chapter 16

Landscape Design

In a nutshell...

- Planting one of everything isn't a design—it's a collection.
- The principles of landscape design apply to all landscapes, whether yards and gardens or public spaces.
- Think about whether you want instant landscape (which is higher maintenance) or a long-term design.
- You can express your personal taste with your own landscape. When designing a landscape as part of a master gardener volunteer project, though, you should try to create a design that will appeal to everyone's taste and be easily maintained. This is especially important when creating a landscape for a public space or nonprofit entity.
- Check the resources at **hort.extension.wisc.edu** for issues not covered in this chapter.

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Introduction

The property surrounding a home or public space can be beautiful as well as functional through the careful creation of a landscape design. The resulting plan guides the development of the landscape so it can serve as an extension of the home or a useable public space. The design organizes the space into different areas—each with its own use and character. These areas are the "rooms" of the landscape, with planting beds and fences for the walls; floors of paving, decking, lawn, and groundcovers; and a canopy of trees and overhead structures as the ceilings.

Landscape design is both a skill and an art that uses specific techniques and concepts for planning a garden or landscape that is aesthetically pleasing and functional within the constraints posed by the climate, land, and setting that you have to work with. An understanding of plants, soils, climate, and landscape materials are essential to creating a good landscape design. This chapter presents the main considerations of designing or redesigning landscapes.

Learning objectives

1. Understand how to plan a new landscape or redesign an existing one.
2. Know the key features of a property and potential uses to analyze for incorporation into a design.

Why do a plan?

Landscape design is the process of analyzing a property and its surroundings; identifying the user's needs and uses of the property; and defining a plan to utilize plants and other materials to create spaces that are useful, attractive, and complementary to the buildings and surroundings.

A completed landscape plan provides direction for all future landscaping activities. It becomes "the big picture" that each plant, each bed, and each paver fits into. Time spent carefully considering all of the possibilities for a landscape and determining its best arrangement prevents costly mistakes along the way, such as poorly placed plantings or non-functional walkways or retaining walls. Even if the entire plan cannot be implemented all at once, it can be installed in stages. Having a completed landscape plan allows you to determine your priorities so that progress is logical and purposeful.

The functions of landscaping

Landscaping utilizes a combination of plants and hard materials to make a property functional and beautiful. Some of the functions of landscaping are to:

- Allow for and direct movement around the property.
- Create spaces for specific purposes such as entertaining, relaxing, picnicking, lawn games, play structures and areas, vegetable gardening, storage, composting, etc.
- Screen views off of and onto a property.
- Frame views off of a property.
- Create focal points using plants or artwork.
- Enhance the beauty of buildings or other structures.
- Display attractive and interesting planting compositions.
- Conserve energy by shading, capturing solar energy, creating windbreaks, and directing cooling summer breezes.

Before you begin

Materials and supplies needed

Taking photos of the areas to be landscaped can be very helpful for visualizing plantings and use areas. Take the picture from where you're going to view the final landscape. Photos from the public view, as well as indoors looking out into the landscape, can be helpful when determining where to place focal points and plantings.

While you only need paper, pencil, and a ruler to prepare a landscape design, some other materials and tools can be very useful. Most are available from office supply or art stores:

- Metal straight-edge.
- Compass for drawing circles or arcs for bed lines.
- Graph paper for drafting a base map and final design.
- Architect's scale ruler.
- French curves.
- Circle template.
- Graph paper, usually 8 scale, available in 24 x 36 inch sheets.
- Plain vellum paper (somewhat transparent, to trace the design in final form).

Landscape design computer programs and applications are available and can be useful, but old-fashioned paper and pencil may be the best way to sketch out your potential design.

The design process

Once your tools are assembled, you are ready to walk through the process of designing a landscape.

1. Analyze the property.
2. Draw a base map.
3. Consider needs, uses, and goals.
4. Locate use areas.
5. Design beds, hardscapes, and structures.

Analyze the property

A site analysis involves carefully observing all of the features of a property, its buildings, and plants. It provides information about anything that might have an effect on the landscape design. These observations should be noted and kept in mind as they are critical for making decisions about the plan.

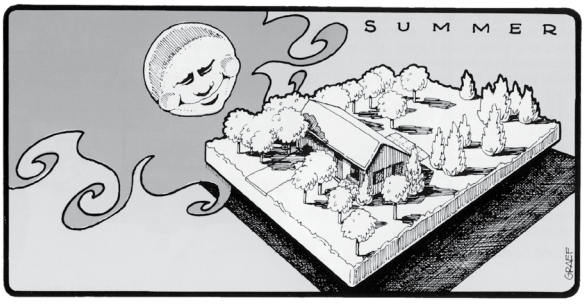
Some items to observe and note in the site analysis include:

- Utility lines, both overhead and underground. Call Digger's Hotline (811 or 1-800-242-8511) and arrange to have all utility lines marked. You may have to contact a private utility marker to indicate additional lines.
- Septic drainfield.
- Well head and water spigots.
- Slopes, both direction and severity.
- Water drainage: pathways water takes as it moves; eroded areas; low spots where water stands; high spots that dry out quickly.

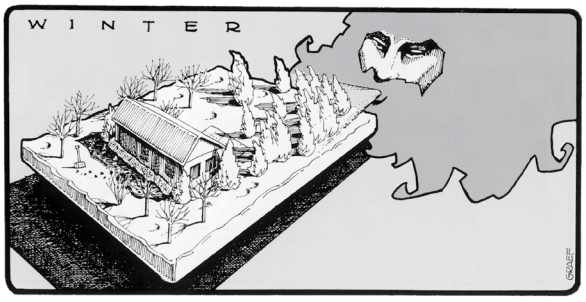
- Soil types, which can vary according to drainage, slope, sunlight exposure, and use (see chapter 2, Soils).
- Compacted areas: pathways worn through the grass that indicate traffic patterns through the property and areas where vehicles are often parked.
- Sunlight exposure, which will require careful observation over time to determine the sun and shade patterns in different areas and in different seasons.
- Wind patterns: the directions it takes in different areas in different seasons and how it is affected by buildings, landforms, and plantings on and off property.

Note the property's relationship to its surroundings

This analysis takes into consideration features of the area surrounding the property. Although a home and property are unique and should reflect the residents' tastes and needs, the property is also a part of a community. This analysis is an opportunity to consider how it relates with the character of the neighboring properties and the community as a whole.



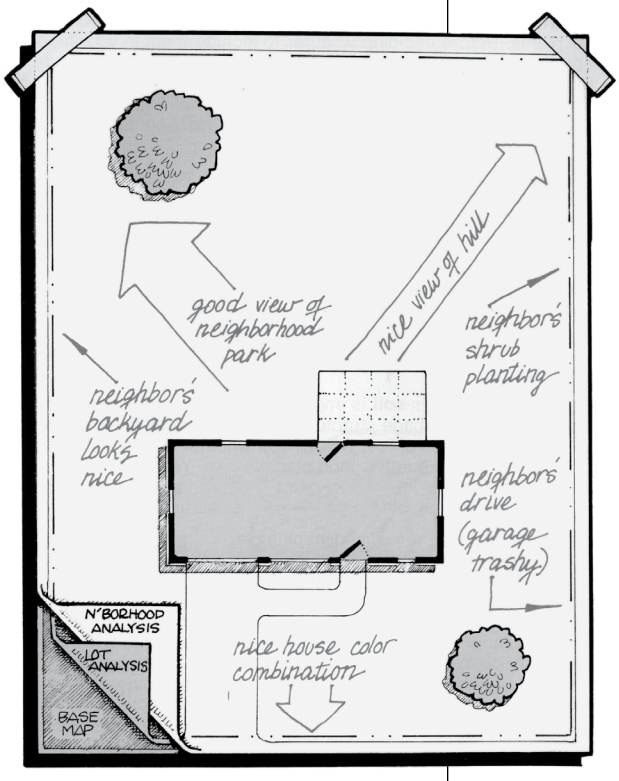
Summer and winter wind patterns



Consider the following (see figure 1):

- Neighboring properties: are they formal or naturalized, open space or private and secluded?
- Character of the community: its themes, slogans, logos, attractions, economy, etc.
- Local plant communities: such as open prairie, woodlands, pastures, etc.
- Views, both on to the property and from the property.
- Noises, on and off the property.
- Streetlights: locations and light patterns.
- Traffic: on nearby streets.
- Direction of approach to property.
- Headlights: how they might shine into the property.

FIGURE 1. Neighborhood analysis



Identify local zoning ordinances and restrictions to avoid problems with setbacks, changes in grade, and the construction of structures such as fences, play structures, overhead structures, gazebos, sheds, ponds, retaining walls, etc. Be aware of any neighborhood covenants that may restrict what you do in your yard.

Draw a base map

Drawing a base map of the property or area to be designed is the next step in the design process. A base map (sometimes called a base plan) shows the property lines and the locations of all permanent features that either cannot or will not be changed. It will be used for all future steps in development of the landscape design. Sometimes the developer of the property or the builder of the home will have provided a plot plan to the owners, showing the location of the buildings on the lot; these plans can be useful in preparing the base map, but should be verified for accuracy because sometimes there were changes during the building process.

You will need a long tape measure (100 feet or more), a clipboard with paper or notebook, and perhaps some stakes and a hammer for more involved properties. Measuring is easier if you have a helper to hold the other end of the tape.

Start with measuring the house or other building.

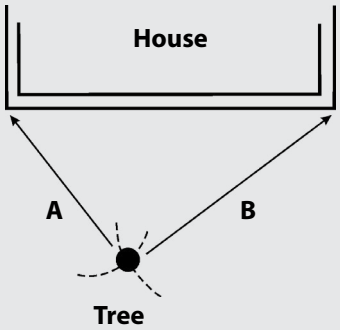
- Measure the outside dimensions (footprint) of the main building, along with other features such as the width of the roof overhang or deck.
- Record the locations and sizes of the windows and doors, including the height of the base of the windows and doors from the ground. Also note the size of any window wells of basement windows.
- Note any hose bibs, outdoor electrical outlets, air conditioning units, utility meters, dryer and furnace vents, etc. Also note downspout locations, although those may be changed if necessary for a successful landscape design.

Once you have the house or other main building measured, use it as a base from which to locate other existing landscape features that will remain in the final landscape, including wells and septic systems, sidewalks and driveways (if functional and in good repair), the lot corners, and large mature trees or other good quality plantings.

Use "triangulation measuring" (see below) to locate trees, outbuilding corners, lot corners, and other things in the landscape in relation to the house. For example, use two corners of the house to triangulate to two separate corners of an unattached garage. Then you can measure the other walls of the garage and have its exact location in relation to the house.

Locating objects on the base map

When locating trees, lot corners, and other objects in relation to other objects on your base map, a method called "triangulation measuring" can be used. Measure the distance from the tree or object to two known points, such as two different corners of the house (lines A and B). Then set your compass to each measurement, place the point of the compass at the corresponding corner of the house on your drawing, and strike an arc (dashed lines). The intersection of the two arcs is the location of the tree or object.



The lot lines, house, garage, septic system and well are usually the only truly permanent features on a property. Everything else can be changed if so desired. Driveways and walks can be rerouted. Even large, mature landscape plants can be removed or moved if deemed necessary. Obviously, any of these changes would be drastic and quite expensive. Any features that you are quite certain will not be changed should be added to the base map.

Carefully evaluate existing plants before dubbing them "permanent." This includes properly identifying them and determining their health, quality, value, and longevity. If in doubt, you may want to enlist a certified arborist or tree specialist to evaluate the health and soundness of large trees.

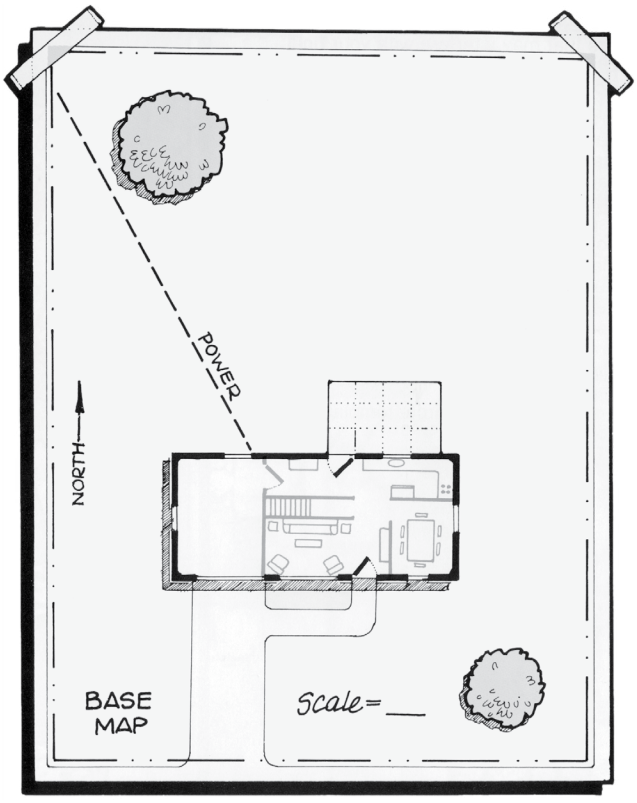
Next, you should select a workable scale to transfer these measurements to paper to create the base plan.

- One-eighth inch equals 1 foot is a standard scale used by landscape designers. This is easy to do with a standard ruler and even easier with 8-scale gridded 24- x 36-inch graph paper. The inch grid lines on 8-scale graph paper should be darker than the ⅛-inch grid lines, making counting easy.
- If the property is very large, a convenient scale is 1/16 inch equals 1 foot, where each square on the graph paper will equal 2 feet.
- For a small project, you can use ¼ inch equals 1 foot.

If you want, you can purchase an architect's scale at an office supply or drafting supply store, which makes the conversion to feet for these as well as other scales. Somewhere on the paper be sure to indicate the scale you are using, as well as the direction of north, to avoid any confusion in the future.

If you are attempting to do this with a computer program, use the appropriate features to ensure the correct scale dimensions.

FIGURE 2. The base plan



Consider needs, uses, and goals

Conduct a thorough inventory of needs, uses, and goals to be certain that the landscape plan you develop both meets the needs of those using the landscape and solves any of the problems of the site. This is an opportunity to gaze into the future and dream a little about current and future uses of the property. Take into account potential changes in use in the future.

Include as many potential users of the landscape as possible in the process. Be deliberate and allow plenty of time to brainstorm ideas, select priorities, and reach consensus—especially when conflicting interests surface. Do not put limitations on "dreaming" at first, even though some things may have to be eliminated or scaled back as the design process progresses.

Make a list of activities that the landscape must accommodate. The list will likely be different for each landscape because it is specific to the residents or users of the landscape. In a residential landscape, the list may include activities such as:

- Entertaining guests.
- Playing lawn games or sports with specific requirements such as basketball or skateboarding.
- Relaxing with a book.
- Swimming.
- Vegetable gardening, perhaps including a greenhouse, cold frame, and perennial crops such as asparagus, strawberries, and fruit trees.
- Dog play area or kennel.
- Trash storage.
- Firewood storage.
- Compost area.
- Clotheslines.
- Recreational vehicle storage.

In a park or public space, the list may include things such as:

- Plant collections or displays.
- Educational gardens or displays.
- Children's play areas.
- Picnic space.
- Reading or quiet space.
- Memorial gardens.

Next, consider any specific themes or goals for the landscape. Goals could include:

- Attracting wildlife and butterflies for viewing.
- Using native plants.
- Replicating a prairie planting, cottage garden, or formal landscape.
- Sensory or therapeutic gardening.
- Edible landscaping.
- Energy conservation.

Note: All landscapes should have the goals of minimizing maintenance, conserving water, and protecting the environment. These considerations should be kept in mind throughout the design process.

Locate use areas

The next step starts with sorting the information on your lists and deciding the "use area" each activity should occur in. While parks and other public spaces may have only a general use area, residential landscapes are generally divided into three broad use areas: the public area, the living area, and the service area.

The public area

The public area in a residential landscape is that portion of the landscape viewed by the public. It is where the public and guests enter the property and home. In a park or other public landscape, the entire area may be considered public area, as it's all visible to the public. The public area should:

- Blend the home or other buildings into the surrounding landscape.
- Enhance the appearance of the architecture.
- Convey a positive and welcoming image.
- Direct visitors to the entrance they should use.

The home should be the main attraction of the public area in a residential landscape. In parks or other public areas, other buildings or structures may be the main attraction. The landscaping should enhance—not distract from—these buildings. Use bold and colorful plants, planters, or sculptures only in areas where you want to attract attention. Avoid planting a "ring" around the foundation of buildings, as that is usually

not enough to visually tie the building into the landscape. Instead, foundation plantings should vary in depth and extend out into the yard. Harsh architectural features such as roof angles, corners, jogs in a wall, or changes in building materials can be softened by careful plant placement.

Direct visitors to the main entrance in several ways. Plantings at the corners of the building can be tall and dense and gradually diminish as they approach the front door to create a visual arrow to the entry. However, avoid columnar shrubs on building corners as they will point the eye into the sky rather than directing it toward the entry. Develop an entry garden by widening the approach and walkway leading to the door to welcome guests. A focal point such as bold plants, containers, or artwork at the entrance will grab visitors' attention and draw them in.

The living area

The living area is where the main recreational activities take place. In a residential landscape, this area can be subdivided to accommodate the widely varied activities listed on the inventory of residents' needs, uses, and goals. It is mostly out of the public view or can be a mixture of private and visible spaces. You can use fences or plantings to separate use areas or to screen views for privacy.

When locating living area spaces, consider visibility from inside the home and from other areas in the landscape as well as accessibility and convenience. For example:

- An area for lawn games can be just within view of the main entertainment area or an integral part of it if that is an important part of the residents' entertaining.
- The outdoor cooking and serving areas should be easily accessible from the kitchen.
- The children's play area may be visible from a main window in the house, somewhat visible from the entertainment area, and obscured from the adult evening relaxation area.

In a park or other public landscape, a wide variety of users and activities may need to be accommodated. While there should still be some separation between use areas, a more open, visible concept may be appropriate if security and safety are an issue (see box).

A living area is truly an extension of the residents' activities into the landscape. It can be decorated and furnished much like you would a room in a house, with a specific color scheme and style. This is where sculpture, wall art, statuary, whirligigs, gazing balls, and bold planters belong (see box on next page). Furniture includes loungers, casual seating, dining tables, and umbrellas along with benches and swings out among the plants. Lighting can also be an integral part of the outdoor room.

Green streets, not mean streets

In a 2001 study in one Chicago public housing development, there were dramatically fewer occurrences of crime against both people and property in apartment buildings surrounded by trees and greenery than in nearby identical apartments that were surrounded by barren land. In fact, compared with buildings that had little or no vegetation, buildings with high levels of greenery had 48 percent fewer property crimes and 56 percent fewer violent crimes. Even modest amounts of greenery were associated with lower crime rates. The greener the surroundings, the fewer the number of crimes that occurred.

Greenery lowers crime through several mechanisms. First, greenery helps people to relax and renew, reducing aggression. Second, green spaces bring people together outdoors, increasing surveillance and discouraging criminals. Finally, the green and groomed appearance of an apartment building is a cue to criminals that owners and residents care about a property and watch over it and each other.

Source: Landscape and Human Health Laboratory, University of Illinois at Urbana-Champaign

Focal points in the garden

A landscape planned as a well-designed composition should contain well-placed focal points. A focal point is something that stands out, grabs your attention, and is the first thing the eye sees when it looks at that part of the landscape.

- In any given viewpoint, there should be one main focal point, and perhaps one or two secondary focal points.
- The eye should start on the main focal point and then move pleasantly through the landscape, following lines created by masses of plants and other things and occasionally stopping to observe secondary focal points.
- Indoors, artwork and other items are chosen to complement the style and color scheme of each area and room and to act as focal points.
- In the garden, plants, artwork, decorative objects, structures, and water features can serve as focal points.

Plants can be focal points if they possess features unique enough to stand out from surrounding plants because of their form, color, size, texture, or other feature; the amount of contrast determines how strong of a focal point they will be. Plants with weeping or contorted forms, colored foliage or bark, or a bold flower display in summer or fall are good candidates, but even a coarse-textured plant in a mass of fine textured plants can stand out as a focal point. Some plants may serve as a focal point when they are in flower, but fade into the background the rest of the year, which makes landscape design challenging.

Any time there is just one plant of a species, it is automatically a focal point because it is different than all the plants around it. Use single plants sparingly, and otherwise use groups and masses of three or more of each.

Artwork in the garden may be as formal as a sculpture or as whimsical as a metal cut-out on a post. There are an endless number of things that can serve as art in a landscape, from gazing balls to bowling balls, the old bed frame as a planting bed to rusting farm implements, and antiques of all sorts. Personal tastes will determine the choices. When landscaping a public landscape, however, take care to choose art that will appeal to a majority of people.

Moving water features, such as a fountain or a spray, are compelling focal points. They attract the attention of both humans and wildlife. The sound of water and the light and shadows make water soothing and interesting. Water features range from tabletop recirculating fountains to ponds with planted banks and fauna such as frogs, fish, and snails. Water features do require some special care to keep them clean and a viable addition to the landscape.

A common pitfall is having too many objects competing for the viewer's attention, resulting in a busy, disorganized-looking landscape. Avoid using too many single plants or scattered art pieces. Instead, use groups or masses of plants or group artwork together so they serve as one larger focal point. Focal points should be used sparingly and situated in logical places in major viewpoints or where you want to draw attention.

The service area

The service areas are the utility rooms of the landscape. These are spaces that are typically non-recreational, but necessary. Service areas in residential landscapes include such things as pet runs and kennels, trashcans, firewood storage, compost bins, as well as vegetable gardens and places to store recreational vehicles. In public landscapes, service areas could include trash and recycling facilities, maintenance equipment and material storage, and utility areas.

In most cases, these service areas should be screened from view from the public and living areas by fences or plantings but still convenient to access. Because these are important functional spaces in the landscape, the overall design should be sure to accommodate them.

Make use area sketches

The fun of landscape design begins with this step, when you take the information you've gathered and start trying different possibilities for where each activity will take place and how much space it can be allowed.

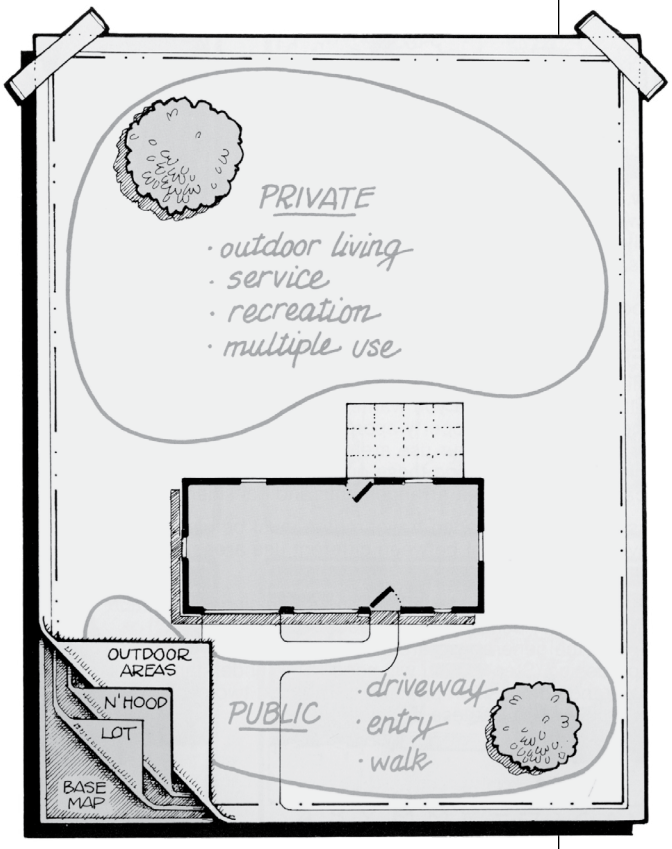
Make a series of very rough, quick sketches with circles or ovals representing each use area. These sketches are often called "goose egg drawings" or "bubble diagrams." You can use transparent paper laid over the base plan or you can make several copies of your base plan and draw on the copies. Use the circles or ovals to represent each of the activity or use areas (see figure 3). For example:

- Use one bubble for the entry garden in the public area.
- Use one for the entertainment area (deck or patio) in the living area.
- Use another for the play area, lawn games area, or secluded reading spot.
- In the service area, make a bubble for the vegetable garden, trash, laundry, shed, etc.

Now, stop to analyze how appropriate adjacent activities are to each other to see if one interferes with another. Consider the circulation routes among areas: getting from one to another, movement in and out of the house to these areas, from front yard to back yard, to the curb with the trash, from the hose bib to the garden. Think about how the mower, garden cart, hose, RV, or boat will get to the places they are needed, and how maintenance will be done. Think about views from within the house onto the property from the street and the neighbors and from the property out into its surroundings. Determine which views to screen and which to frame.

Check the sun and wind exposure in the use areas. A west-facing patio needs to be shaded from the hot, bright, eye-level setting sun in summer. The placement of pools and ponds should take into consideration leaves that will drop into the water as well as exposure to sunlight. Encourage summer breezes and block winter winds.

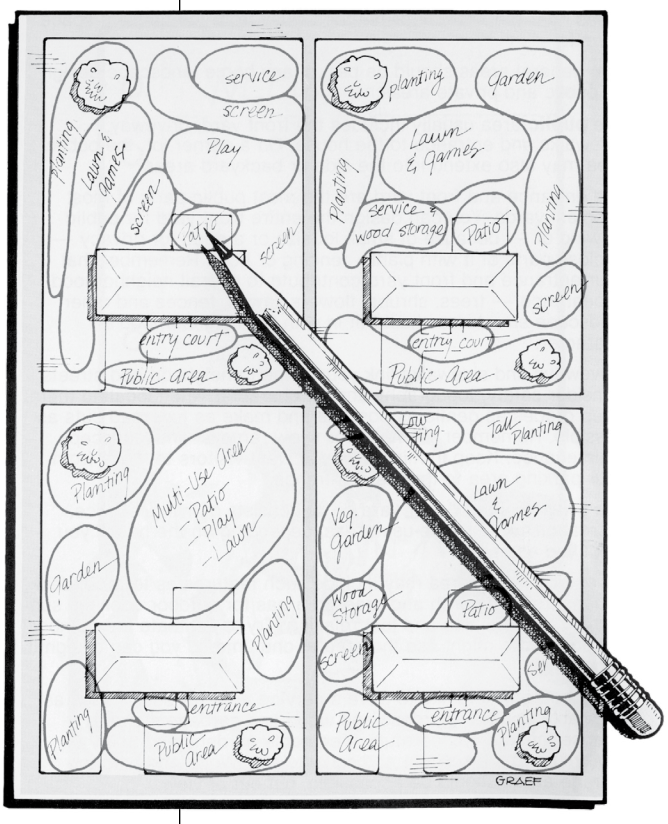
FIGURE 3. Outdoor areas



Set aside the first sketch and do another. Make it completely different so that you are not constrained by presumptions. Try a different focal point for the view from the patio out into the landscape. Think outside the box, as they say. Then do another sketch, and another (see figure 4). Some logistical necessities will become apparent. Some creative solutions to problems may also emerge. You may even make serendipitous discoveries.

Eventually, you will need to select a single plan, but at this point keep the best two or three. You may choose to discuss these possible layouts with others you are working with on the project. Once you begin to draw fixed bed lines, design patios or decks, apply the specifications for walkways, and plan planting groups, the single most workable plan will emerge.

FIGURE 4. Try many sketches



Design beds, hardscapes, and structures

This is where horticulture becomes art. Your artist's palette consists of both plants and construction materials. With them you are creating a composition—one that should be both aesthetically pleasing and functional.

It's important to keep the end use of the garden in mind when designing public garden spaces. Children may navigate a space very differently from an older adult or a person in a wheelchair. Resources exist for details on paving surfaces and design elements to accommodate different demographics or people with disabilities.

After you have decided on the general location of each of the use areas, it's time to refine the hardscape areas and begin to design the beds. Start with finalizing the size and shape of decks, patios, and other hard surfaces. Give careful consideration to the amount of space needed for the space to be functional. Be sure decks and patios are large enough to accommodate the number of people expected to be present, along with tables and chairs, and still allow for traffic flow and access to doors and/or stairs. Main walkways should be at least 4 feet wide to allow two people to walk side-by-side, while secondary pathways can be narrower.

Next, consider what will actually define the "walls" of the outdoor room. In most indoor rooms, there is an open, central area, with functional and decorative features around the edges. The same approach should be taken for outdoor rooms. Try to maintain an open central lawn area that can be used for gathering, lawn games, and other activities. Use plants, fences, and other structures around the edges to define the room. You don't need to fully enclose the space—just like in indoor rooms, it's okay to have "doors" and "windows," but there should be enough structure to define the space. Place beds where needed to locate focal points or plant screening plants.

Consider both island and border gardens. Use island gardens sparingly, as they may break up open, useable lawn areas. They can be useful for splitting a large area into two smaller "rooms," however. Border gardens are placed along the sides of buildings, fences, or other such structures. The arrangement of the property and existing plants and structures may influence the location of planting beds, as will the intended function of the garden.

Principles of design

The design principles common to all art can be applied to designing beds, patios, circulation routes, and plantings. The acronym "R.V. Bess" might help you remember them.

Repetition is the use of similar colors, plants, or shapes within a planting, an area, or an entire landscape. The element that is repeated may be a plant, a type of hard surfacing material, or an architectural feature such as a color, roof peak, or window shape. In existing gardens, introducing repeating elements can pull it all together. Repetition overdone becomes monotonous and predictable.

Variety means having enough difference in plants or materials to be interesting. It is what makes a design stimulating and piques the interest of the viewer. Too much variety, however, results in a jumbled, chaotic assemblage of elements.

Balance refers to visual weighting. It can be judged by imagining the area being designed resting on a plate which is balanced on a fulcrum at its center. Do the trees, shrubs, sculptures, fences, etc. on one side look heavier than the elements used on the other side of the fulcrum? This doesn't mean that the elements should be perfectly symmetrical or mirrored on either side of the fulcrum, but they should be visually balanced. One tree on one side of the fulcrum can be balanced by a mass of small shrubs and a sculpture on the other.

Emphasis is often achieved through the use of a focal point. A plant with unique character, texture, size, or color that contrasts significantly with the features around it can achieve emphasis. Sculpture or other ornamentation often serves as a focal point. In the public area, entries should be the emphasis of the design, welcoming guests and leading them where they should go.

Scale is a form of visual balance. Adjacent elements—whether plants or other objects—are in scale when neither is so large as to overwhelm neighboring items nor so small that they become completely insignificant. For example, larger properties with larger buildings need larger plantings with larger plants to be in proper scale. A pleasant and interesting relationship between objects is a ratio of one-third to two-thirds. A yard area should generally be about one-third lawn and two-thirds planting beds to have good scale.

Sequence refers to the transition within a design quality and how it is used depends on your goal for the area. For example, a fine-textured plant next to a medium-textured plant next to a coarse-textured plant is an example of gradual sequence of texture. However, a fine-textured plant next to a coarse-textured plant is a more abrupt sequence of texture—because of that contrast, the area will stand out more as a focal point. Use sequence with plant size, color, form, and texture. Use gradual sequence where you want the eye to pleasantly move through the view and abrupt sequence when you want to draw attention to something.

As you develop bed lines and choose plants, keep in mind the principles of design, design qualities, and design styles.

Try to visualize what you want the planting to look like, then translate that into a planting plan. One method to accomplish this is the "backward" process described on page 306.

Design qualities

Plants, ornaments, hard materials, mulches, bed lines, and patterns are the media of the landscape artist—just as paints, canvases, textiles, stone, and clay are some of the media of the traditional artist. No matter the composition, be it an oil painting or a landscape design, elements can be chosen and combined based on their design qualities. These are line, form, texture, and color.

Lines are found in numerous places in the landscape: within plants, on the ground in bed lines and groundcovers, in structures such as decks, fences, and retaining walls, and in the surfacing of patios, sidewalks, and drives. Plants can have a variety of lines, such as the horizontal branching of a pagoda dogwood, the upright spikes of delphinium flowers, and the round spheres of hydrangea blooms.

Lines are very compelling in that the human eye tends to find and then follow lines to their terminus. The bolder the curve or the more vertical the line, the greater this tendency is. Therefore, there should be something of interest at the natural terminus of such lines. Avoid using lines that direct the eye out of the design, either upward or away from a focal point.

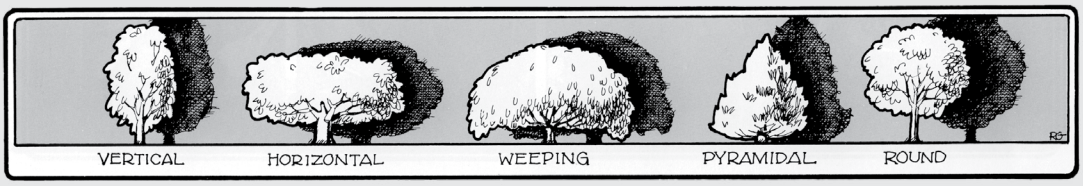
Architecture has many lines. Corners are vertical and consequently attract attention. They are usually best softened by rounded or horizontally branched plants rather than emphasized by use of an upright, vertical plant as is so often done. Roof lines can be especially distracting and can be covered by a plant canopy either from the front or from behind.

Form is the outline of objects and is related to line. The form of a plant is also referred to as its "habit." Plant habits are round, pyramidal, conical, vase-shaped, weeping, horizontal, spherical, upright, and so on.

Texture typically refers to a tactile quality of roughness or smoothness. In the landscape—and particularly for plant material—texture is the perceived visual roughness or smoothness. Large leaves appear coarse in texture, while small ones or heavily lobed or toothed ones appear to be fine-textured. Dull leaves look coarser while shiny ones appear finer textured. Dark colors appear coarser and light colored ones look finer.

Color is one of the most complex and yet most important qualities in art. Minute differences in color can make huge differences in the success or failure of a design composition. See page 306 for more on color.

PLANT HABITS



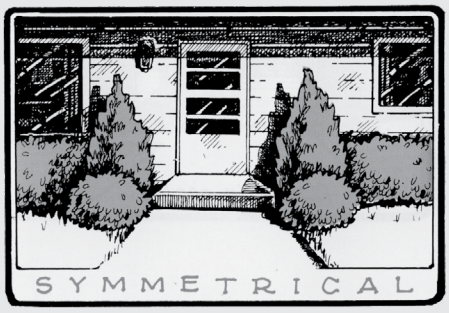
Design styles

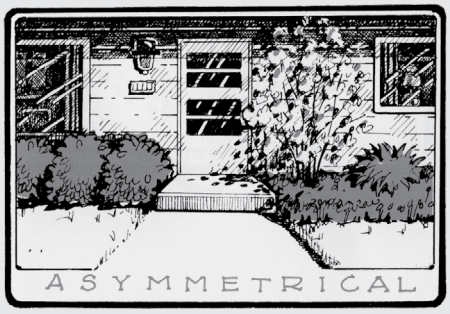
The style of the design can range from formal to informal, depending on your personal preference, the style of the architecture of your home, and the area of the property being designed. While it is difficult to combine different design styles and still create a unified landscape, different areas of the landscape may use different styles. For example, the public area may be formal while the outdoor living area is naturalized and informal.

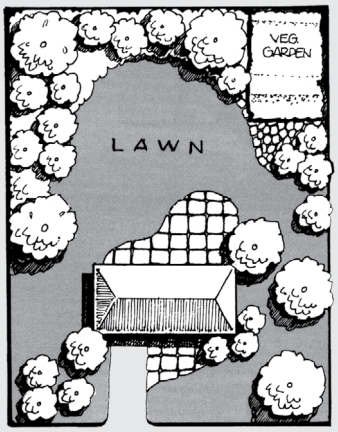
Architecture that is symmetrical is considered formal and the landscape design can follow that **symmetry**.

- Straight bed lines and evergreens sheared into cones, pyramids, and spheres mirrored on both sides of an entry are very formal.
- Repeated plantings and geometric patterns reinforce formality.
- Traditional French garden design such as parterres and knot gardens are highly formal.

Symmetry should not be forced. If the area is not perfectly symmetrical, then neither should the design be.

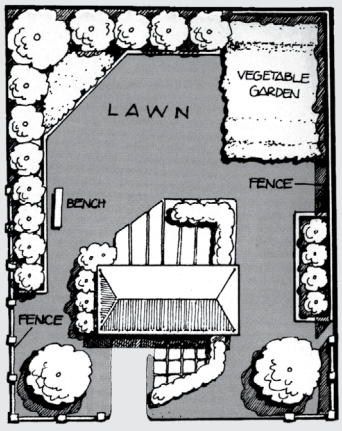




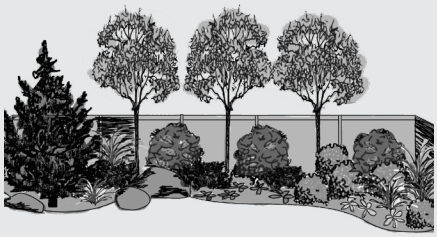


Informal designs often employ bed lines that undulate in naturalistic curves and plants that are left to attain their natural, soft outlines without clipping. Make curves bold and varied in arc and depth to be most effective, and do not have too many undulations so as to look busy. Plants in informal designs are usually laid out in masses that vary in size and shape. Woodland gardens and cottage gardens are good examples of informal garden styles.

Formal and informal styles can be combined, creating a "relaxed formal" effect. Strict formality can be softened by "in-filling" beds or hedged areas with drifts of perennial or annual flowers. Curvilinear beds can be symmetrically curved and regular and include geometric patterns of flowers and groundcovers to make them more formal. However, this style can be challenging to do well and still create a unified landscape. It is usually best to choose one style based on the buildings and surrounding area.



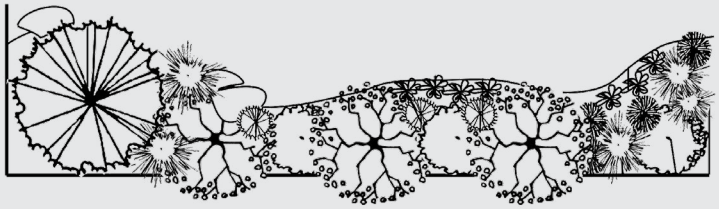
Designing beds: A "backward" process



When designing specific planting beds or areas in the landscape, you first should visualize how you want it to look. Sketch plant shapes or other landscape features as they would look in a photograph—a horizontal view as you would see it when standing in the landscape. Consider the location of focal points and visual lines in the bed. Then assign plant characteristics—size, texture, form, color, season of interest—to each group of plants. In this way, you can be sure the plants will look good together based on their design characteristics.

Then, using the bedlines you develop as part of your overall design, transfer your "photographic" view into a "bird's-eye" view. Use circles to indicate each of the plants you sketched in your photographic view. It's only after you decide how it will look that you'll—finally—choose plants that match the characteristics you assigned to each group.

This approach is often called a "backward" process, because it starts by considering the design characteristics of the plants and then finds species to match those characteristics.



All about color

The true color of an object is the hue. The basic colors are those found in the rainbow—red, orange, yellow, green, blue, indigo, and violet—the acronym for which is "Roy G. Biv." A hue darkened by adding black is called a shade. A hue lightened by adding white is called a tint. Pink is a tint of red while maroon is a shade.

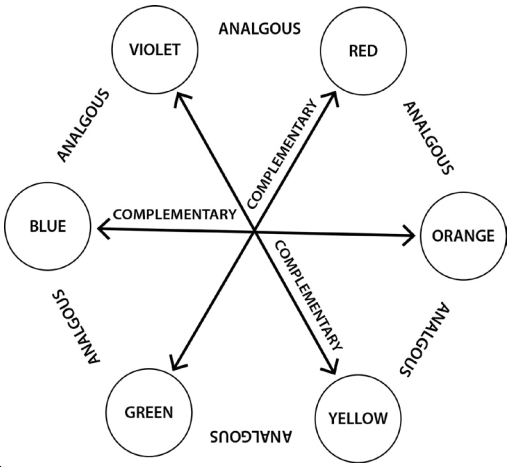
A useful guide to combining colors is a color wheel. Create a color wheel by placing the basic colors in a circle starting with red at 12 o'clock and continuing clockwise (indigo is often omitted, leaving only 6 colors—an even number). Colors directly opposite each other on the wheel are said to be **complementary** and those adjacent are **analogous**. Therefore, red and green are complementary colors while red and orange or red and violet are analogous.

Compositions that use all one color are called monochromatic and those with multiple colors are polychromatic.

- The famous white gardens of Vita Sackville-West and Lawrence Johnson are examples of monochromatic gardens.
- Johnson's red border at the garden of Hidcote is monochromatic, with a wide array of tints and shades.
- Complementary color schemes combine opposite colors on the color wheel. An example is violet with yellow, or orange with blue.
- A harmonious scheme uses a limited number of neighboring colors from a color wheel, such as violets, reds, and oranges.

In a landscape, color is found in almost every element; the plants have varying shades and tints of green foliage and the flowers may be any hue, shade, or tint. Architecture has various colors for the siding, wood trim, roofing materials, and so on. The hard surfacing materials, the structures, furniture, and ornamentation all have specific colors. This means that numerous color decisions need to be made so that all of the colors work together to create a pleasing composition.

Color wheel



If the garden is to be viewed from a distance, warm colors such as red, yellow, and orange will be more visible and come forward or "pop." Cool colors—such as violet, blue, and burgundy—recede, so the farther the distance, the larger the planting should be. Think about the colors of existing perennial flowers, shrubs, trees, and structures when you are choosing a color scheme.

Another way to help visualize a new planting is to take photographs of the area from one or more perspectives. Tape a piece of translucent paper over the photograph and draw in the new plantings or other features to see how it will appear in relationship to the existing components. For the technically inclined, you can do this with photo editing software, too.

Select plants

Once you have determined the bed lines and decided how you want it to look, you can start choosing the characteristics of the specific plants. Start with the largest plant or one that will be a main focal point. Assign design quality characteristics to that plant, such as "deciduous shrub, 6 feet tall by 6 feet wide, medium texture, upright form, and fall interest (red foliage)." Draw a circle to represent that plant using a circle that is the correct size (6 feet in width, in this example) according to the scale you are using.

Next, draw a series of circles for a plant group next to the initial plant. Use plant groupings in odd numbers—such as 3, 5, or 7—and don't place them in a straight line unless you are designing a formal landscape. Assign characteristics to that group of plants, such as "deciduous shrub, 4 feet tall by 4 feet wide, mounded form, coarse texture, and winter interest." Choose the characteristics of this second plant to coordinate appropriately with the first plant. In this case, it will be two-thirds the height of the first plant, a slightly different form, a different texture, and a different season in which it stands out.

Continue with this process until you have circles filling the bed space and have assigned each group of plants a set of characteristics that will make them work with the other plants in the bed. When choosing these characteristics, keep in mind the principles of design, including repetition, variety, balance, emphasis, sequence, and scale.

Draw each circle to represent the full, mature size of the plant. The circles should not overlap, as that would result in a crowded landscape. They also should not have any major space between them or that will result in open mulch or bed space in the landscape, which will stop the eye from moving through the view. Circles representing the same plant species within a group should touch, and there should be a small space (approximately 6 inches in the actual landscape) between different plant species.

Understand that the areas may look sparse until they fill in. Overplanting often leads to a rapid deterioration of the basic design as plants become crowded and are either pruned into unnatural forms or become deformed as a result of competition. Plants must have enough room to grow and sufficient air circulation to prevent lingering dampness in flowers and foliage, which can encourage disease. In some cases, you can use annual and perennial plants as temporary fillers in sparse spots and relocate them as the permanent plants mature.

Finally, you can search for specific plant species and cultivars that match the characteristics assigned to each plant or plant grouping. You will find that in most cases, there are several plants that match those characteristics. The plants you choose depend on your personal taste and plant availability. It is the combination of characteristics of each plant that makes for an attractive planting design.

Limit your plant selection to those whose cultural requirements for light, moisture, soil type, and exposure match the environmental conditions of the site. Some site modification is possible—such as changing pH or adding organic matter—but maintenance will be easier and the plants will be able to thrive rather than just survive if properly sited.

Furthermore, site conditions change over time as a result of the planting we do. As trees mature, light and wind exposures change. Leaf litter and mulch continually decompose and become incorporated into the soil, changing its structure and pH. Careful plant selection takes these factors into account.

Hardscapes and structures

Hard surfaces of the landscape are found in the circulation routes—drives, walks, and steps—and in structures such as patios, decks, fences, and retaining walls. Choose building materials using the principles of art and the design qualities of the materials. Surfaces can be made of asphalt, brick, stone, or concrete—with or without aggregate, patterning, or colors. Structures can be of similar materials or wood that is either painted, stained, or allowed to weather naturally.

When choosing hardscape materials, consider what is already in the landscape. It is important to coordinate hardscapes to create unity.

Surfaces

Design driveways to safely accommodate vehicles and pedestrians. In a residential landscape, there should be enough space provided for both driver and passengers to exit the vehicle and approach the main entry. In a public landscape, paths may need to accommodate both pedestrian and maintenance vehicle traffic, and should be sized accordingly.

Paths and walkways should be installed only if they are necessary to accommodate a significant amount of foot traffic. In most cases, minor foot traffic will not hurt grass; however, if paths have been worn into grass or if a strong visual line, directing visitors where to go is desired, a hard-surface path or walkway is warranted.

The material used for surfaces should be chosen not only to coordinate visually with the rest of the landscape, but should be chosen for the use the area is expected to get. For example, if strollers, wheelchairs, or walkers will be used, the surface should be smooth and firm. Consider maintenance as well. Snow removal in winter will be much easier on a smooth, solid surface than it will be on a rough or loose surface.

You will need steps wherever the ground slopes 6% or more. The safe and convenient standards for outside steps should allow for a combined measurement of 26 inches for two risers (the vertical part of a step) plus one tread (the horizontal part). Common step dimensions are 5½-inch risers with 15-inch treads and 6-inch risers with 14-inch treads. A change in materials will help accentuate the steps for safety, and low-level lighting should clearly illuminate the steps. Handrails make steps safer when there is ice or snow.

Check local ordinances before installing hardscapes for building requirements and permits. Public landscapes must comply with the Americans with Disabilities Act, which sets specifications for walks, slopes, ramps, and steps.

Structures

Patios, porches, and decks are popular outdoor living area features. Planned properly these can serve as true outdoor extensions of your home. Poorly planned they can become useless, wasted space and a maintenance headache.

The main factors to consider are location and size. The most obvious location may not be the best location. Consider the sun and wind exposure as well as convenience of access and privacy. Southern and western exposures will be bright and hot all summer, so shade should be provided. Carefully sited shade trees and overhead structures are among the solutions. Avoid blocking summer breezes with plantings, fences, or walls. Screen views and sunlight with plantings and fences located as far as possible from the deck or patio to avoid the feeling of being closed in. Shade or ornamental trees overhanging a patio or deck can produce twigs and fruits that may make maintenance a chore. Think through the traffic patterns of guests, children, and the person serving beverages and setting a table—in addition to the barbecue chef.

The tendency is to underestimate the size of a deck or patio, resulting in a cramped space that is difficult both to move around in and to be seated in when other activities are going on. Food and drink preparation areas and access from the house to the yard beyond should ideally be separated from the quieter seating areas. The minimum recommendation is 64 square feet of area per person when gathering on the deck or patio.

Choose the materials for any patios and decks to complement the architecture of the home, blend with the style of the landscaping, and be easy to maintain. Patios may be plain or colored concrete or patterned with aggregate or molds. They may be brick, patio block or stone. For safety, comfort, and ease of maintenance, the surface should be smooth, even, and have a 1 to 2% slope away from the building to encourage drainage. Decks can be made of rot-resistant wood allowed to weather naturally, pressure-treated wood, wood that is routinely waterproofed, or plastic composite decking that looks like wood.

Fences serve many purposes in a landscape.

- They define spaces and help to create outdoor rooms with different purposes and activities.
- Fences provide privacy by screening views onto and off of the property.
- They require much less space than a hedge or planted screen that serves the same purpose.

Choose fencing to serve the intended purpose and coordinate with other materials in the landscape. You may wish to soften the fence with vines or other plantings.

Retaining walls allow for large changes in grade in a short horizontal distance and thereby can help create more useful level space and control erosion. They can also be used to create planting beds to provide better soil conditions, to define spaces, and to direct traffic. Stone, brick, concrete, or wood can be used. Concrete blocks that can be fitted together and held with connectors have become extremely popular, as have fieldstone or cobble walls.

Many municipalities have ordinances regarding the construction of retaining walls. Larger walls will likely require professional design and construction by a licensed engineer.

Outdoor lighting

Some lighting is essential in all landscapes—for safety, to assist visitors in finding the home or navigating through the landscape, and for security. You may want additional decorative lighting to make the buildings and landscape more attractive or to feature certain plants or focal points.

For safety, walkways should be lighted, especially at steps or a change in surfacing. Lighting for this purpose should be no more than 3 feet high, directed downward to illuminate the walkway, and shielded so as not to "blind" the person viewing it. Walkway lighting is especially important in the winter, when there may be icy patches.

To help visitors, illuminate the house number. If it's located on the wall or door at the entrance, an overhead light will serve the purpose.

Lighting for security should be very bright and light large areas. Security lights should be on switches so they may be turned on and off when desired. Motion-sensitive lighting is often used for security, but be aware that roaming wildlife will often trigger motion lights. These same lights may be positioned to provide light for tasks that occasionally need to be done at night such as grilling, taking out the trash, bringing in a load of firewood, etc.

Decorative lighting can add a whole new dimension to the landscape. Specific planting areas can be made focal points at night to be viewed from entertainment areas in the landscape or from inside the home. Spotlights can draw attention to a specimen plant or piece of artwork. The effect differs if the light comes from a distance or from close up. Silhouettes and shadows can be manipulated to produce striking effects. Still other effects can be achieved through uplighting—either directly from the base of the plant into the canopy or by just grazing the tips of the branches. Lighting specialists can design decorative lighting; if you are doing it yourself, experiment with different lights in different locations before permanently installing them.

Lighting should enhance the landscape at night, not overwhelm it. The goal is to provide interest and focal points, not fully light the outdoors as if it were daytime. Too many lights can have a negative effect.

Finish your design

The design is finished when a final plan shows the exact locations of patios, fences, walks, and ornamentation as well as the planting beds with the selected plants in specific locations. Show as many details as possible and identify specific plants. If space is tight, use numbers or letters to identify items and provide a key. Make separate drawings to show construction details for surfaces and structures. Be sure to include an arrow showing the direction of north and the scale at which the design is drawn.

Other design considerations

Edibles in the landscape

While a dedicated area for a vegetable garden may be a common component of home landscapes, it is easy to incorporate edible plants throughout the landscape. Many edible plants are attractive and low maintenance. Shrubs such as serviceberry produce attractive white flowers in the spring, followed by edible blue-black fruits. Blueberry bushes blend well with other landscape plants and provide fruit as well as good fall foliage color. Strawberries can make an effective and attractive groundcover alongside shrubs and perennial flowers. See chapter 15, Fruits.

When designing public landscapes, or any landscapes where children might be present, be sure to avoid plants that may be toxic.

Landscaping for energy conservation

Reducing home energy consumption through landscape design involves manipulation of the sun and shade patterns and wind movement around a property. Plants can be used to accomplish both of these.

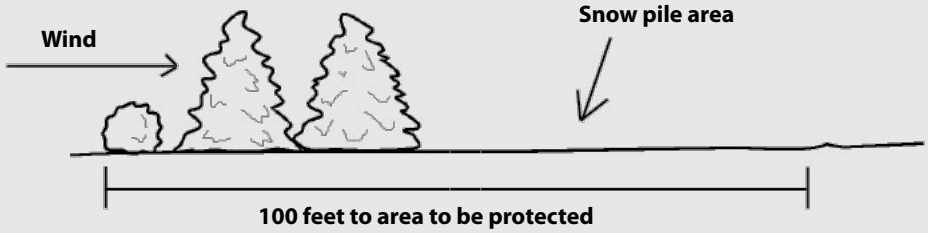
Deciduous trees on the east and west sides will cool that structure during the summer and allow passive solar heating in winter after the leaves have dropped. Plant trees far enough from the house so that when they mature they will not rub on the house or need to be pruned into lopsided shapes.

Windbreaks located to the north and west of a house at a distance of four to six times the mature height of the plants will block cold winds in the winter. Evergreens are used most commonly for windbreaks, but deciduous shrubs can be incorporated into a windbreak planting to fill in where lower branches of evergreens die out and to add interest to the windbreak. Maximum benefit will not be realized until the plants have attained their mature size. Windbreaks should not be planted to the south and east of a home as they can restrict cooling breezes in summer.

Using plants to manage snow

If drifting snow is a problem, windbreaks of trees and shrubs can act as living snow fences to manage the location of snowdrifts. Lower shrubs planted on the windward side of the windbreak will trap snow before it blows next to the home or buildings. Winds will funnel around the ends of a snow fence. If possible, the row of plants should extend at least 100 feet beyond the snow drive problem area. Because of the decreased wind velocity, snow will settle immediately downwind from a windbreak or snow fence. The windward row of a living snow fence should be placed at least 100 feet from the building or area that needs protection. A minimum of two rows of evergreens and one row of shrubs is most effective for snow control.

No one wants snow to pile up on the driveway. Carefully consider how nearby plants could affect snow drifting and place landscaping in spots that won't inadvertently cause snow to collect in the wrong places. For example, avoid placing a row of evergreens along the west side of a driveway.



Shading an air conditioner with an overhead tree will help it to run more efficiently. Shading blacktop or other hard surfaces will reduce heat reflected or radiated to the house. Providing shade for cars parked outside in summer will reduce the amount of air conditioning needed to cool the car down, which saves gas.

Foundation plantings help create a cushion of undisturbed air near the foundation of the house, which helps reduce heat loss in winter. Plant shrubs so there is 1 to 2 feet of space between the foundation and the mature plant. For information on designing your landscape to manage snow, see above.

Low-maintenance landscaping

Most plants and structures require at least some maintenance. Some people consider maintenance a chore, while others enjoy it. Carefully consider the maintenance needs of plants before you select them. The following are a few design considerations to minimize landscape maintenance.

Mulches help to reduce weed growth and hold in moisture, reducing the need to weed and water those areas. Group plants in planting beds and mulch them with 2 to 4 inches of organic mulch or fill in between them with perennial groundcovers. Beds eliminate the need to mow around individual trees and shrubs and are generally easier to care for than lawn, which needs weekly mowing.

Edge beds to maintain the lines of the intended design and to prevent grass from growing back into the beds. A hand-dug edge approximately 4 inches deep keeps bluegrass roots out of the bed, is easy to mow along and does not require weekly hand trimming to keep it neat, though it will periodically need to be re-edged. Hard edging materials such as wood, stone, or plastic can be quite attractive and eliminate the need to re-dig the cut edge, as long as they are deep enough to stop grass roots from invading the bed. If you don't install them correctly, however, hard edging materials are difficult to mow directly up against and can heave and move as the soil freezes and thaws.

When designing bed lines, be sure they are smooth and easy to mow with the equipment that will be used. Avoid areas where grass is up against a vertical structure, such as a fence or building foundation, as that will require time-consuming trimming after each lawn mowing. Instead, place planting beds or a small "mowing strip" (an unplanted, mulched strip 3 to 4 inches wide) along the area.

Select plants for their pest resistance, adaptability to the conditions on the site and, most importantly, their mature size. Don't overplant or underplant. Plants susceptible to pest problems require more monitoring and treatment. Plants with cultural requirements that match the soil and light conditions of the site where they are planted will be more trouble-free and often less susceptible to pest problems related to stress.

Consider how moist your site is, on average, and choose plants accordingly. Although all plants need water, especially when first planted, different types vary in the amount of moisture they need or how little—or much—they can tolerate. Planting moisture-loving plants in a consistently dry spot will require constant irrigation, while **xeric** (drought-adapted) plants placed in low-lying areas where water puddles may end up rotting. Try to select plants with moisture requirements similar to what your site provides.

Select herbaceous perennials that do not require deadheading, staking, or frequent division to control size or for continued flowering.

- To avoid deadheading, select perennials grown mostly for their foliage such as hostas, ferns, and ornamental grasses.
- Leave perennials that flower in late summer, such as black-eyed Susans, coneflowers, goldenrod, and asters standing over the winter, providing garden interest and a source of food and shelter for wildlife.
- Choose perennials that do not need frequent dividing, such as peonies and bleeding heart.

Conclusion

A successful landscape design is one that creates an attractive landscape that is functional, easy to maintain, environmentally friendly, and cost-effective. Each landscape is unique, with its own set of attributes and problems. Solving the problems—while enhancing the attributes—is the job of the designer.

Always consider the users of the landscape and their needs when planning a landscape. A well designed, carefully installed, and properly maintained landscape can bring enjoyment for many years.

Resources

Wisconsin Horticulture publications are available at hort.extension.wisc.edu.

FAQs

? What can I plant on the east side of my house (or by my driveway, or under this tree)?

It's impossible to answer this question without more information about the site. Ask questions about environmental conditions and goals with this planting (function of the area). People often don't know the basic concepts of landscape design, so asking questions is a good way to make them more aware.

? What can I plant under the powerline?

Plant small-statured plants and avoid large shade trees.

Landscape design, practice exam questions

1. **When creating an inventory of needs and uses of the landscape, which of the following should be considered?**
   a. All landscape users
   b. Activities that occur there
   c. Goals for the landscape, including water conservation and environmental protection
   d. All of the above
2. **A base map contains**
   a. Property lines and all permanent features that will not be altered
   b. Locations of existing garden beds
   c. Buildings and mature landscape plants
   d. Locations of potential new planting areas
3. **The principles of design include**
   a. Repetition, variety, balance, emphasis, scale, sequence
   b. Repetition, variety, balance, effort, strength
   c. Repetition, volume, balance, symmetry
   d. Repetition, massing, symmetry, independence, spacing
4. **What is NOT a "best practice" when making a bubble diagram?**
   a. Assigning how each area will be used
   b. Making only one sketch
   c. Considering multiple views for each area (from within building, street, etc)
   d. Accounting for sun and wind exposure in use areas
5. **At a distance, plants with warm colors visually _____ while plants with cool colors _____.**
   a. Recede, blend in
   b. "Pop", recede
   c. Blend in, appear small
   d. Disappear, appear closer
6. **Which of the following can be a focal point?**
   a. Water features
   b. Plants
   c. Artwork or decorative objects
   d. Structures
   e. All of the above
7. **What is the last thing you do when designing a planting bed?**
   a. Select appropriate plants
   b. Visualize what the landscape will look like
   c. Sketch general plant shapes
   d. Assign desired plant characteristics to groups of plants
8. **A good rule to remember when visualizing and sketching plants in your landscape is**
   a. Group plants in odd numbers
   b. Don't place plants in straight lines (unless it is a formal landscape)
   c. Account for the mature size of the plant
   d. All of the above
9. **Landscapes can be designed to**
   a. Help conserve energy
   b. Provide windbreaks
   c. Aid in snowdrift management
   d. Be low maintenance
   e. All of the above

Answer key
1. (d) 2. (a) 3. (a) 4. (b) 5. (b) 6. (e) 7. (a) 8. (d) 9. (e)