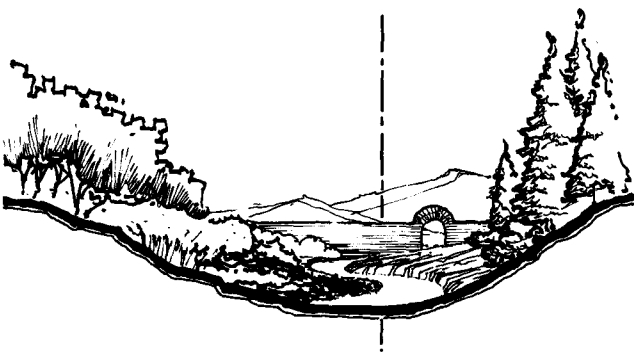


Figure 4-46



Figure 4-47

Scale and *proportion* refer to relative comparison of heights, lengths, areas, masses, and volumes. Comparisons may be between one element and another or between an element and the space it occupies. Most important, we tend to size up what we see in relation to the size of our own bodies.

A “micro” scale refers to miniaturization, in which the size of objects or spaces is close to or smaller than our own size (Figure 4-48).



Figure 4-48

A “grand” scale refers to space or objects in multiples of our own size too large to comprehend easily (Figure 4-49). The grand scale can evoke emotions of wonderment, of amazement, and sometimes even overpowering oppression.

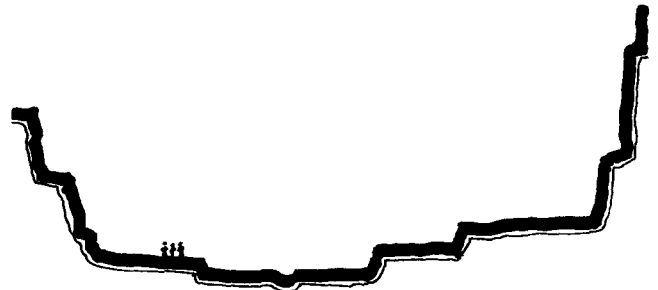


Figure 4-49

Somewhere in between is the area of human scale, in which spaces and objects can be easily recognized as ratios of the human body (Figure 4-50). Although exterior spaces are difficult to quantify exactly, they seem to have a comfortable human scale when the ground plane dimensions are between two and twenty times the height of the human body and the vertical plane or walls are one-third to one-half as high as the ground plane is wide.

Within this wide range of human scale, it is often desirable to provide a *hierarchy* of spatial experience: One space might be suitable for larger groups and another for small groups. Related to spatial hierarchy is the notion that one space would be clearly dominant. However, the principles of balance and scale are seldom considered simply in terms of good or bad, essential or unnecessary. They are organizing principles that can be manipulated by the designer to evoke various emotional responses.



Figure 4-50

Sequence has to do with movement. Static pictorial views from a deck, from a seat, or through an opening can be important interludes. We most often experience outdoor space, however, by moving through it. Connected series of spaces and events become a sequence. Water flowing along a mountain stream moves from a gentle, quiet flow to a waterfall, drops into a deep pool, outlets to fast-running rapids, and settles into a lake. Likewise, in outdoor spaces the designer should consider the direction, speed, and mode of movement. A well-executed sequence should have a point of beginning or a gateway that indicates the principal approach. A variety of spaces and focal experiences may follow. They should be linked to form a logical progression that ends with a climactic feeling of arrival. The arrival should provide a dominant interlude and exhibit a strong sense of place, of being at the heart of things. It can also be a threshold, a gateway into another sequence. Indeed, it is legitimate to have multiple paths and sequences.

Many of the previously mentioned principles (emphasis, focalization, rhythm, balance, and scale) can help structure the sequence. Sequences that involve discovery are most effective (see Figure 4-51). It is often best not to reveal everything at once. A corner may hide a connecting room or focal zone; a gap may reveal a glimpse beyond. The excitement of exploration enhances the experience. Note the sense of mystery in the examples of built landscapes shown in Figures 4-52 and 4-53.

As your design evolves into physical form, ask yourself these useful questions:

- Is the composition designed so that the different parts can be seen as a single strong picture?
- Do the elements blend well with each other and their surroundings?
- Do I have adequate variety, limited emphases, and discovery opportunities?
- Is everything in this design absolutely necessary? Have I eliminated all meaningless forms, irrelevant materials, and redundant objects?

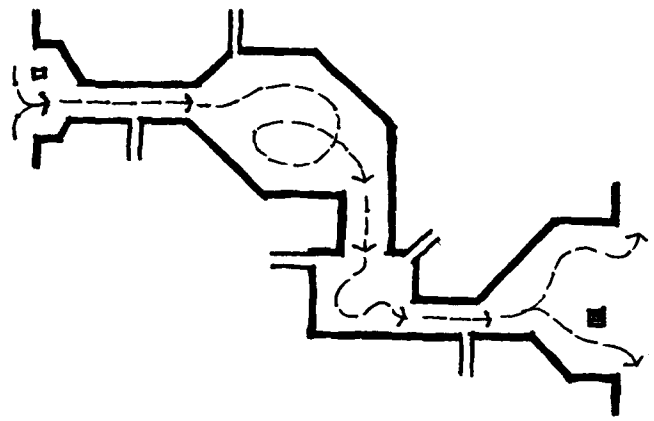


Figure 4-51



Figure 4-52

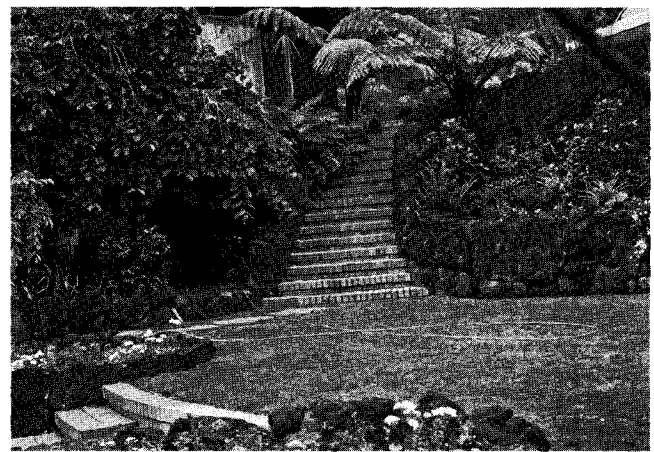


Figure 4-53

Integration of Form

A strong sense of design unity evolves from the manipulation of only one of the many possible development themes. Repeating the same generic shapes, line character, and angles while varying size or direction avoids monotony. Very often, however, to combine two or more contrasting forms is desirable. Perhaps several subthemes exist in the conceptual design; perhaps a change of materials indicates a need for change of form; perhaps the designer wants contrast to add interest. Regardless of the reason, care should be taken to create a harmonious integration. The most useful principle of integration is to use 90° connections. When circular forms are integrated within rectangular or angular forms, the 90° connection becomes automatic when radial or tangent lines are recognized. All lines then have a direct relationship to the circle center and therefore a strong connection to each other. The top half of Figure 4-54 shows several possibilities.

Ninety-degree connections can also be a viable way to connect meanders to straight lines or straight lines to other naturalistic shapes. Parallel alignment is another way to transition from one form to another. Obtuse angle connections, necessary in some cases, tend to be less direct. Acute angle connections should be used very sparingly, since they usually result in awkward, forced relationships between contrasting forms.

Harmonious transitions can also be achieved with buffer space and graded change. Buffer space simply means leaving enough uncluttered visual distance between contrasting shapes to cushion visually any potential conflict.

Graded change has a similar effect, except that here the designer provides several intermediate visual forms to reveal a gradual transition between one and the other. A transition from a meandering curve to a straight-line form is shown on the right side of Figure 4-54.

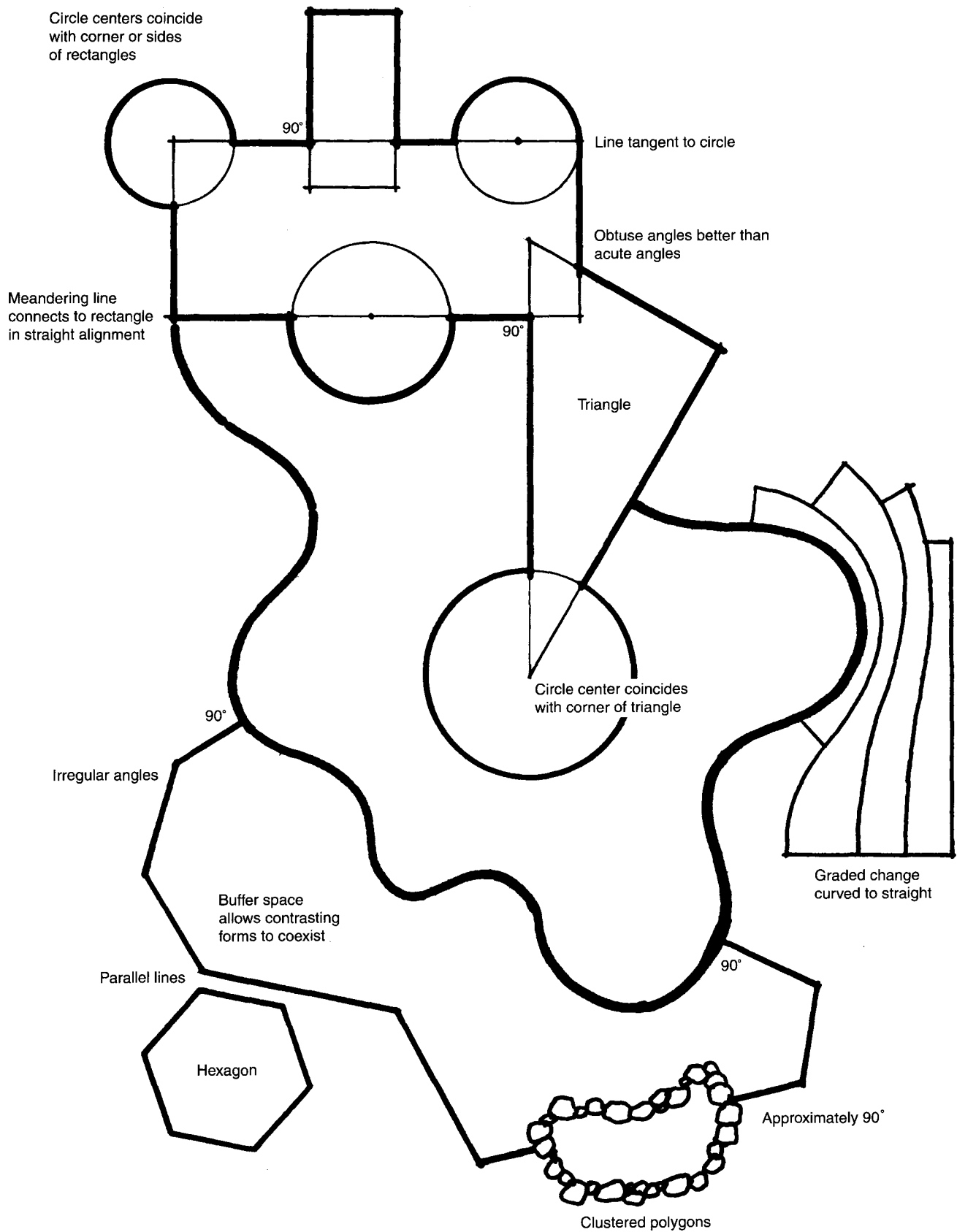


Figure 4-54 Integration of form diagram

Several patterns are integrated into the plan in Figure 4-55. Two 90° rectangular forms can be found. The rectilinear paved parking zone in front is turned at 45° to match the entry steps, and the wall surrounding the hot tub connects in direct alignment with the building wall. The 135° garden walls connect into the building and lawn

edge at right angles. Similar right angle (90°) connections happen where the curved lawn edges meet the pavement edge. Water from the rectangular fountain cascades down a lineal stepped channel, then transitions into a spiral channel form. The half circle holding the spiral has its center point aligned with the edge of the patio.

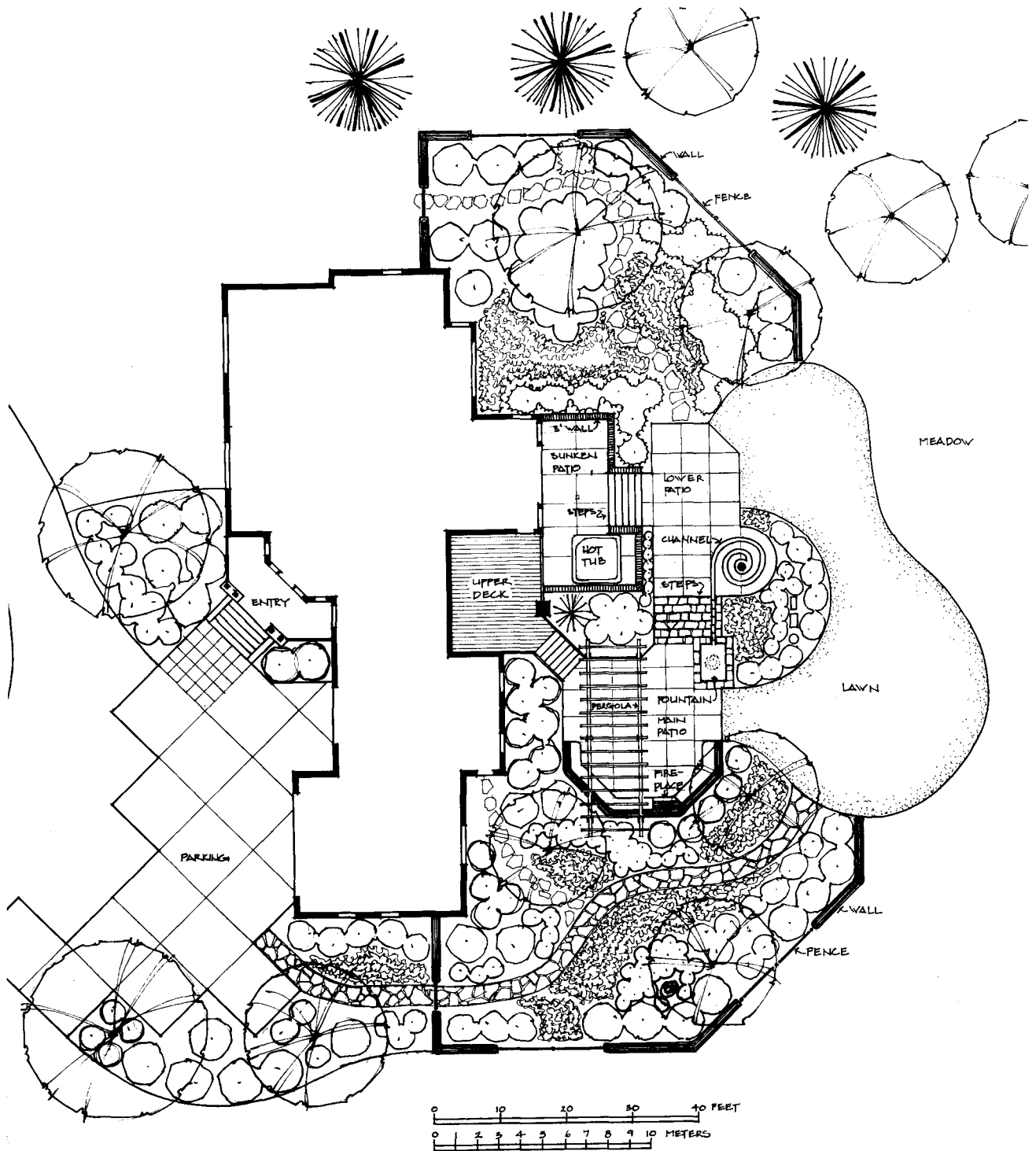


Figure 4-55 Garden plan showing integration of form

The Roman arch shows a very clear and simple transition from a circular form to rectangular forms. The arch stone shapes form radial lines that intersect the corners of bricks at obtuse angles (Figure 4-56).

Each of the following illustrations (Figures 4-57 to 4-66) contains two or more contrasting forms. Look for 90° connections, buffer space, and graded change.

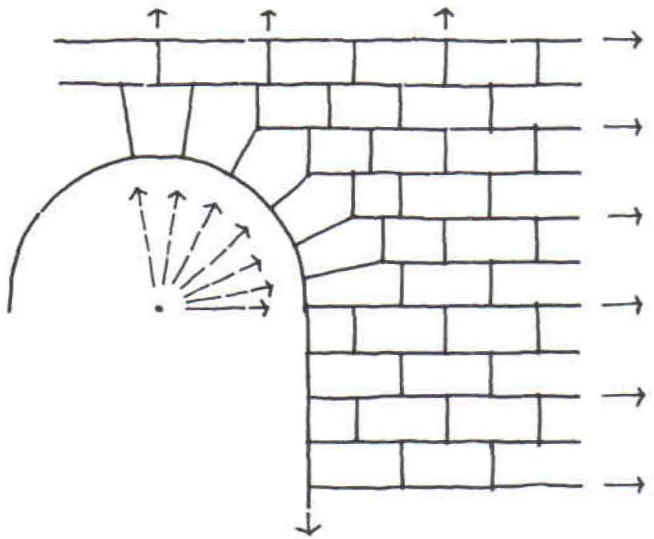


Figure 4-56



Figure 4-57



Figure 4-58

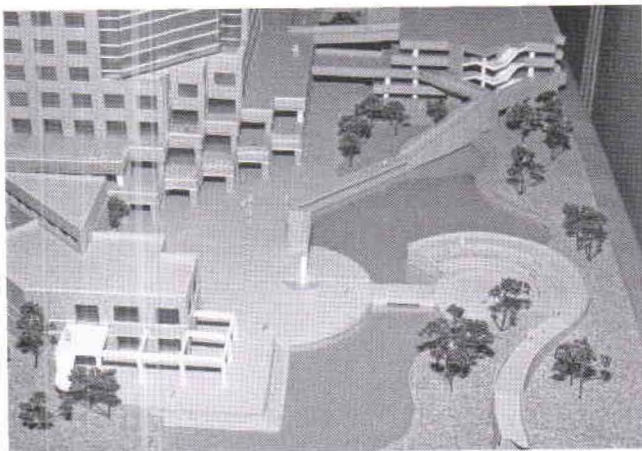


Figure 4-59



Figure 4-60



Figure 4-61

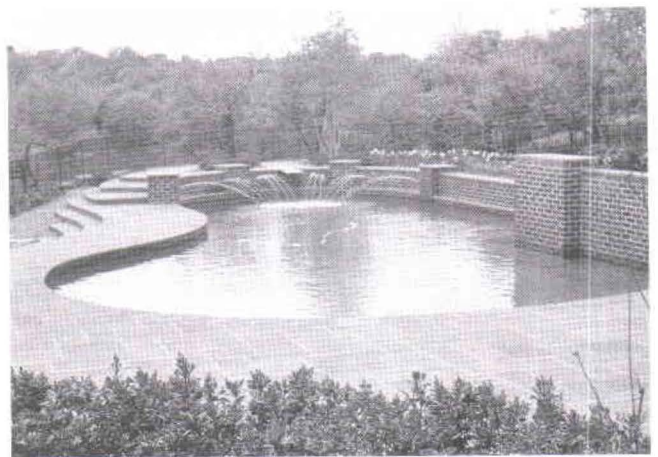


Figure 4-62



Figure 4-63

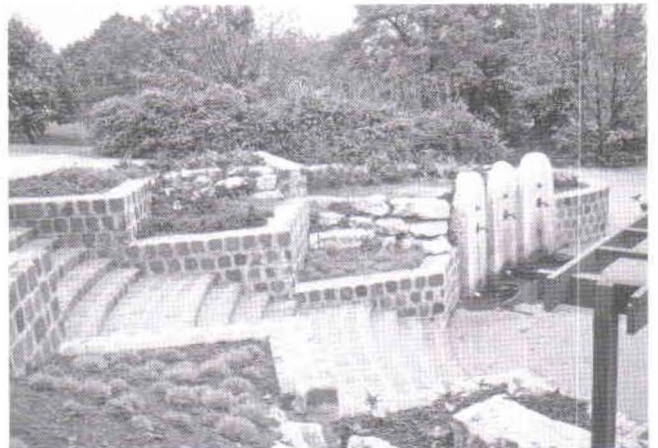


Figure 4-64



Figure 4-65

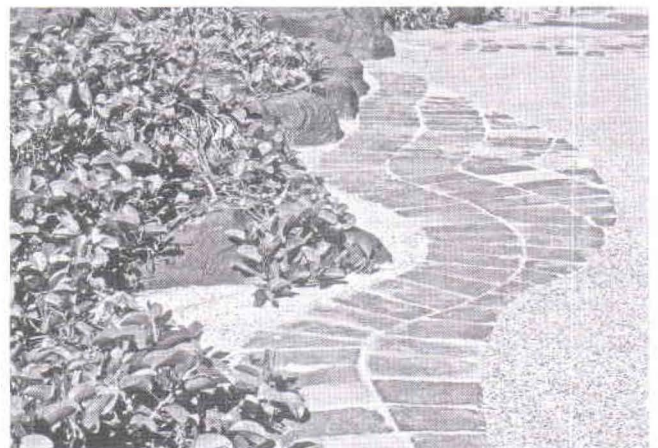


Figure 4-66

Beyond the Rules: Anomalous and Provocative Design

The previous chapters put forward guidelines that are useful tools for developing strong, professionally competent design solutions. By following the dos and don'ts, many typical faults of weak design may be avoided. These guidelines will help you achieve harmonious, unified designs, at once interesting and responsive to the client's needs and to the site or environmental context. But they are only guidelines, and although it would be wise to master them first, sometimes it is necessary to bend or even break the rules. *Anomalous designs* deviate from the normal. By definition, they contain some attributes that differ from accepted standards.

Generally we expect good design to be functional, comfortable, reasonable in cost, easy to build and to maintain, and liked by all the users. If we ignore the norm and push the boundaries of creative design, very likely we will have to violate one or more of these expectations. Very possibly, the resulting landscape spaces may be expensive to build, impractical, difficult to maintain, or offensive to

some people. Why bother? Because it is also possible that these different ideas may be exciting, provocative, and—more important—the basis for innovation.

The introduction of a new material or construction process may be very expensive at first, but with frequent application, costs may drop significantly. An impractical aesthetic statement may inspire a more practical adaptation. A ridiculous, eccentric place may later become a successful tourist attraction. Of course there is no guarantee of success. Quite the reverse. Anomalous design is risky, but, knowing the risks and being well grounded in the safer basics, you may be ready to try the extraordinary.

In this chapter we will look at some outdoor designs that are a little unusual. From your own value system, you decide whether they are good or bad, valuable or useless, fun or boring. The possibilities are limited only by your imagination. The following small number of examples may stimulate your own creative power.



Acute Angle Forms

Previous chapters suggested that acute angles be avoided, but under certain conditions and with careful treatment, they can be successfully incorporated.

The well-known architect I. M. Pei has effectively incorporated sharp corners into many of his structures (Figure 5-1). They are strikingly different from the normal rectilinear corner.

Similarly, the forms in the urban plazas shown in Figures 5-2 and 5-3 have many sharp edges. Their skillful positioning prevents them from becoming a hazard.

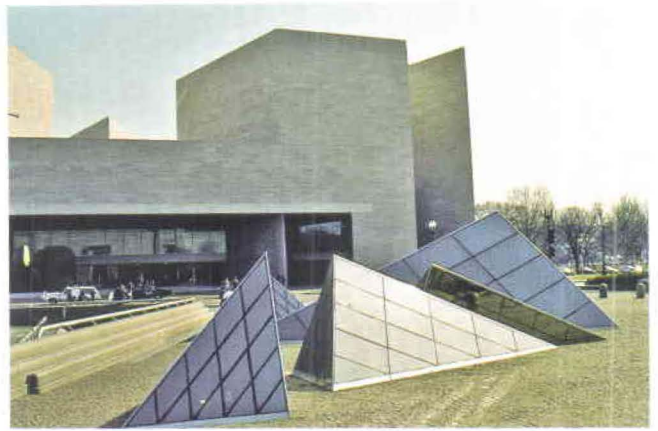


Figure 5-1



Figure 5-2

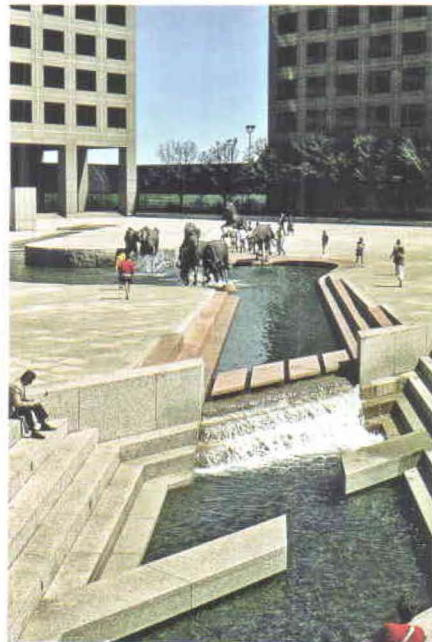


Figure 5-3

This fountain in Singapore (Figure 5-4) incorporates stepped acute angle forms with a water sculpture. Together they enhance the dynamic qualities of moving water. To avoid point breakage, the tips have been rounded.



Figure 5-4

Touching circles have inherent acute angles. Paving infill at the same level (Figure 5-5) overcomes the problem on the ground plane, however, and rounding the hedge corners (Figure 5-6) softens the edge in the vertical plane in this design.



Figure 5-5



Figure 5-6

These triangular panels (Figures 5-7 and 5-8) are used to form an outdoor tension structure. The sharp corners become a structural necessity rather than a liability.



Figure 5-7



Figure 5-8

Counter Forms

Deliberate nonalignment of form introduces an element of tension in the landscape.

A straight wall bearing no relationship to the circle center (Figures 5-9) or a tilted wall (Figure 5-10) shows this tension.

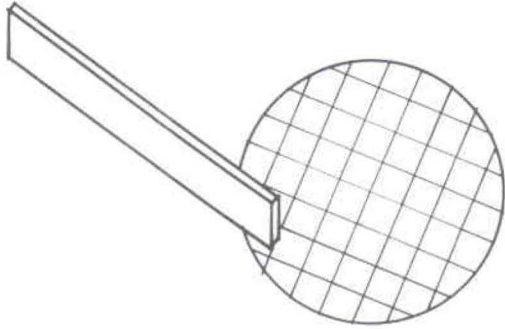


Figure 5-9

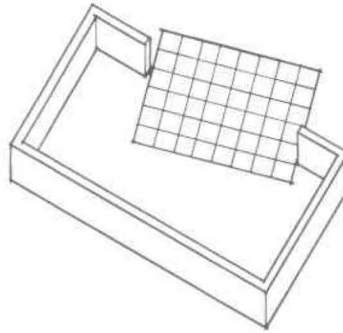


Figure 5-10

Conflicting forms introduced as counterpoints elicit a specific emotional response.

The jarring, skewed relationships of ground plane patterns and wall design raise the visual discomfort level of this plaza in Denver, Colorado (Figure 5-11). Since this photograph was taken the space has been totally redesigned, with good reason.



Figure 5-11

“Not-quite-right” forms are another way to introduce tension deliberately. Our minds have an image of the perfect condition or form and subconsciously strive to fix it.

We see a dented circle and subconsciously try to round it out to the pure form (Figure 5-12).

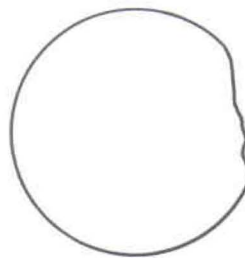


Figure 5-12

We want to make almost touching forms touch (Figure 5-13).

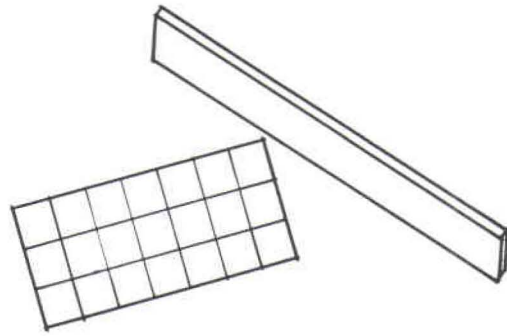


Figure 5-13

We wonder what is disconcerting about two walls that are almost parallel but not quite (Figure 5-14).

Some observers may see only a mistake and will leave disappointed. Others may sense the deliberate introduction of disharmony and search for a reason. There may be none, other than to disturb the viewer.

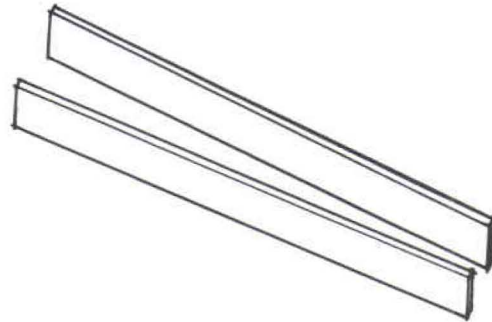


Figure 5-14

Overlapping counterforms are contrasting forms, overlaid one on top of or through the other, bearing no apparent relationship to each other.

If, for example, a meandering planting bed or ground plane line is superimposed over a rectilinear seat wall without any recognition of the wall shape, the points of overlap set up tension points in the landscape. These can be somewhat reconciled by perceiving the separate entities of form (Figure 5-15).

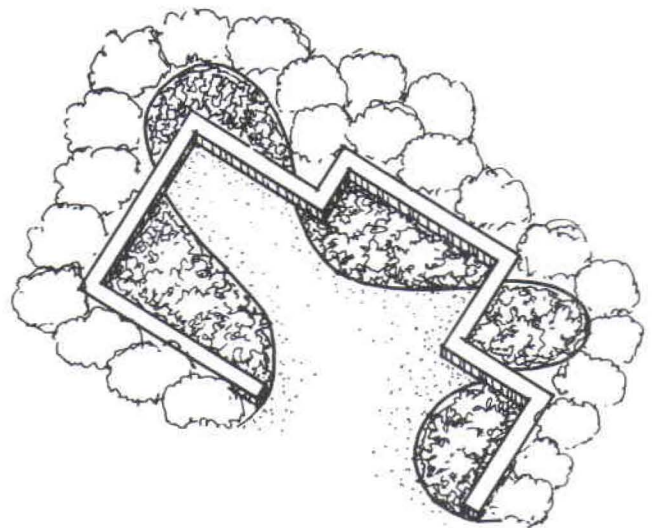


Figure 5-15

In this pedestrian mall in Singapore (Figure 5–16), several contrasting forms exist: curving walls, straight bands, irregular stone edges, rectilinear steps, and three different paving patterns. All are mixed together in whimsical irrational relationships. Nothing is aligned. Perhaps the rules were broken to create a fanciful mood.



Figure 5–16

The playful qualities of this paving pattern in Del Mar, California (Figure 5–17) also express a frivolous abandonment of any rigid structure.



Figure 5–17

Deconstruction

This is the deliberate design of objects and spaces to indicate a state of destruction, decay, or incompleteness. Perhaps it is merely a gimmick to grab the user's attention or perhaps it is rooted in the original goals and concepts of the design. Although this approach may be abnormal, it is by no means new. Many classical English gardens had "ruins" specially constructed to create a sense of belonging to an earlier time (Figure 5–18).

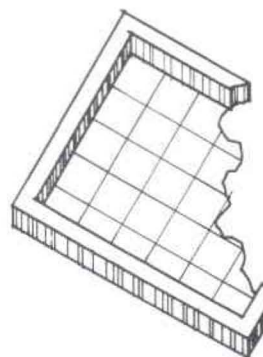


Figure 5–18

In this modern example in Stuttgart, Germany (Figure 5-19), the wall units have been carefully placed in the landscape to create a fall-out composition. To be sure, the blocks are difficult to mow around, but there is an interesting image of organized chaos captured in the shape of the hole in the wall and the contrasting composition of blocks on the ground.



Figure 5-19

This stone garden in Sindelfingen, Germany, (Figures 5-20 and 5-21) not only exploits the diversity of shape, texture, and color possible in rock, but also, in the tilted, partially buried cube, one can find an underlying message. Adjacent to one side is a bent and cracked concrete walk with no real function. But it complements the cube placement, and together they evoke an image of the unseen force of gravity.



Figure 5-20



Figure 5-21



This fallen obelisk in Figure 5-22 is also a static expression of a dynamic process. Placed as it is across the wall, the obelisk has a deliberate fracture line and a subtle bend away from the pure straight line. It is not hard to imagine the falling motion that could have placed it there (Sindelfingen, Germany).



Figure 5-22

The jolt of the unexpected is a goal of the designer who takes new-looking materials and familiar structures and makes them appear aged, broken, partially destroyed, or decayed (Figure 5-23). This type of imagery may have added meaning if there is some underlying conceptual message related to a destructive process such as war, earthquake, erosion, or fire (Wellington, New Zealand).



Figure 5-23

The wall and associated building shown here in Figure 5-24 could be an entertaining excursion into deconstructive architecture, or they may be a reminder that this part of the world is prone to earthquakes (Wellington, New Zealand).



Figure 5-24

Social and Political Landscapes

No mastermind designer was responsible for the design of People's Park in Berkeley, California, in the early 1970s (Figures 5-25 to 5-28). Its form evolved as a result of a social phenomenon. Half a city block near the university had lain muddy and vacant for years. Suddenly, with no apparent leadership, people began to "improve" the site. Sod was rolled out over lumpy ground; play structures were brought in, and vegetable gardens were cultivated. It was a period of feverish construction with no master plan or director. The resulting form was not an award-winning design if judged on normally accepted criteria of excellence. The place was alive, however, with the vibrancy of diverse people working and playing together in a space they deemed useful and beautiful. It was both a social and political statement. To many the park was a very successful design. But its life was to be just a few short weeks. To those in power it was an unacceptable deviation from the normal way things were supposed to be done. The park was undone and its form changed into a more traditional (but less used) manicured grass lawn and a basketball court.



Figure 5-25



Figure 5-26



Figure 5-27



Figure 5-28

At the 1989 National Garden Show in Frankfurt, Germany, one of the theme gardens was based on the issue of environmental degradation (Figures 5–29 and 5–30). The left half showed a comfortable lush green place, the right half total devastation. Landscape form was used to communicate a social message. Was it attractive? No. Was it useful? No. Was it provocative? Absolutely!



Figure 5–29



Figure 5–30

Eccentric Landscapes

People branded as eccentric by the rest of us are by definition unusual but harmless. They can also be very creative and energetic. Landscape spaces created by such people often break or ignore the rules and may contain some “crazy” interesting elements of form, color, and texture.

This owner-built patio has a severe slope and associated furniture with uneven supports (Figure 5–31). The wall in Figure 5–32 is a playful conglomeration of various masonry and ceramic products including teacups (Auckland, New Zealand).



Figure 5–31



Figure 5–32

Stone pebbles and colored glass are the basic veneer materials for this garden in Seattle, Washington (Figures 5-33 to 5-36).



Figure 5-33



Figure 5-34



Figure 5-35



Figure 5-36

Landscapes of Distortion and Illusion

Spatial illusions can be useful in the design of outdoor environments. The end of a long, narrow space can be made to appear closer or farther away by manipulating the shape and vertical rhythm of the space (Figure 5-37).

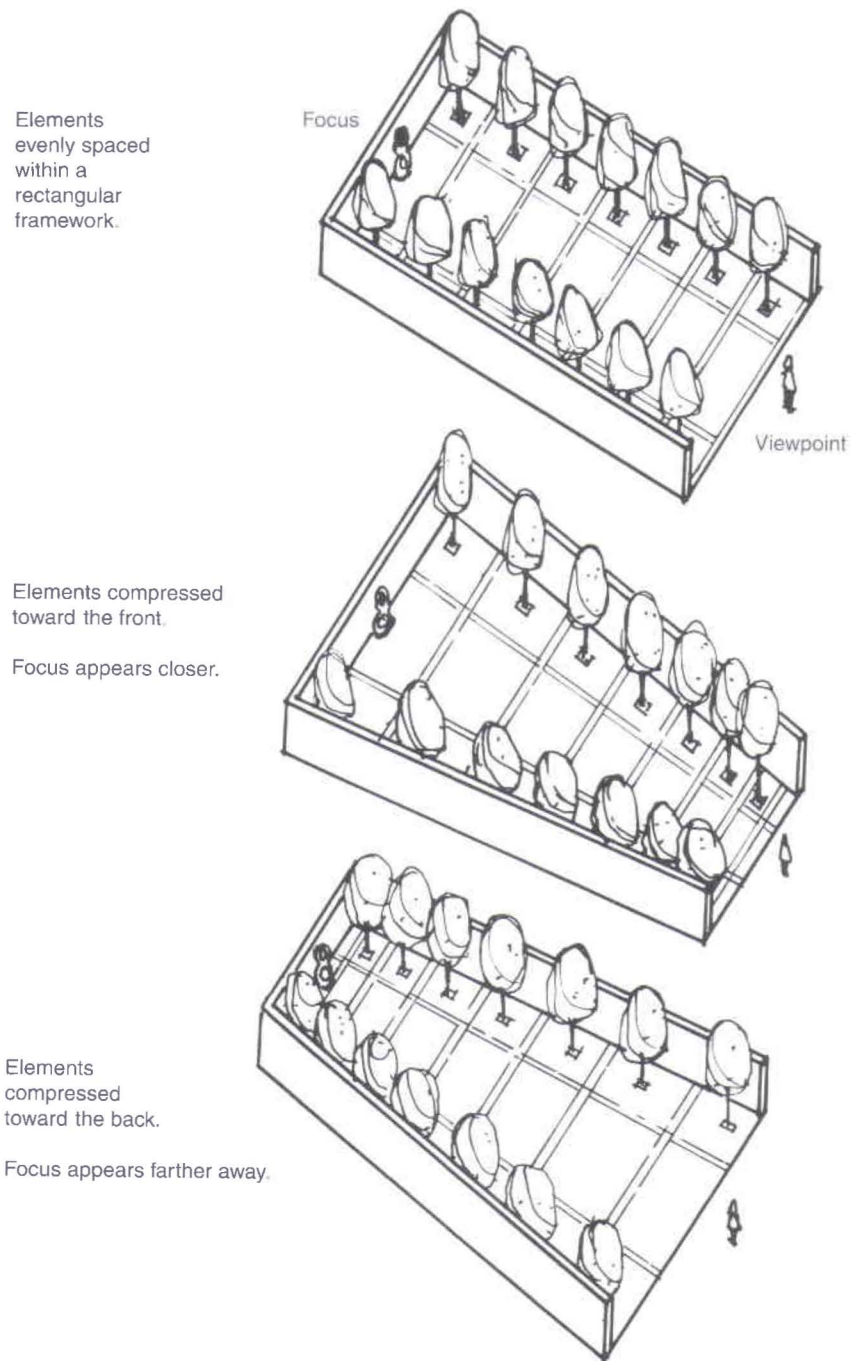


Figure 5-37 Perspective illusion

The city of Wellington, New Zealand, has striking outdoor mural art.

A vacant lot becomes a fanciful seascape with illusions of space beyond the wall and of seashells floating in space (Figure 5-38).

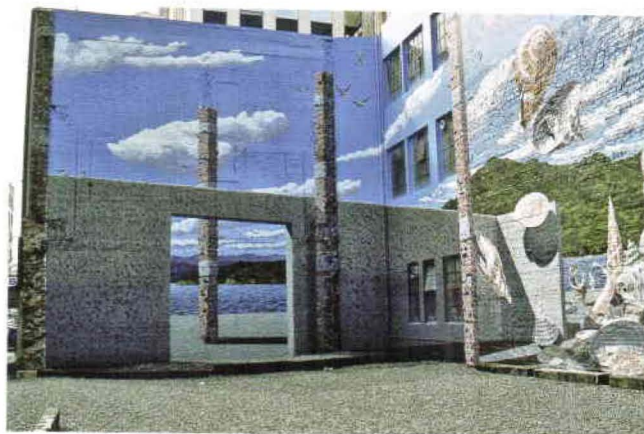


Figure 5-38

Viewed from the front, this old building has a flat facade on its right side (Figure 5-39).



Figure 5-39

But a new world unfolds when this same facade is viewed straight on (Figure 5-40). The artist has captured the powerful perspective depth of a Venetian plaza and canal. The chimneys skillfully blend into the tops of pillars, whose painted shadows further intensify the spatial illusion.

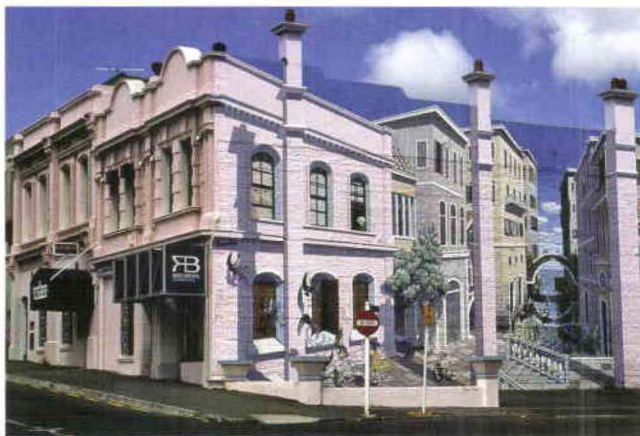


Figure 5-40

In the same city stand several other old buildings decorated with spatial illusions (Figures 5-41 to 5-44).



Figure 5-41

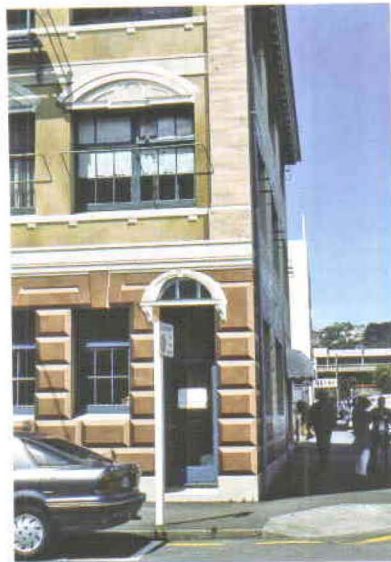


Figure 5-42



Figure 5-43



Figure 5-44

Contextual distortion is familiar objects used out of their usual manner, place, or context. The mannequin garden in Figure 5-45 could be offensive or disturbing to many people and is certainly not very functional. But there would be few observers who would not be surprised by this contextual aberration (Frankfurt, Germany).



Figure 5-45

In Figure 5-46, the designer of this maze garden is playing a trick of scale distortion (Frankfurt, Germany).



Figure 5-46

It seems impossible, but the round stones in Figure 5-47 somehow hold themselves up to form a garden archway. In fact, the archway is very secure, but the effectiveness of the design lies in the illusion of structural frailty, of the possibility that it will fall apart easily (Russell, New Zealand).



Figure 5-47

It is a rare designer who does not run into design block now and then, or who never finds himself repeating comfortable solutions. The time will come to reject notions like “It’s worked well before so I’ll use it again here” or “It can’t be done” or “They will never buy that.” The time comes to say “What if . . . ? Why not . . . ? How about . . . ? There must be a better way to do this . . . That’s pretty strange but let’s give it a try!”

In this defiant mode the designer may deliberately adjust the landscape toward images that produce a disquieting experience. The observer may be thrown off balance and into discomfort or uneasiness. The images may challenge deeply held beliefs or shatter expectations. There is legitimacy in the application of incongruity, especially when used sparingly. The more important value lies in the designer’s responsibility to challenge the norm.

Case Studies

The seven projects that follow demonstrate the evolution of a design from concept to form. These are all projects designed by the author.

At the beginning of each project is a summary of the design issues called *Design Interpretation*. This lists the main objectives as determined by the user interview and site analysis, the various geometric or naturalistic structuring themes, and an interpretation of the most relevant principles of design.

The first graphic diagram is the *Concept Plan*, which reveals more of the users' functional needs and places them in a rough relationship to each other and to the site.

Following this is a *Theme Composition Diagram*, showing the underlying themes used to structure most of the design. As discussed at the beginning of Chapter 2 (page 17), the design takes shape by blending spatial messages from both the concept plan and the theme patterns. The

designer has to visualize back and forth between each layer. In addition, the designer must integrate the principles of design outlined in Chapter 4 (page 81), so the process is somewhat circular.

For a few of the projects a *Form Evolution Diagram* is shown. This is an intermediate step revealing some refinement of the theme composition diagram.

The *Final Plan* is usually the last drawing presented to the client before the construction documents are prepared. Therefore, the ground plane materials and landscape structures are shown, along with general ideas for plant placement.

Photographs of the completed landscape follow the final plan and show spatial characteristics, vertical relationships, color and texture combinations, qualities of light, and other design images not readily evident from a plan view drawing.

Project 1. Silver Arch Sculpture Garden

Design Interpretation

Main Objectives

- To allow for serendipity, a garden of whimsical discovery and for finding valuable experiences by accident and exploration.
- To create a fun place appealing to all ages.
- To offer an opportunity to create, collect, and display three-dimensional art.
- To allow a place in process, adaptable to change, never quite finished.
- To provide opportunities for quiet, individual reflection as well as lively group entertainment.
- To create something different. No problem if a bit of eccentricity or chaos creeps in.

Structuring Themes

The 90° rectangular theme (deck, patios, and walls next to buildings)

The meander (turf area)

The spiral (focal zone)

Gentle meanders or wave forms (next to water and also acting as connectors)

Principles of Design

Interest Of immediate captivating interest to the first-time visitor is the laminar flow water arch, which has the illusion of remaining still while actually moving. This invites participation. Playful interruption of the flow changes the character of the water display. There is a sense of mystery as the laminar flow disappears quietly into the frog's mouth. A whole new dimension of interest is revealed at night as light plays on the laminar flow, the numerous sculptures, and the variously textured ground planes. There are many opportunities for fun and discovery. A 50-foot (15-meter) swing, the shady hammock, several hidden walks, concealed views, and diverse sculpture displays are strategically located throughout the garden. The wide variety of forms and spaces borders on chaos.

Emphasis At the core of the site are the multiple water elements collectively serving as the dominant focus. This is complemented on the ground plane, since the terminus of the paved spiral coincides with the origin of the laminar flow. There is an illusion of the arched flow pouring into the pond. In fact, they are separate systems: the former is sterile; the latter is biologically balanced. Like subplots in a story, the many sculptures have their own "side story": a lizard on a rock sunbathing; an alligator in the pool, hiding and waiting; two crows on the wall arguing, etc.

Unity and Harmony It is the overall playful theme that unifies the apparent chaos. A certain degree of harmony is generated through the carefully orchestrated flow of one form into the other.

Spatial Characteristics Not apparent in the plan view are the many level changes. At the highest point is the deck. From here the spaces flow down gradually toward the carport and more dramatically toward the large lawn and spiral patio. The more intimate reflective spaces are the small deck and the upper paved terraces. It is at the lower, hobby-room level that the spaces become wide open and more comfortable for larger group activities.

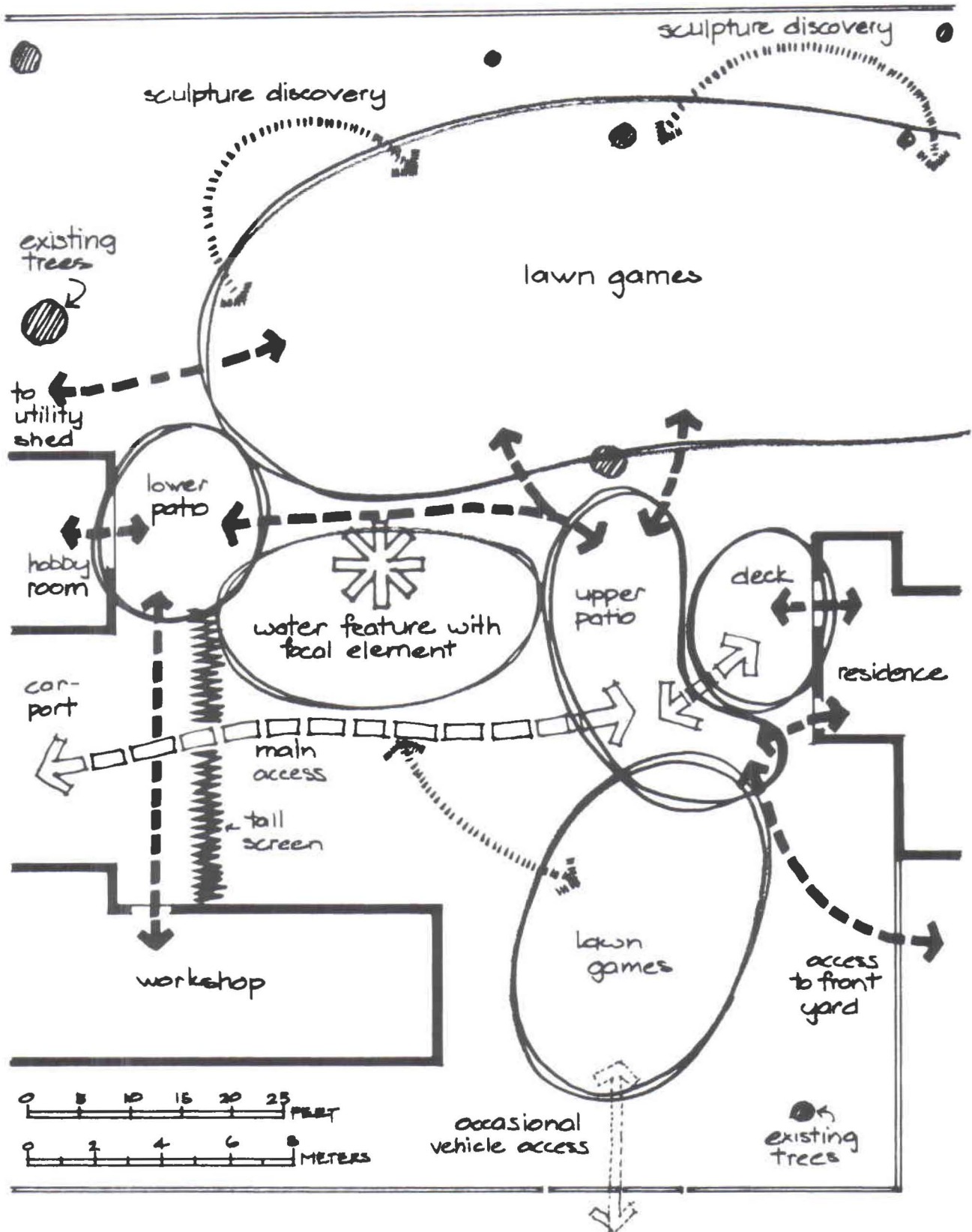


Figure 6-1 Silver Arch Sculpture Garden, concept plan

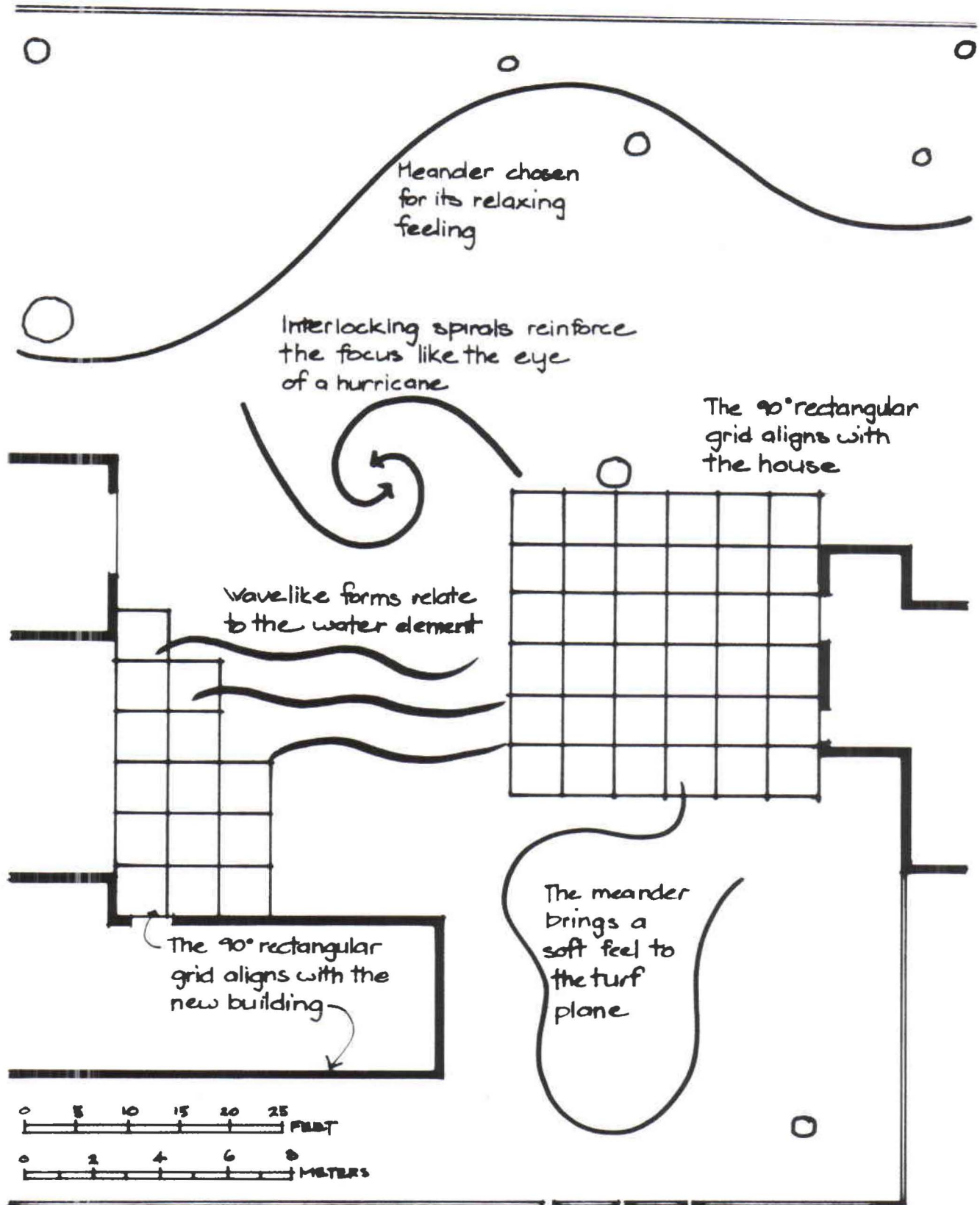


Figure 6-2 Silver Arch Sculpture Garden, theme composition diagram

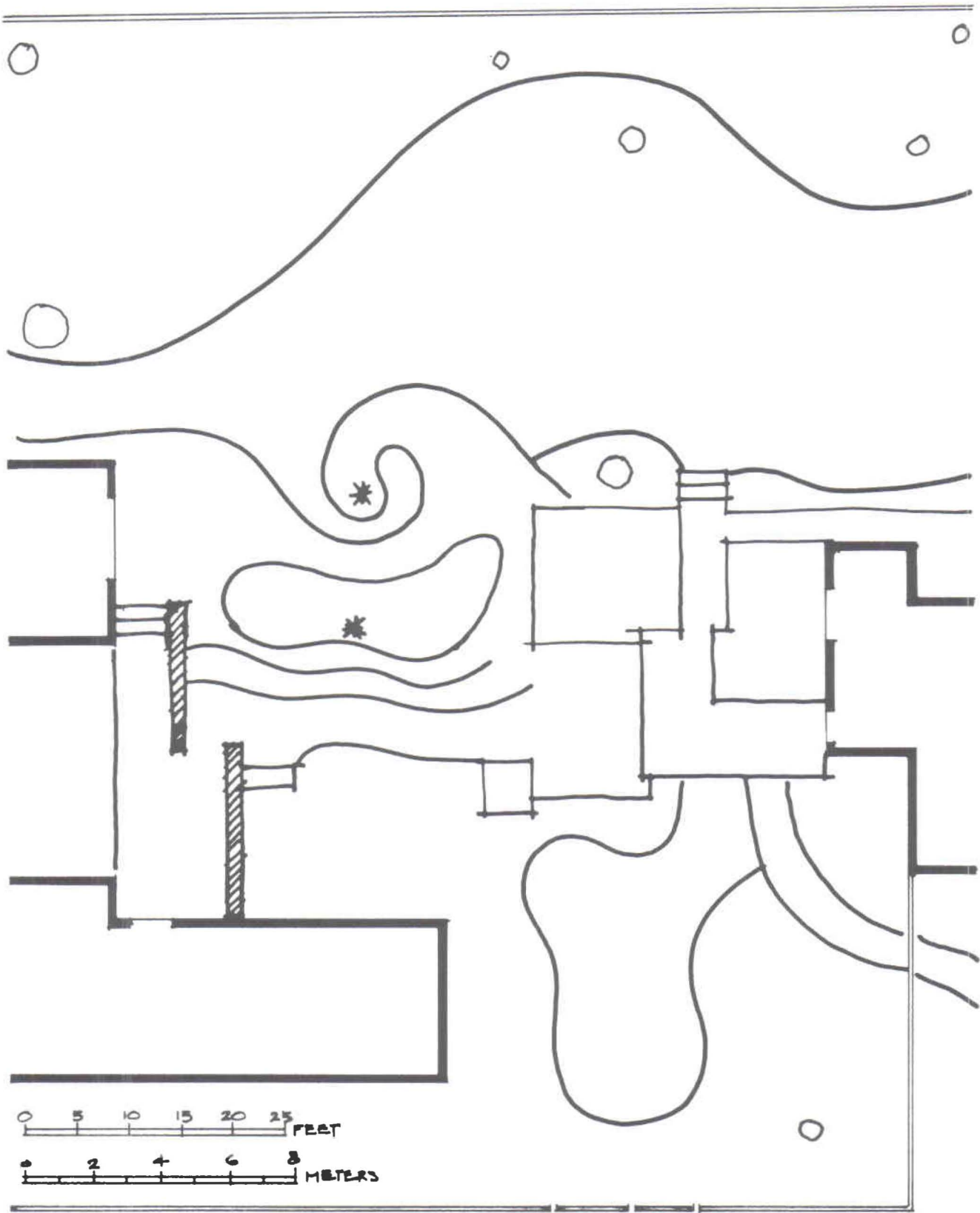


Figure 6-3 Silver Arch Sculpture Garden, form evolution diagram

Silver Arch Sculpture Garden

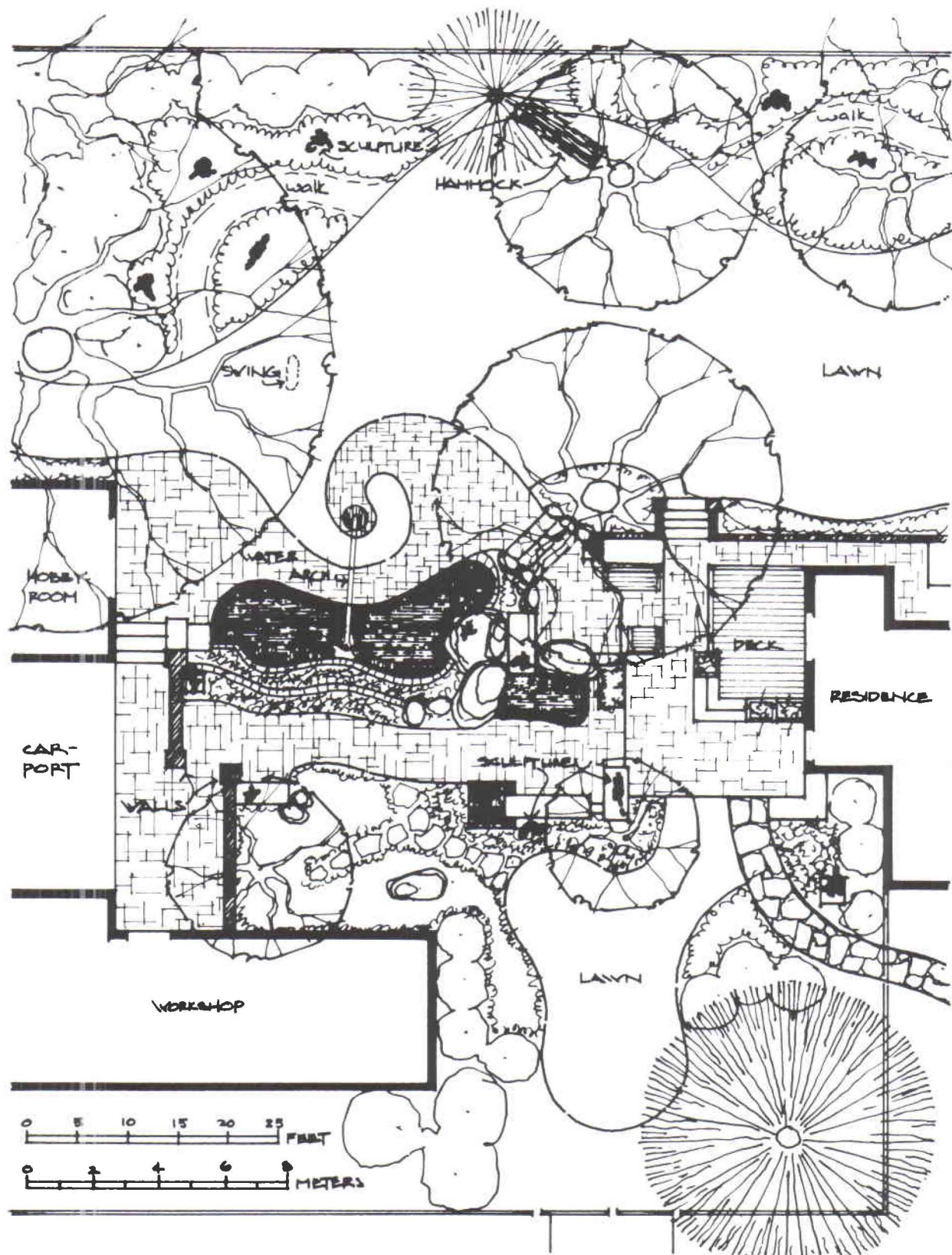


Figure 6-4 Silver Arch Sculpture Garden, final plan

Silver Arch Sculpture Garden



Figure 6-5 Silver Arch Sculpture Garden, overview from a balcony above the deck



Figure 6-6 Silver Arch Sculpture Garden, view from the hobby room up toward the deck

Silver Arch Sculpture Garden



Figure 6-7 Silver Arch Sculpture Garden, laminar flow of water from the spiral center to the frog sculpture



Figure 6-8 Silver Arch Sculpture Garden, night view toward the hobby room in the back

Project 2. Courtyard of Circles

Design Interpretation

Main Objectives

- To provide a comfortable environment for employees to relax outside during breaks.
- To allow space for occasional formal outdoor meetings and celebrations.
- To provide an interesting aerial view from adjacent high-rise balconies and windows.
- To utilize the existing depression from the abandoned swimming pool.

Structuring Themes

Circular forms as the primary theme. Circles are used here to imply equality and absence of hierarchy to foster the process of sharing ideas in a nonthreatening, informal environment.

The organic edge is a secondary theme.

Principles of Design

Scale Human scale but large enough to accommodate larger groups of 20 or 30 people.

Contrasts Circles contrast with the existing rectilinear wall. Planted buffer space is needed.

Interest Variety of circle size and diversity of plant material.

Unity Simple repetition of circular forms for an overall cohesive image.

Dominance and Hierarchy At the heart of the site is the main focal element: the naturalistic stream and pond. The hierarchy of three circles allows larger gatherings to occur on the bigger two and intimate groups to use the smaller one. All groups use the integrated seating.

Harmony Planted buffer space to ease the visual transition between contrasting internal circular forms and external rectilinear walls. All paving meets walls and edges at 90° connections.

Spatial Characteristics A hierarchy of small, medium, and large spaces for different uses. Mounded grassy circle for amphitheater effect. Sunken stepped area next to pond provides maximum enclosure.

Courtyard of Circles

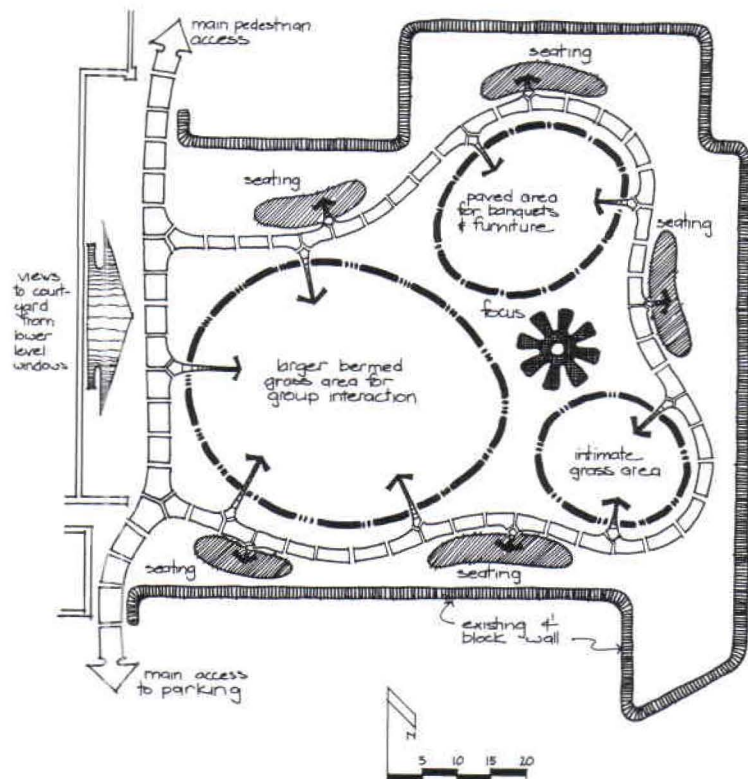


Figure 6-9 Courtyard of Circles, concept plan

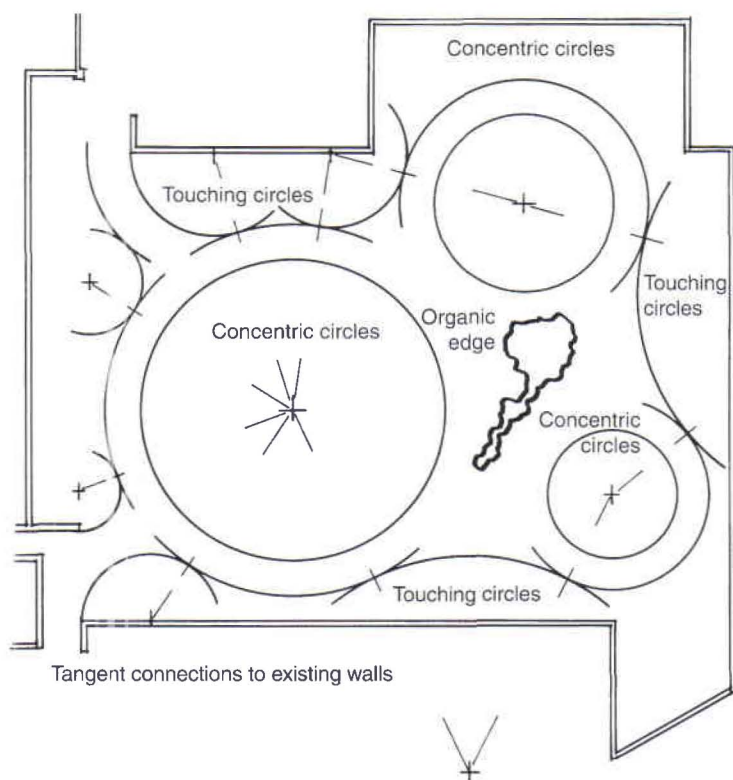


Figure 6-10 Courtyard of Circles, theme composition diagram

Courtyard of Circles

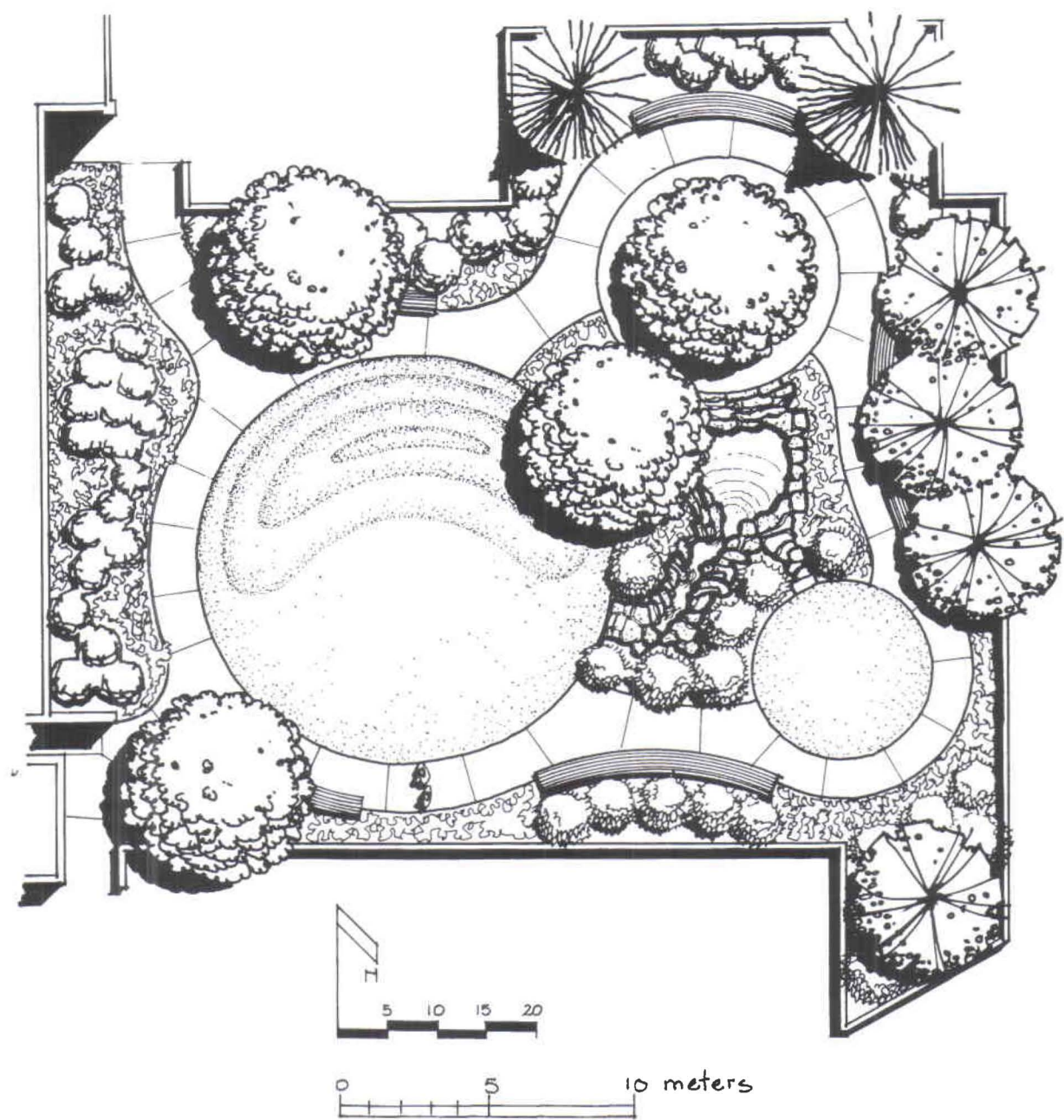


Figure 6–11 Courtyard of Circles, final plan

Courtyard of Circles



Figure 6–12 Courtyard of Circles, before landscape renovations



Figure 6–13 Courtyard of Circles, overview from third-floor offices

Courtyard of Circles

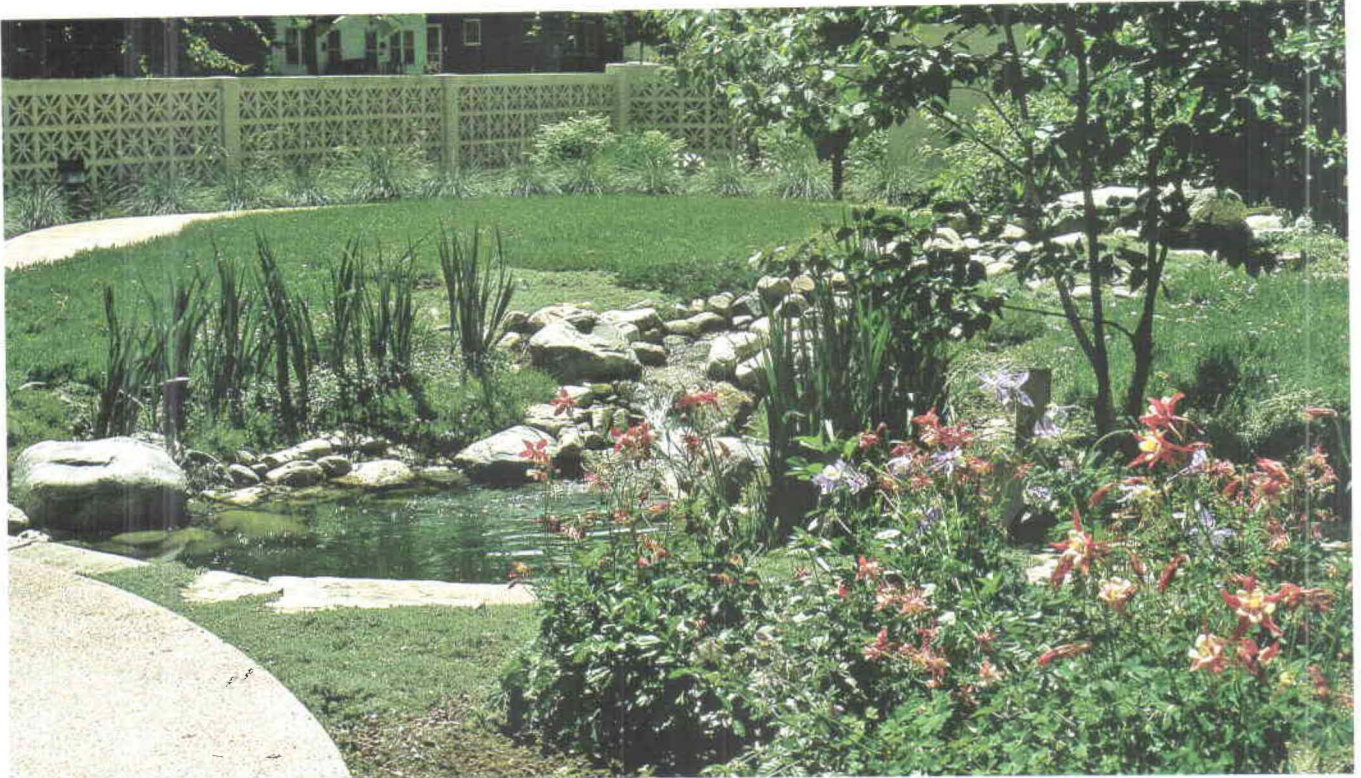


Figure 6-14 Courtyard of Circles, the stream as a focal feature



Figure 6-15 Courtyard of Circles, eye-level view of the two smaller circles

Project 3. Corner Lot Garden

Design Interpretation

Main Objectives

- To create usable spaces for relaxation and free play.
- To provide for privacy without fences.
- To stabilize front slopes with terracing and plantings.
- To preserve existing mature trees.

Structuring Themes

The 135° angular grid (front drive and entry)

The 90° rectangular grid (front deck, back patio)

The meander (planted beds)

Principles of Design

Dominance Spring and summer flowers provide the main visual impact. Two mature trees dominate the back area. A small fountain provides focus for the patio.

Scale Family living, intimate scale, small groups.

Interest Texture and color compositions of plant material provide seasonal interest.

Unity and Harmony Indoor rooms connect directly to outdoor living areas, which flow smoothly into the rest of the landscape. Brick and wood siding material of the building extend into the landscape in the form of brick walls, deck, and shade structure. Grass areas flow uninterrupted from front to back, blending with the neighbor's yard.

Spatial Characteristics The entry includes the drop-off zone through a gateway accented by pillars and overhead canopy. It progresses through level and direction changes to a wide arrival area at the front door. In back the hedgerow defines the outer edge of the large space, and the existing trees provide a powerful canopy roof. A small flight of steps links the large open area to the intimate enclosure of the sunken patio.

Corner Lot Garden

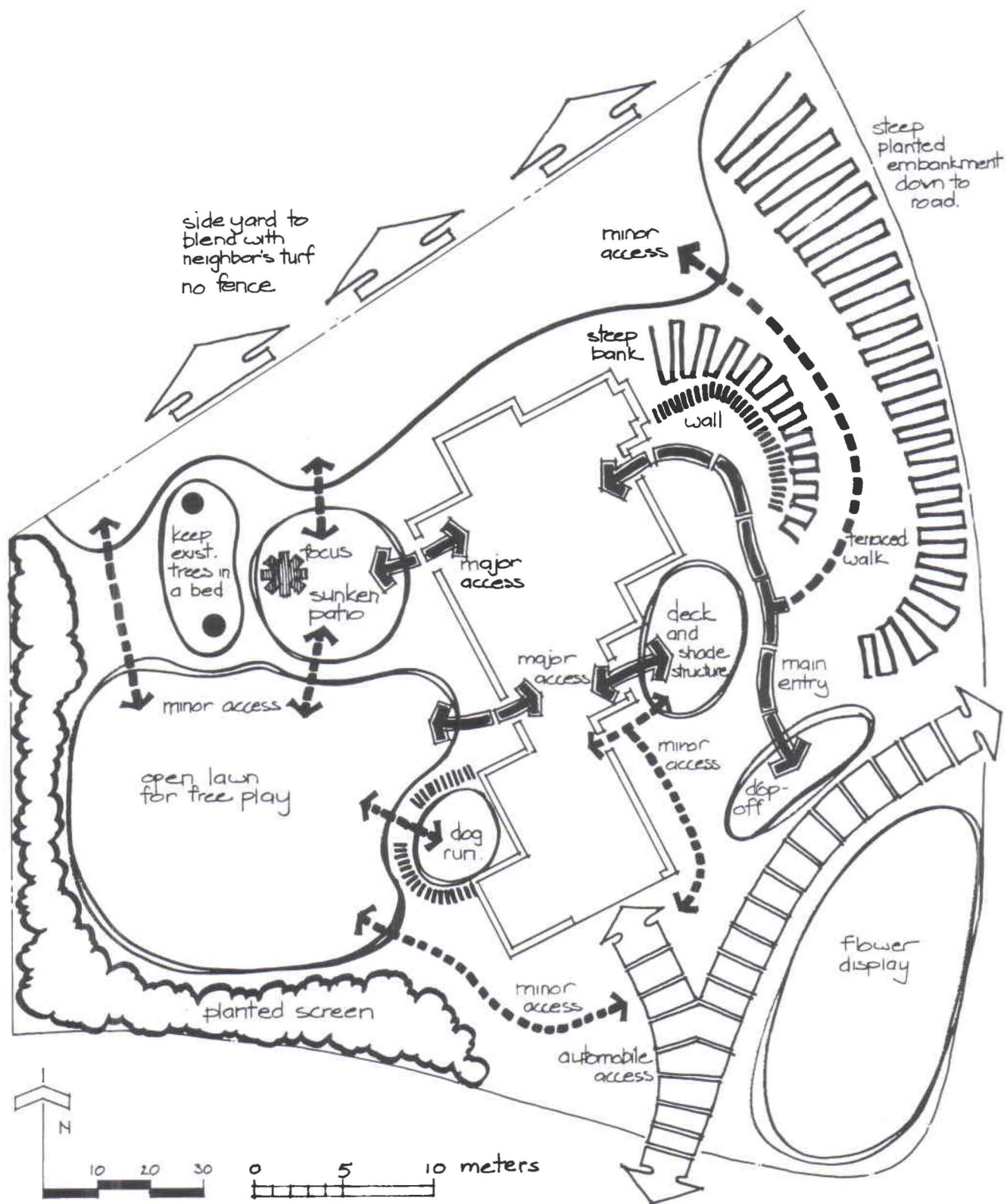


Figure 6-16 Corner Lot Garden, concept plan

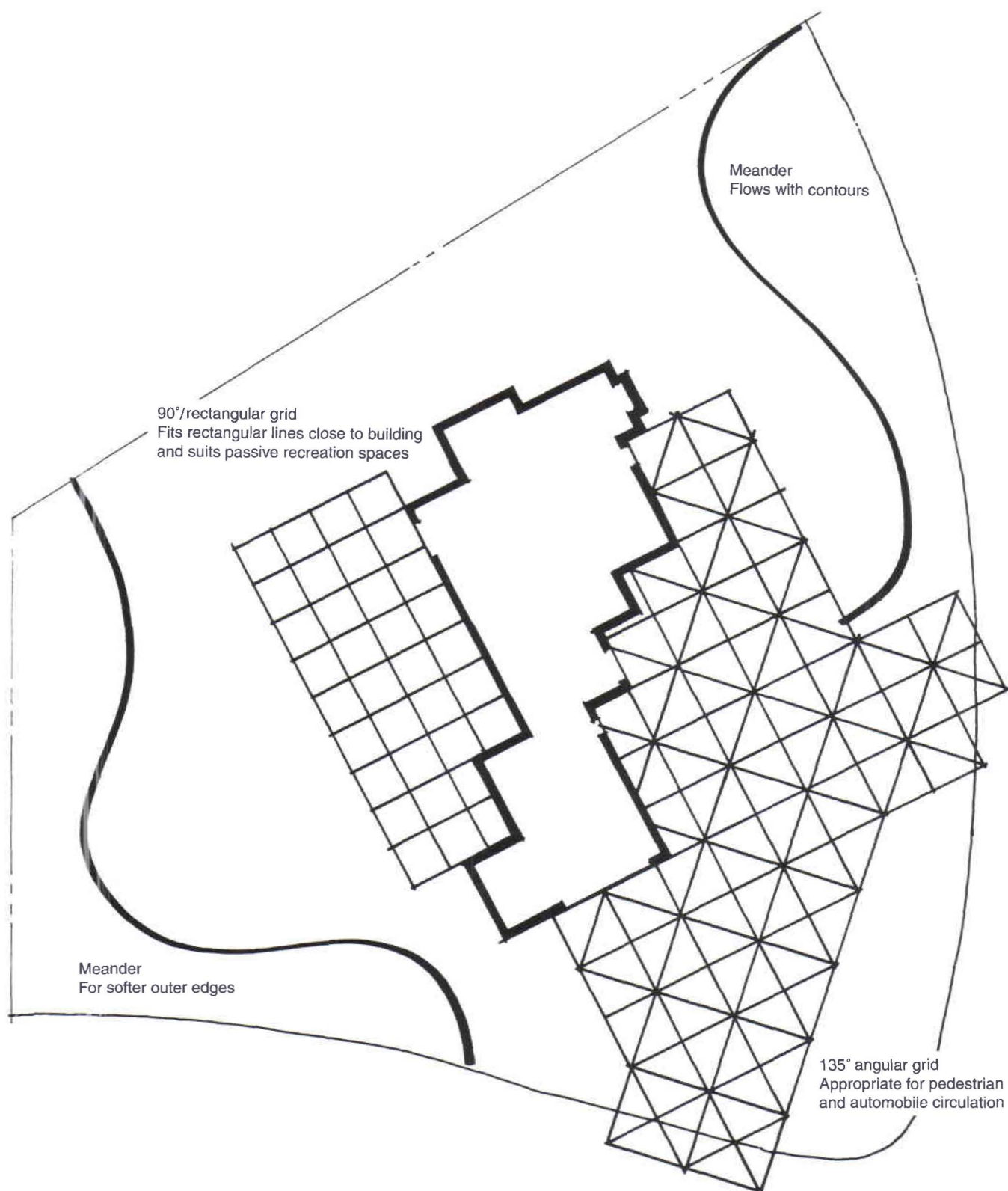


Figure 6-17 Corner Lot Garden, theme composition diagram

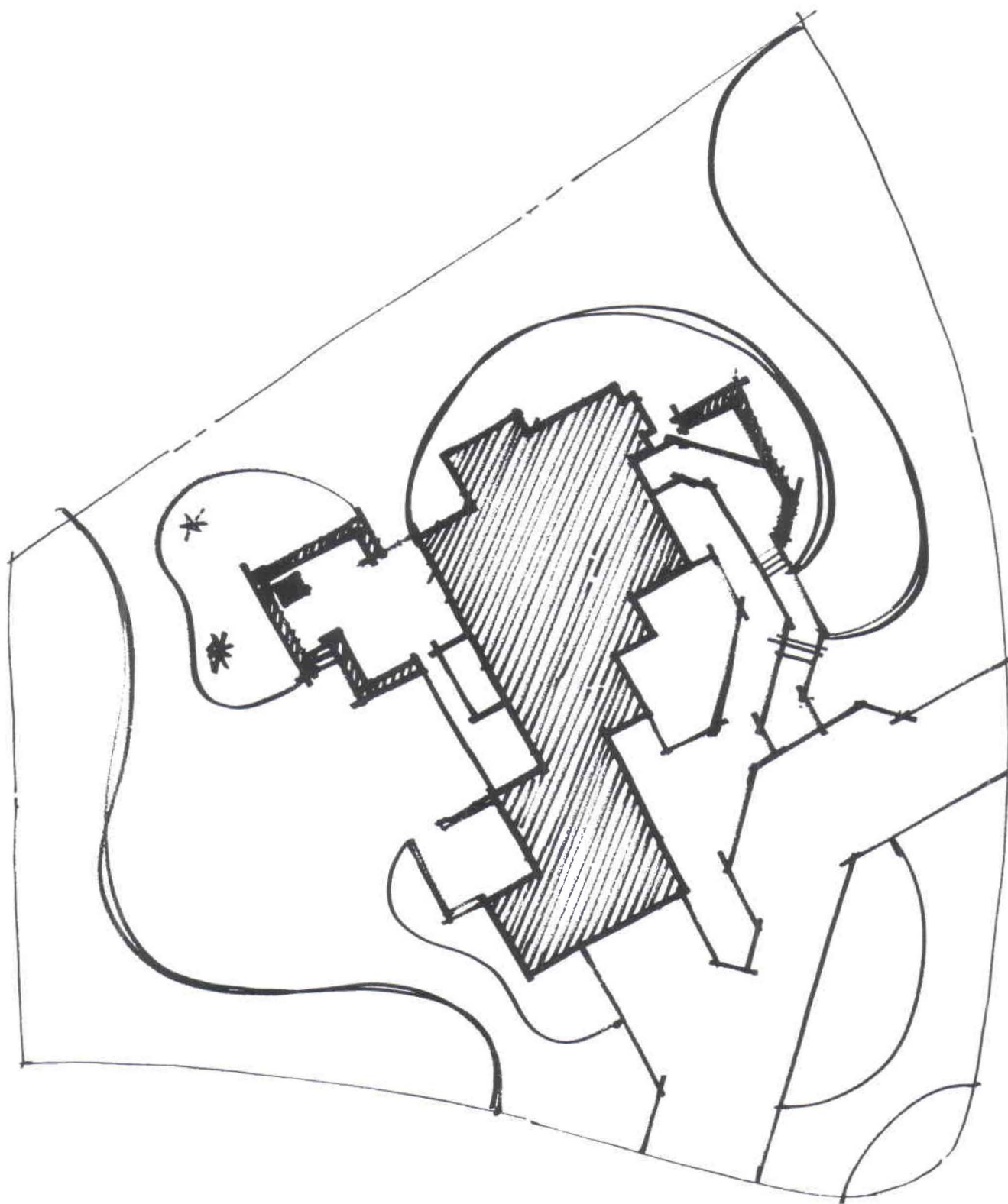


Figure 6–18 Corner Lot Garden, form evolution diagram

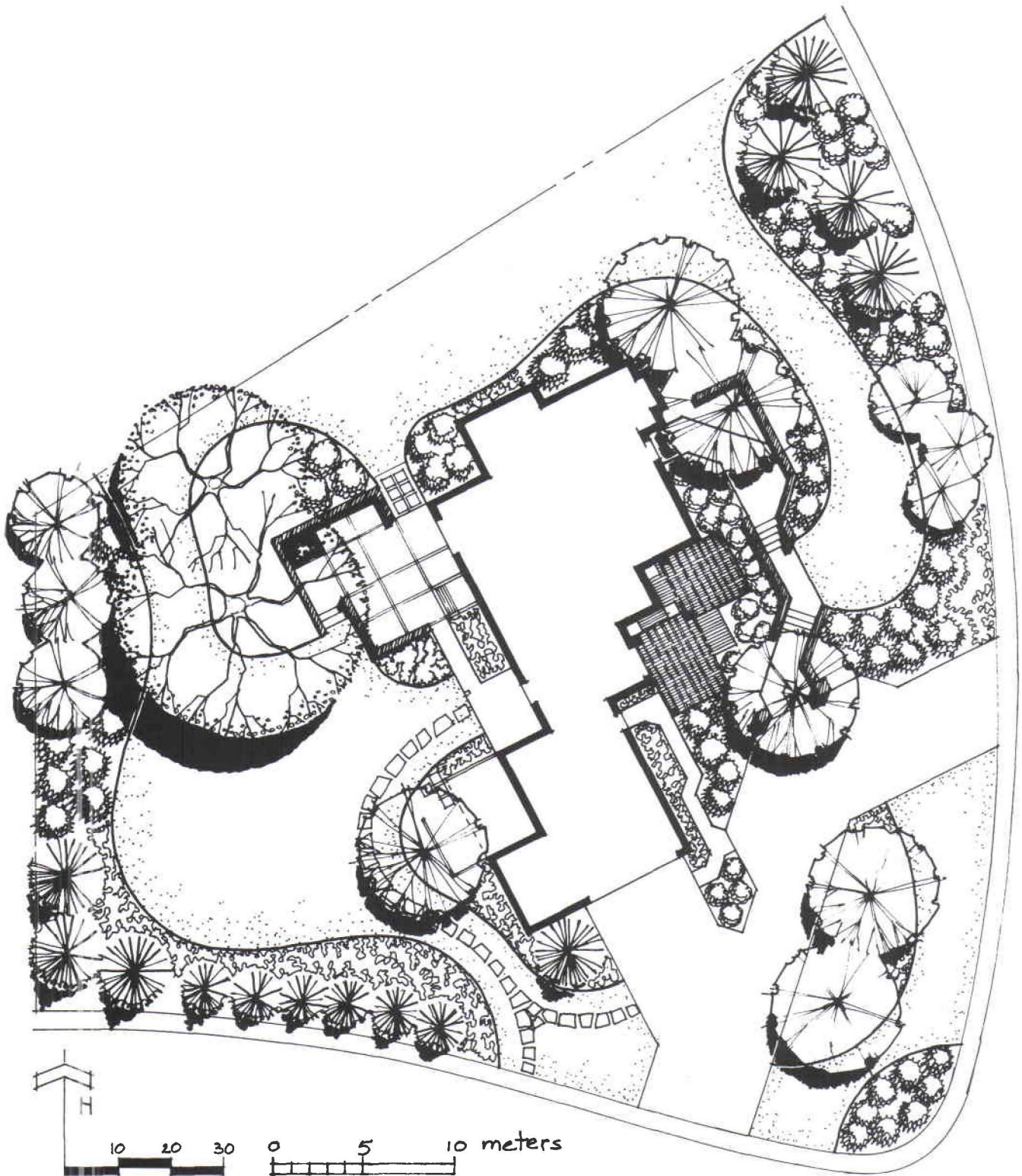


Figure 6-19 Corner Lot Garden, final plan

Corner Lot Garden



Figure 6-20 Corner Lot Garden, frontage to the east street



Figure 6-21 Corner Lot Garden, pedestrian entry walk

Corner Lot Garden



Figure 6-22 Corner Lot Garden, rear patio



Figure 6-23 Corner Lot Garden, back lawn with stepping-stones

Project 4. Pools of Pleasure

Design Interpretation

Main Objectives

- To satisfy owners' concerns for security and privacy.
- To maintain open views to the east.
- To maximize usable space limited by a large three-story building placed on a small lot.
- To match and blend the landscape with the symbolic architectural statement of success.

Structuring Themes

Primary Themes

The 135°/angular grid (back area and lakefront)

Circles and tangents (driveway)

Secondary Themes

The organic edge (rock walls)

The meander (lawn edging)

Principles of Design

Dominance White as the predominant color scheme. Exploitation of water in various forms and temperatures as the dominant element. Focal interest provided by the sound and sparkle of falling water.

Scale Large trees to create a transition from the overpowering scale of the building to the human scale of the front entry and back recreation area. Rhythmic pavement banding on the drive to reduce apparent size of pavement.

Contrasts Strong edge contrast between white architectural elements and dark natural elements (stone, plants, mulched ground).

Interest Highlights of lavender color in awnings and patio furniture. Diversity of water environments (waves, waterfall, reflections, mists rising from pool). Seasonal flower color changes. Landscape lighting to accent focal areas and roofline.

Unity The square and diagonal lines of the building carry into the structure of the built landscape elements.

Spatial Characteristics Drive and auto court make a transition from the narrow entrance, flowing around to a wide turnaround zone. Entry progresses from open drop-off zone, up majestic steps to a covered landing, then into the enclosed foyer. Play area takes advantages of a second level deck to provide an intimate covered area. Backyard has powerful spatial orientation toward the lake due to the tall building facades and the rock cliff. White color makes space feel larger. A smaller, intimate, partially enclosed space is tucked up against the cliff and orients south toward the pool. Subtle level changes down to the shoreline reinforce the outward orientation. Narrow, irregular, stepped linkage from lower paved space to upper grassed play area invite exploration.

Pools of Pleasure

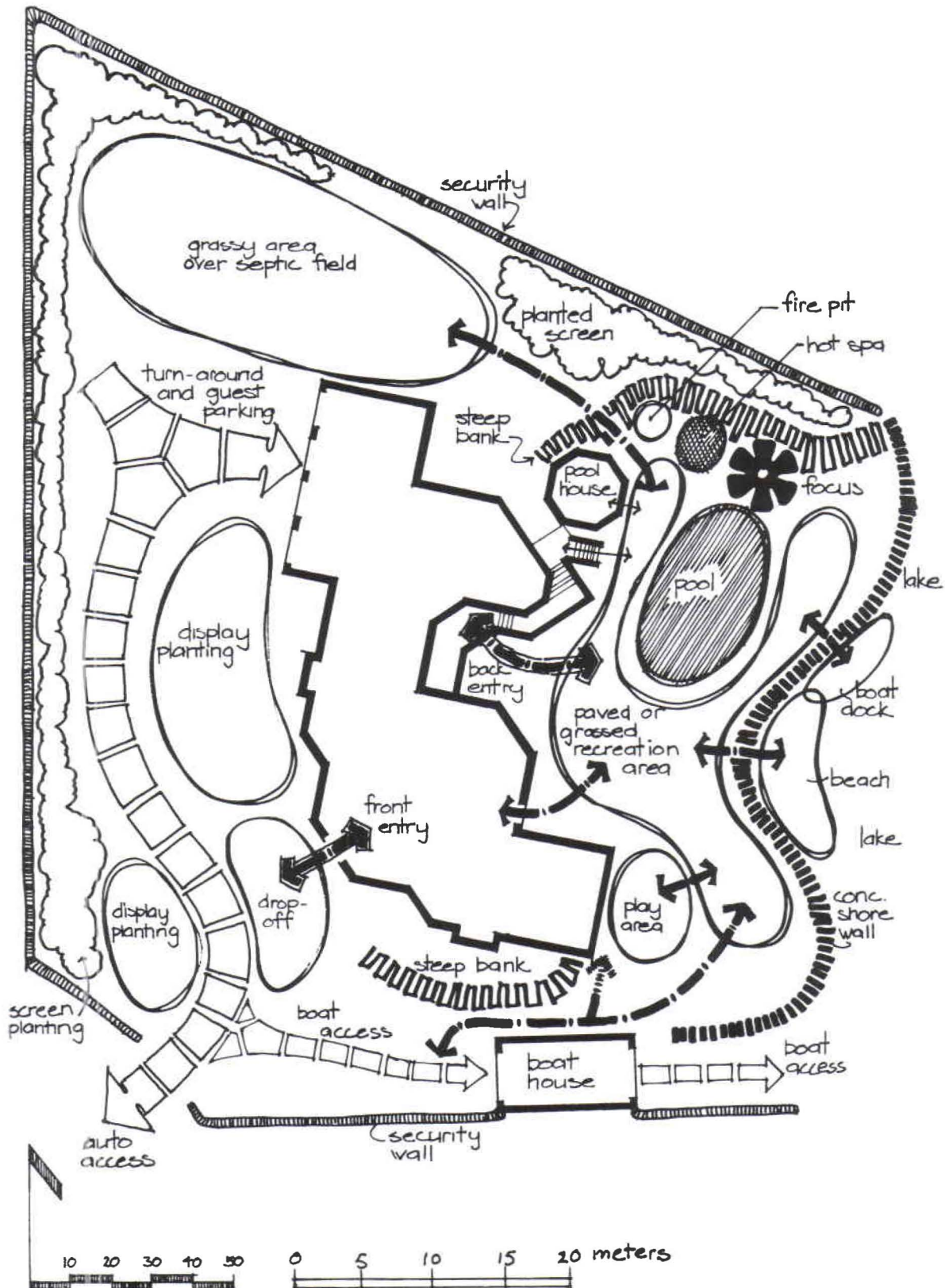


Figure 6-24 Pools of Pleasure, concept plan

Pools of Pleasure

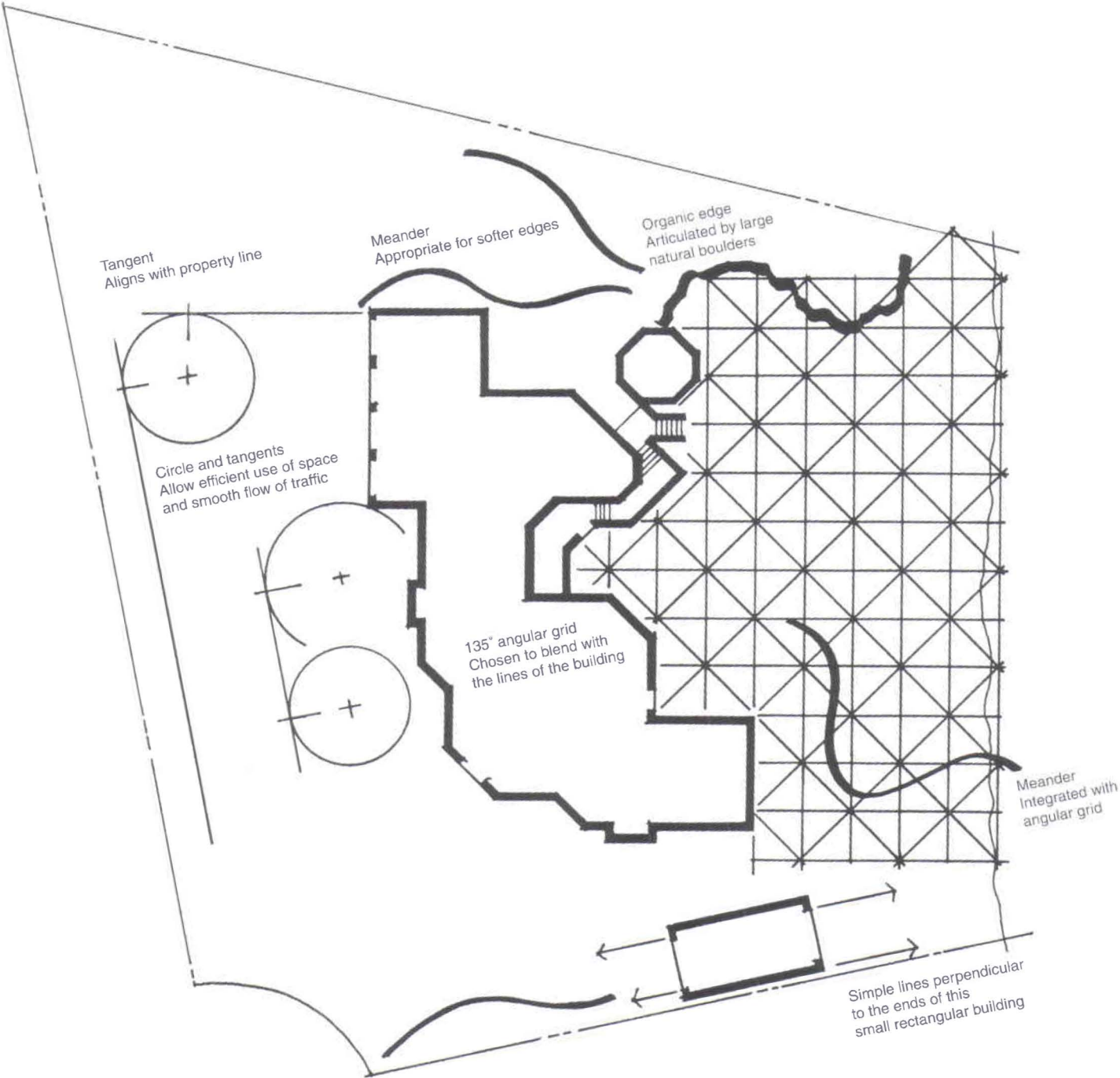


Figure 6-25 Pools of Pleasure, theme composition diagram

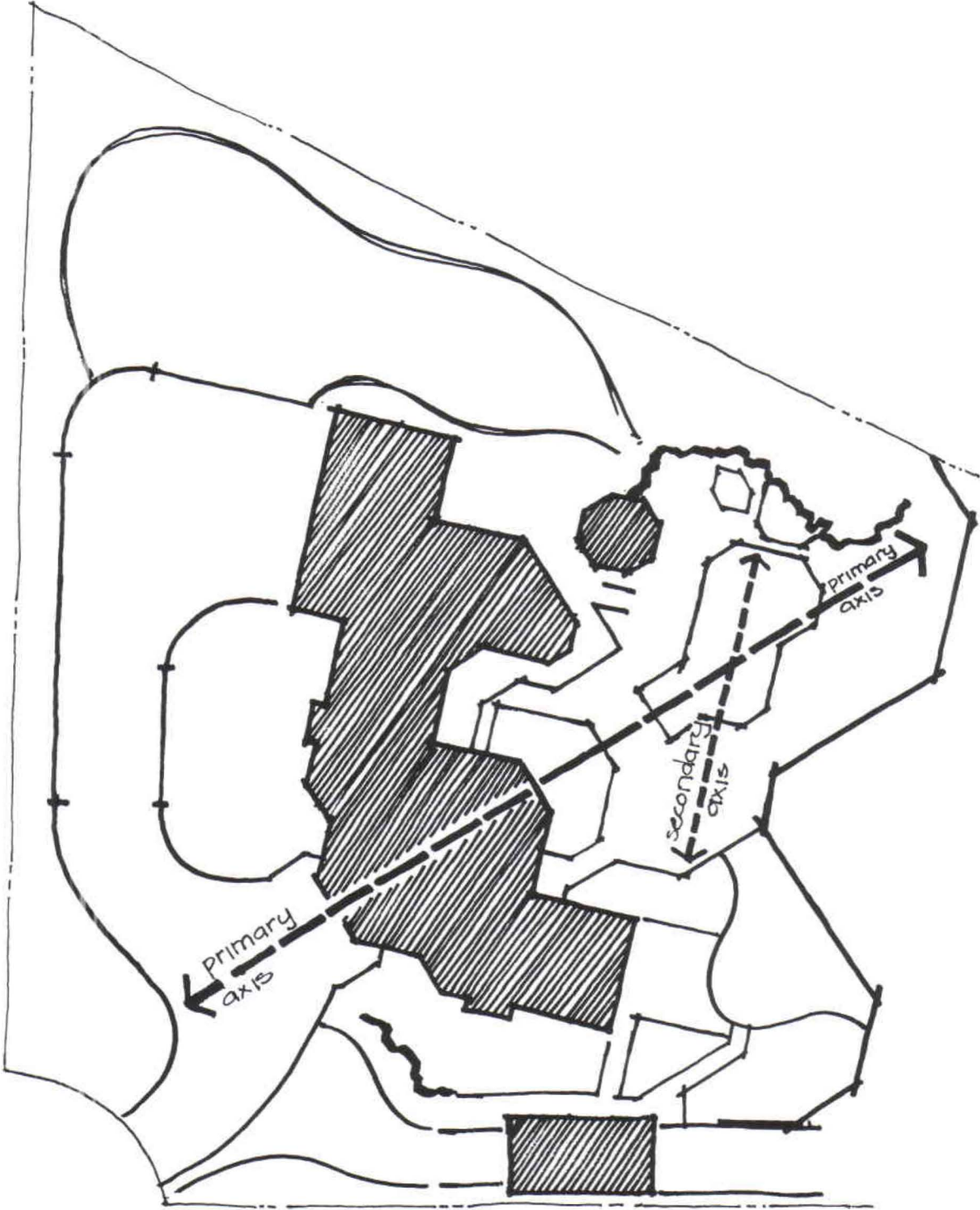


Figure 6-26 Pools of Pleasure, form evolution diagram

Pools of Pleasure

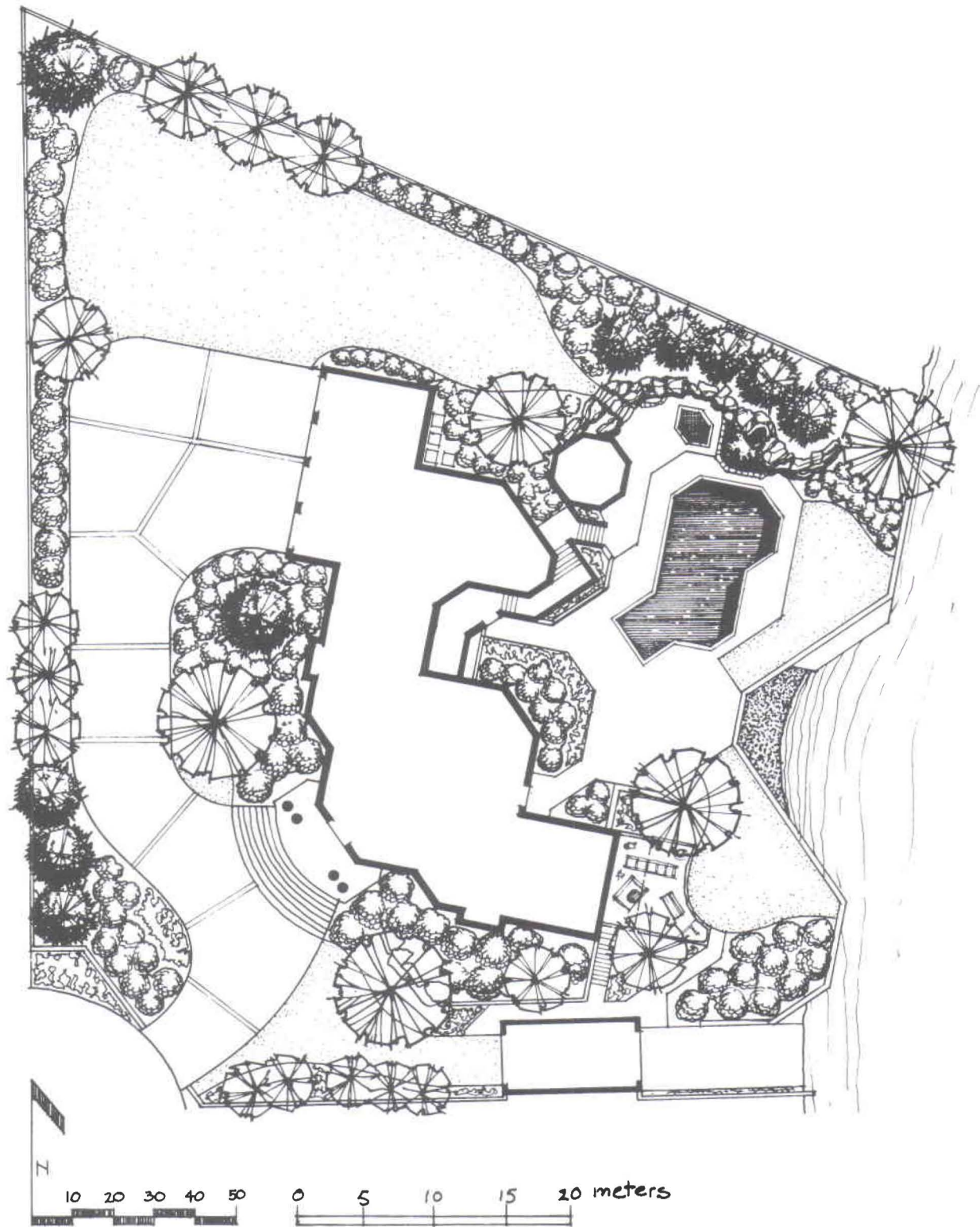


Figure 6-27 Pools of Pleasure, final plan



Figure 6-28 Pools of Pleasure, driveway



Figure 6-29 Pools of Pleasure, swimming pool overview

Pools of Pleasure



Figure 6-30 Pools of Pleasure, hot spa (foreground) cold plunge pool (left)

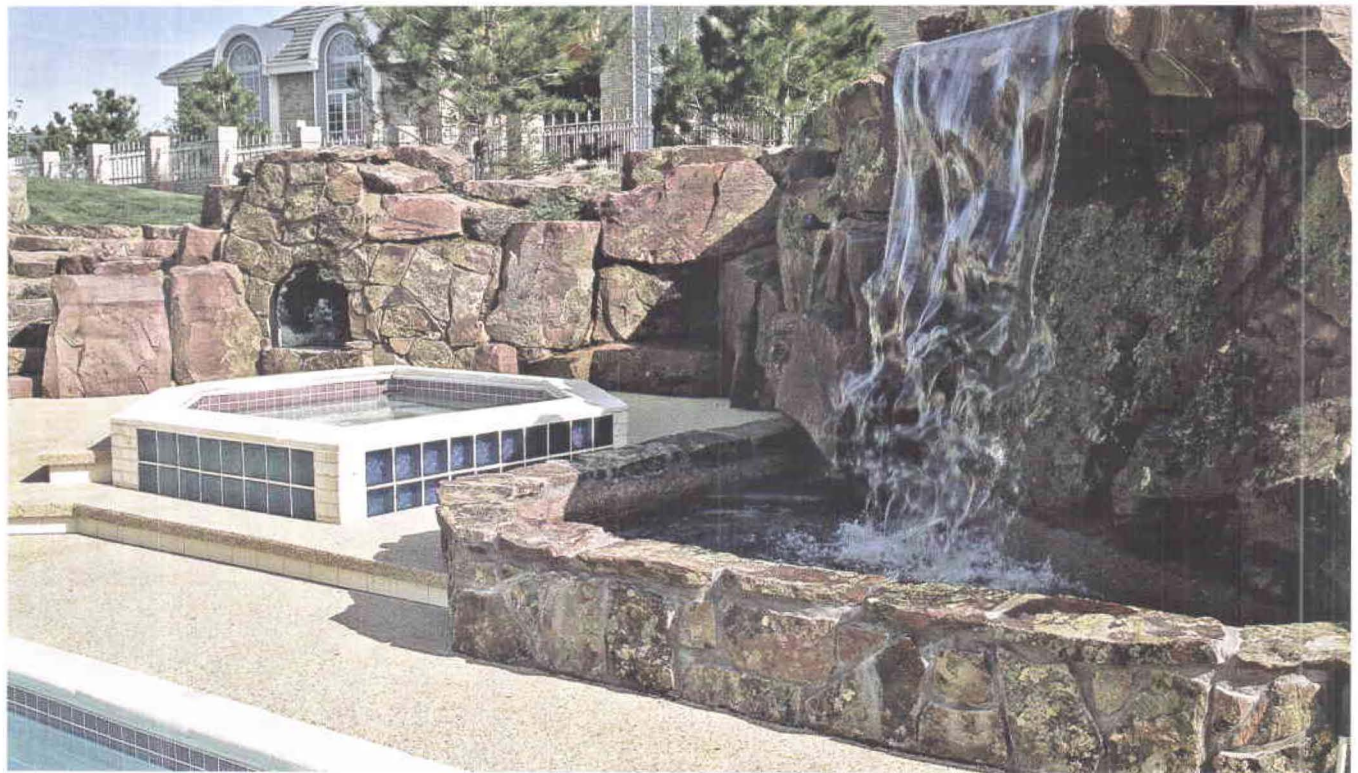


Figure 6-31 Pools of Pleasure, waterfall and rockwork north of the main pool

Project 5. Tsukubai Dialogue

Design Interpretation

Major Objectives

- To create a place for dialogue between the owner and his oriental business associates.
- To create a sense of peace, quiet, and tranquility.
- To emphasize natural materials such as rocks, plants, earth forms, water, and log rounds.
- To display the idea of harmony between man and nature by integrating rectangular-cut stone with natural river-worn stone.
- To symbolize passing time and timelessness, using white gravel to represent flowing water and evergreens to represent constancy.

Structuring Themes

Primary Themes

The organic edge (boulders, stepping-stones, "stream")

The meander (log round wall, grass edges)

The 90°/ rectangular grid (bridge stones)

Secondary Themes

The hexagon (lanterns)

The circle (tsukubai water basin)

Principles of Design

Dominance Trickling water of the tsukubai as a powerful visual focus and for soothing background sound. Large boulders as seat rocks. Entries punctuated with small lanterns.

Scale Intimate scale, one or two people for contemplation or conversation.

Contrasts White gravel symbolizing water next to dark gray rocks; rectangular stone slabs bridging soft rounded stone borders; fine texture of small pebbles next to larger rocks.

Interest Texture and form variations in plant materials; seasonal changes, brief episodes of spring and fall color.

Unity "Stream" and walkway as two interweaving and unifying lineal elements. Repetition of smooth, river-worn stone throughout.

Spatial Characteristics Narrow entryways transitioning to a wider paved stopping point. Level changes with steps and terracing.

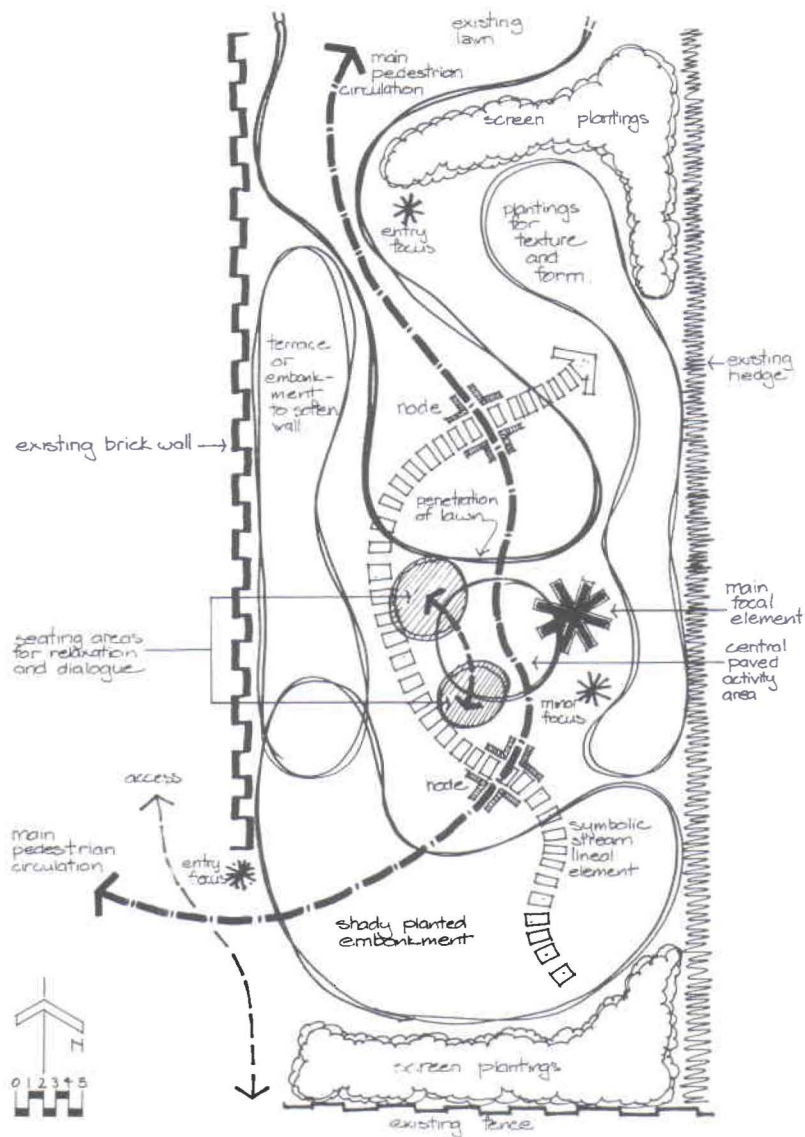


Figure 6-32 Tsukubai Dialogue, concept plan

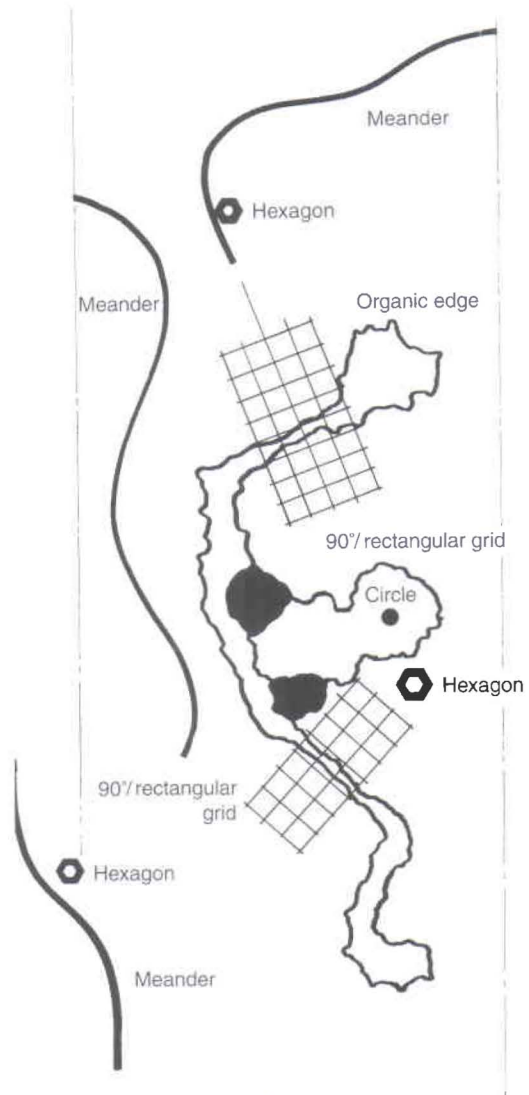


Figure 6-33 Tsukubai Dialogue, theme composition diagram

Tsukubai Dialogue

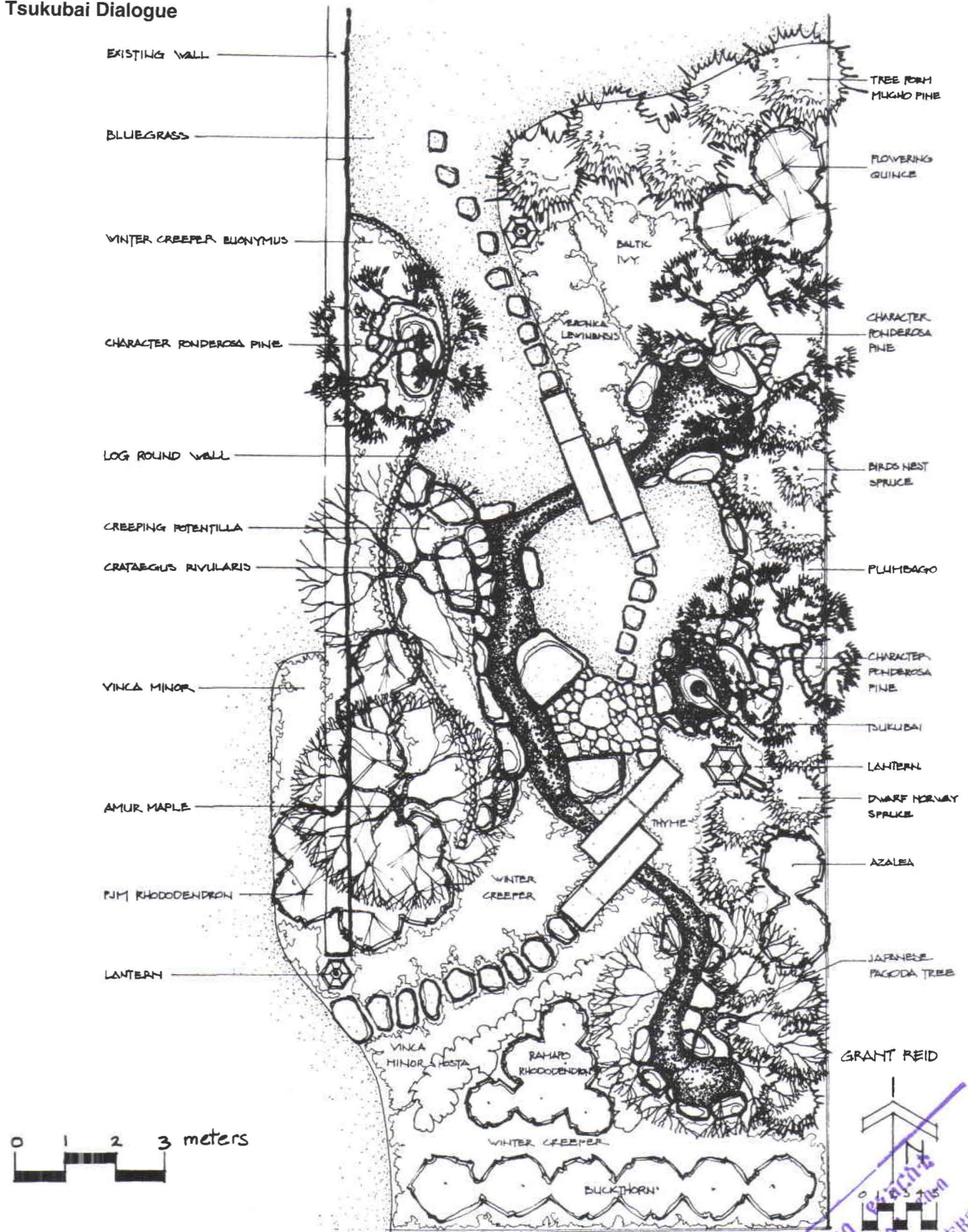


Figure 6-34 Tsukubai Dialogue, final plan



Figure 6-35 Tsukubai Dialogue, during landscape construction



Figure 6-36 Tsukubai Dialogue, view toward the south



Figure 6-37 Tsukubai Dialogue, center of the site with tsukubai (foreground) and conversation rocks



Figure 6-38 Tsukubai Dialogue, view toward the north with white symbolic stream

Project 6. Canopied Retreat

Design Interpretation

Main Objectives

- To provide easy transition from street to front entrance.
- To provide a secluded shady retreat garden.
- To integrate edible plantings.

Structuring Themes

The 120° hexagonal grid (deck and backyard)

The 90° rectangular grid (sunken patio)

The meander (front beds and driveway)

The free spiral (front walk)

Principles of Design

Dominance The shade structure provides dominant focus within backyard. A small fountain becomes a secondary focus in the retreat garden.

Scale Emphasis on family scale. Two intimate spaces designed for two to four people.

Rhythm Repeated use of angular pavers provides a rhythmic link between the deck and the retreat garden.

Interest Angular changes of direction in edging bring a dynamic feel to back spaces. Plants add diversity of form and color.

Unity and Harmony Backyard is unified within the repetitive angles of the triangular grid. Meandering flowing lines link all front yard spaces and elements. Connections of landscape elements to building at strong right angles. Planted beds soften the transition between curved and square forms in the front.

Spatial Characteristics Entry walk flows up the sloping front yard in an “S” configuration with two flights of steps. The sidewalk expands at each end to convey a sense of beginning and arrival. Planted screens and fences in the back shape the larger outdoor room. A high degree of enclosure occurs in the retreat garden with the addition of hedge plants and an overhead shade structure. The roof panels spiral down to force an even higher degree of enclosure at one edge of the small space.

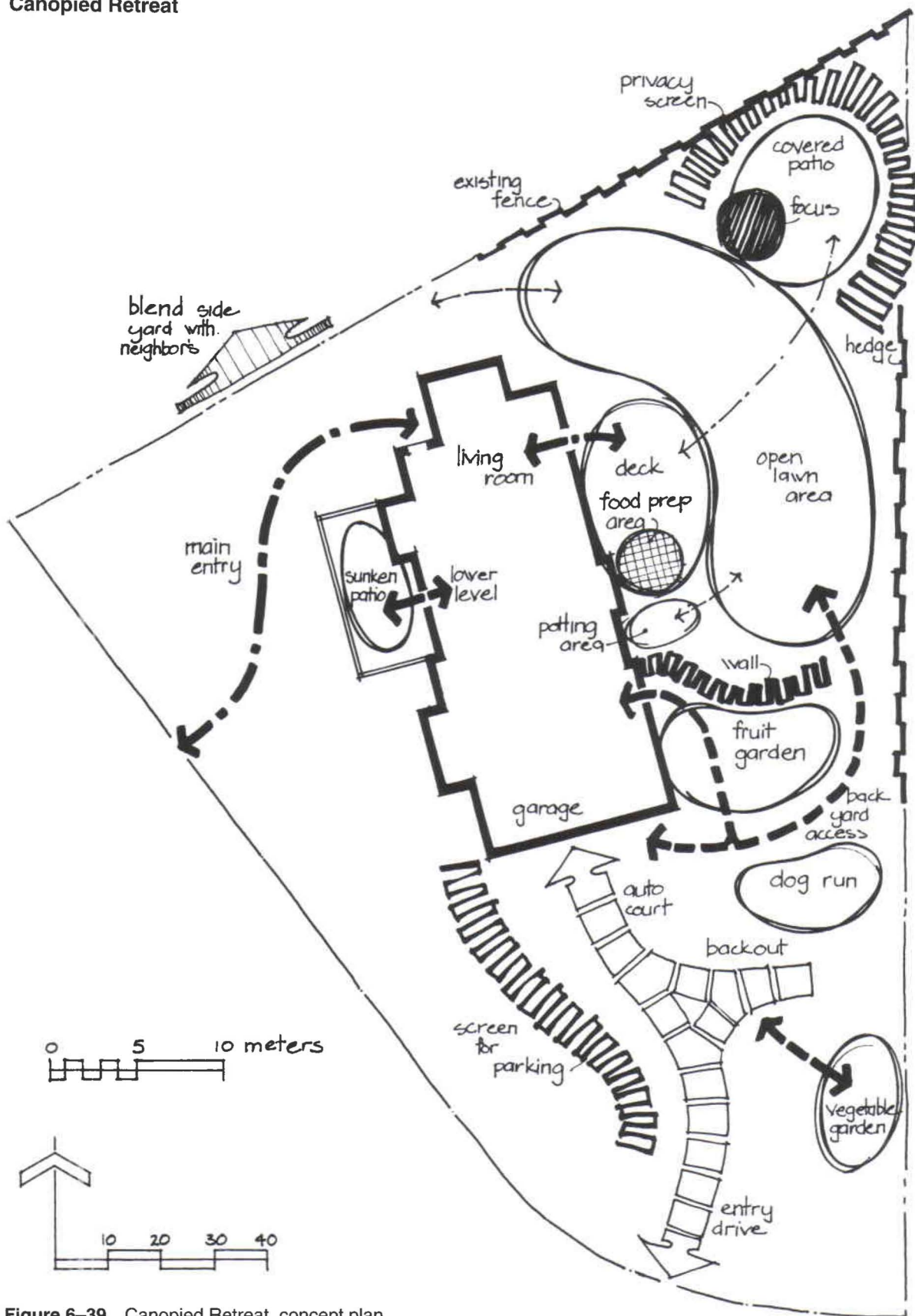


Figure 6-39 Canopied Retreat, concept plan

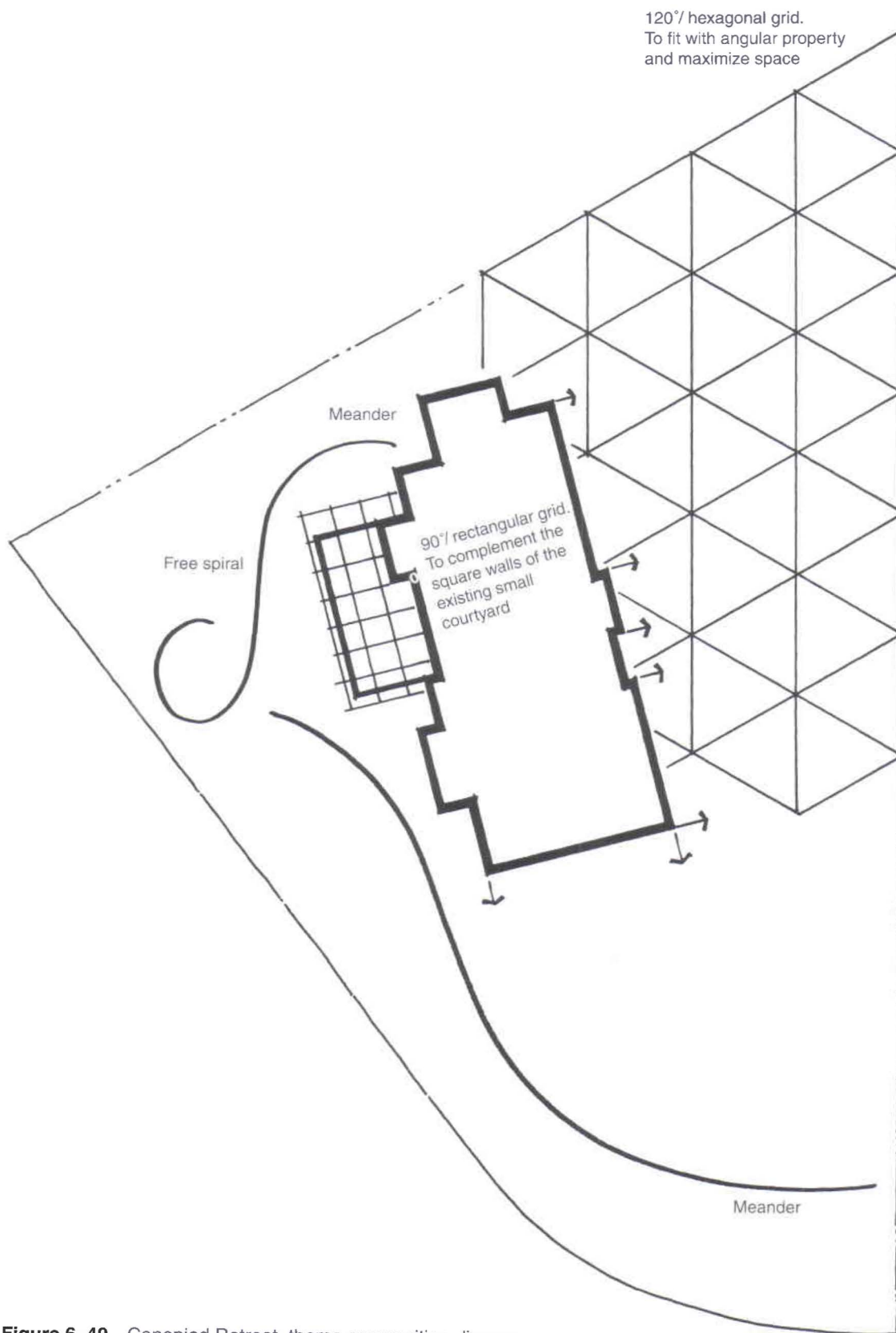


Figure 6–40 Canopied Retreat, theme composition diagram

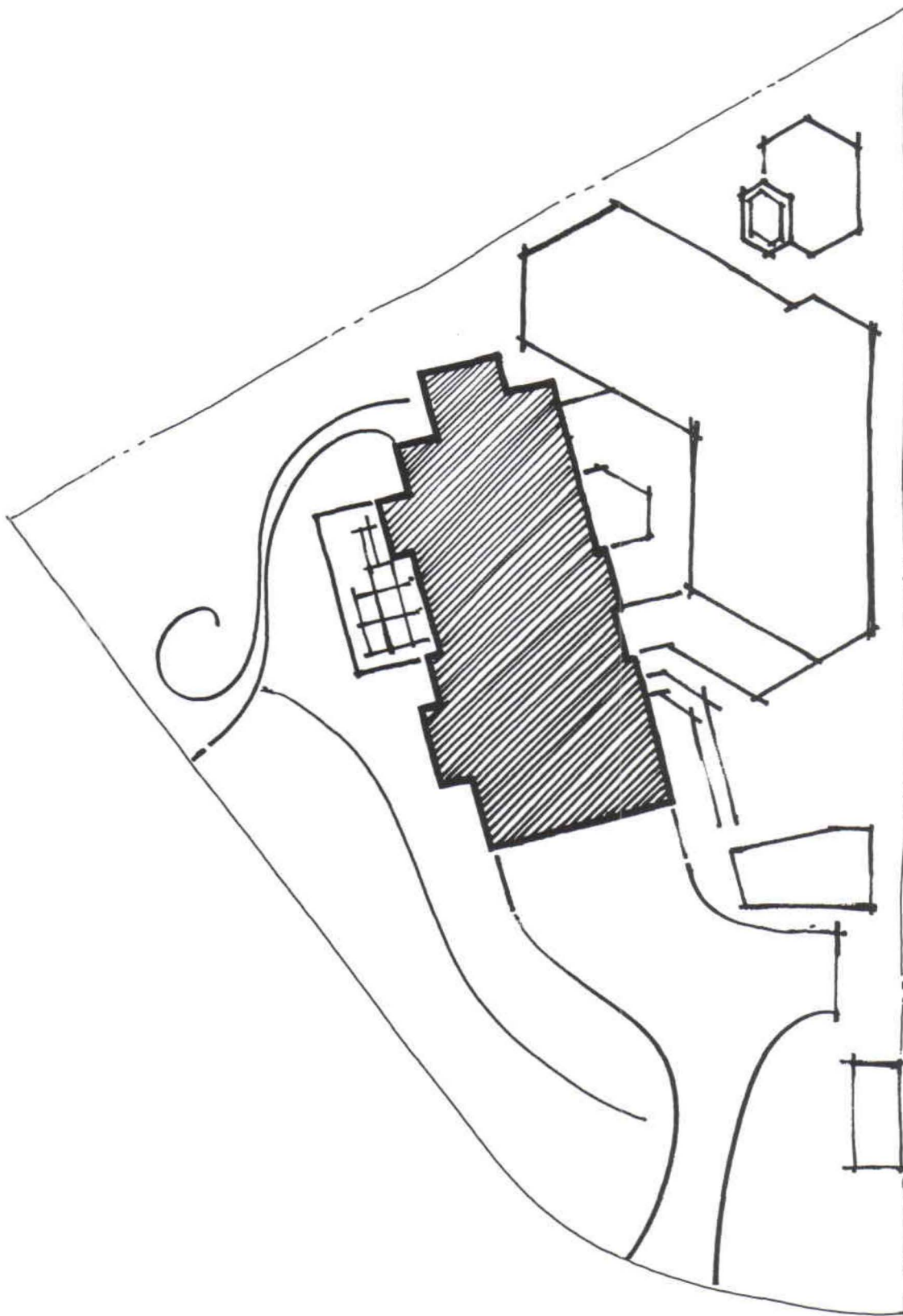


Figure 6-41 Canopied Retreat, form evolution diagram

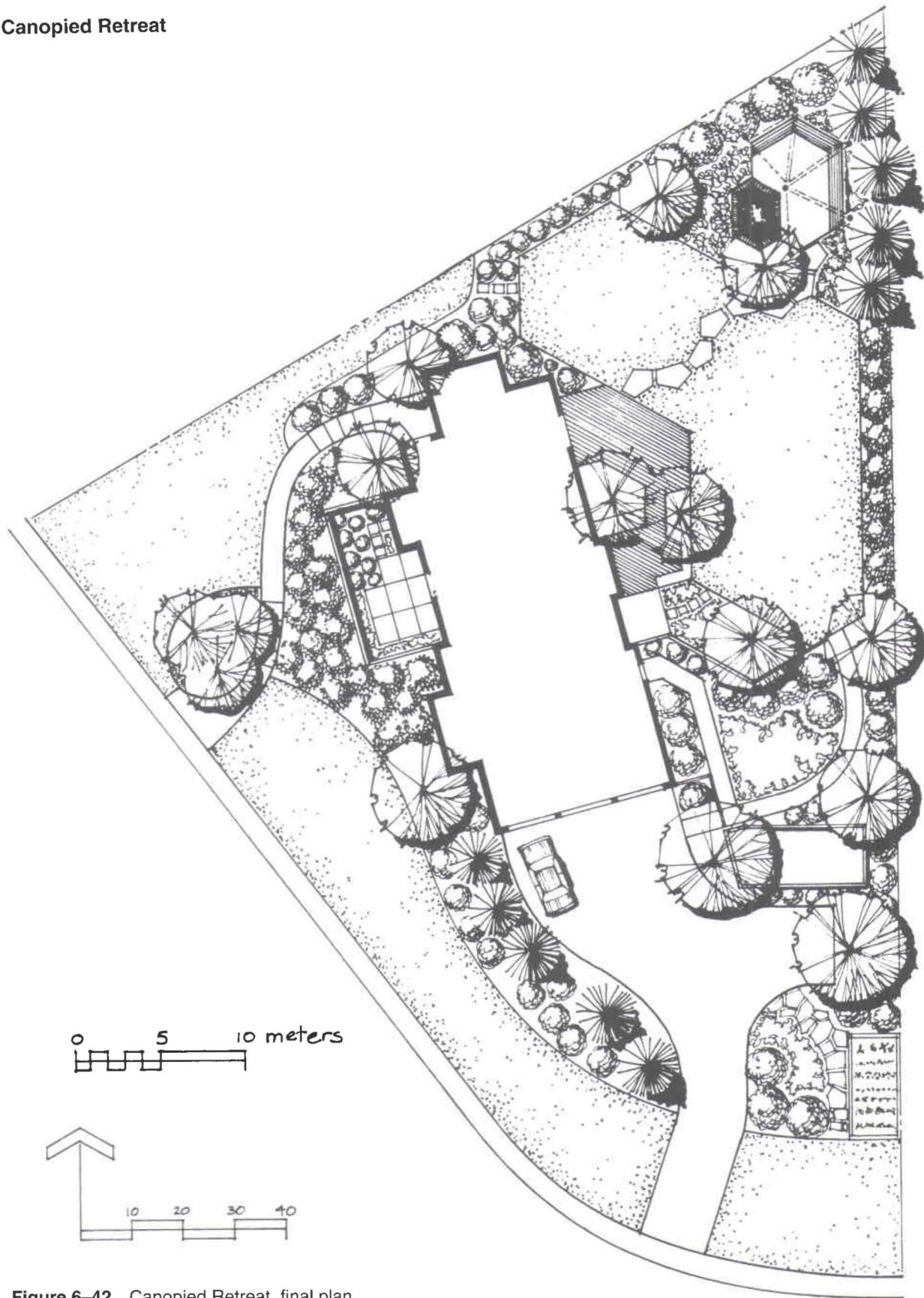


Figure 6-42 Canopied Retreat, final plan

Canopied Retreat



Figure 6-43 Canopied Retreat, front entry walk



Figure 6-44 Canopied Retreat, angular rear deck

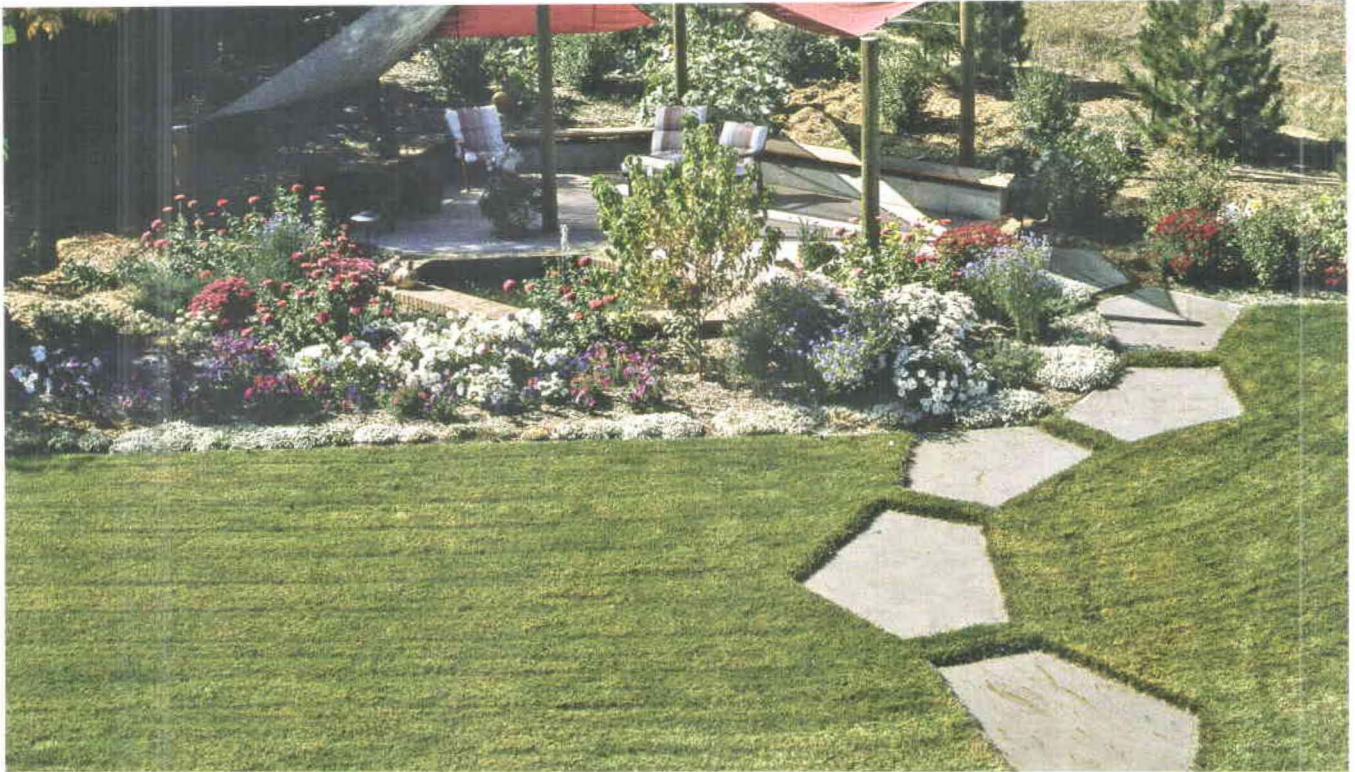


Figure 6–45 Canopied Retreat, overview of backyard (north corner)



Figure 6–46 Canopied Retreat, retreat patio with fountain

Project 7. Platform Connections

Design Interpretation

Main Objectives

- To create outdoor living spaces for relaxation and entertainment.
- To embrace the significant drop (6 feet or 2 meters) from the exterior doors to the ground by exploring opportunities for an interesting vertical experience.
- To capitalize on the additional land surface generated by the newly constructed lake edge.
- To make the added landscape structures feel like an extension of the building.
- To maximize the views out over the lake.
- To connect the on-shore activities with the on-water activities.

Structuring Themes

The 135° octagonal theme (next to the building extending the architectural lines)

The circle segment theme (main deck at lower level)

The circle-on-circle theme (ground-level patio)

The 135° octagonal theme repeated (boat and swimming dock)

Principles of Design

Spatial Sequencing and Connections The upper decks are small, intimate spaces. On the left side the hot-tub deck has a high degree of privacy and enclosure. On the right the grilling deck has views out.

Graceful stairs from both converge down onto a landing, and from there down to the large, open central entertaining deck. Two more steps down to ground level is a companion outdoor room in the form of a patio partly secluded by plantings. Overall, the building expands in cascading landscape forms to meet the grassy verge of the ground plane. This flat plane of the lawn is a prelude to the expansive lake surface. Beckoning visitors to explore the lake is the small octagonal boat dock. This design is all about connections with the site—connections between building and site as well as connections between the indoor-outdoor activities and the site.

Emphasis The largest visual draw is the lake itself with its changing light quality. Smaller internal foci are in the form of a gentle architectural fountain behind the patio and a fire pit near the center. The half-circle deck is the dominant central structure around which other spaces connect.

Scale The smaller spaces are designed for two to four people while the others are expected to adjust to up to twenty. Once out on the lake, the experience becomes more “grand” in scale.

Interest In addition to the hierarchy of spatial scale, the variety within the differing constructed shapes also brings interest to the landscape. Sensual diversity comes from the sounds and feel of the fountain.

Unity Repetition of materials and colors from building façade to landscape structures unifies the composition.

Harmony There are strong connections as well as smooth flows of circulation between the different shapes. The half circle facilitates a harmonious transition from straight lines to curved lines. The similar planes of the lawn and lake surface coexist in a peaceful relationship.

Platform Connections

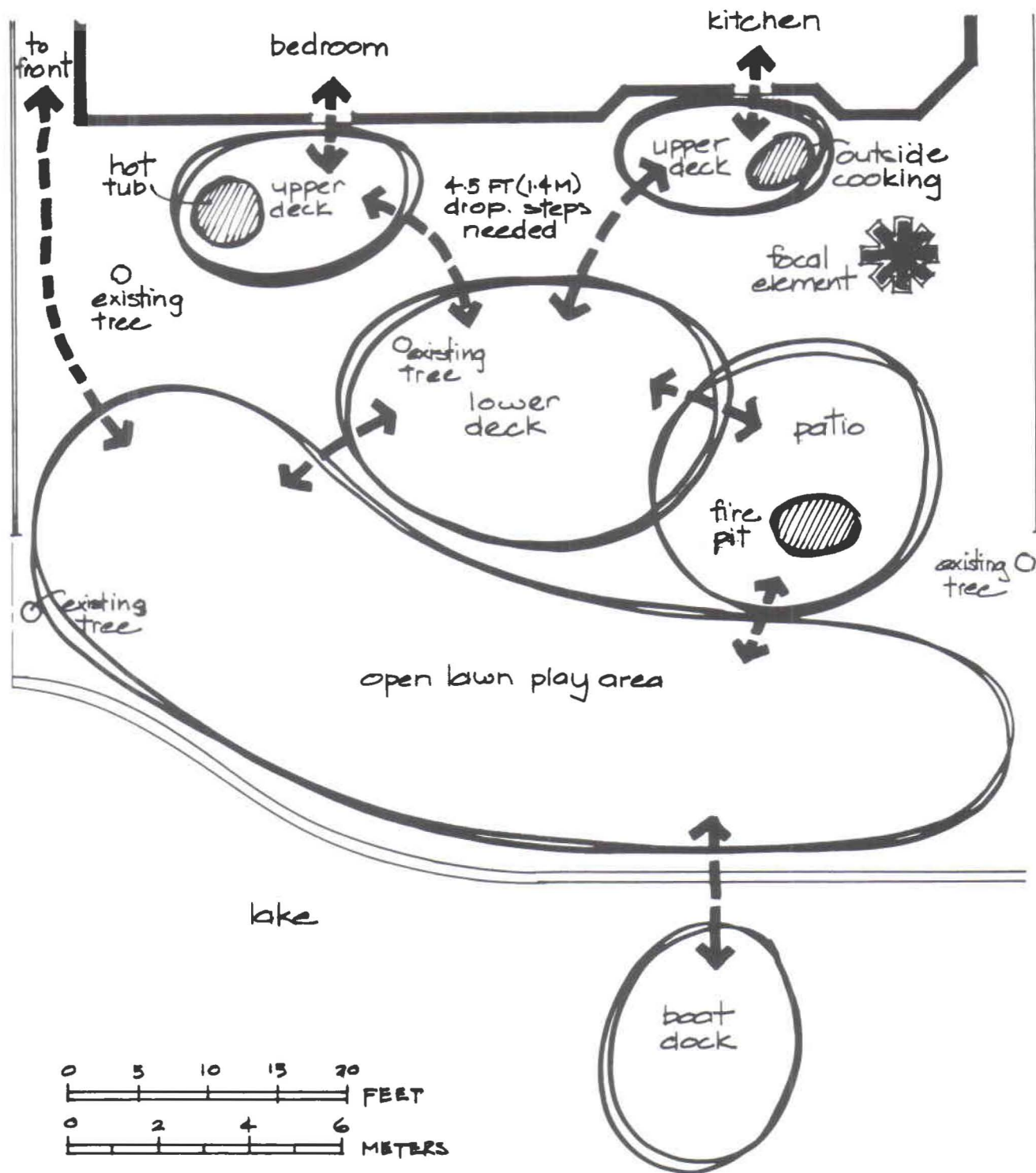


Figure 6-47 Platform Connections, concept plan

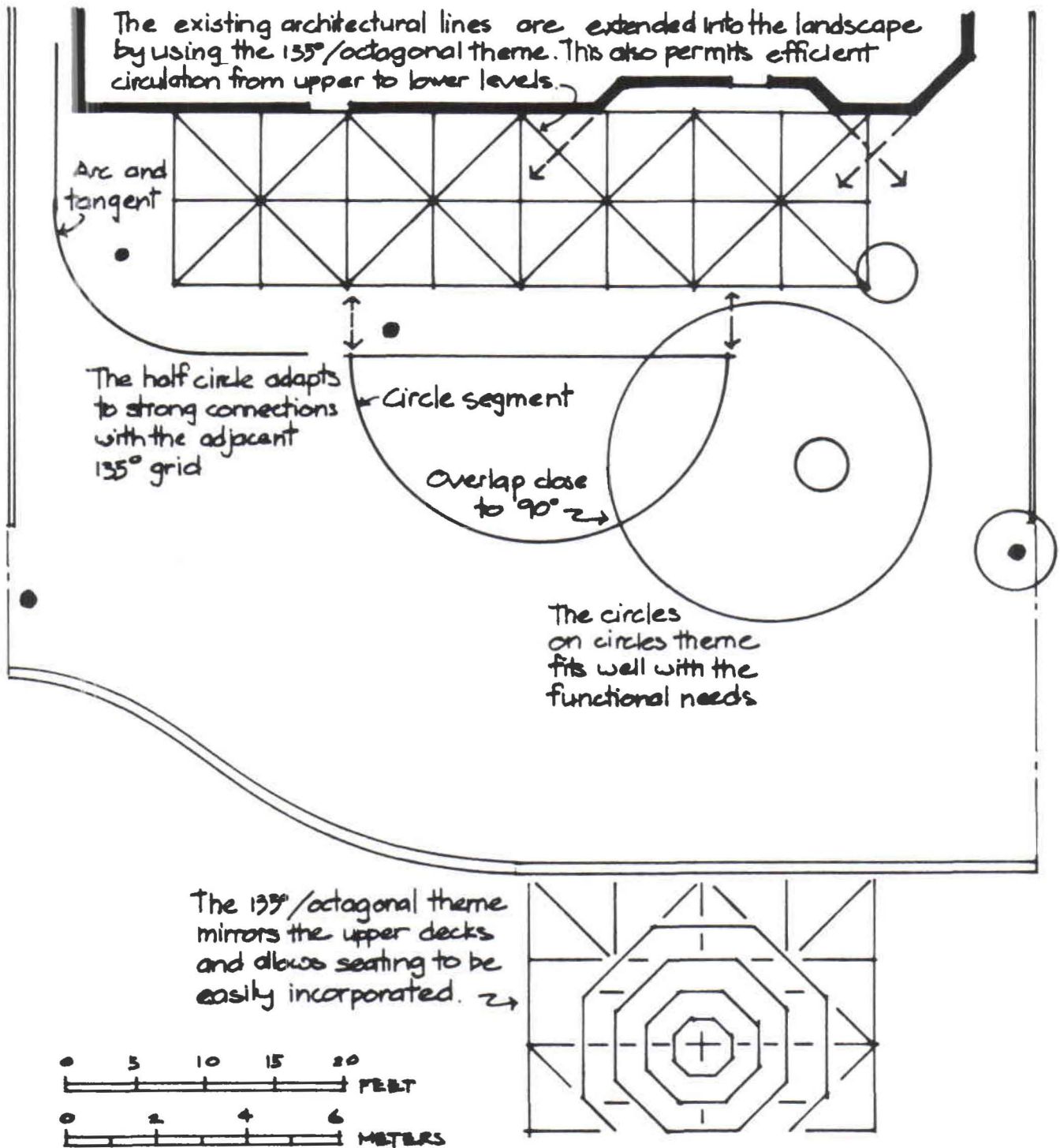


Figure 6-48 Platform Connections, theme composition diagram

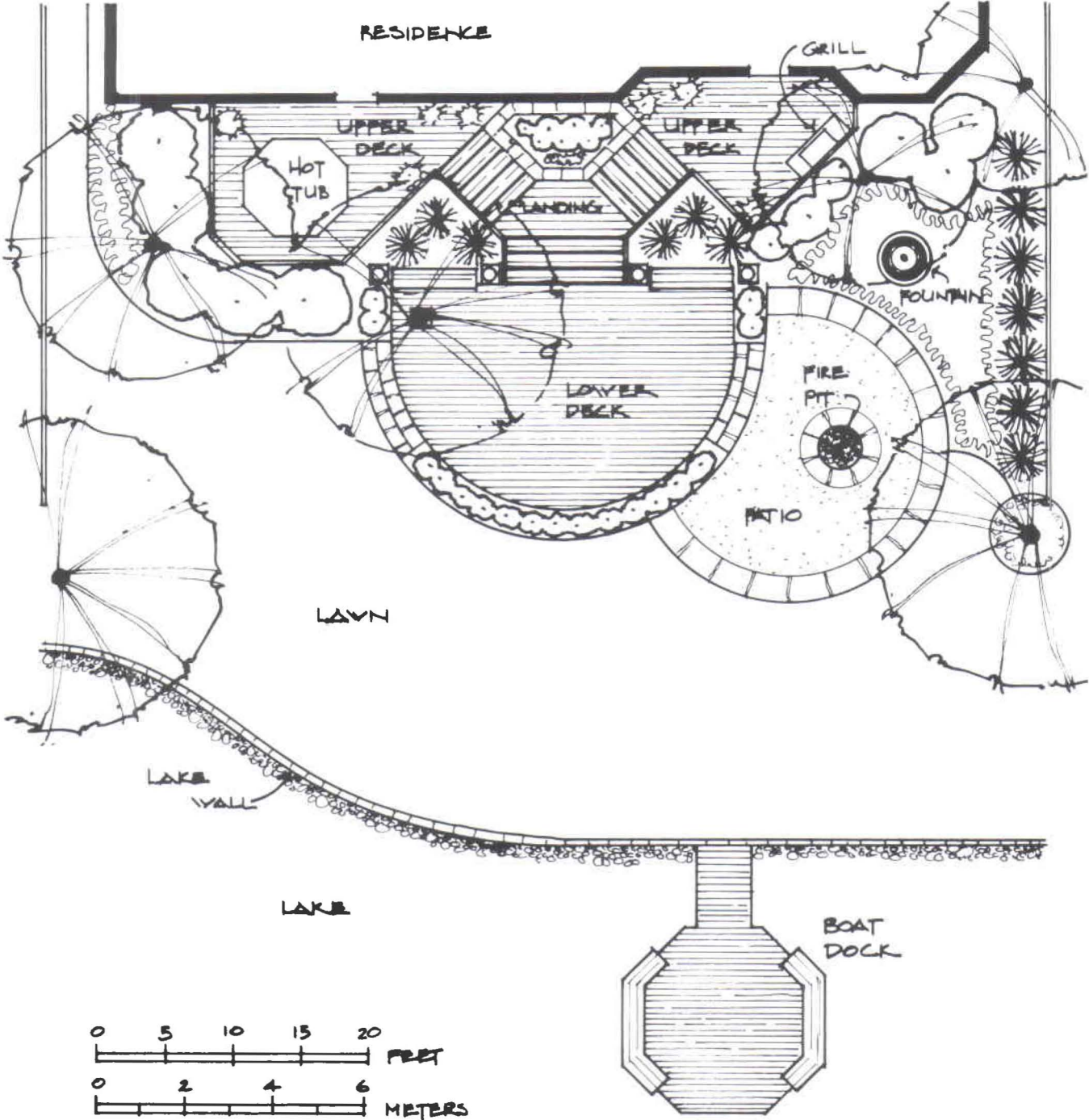


Figure 6–49 Platform Connections, final plan

Platform Connections



Figure 6-50 Platform Connections, view toward hot tub deck



Figure 6-51 Platform Connections, view toward fire pit



Figure 6-52 Platform Connections, overview of main entertaining deck

Platform Connections



Figure 6-53 Platform Connections, shaded lower patio



Figure 6-54 Platform Connections, the boat dock



Figure 6-55 Platform Connections, view from the boat dock

Appendix

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90°/ Rectangular Pattern

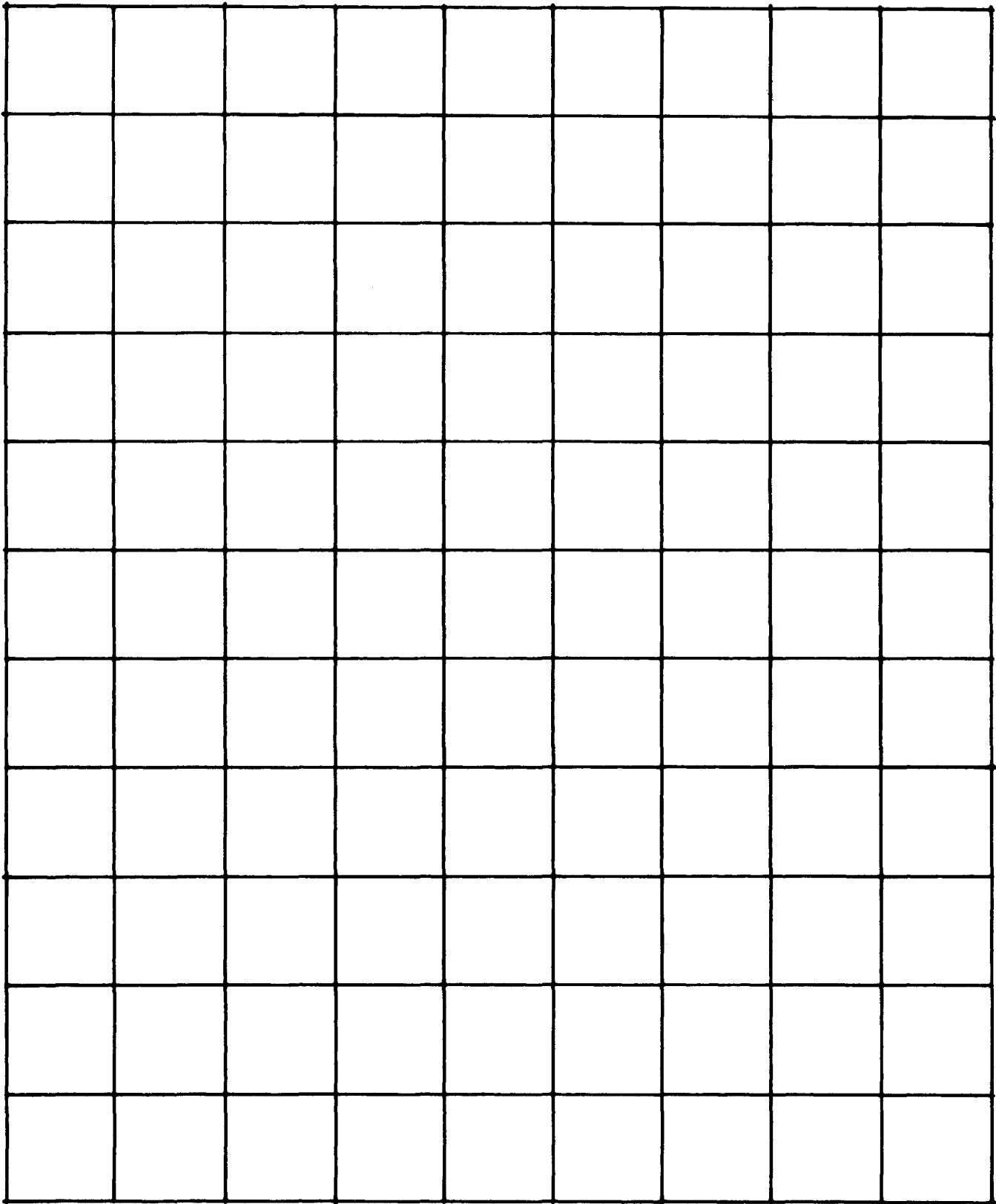


Figure A-1

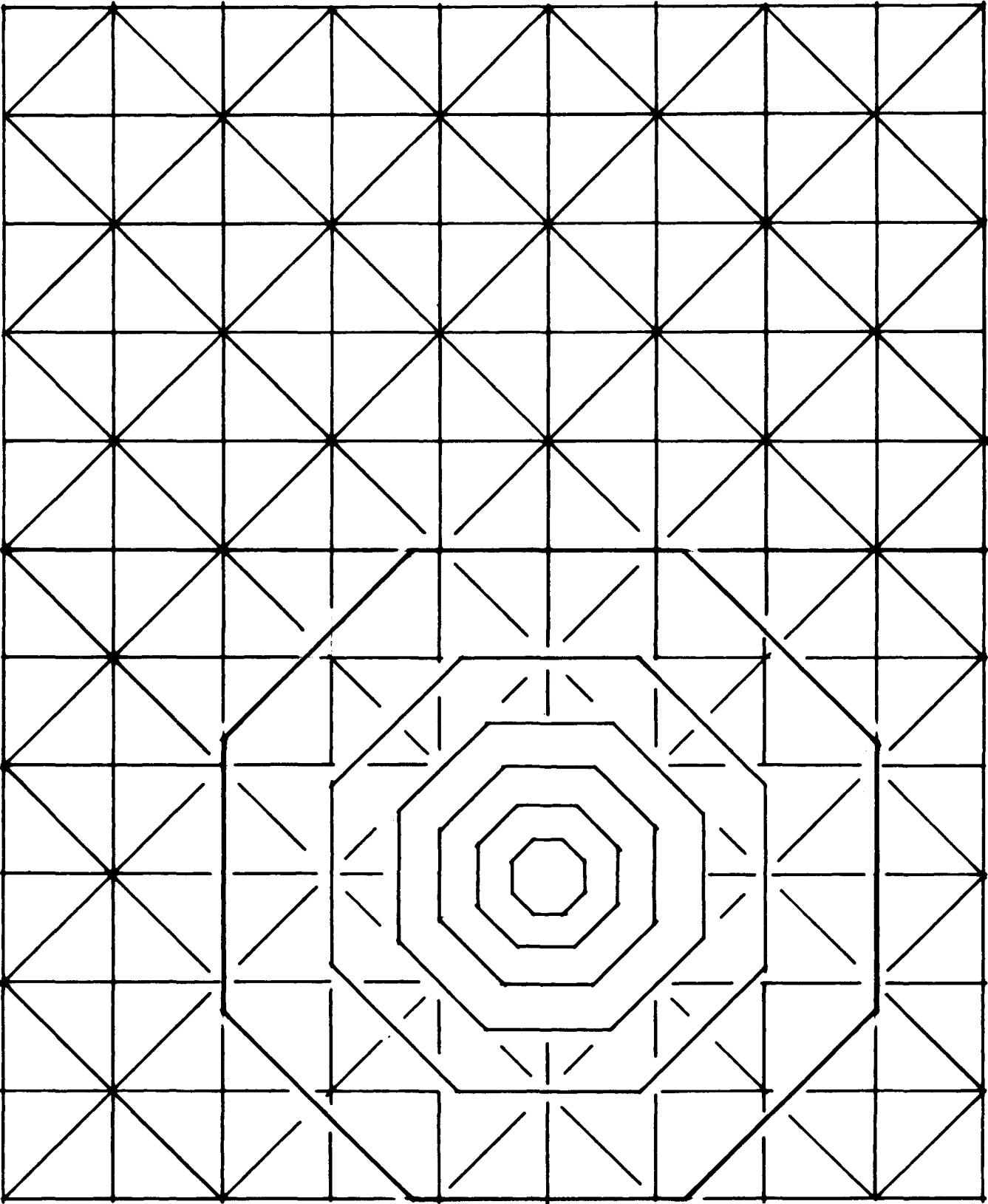


Figure A-2

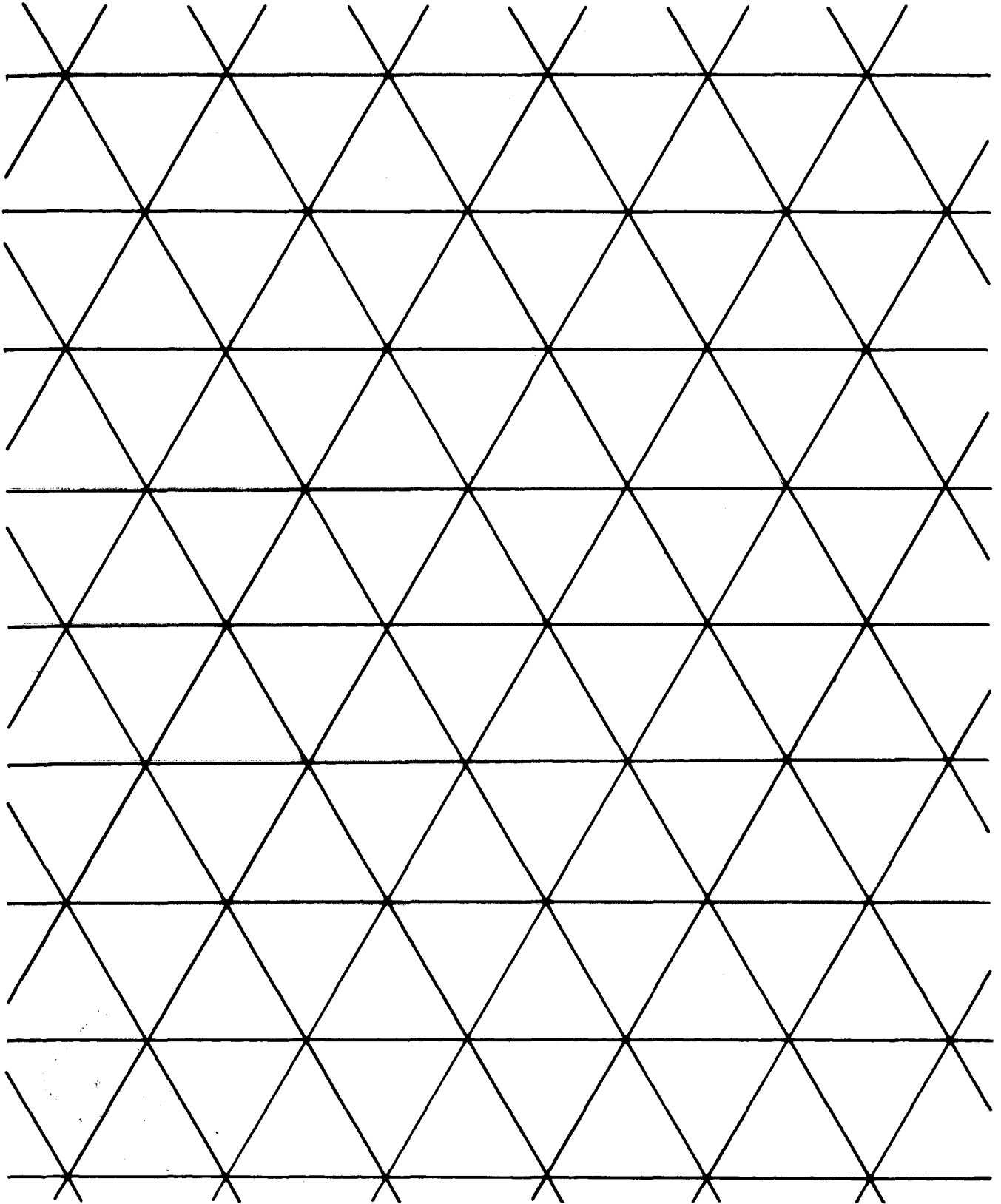


Figure A-3

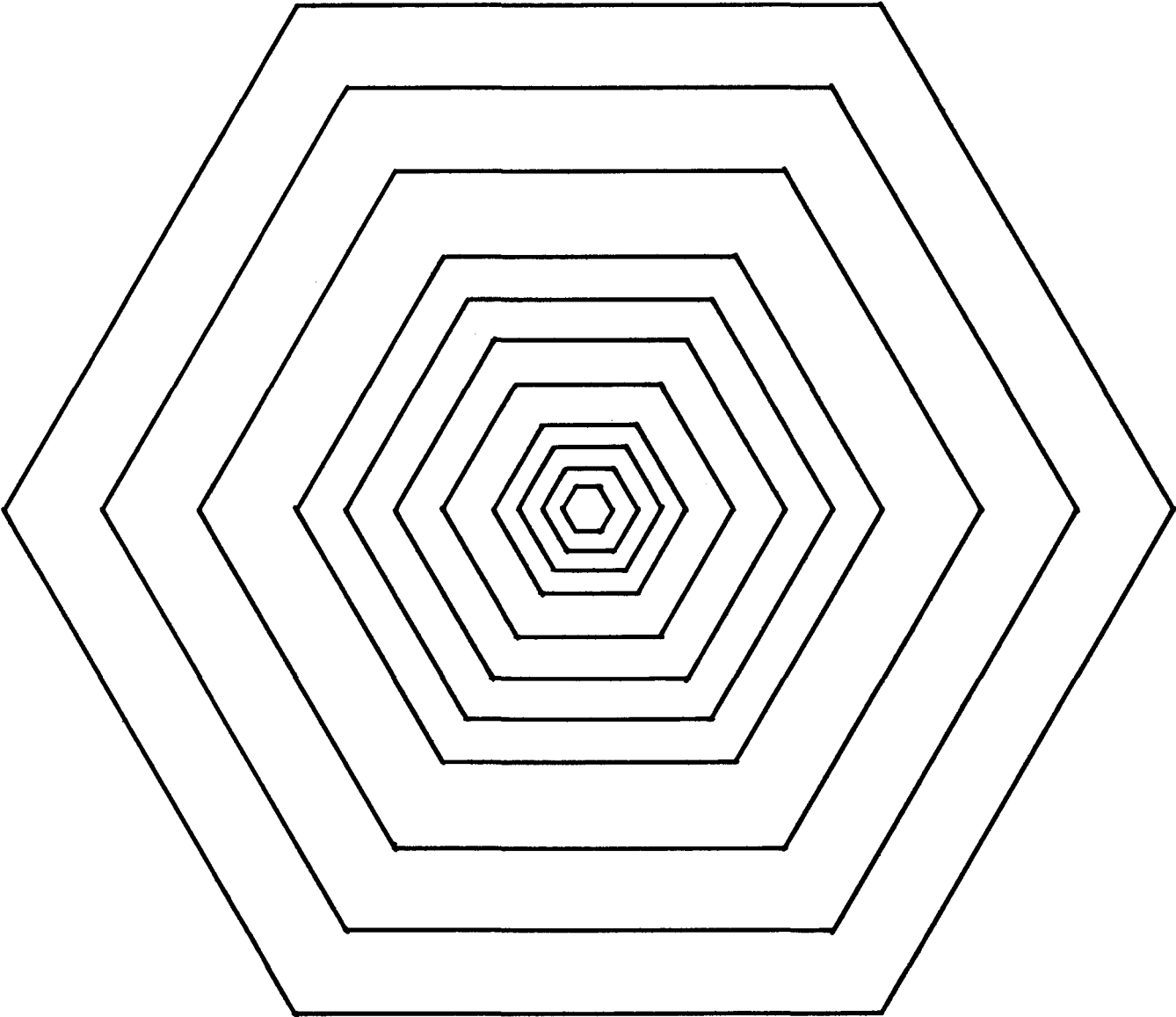


Figure A-4



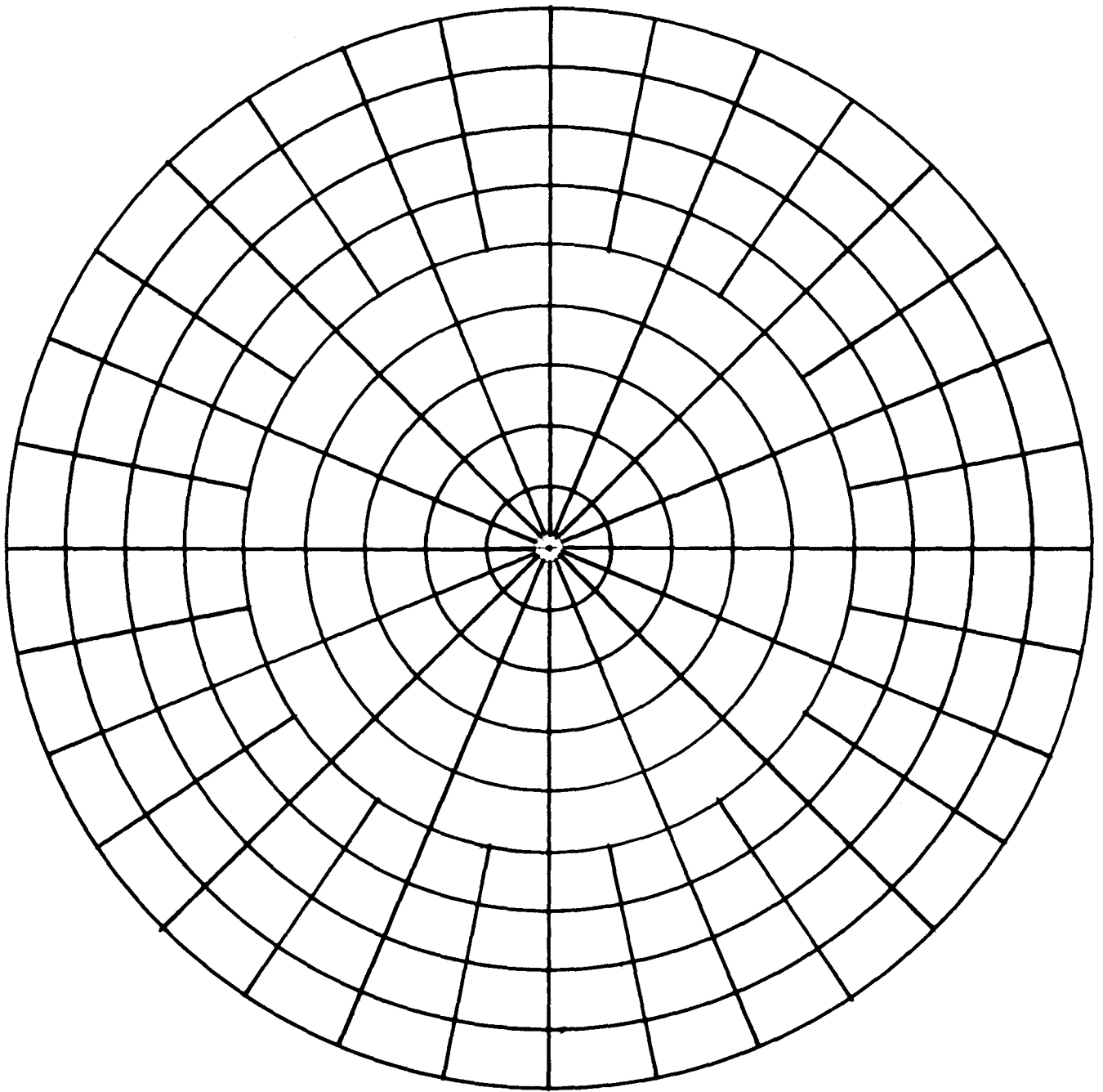


Figure A-5

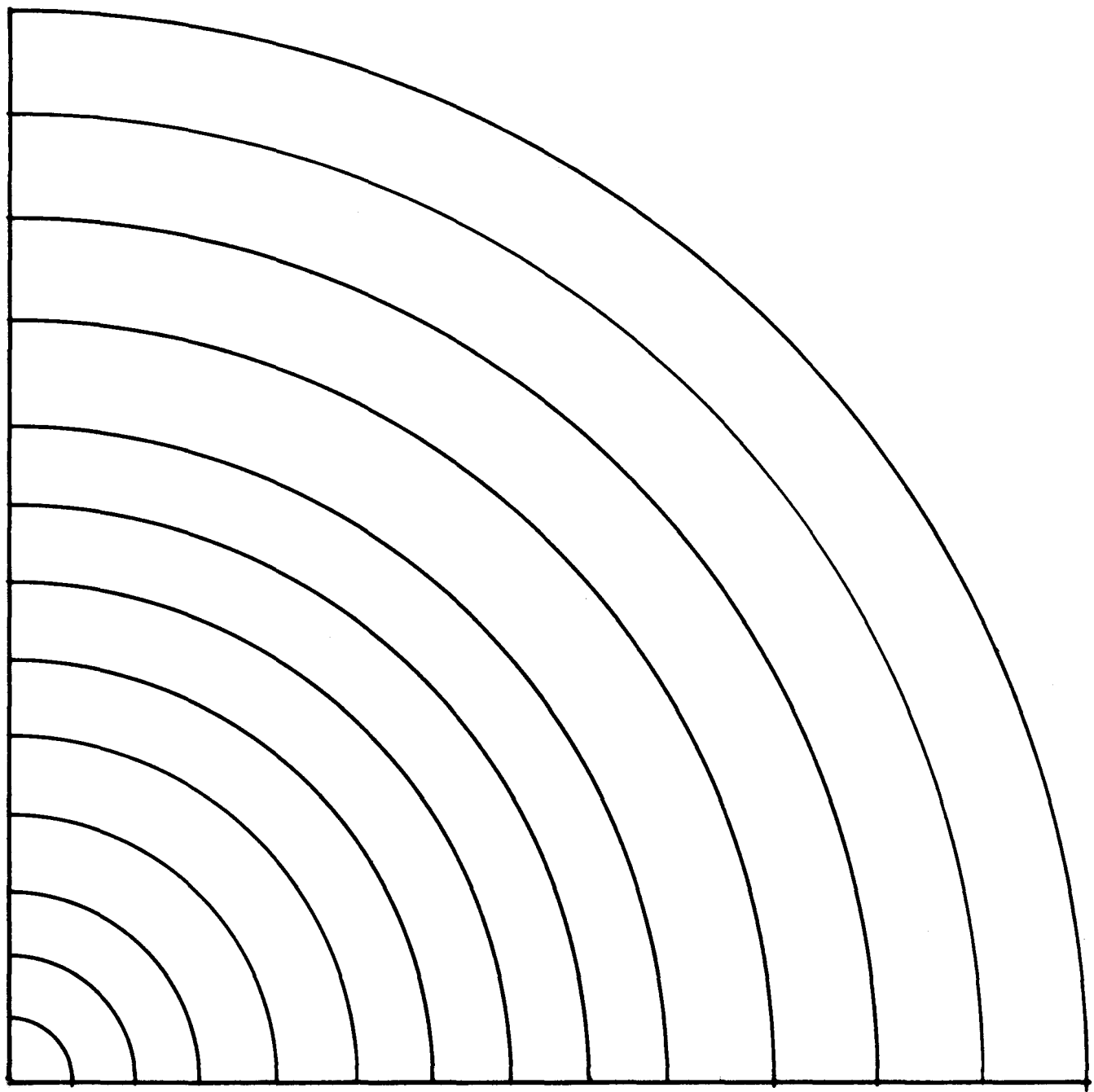


Figure A-6

Ellipses

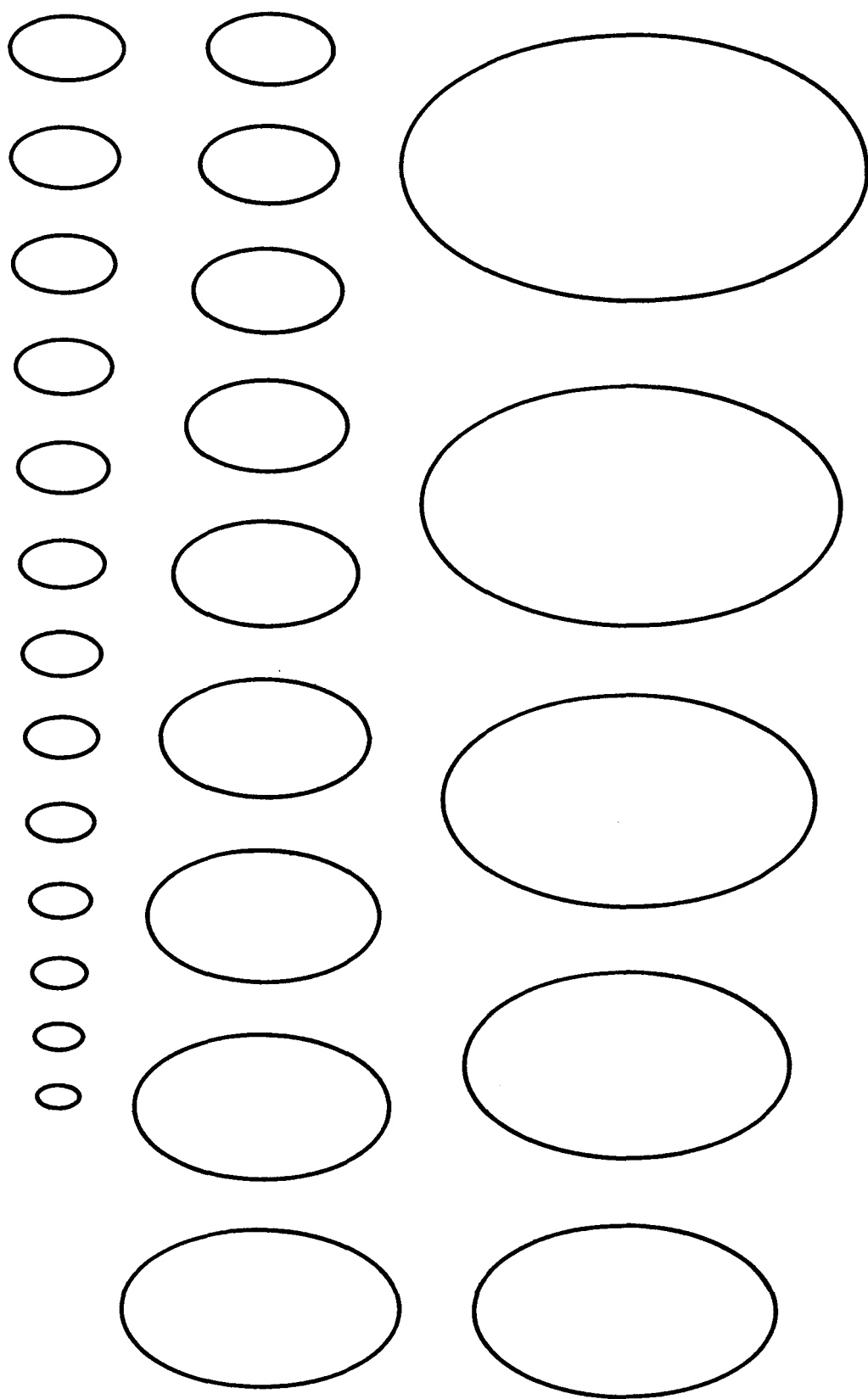


Figure A-7

Geometric Construction Methods

Hexagon (Known Side Length)

Scribe circle with a radius equal to the desired side length. Take the same radius setting on the compass and move the compass point to the circle. Now mark equal lengths around the circle to end up where you started (Figure A-8).

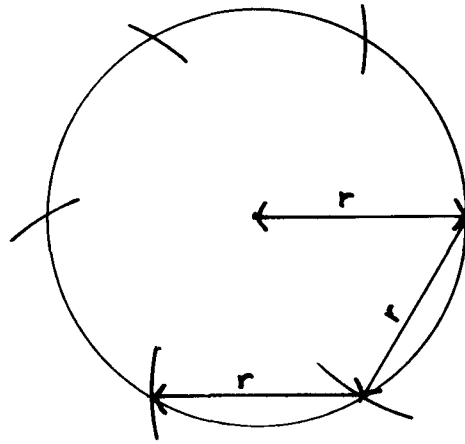


Figure A-8

Join the marks to form a hexagon (Figure A-9).

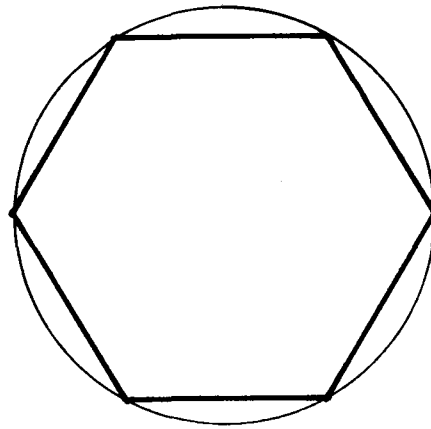
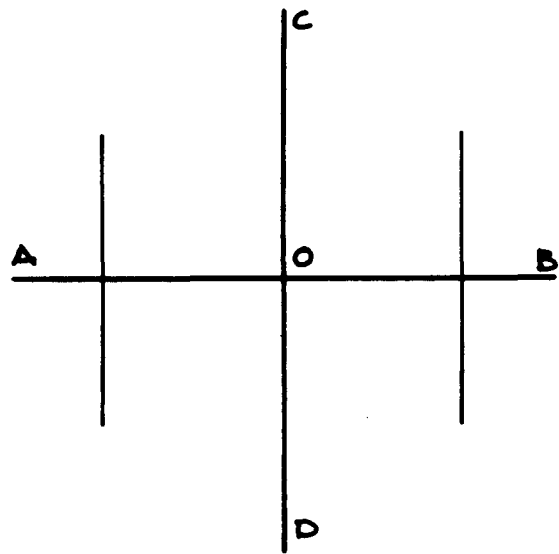


Figure A-9

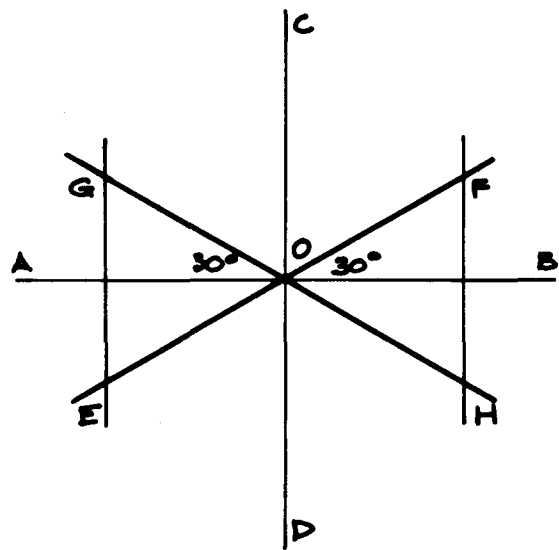
Hexagon (Known Width)

Draw intersecting vertical and horizontal lines AB, CD.

Choose the size of hexagon desired (shortest dimension). Draw two verticals intersecting AB equidistant from O. Their distance from O should be half the desired hexagon size (Figure A-10).



Using a 30°/60° triangle, draw two diagonal lines through O at a 30° angle. These intersect the verticals at E, F, G, H. If the wide part of the hexagon is the determining factor, draw the diagonals first, then the two verticals GE, FH.



Slide the triangle above and below O to draw 30° angles from the points of intersection EF and GH to form the outside of the hexagon.

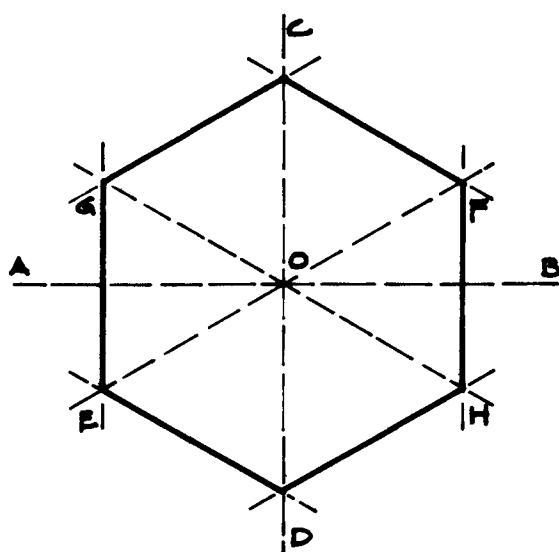
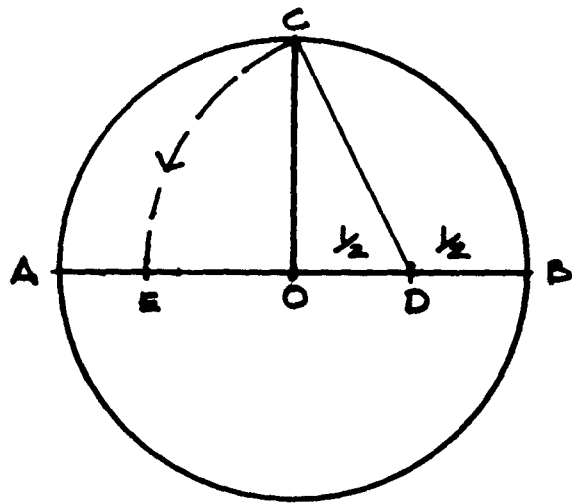


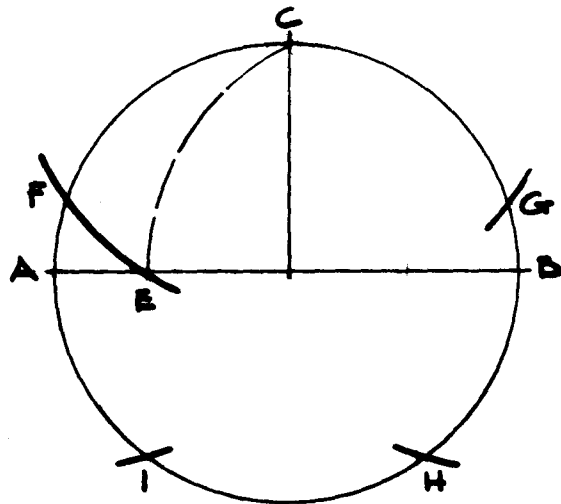
Figure A-10

Pentagon

Make a circle with diameter AB. Draw an upright OC from the center. Divide OB in half to get D. Draw an arc with radius CD to mark point E on AO (Figure A-11).



Draw another arc with its center at C and a radius CE to work the points F and G on the circumference. Keeping the same compass setting and using F and G as center points, mark I and H, respectively.



Join the points C, G, H, I, F to form the pentagon (Critchlow, 1970).

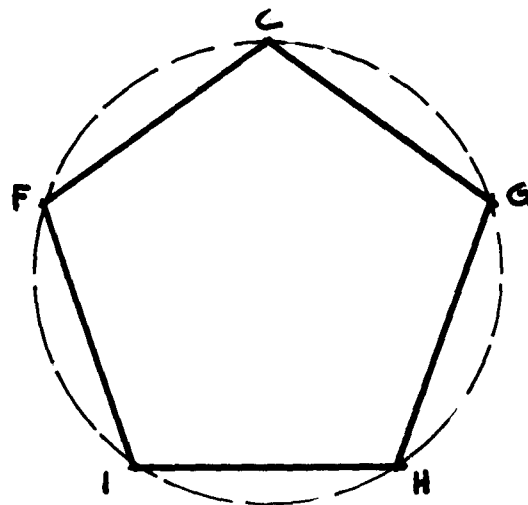
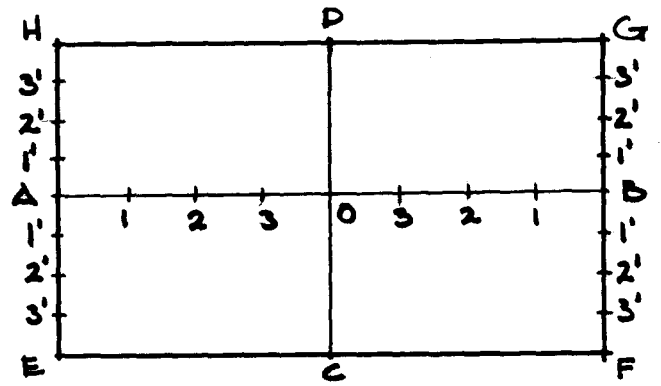


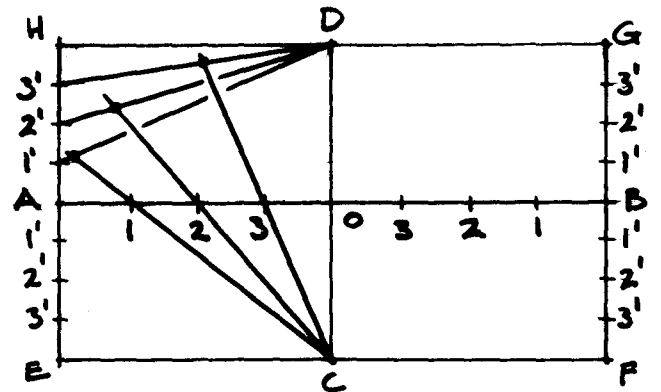
Figure A-11

Ellipse—Rectangle Method

Draw the major and minor axes AB and CD to whatever size and proportion desired to fit the space. Construct a rectangle around their ends. Divide AB into eight equal parts. Divide EH and FG also into eight equal parts (Figure A-12).



From D draw lines to 1', 2', and 3'. From C draw lines through 1, 2, and 3 and extend to intersect the previous set. Place a dot where the lines through 3 and 3' intersect, similarly with 2 and 2', 1 and 1'.



Repeat for the other three quadrants, then join the dots with a smooth curve to form the ellipse (Pearson, 1968).

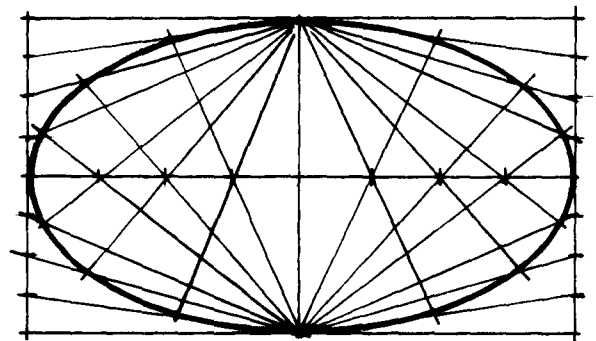
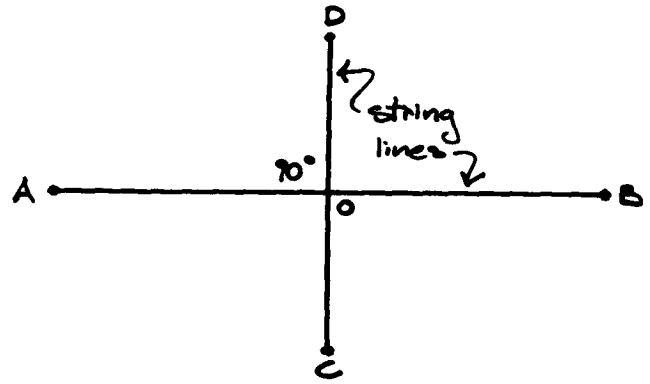


Figure A-12

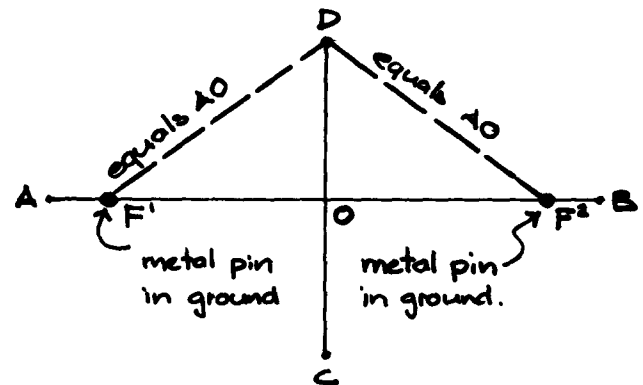
Ellipse—In-Field Method

For a landscape crew in the field, this method is useful for layout of an elliptical form.

Set up string lines at 90° for the major axis AB and the minor axis DC. These will be the widest and narrowest parts of the ellipse, respectively (Figure A-13).



Measure AO and take the tape measure to D. Using the same distance, mark points F^1 and F^2 located on AB. Drive metal pins or rebar into the ground so that they do not move easily.



Take a piece of smooth synthetic string and on the string make two marks that are exactly the same distance apart as AB. Tie the string to the pins so that the marks are at F^1 and F^2 . Take a short piece of plastic pipe and, pulling the string tight, scribe an oval letting the string slide around the pins (Pearson, 1968).

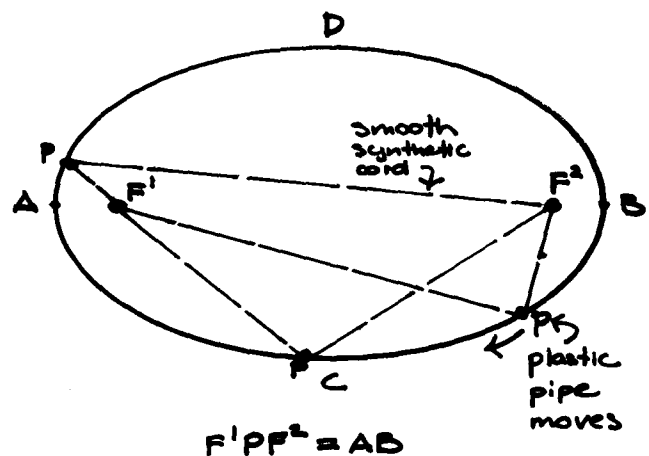


Figure A-13

Golden Mean Rectangle

Draw a square and divide it in two down the middle, from midpoint to midpoint of two parallel sides. Add a diagonal line to the half square, and using that as a radius, scribe an arc to intersect the extended base of the square. This now forms the long side of the new rectangle (Figure A-14). Its proportions are such that if a square is constructed on the short side, the remaining smaller shape is another golden mean rectangle. This process of diminution can continue as long as it is possible to draw (Critchlow, 1970).

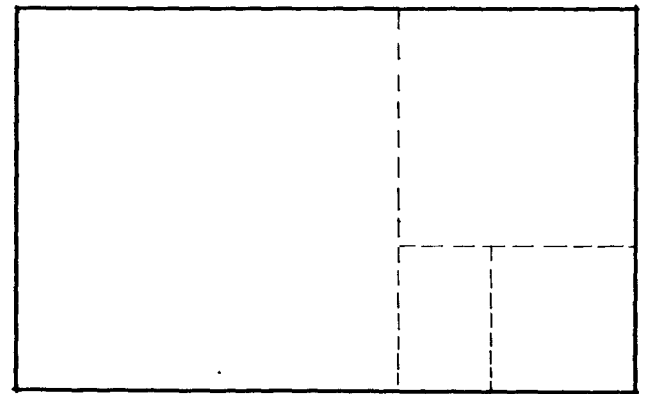
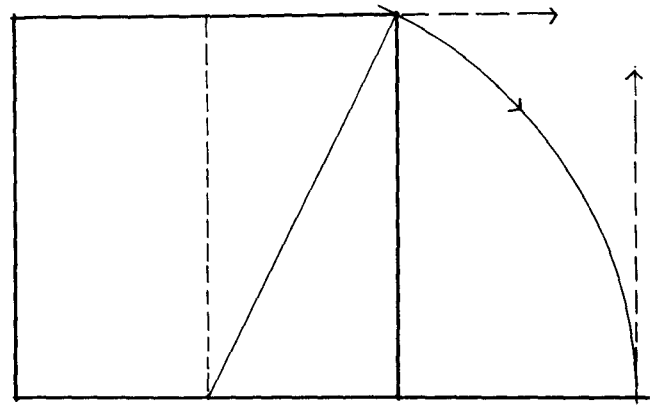


Figure A-14

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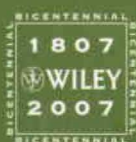
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