1 Steps in the Landscape Design Process
   1. Develop a Plot Plan
   2. Conduct a Site Analysis
   3. Assess Family Needs
   4. Locate Use Areas
   5. Design, Construct, and Plant

Landscape design is the arrangement of outdoor space for human enjoyment and satisfaction

Well-designed home landscape
   Are aesthetically pleasing and functional
   Offer pleasure to the family
   Enhance the neighborhood
   Add to the property's resale value

With forethought and planning, you can organize your home site for maximum use and pleasure, and create a visual relationship between the house, its site, and the neighborhood.

The planning process is possibly the most important aspect of residential landscaping but it is often neglected

The evidence of poor planning is all too evident. It includes the following
   Scattered, poorly placed trees
   Overgrown foundation shrubs
   Narrow concrete walks
   Fences that may not add to the garden design

These landscapes are not as attractive as they should be
   Are often expensive
   Do not serve family needs

Good planning saves time, effort, and money and can lead to a much more satisfying environment

When planning your landscape consider the entire space and the overall effect you want to achieve

Don't limit your ideas to just the plants but integrate them with the hardscapes including the patio, deck, mailbox, screens wall, outdoor lighting, walkways and parking areas

There are six basic steps to creating your landscape. If you follow them, the finished product will be a personal landscape that reflects your family's wants and needs and allows for growth and change in the future.

   Step One - Develop a Plot Plan
The first step in landscape design is to draw a plot plan of the site showing the boundaries and physical features that will affect your design. The plan should include property lines and angles; show the placement of the house on the property; and indicate the location of driveways, utilities, easements, and any other limitations.

Locate one corner of the house by measuring the distance from the nearest property line and from the back edge of the curb. Measure the distance from each corner on the side of the house to get the correct orientation. Use a 50- or 100-foot flexible steel tape to make accurate measurements of the property. If a plat is available, use it to obtain more accurate dimensions.

When all of your information has been gathered and marked on a rough sketch, transfer it to a final plot plan drawn accurately to scale (Fig. 1). A suitable scale is 1 inch per 10 feet. Suggested symbols are shown in Figure 2. Be sure to indicate compass directions on your plan. Next, locate any existing features on the property and the house using the same method as shown in Figure 1. Be sure to include the following:

- Windows, doors, and other openings, including height off the ground
- Aboveground and underground utility lines
- Existing trees and shrubs
- Utility meters, drain pipes, water spigots, outlets, and septic tank
- Features on or near the property line
- Anything else prominent on the site.

Mark these features on the plot plan as shown in Figure 3.

**Step Two - Conduct a Site Analysis**

Take the time now to study the site and analyze its environmental features. Tape a sheet of tracing paper over the plot plan. You will use this sheet for your site analysis. An example is shown in Figure 4.

**Sun and Shade**

The way the sun affects your house and site at different seasons will greatly influence the overall design. By knowing the direction of the sun at different times of the year, you can determine where trees will be needed to provide shade in the summer and where you will need open areas to allow the winter sun's rays to heat the house and outdoor living areas (Fig. 5).

**Wind**

Knowing the direction of prevailing winter winds can help you decide where to locate a windbreak, which can be important if you live in the mountains. You should also take care not to block off any summer breezes from outdoor living spaces.
Sights and Sounds

Walk around your property and note what you see in various directions. When you are standing on the front step, do you have a pleasant view? What do you see from the deck in the back yard? Also, take note of any objectionable noises that occur often. Note the good and bad views and the sources of noise on the site analysis. Also think about the views looking in.

Soils

Many families are confronted with the difficult task of landscaping in "urban soils," which may include mortar, bricks, sheetrock, plywood, plastic, and other leftovers. The soil in many parts of North Carolina is tight clay, which needs both physical and chemical amendments before trees and shrubs can be planted. Have soil tests made and note the soil type and topsoil depth on your site analysis. (County Extension Centers can provide information on free soil testing.) Also note any poorly drained areas that may need underground drainage. Does water stand in low areas after a rain? Do these areas remain wet for several days?

Step Three - Assess Family Needs

Identifying your personal needs and wants will help you design a landscape that is aesthetically pleasing, enjoyable, and functional for your family. Listed in the "Checklist of Landscape Needs" are examples of the kinds of landscape needs that you and your family might consider.

Checklist of Landscape Needs

Access to the house
   Walks -- width, drainage, appearance, and lighting
   Driveways -- type of surface and amount of turnaround space
   Parking -- for family, guests, a camper, a boat, or bicycles

Family Activities
   Outdoor entertaining -- cooking, seating, and patio access
   Children's play area
   Sports, recreation
   Extra parking for boat or recreational vehicle

Maintenance
   Do you do your own yard work?
   Storage for garden equipment
   Specific gardening interests (for example, growing vegetables, roses, herbs, fruit trees, or bulbs)

Don't forget space for:
   Garbage cans
Clothesline
Dog pens
Firewood storage

Step Four - Locate Use Areas

Refer to the list of family needs and decide where to locate the areas for various uses. Try to provide enough space for each activity. Following this step divides the site into several separate areas, each serving a specific purpose but all combined into the overall design.

Public, private (family), and service (utility) areas can usually be defined in residential landscapes. Try to develop each one according to your family's needs and priorities. Record these areas as shown in Figure 6, using another sheet of tracing paper taped over the plot plan.

Step Five - Develop Use Areas

Public and Entrance Areas

The area most often seen by passers-by and guests is referred to as the public area. It usually includes the front yard, drive, walks, and main entrance to the home.

One of the first questions is where your guests enter the house. If they come in through the garage and utility room rather than the front entrance, concentrate on redirecting them to the front door. This can be accomplished with several landscape features.

First, consider the width of the front walk. A minimum of 4-1/2 feet is comfortable for two people walking together (Fig. 7). The front entrance can be enhanced by a walkway with an interesting surface texture such as brick, slate, or aggregate concrete. Outdoor lighting is very effective for directing pedestrian traffic after dark.

Try to add a focal point to the entrance area. You might use an interesting tree underplanted with a ground cover or a planter with a specimen shrub. A popular trend in landscaping is low, indirect lighting. Remember, do not limit yourself to trees, shrubs, and grass to create interesting landscape areas.

Your plan should include vehicles as well as people. If off-street parking is needed to accommodate additional cars, consider locating these spaces where they are easily accessible. Parking can be incorporated into the landscape design.

Foundation plantings are often the first feature homeowners think of when landscaping is mentioned. Many home foundations are overplanted. Choosing and placing foundation plants is one of the most important landscape concerns. Foundation plants are always in the public eye. They greet visitors, add dimension to the area, and when properly chosen, accentuate the architectural lines of the house. Foundation
plantings are often installed according to the old formula, "big ones on the end and little ones in the middle." This approach is not completely wrong, but there are other design criteria to consider as well.

The old formula funnels attention to the entrance. Often, however, the result is shrubs that quickly become overgrown and troublesome (Fig. 8).

This landscaping theory assumed that the house must be surrounded by plants to conceal its unsightly foundation. More recent architecture usually does not need this screening.

When planning the foundation areas, consider the size, color, texture, and number of plants needed to direct visitors to the entrance and accentuate the architectural lines of the house. Quality plants are most important. Instead of overplanting with small shrubs (of the size sold in 1-gallon containers) to give an effect of instant maturity, use fewer plants of specimen size and character. A few well-placed specimen plants are much more impressive than a row of small ones. Choose a location to enhance the individual character of a plant so that as it matures it will get better without major maintenance.

In modern landscape designs a small ornamental tree is frequently located as close as 5 or 6 feet from the foundation. Good choices are dogwood, redbud, Japanese maple, crape myrtle, star magnolia, and sourwood. Treeform evergreen shrubs are also useful, such as waxmyrtle, burford holly, ligustrum, or cherry laurel.

Incorporate masses of ground covers or mulched areas to create interesting lines. Remember that quality, not quantity, enhances the landscape.

Family Activity Areas

When designing areas to be used by the family, refer to the needs identified in step three. What are your family's landscape needs and wants? You can use landscape design to create private areas with attractive views from your patio or terrace. With our pleasant North Carolina climate we can enjoy outdoor activities most of the year. The outdoor living areas should be easily accessible to living and kitchen areas of the home. Decks, patios, and terraces should be considered an integral part of the residential landscape.

Various construction materials are available to the homeowner for these projects. The use of pressure-treated wood for decks and screening walls is very popular in modern landscaping. Brick and aggregate concrete make excellent terraces and patios. Hot tubs, container plants, raised beds, water features, and sculptures can all be combined to enhance an outdoor living area.

The recreation and sports area is naturally a part of the family activity area. Some families enjoy sports such as tennis or swimming that require special planning. If you may someday add a tennis court or swimming pool to your site, be sure to leave enough space.
The needs of small children for landscape space should also be considered. Plan for sandboxes, swing sets, playhouses, and toys to be located in the family activity area. Consider their removal when the children grow up.

Utility or Service Area

Every residential landscape requires an area where gardening equipment, garbage cans, firewood, bicycles, and other items can be stored. Often these items end up at one side of the garage, behind the back porch, or under the deck. When designing your landscape, set aside a certain amount of space for these necessities. Try to provide space for an outside utility building that is easily accessible.

Remember to keep the back of your site accessible to vehicles. Some day you may need to have a tree removed or a concrete patio installed.

Space for gardening activities, such as a greenhouse or beds for vegetables and cut flowers, should be provided for this area. Also, locate any compost pile here. If unsightly utility areas are visible from your house or patio, a screening wall or hedge may be needed. Do not forget to screen off unsightly areas from the neighbors, also.

Checklist for Steps Four and Five

Public or entrance area
- Is your entrance adequately accented?
- Is your house number easily seen?
- Do your guests enter where you want them to?
- Does the walkway attract attention?
- Are exterior lights required?
- Is the house "overplanted" with shrubs?
- Have you considered using small trees and ground covers?
- Do foundation plants vary in texture, form, size, and color?

Family activity areas
- Do you need a patio, deck, or terrace?
- Are there outdoor cooking facilities?
- Are hedges or screening walls needed to provide privacy?
- Do you need a children's play area?
- What about accessibility?

Utility area
- Is this area easily accessible?
- Will it accommodate all the equipment to be stored?
- Is screening needed?
Is the garden area, if any, located where it will receive maximum sunlight and have good drainage?

Step Six - Design, Construct, and Plant

Landscaping guided by a series of "rules" does not take the needs of individual families and sites into account. Do not let your design be limited by such so-called rules as "always plant shrubs in groups of three or five," and "never plant annuals in the public area." Good design rarely results from following rigid rules.

Design Concepts

This publication does not provide any rules or recipes for landscape design. Instead it offers some design concepts to be drawn upon selectively to meet individual landscape needs.

In designing a landscape, consider the site inventory and analysis, the style of architecture, and the family's personal landscape requirements. The objective is to create good visual relationships between the features on the site and the site itself. Creating spaces is important in accomplishing this objective. The finished design should reflect the priorities set by your family to satisfy its aesthetic values and functional requirements.

From among the modern landscape trends explained in this section, select those that will enhance your site. Landscape design includes both plants and construction materials.

Emphasize by Group Planting

Rhododendrons, azaleas, and dogwoods can be mass planted in informal beds (Fig. 9). Try to locate the plants so that a natural scene is created as they mature. Plant the shrubs or trees together in one large bed and mulch well. Consider adding bulbs for seasonal color.

Provide Privacy

If the site analysis reflected a need to screen unsightly views, provide a noise barrier, or create privacy, plant evergreen shrubs or build a screening fence. If room and time allow, a natural evergreen hedge may be the answer. Many trees and shrubs that make good screens grow very well in North Carolina. For immediate privacy and low maintenance, you might choose to build a fence. The space required for various types of screening barriers is shown in Figure 10.

Specimen Plants

In selecting plants consider quality, not quantity. The plants used should be of specimen quality. Locate plants where they will create focal points and draw attention to a special area.

Energy Conservation Through Landscaping
Locate deciduous trees where you will benefit from summer shade and winter sun. Use a windbreak if necessary. Combining these landscape ideas with proper insulation and conservation habits can significantly decrease energy consumption.

Construction Materials: Wood, Brick, and Railroad Ties

For many people, the term residential landscaping immediately brings to mind dogwoods, azaleas, and Kentucky 31 fescue. In other words, they think of landscaping and planting as synonymous. But you can broaden your idea of landscaping to include screening walls, patios, outdoor lighting, walks, and decks. Landscape architects incorporate many of these items as important landscape features.

Wood construction offers the homeowner a readily available and relatively simple way to create functional, pleasing outdoor garden features. Selecting the proper kind of wood is important because the finished product must withstand all kinds of weather and insect attacks. The wood must also be strong and resist wear, splintering, and warping.

Use either the heartwood of a decay-resistant species or lumber that has been treated with a preservative for outdoor construction in North Carolina. The naturally decay-resistant woods are redwood, cypress, and western red cedar. Various outdoor grades of these woods are available, although all are quite expensive.

Treated lumber is more economical and is satisfactory for most projects. Pressure-treated wood is the best choice. This lumber must meet certain standards for various uses and is marked accordingly. Several yellow pine species native to the South are often used for treated lumber.

Waterborne salts are the best wood preservatives. Wood treated with these salts can be painted or stained; it is odorless and nonleaching. To eliminate any confusion, ask for "salt pressure-treated lumber." It is also a good idea to help select the various sizes and lengths. Try to find lumber that is not warped or splintered and that has the fewest knots.

When designing a structure to be built with treated lumber, try to use the entire board. Common lumber lengths are 8, 10, and 12 feet. Longer boards are progressively more expensive. A deck designed to be built with 10-foot lumber will be much less expensive than one designed with planks 10 feet 8 inches long. Also, remember that you are working with "outdoor scale." Instead of an 8-foot ceiling and walls 12 to 15 feet apart, outdoor spaces might be defined by a 25-foot tall tree canopy or the backyard fence 75 feet away.

If you are designing a deck or patio for outdoor entertaining, imagine all your guests in the allotted space. Outdoor furniture is usually heavier and larger than that used indoors, and people are accustomed to more elbow room outside. Stake off the space you plan to use and see if it "feels" the right size.
Brick is one of the easiest construction materials to use and is readily available. Building a walk, terrace, or patio can be a weekend project. Laying brick on sand (with or without mortar) is an acceptable landscape practice.

Railroad ties offer many possibilities for landscaping. They make very attractive retaining walls, planters, or borders. Use care to square off rough ends and turn down ragged edges.

The Edible Landscape

The term "edible landscape" will become quite familiar to many North Carolinians in future years. An edible landscape challenges the home gardener to incorporate fruit- and vegetable-producing plants into the overall design. It is not necessary to substitute these plants for all ornamentals in the landscape. The idea is to progress from the typical backyard garden and develop a plan that uses edible plants to solve functional landscape problems (Fig. 11)

For example, try planting fruit trees. No matter how small the space, there is some variety of apple, pear, cherry, peach, or plum that can be planted. Dwarf varieties generally reach a height of 6 to 10 feet and should bear fruit within three to four years. Semi-dwarf varieties grow to approximately 15 to 20 feet.

Instead of planting junipers, liriope, or cotoneaster, think about planting strawberries as a ground cover. An area with well-drained soil that receives at least 6 to 7 hours of direct sunlight will produce lush green foliage, spring blossoms, and early summer fruit. Be certain to choose a variety adapted to your area, and plant disease- and insect-free plants. Set individual plants 12 to 18 inches apart in the spring, allowing runners to develop and mass over the entire bed. Clean cultivation is essential. Strawberries are perennials, but their beds need to be renovated every three to four years.

Blueberry bushes are a good substitute for a ligustrum or burford holly hedge. The rabbiteye type is more widely adapted to different soils than are high-bush varieties. Rabbiteye blueberries will not tolerate the cold climate of the mountains but grow well all across the piedmont and coastal areas. Acid soils (with a pH of 4.5 to 5.5) usually promote best growth. Modify soils by adding plenty of organic matter and by mulching with 4 to 6 inches of decayed sawdust. Two or more varieties should be planted to ensure proper pollination. Plant the bushes in full sun about 4-1/2 to 5 feet apart.

Extension offices in every county offer publications on vegetable gardening and on the culture and care of fruit trees, blueberries, strawberries, and figs. Also ask for a brochure listing the various recorded messages on landscaping and gardening available through the toll-free Extension Teletip service.

Preparing the Final Plan
When you have finished the planning steps and considered the various design concepts, you are ready to begin designing your landscape. Your planting plan and plant list should show the
location of all plants and give appropriate information. This final plan will also show any changes to be made in the walks or drive and any additions such as a deck or patio (Fig. 12). The symbols shown in Figure 13 can be used in drawing your plan.

After completing your plan, you will probably be eager to begin work on the landscape. You may want to implement the design over a period of years. Decide which part of the landscape is most important. By establishing priorities, the landscape can be implemented in stages. Always try to finish one project before starting the next. Remember that "design is opinion." What pleases you and your family is the only criterion for a "good" design.

Landscaping combines elements of art and science to create a functional, aesthetically pleasing extension of indoor living to the outdoors.

One purpose of landscape design is to blend man's technology (house or building) into the natural surroundings.

To create a desirable landscape design, you need a knowledge of art elements and design principles.

Elements of art include but are not limited to color, line, form, texture and scale. These elements are not independent of each other, but consider their individual qualities before examining the interactions.

Color variation is best be explained by using a color wheel.
Primary colors are red, blue and yellow.

Orange, green and violet are secondary colors because they are combinations of two primary colors. For example, combine yellow and red to get orange. Tertiary colors are the fusion of one primary and one secondary color. These colors would be between primary and secondary colors.

Tint refers to a light value and is accomplished by adding white to the pure color on the color wheel, while shade is a dark value and is created by adding black to the pure color on the color wheel.

Black, white and gray are neutrals and are compatible with any color. Light colors and tints tend to attract attention, as do bright, vivid colors.

Colors are combined into color schemes for practical applications. Three basic color schemes are monochromatic, analogous and complementary.

A monochromatic color scheme consists of different tints and shades of one color and is seldom achieved in its pure form in the landscape.

An example of an incomplete monochromatic color scheme would include white and pink flowers with a background of a dark pink and red brick house.

Analogous color schemes combine colors which are adjacent or side-by-side on the color wheel. An analogous color scheme could include green, blue-green, green-blue, blue and violet blue.
This color scheme can be achieved by varying the foliage color from green to blue-green or by using pyracantha with orange-red berries against a red brick house.

Complementary color schemes combine colors directly across the color wheel. For example, red and green would be complementary colors. A complementary color scheme is created using plants with green foliage against a red brick house.

It is possible to have varying color schemes in one area of the landscape as the seasons change. White and pink azaleas flowers can yield a monochromatic color scheme with a red brick house.

The green azalea foliage would produce a complementary color for the red brick during the summer. Pyracantha berries would be an analogous color to the red brick in the fall. The landscape designer should consider the color changes throughout the year when developing a landscape plan.

Use colors to visually change the distance perspective. Warm colors and light tints like red, orange, yellow and white advance an object or area toward the observer.

These colors and tints placed near the foundation of a house would make the house appear closer to the street. Cool colors and deep shades like blue, green and black recede. Use them to make the house appear farther from the street.

Cool colors are restful while warm colors express action and are best used in filtered light or against a green or dark background.

Color can be used to direct attention in the landscape. Due to this strong characteristic, use color carefully.

Color in the landscape is important so select plants that offer year-round color not just temporary seasonal color.

Consider the time of day when the color will be enjoyed. White or light tints can create interest on a patio. Dark colors would add little to family enjoyment of this area as the daylight hours passed.

Line relates to eye movement or flow. The concept and creation of line depends upon the purpose of the design and existing patterns.

In the overall landscape, plant arrangement and the way they fit or flow together infer line.

Create vertical line by changes in plant height and the height of tree and shrub canopies.

Branching habits of plants, arrangement of leaves and/or sequence of plant materials create line in a small area such as an entrance or privacy garden.

Straight lines tend to be forceful, structural and stable and direct the observer's eye to a point faster than curved lines.

Curved or free-flowing lines are smooth, graceful or gentle and create a relaxing, progressive, moving and natural feeling.

Form and line are closely related. Line is the outline or edge of objects, whereas form is more encompassing.

Form is related to the size of an object or area. Form applies to individual plant growth habits or as the planting arrangement in a landscape.

Plant forms include upright, oval, columnar, spreading, broad spreading, weeping, etc.

Form is the shape and structure of a plant or mass of plants. Structures also have form and to consider when designing the area around them.

Texture describes the surface of an object than you can see or feel.
Surfaces in the landscape includes buildings, walks, patios, groundcovers and plants

the texture of plants differs as the relationships between the leaves, twigs and branches differs

Coarse, medium or fine could be used to describe texture but so could smooth, rough, glossy or dull.

Scale refers to the size of an object or objects in relation to the surroundings. Size refers to definite measurements while scale describes the size relationship between adjacent objects

Consider the size of plantings and buildings compared on the human scale

PRINCIPLES OF DESIGN

Color, line, form, texture and scale are tools that are used in combinations to adjust design principles

Design principles include unity, balance, transition, focalization, proportion, rhythm, repetition and simplicity. All these principles interact to yield the intended design.

Create unity by the effective use of components in a design to express a main idea through consistent style

Emphasize unity by consistency between units in the landscape. Use of elements to express a specific theme within units creates harmony. Achieve unity by using mass planting and repetition.

Unity means that all parts of the composition or landscape go together; they fit. A natural feeling evolves when each activity area belongs to and blends with the entire landscape

Everything in a landscape must complement the central scheme and serve some functional purpose.

Balance in design refers to the equilibrium or equality of visual attraction

Balance in landscape design is not always necessary. Imbalance may be used with architectural features of some houses to create desirable, interesting effects

Symmetrical balance is often overdone in residential landscape design. This approach seems formal and monotonous

Asymmetrical balance is often more desirable for residential landscapes as the balance less monotonous

Size is balance by mass and texture in this example. Architectural style may dictate the use of symmetry or asymmetry

Driveways, parking and walks must be functional. Position them to provide easy access from points of entry onto the property to the entrance of the house

Too often walks run from the street to the front door with no consideration of access from the driveway to the front door. Many times a walk dividing the front yard is not necessary and may detract from the house

Symmetrical balance means one side of the design is a mirror image of the other side. There is a distinct dividing line between the two sides

Equal lines, forms, textures or colors are on each side of a symmetrical design.

Asymmetrical balance uses different forms, colors and textures to obtain visual balance. These opposing compositions on either side of the central axis create equal attraction. For example, mass is offset by color or linear dimension by height.
The landscape designer must skillfully manipulate the design elements to create asymmetrical balance. The central axis must be predetermined and then developed by the elements of art and other principles of design.

Transition is gradual change. Color transition shows as the radial sequence on the color wheel (monochromatic color scheme) previously discussed.

Transition is created by the arrangement of objects with varying textures, forms, or sizes in a logical sequential order. Examples include coarse to medium to fine textures, round to oval to linear structural forms, or cylindrical to globular to prostrate plants.

An unlimited number of schemes exist by combining elements of various size, form, texture and color to create transition.

Remember that transition refers to the 3-dimensional perspective of composition, not just the flat or facial view.

It is possible to use transition to extend visual dimensions beyond actual dimensions. For example, radical lines in the private area of the landscape can be used to enframe and/or focalize a lake scene.

Transition of plant materials along these lines can make the scene become a part of the landscape.

Transitions from taller to shorter plants with textural changes from coarse to fine along focal lines emphasizes the beauty of a lake scene.

Transitions from shorter to taller plants and from fine to coarse textures would enframe the scene and make it appear closer, like a painting on a wall.

Transition assists in the gradual movement of a viewer's eye to the design and within it.

Proportion refers to the size of parts of the design in relation to each other and to the design as a whole. One large towering oak may compliment an office building but would probably dwarf a single story residence.

A three-foot pool would be lost in a large open lawn but would fit beautifully into a small private area. Moreover, of course, a colossal fountain would dominate a private garden but could enhance a large city plaza.

Proportion in landscape design usually relates to people and their activities. The desired size relationships of components in a design should pose little problem for the designer who considers this principle routinely in systematic thought processes.

When the elements of a design create a feeling of motion that leads the viewer's eye through or even beyond the designed area, it creates rhythm.

Tools like color schemes, line and form are repeated to attain rhythm in landscape design. Rhythm reduces confusion in the design.

Focalization is leading of visual site toward a feature by placement of this feature at the vanishing point between radial or approaching lines.

Straight radial lines create a strong focalization when compared to curved lines. The viewer's eye quickly follows straight lines to a focal point.

Generally, weaker or flowing lines of focalization are desirable in the residential landscape.

Transition of plants or other objects along these lines can strengthen or weaken the focalization.

Curved lines are stronger when curved toward each other than when curved outward.
Create indirect focalization using lines curved in the same direction. Focalization can be adjusted by plant materials along the lines that create symmetrical or asymmetrical focalization.

Asymmetrical focalization is indirect while symmetrical focalization is more direct, creating stronger focalization.

Since focalization can be used to direct attention to a point, traffic is directed to that point.

Focalization could be used to direct traffic in a garden area. Guidance of view toward features of commercial, aesthetic or cultural value may attract the eye of the unaware without conscious effort.

Repetition refers to the repeated use of features like plants with identical shape, line, form, texture and/or color. Too much repetition creates monotony but when used effectively can lead to rhythm, focalization or emphasis.

Unity can be achieved by repetition. Think of repetition avoiding too much variety in the design that creates a cluttered or busy appearance.

Simplicity goes hand-in-hand with repetition. Eliminating unnecessary details creates it. Too much variety or detail creates confusion of perception.

Simplicity is the reduction of a design to its simplest, functional form, which avoids unnecessary cost and maintenance.

Use trees in the public area to soften lines, provide shade and enframe the house.

Trees in the backyard can provide an excellent background for the house as viewed from the street.

Vertical lines of many houses can be effectively softened by a small tree planted in conjunction with other plants at a corner.

Tree shape is very important. A low-branched, rounded tree softens this line while a slender upright tree only accents the line.

A long low house (ranch style) will appear taller in relation to its length by proper placement of plant materials.

Larger trees planted as a background break the horizontal roofline. Smaller trees spaced a few feet from the ends or corners of the house also help the house seem taller in relation to its length.

A tall slender house seems longer with few or no trees in the background. Add medium-sized, rounded trees on either side of the house.

Plants near these trees should be shorter and decrease in height the farther from the house they are positioned. This planting design effectively created a sloping line to replace the strong vertical line of the house.

The house then appears longer in relation to its height.

Trees positioned for shade must be carefully located. Learn what area needs shade, and during what time of the day and what seasons the shade is needed.

This information will determine where to plant the trees relative to sun angle, sun direction and areas to be shaded.

A moderate amount of open area in the front yard can create the feeling of a large expansive area that allows the observer's eye to move from the street to the planted areas.

The planted areas can then direct the observer's eye to the appropriate place. All family activities need not be in the private living area. Some work best in the open portions of the public area.
Landscaping the entrance

The entrance is the area of transition between outdoors and indoors. Give great detail to the planning and maintenance of this area.

Do this because a visitor is close to this area and moving slowly or standing still. There is time to view this area and a favorable impression can be developed before a person enters the house.

Plantings in the public area should focus attention to the entrance. This means there should be no doubt in the visitor's mind where to enter the house.

If the house is commonly approached from more than one direction, create the focalization of the entrance form the different perspectives.

Focalization is achieved through repetition of plant masses. Transition of plant form, color and texture and the bed lines can help direct attention.

Focusing attention toward the entrance is not the same as accenting the entrance or access area along both sides of a walk in the open lawn only draws attention to or accents the walk.

These do not direct attention to the entrance, but actually distract the observer's attention from the entrance area to the walk itself.

There should be a feeling of intimacy or comfort with limited exposure when a person is standing in the entrance area.

Security and the need to focus the entrance may dictate the extent of exposure in this area.

In a outdoor public area for a larger home, an extensive entrance garden may be appropriate. Be careful to keep this area in scale with the house and its surroundings.

Plant Selection and Placement

Plant selection is the last step in the design process. Up until this point, plant form, texture, color and size have been visualized, but a name must be assigned to each plant in the design.

Select plants according to their climatic adaptability to the microclimate of the location, plant architecture and availability.

No matter how well a plant meets the physical characteristics for a location, if it is not adaptable to the conditions there, it will fail.

These microclimate conditions include sun intensity and duration, soil conditions, rainfall, air circulation and temperature.

Some plants perform better in partial or full shade than in full sun. The length of daily exposure to a particular light level also influences plant responses.

Soil pH, soluble salt level and drainage properties influence plant adaptability greatly. Plants can be selected to tolerate varied soil conditions, but you need a working knowledge of available plant materials.

Little or no air movement may characterize some locations in a landscape. Plants that are susceptible to mites, scales and other insects are usually more severely in areas with poor air circulation.

In addition, locations in the landscape differ as to the maximum or minimum temperatures and daily fluctuation between these extremes. Use plants that tolerate these conditions.
Plant architecture consists of form, size, texture and color. Plant form is classified as columnar, upright, spreading, broad spreading and prostrate. Select plants according to their mature size or a size at which they can be easily maintained.

Texture is fine, medium or coarse. It is determined by branching habit, leaf size and shape, leaf arrangement, leaf color and leaf surface (dull or glossy).

The foliage, flowers and fruits determine plant color. Knowing a seasonal color variations of a plant is essential.

Space plants according to their mature size. Plants in large areas or groups are generally spaced to cover an area in 3 to 5 years.

Plants should be spaced far enough from the house so that there is adequate air circulation near the house. Generally, space plants from the house by at least the distance of the plant radius at maturity. Spacing plants too close to the house is a common mistake.

Minimal Maintenance Considerations

Maintenance is a part of gardening. It cannot be avoided, but it can be minimized. Even the perfectly designed and installed landscape will fail if maintenance fails. Unfortunately, many maintenance problems are designed into landscapes.

Complex designs usually require more maintenance. Simplicity is achieved by avoiding unnecessary detail. Limit the number of plant species and create well-defined planted areas by not scattering plants throughout open areas.

Design the appropriate size of maintained area and arrange plants in groups of like species to create a mass effect.

Tree beds can eliminate trimming, reduce lawn mower damage to tree trunks and increase the speed of mowing. Edging of beds creates a sharp clean line and reduces maintenance requirements.

Make sure bed lines encompassing a lawn area meet at angles greater than 90 degrees. Walk, driveway and patio surfaces that are in grassed areas should be above the ground level. Avoid improper plant selection, spacing and installation that can cause maintenance headaches.

STEPS IN DEVELOPING A LANDSCAPE DESIGN

The benefits of an organized system in developing a landscape design are tremendous. As with most endeavors, the level of efficiency relative to time input is greatly increased with an organized approach. The game plan for the landscape designer should follow a sequence such as the one presented here:

Steps In Design

1. Develop a plot plan.
2. Conduct a site analysis.
3. Assess family needs and desires.
4. Locate activity areas.
5. Design activity areas.

Develop a Plot Plan

It is difficult to visualize certain aspects of design without putting it to scale on paper. The designer should think with drawings or sketches and make the mistakes on paper not on the landscape site. The plot plan should consist of 1) accurate house placement on the lot, 2) accurate lot and house dimensions with window and door placement and 3) existing driveways and/or walks. It saves a lot of time if the customer has an accurate plat of the house and lot and a house floor plan with outside dimensions. These plans maybe secured from the builder, developer or county or city property records. Although the floor plan scale will probably be different from the scale you use, it will still be easier to convert the scale than to physically measure the house, lot, etc.

Once the house position on the lot has been determined, this should be drawn to a predetermined scale on tracing paper placed over grid paper. Commonly, 1 inch equals 5 feet or 1 inch equals 10 feet, but you may choose another scale based upon your drawing equipment and project dimensions. Recommended drawing equipment includes: drafting pencils, T-square, scaled rulers, triangle, art gum eraser, drafting tape, grid paper (8 or 10 squares to the inch) and tracing or drafting paper. The designer must have a firm, steady working surface.

Conduct a Site Analysis

A complete survey of the customer's property is essential. The plot plan will assist you in organizing the information from the site analysis. A thorough site analysis can save you time and money. Existing vegetation, natural factors and features, views, noise levels, utility placement, easements/setback lines and primary architectural features of the house should be noted.

Existing plants should be examined. Tree condition and placement should be recorded. Trees on adjoining property that would affect shade patterns on the customer's lot should also be surveyed. This information is essential to designers, especially since it is their responsibility to blend this home into the natural or existing setting, or to create a setting to be functional and to complement the structure. Shrubs, groundcovers and grasses should also be examined as to their condition and potential use.

The landscape horticulturalist may also be involved in protecting existing vegetation during construction. It may be desirable to block vehicular traffic from areas close to valuable trees.

Natural factors and features of a landscape include house orientation, land form, soil conditions, rainfall distribution, seasonal wind pattern and micro-climatic conditions. House orientation affects the exposure of various portions of the house to the sun (Figure 11). This knowledge is essential so the designer can provide shade in important spots and locate activity areas appropriately. For example, a southeastern exposure is generally the most comfortable spot year-round while a western slope will be hot in the summer and cold in the winter.

Figure 11.

Land form refers to slope or land elevation changes. It determines surface water drainage patterns and is essential knowledge for the landscape horticulturalist in developing functional and aesthetically pleasing landscapes.
Soil characteristics will determine selection and placement of plants. Soil pH, nutrient and waterholding capacity and drainage should be considered. Native fertility levels and soil characteristics may be indicated by existing vegetation. Turkey oaks on the property usually indicate dry, infertile soil. Native cypress trees usually indicate poorly drained soils exist or did exist in that area.

Rainfall distribution can be determined on a regional basis. Periods of heavy rainfall can magnify the problems of shallow soils or a hardpan resulting in unwanted standing water. Sometimes these conditions may require the engineering of drainage modifications by some type of tiles or pipe. Often the conditions simply require careful plant selection.

Predominate wind directions differ with the area of the state, the season and the time of day. Where the wind direction differs in summer and winter, plantings can be arranged to block the cold winter winds from a patio and direct summer breezes into this same area (Figure 12). While conducting the site analysis, be sure to look for existing wind breaks provided by plants and structures on the property or on adjacent property.

Figure 12.

All of these factors interact to create micro-climates. This means that the conditions in a isolated spot may differ considerably from the conditions in another area of the landscape. The designer must consider those variations in order to “fine-tune” the landscape plan and plant selection.

Views should be identified that are to be preserved or accented. Likewise, less desirable views must be considered so screening can be planned. Views and activities 30 feet (9 m) or so from the property line must be surveyed. During the site analysis, views should be observed from inside the house to outside and from outside to inside the house (Figure 13). Observe the neighbors’ property from positions on the customer’s lot and view the customer’s property from the neighbors’ lots if possible. The house should also be observed at multiple angles from the street. Pictures from an instant camera can be helpful in reminding the designer of specific views when sitting back at the drawing table.

Figure 13.

Surrounding distractions must be identified. You may need to question neighbors or the property owner about these factors. Record a noise source like roads, factories, saw mills, etc. and plot the direction and distance of the source. The time of day for peak noise levels can be important as well. It may be necessary to return to the site during such a period. Other distractions could include glare or odors.

Utility lines may be on poles or underground. Locate the position of these on the plot plan. Also locate the electrical meter on the house, the air-conditioner unit and water outlets. Consider the position of television and telephone cables, water lines and sewage lines, or a septic tank and field line. Television cable companies and the telephone company will usually locate their service lines accurately. However, these services must be requested in advance.

Architectural style of the house is of primary importance. Specific details of interest must be identified during the site analysis. Things like the height of windows, the height of house corners from the ground and overhang widths should be considered. Is the house guttered or should it be? If so, locate the outlets. Notice major traffic problems so proper access and movement can be provided.
Assess Family Needs

A landscape should be an outdoor extension of indoor living areas. It should be functional and provide space for family activities. Before the designer can create such an environment, knowledge of certain family characteristics is essential.

The questions used in the form at the end can be among those asked of the customer.

Locate Activity Areas

Once the family needs have been determined, areas for these activities must be located on the property. Their placement should be considered in terms of the house plan and in relation to other activities in and adjacent to the property. These activity areas could include a public area, entrance, living area, quiet zone, service and work area, or vegetable or cut-flower garden plot.

These areas should be defined on the plot plan or maybe on a piece of tracing paper laid over the plot plan. Actually sketch the outline of these areas (Figure 14). Be sure to include all needed activity areas and draw them to scale and to the size necessary to accommodate the activity, yet still fit within the property lines.

Figure 14.

Two major considerations for the placement of areas must be emphasized. 1) Place outdoor areas in relation to indoor activity areas (Figure 14). The outdoor living or entertaining area should be an extension of the family or living room in the house. The service area and work area may be an extension of the laundry room, kitchen or garage.

2) Arrange areas relative to the activities in each and activities on adjoining property. For example, do not position the children's play area beside the quiet zone. Always leave a clear view to the children's play area from some identified observation point like the kitchen window.

Design Activity Areas

A systematic approach should be taken in designing activity areas. First, determine the objectives of the design and establish the general type of plan—formal or natural. Plan for structural needs, consider land form modifications, determine traffic flow, develop bed form and then specify plant materials.

Structural needs should be considered first. If a storage building is needed, a level spot and access must be planned. Required access may mean a path or limited vehicular access to haul in firewood, etc.

Land form information derived from the site analysis can be used now. Do surface water drainage problems exist? If so, determine how to correct them. Engineering and legal considerations are involved in major surface water drainage problems. Seemingly simple solutions may affect someone else's surface drainage. Consider grassed waterways, paved waterways or possibly drainage tiles. Drainage problems may not exist but land form modifications could be used to create interest, or help block undesirable views or noise. Care should be taken not to create surface water drainage problems with land form modifications.

Existing land form may have slopes which will erode. Existing slope or steepness will determine what actions should be taken. Ground covers may be the answer for long, gentle slopes while terraces with railroad ties or blocks may solve the problem of a short, steep bank. Grass should not be put on slopes greater than 1:6 (1 foot of rise per 6
feet of run) because of maintenance safety. Other ground cover materials will probably hold a 1:2 or 1:3 slope. Bark mulch should not be placed on a slope greater than 1:10.

Bed form, traffic flow and plant selection and placement utilize art elements and design principles previously discussed. These can best be covered as the development of specific areas is discussed.

Public Area. The public area is the portion of the residential landscape the public sees and uses. The current trend toward smaller residential lots encourages the development of some of the front yard for family living. The public area contains the driveway, parking, walks, open space and entrance area. The purpose of the public area is to enhance the home, provide comfortable access and lead the visitor to the entrance.

Foundation planting is not all of landscaping but can be a vital part of functional landscape design. Too often foundation planting is overdone and left to stand along. History reveals that foundation plantings were used to block the view of raised foundations and to slow cold air movement under the house (Figure 15). Although these needs do not often exist today, some landscapers and homeowners think it is a must to cover every linear foot of the foundation with plants.

Figure 15.

The objectives of foundation planting are to focalize the main entrance, compliment the architectural style of the house and to break long continuous lines of the house and blend it into the surroundings. The designer should avoid competing elements which detract from the main entrance and the house in general. An isolated bed in the middle of open lawn area is one of these competing elements. Plants should be selected which can easily be maintained to proper scale with the house. This is probably the most common failure of foundation plantings.

A general rule of thumb is that the height of plants in the foundation planting should not exceed two-thirds the height of the wall at house corners (Figure 16). Generally, plant height should not exceed the height of a line extending from the doorway to this imaginary point at the house corner. This does not mean every house should have plantings this high.

Walk and driveway surfaces should be selected based on traffic demands. Low traffic walks and driveways may be surfaced with less expensive materials such as bark or gravel, but walks and driveways with high traffic demands should have a hard surface.

Walks accommodating two people abreast should be at least 4 feet (1.2m) wide (Figure 18). Walks for one person should be at least 30 inches (74cm) wide (Figure 18). A straight driveway for one car should be at least 8 feet (2.4m) wide while 14 feet (4.3m) is required for two cars side-by-side. Circle drives should have a minimum inside radius of 18 feet (5.5m) and an outside radius of 32 feet (9.8m) with a surface width of 14 feet (4.3m). Steps should be designed with human comfort as the top priority. Generally, a taller step, one with greater rise, should have a longer tread area. A handy rule of thumb states that twice the rise in inches plus the tread should equal 26 or 27 (Figure 19). Ramps for wheelchair access are necessary or desired in some residential landscapes. The average wheelchair user can negotiate a 5 percent gradient independently and the minimum width is 3 feet (90cm). The bottom and top approach to a ramp should be clear and level for a distance of at least 5 feet (1.5cm).

Figure 18.
Figure 19.

Driveways must be wide enough at the street to allow cars to merge easily into the flow of traffic. The higher the average speed of the street traffic the wider the mouth of the drive should be.

The view of street traffic from the driveway entrance should not be blocked. Large plants placed along the driveway entrance create a dangerous situation. Plants on the outside of a curve in a driveway or highway aid the driver by giving definition to the traffic flow. Make sure such a planting blends into the total design. A plant screen on the inside of a curve in a driveway or highway is hazardous because it blocks the driver’s view of the road ahead.

Living area. Elements in the living area, primarily the backyard, depend upon the desires and needs of the family. These desires and needs were determined during the interview outlined previously. This area must be clearly organized to avoid wasted space. Living area space must be organized based on the activities to be included there. Consideration is given to the house design, land form and house orientation as they relate to space organization.

Private area(s) are usually a part of the living area. A private area may be for reading and meditation as an extension of the master bedroom or it could be an area for small group conversation as an extension of the living room. A private area may be placed close to the house or in an isolated corner of the landscape.

Space and equipment for children’s play are required in many landscapes. The play area should be an integral part of the landscape. Enclosure of this area may be required, based on age of children, size of area and activities on adjacent property. The permanency of the play area depends upon the ages of the children and family plans. If the children are 8 to 10 and no other children are expected, the area may be temporary and plans for future modification should be suggested to the customer.

The children’s play area may require some open space. This space may also serve for adult entertaining. Planning for multi-use space of this sort can lead to high space utilization and efficiency.

It is often important to provide a degree of privacy in the living area. Fencing, walls or plants used for this purpose can also block views, enhance views and direct or block prevailing winds.

Structural features in the living area could include a patio, deck, terrace, water feature and/or garden and workshop. A patio used as an extension of the family room should be at least 12 feet by 15 feet (4m by 5m). The selection of surface material is based on land slope, expected use rate, style of the house and the amount of funds available. Raised wooden decks are suited for sloping land and are cooled by air flow beneath them. Brick and sand is less expensive than brick and cement and if installed properly can be quite durable. Stained concrete and concrete with an aggregate surface are also alternative surfaces for patios.

A water feature could be a swimming pool, spa, or a simple reflection pool. Moving water creates a secure, relaxed feeling in a private area and is often overlooked for this use. Expense of these items is often the limiting factor.

The designer should be concerned with traffic flow and circulation in the living area. Each unit in this area should be a part of the whole and contribute to the overall circulation.
pattern. This is especially true in the areas where entertaining is planned. Areas of limited access, like service areas, may not be a part of this circulation pattern. Circulation refers to the movement of people's eyes and then their bodies through a specific pattern in the landscape. For example, a quiet sitting area located in the back corner of the lot is hidden from view of the patio (Figure 23). Proper bed arrangement and plant selection will lead the observer to one focalization point in the landscape. The person, now located at that point sees another focalization point and so on until the sitting area is seen. This systematic method moves people from one point to another until the desired circulation and traffic flow patterns are created. Walt Disney World is a working example of planned traffic flow by this technique.

Figure 23.

Service Area. The outdoor service area is an extension of the indoor service rooms like the kitchen, utility room and/or garage. It is a part of the overall design, but is usually screened from most parts of the living and public areas. Access from the house and from other parts of the landscape will be necessary. Sometimes vehicular access is desired. The family interview previously discussed, will determine what must be included in this area. The amount of space available and number and type of activities to be included will determine the required size.

A service area could include tool storage, work space, clothesline, garden supplies storage, trash cans, firewood and a vegetable or cut-flower garden. It is possible to have service functions in two or more locations in the landscape.

Definition and Separation of Areas. Once the activity areas have been located and ideas for development of these areas have been formulated, the need for separation of these areas is often apparent. Space can be the medium for separation when working with a larger piece of property. Most often some other type of separation is required due to the number of separate activities planned in a small area. Sometimes it is only necessary to define space with a rail fence, etc., rather than providing a complete screen or barrier. Spaces can also be separated by changes in elevation. Planters can separate areas and can be a very attractive means of defining space.

A visual screen from one direction without being a physical barrier fits the bill for some situations. Groupings of plants can be positioned to give a visual block in one direction while allowing air flow into the activity area as previously shown in Figure 12.

The required height of a screen depends upon the elevation of the view to be screened. A screen for privacy from the neighbor's two story window will require a taller screen than one for blocking the view of a neighbor down in the valley (Figure 24). Generally, a screen should be placed as close as possible to the item to be screened.

Plant materials provide an inexpensive screen with color and interest. They generally require more space than fences and it takes time for them to grow to mature size. Fences provide an immediate screen, occupy little space and are quite expensive. The budget and available space will be the determining factors in this decision.

Screens can be combinations of raised land form, ground covers, small shrubs, large shrubs, and trees to give a complete or strong barrier. This combined planting is especially suited for noise abatement where the lot adjoins a busy public street (Figure 25).