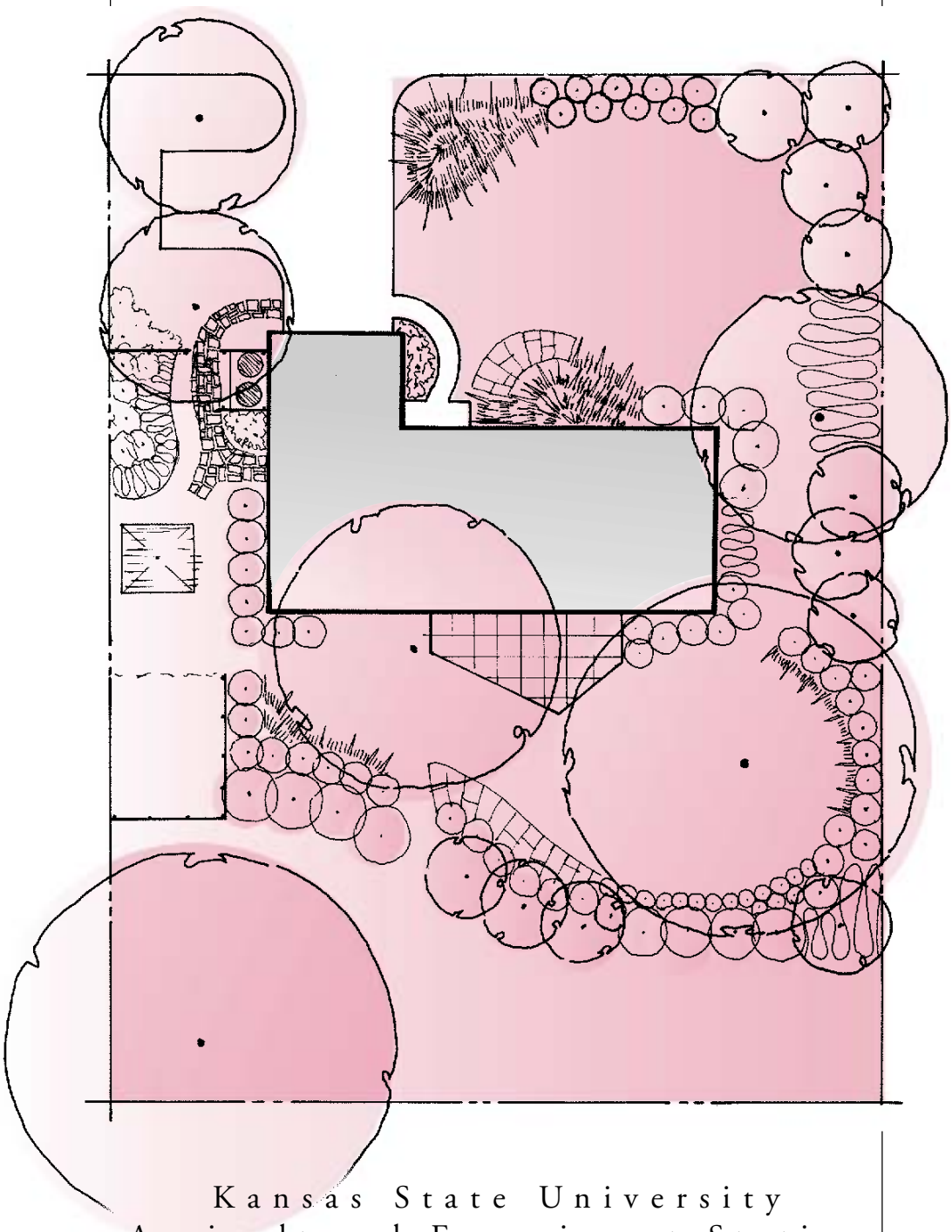
K-STATE
Kansas State University

RESIDENTIAL LANDSCAPE DESIGN



Kansas State University
Agricultural Experiment Station
and Cooperative Extension Service

Contents

Cost of Landscape Development— More than a Monetary Measure

A family's house and grounds should provide them with a source of pride, a retreat for relaxation, a place for entertaining friends, and a refuge from workaday pressures.

Many families fail to consider the long-range and psychological ways in which their homes will enrich or impoverish their lives.

They fail to budget for grading (cuts and fills of soil), driveways, patios, walls, screen fences, lawns, trees, shrubs, and professional services. The average cost for developing land is between 10 to 20 percent of the cost of the house and lot. These figures do not include a large installation such as a swimming pool.

A new house with concrete stepping blocks for walks, loose gravel for a drive, and four junipers (one for each corner of the house) does not create a landscape. In fact, it appears as though the owner has run out of funds.

The ideal situation is to plan the house and grounds together whether you are purchasing a site, purchasing a house on undeveloped land, or renovating an older existing house and grounds.

Site Analysis

A family needs space to relax, to garden, to play, to dry clothes, and to move around in.

Intensive land uses require approximately level land. Increasing slope diminishes land usage and the satisfaction it may provide. Nearly level surfaces are required to cultivate the ground, to accommodate gatherings of people, to allow for competitive games, and even to place chairs and tables comfortably.

Hillside landscapes, however, are not inferior to those on flat land. On the contrary, a hillside molded to produce several level areas makes a more interesting landscape. The very molding of the ground creates considerable interest although it also is likely to increase costs. Only the floors of the buildings need be level.

All land has its own particular characteristics, making it useful for some purpose or easily adaptable to others. A careful analysis of required uses often will permit an imaginative buyer to purchase a site considered unsatisfactory by the general public at a lower price.

Many people are not familiar with the possibilities a sloping site offers.

Although designing a sloping site is not simple, coordinating indoor with outdoor spaces and designing them according to use may pay even greater dividends than less difficult situations.

Often corner lots are more expensive than those in the interior of the block. Greater expansiveness, freedom of air movement, and access to the garage from the side instead of the front are likely to more than offset the cost of maintaining long-street frontages, the lack of really usable private space, the hazards of traffic, and the annoyances of noise, dust, and pedestrians "cutting the corner." The corner residential lot generally provides less than 20 percent of private space compared with 50 percent of interior lots; the additional costs of screening the corner lot could be considerable.

An average site is land divided into uniform strips and evaluated by the front footage. Usually the site's width is proportional to the budget of the purchasers.

Where residential lots are especially narrow, the corner may offer a relief from the extreme enclosure of interior lots. The typical rectilinear shape of lots offers

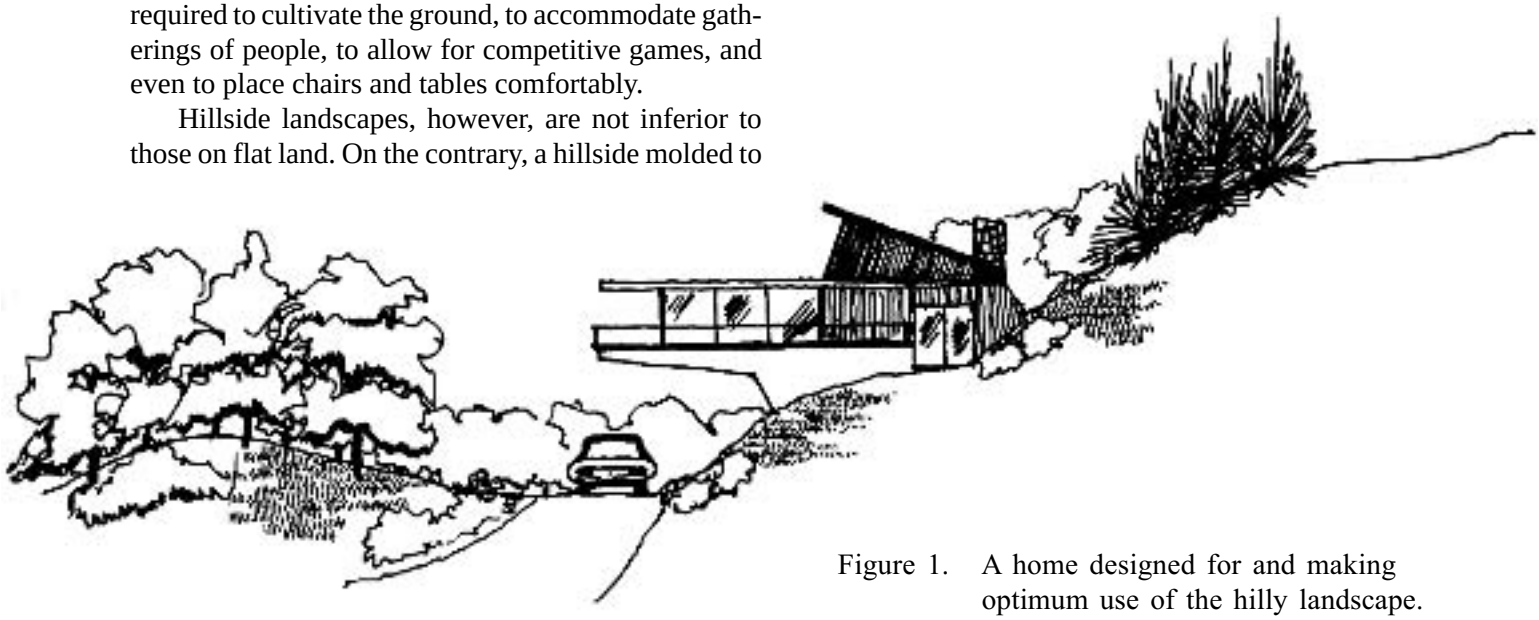


Figure 1. A home designed for and making optimum use of the hilly landscape.

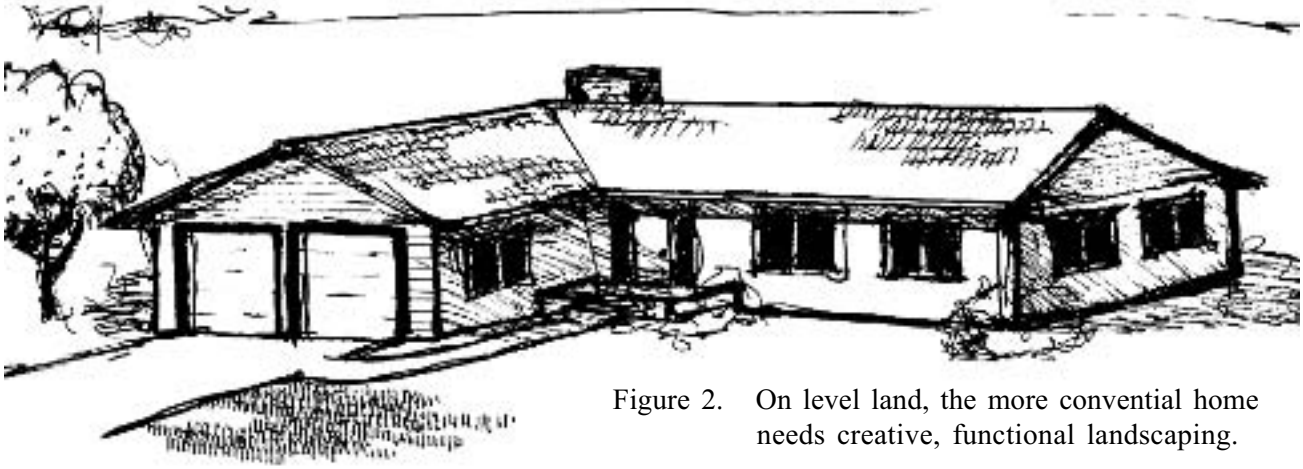


Figure 2. On level land, the more convential home needs creative, functional landscaping.

the prospective homeowner little leeway in house placement. Irregular-shaped lots are seldom available because they usually represent only the "left over" bits when an irregular tract is divided. It is difficult to say which shape requires the more imaginative treatment-the regular, to remove its deadly monotony or the irregular, where a poorly adapted building may leave only fragments and odd-shaped corners to develop.

Imaginative house planning and siting are important, even for the smallest of home properties. They can give greater privacy, provide for more useful activities, increase the sense of space, and lower maintenance costs-within the confines of zoning restrictions.

Consider the following points in selecting the site for your home:

- Are there any zoning regulations and deed restrictions that apply to the property and to properties within the city and county?
- Will your lending agency finance homes in this particular area?
- Is the title to the land clear – free of liens, back taxes, assessments, exact boundaries and business transactions?
- Are there easements on the property?
- Is the neighboring property attractively maintained?
- Is the property close to your work, your schools, your church, and a shopping area?
- Are utilities such as water, sewer, electricity, gas, street lights, walks, paved streets, and telephone lines already installed adjacent to the property?
- Are factories, industries, or airports nearby which cause noise, dust, smoke, and soot if upwind from property?
- Will traffic in the area be congested, noisy, or interfere with daily family travel?
- Does the shape of the lot lend itself to good development?
- Is the sewer line deep enough to allow drainage from a house basement?
- Can you dig a basement and sewer location, or is the lot underlayed with solid rock?
- Is the type of architecture you plan to use compatible with that of neighboring lots?
- Does the topography lend itself to good drainage of surface water runoff?
- Are there large trees, large rock formations and interesting ground forms on the property that can be preserved and incorporated into your house and land design?
- Is the property on a corner which results in more traffic noise, more car lights, and less land for personal development because of building setback lines?
- Will the soil support a structure?
- Is the soil a clay loam which is good for plant growth?
- Is the site on upland which has a view, good drainage, and good air circulation, or on lowland which drains poorly, is damp, has poor views, poor frost drainage, and poor air circulation?
- Are the lot and street oriented to protect important areas from cold winds and hot sun?

Potential usefulness of all elements on the land should be considered carefully in the light of overall development. Preconceived ideas of building and site plan usually call for eliminating objects rather than working with them. Too often a beautiful old tree is removed to adhere to a rigid landscaping plan instead of modifying the landscape to preserve the tree without sacrificing design. Conversely, many trees frequently are saved until after the house is built only to

discover that they are unsafe or obstruct adequate spatial organization. Removing them then becomes complicated and expensive.

The value of healthy existing trees cannot be overemphasized. One or more large trees provides a good scale relationship to the total landscape, gives a feeling of maturity to the design, furnishes a comfortable cozy setting for daily life, and provides shade. Although small trees may provide adequate shade and a sense of privacy, they cannot substitute for large trees in providing good scale and a feeling of maturity. The expense of moving in even one large tree may equal or exceed the total of all other planting costs. When this procedure is too expensive, the only recourse is to plant small specimens of rapid growing varieties. In addition, plant some long-lived, strong-branched, but slower growing trees to supplant the quick and weak. Healthy trees should be retained and used to the best advantage.

A site endowed with rocks, shrubs, natural water, irregular contours or other features is a site endowed with many potential assets. If the homeowner cannot appreciate the natural assets, it is better to choose another site. Natural features suggest unique and fascinating landscapes at minor expense and with good programming, a few dollars spent for fertilizing, pruning, and minor changes may produce results that could not be duplicated for thousands.

Slope for drainage is necessary. Surface water after a rain should drain away from the house foundation, the driveway or sidewalks, the patio, low spots in the lawn and your neighbors' properties.

Because of appearance and use, there are maximum slopes which should not be exceeded.

Walks

Short, 10 feet of walk .... elevated 1' in 10' of length
10 feet and longer ..... elevated 8" in 10' of length
At entrances ..... elevated 21/2" in 10' of length

Patio ..... elevated 21/2" in 10' of length

Short drive ..... elevated 1' in 10' of length

Parking at garage entrance
..... elevated 31/2" in 10' of length

Turf-covered ground slope ....
..... elevated 3' in 12' of width

The amount of runoff will be determined by rate of rainfall; the absorptive capacity of the soil; the amount of land covered by impervious structures, including buildings, walks, driveways and paved terraces; and the total area of the watershed. Total watershed does not mean solely the total area of the site considered; it may mean the total area of several neighboring sites as well. Every effort should be made to use existing contours, not only to save money but also to inspire fine design. A row of trees lining a contoured driveway makes beautiful lines in the landscape.

Site and Soil Qualities

The way the soil around your home site handles water is important. Good or poor grading will make the difference. Water running downhill will collect in low places on the land surface. Avoid building in low-lying colluvial areas near the heads of drainage ways and near the base of slopes adjacent to higher lying uplands. Costs to have a dry lawn and house will be greater on the low lying soils.

Do not build on flood plain soil: you are asking for trouble. Flood damage losses soar into millions across the nation annually. In most places more rolling and higher-lying soils of the uplands are well drained and better suited to home sites than soils of the flood plains.

Certain clays shrink when dry and swell when wet. Soils that shrink and swell require stronger, and larger footings than other soils. If your footings are not strong enough to resist these clays, your basement will crack and eventually let in water and insects that may damage the entire structure. It costs hundreds of dollars to repair this damage, the life of the building is shortened, value is reduced, and contamination may occur when septic tank drain fields are used.

The color of the surface soil does not tell the whole story; dig in and look at the subsoil color.

If you're planning a basement, avoid building your home on flat, wet soils with gray colors in the subsoil. It is almost impossible to have a dry basement when the water table rises above the basement floor. Good gardens, lawns and shrubs are difficult to grow on wet soils. Homes with basements built on high-water table soil remain damp and may become moldy and unhealthy to live in.

When building on a corner of a field, look for moisture in plowed areas. Well drained soils dry out first and are a good guide in studying an area for a satisfactory home site.

When looking for a home site, observe vegetation. Changes in crops and native vegetation indicate changes in soil conditions.

Many homes depend on soil for disposing sewage through septic tank drainage fields. Ill-functioning septic-tank drain fields are common health problems.

The average home with bath, laundry, and sanitary facilities uses more than 400 gallons of water per day, or 146,000 gallons per year. In town, this waste water is handled by sewers. In urban or rural areas, waste

water commonly is handled by septic-tank disposal-drainage fields in the soil. Disposing of waste water is a problem. Neighbors down the ditch or stream don't want it, and you don't want it overflowing on your property.

Many soils are unfavorable for septic-tank disposal systems because they cannot absorb water or septic-tank effluent rapidly or follow along rock ledges. These conditions contaminate wells and springs. If you must use septic-tank drainage fields select a well drained soil that will absorb 300 to 400 gallons of water daily.

Rows of tall grass growing over septic tank drainage lines usually indicate drainage fields not draining satisfactorily. When septic tank lines are installed properly in good soils, lines don't show in the vegetative cover.

Contamination is possible in porous soils. Water or septic tank effluent in drainage fields percolates through some soils rapidly and may contaminate drinking water in wells or springs.

Bedrock

The depth and kind of bedrock are important. Two main kinds of rock materials greatly affect the use of land for home sites—fixed bedrock and loose rocks or stone. It costs five to seven times as much to dig a basement where there is only a thin layer of soil over bedrock.

A good soil map or soil auger borings could save you money by helping to locate your basement on stone-free soil. In many soils, underlying rock is soft enough to be moved easily by heavy machinery; in others, blasting is needed.

Watch depth of soils, especially in steep areas. Most soil on steep and very steep slopes is shallow to bedrock, droughty, low in productivity, and poor for home sites.

Other qualities of the soil, besides its permeability or resistance to rainfall, must be considered. Depth of topsoil and general fertility are important unless most of the area is to be paved. Soil structure is another factor. If plants are to be grown only in small spots, poor soil can be replaced. Where large areas are involved, changing the structure is likely to be long and costly. Acidity and alkalinity limit what plants can be grown without corrective measures. Except in extreme cases, the list still will be abundantly long, but those beautiful limestone outcroppings should not be imagined as fitting backgrounds for rhododendrons and mountain laurel.

Soil Maps

Detailed soil maps can give you good information. On-site investigations are sometimes necessary for small tracts of land and for extremely variable and complex soil areas. Soil maps may be available in extension offices in counties where soils have been mapped.

When soil is moved around on your lot, set aside the topsoil, grade the subsoil for proper drainage, and then replace the topsoil. Four to six inches of good topsoil is necessary for growing a good lawn. On the average, two feet of good topsoil is necessary for shrubs and four feet of good soil to start a tree.

Contour Maps

A contour map is drawn to scale. A convenient scale to use is to have 1 inch on paper equal 10 actual feet (l" = 10').

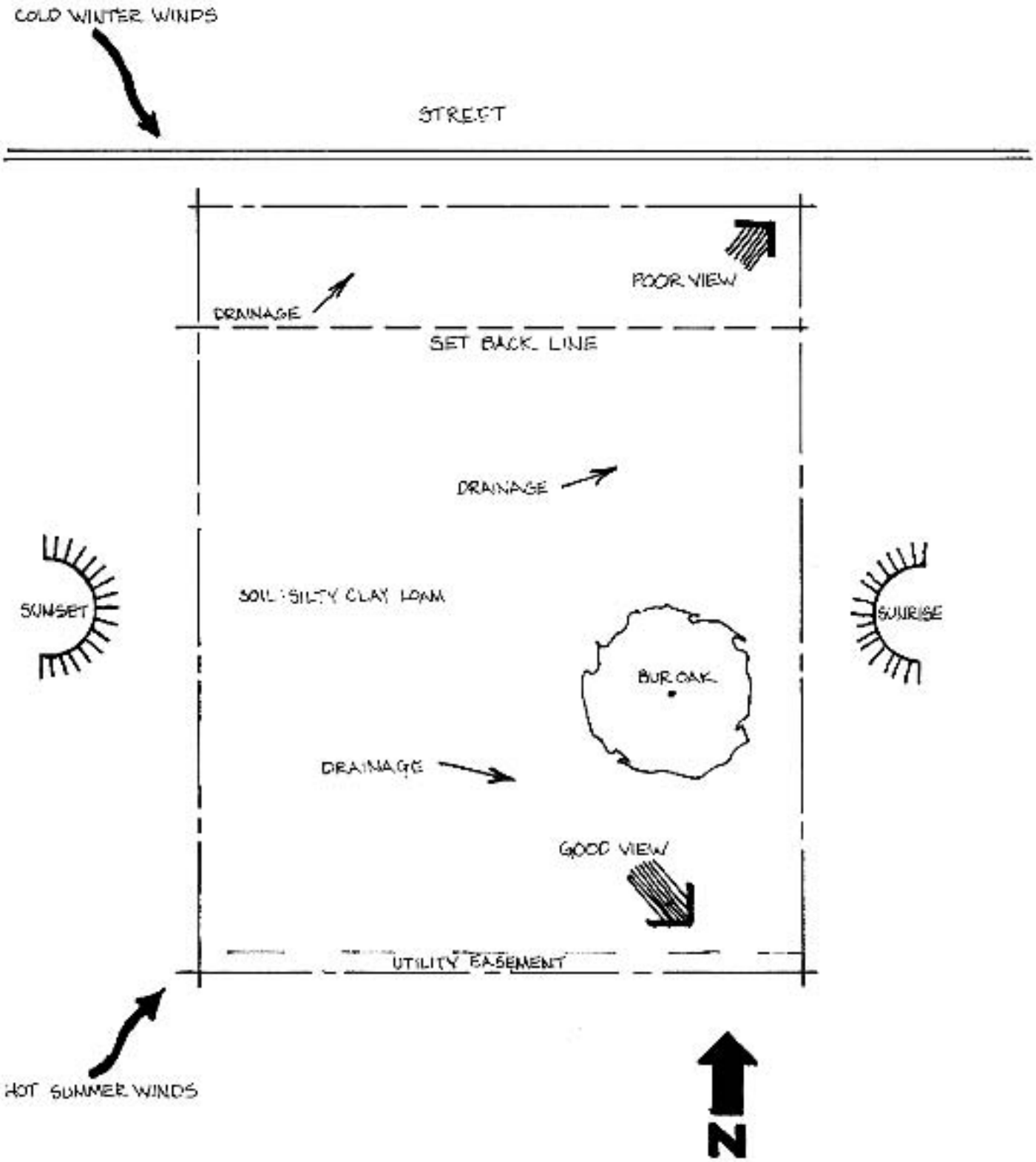
A contour is an imaginary line of the earth's surface, or a line drawn on a map or plan which connects all points having the same elevation in reference to one common existing elevation on a permanent object, such as a street curb, fire hydrant, or other permanent object. This mark often is given the reference elevation of 100 feet.

On a subdivision lot, use a contour interval of one foot. Every time height changes by one foot on the lot, another contour line is drawn, on the map or plan.

Closely related to contour is view. The proposed use of the site will be important in determining the value of views. Home sites on high points are always in demand. The house in a high position affords unsurpassed opportunities for interesting views both within the property and beyond it. This does not mean that the very summit of a hill is necessarily the best place for a home. Distant views extending in all directions may be monotonous; and, if there are no large trees, coziness, comfort, and protection from winter winds may be sacrificed. A delightful place for a summer cottage is not necessarily pleasant for year-round living.

Views beyond the immediate grounds are always desirable and intensify the feeling of extended space and freedom. Permanence of the views must be considered. Will subsequent developments destroy or obliterate the views? Not all views from properties are pleasant. Weigh the undesirables when considering the views. The view you appreciate beyond your grounds should be arranged to limit an equal view in. Views from an open lawn in front of a house, for instance, may be exceedingly pleasant, but the lack of privacy may inhibit your enjoyment of the lawn. Select a site where all views are good or where poor ones may easily be screened out.

Figure 3. Physical site information plotted on paper provides guidelines in selecting optimim house location.



Orientation, the relationship to compass directions, is important in selecting the site, as is the orientation of the building on the site. Formerly the two were considered practically the same thing. Now that the distinctions between back yard and front yard are disappearing and the living room may be on either front or back, the two can be considered separately. It is now possible to face the house toward the north but live on the south side. Imaginative house planning and placement allow much leeway, though crowding of other houses at the sides still frequently offers obstructions. On small sites, sun and breeze usually enter more freely at the front and the back.

It is usually desirable to situate your house closer to one side of the property. The side chosen depends upon indoor-outdoor relationships and the size of space required for the related outdoor activity or feature.

The south and east sides of the house are best for eating and lounging patios when the hot rays of the setting sun are striking the west or north sides in summer during the late afternoon.

Check with your city engineer to get building setback lines. Structures may be placed just so close and no closer to property lines.

If you locate the front of the house close to the street, you make the best use of the property in regard to developing attractive, private, indoor-outdoor living area relationships.

To facilitate the most desirable indoor-outdoor living relationships, orient and locate living rooms or family rooms to the back of the house with a view to the back of the property.

Increased costs of land and building construction are forcing us to live in smaller and smaller homes; we can compensate for indoor spatial deficiencies by making the out-of-doors area more habitable. The home site should permit and encourage outdoor living in conjunction with appropriate rooms, and landscaping should make this living feasible. Sometimes the site itself suggests that all outdoor activities are best on one side of the lot.

Property Lines and Utilities

Check property lines before you begin to develop your yard to be sure you know the exact boundaries of your property. The boundary corners are often marked with long iron pins, two or three feet long and about 1/2-inch in diameter. They usually are driven into the ground with only an inch or less showing above the surface.

The front property line is usually 10 to 15 feet back from the street curb. Quite often the inside edge of a public sidewalk borders on the front property line.

At the back property line, most lots have a 10 foot-wide easement down the middle of the subdivision block. In this case, five feet will be on your property and five feet will be on the property of the neighbor behind you. This easement has been set aside for utilities such as electricity, gas, sewer, and telephone lines. You own the easement, but the city and utility companies use this area to service your house. It is best, and often mandatory, that you do not install anything permanent such as fences, trees or shrubs there. The area may have to be disturbed for repairs on the utilities. Water lines and storm sewers usually are located in the street right-of-way. Learn the location and approximate depth of water lines, gas lines, sanitary-sewer lines and drain lines. If you have a septic tank and tilled field, you must know exactly where they are.

Moving any of these facilities might be expensive or impossible. Damaging them during grading might be disastrous. Planting over them could cause difficulties.

Cities have restrictions on how close to a property line you can plant or build. Check with your city engineer for this information.

Survey the Yard

With a complete diagram of your house, you are ready to survey the yard. When you cannot locate your exact property boundaries, call upon a registered surveyor.

Begin by sighting along the sides of your house, projecting lines with stakes set at 12-foot intervals. These will be base lines for your survey.

Next, measure from these base lines at right angles out to points on your property lines. If all of your property lines are straight, just locate the lot corners. If you will plot the base lines on your cross-section paper, you can then measure from them to the lot corners and draw your lot lines onto the plan by connecting the corners. (Figure 4)

You may find that your lot lines are not parallel to the sides of the house. If you discover that they are too far “out of line,” recheck your measurements made in the field.

Curved lot lines can be located by measuring to a number of points off your base line. Be certain all measurements are made at right angles to the base lines from points set along the base line by your stakes. (Figure 5)

Next on your lot plan you can locate walks, drives, walls, fences and other structures. Seeing their rela-

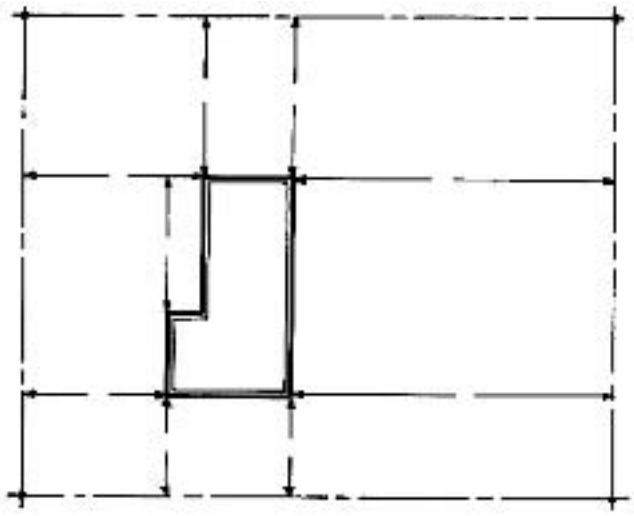


Figure 4. Draw base lines by sighting along the sides of your house.

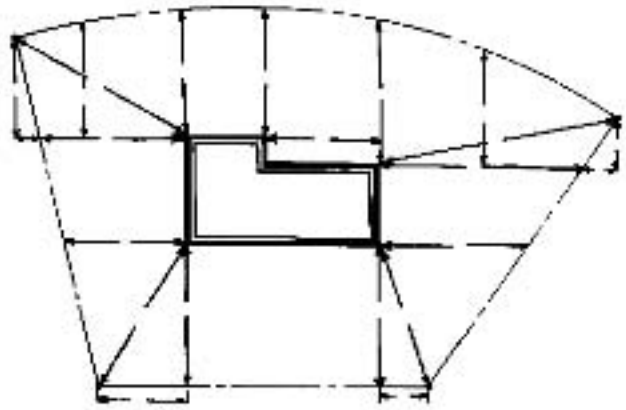


Figure 5. Curved lot lines are located by measuring the points of your base line.

tionship in diagram form will help you visualize what you want to add or change later.

Remember that your tape must be level when you are measuring distances. Don't make the mistake of measuring uphill or downhill.

Measuring Grades

As suggested earlier, if you have a lot that runs sharply uphill, downhill, or both, perhaps you should hire a surveyor.

If, however, there are only minor changes of grade, rent a builder's level and rod or a hand level to help determine differences in elevation. Assume the first floor grade to be 100 feet and relate everything to it.

You also can determine elevations with a carpenter's level or with string level and string. Stretch a string tightly horizontal from the floor level to any point you wish, making sure the string is level by holding a carpenter's level along it (or by using the string level).

Next, measure up or down to the point you want and determine the difference in grade. Add or subtract this from the floor grade of 100 feet to determine the relative elevation.

If the changes in grade are rapid, you may have to stretch your string at a higher or lower level in successive steps. Extreme accuracy is not important for planning, but you should be able to determine from the survey whether you will need one or more steps, or whether the lawn area will be too flat or too steep.

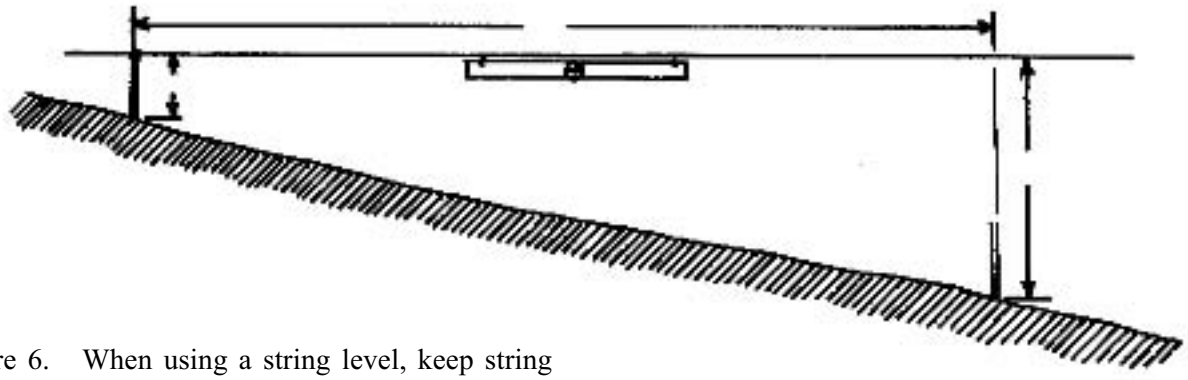


Figure 6. When using a string level, keep string taut.

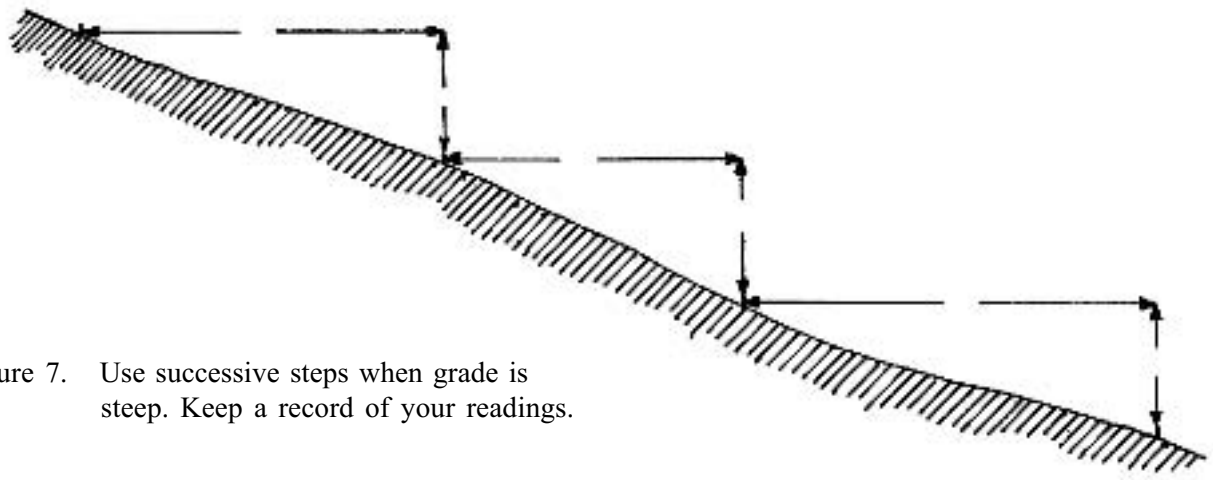


Figure 7. Use successive steps when grade is steep. Keep a record of your readings.

Step 1—Site Analysis

- Determine the dimensions of the site, as well as the location and dimensions of existing elements.
- Plot these on a scaled map.
  Take site inventory of the physical conditions and environmental influences.
- Topography
- Slope
- Soil type
- Rock outcroppings
- Depth to bedrock
- Existing trees and shrubs
- Sunrise and sunset in summer and winter
- Angle of midday sun
- Direction of prevailing summer breezes
- Direction of cold winter winds
- Good views
- Noise
- Direction of unsightly views that need screening
- Underground and aboveground utilities: gas line, sewer line, water line, telephone line, TV cable, and electric line
- Water meter
- Gas meter
- Easements
- Building setback line
- Neighbors' houses
- Street
- Curb and gutter
- Manholes

Step 2—The Site Plan

With the inventory, analyze the site on the scaled map. (Figure 9)

Before you start your planning, you should walk over the property many times and record or make mental notes of your impressions. If you are purchasing the property, it might be wise for you to become acquainted with potential neighbors. They usually have suggestions!

Family Needs and Space Division

In deciding about planting arrangements, think of the space around your home as use areas. An analogy can be drawn between the use of space inside homes. Most homes are divided clearly into different use areas, and the more subtle and interlaced these areas are, the more pleasant it is to live in the home. Most homes have an entry hall (public area), a kitchen, laundry and garage (service area), and a large segment of the home set aside for recreation room, living room and bedrooms (private areas). (Figure 10)

Generally, the use areas are separated from each other by walls and banisters. Even color-coded carpets can indicate a separate use area and direct traffic from one room to another. Without this conscious division of use areas, a home would be a disorganized living space. Many home owners, however, experience a feeling of disorganization or just a blank open space once they step outside their homes. Landscaping can overcome this feeling.

Your site analysis provides basic information about the negative and positive qualities of your property. To determine how to minimize the negative and maximize the positive, it is necessary to put the site analysis in-

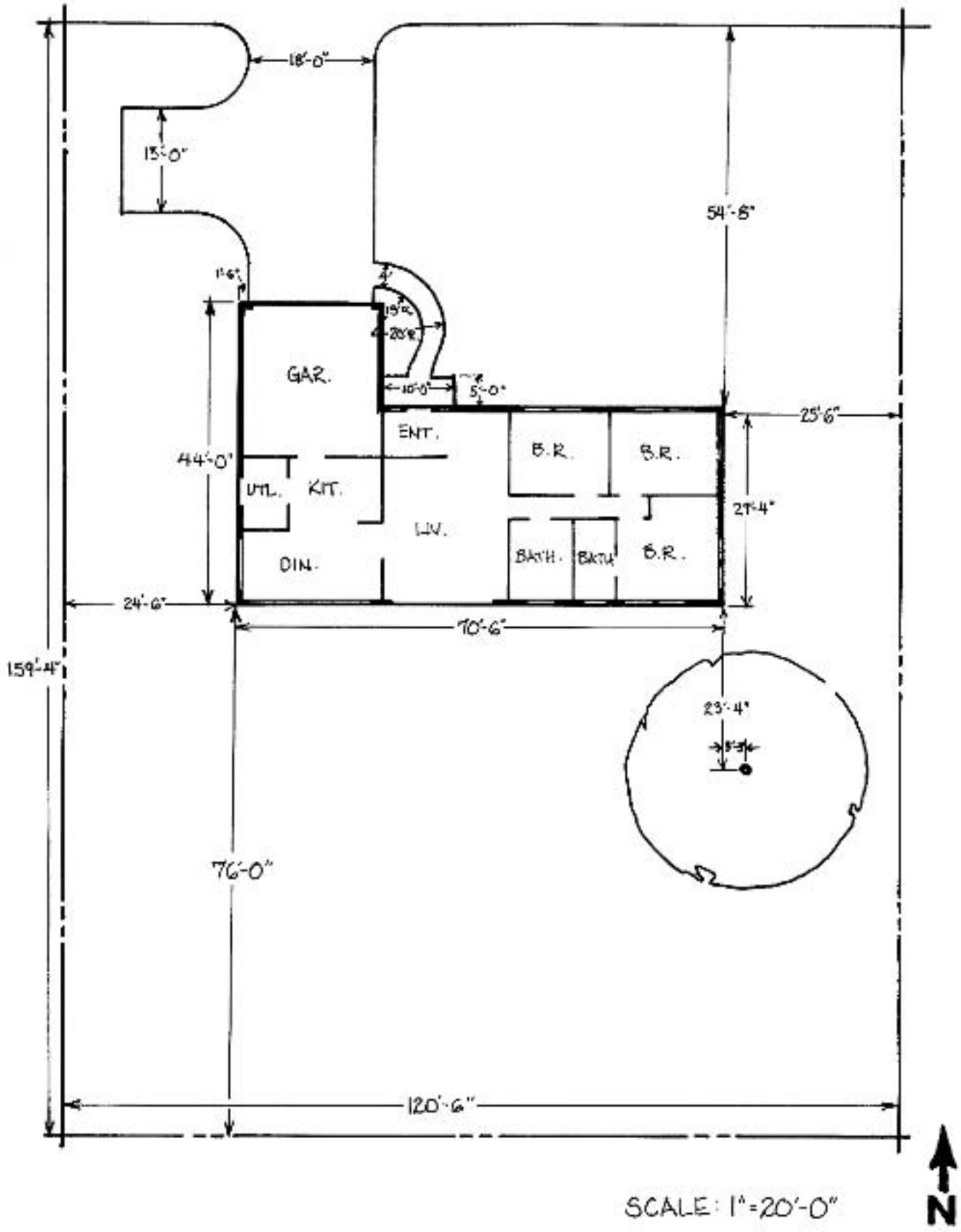


Figure 8. Scale drawing of home site with existing tree

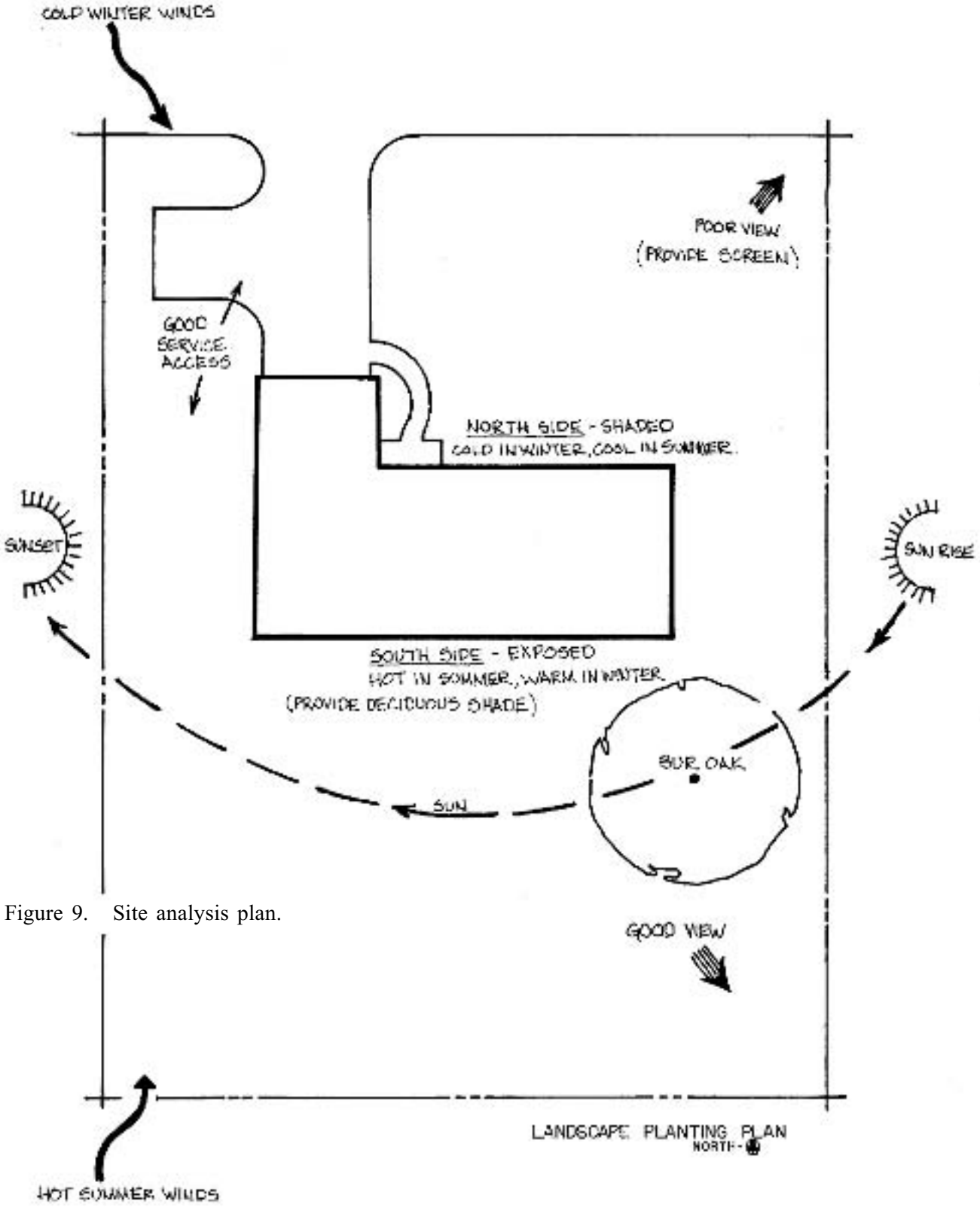


Figure 9. Site analysis plan.

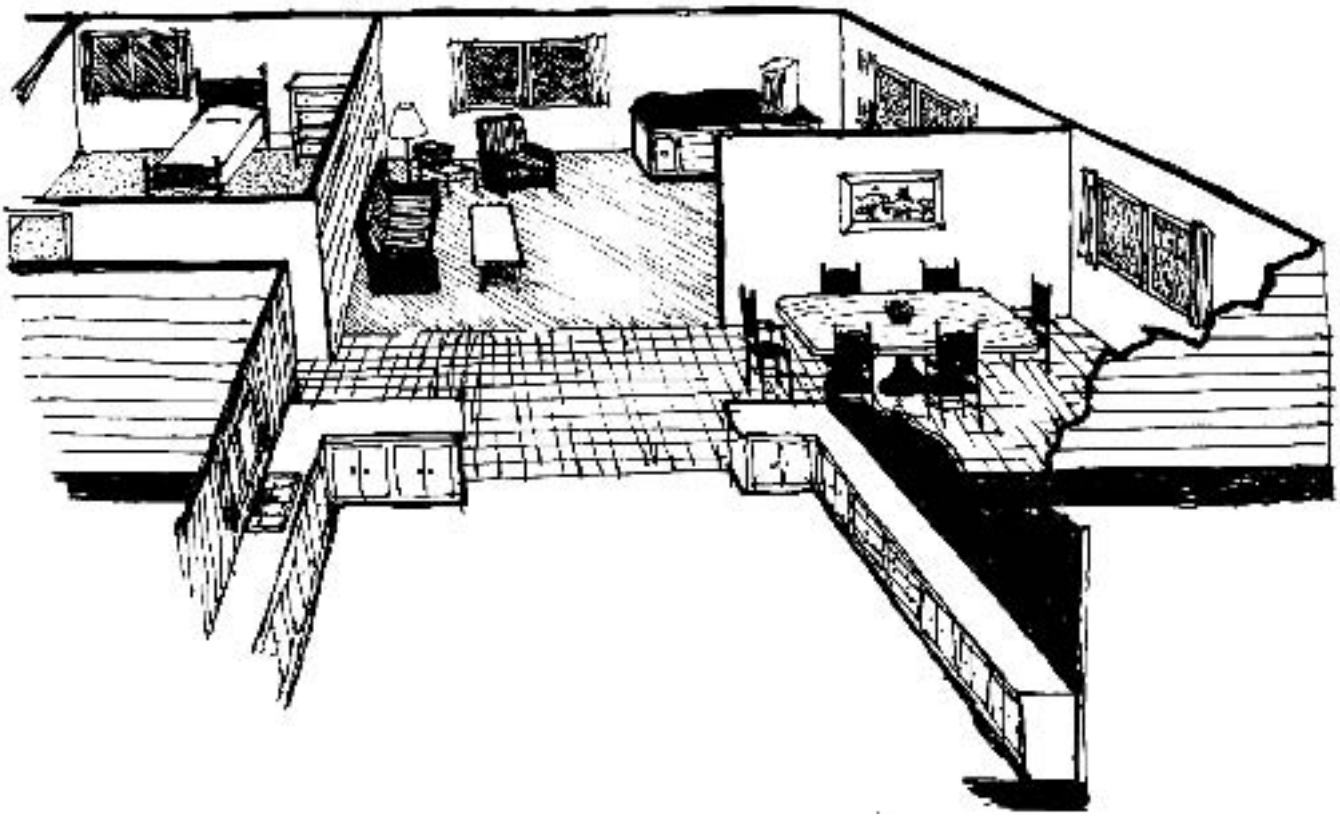


Figure 10. Designate the outdoors space into use areas. Just as in the home, space is divided for different uses.

formation together with family needs and a base plan. The family needs can be listed and divided into now and future. The family will change as children grow up and interests change. Make an inventory of realistic family needs now. Use the form on the next page.

The next step in planning your landscape is to determine the primary use areas of your property: a public area, utility area, and private outdoor living area.

Public Area — This includes the front lawn, drive parking, walks, and most important – the front entrance to your home. The front lawn is landscaped more for the benefit of the public than for yourself. Access to the front door should be easy, so keep the front lawn clear of obstructing trees. Landscape the front yard to create a beautiful setting for your home.

Utility Area — This area is your outdoor workroom and should offer more privacy. Here you will locate items necessary to your daily life, such as vegetable garden space, tool shed, children's play area, clothesline, cut flower garden, and a dog run.

Private Outdoor Living Area — This space, set aside for your "outdoor living room," is reserved for relaxation, family games, or other types of entertainment. It may include the patio, outdoor cooking area, swimming pool, and flower gardens. Use the plants you enjoy most in this area. It should be landscaped to fit the recreational and leisure time needs of your family.

Having analyzed your site and considered the needs and long-range goals for your landscape, you now can sketch some possible locations for the three major use areas.

Analysis of Needs and Desires

List Current Needs

Outdoor Sports

___ Shuffleboard

___ Croquet

___ Badminton

___ Horseshoes

___ Softball

___ Football

___ Tennis

___ Volleyball

___ Other _____

Required Features

___ Permanent walks, location _____

___ Dog pen or run

___ Tool storage shed

___ Firewood storage

___ Clothesline

___ Compost heap

___ Parking for ____ cars

___ Plants to attract songbirds

___ Outdoor fountain or pool

___ Screened outdoor room

___ Boat parking or storage

___ Camper parking or space

___ Other _____

Children's Play Equipment

___ Swings

___ Sand box

___ Slide

___ Jungle gym

___ Play house or cabin

___ Other _____

Patio Space Requirements

___ Average number of persons entertained outdoors

___ Frequency of outdoor cooking

___ Other uses _____

___ Desired size (approx. 75-100 sq. ft./family member); average patio size is 300 sq. ft.

Garden Spaces

___ Vegetables size: ____ sq. ft.)

___ Fruit trees (kinds: _____, _____, _____, _____.)

Long-Range Objectives

___ Swimming pool, wading pool

___ Tennis court(s)

___ Greenhouse

___ Fountain or pool

___ Screened patio

___ Other _____

Step 3—Use Areas

It takes an experienced eye to size up a piece of land, divide it, and shape its parts so that the proportion and harmony between them are balanced.

Fasten your site analysis plan to a table by using pieces of masking tape at the corners of the map. In like manner, fasten a piece of tracing paper (paper which one can see through to the pencil lines underneath) over this map. Tracing paper is available from most book stores or engineering supply stores. By doing your planning studies and doodling on this tracing paper, you will not clutter up your site analysis map. Circle the three major use areas. (Figure 11)

Having established the major use areas, the next step is a more detailed space-use plan.

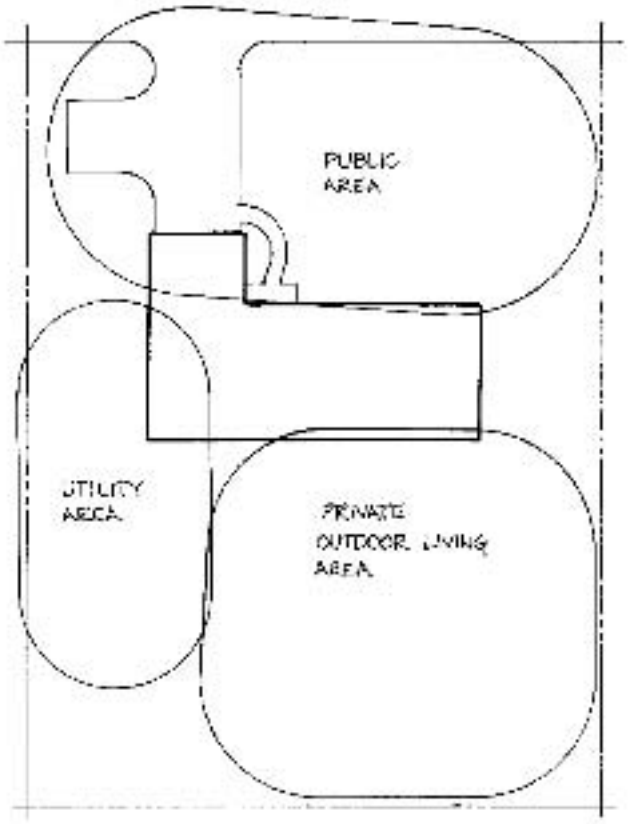


Figure 11. The three major use areas.

Step 4—Space Use Plan

Place a second overlay sheet over the first and the site analysis. You are not interested now in the specific shape each activity area will assume. Simply rough in the approximate locations of the various activity areas. This approach will help determine the spaces required for each activity area and the influence of site conditions on the areas and the proper relationship between these elements and the house. (Figure 12)

This step allows you to study the interrelationships between neighboring activities. For instance, you would not want the children's play area close to the patio. Make several studies to explore other arrangements and select from them the best solution to your outdoor space.

As you make your comparison studies, evaluate each activity next to it and to the house plan (floor plan, entrance and exit, relationship to patio). After you have a logical placement relative to the house, compare activity location with what already exists on the site analysis overlay.

Study the influence of the climate. If the influences are unfavorable, you need to determine if they can be modified satisfactorily by using structures and plantings. Similarly, evaluate the impact of the soil, existing vegetation, natural features, structures (both on and off the property), and the surrounding landscape. The site analysis should provide this information. If the impact is negative, determine if the problem is one of design or relocation.

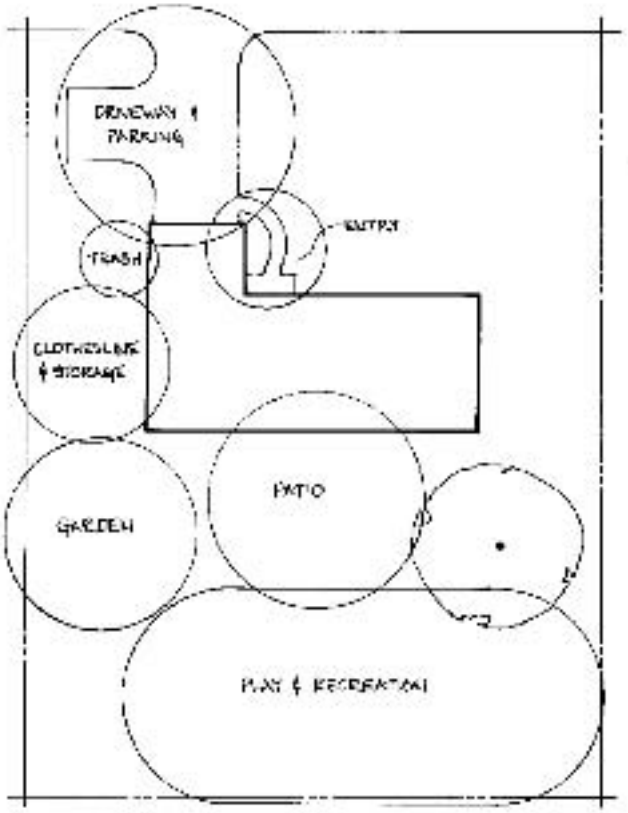


Figure 12. The approximate location of various activity areas.

Plant Material Function and Form

Gardens and flower beds should be designed to reflect the plants to be used. In the early stage consider the type of plant, its size and shape, and its outline when developed. The function of the plant material may help select their form. Plants can be used to frame, create walks, ceilings, and floors in the landscape. They can define exterior space either by themselves or in conjunction with other landscape structures. (Figures 13 and 14)

Besides defining space, plants also provide a more enjoyable outdoor environment.

Plants function to:

- control and direct traffic
- give shade
- cool the atmosphere and reduce reflected heat
- control glare
- protect from wind
- control soil erosion on slopes and banks
- screen unattractive views
- give privacy and enclosure for family living
- work as a noise barrier
- frame and complement the house and view
- give background to objects
- add interest to bare walls
- cast interesting shadows
- silhouette against the sky
- attract birds

Trees and shrubs can be used as specimens, accent plants, group plantings, and screens. Shrubs can be planted as shrub gardens together with trees, hedges, foundation and transition plantings. Vines can be used to climb over trellises, fences and along walls. Groundcovers can be used in hard-to-mow sections or difficult growing situations, such as shady locations. A plant may have characteristics that warrant using it by itself to display those qualities. A specimen is usually a perfect example of the type it represents, and is outstanding in form, texture and color.

If a specimen plant is not the same as the border plants, it must be similar to the group in at least one characteristic: size, shape, foliage, texture or color. Do not use a totally different kind of plant. Use specimen plants sparingly. (Figure 15)

Accent Plants—Where specimen plants usually stand alone, an accent plant is generally part of the shrub mass but stands out because it differs in height, form, color and texture. Accent shrubs can be used to vary the height of the shrub border. They break up the silhouette and relieve the monotony of a group of plants of similar height. To keep from destroying the unity of your planting composition, limit the number of accent plantings. (Figure 15)

You also can use accent plants to direct attention to a specific area. The accent plant should differ sufficiently from the total composition to surprise the eyes, yet not so extreme that it detracts from or competes with the special interest element. (Figure 16)

Group Plantings —A group planting has less individuality than a specimen plant because three to five different species are used to form a composition. The value of a group planting depends upon the relation between height, form, and arrangement of the individual plants in the composition.

A group composition may have strong vertical emphasis, counterbalanced with several lower plants. A group silhouette also can be low and horizontal by using rounded plants of varying heights without an extreme height difference in the silhouette.

Groups with strong vertical emphasis can function as space dividers and provide a focal point. The lower silhouette groups can direct and reinforce pedestrian and vehicular movement, as well as divide areas.

Shrub Borders—A landscape is a cube of space divided into subspaces by fences, walls and woody plants for use areas and activities. A border mass planting of shrubs can create the outdoor living room. The border may act as a background for flowers and establish the “walls” of the outdoor living room at the same time.

Hedges—Hedge plants, placed close in regular repetition, can be clipped to simulate a wall or can be allowed to grow freely. They are used to define boundaries and to divide space in a large area. Shrubs for formal hedges should tolerate regular shearing, which makes the plant thicken and the hedge dense.

Screens—Plants used as a solid mass of one variety are a living wall. The ideal plant for a screen is tall and narrow with heavy foliage to the ground.

The height of a screen or hedge is a compromise between the height needed for screening and the limi-

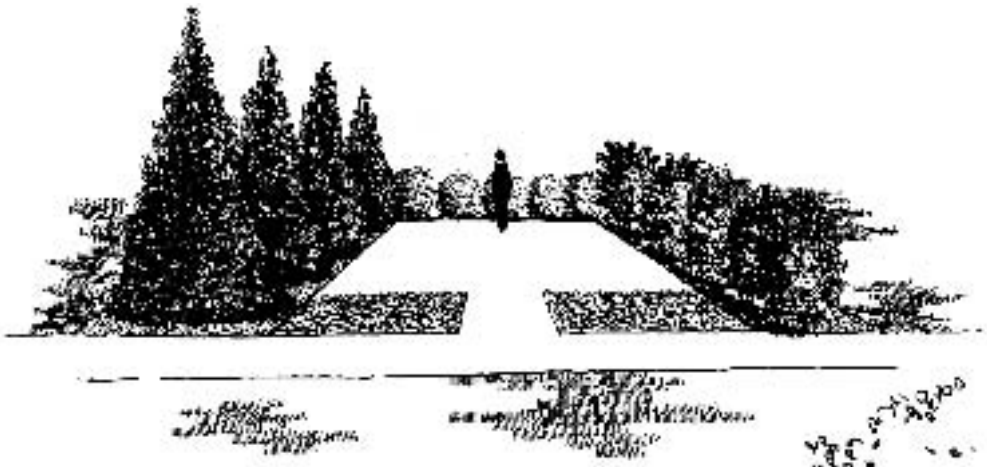


Figure 13. Plants can separate areas and define exterior spaces.

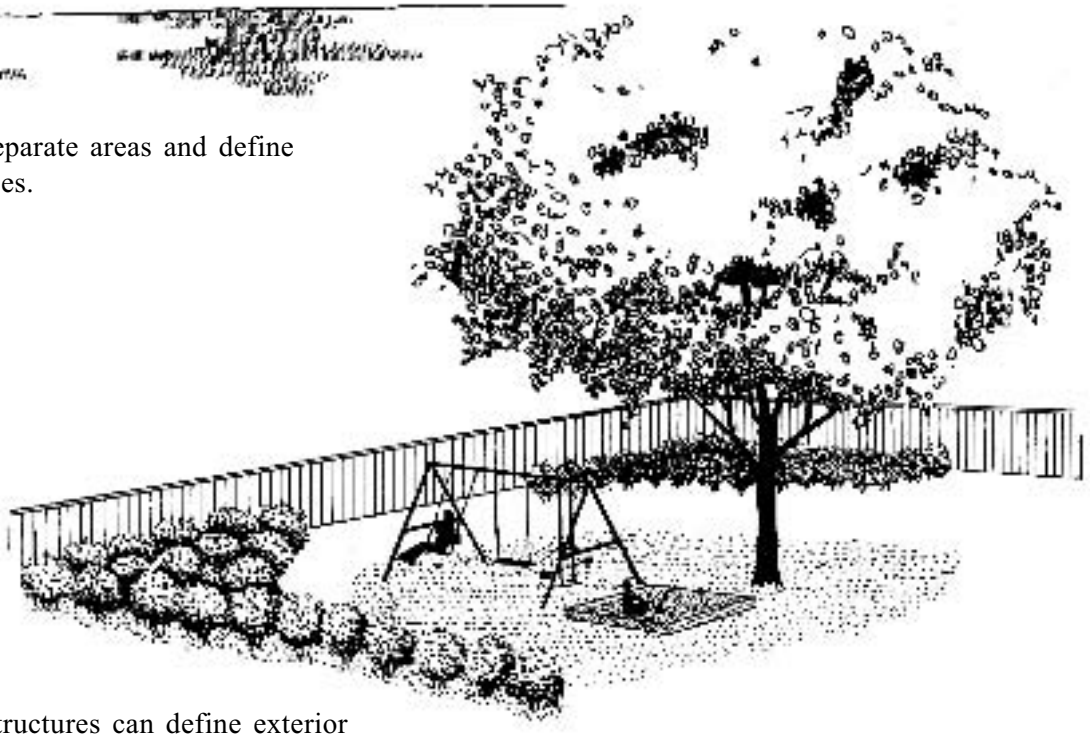


Figure 14. Plants and structures can define exterior space. Horizontal tree branches set the ceiling.

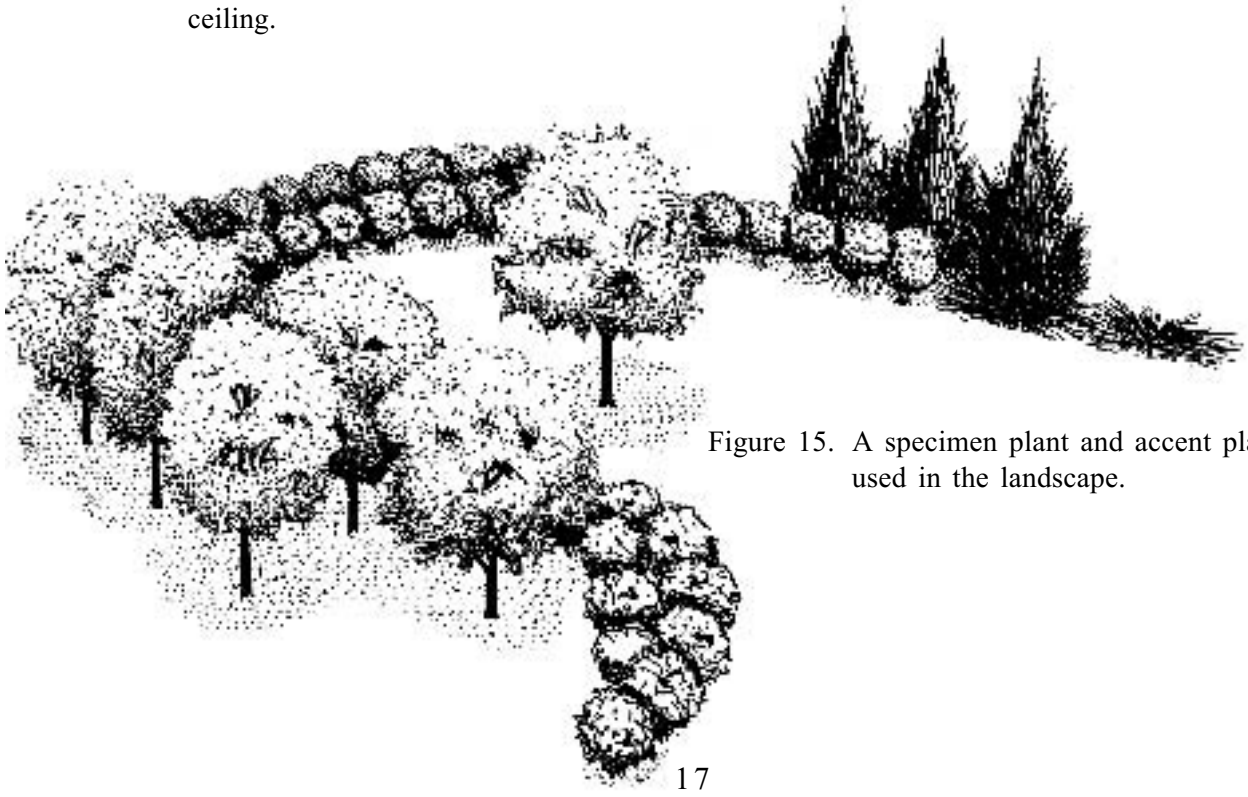


Figure 15. A specimen plant and accent plants used in the landscape.

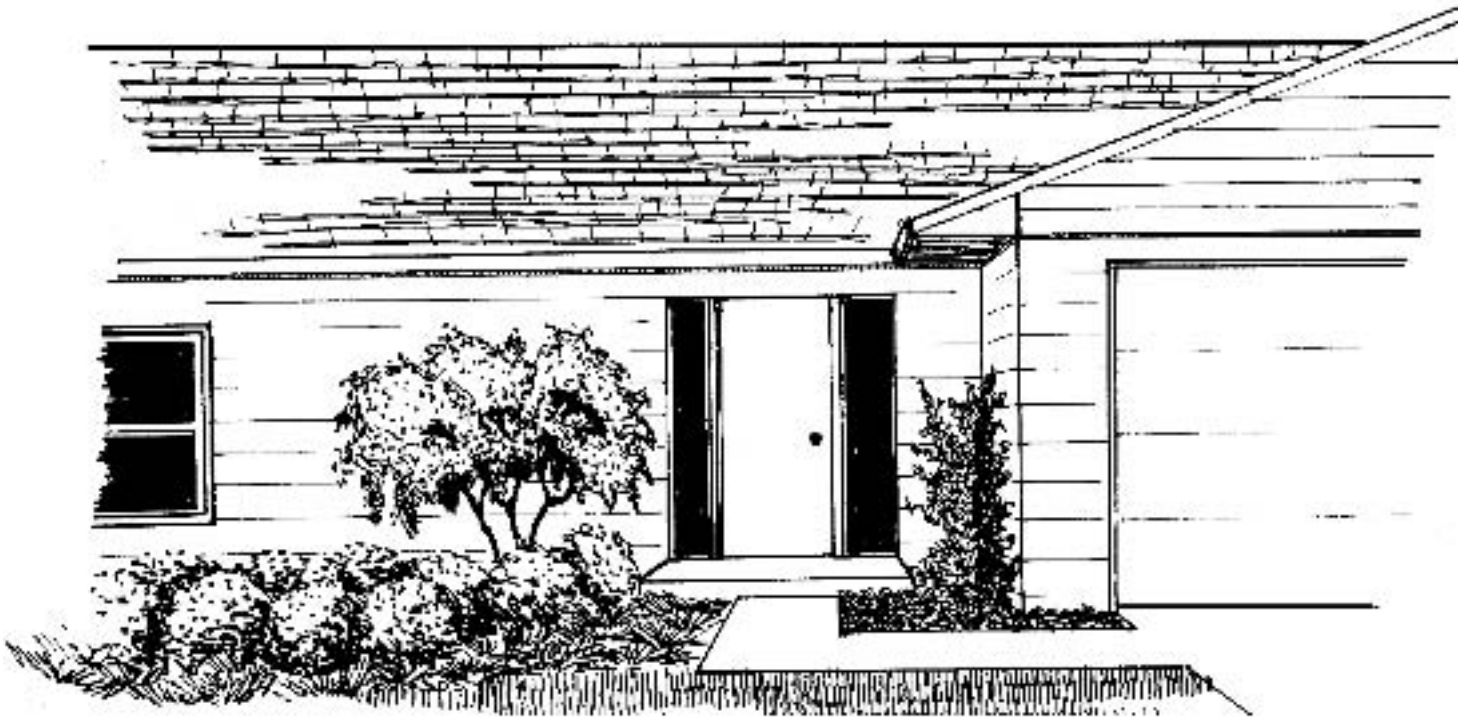


Figure 16. Plants can be used to accentuate the front door.

tation of scale given by the area. For example, a high screen might make a small area look smaller than it really is.

Vines—Vines can be used for green foliage, screening, shading or simply for their beauty. They need little space to grow. Vines can be divided into those that grow dense to form a solid covering and those that grow loosely to provide a tracery effect. Insulate wire around vines exposed to direct sunlight. Wire heats up in the summer sun and may burn tips of young shoots.

Groundcovers—Groundcovers have little form in themselves but are effective in mass grouping through a particular design form. The groundcover selected depends upon exposure to the sun or shade and density desired. In general, the nearer the observer is to the groundcover, the more refined and dense it should be. Groundcover does not wear well, so flat stone should be laid where a path is worn.

Plant Types and Characteristics

Selecting suitable plant materials for a particular location requires knowledge about plant species and their characteristics. To have low maintenance, only plant material that is well suited to the needs of the site should be selected.

When selecting plants, determine the form, the mass, and size of plant or plant groupings needed for each area of the site. Decide if the plant should be an evergreen or a deciduous plant. Does the plant have the flowering, fruiting, foliage and branching characteristics you want? To make an intelligent decision, and to know what you want in your landscape and why, is part of the joy of landscaping. To become confident at selecting plant material does require homework, which should be a pleasure.

To start to "see" plant material, look over a well established garden, park or arboretum, or even a natural landscape and note the variety of tree shapes. They are not simply trees, but trees with their own characteristic outline, and form and habit of growth. You may not know all their names, but you will be able to match

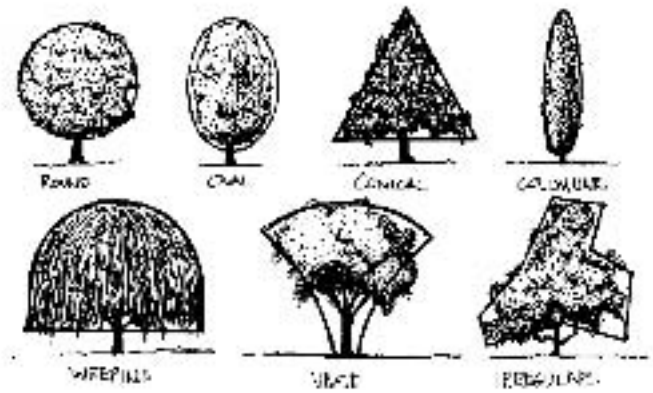


Figure 17. There is a great variety in tree forms.

them. Some are so alike in every detail that they must be the same tree; others are alike in general rough outline but have differences of leaf form or color that point to their being different trees. (Figure 17)

Just as trees can be selected for their different growth forms so can shrubs. (Figure 18)

Also, within each shape group of trees and shrubs is a range of sizes. In the application to the landscape we must think of trees and shrubs together in a composition, keeping in mind their individual size. (Figures 19 & 20)

Some people have difficulty in visualizing tree sizes in terms of feet and may find help in some comparative scale, such as the height of an average two-story house. The height range from small to large could be covered in the following four groups:

Small—Up to approximately 20 feet, or up to the top of second floor windows.

Medium—20 to 40 feet.

Tall—Anything above this.

It is unwise to assume that a certain tree will reach a given height in a given time, as the environment has a great influence on the growth of a plant. When selecting plants for a site, their cultural requirements should be considered.

- Temperature requirements or tolerances: Minimum, maximum, and duration of each; optimum.
- Water requirements or tolerances: Drought tolerance or moisture preference, sharp or slow subsurface drainage, atmospheric humidity.
- Light requirements or tolerances: Full shade, filtered light, half-day sun and half-day shade (morning or afternoon), full sun.
- Soil requirements or tolerances: Rich or deep soil, sterile or shallow soil, sandy or rocky soil, clay soil, acid soil, alkali soil.
- Other characteristics: Wind tolerance, special requirements for flowering and fruiting, training and pruning requirements, susceptibility to insects and diseases, tendency to become weedy in wrong location.

When selecting a plant, always consider its mature height and shape. You should be able to see how the selected plant will look in five, 10, 15 years and even much later. (Figure 21)

Other plant characteristics are texture and color. Like cloth, plants have textures in a range of fine, medium, and coarse. (Figure 22) These textures are expressed in the leaves, twigs, bark, and for a short time, bloom. For example, compare the texture of the catalpa leaves, or the fine textured flowers of the redbud

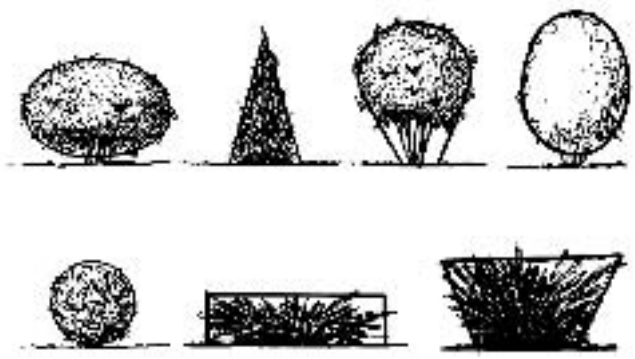


Figure 18. Shrubs, too come in different growth forms.

to the coarse textured magnolia flower, or the fine textured barberry to the coarse textured common lilac. When selecting plants for plant compositions, try to use varieties that are of similar texture.

A shrub or tree which has large, closely spaced leaves and which casts a heavy shadow, is also considered to have a coarse texture. Generally, we concern ourselves very little with textural influences of plants. Remember that a visual accent can be created by using a coarse textured plant in grouping of fine textured foliage.

Attractive textural composition can be created when the texture of the structure is kept in mind with the final selections of plant material, as structures also are expressing different textural qualities. (Figure 23)

Color. Plants often bloom in the spring or summer and contribute to the effectiveness of a landscape with their foliage. The greatest ornamental value of some deciduous trees and shrubs is the color of their leaves in fall. With evergreens, the ornamental value is greatest in winter. A few trees and shurbs add colored bark to a winter landscape. Some ornamental trees and shrubs have leaf colors other than green in summer. These colors are mainly purples and yellows.

Consider color when making plant selections in order to have color harmony in the yard and with existing or proposed buildings.

Plan your landscape so that there will be continuous color all season. Color within a plant composition should be uniform or at least harmonious. Minor changes in value and intensity are satisfactory. Unless you are using color change to create an accent, you should avoid abrupt changes in hue (color), value, or intensity.

Plant material can be classified as deciduous, needle leaved or broad leaved evergreens.

Deciduous plants are those that lose their leaves in winter. Some are semi-deciduous and hold their foliage in mild climates. Examples of deciduous trees are

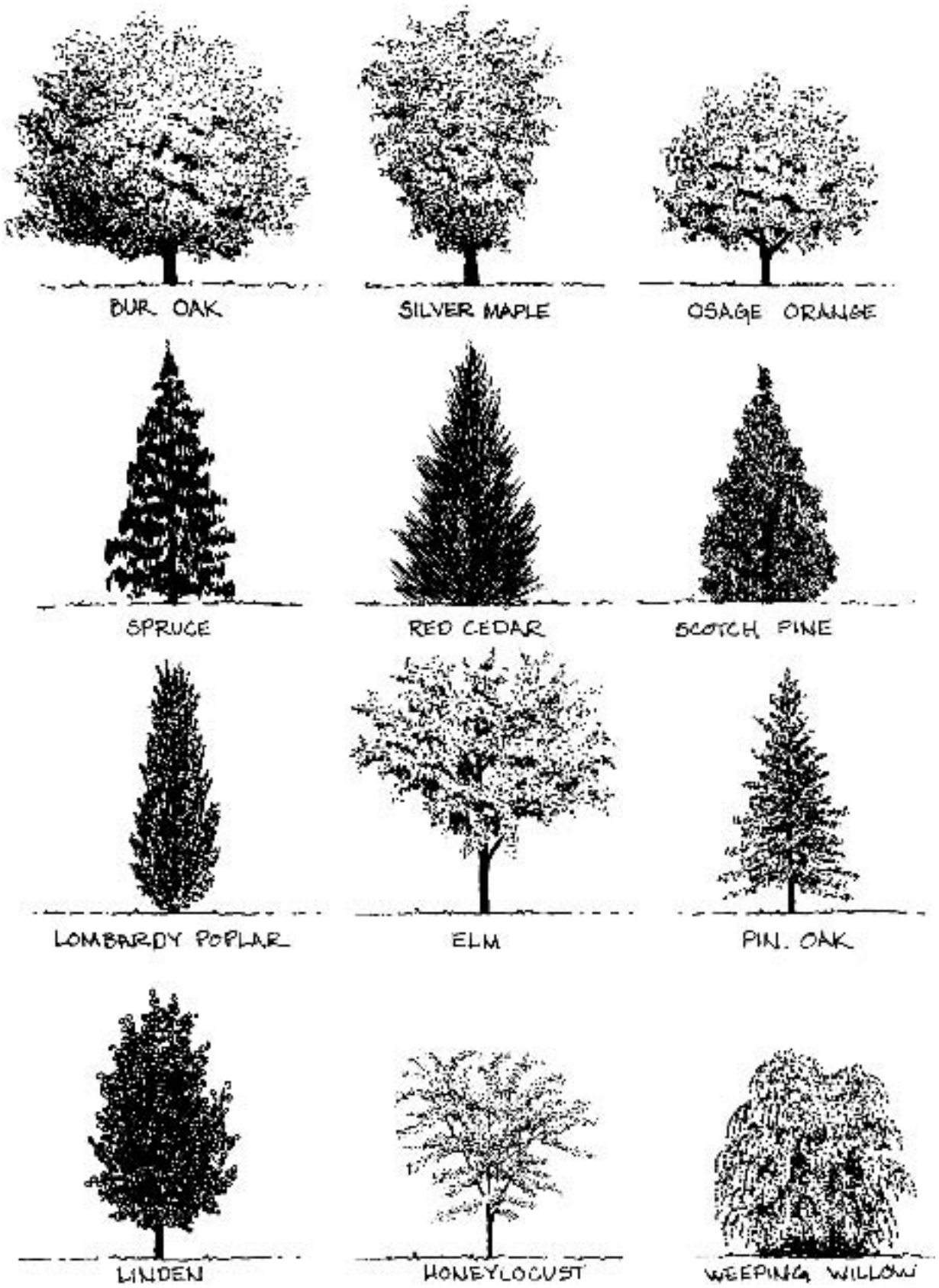
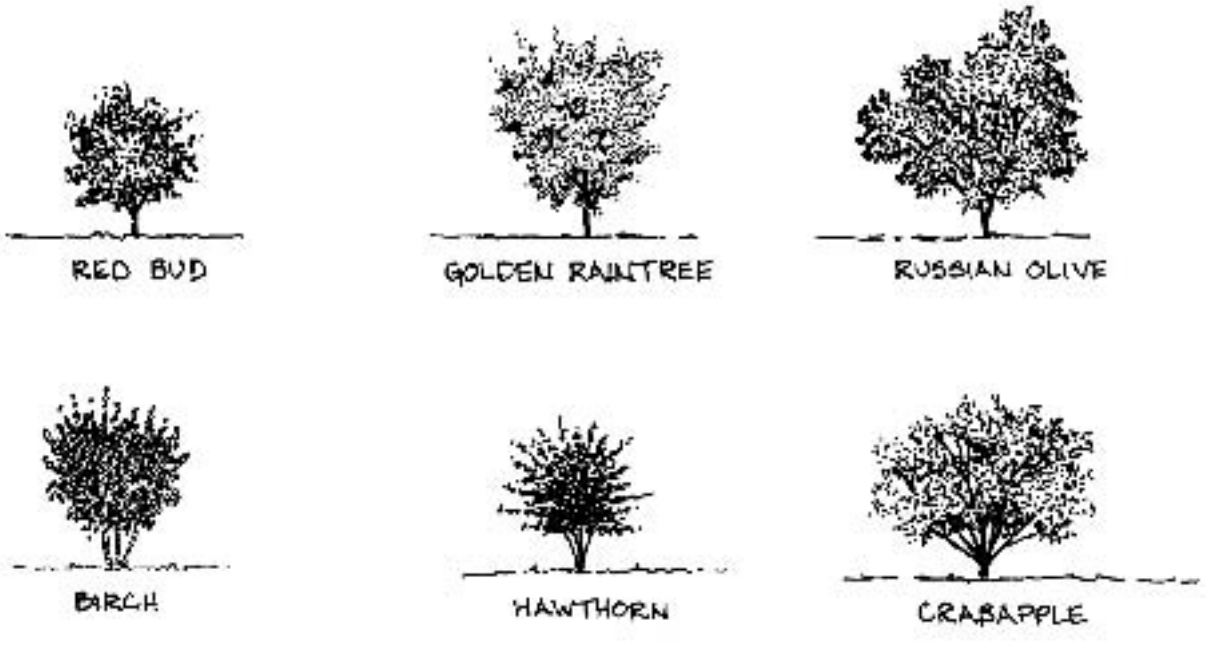


Figure 19. Trees grow in a range of sizes to select from for a given site.



cottonwood, oak, sycamore. Examples of deciduous shrubs are forsythia, mock orange, spirea.

Needle leaved evergreen plants are evergreens, although some of the trees, such as bald cypress, are deciduous and lose their needles during winter. They all bear seeds in woody cones.

Broadleaved evergreens hold their leafy foliage the year around and some – rhododendron and magnolia – produce large flowers. Although their foliage is called "green," it does, in many cases, take on a variation in color through the seasons, slowly changing from green to bronze-green. Winter winds and wrong exposure often produces brown, dried up leaves.

Plant types to select from are trees, shrubs, groundovers, vines and herbaceous plant material.

Trees usually have only one major trunk and grow upright, but multiple trunked trees – such as a clump of birch – are sometimes used.

Shrubs are characterized as generally having many stems. They have a great variety of flowering and fruiting habits.

Groundcovers, once established, have low maintenance requirements and are often used in problem areas that are not favorable for grasses or shrubs. Ground covers include any low, spreading, or trailing plants that form dense, spreading mass of vegetation.

Vines are useful for softening harsh lines of walls and buildings. Some clinging vines, such as euonymous vegetus, will naturally cling to rough surfaces, while the blooming type, such as wisteria, need open support. Vines are especially useful where planting space in front of a wall is narrow.

A more formal form of plant control in a narrow space is espalier—where trees, shrubs, or vines are fastened to walls or fences and usually trained in formal patterns. This can create extra interest, color and patterns in the landscape. (Figure 24) But it should be remembered that the training of espaliers requires considerable time and effort and should be done only if proper care can be given to the plants.

Herbacious plant materials are nonwoody plants that have above ground parts that live only one season. They may be annuals or perennials, and they provide the flower beds, which are the source of color in the border. There are three general forms of flowers: a spike flower, a round flower and an intermediate. The round and intermediate forms of flowers should be used for the major part. The spiked forms are used for accent

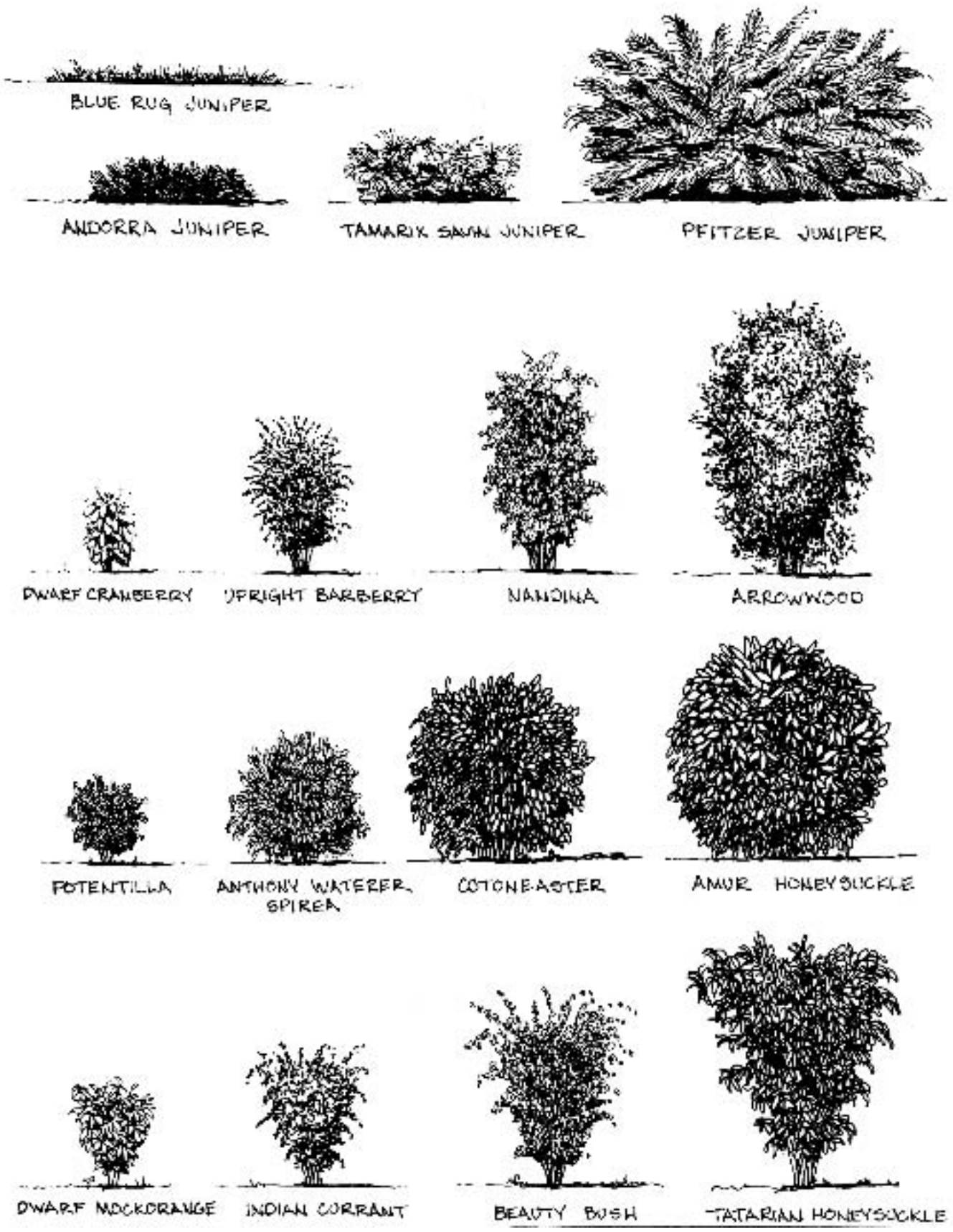


Figure 20. Shrubs come in all sizes from small and ground-hugging to very large and tall.

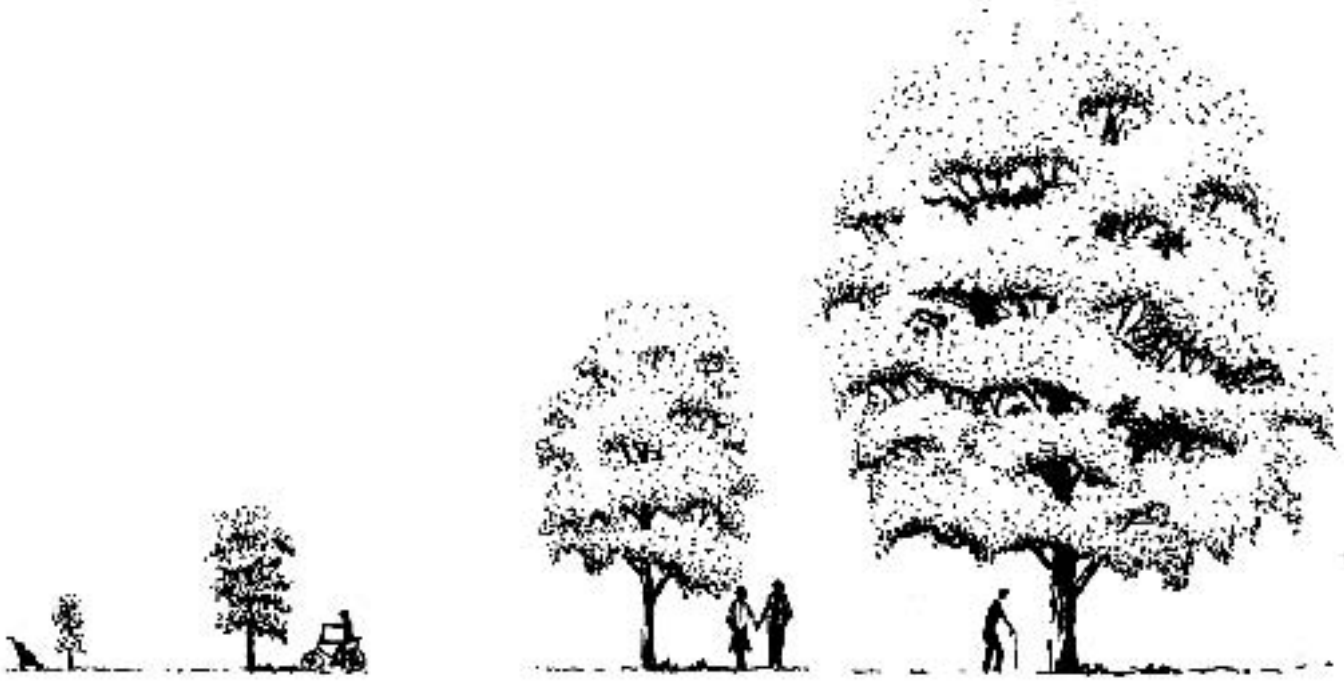


Figure 21. When selecting a tree or shrub always consider its mature height and shape.

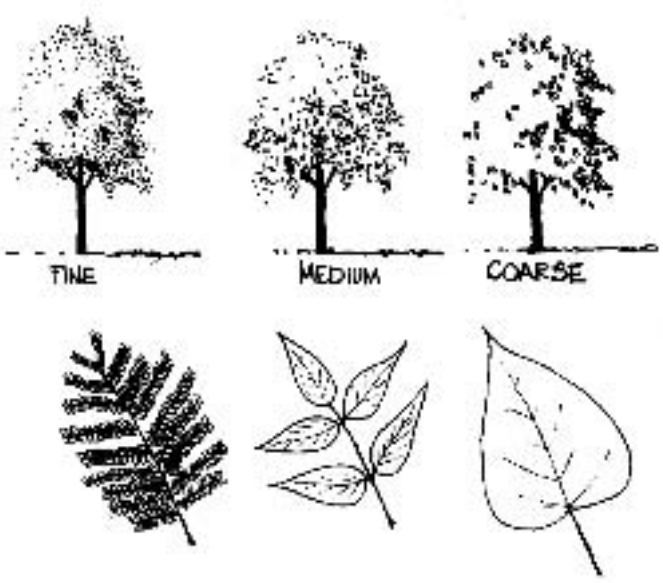


Figure 22. Fine, medium, and coarse texture expressed by leaves.

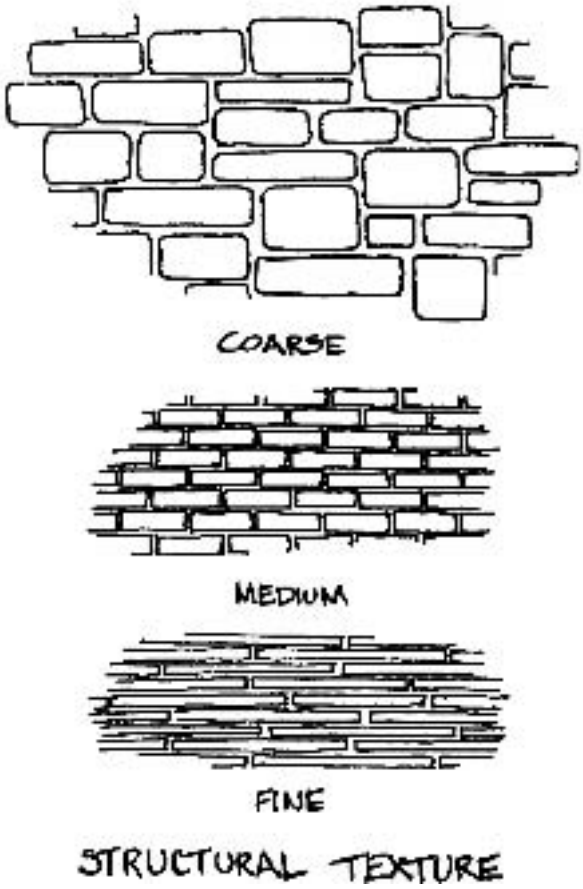


Figure 23. Construction material can also be used to express textural differences.

purposes. The low growing flowers are kept in front, and taller growing ones are placed near the back.

Basic Landscape Principles and Plant Composition

Landscapes can be formal or informal, symmetrical or asymmetrical with rigid or flowing lines. (Figure 25)

To help decide, look at the architectural style of your house. If its style represents a certain period, incorporate some of the same period's garden style.

A formal geometric layout on a slope can appear to be sliding downhill. Leveling can correct this illusion through a series of terraces.

Because of the soft form of plants, a formal garden is really not so severe as it might look on paper. The formal garden is straightforward. There is no need to disguise its size. The hedges, fences or walls that define its well-proportioned, orderly shape take up little space and are clearly visible.

On the other hand, the informal garden softens and masks as many of the existing hard and straight lines as possible. This effect is achieved best by planting in depth, using herbaceous plant material, shrubs, and groups of trees ascending in height behind each other. (Figure 26)

In a shrub border the larger plants are located toward the back, and where the plants are taller the border is widest. The corner plants then in the shrub border are often tallest. Because the shrub border is made up of a number of different plants, they should be arranged so that the branches of one flow over into the other. The individuality of the shrub or tree is subordinate to the mass effect of the planting. Check the silhouette over the shrub border to see if visual movement over the total mass is encouraged by a predominance of rounded forms and a limited use of extreme accents, which tend to arrest eye flow and cause visual tension.

Keep the middle open when locating borders, shrubs and trees, to preserve a sense of space in any design. An odd specimen, shrub, or a group of small trees can be an intriguing accent and give perspective to any garden. But filling the center with a pattern of beds destroys all design character, reduces the apparent size, and restricts free circulation.

General Principles—Design in the garden is not achieved by rigid adherence to rules. Design should be free and creative and call for imagination. Basic principles may be used as a guide in conceiving the garden

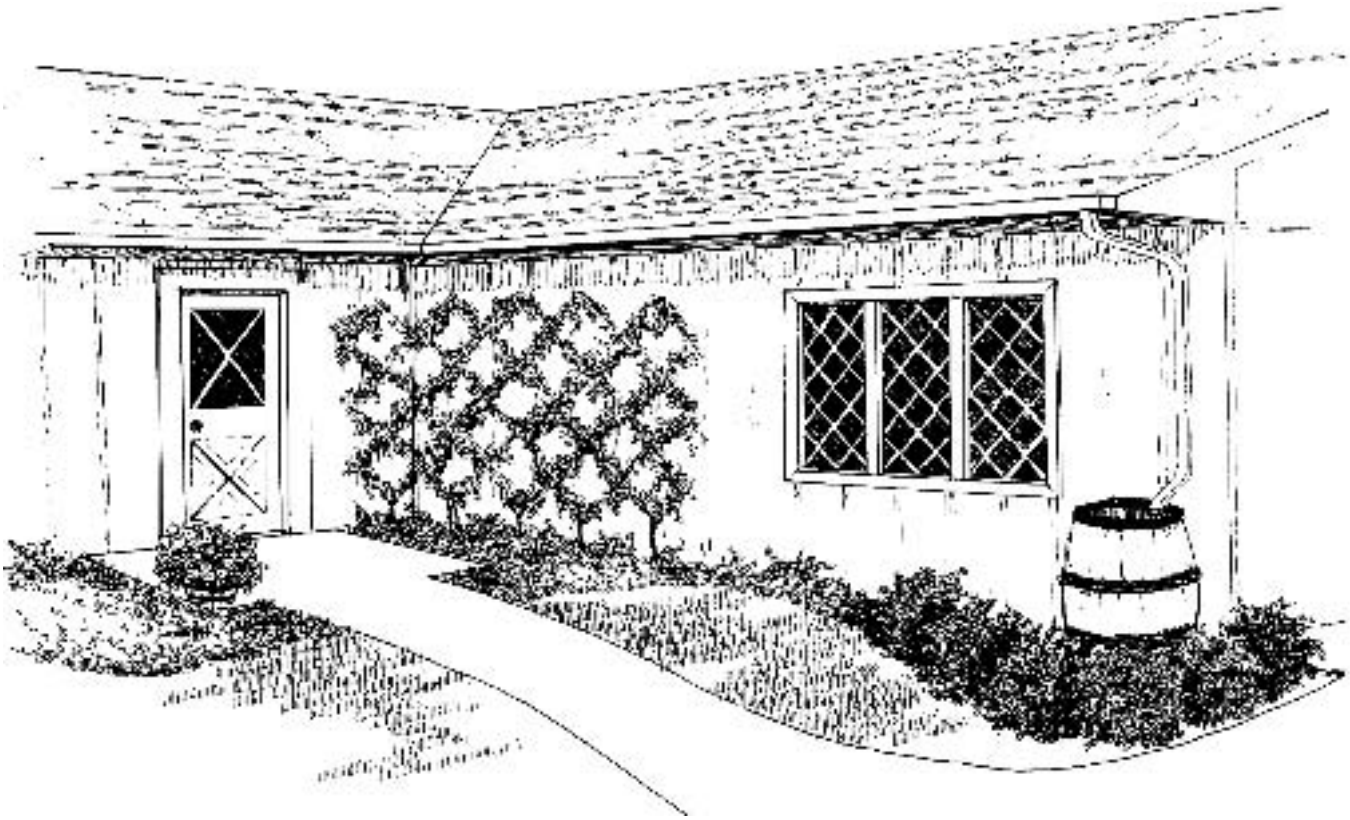


Figure 24. A plant pruned into espalier form near the front door, creating a point of interest, is functional especially when little space is available.

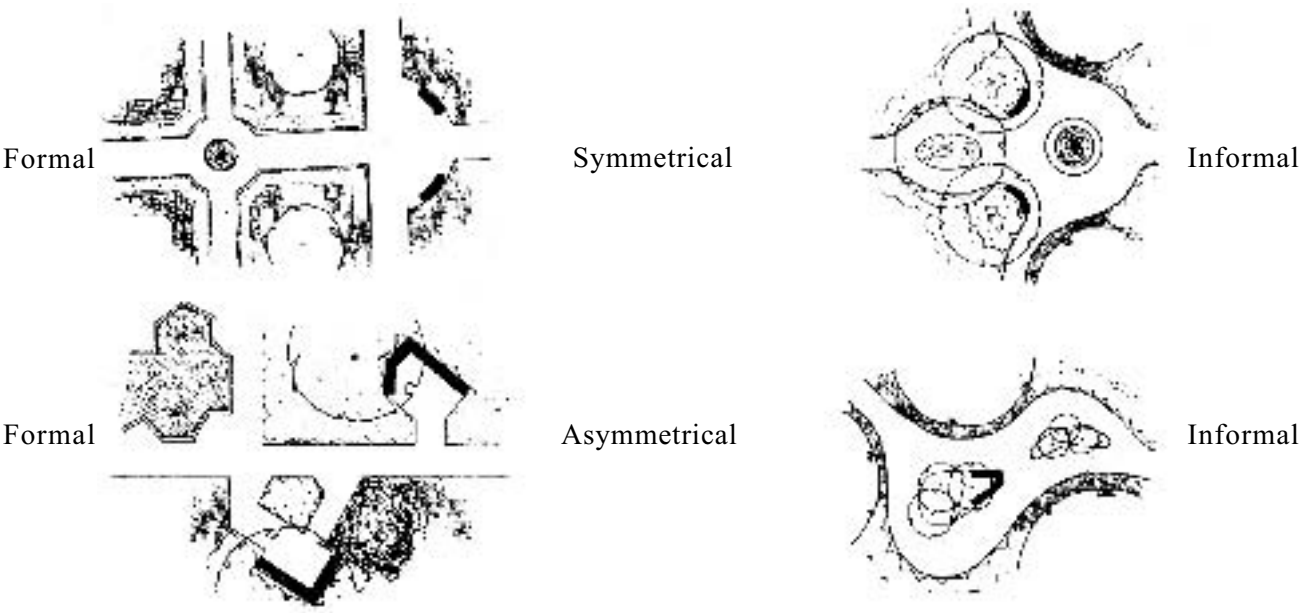


Figure 25. Formal, informal, symmetrical and asymmetrical space division.

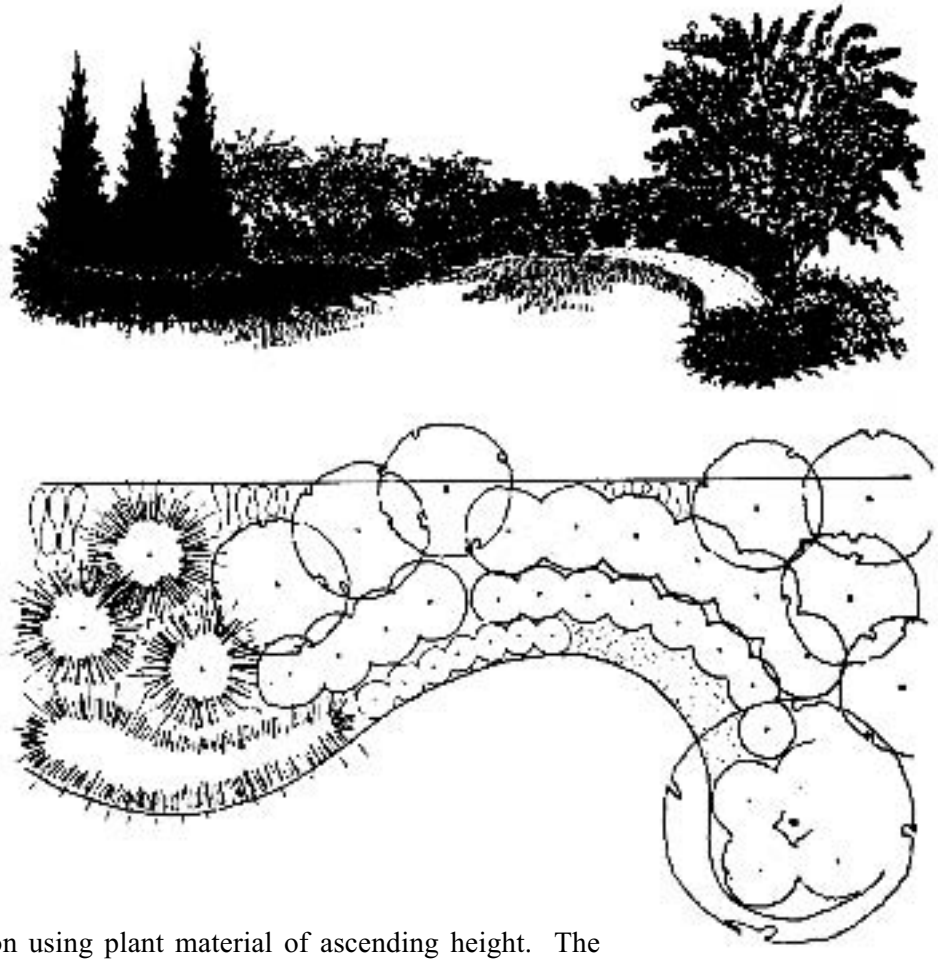


Figure 26. A plant composition using plant material of ascending height. The visual effect and scale drawing of the planting plan.

as a whole and in planning the component parts as well, down to the smallest plant.

Proportion and Scale. This is a pleasing relationship among the length, breadth and height of house and grounds. Use plant material in scale with the size of your plot and house. Time is the fourth element of scale to consider. When selecting plant material for a certain location, use mature dimensions to allow the plant to grow normally.

Balance. This can be achieved by carefully distributing accents throughout an area without necessarily spacing them equally on each side of an axis. A garden without height in one part can be lopsided and jarring.

Unity. The component parts – lawn, shrubs, borders, paved areas and walkways – should each be pleasing, but they must be sited and shaped to fit together as surely as a jigsaw to form a pleasing whole.

Elegance of Line and Shape. It is as easy to maintain a good shape as a bad one. Lines should be pleasing, curves should flow without jags and carry the eye from one part of the garden to another.

Five basic line patterns can be used as a guide. By combining patterns, any number can be developed, but remember the lines must develop naturally from the functional diagram of use areas. The basic landscape design patterns are rectangular, angles, circular, free curve and arc, and tangent.

Rectangular pattern: This is the simplest and most natural to use in landscaping or use area design. The rectangular patterns are usually direct projections from

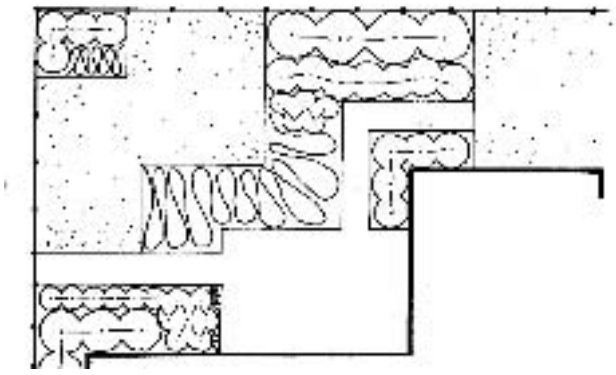


Figure 27. A rectangular design pattern.

house forms. They make the most simple and direct means to connect house and garden. (Figure 27)

Angles: Be careful not to overuse the 30, 45, and 60 degree angles which come so easily because of the standard triangles. Acute or obtuse angles may reflect angular forms in house or lot, or they may direct the eye and the foot. When skillfully used, such angles can

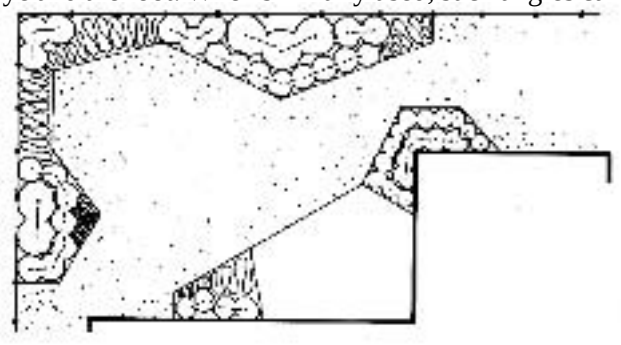


Figure 28. An angular design pattern.

give a sense of space and motion impossible with 90 degree angles alone. (Figure 28)

Circular forms: Curves drawn from one radius point may reflect forms in house or lot, or they may be introduced to add interest and variety to garden design. Segments of circles are used most often to add a sense

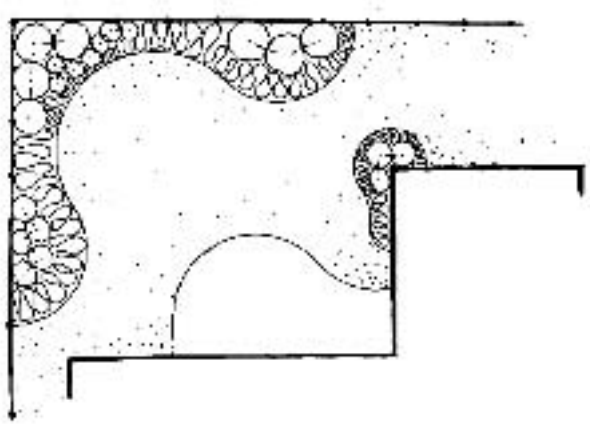


Figure 29. A circular design pattern.

of enclosure within the area. The proper balance between circular and straight line forms can create a fine sense of equilibrium and stability. (Figure 29)

Free curve: A form seldom found in architecture, but the free curve is important in landscape design. It is a curving line with a constantly changing radius. It has no radius point and cannot be plotted geometrically. The line is drawn on paper with soft pencil and a loose elbow and is laid out on the ground with a garden hose, rope, a stick dragged in the hand or the toe of the shoe. In actual practice it is one of the more difficult forms to use successfully because it requires much understanding of the relation between line and materials.

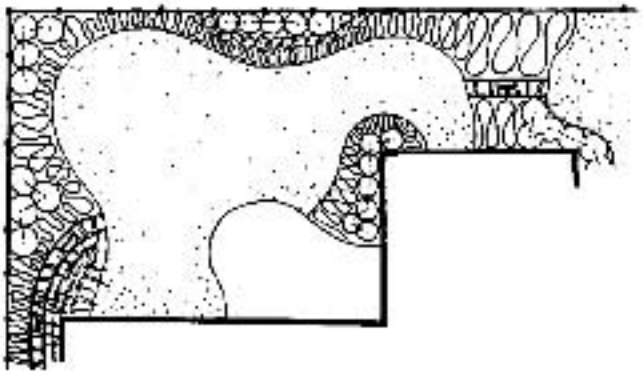


Figure 30. A free curve design pattern.

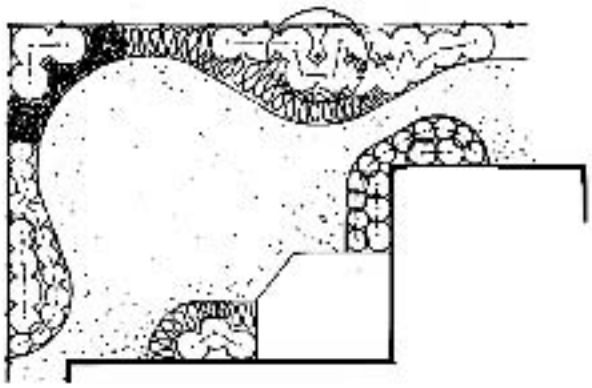


Figure 31. Arc and tangent design pattern.

Related to the geometric forms of the house, the free curve can direct maximum interest to the garden. (Figure 30)

Arc and tangent: This is a continuous line made up of alternate straight lines and segments of circles that can be constructed and plotted geometrically. This is a marriage between controlled geometry and free curve. (Figure 31)

Combined patterns: From the five basic patterns any number of patterns can be combined. They must

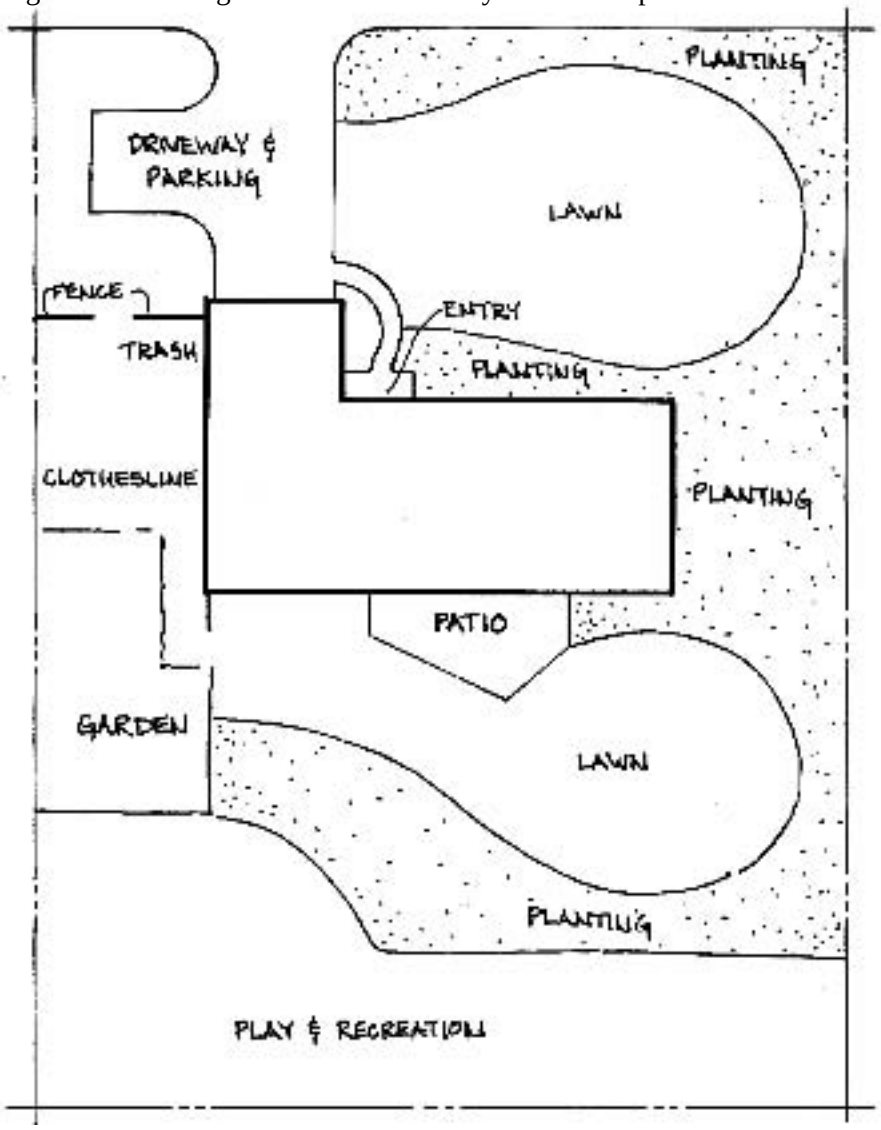


Figure 32. The combination of different design patterns to create functional space division.

develop naturally from the functional diagram of use areas. Keep simplicity in mind: Do not make lines "snaky." (Figure 32)

Contrast and Harmony. Designing and planting a garden offers endless opportunities to bring together shapes that enhance each other, curves which flow harmoniously together, or straight lines and curves.

Contrast and harmony can be created by mixing fine and coarse foliage, by combining rounded outlines with vertical or spiked forms, by blending flower and foliage colors with the colors of buildings and structures, and by pitting white flowers against red, yellow, or purple.

Focal Point. A small garden always will be dominated by the house and rightly so; nevertheless, just as a good photographer needs a center of interest, so will the garden. This focal point will be related to the house and unite the land between house and garden. It may be the center line of a window or door. The focal point can be inert, such as a pool or a sundial, or it can be a single or group of trees, rocks or other plants. Other accents in the garden should not detract from the main one.

Rhythm. Gardens can be complete in almost every sense and yet seem ordinary without the life that comes from rhythm or sequence, such as the stately procession of shade trees along a drive, the crisp pattern of stepping stones, or pickets in a garden fence.

Simplicity. The cardinal principle is simplicity. It should apply to all artistic effort. Too many gardens are wretched excesses "designed" on the assumption that the eye can focus on all corners simultaneously. The garden planner should not try to include one of every plant that will survive, but should concentrate on five, 10 or 30 of each of a few appropriate plants.

Variety. Form, texture and color should be diversified and contrasted in the design. Variety prevents the monotony of uniformity, Variety suggests several different lines well used, several different forms well arranged, several different textures well combined, and several different colors well blended.

Step 5—Detailed Use Areas

Study the use area from Step 4 and the accompanying plan. Use principles and develop on another overlay a more detailed, schematic drawing that will outline the areas in detail.

Selecting and Locating Plant Type and Size

The planting plan can be developed from a structural plan by determining the appropriate kinds of plants, trees, shrubs, vines, groundcovers and herbaceous plants needed to fit the landscape. At this stage one has to decide if particular groupings or individual plants should be deciduous or evergreen, what sizes are needed, and what forms are required. Because trees occupy a larger space and have a greater influence on the total design, they need to be located before other plant materials are determined. Consider the functions trees provide in a landscape: shade, enframement, background, and screen.

Shade. Trees in Kansas are planted primarily to create shade and soften the environment. Place good shade trees on the south and west sides of the house. These trees need to be strongly branched and have a round, oval or irregular form. Usually the stronger trees grow more slowly, so you will want to avoid planting the fast growing trees in areas where good shade trees are desired. If quick shade is necessary, one faster growing tree might be placed with one or more stronger trees. The faster, weaker tree, however, will have to be removed later to make room for the more desirable trees. A shade tree might be planted near the patio.

Enframement. The house is the most important feature of the landscape, so plant trees to the sides of the front yard where they will not hide the house. Trees can provide the proper setting for the house by focusing attention on it. Enframement trees are placed near the front corners or to the sides of the house. Some ornamental trees may be placed fairly close to the corners to provide enframement and to soften the vertical lines of the house. Trees also may be placed at the sides of a desirable view to enframe the scene.

Background. Trees located behind the house or to the rear of the property provide a backdrop for the house and landscape. Background trees may have strong horizontal branches to provide shade or may have columnar or pyramidal forms to provide design. The trees should be tall enough when mature to be viewed above the roofline of the house. The foliage of these trees will visually "break up" the horizontal line of the roof from the front of the house.

Screen. Screens block an undesirable view, create privacy, or control winds and snow. Trees that provide screen or shelter generally are planted closer together than specimen or shade trees. Evergreens provide excellent year-around screen when closely spaced along the border of the yard. Deciduous trees also reduce wind velocity and control noise. Combining deciduous trees and evergreens increases the aesthetics of screen planting. Avoid creating an unimaginative landscape by planting a single row of trees around the three sides of your back yard, as is often seen with the Lombardy poplar.

Locating Trees on the Plan

Before deciding on the exact location of trees on your plan, determine the sizes and types of trees you need for the various functions they will perform. Consult the appendix and other publications for assistance in selecting trees for your yard.

Trees placed too close to the house drop leaves and litter or endanger the structure in storms. Trees also should be kept well away from septic tanks, sewers or lateral lines. The distances can be determined easily by using the mature spread of the trees scaled with a compass.

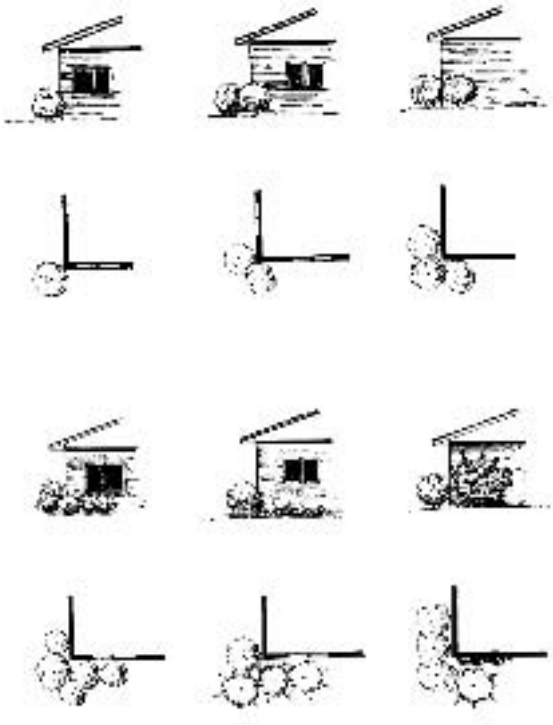


Figure 33. Shrubs and or small trees are used to soften the corners of the house and to tie the house down visually.

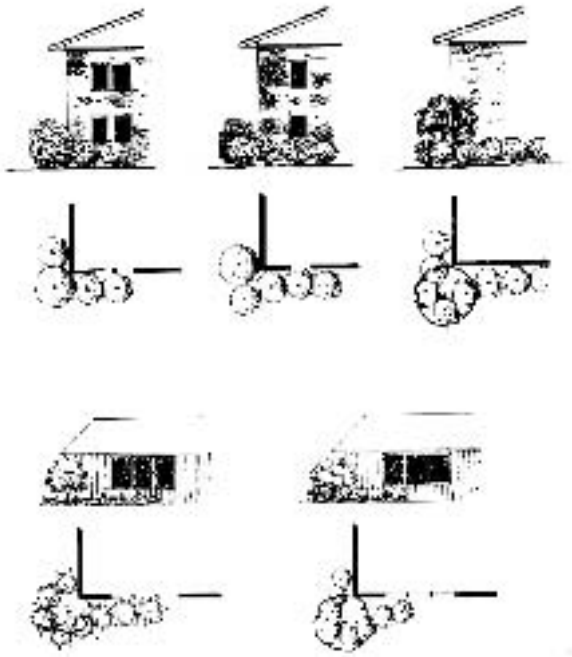
Smaller flowering trees make excellent low screen trees, or they might be used to accent a shrub border. A grouping of three small trees in a triangular or diagonal pattern also can be used as low enframement for the house.

Shrubs in the Landscape

Shrubs in a landscape design create low foliage and provide ornamental bloom, fruit or foliage colors, and textures. Select shrubs on the basis of their ability to fulfill the following functions in your landscape: create accent, soften corners, provide a transition along the foundation, separate use areas, and provide screen or privacy.

Accent. Two areas of your landscape require special emphasis to draw attention to them: the front entry and a shrub border part of the outdoor living area.

Plants having characteristics that differ from those around them create accent. Plants with brightly colored foliage create the strongest accents. Accent also is created when a coarse-textured plant is grouped with plants having finer textures. A tall shrub or small ornamental tree creates an accent when placed with smaller plants. Besides using plant material, you can create accent with statuary, a pool or fountain, or any other strong focal point. Remember that you want to attract attention to these two areas only, so be careful not to create accents in other locations.



Soften corners. The corners of your house are harsh vertical lines. They will appear more pleasing if they are visually "broken up" or softened with shrubs between four and eight feet high when mature. Taller structures or split-level homes may require small ornamental trees to tie the house down. (Figure 33) Study the architecture of your home to create a pleasant plant composition. (Figure 34) As a general rule, select plant material that when mature, will cover two-thirds the height from ground level to the eaves.

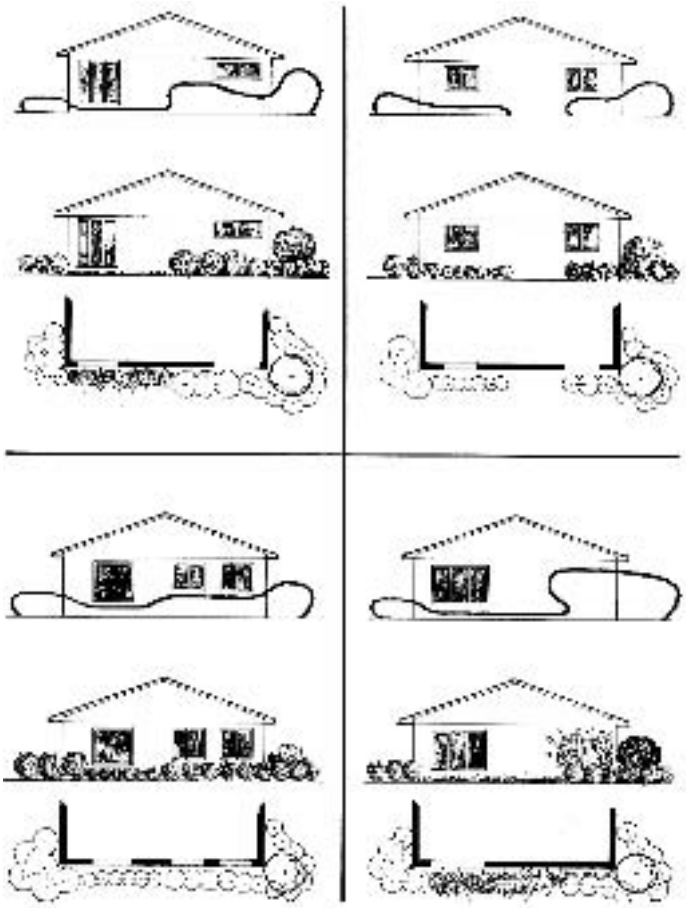


Figure 34. The architecture of a house is a guide in the selection of plant material to design a functional plant composition.

Shrub borders and corners of your yard can be softened by designing a wider border at the corners of the lot. Design the corners so that taller shrubs or small trees are at the rear of the border and progressively smaller plants are placed toward the front. The corners then should appear as smooth curves, rather than as sharp angles. (Figure 34)

Transition. The foundation of the house often requires some softening. The planting space between corner plantings, a corner and front entry, or a shrub border is the transition area. (Figure 35) Where some concrete foundation is exposed above the ground, it should be hidden by shrubbery or otherwise softened. Painting the foundation the same color as the wood or brick facing of the house will reduce the amount of plant materials required. Select plants that will not grow too tall for the space. Also, try to select plants that will not draw too much attention and thus accentuate the negative.

Separate use areas. To screen your private outdoor area from the utility or public areas and to help control foot traffic through the yard, separate the areas with shrubs or trees. Keep the plantings to a minimum and do not clutter the yard with scattered plantings. A solid shrub border or hedge will suffice without creating a mowing problem.

Screen and privacy. Determine the areas of your yard that require enclosure to protect against winds, hide a neighbor's cluttered yard, or provide privacy. You will want an area open to protect your best view.

Shrub borders. Commonly, shrub borders are designed as either a clipped hedge or a straight row of a single species of shrubbery that remains unclipped. The clipped hedge requires considerable maintenance, and shearing destroys the natural beauty of the plant material. Sheared flowering shrubs fruit and bloom poorly. A better shrub border composition consists of a smooth, curving edge along the back perimeter of the property. The corners may be planted deeper than the centers of the border to add depth. Taller shrubs could be located at the corners or wherever screen and privacy are de-

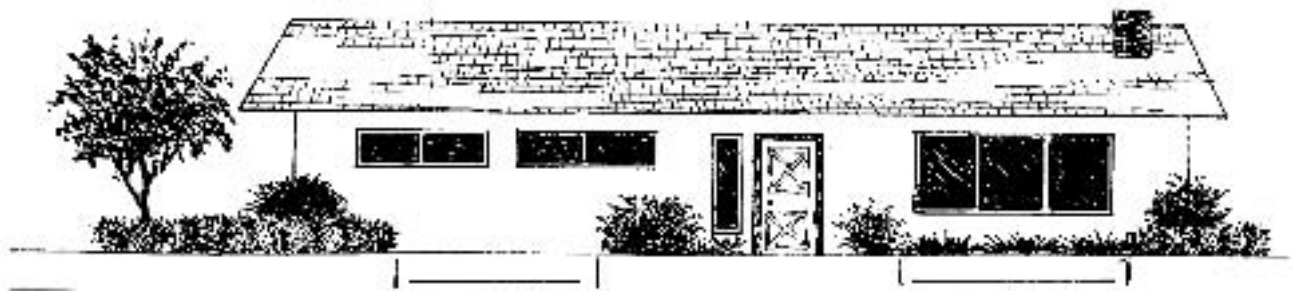


Figure 35. Shrubs, trees and other plantings can hide exposed concrete foundation and soften transition areas.

sired. Vary the width of the border according to the height of the tallest shrubs in it. Small ornamental trees also add interest to the border. Use only a few basic varieties of shrubs to lend continuity to the design. Borders consisting of several varieties of shrubs or small ornamental trees create a greater impact aesthetically than a border of a single species. By proper planning, you could have a border of shrubs in bloom from early spring to late summer. Fruit also may attract birds and add color from late spring to late fall. Autumn foliage color may be followed by interesting bark or twigs in winter.

Flower borders. Flowers usually look best when arranged as part of a shrub border or in an enclosed garden with a foreground setting of a well kept lawn. Evergreen shrubs provide an excellent backdrop for accenting roses and other flowers. Arrange flowers to provide attractive color combinations throughout the growing season. Group plants of the same variety together. Place those with good foliage in front of those with poor foliage. Design flower borders so that the brightest colors (red, blue, or purple) are accents. Bright colors spread along the entire border destroy accent. Group bright colors together at the accent area and use softer colors at the perimeters.

Common Mistakes in Landscape Plantings

Drive around your community sometime to see how others have landscaped their homes. Some landscapes will stand out because they harmonize well with their surroundings, and all parts of the landscape contribute to the design. Most of the yards that you pass probably will not be so well landscaped. Compare those yards that appear attractive with ones that lack appeal. The difference may be due to one or more factors.

Overplanting. Shrubs and trees are small when purchased, so a homeowner is inclined to plant them closer together than necessary. The result of this is an overcrowded landscape in a few years.

Too many different types of plants. A landscape will lack continuity if many different kinds of plants are selected. Repeated use of only a few basic varieties will tie the various parts of the landscape together.

Lawn cluttered with shrubs and trees. For a more pleasing design, locate shrubs and most trees in borders. If the plants are scattered throughout the yard, the landscape will appear unorganized and lack interest.

Trees In the middle of the front lawn. Trees planted in the front lawn look best when placed to the sides. These enframe the house as it appears from the street. When shade is required, however, a good shade tree may be necessary in front of the house.

Shrubs too tall for the foundation. When plants have grown too tall for the front of the house, they cover the windows and no longer provide a pleasant foundation planting. Select plants that will remain small for many years rather than those that will require constant pruning to keep them at one proper height.

Plant materials In poor condition. Plants that are constantly weak or chlorotic and grow minimally each year probably are not adapted to their planting site. Some might grow well in a more protected area away from winds. Others are chlorotic because iron is not available in the soil. “Iron chlorosis” is caused by high alkalinity of the soil. Select plants that grow successfully in your locality or consult your nursery personnel for recommendations.

Pyramidal plants at the corners of the house. Corners require plants that will soften them rather than draw attention to them. Pyramidal plants guide the eye to the corners. The most common pyramidal plant used for this is the upright juniper. The upright juniper grows to heights above the eaves of most single-story homes. The result is not only an overgrown planting, but also one that is accented as well.

Bright colors scattered indiscriminately. Brightly colored foliage can create an effective accent at the front entrance to the house. When these same plants are scattered along the foundation or along the edge of the property, the accent at the entrance is lost.

Corners stand out because downspouts are too striking. Downspouts will attract too much attention away from accent plantings unless they are painted the same color as the house. Because most downspouts are located at house corners, they should draw little attention away from the primary accent area.

Plant material too close to the house. Shrubs at the corners of the house or foundation plantings should be located half their mature width plus one foot away from the wall. So a five-foot-wide shrub should be planted 3 1/2 feet away from the house. (Figure 36)

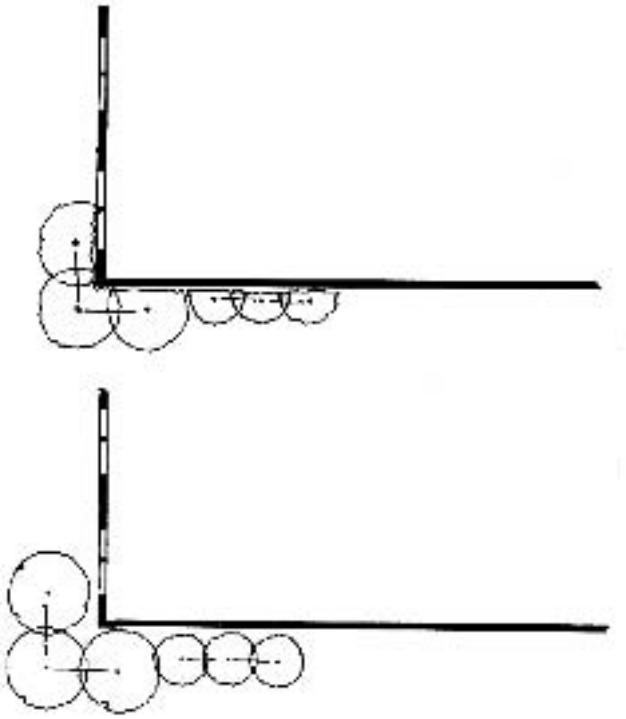


Figure 36. Space shrubs at least half their mature width away from the house – further away when the roof has a wide overhang.

Step 6—Locating Plant Material

You now are ready to locate trees, shrub masses and groundcovers on the next overlay. (Figure 37)

1. In a well designed setting, locate medium and large trees to provide shade, enframement and background for the residence.

2. Use shrubs, small trees, or both to accent the entry area to the home.

3. Use medium and large shrubs or small trees to soften corners, awkward angles, long unbroken lines or sides of the house.

4. Locate small shrubs to provide transition where the building walls and ground meet – and to soften foundations.

5. Use large shrubs for screening, privacy and separation of use areas.

6. Use trees for background or screen, to soften or accent,– or simply to provide beauty.

7. Locate evergreen trees for screen, wind protection or background.

To obtain a full, but uncrowded border, space shrubs half the sum of their widths. Shrubs and trees, however, may be planted closer because the shrubs can grow beneath the trees' higher branch structure, (Figure 38 on page 34).

To help implement the next step, study the landscape architect's sign language, (Figure 39) on page 34. Each symbol represents a physical feature and is used to represent graphically the feature on the base plan. These symbols – especially plants, structures, walks and drives – should be drawn to scale on the plan. Also, show the near mature size for plants. The symbol representing a shade tree should represent its mature spread. In the flower border, letters often are used as a key for the flower planting plan.

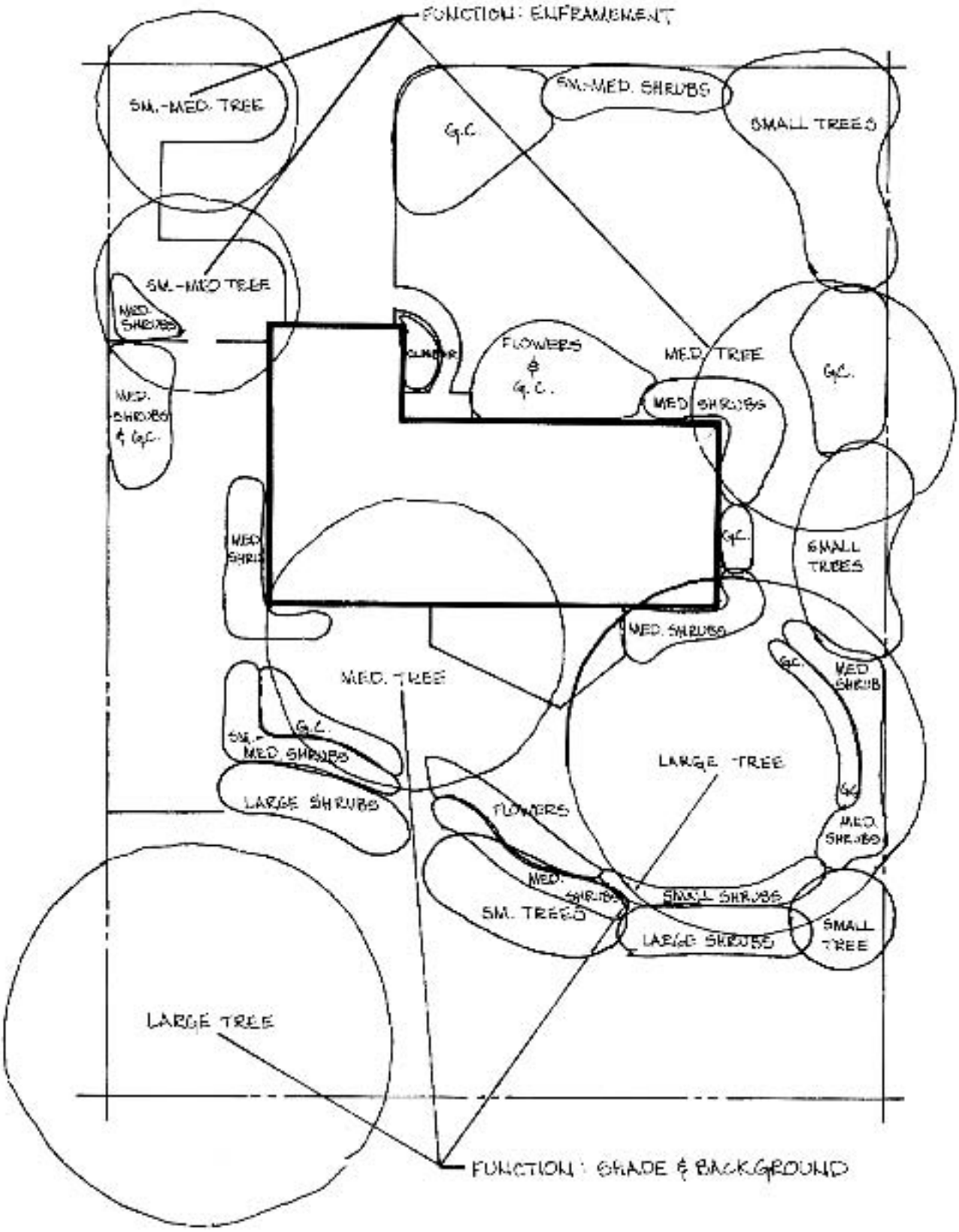


Figure 37. Locate tree and shrub masses and where you plan to use ground covers on a clean overlay.

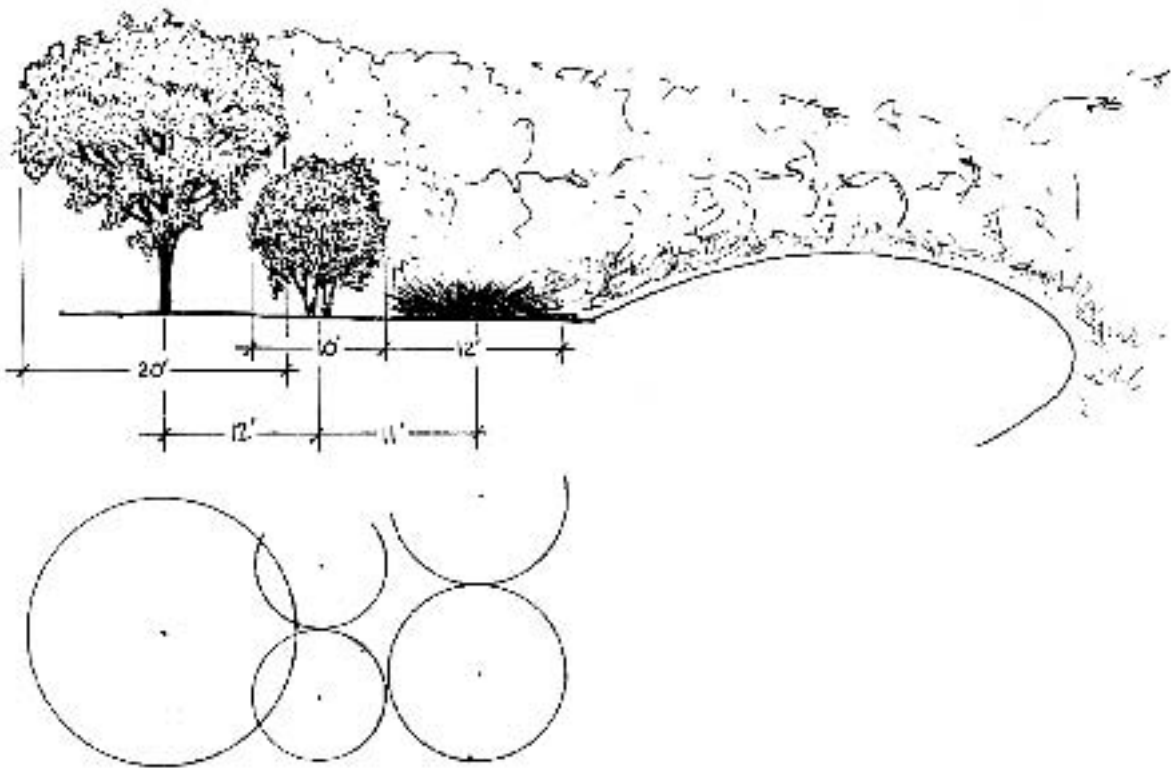


Figure 38. Space plants according to their mature size in the border.

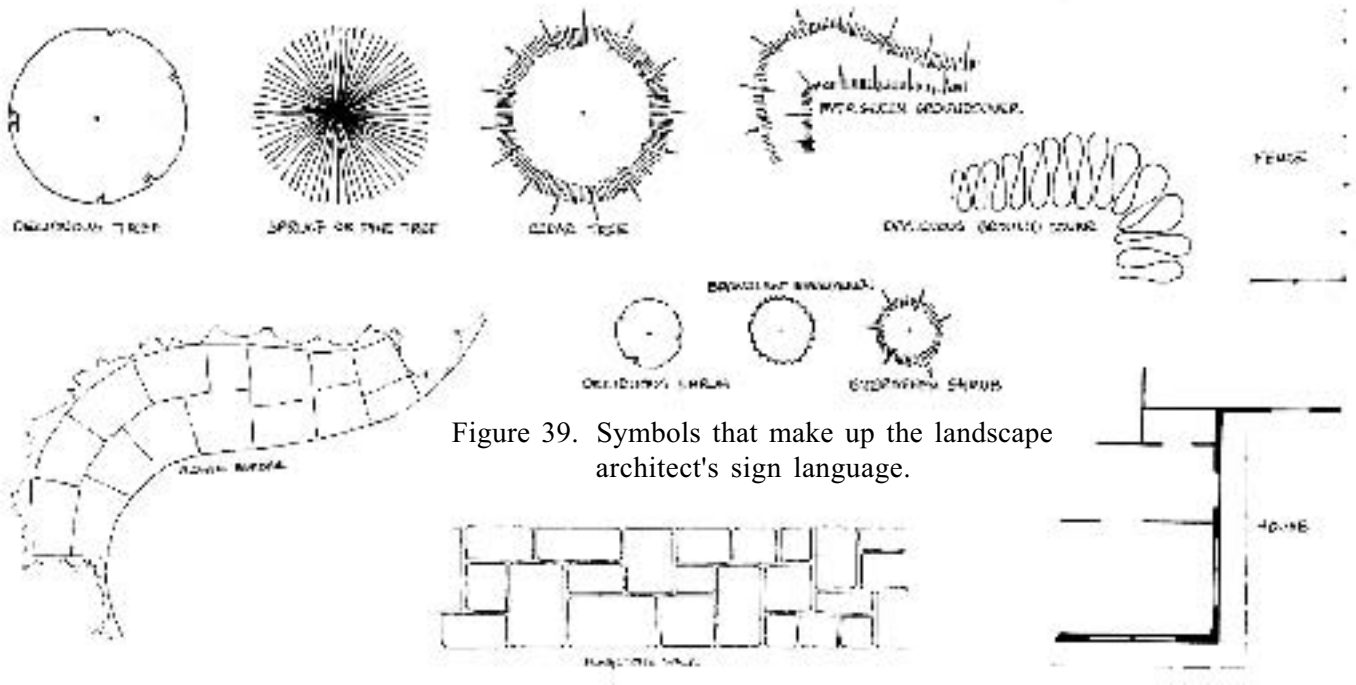


Figure 39. Symbols that make up the landscape architect's sign language.

Step 7—Locating Individual Trees and Shrubs

Now you are ready to locate the individual trees and shrubs on the plan. Sketch on tracing paper circles showing the correct mature spread of the plant material. A compass or circle template will assist you with the correct spacing and finding possible locations for them around your yard. (Figure 40)

After the schematic plan has been developed, you are ready to complete your landscape. Identify the plants in the plan to designate the species and varieties to be planted. In selecting plant material, keep environmental factors in mind.

Soil—drainage, type, acid, alkaline
Light—sun, filtered sunlight, shade
Moisture—wet, medium, dry
Exposure—calm air, breezes, strong winds
Hardiness zone—select hardy plants

To select plant material for size, site, foliage color, flower and fruit, likely problems and adaptability, see the appendix.

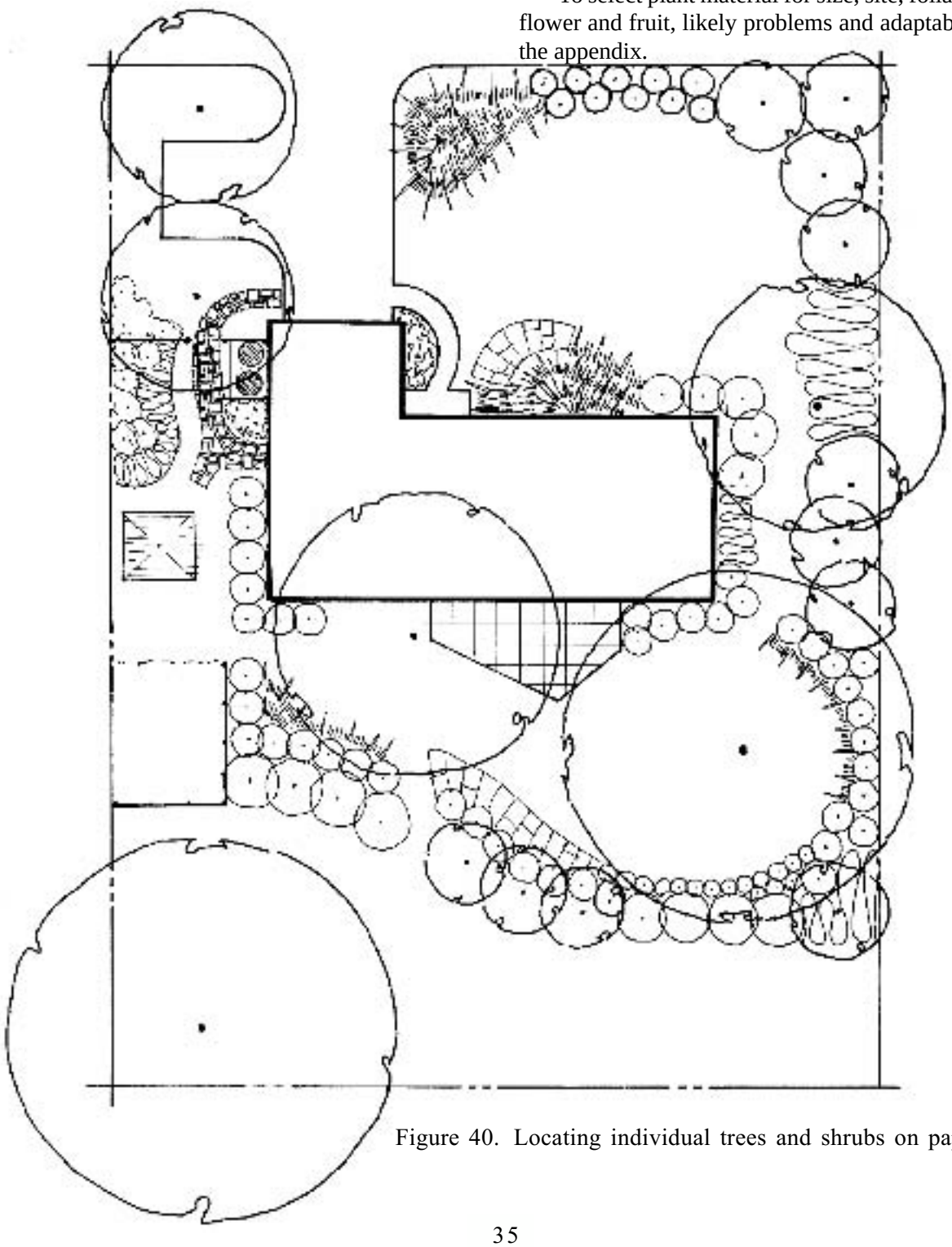


Figure 40. Locating individual trees and shrubs on paper.

Step 8—Selecting Specific Plant Material

In selecting specific plant material, the plant size and composition in Step 7 may need to be altered because of limited plant characteristics and adaptations.

After all adjustments are final and specific plant material is selected, make a plant list and key it to your final plan. (Figure 41)

Those who love and enjoy an attractive garden spend time and money on creating it. A beautiful garden adds to the value of the property and becomes a source of relaxation. In caring for the flowers, shrubs, and trees there is a satisfaction and enjoyment not to be found in any other way. The feeling is even stronger if the garden is of your own work and planning.

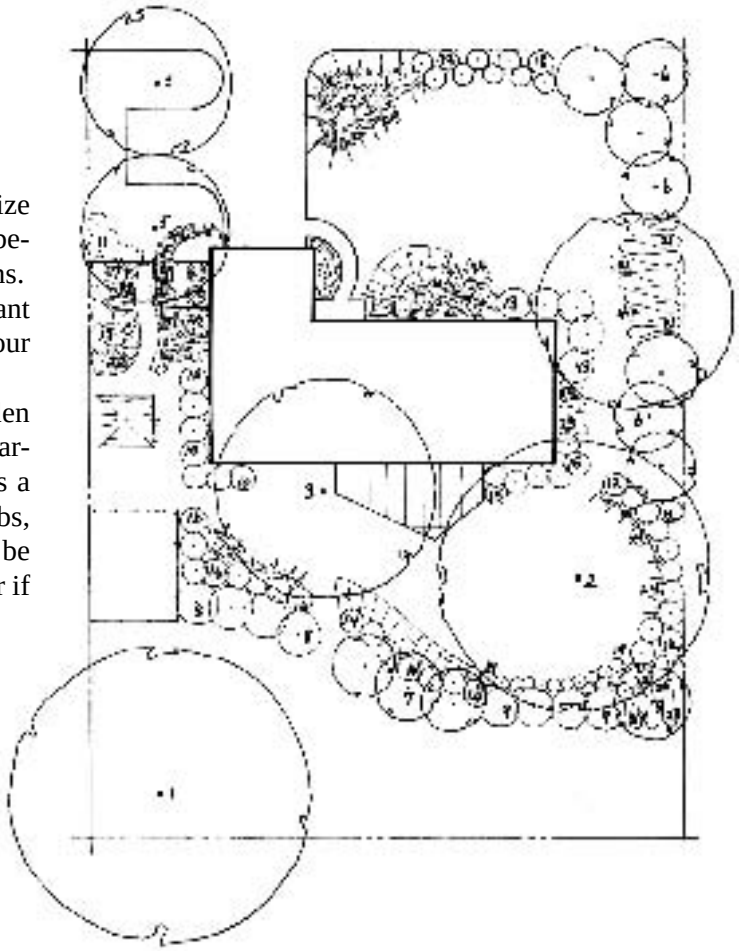


Figure 41. Key your final plan by giving a number to plant species and varieties, and list them.

Plant Material List

KEY	COMMON NAME	BOTANICAL NAME	QUANTITY
1	London Plane Tree	Platanus Acerifolia	1
2	Bur Oak	Quercus Macrocarpa	Existing
3	Red Oak	Quercus Borealis	1
4	Honeylocust	Gleditsia Triocanthos	1
5	Golden Raintree	Koelreuteria Paniculata	2
6	Red Bud	Cercis Canadensis	7
7	Radiant Crabapple	Malux X 'Radiant	4
8	Forsythia, Golden Bell	Forsythia Viridissima	4
9	Tatarian Honeysuckle	Lonicera Tatarica 'Zabeld'	4
10	Vanhoutte Spirea	Spireaxvanhouttei	7
11	Pyracantha 'Kasan'	Pyracantha Coccinea 'Kasan'	4
12	Red Leaf Barberry	Berberis Thunbergii Atropurpurea'	13
13	Mahonia	Mahonia Aquifolia	5
14	Winter Honeysuckle	Lonicera Fragrantissima	7
is	Dwarf Winged Burning Bush	Euonymus Alatus 'Compacta'	7
16	Japanese Flowering Quince	Chaenomeles Japonica	8
17	Anthony Waterer Spirea	Spirea X Bumalda Anthony Waterer'	6
18	Cranberry Cotoneaster	Cotoneaster Apiculata	10
19	Potentilla	Potentilla Fruticosa	16
20	Small Leaf Euonymus	Euonymus Kiautschovicus (Patens)	2
21	Japanese Spurge	Pachysandra Terminalis	16
22	Bugle	Ajuga Reptan	12
23	Vinca Minor	Vinca Minor	16
24	Andorra Juniper	Juniperus Horizontalis	14

Test Your Plan. Before you order plants and dig the holes, test your plan. Take your sketches outside and take time to "stake out" your proposed landscape. Use short stakes to locate drives and walkways. Use taller stakes to define shrub borders. By tying string to the stakes, areas, volumes and lines become even more clearly defined.

The garden hose is a handy tool to indicate long, curving lines. (Figure 42) It is much easier to make changes now; so take the time to study what the finished landscape will look like in two, five, 10, and 15 years from now. Ask yourself, "Is it functional? Have I developed outdoor living space with adequate privacy and unattractive views screened?"

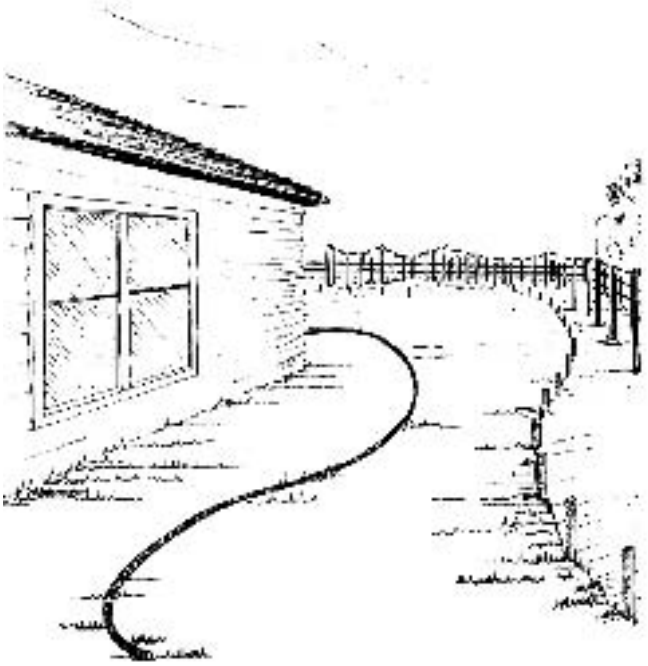


Figure 42. Test your plan: Stake out your proposed landscape plan.

Step out into your proposed landscape and look back at the house. Do the house and garden flow together attractively? If you have a two-story house, look out second story windows and appraise your future landscape from that vantage point. If you are not happy, make changes now. The object of this exercise is not to frustrate you, but to assist you with planning your landscape. The most important functions of landscape planning are developing the finished landscape and enjoying working toward that goal. You are creating your own environment: you are establishing a sense of place.

Your completed plan will reflect your family's personality and landscape needs. Carefully analyze each area of the landscape. Determine whether the plant materials will perform the functions you planned for them. Also, be certain that foot-traffic is unimpaired from the house to major use areas. If you are not certain about some plant materials after studying the various Extension landscaping bulletins, you may wish to consult local nursery personnel for suggestions about plants adapted to your area.

Minimum Maintenance. The key to successful landscape planning is incorporating minimum maintenance and eliminating many common "chores" that go with yard work.

You might spend considerable money and effort developing a landscape, adding new plantings and constructing features on a yearly basis. Too often, when these landscapes are completed you may still be dissatisfied. By using simple landscape features, you can eliminate maintenance headaches that would keep you working in your yard instead of enjoying it. Minimum maintenance can be achieved by keeping in mind the following factors.

Select plants to fit the intended space. The most common landscaping mistake is selecting plant materials that will overgrow their location. Always determine the maximum height and spread allowable for plants in a given location and choose plant material in those size categories or smaller. Keeping shrubs chopped out of sidewalks or away from the front windows is a waste of time and energy.

Select plant material recommended for your area. Study all available information relative to the adaptability of plant materials to your area. Many plants cannot tolerate the hot winds of exposed areas; others cannot grow in soils high in lime. Select plants for your locality that already have established the ability to grow in your region.

Plant trees and shrubs in borders. Keep your yard as clear of obstructions as possible. If trees and shrubs must be placed in the center of the lawn, group them into islands to avoid mowing around each item.

Avoid clipped hedges. Use borders of shrub varieties that grow to a desired height and spread without requiring shearing. This will cut maintenance time and prevent insect and disease problems associated with shearing. An unclipped shrub border also appears more natural and coordinates well with modern architectural styles.

Use edging material between lawn and borders. Any type of edging material – such as brick, wood, or metal – will prevent lawn grass from invading the border areas. Use smooth, curving lines for depth and ease of mowing. Keep the edging material below the height of cut on the mower. Edging materials reduce the time required to keep the border edge trimmed and neat.

Another method is to select plant material with low arching branches to shade out lawn grasses along the perimeter of the lawn.

Use mulch in borders. Mulch keeps the soil moist and prevents weeds from invading the border.

Select fruitless trees. Many trees produce fruit profusely and create a mess in the yard. Often new seedlings must be eliminated in borders and in the lawn. You may save some effort by purchasing fruitless varieties. You will want to consider, however, what influence these fruits have on adding color or attracting wildlife to your landscape.

Use groundcover plants in areas difficult to mow. Groundcovers make excellent facers for borders and help reduce weed problems. Groundcovers will require as much watering as the grass they replace.

Select resistant varieties. Select plant varieties resistant to the major insect or disease pests. Some spraying and routine maintenance are always necessary to keep plantings healthy, but you can reduce some of this effort by selecting improved plant varieties.

Typical Lots and Design Ideas

Front yard

The keynote to any design of the front yard should be simplicity, but this does not mean that it will be dull or shapeless. The smaller the front yard, the greater the need for restraint and the better design.

Unfortunately the most satisfying treatment of front yards is beyond the power of the individual to arrange, except in a limited way. It may be possible for two or more neighbors to combine, and by removing fences, develop such a treatment.

To develop an attractive front yard landscape, many of the principles mentioned earlier apply. Avoid disturbing lines and shapes that cut up the space between boundary and house. Create an environment for yourself as carefully as a jeweler designs a setting for a gem. (Figure 43)

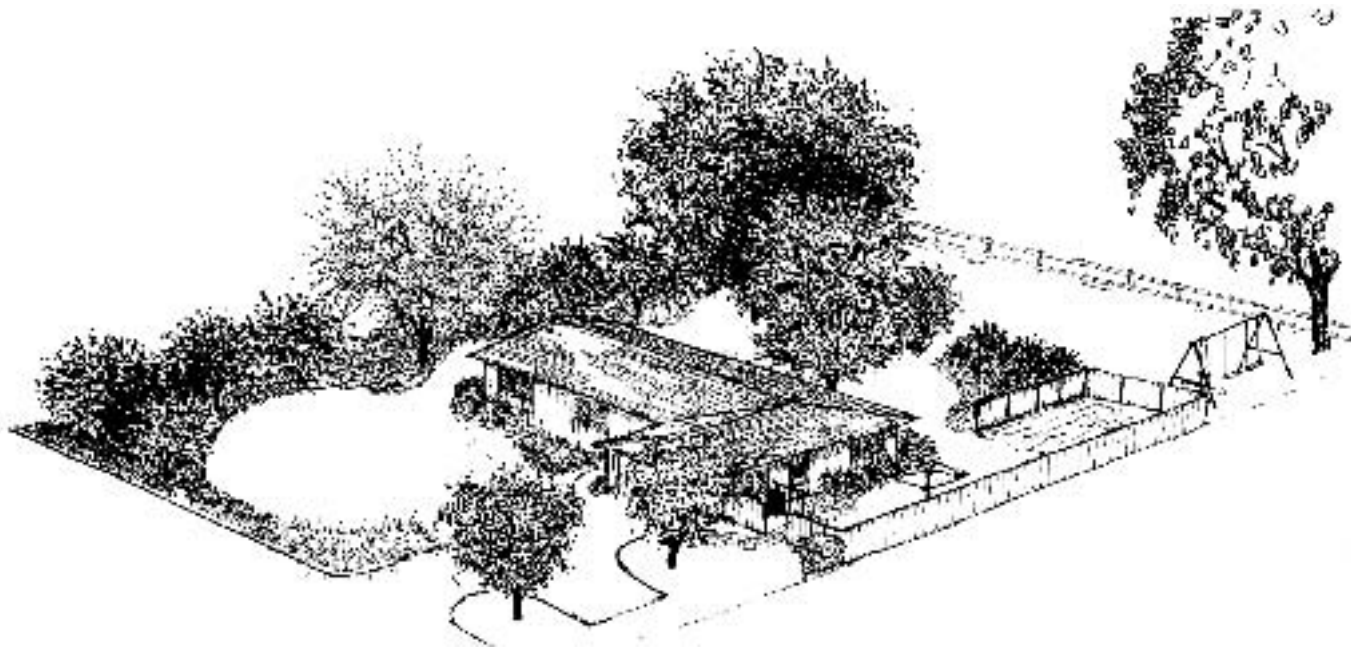


Figure 43. Develop a front yard landscape that enframes the home.

Long, narrow back yards

Long, narrow back yards are typical for the homes in the older part of many Kansas towns. Many of these gardens are neglected. All that remains are some scattered trees, a few shrubs along one of the property lines, a clothesline, some trash cans, a dog house with a puppy on a chain, and a swing set for the youngsters. To reestablish an attractive landscape here may seem like a major feat.

Dividing space and establishing functional use areas are the bases of each landscape, and from them come the development of mass and void – that is, structures, plant material and open space.

In a narrow garden the fewer straight lines and shapes in the site, the better. To keep a narrow yard from looking too spindly, carefully situate the service path and keep it out of the center. Other suggestions are shown in Figure 44. When the service path runs along the side of the property, you may select the sunny side for a garden arrangement opposite this path. When the service path crosses the narrow property from one side to another, it gives a feeling of increased width. It also separates the space for a vegetable garden from the ornamental garden.

Whichever form or design you choose, keep in mind that a small garden provides a feeling of spaciousness and keeps the middle open. Using one specimen plant or a small group of plants close together on the open lawn gives accent and appearance but does not clutter the central open space with flower beds or other ornaments. (Figure 45)

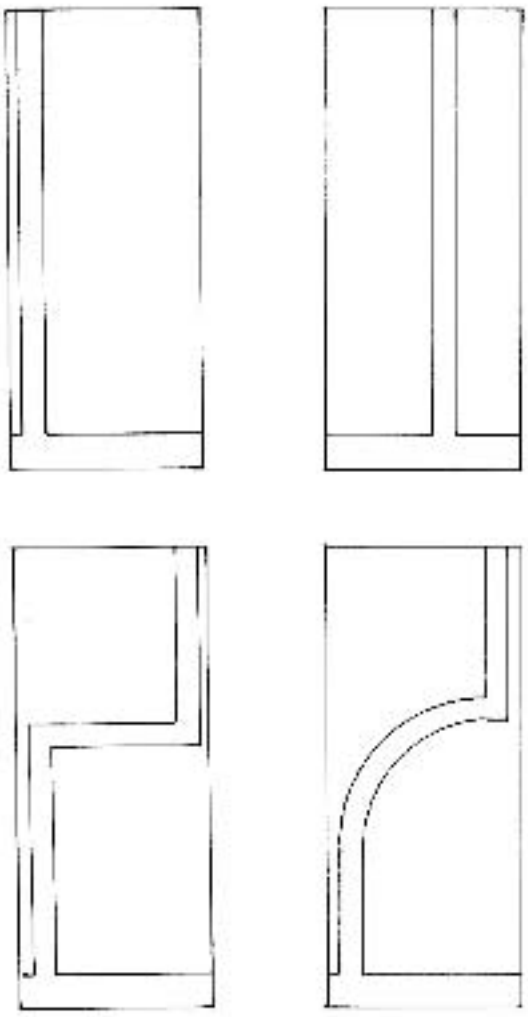


Figure 44. A narrow, deep lot can be changed through realignment of the service path.

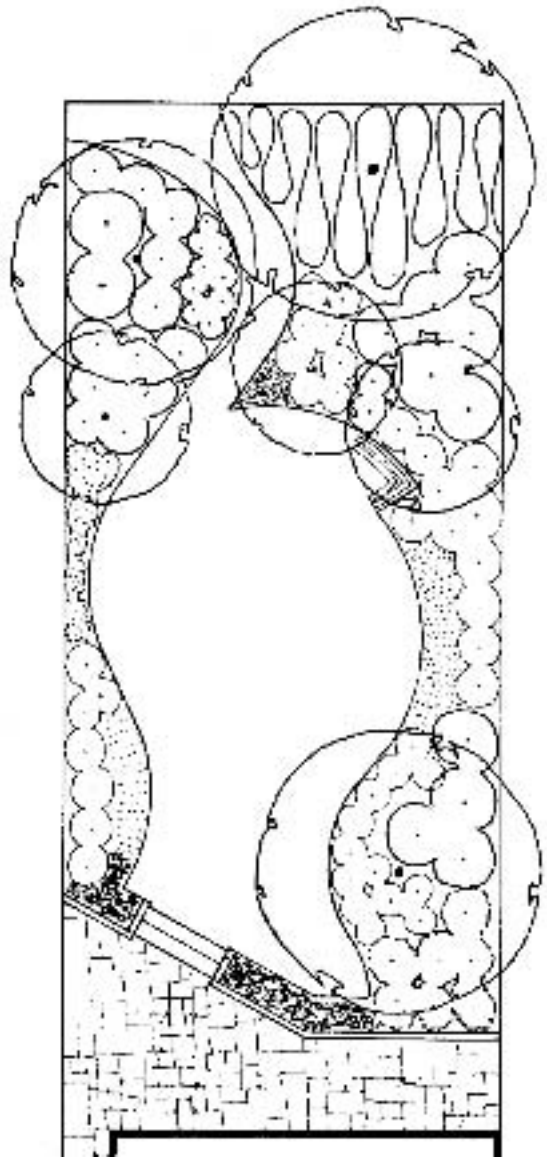


Figure 45. Keep the center open

Walks and drives

Walks and drives are needed and can be laid out to create smooth traffic patterns and separate use areas.

There is a common tendency to build walks and drives too narrow. In an urban setting a straight, single car drive to the garage should be 10 to 12 feet wide, and the walk should be at least four to five feet wide.

Where there is a chance, consider eliminating walks from the front door to the public sidewalk. Such a walk cuts the front lawn in two, which is not so attractive as a one-piece green lawn. (Figure 46) Incorporate the walk to the front door in a wide driveway. Do not have the walk from the driveway to the front door too close to the house; leave enough space for shrubs to grow as foundation plantings. (Figure 47) Allow for some creative design near the front door to establish a more attractive entry. (Figure 48)

Figure 46. The front lawn cut in two by walk.

Figure 47. A flowing lawn and ample space left between walk and house for foundation planting.

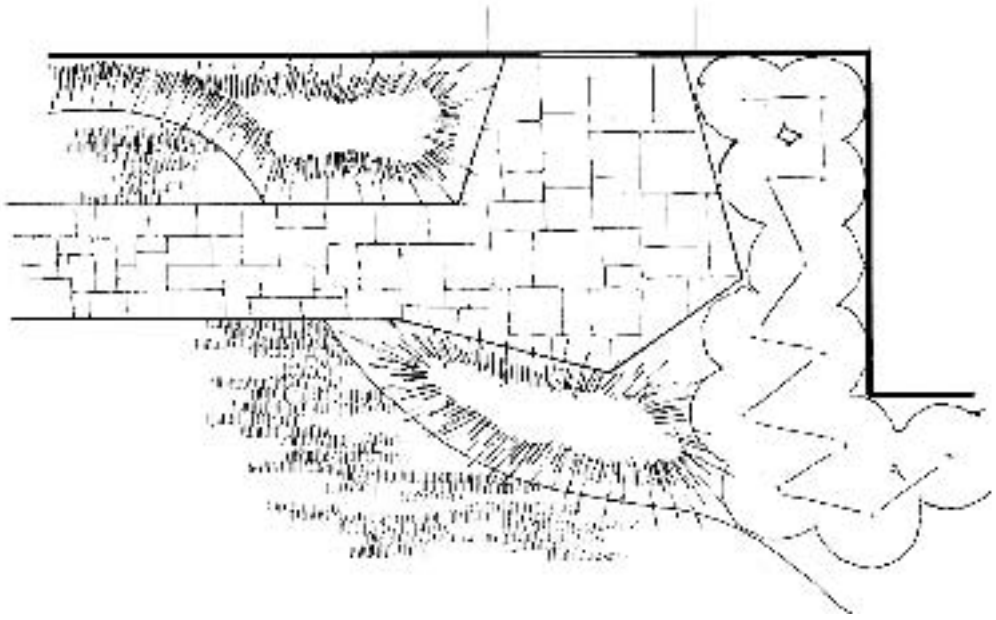


Figure 48. Ample space near the main entrance to welcome friends.

Farmstead Problems

On farmsteads a single drive is usually desirable for traffic control so that vehicles can be readily observed from the house. Exceptions include a second drive to a major remote unit, such as a large livestock center. When selecting the location for entry make sure that there is ample visibility. Fast moving cars or trucks need time and distance to avoid a slower moving farm vehicle entering the drive. Maintain the drive about 16 feet wide with at least 7 feet additional clearance on each side. The extra width allows for large overhanging equipment and provides for snow storage and driveway drainage. Use only gentle curves.

Usually the house is the first building approached along the drive. Yet one of the biggest problems is how to keep visitor traffic out of the courtyard. The answer is to provide attractive guest parking space. A farmstead with no space for visitor parking encourages either parking in the drive, blocking farm vehicles or proceeding into the court area, which usually brings visitors to the back door of the home.

By providing clear traffic patterns you can direct traffic to the home, farm office or delivery trucks to farm buildings.

Invite visitors to your guest entrance by providing obvious parking for at least three cars and a direct, pleasant walkway to the main entrance. It helps to landscape the entryway and to use some planting. Screen the route to the service entrance and farm buildings with plantings. (Figure 49)

Lay out the parking area to encourage its use and to discourage driving into the courtyard to turn around. Plantings and walks will help people to know where to go.

If there is ample space, parking space can be arranged on the house side of the drive. If parking is across the drive from the house, use plant material, attractive fence or a curb along the house side of the drive to discourage parking on the wrong side.

A sign at the guest parking area can direct farm office visitors. Their parking area might be in the guest area or near the office.

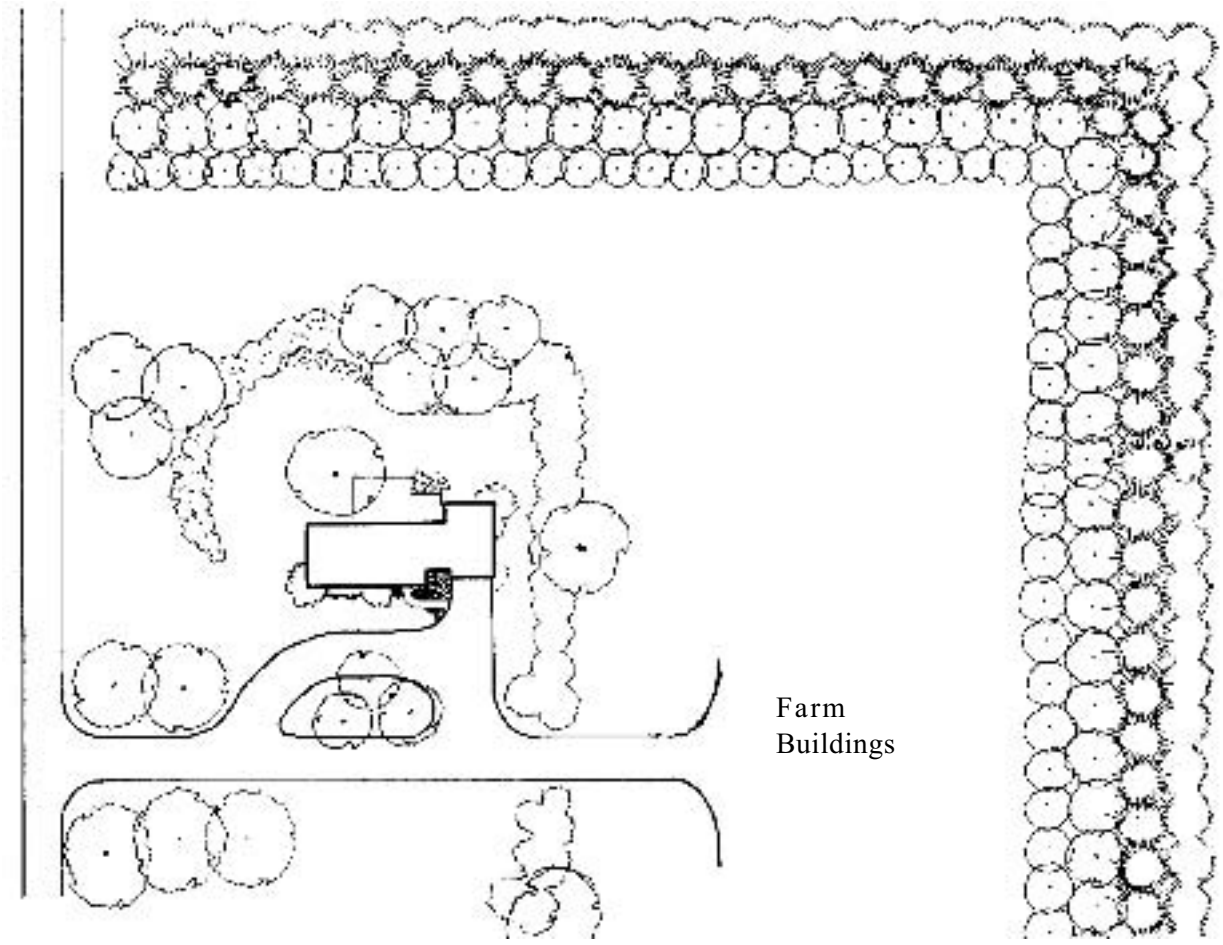


Figure 49. Landscape the entrance and screen the service entrance.

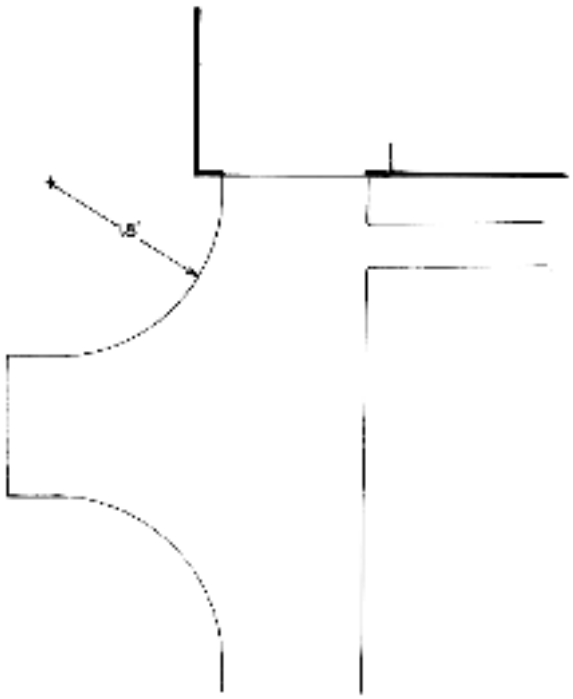


Figure 50. The “hammerhead” is ideal for backing out of the garage.

The hammerhead is very convenient when backing out of a garage. Design the driveway with an 18-foot radius. (Figure 50) This allows ample space for turning.

The farmstead court is usually an extension of the main drive. Plan for ample parking and maneuvering machines and trucks. Extra space, either sodded or gravel, allows for temporary storage of machines and vehicles.

A common layout provides a loop drive connecting the various activity centers, leaving an open space in the center for overflow parking. Today’s long trucks need 55-foot radius for turning, so a circle drive around the court should be at least 110' in diameter. Develop a layout that requires a minimum of parking for trucks serving the grain and livestock centers.

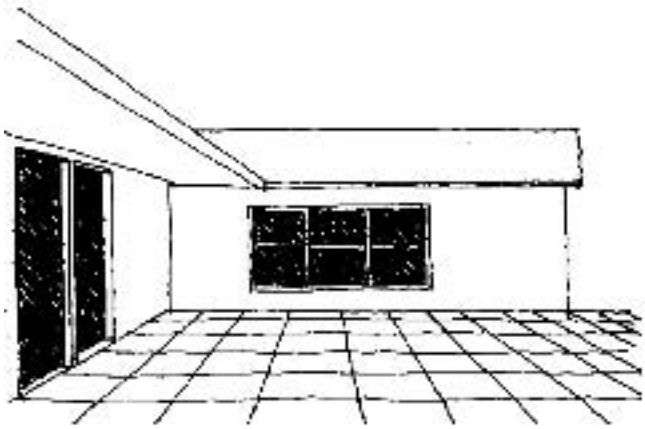


Figure 51. Create a patio with sphere.

Patios

Before outdoor space can be used, it must be made habitable. Most leisure outdoor activities happen around the patio; so the patio must be an attractive setting, instead of a bare slab of concrete stuck on the house. (Figure 51)

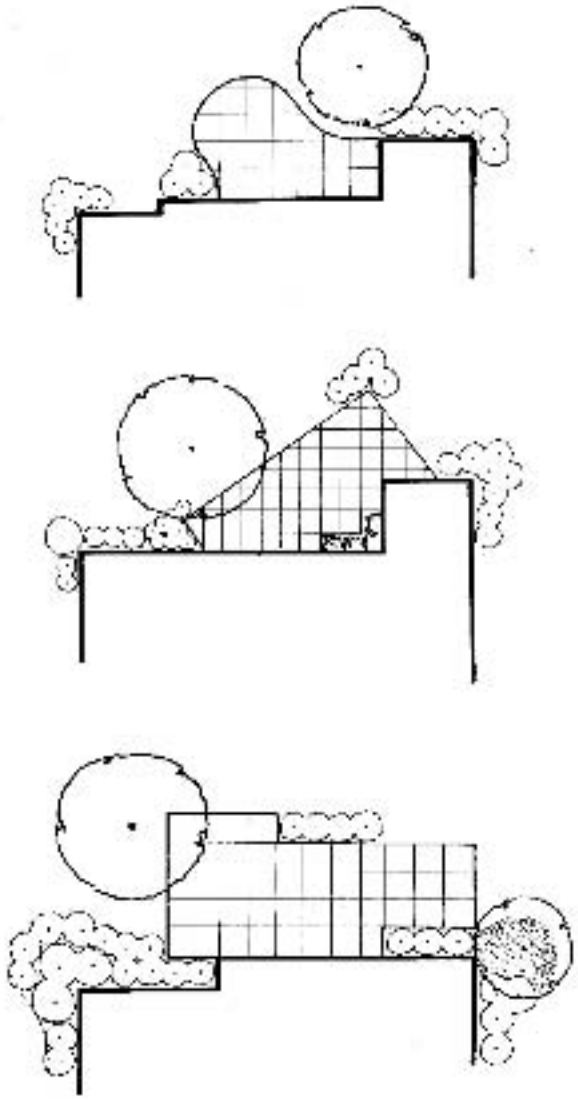
For a functional patio, ample space is required. Seventy-five to 80 square feet per person will provide minimal space to sit and relax. A family of four would need a patio space of approximately 320 square feet. Good circulation out of the house and onto the patio and from the patio into the garden is important. Sun and wind control are factors to keep in mind.

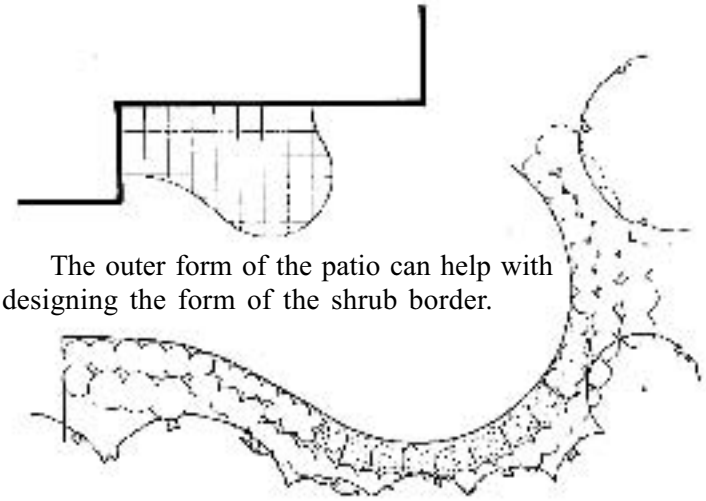
The patio form can be varied, but don't let your imagination run wild. (Figure 52) Sharp corners on a patio generally are wasted space and concrete.

Besides good design, use plant material to make the patio more livable and enjoyable.

When constructing a patio, decide on location, size, surface, slope – 1/4" per foot – circulation, and relationship of patio to garden.

Figure 52. Varied patio designs.





The outer form of the patio can help with designing the form of the shrub border.

Figure 54. Correct and incorrect ways to locate plant material near corners of a long, narrow mobile home unit.

Mobile Homes

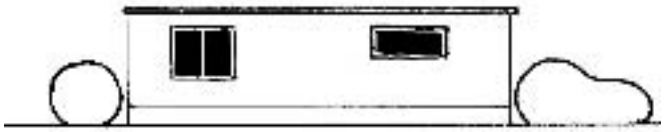
The mobile home presents a new concept in living for many families and has created new landscaping problems. One of the problems is that the housing is often temporary and the interest in creating a pleasant environment with a landscaped yard is not strong. On the other hand, the resale value of a lot and mobile home can be considerably higher if some landscaping is done. In the meantime, you and your community can enjoy a functional, attractive small yard.

The landscape principles mentioned earlier apply to mobile homes. The rectangular form of mobile homes and the modern decorative exteriors must be overcome to apply landscaping principles.

One of the basic form problems is the long, narrow shape of many mobile homes. To correct this, plant a group of shrubs in front of the corners of the home, instead of placing them beside it, which only makes the mobile home look more elongated. (Figure 54a) A better way is shown in Figure 54b.

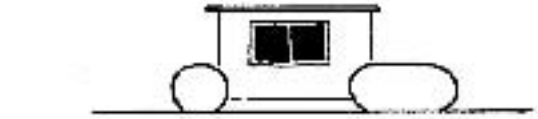
To correct the narrow look of many mobile homes from the end view, use a group mass of shrubs on either side for emphasis (Figure 54c) instead of placing them in front. (Figure 54d) By doing this, the front of the home is perceived as wider. Any other structure, front door patio or yard patio, helps create a less rigid and more attractive form around which the general landscape principles can be applied.

Just a few shrubs and trees make the difference between barren, open space and the enclosure of pleasant surroundings. (Figure 55) In selecting plants, small to medium small plant material and size relate better to the scale of the mobile home.

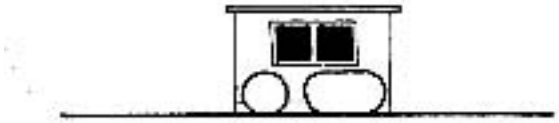


Incorrect 54a

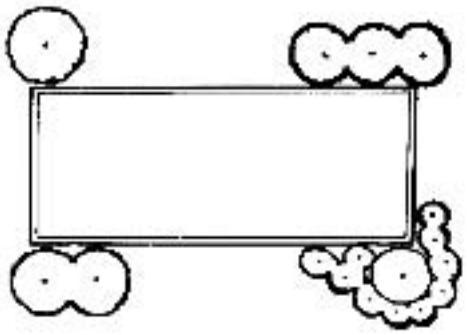
Correct 54b



Correct 54c

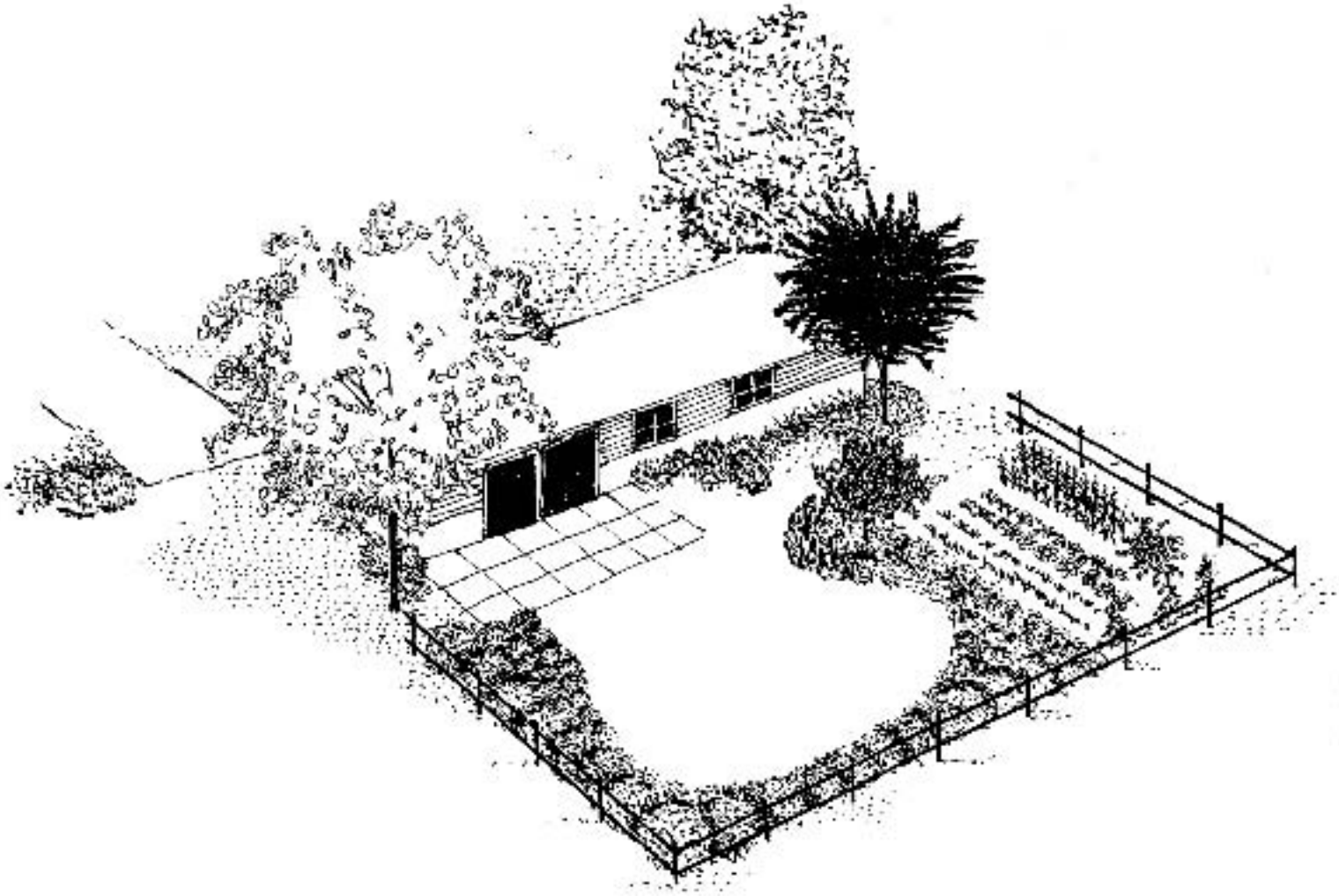


Incorrect 54d



Correct planting design for a mobile home.

Figure 55. Attractively landscaped mobile home units, front and back.



Selecting Plant Material

If you follow the do-it-yourself trend when choosing and planting trees and shrubs, you may wonder what to buy because the choice is so wide.

What you choose depends on many things:

- Is the plant adaptable to your area?
- What size of plant do you need?
- What shape or form do you want?
- What foliage color and texture do you want?
- When do you want the plants to bloom?
- What colors do you want?
- Are you interested in plants with attractive fruit?
- Will you plant in the sun or shade?

The listings and charts included will help you make your selection.

Shrub Bloom

White

Almond, Cherry (flowering)
Crapemyrtle
Dogwood
Elder, American
Honeysuckle, Winter
Hydrangea
Jetbead
Lilac
Mockorange
Pearlbush
Privet
Pyracantha
Quince
Rose of Sharon
Snowball
Spirea, Bridal Wreath
Spirea, Garland
Spirea, Thunberg
Spirea, Vanhoutte

Blue

Rose of Sharon

Yellow

Bladdersenna
Currant
Forsythia
Kerria
Mahonia
Peashrub

Cream

Buttonbush
Viburnum, Leatherleaf

Red

Crapemyrtle
Quince
Rose of Sharon
Weigela

Lavender or Pink

Crapemyrtle
Abelia, Glossy
Almond (flowering)
Beautybush
Honeysuckle, Tatarian
Roseacacia
Spirea, Froebel
Tamarisk
Weigela

Purple

Rose of Sharon
Smoketree

Lilac

Butterflybush
Vitex
Lilac

Crimson

Spirea, Anthony

Shrubs That Tolerate Shade

Abelia, Glossy
Barberry, Japanese
Barberry, Mentor
Boxwood, Common
Buckhorn
Buttonbush
Coralberry
Currant, Golden
Dogwood (flowering)
Dogwood, Redosier
Elderberry
Euonymus, Eastern Wahoo
Euonymus, Patens
Holly
Honeysuckle, Winter
Hydrangea
Jetbead, Black
Kerria, Japanese
Mockorange
Mahonia
Nandina
Privet
Pyracantha
Serviceberry
Snowball
Snowberry
Spicebush
Spirea, Vanhoutte
Sumac
St. Johnwort
Viburnum, Leatherleaf
Weigela
Witch-hazel
Yew

Clipped Hedges

Shrubs with upright and twiggy growth make better clipped hedges than others.

When planting for clipped hedges, space the plants at one to one-and-one-half feet apart.

Shrubs for Clipped Hedges

Barberry
Boxwood
Cotoneaster, Peking
Euonymus, Patens
Firethorn (Pyracantha)
Peashrub
Privet
Quince, Common Flowering
Spirea, Vanhoutte
Yew

Trees for Wet Soil

American Linden
Box Elder
European Alder
Green Ash
Hackberry
Ohio Buckeye
Pin Oak
Red Maple
River Birch
Shagbark Hickory
Silver Maple
Sweet Gum
Sycamore
Walnut
White Ash
Willow

Trees for Dry Soil

Amur Maple
Black Cherry
Black Locust
Box Elder
Catalpa
Eastern Red Cedar
Ginko
Hedge Maple
Honeylocust
Hickory
Pignut (Shellbark)
Pin Oak
Tree of Heaven
White Ash

Shade Trees

American Linden (Redleaf or Littleleaf)
Bur, Red, White Oak
Ginko
Green Ash
Ironwood
Kentucky Coffee Tree
Locust-Moraine
Norway, Red, Sugar & Schwedler Maple
Ohio Buckeye
River Birch

Shrubs for Dry Soil

Autumn Olive
Buckhorn
Cinquefoil
Cotoneaster
Gray Dogwood
Lead Plant
Mentor and
and Japanese Barberry
Morrow Honeysuckle
Nannyberry
New Jersey Tea
Ninebark
Privet
Quince
Smoketree
St. Johnwort
Sumac
Witch-hazel
W. Sand Cherry
Yucca

Shrubs for Wet Soil

Alder
Arrowwood
Buttenbush
Chokebush
Dogwoods
Elderberry
Nannyberry
Serviceberry
Spicebush
Willow

Shrubs That Attract Birds

Alpine Currant
Barberry
Bayberry
Buckthorn
Coralberry
Dogwood
Dwarf Shadblow
Elderberry
European Spindle Tree
Honeysuckle
Snowberry
Spirea
St. Johnswort
Sumac
Viburnum
Weigela

Zones of Adaptability

Will the tree or shrub you want survive and grow in your area?

Plant hardiness was considered when the lists were prepared. “Hardy” means ability to withstand the winter. But, in Kansas, even more important is the ability to survive the summer. A plant stunted in summer is less likely to make it through the winter.

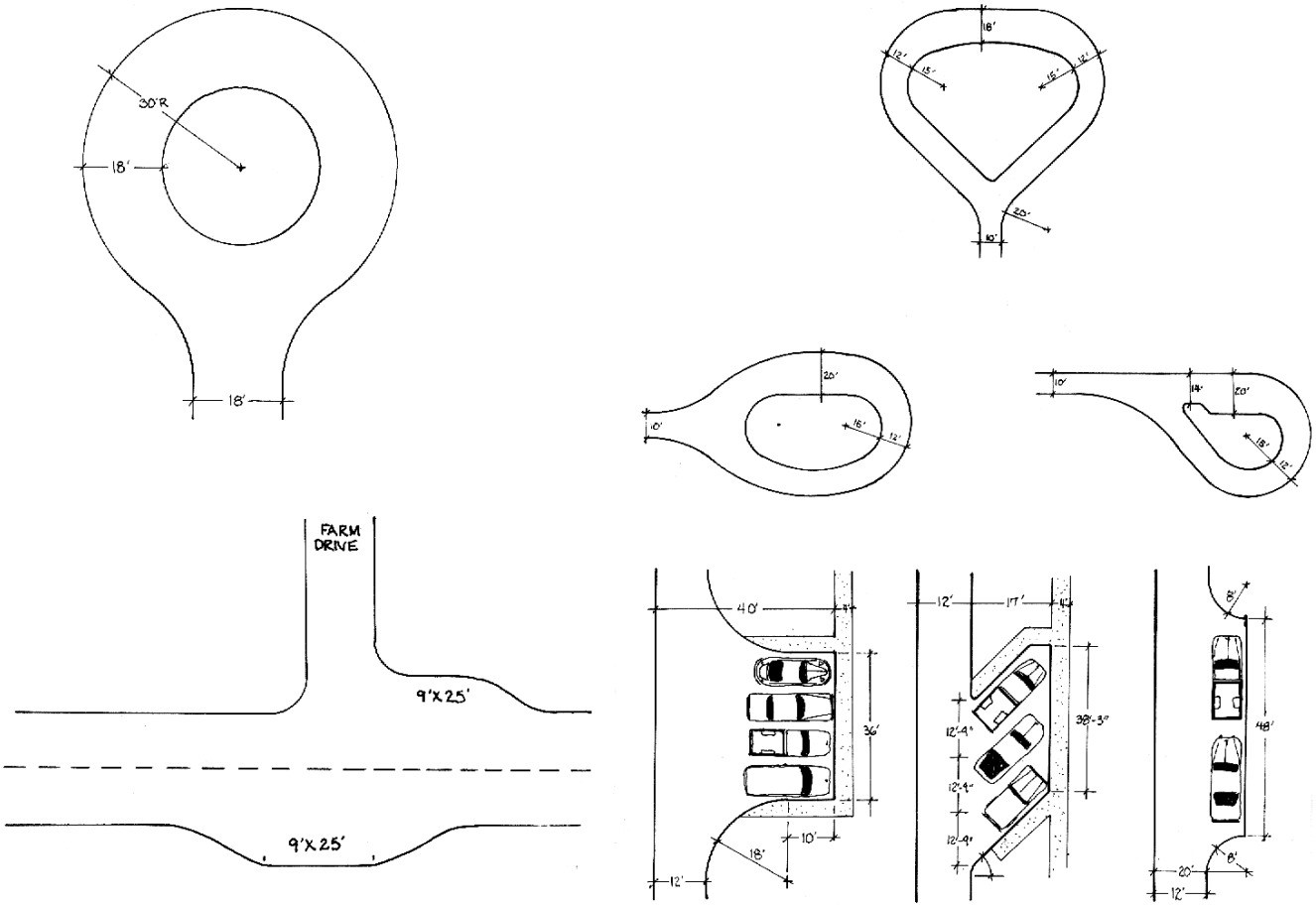
Summer survival may vary from one yard to the next because of location, availability, application of water, and the nature of the soil.

If your home is in a town, if you live in a wooded valley in the country, or if your trees are protected from hot summer winds, you likely can grow plants listed under the Kansas zone east of your own. For example, if your home is in a valley in central Kansas, you probably could grow plants listed under eastern Kansas. If your home is exposed to hot summer winds, you’re better to use plants listed for your zone.

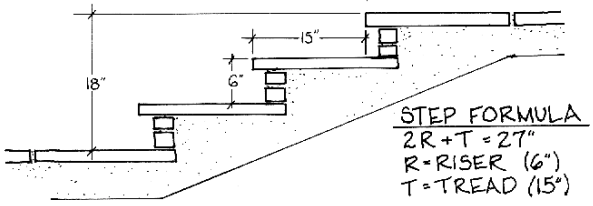
Additional Information

1. The Art of Home Landscaping. Eckbo, James H., E.W. Dodge Corp., New York, 1956.
2. Readers Digest Practical Guide to Home Landscaping, Readers Digest Association, Inc., New York, 1972.
3. Landscaping Your Home. Nelson, William R., University of Illinois, College of Agriculture, Cooperative Extension Service, Room 201, Fyffe Road, Columbus, Ohio, 1975.
4. Shrubs and Vines for American Gardens. Wyman, Donald. The Macmillan Company, New York, 1959.
5. Trees for American Gardens. Wyman, Donald, The Macmillan Company, New York, 1959.

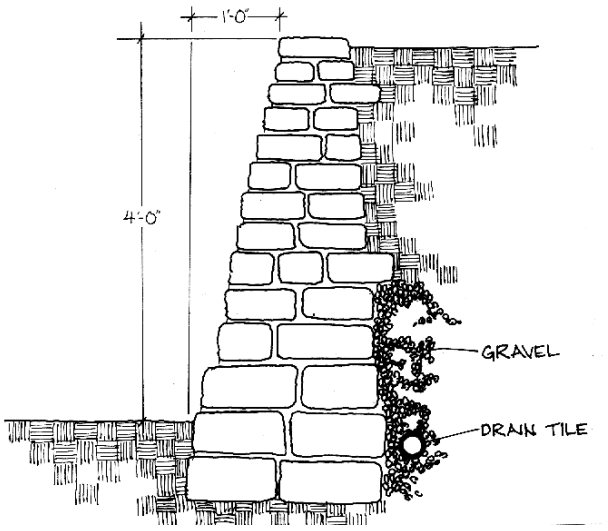
APPENDIX



Suggested driveway arrangements and dimensions.



Functional steps – An incline of 18 inches calls for three steps of 6 inches each (3 x 6 = 18) According to formula, the tread should be 15 inches to have a comfortable step.



A well-constructed rock wall requires heavy stones near the base below the frost line, with good drainage. Build with a setback of 3 inches per foot and use of anchor rocks. Rocks could be slanted back slightly.

JUNIPERS AND RED CEDARS (Upright habit of growth):

Common Name	Botanical Name	Mature Size		Growth Rate	Foliage Color		Comments
		Ht.	Sp.		Summer	Winter	
Ames Juniper	*Juniperus chinensis* "Ames"	10-15'	6-8'	Slow	Blue-gray	Blue-gray	Broad, conical form. Has a broad base and tapers to a point. Compact foliage that creates an accent.
Blue Columnar Juniper	*Juniperus chinensis* "Columnaris"	15-20'	5-6'	Medium-fast	Blue-green	Blue-green	Columnar form. Very narrow, cone-shaped habit. Creates an accent.
Blue Point Juniper	*Juniperus chinensis* "Blue Point"	15-20'	5-61	Medium	Blue-gray	Blue-gray	Very formal appearance. Tapers to a point like a teardrop. Creates an accent.
Hollywood Juniper	*Juniperus chinensis* "Torulosa"	8-10'	4-5'	Fast	Dark green	Dark green	Pyramidal form. Dense, upright habit with erect branches that give a twisted appearance.
Iowa Juniper	*Juniperus chinensts* "Iowa"	15-20'	8-12'	S!ow	Blue-green	Blue-green	Broad pyramid. Coarse texture with slight irregularities in form. Creates an accent with its blue foliage color.I
Irish Juniper	*Juniperus communis* "Stricta"	10-15'	1-2'	Medium-slow	Dark green	Dark green	Extremely narrow, columnar form. Hardy only in extreme southeastern Kansas counties,
Keteleer Juniper	*Juniperus chinensis* "Keteleeri"	20-25'	6-8'	Medium-fast	Dark green	Dark green	Compact, broad pyramidal form and ascending branches. Fine foliage texture.
Mountbattan Juniper	*Juniperus chinensis* "Mountbattan"	25-30'	6-8'	Medium	Blue-green	Blue-green	Upright pyramidal form. Accent cedar for screen and wind protection.
Spartan Juniper	*Juniperus chinensis* "Densaerecta"	25-30'	4-5'	Fast	Dark green	Dark green	Very narrow and tall pyramidal cedar having dense, compact foliage.
Spartan Juniper	Juniperus chinensis "Spartan"	20'	6-7'	—	—	—	A fast, dense grower of tall pyramidal or columnar habit, very nice.
Spearmint Juniper	Juniperus chinensis "Spearmint"	15"	3-4'	—	—	—	Dense columns — pyramidal habit, bright green foliage.
Wintergreen Juniper	*Juniperus chinensis* "Wintergreen"	25-30'	6-8'	Medium	Dark green	Dark green	Pyramidal form and a-dense branching habit of growth.

JUNIPERS AND RED CEDARS (Upright habit of growth) – Continued:

Common Name	Botanical Name	Mature Size Ht.	Mature Size Sp.	Growth Rate	Foliage Color Summer	Foliage Color Winter	Comments
Welch Juniper	*Juniperus scopulorum*	15-25'	6-10'	Medium-fast	Blue-green	Blue-green	Pyramidal form. An accent with blue-green foliage. For western and central Kansas.
Burk Red Cedar	*Juniperus virginiana* "Burki"	20'	5-6'	Medium	Silver-blue	Plum	Narrow, compact pyramidal form. Should be used as an accent. Generally hardy.
Canaert Red Cedar	*Juniperus virginiana* "Canaerti"	25-30'	10-12'	Slow	Dark green	Dark green	Loose, open, or irregular semi-pyramidal form. Holds green color all year. One of the best for screen. Do not shear.
Eastern Red Cedar	*Juniperus virginiana*	40'	10-15'	Medium green	Bronze-	Plum	Broad pyramidal form. Spreads rapidly in the landscape by seeds. Good for screen in large areas or wind breaks only.
Hill Dundee Juniper	*Juniperus virginiana* "Hilli"	15-25'	5-6'	Slow	Gray-green	Plum	Pyramidal form. May be used as an accent or as a screen.
Hillspire Juniper	*Juniperus virginiana* "Cupressifolia"	15-20'	7-8'	Medium	Blue-green	Plum	Compact pyramidal form. Should be used as an accent plant.
Manhattan Blue Juniper	*Juniperus virginiana* "Manhattan"	20-25'	6-81	Medium-fast	Blue-green	Blue-green	Compact pyramidal form. Blue foliage creates an accent. Use carefully in landscape.
Silver Red Cedar	*Juniperus virginiana* "Glauca"	20-30'	6-8'	Medium	Silver-blue	Silver-blue	Loose, open habit and semi-pyramidal form. Fine foliage texture. An accent cedar.

JUNIPERS (Spreading habit of growth):

Common Name	Botanical Name	Mature Size Ht.	Mature Size Sp.	Growth Rate	Foliage Color Summer	Foliage Color Winter	Comments
Armstrong Juniper	*Juniperus chinensis* "Pfitzeriana Nana"	3-4'	4-5'	Medium	Light green	Light green	Very dense, compact spreader. Foliage extends to ground and has a finer texture than Pfitzer juniper.
Fruitland Juniper	*Juniperus chinensis* "Pfitzeriana Fruitland"	4-5'	5-6'	Medium	Bright green	Bright green	Compact spreader. Improved form of Compact Pfitzer juniper.
Hetz Juniper	*Juniperus chinensis* 'Hetz"	10-12'	15-18'	Fast	Blue-gray	Blue-gray	Also called "BIue Pfitzer" juniper. A broad spreading juniper with ascending branches. Becomes extremely large for most home landscapes. Creates an accent.
Kallay Pfitzer Juniper	*Juniperus chinensis* "Pfitzeriana Kallay"	2-3'	4-6'	Fast	Green	Green	A low spreading form. Best adapted where other Pfitzer junipers are too tall.
Maney Juniper	*Juniperus chinensis* "Maney"	7-8'	8-10'	Medium	Blue-green	Blue-green	Semi-erect, spreading habit. May be held to a height of 4 to 5 feet and a spread of 4 to 6 feet for many years slight pruning. Blue color creates an accent.
Pfitzer Juniper	*Juniperus chinensis* "Pfitzeriana"	7-8'	12-15'	Fast	Green	Olive	A very fast-growing, broadly spreading juniper. Becomes too large for most home landscapes. Hardy throughout Kansas.
Pfitzer Juniper, Compact	*Juniperus chinensis* "Pfitzeriana Compacta"	4-6'	5-7'	Medium	Green	Olive	Flat, spreading juniper. Actually will grow to-same size as Pfitzer juniper, but is slower growing and easier to keep smaller by occasional pruning.
Savin Juniper	*Juniperus sabina*	4-6'	8-10'	Medium	Dark green	Dark green	Vase-shaped, spreading juniper. Good for western Kansas and hot, dry locations.
Vonehron Savin Juniper	*Juniperus sabina* "Von Ehron"	6-81	8-10'	Medium-fast	Bright green	Bright green	Vase-shaped, spreading juniper. Best used in massed borders, not a foundation planting.

JUNIPERS (Prostrate habit of growth):

Common Name	Botanical Name	Mature Size		Growth Rate	Foliage Color		Comments
		Ht.	Sp.		Summer	Winter	
Arctic Pfitzer Juniper	*Juniperus chinensis* "Pfitzeriana Arctic"	11/2-2'	4-6'	Medium	Blue-green	Blue-green	Prostrate form. Strong branches resist snow breakage.
Andorra Juniper	*Juniperus horizontalis* Plumosa	18"	6-8'	Medium	Light green	Plum	Upright, spreading habit. Often forms a thick crown in the center. Plum color is striking and may create anaccent. Does not tolerate iron chlorosis well in more western counties.
Andorra Juniper, Compact	*Juniperus horizontalis* Plumosa "Nana"	8-12"	4-6'	Medium	Light green	Plum	Similar to Andorra juniper, but more compact and lower growing.
Andorra Juniper, Youngstown	*Juniperus horizontalis* Plumosa "Youngtown"	8-12"	4-6'	Medium	Light green	Light green	Full centered and prostrate growth. Similar to Compact Andorra, but green all year.
Bar Harbor Juniper	*Juniperus horizontalis* "Bar Harbor"	10"	6-8'	Medium-slow	Blue-gray	Silver-gray	A low prostrate juniper. An accent with blue foliage in summer that lightens to gray.
Blue Rug Juniper	*Juniperus horizontalis* "Wiltoni"	6-8"	6-8'	Medium-slow	Blue	Blue	A low, trailing juniper with intense silver-blue foliage that creates an accent.
Broadmoor Savin Juniper	Juniperus sabina	2'	6'	Medium	Green	Bronze-green	A dwarf, low spreading form which looks like a neat form of the variety 'tamariscifolia'
Hughes Juniper	*Juniperus horizontalis* "Hughes"	12"	6-8'	Medium	Silver-blue	Silver-blue	Thick, full, low-growing juniper. The deep blue foliage creates a strong accent.
Japgarden Juniper	*Juniperus procumbens*	18-24"	8-10'	Medium-slow	Blue-green	Blue-green	A sprawling prostrate juniper. Tips of branches curve upward when they hang down over walls.
Japgarden Juniper, Dwarf	*Juniperus procumbens* "Nana"	12"	4-5'	Medium-slow	Blue-green	Blue-green	Similar to Japgarden juniper, but more dwarf and compact in habit.
Japgarden Juniper, Golden	*Juniperus procumbens* "Variagata"	1-2'	6-8'	Medium-slow	Green-gold	Green-gold	Similar to Japgarden juniper, but the gray-green foliage is tipped with gold.
Prostrate Juniper	*Juniperus horizontalis* "Admirabilis"	6-8"	4-6'	Medium-fast	Silver-green	Silver-green	A flat, horizontal habit that adapts to any location where an evergreen groundcover is desired.
San Jose Juniper	*Juniperus chinensis* "San Jose"	10"	6-7'	Slow	Blue-green	Blue-green	Prostrate, sprawling form. Coarse foliage texture.
Sargent Juniper, Blue	*Juniperus chinensis* Sargenti "Glauca"	18"	6-7'	Medium	Blue-g ray	Blue-g ray	Prostrate, sprawling form. Use with other blue junipers.
Sergent Juniper, Green	*Juniperus chinensis* Sargenti "Verdis"	10"	6-7'	Medium	Green	Green	Prostrate form. May be used in any location where a low evergreen groundcover is desired.
Scandia Savin Juniper	*Juniperus sabina* "Scandia"	1-2'	4-6'	Medium	Dark green	Dark green	Hardier than Andorra juniper, Remains green all winter.
Tamarix Savin Juniper	*Juniperus sabina* "Tamariscifolia"	18-24" and	5-6'	Medium	Green	Bronze-green	Most shrublike of the prostrate junipers with a vase shaped, spreading habit. Withstands lime soils and taller dry conditions.Blights in Eastern Kansas.
Waukegan Juniper	*Juniperus horizontalis* "Douglasi"	8-10"	6-8'	Medium	Blue	Blue-	Flat, low trailing form. Lift branches twice a year to pre purple vent rooting of branches.
Webber Juniper	*Juniperus horizontalis* "Webber"	8-10"	6-8'	Medium-fast	Blue-g ray	Blue-g ray	A low, thick, mat-like form. Foliage creates slight accent with blue-gray cast.

JUNIPERS (Irregular specimen plants):

Common Name	Botanical Name	Mature Size* Ht.	Mature Size* Sp.	Growth Rate	Foliage Color Summer	Foliage Color Winter	Comments
Meyer's Juniper	*Juniperus squamata* "Meyeri"	4-5'	4-5'	Medium	Blue-green	Blue-green	A mounded juniper that must be staked to achieve height. The plant has ascending branches and the central *leader grows* at an angle, rather than forming a pyramid. Creates an accent with blue foliage and irregular form. Easily becomes thin and open, unless cared for. Blight is a common problem.
Story Juniper	*Juniperus chinensis* "Story"	15-20'	8-10'	Medium-slow	Dark green	Dark green	Base of plant becomes quite wide, while top is only 2 to feet wide. Shape is pyramidal, except for spreading base. Young plants require staking, so many nurserymen do not favor it. Use in novelty plantings where tall plants will be acceptable.

* The mature sizes listed are averages of height and spread of these plants. Mature size will depend on growing conditions and the area of the state where they are grown. Generally, junipers will grow slower and to a smaller mature size in the western region of Kansas.

YEW (Prostrate habit of growth):

Common Name	Botanical Name	Mature Size* Ht.	Mature Size* Sp.	Growth Rate	Fruit**	Comments
Everlow Anglojap Yew	*Taxus X media* "Everlow"	1-2'	2-3'	Slow	Yes	Low growing spreader. Resistant to winter burn. Good replacement for *Taxus baccata* "Repandens."
Spreading English Yew	*Taxus baccata* "Repandens"	2'	5-6'	Slow	Yes	Very low, *cr*eeping habit. Not considered hardy in Kansas, so requires shade and wind protection. For the most southeastern portion of Kansas only.

* The mature sizes listed are averages of height and spread of these plants. Mature size will depend on growing conditions and the area of the state where they are grown. Yew should only be planted in protected locations, preferably on north or east sides of buildings, out of winds. Yew will withstand shady locations and grow best in the more acid soils in Kansas.

** The sexes are separate on yews (fruits are produced in female plants only). Male plants provide pollen for female flowers. Some clones are either male or female only. The fruit of the yew are bright red and decorative, but are poisonous if consumed by small children.

YEW (Upright habit of growth):

Common Name	Botanical Name	Mature Size* Ht.	Mature Size* Sp.	Growth Rate	Fruit **	Comments
Costich Anglojap Yew	*Taxus X media* "Costich"	10-12'	2-3'	Medium-slow	No	Same as Hicks yew, but is a male clone. Does not produce fruit. Pollenator plant for other Yew.
Hatfield Anglojap Yew	*Taxus X media "Hatfield"*	8-10'	6-8'	Slow	No	Densely pyramidal in form. This is a male clone produces no fruit, *but will act as a pollenator.*
Hicks Anglojap Yew	*Taxus x media* "Hicks"	10-12'	2-3'	Medium-slow	Yes	Has an open, columnar form and is flat-topped. This is a female clone —produces red fruit.
Kelsey Anglojap Yew	*Taxus x media* "Kelsey"	10-12'	6-8'	Slow	Yes	Broad, pyramidal form. Erect, bushy branching habit. Bears fruit when younger than most yew. Very tender, must be protected in all but the most southeastern portion of Kansas.
Upright Japanese Yew	*Taxus cuspidata* "Capitata"	15-20'	8-12'	Slow	Yes	Broadbased, pyramidal form. Very dark *green foliage.*Requires pruning to keep it small enough for most gardens. Best used for tall screen (unclipped) in shaded, protected areas.

YEW (Spreading habit of growth):

Common Name	Botanical Name	Mature Size* Ht.	Mature Size* Sp.	Growth Rate	Fruit**	Comments
Cushion Japanese Yew	*Taxus cuspidata* "Dense"	4'	8'	Slow	Yes	Low, spreading form; twice as broad as tall. Fruit produced on female plants. Extremely slow growth keeps it small for many years.
Spreading Japanese Yew	*Taxus cuspidata* "Expansa"	8-10'	10-12'	Medium-slow	Yes	Vase-shaped, with upright branches and open-centered habit. Requires frequent pruning to keep it small enough for most gardens. Fruit on females.
Dwarf Japanese Yew	*Taxus cuspidata* "Nana"	5'	8'	Slow	Yes	Compact, refined habit. Fruit on female plants, if a male is nearby.
Thayer Japanese Yew	*Taxus cuspidata* "Thayer"	6-8'	10-12'	Slow	Yes	Wide spreading form, with horizontal branches and flat top. Generally twice as wide as tall. Fruit on female plants.
Brown Anglojap Yew	*Taxus X media* "Brown"	6-8'	6-8'	Medium-slow	No	Densely rounded form. All plants are male and do not produce fruit. Excellent hedging plant in shade.
Densiformis Yew	*Taxus X media* "Densiformis"	4-6'	6-8'	Medium-slow	Yes	Dense spreading form. Develops spreading habit without pruning. Females produce fruit.
Sebian Anglojap Yew	*Taxus X media* "Seblan"	4-6'	8-10'	Slow	Yes	Upright branches and wide spreading form. Remains dark green all year. Very tender; should be planted in southeastern Kansas only.
Ward Anglojap Yew	*Taxus X media* "Ward"	4-6'	12-15'	Medium-slow	Yes	One of the widest and flatest spreading yew. Pruning will restrict spread. One of the best yew for Kansas. Best used in borders, rather than as a foundation plant.

SPRUCE (For screen, specimens, or mass plantings):

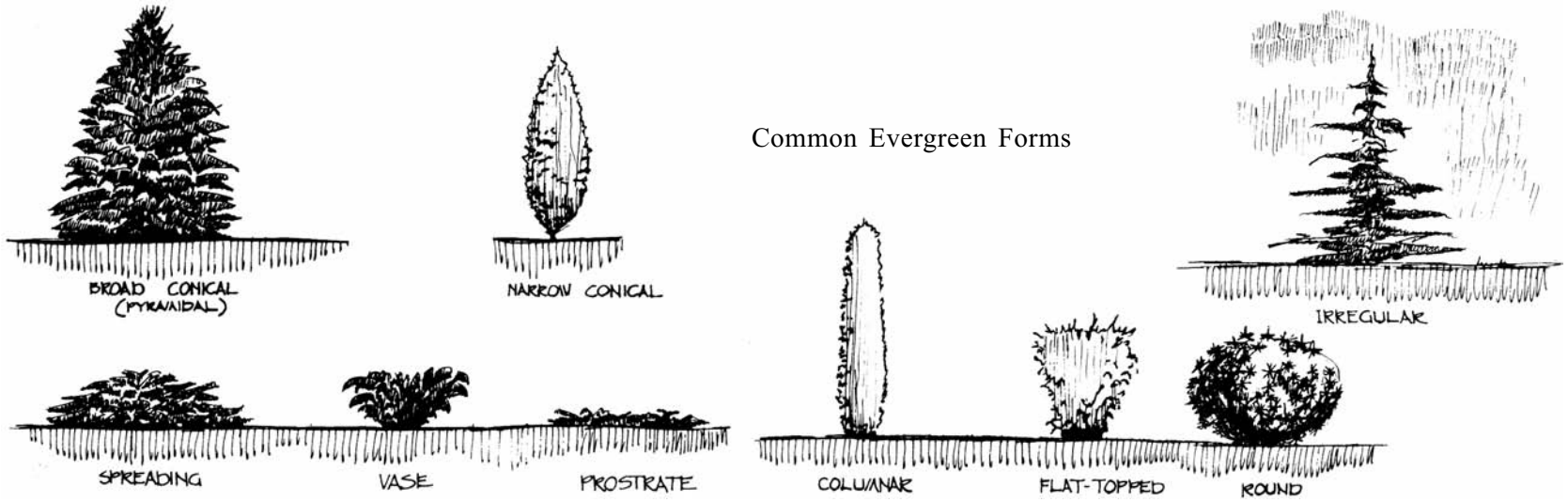
Common Name	Botanical Name	Mature Size* Ht.	Mature Size* Sp.	Foliage Color	Adaptability**	Comments
Alberta Spruce	*Picea glauca* "Albertiana"	25-40'	15-20'	Blue-green	NC, P	Densely pyramidal form. Slow growing. Good for mass planting or as a specimen.
Black Hills Spruce	*Picea glauca* Densata	30-40'	20-25'	Green	X, P	Densely pyramidal form. Slow growing. Hardier than Alberta spruce, but protect from hot winds. For massing or as a specimen.
Colorado Spruce	*Picea pungens*	30-40'	20-25'	Blue-green	X, P	Very symmetrical cone. Best spruce for Kansas. Color ranges from silver-blue to blue-green, rarely dark green. Very slow. Best used as a specimen or massed with other spruce.
Colorado Blue Spruce	*Picea pungens* "Glauca"	30-40'	20-25'	Blue to blue-green	X, P	For specimen plantings only. Color is difficult to combine with other plants. Protect from hot winds. Not all Blue spruce retain blue color in old age.
Koster Blue Spruce	*Picea pungens* "Koster"	30-40'	20-25'	Silver-blue	X, P	Best blue color of the Colorado spruce. Color is very striking and is difficult to use. Plant with other spruce or in accent area, preferably in backyard.
Norway Spruce	*Picea abies*	40-60'	20-25'	Dark green	X, P	Conical while young, becoming tall with drooping branches. A temporary specimen, best used in a screen or background planting. Fastest growing spruce. Protect from hot winds.
White Spruce	*Picea glauca*	25-40'	15-20'	Blue-green	NC, P	Compact, pyramidal form. Slow, but grows faster than most other spruce. Protect from hot winds.

FIR and DOUGLAS FIR:

Common Name	Botanical Name	Mature Size* Ht.	Mature Size* Sp.	Foliage Color	Adaptability**	Comments
Douglas Fir	*Pseudotsuga taxifolia*	50-60'	10-15'	Green	E, P	Form a narrow pyrimad at maturity. Will not tolerate drought, requires moist soil and wind protection. Not suitable for windbreak or shelterbelt plantings, but can be used well in mass plantings.
White Fir	*Abies concolor*	30-50'	20-25'	Blue-green	E	Forms a narrow pyramid, with branches to the base of the tree. Best fir for Kansas. Requires protection from hot winds, but withstands heat and drought better than Douglas fir.

PINES (For screen, windbreaks, and group plantings):

Common Name	Botanical Name	Mature Size* Ht.	Mature Size* Sp.	Foliage Color	Adaptability**	Comments
Austrian Pine	*Pinus nigra*	40-60'	25-35'	Dark green	NW	Densely pyramidal in youth, becoming broadly ftat-topped at maturity. Bark is gray and deeply fissured. Needles in two's. Plant 8 to 12 feet apart for shelterbelts or mass groupings.
Eastern White Pine	*Pinus strobus*	50-70'	20-30'	Light green	NC	Symmerical pyramid in youth, becoming flat-topped with drooping branches at maturity. Requires protecction from south winds.
Ponderosa (Bull) Pine	*Pinus ponderosa*	40-60'	20-30'	Dark green	Western 1/2 of Kansas	Dense pyramidal form in youth, open columnar form at maturity. Not for eastern Kansas. Bark has red cast, deeply furrowed. Needles in both two's and three's. Plant 8 to 12 feet apart for shelterbelt or mass plantings.
Scotch Pine		40-50'	20-30'	Green	NC	Symmetrical pyramid when young becoming flat-topped and trees spreading with age. Older trees have orange peeling bark on upper trunk and branches.



Common Evergreen Forms

DWARF SPECIMEN NARROW-LEAF EVERGREENS:

Common Name	Botanical Name	Mature Size Ht.	Mature Size Sp.	Foliage Color	Adaptability	Comments
Alberta Spruce, Dwarf	*Picea glauca* "Conica"	6-12'	4-6'	Green	NO, P	A miniature spruce. Very low growing. May be used as a specimen or in a rock garden setting. Size may be controlled by pruning new growth in the spring. Protect from hot winds.
Bird's Nest Spruce	*Picea abies* "Nudiformis"	3-5'	3-5'	Green	X, P	A dwarf spruce with oval or globe form. Use as a specimen or in a rock garden. Very slow growth. Size may be kept by pruning new growth in spring.
Mugo Pine	*Pinus mugo* Mughus	3-10'	3-10'	Green	X, P	Smaller, more shrublike form of Swiss Mountain pine. Good rock garden plant or for accent areas in the landscape.
Mugo Pine, Dwarf	*Pinus mugo* "Pumilla"	2-6'	2-6'	Green	X, P	More compact form of Mugo pine. Foliage has a finer texture than Mugo pine and color is a lighter green. Makes a low globe or can be trained as a prostrate spreader. Not as readily available in nurseries as is Mugo pine.
Swiss Mountain Pine	*Pinus mugo*	Variable		Green	X, P	Pinus mugo may be a tree or shrub, with one or many trunks. When purchasing from a nursery, select a specimen that is growing with the characteristic you want. Smaller needles and softer texture means small, more prostrate growth. All are slow growing and size is easily confined by careful pruning of new growth in the spring.

* Mature size is approximate and depends on local growing conditions. Growth will be slower and and ultimate size less than the figures shown in the more western portions of Kansas and more exposed planting sites.

**ADAPTABILITY SYMBOLS *E*—Hardy only in eastern and southeastern portions of Kansas; *NC*—Hardy in the central and eastern portions of Kansas only; *NW*—Generally hardy throughout Kansas in fairly exposed sites, although growth may be slower in the more extreme environments; *X*—Not hardy in exposed sites, particularly in more western counties; *P*—Requires protection from hot, dry winds.

TALL DECIDUOUS TREES: (Generally taller than 70 feet in height at maturity).

Common Name	Botanical Name	* Adaptability	Mature Size Ht.	Mature Size Sp.	Growth Rate	Mature Form	Life Expectancy	Site
Cottonwood, Cottonless	Populus deltoides	Hardy	80-100'	50-60'	Fast	Irregular spreading	Long	Moist soil
Hickory, Shagbark	Carya ovata	E, P	60-90'	25'	Med.-slow	Narrow, irregular	Medium	Moist soil, protected
London Plane Tree	Platanus acerifolia	X, P	60-80'	50-60'	Med.-fast	Round pyramidal at maturity	Long	Moist soil
Maple, Silver (Soft)	Acer saccharinum	Hardy	70-90'	75'	Fast	Irregular to round	Long	Moist soil, Keep out of heavy winds
Oak, Bur	Quercus macrocarpa	Hardy	60-90'	50-70'	Very slow	Spreading flat top	Long	Adaptable
Oak, English	Quercus robur	E	60-70'	70'	Slow	Round	Long	Open, sunny
Oak, Upright English	Quercus robur 'fastigiata'	E	50-60'	20-30'	Slow	Pyramidal	Long	Open, sunny
Oak, Pin	Quercus palustris	NC, P	50-80'	30-40'	Med.-fast	Pyramidal	Medium	Moist soil, protect from wind
Oak, Red	Quercus borealis 'Maxims'	X, P	70-80'	40-50'	Med.-fast	Oval, spreading	Long	Protect from hot, dry winds
Oak, Shumard	Quercus shumardii	Hardy	60-70'	40-50'	Med.	Round spreading	Long	Adaptable
Oak, White	Quercus alba	E	60-80'	40-50'	Slow	Round to oval	Long	Moist soil
Pecan	Carya illinoensis	Hardy	60-90'	30-50'	Slow	Oval	Long	Moist soil, protect from hot winds
Sweet Gum	Liquidamber styraciflua	NC, P	60-80'	30-50'	Slow	Pyramidal in youth, round at maturity	Medium	Moist soil, protect from hot winds
Sycamore	Platanus occidentalis	Hardy	70-100'	70-80'	Med.-fast	Irregular spreading	Medium	Moist soil, protect from hot winds
Tulip Tree	Liriodendron tulipifera	NC, P	60-90'	30-40'	Med.-slow	Round, spreading	Long	Adaptable

TALL DECIDUOUS TREES:

Foliage			Flowers		Fruit		Problems to	
Summer color	Texture	Autumn Color	Color	Season	Color	Season	Expect**	Comments
Yellow-green	Coarse	Yellow	-----	-----	-----	-----	A, D, E, J, K, AA	A native shade tree, but is brittle. Use in large areas away from buildings. Male clones are preferred (cottonless).
Yellow-green	Coarse	Yellow	-----	-----	Brown	Autumn	A, B, C, D, E, F, I, J, I	Very coarse, peeling bark gives it character in winter. Nuts are edible, and many varieties are available. Use in lowland areas where it is moist and protected.
Yellow-green	Coarse	Tan	-----	-----	Tan	Fall-winter	A, J	Should be used instead of Sycamore, because it is highly resistant to anthracnose. Same peeling bark and round fruits. Makes a good shade tree.
Gray-green	Medium	Yellow	-----	-----	Tan	Spring	A, B, D, E, Q, R	Do not use near buildings or in small lots, because it becomes very brittle with age. Not a good street tree, but fast growing. Variety 'Blairi' is a specially budded soft maple with stronger branches and limbs.
Dk. green	Coarse	Yellow-brown	-----	-----	Brown	Autumn	A, E, J, P, Y	One of the best shade trees for Kansas. Unfortunately, it is slow growing. The large quantities of fallen fruit should not discourage its use as a shade tree.
Dk. green	Coarse	Green to brown		-----	Brown	Autumn	A, E, J, K, P, Y	A strong tree for shade in large spaces.
Dk. green	Coarse	Green to brown	-----	-----	Brown	Autumn	A, E, J, K, P, Y	Has a narrow, columnar head, becoming pyramidal at maturity.
Lt. green	Medium	Scarlet	-----	-----	Brown	Autumn	A, E, J, K, P, R, Y	Iron chlorosis is a perpetual problem. Do not prune branches, allow them to sweep the ground. Use as a specimen only — not as a street tree or for shade.
Dk. green	Medium coarse	Red-bronze	-----	-----	Brown	Autumn	A, E, J, K, P, R, Y	Excellent autumn color. Better than Pin Oak because it is pyramidal while young, then a spreading shade tree at maturity.
Green	Medium	Red	-----	-----	Brown	Autumn	E, K, J	Pyramidal shape, drought tolerant, russet to red fall color.
Green	Medium	Purple-red	-----	-----	Brown	Autumn	A, E, J, K, P,	A colorful shade tree in autumn. Majestic, strongly branched. Holds leaves late into winter.
Yellow-green	Medium	Yellow	-----	-----	Brown	Autumn	A,B, C, E, F, J, T	Protect from wind in western Kansas. Select varieties that will cross pollinate for nut production. A good shade tree.
Dk. green	Medium	Scarlet	-----	-----	Brown	Fall-winter	C, D, E, J, K, R, W	A fine specimen tree. Bark is deeply furrowed and twigs are corky. Sunscald can be a serious problem unless the trunk and branches are wrapped.
Yellow-green	Coarse	Brown	-----	-----	Brown	Fall-winter	E, K, R, T, Y	Broadly pyramidal in youth, becoming a massive round-headed shade tree at maturity. Use only in large areas. Highly prone to anthracnose, which may kill the tree. Flaking bark adds interest to a winter landscape.
Lt. green	Coarse	Yellow-orange	Yellow-orange	May-June	Tan	July-August	E, J, W	Large tulip-like flowers on older trees. Requires protection from wind. Will sunscald due to thin bark if planted in full sun. Valuable for mass planting in large areas.

* ADAPTABILITY SYMBOLS: Hardy — fully hardy in exposed areas of Kansas; E — hardy only in the more eastern portion of Kansas; NC — hardy in the north central, more southern and eastern portions of Kansas; P—protect from southwest winds; X — hardiness is doubtful in hotter, drier locations of Kansas.

** KEY TO PROBLEMS: A.) Borers, B.) Aphids, C.) Webworm, D.) Tent Caterpillar, E.) Scale Insects, F.) Gypsy Moth, I.) Leaf Miner, J.) Cankers, K.) Fungal Dieback, P.) Club Galls, Q.) Verticillium Wilt, R.) Iron Chlorosis, T.) Drouth Injury, W.) Sunscald and Stem Splitting, Y.) Anthracnose, AA.) Leaf and Stem Galls.

MEDIUM DECIDUOUS TREES: (Between 30 and 70 feet in height at maturity).

Common Name	Botanical Name	* Adaptability	Mature Size Ht.	Mature Size Sp.	Growth Rate	Mature Form	Life Expectancy	Site
Ash, Green	Fraxinus pennsylvanica 'lanceolata'	Hardy	50-60'	40'	Medium	Irregular to round	Medium	Moist
Ash, 'Marshall Seedless'	F. pennsylvanica 'lanceolata'	Hardy	50-60'	40'	Medium	Irregular to round	Medium	Moist soil
Ash, Rose Hill	F. americana 'Rose Hill'	NC, P	50-60'	50'	Medium	Round	Medium	Moist soil
Ash, White	Fraxinus americana	NC, P	50-60'	50'	Medium	Round	Medium	Moist soil
Baldcypress	Taxodium distichum	NC	50-70'	30-50'	Medium	Pyramidal	Long	Adaptable
Birch, Gray	Betula populifolia	NC, P	30-40'	25-35'	Fast	Irregular	Short	Adaptable
Birch, Paper (Canoe)	Betula papyrifera	NC, P	60-80'	30-40'	Fast	Irregular	Short	Moist soil
Birch River	Betula nigra	NC, P	50-70'	40-50'	Fast	Vase-shaped	Short	Moist soil
Catalpa, Northern	Catalpa speciosa	Hardy	40-50'	30-40'	Med.-fast	Irregular	Short	Adaptable
Chinese Chestnut	Castanea mollissima	NC	30-40'	30-40'	Slow	Spreading flat top	Medium	Well-drained soil
Dawn Redwood	Metasequia glyptostroboides	SC, P	40-50'	30'	Med.-fast	Pyramidal	Medium	Protected
Elm, Lacebark	Ulmus parvifolia	Hardy	40-50'	40'	Med.	Round	Medium	Adaptable
Ginkgo	Gingko biloba	X, P	40-60'	30-40'	Slow	Pyramidal	Long	Sunny
Hackberry, Common	Celtis occidentalis	Hardy	50-70'	50'	Med.-slow	Round to vase-shape	Long	Adaptable
Hackberry, Sugar	Celtis laevigata	SC	50-70'	50'	Med.-slow	Round to vase-shape	Long	Adaptable
Honeylocust, Thornless	Gleditsia triocanthos 'inermis'	Hardy	40-50'	40'	Med.-fast	Rounded, spreading	Long	Adaptable
Honeylocust, 'Shademaster'	Gleditsia triocanthos 'Shademaster'	Hardy	40-50'	40'	Med.-fast	Round	Long	Adaptable
Honeylocust, 'Skyline'	Gleditsia triocanthos 'Skyline'	Hardy	40-50'	40'	Med.-fast	Pyramidal	Long	Adaptable
Honeylocust, 'Moraine'	Gleditsia triocanthos 'Moraine'	Hardy	30-40'	30'	Med.-fast	Vase-shaped	Medium	Adaptable
Honeylocust, 'Sunburst'	Gleditsia triocanthos 'Sunburst'	Hardy	40-50'	40'	Med.-fast	Round to irregular	Medium	Adaptable
Honeylocust, 'Rubylace'	Gleditsia triocanthos 'Rubylace'	Hardy	30-40'	30'	Medium	Round	Medium	Sonny

MEDIUM DECIDUOUS TREES:

Foliage			Flowers		Fruit		Problems to Expect**	
Summer Color	Texture	Autumn Color	Color	Season	Color	Season		
Green	Medium	Brown	-----	-----	Brown	Autumn	A, C, E, J, Y, Z	Good for mass planting and shade.Seed may germinate in yard. Native tree.
Green	Medium	Brown	-----	-----	-----	-----	A, C, E, J, Y, Z	Seldom produces seed. Watch for borers in young trees.
Green	Medium	Yellow-red	-----	-----	-----	-----	A, C, E, J, Y, Z	Rarely produces seed. Good fall leaf color. For shade and mass plantings.
Green	Medium	Yellow	-----	-----	Brown	Autumn	A, C, E, J, Y, Z	Protect from southwest winds. Good for mass plantings. Better fall color.
Green	Very fine	Red-brown	-----	-----	Green	Summer-winter	R	A deciduous conifer (needles drop in autumn). Very drouth tolerant. Needs a lot of room, not for a small yard.
Green	Medium-fine	Yellow	-----	-----	-----	-----	A, B, F, I, J, K	Bark on trunk is smooth, chalky-white for winter interest. Useful on poor soil or wet soil.
Green	Medium	Yellow	-----	-----	-----	-----	A, B, F, 1, J, K	White peeling bark; sometimes sold as 3 to 5 trunks in a clump. Protect from hot winds.
Green	Fine	Yellow	-----	-----	-----	-----	A, B, F, 1, J, K	A graceful tree with dark, shaggy bark. Good foliage color. Weak wood.
Green	Medium	Yellow	-----	-----	-----	-----	A, B, F, 1, J, K	Not recommended for landscape use, except where difficult to establish other trees. Harbors Boxelder bugs. Weak wood breaks up in wind.
Yellow-green	Coarse	Yellow-green	White	June	Brown	Fall-winter	D, E, Z	Foot-long brown pods persist into winter. Rather trashy, short-lived tree with very coarse texture the year around. Produces poor shade.
Green	Coarse	Tan	Yellow	June	Brown	Autumn	J, T	Only Chestnut resistant to Chestnut Blight. Edible nuts inside prickly burs. Makes a small shade tree, but drops the nuts all around the tree.
Green	Fine	Brown	-----	-----	Green	Fall-Winter	Few problems	A 'Living Fossil.' Much like Bald Cypress because it drops its needles in the autumn. Feathery foliage; Protect from hot winds.
Lt. green	Medium	Bright yellow	-----	-----	-----	-----	Few problems	Sexes separate, female fruit has obnoxious odor. Variety 'Autumn Gold' is a male selection that is more upright in habit. One of the finest shade trees available.
Green	Medium	Lt. yellow	-----	-----	Purple	Fall	AA, BB	Excellent shade tree; drouth resistant. Surface rooted. One of our best native shade trees.
Green	Medium	Lt. yellow	-----	-----	Purple	Fall	AA	Resembles common Hackberry in every detail, except resistant to witches broom. Not common in trade, but native in southern Kansas. Squirrels may feed on twigs.
Green	Fine	Yellow	-----	-----	Black	Fall-winter	A, C, E, J	Fruitless varieties available, excellent shade and street tree.
Green	Fine	Yellow	-----	-----	-----	-----	A, C, E, J	Straight trunk, deep roots. More resistant to drouth, disease and insect pests. Thornless and seedless.
Green	Fine	Yellow	-----	-----	-----	-----	A, C, E, J	Branches diverge from trunk at a wide angle. Thornless and seedless.
Green	Fine	Yellow	-----	-----	------	-----	A, C, E, J	Thornless and seedless, many small branches arising lower to ground on the trunk.
Yellow-tipped	Fine	Yellow	-----	-----	-----	-----	A, C, E, J	A color accent tree for borders or gardens. Thornless and seedless.
Red	Fine	Bronze	-----	-----	-----	-----	A, C, E, J	Bright summer foliage color creates an accent. Use carefully in the yard.

MEDIUM DECIDUOUS TREES: (Continued).

Common Name	Botanical Name	* Adaptability	Mature Size Ht.	Mature Size Sp.	Growth Rate	Mature Form	Life Expectancy	Site
Kentucky Coffee Tree	Gymnocladus dioicus	Hardy	40-50'	30-35'	Slow	Oval, spreading	Long	Protected from hot winds
Linden, American	Tilia americana	X, P	40-60'	35-40'	Medium	Round to oval	Long	Protect from hot winds
Linden, Littleleaf	Tilia cordata	X, P	40-60'	35-40'	Med.-slow	Oval	Medium	Moist soil
Linden, 'Redmond'	Tilia X euchlora	X, P	40-60'	30-35'	Med.-fast	Pyramidal	Medium	Protected
Locust, Black	Robinia pseudacacia 'Inermis'	Hardy	35-40'	40'	Medium	Open, Irregular	Short	Adaptable, protect from wind
Maple, Norway	Acer platanoides	NC	40-50'	40-50'	Med - slow	Round	Medium	Moist soil
Maple, Columnar Norway	Acer platanoides 'Columnare'	NC	40-50'	20-25'	Med.-slow	Pyramidal	Medium	Moist soil
Maple, 'Schwedleri'	Acer platanoides 'Schwedleri'	NC	40-50'	40-50'	Very slow	Oval	Medium	Moist soil
Maple, 'Crimson King'	Acer platanoides 'Schwedleri nigra'	NC	40-50'	40-50'	Very slow	Oval	Medium	Moist soil
Maple, 'Royal Red'	Acer platanoides 'Royal Red'	NC	40-50'	40-50'	Very slow	Oval	Medium	Moist soil
Maple, 'Faasen Redleaf'	Acer platanoides 'Faasen'	NC	40-50'	40-50'	Very slow	Oval	Medium	Moist soil
Maple, Variegated	Ater platanoides 'Variegatum'	NC	40-50'	40-50'	Med.-slow	Oval	Medium	Moist soil
Maple, Red	Acer rubrum	E	50-60'	40-50	Med.-fast	Oval	Medium	Adaptable
Maple, 'Armstrong' Red	Acer rubrum 'Armstrong'	E	30-40'	8-10'	Med.-fast	Columnar	Medium	Moist Soil
Maple, Sugar (Hard)	Acer saccharum	NC, P	40-70'	50'	Medium	Oval	Medium	Adaptable
Mulberry, Fruitless	Morus rubra	hardy	40-60'	40-50'	Fast	Irregular	Medium	Adaptable
Mulberry, Paper	Broussonetia papyrifera	X, P	30-40'	35-45'	Medium	Broadly rounded	Medium,	Protect from hot wind s
Oak, Chinkapin	Quercus muhlenbergi	NC	40-50'	45-55'	Med.-slow	Irregular	Long	Adaptable
Oak, Sawtooth	Quercus acutissima	Hardy	35-40	30-40'	Med.	Broad	Long Pyramidal	Adaptable
Persimmon	Diospyros virginiana	NC, P	30-40'	25-30'	Slow	Irregular	Medium	Sunny, protected

MEDIUM DECIDUOUS TREES:

Foliage			Flowers		Fruit		Problems to	
Summer Color	Texture	Autumn Color	Color	Season	Color	Season	Expect**	Comments
Blue-green	Medium	Yellow-green	-----	-----	Black	Fall-winter	Few problems	Pods are interesting in winter, but a nuisance along streets. Male trees are podless. Excellent specimen tree or for shade.
Green	Coarse	Yellow-brown	Yellow	June	Tan	Aug.-Nov.	A, B, E, J, R, W, Y	Requires wind protection in west. Excellent shade tree where adapted. Variety 'fastigiata' is columnar shaped.
Green	Medium	Yellow-brown	Yellow	June - July	Tan	Aug.-Nov.	A, B, E, J, R, W, Y	Trunk is usually crooked in form. Valuable for poor soil and city conditions. Variety 'Greenspire' has straight trunk.
Green	Medium	Yellow-brown	Yellow	July	Tan	Autumn	A, B, F, J, R, W, Y	Has pendulous branches, best not trimmed for a shade tree. Use as a specimen tree, not for street tree.
Blue-green	Medium-fine	Yellow-green	White	May-June	Brown	Fall-Winter	A, C, E, I, J	Thornless varieties are best. Light shade, but grows in poor soil and in dry locations. Pods may be a nuisance. Variety 'fastigiata' is columnar shaped and thornless.
Dk. brown	Coarse	Yellow	-----	-----	Brown	Autumn	A, B, D, E, J, Q, W	Very dense shade, grass does not grow under it. Seeds are not produced on a young tree.
Dk. green	Coarse	Yellow	-----	-----	-----	-----	A, B, D, E, J, Q, W	Compact form for screen and narrow spaces.
Red-green	Coarse	Yellow	-----	-----	-----	-----	A, B, D, E, J, Q, W	Purple-red leaves in spring, turning red-green in summer. A color accent.
Red-purple	Coarse	Red-purple	-----	-----	-----	-----	A, B, D, E, J, Q, W	Improved form of 'Schwedler' Maple. A distinct accent tree. Very slow.
Red-purple	Coarse	Red-purple	-----	-----	-----	-----	A, B, D, E, J, Q, W	New variety, holds red color through the season. Very slow growth.
Red-purple	Coarse	Red-purple	-----	-----	-----	-----	A, B, D, E, J, Q, W	A new variety, very similar to 'Crimson King' Maple.
Green-white	Coarse	Yellow	-----	-----	-----	-----	A, B, D, E, J, Q, W	A popular Norway Maple with green and white splotched leaves. Very slow.
Green	Medium	Scarlet-red	Scarlet	April	Red	May-June	A, B, D, E, J, Q, W	Much more colorful and less brittle than Silver Maple. Flowers, fruit, and autumn leaves are bright red.
Green	Medium	Scarlet-red	Scarlet	April	Red	May-June	A, B, D, E, J, Q, W	A very compact tree for narrow spaces.
Green	Medium	Red or gold	-----	-----	Brown	Autumn	A, B, D, E, J, R, W	Usually difficult to get started. One of the finest shade trees. Not tolerant of smoke or dust.
Green	Medium	Yellcw	-----	-----	-----	-----	D, E, J, 0	Should be used more, particularly in extremely hot, dry areas. Use only male trees to avoid fruit.
Green	Coarse	Dull yellow	-----	-----	Orange	June-July	E, J, V	Sexes separate, female produces fruit. Not the best ornamental tree, but useful on poor, sandy soil.
Yellow-green	Coarse	Brown	-----	-----	Brown	Fall	D, E, I	Native, picturesque tree with white under leaves. Also called 'Scrub' Oak. Useful in mass plantings.
Green	Coarse	Yellow	-----	-----	Brown	Fall	None	
Green	Coarse	Yellow	-----	-----	Orange	Autumn	Few problems	Not a very good ornamental or shade tree. Sexes separate, fruit is large and messy in yard. Interesting bark and foliage.

MEDIUM DECIDUOUS TREES: (Continued)

Common Name	Botanical Name	* Adaptability	Mature Size Ht.	Mature Size Sp.	Growth Rate	Mature Form	Life Expectancy	Site
Pagoda Tree, Japanese	Sophora japonica	Hardy,P	50-80'	40-50'	Med.-fast	Round	Medium	Protect from hot winds in western Kansas
Sassafras	Sassafras officinale (albidum)	SC	30-50'	25-40'	Slow	Irregular	Short	Shade or part shade
Walnut, Black	Juglans nigra	Hardy	50-70'	50-60'	Slow	Irregular or oval	Long	Moist soil, protect from hot winds
Weeping Willow, Babylon	Salix babylonica	NC, P	40'	30'	Very fast	Weeping, round	Short	Moist soil, Protect from hot winds
Weeping Willow, Golden	Salix alba 'tristis'	X, P	40-50'	30-35	Very fast	Weeping, round	Short	Moist soil, protected.
Weeping Willow, Niobe	Salix X blanda	X, P	40-50'	30-35'	Very fast	Weeping, round	Short	Moist soil, protect from hot winds
Willow, Black	Salix nigra	Hardy	35-50'	25'	Fast	Rounded	Medium	Moist soil
Willow, Yellowstem	Salix alba 'vitellina'	X, P	35-40'	30'	Fast	Rounded	Short	Moist soil
Yellowwood, American	Cladrastis lutea	E	35-40'	30'	Medium	Round to oval	Medium	Moist soil

MEDIUM DECIDUOUS TREES:

Foliage			Flowers		Fruit		Problems to	
Summer Color	Texture	Autumn Color	Color	Season	Color	Season	Expect**	Comments
Blue-green	Fine	Greenish-yellow	White	July-August	Yellow-Brown	Fall-Winter	S	An excellent ornamental shade tree that could be used much more. Useful in regions of much heat and drouth. This tree can become a very large tree when it is quite old.
Blue-green	Coarse	Orange-red	Yellow	April	Blue-black	Fall	E,J,R,CC	Valued for autumn leaf color and fragrant spring blooms.
Dk. green	Med-fine	Yellow	-----	-----	Green-brown	Autumn	C, E, J, K, I, CC	Shade tree for larger spaces. Nuts are sometimes not desirable in the yard. Not a good street tree. Roots give off a substance that is toxic to several plants. Many nut varieties are available.
Lt. green	Fine	Yellow	-----	-----	-----	-----	A, C, E, F, J, Y	Stems are yellow. Graceful stems, weeping to ground create some accent. Very brittle tree and short-lived.
Lt. green	Fine	Yellow	-----	-----	-----	-----	A, C, E, F, J, Y	One of the hardiest Weeping Willows with good yellow stems for winter color.
Lt. green	Fine	Yellow	-----	-----	-----	-----	A, C, E, F, J, Y	Another fine Willow, with good stem color. Plant willows in moist soil and out of hot winds.
Lt. green	Fine	Yellow	-----	-----	-----	-----	A, C, E, F, J, Y	Not ornamental. Use only where fast growth is required, especially along creek beds or for erosion control.
Lt. green	Fine	Yellow	-----	-----	-----	-----	A, C, E, F, J, Y	Very yellow stems. Use for specimen plantings.
Lt. green	Medium	Yellow	White	June	Green	August	E, W	Lower branches droop to ground. Prune in early summer to prevent bleeding. The flowers are very fragrant.

* ADAPTABILITY SYMBOLS: Hardy — fully hardy in exposed areas of Kansas; E—hardy only in the eastern portion of Kansas; SC—hardy only in South central and more southern areas of eastern Kansas; NO—hardy in all of central and eastern Kansas; X — hardiness is doubtful in hotter, drier locations of Kansas; P — protect from southwest winds.

** KEY TO PROBLEMS: A.)—Borers, B.)—Aphids, C.)—Webworm, D.)—Tent Caterpiller, E.)—Scale Insects, F.)—Gypsy Moth, I.)—Leaf Miner, J.)—Cankers, K.)—Fungal Dieback, O.)—Fire Blight, Q.)—Verticillium Wilt, R.)—Iron Chlorosis, S.)—2,4-D Damage, T.)—Drouth Injury, V.)—Nematodes, W.)—Sunscald and Stem Splitting, Y.)—Anthracnose, Z.)—Sphynx Moth, AA.)—Galls, BB.)—Witches Broom, CC.)—Tussock Moth.

SMALL DECIDUOUS TREES: (Generally less than 30 feet in height).

Common Name	Botanical Name	* Adaptability	Mature Size Ht.	Mature Size Sp.	Growth Rate	Mature Form	Life Expectancy	Site
Apricot, Flowering	Prunus armeniaca	NW, P	25-30'	25'	Medium	Round	Medium	Light to medium soil
Birch, European White	Betula pendula	NW, P	20-25'	15-18'	Slow to medium	Oval	Short	Moist soil
Birch, Cutleaf White	Betula pendula ‘gracillis’	NW, P	20-25'	15'	Med.-slow	Broadly pyramidal	Short	Moist soil
Cherry, ‘Kwanzan’	Prunus serrulata ‘Kwanzan’	NW, P	25-30'	20-25'	Slow	Oval	Medium	Protect from hot winds
Cork Tree, Amur	Phellodendron amurense	NW, P	20-25'	20-25'	Medium	Round	Medium	Protect from hot winds
Crabapple, Flowering	Malus spp.	Hardy	15-25'	15-25'	Medium	Round, spreading	Medium	Adaptable
Dogwood, Flowering	Cornus florida	SC, P	12-20'	115-20'	Slow	Flat top, spreading	Medium	Acid soil, protect from hot winds
Goldenrain Tree	Koelreuteria paniculata	Hardy	20-25'	25-30'	Slow	Flat top, spreading	Medium	Light or sandy soil
Hawthorn, Cockspur	Crataegus crusgali	NC	20-25'	20-25'	Slow	Round	Medium	Adaptable
Hawthorn, Downy	Crataegus mollis	NC	20-25'	20-25'	Slow	Round	Medium	Adaptable
Hawthorn, Paul’s Scarlet	Crataegus oxycantha ‘Pauli’	NC	12-15'	15-20'	Med.-	Flat top,	Long	Heavy soil
Hawthorn, Thornless	Crataegus monogyna 'inermis'	NC	20-25'	20-25'	Slow	Round	Medium	Adaptable
Hawthorn, Washington	Crataegus phaenopyrum	Hardy	15-20'	15-20'	Med.-slow	Round to oval	Medium	Adaptable
Lilac, Japanese Tree	Syringa amurensis ‘Japonica’	Hardy	20-25'	15-20'	Med.-fast	Round to pyramidal	Medium	Adaptable, sunny
Maple, Amur	Acer ginnala	X, P	20'	10'	Medium	Irregular	Medium	Adaptable
Maple, Japanese	Acer japonicum	SC, P	12-15'	12-15'	Slow	Round to irregular	Medium	Rich soil
Maple, Palmate-leaved	Acer palmatum	SC, P	12-15'	12'	Slow	Irregular open	Med.-short	Rich soil, protected
Maple, Red Leaf	Acer palmatum ‘atropurpureum’	SC, P	12-15'	12'	Slow	Open, irregular	Med.-short	Rich soil, protected
Maple, Tatarian	Acer tataricum	Hardy	15-20'	15-20'	Medium	Low, spreading	Medium	Adaptable

SMALL DECIDUOUS TREES:

Foliage			Flowers		Fruit		Problems to	
Summer Color	Texture	Autumn Color	Color	Season	Color	Season	Expect**	Comments
Green	Medium	Yellow	White to pink	April	Yellow	Summer	A	Flowers may be killed by late frost. Use in protected locations.
Green	Fine	Yellow	-----	-----	-----	-----	A, B, J, K	Graceful, pendulous habit. White, peeling bark is intersting in winter. Clump form is solid with several trunks.
Green	Fine	Yellow	-----	-----	-----	-----	A, B, J, K	Very slender, with pendulous branches and finely cut leaves. White peeling bark.
Red-green	Coarse	Yellow	Deep pink	May	Red	Summer	A, J, L	Hardiest of the Oriental Cherries. New leaves are copper-red in spring. Generally only 12-18 feet in height.
Green	Medium	Bronze-yellow	-----	-----	Black	Autumn	R	A small shade tree with striking bark, which has corky ridges.
Green	Medium	Yellow	White to red	Spring	Yellow to red	Autumn	A, B, C, D, E, F, G	Many good varieties available. Select those that are resistant to the major diseases of Crabapple. Various forms, flower and fruit colors in the trade. Some are fruitless.
Green	Medium-coarse	Scarlet	White	April-May	Red	Aug.-Nov.	A, E, J, L, P, R, S, T	Many varieties in the trade: 'Rubra' — double red flowers, 'Pluribracteata' — double white flowers, 'Xanthocarpa' — yellow fruit, 'Pendula' — weeping branches. Difficult to transplant.
Green	Medium	Brown	Yellow	June-July	Green to brown	Fall-winter	A, S	Protect from wind in western Kansas. Good for street tree under wires. Beautiful small flowering tree for any yard. Excellent specimen when trained to multiple trunks. Interesting seedpods in winter.
Green	Medium-fine	Bronze	White	May	Red	Fall-winter	A, B, D, E, M, 0	Red fruits are ornamental, not edible. Thorns are curved and long.
Green	Medium	Yellow-brown	White	April-May	Red	Fall-winter	A, B, D, E, M, 0	Thorny; red fruits are edible.
Dk. green	Fine	Green	Red	May	Red	July-Nov.	A, B, D, E, M, 0	Deep pink flowers are double. Thorny small tree. Broad spreading crown.
Green	Medium-fine	Bronze	White	May	Red	Fall-winter	A, B, D, E, M, 0	Red fruits are ornamental, not edible. Thorns are curved and long.
Dk. green	Medium-fine	Scarlet	White	May	Red	Fall-winter	A, B, D, M	Hardiest of the Hawthorns for Kansas. Handsome small tree, good color and texture. Red fruit is very persistent. A thorny tree. Good autumn color.
Dk. green	Coarse	Green	White	June	Brown	Late Summer	A, E, L, Q, R, U	Bark is smooth, cherry-like. Single stem plants develop into small trees for row spaces.
Green	Medium-	Scarlet	Yellow	April-May	Red	Sumer	B, E, G, 1, Q, R	Shrub form with multiple stems or a small fine tree trained to a single trunk. Beautiful spring fruit and autumn color.
Red-green	Fine	Purple-red	Purple	May	Red	Summer	A, B, D, E, J, Q	A strong color accent for a specimen or border. Cutleaf variety available.
Green	Fine	Scarlet	-----	-----	Red	Summer	A, B, D, E, J, Q	An exotic tree, color accent in the fall. Slow growth keeps it short.
Red	Fine	Scarlet	-----	-----	Red	Summer	A, B, D, E, J, Q	An accent all summer, place carefully in the landscape. Very finely cut-leaf variety available ('disectum'). Plant in shade or part shade.
Green	Medium	Bronze	Yellow-red	May	Red	August	A, B, D, E, J, Q	Tall shrub or small tree. Good for background. Interesting fruit and autumn color.

SMALL DECIDUOUS TREES: (Generally less than 30 feet in height).

Common Name	Botanical Name	* Adaptability	Mature Size Ht.	Mature Size Sp.	Growth Rate	Mature Form	Life Expectancy	Site
Mimosa (Silk Tree)	Albizia julibrissin	NC, P	20-30'	20-30'	Fast	Broad round or upright	Medium	Adaptable
Mountain Ash, Alderleaf	Sorbus alnifolia	NC, P	15-20'	15-18'	Slow	oval	Medium	Sunny, protected
Mountain Ash, European	Sorbus aucuparia	NC, P	15-20'	15-18'	Slow	oval	Medium	Sunny, protected
Osage Orange (Hedge Apple)	Maclura pomifera	Hardy	25-30'	30'	Medium	Round	Long	Adaptable
Peach, Flowering	Prunus persica (amygdalus)	X, P	18-20'	15-20'	Medium	Open	Medium	Protected from hot, dry winds
Pear, 'Aristocrat' ornamental	Pyrus calleryana 'Aristocrat'	Hardy	25-30'	20-25'	Medium	Pyramidal	Medium	Adaptable
Plum, 'Newport' Purple-leaf	Prunus X blireiana	Hardy	12-15'	10-15'	Medium	Oval	Medium	Protected
Plum, 'Thundercloud' Purple-leaf	Prunus cerasifera 'divaricata'	Hardy	12-15'	10-15'	Medium	Oval	Medium	Protected
Redbud	Cercis canadensis	Hardy	15-20'	15-20'	Medium	Flat top, spreading	Medium	Protect from hot winds
Russian Olive	Eleagnus angustifolia	Hardy	15-25'	15-20'	Fast	Irregular		Adaptable
Soapberry, Western	Sapindus drummondi	Hardy	25-50' Slow growth keeps it low	25-50'	Very slow	Round	Long	Adaptable

SMALL DECIDUOUS TREES:

Foliage			Flowers		Fruit		Problems to	
Summer Color	Texture	Autumn Color	Color	Season	Color	Season	Expect**	Comments
Green	Very fine	Yellow-brown	Pink stamens	June-August	Brown	Autumn	C, E, J, Q, S, V	Variety 'Roses' is hardiest.Broad crown, often with several trunks. Requires wind protection in north and west.
Green	Fine	Yellow-green	White	May	Red	August	A, E, J, 0, P, W	Fruit eaten by birds, but will litter streets or walks. Showy flowers and fruit. Not tolerant of shade. 'Lambert Hybrids' have yellow-orange fruit.
Green	Fine	Yellow-green	White	May	Red	August	A, E, J, 0, P, W	Fruit eaten by birds, but will litter streets or walks. Showy flowers and fruit. Not tolerant of shade. 'Lambert Hybrids' have yellow-orange fruit.
Dk. green	Medium	Yellow-orange	-----	-----	-----	-----	Few problems	Thornless variety is being produced in limited quantities. Use male trees to avoid large fruit.
Yellow-green	Medium	Yellow	Variable	April-May	Bronze	August	A, E, H, J, R, W	Requires a background or use in borders. Protect from wind. A brittle tree. Varieties include: 'Cardinal' — double red, 'Pink Charming' — double pink, 'Iceburg' — white blooms. 'Rutgers' is a purple-leaved peach for accent use in the landscape.
Dk. green	Medium	Bronze-Scarlet	White	April-May	-----	-----	A, E, J	Rarely fruits, but when it does they are1/2 inch or less and remain after leaf drop. One of the best trees for color in the yard. Wind resistant, not surface rooted and fairly pest free.
Purple	Medium	Purple	Pink	May	Red	Sumer	A, E, J, L, W	Watch for borers, spray regularly. A beautiful low accent tree.
Purple	Medium	Purple	Pink	May	Red	Summer	A, E, J, L, W	A densely formed small tree with deep purple foliage all season.
Green	Medium-coarse	Yellow	Pink or White	April-May	Brown pods	Fall-winter	A, E, J, S, X	Excellent ornamental for all of Kansas. Good for border or screen. Variety 'Alba' has white blooms.
Silver-green	Fine	Yellow	Yellow	May	Silver	Fall-winter	B, E, J, I	Fast growing, low branching small tree. Used for background, screen or wind protection. Very thorny.
Lt. green	Medium	Yellow-green	White	May-June	Yellow	Fall-winter	S	Difficult to find in trade, but native in southwestern Kansas. Starts easily from seed. Drouth tolerant and good for western Kansas conditions. Spreads in yard by seeds. Also called 'Chinaberry.'

* ADAPTABILITY SYMBOLS: Hardy—fully hardy in exposed areas of Kansas; SC—hardy only in south central and more southern areas of eastern Kansas; NW—capable of growing in protected areas of northwest Kansas, but usually smaller than the listed size; P—protect from southwest winds; X—hardiness is doubtful in hotter, drier locations of Kansas; NC—north central hardy in the north central, most south and east portions of Kansas.

** KEY TO PROBLEMS: A.)—Borers, B.)—Aphids, C.)—Webworm, D.)—Tent Caterpiller, E.)—Scale Insects, F.)—Gypsy Moth, G.)—Spider Mites, H.)—Leaf Spot, I.)—Leaf Miner, J.)—Cankers, K.)—Fungal Dieback, L.)—Mildew, M.)—Rust, O.)—Fire blight, P.)—Club Galls, Q.)—Verticillium Wilt, R.)—Iron Chlorosis, S.)—2, 4-0 Damage, T.)—Drouth Injury, U.)—Phytophthora Blight, V.)—Nematodes, W.)—Sunscald and Stem Splitting, X.)—Leaf Roller.

DECIDUOUS SHRUBS: Tall (10 feet or more in height).

Botanical Name	Common Name	Height	Spread	Site	Foliage Color	
					Summer	Fall
Acer ginnala	Amur Maple	20'	10'	Son, part shade	Green	Scarlet
Caragana arborescens	Pea Shrub	15-20'	12-15'	Sun	Green	Yellow-green
Cercis chinensis	Chinese Redbud	10-12'	10-12'	Sun, part shade	Green	Green
Cornus racemosa	Gray Dogwood	8-12'	8-12'	Sun, part shade	Gray-green	Dull red
Cotinus coggygria	Smoke Tree (Purple Fringe)	15'	8'	Sun	Green & pink	Yellow-purple
Cotinus loggygria 'rubrifolia'	Rod Fringe Tree	10'	10'	Sun	Red-purple	Red-purple
Cotoneaster acutifolia	Peking Cotoneaster	10-12'	8-10'	Sun, exposed	Deep green	Green-late
Eleagnus umbellatus	Autumn Olive	14-16'	15-17'	Sun, exposed	Silver	Silver
Euonymus atropurpureus	Wanoo	10-15'	15-18'	Sun, shade	Green	Red-purple
Exochorda racemosa	Pearlbush	10-15'	10-15'	Sun, part shade	Blue-green	Blue-green
Hibiscus syriacus 'Anemoneflorus'—pink 'Ardens'—purple 'Boole de pen'—red purple	Rose-of-Sharon 'Jeanne de Arc'—white 'Lucy'—rose 'Blue Bird'—blue	8-12,	6-10'	Sun, part shade	Green	Green
Hydrangea paniculata 'grandiflora'	P. G. Hydrangea	10-15'	10-15'	Shade, part shade	Green	Green
Lagerstroemia indica	CrapemyrtIe	10-12'	5'	Sun, part shade	Green	Red-green
Ligustrum amurense	Amur River North Privit	10-12'	5-7'	Sun, shade	Greer	Green
Ligustrum ovalifolium	California Privit	10-12'	6-8'	Sun, shade	Green	Red-purple
Ligustrum X vicari	Golden (Vicary) Privit	12'	6-8'	Sun, part hade	Gold	Gold
Ligustrum vulgare	Common Privit	10-12'	6 -8'	Sun, shade	Green	Green
Philadelphus grandiflorus	Big Scentless Mockorange	9-12'	5-8'	Shade, part shade	Green	yellow-green
Prunus triloba 'plena'	Flowering Plum	12'	10-12'	Sun, part shade	Green	Yellow-green
Rhus glabra	Smooth sumac	15-20'	15'	Sun, part shade	Red-green	Scarlet
Rhus typhina	Staghorn Sumac	20'	15-20'	Sun, part shade	Green	Red-orange
Salix discolor	Pussy Willow	10-12'	12'	Sun part shade	Green	Yellow
Salix matsudana 'tortuosa'	Corkscrew Willow	12-15'	12'	Sun, part shade	Green	Green
Sambucus canadensis 'aurea'	Golden Elder	12'	10-12'	Sun	Gold	Gold
Syringa amurensis	Manchurian Lilac	12-15'	12-15'	Sun	Blue-green	Blue-green
Syringa chinensis	Chinese (Rothomagensis) Lilac	10-15'	10-15'	Sun	Blue-green	Green-late
Syringa pekinensis	Peking Lilac	10-15'	10-15'	Sun	Green	Green
Syringa vulgaris	Common Lilac	12-15'	12-15'	Sun	Blue-green	Blue-green
Tamarix africana	African Tamarisk	10-12'	10'	Sun, part shade	Green	Green
Tamarix hispida 'Koshgar'	Tamarisk	10-12'	8-10'	Sun, part shade	Blue-green	Blue-green
Tamarix hispida 'Pink Cascade'	Pink Cascade Tamarisk	10-12'	8-10'	Sun, part shade	Blue-green	Blue-green

DECIDUOUS SHRUBS: Tall (10 feet or more in height).

Flowers		Fruit		Problems to	**	
Color	Season	Color	Season	expect*	Adaptability	Comments
Yellow-fragrant	April-May	Red	Summer	A	X, P	Red fruit and fall foliage are showy.
Pale yellow	Late spring	Brown	Summer		Hardy	Useful for screen or hedge; needs a facer.
Purple-pink	March-April	Brown	Fall	L, V	X, P	A denser, more shrub-like habit than the native redbud. Flowers before leaves.
White	Spring	White	Spring	B, C, L	Hardy	Stems are gray, red fruit panicles. May be shorter in western Kansas.
Pink	June	Yellow	Sumer	C	X, P	Flowers give a smoky appearance.
Pink	June	Yellow	Summer	C	X, P	Has a deep red-purple foliage color all summer.
——	——	Black	Fall	D, E	Hardy	Berries attract wild birds.
Yellow-fragrant	May	Silver	Sumer-Fall	F	Hardy	Thornless, smaller than Russian Olive.
——	——	Orange	Fall	B, H	Hardy	Do not use near entryways. Good screen.
White	Mid-spring	Brown	Sumer		SC	Requires a facer plant, becomes leggy.
Variable	Late Summer	Cray	Fall	I, J, N	Hardy	Drought tolerant, latest blooming shrub. See trade lists for varieties. Flower colors in red, purple, blue pink and white. Good screen or border shrub.
White	August	——	——	I	X, P	A monstrosity in the landscape. Prune heavily to renew growth.
Variable	August	Brown	Fall	J, 0	SE	Winterkills to the ground each year. Pink, red, and white varieties.
White	May-June	Blue-black	Fall	C, K	Hardy	Flower odor unpleasant, leaves and fruit are persistant. Borers are serious problem.
White,	June	Black	Fall	C, K	X, P	May winterkill in unprotected sites. Good hedge. Flowers have unpleasant odor.
White	July	Blue-black	Fall	C	X, P	Slow growing, use as an accent plant.
White	June	Black	Fall	C, K	Hardy	Flower odor unpleasant. Variety 'Cheyenne' is best. Borers may limit use.
White	May-June	Brown	Fall	Chlorosis	Hardy	Requires a facer plant, gets leggy.
Double pink	April-May	Red	Summer	C	X	Known as 'Rose Tree of China'. Use in borders for screen or enframement.
Green	Sumer	Red (female)	Fall	M	Hardy	Sexes separate. Not suitable for screen or small lots.
Green	Summer	Red (female)	Fall	M	Hardy	Sexes separate. No landscaping value.
Pink or gray	'larch-April	——	——		X, P	Use in moist locations. Valued for early bloom.
——	——	——	——	C, L, M Q	NC, P	May be a tree, but best as a tall shrub. Has twisted branches giving unique effect for accent.
White	June	Black	August		Hardy	Edible fruit. Use in moist soil.
Yellow-white	May-June	Tan	Fall	B, C, J	Hardy	First of tree lilacs to bloom; needs a facer.
Purple-fragrant	May	Tan	Fall	B. C, J	Hardy	'Alba' has white bloom. Use for screen.
White	May	Tan	Summer	B, C, J	Hardy	Use as background for other shrubs.
Variable	May	Tan	Summer	B, C, J, M	Hardy	See nursery catalogs for cultivars available. (Over 30 listed)
Pink	June-August	——	——	C	SE	Borers can be a severe problem. Feathery foliage is interesting.
Pink	June	——	——	C	Hardy	Feathery foliage, hairy white twigs.
Pink	July-August	——	——	C	Hardy	New selection, useful in dry soils.

DECIDUOUS SHRUBS: Tall (10 feet or more in height).

Botanical Name	Common Name	Height	Spread	Site	Foliage Color	
					Summer	Fall
Viburnum lantana	Wayfaring Tree	10-12'	12'	Sun, part shade	Green	Dull Red
Viburnum lentago	Nannyberry Viburnum	8-12'	10-12'	Sun, part shade	Green	Red-purple
Viburnum opulus	European Cranberrybush	8-12'	10-12'	Sun, part shade	Green	Yellow-red
Viburnum opulus 'sterilis'	Snowball	8-12'	10-12'	Sun, part shade	Green	Yellow-red
Viburnum sieboldi	Siebold Viburnum	12-15'	10-12'	Sun, part shade	Green	Green-late
Viburnum setigerum	Tea Viburnum	10'	8-10'	Sun, part shade	Green	Green
Viburnum trilobum	American Cranberrybush	12'	10-12'	Sun, part shade	Green	Scarlet

DECIDUOUS SHRUBS: Medium (between 7 and 10 feet in height).

Botanical Name	Common Name	Height	Spread	Site	Foliage Color	
					Summer	Fall
Aronia arbutifolia	Red Chokeberry	6-10'	3-5'	Sun, part shade	Green	Red
Berberis X mentorensis	Mentor Barberry	6-8'	5-7'	Sun, shade	Red-green	Bronze
Berberis thunbergi 'erects'	Truehedge Barberry	6-8'	4-6'	Sun, shade	Green	Red-orange
Buddleia davidi	Butterfly Bush	6-8'	6'	Sun	Green	Green to tan
Cornus alba 'siberica'	Coral Dogwood	9'	8-10'	Sun, shade	Yellow-green	Red
Cornus ammomum	Silky Dogwood	8-10'	8-10'	Sun, shade	Green	Red-violet
Cornus stolonifera	Redosier Dogwood	8'	8-10'	Sun, shade	Green	Red-bronze
Cornus stolonifera 'flaviramea'	Yellowtwig Dogwood	8'	8-10,	Sun, shade	Green	Red-bronze
Cotoneaster multiflora 'calocarpa'	Large Flowering Cotoneaster	8'	8-12'	Sun, part shade	Blue-green	Red-bronze
Cytisus scoparius	Scotch Broom	6-8'	6-8'	Sun, part shade	Green	Green
Deutzia X lemoinei	Lemoine Deutzia	5-7'	5-7'	Sun, part shade	Green	Yellow-brown
Deutzia scabra	Pride of Rochester Deutzia	6-8'	4-6'	Sun, part shade	Green	Yellow-brown
Euonymus alatus	Winged Burning Bush	8-10'	8-10'	Sun, part shade	Green	Red
Forsythia X intermedia	'Spring Glory' Forsythia	7-8'	6-8'	Sun, part shade	Yellow-green	Yellow-green
Forsythia X intermedia	'Showy Border' Forsythia	7-8'	6-8'	Sun, part shade	Yellow-green	Yellow-green
Forsythia X intermedia	'Beatrix' 'Farrand' Forsythia	6-8'	6-8'	Sun, part shade	Yellow-green	Yellow-green
Forsythia X intermedia	'Lynwood Gold' Forsythia	8-10'	8'	Sun, part shade	Yellow-green	Yellow-green,
Forsythia X intermedia	'Karl Sax' Forsythia	6-8'	6-81	Sun, part shade	Yellow-green	Yellow-green
Forsythia suspensa 'Sieboldii'	Siebold Forsythia	8-10'	10-15'	Sun, part shade	Yellow-green	Yellow-green
Forsythia viridissima	Golden Bell Forsythia	6-8'	6-8'	Sun, part shade	Green	Green

DECIDUOUS SHRUBS: Tall (10 feet or more in height).

Flowers		Fruit		Problems to	**	
Color	Season	Color	Season	expect*	Adaptability	Comments
White	May	Red to black	August		NC	Use as a background shrub, requires a facer.
White	May	Black	July-fall	J	Hardy	Edible fruit. Use for background or screen.
White	May	Red	Angust -fall	N	Hardy	Used for fruit effect, not edible. Flower clusters are often infested with aphids.
White	May	——	——	N	Hardy	Stands severe pruning, very drought hardy.
White	May	Blue-black	Summer		NC	Free-like shrub for background, needs facer.
White	May	Red	Autumn		NC	Flowers in 2-inch clusters, red fruit.
White	May	Red	August	G	Hardy	Variety 'compactum' is 4 4-6' tall. Very hardy for western Kansas.

* KEY TO PROBLEMS. A.) Subject to insects, B.) Scale insects, C.) Borers, D.) Fire Blight, E.) Red Snider Mites, F.) wilt, H.) Flowers attract flies, I.) Leaf Spot, J.) Mildew, K.) Anthracnose, L.) Canker, Y.) Sucker Growth, N). Aphids, 0.) Protect roots in winter with a mulch, Q.) Prune annually to renew growth, V.) Susceptible to 2, 4-D damage.

** ADAPTABILITY SYMBOLS: Hardy—fully hardy in exposed areas of Kansas; SE—hardy in southeastern Kansas only; SC—hardy in south central and eastern to Kansas; NC—hardy in central and eastern Kansas only; P—protect from Southwest winds; X—hardiness is doubtful in hotter, drier locations of Kansas.

DECIDUOUS SHRUBS: Medium (7-10 feet in height).

Flowers		Fruit		Problems to	**	
Color	Season	Color	Season	expect*	Adaptability	Comments
White	April	Red	Fall	I, C	Hardy	Good fall fruit color and fall foliage.
Yellow	April	Red	Fall-winter	J, N	Hardy	Thorny, holds leaves late. No fruit effect, excellent softening shrub or screen.
Yellow	May	Red	Summer-winter	J, N	X, P	Pyramidal screen or hedge plant. Thorny.
Variable	July-August	Brown	Fall	0	NC	Winterkills to ground each year. Violet, pink, and white varieties available.
White	May	Blue	August	B	NC	Bright red stems for winter color. Accent.
Yellow-white	June	Blue	August	B, C, L	X, P	More tree-like, needs facer plants. Deep red bark color.
White	May	White	August	B, C, L, M	X, P	Red twigs, use limited by suckering. Accent.
White	May	White	August	B, C, L, M	X, P	Yellow twigs, suckers. Accent.
Pink	May	Red	Fall	E	Hardy	Showy fruit; spreads rapidly. Other shrubs are better in the landscape.
Variable	May	Black	August		SC	Many hybrids with pink, red, white or yellow flower colors. Tendency to die back in harsh winters. Green winter stems.
White	May	——	——	B, N, P, T	NC, P	Poorly used as an ornamental, bloom competes with Mockorange.
Pink-white	June	——	——	B, N, P, T	NC, P	Late-blooming Deutzia, double flowered.
——	——	——	——		X, P	Poor autumn color if in shade. The tall form is not common. Use for accent only.
Yellow	March-April	——	——	Q	X, P	Early bloomer, large yellow flowers completely cover branches.
Deep yellow	March-April	——	——	Q	X, P	Upright habit, less injured by frost.
Yellow	March-April	——	——	Q	X, P	Flowers are 2 inches in diameter.
Yellow	March-April	——	——	Q	X, P	Erect branches, golden blooms are more open.
Yellow	March-April	——	——	Q	X, P	Flower buds are hardier than other Forsythia.
Yellow	April	——	——	Q	Hardy	Pendulous branches that root when they touch the ground. Very loose form.
Yellow	March-April	——	——	Q	X, P	Less showy Forsythia, but tolerates city conditions better.

DECIDUOUS SHRUBS: Medium (between 7 and 10 feet in height).

Botanical Nam	Common Name	Height	Spread	Site	Foliage Color	
					Summer	Fall
Ilex verticillata	Winterberry Holly	6-8'	3-5'	Shade, part shade	Green	Green-late
Kolkwitzia amabilis	Beautybush	7-10'	8-10'	Sunny, exposed	Gray-green	Gray-green
Ligustrum obtusifolium	Border Privit	8-10'	9'	Sun, shade	Green	Purple-green
Ligustrum obtusifolium 'regelium'	Regel Privit	5-7'	6'	Sun, shade	Green	Purple-green
Lonicera morrowi	Morrow Honeysuckle	6-8'	8-10'	Sun, part shade	Blue-gray	Blue-gray
Lonicera morrowi 'xanthocarpa'	Morrow Honeysuckle	6-8'	8-10'	Sun, part shade	Blue-gray	Blue-gray
Lonicera tatarica 'zabelii'	Zabel's Honeysuckle	7-10'	7-10'	Sun, part shade	Blue -green	Blue-green
Magnolia stellata	Star Magnolia	8-10'	10-12'	Sun	Green	Bronze
Magnolia stellata 'rosea'	Star Magnolia (Pink)	8-10'	10-12'	Sun	Green	Bronze
Malus sargentii	Sargent Crabapple	6-8'	8-10'	Sun, part shade	Green	Yellow-orange
Philadelphus coronarius	Sweet Mockorange	8-10'	6-7'	Shade, part shade	Green	Yellow-green
Philadelphus X lemoine	'Enchantment' Mockorange	8'	6-8'	Shade, part shade	Green	Green
Philadelphus X lemoine	'Innocence' Mockorange	8'	6-8'	Shade, part shade	Green	Green
Philadelphus X virginalis	'Minnesota Snowflake' Mockorange	8'	6-8'	Shade, part shade	Green	Green
Physocarpus opulifolius	Ninebark	7-9'	8-10'	Sun, shade	Green	Yellow
Physocarpus opulifolius 'luteus'	Goldleaf Ninebark	8-10'	8-10'	Sun	Yellow	Yellow-green
Prunus X cistena	Purpleleaf Sand Cherry	7-9'	8-10'	Sun, part shade	Purple	Purple
Prunus tomentosa 'Orient'	Nanking Cherry	9'	10-12'	Sun, part shade	Bronze-green	Green
Rhodotypos scandens	Black Jetbead	5-7'	6-8'	Sun, shade	Green	Yellow-green
Spirea prunifolia 'plena'	Bridlewreath Spirea	7-9'	8-10'	Sun, part shade	Blue-green	Orange
Spires X vanhouttei	Vanhoutte Spirea	6-8'	8-10'	Sun, shade	Blue-green	Blue-green
Syringa villosa	Late Lilac	8-10'	8-10'	still	Green	Green
Syringa X persica	Persian Lilac	6-8'	7-9'	Sun, part shade	Blue-green	Green
Tamarix hispida	'Summer Glow' Tamarisk	8'	10-12'	Sun, part shade	Silver-blue	Silver-blue
Viburnum carlesii	Korean Spice Viburnum	6-8'	6 -8'	Sun, expo sed	Green	Dull red
Viburnum dentatum	Arrowwood Viburnum	8-10'	10-12'	Sun, part shade	Green	Red-bronze
Viburnum dilatatum	Linden Viburnum	8-10'	8-12'	Sun, part shade	Green	Russett-red
Viburnum plicatum 'tomentesum'	Doublefile Viburnum	8-10'	8-10'	Sun, part shade	Green	Dull red
Weigela florida	Old Fashioned Weigela	6-8'	8-10'	Sun, sheltered	Green	Yellow-green
Weigela florida 'vaniceki'	Newport Red Weigela	6-8'	8-10'	Sun, sheltered	Green	Yellow-green

DECIDUOUS SHRUBS: Medium (7-10 feet in height).

Flowers		Fruit		Problems to	**	
Color	Season	Color	Season	expect*	Adaptability	Comments
——	——	Scarlet	Fall-winter		NC, P	Sexes separate, female only produces fruit. A deciduous holly. Red fruit and green foliage are ornamental in the fall.
Pink	May	Brown	July	Q	Hardy	Rugged appearance with peeling bark. Tall, upright habit and arching branches.
White	May-June	Black	Fall	C	X, P	Flowers have unpleasant odor. Hedging grade.
White	May-Jane	Black	Fall	C	Hardy	Will tolerate heavy pruning. For screen.
White to yellow	May	Red	July	L, N	Hardy	Moundlike habit, attractive red berries.
White to yellow	May	Yellow	July	L,N	Hardy	Moundlike habit, attractive yellow berries. Both make excellent softening shrubs.
Dark Red	May	Red	Summer	L,N	SC	Popular screen shrub, dark red flowers.
White	April	Red	Autumn	F,0	SC, P	Buy B & B stock, and move only when in active growth. Do not use in shade or lime soil.
Pink	April	Red	Autumn	F,0	SC, P	Protect from winds. First Magnolia to bloom.
White or pink	April-May	Red-green	Summer-fall	B, D, N, R	Hardy	Very attractive shrub. Broader than tall, arching branches. Prune to retain habit.
White-fragrant	May-June	Brown	Fall	B, G, N	Hardy	Avoid dusty places; needs facer plants.
White-fragrant	May-June	Brown	Fall	G	Hardy	Double flowers. A tall Mockorange.
White-fragrant	May-June	Brown	Fall	G	Hardy	One of the most fragrant, with arching stems.
White-fragrant	June-July	Brown	Fall	G	Hardy	Double flowers. Hardiest Mockorange.
White	May-June	Red-brown	Fall		Hardy	Coarse texture; use in borders or large area.
White	May-June	Red-brown	Fall		Hardy	Foliage yellow only in full sun. Accent.
White	May	Purple	Fall	C	Hardy	An attractive accent shrub. Use a facer.
Pink	April	Red	May-June		Hardy	Fruit used for jellies, and an excellent tall screen plant for borders.
White	April-May	Black	Fall	Q	NC, P	Excellent foliage, black berries persistent.
White	April-May	——	——		NC, P	Wide-spreading mound habit. Double flowers.
White	April-May	——	——	Q	Hardy	Perfect softening shrub or for low screen.
Pink-fragrant	June	——	——	B, C, J	Hardy	One of the hardiest lilacs, blooms later.
Poor pink	May-June	Brown	Summer	B, C, J, Q	NC	Not recommended because of borer problem.
Rose	June-August	——	——	C, P,	Hardy	Bloom has feathery appearance.
White-fragrant	April	Red-black	June		Hardy	Birds devour fruit rapidly, loses effect.
White	May-June	Blue-black	August		NC, P	A strong, rapid growing shrub with medium coarse texture for borders.
White	June	Bright red	August	N	NC, P	Fruiting best when planted with other Viburnums. Most colorful fruit.
White	May	Red-black	June		NC, P	Not infested with aphids. Very handsome shrub for general use; somewhat coarse.
Rose-pink	May-June	Tan	August	G	X, P	Many hybrids in trade, but still old favorite. May bloom intermittently all summer if properly pruned. Accent only.
Dark red	May-June	Tan	August	G	X, P	Called 'Cardinal Shrub' — hardiest Weigela. Some dieback each winter. Accent only.

* KEY TO PROBLEMS: B.) Scale insects, C.) Borers, D.) Fire blight, E.) Red spider mites, F.) Wilt, G.) Iron chlorosis, J.) Mildew, L.) Canker, M.) Sucker growth, N.) Aphids, 0.) Protect roots in winter with a mulch, P.) Nematodes, Q.) Prune annually to renew growth, R.) Rust, I.) Leaf miners.

** ADAPTABILITY SYMBOLS: Hardy—fully hardy in exposed areas of Kansas; SE—hardy in southeastern Kansas only; SC—hardy in south central and eastern Kansas; NC—hardy in central and eastern Kansas only; P—protect from southwest winds; X—hardiness is doubtful in hotter, drier locations of Kansas.

DECIDUOUS SHRUBS: Small (between 4 and 6 feet in height).

Botanical Name	Common Name	Height	Spread	Site	Foliage Color	
					Sumer	Fall
Abelia X grandiflora	Glossy Abelia	3-5'	3-5'	Sun, shade	Green	Bronze
Berberis thunbergii	Japanese Barberry	4-6'	3-5'	Sun, shade	Green	Orange-scarlet
Berberis thunbergii 'atropurpurea'	Redleaf Barberry	4-6'	3-5'	Sun	Red	Red
Berberis, thunbergii 'Kobold'	Kobold Barberry	4-6'	5-6'	Sun, shade	Green	Orange
Callicarpa japonica	Japanese Beautyberry	4-5'	4-5'	Sun, part shade	Green	Yellow-green
Chaenomeles lagenaria (speciosa)	Common Flowering Quince	5-7'	6-8'	Sun, part shade	Red-green	Green
Cotoneaster divaricata	Spreading Cotoneaster	5-6'	6-8'	Sun, part shade	Green	Red-green
Euonymus alatus 'compacta'	Dwarf Winged Burning Bush	4-5'	4-5'	Sun, part shade	Green	Bright red
Hydrangea arborescens 'grandiflora'	A. G. Hydrangea	3-5'	5-7'	Shade, part shade	Green	Tan
Hydrangea macrophylla	Nikko Blue Hydrangea	4-5'	5-6'	Shade, part shade	Green	Yellow
Kerria japonica	Kerria	4-6'	5-7'	Shade, part shade	Green	Yellow
Lonicera fragrantissima	Winter (Fragrant) Honeysuckle	5-7'	6'	Sun, part shade	Gray-green	Green
Lonicera xylosteum 'Claveyinana'	Clavey's Dwarf HoneysuckLe	4-6'	4-6'	Sun, part shade	Green	Green
Philadelphus X lemoine	'Belle Etoille' Mockorange	6'	6'	1 Shade, part shade	Green	Green
Philadelphus X virginalis	'Albetre' or Glacier' Mockorange	4-6'	4-6'	Shade, part shade	Green	Green
Philadelphus X virginalis	'Bouquet Blanc' Mockorange	6'	6'	Shade, part shade	Green	Green
Prunus glandulosa	Flowering Almond	4-5'	3-4'	Sun, part shade	Green	Green
Rhus aromatica	Fragrant Sumac	4-6'	6-10'	Adaptable	Green	Reddish
Spirea X arguta	Garland Spirea	5-6'	5-6'	Sun, part shade	Yellow-green	Yellow
Spirea thunbergi	Thunberg Spirea	4-5'	4-5'	Sun, part shade	Yellow-green	Yellow-orange
Symphoricarpos albus	Snowberry	4-6'	4-6'	Sun, shade	Blue-green	Blue-green
Symphoricarpos orbiculatus	Indian-current Coralberry	3-5'	4-8'	Sun, shade	Gray-green	Blue-gray
Syringa oblata 'palibiniana'	Dwarf Korean Lilac	4-6'	6-8'	Sun, part shade	Green	Reddish
Viburnum opulus 'compactum'	Compact European Cranberrybush	4-6'	4-6'	Sun, part shade	Green	Yellow
Viburnum wrighti 'hessei'	Wright's Viburnum	3-5'	4-6'	Sun, part shade	Green	Reddish
Weigela X florida	'Bristol Ruby' Weigela	4-6'	4-6'	Sunny, sheltered	Green	Yellow-green
Weigela floribunda 'Wagneri'	'Eva Rathke' Weigela	4-6'	6-8'	Sunny, sheltered	Green	Yellow-green
Weigela purpurea	'Java Red' Weigela	5-7'	6-8'	Sunny, sheltered	Green	Purple-bronze

DECIDUOUS SHRUBS: Small (between 4 and 6 feet in height).

Flowers		Fruit		Problems to	**	
Color	Season	Color	Season	expect*	Adaptability	Comments
Pink	June-frost	——	——	0	SC, P	May winterkill. Half-evergreen foliage.
Yellow-red	April	Red	Fall-winter	F, J	X, P	Thorny, colorful in winter, Accent or screen.
Yellow-red	April	Red	Fall-winter	F, J, S	X, P	'Marshall' sad 'Redbird' have better color and form than type plants. Accent only.
Yellow	April	Orange-red	Fa11-winter	F,	X, P	New patent form, growing in globe shape.
Pink-white	June-July	Purple	August		NC, P	Beautiful metallic-purple berries, but no other ornamental features.
Variable	March-April	Green	Fall	B, D, Q	X, P	Also called 'Japonica'. Many varieties listedranging from white to deep red flowers. Do not use around orchard trees (scale).
Pink	May-June	Red	Aug.-Sept.	D, E	X, P	Do not use too many Cotoneaster in your yard. This has best fruit color.
Green-yellow	May	Pink	Fall		X, P	Use called 'winged Euonymus'. This is an excellent accent shrub. No fall color if planted in the shade.
White	July	——	——	Q, R	NC, P	Too coarse for general use. 'Hills of Snow' and 'Snowhill' are best varieties.
Pink or blue	July	——	——	Q, R	X, P	Blooms are pink in alkaline soil and blue in acid soil. For blue color use 2 tbl. aluminum sulfate to a gal. of water.
Orange-yellow	May	——	——	I, L, Q	X, P	'Pleniflora' variety is double flowered. Also variegated leaf hybrids in trade. Good winter color with green twigs.
White-fragrant	March-April	Red	June	L	Hardy	Clean, attractive foliage. Hardy for general use. Prune after flowering.
Yellow-white	March-April	Red	June	L	Hardy	Flowers are not showy, but good foundation plant or globe without shearing.
White	May-June	Brown	Fall	G	Hardy	Flowers are white with purple throat.
White-fragrant	June-frost	Brown	Fall		Hardy	Double white flowers on a compact plant. Semi-dwarf varieties of Mockorange.
White-fragrant	June-frost	Brown	Fall		Hardy	Single white flowers on a mound-like plant.
Pink or white	April-May	——	——	C, G, Q	Hardy	'Alba'—white, 'Rosea'—pink. Both bear profuse double blooms. Excellent facer.
Yellow	April-May	Red	Fall	F	Hardy	Good for fall color. Prune every 2-3 years for renewal.
White	April-May	——	——		X, P	Free-flowering and attractive. Excellent foundation or facer shrub.
White	April	——	——	Q	Hardy	Earliest Spirea to bloom; small flowers. Very fine foliage texture.
Pink-white	April-May	White	Aug.-Sept.	M, Q	Hardy	Flowers are not showy, but fruit will last until Christmas. Valued for shade.
——	——	Pink	Aug.-Sept.	M, Q	Hardy	Useful in shady locations. Spreading habit makes it good for holding banks.
Lavender	May	Tan	June	C, J, M	NC, P	Blooms earlier than common lilac.
White	May-June	Crimson	Aug.-Sept.	Q	Hardy	Desirable where other Viburnums would be too large.
White	May-June	Red	August	Q	X, P	Somewhat scarce in trade, but excellent shrub.
Red	May	Tan	Fall		X, P	A shapely, erect plant. Use for accent.
Crimson	May	Tan	Fall		X, P	A more spreading habit of growth.
Pink	May	Tan	Fall		X, P	Buds are carmine-red before opening.

* KEY TO PROBLEMS: B.) Scale insects, C.) Borers, D.) Fire blight, E.) Red spider mites, F.) Wilt, G.) Iron chlorosis, I.) Leaf spot, J.) Mildew, L.) Canker, M.) Sucker growth, O.) Protect roots in winter with a mulch, Q.) Prune annually to renew growth, R.) Rust, S.) Crown rot.

** ADAPTABILITY SYMBOLS: Hardy—fully hardy in exposed areas of Kansas; SC—hardy in south central and eastern Kansas; NC—hardy in central and eastern Kansas only; P—protect from southwest winds; X—hardiness is doubtful in hotter, drier locations of Kansas.

DECIDUOUS SHRUBS: Dwarf (less than 4 feet in height).

Botanical Name	Common Name	Height	Spread	Site	Foliage Color	
					Sum-	Fall
Berberis thunbergi 'atropurpurea nana'	Crimson Pygmy Barberry	1 1/2-2'	2-3'	Sun	Red	Red-purple
Berberis thunbergi 'kobold'	Kobold Barberry	2-2 1/2'	2 1/2'	Sun	Green	Green
Caragana arborescens 'pygmea'	Pygmy Pea Shrub	1 1/2-2'	1 1/2-2'	Sun, part shade	Green	YelIow-green
Chenomeles japonica	Japanese Flowering Quince	3-4'	4-5'	Sun, part shade	Red-green	Bronze-green
Chenomeles japonica 'rubra'	Red Japanese Quince	3-4'	4-5'	Sun, part shade	Red-green	Bronze-green
Chenomeles maulei 'supurba'	Dwarf Flowering Quince	2-3'	2-3'	Sun, part shade	Red-green	Bronze-green
Cotoneaster apiculata	Cranberry Cotoneaster	2-3'	3-4'	Sun, part shade	Green	Bronze
Deutzia gracilis	Slender Deutzia	2-3'	3-4'	Sun, part shade	Green	Yellow-brown
Deutzia X rosea 'exima'	Rosepanicle Deutzia	3-4'	4-5'	Sun, part shade	Green	Yellow-brown
Forsythia viridissima 'Bronxensis'	Bronx Forsythia	1 1/2 -2'	3'	Son, part shade	Green	Yellow
Hydrangea X aborescens	Annabelle Hydrangea	3-4'	4-5'	Shade, part shade	Green	Yellow
Hydrangea kalmianum	Kalm St. Johnswort	3-4'	3-4'	Sun, part shade	Green	Green
Hypericum patulum 'Hidcote'	Hidcote St. Johnswort	1 1/2-2'	1 1/2-2'	Sun, part shade	Green	Green
Hypericum patulum 'sungold'	Sungold St. Johnswort	1 1/2-2'	1 1/2-2'	Sun, part shade	Gre en	Green
Philadelphus coronarius 'nana'	Dwarf Sweet Mockorange	3-4'	3-4'	Shade, part shade	Green	Yellow-green
Philadelphus X lemoine	'Silver Showers' Mockorange	3-4'	3-4'	Shade, part shade	Green	Green
Philadelphus X virginalis	'Dwarf Minnesota Snowflake' Mockorange	2-3'	2-3'	Shade, part shade	Green	Green
Physocarpus opulifolius 'nanus'	Dwarf Ninebark	3-4'	3-4'	Sun, shade	Green	Yellow
Potentilla fruticosa	Cinquefoil	2-4'	2-4'	Sun	Green	Green
Rhus aromatica	GrowLow Sumac	2'	6-8'	Sun-Shade	Green	Orange-red
Salix purpurea 'nana'	Dwarf Arctic Blue Willow	3-4'	3-4	Sun, part shade	Silver blue	Silver blue
Spirea X bumalda	Anthony Waterer Spirea	2-3'	2-3'	Sun, part shade	Green	Red-green
Spirea X bumalda 'froebeli'	Froebel Spirea	3-4'	3-4'	Sun, part shade	Green	Red-bronze
Spirea japonica 'coccinea'	Redflowering Japanese Spirea	3-4'	3-4'	Sun, part shade	Green	Red-bronze
Spirea nipponica 'snowmound'	Snowmound Spirea	3-4'	3-4'	Sun, part shade	Blue-green	Blue-green
Symphoricarpos X chenaulti	Chenault Coralberry	3-4'	3-4'	Sun, shade	Blue-green	Blue-green

DECIDUOUS SHRUBS: Dwarf (less than 4 feet in height).

Flowers		Fruit		Problems to	**	
Color	Season	Color	Season	expect*	Adaptability	Comments
Yellow	May	Red	Fall	F, J, S	X, P	Thorny, foliage has bright crimson cast that produces strong accent. Must be placed in sunny location for red leaf color.
Yellow (few)	April-May	Red (few)	Fall	N, R	Hardy	Compact, rich green color, good fall color, perfect 'mound' shape.
Pale yellow	May	Brown	Fall		Hardy	Difficult to obtain in trade, but an interesting filler shrub.
Scarlet-orange	March-April	Yellow	Fall	B, M, N	Hardy	Standard Red Japanese Quince for low borders.
Red	March-April	——	——	B, M, N	Hardy	No fruits are produced.
Red	March-April	Yellow	Fall		X, P	Thorny; varieties 'Aurea' and 'Texas Scarlet' are available in trade.
Pink	May-June	Red	Aug.-Sept.		X, P	Holds leaves late. Good bank shrub or for low borders.
White	May	——	——	B, N, P, I	NC, P	A useful facer that will stay low. Do not prune this shrub.
Pink	May	——	——	B, N, P, I	NC, P	Nearly 2-inch blooms. May grow taller in good growing conditions.
Yellow	March-April	——	——	Q	X, P	A very dwarf Forsythia. May be difficult obtain in the trade.
White	June-July	Tan	Fall	R, Q	X, P	Snow-white blooms may be up to 8 inches across.
Yellow	June-July	Red-brown	Fall	Q	Hardy	Bright yellow flowers; very hardy. Variety "Pot '0 Gold" is common.
Yellow	June-Oct.	Red-brown	Fall	Q	X	Maydie to ground in western Kansas winters, but will renew growth.
Yellow	June-Oct.	Red-brown	Fall	Q	Hardy	The hardiest Hypericum in the trade.
White-fragrant	May-June	Brown	Fall	B, G, N	Hardy	An attractive dwarf Fragrant Mockorange.
White-fragrant	May-June	Brown	Fall	G	Hardy	Finer foliage texture and heavy blooming.
White-fragrant	June	Brown	Fall	G	Hardy	Double, fragrant white blooms. Very hardy.
White	May-June	Brown	Fall		X, P	Coarse texture for accent.
Bright yellow	June-August	——	——		Hardy	Varieties 'Jackmans', 'Gold Drop', and 'Lemon Drop' are popular. Require no care.
Yellow	March-April	Red	Fall	None	Hardy	Low growing version of sumac.
Gray	March	——	——	B, C, L, M	NC	Purple twigs in winter. Use in moist areas. Use for low hedges or borders.
Crimson	June-August	Brown	Fall	Q	X, P	Flowers up to 6 inches in diameter. Fine foliage texture.
Crimson	June-July	Brown	Fall	Q	X, P	Blooms 2 weeks earlier than Anthony Waterer; taller and coarser foliage texture.
Rose -pink	June-July	Brown	Fall	Q	X, P	Better flower color and said to he hardier than other dwarf Spireas.
White	May	Brown	Fall		Hardy	A compact Spirea that is covered with blooms in the spring.
Pink	July	Red	Fall		Hardy	Flowers are in spikes; red fruits are ornamental with white undersides.

* KEY TO PROBLEMS: B.) Scale insects, C.) Borers, F.) Wilt, G.) Iron chlorosis, J.) Mildew, L.) Canker, M.) Sucker growth, N.) Aphids, P.) Nematodes, Q.) Prune annually to renew growth, R.) Rust, S.) Crown rot, T.) Leaf miner.

** ADAPTABILITY SYMBOLS: Hardy—fully hardy in exposed areas of Kansas; NC—hardy in central and eastern Kansas only; P—protect from southwest winds; X—hardiness is doubtful in hotter, drier locations of Kansas.

BROADLEAF EVERGREEN SHRUBS:

Tall (10 feet or more in height).

Botanical Name	Common Name	Height	Spread	Site	Foliage Color	
					Summer	Winter
Ilex opaca	American Holly	12-15'	8-10'	Shade, part shade, wind protection	Deep green	Green
Ilex vomitoria	Yaupon Holly	10-15'	8-10'	Shade, part shade, wind protection	Deep green	Green
Magnolia grandiflora	Southern Magnolia	15 -20'	12-15'	Part shade, wind protection	Deep green	Green

Medium (between 7 and 10 feet in height).

Euonymus kiautschovicus (patens)	'Manhattan' Euonymus	8-10'	8-12'	Sun, shade	Green	Green-brown
Euonymus kiautschovicus (patens)	'Large Leaf' Euonymus	6-8'	8-10'	Sun, shade	Green	Green-brown
Mahonia aquifolium	Oregon Grape Mahonia	5-7'	4-5'	Sun, shade	Blue-green	Bronze
Pyracantha coccinea	'Kasan' Pyracantha	6-8'	6-8'	Sun, part shade	Dark green	Green-late
Pyracantha coccinea	'Lalandii' Pyracantha	8-10'	8-10'	Sun, part shade	Dark green	Green-late
Pyracantha coccinea	'Wyatti' Pyracantha	6-8'	6-8'	Sun, part shade	Dark green	Green-late
Viburnum rhytidophullurm	Leatherleaf Viburnum	8-12'	8-12'	Shade, part shade protection	Dark green	Green

Small (between 4 and 6 feet in height).

Berberis juliana	Wintergreen Barberry	4-6'	3-5'	Sun, part shade	Dark green	Green-late
Euonymus fortunei 'vegetus'	Sarcoxie Euonymus	4-5'	4'	Sun, shade	Green	Green-brown
Euonymus fortunei 'vegetus'	"Emerald 'n Gold" Euonymus	4-5'	4'	Sun, part shade	Green with yellow	Green with yellow
Euonymus kiautschovicus (patens)	'Jewel' Euonymus	5-6'	4-6'	Sun, shade	Green	Green-brown
Euonymus kiautschovicus (patens)	'Dupont' Euonymus	5-6'	4-6'	Sun, shade	Green	Green-brown
Euonymus kiautschovicus (patens)	'Medium Leaf' Euonymus	5-6'	4-6'	Sun, shade	Green	Green-brown
Ilex crenata 'compacta'	Dwarf Japanese Holly	4-5'	4-5'	Shade, part shade	Green	Green
Ilex crenata 'Helleri'	Heller's Japanese Holly	4'	5'	Shade, part shade	Green	Green
Ilex crenata 'Hetzi'	Hetz Japanese Holly	4'	5'	Shade, part shade	Green	Green
Ilex vomitoria 'nana'	Dwarf Yaupon Holly	4'	5'	Shade, part shade	Green	Green
Nandina domestics	Nandina	4-5'	4'	Sun, part shade	Red-green	Scarlet
Pyracantha coccinea	'Low Boy' Pyracantha	4-5'	4-5'	Sun, part shade	Green	Green-late

BROADLEAF EVERGREEN SHRUBS:

Flowers		Fruit		Problems to	**	
Color	Season	Color	Season	expect*	Adaptability	Comments
Tall (10 feet or more in height).						
——	——	Red	Fall-winter	T	SC, P	Sexes are separate. Requires one male tree for up to 10 female (berried) trees. Actually a very small tree or tall shrub. Use on North or East exposures.
——	——	Red	Fall-winter	T	SC, P	Foxes are separate. Most heavily fruited Holly and very drought resistant. Requires a protected site.
White-fragrant	April-May	——	——		SC, P	Rarily grows to normal tree height in Kansas. Blooms may be frosted in most years unless well protected. Use on North or East side of the house.
Medium (between 7 and 10 feet in height)						
Greenish-white	June -July	Pink	Oct. -Nov.	H, U	Hardy	Leaves are not fully evergreen, as they turn brown in late winter. Also called "K-54" Euonymus. May tend to climb if in shade.
Greenish-white	June-July	Pink	Oct.-Nov.	H, U	Hardy	Fruits profusely; makes an excellent screen.
Yellow	April-May	Blue	June-August	Q, T, U	Hardy	Bronze winter foliage color. Use as an accent plant. Good berry effect. Tall form of Mahonia may be difficult to obtain.
White	May-June	Orange-red	Fall	D, Q	X, P	Also called 'Firethorn'. A compact, hardy shrub with thorns. Provides good screen.
White	May-June	Red	Fall	D, Q	X, P	A more upright form of Pyracantha. An excellent shrub, but has strong thorns.
White	May-June	Orange	Fall	D, Q	X, P	A compact shrub with brilliant fall fruit.
Yellow-white	May	Red to black	July	T	NC, P	Best when given some protection from southwest winds. Can be used for accent or border.
Small (between 4 and 6 feet in height).						
Yellow	May	Black	Fall	N	NC, P	Semi-evergreen in Kansas. Stiff thorns make it a good screen or traffic control shrub.
——	——	Pink	Fall	B	X, P	Will attain an upright habit, but may climb walls if placed close to buildings or if planted in a shady location.
——	——	Pink	Fall	B	X, P	Compact shrub; leaves are green with gold margin. Use for accent,
——	——	Pink	Fall	H	Hardy	Compact plant with bright green foliage.
——	——	Pink	Fall	H	Hardy	A Kansas selection that has a dense, compact habit of growth.
——	——	Pink	Fall	H	Hardy	Fruits profusely in the fall. Semi-evergreen.
——	——	Black	Fall	T	SC, P	Evergreen foliage. Sexes are separate. Fruit is not showy. Protect from wind.
——	——	Black	Fall	T	SC, P	Small dark green leaves that are evergreen. Fruit produced only on female plants.
——	——	Black	Fall	T	SC, P	Sexes separate. Dark berries in the fall.
——	——	——	——	T	SC, P	Sexes separate, but no fruit produced on this variety. Very drought resistant.
——	——	Red	Fall-winter	0	SC, P	Requires protection from southwest winds. Scarlet autumn leaf color. Accent only.
White	May-June	Orange	Fall-winter	D, Q	X, P	A compact, low-growing Pyracantha that can easily be retained below 4 feet in height.

BROADLEAF EVERGREEN SHRUBS: Dwarf (less than 4 feet in height).

Botanical Name	Common Name	Height	Spread	Site	Foliage Color	
					Summer	Winter
Berberis x gladwynensis	'William Penn'	30"	3'	Shade, part shade	Green	Bronze
Buxus microphylla 'Koreana'	Wintergreen Boxwood	4'	5'	Shade, part shade	Dark green	Green
Buxus sempervirens 'suffruticosa'	Edging Boxwood	2-3'	2-3'	Shade, part shade!	Dark green	Green
Euonymus fortunei 'vegetus'	'Emerald Cushion' Euonymus	3-4'	3-4'	Sun, shade	Green	Green-brown
Euonymus fortunei 'vegetus'	'Emerald Gaiety' Euonymus	3-4'	2-3'	Sun, part shade	Green-white	Green-brown
Euonymus kiautschovicus (patens)	'Small Leaf' Euonymus	2-3'	2-3'	Sun, shade	Green	Green-brown
Euonymus kiautschovicus (patens) 'vincafolia'	Vinca Leaf Euonymus	3-4'	3-4'	Sun, shade	Green	Green-brown
Ilex cornuta 'Burfordi nana'	Dwarf Burford Holly	3-4'	2-3'	Shade, part shade	Green	Green
Ilex cornuta 'rotunda'	Dwarf Chinese Holly	3-4'	2-3'	Sun, shade, protected	Green	Green
Mahonia aquifolium 'compacta'	Compact Oregon Grape Mahonia	3-4'	3-4'	Sun, shade	Blue- green	Bronze
Rhododendron catawbiense	Rhododendron	4'	4'	Shade, part shade protected	Green	Green
Rhododendron X kosterianum	Mollis Hybrid Azaleas	3-4'	3-4'	Shade, part shade protected	Green	Green
Rhododendron obtusum	Kurume Azaleas	3'	2-3'	Shade, part shade protected	Green	Bronze-red

BROADLEAF EVERGREEN SHRUBS: Dwarf (less than 4 feet in height).

Flowers		Fruit		Problems to	**	
Color	Season	Color	Season	expect*	Adaptability	Comments
Purple	Spring	Yellow/Purple	Fall	None	Hardy	Good foliage, evergreen winter color.
——	——	——	——	I, U	NC, P	A variety of Korean Boxwood that retains its green foliage color all winter. The hardiest Boxwood. Protect from winds.
——	——	——	——	U	NC, P	The least subject to leaf miner injury. Very dense, compact, and slow growing.
——	——	Pink	Fall	B	X, P	Semi-evergreen dwarf with dense, mounded form.
——	——	Pink	Fall	B	X, P	Semi-evergreen with erect habit. Foliage color is green with white margins.
——	——	Pink	Fall	H	Hardy	Small leaves; a good Euonymus for hot, dry areas.
——	——	Pink	Fall	H	X, P	A selection from 'Small Leaf' Euonymus with a dense, compact form.
——	——	Red	Fall-winter	T	SC, P	Sexes separate, but does not require male pollinator plant — fruits are seedless. One of the better Hollies for fruit.
——	——	——	——	T	SC, P	Does not produce any fruit, but is an excellent evergreen shrub where adapted.
Yellow	April-May	Blue	June -August	T, Q	Hardy	Bronze winter color. Excellent berry effect. One of the most popular for accent areas.
Lilac to white	June	——	——	G, Q	SC, P	Many varieties in the trade in white, red, to purple flower color. White flowers are best for small gardens. Fertilize each month with aluminum sulfate.
Variable	May-June	——	——	B, E, G, Q	SC, P	Many varieties from red, orange, yellow, to white colors. Use aluminum sulfate monthly. Protect from winds.
Variable	May	——	——	B, E, G, Q	SC, P	Red fall foliage color. Flowers are red, orange, salmon, or white. Both single and double flowers. Use aluminum sulfate.

* KEY TO PROBLEMS: B.) Scale insects, D.) Fire blight, E.) Red spider mites, C.) Subject to iron chlorosis, H.) Flowers attract flies, N.) Aphids, O.) Protect roots in winter with a mulch, Q.) Prune annually to renew growth, I.) Leaf miners, U.) Winter leaf burn.

** ADAPTABILITY SYMBOLS: Hardy—fully hardy in exposed areas of Kansas; SC , hardy in south central and eastern Kansas only; NC—in central and eastern Kansas only; P—protect from southwest winds; X—hardiness is doubtful in hotter, drier locations of Kansas.

Groundcovers and Rock Garden Plants:

Botanical Name	Common Name	Ht.	Width	Situation	Propa-gation*	Rate of Growth	Foliage Color**	
							Summer	Fall-Winter
Aluga metallica 'crispa'	Curly Bugle	4 -12"	spreading	Full sun or shade	A, C	Fast	Nearly evergreen Bronze green	Bronze Purple
Ajuga reptans 'Atropurpurea'	Carpet Bugle	4-12"	spreading	Sun or shade	A, C	Fast	Dark bronze	Dark bronze
A. reptans 'variagata'	Variagated Bugle	4-12"	spreading	Sun or shade	A, C	Fast	Variagated yellow	Variagated
A. reptans 'rubra'	Red Bugle	4-12"	spreading	Sun or shade	A, C	Fast	Dark purple	Purple
Alyssum saxatile	Goldentuft Alyssum,	1'	1'	Sun	A, C	Moderate	Gray-green, fine	Gray-dies
Arabia alpina	Alpine Rockcress	8-12"	1'	Sun, shade	A, C	Moderate	Gray-green, fine	Gray-dies
Aronia melanocarpa	Black Chokeberry	1 1/2-3'	3'	Sun, shade	A, B, C	Fast	Green	Crimson-dies
Artemesia albula	Silver King	1-1 1/2'	1 1/2'	Sun, any soil	A, B, C	Medium	Silver-blue	Silver-dies
Artemesia schmiltiana	Silver Mound	8"	12"	Sun, any soil	A, B, C	Medium	Silver-blue	Silver-dies
Chaenomeles japonica 'alpina'	Alpine Flowering Quince	1'	3-4'	Sun, any soil	D	Slow	Green	Yellow-dies
Convallaria majalis	Lily-of-the-valley	8"	12-15"	Sun, shade	C	Fast	Green, coarse	Yellow-dies
Coronilla varia	Crown vetch	1-2'	to 6'	Sun, shade, dry soil	A, C	Fast	Green	Brown
Cotoneaster adpressa	Creeping Cotoneaster	1-1 1/2'	9-12'	Sun, dry soil	B	Slow	Green	Red-dies
Cotoneaster apiculata	Cranberry Cotoneaster	1-1 1/2'	5-8'	Sun, dry soil	B, D	Slow	Red-green	Red-orange dies
Cotoneaster horizontalis	Rock or Ground Cotoneaster	1 1/2-2'	5-8'	Sun, dry soil	Container grown	Slow	Red-green	Red-orange dies
Dicentra spectabilis	Bleeding Heart	2'	1 1/2-2'	Sun, moist soil	A, C	Medium	Green	Brown
Forsythia X 'Arnold Dwarf'	Arnold Dwarf Forsythia	3'	6'	Sun or shade	B, C, D	Fast	Green	Yellow dies
Fragaria vesca 'americana'	Wild Strawberry	6-9"	spreading	Sun, shade, moist soil	C	Fast	Green	Brown
Gypsophila paniculata	Baby's Breath	2'	1 1/2-2'	Sun, 1/2 shade	A, B, C	Medium	Green	Brown-dies
'Brystol Fairy'		2'	1 1/2-2'	Sun, 1/2 shade	B, C	Medium	Green	Brown-dies
'Pink Fairy'		15-18"	1-1 1/2'	Sun, 1/2 shade	B, C	Medium	Green	Brown-dies
'Perfect'		2'	1 1/2-2'	Sun, 1/2 shade	B, C	Medium	Green	Brown-dies
Hemerocallis fulva 'Kwanso'	Tawny Daylilly	2'	spreading	Sun,shade	C	Medium	Green-fine	Brown-dies
Heuchera sanguinea	Coral Bells	2'	1 1/2'	Sun, shade, moist soil	C, E	Medium	Green-fine	Reddish all winter
Hosts caerulea	Blue Plantainlily	12-15"	18-24"	Shade, part shade, moist	C	Medium	Green-coarse	Brown-dies
Host decorata	Plantainlily	1-2'	2 4-3 0	Shade, part shade, moist	C	Medium	Green-coarse	Brown-dies
Hypericum repens	Creeping St. Johns Wart	6"	spreading	Sun, dry soil	C, D	Fast	Green-fine	Brown-dies
Iberis sempervireas	Evergreen Candytuft	12"	12-15"	Sun, 1/2 shade	B, C	Medium	Green	Evergreen
'Christmas Snow'		12"	12 -15"	Sun, 1/2 shade	B, C	Medium	Green	Evergreen
'Snowflake'		12"	12 -15"	Sun, 1/2 shade	B, C	Medium	Green-thicker	Evergreen
'Little Gem'		6"	6-8"	Sun, 1/2 shade	B, C	Medium	Green	Evergreen
Iris cristata	Crested Iris	6"	spreading	Sun, 1/2 shade well drained	C	Moderate	Green	Brown-dies
Juniperus chinensis	Sargent Juniper							
'Sargenti glauca'	Blue Sargent J.	18"	6-7'	Sun, dry	F	Medium	Blue-gray	Blue-gray
'Sargenti veridis'	Green Sargent J.	10"	6-7'	Sun, dry	F	Medium	Green	Green
Juniperus horizontalis								
'Admirabilis'	Prostrate Juniper	6-8"	4-6'	Sun, dry	F	Fast	Silver-green	Silver-green
'Bar Harbor'	Bar Harbor Juniper	10"	6-8'	Sun, dry	F	Fast	Gray	Slate
'Douglasi'	Waukegan Juniper	10"	8-10'	Sun, dry	F	Medium	Blue	Bluish purple

Groundcovers and Rock Garden Plants:

Flowers		Fruit**	Adaptability	Comments
Color	Season			
Blue	April-May	——	H, HB	An excellent groundcover plant for edging, borders or on banks. Grows where drainage is poor. Plant two or three per square foot for dense cover.
Blue, red, white, or purple	April-May April-May April-May	——	H, HB	Same as Curly Bugle, but flowers also may be found in white, purple, or red.
Yellow	April-May	——	H, HB	Good plant for rock garden or edging around borders.
White	April-May	——	H, HB	For rock garden or border.
White	April	Black	H, 13F	Use on banks or for natural settings. Fruit attracts birds.
Silver	June	——	W, HB	Feathery frosted-blue leaves add interest. May be dried for use in winter bouquets.
Silver	June	——	W, HB	When grouped they make an excellent edging or use to cover small areas.
Orange	March-April	Yellow	X, W, BF	Thorny stems, dense mounded habit of growth. Space 18-24" apart for bank plantings.
White, fragrant	May	Red-orange	X, HB	Good groundcover, but leaves sail bare in winter. Used for effect from flowers.
Pink-white	June-Sept.	——	H, HB, NW	Does well on dry banks. One plant can easily cover a six foot diameter.
——	——	Red	X, BF	Makes a very good groundcover, but do not plant large areas with any cotoneaster (red spider mites, lace bugs, fire blight).
Pink-white	May-June	Red	X, BF	A deciduous plant, but holds banks or covers ground well. (See Creeping Cotoneaster).
Pink-white	May-June	Red	X, BF	All fruits of cotoneaster attract birds. This is the best one for use as groundcover. (See Granberry Cotoneaster).
Red	Sumer	——	W, HB	Good rock garden plant valued for its flowers all summer.
Yellow, poor	April	——	H, I	Excellent for banks or barriers. Flowers are not showy and seldom appear before plant is 6-7 years old.
White	June	Red	X, HB, BF	Fruit is useful as birdfood only; but plant makes an excellent groundcover. May require winter protection.
Sgl. white Dbl. white Dbl. pink Dbl. white	All summer All summer All summer All summer	—— —— —— ——	W, HB	Use for garden background or singly in rock gardens.
Dbl. orange	July-Aug.	——	H, HB, Y	Once established it requires no spraying for insects or disease. Used as a tall groundcover or in a rock garden.
Red	June-Sept.	——	H, HB	A semi-evergreen plant; flowers also in white and pink. Very long bloom period. Use in small areas.
Blue	July-Aug.	——	H. HB	Very hardy and excellent for groundcover or rock garden.
Lilac	July-Aug.	——	H, HB	Frost kills foliage to ground; growth begins late in spring. Do not use over large areas. Large leaves break-up the monotony of small-leaved plants in the landscape.
Yellow	July	——	H, HB, NW	A prostrate perennial for banks or general groundcover.
White White White White	April-May April-Sept. April-May April-May	——	H, SE	Attractive plant the year around. 'Christmas Snow' flowers both in spring and fall. Edging or rock garden use. The foliage is evergreen.
Lilac	May-June	——	X, HB	Plants spread by rhizomes, which creep along the ground and should not be covered with soil, or they will rot.
—— ——	—— ——	Gray-white Gray-white	H, NW, I, BF	Prostrate, formal mound. May be obtained in either green or blue foliage colors.
—— —— ——	—— —— ——	Blue Blue Blue	H, NW, I, BF	Flat, horizontal habit. Low, prostrate ground cover. Flat, low trailing form.

Groundcovers and Rock Garden Plants:

Botanical Name	Common Name	Ht.	Width	Situation	Propa-gation*	Rate of Growth	Foliage Color**	
							Summer	Fall-Winter
Juniperus horizontalis								
'Hughes'	Hughes Juniper	8-10'	6-8'	Sun, dry	F		Blue	Blue
'Plumosa'	Andorra Juniper	18"	6-8'	Sun, dry	F	Medium	Lt. green	Plum
'Plumosa nana'	Compact Andorra J.	8-12"	4-5'	Sun, dry	F	Fast	Lt. green	Plum
'Webber'	Webber's Juniper	8-10"	6-8'	Sun, dry	F	Fast	Gray blue	Gray blue
'Wiltoni'	Blue Rug Juniper	6"	6-8'	Sun, dry	F	Fast	Blue	Blue
Juniperus procumbens	Japgarden Juniper	1-2'	5-6'	Sun, dry	F	Fast	Blue-green	Blue-green
J. procumbens 'nana'	Dwarf Japgarden J.	1'	4-5'	Sun, dry	F	Fast	Blue-green	Blue-green
Juniperus sabina 'tamariscifolia'	Tamarix Savin Juniper	2'	5-6'	Sun, dry	F	Medium	Green	Green to bronze
Liriope spicata	Creeping Lily Turf	8-12"	3-4'	Sun, shade	C	Medium	Green	Pale green
Lycium halimifolium	Matrimony Vine	9'	15-20' trailing	Sun, dry	A, C, D	Fast.	Green	Brown-dies
Lysimachia nummularia	Creeping Charley	1-2"	spreading	Sun, 1/2 shade	A, C	Fast	Green, fine	Brown-dies
Mahonia repens	Creeping Mahonia (Oregon grape)	10"	2'	Sun, shade	B, C	Med-slow	Green, coarse	Bronze
Myosotis scorpioides	True Forget-me-not (palustris)	8"	1'	Shade, part shade, moist	A, C	Fast	Green, fine	Brown-dies
Pachistima canbyi	Ratstripper Pachistima	6-12"	2-3'	Shade, 1/2 shade	C, D, G	Slow	Deep green	Bronze
Pachysandra terminalis	Mountain Spurge	6-12"	2-4'	Shade, 1/2 shade	C, G	Slow	Green, coarse	Yellow-green
Pinus mugho mughus	Mugho Pine	Vari-able	Variable	Sun, 1/2 shade, moist soil	A, B	Slow	Green, coarse	Green
Phlox divaricata	Sweet William	10"	1'	Sun, moist	A, B, C	Fast	Green	Brown-dies
Phlox stolonifera	Creeping Phlox	6-12"	1'	Sun, moist	A, B, C	Fast	Green	Brown-dies
Phlox subulata	Moss Pink	6"	1'	Sun, moist	C	Fast	Green, very fine	Brown-dies
Plumbago larpentae	Leadwort	6"	12-18"	Sun	A, C	Medium	Green	Brown-none
Rhus aromatics	Fragrant Sumac	3'	3'	Sun	A, B	Medium	Green	Scarlet-none
Robinia hispida	Rose Acacia	3-4'	3-4'	Sun, part shade	A, B, C	Rapid	Red-green	Green-none
Rosa wichuriana 'Dorothy Perkins'	Memorial Rose	1'	15-20'	Sun; open, moist soil	A, C, G	Slow	Green	Green-late
Sedum acre	Goldmoss Stonecrop	2-3"	spreading	Dry, sun	B, C	Slow	Green edged with red-fine	1/2 evergreen
Sedum album	White Stonecrop	8"	spreading	Dry, sun	B, C	Slow	Green	1/2 evergreen
Sedum lydium 'Glaucum'	Lydium Stonecrop	3 -6	spreading	Dry, sun	B, C	Slow	Green	1/2 evergreen
Sedum sarmentosum	Stringy Stonecrop	6"	spreading	Dry, sun	B, C	slow	Green	1/2 evergreen
Sedum sieboldi	Siebold Stonecrop	12"	12-24"	Dry, sun	B, C	slow	Green edged with red	1/2 evergreen
Sedum spectabilis	Brilliant Stonecrop	12"	spreading	Dry, sun or shade	B, C	slow	Green	1/2 evergreen
Sedum spectabilis 'telephium'	Indian Chief Stonecrop	10-15"	spreading	Dry, sun or shade	B, C	Slow	Green	1/2 evergreen

Groundcovers and Rock Garden Plants:

Flower			***	
Color	Season	Fruit**	Adaptability	Comments
——	——	Blue		Thick, full, low growing evergreen with a rich blue color.
——	——	Blue		Upright, spreading habit of growth and plum winter color.
——	——	Blue		New, more compact form of the Andorra Juniper.
——	——	Blue		A low, thick, mat-like plant with grayish-blue cast to foliage.
——	——	Blue		A low trailing Juniper with intense silver-blue foliage color.
——	——	None	H, NW, I	Flat, spiney, and very low spreading habit. More dwarf form of Japgarden Juniper.
——	——	None		
——	——	Purple	H, NW, I, BF	Most shrublike of prostrate Junipers; vaseshape, spreading habit. Withstands lime soils and dry conditions.
Lilac, white	July-Aug.	——	SE	Nearly evergreen, grasslike foliage makes excellent groundcover.
Purple	Summer	Red	NW, BF	A large shrub with arching branches. Use on banks in very poor soil, on rough ground, and in large areas.
Yellow	June	None	X, I	Makes a fine textured carpet groundcover. Hardiness is doubtful in dry areas.
Yellow	March-April	Black	H, NW	Evergreen, holly-like leaves, same as with the taller Oregon Grape Mahonia. Not common in trade, but excellent plant.
Blue, pink	May-July	None	X, SE, W	Variety “Semperflorens” is the best variety for carpeting or for edging,
——	——	——	HB, X, W	A low, neat, evergreen groundcover for slopes, borders, or terraces.
——	——	——	H, HB	A useful groundcover under trees and rock gardens. For groundcover, plant 1 foot apart. Combine with yellows, yellow-greens, and greens, but not with blue-greens or red-greens. Variagated form also available.
——	——	Brown cone	H, NW	May be a shrub or tree from 2-30' high, with one or many trunks. When purchasing, select a specimen with small needles in a compact form. Easily maintained by selective pruning. Best use in rock garden with several trunks and maintained at 2-4' with several trunks.
Lavender, fragrant	May	——	H, HB	Not for groundcover, but good in rock garden areas.
Purple	May-June	——	H, HB	Makes a fair groundcover.
Variable	May-June	——	H, HB	Semi-evergreen, and hardy. For groundcover, use varieties with white or pink flowers so not too dramatic. Use dark colors for accent. Varieties include: “Alba”—white; “Emerald Cushion” —dwarf, pink; “Atropur purea”—purple; “Polka Dot”—white and red; “Sandra”—red; “Royal Purple “—purple; “Symons Jeune”—rose red; “Star Fire”—red; “White Admiral”—best white.
Blue	July-frost	——	H, HB	Rock garden plant and easy to grow. Use in dry, hot, problem areas.
Yellow	April	Red	X, BF	Use to cover banks, on poor dry soils, or large out-of-the-way areas only.
Rose	May	——	H, I	Valued chiefly for the bloom. Tall for groundcover, but good on dry banks. Requires large space. Variety “Macrophylla” is nearly devoid of prickles.
White	June-July	Red	X, W	Truly procumbent (tailing); valuable as a groundcover in larger areas. See trade lists for additional varieties.
Yellow	May-June	Tan	H, HB, NW	Used on rock terraces, carpeting groundcover, around stepping stones. Grows in very little soil.
White	July-Aug.	——	H, HB, NW	Creeping, mat forming groundcover or rock garden plant.
White	Aug.-Sept.	——	H, HB, NW	Small, compact, turf-like groundcover.
Yellow	July	——	H, HB, NW	Rock gardens or good for small areas as a groundcover.
Pink	July-Aug.	——	HI HB, NW	Low growing, clump form of stonecrop.
Rose-pink	Aug.-Sept.	——	H, HB, NW	Erect in habit and long-lived.
Pink	Aug.-Sept.	——	H, HB, NW	Flower color turns to copper-red with cool days. Plant has a very compact growth habit.

Groundcovers and Rock Garden Plants:

Botanical Name	Common Name	Ht.	Width	Situation	Propa-gation*	Rate of Growth	Foliage Color**	
							Summer	Fall-Winter
Sedum spurim	Dragon's Blood Stonecrop	6"	spreading	Dry, sun or shade	B, C	Slow	Green	1/2 evergreen
Sempervivum tectorum	Hen and Chickens (Honesleck)	3-6"	6"	Sun, 1/2 shade	A, C	Med-slow	Green with pale red tips	1/2 evergreen
Thymus serpyllum	Mother-of-thyme	1"	10 -12"	Shade, part shade	C	Fast	Green-aromatic	1/2 evergreen
Thymus vulgaris	Common Thyme	6-8"	8-10"	Shade, part shade	A, C	Fast	Green-aromatic	1/2 evergreen
Veronica repens	Creeping Speedwell	4"	12-15"	Sun, moist or dry soil	A, C	Medium	Green	Brown-none
Viburnum opulus 'nanum'	Dwarf Cranberry Bush Viburnum	1-2'	2-3'	Sun, moist soil	B	Medium	Green, coarse	Red-none
Vinca minor	Periwinkle (Myrtle)	3-6"	spreading	Sun or shade	B, C	Moderate	Dark green	Evergreen
V. minor 'Bowles'	Bowles Periwinkle	6-8"	8 -12"	Sun or shade	B, C	Moderate	Dark green	Evergreen
V. minor 'Alba'	White Periwinkle	3-6"	spreading	Sun or shade	B, C	Moderate	Dark green	Evergreen

Groundcovers and Rock Garden Plants:

Flowers			***	
Color	Season	Fruit**	Adaptability	Comments
Crimson	June-July	——	H, HB, NW	Trailing evergreen habit, suited to shade or sandy soils in full sun.
——	——	——	H, HB, NW	Broad rosette leaves; easily grown succulent plant for walls, rock gardens, and requires little moisture.
Purple, fragrant	June-Sept.	——	H, HB	Lowest groundcover; an evergreen perennial for planting between rocks or stepping stones.
Lilac	June-July	——	H, HB	Shrubby evergreen herb used for edging and carpetIng In gardens. The leaves and shoots are used for seasoning.
Rose-bluish	May	——	X, SE	Prostrate (trailing), moss-like plant that is good for covering bare spots of soil.
White	May	Red	H, NW	Flowers and fruit are seldom borne. Plant one foot apart for groundcover or use as background in rock gardens.
Blue	April-May	——	H, NW	Prefers shade but does well in sun. An excellent carpet plant for sun or shade. One of the most popular plants.
Blue	April-May	——	H, NW	Tends to clump more than the species, making a higher cover that will not spread as much.
White	April-May	——	H, NW	White variety of Periwinkle that is also one of the most popular groundcover plants in the trade.

* Methods for Propagation: A—Seed, B—Cutting, C—Division, D—Layerage, E—Leaf Cutting, F—Cuttings from August to October, G—Cuttings in late June.

** A line (——) denotes that although fruit or flowers may appear, they are not conspicuous or of landscape consideration.

*** Adaptability Symbols:

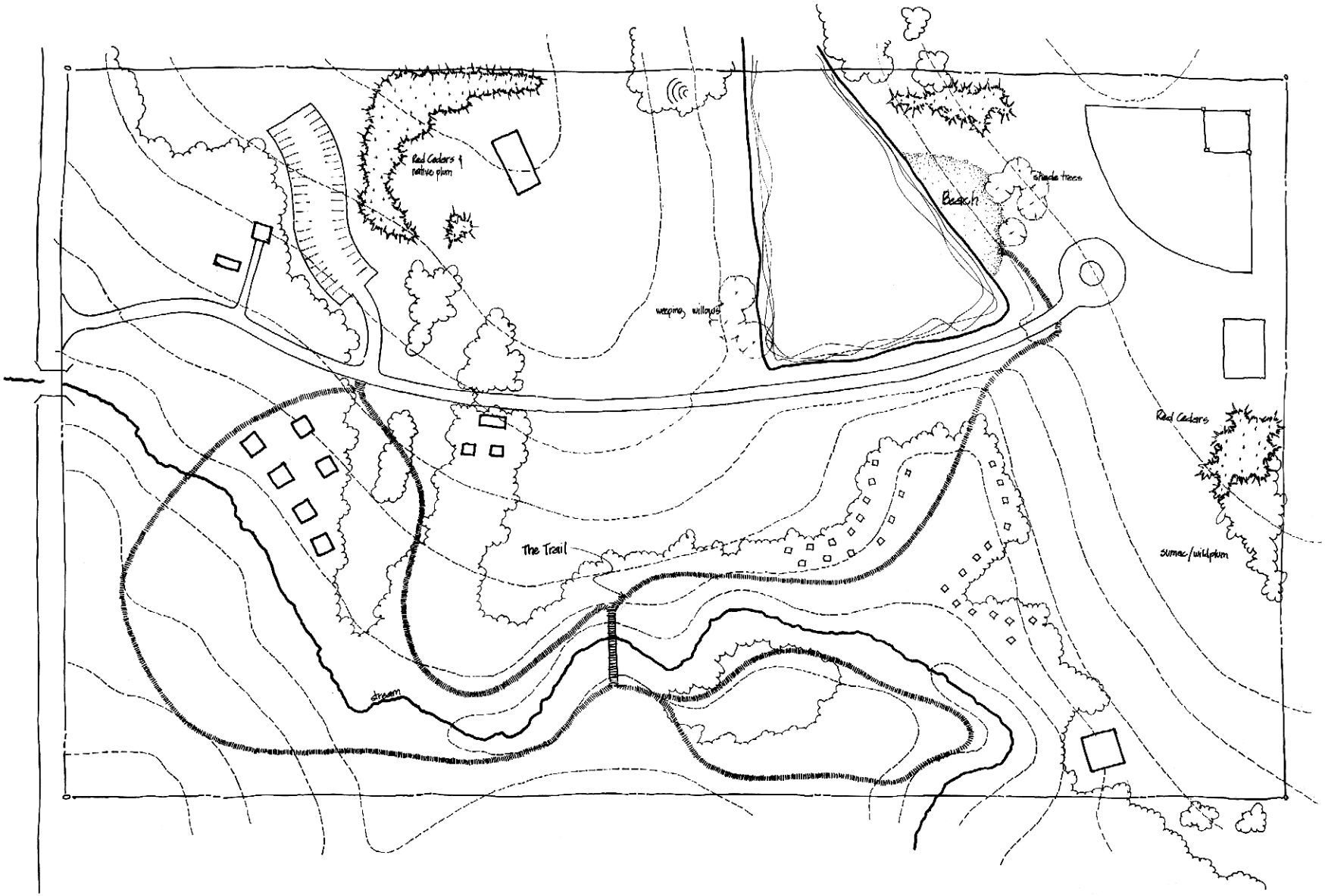
- H Hardy plant that is generally recommended for home grounds use where a plant of this size and type is desired.
- HB Herbaceous perennial plant. Unless evergreen, the foliage dies to the ground each fall.
- NW Cold-hardy, even in high plains area of Kansas.
- SE Does best in south eastern and eastern sections of Kansas.
- X Hardiness is doubtful in hotter, dryer sections of Kansas.
- I Subject to iron chlorosis in high lime soils.
- W Protect with a mulch in winter.
- BF Fruits and seeds are valuable for bird feed.
- Y Flowers close up at night.

Perennial Vines:

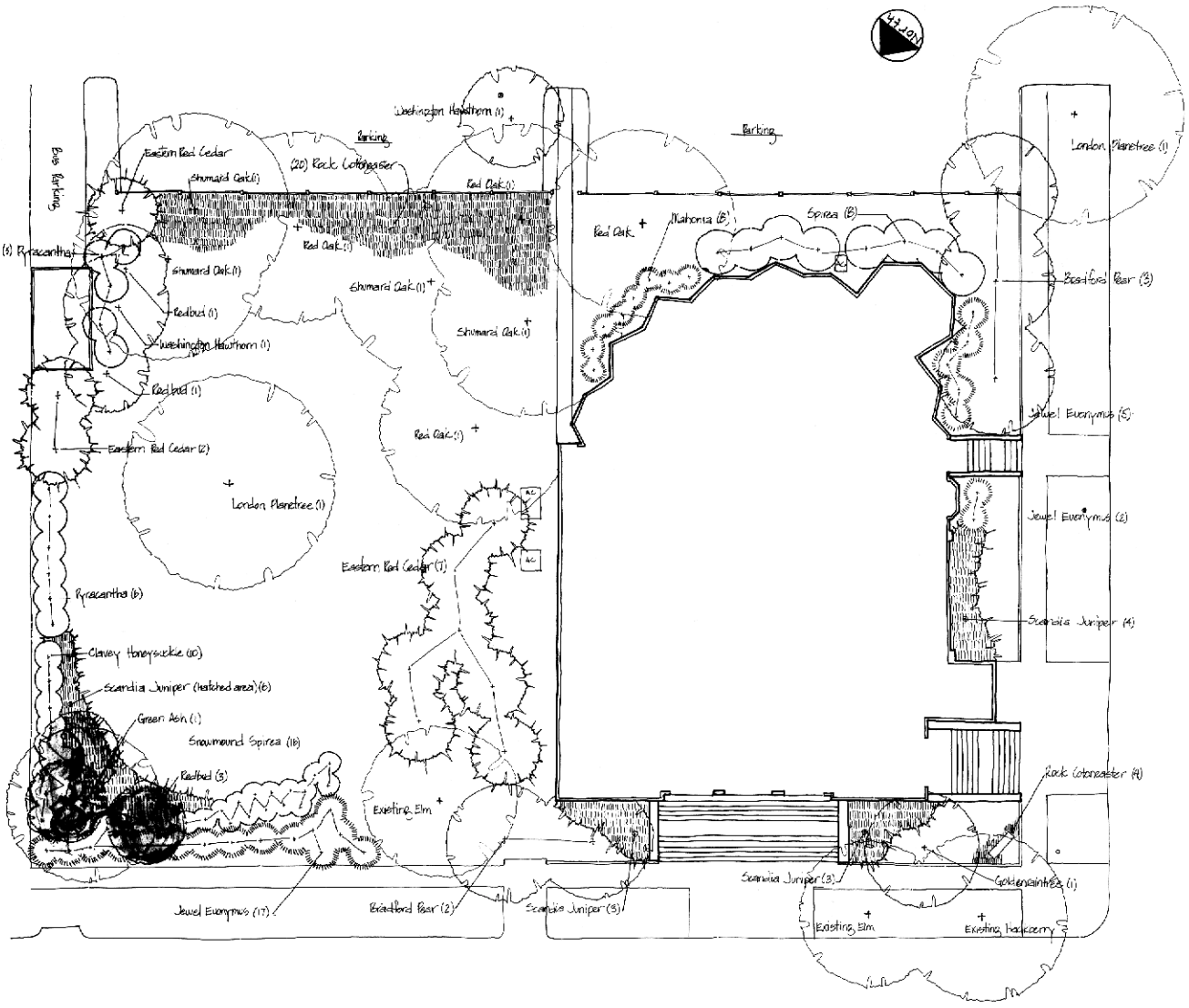
Botanical Name	Common Name	Size	Situation	Growth Rate	Foliage Color	
					Summer	Fall/Winter
Campsis radicans	Trumpet vine	Climbing to 30' +	Sunny, well drained	Moderate	Green	Green/none
Campsis X tagliabuana	'Madame Galen'	Climbing to 30'+	Sunny, well drained	Moderate	Green	Green/none
Celastris orbiculatus	Oriental Bittersweet	Climbing to 30'+	Sun, part shade	Moderate	Green	Yellow-green
Celastris scandens	American Bittersweet	Climbing to 30'+	Sun, part shade	Moderate	Green	Yellow/none
Clematis jackmanii Clematis 'Comtesse de Bouchaurd' Clematis 'Mme. Edouard Andre' Clematis 'Mme. Baron Veillard' Clematis 'Ramona' Clematis 'Crimson Star'	Jackman Clematis	Climbing to 6-18'	Sun, part shade; Soil pH should be 6.0 to 6.5.	Moderate	Green	Green/none
Clematis lawsoniana 'Henryi'	Henry Clematis	5-8'	Sun, dislikes wind	Moderate	Green	Green/none
Clematis termifolia	Sweet Autumn Clematis	Climbing to 30'+	Sun, part shade	Moderate	Green-gray	Green/none
Euonymus fortunei	Wintercreeper Euonymus	Variable spreading or climbing vines	Sun, shade, any well drained soil	Fast	Variable	Variable
E. fortunei 'coloratus'	Purpleleaf Wintercreeper	6" as groundcover	Sun, shade	Fast	Green	Bronze
E. fortunei 'Kewensis'	Kew Wintercreeper	2" as groundcover	Sun, shade, any well drained soil	Slow	Green	Green
E. fortunei 'Longwood'	Longwood Euonymus	6-8" as groundcover	Sun, shade	Fast	White veins	Green & white
E. fortunei 'minims'	Babyleaf Euonymus	2" as groundcover	Sun, shade, any well drained soil	Slow	Green	Green
E. fortunei 'radicans'	Common Wintercreeper	6-12" as groundcover	Sun, shade, any well drained soil	Fast	Green	Green
E. fortunei 'vegetus'	Bigleaf Wintercreeper	4' shrub or climbing vine	Sun, shade, any well drained soil	Medium	Green	Green
Hedera helix	EnglishIvy	20'+ climbing with spread equal to height	North or east exposure, part shade	Moderate	Dark green	Dark green
Lonicera heckrotti	Goldflame Honeysuckle	20-30' climbing vine and spreading rapidly	Sun, shade	Fast	Green	Green-late
Lonicera japonica 'Halliana' 'Purpurea'	 Hall's Honeysuckle Purpleleaf Honeysuckle	 Spreading to 20'+ Spreading to 20'+	 Sun or shade Sun or shade	 Moderate Moderate	 Green Green	 Green-late Purple-late
Lonicera sempervirens	Scarlet Trumpet Honeysuckle	20' and spreading	Sun	slow	Blue-green	Blue-green
Parthenocissus quinquifolia	Virginia Creeper (Woodbine)	30-50'	Sun or shade	Rapid	Green	Crimson-red/ brown
P. quinquifolia 'engelmanni'	Engelmann Ivy	30-50'	Sun or shade	Rapid	Green	Red/brown
Parthenocissus tricuspidata	Boston Ivy	60'+	Sun or shade	Rapid	Red-green	Red/brown
P. tricuspidata 'Veitchi'	Veitch Boston Ivy	60'+	Sun or shade	Rapid	Red-green	Red/brown
Polygonum auberti	Silver-Fleece Vine	25'+	Sun	Very rapid	Red-green	Red-green/ none
Polygonum reynoutria	Pink Silver-Fleece Vine	25'+	Sun	Very rapid	Red-green	Red/none
Wisteria sinensis 'alba'	White Wisteria	20'+	Sun	Moderate	Bright green	Yellow/none
Wisteria sinensis 'purpurea'	Purple Wisteria	20'+	Sim	Moderate	Bright green	Yellow/none

Perennial Vines:

Flowers		Fruit	Adaptability	Comments
Color	Season			
Orange	July-August	Brown Pods	Hardy	Climbing vine with large orange trumpet-shaped blooms.
Dark orange	July-August	Brown Pods	Hardy	Use for walls, trellises, rock terraces, and groundcover.
——	——	Yellow-orange	Hardy	Valued for fruit and foliage. Use on banks, walls, trellage, or for screen on a sturdy support.
——	——	Orange-red	Hardy	Both Bittersweets must have male and female plants used together for bright fruit. This Bittersweet is best for color of fruit.
Variable Pink Purple-red Pink Lavender-blue Red	June-Sept.	——	Hardy -- Subject to wilt and and mildew. Eaten by slugs, mice, and rabbits.	A good color accent to use for trellises, walls, etc. Prune each spring to control size. Hardiest of Clematis, and the one to use in hotter, drier sections of Kansas.
White	June	——	Hardy in east and south	Used the same as Jackman Clematis. Not quite as hardy central Kansas protect from southwest winds.
White-fragrant	Sept.-Oct.	Gray	Hardy in east, central, and protected spots.	Disease and insect resistant Clematis. Not as hardy as Jackman Clematis. Protect in western Kansas.
——	——	Variable	Hardy -- Euonymus Scale is a common problem.	All Euonymus fortunei types are hardy in Kansas. They will climb walls, trees, or any other obstruction; especially when placed in shade. These vines are evergreen, but some also have colored fall & winter foliage. Use as vines or for groundcover.
——	——	——	Hardy	Bronze foliage color is striking.
——	——	——	Hardy	Smallest leaves. Use as small cover between rocks or as groundcover edging.
——	——	——	Hardy	Interesting variagated foliage.
——	——	——	Hardy	Much the same as 'Kewensis,' but larger leaves. Clings tightly to rocks and walls.
——	——	——	Hardy	Rapid growth rate. Used well for groundcover or as a climbing vine. Tendency to climb walls.
——	——	Orange	Hardy	Taller and more shrub-like, or may be climbing vine. Generally will produce orange capsules in the fall.
——	——	Black berries	Hardy, if shaded in the winter (sunburn).	Has two forms: climbing vine when young and shrub-form when mature. 'Baltica' and 'Bulgaria' are varieties that are hardy in Kansas.
Coral-red, or yellow	June to frost	Black	Hardy	Most popular flower colors are the trumpet-shaped varieties with purple outside and yellow inside the corolla. 'Goldflame' is best of this group.
White-yellow White	May-June All summer	Black Black	Very hardy Very Hardy	Bothare excellent twining vines and produce fragrant flowers. When used as groundcover, no other plants should be used around them.
Scarlet-yellow	June-frost	Orange-red	Hardy	Large coral-red trumpet shaped blooms attract hummingbirds. The soft berries are eaten by birds. Best used as a climbing vine.
——	——	Blue	Hardy	Does not cover the ground well, unless planted close together. Best used on rocky areas devoid of other plants. Do not use next to buildings.
——	——	Blue	Hardiest in shade	More dense and of finer texture than the species.
——	——	Blue	Hardy	Does best in some shade. Use as climbing vine, but not next to buildings.
——	——	Blue	Hardy	New selection of Boston Ivy that has a brighter fall color.
White	Summer	——	Hardy	A vigorous twining vine that may grow as much as 30 feet in a season.
Pink-fragrant	September	——	Hardy	Makes a fine groundcover that maintains a height of 4-12 inches.
White	May-June	Brown pods	Tender, protect, for eastern Kansas	Flowers only in sun. Use for climbing vine.
Purple	May-June	Brown pods	Tender, protect, for eastern Kansas	Grapelike clusters of purple flowers. Use in full sun.



Reformed Presbyterian Church Camp
Winchester, Ks.



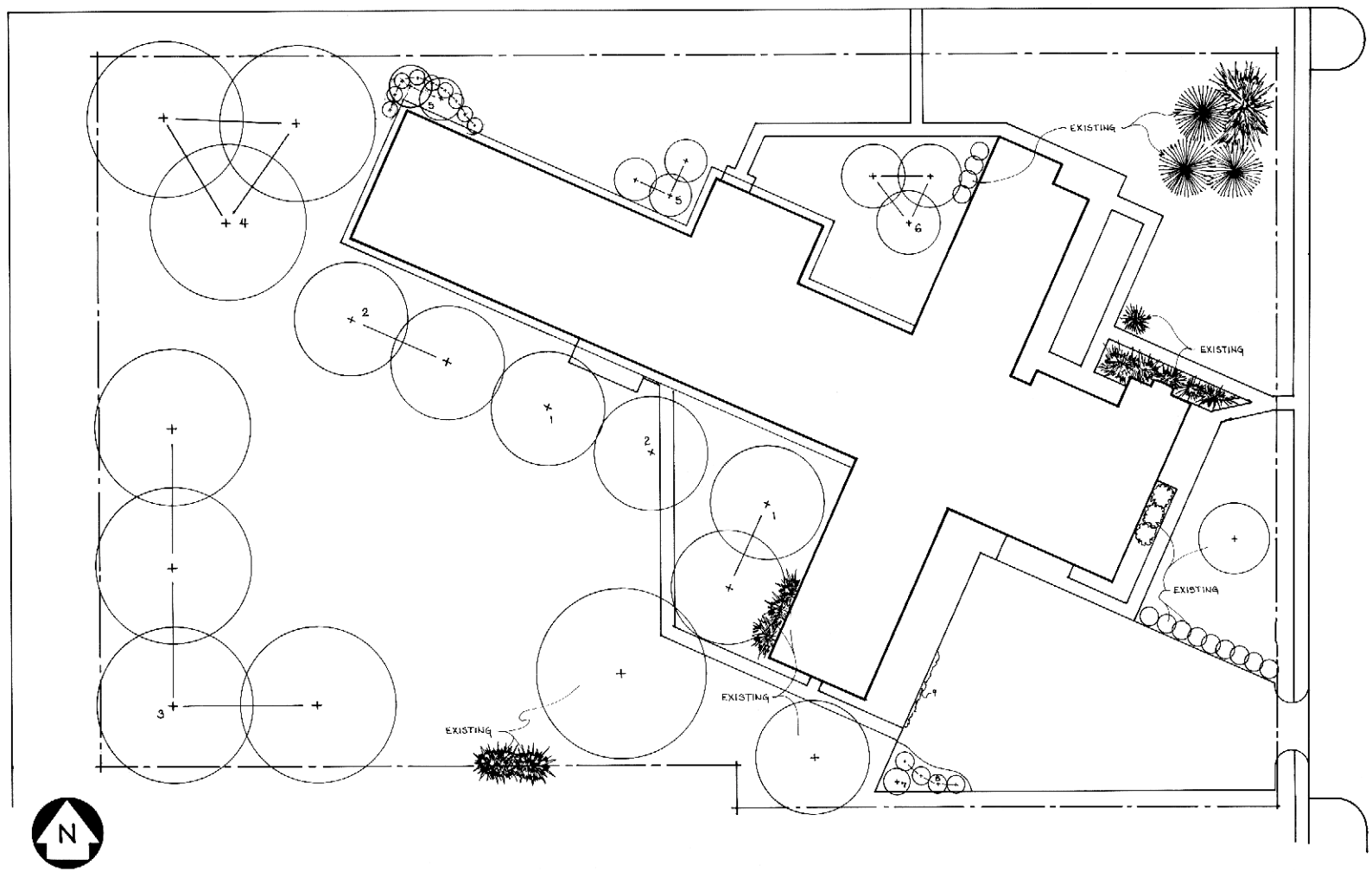
Trees

Bradford Pear	Pyrus calleryana	5
Eastern Red Cedar	Juniperus virginiana	10
Goldenraintree	Koelreuteria paniculata	1
Green Ash	Fraxinus pennsylvanica	1
London planetree	Platanus acerifolia	2
Red Oak	Quercus borealis	4
Redbud	Cercis canadensis	5
Shumard Oak	Quercus shumardii	4
Washington Hawthorn	Crataegus phaenopyrum	2

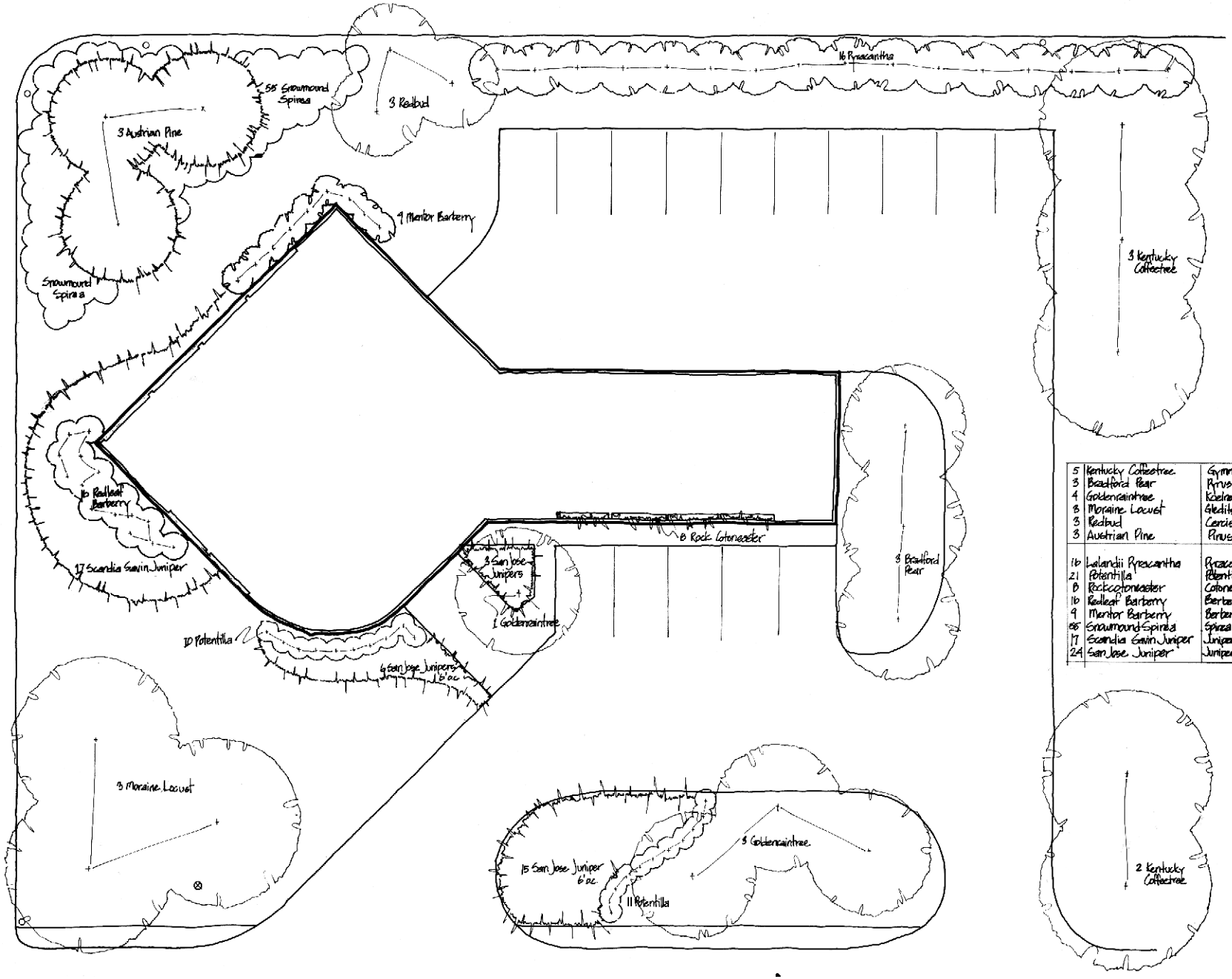
Shrubs & Groundcovers

Clavey Honeysuckle	Lonicera xylosteum 'Clavey's rena'	10
Jewel Euonymus	Euonymus Kiautschovicus (petens)	24
Pyracantha	Pyracantha coccinea 'Kawan'	11
Rock Cotoneaster	Cotoneaster horizontalis	24
Scandia Juniper	Juniperus sabina 'Scandia'	10
Snowmound Spirea	Spirea nipponica 'Snowmound'	16
Spirea	Spirea Vanhoutei	8

ELLSWORTH PRESBYTERIAN CHURCH



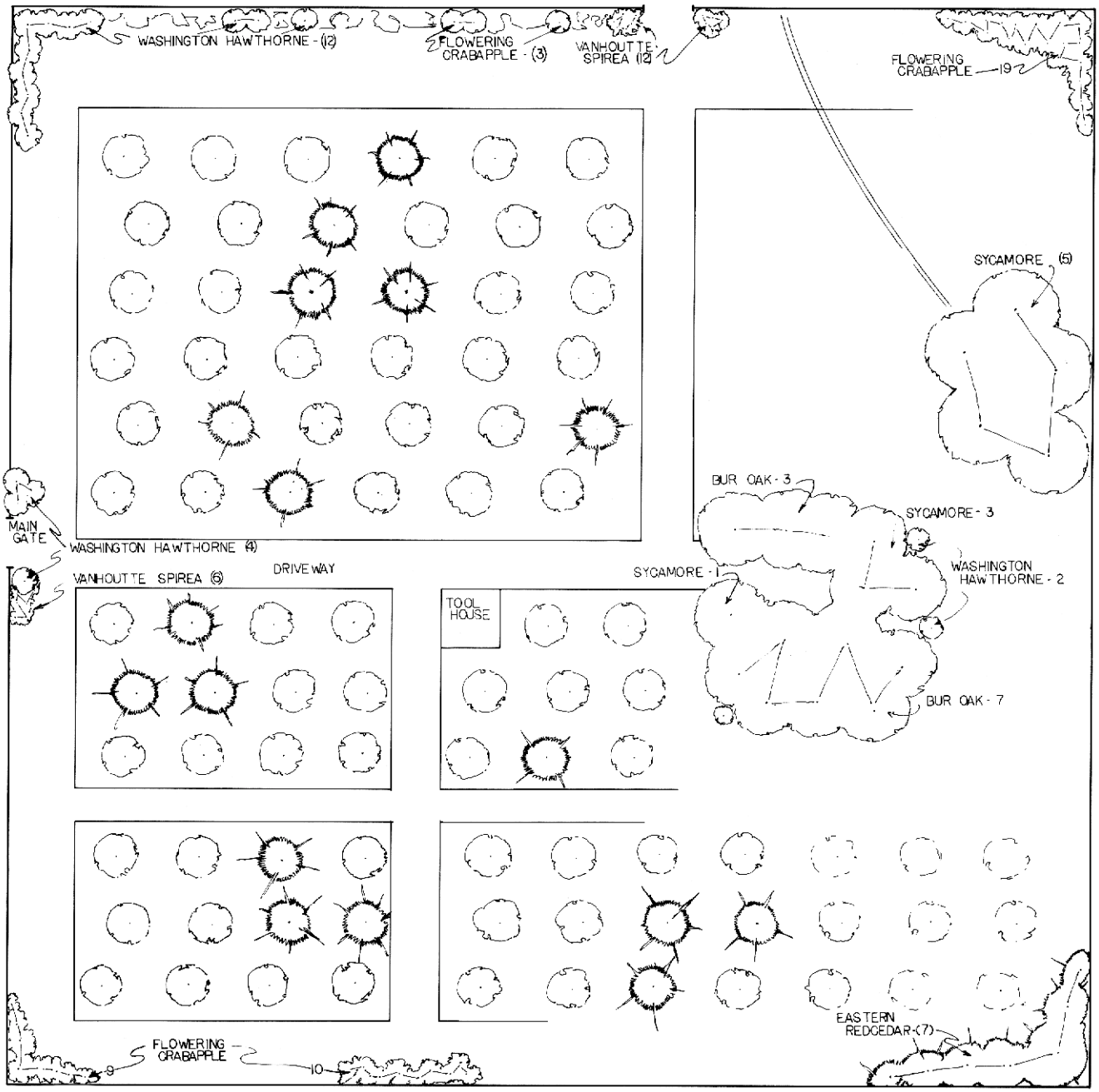
LANDSCAPE PLANTING PLAN

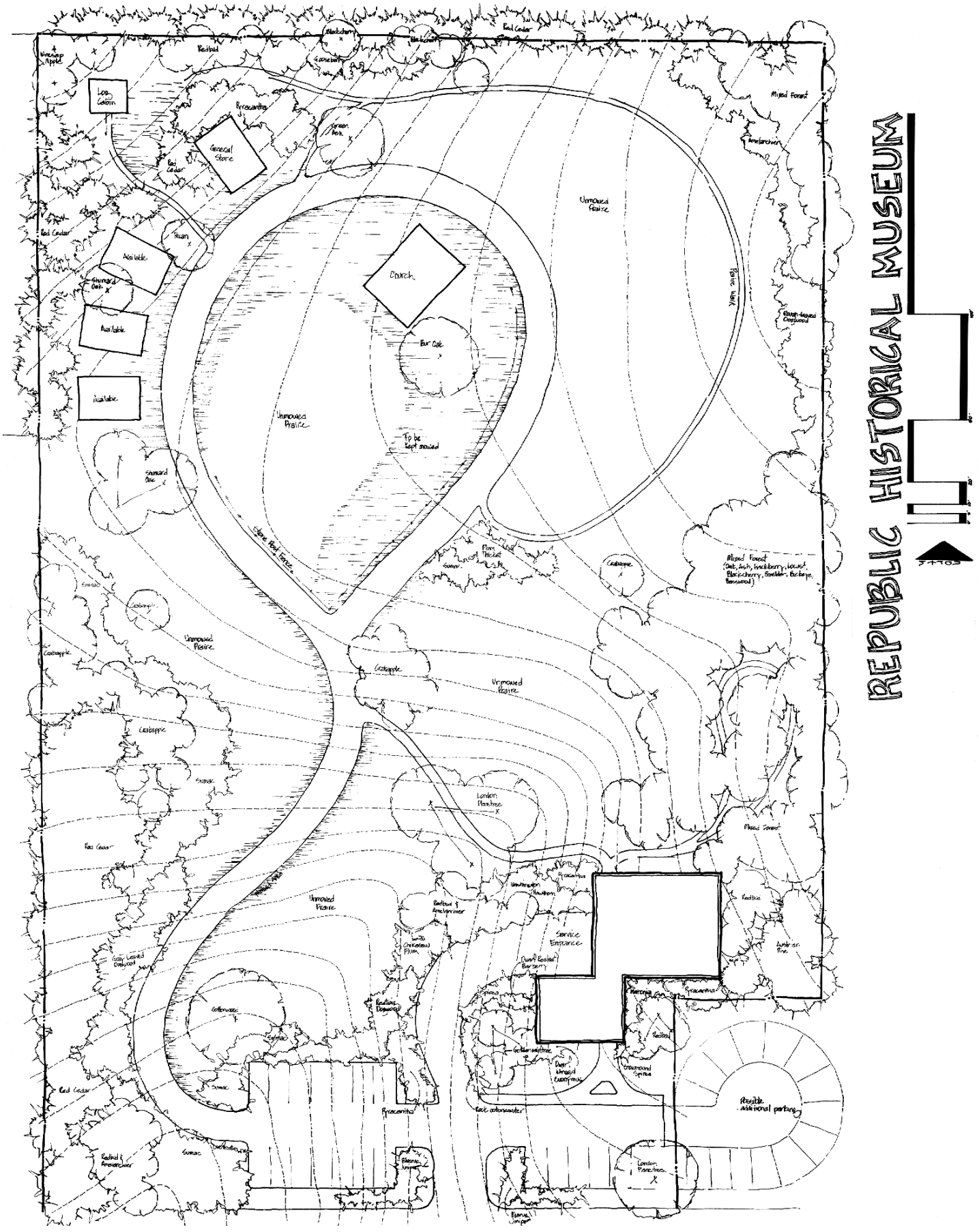


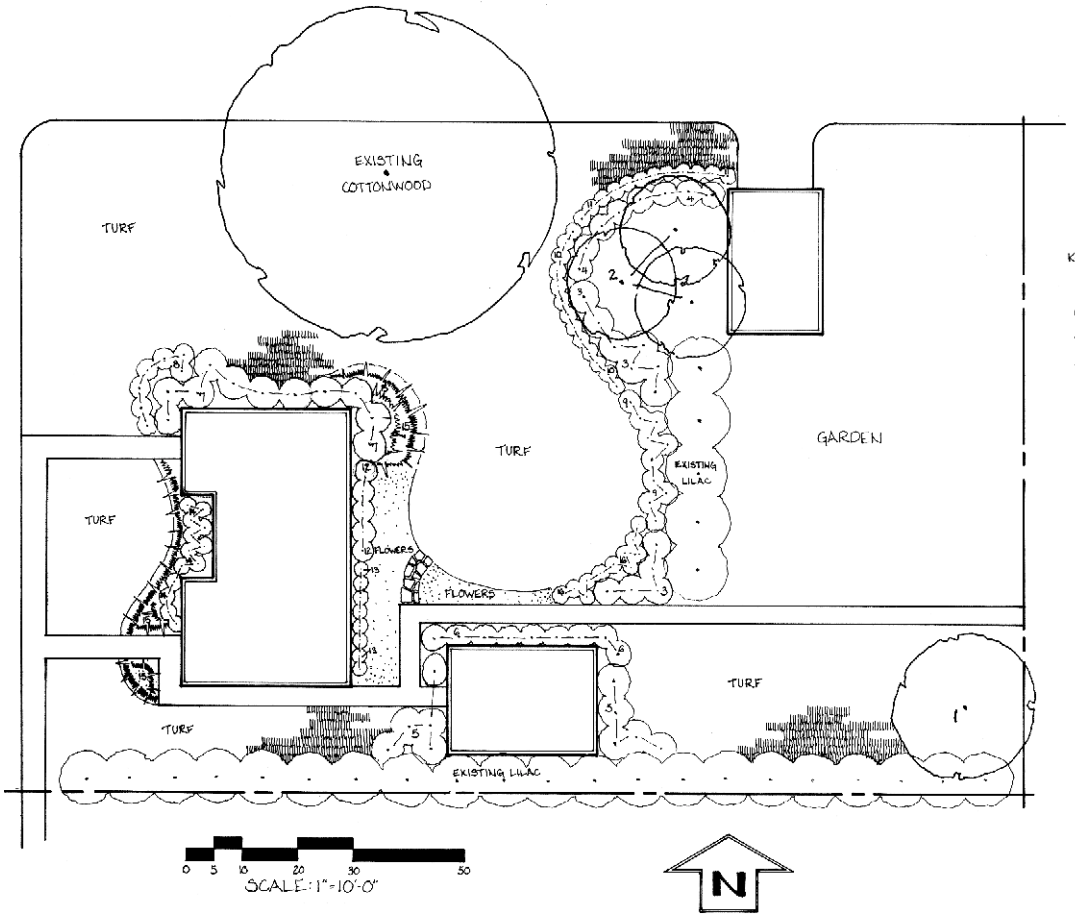
Plant List

5	Kentucky Coffeetree	Gymnocladus dioicus
3	Bradford Pear	Pyrus calleryana 'Bradford'
4	Goldenraintree	Koelreuteria paniculata
8	Moraine Locust	Gleditsia triacanthos 'Moraine'
3	Redbud	Cercis canadensis
3	Austrian Pine	Pinus nigra
16	Lalandii Pyracantha	Pyracantha coccinea
21	Potentilla	Potentilla fruticosa
8	Rockcotoneaster	Cotoneaster horizontalis
10	Redleaf Barberry	Berberis thunbergii 'atropurpurea'
9	Mentor Barberry	Berberis x mentorensis
55	Snowmound Spirea	Spirea nipponica 'Snowmound'
17	Scandia Savin Juniper	Juniperus sabina 'Scandia'
29	San Jose Juniper	Juniperus chinensis 'San Jose'

HILL-TOP CEMETERY
RAYMOND, KANSAS




REPUBLIC HISTORICAL MUSEUM
Log Cabin
General Store
Green Box
Unmowed Prairie
Mixed Forest
Bur Oak
Standard Oak
Available
Available
Available
Couch
To be kept mowed
Stone Rail Fence
Prairie Walk
Rough-leaved Dogwood
Mixed Forest (Oak, Ash, Hackberry, Hound, Blackcherry, Basswood, Buckeye, Basswood)
Crabapple
Sumac
Red Cedar
London Planetree
Redbud
Service Entrance
Flowering Quince
Viburnum
Hawthorn
Redbud & Amelanchier
Chokecherry
Plum
Redbud Dogwood
Amelanchier
Ninebark
Spirea
Cotoneaster
Euonymus
Ground cover Spirea
Possible additional parking
Rock arborvitae
Boxwood
Blanket Flower
Ironwood
Buckeye
Basswood
Ash
Hackberry
Blackcherry
Hound
Oak
Buckeye
Basswood

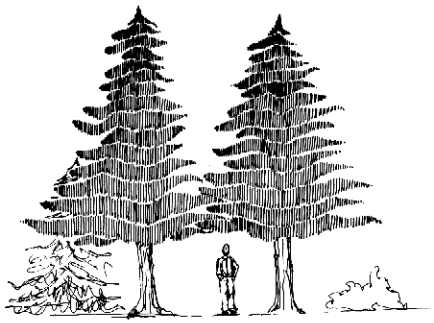


PLANT MATERIALS LIST

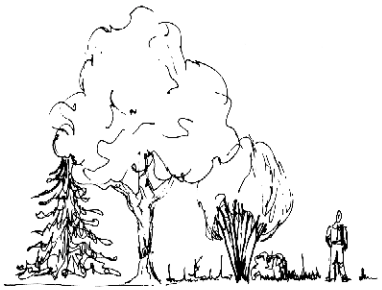
KEY	COMMON NAME	BOTANICAL NAME	QUANTITY
1.	GOLDEN RAINTREE	KOELREUTERIA PANICULATA	1
2.	BRADFORD PEAR	PYRUS CALLERYANA	3
3	WINTER HONEYSUCKLE	LONICERA FRAGRATISSIMA	12
4.	BLACK JETBEAD	RHODOTYPOS SCANDENS	8
5	PYRACANTHA 'KASAN'	PYRACANTHA COCCINEA 'KASAN'	10
6.	MEDIUM LEAF EUONYMUS	EUONYMUS KIAUTSCHOVICUS (PATENS)	9
7.	OREGON HOLLY GRAPE	MAHONIA AQUIFOLIA	11
8.	FLOWERING ALMOND	PRUNUS GRANDULOSA	7
9	EUROPEAN CRANBERRY	VIBURNUM OPULUS 'COMPACTUM'	10
10.	SNOWMOUND SPIREA	SPIREA NIPPONICA 'SNOWMOUND'	13
11.	DWARF NINEBARK	PHYSOCARPUS OPULIFOLIUS 'NANUS'	12
12	FLOWERING QUINCE	CHAENOMELES JAPONICA	5
13	CRIMSON PIGMY BARBERRY	BERBERIS THUNBERI 'NANA'	8
14	CINQUE-FOIL	POTENTILLA FRUTICOSA	13
15.	ANDORRA JUNIPER	JUNIPERUS HORIZONTALIS PLUMOSA	
16.	ST JOHNSWORT	HYPERICUM KALMIANUM	11

LANDSCAPE PLANTING PLAN

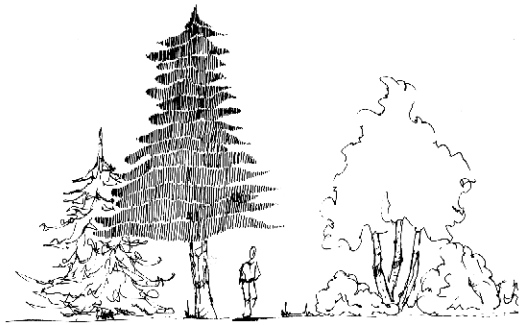
Section A-B



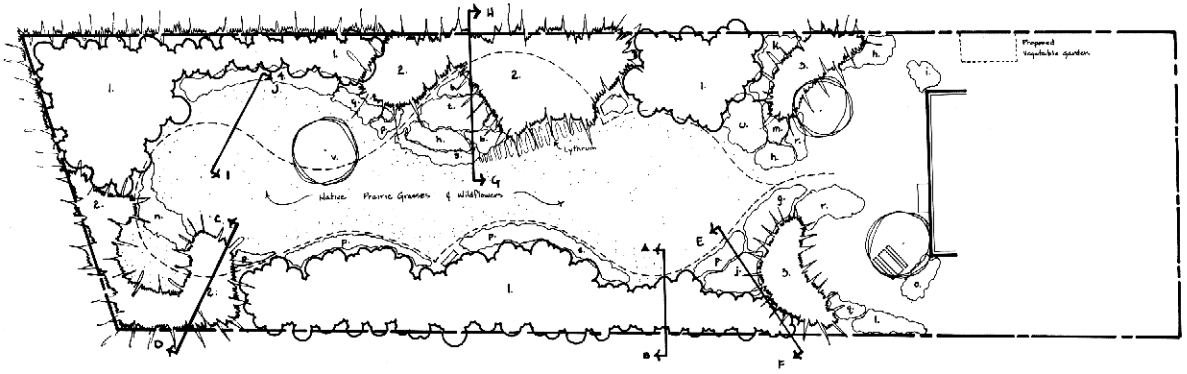
Section C-D



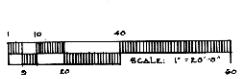
Section E-F



Section G-H



Section I-J



NORTH

LANDSCAPE PLANTING PLAN

SUGGESTED PLANT MATERIALS

CODE

1. Deciduous Composition

Wet soils

Botanical Name	Common Name
Fraxinus pennsylvanica	Green Ash
Liquidambar styraciflua	American Sweet Gum
Quercus imbricaria	Shingle Oak
Quercus palustris	Pine Oak
Taxodium distichum	Bald Cypress
Tilia americana	American Linden

2. Pine Composition

Pinus nigra	Austrian Pine
Pinus strobus	Eastern White Pine

3. Juniper Windbreak

4. Shrub Composition

a.	Euonymus atropurpurea	Wahoo Euonymus
b	Hamamelis virginiana	Common Witch Hazel
c	Ilex decidua	Deciduous Holly
d	Salix humilis	Dwarf Prairie Willow
e	Staphylea trifolia	Bladdernut

5. Shrubs and Trees

g.	Cornus drummondii	Rough Leaf Dogwood
h	Cornus stolonifera	Redtwig Dogwood
i	Cotoneaster apiculata	Cranberry Cotoneaster
j	Crataegus phaenopyrum	Washington Hawthorn
k.	Elaeagnus angustifolia	Russian Olive
l	Forsythia suspensa	Forsythia
m	Lonicera tatarica	Tartarian Honeysuckle
n.	Prunus angustifolia	Sandhill Wild Plum
o.	Pyracantha coccinea	Pyracantha
p.	Rhus glabra	Smooth Sumac
q.	Spiraea x bumalda 'Froebel'	Froebel Spirea
r.	Spiraea nipponica 'Snowmound'	Snowmound Spirea
s.	Stephanandra incisa	Cutleaf Stephanandra
t.	Betula nigra	River Birch
u.	Cercis canadensis	Redbud
v.	M.M. 106	Winesap Apple

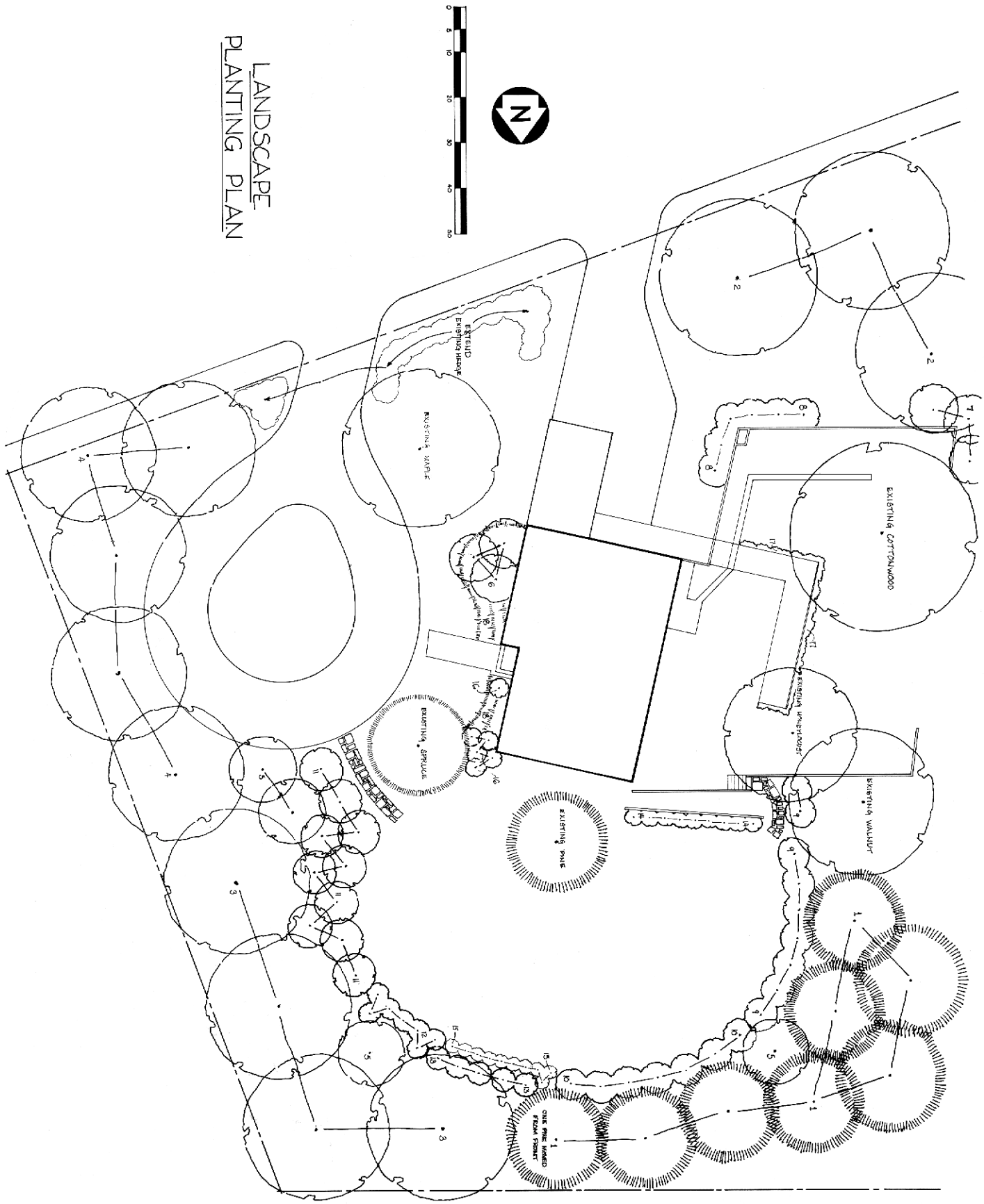
Resource material for selection of Plants:

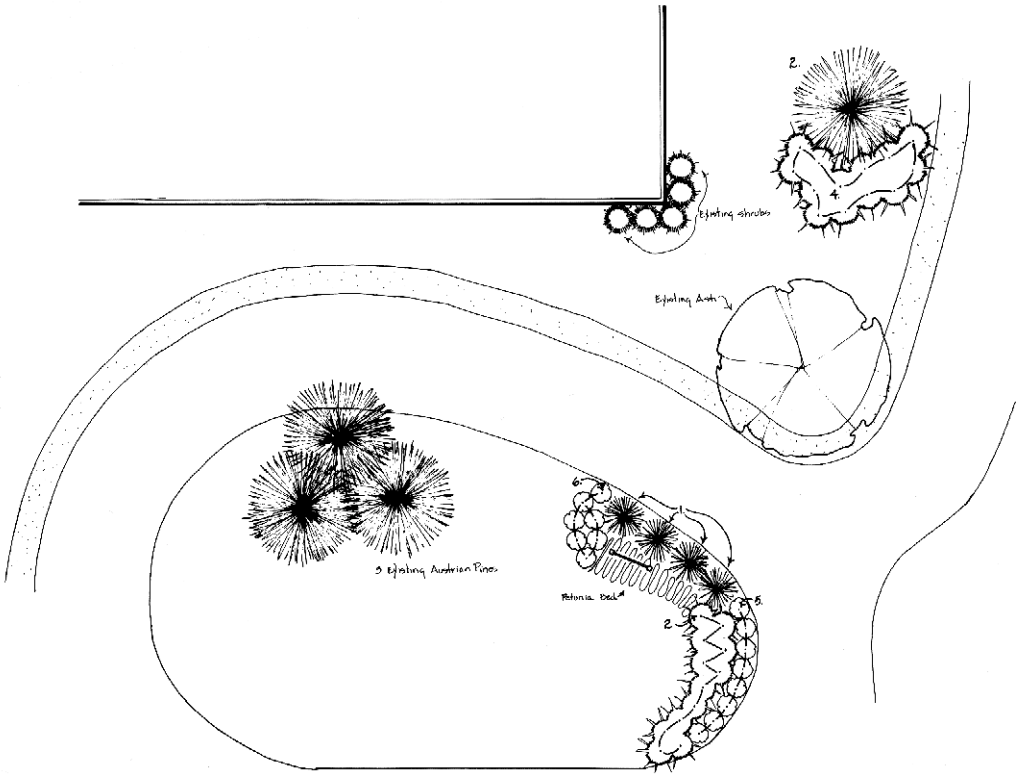
Costello, David F., The Prairie World

Dirr, Michael A., Manual of Woody Landscape Plants

Lammerton, Robert C., Nebraska Wild Flowers

Stephens, H.A., Trees, Shrubs, and Woody Vines in Kansas


LANDSCAPE
PLANTING PLAN
0
5
10
20
30
40
50
N
EXISTING HEDGE
EXISTING MAPLE
EXISTING COTTONWOOD
EXISTING HONEYLOCUST
EXISTING WALNUT
EXISTING SPRUCE
EXISTING PINE
ONLY PINE MARKED FROM FRONT



PLANT MATERIALS LIST

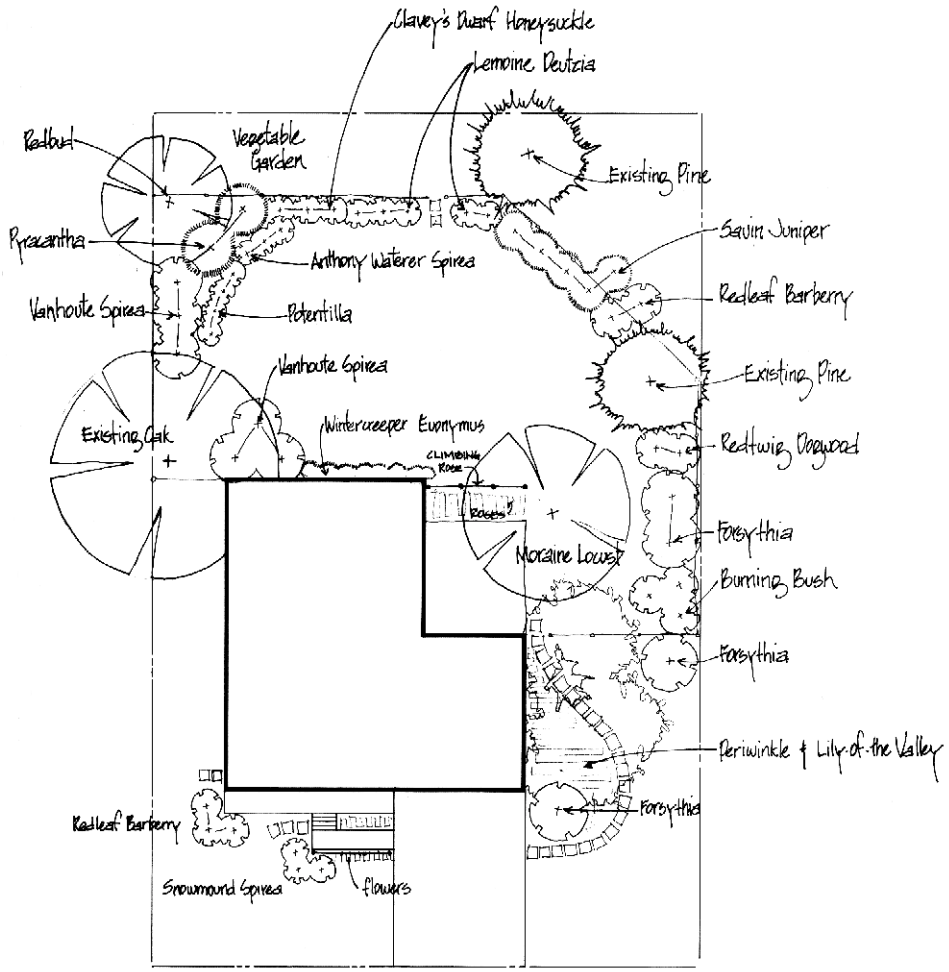
KEY	BOTANICAL NAME	COMMON NAME	QY.
1.	Juniperus chinensis 'Pfitzeriana Compacta'	Pfitzer Juniper, Compact	4
2.	Juniperus horizontalis 'Douglasi'	Hetzegan Juniper	12
3.	Pinus nigra	Austrian Pine	1
4.	Pinus mugo Mughus	Hugo Pine	19
5.	Spirea x bumalda 'Froebeli'	Froebel Spirea	8
6.	Spirea nipponica 'snowmound'	Snowmound Spirea	9

LANDSCAPE PLANTING PLAN

ENTRANCE DRIVE

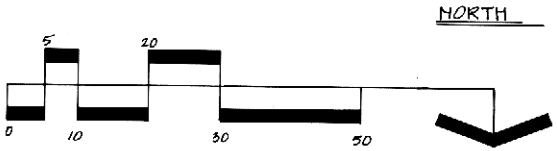
MANHATTAN, KANSAS

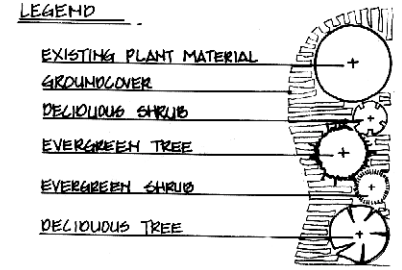
PREPARED BY: Gus A. van der Hoeven
DRAWN BY: Louise Stewart
KSU EXTENSION HORTICULTURE
DATE: 5 April 1979



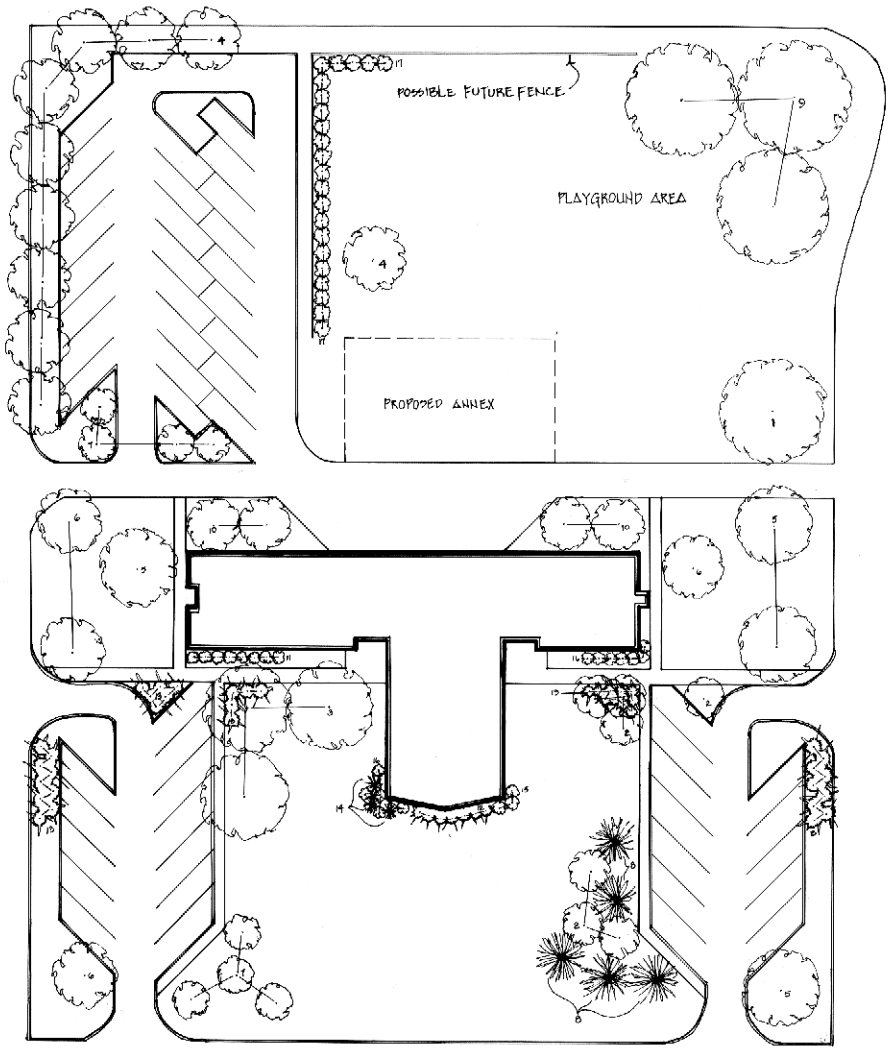
Plant List

Anthony Waterer Spirea	Spirea x bumalda	3
Burning Bush	Euonymus alatus	3
Clavey's Honeysuckle	Lonicera xylosteum 'Clavey nana'	3
Deutzia Lemoine	Deutzia lemoinei	5
Forsythia	Forsythia xintermedia	4
Potentilla	Potentilla fruticosa	4
Pyracantha	Pyracantha coccinea	2
Redleaf Barberry	Berberis thunbergii 'atropurpurea'	5
Redtwig Dogwood	Cornus stoloniferia	2
Savin juniper	Juniperus sabina 'savin'	5
Snowmound Spirea	Spirea nipponica 'snowmound'	3
Vanhoute Spirea	Spirea vanhoutei	6
Lily-of-the-Valley	Convallaria majalis	80
Periwinkle	Vinca minor	80
Wintercreeper	Euonymus fortunia	8
Moraine Locust	Gleditsia triacanthos	1
Redbud	Cercis canadensis	1





DESIGNED BY: GUS A. VAN DER HOEVEN
DRAFTED BY: MICHAEL T. WEEKS
KSU HORTICULTURE EXTENSION
MAY 19, 1977



PLANT LIST			
CODE	BOTANICAL NAME	COMMON NAME	QUANTITY
1	Celtis occidentalis	Hackberry	1
2	Cercis canadensis	Redbud	7
3	Fraxinus pennsylvanica	Ash 'Marshall' Seedless	3
4	Gleditsia triacanthos 'Moraine'	Moraine Honeylocust	10
5	Gymnocladus dioicus	Kentucky Coffeetree	4
6	Koelreuteria paniculata	Goldenrain Tree	4
7	Malus X 'Radiant'	Radiant Crabapple	8
8	Pinus nigra	Austrian Pine	5
9	Platanus acerifolia	London Plane Tree	3
10	Pyrus calleryana 'Bradford'	Bradford Callery Pear	4
11	Euonymus fortunei 'vegetus'	'Emerald Cushion' Euonymus	8
12	Juniperus sabina 'Broadmoor'	Broadmoor Juniper	7
13	Juniperus sabina 'Skandia'	Skandia Savin Juniper	39
14	Pinus mugo	Swiss Mountain Pine	3
15	Pyracantha coccinea	'Lowboy' Pyracantha	3
16	Spirea nipponica 'Snowmound'	Snowmound Spirea	12
17	Spirea X vanhouttei	Vanhoutte Spirea	22

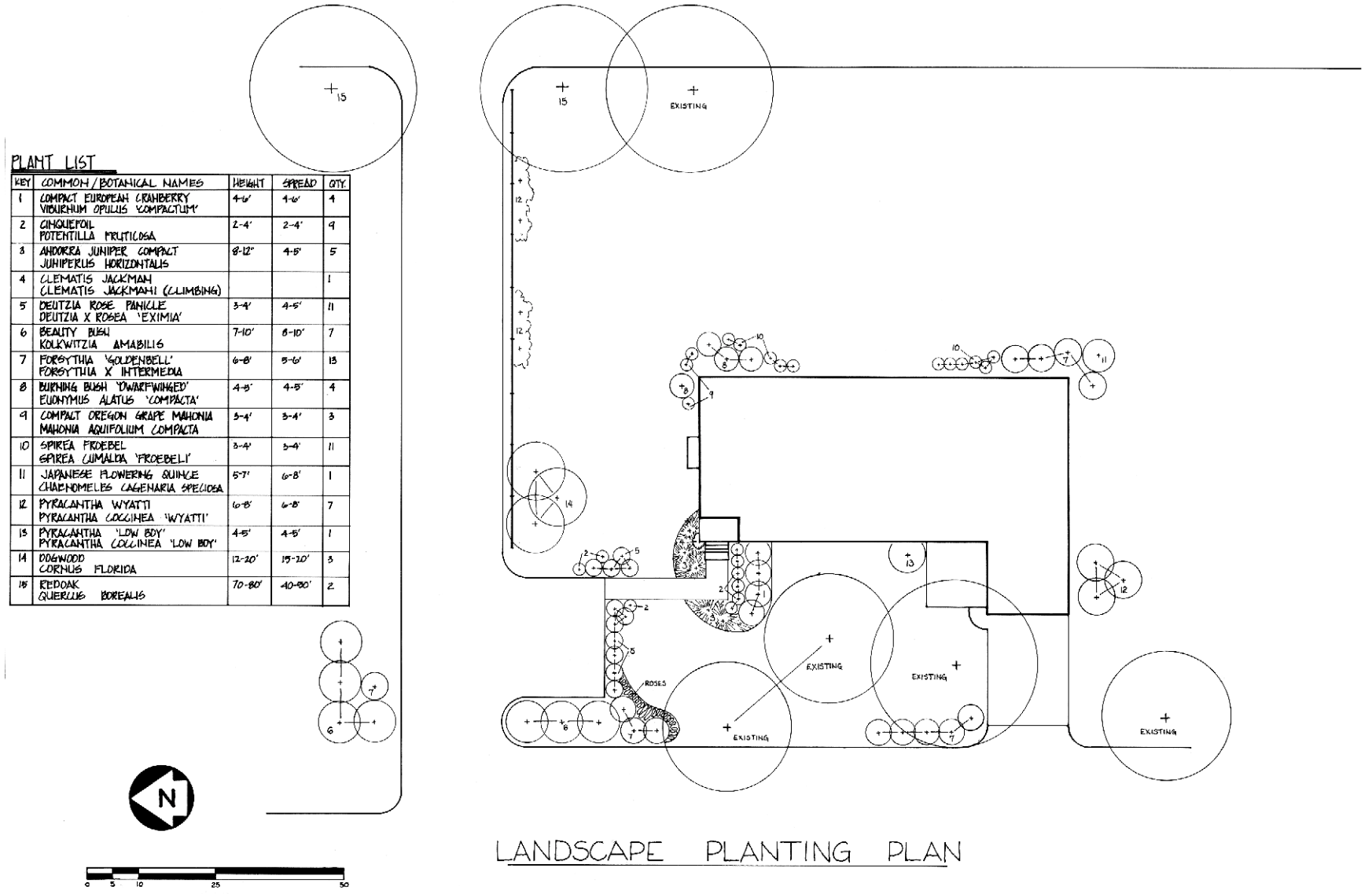
LANDSCAPE PLANTING PLAN

CHURCH OF GOD

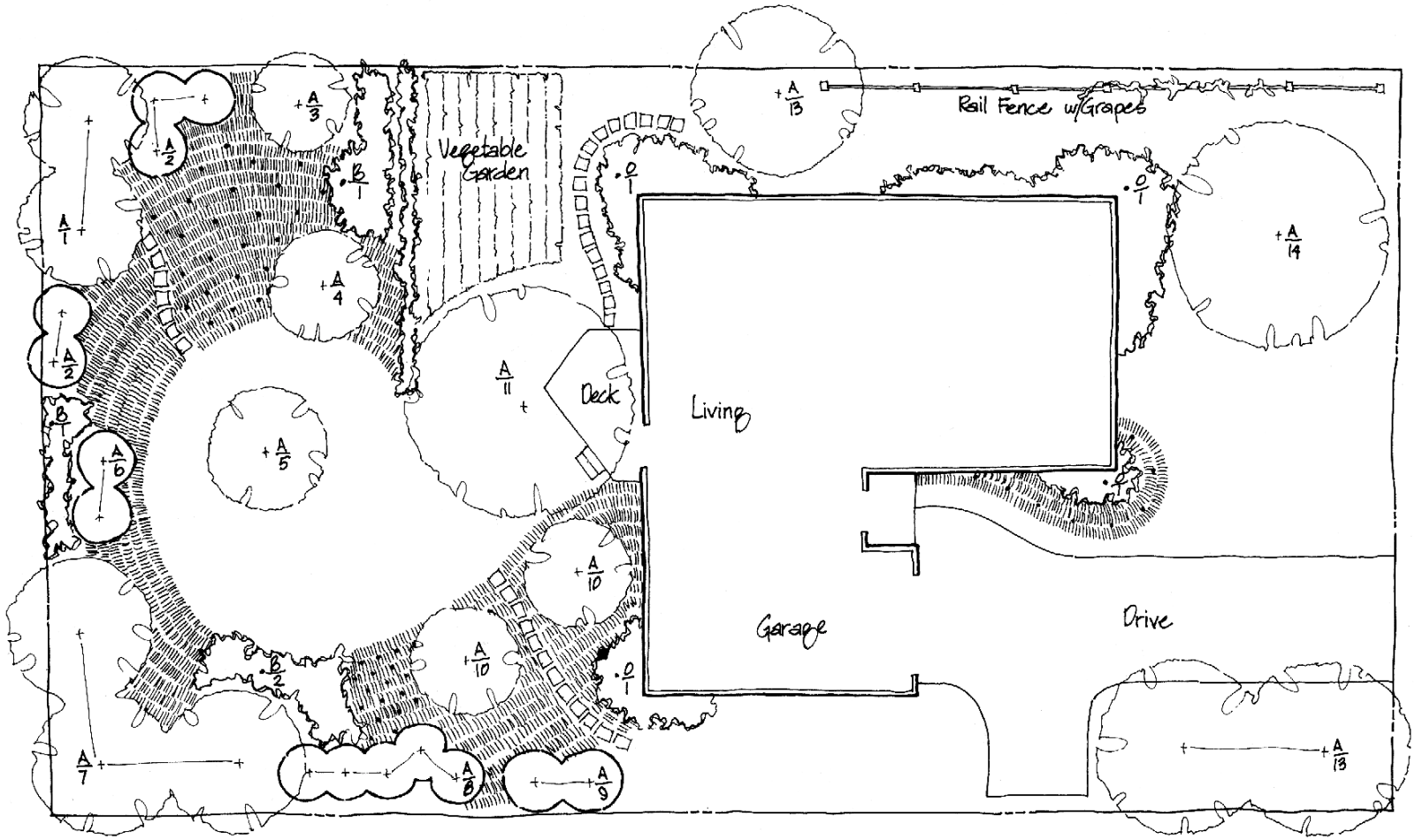
ULYSSES, KANSAS

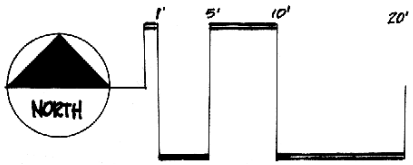
PLANT LIST

KEY	COMMON / BOTANICAL NAMES	HEIGHT	SPREAD	QTY
1	COMPACT EUROPEAN CRANBERRY VIBURNUM OPULUS 'COMPACTUM'	4-6'	4-6'	4
2	CINQUEFOIL POTENTILLA FRUTICOSA	2-4'	2-4'	9
3	ANDORRA JUNIPER COMPACT JUNIPERUS HORIZONTALIS	8-12"	4-5'	5
4	CLEMATIS JACKMAN CLEMATIS JACKMANI (CLIMBING)			1
5	DEUTZIA ROSE PANICLE DEUTZIA X ROSEA 'EXIMIA'	3-4'	4-5'	11
6	BEAUTY BUSH KOLKWITZIA AMABILIS	7-10'	6-10'	7
7	FORSYTHIA 'GOLDENBELL' FORSYTHIA X INTERMEDIA	6-8'	5-6'	13
8	BURNING BUSH 'DWARFWINGED' EUONYMUS ALATUS 'COMPACTA'	4-5'	4-5'	4
9	COMPACT OREGON GRAPE MAHONIA MAHONIA AQUIFOLIUM COMPACTA	3-4'	3-4'	3
10	SPIREA FROEBEL SPIREA JUMALDA 'FROEBELI'	3-4'	3-4'	11
11	JAPANESE FLOWERING QUINCE CHAENOMELES CAGENARIA SPECIOSA	5-7'	6-8'	1
12	PYRACANTHA WYATTI PYRACANTHA COCCINEA 'WYATTI'	6-8'	6-8'	7
13	PYRACANTHA 'LOW BOY' PYRACANTHA COCCINEA 'LOW BOY'	4-5'	4-5'	1
14	DOGWOOD CORNUS FLORIDA	12-20'	15-20'	3
15	RED OAK QUERCUS BOREALIS	70-80'	40-60'	2



LANDSCAPE PLANTING PLAN

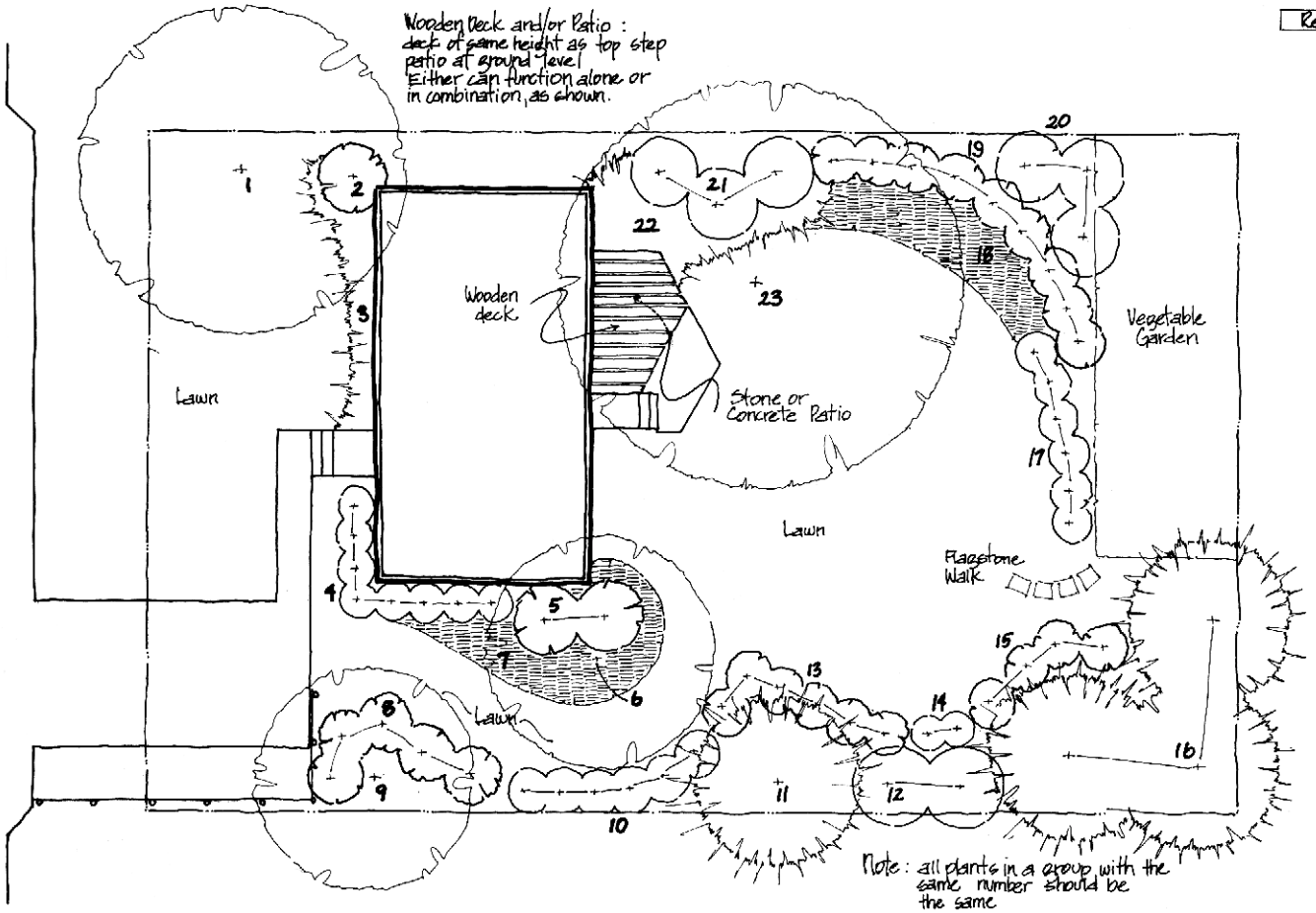




ref.	fruit	qts.
A/1	Pear	
	Seckel	1
	Luscious	1
A/2	Black Raspberry	
	Bristol	5
A/3	Cherry Plum	
	Compass	1
A/4	Sour Cherry	
	Northstar	1
A/6	Cherry Plum	
	Sapa	1

ref.	fruit	qts.
A/6	Currents	
	Redlake	2
A/7	Apple	
	Prima	1
	Priscilla	1
	Sir Prize	1
A/8	Purple Raspberry	
	Amethyst	5
A/9	Gooseberrys	
	Pixwell	2
A/10	Peach	
	Glohaven	1
	Redhaven	1

ref.	fruit	qts.
A/11	Apricot	1
A/12	Grape	4
A/13	Dolgo Crabapples	3
A/14	English Walnut	1
B/1	Asperigus	
B/2	Rhubarb	
O/1	Ornamental Shrubs	
	Strawberries	
	Red Chief	50
	Ogallala	80



Reference No.	Suggested Plant Materials Common name	Scientific name
1	Bradford Pear Moraine Locust Goldenraintree Sunburst Locust	Pyrus calleryana 'Bradfordi' Gleditsia triacanthos 'Moraine' Koelreuteria paniculata Gleditsia triacanthos 'Sunburst'
2	Winged Burning Bush Mentor Barberry	Euonymus alatus Berberis mentorensis
3	Andorra Juniper Scandia SavinJuniper	Juniperus horizontalis 'Plumosa' Juniperus sabina 'Scandia'
4	Potentilla Snowmound Spirea	Potentilla fruticosa Spirea nipponica 'Snowmound'
5	Winged Burning Bush Mentor Barberry	Euonymus alatus Berberis mentorensis
6	Goldenraintree Crab Apple Fruit trees	Koelreuteria paniculata Malus spp. Prunus spp.
7	Rock Cotoneaster Purple-leaf Wintercreeper	Cotoneaster horizontalis Euonymus fortunei 'Coloratus'
8	Regal Privet Morrow Honeysuckle	Ligustrum obtusifolium 'Regalium' Lonicera morrowi
9	Washington Hawthorn Redbud Russian Olive Crab Apple Newport Purple-leaf Plum Fruit trees	Crataegus phaenopyrum Cercis canadensis Elaeagnus augustifolia Malus spp. Prunus x 'Blireiana Prunus spp.
10	Red-leaf Barberry Japanese Barberry Jewel Euonymus	Berberis thunbergi 'atropurpurea' Berberis thunbergi Euonymus kiautschovicus 'patens'
11	Eastern Red Cedar Rocky Mountain Juniper	Juniperus virginiana Juniperus scopulorum
12	Kasan Pyracantha Forsythia	Pyracantha coccinea Forsythia x intermedia
13	Snowmound Spirea	Spirea nipponica 'snowmound'
14	Dwarf Mockorange Japanese Flowering Quince	Philadelphus coronarius 'nana' Chaenomeles japonica
15	Redtwig Dogwood	Cornus stolonifera
16	Eastern Red Cedar Rocky Mountain Juniper	Juniperus virginiana Juniperus scopulorum
17	Potentilla Dwarf Mockorange	Potentilla fruticosa Philadelphus coronarius 'nana'
18	Flowers - annual & perennial Rock Cotoneaster Purple-leaf Wintercreeper	Cotoneaster horizontalis Euonymus fortunei 'Coloratus'
19	Clavey's Dwarf Honeysuckle	Lonicera xylosteum 'Clavey's nana'
20	Spreading Cotoneaster Common Flowering Quince Mockorange Lilac	Cotoneaster divaricata Chaenomeles speciosa Philadelphus coronarius Syringa vulgaris
21	Vanhoutte Spirea Morrow Honeysuckle	Spirea vanhouttei Lonicera morrowi
22	Andorra Juniper Scandia Savin Juniper	Juniperus horizontalis 'Plumosa' Juniperus sabina 'Scandia'
23	London Planetree Green Ash Moraine Locust Kentucky Coffeetree Hackberry	Platanus occidentalis Fraxinus pennsylvanica 'lanceolata' Gleditsia triacanthos 'Moraine' Gymnocladus dioicus Celtis occidentalis

Kansas State University Agricultural Experiment Station and Cooperative Extension Service, Manhattan 66506

S-4 Revised September 2001