DESIGN CONSIDERATIONS

INTERIORSCAPE PLANNING INVOLVES BUILDING AND PLANT SPECIALISTS

BY JOHN MINI

ChemCourt *on Park Avenue in New York City depends more on its interior landscaping than its exterior landscaping.*

Amidst the towering buildings and traffic clogged streets of New York City are lushly landscaped interiors exemplifying the "state of the art" in Indoor Landscaping. Projects like Olympia & York's Park Avenue Atrium and Chemical Bank's gift of greenery to New York-ChemCourt.

These spaces have become focal points with thousands of people enjoying the gardens everyday. Because of these interior plantings' critical importance, the necessary careful planning is being carried out earlier in a project than ever before. This planning must be a cooperative effort between all parties involved; the project architect, general contractor, lighting engineer and sometimes even the plumbing contractor must work together with the interior landscape contractor to insure a successful, trouble-free interior planting.

One of the first planning steps of the entire project should concern the first phase of an interior landscape project. Certain critical aspects, which are often overlooked until building design is too far along, should now be considered. Proper design of the space in which the foliage will be placed begins now, and certain design factors must be incorporated into the early phases of the architectural drawings. Sufficient lighting, accessible water sources, positive drainage and adequate access must be examined and found sufficient to complete the project.

These examinations are carried out by the architects in the early design stages. Professional consultation must be utilized to insure the success of the project. Selection of the proper foliage material to suit the design space should be a joint accomplishment, as in the Park Avenue Atrium, 466 Lexington Avenue, New York City. The designer, Edward Durrell Stone Assoc., and my firm, Indoor Landscapes Ltd., worked closely together on the plant specifications as well as the other critical aspects of the project.

The plant specifications for this 23 story atrium were carefully drawn up to insure the proper selection of material that would both fulfill the aesthetic requirements set by the designer and provide the health and longevity wanted by all concerned. The 1400 vining *Philodendron* were chosen to match the polished chrome finish of the balcony floors. The solid gray-green leaf of the *Philodendron* along with three and four foot long runners were individually potted for lushness and fullness. The designer felt the *Philodendron* would create a less harsh effect than a variety with a variegated leaf.

Plants such as these *Philodendron* must be grown by contract and the interior plantscapers must be able to project the replacement rates in the upcoming months and years to handle normal deteriorations, as well as losses due to insect and disease infestations.

Plant needs must be incorporated into architectural drawings.

In the Park Avenue Atrium for example, the lighting dropped off considerably towards the lower balconies. The faster deterioration of the vines on the lower balconies was anticipated and many options were considered to insure a uniform look at all the balcony levels. Artificial lighting and rotation were considered but a greater replacement rate was ultimately planned as the solution to this particular problem.

The eighteen foot *Ficus benjamina* which were selected for the Park Avenue Atrium were specified with thirteen foot spreads and designed to have the tree crowns placed "tip-to-tip" to create a pleasant canopy effect.

Foliage material of this size is sun-grown in Florida nurseries and must be acclimatized by first being placed in grow pots, and later under shade houses to prevent excessive shock and to allow the plant to adapt to the interior environment. Plant inspection at the nurseries by both the designer and interior plantscapers is recommended.

In addition to approving the actual specimens, the designer should also understand that the sun-grown material will change its aesthetic appearance once it becomes fully acclimatized. The trees are selected and tagged to begin the acclimatization period at least six months prior to installation. The benefits of a thorough acclimatization period were clearly shown in Chemical Bank's ChemCourt on Park Avenue in New York City. Because of the unusual nature of much of the plant material it was chosen early. Early selection provided an acclimatization period of three to six months. Because of the ideal length of this period, the predictable shock to the plants was greatly reduced. One variety, the *Bucida Buceras*, or Black olive tree, defoliated far less than anticipated.

A major factor which must be considered in the early phases of any project is the lighting. Lighting for plant maintenance must be examined in terms of intensity, duration and quality. Minimum lighting intensity for any interior plantscaping should be no lower than fifty footcandles on the ground plane.

It is important that lighting intensity for selected plant material should be planned early in the design process. Duration should be planned for a continuous 12-16 hour day, seven days per week. Artificial and natural lighting must be incorporated in the design space to efficiently provide a consistent, effective, lighting environment if the plant material is to survive.

Coordination between the designer, interior landscape contractor, and lighting engineer may be necessary to achieve both the necessary light levels for plant maintenance and a pleasing color rendition. With the wide variety of high output incandescent and H.I.D. (high intensity discharge) fixtures available, excellent results can be achieved.

Another condition to consider when selecting a variety is the temperature of the space. Normal

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best alternative. These drains are covered with some type of protective material to prevent clogging. Next to be installed would be a level of a course drainage material, followed by a Fiberglass soil separator, and finally the fill medium. With or without floor drains, a useful tool is the addition of a PVC pipe that reaches into drainage level. This should protrude above fill medium, hidden by planting, and provides the insurance of a check and removal system for excess water.

Support media must also be specifically designated to insure a high quality mix in the planting. One often recommended medium is a soilless mixture. The light weight of this mix, along with its high porosity for good drainage, make it desireable for many projects.

The actual drainage material for large material is usually gravel, chosen for its ability to support the heavy weights involved and to resist compaction. In areas where weight is a critical factor, perlite is often chosen for its lighter weight.

In cases where many varieties are planted in the same box, extra precautions must be taken to insure that each plant is in its preferred moisture condition. A good example of this situation can be found in the Park Avenue Atrium. In the same balcony planters that contain the Philodendron are a line of seasonal flowers that are changed every two weeks. These flowers need to be kept thoroughly moist to remain fresh. Small plastic pots without drainage, or "pot

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operating temperature within the finished space is the most critical, but temperatures during the installation phases are critical as well.

An excellent example is the Park Avenue Atrium in which temperatures varied throughout the entire atrium during construction and early installations; this was a result of drafts caused by unsealed sections of the windows and glass wall. Temperatures were checked with maximum-minimum therometers and pre-installation temperatures were noted to often be below 50°. Large industrial space heaters, were called in as back-up in case of emergency. As a rule, selected foliage material must be tolerant and able to adapt to the final on-going temperature range. The heating, ventilation and airconditioning (HVAC) system must be designed to avoid drastic conditions and monitored to eliminate extremes.

The water supply is another critical component to be examined early in the design stages. The water must be of a quality sufficient to meet the plants' needs, and if necessary, treatment procedures must be provided. In addition, access to both hot and cold water sources is essential. In cases where hoses are to be used to water, adequate sources are recommended to avoid the use of hose sections longer than fifty to seventy five feet.

Adequate drainage is critical for any planting. Positive drainage systems providing floor drains are the

shields," are placed in the planter. The seasonal flowers go into these "pot shields," and without overwatering the Philodendron, the flowering plants can be kept wet enough to permit their use in these locations.

Prior to installation, regular site inspections enable the interior landscapers to prepare their crew with the necessary equipment and develop delivery and installation coordination and scheduling. Installations often take place while the area is still under construction and accessibility to the planting site is often difficult.

It is often necessary to use an intermediate staging area to store materials. In conditions where temperature is a problem or access to unloading areas are limited, the early planning of a staging area can prevent serious problems.

Deliveries of most of the specimens in Chemical Bank's ChemCourt were organized in such a manner that each truckload was arranged to provide an efficient installation sequence. The delivery of large specimens were spread out over four days and the order that each plant was loaded (opposite to the order of unloading desired) was carefully planned.

A total of 7 trailers of materials were used; in one sequence 5 trailers of plant materials were delivered and installed in 5 days! After completion of drainage material installation, experienced crews begin filling the large built-in planters with layers of soil mix, wetting each layer thoroughly for proper planting and necessary compacting. Hoists and other construction equipment may sometimes be necessary for the installation of larger plant material or for inaccessible areas.

Again using ChemCourt as an example, limited access areas must be considered early in a project. The ChemCourt has balcony planters 30 - 40 feet off the ground level. Backed by a permanent glass wall, these are accessible only from the atrium side. A hydraulic platform was required to plant these boxes. Extra care must be taken not to damage finished surfaces like carpeting, chrome and polished marble finishes.

Much of the success of an interior planting depends on the materials and methods described above but the continued success depends upon the service personnel who maintain the interior landscape. The unique flowering displays in the Park Avenue Atrium are changed every two weeks, all with off-hours labor. A total of twelve hundred (1200) seasonal flowers are changed. To insure a variety of flowers and special effects for seasonal displays, close cooperation between the owner and designer is essential. Gloxinia, poinsettas, chrysanthemums, azaleas and caladiums are some of the varieties that have been used and fully maintained. In addition, special holiday season displays are designed and installed many times each year.

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EVENTS

The current issue of WEEDS TREES & TURF carries meeting dates beginning with the following month. To insure that your event is included, please forward it, 90 days in advance, to: WEEDS TREES & TURF, Events, 7500 Old Oak Boulevard, Middleburg Heights, OH 44130

21st Annual North Carolina Turfgrass Conference, Pinehurst Hotel, Southern Pines, NC. **Jan. 4-6.** Contact L.T. Lucas, 3409 Gardner Hall, NCSU, Raleigh, NC, 27650, (919) 737-2751.

Tennessee Turfgrass Conference, Music City Rodeway Inn, Nashville, TN. **Jan. 6-7.** Contact Brenda Goins, Executive Secretary, Central South Turfgrass Foundation, 2837 Logan St., Nashville, TN 37211, (615) 832-7725.

Maryland Turfgrass '83, Baltimore Convention Center, Baltimore, MD. **Jan. 10-12.** Contact Dr. Thomas Turner, 112 H.J. Patterson Hall, University of Maryland, College Park, MD 20742, (301) 454-3716.

Southeastern Pennsylvania Turf School and Trade Show, Westover Country Club, Jeffersonville, PA. **Jan. 11-12.** Contact Keith Zanzinger, Chester County Extension Service, 235 W. Market St., West Chester, PA 19308, (215) 696-3500.

Southeastern Pennsylvania Turf School and Trade Show, Westover Country Club, Jeffersonville, PA. **Jan. 11-12.**

Nebraska Turfgrass Conference and Trade Show, Holiday Inn, Omaha, NB. **Jan. 11-13.** Contact Robert C. Shearman, University of Nebraska, Dept. of Horticulture, 377 Plant Science Bldg., Lincoln, NB 68583, (402) 472-1143.

Ohio State University Landscape Design Short Course II, Fisher Auditorium, Wooster, OH. **Jan. 12-14.** Advanced Landscape Design. (Short Course I is prerequisite). Contact Fred K. Buscher, Area Extension Center, OARDC, Wooster, OH 44691, (216) 262-8176.

New Hampshire Turf Conference, Sheraton-Wayfarer Motor Inn, Bedford, NH. **Jan. 13-14.** Contact John M. Roberts, Extension Specialist, Cooperative Extension Service, University of New Hampshire, Plant Science Dept., Nesmith Hall, Durham, NH. (603) 862-1200.

Rocky Mountain Regional Turfgrass Conference, Colorado State University Student Center, Ft. Collins, CO 80523. **Jan. 13-14.** Contact Jack D. Butler, Dept. of Horticulture, CSU, Shepardsen Bldg., Ft. Collins, CO, (303) 491-7070.

53rd Annual Michigan Turfgrass Conference, Lansing, MI. **Jan. 18-19.** Contact Dr. Paul Rieke, Michigan State University, Dept. of Crop and Soil Sciences, East Lansing, MI 48824, (517) 355-0266.

Virginia Turfgrass Conference and Trade Show, Norfolk, VA. **Jan. 18-20.** Contact Dr. John Hall, Agronomy Dept., Virginia Polytechnic Institute and State University, Blacksburg, VA, 24061, (703) 961-5797.

Iowa Turfgrass Conference, Des Moines, IA. **Jan. 19-21.** Contact Norman Hummel, Horticultural Dept., Iowa State, Ames, Iowa, 50011.

Maine Nurserymen's Association Annual Meeting, Augusta Civic Center, Augusta, ME. **Jan. 20.** Contact Richard Churchill, Executive Secretary, MNA, PST/SMVTI, South Portland, ME 04106, (207) 799-7303.

Ohio Nursery Short Course and Trade Show, Hyatt Regency, Columbus, OH. **Jan. 24-27.** Contact Dr. Elton Smith, Ohio State University, 2001 Fyffe Court, Columbus, OH 43210, (614) 422-9775.

University of Tennessee Winter Short Course, University of Tennessee. **Jan. 24-27.** Contact L.M. Callahan, Dept. of Ornamental Horticulture, P.O. Box 1071, University of Tennessee, Knoxville, TN 37901, (615) 974-7324.

Northern California Professional Turf and Landscape Exposition, San Mateo, CA. **Jan. 26-27.** Contact Chet Sarsfield, NCTC, P.O. Box 268, Lafayette, CA, 94549, (415) 283-6162.

National Christmas Tree Association Fourth Annual Christmas Tree Marketing Conference, North Park Inn, Dallas, TX. **Feb. 11-12.** Contact National Christmas Tree Association, 611 E. Wells, St., Milwaukee, WI 53202.

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Due to the widely differing environments encountered, varying service techniques must be employed. Continual supervision is essential to ensure that no disease or watering problems develop that might elude a service technician. In heavily planted areas, preventive spraying programs by licensed pesticide applicators are a logical step. In spraying large planted areas, special care must be taken to protect the surrounding areas with plastic tarpaulins.

Acclimatization should begin six months before installation.

Special crews must also be scheduled to perform the periodic cleaning and pruning necessary for large specimens. Equipped with ladders, brooms, hand pruners, and pole pruners, these crews do most of their work at night to allow minimum disruption in the work space.

The future of indoor gardens and spectacular atria like these looks very bright. Experiments in lighting methods are presently being carried out with the hope that more efficient, less expensive means to light large spaces can be developed. In addition, careful testing by the contractor of flowering plants that can exist in the stressful indoor environment holds promise for more colorful and varied indoor plantings. Exotic flowers, such as Gerbers, Arabian violets, and New Guinea Impatiens are being evaluated for durability on-site prior to installing large quantities.

The future of indoor gardens and spectacular atria looks very bright.

As the complexity of these plantings increases, the need for close cooperation between the designers and the interior landscape contractor also increases. This cooperation holds great promise for the interior landscaper's continued rise in stature and professionalism.