We often believe artists have the liberty to create anything they want. That is sometimes true, but many artists are hired to do particular types of work. Landscape designers are also hired. Their artwork is attractive landscape designs, and much of their work is based on the desires of their clients.

Objectives:

1. Collect information necessary to begin a landscape design.
2. Demonstrate the proper use of drafting equipment.

Key Terms:

- architect’s scale
- base plan
- circle template
- computer-aided design
- drafting tape
- drawing board
- drawing paper
- drawing pencils
- elevation view
- engineer’s scale
- eraser
- erasure shield
- existing vegetation
- family inventory survey
- French curves
- hardware
- lettering instrument
- macroclimate
- microclimate
- plan view
- plat of survey
- scale
- site analysis plan
- software
- T-square
- trash paper
- triangles
- views
Beginning the Design Process

Landscape design can be broken down into a series of steps. Some of the first steps involve gathering information that will influence the design. Two items used for this purpose are the family inventory survey and the site analysis plan. The designer must then prepare the base plan using either computer-aided-design software or drafting equipment.

FAMILY INVENTORY SURVEY

The family inventory survey is a form on which the client provides information about factors that affect the landscape project. The landscape designer’s initial meeting with the client is much like an interview. The designer consults with the client to find out what the client wants the property to look like. At the same time, the client relies on the designer to ask the right questions to gather all the needed information. The information is then recorded on an inventory survey.

The designer needs to know about the family. Family specifics that should be recorded include the number and ages of family members, family hobbies (e.g., baseball, gardening, badminton), and pets. Each of these things may influence the design.

The gardening interests of the family should be determined. The designer should find out if the client wants a vegetable garden, an annual garden, a bulb garden, or other landscape features. The amount of time a client is willing to spend in the yard doing maintenance should be established.

The use of the landscape must be ascertained. The level of entertainment planned by the family influences the size of the patio or deck. A pool or plenty of open lawn space for games may need to be incorporated into the design based on the client’s wishes.

The designer should ask what favorite plants should be included in the landscape and what plants, if any, should be avoided. Anything else that may pertain to the specific yard should be discussed at this time.

SITE ANALYSIS PLAN

Before a landscape designer can start changing a landscape site, he or she must know what is already on the site. The designer needs to complete careful observations of the site and record
these observations on a **site analysis plan**. The site analysis plan is a sketch of the home and the property lines, along with a record of observations about the site that the designer can later refer to when beginning the design process. The observations should include existing vegetation, soil conditions, microclimate, macroclimate, and views. Often the site analysis is conducted during the same visit as the family inventory survey.

**Existing vegetation** includes trees, shrubs, and other plants on the site. The species should be noted on the plan, along with the size and location of the plants. Comments about the removal of any unwanted plant material are appropriate.

Knowing what kind of soil is present at various locations throughout the site is important. The type of soil would affect the plants that could thrive on the site and the amount of water drainage off the land. Any sloping or elevated areas should also be mentioned. Notes should include the addition of topsoil at any location on the site.

The **microclimate** is the temperature, precipitation, humidity, and wind on the site or on small areas of the site. The orientation of the house on the lot affects the microclimate. For instance, a portion of a landscape protected by two or three walls of the house will have a different microclimate than a more exposed area. It is important to visit a site at different times during the day to determine areas of full sun or shade and the temperatures.

The **macroclimate** is the temperature, precipitation, humidity, and wind of the region. Prevailing winds are a part of the macroclimate.

The **views** of a site include how people within the yard will look out into neighboring yards and how neighbors and passersby will see the landscaping. Any areas that need to be screened, framed, or enhanced should be noted on the site analysis plan.

Service companies should be contacted ahead of site analysis to mark utility lines. The lines should be noted on the site analysis plan.

**BASE PLAN**

Back in the design studio, the designer begins putting the plan to paper by drawing a base plan. The **base plan** is an accurate representation of a house on the lot. The base plan shows the plan view of the house as it sits within property lines. The **plan view** is a view from above looking down as opposed to a view of the front of the house, known as the **elevation view**. The plan should include doors, windows, and existing hardscapes, such as sidewalks, driveways, and patios. Property lines and easements are included on the plan.

Helpful tools in preparing the base plan are a plat of survey and house plans. A **plat of survey** is a legal document indicating the exact locations of physical structures on a piece of prop-
property and the exact dimensions of the property. A blue-line copy of the house plans gives valuable information concerning the floor plan, room usage and sizes, and the locations and sizes of doors and windows. On-site visits are necessary to obtain exact measurements that may not be included on the plat of survey or the house plans.

**Drawing to Scale**

A drawing of the home is made to scale either on paper or in the computer if computer-aided design is being used. **Scale** is the proportion that the drawing bears to the original. Scale allows the designer to shrink the house, the lot, and the landscape plan to a size that is manageable and will fit on the paper. The preferred scale for most landscape design work is 1/8 or 1/4. With 1/8 scale, 1/8 inch on the plan represents 1 foot at the site. One inch on the plan represents 8 feet at the site (1 inch equals 8 × 1/8, or 8/8). If the chosen scale is followed strictly, all measurements will be accurate.

Select a scale that will provide the largest image possible on the paper and still be attractive. Most normal-size lots can be drawn at 1/8 scale. Smaller plots can be drawn at the larger 1/4 scale. A lot that cannot fit on the paper at 1/8 scale must be drawn at a smaller scale. Scales of 1/10, 1/16, and 1/20 are used to fit larger properties on standard-size paper. Of course, plans drawn at the larger scales are easier to read than plans drawn at the smaller scales.

**FIGURE 3.** Scale is the proportion that the drawing bears to the original. With 1/8 scale, 1/8 inch on the plan represents 1 foot at the site, and 1 inch on the plan represents 8 feet at the site.

**Design Equipment**

A landscape design may be produced with the simplest equipment or with sophisticated computer technology. Whether low-tech or high-tech equipment is used, the needs of the client and the principles of design must be followed in the design process.
COMPUTER-AIDED DESIGN (CAD)

More and more landscape designers are turning to computer technology to produce their design work. The term computer-aided design (CAD) refers to the use of computer hardware and software to produce drawings. Hardware is the computer equipment. Hardware includes input devices that allow a designer to enter information into a computer. These devices may include a standard computer keyboard, a mouse, a pen plotter, and more. Software is the programs (instructions) that make the equipment function.

Designers need training and practice to master computer-aided-design systems. Learning how to use a CAD system, however, does not make someone a landscape designer or landscape architect any more than knowing how to use a calculator makes someone a mathematician. Knowledge of the fundamentals, such as design principles, plant materials, grading and drainage, and hardscape materials, is essential. A CAD system is a tool to help the landscape designer.

One of the major advantages of a CAD system is the ease with which a design can be edited to satisfy changes desired by the client. A CAD system is particularly useful for making changes to a large, complex design. Changes to a small, less complex design seldom call for redrawing the plan.

DRAFTING EQUIPMENT

Many residential designers prefer to draw plans by hand. Hand-drawn designs are considered by many designers to lend a personal touch appreciated by clients. The drafting equipment needed is inexpensive. Many designers are comfortable with pencil-and-paper designs. In addition, clients of residential projects seldom require drastic changes to plans. Small changes can easily be made by hand.

A simple, low-cost setup might include a drawing board, a T-square, drawing paper, trash paper, drafting tape, drawing pencils, triangles, an eraser and an erasure shield, scales, a circle template, a compass, French curves, and a lettering instrument.
A drawing board or drafting table must have at least one true side, and the surface, to which drafting paper is affixed, must be smooth.

A T-square is held along the side of the drawing board. The working edge of the T-square must be straight and at a 90-degree angle to the edge of the drawing board. The T-square is held firmly to the edge of the board. The top edge of the T-square is used to draw horizontal lines.

Drawing paper is translucent, so lines can be seen through the paper. White vellum or tracing paper is commonly used for drafting purposes. Many sizes are available. Use the T-square to line up the top edge of the paper on the drawing board. It is important that the paper is square. Then, fasten the free corners with 1- to 2-inch-long pieces of drafting tape. Smooth the paper from the center with your fingernails to avoid smudging any pencil marks, and secure the remaining corners. Check to make sure the paper is still square after it has been secured, and make adjustments if needed.

Trash paper is often a buff color. It is a lightweight and inexpensive tracing paper. The designer can sketch ideas on trash paper laid on top of the base plan without altering completed work beneath.

Drafting tape is used to secure drawing paper. It is similar to masking tape but less sticky.

Drawing pencils are available in different grades, or degrees of hardness. Select medium-grade pencils for drawing: 3H, 2H, H, F, HB, and B. 3H-grade pencils have harder lead than B pencils and, thus, provide lighter lines. HB pencils have medium softness and can be used effectively for most drawing. Always keep your pencil sharp to maintain uniform lines. Hold the pencil at a 60-degree angle to the paper. Another tip is to pull the pencil across the paper rather than pushing it. Roll the pencil slowly between your thumb and forefinger as you draw to help maintain a uniform line.

Triangles are used to draw vertical and angled lines. Two triangles commonly used are the 45-degree triangle and the 30/60-degree triangle. Hold a triangle firmly on the top side of the T-square and use the edge to draw 90-, 60-, 45-, and 30-degree lines. Be sure to hold the T-square so it is snug to the side of the drawing board as you draw.

An eraser and an erasure shield are tools used in the removal of unwanted lines. The erasure shield is a thin metal plate used to protect lines while others are being erased. To avoid a messy, smudged drawing, think about every line before drawing it and erase completely when erasing is necessary.

Two types of scales are used in landscape design work. The most common scale is the architect’s scale. The architect’s scale can easily be used for scale mea-
surements of \( \frac{1}{16}, \frac{1}{8}, \) and \( \frac{1}{4} \) inch. It is also preferred because the homeowner can use a ruler to read the plan. The other scale is the engineer’s scale. The **engineer’s scale** is divided into tenths and is used to produce \( \frac{1}{10^n}, \frac{1}{20^n}, \frac{1}{50^n}, \) and \( \frac{1}{100^n} \)-scale drawings. It is useful to have an engineer’s scale on hand to convert plat-of-survey measurements, which are normally drawn using an engineer’s scale, to the base plan. The engineer’s scale is used in large-scale projects as a way to fit the plans on paper. The edge of the scale should never be used to draw lines.

The **circle template** is an instrument used as a guide in drawing circles and curves on the landscape plan.

A compass can be used to make large circles and curves not possible using the circle template. **French curves** are tools used to draw irregular curves.

A **lettering instrument** is used to draw light parallel guidelines for lettering. The space between the lines can be adjusted depending on the size of letters desired. Place a well-sharpened pencil in a hole and slide the lettering instrument along the top edge of the T-square. Move the pencil to the next hole and repeat the process.

**Summary:**

The family inventory survey is a form on which the client provides information that affects the landscape project. The information includes what the client wants the property to look like, family specifics, gardening interests, the use of the landscape, and types of plants.

Careful observations of the site are recorded on a site analysis plan. The observations include existing vegetation, soil conditions, microclimate, macroclimate, and views.

The base plan is an accurate representation of a house on the lot. The plan includes doors, windows, existing hardscapes (such as sidewalks, driveways, and patios), property lines, and easements.

Scale is the proportion that a drawing bears to the original. The preferred scale for most landscape design work is \( \frac{1}{8} \) or \( \frac{1}{4} \).

Landscape designs may be produced with computer-aided design (CAD) or with low-cost drafting equipment. Drafting equipment includes a drawing board, a T-square, drawing paper, trash paper, drafting tape, drawing pencils, triangles, an eraser and an erasure shield, scales, a circle template, a compass, French curves, and a lettering instrument.

**Checking Your Knowledge:**

1. What is the purpose of the family inventory survey?
2. What observations are included on a site analysis plan?
3. How is a base plan produced?
4. What is scale?
5. What equipment is used in landscape design?

Expanding Your Knowledge:

Conduct a family inventory survey for your family. Are your family needs being met with your landscape? If not, what should be changed to make your landscape more suitable for your family?

Web Links:

Homeowner Survey

Developing a Home Landscape Plan
http://msucares.com/lawn/landscape/design/plan.html

Residential Landscaping
http://ipm.ncsu.edu/urban/horticulture/res_landscaping.html

Residential Landscape Design