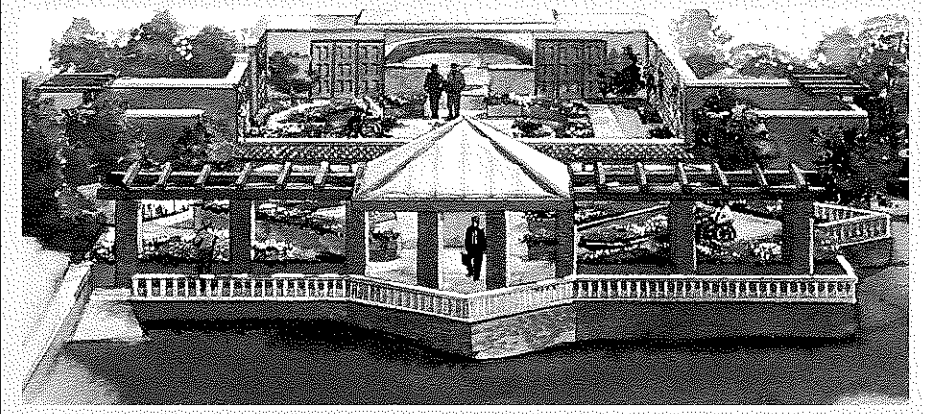
The Buehler Enabling Garden: Gardening for People of All Abilities

Cindy Tyler
Marshall, Tyler, Rausch
Pittsburgh, Pennsylvania
with Gene Rothert
Manager of Horticultural Therapy Services
Chicago Botanic Garden



When Chicago Botanic Garden's new Buehler Enabling Garden opened it doors this summer, it invited people of *all* abilities to come inside and experience the pleasures of gardening. A carefully considered plan, along with adherence to "universal guidelines," laid the groundwork that resulted in a new garden and program, which could serve as a template for other public gardens.

The Chicago Botanic Garden always has been committed to the concept of welcoming all visitors—regardless of their abilities—to fully participate in and enjoy its grounds and range of programs. This past summer, 22 years after launching its horticultural therapy program and its first Enabling Garden, the Chicago Botanic Garden opened its new Buehler Enabling Garden—and in so doing, reaffirmed its commitment to horticultural therapy and safe, comfortable, and healthy gardening for everyone.

The new Enabling Garden does more than reach out to people with disabilities: It serves as a showcase for teaching visitors to the Chicago Botanic Garden that all people can reap the benefits of gardens and gardening. As such, it clearly demonstrates that a garden can be both beautiful and accessible. While many gardens and the general public tend to associate accessibility with a maze of ramps, handrails, unimaginative planters, and uninteresting walkways, it does not have to be that way if the Garden is planned and designed with care.

Planning with Purpose

Planning for the Buehler Garden began more than two years ago, when an interdepartmental staff team began meeting to re-evaluate the 20-year-old program and to refine its teaching messages and educational programming in terms of the Garden's new overall Interpretive Master Plan.

"The new Enabling Garden serves several purposes," explains Gene Rothert, Chicago Botanic Garden's manager of horticultural therapy. "First, it is an exemplar of barrier-free garden design, tools, techniques, and plant materials, grounded in universal design principles. Second, it offers resources that anyone can use to become or continue to be a lifelong gardener. Third, the garden helps to increase public awareness of horticultural therapy as a valuable treatment alternative for people served by the health and human service sectors.

"We also plan to expand our professional training opportunities—as a result, our horticultural therapy program will include study tours, internships, symposia, and ultimately a certificate program," continues Gene. "Next July, we plan to host an international symposium on barrier-free outdoor design and programming. With 'Interaction by Design: Bringing People and Plants Together for Health and Well-Being,' we hope to attract more than 350 researchers, designers, and programming professionals.

"The Enabling Garden's mission has broadened to serve a wider audience. We want to show that anyone can garden and that anyone can benefit from gardening. The techniques demonstrated in the Garden will help anyone garden safely and more comfortably, regardless of their age or physical abilities."

Designing for Beauty and Accessibility

Chicago Botanic Garden's original Enabling Garden occupied a small site tucked away next to the production facilities—a location that did not encourage use by everyday visitors to the Garden. Geoff Rausch and Missy Marshall of Marshall, Tyler, Rausch suggested building a new facility in a location that would give it a higher profile at the garden. Led by CBG President Barbara Carr and the Enabling Garden's donors—the Buehler Family Foundation—the Garden embraced the idea of showcasing the Enabling Garden and locating it in the heart of the Chicago Botanic Garden (see page 38).

The completed Enabling Garden is an 11,000-square foot facility that contains state-of-the-art features and appropriate garden design, which builds upon more than 20 years of staff experience working in gardens with people of all ages and abilities. CBG estimates that at least 400,000 people per year will learn about accessible gardening by visiting the Buehler Enabling Garden, when it is fully operational.

The North Pavilion area (a 500-square foot outdoor classroom) includes tented space to protect visitors from bright sun and inclement weather, restrooms, storage, small offices, and an information center designed to resemble a tool shed. In addition to offering books and fact sheets, the Tool Shed exhibits (and sells) adaptive tools and other assistive devices. The Garden's manager, Maria Gabaldo, M.Ed., OTR, HTR, as well as a summer student intern, and a trained group of volunteers support a range of daily public exhibits and programs. In addition, groups of as many as 15 people from area health and human service agencies will be invited to experience the garden.

Moving south, the Container Court features a central court filled with plants in containers, encircled by raised beds. The Gallery Garden—the entrance garden for visitors traveling through to the Sensory Garden to the west—is a lively, colorful, and

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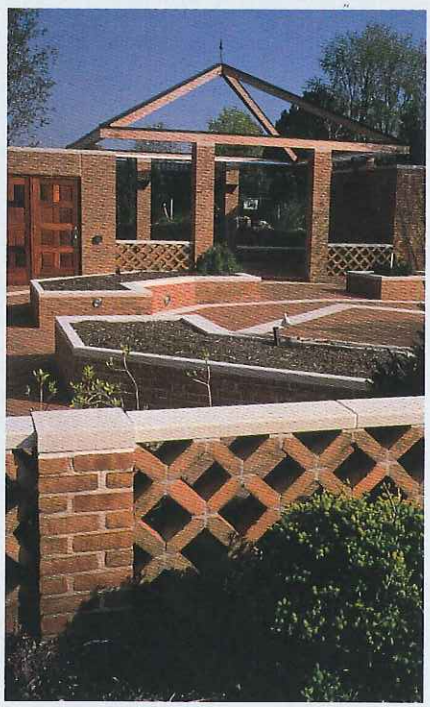
What Are Universal Design Guidelines?

Ron Mace, the late architect, began using the term "universal guidelines" more than 15 years ago, when he realized that the gardens he designed for people with disabilities were actually easier for everyone to use.

The goal of the universal guidelines is to create buildings, outdoor spaces, products, information, etc., that can be used independently by anyone, regardless of age, ability, or cognition. Philosophically, the universal guidelines are inclusive—not exclusive; designing for the broadest possible audience avoids the creation of special places that separate a group from others.

Everyone who lives long enough to experience the changes in ability that naturally occur with aging or the functional effects of illness or accidents, whether or not they are permanent, can benefit from these seven universal guidelines:



Guideline 1. *Equitable use:*
The design is useful and marketable to any group of users.

Guideline 2. *Flexibility:*
The design accommodates a wide range of individual preferences and abilities.

Guideline 3. *Simple and intuitive use:*
The design is easy to use, regardless of the user's experience, knowledge, language, skill, or current level of concentration.

Guideline 4. *Perceptible information:*
The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

Guideline 5. *Tolerance for error:*
The design minimizes hazards and the adverse consequences of accidental or unintended actions.

Guideline 6. *Low physical effort:*
The design can be used efficiently and comfortably and with a minimum of fatigue.

Guideline 7. *Size and space for approach and use:*
Appropriate size and space are provided for approach, reach, manipulation, and use, regardless of user's body size, posture, or mobility.

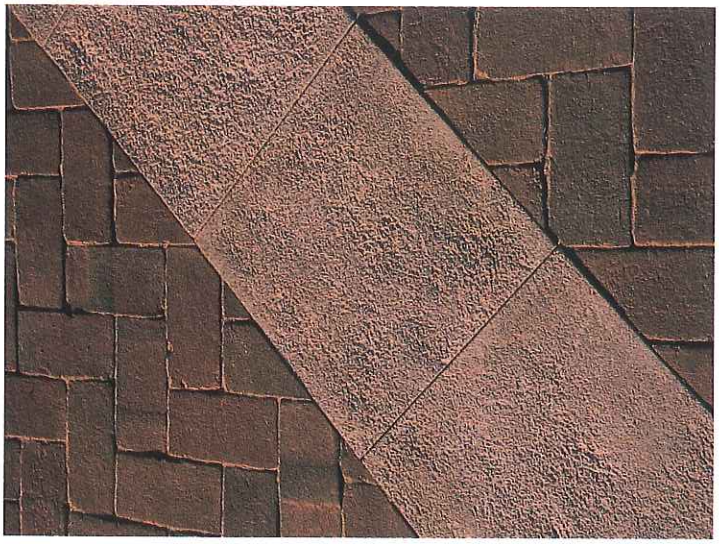
—Gene Rothert

Interpretive Tools at the Buehler Enabling Garden

Interpretation at the Buehler Enabling Garden has been designed in accordance with Chicago Botanic Garden's Master Interpretive Plan, created in 1997. At each of the main entrances to the Enabling Garden, a sign accompanied by a three-dimensional model of the Garden provides a welcoming overview and invites visitors to stop by and see the other interpretive resources available at the Tool Shed. Within the Garden, permanent signs highlight key features through highly visible and readily understood text and illustration. Temporary panels provide time-sensitive information about the day's programs, demonstrations, and plant displays.

To increase the depth of information and to reach a broader range of audiences, the Enabling Garden offers information in alternative formats, including large print and audio tapes. As the following chart shows, the Garden uses a wide variety of features and tools to communicate a variety of messages about lifelong gardening and how to practice it.

Garden Features	Accessibility Ideas	Sub-Messages	Plants	Interpretive Tools
Containers	Varied heights bring working surfaces within reach; every visitor can see and touch	Good in small spaces; can be moved to accommodate plant requirements or design needs; soil can be amended; variety of plants can be grown	Bright-colored annuals, vegetables, and herbs offer a variety of textures and fragrances (examples: heliotrope, bush bean, basil)	Fact sheets on containers; brochure; container plant combination "recipes"; tour
Raised Lawn	Lawn surface is raised to allow access by persons with limited mobility	People with mobility restrictions can lie in the grass and experience the sensation	Bluegrass lawn surrounded by 2' hedge of 'Tiny Tim' arborvitae	Sign; brochure; therapeutic programs; tour
Aquatic Garden	Working surface at 24 inches; height and width of bed wall allow access for sight and touch	Water elements; water has multi-sensory appeal; you can grow aquatic plants	Waterlilies and marsh/shoreline plants provide a tropical look to the fountain area	Water gardening fact sheet; water features in brochure; plant labels; tour
Vertical Walls	Walls are built to accommodate those with limited reach and bending ability; grid planting area for those with limited vision	Good for small spaces; easy to construct; dramatic display	Mix of cool crops in spring (example: lettuces with pansies); annuals in summer (example: impatiens and lemon thyme)	Fact sheets for construction and plant choices; signs; plant labels; tour
Water Wall	Sound of waterfall draws attention; construction and placement allows for touching	Soothing multisensory effect benefits all	N/A	Tour
Roll-Under Beds	Work surface raised to accommodate those who need access at various heights; clearance below bed allows every visitor access	Therapeutic benefit for people with mobility restrictions; not all plants can flourish in shallow beds	Combination of colorful, shallow-rooted, fragrant annuals, vegetables, and herbs (examples: pinks, radishes, oregano)	Sign; tour; brochure; plant labels
Various Raised Beds	Raised beds of varied heights and widths allow access to a variety of people	Width of walls can provide access; variety of heights provides best access for a variety of needs; some plants grow better in raised beds	18" beds in container court have programmatic themes; 6" beds in gallery include falsecypress, serviceberry, and honeysuckle; beds in vista garden include miscanthus, daisy, and Siberian peashrub	Signs; brochure; fact sheets; tour
Tactile Bed	Work surface raised to allow access at 24"; grid allows tactile orientation of space	Sense of touch adds to the appreciation of "green," especially for those with visual impairments	Front: Annuals have tactile interest (globe amaranth, fountain grass); back: low-maintenance, fragrant plants	Sign; tour; brochure
Paving/Grading	Color contrast between surface paving and walls helps those with poor vision; change in surface texture aids tactile learners; level grade provides easy access	Textures, colors, and grade of pavements extend accessibility	N/A	Sign; brochure; tour; fact sheets
Irrigation/Watering	Spigots allow easy access; handle designed for those with limited hand strength	Watering is easy if well-planned	N/A	Sign; tour; possible interpretive exhibit
Hanging Basket/Pulley	Winching system requires less strength and energy; placement of pulley cord and cleat allows easy access to baskets	Provides safe access; good for limited space; allows for artistic expression	Combinations of annuals, including those with trailing habit	Sign; tour; brochure; plant labels; fact sheet on good plant choices; live demo
Tool Shed	Location makes it accessible; design illustrates an accessible tool shed	Functions: distribution of tours; display and sale of fact sheets; display and sale of adaptive tools	N/A	Volunteer/interpreter; exhibit



A limestone band of contrasting color and texture signals visitors they are entering a new space.

An accessible sink and adjustable cabinets are just two of the design features of the outdoor work station.

PHOTOS BY EPD

inviting space. The Overlook Garden, so named for its commanding views of the south lagoon, is designed as a flexible space for either teaching or evening entertainment. Closest to the lagoon is the South Pavilion, which includes a promenade with benches, hanging baskets (hung with a unique pulley system that allows them to be lowered for tending), and another covered pavilion.

The cooling spray, soothing sounds, and refreshing activity of the Garden's water features delight all visitors. At the "jellyfish" and lily pool fountain, five jellyfish-shaped jets erupt randomly and spill water into the quieter lily pool below. Set at a height and location that wheelchair users can reach over to trail their fingers in the water and experience the aquatic plants, the jellyfish and lily pool fountain extends a lively greeting.

A second set of fountains is located in the Overlook Garden. There, water fills two 4-foot high stainless steel basins, spills over as a wall of water, disappears into bronze grates, then is recirculated to the upper basins. These flanking fountains contribute vitality and sound, and they offer another opportunity for visitors to experience the sensory qualities of water, allowing it to splash over their hands.

Getting From Point A to Point B

Many visitors with special needs must overcome numerous obstacles to gain access into and passage through a garden (consider the challenge of simply getting out of a vehicle). To ease entry into the Buehler Garden, a passenger drop-off and pick-up area are located very close to an entrance. The drop-off walking surface is at the same elevation as the driveway, so a curb is not necessary. Most visitors with disabilities arrive in vans, are discharged at the entrance, and then must wait as the driver or guide parks the van, so nearby van parking and a visitor staging area are important features, as well.

The 8-foot-wide walkway to the entrance of the Buehler Enabling Garden is constructed at a 2.5 percent slope—a slope that does not trigger the need for a handrail according to the accessibility guidelines of the Americans with Disabilities Act, which suggests a handrail for slopes of 5 percent or greater. Throughout the garden, pathways have centerline slopes of less than 5 percent. (For slopes of 5 to 8 percent, landings are recommended every 20 feet, since long stretches can be tiring. Handrails could be needed also, depending on the situation.)

An enabling garden should include accessible hardware and fixtures. The doorway at the entrance to the Buehler Garden is operated by an automatic opener, which is attractively integrated into a wooden pylon surrounded by plantings.

The remainder of the walks in the Enabling Garden slope are at approximately 2 percent and are a minimum of 5 feet wide, so that visitors using wheelchairs or scooters can turn around and two walking gardeners can pass each other. In areas where it was important that two wheelchairs could pass, the paths range from 6 to 8 feet wide.

Walks and courts of the Buehler Garden are primarily paved with brick—a hard, slip-resistant surface for ease of maneuverability. Another advantage of brick is that it allows designers to be creative with patterning, colors, and edging. Where visitors with poor vision cross from one part of the Garden to another, a limestone band of a contrasting color and texture signals them that they are entering another space. To knit the very geometric groundplane together, the limestone banding appears throughout the individual gardens of the Enabling Garden; where it does not denote a change in space, its texture is smooth.

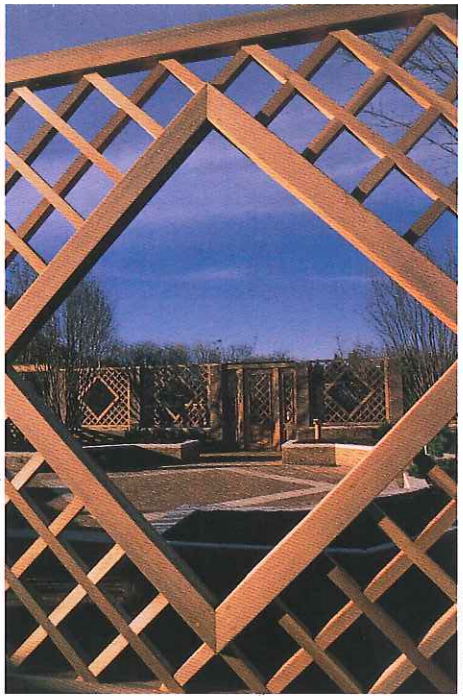
One of the most delightful features of the Enabling Garden is the raised lawn area directly north of the outdoor classroom. Its 18-inch height offers visitors an opportunity to transfer out of wheelchairs and enjoy the feeling of grass beneath feet and between toes.

Planters Within Reach

The Buehler Enabling Garden is more than a place for passively enjoying plants and the garden—it exhibits a variety of raised beds and containers that position growing areas within comfortable reach.

The Garden uses three basic types of raised bed planters: tall planters for walking gardeners; medium height planters for wheelchair users or other seated gardeners; and low curb planters for gardeners to use, with special tools—depending on the gardener's mobility and flexibility.

The raised beds of an enabling garden should be designed to maximize the planting area, while providing adequate structure for the planter walls and seating. Gardeners who have difficulty bending at the waist will find a number of ideas including



PHOTOS BY EPD

ABOVE: **The accessible lawn wraps around the Overlook Garden and South Pavilion promenade.** RIGHT: **Perimeter walls of the Container Court and throughout the Enabling Garden are transparent to invite all visitors to enter.**

42-inch tall planters located in the Overlook Garden. The sides of the tall planters are only 4 inches wide at the soil line to optimize the planting area. The combination of narrow walls and a kick space along the bottom optimizes the gardener's horizontal reach so most can cultivate the entire 30-inch width of the planter.

Medium height planters (18 inches tall) stand in front of the tall planters at the Overlook Garden. These serve gardeners who use wheelchairs or those who wish to sit on the 10-inch wide limestone coping to work in the 52-inch wide beds. In the Container Court, a 10-inch coping along the interior edge of planters provides seating. Since these 22-inch tall, 50-inch wide planters can be worked from both sides, a 4-inch wide coping along the exterior optimizes the reach of a gardener working from the side.

Low raised planters ring the perimeter of the Container Court and the Gallery Garden. These 6-inch high planters allow demonstrations of longer-handled tools that gardeners can use at or near ground level; they also feature plantings that require less maintenance.

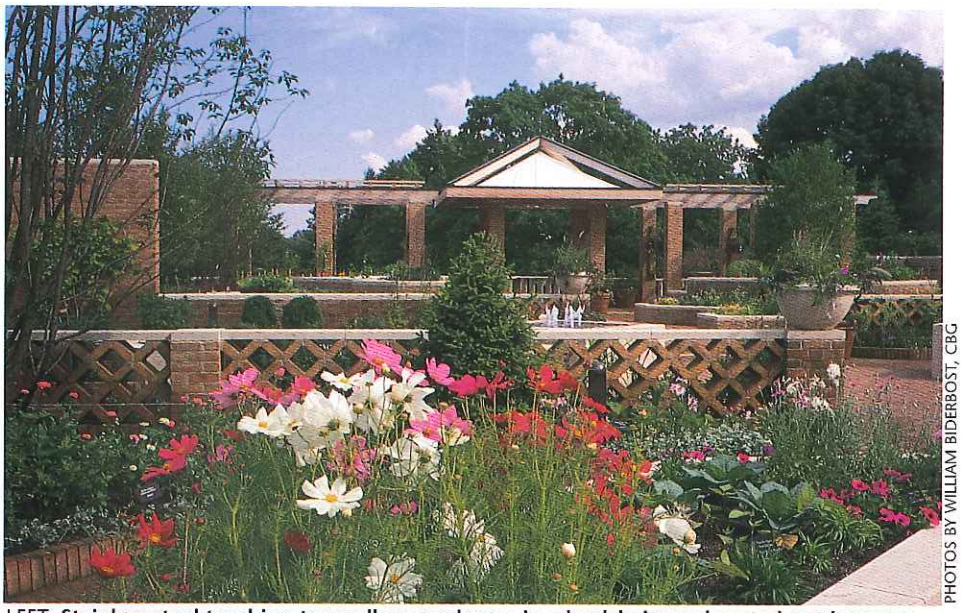
In addition to offering raised planters, the Overlook Garden has several, shallow 6-inch deep stainless steel planting "pans" (2 1/2 feet wide) designed for wheelchair users to roll beneath them so that they can work directly in the beds. One raised bed of the Garden is covered by a grid of stainless steel rods on 12-inch centers that serve as a guide for gardeners who are blind or who have low vision to place plants and seeds. (The coping of the southwest interior planter in the Container Court is notched at 6-inch intervals for the same reason.) A collection of 34 round clay containers at 18-, 20-, and 24-inch heights are positioned throughout the garden, exhibiting additional, accessible growing areas.

The Gallery and Overlook Gardens also contain vertical planters for unique seasonal displays of color. Readily tended by anyone, these planters range from 4 to 5 feet in height and are faced with cedar lath to match the architecture of the surrounding fence panels. Hanging baskets add a splash of color to the South Pavilion area; special pulley systems enable gardeners to raise or lower the baskets so that they can tend them.

Behind the Scenes Needs

"Behind the scenes" amenities—including fully accessible restrooms, storage space, and office space—are essential to the success of an enabling garden exhibit and are most effective when located directly in the Garden, or very close to it.

The Enabling Garden includes many of these support facilities in its North Pavilion area. Of the two unisex rest rooms in this area, one is large enough to include a cot. Drinking fountains are offered in two heights to accommodate all users. Nearby storage space houses standard gardening supplies, special tools, and tables and chairs for outdoor classroom and special event use. Across from the storage area is an outdoor work station with a sink, rolling bins beneath an accessible counter, and overhead cabinets on tracks so that users can lower them to reach "higher" shelves.



PHOTOS BY WILLIAM BIDERBOST, CBG

LEFT: **Stainless steel teaching trays allow gardeners in wheelchairs and seated gardeners to pull up and work directly in beds.** ABOVE: **Raised beds of various heights also ease access.**

Office space at the Buehler Enabling Garden supports the manager and docents and includes lockers for garden volunteers and teaching personnel. Plenty of seating is available in both sun and shade, and benches provide armrests and back support. To offer protection from sun and inclement weather, a 20-by-20-foot white canopy protects the North Pavilion area and a 20-by-15-foot canopy covers the South Pavilion area.

Adequate task lighting is necessary in an enabling garden to support gardeners with poor vision. At the North Pavilion, permanent UL-approved task lighting that would allow the installation and breakdown of the canopy was not available. Instead, ample outlets in this part of the Garden are provided to service mobile lights on stands as needed. These outlets also support catering carts, a public address system, and other uses for outdoor entertaining and other special features.

Visitor Programs

The Buehler Enabling Garden conveys its key messages to visitors through its interpretation program (see "Interpretive Tools," on page 34) as well as through a wide range of visitor programs.

To support the professional staff in the implementation of these programs, the Garden relies on a corps of highly trained volunteers. All of them are gardeners, many have disabilities or are older adults, and some have professional experience in medical or social work. All of the volunteers receive training on disabilities and how they affect function. They also learn proper terms and ways to engage visitors with impaired mobility or sensory abilities. This highly qualified group also helps maintain the horticultural displays. In performing routine maintenance tasks, they send perhaps the clearest message possible that anyone can/should continue to garden and make gardening an important part of their life.

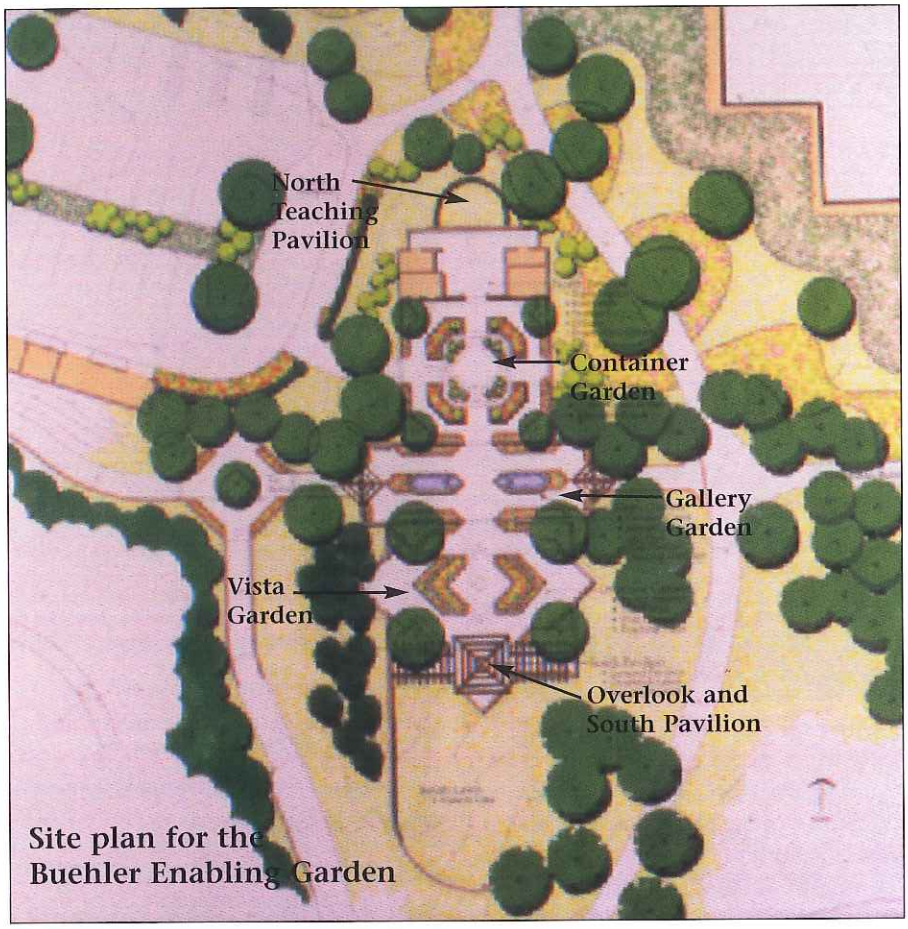
The range of programs at the Buehler Enabling Garden includes:

- **Free, unscheduled tours.** For those who have not scheduled a tour in advance, free tours of the garden are offered. The tour points out the obvious and not so obvious features of the Garden.
- **Fee-based, professional tours.** For architects and planners of health and human service agencies, the Garden offers fee-based, professional tours that emphasize the Garden's design and construction.
- **Scheduled group tours.** Scheduled groups may take a more extensive tour that explains the Garden's unique features, tools, and techniques.
- **Self-led audio tours.** Visitors with impaired vision may take a self-led audio tour, which encourages them to interact with the Garden's horticultural displays and constructed features. Visitors pick up equipment in the Tool Shed Information Center.
- **Scheduled therapeutic programs for groups.** A range of therapeutic programs is available to groups of up to 15 people from regional health and human service agencies. When a reservation is placed, essential information is gathered about the interests, ages, and functional abilities of the group. With this information, an

appropriate, therapeutically-grounded activity is conducted with the group. Activities could include routine maintenance of the plant displays and/or harvest and use of products from the garden, such as a cut flower arrangement or a fresh garden salad, etc. These programs are fee-based to help cover operating costs of the Garden.

- **Demonstration carts.** Demonstrations also are conducted daily on the multi-sensory qualities of plants and enabling tools and equipment. Two specially designed carts staffed by volunteers encourage visitors to experience plants using senses other than sight. The second cart encourages visitors to try various adapted or ergonomically designed tools on display, equipping the visitor to make wise tool and equipment choices.

Through well-planned design features, a prominent location, innovative programming, and state-of-the-art interpretation, the Buehler Enabling Garden empowers people with low or no vision, those who use wheelchairs or walkers, and those who cannot bend or cannot grasp regular tools to aspire to the creation of beauty and to grow and love plants. Thanks to the commitment of the Chicago Botanic Garden, the Buehler Enabling Garden "enables" all visitors to replenish their spirits through the beauty of plants.



Site plan for the Buehler Enabling Garden

Interaction by Design:
Bringing People and Plants Together for Health and Well-Being
July 19–23, 2000
Glencoe, Illinois

Interaction by Design: Bringing People and Plants Together for Health and Well-Being—the 6th International People-Plant Symposium—is being sponsored by The School of the Chicago Botanic Garden, Glencoe, Illinois. This meeting will serve as the People-Plant Council's biennial conference and the annual American Horticultural Therapy Association conference; it is also endorsed by the Therapeutic Gardens Committee of the American Society of Landscape Architects. For information regarding the conference, or to obtain a Call for Papers, contact the Education Registrar at 847/835-8261; or visit http://www.chicago-botanic.org.