

Interior design landscaping

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I. INTRODUCTION

- Interior landscaping is a practice of designing and arranging and carrying for living plants in enclosed environments.
- It is the art and science of selecting, placing, and maintaining plants to improve and enhance the appearance of the indoor environment
- Similar to outdoor landscapes interior landscape provide spaces with ornaments, colour, sculptural elements, focal points, and an overall pleasant environment.
- Interior landscaping is an accurate description of specialty, plant scape and interior scape are words that were invented at birth of the interior landscape industry.
- 'Interior landscaping' is an appropriate term because indoor environments contain plains, angles, and horizons that are softened, accentuated or altered by the addition of plants and planters-thus landscaping the interior.
- The interior landscape designer must be mindful that the primary function of most interior environments is to serve people rather than to grow plants .
- With the exception of facilities specifically designed for the display or growth of plants (such as greenhouses or conservatories), plant materials must be able to tolerate the environmental conditions created for human comfort.
- Budgetary considerations will often preclude the adaptation of a building's environmental systems to accommodate plant needs . However, with minor modifications to the physical conditions within a building, it is possible to find many plants from the tropical and subtropical regions of the world that will survive indoors in the temperature and humidity ranges also comfortable for human activity.
- The "hardscape" aspects of interior landscape design and construction, (such as paving materials, landscape furniture, pools and fountains) are not significantly different than those same elements in the exterior environment .

PURPOSES OF INTERIOR LANDSCAPING

- Add color
- Add textures
- Add softness
- Add life
- Increase employee productivity
- Decrease employee absenteeism
- Add oxygen
- Provide herbs for cooking, medicine, or fragrance
- Add beauty and comfort by combining all of the previously mentioned purposes

ADVANTAGES

- Adds color, texture, softness, life & oxygen to interior plantscape.
- Provides herbs for cooking, fragrance or medicine.
- Help improve indoor air quality.

- Help improve productivity and performance.
- Help to reduce noise.

DISADVANTAGES

- Reduced light
- Reduced root system
- Dependent upon people for watering
- Build-up of soluble salts from fertilizer
- Plugging stomata from dust on leaves
- Damage from heating, air conditioning, and cleaning chemicals
- Growing medium
- Only plants that will grow inside can be used
- Picking or breaking leaves by people using the interior building area

PHYSICAL REQUIREMENTS OF PLANTS

1. Light

Growing plants convert radiant energy (from daylight or electric light sources) into food . Plants use radiant energy of wavelengths in the 400- to 850-nanometer (nm) range . White light, the visible part of the radiant energy spectrum, consists of wavelengths in the 430- to 700-nm range . Light for plant growth is typically described in terms of intensity, duration, and quality .

2. Temperature, Humidity, and Air Quality

Plant requirements for air typically refer to temperature, relative humidity, and air quality.

Temperature :

Most plants prefer a stable range of temperatures, with a drop of no more than 5°C (10°F) from daytime to nighttime temperature . Tropical region plants generally fall into three categories, each with a preferred range of temperature :

- Cool [5 to 15°C (40 to 60°F) daytime] ;
- intermediate [10 to 20°C (50 to 70°F) daytime] ; and
- warm [15 to 30°C (60 to 85°F) daytime] .

Cold temperatures 0°C (32°F) or less even for a short period, can cause permanent damage to foliage . If the temperature of the root ball falls below 10°C (50°F), plant growth will stop ; and plants will die if the temperature drops below -1°C (30°F)

Relative Humidity:

Tropical plants prefer a relative humidity of 60 to 90 percent, but many are adaptable to the 35 to 50 percent relative humidity typical of building interiors . This low relative humidity, while drier than most plants prefer, is a better range for prevention of diseases such as mold or leaf rot . If the humidity is \pm 30 percent or lower, then most plants will require greater amounts of water.

Air Quality:

- Plants require carbon dioxide (CO₂) to complete photosynthesis . Forced air circulation through building ventilating systems helps to maintain ready supplies of CO₂ and to reduce any excessive buildup of heat, but plants can be harmed by hot or cold blasts of air.
- If the flow of air causes the leaves to move at excessive velocities, damage to the plants is likely.
- Excessive levels of pollutants in the air, such as cleaning fluids, paints, or petroleum products, can have a devastating effect on plant foliage, usually turning it black .
- Plants are most at risk from problems relating to poor air quality during or immediately following building construction, when chemical pollutants from curing paint or new carpeting are most prevalent, and when contracting operations such as drywall construction create massive amounts of dust .
- Most interiors do not have the optimum environmental conditions necessary for plants to regenerate a large amount of damaged foliage .
- Recent studies have proven indoor plants can reduce, or even eliminate, "background" levels of ubiquitous chemical pollutants such as benzene, formaldehyde, and trichloroethylene from indoor air.
- They do this by metabolizing these elements into non-toxic substances plants can use as nutrients .

3. Water

The amount of water needed by indoor plants indoors depends on a variety of factors :

- seasonal fluctuations governing the duration of daylight and angle of the sun ;
- the size, shape and orientation of windows; the size and amount of a plant's foliage ;
- the volume, composition, and
- porosity of the planting medium;
- the temperature and humidity of the interior space ; and
- the general health of the plant .

Plants will transpire rapidly in conditions of high light and/or high temperature and/or low

humidity, requiring more frequent watering . One of the most important reasons for regular maintenance is to monitor each plant's special need for water . Unsoftened water at a temperature between 15° and 25°C (60° and 80°F) should be used . Plants may be grouped according to their water requirements in order to simplify maintenance . Some plants require that their root balls dry out to an extent, while others require their roots to remain moist or even wet most of the time

4. Planting Medium

The planting medium, which may or may not contain any soil, must accomplish three functions :

- 1 . Allow water and nutrients to reach the plant through the roots .
- 2 . Allow oxygen to reach the roots .
- 3 . Anchor and give stability to the plant .

A planting medium should be:

- Porous
- Easy to drain
- Capable of retaining water
- Sterile
- Low in soluble salts
- Lightweight (where needed)

5. Space/Volume

It is important to know both the existing and potential height, breadth, and character of each type of plant in order to minimize interference not only between plants but also with such architectural features as columns, bulkheads, stairs, and low ceilings. With large species of plants, this need for adequate room becomes critical . A plant whose innate form has to be reshaped to accommodate architectural features may appear misshapen and incongruous with its interior setting if improperly pruned . It is preferable to specify plant materials whose natural shape can be maintained either by slow growth without pruning, or by standard pruning practices . Upper story plants specified for two story or tall one story spaces should not exceed $\frac{z}{3}$ the height of the space when they are planted . Tall specimens leave too little room for growth and may block too much incoming light to their own inner foliage or to understory plants beneath them. Palms or other species which cannot be pruned should always be given adequate vertical space above them for future growth.

6. Weight of Plants

The weight of the plants and their planting medium is an important consideration when they are a part of the load calculations for a structural slab or an upper floor planter. The weight of a plant will depend upon its age (caliper), height, crown size, foliage type and density, and planting medium volume and density. The weight of the planting medium varies according to both the material used and the amount of water it contains.

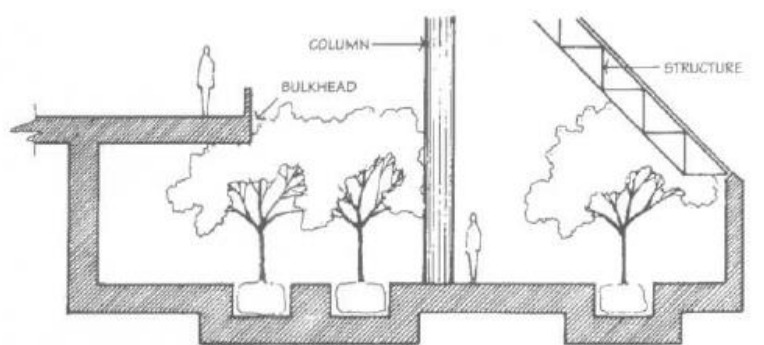


Figure 620-3. Height and spread of large materials.

7. Acclimatization

Plants being moved from the ideal light conditions of a shade house, greenhouse or nursery into a building interior must slowly be acclimatized to the lower light conditions. Without this period of adjustment, most plants will go into shock, stop growing, become weakened, and possibly die. The length of time required to acclimatize a plant depends on the species, the degree of change in light intensity, and the size of the plant. Large trees [3 000 mm (10 ft) or larger] should be allowed at least 3 to 6 months during the growing season to acclimate, and small material [600 mm (24 in) or less] at least 6 to 10 weeks. During this time, the amount of light should be gradually reduced to half of the original amount or less if needed.

TECHNIQUES TO MEET PHYSICAL REQUIREMENTS

1. Light

Light can be provided either from daylight or electric light. Daylight is preferable because it provides a greater spectrum of the radiant energy needed by most plants, and is generally provided more diffusely than electric light. Diffused light is preferable to light from a point source because it allows better light penetration to the inner foliage of a specimen, as well as better light penetration through upper story specimens into the plants below. However, where daylight is insufficient in quantity or duration (due to the season or the time of day), electric

light is often an essential supplementary source, or the sole source, of light for plant growth.

Daylight:

Daylight refers to the sum of direct sunlight, reflected sunlight, and (on overcast days) skylight. Daylight can be admitted into interior landscapes through windows, clerestories, or skylights.

RECOMMENDED LIGHT SOURCES

Windows and Clerestories:

Windows and clerestories are only about one-third as efficient in admitting light as the overhead horizontal or angled openings of skylights. Window efficiency is determined by its size, the orientation of the opening, and the type of glazing. In the northern hemisphere, the effective area for plant growth, given a southerly solar orientation, is equal in depth only to the height of the window, assuming that the plants are located at sill height.

Skylights:

Skylights have the advantage of encouraging plants to grow upward toward the light. If skylights are included as part of the building design for the purpose of providing daylight for interior plants, then there are a number of important considerations for maximizing their effectiveness:

1. Location: skylights and plants are more effectively related if they are not aligned in plan but aligned for the angle of the sun to hit the plants.
2. Orientation: in the northern hemisphere, north facing skylights are only minimally effective in terms of the intensity of light penetration, but large areas of north-facing skylight can provide reasonable levels of well-diffused light. South facing skylights (east-west axis) can provide too much direct light and cause a one-sided plant growth, but they are a good source of reflected light. A mix of east and west facing skylights (north-south axis) provides a better balance of light.

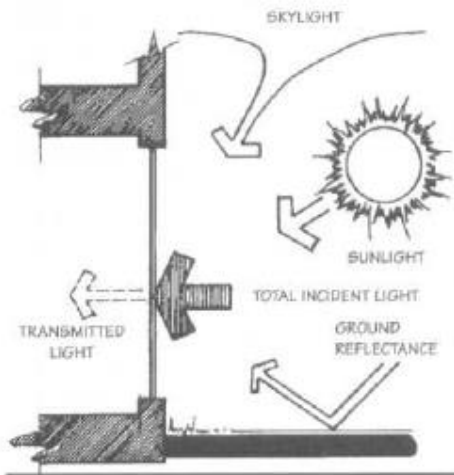


Figure 620-4. Daylight through vertical glazing.

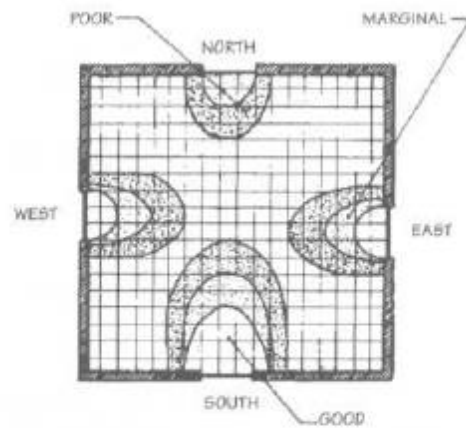


Figure 620-5. Effectiveness of daylight through vertical glazing 900 mm (3 ft) wide by 1 500 mm (5 ft) high (northern hemisphere).

3.Details : the design of a skylight system that will admit the maximum amount of light possible is as follows :

- a . Bulkhead : a minimal distance from ceiling to skylight frame will permit a more direct path for the daylight . Light-colored walls surrounding the bulkhead will increase the amount of reflected light .
- b . Ceiling opening: if the ceiling opening is larger than the skylight opening, the area influenced by the brightness from the skylight will be extended .

Glazing Materials:

The glass or plastic used in windows or skylights will have varying properties of light transmittance, absorption and reflection . The pre-construction calculations should include daylight figures which take into account the type of glazing material and the amount of light it will transmit . This information is available from all manufacturers of glass and plastic . The range varies from clear glass at 84 percent transmission to double-glazing with bronze tint at 18 percent transmission .

Electric Light:

Normally, electric lighting should be treated only as a supplement to daylight . Electric light has the advantage of being flexible and can therefore achieve good light distribution over plants at optimum lux (footcandle) levels by varying the location, quantity, and type of fixtures used . The beamsread of lamps should be considered in the design of lamp spacing . Uplighting will not contribute significantly to plant growth, and close proximity of uplights to foliage can burn the foliage or heat the root mass enough to cause damage.

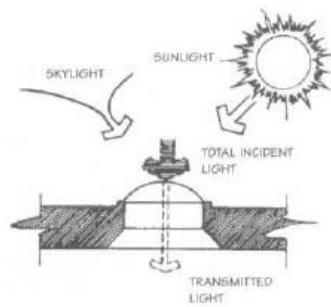


Figure 620-6. Daylight through skylight.

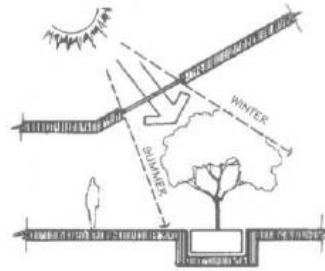
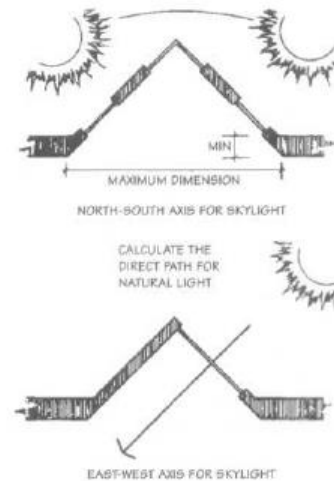


Figure 620-7. Optimum skylight features.



2. Air

Providing plants with proper above ground and in-ground temperatures is important and should be considered during the conceptual stage of any building design. In temperate climates, the following locations should be avoided :

- 1 . Plantings over unheated spaces such as parking garages because root balls need protection from low temperatures, unless the planting medium is insulated sufficiently to keep root mass temperatures above 15°C (60°F)
- 2 . Plantings near outside doors because drafts are difficult to control
- 3 . Plantings immediately adjacent to heating and air-conditioning supply vents because air temperature and movement normally exceeds the tolerance of most interior plants

If interior landscape design is studied in both plan and section as well as coordinated with the mechanical systems involved, then such problems as the following can be avoided :

- 1 . Plants located in dead-air corners
- 2 . Plants located against glass walls with no mechanical system to modify extremes in temperature
- 3 . The tops of large plant material or hanging plants located in the poorly conditioned zones near high ceilings and in multistory spaces

3. Water

The two fundamental methods of watering plants are hand watering and automatic system watering. Many techniques are used that vary and combine these two basic methods.

Hand Watering:

- Hand watering is a popular technique because its main advantage is the ability to tailor the watering needs to the individual plants and particular environmental conditions, including seasonal changes in the water requirements of plants.
- Tools and facilities needed for hand watering include :
 1. Hose bibbs or box hydrants convenient for use with 15 m (50 ft) hoses.
 2. Access to a sink for a watering cart. The sink should have a threaded hose faucet and at least a 600 mm (24 in) clearance from faucet to sink or floor.
 3. A hot-and-cold water mixer faucet.
 4. A wand used to water hanging baskets or hard-to-reach ledges.
 5. Water carts and watering cans of assorted sizes.
 6. Custom-designed equipment for special situations. If such equipment is needed, it typically must be stored in a lockable closet within the building.
- Three disadvantages of hand watering are :
 1. It is labor-intensive.
 2. All plants must be accessible.
 3. The soil will gradually compact over time from continuous top-watering.
- One variation on hand watering which continues to gain popularity is sub-irrigation, a system in which reservoirs are placed beneath the planting medium. Water loaded into the reservoir by hand is drawn out by capillary action into the planting medium, using wicks which vary in composition by the manufacturer.

- Advantages to sub-irrigation are :

1. Depending on the size of the reservoir, it is possible to reduce the frequency of watering, the single most time-consuming task of an interior landscape maintenance technician.
2. The planting medium will not compact, because water is drawn from below.
3. With the proper planting medium, water will be provided to the root system as needed, as opposed to the normal flood/drought/flood cycle of hand watering.

Automatic Systems:

- Most irrigation systems for exterior landscapes (such as spray or impact rotor) are technically possible for interiors but may have one or more of the following disadvantages :

1. They are expensive to install.
2. The components may be prone to vandalism.
3. The system is often ill-suited to the different watering requirements of any multi-variety plant palette.
4. The system needs to be monitored for seasonal adjustment and for adjustments required by temporary changes in growing conditions.
5. Interior plants, even species with relatively high watering requirements, need far less water than exterior plants, and it can be difficult to adjust automated systems to provide very low water delivery rates.

- One popular exterior system that can be successfully adapted for indoor use is **drip irrigation**. Drip systems solve two of the more significant problems of spray or impact rotor systems by delivering very low quantities of water to precise locations.

- However, it is still subject to the other disadvantages of automated systems.

- The main advantages of an automatic system are that plants in inaccessible locations are often more easily reached, and once an automated system is balanced, it requires less labor than a non-automated system.

- An automatic system may also be advantageous if plants with similar water needs are planted in groups. The near future may provide the advent of a sensor controlled drip irrigation system that provides water delivery on an as-needed basis.

- Such a system, while continuing to be more expensive than a manual system and still subject to vandalism, would resolve all the other concerns regarding automated systems, and provide a substantial reduction to the cost of maintaining an intensively planted interior landscape .

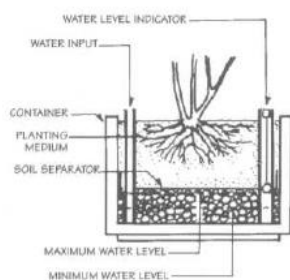


Figure 620-10. Planter with reservoir.

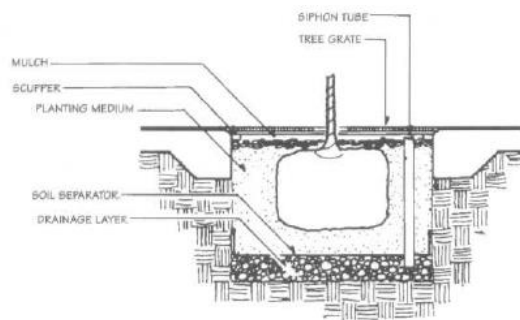


Figure 620-12. Basic components of a tree pit.

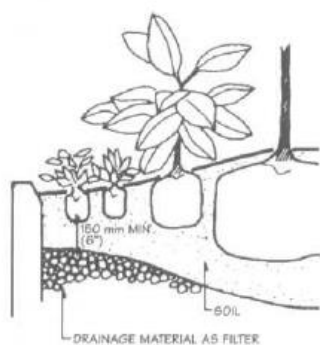


Figure 620-11. Necessary soil depth.

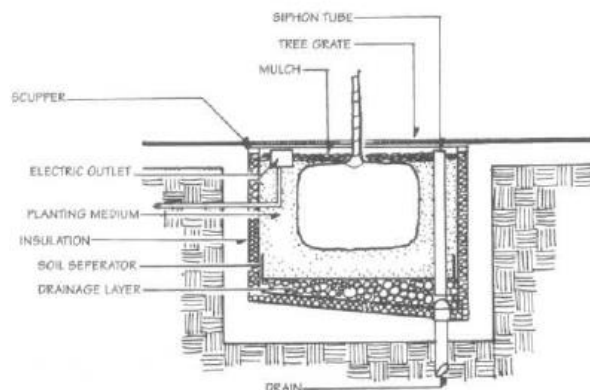


Figure 620-13. Optional features of a tree pit.

4.Planting Medium The ingredients used in a planting mix will depend on their availability, on weight restraints, and on the needs of the particular plants. Soil and non-soil mixtures may contain various proportions of the following ingredients and have the indicated weights per cubic meter (cubic foot) :

Topsoil: Sandy loam, uniform in composition and free of debris. Weight: 1600 kg/m³ (100 lb/ft³)

Peat: Has good water holding capacity, but does not compact readily. Weight 130 to 160 kg/m³ (8 to 10 lb/ft³).

Sand: Has poor water holding capacity.

Weight : 1600 kg/m³ (100 lb/ft³).

Shredded bark: Pine bark is best; hardwood is good . Both have good water holding capacity.

Vermiculite : A soil additive made of expanded mica. It contains some nutrients and has good water holding capacity . It breaks down under sterilization and therefore cannot be used repeatedly.

Weight: 95 to 130 kg/m³ (6 to 8 lb/ft³).

Perlite: A soil additive made of siliceous volcanic rock . It contains fluoride, which will damage some plants. It has good porosity and some water holding capacity. Because it does not deteriorate, it can be re-sterilized and reused .

Weight : 95 to 130 kg/m³ (6 to 8 lb/ft³).

Calcined clay: A soil additive made of fired clay particles . It retains water and can be reused .

Styrofoam particles: A soil additive made of plastic . It holds no water, increases the porosity of the mix, and disintegrates under sterilization ; therefore, it cannot be reused .

- Soil mixtures normally consist of 20 to 30 percent soil and 70 to 80 percent soil additives . Mixtures without soil use variations on the following proportion :

1/8 sand

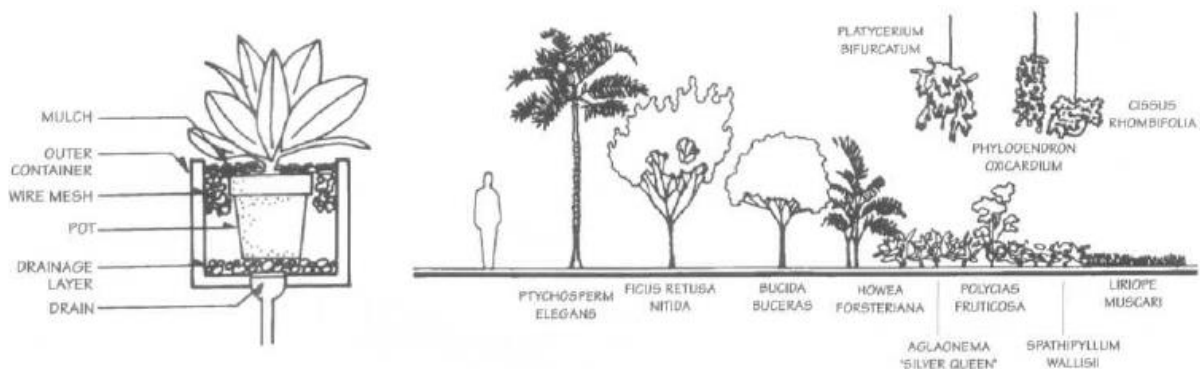
1/3 shredded bark

1/3 soil additives

5. Construction Details

Tree pits and built-in planters for interior plantings have some features that distinguish them from exterior plantings.

- The need for a tree pit (with sides and a bottom) should be determined after investigation of existing conditions of the soil, underground springs, and draining ability.
- Insulation may be necessary if the tree pit is above an unheated space in temperate climates, such as a parking garage. Heating coils might also be necessary to maintain the root ball temperature above 15°C (60°F) .
- Drains should be included whenever possible and appropriate . A siphon pipe can be used to check the viability of the drain or to check the water retention in the absence of a drain.
- A scupper around each tree pit will serve to catch toxic floor cleansers and waxing liquids .
- When hose bibbs and electrical junction boxes are included in tree pits or planters, they should be located to the sides, away from where the major plants are located .
- Planters should be waterproofed if they are surrounded by a fountain . Water from a fountain may contain chemicals harmful to plants .



PLANT PALETTE

1 Design Objectives

- 1 . A feeling of transition from exterior space to interior space should be created .
- 2 . A proper sense of scale should be given to large interior spaces .
- 3 . Different functions physically and visually.

4 . Architectural forms should be complemented with plants primarily through contrast in form, texture, and color.

2. Character of Interior Plants

Size:

Interior plants can be grouped by the following categories of sizes : groundcovers, small understory, large understory, upper story (trees and palms), and vines and hanging plants

Many plant species can be used in more than one category, depending on their particular size and habit of growth . The height and spread at the time of planting becomes very important because most plants will not continue to grow significantly, once planted indoors, unless given more than their minimum light requirements.

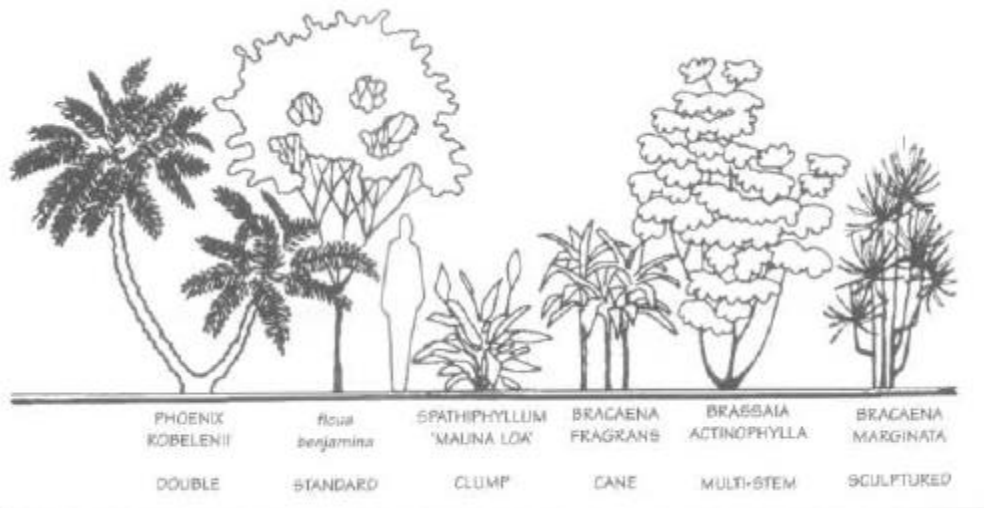


Figure 620-16. Various growth habits of interior plants.

Growth Habit:

Growth habit refers to the distribution of foliage on a plant and the character of its trunk or trunks . Plants for interior landscapes can be selected that have a wide variety of growth habits from stems or trunks that are single, multiple, straight, or curved, and from branching structures such as oval, pyramidal, fastigiata, lollipop, sculptured, braided, weeping or topiary .

Texture :

Tropical plants are particularly versatile in terms of texture, given their wide range of leaf sizes . The juxtaposition of plants with widely different textures is one of the characteristics associated with creating a tropical appearance. Foliage textures range from the fine lacy delicacy of a Maidenhair Fern to the coarseness of a Bird-of-Paradise's huge leaves or the many lobes of a Selloum Philodendron . Many trunks and stems also give a feeling of texture, from the smooth trunk of the Ficus to the coarse trunk of some of the palms .

Color.

Flowers are the source of color for most plantings, but flowering typically requires a high level of light, and plants must be rotated every 3 to 4 weeks. A wide range of colors is available via plant foliage, however, including a range of greens (dark to light), yellow-greens to blue-greens, and variegated varieties (light and dark markings). Color variation is sometimes highlighted, as with texture, by placing plants to emphasize the contrasts .

3. Design Suggestions

1. The need for high levels of light, particularly natural light, and the use of glass-enclosed spaces to achieve a transition from exteriors to interiors have resulted in a few common identifiable architectural and interior landscape prototypes.
2. Plants should be grouped into massings as a counterbalance to the more dominant architectural forms. Although a matter of subjectivity, most interior planting designs cannot function effectively as part of the overall design unless they are dramatic in quantity, size, and arrangement.
3. Regional differences and styles in design can be achieved by selecting plants based on their character, size, and texture, and by the manner in which they are composed. The character of a temperate, tropical, or arid exterior landscape can be replicated indoors through the choice and use of various plants and construction

materials. Also, the use of specimen plantings can make a design especially disiset a tone or establish a particular character.

4. In addition to plants, other landscape elements, such as water features, landforms, and rocks-can be used to help create a variety of landscape effects .

5. Given the relatively low light conditions in typical interior settings [1 600 Ix (150 fc) or less], most interior plants will usually not flower [Spathiphyllum is one exception that will flower at 1 070 Ix (100 fc) or greater] . For permanent color in the design, therefore, plants grown specifically for their flowers should be used. Flowering plants will need to be changed approximately every 2 to 6 weeks, depending on their species and the amount of light and water they receive, if the flowers are to remain fresh in appearance. A flower selection schedule should be established and coordinated with whatever materials are available locally.

4. Commonly Used Plants

Size Categories:

Interior plants are typically categorized according to the following sizes :

- Trees : 1 500 to 75 000 mm (5 to 25 ft) or more
- Large understory : 900 to 1 500 mm (3to5ft)
- Small understory : 300 to 900 mm (1 to 3 ft)
- Groundcover : less than 300 mm (1 ft)
- Vines and hanging plants : Not categorized by size

ROOF GARDEN

• A roof garden is any garden on the roof of a building. Besides the decorative benefit, roof plantings may provide food, temperature control, hydrological benefits, architectural enhancement, habitats or corridors for wildlife, and recreational opportunities.

• Rooftop farming is usually done using green roof, hydroponics, aeroponics, or air-dynaponics system or container garden. Beside using the already present space at the roof itself, additional platforms cold possibly be created between high rise building called “aero-bridges”.

Roof gardens can be defined as-

1. Intensive (deep) Roof Garden System.
2. Extensive (medium depth) Roof Garden System.
3. Ultra-Extensive (shallow) Roof Garden System.

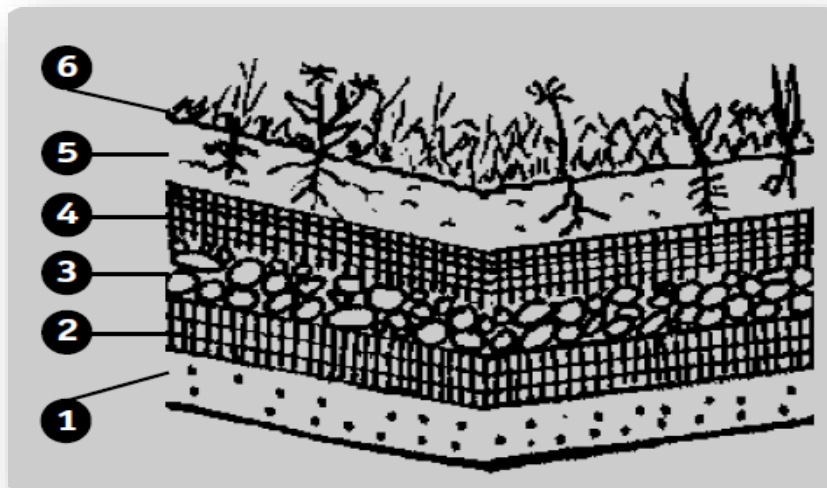
Materials Needed to Create a Rooftop Garden-

Typical materials for a rooftop garden may include:

1. Plants
2. Growing containers
3. Growing medium
4. Decking or other material that can be walked on
5. Seating, wildlife features, greenhouses or composters.

Cross-Section of a Green Roof

1. Roofing membrane
2. A layer of filter cloth to prevent the roots from penetrating the roofing membrane
3. A drainage course of gravel or expanded clay pellets.
4. A layer of filter cloth to prevent soil, growing medium or organic matter from eroding or clogging the drains.
5. Growing medium
6. Plants



Reasons to Rooftop Garden

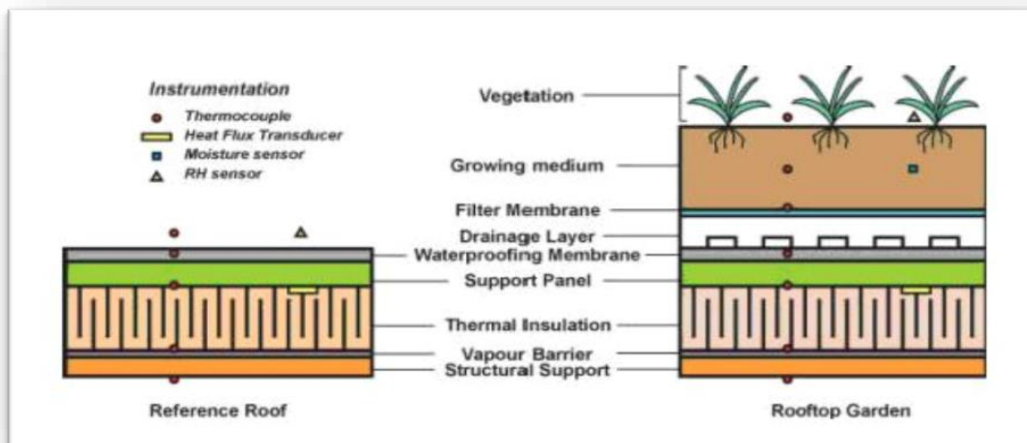
1. Increase access to private outdoor green space-at home or at work-within the urban environment.
2. Support urban food production.
3. Promote individual, community, and cultural diversity.
4. Improve air quality and reduce CO₂ emissions.
5. Increase habitat for birds
6. Insulate buildings
7. Increase the value of buildings for owners and tenants alike.

GREEN ROOF

- Green roofs are vegetated roof covers, designed to reduce storm water run-off, save electricity and help the clean air.
- All the green roofs include a single to multiply waterproofing layer, drainage, growing media and the plants, covering the entire roof deck surface.
- Green roofs may be extensive or intensive.
- The plants that go into a green roof are usually sedum or other shallow-rooted plants that will tolerate the hot, dry, windy conditions that prevail on most rooftop gardens.

The differences between roofs with gardens and roofs without gardens against temperature

- The study shows temperature effects on different layers of each roof at different times of the day.
- Roof gardens are obviously very beneficial in reducing the effects of temperature against roofs without gardens.
- “If widely adopted, rooftop gardens could reduce the urban heat island, which would decrease smog episodes, problems associated with heat stress and further lower energy consumption.”



Environmental impact

- Roof gardens are most often found in urban environments. Plants have the ability to reduce the overall heat absorption of the building which then reduces energy consumption.
- The primary cause of heat build-up in cities is insulation, the absorption of solar radiation by roads and buildings in the city and the storage of this heat in the building material and its subsequent re-radiation.
- Plant surfaces however, as a result of transpiration, do not rise more than 4–5 °C above the ambient and are sometimes cooler.
- This then translates into a cooling of the environment between 3.6 and 11.3 degrees Celsius (6.5 and 20.3 °F), depending on the area on earth (in hotter areas, the environmental temperature will cool more).

ELEMENTS OF INTERIOR LANDSCAPING

The 5 basic elements of landscape design are:

• **Color**

Color theory is often used in landscape design by dividing the color spectrum into 4 categories:

- Primary: reds, yellows and blues.
- Secondary: greens, violets (purples) and oranges.
- Tertiary: Mixtures of the primary and secondary categories.
- Neutral: White, grays and silvers.

A simple way to achieve unity is to:

- match warm colors to warm colors (red, yellow and orange)
- Cool Colors to cool colors (blue, purple and green).
- warm colors tend to excite the viewer colors like red are natural for focal points
- cool colors are more likely to relax the viewer. colors like blue are a logical choice for meditation gardens

• **Form**

In landscape design terminology, form is the shape of a plant.

- Upright
- oval
- columnar
- spreading
- broad spreading
- weeping

Tall plants create a vertical look, drawing the eye upward .Low spreading plants draw the eye to the horizon. Use individual specimen plants to break monotony and create interest. A mixture of a variety of form becomes confusing.

• **Line of Sight**

The line of sight is the viewer's eye movement or flow being influenced by the arrangement of plants and their borders.

Eye movement is unconsciously affected by the way plant groupings fit or flow together, both on the horizontal and vertical planes.

Hedges or rows of plants direct the attention to a focal point or specific area

Meandering lines or curves slow movement and create a natural, undisturbed feeling.

- **Scale and Balance**
- the visual relationship of the landscape components, relative to size.
- Equal sizes on both sides of the landscape gives balance
- Symmetrical – the repeating of the elements on either side of an axis (an imaginary central line)
- Asymmetrical – equal size or weight on both sides of the axis, without repeating specific elements
- **Texture**
- texture is the touch or visual surface quality of an object, or plant
- The texture of a plant's foliage or bloom can be viewed as coarse, medium or fine.
- Mix plants with larger leaves (coarse texture) and smaller leaves (fine texture) to avoid monotony in a planting bed and to add visual interest.
- The greater the distance the plant is, the smoother the texture appears to be

TYPES OF INDOOR PLANTS

Plants do not only add natural beauty to a home. They can also create a refreshing vibe in a room.

According to studies, plants can help in purifying the air that we breathe as they increase the amount of oxygen and absorb toxins.

Some of the commonly used Indoor plants are as follows:

1. Peace lily (Spathiphyllum)

- Peace Lily is an indoor plant with dark leaves and curvy white flowers.
- It grows easily even in low light and moisture. It is perfect for homes with a few windows.
- It can eliminate several chemicals and compounds like ammonia, benzene, formaldehyde, trichloroethylene, and more.
- The Peace Lily is native to the tropical regions of north and south America, as well as, southeastern Asia.
- It is one of the most popular house plants because of its ability to grow well with little sunlight and water.



Characteristics

- *Origin:* South America.
- *Max Growth :* Height 18-24 in. (45-60 cm).
- *Temperature:* Average room temperature's are fine. Avoid lower than 55°F/12°C in the winter.
- *Light :* Direct sunshine can damage the plant leaves. A mixture of light and shade is great.
- *Watering:* This plant does drink a lot of water in the summer. Keeping the soil moist (not over watered) and allowing it to dry slightly near the top is a good idea. If in the winter the soil stays slightly damp for a couple of weeks or more, that's ok , dont water any more. Your plant will let you know when it needs more.
- *Soil:* A Peat based potting mix with Perlite is ideal.
- *Re-Potting:* Re-potting each spring is the usual drill.
- *Fertilizer :* Feed every two weeks with a diluted plant food from spring until fall.
- *Humidity:* Misting leaves regularly will improve humidity and keep it happy.

2. Spider Plant (Chlorophytum Comosum)

- The spider plant is very popular and can be found in many homes or offices.
- This plant can survive with minimal care/attention and can manage low temperatures. However, they will start to look very unattractive and create mess (leaves falling and browning) without enough water and light or too much of either. When they're taken care of properly they look great.
- Because the leaves and especially the stems grow quite long, the spider plant is best to be placed in a hanging type basket, corner type shelf or table that allows the leaves and stems to grow freely.

Characteristics

- *Origin:* South America.
- *Max Growth :* 60cm, leaves – 45cm.
- *Temperature:* Minimum temperature should be no lower than 45°F (7°C). Ideal is approximately 60° - 75°F (15° - 24°C).
- *Light :* Nicely light room without direct Sunlight.
- *Watering:* They like plenty of water, between spring and summer. In the winter they should need a lot less.
- *Soil:* Any decent potting mix
- *Re-Potting:* Re-pot in spring, if needed (outgrown its pot). Look for roots growing out of the drainage holes of the current pot.
- *Fertilizer :* Feed during spring and summer with a diluted liquid fertilizer.
- *Humidity:* Misting leaves regularly will improve humidity and keep it happy.

3. English Ivy (Hedera helix)

- English Ivy is a classic climbing house plant with green-leaved varieties. It favors indoor conditions with medium sunlight. It can be placed in a floor container or a hanging basket.
- It can absorb carbon monoxide, trichloroethylene, formaldehyde, benzene, among others.
- It's likely to be one of the best plants to choose if you want something which clambers over various surfaces and can quickly cover bare surroundings without any help.
- It also looks good in a hanging basket and can be trained up a moss stick with minimal fuss making it a versatile plant.

Characteristics

- *Origin:* Europe.
- *Max Growth :* 50' long
- *Temperature:* This **Ivy** doesn't enjoy very warm temperatures. 10°C - 18°C / 50°F - 65°F is good, warmer than this will cause problems in the long term. Placement in a spare room or isolated kitchen for example would normally be ideal.
- *Light :* Generally you can get a variegated or an all green variety of English Ivy. The variegated version needs average to bright light in order to retain its colorings. The all green variety will take darker locations although growth will be slower as a trade off. No direct sunlight for any type however..
- *Watering:* it dislikes soaking wet conditions or being bone dry. You should be aiming for the middle ground by keeping the soil moist. In Winter the soil will naturally stay moist for longer periods so you will need to water less at this time of the year.



- *Soil:* Any decent potting mix
- *Re-Potting:* Due to the effort spent producing aerial roots along its twisting stems, it takes a fair while for English Ivy to fill a normal sized pot with its roots. When you need to repot (perhaps every 2 or 3 years) you can do so at any time of the year using standard soil, or basic potting compost.
- *Fertilizer :* Feed during the growing season about once every two months with a weak all purpose solution, or one with a high nitrogen content. This is because when it comes to Ivies its often all about the foliage and nitrogen is the primary nutrient to help create this..
- *Humidity:* Feed during the growing season about once every two months with a weak all purpose solution, or one with a high nitrogen content. This is because when it comes to Ivies its often all about the foliage and nitrogen is the primary nutrient to help create this.

4. **Rubber Plant (Ficus elastica)**

- The **Rubber Plant** could be the houseplant for you if you want a tough plant which can reach staggering heights within a few years. While its size can still be tamed some what, you have to keep in mind it will eventually require a certain amount of space.
- Rubber plants usually have wide, deep green and glossy leaves but some are purple. It can easily thrive in low moisture, filtered lighting and cool weather.
- This indoor plant cleans the air by removing toxins and compounds

Characteristics

- *Origin:* North east India.
- *Max Growth :* 9' long
- *Temperature:* The Rubber Plant will be quite happy to grow in a broad range of temperatures between 10°C / 50°F to 29°C / 85°F. If you go hotter, the leaves will lose some of their turgid appearance. You can go as low as 4.5°C / 40°F in Winter if you have to, but your watering must be spot on. At this temperature you will kill the plant quickly if you have over watered.
- *Light :* Grow away from continuous direct sunlight, instead give your Rubber Plant a well lit spot with some indirect sun if possible. With the all green types you will get away some shade, but too much and the plant will become lanky and spindly. If you have a variegated type you have to provide the first requirement. If you opt for shade you will lose the markings.
- *Watering:* Rubber plants love water when they are growing, but not too frequently. Water them really well once the soil has dried out quite a bit, then wait until it dries out again.
- *Soil:* Any decent potting mix
- *Re-Potting:* These plants grow quite big even if their pots are tiny. However there will still come a point where the growth will stop. You then have two choices, either move to a bigger pot which will get the plant growing again, or leave it where it is and top dress instead. Top dressing involves scrapping off the top few inches of soil and replacing with fresh compost.
- *Fertilizer :* To produce those massive leaves the Rubber Plant needs feeding. Little and often is best, a weak feed every couple of watering's during Spring and Summer.

- *Humidity*: It's worth misting the leaves from time to time when the air is very dry, but other than that you don't need to worry about humidity levels.

5. **Golden Pothos (*Epipremnum aureum*)**

- Golden Pothos has smooth, heart-shaped leaves. It grows in low level sunlight. It is usually dangling in a basket or cascading in a tall plant. It is ideal for living rooms and kitchens.
- It can eliminate formaldehyde from the air.

Characteristics

- *Origin*: Mo'orea, French Polynesia
- *Max Growth* : 60' long
- *Temperature*: No lower than 10°C / 50°F in Winter and ideally between 18°C - 24°C / 65°F - 75°F in the other seasons.
- *Light* : Average light would be best for your Pothos plant. Growth will be slow if you choose a very dark spot, this will also create sparse "vines" with leaves quite far apart. Very bright spots will eventually destroy the plant.
- *Watering*: Water your Pothos regularly during the growing seasons and a lot less in Winter. It wont mind being under watered, but over watering needs to be avoided otherwise you risk rot setting in. The soil should never be soggy or wet.
- *Soil*: Any decent potting mix
- *Re-Potting*: You only need to repot your Pothos when the roots are so congested the plant starts to suffer. The most obvious sign of this is when the leaves are drooping despite being well watered or the plant isn't growing any more.
- *Fertilizer* : There is no need to feed unless the plant is growing, so a light feed once every few months over Spring and Summer using a general all purpose fertiliser.
- *Humidity*: If given the choice **Pothos** enjoys high humidity, however it's not vital for a healthy plant and will be equally fine in a location with lower humidity levels.

INTERIOR LANDSCAPE IN OFFICE BUILDINGS

Indoor living plants can enhance the atmosphere and image of both public and private spaces. From corporate lobbies to individual offices, Living plants bring forth the freshness of outdoors, boosting morale and productivity of employees and visitors alike in a commercial or any other type of building. Living Plants have practical benefits in the workplace such as indoor contaminants from seemingly benign sources such as furniture, drapes, insulation and carpets can cause a variety of complaints like respiratory irritation, dizziness, headaches, skin rashes, nausea and vomiting thus, by placing green plants we can filter the air.

From other side plants are Toxin absorption by reducing the level of harmful chemicals such as trichloroethylene (TCE), benzene and formaldehyde which are ingredient in painting inks, prints, lacquers, varnishes and adhesives and from psychological point of view plants reduce physical and mental stress, cause us to relax and improve our health. Green is a color of peace and serenity.

Interior landscape is enhancing the indoor environment by making it more aesthetically pleasing and perceptually stimulating. Plants not only provide natural health enhancing benefits but play an important role in projecting a quality for the specific building.

The design and installation of green plants in an indoor environment needs experience to bring the real natural world inside and to make our dreams into reality. After a successful design and installation, plant care and maintenance, watering, growth and fertilization, pruning and trimming, insects and disease control, etc. are important issues to be considered.

Architectural design at all times has had to consider with the available technology, materials and processes. The realization of innovative structures is closely dependent on a whole range of factors such as the progress of material science in understanding the behavior of structural systems, serviceability of constructions, methods etc. There is a need for development of use of new construction materials, which will require neither complicated production machinery nor expensive transportation methods & which will act as viable substitutes for conventional components & whose results could be seen dramatically in the structural forms. The critical analysis of materials would help us to have multiple choices for the use of materials and techniques. This would also help to have multiple characters in the building according to the availability and sustainability of those materials. Interior landscaping is the practice of designing, arranging, and caring for living plants in enclosed environments. Planterra calls this 'interior landscaping' even though land is not literally being reshaped. 'Interior landscaping' is an appropriate term because indoor environments contain plains, angles, and horizons that are softened, accentuated or altered by the addition of plants and planters-thus landscaping the interior. Similar to

outdoor landscapes, interior landscapes provide spaces with ornament, color, sculptural elements, focal points, and an overall pleasant environment.

Interior landscapes have an integral role in green building design. University research has proven that plants improve indoor air quality, increase worker productivity, boost morale and provide a sense of tranquility.

Plants can contribute to a buildings ranking from US Green Building Council's Leadership in Energy and Environmental Design (LEED) certification. Depending on level of certification, LEED buildings tend to use less energy, less water, have more natural light, are built from environmentally friendly materials and are more comfortable to work in. Plants and interior landscapes can contribute to LEED certification points in the following categories: Innovation in design, indoor air quality, indoor chemical and pollutant source control, and water efficiency.

Benefits of natural plants in the workplaces

- Soften cold concrete and Asphalt Areas
- Identify and beautify a building Image
- Provide a warm welcome to customers in case of landscape at entrance
- Create the right first impression
- Clean the Air of harmful Toxins and creating fresh air.
- Reduces stresses from employees in a workplace.
- Increases work efficiency.
- Reduces tiredness and getting bored of work in a workplaces.
- Provides a colorful environment.
- Provides easy feelings between man and nature.
- Helps in solving the difficulties of work through interior landscape.
- Understanding the nature of the work and its easiness through interior landscape.

Interior landscape in offices:

- Offices having interior landscaped resulted better than offices which work without plants for their workplaces. Therefore, to increase in better work and maintain this phenomena and to save energy for employees who are working in an enclosed space especially in an air tight room, interior plants play an important role in this conditions.

Need for interior landscape in offices:

- As we work everyday in offices, hospitals, multiplexes, and malls being in the same place makes us bore and tired as the plants grow we will realize change in the environment and human conditions. On the other hand the look which interior landscape creates for the offices is better than a office environment without having plants and even employees can feel a eternal counterparts with themselves.
- Though the plants create hundreds of thousands of benefits for human health, only some of them are discovered out of these. Plants can improve the work efficiency of staffs and they can improve the office aesthetic and give life to other elements in the office environment. They can bring the feels of outside to inside while employees are working. It doesn't mean that plants are only useful when they are outside by creating fresh air and green natural and open space for human. The original needs of plants are in offices where we need fresh air and green space which is scare in such areas. Finally why we as a human being shouldn't have all the benefits of plan in our offices environment to improve our work efficiency, communication, and work skill.

How interior landscape effects to offices Environment:

- Interior plants need carbon dioxide to live and to grow which is available in offices enclosed rooms during day and during night when employees are back home interior plants do the opposite. The sources which and who are creating carbon dioxide for plants are humans and furnitures. Inside offices a lot of toxin gases are created by wall varnishes and furnitures which are harmful for human's health and plants eliminates such a gases and creating a comfortable and peaceful environment for employees.

Use of interior landscape in earlier period and its trends to recent scenario:

- In earlier periods people they weren't aware of plant's benefits in an enclosed room they were using plants in all outdoor areas to make an area pleasing and aesthetically look amazing but after some time they realized that we can have some plants in our homes, workplaces etc. then plants came to an indoor area by means of only creating an interesting scene. In earlier period less plants were kept in offices and even that was a small plant in a planting medium. But today everyone realized the benefits of indoor plants and many companies

are established and many landscape architects and plant scaping experts are become ready to accommodate plants and design a proper planting system for offices and other commercial buildings.

The benefits of plants

You don't have to be an environmental psychologist to understand that plants look attractive. But dig a little deeper beneath their beauty and you'll discover that the benefits of interior landscaping go far beyond the aesthetic.

Recent research tells us that interior plants are good for buildings and people in a variety of subtle ways. Interior landscaping plays a vital role in providing a pleasant and tranquil environment in which to move, work or relax.

Plants help reduce stress and create a feeling of well-being

Most of us know instinctively that being close to greenery makes us feel more at ease with our surroundings. We experience less stress when there are plants around us. Buildings are quieter and more relaxed but, at the same time, more stimulating and interesting. A substantial body of academic research, has shown conclusively that interior landscaping has dramatic effects on the wellbeing of building occupants.

People in offices are more productive, take fewer sick days, make fewer mistakes. And they are happier when interior landscaping enhances their environment.

Patients in hospitals benefit greatly from being more in touch with nature. There is even evidence showing students perform better in improved learning environments.

Make your workplace a happier, more productive environment. Call us at **1-888-663-4389**, or [contact us](#) online.

To learn more about [Ambius](#) services [download our eCapabilities brochure](#) today.

Plants help improve air quality

There is general agreement amongst scientists that plants improve the indoor environment and are useful in fighting the modern phenomenon of Sick Building Syndrome (SBS).

No specific cause of SBS has been identified but poor air quality, excessive background noise and inadequate control of light and humidity are all thought to be important factors.

Because plants have large surface areas and exchange gases and water with their surroundings, plants can help tackle some of these issues.

Particular benefits of interior plants include:

1. Reducing carbon dioxide levels
2. Increasing humidity
3. Reducing levels of certain pollutants, such as benzene and nitrogen dioxide
4. Reducing airborne dust levels
5. Keeping air temperatures down

Plants help lower background noise

Plants have long been used to reduce noise from busy roads. More recently, research has shown another benefit: interior plants can help to reduce background noise levels inside buildings, too.

Our own studies indicate that plants and their leaves absorb, diffract or reflect background noise, thereby making the environment more comfortable for the occupants.

With our support, Peter Costa, a postgraduate student at South Bank University, London, found that certain plants are particularly good at absorbing high frequencies.

Plants absorb sound best in acoustically live spaces, such as those that feature hard surfaces. Learn more about the benefits of interior landscaping.

Make your workplace a more tranquil place, or for more information, call us at **1-888-663-4389**, or [contact us](#) online and ask for an [Ambius](#) consultant to explain the benefits of interior landscaping for you and your business.

ELEMENTS OF LANDSCAPE

Landscaping refers to any activity that modifies the visible features of an area of land, including:

1. *Living elements* flora or fauna.
2. *Natural elements* such as landforms, terrain shape and elevation, or bodies of water;
3. *Human elements* such as structures, buildings, fences or other material objects created and/or installed by humans; and
4. *Abstract elements* such as the weather and lighting conditions.

Elements of landscape -Water

- Water is also another most important landscape element.

- Water bodies improve the quality and the worth of the site. it makes the site attractive.
- There are many types of water bodies :
 1. Fountains
 2. Pools
 3. Ponds
 4. Spouts
 5. Artificial waterfalls. etc.

Whether a small babbling brook or a tumultuous cascade, water features add sound, movement, and enjoyment into the landscape. They also provide opportunities for incorporating pond and wetland plants into your landscape design. The choice and placement of boulders, stonework, and plantings can link the water feature with your building and property, creating a unified landscape composition

Water flows inevitably, from the source to the receiving ocean basin. This continuity of rivulets, streams and rivers can be readily observed.

USES:

- Excellent land water interface gives an ecological home for the animals and plants.
- Water runoff reduced.
- Microclimate created.
- Moisture level maintained.
- Wetland, marshes, swampy areas are conserved.
- Maintaining vegetation into wetlands.
- Hydrological cycle maintained.
- Site aesthetics are enhanced

Elements of landscape -Stones

- Stones are hard, impermeable, inorganic elements used extensively in landscape architecture.
 - Stones are basically used for the following:
 1. Paving
 2. Retaining wall
 3. Stacked stone wall
 4. Sitting
 5. Shelters
 6. Parapets
 7. Bridges
 8. Sculptures
 9. Planters
 10. Bollards
 - Stone, one of the oldest paving materials, offers good, durable, wearing surface with a minimum maintenance required.
 - Rubble and ashlar masonry are the two forms of stone used for paving.
 - Rubble masonry is rough stone, as it comes from the quarry, but may be trimmed somewhat where necessary.
 - Ashlar masonry is hewed or cut stone from the quarry and is used much more often than Rubble for the surfacing of the walls
- Landscaping with stone brings in a natural element that evokes solidness and a sense security.*

Types of Landscape Stones and their uses

- **Retaining Walls**--There are many different types of stones that can be used when it comes to creating retaining walls in the lawn. One may elect to assemble a retaining wall around a small pond, or even a garden.
- **Flagstone**-- Flagstone is a very popular choice when it comes to stones that are used for steps, or simple ornamental design.
- **Boulders** --Homeowners elect to implement the use of boulders in the decorative design of their landscaping. Great products in the way of boulders include that of Birchwood, Wisconsin, Granite, and even Honeycomb Western stone.
- **Marble**--Many individuals elect to use marble when decorating their landscape. Marble can be used to create signs, around or in garden ponds, and even marble fountains can be purchased in order to bring out the natural appeal of a pond or garden area. They are also used in sculptures.
- **Natural Stone**--Natural stone is often a choice for small landscaping structures.

- **Decorative Stones**--Decorative stones are used in pathways or trails to beautify the garden. Some of them are Royal George, Walnut nuggets, beachwood pebbles and many more.
- **Other**-- Other than that there are pebbles used for sidewalks, stepping stones used in gardens and stone is also used as stone lantern in Chinese gardens.

Elements of landscape- Plants

- Plants create outdoor rooms. Trees, shrubs, and ground covers can be used to emphasize the desirable architectural lines and masses.
- Plants can be used to soften and balance harsh and awkward architectural angles, masses and materials.



The human eye has a tendency to follow the outline of the objects in the landscape. With this idea in mind the apparent size is affected.

By graduating plant sizes away from the house, the apparent size of the structure is increased.



Plants that reach large sizes at maturity are often planted too closely to the house when small. When mature, they dominate and make the house look smaller



Tall evergreen create an uninviting, inhibiting appearance to this entrance.

Inwardly oriented space is characterized by either complete or nearly complete enclosure and a strong central focal point.



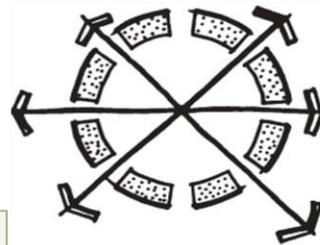
Inwardly focused space

Planting beds and walks act as a breezeway between driveway and entrance courtyard.



Central areas for sitting, sculpture displays, patios, and hot tubs require enclosure for purpose of privacy, quiet, and concentration.

Outwardly oriented rooms are enhanced by amenities outside the space such as good views and breezes.



Outwardly focused space

Activities taking place within the front yard are more public in nature and will require free visual access on and off the site and little enclosure.



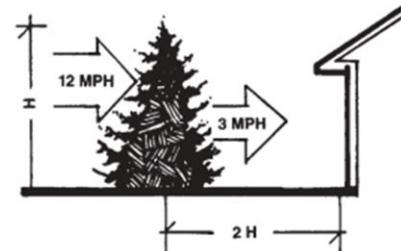
Various plant types, heights, and combinations create walls, partial screens, and overhead canopies

Environmental role

- Pollution control
- Noise control
- Climate control



embankments, deciduous and evergreen plantings and masonry walls are used together for effective sound control.



Use of windbreaks to control winter winds



Use of deciduous plants to direct summer breezes

INTERIOR DESIGN - ARRANGEMENT OF FLOWERS

In all God's creation, there is nothing so beautiful, attractive and colourful as flowers. Flower arrangement is an art which expresses one's personality. Flowers, foliage and plants are arranged in flower vases in such a way that they produce harmonious appearance with good texture and colour combination. By proper arrangement of flowers, the home can be made cheerful, lively and beautiful. It expresses one's love of beauty. Japanese have developed this art of flower arrangement by starting schools for the teaching of this art. Plants, flowers and fruits can give natural charm and dignity to a home.

These are inexpensive decorative materials which make us always refreshing and provide the necessary variety of forms and colours. They purify the air in the day time. Interior decoration cannot be completed without the presence of few flowers in the room. Now-a-days flower arrangement has become a fascinating hobby. Flower arrangements are made at various locations such as on tables, window sills, walls and comers to suit the occasions and space. If fragrant flowers are used in flower arrangement, their sweet smell is an added attraction.

Materials and Equipment used in Flower Arrangement:

There are some basic materials and equipment needed for beautiful flower arrangement:

1. Flowers, Foliage, Fruits, berries:

All types of flowers, foliage, fresh, dry or artificial can be used for the arrangement. Seasonal fresh flowers can look very beautiful in any style. Where flowers are not easily available, dry flowers and foliage, berries, fruits can also be arranged. Artificial flowers made up of paper, organdie, satin, velvet fabrics and plastic which are available in the market may also be arranged.

2. Containers or Flower Vase:

Various types, shape, sizes and coloured flower vase and containers are available in the market. Selection of suitable container is important. Elaborate decorative containers are not suitable enough for flower arrangement. The round, oval or rectangular low vases, bottles, glasses, earthen pots are also available for flower arrangement. Low containers are best for dining table whereas high and tall arrangements are attractive for tall wall area or corner of the room. For a circular table a round bowl may be used for flower arrangement. Porcelain or metal containers may also be used for this arrangement.

3. Flower holders:

There are many types of flower holders available in the market. Needle point holders are made up of cast iron. It may be round, rectangular, square, semi-circular etc. Modelling clay may also be used for holding of flowers.

4. Equipment or other accessories:

The equipment necessary for flower arrangement are long scissors, sponge, paper napkin, pipe cleaners, florist's wire, green tap, rubber band, adhesive, transparent taps, wire etc. The accessories required for flower arrangement should be artistic and beautiful. They are sea-shells, coral rocks, small sculptures of animals, birds etc.

Selection and Care of the Flowers during Arrangement:

Successful flower arrangement requires a proper selection of flowers.

The following points are to be considered in this regard:

1. The best time for cutting flowers and foliage is either in the morning or evening. The stems should be as long as possible.
2. After cutting, keep them in a bucket of water or basket in the shade. A pair of sharp scissors may be used for cutting flowers.
3. If the flowers are not arranged immediately, then they should be carried in wet newspaper or banana leaf and then put into polythene bags. Before arrangement, they are recut and immersed in deep water. The leaves close to the base of the stem should be removed.
4. Warm water should be placed in the container before the arrangement.
5. A piece of charcoal will keep the water pure. Sugar in water (2 teaspoon to a pint of water) will keep most flowers to last. Ammonia salt or camphor may be added in small amounts in water in order to kill the bacteria's and to increase the life periods of flowers.
6. Do not mix delicate and fine textured flowers with rough and heavy ones.
7. Delicate flowers should be arranged in delicate containers and rough flowers in a heavy pottery containers.
8. The tallest flowers are arranged first. Plant materials should cover the rim of the flower vase. All fully blossomed and large flowers should be placed low, and the small flowers in groups or bunches.

Types of Flower Arrangement:

There are various types of arranging flowers. The arrangements should be in conformity with nature as far as possible.

Some of the common types of flower arrangement are:

1. Line arrangement:

In this arrangement, the element line is most important and emphasized more. In this type of arrangement only small amount of plant materials are used.

The followings are some of the line arrangements:

- In vertical line arrangement the flowers are arranged in a vertical line in a flat vase.
- In horizontal line arrangement flowers are arranged in a tall flower vase. The flowers can be placed in the centre and sprays on the sides.
- The pyramid is another type of line arrangement. In this case flowers are arranged in a symmetric triangle with its diminishing line from base.
- The triangular arrangement is also a type of line arrangement. This is an asymmetrical arrangement. It represents three forms like Heaven, Man and Earth. This arrangement produces rhythmic effect.
- In the oval arrangement, the flowers are arranged in a tall vase, so that the whole composition forms an oval shape.

- Crescent is another form of line arrangement in which a flat, a square or a tall vase can be easily used. It is a very beautiful flower arrangement.

- The Hogarth Curve is a line arrangement of flowers which has extraordinary grace and movement. It is also called as 'S' form of arrangement.

Line Arrangement is very popular among the Japanese.

2. Mass arrangement:

Large amount of plant materials, flowers, foliage, leaves are required for this arrangement. In this type of arrangement, grouping of flowers and their colours play an important role. The mass arrangement may be compact or semi pact. A large flower is arranged in the middle point to have a focus on it. This type of arrangement is used in large rooms, corners and big formal parties.

3. Combination of Line and Mass arrangement:

In this arrangement both line and mass arrangements are combined together. The best parts of these two arrangements are taken. It is very charming, beautiful, interesting and attractive. Design is emphasized in this arrangement. Some examples of this type of flower arrangement are triangular, pyramid, circle, semi-circle, crescent and basket.

4. Miniature arrangement:

This type of flower arrangement is known as Diminutive arrangement. As the name suggests everything is used in a miniature form in this arrangement. Small flowers are arranged in small containers, bottles, shells, ashtrays, small bowls or glasses. This arrangement is used on food trays, dinning table, side table of the bed room, on wash basin or children's rooms. The size of miniature arrangement should not be more than five inches.

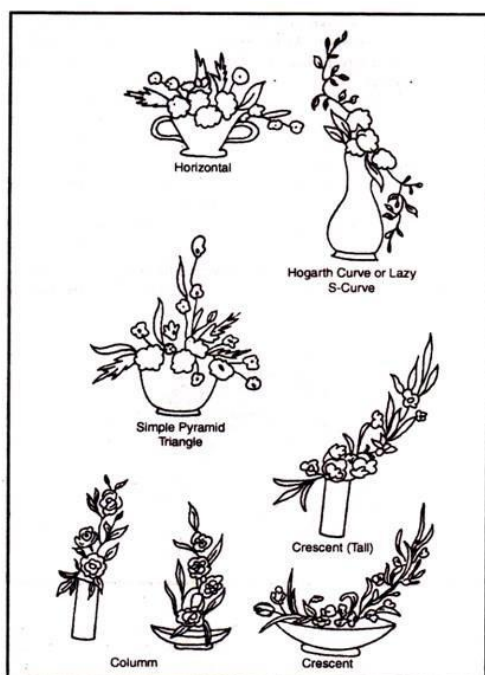


Fig. Different Types of Flower Arrangement

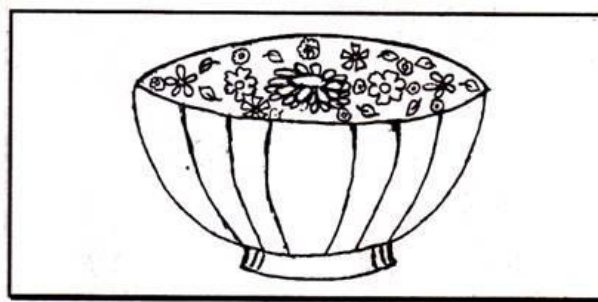


Fig. Floating Style arrangement

5. Floating arrangement:

Flowers can also be arranged in floating style. Lotus, water lily and hyacinth can be arranged in such a way that they seem to be floating in a pond. Shallow bowls or trays are taken as a container for floating arrangement. For this arrangement, the stems of the flowers should be cut short.

The flowers should be completely cover up the water. The largest and most attractive flower should be allowed to float in the centre with the others grouped around. Different coloured flowers or petals of rose and other flowers may be used in this type of flower arrangement.

6. Dry Flowers arrangement:

When fresh flowers are not available in plenty, dried flowers, leaves and foliage may be arranged. Wood roses, wood berries, cones poppy heads, beech, eucalyptus, ferns, seed, pods, cotton, wheat com etc., may be used in dry arrangement.

Tall grasses, brooms may also be arranged. Dry materials can be painted in white, silver or gold before the arrangement. In some dry arrangement feathers of the birds, paper flowers and glass bangles are also used. A good colour combination will give a pleasing effect in dry flower arrangement.

7. Japanese Flower Arrangement:

Japanese have developed the arrangement of flowers as an art. Flowers play an important role in their life. The Japanese art of flower arrangement is known as “Ikebana” which is a most popular style of Japan as well the whole world. This arrangement gives emphasis on line arrangement.

After the completion of the arrangement, it creates a natural effect and looks like a tree with flowers. In this arrangement emphasis is also given on the use of foliage. It is an oriental style of flower arrangement. Japanese have special flower arrangement for different occasions and ceremonies. Some of the Japanese flower arrangement are Moribana, Nageire, Shaka, Pikka, Ukibana etc.



Styles in Flower Arrangement:

There are three main styles in arranging flowers:

1. Traditional style:

This is a formal arrangement. In this style a number of flowers of various kinds, colours, textured and size are arranged together with leaves and foliage in the decorative container. The arranged flowers present a multicolored mess effect. Generally, this style is adopted in most of the house which is a very easy process of arrangement.

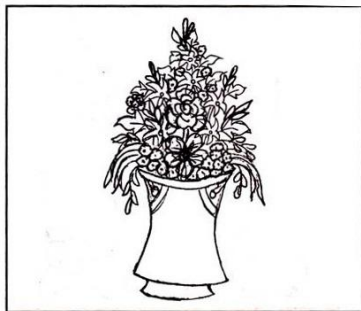


Fig. Traditional Style

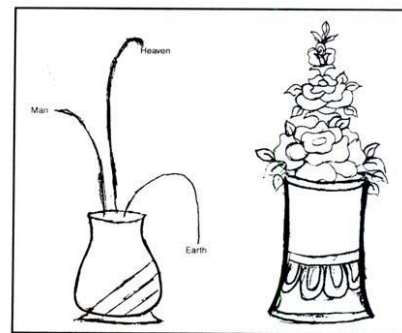


Fig. Oriental Style



Fig. Modern style

2. Oriental style:

This is a Japanese mode of flower arrangement. This style gives the impression of a natural growing plant. The arrangement is very simple, symbolic, meaningful and informal. It is also a line arrangement. The stems are so arranged that their lines form an attractive pattern. There is a good balance and proportion of flowers, stems, colours, shape and flower vase. The flowers chosen in this style is always an odd number, for example, three, five, seven or eleven.

The whole arrangement is divided into three parts. It has three branches whatever the number of flowers used. The three branches are symbolic of Heaven, Man and Earth. The longest branch signifies Heaven, the middle one Man and the lowest one Earth. The length of the highest one or Heaven should be one and half or twice of that of the flower vase. Buds are arranged at this place.

The flowers at the medium height symbolize Man. Smaller flowers or half blossomed flowers are arranged at this place. The smallest branch pointing downwards symbolizes Earth. Largest or full blossomed flowers are arranged here. If more than three stems are used, they should be arranged in such a way to create the impression of three. One coloured flower of varying values and intensity, and a single textured flower is arranged in oriental style.

3. Modern Style:

This is a combination of traditional and oriental style of flower arrangement with a leaning towards the later. In this style, different coloured, textured and size of flowers are taken, but the arrangement should be like oriental style which symbolizes Heaven, Man and Earth.

PRINCIPLES OF FLOWER ARRANGEMENT:

Flowers can be arranged by adopting the principles of element of design.

Balance:

There should be proper balance in flower arrangement, so that it can look stable. To have proper balance, the heaviest plant materials, longest stems and biggest flowers should be arranged in the centre close to the vase. The balance may be formal or informal. In formal balance both sides of the centre of the container are similar. In informal balance, heavy flowers are arranged on one side of the centre and light flowers or leaves and foliage on the other side. There must be balance in texture, size, weight and colour of the flowers while arranging the flowers.

Proportion:

Proportion plays an important role in flower arrangement. Proportion of various components like flowers, stems, foliage and containers or flower vase should be maintained. The flower with the longest stem should be so placed that its head comes above the centre of the container. The stems of other flowers should be cut to proportionate height. Tall arrangement should be narrow in shape and thin at the top. The tallest stem should be one and half times the height of the vase. In a horizontal arrangement, the width of the arrangement should be one and half time the width of the low vase used. The size of the entire arrangement should be proportionate.

Emphasis:

It is the focus or centre of interest. The emphasis in flower arrangement is usually in the centre of the arrangement. It is the point where the eye is attracted. Emphasis can be created by using dark coloured or large size flowers. Heavy and long stems may also be used.

Rhythm:

It is the visual movement on the arrangement. This can be achieved by blending of colours, balancing of curves and shapes in the arrangement. Rhythm enables the eye to move easily from one part of the arrangement to the other. The arrangement can either be slanting or upright or it may form C or V curves. Flowers can be arranged from dark to light colours or big to small size and in any line.

Harmony:

It is an important principle in flower arrangement. All parts of the arrangement are exhibited. Harmony can be achieved in colour, shape and number of leaves or flowers used. The design of the flower arrangement may be in the shape of diamond, oval, the letter L or S, crescent, horizontal, triangular, vertical, diagonal or circular.

SELECTING THE PERFECT PLANT CONTAINER

Too often, interior plants and the decorative containers are added as last minute accessory items. Before you make a mad dash to the garden center, use these 9 steps to select the right indoor plant container for your space:

Don't settle. If you've taken time to select stylish furnishings, don't settle for boring planters from a big box store. There are countless resources available from independent retailers, antique stores or online. Spend time to find the right planters.

Understand Scale. The planter size should be in proportion to the plant. For table top plants, a decorative planter should have a diameter that is at least 1 inch larger than that of the grow-pot (the black nursery pot that the plant comes in). Large floor plants typically require a decorative container with a diameter that is 2 to 4 inches larger than the grow-pot.

No Drainage Holes. For indoor use, your decorative container should be water tight with no drainage holes, otherwise leaks could cause damage to carpeting and floor finishes. If you select a material that sweats or breathes such as ceramic, use a water tight plastic liner within the planter. If you purchased a planter with holes,

carefully fill in the holes with waterproof materials such as epoxy. Double potting the interior of ceramic or terracotta is recommended.

Complement the color scheme. Decide if you want your planters to blend-in or “pop.” Transitional interiors call for contemporary planters with a rich or creamy finish. On the other hand, stark, modern interiors consisting mostly of blacks, whites, and grays need bright-colored planters to cheer up the spaces. Terracotta and wood planters can provide warmth and timeless style versatility.

Look at the hardware. Metallic planters or those glazed with metallic finishes are good defaults for the home or office. Use the color of the knobs, hinges and furniture legs as a guide for selecting the metallic finish.

Think series, not groupings. Don’t cluster those Peace Lilies in the corner. Create a series. Position the plants linearly or stagger the heights. Tall, V-shaped planters are superb in series of three, and are especially stunning in bright colors.

Select plants before the artwork. Artistic placement of a tall, bright-colored series of planters along a wall or corridor can replace the need for artwork. As plants and planters are inexpensive, it will allow you to allocate more of your budget to fewer, nicer pieces of art.

Get focal. When decorating with plants, less is more. A few strategically placed specimen trees in substantial containers produces the ‘wow’ that finishes a room.