

# Design Program

April 2001

North Carolina Botanical Garden  
University of North Carolina at Chapel Hill

Education Center  
Totten Center Renovation  
Outdoor Settings



NORTH CAROLINA  
BOTANICAL  
GARDEN





North Carolina Botanical Garden  
University of North Carolina at Chapel Hill

# Design Program

Visitor Education Center  
Totten Center Renovation  
Outdoor Settings

April 2001



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## Mission of NC Botanical Garden

The North Carolina Botanical Garden is committed to excellence in research, university instruction, conservation, plant collections, and public programs. The Garden advocates four major themes: plant diversity, human dependence on plant diversity, the need for conservation, and the critical role of research in botanical gardens and universities for solving modern problems and increasing human quality of life.

## Vision for the Visitor Education Center

The vision for the Visitor Education Center is to provide a welcoming gateway into the NC Botanical Garden that exemplifies a positive union between natural and built environments. The building should be clearly visible and central, but should not preclude direct entry to the outdoor spaces of the Garden.

*“Nature is here.”*



# I. DESIGN PROGRAM GOALS

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# Design Program Goals

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Two overall goals drive the development of the design program for the Visitor Education Center (VEC) and surrounding gardens.

The Visitor Education Center will provide a “gateway” into the Botanical Garden, helping visitors to focus their attention by creating a "sense of place" and continuity of experience. The design should provide a place that is:

- Warm, inviting, interactive.
- Comfortable for learning.
- Open to nature.
- Engaging.
- Fun.
- Evocative and exploratory for children and adults.
- Engaging at first glance, but also more mysterious than first meets the eye.
- Accessible to all.
- Appealing to the senses.

The Visitor Education Center will establish a model of sustainable development. The design should:

- Acknowledge the value of all living things.
- Stress the importance of conservation to everyone.
- Teach that humans are not separate from nature.
- Emphasize that ‘biodiversity equals cultural diversity.’
- Establish an adaptable / flexible building to maximize use.
- Inspire people to take action.
- Empower stewardship of the environment.
- Establish a healthy environment.
- Demonstrate kinship with the landscape.
- Substantiate the global impact of local conservation.
- Use natural energy resources.





## II. VISITOR PROFILES

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Garden Membership  
Current Garden Audience  
Changing the Profile  
Future Audience  
Future Visitorship Growth  
Visitors Expectations



# Visitor Profiles

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## Garden Membership

Most members of the Garden fall into the following categories:

- Senior members.
- A few student members.
- Volunteer members.
- Individuals.
- Family members.

Demographically, the Garden membership has a large representation of early retirees. There are far fewer student members than the Garden would like to have. There are probably more women members (and visitors) than men. (Volunteers are approximately one-fifth men. Tour guides are approximately one-seventh men.)

There is a much higher percentage of members with four or more years of college education than not. Also, most members have an income higher than the North Carolina median. Ninety percent of the membership population lives within 100 miles of Chapel Hill.

There are also a variety of donor categories. A contribution greater than \$35 is considered a donation. Interestingly, the donor pool has a broader location profile than the members.

## Current Garden Audience

The programming team identified the following profiles of user groups and audiences for the garden:

### **School groups**

School groups typically arrive two busloads at a time with two classes of approximately 25 students each. There is a growing trend of groups calling ahead with particular curriculum needs to be met by a tour. The Garden suggests 60 students as a maximum per visit. If more than 60 students come with a group, the Garden staff generally recommends that half of the group visit the nature trails while the remainder tour the Garden. Sometimes a group of up to 100 students will arrive unannounced.

The ratio of tour guides to students is one to ten. With six groups of ten students in the Garden, the groups tend to “bump into each other,” particularly in the collections area. Other types of educational groups include:

- Continuing education.
- Retirees.



### **Conservationists**

Conservationists often arrive at the Garden looking for information. They tend to use the library, ask questions, and learn from interpretative material outside. They also use the meeting space, because their mission is compatible with the Garden's. Meetings range from 10 people to 100 and up. Types of conservation groups include:

- Garden clubs.
- Sierra Club.
- Audubon society.
- Triangle Land Conservancy.
- Individuals.

### **Gardeners**

Gardeners comprise a large percentage of the visitor population. Types of gardeners include:

- Garden clubs.
- Rock garden society.
- Master gardeners.
- Individual gardeners.
- Homeowners.
- New homeowners.

### **Naturalists**

Both professional and amateur naturalists are a user group of the Garden. Types of naturalists:

- Botanists.
- Zoologists.
- Bird watchers.

### **Artists**

Artists that visit the garden are primarily interested in nature-related art or are professional or amateur photographers.

### **Horticulturists**

Horticulturists visit the Garden mostly as individuals. Michael Dirr was there recently photographing native species with horticultural potential.

### **Teachers / Educators**

Groups of teachers and educators visit the Garden. These groups are organized by the Garden or by a teacher.

**Environmental Educators**

Professional and amateur environmental educators visit the Garden. They are generally looking for programming information or to talk with staff.

**Families**

Most families that visit the Garden have both parents present. Sometimes a single parent will bring children.

**Couples**

The Garden is a destination for couples of all ages that are looking for a place to spend some quiet time together in a beautiful setting.

**Special Needs Groups**

The individuals or groups with special needs typically come for specific programs. They sometimes come on their own or with a helper.

(See Nancy for specific information on special needs population - numbers, groups, etc.)

**Newcomers**

The Garden is an obvious place for newcomers to the area to visit.

**Retirees**

Retirees often come to the Garden when visiting Chapel Hill to evaluate the town as a retirement location.

**Joggers and dog walkers**

The nature trails of the Garden are especially attractive to joggers, walkers, and dog owners.

**Fresh air enthusiasts**

Fresh air enthusiasts come to the Garden to walk and hike. Often they are nature trail enthusiasts. Some are even surprised to find out that there is a Garden other than the natural trail. Natural trails are well used based on the evidence of times when the parking lot is full yet the Garden feels empty.

**Spiritualists**

Some visitors come to the Garden as a spiritual retreat and to experience special moments such as spreading ashes, proposing marriage, and contemplating life changes.

**Alumni groups**

Fond memories of the Garden make it a common destination for visiting UNC alumnae.

**Weekday volunteers**

Volunteers work at the Garden because they enjoy its ambience and the opportunities it offers for stimulating experiences.

**Weddings**

The beauty and intimacy of the Garden make it an ideal setting for weddings and similar private events.



**Out-of-town visitors / tourists**

Out-of-town visitors and tourists visit the Garden looking for information on the flora and fauna of North Carolina to help them understand the identity of the state. Groups include:

House guests.

Visitors and patients at local medical facilities—as a getaway.

People from foreign lands.

**Local residents**

Visitors from surrounding neighborhoods are a significant user group.

**Shoppers**

Does NCBG want to increase their number of “shoppers”?

Currently plant sales are \$50,000 to 60,000 per year. The Garden wishes to continue to sell only mission-focused items with high education value. As required by the Umstead Act, they do not wish to compete with local stores.

**Class / special event attendees**

Many visitors read about classes or special events in the paper or in brochures. They come to the Garden for lectures and to purchase plants (sometimes as gifts).

**Picnickers**

Picnicking at the Garden is currently on an informal basis. People picnic anywhere. Tolerated - not a problem.

### **Parking lot evening beer drinkers**

Currently this group uses the garden parking lot. In the future, should they be tolerated or discouraged?

### **College Students**

College students are potentially a major audience that has not yet been fully assessed. They include:

- UNC Students—studying, etc.
- NC State Horticulture and Design students.

### **Changing the profile**

If the Garden focuses on recruiting more student members, there will theoretically be more alumni members in the future. In considering campus outreach, the Garden must address the fact that the Garden is not on the main campus.

The Garden should consider formalizing outreach to the UNC hospital. A more proactive approach should be taken in involving the neighborhood in activities. Close attention should be paid to issues of diversity and economics, for example:

- Economic diversity.
- Transportation issues.
- Outreach, e.g., take 'the Garden' to the schools.
- Music / Food - brings in a different audience, e.g., ethnic plants?
- Art, e.g., feature paintings of local Hispanic artist.

- Select activities that will draw different segments of the population.
- A more diverse volunteer population.
- Cultural gardens, e.g., African-American garden, Native American garden.
- Language, e.g., an occasional tour in Spanish or special programs geared directly to a particular ethnicity.
- Be careful to not exclude any particular ethnic background.
- Good example - Peace Pole near Paul Green Cabin has different languages. Receives a good response. Interpretation of the Peace Pole should be in the four languages.
- Saying "Welcome" in a number of different languages would be a nice way to start out.

### **Future Audience**

Garden visitorship is anticipated to double from the current level of 45,000 per year to 90,000 per year as a result of the new Visitor Education Center—the Garden hopes memberships will double at the same time. (Note: MLS visitation is 350,000 per year, UNC Planetarium is 100,000, Ackland Art Museum is 40,000). The Garden has an advantage over other local gardens because of the meeting space it can provide. Several user groups could be attracted more strongly. They include:

### **Minority groups**

Visitation by minority members of the population at this time is very low. Should settings or exhibits be designed to attract these groups or would special events and other marketing activities be more effective?

### **Pre-school groups**

The Garden has enormous potential to affect the “naturalistic intelligence” of children early in life. Special garden facilities should be developed to attract this group and accommodate their needs.

- **Preschool teachers**

There is a need for training and orientation of preschool teachers to be able to use the Garden effectively.

- **Early grades**

The Garden is an attractive place for school-aged children and has significant education potential. Teachers need encouragement and empowerment through enthusiasm, experience, communication, and information.

- **Families**

Families are a major potential audience for the Garden. It should be designed to be as “family-friendly” as possible.

The most strategic marketing approach will be to focus on outreach to all ages, abilities and backgrounds. People interested in sustainable issues of green and gentle building are a subgroup requiring special attention.

## Future Visitorship Growth

Levels of visitorship change with rhythms and seasons. Available parking also limits the numbers that can visit at one given time. The Garden is currently limited to approximately 120 total parking spaces. Perhaps the Garden should consider shuttle buses for special events.

The number of school groups cannot be increased at present without reducing the quality of the experience. Hence, outreach to the schools is being emphasized.

It is inevitable that visitation will increase in the future, possibly even double with improvements to be made and the fact that entry is fee (public service approach of the Garden).

Tour groups generally consist of about ten percent North Carolina residents. The Garden is better known outside the Triangle area than within.

## Visitor Expectations for the Visitor Education Center

- Visitors sometimes arrive not realizing the Garden’s conservation goals support the “unseen” garden of natural trails. Common expectations include:
- A place to relax.
- A warm friendly reception begins with the plants.

- Assistance.
- Beautiful landscapes with native plants including small exhibits useful for home gardening that help dispel misconceptions about what home landscaping can be.
- Habitat exhibits to convey diversity on a larger scale.
- Aesthetic experiences of color, texture, balance, diversity, repetition, flow—providing stimulation of all the senses.
- Clear and concise signage with an easy to read map, name, logo and mission statement.
- Comfort.
- Cultural and historical context of the garden and the region.
- Exhibits and displays.
- Expertise in personnel.
- Flowering plants.
- Friendliness.
- Gift shop.

- Information
  - Gardening.
  - History / purpose of garden.
  - How can I get the information I need?
  - How to landscape with native plants.
  - How will this help me?
  - Interpretation of mission.
  - Interpretive material to read and find out what the Garden is all about.
  - Live person to answer questions.
  - Map, brochures, resources.
  - Ornamental uses of natives.
  - Plants.
  - Resources.
  - Surprising and fascinating facts about plants.
  - What do native plants mean to me?
  - What is the botanical garden about?
  - What is the garden about?
  - What is the story here?
  - What is there to do today?
  - Where should I go?
  - Why native plants?
- Inspiration.
- Locations in the Garden and settings that provide solitude for quiet contemplation.
- Meeting room(s) or gathering area for group information.
- Necessities and amenities.
  - Drinking water.
  - Public telephone.
  - Restrooms.
  - Refreshments.
  - Safety.
  - Seating.
  - Shelter, shade and air conditioning.
- Orientation to the Garden and visitor amenities.
- Plants to purchase.
- Sense of context.
- Something unusual and thematic to buy (plants, other items).
- Themes.
- To learn something quickly and easily.
- Water.



### III. INDOOR SETTINGS

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Reception / Lobby / Exhibit  
Multipurpose Room Lobby  
Multipurpose Room  
Classrooms  
Conference Room  
Staff Offices  
Horticultural Therapy Classroom  
Gift Shop  
Catering Kitchen  
Volunteer / Staff Break / Lunch Room  
Audio-Visual Room  
General Storage  
Tool Storage Room  
Public Restrooms  
Maintenance Room  
Temporary Indoor Exhibits  
Public Service / Plant Doctor Desk

*Totten Center Renovation*  
Staff Offices  
Library  
Seed Program  
Maintenance Room  
Indoor Propagation Area  
Staff Lockers / Shower Room



## Indoor Settings

# Reception / Lobby / Exhibit

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### **General description**

The reception / lobby / exhibit setting is a generous, well-lit, well-appointed, multifunctional space, welcoming visitors with seasonal decorations and multiple languages. Orientation to the Garden will often take place outdoors. Therefore, not all visitors or school groups need stop at the Visitor Education Center, at least not on the way to the Garden.

The Garden mission is communicated visually through wildflower pictures and views of North Carolina nature. Current information is included (e.g., Garden in the News Exhibit, indoor version of What's in Bloom Exhibit, What to do Today Exhibit, Don't Miss This Exhibit, Gardening Happenings, Community Happenings, Garden Opportunities). A suggestion box is provided, together with a registry book (including space for comments and nature observations).

The connection to UNC is communicated along with an overview of the Garden history. Clear visual connections are provided to the outdoors. The setting does not appear as one large room.

The reception / lobby / exhibit space contains several subspaces:

- Approach via a porch.
- Information/receptionist desk—should be a clearly visible option, but not forced on arriving visitors.
- Well-organized spaces for brochures are provided.
- Permanent exhibits—rotating and updateable.
- Clear access to the temporary art exhibit room, gift shop, porch/breezeway and garden.
- Restrooms, water fountains, and coat room.
- Reading and reference area—living room-like character with field guides and gardening books.
- Public service/plant doctor desk—behind the desk a video-equipped microscope feeds images to a wall-mounted monitor.
- Porch—important for waiting in the rain or hot weather and for providing an outdoor people-friendly space.

### **Objectives**

Objectives of the reception / lobby / exhibit setting are to provide:

- A gracious, personal feeling of welcoming warmth for visitors.
- Dependable, personal contact.

- Basic information about the Garden.
- Positive first impression about the quality and mission of a unique garden.
- A good rendezvous point. Visitors can wait on the porch for friends or other group members. Individuals attending classes can stop here to check location.

## **Users**

The Garden already attracts a wide range of visitors that will broaden even further when the Visitor Education Center opens. User groups include (see Section II, Visitor Profiles):

- Visitors meeting with administrative staff.
- Patrons of Gift Shop (may also be entered directly from the outside).
- Tour groups.
- School groups.
- Conservationists.
- Gardeners.
- Naturalists.
- Artists.
- Teachers / Educators.
- Environmental Educators.
- Families.
- Couples.
- Horticulturists.
- Special Needs Groups.
- Newcomers.
- Retirees.
- Joggers and dog walkers.
- Fresh air enthusiasts.
- Spiritualists.
- Alumni groups.
- Weekday volunteers.
- Weddings parties.

- Out-of-town visitors / tourists.
- Local residents.
- Shoppers.
- Class / special event attendees.
- Picnickers.
- Parking lot evening beer drinkers.
- College Students.

### **Character of space**

- Warm, well appointed.
- Welcoming.
- Well lit.
- Clear connection to outdoors.
- Personal, non-institutional.

### **Educational links**

- Communicates mission, brand essence.
- Overview of lands, history, UNC connection.
- Latest events or happenings.
- Things to see and do.
- Display of brochures.
- Permanent exhibit space with rotating themes.

### **Self-directed activities**

- Most activities here are self-directed.
- Interpretive exhibits on Garden themes.
- Reference and reading alcoves.
- Brochure displays.

### **Facilitated exhibits**

- Public Service Desk.
- Reception / Information Desk.
- Parties and receptions.

### **Special programs and events**

- Space can be used for off-hours parties and receptions with dinners in the multi-purpose auditorium.
- Receptions for artists whose work is on display in the temporary exhibit space.

### **Permanent elements**

- Views of the outdoors.
- Reception/information desk.
- Public service desk.
- (Reception/information desk and public service desk must be at accessible height).
- Living room-like reading/reference area.
- Wall exhibit space.

### **Moveable elements**

- Rolling carts for coffee service, for advertising sale items, and for opportunistic exhibits.
- Tables and chairs that can be set up for receptions.

### **Adjacencies**

- Visible from parking lot as the central Garden building.
- Close enough for visitors who come only for the gift shop (on the parking lot side of the building) or to meet/wait for friends.
- Direct connection to outdoors.
- Business management office and workroom are on this floor.
- Staff and volunteer break/lunch room (has a small kitchen) is on this floor.
- Administrative offices are upstairs (Director, Assistant Director, Development, Public Relations).

### **Capacity**

- 100, milling about and standing.

### **Square footage**

- Lobby—1000 sq. ft.
- Reception—120 sq. ft.
- Indoor Exhibit—500 sq. ft.

### **Staffing requirements**

- Receptionist (other staff will be housed elsewhere)

## Indoor Settings

# Multipurpose Room Lobby

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### **General Description**

The multipurpose room lobby allows for set up of receptions and dinner in areas adjacent to the multipurpose room. The space is open to allow easy flow of people and set up of reception tables and registration desk. This space opens through large double doors to the multipurpose room itself.

### **Objectives**

To allow expansion and free flow from the multipurpose room to an adjacent indoor space.

### **Users**

- The public attending events and receptions.

### **Character of space**

- Open, uncluttered.

### **Educational links**

- Walls provide opportunity for art work and displays.

### **Self-directed activities**

- Viewing of artwork and displays.

### **Facilitated activities**

- Program registration.



**Special programs and events**

- Receptions, dinners.

**Permanent elements**

- None.

**Movable elements**

- Tables for registration, food and bar service.

**Adjacencies**

- Multipurpose room, restrooms.

**Capacity**

- 50 standing, 25 seated.

**Square footage**

- 400 sq. ft.

**Staffing requirements**

- To be determined.

## Indoor Settings

# Multipurpose Room

---

### **General description**

The multipurpose room is large and friendly with high ceilings, natural daylight, blackout for a/v presentations, and excellent acoustics. Generous double doors open to an entry area and the outdoors. The room is flat-floored with furniture arranged for audience seating most of the time. The chairs are padded, comfortable, and flexible enough to support events ranging from 1-2 hour lecture/slide programs to half-day or all-day garden club or other meetings. Chairs are stackable since the room also is used for dinners and flower shows. The room can be subdivided to allow for smaller meetings or breakout groups. Adjacent, spillover spaces can be used for large events (both inside and outside).

### **Objectives**

The multipurpose room is designed to meet two main objectives:

- To accommodate regular lectures (slides, computer projection, video) and meetings (professional groups, garden clubs, conservation groups, civic groups, government groups).
- To accommodate dinners (Botanical Garden Foundation and special event dinners attracting 80-125, with eight-person circular tables).

**Users**

- Regular garden programs that use audience-seating
- Professional groups, garden clubs, conservation groups, civic groups, government groups
- NC Botanical Garden Foundation.

**Character of space**

- Warm, generous, well lit, easy to clean.
- Acoustics are critical.
- Visibility of the speaker and projection screen is critical.
- Wall-space supports art or educational exhibits.

**Educational links**

- Lectures.
- Meetings.
- Workshops.
- Flower shows.

**Self-directed activities**

- None.

**Facilitated activities**

- Lectures, meetings, workshops.

**Special programs and events**

- Meetings.
- Flower shows.
- Social events.
- Dinners.

**Permanent elements**

- Cupboards, shelves.
- Counters.
- Whiteboard.
- Projection screen.
- Closets (including storage for tables and chairs).
- Large windows with effective light-blocking screens or quilts (crank, not motorized).
- Sound system.
- Mountings for wall exhibits.
- Stage (could be moveable).
- Storage (including dedicated storage for groups that use the Garden frequently like the Chapel Hill Garden Club).
- Ceiling fans.

**Moveable elements**

- Lectern.
- Overhead projector.
- Slide projectors (double projection).
- Movie projector.
- LCD projector.
- Twenty (20) circular tables, each seating eight.

- 250 chairs.
- Portable stage (if not permanent).

#### **Adjacencies**

- Catering kitchen.
- Restrooms.
- Water fountain.
- Coat room.
- Storage.
- Audio-visual projection room.
- Seminar/conference room.

#### **Capacity**

- A room large enough for audience-style seating for 200—with high quality acoustics and visibility. Dinner groups up to 125.

#### **Square footage**

- 2500 sq. ft.

#### **Staffing requirements**

- Set up and breakdown for programs and events

# Indoor Settings

## Classrooms

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### **General description**

The classrooms are open, windowed spaces designed for many uses with hard, cleanable surfaces, no carpet.

### **Objectives**

Two classrooms (not including horticultural therapy and outdoor classrooms) are designed to function as multi-use general purpose classroom and laboratory spaces to host any type of small public program.

### **Users**

- Varied, young to elderly.

### **Character of space**

- Comfortable and interesting without being distracting to facilitate learning.
- Good acoustics.

### **Educational links**

- Any and all.

### **Self-directed activities**

- None.

### **Facilitated activities**

- Classes of many types.

### **Special programs and events**

- Classes and seminars.

### **Permanent elements**

- Dry erase boards.
- Windows that open (with sills).
- Counters.
- Cupboards along one wall.
- Ample, walk-in storage closet.
- Sink and preparation space.
- Digital network connections.
- Ample power outlets (for, slide projector, LCD projector, overhead projector, microscopes, hot plates, other electrical appliances).
- Terrarium and aquarium space.
- Effective blackout for a/v presentations.
- Secure space for microscope storage when not in use.
- Mounting devices for wall displays.
- Sink.
- Stove, microwave.
- Refrigerator.

**Movable elements**

- Counters on rollers.
- Tables and chairs.

**Adjacencies**

- Outdoor area (i.e., trails, decks, etc.).
- Horticultural therapy classroom.
- Restrooms.
- Water fountain.

**Capacity**

- 25 at work tables.
- 50 in lecture style seating.

**Square footage**

- 2 classrooms, each 650 sq. ft.

**Staffing requirements**

- As required for classes.

# Indoor Settings

## Conference Room

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### **General Description**

The conference room is a carpeted (or large rug), low-noise, soft, comfortable meeting room.

### **Objectives**

The conference room provides space for general staff meetings, volunteers, tour guides, etc.

### **Users**

- Staff and board members.
- Volunteers.

### **Character of space**

- Elegant. Comfortable. Facilitates discussion.  
Natural lighting.

### **Educational links**

- Small seminars.

### **Self-directed activities**

- May have permanent exhibits, awards, plaques, oil paintings.

### **Facilitated activities**

*North Carolina Botanical Garden*

Visitor Education Center Design Program, April 2001

- Meetings, seminars.

### **Special programs and events**

- None.

### **Permanent elements**

- Digital network connections.
- Windows and skylights with blackout capabilities.
- Counter with cupboard.
- Shelving.
- Drop-down screen.
- Cork strip.
- Wall mountings to hang paintings, pictures, awards.
- Bookshelves.

### **Movable elements**

- Conference table.
- Comfortable chairs.
- LCD projector.

### **Adjacencies**

- Centrally located.
- Kitchen for access to hot drinks.
- Away from noisy lobby and hallway traffic.



**Capacity**

- Twenty.

**Square footage**

- 400 sq. ft.

**Staffing requirements**

- None.

# Indoor Settings

## Staff Offices

---

### **General Description**

The staff offices are used by staff on a daily basis to accomplish the mission of the Botanical Garden.

### **Facilitated activities**

- None.

### **Objectives**

Staff offices house eighteen individuals, excluding volunteers. An excellent working environment is provided that accommodates small meetings of two to four people. Office location facilitates staff interaction.

### **Users**

- Staff from all departments.

### **Character of space**

- Natural lighting, good sound buffers, carpeting, nine-foot ceilings.

### **Educational links**

- None.

### **Self-directed activities**

- Activities related to administration, fund raising, public relations, educational programs, exhibits, interpretation, gift shop service, and reception.

### **Special programs and events**

- None.

### **Permanent elements**

- Electrical, phone and computer cabling for flexible rearrangements.
- Countertops.
- Task lighting.

### **Movable elements**

- Desks.
- Chairs.
- Shelving.
- File cabinets.
- Reference materials.
- Microscopes.

### **Adjacencies**

- Staff restrooms.
- Storage.
- Business management office is adjacent to reception and gift shop.
- Workrooms.
- Breakrooms.
- Water fountain.
- Meeting rooms.

### **Capacity**

- Space for meetings with a few visitors.

### **Square footage**

- Determined by specific use.
- Six offices over lobby totaling 1250 sq. ft.
- Six offices over classrooms totaling 750 sq. ft.

### **Staffing requirements**

- See staffing chart.

### **Notes**

- *Gift shop manager's office* doubles as small workroom for the gift shop.
- *Publications / public relations office* will be a workroom large enough to accommodate a console light table, a large work table, slide storage cabinets sufficiently large to house the Garden's growing slide collection, a photo storage cabinet to house staff original artwork.
- *The publications office* will include a large storage room with shelving designed to organize current Garden publications and archived publications the Garden elects to keep on site (e.g., newsletters).
- *Totten Center* will house six private offices plus three small workrooms with carrels, one larger workroom with carrels, a gardener / intern workroom, and seed program room (accommodating 21 individuals).

- *Herbarium* will house eight private offices plus eight additional workrooms.

# Indoor Settings

## Horticultural Therapy Classroom

---

### **General Description**

The Horticultural Therapy Classroom is a southeast facing, solarium-type room, with extensive windows allowing copious natural lighting.

### **Objectives**

The objective of the horticultural therapy classroom is to provide a therapeutic and engaging area for a variety of clients (children to elders) where indoor gardening and nature crafts can be offered.

### **Users**

- Five-year-olds to eighty-year-olds.
- Persons with various physical and mental disabilities.

### **Character of space**

- Open.
- Fully accessible.
- Ground level.
- Solarium-type.
- Safe, stable.
- Easily-cleaned surfaces, floors, and countertops.
- Open to outdoor garden area.

### **Educational links**

- Used almost exclusively by horticultural therapy program but available for other uses.

### **Self-directed activities**

- Wall space for displays of educational materials.
- Windows for growing indoor plants.
- Propagation area.

### **Facilitated activities**

- Classes.

### **Special programs and events**

- None.

### **Permanent elements**

- Easily cleaned, non-slip floor (not carpet).
- Handicap accessible sinks, counters, cupboards, cabinets, oven and stovetop, shelving, plant growing spaces.
- Access to canopied decking or other outside work space.
- Ceiling fans.
- Screened windows.
- Water fountain.

- Storage for hand tools, supplies, soil.

#### **Movable elements**

- Grow lights.
- Refrigerator / Microwave.
- Propagation work tables.
- Benches.
- Tables and chairs.
- Bins for soil.
- Potting bench.

#### **Adjacencies**

- Water.
- Outdoor workspace.
- Gardens.
- Handicapped parking.
- Restrooms.
- Volunteer breakroom.
- Decked area with covered benched seating.
- Kitchen.
- Small outdoor patio garden for container gardening.
- Tool storage room (critical).

#### **Capacity**

- Between seven and twenty-five people.

#### **Square footage**

- 1000 sq. ft.

#### **Staffing requirements**

- Full-time Horticultural Therapist.

#### **Note**

- Support services must have access to this room (soil containers, plants in and out).
- Storage for accessible garden tools can be used as an education display, e.g., if mounted on an outside wall.

# Indoor Settings

## Gift Shop

---

### **General Description**

The gift shop is a pleasant space for the sale of books, seeds, T-shirts, art objects, plants, and local / regional crafts made from native plant-based material.

### **Objectives**

A dedicated gift shop will provide dedicated gift shop for the sale of appropriate educational merchandise.

### **Users**

General public of all ages.

### **Character of space**

Open, quiet, well lit (with consideration that UV light damages some materials). Low dust environment. Easy circulation. Visibility from sales counter for security.

### **Educational links**

- Materials predominantly chosen for educational value.
- Wall space for posters and other displays.
- Locally produced plant and nature based crafts.

### **Self-directed activities**

*North Carolina Botanical Garden*

Visitor Education Center Design Program, April 2001

- Shopping.

### **Special programs and events**

- Seasonal / promotional events.

### **Permanent elements**

- Computer area for sales manager.
- Wall cabinets.
- Storage.
- Sales desk with seating for two.
- Storage area for restock, bags, etc.
- Security camera.
- Computerized cash register and credit card processing.
- Bar code reader.

### **Movable elements**

- Display shelving.
- Special signage and promotions.

### **Adjacencies**

- Visible from lobby and breezeway.
- Outdoor plant sales.
- Clearly accessible to/from parking lot.

- Opens to reception / lobby area on the parking lot side of the building.

**Capacity**

- Between 20 and 30 people.

**Square footage**

- 600 sq. ft.

**Staffing requirements**

- Sales manager and volunteers.



# Indoor Settings

## Catering Kitchen

---

### **General Description**

The catering kitchen is a staging area for catered meals for special occasions.

### **Objectives**

There are two main objectives for this setting:

1. Preparation and holding of prepared food.
2. Conservation of resources by providing glassware and everyday china rather than disposable items.

### **Users**

- Caterers.
- Staff / Volunteers.
- Groups meeting at the Garden (garden clubs, civic & environmental groups, university receptions).

### **Character of space**

Windows. Good ventilation. View to the outside. Well insulated or buffered to avoid disturbing adjacent uses.

### **Self-directed activities**

- Cooking.
- Cleaning.

### **Special programs and events**

- Dinners and receptions.

**Permanent elements**

- Counter space for buffet (possibly between kitchen and public space).
- Pot sinks.
- Ice maker.
- Refrigerator.
- Compost and recycling receptacles.
- Household range.
- Microwave.
- Coffee machine.
- Dish washing equipment.
- Catering kitchen is for food preparation only.

**Movable elements**

- Rolling cart to offer coffee, tea, fruit drinks, bagels, and prepared sandwiches in other areas.

**Adjacencies**

- Loading dock.
- Access to outdoors for ease of material transfer in and out.
- Multipurpose room.

**Capacity**

- 125 meals.

**Square footage**

- 400 sq. ft.

# Indoor Settings

## Volunteer / Staff Break / Lunchroom

---

### **General Description**

The volunteer / staff break / lunchroom is a place for volunteers to convene and store belongings and for staff to enjoy small gatherings in a comfortable, non-fancy, functional space. This setting is accessible all the time to individuals. However, it is not a group meeting space.

### **Objectives**

A place for staff and volunteers to relax and feel comfortable.

### **Users**

- Staff.
- Volunteers.

### **Character of space**

Warm and welcoming. Can accommodate clutter. Eating separate from relaxing areas. Quiet, out of the mainstream of activity.

### **Educational links**

- None.

### **Self-directed activities**

- Eating.
- Resting.
- Coffee breaks.
- Birthday celebrations.

### **Facilitated activities**

- None.

### **Special programs and events**

- None.

### **Permanent elements**

- Ten combination lockers (3'x1'x1') for volunteers.
- Nametag storage.
- Coat hooks.
- Bulletin board.
- Telephone.
- Sink.
- Bookshelves.

### **Movable elements**

- Tables: rectangular 2'00"x8'00" and some circular for 2-4 people.
- Chairs, sofa.

- Coffeepot and coffee table.
- Volunteer records book.
- Computer.
- Recycle bins.

#### **Adjacencies**

- Bathrooms.
- Kitchen.
- Away from public access.
- Tools and collections.
- Soda machine.
- Showers.
- Copy room.
- Library.

#### **Capacity**

- Twenty people.

**Square footage**

- 300 sq. ft.

**Staffing requirements**

- None.

**Note**

- A break room with the same amenities is required in both the Totten Center and the Visitor Education Center.

# Indoor Settings

## Audio-Visual Room

---

### **General Description**

The audio-visual room is a storage room for assorted audio-visual support items.

### **Objectives**

The objective of the audio-visual room is to provide:  
Accessible storage for audio-visual equipment.  
Space for organizing and previewing slide shows.

### **Users**

- Any staff member working on slide show or needing audio-visual equipment.

### **Character of space**

- Secure.
- Efficient.

### **Educational links**

- None.

### **Self-directed activities**

- Slide show work.

### **Facilitated activities**

*North Carolina Botanical Garden*

Visitor Education Center Design Program, April 2001

- None.

### **Special programs and events**

- None.

### **Permanent elements**

- Shelving.
- Lighting.
- Cabinets.
- Slide storage.
- Slide scanning equipment.

### **Movable elements**

- Overhead projectors.
- Televisions.
- VCRs.
- Computers.
- LCD projector and laptop computer.
- Audio-visual carts.
- Slide projectors.
- Audio-visual support items.

### **Adjacencies**

- Multipurpose room.

**Capacity**

- Two staff members.

**Square footage**

- 600 sq. ft.

**Staffing requirements**

- Staff members need to be trained to use equipment.

# Indoor Settings

## General Storage

---

### **General Description**

Several locations for the storage of common, larger items from education rooms, including furniture.

Several storage spaces are required for classrooms, multipurpose room, public relations and gift shop.

### **Objectives**

Provide storage for multipurpose room and classrooms.

### **Users**

- Staff setting up classrooms and using classroom materials.

### **Character of space**

Secure, efficient, well-organized, compartmentalized.

### **Educational links**

- None.

### **Self-directed activities**

- None.

### **Facilitated activities**

- None.

*North Carolina Botanical Garden*

Visitor Education Center Design Program, April 2001

### **Special programs and events**

- None.

### **Permanent elements**

- Shelving.
- Ample storage for over 200 chairs as well as other classroom items.
- Large doors.

### **Movable elements**

- Chairs.
- Tables, etc.

### **Adjacencies**

None.

### **Capacity**

- Five staff.

### **Square footage**

- 200 sq. ft.

### **Staffing requirements**



- None.

## Indoor Settings

# Tool Storage Room

---

### **General Description**

A small storage room, accessible from the outdoors, for storage of common garden tools and equipment.

### **Objectives**

To store tools and equipment for maintenance of the plant collections and landscape around the building so that staff doesn't have to transport these from distant sites.

### **Users**

- Garden staff.

### **Character of space**

- Accessible, convenient for storage.

### **Educational links**

- None.

### **Self-directed activities**

- None.

### **Facilitated activities**

- None.

### **Special programs and events**

- None.

**Permanent elements**

- Storage shelves.
- Hangers for tools.

**Movable elements**

- Tools.
- Garden carts.
- Waste barrels.

**Adjacencies**

- Outdoor garden.

**Capacity**

- 3 users.

**Square footage**

- 100 sq. ft.

**Staffing requirements**

- None.

# Indoor Settings

## Public Restrooms

---

### **General Description**

Public restrooms are available to visitors without entering the Visitors Center (as DOT Center in Columbia). Restrooms are also available within the buildings. Restrooms need private spaces for moms, diaper changing for both sexes. Several restrooms are needed: near lobby / reception / exhibit area, near classrooms and multipurpose room, and in staff areas.

### **Objectives**

Restrooms need to provide for large groups (e.g. busloads).

### **Users**

- Visitors.
- Staff.

### **Character of space**

Should be easy to find, but discrete. Daylighting is important.

### **Educational links**

- Interpretation of graywater use.

### **Special programs and events**

- None.

**Permanent elements**

- Sink
- Toilets.
- Diaper changing stations.
- Mirrors, including low ones for children and wheelchair users.
- Recycling bins.
- Low flow water. Use gray water where possible.

**Movable elements**

- None.

**Adjacencies**

- Arrival point.

**Capacity**

- To be determined.

**Square footage**

- 600 sq. ft.

**Staffing requirements**

- None.

# Indoor Settings

## Maintenance Room

---

### **General Description**

The maintenance room provides easy access to tools and equipment needed to maintain displays, gardens, and walkways in the vicinity of the Visitor Education Center.

### **Objectives**

The objective of the maintenance room is to provide staff and volunteers with the basic tools needed to maintain public areas.

### **Users**

- Garden staff.
- Volunteers.

### **Character of space**

A “miniature” shop, including basic tools in a small space. Does not require heating or cooling. Energy efficient lighting, solar lighting, or other sustainable design for electricity. Location is flexible, can be freestanding or part of the building.

### **Educational links**

- None.

### **Self-directed activities**

- None.

**Facilitated activities**

- None.

**Special programs and events**

- None.

**Permanent elements**

Tools that are needed to maintain public areas. Easy to access.

Photovoltaic recharging station for electric tools.

**Movable elements**

- Tools.

**Adjacencies**

- The vicinity of the Visitor Education Center.

**Capacity**

- Large enough to hold a few basic tools: a wheelbarrow, a couple of Gardenway carts, hoses and rakes.

**Square Footage**

- Approximately 200 square feet.

**Staffing requirements**

- None.

# Indoor Settings

## Temporary Indoor Exhibits

---

### **General Description**

Temporary indoor exhibits are displayed adjacent to the reception lobby. Generous, alcove-like for displays of artwork with a nature theme, e.g., paintings, watercolors, photography, quilts, crafts.

### **Objectives**

The objective of the temporary indoor exhibits is to display art related to the mission of the Garden and to introduce new and diverse populations to the Garden.

### **Users**

- General public, especially adults and adults with children.

### **Character of space**

- A contemplative space with high-ceilings and indirect natural and artificial lighting. No direct sunlight.

### **Educational links**

- Provide opportunity for botanical illustration classes to study artwork.

- Interpretive signs explain the art exhibit and also the nature experience that was the inspiration.
- Comments from artists.

### **Self-directed activities**

- Public viewing during open hours.

### **Facilitated activities**

- Classes studying exhibits.

### **Permanent elements**

- Exhibition wall surfaces of plywood covered with carpet.
- Indirect artificial and natural light.
- Spot lighting to highlight targeted artwork.
- Electric outlets.
- Temperature and humidity controlled space.

### **Movable elements**

- Perhaps movable panels to expand available wall space for some exhibits.

### **Adjacencies**

- Whatever path taken by individual or small groups that would be non-disruptive to classes.



- Near maintenance and delivery area to facilitate setting up exhibits.
- Near kitchen to accommodate catered reception events.

**Capacity**

- To be determined. Large enough for correct viewing distance for the artwork.

**Square Footage**

- No less than 100 feet of linear space.

**Staffing requirements**

- One program director and assistance of support staff when needed.

**Notes**

- Security is essential. Storage for supplies is required and ease of set-up should be considered.

# Indoor Settings – Visitor Education Center

## Public Service / Plant Doctor Desk

---

### **General Description**

An alcove off of the lobby houses a small reference area, countertop, microscope, and computer for Master Gardeners and other volunteers and staff who answer common gardening and plant identification questions.

### **Objectives**

Provide a help desk based on the Garden's current public service hour and Master Gardener services. Provide answers to visitors and callers on an *ad hoc* basis.

### **Users**

- Visitors.
- Local gardeners.
- Visitors interested in natural history.

### **Character of space**

- Open alcove with counter or desk facing lobby, shelves and storage for common reference materials, video-microscope systems for projecting image.

### **Educational links**

*North Carolina Botanical Garden*

Visitor Education Center Design Program, April 2001

- Ad hoc help desk, responding to individual questions.

### **Self-directed activities**

Brochures, reference materials, view of video microscope display, computer with answers to FAQs.

### **Facilitated activities**

- None.

### **Special programs and events**

- None.

### **Permanent elements**

- Desk.
- Reference shelving.
- Microscope system.
- Computer.

### **Movable elements -**

- None.

### **Adjacencies**

- Lobby.

**Capacity**

- 2-3 behind desk; room for 2-10 around the counter.

**Square Footage**

- Approximately 100 sq. ft.

**Staffing requirements**

- Curator staff, volunteer coordinator

# Indoor Settings – Totten Center Staff Offices

---

## **General Description**

The staff offices are used by staff on a daily basis to help accomplish the mission of the Botanical Garden.

## **Objectives**

The objective of the staff offices will house eighteen individuals, not including volunteers. They will provide for a good working environment and accommodate small meetings of 2 to 4 people. Location of offices facilitates staff interaction.

## **Users**

- Staff
  - Administration.
  - Fund raising.
  - Public relations.
  - Educational programs.
  - Exhibits.
  - Interpretation.
  - Gift Shop.
  - Reception.

## **Character of space**

- Natural lighting, good sound buffers, carpeting, nine-foot ceilings.

## **Educational links**

- None.

**Self-directed activities**

- None.

**Facilitated activities**

- None.

**Special programs and events**

- None.

**Permanent elements**

- Adequate electrical, phone and computer wiring for flexible rearrangements.

**Movable elements**

- Desks.
- Chairs.
- Shelving.
- File cabinets.
- Reference materials.
- Microscopes.
- Countertops.
- Task lighting.

**Adjacencies**

- Staff restrooms.
- Storage.
- Business management office should be adjacent to reception and gift shop.
- Work and meeting rooms.
- Break rooms.
- Water fountain.

**Capacity**

- Space for meetings with a few visitors.

**Square footage**

- To be determined.

**Staffing requirements**

- See staffing chart.

**Notes**

- For information on other offices, see Notes under “Indoor Settings – Visitor Education Center – Staff Offices.”

# Indoor Settings – Totten Center Library

---

## **General Description**

The library will remain temporarily in its current location in the Totten Center, but will be expanded to occupy a space twice the current size (e.g., all of the room it is now in). It should have satellite reference stations in the Visitor Center near staff offices. These satellite areas can be in small meeting rooms adjacent to staff offices.

The library will eventually be housed in the Herbarium.

## **Objectives**

The objective of the library is to provide reference information on gardening, botanical, conservation, and environmental subjects to the staff, volunteers, and public (including schoolteachers and students after school hours). This is a reference library, not a lending library.

## **Users**

- Staff.
- Visitors.
- Volunteers.
- Families.

- School teachers and students.
- Master Gardeners.
- People serving public service hours.

**Character of space**

- Quiet, well-organized, well lit, with workspaces for users.

**Educational links**

- Library collections.

**Self-directed activities**

- Library research.

**Facilitated activities**

- Staff or volunteer assistance with research questions.

**Special programs and events**

- None.

**Permanent elements**

- Shelving.
- Computer stations and hook-ups.
- Copy and fax machines.
- Office paper recycling.
- Increased librarian space.
- Glass exterior door (main visitor access).

**Movable elements**

- Heavy tables.
- Chairs.

- Computers.
- Coffee table.

**Adjacencies**

- (Eventual plan is to locate the library in the Herbarium.)

**Capacity**

- Current space is for about 10 users. Because of temporary nature of the expanded space, the capacity can only be increased in a moderate way to 16 – 20 users.

**Square footage**

- Add as much as possible of existing small classroom to the library in Totten Center.

**Staffing requirements**

- Librarian.

**Notes**

- Include a 'sitting corner' with a couple of comfy chairs around a coffee table and a pillow corner for children, along with children's books.

# Indoor Settings – Totten Center

## Seed Program

---

### **General Description**

The space for the seed program is a non-public space for processing, cleaning, and packaging native plant seeds.

### **Objectives**

The purpose of the seed program space is to provide secure controlled space for seed processing and related activities.

### **Users**

- Technical staff.
- Weekly propagation volunteers (20).

### **Character of space**

- Well lit, filtered air, easily cleaned, carpet free.

### **Educational links**

- Small seed-oriented workshops.
- Programs.

### **Self-directed activities**

- Native plant (seed) photo exhibit.

- Explanation of conservation through propagation exhibit.

### **Facilitated activities**

- Propagation volunteers.

### **Special programs and events**

- Open house tours.
- Special tours for Board Members, other Garden staff, dignitaries, etc.

### **Permanent elements**

- Seed drying facility.
- Seed refrigeration.
- Seed cleaners.
- Work counters.
- Cabinets for storage.
- Good lighting for detail work.
- Sink.
- Office space for two.

### **Movable elements**

- Portable room filters.
- Microscope.
- Reference materials and table.



- Table and chairs.
- Phone.
- Computer.
- Tag printer.
- Refrigerator.

**Adjacencies**

- Close access to display gardens / nursery area (plant propagation).
- Access to bathrooms, parking, outdoor seedbeds.

**Capacity**

- Maximum 20 people.

**Square footage**

- 20' x 40'

**Staffing requirements**

- Between 0.5 and 2.0 FTE.

**Notes**

- Program / educational considerations for this space are oriented primarily towards seed program. Not intended to be a multipurpose educational facility.

# Indoor Settings– Totten Center Maintenance Room

---

## **General Description**

This central space houses tools and related equipment to maintain the entire Botanical Garden complex and particularly areas around the Totten Center.

## **Objectives**

Provide a central location for staff and volunteers to easily access tools and equipment required to maintain all Garden collections within the Botanical Garden complex.

## **Users**

- Garden staff and volunteers.

## **Character of Space**

- The space is heated, but not air-conditioned. However air movement and circulation are critical, with ceiling fans or an attic fan. This space will have considerable foot traffic and requires large entry/exit doors for equipment. Natural lighting.

## **Educational links**

- Not applicable.

## **Self-directed activities**

- Open workspace used for completion of small projects.

**Facilitated Activities**

- Open workspace used for small group projects.

**Special programs and events**

- Not applicable.

**Permanent elements**

- Easy access tool storage along walls and on shelves.
- Locked cabinets for storage.
- Area for tool cleaning.
- Open space in center may be used for small temporary projects.

**Movable elements**

- Worktable could be movable and adjustable.
- The space should be flexible for different uses.

**Adjacencies**

- Totten Center.
- Adjacent to Garden display areas.
- Maintenance staff offices.
- Work-planning space.
- Meeting/conference space.
- Other staff amenities (bathrooms, lunch area, and kitchen facilities). Noise level should not intrude in display garden areas.

**Capacity**

- This space should be large enough to hold a small worktable, tools and equipment (including a wheelbarrow and Gardenway carts), as well as provide working space for daily shop projects.

**Square Footage**

- Approximately 500 square feet.

**Staffing requirements**

- None.

**Notes**

- This space will accommodate substantial use from staff and volunteers and therefore needs to have an open (not crowded) feeling. Sustainable features are desired.

# Indoor Settings – Totten Center

## Propagation Area

---

### **General Description**

The indoor propagation area is an open workspace for potting, dividing plants, making cuttings, and sowing seeds for staff and volunteer groups.

### **Objectives**

Accessible, easy-to-clean, comfortable, well lit workspace.

### **Users**

- Staff and volunteers.

### **Character of space**

- Well ventilated, well lit.

### **Educational links**

- Small propagation classes.

### **Self-directed activities**

- Interpretation of conservation through propagation.

### **Facilitated activities**

- Weekly volunteer work sessions.

### **Special programs and events**

- Open house, tours with a propagation interest.

### **Permanent elements**

- Work sink.
- Potting bench.
- Close at hand storage—open space under bench plus several drawers. Include space for
  - Soil mix—current system of storing soil mix works well.
  - Flats.
  - Pots.
  - Implements.
  - Fertilizer.
  - Rooting hormone.
  - Tags.
  - Gloves.

- Plant collections.

### **Movable elements**

- Telephone.
- Computer / tag printer / desk.
- Wheelchair adapted bench for 1-2 users.
- Refrigerator (for rooting hormone, cutting materials, etc.)
- Elevated padded stools.
- Rolling elevated dolly for 2-3 containers of soil mix.

### **Adjacencies**

- Outdoor nursery and greenhouse space.
- Bathrooms.

**Capacity**

- 20 users.

**Square Footage**

- See Totten Center Plan by Alan Johnson.

**Staffing requirements**

- One or two (used part-time by many staff members, volunteers, horticultural therapy, etc.).

**Note**

- Outdoor Potting Area. There is also need for a outdoor potting area, consisting of an open potting bench with shelter / roof, adjacent to nursery and greenhouse.

# Indoor Settings – Totten Center

## Staff Lockers / Shower Room

---

### **General Description**

The staff lockers / shower room is an area for staff to leave their personal belongings in a secure place and to change clothes before and after work.

### **Objectives**

The staff lockers provide room to store personal items in secure lockers. The shower room is available to staff for showering.

### **Users**

- Staff.

### **Character of space**

- Easy to clean.
- Private.
- Away from public area.

### **Permanent elements**

- Lockers.
- Showers.
- Sinks.
- Toilets.
- Shelves.

### **Movable elements**

- Benches.

**Adjacencies**

- Central to work locations.

**Capacity**

- Must support staffing plan.

**Square Footage**

- 300 sq. ft.

**Staffing requirements**

- None.





## IV. MAINTENANCE SETTINGS

---

Staff Facility Room - Grounds Staff Office

Maintenance Area

Small Engines

Open Supply Shed

Equipment Maintenance and Construction Shop

Concrete Slab – Area for Soil Mixing

# Maintenance Settings

## Staff Facility Room / Grounds Staff Office

---

### **General Description**

The staff facility room is a central area where the grounds staff convenes to begin the workday. This area should include office space, computer space, work planning spaces and sustainable features.

### **Objectives**

The staff facility room provides a central location for grounds staff to interact and prepare for the workday.

### **Users**

- Garden staff.

### **Character of space**

Open, relaxed, pleasant working environment with ample room for each staff member to have space for personal belongings and access to computer network. Heat is required for this space but air-conditioning is not necessary as long as the space has good air circulation and the staff has access to air-conditioned space nearby. Air filters required to minimize dust.

### **Educational links**

- Fiber optic network sockets.

### **Self-directed activities**

- Individual indoor (non-shop related) work projects, e.g. design, research, or mapping.

### **Facilitated activities**

- Planning / staff meetings area.

### **Special programs and events**

- None.

### **Permanent elements**

- Staff offices.
- Work planning space.
- Area for private telephone conversations.

### **Movable elements**

- Staff offices could be cubicles.
- Garden intern lockers could be freestanding for flexibility.

### **Adjacencies**

- Centrally located in the Garden
- Adjacent to the main Totten Center/Botanical Garden maintenance room

- Adjacent to other Garden staff's offices and workspaces to allow for frequent interaction regarding work projects and Garden activities.
- Offer easy access to staff amenities such as:
  - Kitchen area.
  - Lunch/break room.
  - Other heated / cooled spaces.
  - Bathroom w/ shower.

**Capacity**

- 7 or 8, plus garden interns.

**Square Footage**

- Approximately 600 square feet.

**Staffing requirements**

- Current Grounds staff and supervisor (5).
- Coker Arboretum staff (2).
- Garden interns?

# Maintenance Settings

## Small Engines Area

---

### **General Description**

The small engines space of the maintenance area allows for the dry and secure storage of the Garden's small engines, e.g., lawnmowers, tillers, chainsaws, and string trimmers.

### **Objective**

This space will provide safe and secure storage for the Garden's expensive machinery.

### **Users**

- Garden staff

### **Character of space**

- Totally enclosed and secure, shed-like space. Could be designed/built to allow for relocation.

### **Educational links**

- None.

### **Self-directed activities**

- None.

### **Facilitated activities**

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Visitor Education Center Design Program, April 2001

- None.

### **Special programs and events**

- None.

### **Permanent elements**

- Storage space for the small engine equipment.
- Photovoltaic hookups.

### **Movable elements**

- This small shed could be moved as necessary.

### **Adjacencies**

- Equipment maintenance and construction shop.
- Maintenance / service road.

### **Capacity**

- Large enough to hold existing equipment plus room for future acquisitions.

### **Square footage**

- Approximately 200 square feet.

### **Staffing requirements**

- Not applicable.

**Notes**

- Consider constructing from rough-cut pine boards milled from the pine-beetle site. (The boards are in storage at Mason Farm.)

# Maintenance Settings

## Open Supply Shed

---

### **General Description**

The open supply shed is a covered, three-walled shed with a concrete floor. It replaces the function of the dilapidated Green Shed that stores the Gardenway cart, wheelbarrows, and propagation equipment.

### **Objectives**

The open supply shed provides the Garden staff and volunteers with easy access to carts, wheelbarrows, and propagation supplies necessary to maintain Garden display areas.

### **Users**

- Garden staff and volunteers

### **Character of space**

- Open and easy to access.
- Allow for orderly storage of equipment.

### **Educational links**

- None.

### **Self-directed activities**

- None.

### **Facilitated activities**

- None.

**Special programs and events**

- Possible storage area for special event program materials.

**Permanent elements**

- Concrete pad.
- Roof.
- Three walls.

**Movable elements**

- All materials stored inside are movable and can be rearranged.

**Adjacencies**

- Equipment maintenance and construction shop.
- The maintenance/service road.
- The main Garden display area.

**Capacity**

- Store carts, wheelbarrows, and propagation supplies (which include multiple bags of Promix and boxes of various sized pots).

**Square Footage**

- Approximately 300 square feet.

**Staffing requirements**

- None.

**Notes**

- This shed needs neither electricity nor plumbing. Consider constructing from pine-beetle rough-cut lumber currently stored at Mason's Farm. Use daylighting or solatubes to provide light in the shed during the day.



# Maintenance Settings

## Equipment Maintenance and Construction Shop

---

### **General Description**

The equipment maintenance and construction shop is a workroom with entry access for vehicles through a garage door. It provides an area to perform construction tasks without disturbing visitors or staff. A passive solar or sustainable design is required. Consider a cistern, or some other device, to catch rainwater.

### **Objectives**

The main principle of this space is to provide an area to perform construction tasks without diminishing the visitor's experience.

### **Users**

- Garden Staff.
- Infrequent use by volunteers and program participants.

### **Character of space**

The space is large and open, with plenty of room for several staff members to perform work projects, including vehicle maintenance. It provides a pleasant working environment with sustainable design.

### **Educational links**

- None.

### **Self-directed activities**

- Maintenance and construction tasks

### **Facilitated activities**

- Large projects including
  - Large carpentry projects.
  - Vehicle/tractor maintenance.
  - Assembly of Christmas decoration.
- Houses special programs that need covered space but are too messy to be taught in the formal classrooms.

### **Special programs and events**

- Possible storage space for special event program materials.

### **Permanent elements**

- Facilities for large equipment storage and use, e.g. table saw, drill press, circular saw, grinder wheel, and work bench.
- Storage for assorted garden tools, chainsaws and related supplies, ladders, vehicle/tractor supplies.
- Lockable cabinets for hazardous materials (petroleum products, paints, herbicides, pesticides).

- Ventilation system.

**Movable elements**

- Worktables.

**Adjacencies**

- Small engine space.
- Maintenance / service road
- Open supply shed

**Capacity**

- Adequate space to perform ongoing large and difficult maintenance tasks.
- Temporary tractor/vehicle storage.

**Square Footage**

- Approximately 900 to 1200 square feet.

**Staffing requirements**

- No extra staff are needed to run this building.

## Maintenance Settings

# Concrete Slab / Area for Soil Mixing

---

### **General Description**

The concrete slab holds the annual shipment of shredded pine bark storage and provides room to mix potting soil.

- Any temporary project that requires a hard, flat surface.

### **Objectives**

The Concrete Slab has two objectives:

Store shredded pine bark.

Provide area to mix potting soil.

### **Users**

- Garden staff.
- Infrequent use by program participants.

### **Character of space**

- A hard, flat surface that is easily accessible by our tractor and the maintenance/service road.

### **Educational links**

- When not in use for soil mixing, the slab could be used as a space for children's programs.

### **Self-directed activities**

**Facilitated activities**

- Mixing soil.

**Special programs and events**

- None.

**Permanent elements**

- Concrete slab.

**Movable elements**

- None.

**Adjacencies**

- Maintenance / service road.

**Capacity**

- Current shredded bark pile.
- Allow for soil mixing.

**Square Footage**

- Approximately 20 X 30 (600 square feet).

**Staffing requirements**

- None.

## V. OUTDOOR SETTINGS

---

Orientation / Wayfinding / Lighting  
By-Pass Corridor / Arrival Setting  
Parking  
Plant Collections – Laurel Hill Road  
Orientation Area  
Breezeway Porch  
Multipurpose Space  
Outdoor Exhibits  
Outdoor Interpretive Shelters  
Outdoor Plant Sales  
Outdoor Gathering Spaces  
Patio / Eating Deck  
Picnic Area  
Trails  
Coker Arboretum  
Mountain Habitat  
Garden of Flowering Plant Families  
Outdoor Classroom  
Children's Garden



## Outdoor Settings

# Orientation / Wayfinding / Lighting

---

### **Wayfinding**

Wayfinding begins on highway 15/501 and continues to the parking lot.

From parking lot, direction to various points of interest within the Garden should be clear. Cues may be designed into the landscape or building design.

### **Orientation**

Throughout the Garden, visitors should be able to determine their location and obtain information about that place. Other aspects of orientation include:

- Where do I go from here?
- Is it self-directed? Facilitated?
- What can I expect at various points of interest?
- How do I get back to my car and out of the Garden?

### **Lighting**

Illumination of the Garden is required for security purposes. Objects (e.g. plants, building) should be lit, rather than spaces. Attempts should be made to reduce light pollution.

# Outdoor Settings

## By-Pass Corridor / Arrival Setting

---

### **General Description**

Native plants, xeric, low maintenance “view shed.”

Should pull visitors into Garden. The entry experience includes the following elements:

- View from the By-Pass—the landscaping should be observable at 45mph.
- Parking—should be easy to navigate and understand.
- Pedestrian paths—walkways should be easy to navigate and should feel safe.
- Corner and median plantings, stone features.
- Upgraded plant material along sound wall.
- An entry sign —upgrade brown DOT signs.

### **Objectives**

- Attract visitors.
- Raise awareness of Garden location.
- Aid in wayfinding.

### **Users**

- General public.

### **Character of space**

- Low maintenance, xeric.

*North Carolina Botanical Garden*

Visitor Education Center Design Program, April 2001

- Southeastern vernacular character.

### **Educational links**

- Aesthetic native plantings represent NCBG and emphasize value of native plants.

### **Self-directed activities**

- Wayfinding.

### **Facilitated activities**

- None.

### **Special programs and events**

- None.

### **Permanent elements**

- Plantings.
- Sidewalks.
- Bus stop.
- Crosswalks.

### **Movable elements**

- Signage for special events, plant sales, etc.
- Temporary signage should be added to existing highway NCBG signs.



**Adjacencies**

- Parking lot.
- Sound wall.

**Capacity**

- Not applicable.

**Square Footage**

- Length of sound wall to undetermined distance along Mason Farm Road.
- Islands.
- Corner.

**Staffing requirements**

- Garden grounds staff.

# Outdoor Settings

## Parking

---

### **General Description**

The Parking should be soft-edged, with enhanced and rescued native plants. Should convey sense of being taken care of and attended to—made easier by the use of existing and low maintenance plant material. The parking lot edge should give a very different message than most parking lots—green, soft edged, naturalistic.

### **Objectives**

Celebration of native plants, both existing on the site (rescued plants) and cultivated (new plantings). The parking lot edge should convey a sense of green and diverse native plants, in places merging with the natural habitat, in others in more human-arranged plantings. Trees are saved where possible so that shade is present. Well-marked paths with clean edges cross parking lot surfaces in obvious corridors (marked by changes in material or color to the parking lot itself). Visitors have a clear and safe way of leaving their cars and walking to the Arrival Point. The landscape tells them that they are in a garden.

### **Users**

- General public.

### **Character of space**

- Green, cared for, but not formal or controlled.

**Educational links**

- Signs interpret plants and other features (e.g., environmental features if run-off from the parking is used for irrigation or wetlands and the geothermal heat system).

**Self-directed activities**

- Interpretive signs.

**Facilitated activities**

- None.

**Special programs and events**

- Large, one-day plant sales take over a number of spaces several times during the year, but electricity has to be available for this use.

**Permanent elements**

- Parking spaces.
- Pathways.
- Night lighting.
- Trash and recycling receptacles.

**Movable elements**

- Tables and tents for plant sales.
- Picnic tables.
- Benches.

**Adjacencies**

- Entry road.
- Arrival Point.

**Capacity**

- Approximately 120 vehicles.

**Square Footage**

- To be determined.

**Staffing requirements**

- Garden Grounds Staff.

# Outdoor Settings

## Plant Collections – Laurel Hill Road

---

### **General Description**

The plant collections along Laurel Hill Road will expand the Habitat Gardens and the Native Perennial Collections.

### **Objectives**

The objective of the Laurel Hill plant collection is to expand the Habitat Gardens and the Native Perennial Collections. Preparation—landscape by subtraction—removal of invasive species, etc. After-hours viewing.

### **Users**

- General public.
- Neighbors.

### **Character of space**

- Perennial display.
- Piedmont native plants.
- Low maintenance.
- Xeric.

### **Educational links**

- Interpretive material.

### **Self-directed activities**

- Interpretive material.

**Facilitated activities**

- Tours.

**Special programs and events**

- Perennial classes.

**Permanent elements**

- Existing signage.

**Movable elements**

- None.

**Adjacencies****Capacity****Square Footage**

- To be determined.

**Staffing requirements**

- Tour guides.

# Outdoor Settings

## Orientation Area

---

### General Description

The Orientation Area is an outdoor space for orientation to the Garden located at the parking lot before visitors get to Visitor Center. This space provides four functions that are separated in space:

- *Self-orientation.* Important aspects include:
  - Brief introduction to themes and mission of the Garden.
  - Maps of the Garden.
  - Membership information.
  - Current events.
  - Safety information.
  - Signage to different destinations—Visitor Education Center, Totten Center, Herbarium/Library, display gardens, nature trails. (Visitor Education Center should be stressed as the most obvious destination.)
- *Group orientation.* Staff and tour guides may greet groups and give basic information at the start of their visit.
- *Drop off point* for buses and visitors who cannot walk far. for
- Bicycle riders arrival and parking.

### Objectives

- Allow visitors to orient themselves to the complete Garden “campus.”
- Provide a gathering and a resting place.

### Users

- All visitors.
- First time visitors.
- School groups (busloads).
- Tour groups.

### Character of space

- Welcoming, celebratory environment. May incorporate the following:
  - A stone wall or gathering circle at the arrival point.
  - Covered, unenclosed space.
  - Water feature, sculpture, logo, poles for flags and banners.
  - A physical announcement or signature landmark piece that communicates the mission of the Garden.
- Beautiful native plants flowing out and surrounding the parking lot and entrance area.
- Night lighting.

### Educational links

- Sense of history and place (like older existing, cedar-shake structures).

**Self-directed activities**

- Orientation to site.

**Facilitated activities**

- Orientation of tour groups and school groups.

**Special programs and events**

- None.

**Permanent elements**

- Benches.
- Overhead signage.
- Emergency phone.
- Night lighting.
- Map.
- Kiosk.
- Covered space for shade and rain.
- Water feature, sculpture, and memorable landmark.
- Water fountain.
- Donation and suggestion boxes.

**Movable elements**

- None.

**Adjacencies**

- Parking lot.
- Restrooms.
- Main entrance to Garden.

**Capacity**

- Allow for bus groups and family and single users.

**Square footage**

- Arrival spot must accommodate 40-80 (two busloads).

- Places to meet and talk to groups at the start of a tour must accommodate 20-40 participants.

**Staffing requirements**

- Staff required as-needed.



# Outdoor Settings

## Breezeway Porch

---

### **General Description**

The breezeway porch is a space that connects the Visitor Education Center to the outdoors.

### **Objectives**

The breezeway porch provides a resting and meeting place as well as an outdoor orientation space. It offers basic information and brochures.

### **Users**

- All visitors (including school groups).
- Receptions.

### **Character of space**

Welcoming. The space has high ceilings and clear visibility to the immediate outdoors. There is a strong connection to the Garden.

### **Educational links**

- Orientation information.
- Brochures.

### **Self-directed activities**

- Some interpretive exhibits.

### **Facilitated activities**

- Provide information.
- Volunteer greeters.

### **Special programs and events**

- Social events

### **Permanent elements**

- Built in benches.

### **Movable elements**

- Rocking chairs.

### **Adjacencies**

- Reception lobby.
- Public restrooms.
- Gift shop.
- Herbarium.

### **Capacity**

- 40 users.

### **Square footage**

- Determined by size of building – probably a wrap around porch or one that leads to a deck or patio.

**Staffing requirements**

- None.

# Outdoor Settings

## Multipurpose Space

---

### **General Description**

The multipurpose space is an open outdoor area for sculpture, dance, music and other special events.

- Special events.

### **Objectives**

The multipurpose space provides an outdoor area for large events.

### **Users**

- Visitors to special events.
- Music, dance, drama groups.

### **Character of space**

Open, flat, safe, accessible, easy walking spaces, benches, and stone sitting walls. A gathering space adjacent to the arrival point.

### **Educational links**

- Interpretation of mission.

### **Self-directed activities**

- None.

### **Facilitated activities**

*North Carolina Botanical Garden*

Visitor Education Center Design Program, April 2001

**Special programs and events**

- Concerts.
- Outdoor receptions.
- Sculpture displays.

**Permanent elements**

- Trail signs.
- Maps.
- Benches or seating walls.

**Movable elements**

- Tents.

**Adjacencies**

- Path system.

**Capacity**

- 100 users.

**Square footage**

- To be determined.

**Staffing requirements**

- None.

# Outdoor Settings

## Outdoor Exhibits

---

### **General Description**

The outdoor exhibits support the primary mission of the Garden.

### **Objectives**

The outdoor exhibits provide educational messages appropriate to visitors of all backgrounds. Interpretive materials are presented to suit varying interest levels of visitors.

### **Users**

- Visitors.

### **Character of space**

- Attractive, accessible.

### **Educational links**

- Interpretive themes.

### **Self-directed activities**

- Signs.
- Observation.

### **Facilitated activities**

*North Carolina Botanical Garden*

Visitor Education Center Design Program, April 2001

- None.

### **Special programs and events**

- None.

### **Permanent elements**

- Benches.
- Shelters.
- Signage.

### **Movable elements**

- As required.

### **Adjacencies**

- Paths and trails.

### **Capacity**

- Varies from several visitors reading signs to two visitors using built structures, e.g. the Ecological Observatory.

### **Square footage**

- Varies.

### **Staffing requirements**

- Staff prepares interpretation – each curator prepares content.

## Outdoor Settings

# Outdoor Interpretive Shelters

---

### **General Description**

Several interpretive shelters provide expanded educational opportunities in strategic places throughout the Garden.

### **Objectives**

Outdoor shelters allow for small scale, interpretive opportunities. They provide protection from the weather.

### **Users**

- All visitors.

### **Character of space**

- Unobtrusive outdoor structures.

### **Educational links**

- They are located within the natural trails and displays, and thus near exhibits.

### **Self-directed activities**

- Seeing plants, nature trails, exhibits.

### **Facilitated activities**

- Tours led by staff and volunteers.

**Special programs and events**

- None.

**Permanent elements**

- Electricity for some.

**Movable elements**

- None.

**Adjacencies**

- Nature Trails.
- Garden display beds.
- Restrooms.
- Water fountain.

**Capacity**

- Varies from 5-20.

**Square footage**

- Calculate from capacity and need for built-in benches.

**Staffing requirements**

- Regular educational staff and volunteers.



# Outdoor Settings

## Outdoor Plant Sales

---

### **General Description**

Outdoor Plant Sales accommodate the following in various locations:

- Ongoing plant sales: currently on honor system, but will be located adjacent to the Gift Shop.
- Large-scale plant sales five to seven times a year. Space created by closing off 10 parking spaces or sales held on a grassy spillover parking area adjacent to the main lot.

### **Objectives**

Outdoor plant sales provide a medium to emphasize conservation through propagation and educate visitors on the value of native plants. Large-scale plant sales provide a service to groups by offering a location for sales.

### **Users**

- Customers.
- Sellers: 5 or 6 groups for the large-scale weekend plant sales (e.g. Chatham Growers, Camellia Growers).

### **Character of space**

*North Carolina Botanical Garden*

Visitor Education Center Design Program, April 2001

- Outdoors.
- Clear circulation pattern.
- Space for awning or small tent/shelter for sales desk.
- Set up and breakdown out of the traffic flow.

### **Educational links**

- Emphasize the value of native plants.

### **Self-directed activities**

- Examining plants.

### **Facilitated activities**

- Special one- or two-day day sales at the Garden.

### **Special programs and events**

- Large plant sales.

### **Permanent elements**

- Water.
- Electricity for cash register / inventory control.

### **Movable elements**

- Benches and display space for ongoing plant sales.
- Tables and temporary covered shelters for cashier sales for large sales.

**Adjacencies**

- Ongoing plant sales should be near Gift Shop.
- Large plant sales should be near the public parking lot, but also set back so as not to block main drive during set up.

**Capacity**

- Large plant sales draw large numbers of people, filling parking lot with continual turnover.

**Square footage**

- Ongoing plant sales – currently 12' x 15' (somewhat shady / sunny).
- The largest large plant sale currently requires 30, six foot tables.

**Staffing requirements**

- Alan's staff handles set-ups for large sales.

## Outdoor Settings

# Outdoor Gathering Space

---

### **General Description**

The outdoor gathering space is a large outdoor area available to school and tour groups.

### **Objectives**

The outdoor gathering space provides room for classes or meetings to be held outdoors.

### **Users**

- School groups.
- Tour groups.

### **Character of space**

- If built in the side of a hill, seating can be on the slope.

### **Educational links**

- Classes, tours.

### **Self-directed activities**

- None.

### **Facilitated activities**

- Classes, tours.

### **Special programs and events**

- Small concerts.
- Receptions.

**Permanent elements**

- Amphitheater implies fixed seating.

**Movable elements**

- None.

**Adjacencies**

- Natural environment.

**Capacity**

- 50 maximum.

**Square footage**

- To be determined.

**Staffing requirements**

- None.

# Outdoor Settings

## Patio / Eating Deck

---

### **General Description**

The patio / deck is a multi-user outdoor space to accommodate eating.

### **Objectives**

The patio / deck provides outdoor eating space near the Visitor Education Center.

### **Users**

- Large groups.
- NCBG Foundation Board meals.
- School groups.
- Individual visitors.
- Staff.

### **Character of space**

Covered porch or deck for shade. Should relate to interior space (i.e. classroom which could expand to outdoor space).

### **Educational links**

- None.

### **Self-directed activities**

- Eating.

### **Facilitated activities**

- None.

### **Special programs and events**

- Catered events.

### **Permanent elements**

- Electricity.
- Lighting for evening events.
- Water.

### **Movable elements**

- Benches.
- Chairs and tables.
- Catering tables (brought in).
- Recycling and trash receptacles.

### **Adjacencies**

- Within the garden.

### **Capacity**

- Flexible—large groups (125) and individuals.

**Square footage**

- To be determined.

**Staffing requirements**

- None.

# Outdoor Settings

## Picnic Area

---

### **General Description**

The picnic area is an outdoor eating area for visitors and staff.

### **Facilitated activities**

- None.

### **Objectives**

The picnic area offers a comfortable and safe, centrally located area for eating in a natural setting.

### **Users**

- Visitors.
- Staff.
- School groups.
- People of all abilities.

### **Character of space**

- Shady, natural environment. Shrubs offer privacy, catch dust.

### **Educational links**

- Opportunities to demonstrate recycling. Tables could be made from recycled materials.

### **Self-directed activities**

- None.

**Special programs and events**

- None.

**Permanent elements**

- Shelter.
- Paths.
- Trash and recycling cans.

**Movable elements**

- Picnic tables.

**Adjacencies**

- Parking.
- Orientation Area.
- Restrooms.
- Water.
- Emergency phone.
- Separate from the outdoor multipurpose space.

**Capacity**

- Approximately 10 tables.

**Square footage**

- To be determined.

**Staffing requirements**

- None.



# Outdoor Settings

## Trails

---

### **General Description**

Clearly marked and interpreted trails connect the Garden to the community, including the University.

### **Objectives**

The trails provide connections from the Garden to:

- UNC campus.
- Coker Arboretum.
- Glenwood Elementary School Trail.
- Nearby neighborhoods.
- Ronald McDonald House.
- The central Garden site.

### **Users**

- Visitors.
- Staff.
- Volunteers.

### **Character of space**

- Scenic, safe, with clear directions.
- Trail width varies; main pathways are wider and more accessible.

### **Educational links**

*North Carolina Botanical Garden*

Visitor Education Center Design Program, April 2001

- Interpretation varies from simple plant labels to information-rich interpretive signs.

### **Self-directed activities**

- Walking.

### **Facilitated activities**

- Staff and volunteer led tours.

### **Special programs and events**

- Hikes.

### **Permanent elements**

- Benches.
- Signs.
- Covered but open shelters.
- Interpretive exhibits.
- Water fountains used sparingly to preserve a feeling of 'wild nature.'

### **Movable elements**

- Temporary exhibits.

### **Adjacencies**

- None.

**Capacity**

- Maximum users on the most popular weekend of the year.

**Square footage**

- Not applicable.

**Staffing requirements**

- Curator of Nature Trails.

# Outdoor Settings

## Coker Arboretum

---

### **General Description**

The five-acre Coker Arboretum on the central UNC campus displays the diversity of woody plants of the Southeast and non-invasive plants from similar climates in East Asia, including those plants with close relatives in eastern North America. The Arboretum is also the Garden's "calling card" on the main campus and a much-loved place of beauty, conversation, and quiet contemplation.

### **Objectives**

- To display the diversity and beauty of the plant kingdom, with particular regard to woody plants of the Southeast and of non-invasive plants from elsewhere.
- To serve as a quiet recreational, meeting, and contemplation area for the UNC Campus.
- To introduce visitors to the North Carolina Botanical Garden and garden themes.
- To serve University classes in botany.

### **Users**

- Students.
- UNC alumni.

- Staff.
- General public.
- Weddings, special events.
- School groups visiting the nearby Planetarium.

### **Character of space**

Plant beds and woody plant specimens arranged around "rooms" (the open grassy spaces of the Arboretum). Well marked paths and frequent benches.

### **Educational links**

- Garden programs and interpretive signs.
- UNC classes in Botany, Art, Photography, English, and other subjects as appropriate.

### **Self-directed activities**

- Interpretive signs, brochures.

### **Facilitated activities**

- Garden programs and interpretive tours.

### **Special programs and events**

- Weddings, receptions, celebrations.

**Permanent elements**

- Benches.
- Pathways.
- Signage.

**Movable elements**

- Some interpretive signs.

**Adjacencies**

- Campus to Garden Trail.

**Capacity**

- Not applicable.

**Staffing requirements**

- Curator and Curator Assistant.
- Volunteers.
- Work study students.
- Interns.

# Outdoor Settings

## Mountain Habitat

---

### **General Description**

Mountain Habitat is an area of the Garden that displays plants that are typical of the North Carolina mountains. It is in need of new material, refurbishing, interpretation, path expansion and improved accessibility.

### **Objectives**

Evaluation is required to decide best course of action: possible relocation, expansion, renovation, and revised interpretation of existing and future space. Exotic, invasive species need removal. Assess and improve accessibility.

### **Users**

- General public.

### **Character of space**

- Mountain woodland.

### **Educational links**

- In-house and visiting classes.

### **Self-directed activities**

- Interpretive signs.

### **Facilitated activities**

- None.

### **Special programs and events**

- None.

### **Permanent elements**

- Exhibit plants.

### **Movable elements**

- None.

### **Adjacencies**

- Other habitats, perhaps in order of how they appear in landscape.
- Mountain Habitat is eventually to be moved across from Laurel Hill Road to the south side of Meeting of the Waters Creek and adjacent slope.

### **Square Footage**

- To be determined.

**Staffing requirements**

- Recruit more volunteers. Provide more staff for all habitats or add another curator to deal with additional responsibilities.

# Outdoor Settings

## Garden of Flowering Plant Families

---

### **General Description**

Cleared, sunny space. Beautiful existing garden.  
(Heavy site impact.)

### **Objectives**

Current garden has been recently renovated. It does not have to be moved for many years. Most likely, it will eventually be moved to be adjacent to Herbarium.

### **Users**

- Undergraduates.
- Graduate students.
- General public.

### **Character of space**

- Educational atmosphere.

### **Educational links**

- Herbarium, Visitor Center, Totten Center.

### **Self-directed activities**

- Interpretative experience of existing space.

### **Facilitated activities**

*North Carolina Botanical Garden*

Visitor Education Center Design Program, April 2001

- Classes.

### **Special programs and events**

- None.

### **Permanent elements**

- Plants.

### **Movable elements**

- None.

### **Adjacencies**

- Depends on relocation

### **Staffing requirements**

- Relocation would require more staff. Year-round interns?

### **Notes**

- Irrigation must be accommodated, e.g., well, OWASA water availability would be limited if Garden goes off OWASA.

# Outdoor Settings

## Outdoor Classroom

---

### **General Description**

The outdoor classroom is an open, screened structure in the woods

### **Objectives**

The Outdoor Classroom provides an isolated, open structure for holding classes or lectures.

### **Users**

- Children.
- Adults.
- School groups.

### **Character of space**

A roofed, screened structure with solid flooring. An “outdoorsy” workspace or educational playspace. Does not have to be fancy but needs to accommodate messy projects and be easily cleaned.

### **Educational links**

- Many.

### **Self-directed activities**

- None (although wall space could have interpretive signage, photos).

### **Facilitated activities**

- Classes.

### **Special programs and events**

- Classes and workshops.

### **Permanent elements**

- Roof.
- Floor.
- Screening.
- Sink and hose faucet.
- Electricity.
- Counters on one side.

### **Movable elements**

- Chairs and tables.

### **Adjacencies**

- In the woods.

### **Capacity**



- 30 (one typical school class).

**Square Footage**

- 400 square feet.

**Staffing requirements**

- As for classes.

# Outdoor Settings

## Children's Garden

---

### **General Description**

The children's garden is a dedicated garden for families with preschool age children and childcare center group visits. Areas for older children are designed throughout the whole botanical garden (Elementary, Middle, and High School). It contains temporary installations and dynamic interpretation of plants and habitats.

### **Objectives**

The children's garden engages children in exploratory, play and learning activities with plants and small animals. It is a magical natural place for children. It offers activities for all ages and abilities.

### **Users**

- Infants.
- Toddlers / two year olds.
- Preschoolers.
- Elementary, Middle, High School students.
- Families.

### **Character of space**

The Children's Garden is a diverse natural space that encourages exploration. It contains different play and

learning settings. It is profusely vegetated with plants, flowers, and fruit trees. Hands-on activities are accommodated for families and small groups.

**Educational links**

- Field trips to Mason Farm to see woodpeckers, and Coker Arboretum.
- It offers connections with other “immersive” settings in the garden—away from traffic intrusions.
- School curriculum tie-ins are developed.

**Self-directed activities**

- Family explorations.
- Individual explorations.
- Interpretive experience.

**Facilitated activities**

- Guided tours.
- Teacher facilitated activity.

**Special programs and events**

- Season celebrations: Spring, Summer, Fall, and Winter.
- Easter, Christmas, etc.
- Special children’s performances.

**Permanent elements**

- Raised planters
- Pergolas
- Arbors
- Water features.
- Water supply.

- Storage unit.

**Movable elements**

- Benches.

**Adjacencies**

- Outdoor classroom.
- Public restrooms

**Capacity**

- To be determined.

**Square Footage**

- To be determined.

**Staffing requirements**

- Youth volunteers.



## VI. EDUCATIONAL PROGRAMS & EXHIBITS

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Approach

Format

Current Garden

New Garden Exhibits / Settings

Interpretive Opportunities

Exhibit Opportunities



# Educational Programs & Exhibits

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A program of exhibits and educational opportunities will create a *seamless* gradient between nature's garden and the Botanical Garden and between the indoors and outdoors.

## Approach

The Garden provides experiences for people of all backgrounds, skills, abilities, and ages. These experiences range from sensory to knowledge acquisition. Some settings will be designed without exhibits, labels, or interpretative information. Other settings will be information rich. The Garden exhibits will contain dimensions of both art (landscape design, plant beauty, sculpture, paintings, poetry readings) and science. A single garden should be presented, unified by common themes.

## Exhibits and Interpretive Themes

Exhibits present intense information on one or a few related topics in one place. "Interpretive themes" present recurring messages throughout the garden and may be highlighted in a specific exhibit.

Most exhibits will be outdoors in both the cultivated gardens and on the nature trails. Some indoor exhibits

will be located in the Visitor Education Center, the Herb House, Paul Green Cabin, Herbarium/Library, and other sheltered stations. Rotating exhibits have great appeal and will be emphasized. They save floor space and avoid the staleness of permanent exhibits.

The main purpose of exhibit design is to link program intention to physical space and visitor behavior.

Garden signage and labeling will be supplemented by:

- Brochures and other printed materials
- Library materials
- Public service hour
- Staff and volunteer interpreters
- The Garden's website

## Exhibit Principles

Designs of the exhibits will be guided by the following principles:

1. A sense of place and experience through self-discovery and spiritual solace is as important as signage and interpretation. A sense of balance and harmony should be created between the visitor's personal and interpretive experience.

2. Signage and information should not be overwhelming, but should provide ample interpretive and educational opportunities for those who seek more detailed information.

A hierarchy of information is required throughout the garden to present ideas from globally to locally. Prominent concepts will be displayed in permanent structures. Ways to access more detailed information about global perspectives will be provided through brochures or by directing visitors to specific areas of the garden.

Orientation maps will be provided throughout the garden. These will include nature trails, habitat gardens, the Totten Center, herb garden, etc. A 3-D relief map will show topography, hydrology, and interesting landmarks such as the Carolina Slate Belt, the “hill” of Chapel Hill, the Rhododendron Bluffs, etc.

Plant labeling will vary in level of information from simple name and range labels to a sentence or two describing use in landscaping, medicinal uses, toxic characteristics, importance to pollinators, historical notes, etc. Interpretive themes will be presented on paragraph style signs.

## Five Messages to Visitors

The NCBG Team determined that the following five broad messages are the most important to convey to visitors. Exhibits will be designed to support these themes:

- Conservation
- Biodiversity
- Native Plants
- NC Habitats and Heritage
- Interconnectedness of humans and nature / environmental stewardship

The Garden has a diverse audience that needs information on gardening and home landscaping in the Piedmont. This need encompasses plant diversity, sustainable human use, and the importance of botanical knowledge.

## Existing and New Garden Exhibits/Settings

The following new garden exhibits / settings are required to support the expanded program. They are listed in the Master Plan (**boldface** not implemented):

- **Habitat Gardens: Coastal Plain, Piedmont, Mountains**
- **Fern Garden**
- **Carnivorous Plant Garden**
- **Native Perennial Garden**
- **Plant Families Garden**
- **Aquatic Garden**



- Rare Plant Garden
- **Plant Exploration Garden**
- **Human Impact Garden**
- Horticultural Therapy Garden
- Mercer Reeves Hubbard Herb Garden
- **Children's Garden**

Ecological lookout  
 Outdoor classroom  
 Piedmont Habitat  
 Natural garden  
 Plant succession  
 Reading the landscape  
 Are you already living in a garden?

## Interpretive Opportunities

The following represent significant interpretive opportunities:

- **Entry.** The Visitor Education Center provides orientation to the site. The experience starts when entering the garden. Visitors do not need to enter the Visitor Center for orientation. Inside the Center, visitors are provided with a menu of choices, a brief orientation, and then are directed outside. The Visitor Education Center should not be seen as the center of the Garden, but a part of the experience. Entry orientation includes photos of the Garden.
- **Ethno-botanical trail**
  - African American Heritage Garden
  - Herb Garden
- **Nature trails**
  - Canopy walk
  - Eye level system
  - Meandering stream, water quality

- **Compost demonstration area**
- **New trails.** From parking lot to the Herbarium and Mason Farm.
- **Coker Arboretum.** The Coker Arboretum will be linked to the Visitor Education Center by a pedestrian trail.
- **Hunt Arboretum.** Exhibits show how Coker and Hunt Arboretum support the Botanical Garden mission and connect to the Botany Department.
- **Coker Pinetum.**
- **Mason Farm.** Include information about "yellow birch trail."



## VII. SUSTAINABLE DESIGN APPROACH

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Preamble

Overview of the LEED Green Building Rating System

Application of the LEED Categories

Sustainable Sites

Water Efficiency

Energy & Atmosphere

Indoor Environmental Resources

Design / Building Process

Preliminary Sustainable Priorities Ranking



# Sustainable Design Approach

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## Preamble

The word *sustainable* is defined by the World Commission on Environment and Development as "meeting the needs of the present without compromising the ability of future generations to meet their own needs."

According to William McDonough's *Hannover Principles*, designing for sustainability requires "awareness of the full short and long term consequences of any transformation of the environment."

The Garden's subtitle, *A Conservation Garden*, has inspired the NCBG Staff to embrace the *Hannover Principles* and seek ways to apply them in each of five categories:

- *Earth* for substance used.
- *Air* for air quality.
- *Fire* for energy use.
- *Water* for water quality and use.
- *Spirit* for the well being of all living things, including humans, other animals, plants, and other organisms.

Sustainable design should reflect the regional location—the North Carolina Piedmont—while strengthening the link between the local and global environments.

A critical facet of sustainable design is the responsible and respectful use of resources. Resources should be chosen to stand the test of time; they must be respected, used well, and revered in the future as a symbol of value.

Making the shift from traditional to innovative methods of construction, bringing sustainable ideas to reality, is a difficult task; the strategies required are complex and interconnected. The team approach, through interaction, negotiation, and education, strengthens the ability to shift current thinking and consider the built environment in new ways.

Because achieving sustainability requires complex, interconnected strategies, it is important to use a holistic approach when assessing design and cost considerations. Long term savings may offset short-term costs; expenses in one area may be outweighed by savings in another.

# Overview of the LEED Green Building Rating System

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The LEED (Leadership in Energy and Environmental Design) Green Building Rating System is a means of standardizing and assessing environmentally sustainable practices in nonresidential buildings. It is a project of the U.S. Green Building Council whose vision is “Green buildings and communities for a healthy and prosperous planet.”

The LEED Rating System is divided into five major categories: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, and Indoor Environmental Quality.

## **Sustainable Sites**

Six issues are addressed under this category:

*Location of building on site*—Site aspects, roads, streams, solar access, and transportation must be considered.

*Access to the site*—Pedestrians, bicyclists and mass transit riders should be accommodated.

*Minimization of site disturbance*—Downed trees should be utilized for construction, remaining trees should be protected, and barriers to disturbance (cost of barrier

relates to concept of barrier. If the barrier has perceived value then it is less likely to be violated)

*Minimization of heat islands*—Reduce heat absorbed and emitted by pavement. Examples of heat islands include parking areas, paving, roofs and sidewalks. Alternatives include shaded parking and no paving.

*Minimization of light pollution*—Reduce unnecessary light which severely limits view of night sky.

*Landscaping*—Use plants that require little water and fewer resources. Lawn requires intensive management and represents the antithesis of sustainable landscaping.

## **Water Efficiency**

Stormwater must be effectively managed to reduce serious downstream consequences. Some stormwater can be captured and used on-site for irrigation, flushing toilets, etc. Stormwater that exceeds these needs should be held on site and allowed to filter into the ground in created wetlands, retention ponds, etc.

The need for potable water should be reduced as much as possible. Stormwater can meet some needs. “Gray water,” water that has been used for washing in sinks and showers, can also be used in irrigation, toilets, etc. Excess gray water can also be released into created wetlands and ponds. Only black

water (from toilets) should be returned to the wastewater treatment plant.

Innovative water treatments include stormwater harvesting from rooftops, wastewater treatment in wetlands, and systems for storage like cisterns and ponds.

### **Energy and Atmosphere**

Energy consumption in the building can be reduced through good design and through appropriate use of technology. Design concepts include:

Siting building to take advantage of winter sun and summer breezes and to avoid strong summer sun

Landscaping to shade building in summer and block winds in winter

Maximizing daylighting to reduce electricity needs

Using passive solar strategies, such as floors designed to absorb solar energy during winter days

Technological methods for reducing energy consumption include the use of:

Compact fluorescent lighting for task lighting rather than area lighting. (Lighting energy increases by the square of the distance to the task)

Renewable energy sources such as photovoltaic cells (very long lasting / hardy)

Solar power for heating water

### **Materials and Resources**

Materials and resources used in construction should be carefully assessed and used with respect. During construction consideration should be given to:

Reusing materials, for example heart pine from buildings to be demolished

Renewable materials like bamboo. Bamboo is harder than oak and replaces itself very rapidly after harvesting. However, the environmental costs of transportation from China must be considered.

Local materials. Pine is grown and milled here, therefore it has a lower environmental transportation cost.

Environmentally managed timber.

Stone is sustainable for buildings. It is attractive, low maintenance, fits well with the landscape and wears well.

Recyclable carpet tiles. These can be leased from a carpet company and replaced individually as they wear out.

Recycling is also addressed under materials and resources.

Construction waste must be kept separate to remain recyclable and reusable. Recycling should be designed into the building and landscape as a system, rather than as an afterthought.

### **Indoor Environmental Quality**

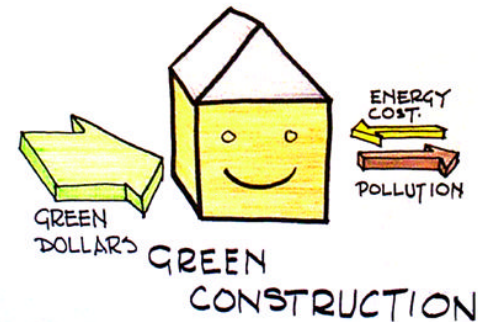
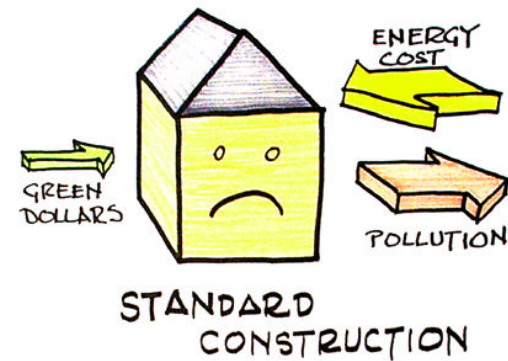
Indoor environmental quality addresses the following issues:

Indoor air quality. Materials that give off minimal amounts of VOCs (volatile organic compounds) should be used. To reduce

use of paints and glues, structures should be finished in a way that is integrated into their construction, e.g. rammed earth, exposed steel, or colored concrete. Natural ventilation. Natural ventilation dilutes pollutants. Outdoor air is cleaner than indoor air. Operable windows reduce and supplement mechanical air exchange and provide natural ventilation. Thermal comfort. Building mass can improve thermal comfort. It helps the building stay temperate (absorb heat on winter days and hold it at night, release heat during summer nights and maintain cool daytime temperatures).

### Community Involvement

Design should incorporate community volunteers in the process. Consider the construction they can assist with and plan it based on their ability.







# Application of the LEED Categories Sustainable Sites

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Each of the LEED categories has been applied to the design of the Visitor Education Center. Following are the results of the process.

## **Site Selection**

The Visitor Education Center building site has been selected to create a sense of place (a native plant garden in the Piedmont of North Carolina). Most important is the integration of humans into the natural world. Strong indoor / outdoor connections are required.

The potential closure of the portion of Laurel Hill Road that subdivides the Garden continues to be an issue. Although NCBG would still like to see Laurel Hill Road closed, the siting of the Visitor Education Center assumes that Laurel Hill Road will remain open.

## **Alternative Transportation**

Locations of bus stops on Fordham Boulevard are to be reviewed with the Chapel Hill public transportation authority and Ronald McDonald House.

Bicycle access to the Garden must be improved. The existing intersection at Fordham Boulevard must be

improved to provide safe pedestrian crossing and bicycle access.

### **Reduced Site Disturbance**

Site disturbance will be minimized by addressing the following issues:

- Tree protection
- Sedimentation issues
- Stormwater runoff
- Size of the building footprint
- Staging of construction

Protection of trees on site may need to be modified to achieve other sustainable design options such as passive / active solar gain. When on-site pine trees are used in construction, the deciduous trees existing in the undergrowth will flourish.

Stormwater management and sediment control are critical both during and after construction.

The size of the building footprint determines the amount of actual land impacted. The current plan is for a 20,000 square foot building.

What are the implications of a several story building with a smaller footprint?

Efficient use of space is critical. Could a smaller size building meet all the needs of the Visitor Education Center?

Should the building be constructed on pilings / stilts?

### **Landscape and Exterior Design to Reduce Heat Islands**

Heat islands, including any type of paved surface, should be kept to a minimum on the site. Would the roof be considered a heat island? If so, would vegetated roofs or rooftop gardens be an option? What are the long-term maintenance issues associated with these types of systems?

### **Light Pollution Reduction**

Light pollution will be kept to a minimum on the site.

Approaches include:

- Lighting of objects rather than areas.
- Lighting under benches or at low levels.
- Use of low wattage lighting.
- Lighting spaces only when in use.
- Use solar lighting.

## Application of the LEED Categories

# Water Efficiency

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### **Water Efficient Landscaping**

The site design celebrates water in the outdoor spaces surrounding the Visitor Education Center.

Meeting of the Waters Creek is a potential source for a small hydrosystem for the site and source of water for irrigation of the Garden if pollution is cleaned up. The Garden could act as a monitoring station for the water quality of the Creek.

The area below the parking lot provides a good location for a holding pond for capturing and storing rainwater. There are currently no large trees in the area and it is full of invasive species. The holding pond is designed to be natural in appearance as part of the Garden's collections.

The holding pond can be used during and after construction for several purposes:

- Minimize sedimentation.
- Store site water.
- Store roof water.
- Provide irrigation water.

An alternative option to the pond is a gravity fed storage tank that could also serve as a source of energy as discussed under Energy and Atmosphere below.

## **Stormwater Management**

Stormwater management includes low impact measures in the parking lot, collection of stormwater from rooftops into cisterns, and minimization of site disturbance during the construction phase to reduce sediment runoff.

Stormwater treatment during construction should consider future landscape opportunities for stormwater. For example, the 'bottoms area' (near stream) can be used for water retention during construction to reduce sediment loading of the stream. After construction the area can be reconfigured for use as an outdoor classroom.

Stormwater collected for reuse on site should meet specific standards depending on its use. For irrigation, what are the maximum levels of pollutants from parking area oil, gas, and antifreeze? How can a constructed wetland provide sufficient purification of the water for irrigation purposes?

The quality of stormwater flowing onto the site from other sources such as Fordham Boulevard) is a concern.

Optimally, after construction the volume of stormwater runoff from the site will not exceed runoff under undisturbed conditions.

## **Innovative Wastewater Technologies**

Most wastewater should be reused or treated on site. Graywater can be used for site irrigation. Composting toilets can be used to eliminate blackwater production on the site. The site should remain connected to the OWASA wastewater system as a back up for large events.

## **Water Use Reduction**

The number of water features on site is minimal including a water aeration fountain. Features should be limited in size. The sound of water is an important feature on the site, strategically incorporated to guarantee the sound of water (while minimizing the number of water features).

The use of potable, processed water should be minimized, used for drinking, bathing and washing only. Drinking fountains must be energy efficient.

## **Other Considerations / Questions**

Can solar energy be used to heat water?

Can water be used for a cooling effect on site?

The Totten Center used approximately 1.3 million gallons of water for irrigation and domestic purposes last year.

Can water collected on site be used as thermal mass in the building?

Suggested design elements include aesthetic water feature inside building, flow form with rainwater from roof to pond

inside building, vernal pool. These elements will help change the way the University does things related to water.

Attempts must also be made to impact DOT's and local agency's way of looking at water.

Can Beatty Hill on UNC campus be incorporated into the garden property?

# Application of the LEED Categories Energy and Atmosphere

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## **Fundamental Building System Commissioning**

The intent of Building System Commissioning is to ensure that building systems and elements are designed, installed and calibrated to operate the Visitor Education Center as intended. At least the following typical building systems / elements are included:

- Building shell.
- Mechanical systems.
- Electrical systems.
- Plumbing systems.
- Energy conservation elements.
- Water conservation features, etc.

Best practices should include the following:

- Engage a commissioning authority.
- Develop design intent and basis of design documentation.
- Include commissioning requirements in the construction documents.
- Develop and utilize a commissioning plan.
- Verify installation, functional performance, training and documentation
- Complete a commissioning report.

Standards and strategies should be introduced into the design process early, and carried through selected measures by clearly stating target requirements in the construction documents. The final payment to the contractors should not be made until the systems' performance levels have been fully documented.

## **High Energy Efficiency**

Strategies proposed for meeting high energy efficiency standards include:

- Reduction of surface area.
- Daylighting / efficient lighting.
- Energy efficient equipment.
- Passive solar design.
- Efficient building shell.
  - Insulation.
  - Minimize infiltration (air leaks).
  - Minimize bad glazing.
- Appropriate building orientation.
- Shading of building.



# Application of the LEED Categories

## Indoor Environmental Resources

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### **Environmental Tobacco Smoke Control**

(Text needed)

### **Carbon Dioxide Monitoring**

Carbon dioxide monitoring is used as an indicator of indoor air quality. As CO<sub>2</sub> increases in concentration, it is generally an indicator that mycotoxins, etc. are increasing in the indoor environment. Monitors are inexpensive to install and use.

### **Increase Ventilation Effectiveness**

Within office spaces, options for increasing ventilation include:

- Ceiling fans
- Air conditioning and ventilation
- Outside air systems / charcoal filters
- Operable windows

A primary consideration for evaluating these options will be operation costs (long term). The primary goal is year-round fresh air. Offices should have individual options for opening windows / ceiling fan, etc. It is important that the system controls are easy to understand and offer direct access.

*North Carolina Botanical Garden*

Visitor Education Center Design Program, April 2001

Ventilation issues that requiring special consideration include:

- Dead space in back rooms.
- Mixing air in every occupied space.
- Building users with allergies.

### **Indoor Air Quality (IAQ) Management Plan**

An IAQ management plan includes the following:

- Design → Construction → Maintenance.
- Accountable commissioning.
- Testing building against the design.
- Incorporate fine-tuning of building by commissioners.
- Build to reach full potential.
- Quality assurance.
- Five design innovative credits.

### **Low-Emitting Materials**

- Materials to consider include:
- Carpets.
- VOC paints.
- Recycled steel studs.
- Recycled duct work.
- Plywood.

### **Indoor Chemical and Pollutant Source Control**

For indoor chemical and pollutant control, the following need consideration:

- Engine use.
- Herbicides.
- Noise.
- Use of equipment.
- Off-grid water use.
- Existing wells.
- Cleaning agents that effect air quality.
- Floors / chairs.
- Maintainable floors that do not require toxic cleaning agents.
- Pest control with non-toxic methods.

### **Controllability of Systems**

Systems incorporated into the building must be straightforward so employees can easily control them.

### **Thermal Comfort**

Indoor space temperatures should be moderated to maintain visitor and employee comfort.

### **Daylight and Views**

All offices in the building will have daylight and access to views.

### **Other Considerations**

Indoor environmental quality issues often require an up front investment to provide payback over time (e.g. reduced water / sewer / electrical bills, reduction in employee sick days taken). In other words, the University gains long term savings with up-front costs.

Should functions be divided among several smaller buildings?

# Application of the LEED Categories Design / Building Process

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The design and building process includes educating relevant UNC-CH departments about sustainable design: Building and Grounds, Facilities Planning, Board of Trustees. It is looked upon as a pilot project. Green goals must be verbalized and data and research about green architecture documented (e.g. energy data, lifecycle studies).

A preliminary green design should be reviewed with:

- Building and Grounds
- Facility Planning, including Gordon Ayers St Gross (UNC Master Planners)
- Construction Management, including Ed Willis
- Town of Chapel Hill
- UNC-CH Maintenance
- UNC-CH Utilities

The process also includes the recruitment of champions from State Construction, Department of Insurance, and the Department of Environment and Natural Resources. The final green design review took place after Design Workshop #4 and after schematic design.

## **Other Considerations**

Should the Town of Chapel Hill be included in the green design education process?

Should the process include pre-qualification of contractors? It is doubtful that any contractor will have experience in all areas of green construction.

Educating the community, including the greater university community, about green design will result in a change in the way buildings are constructed.

# Preliminary Sustainable Priorities Ranking

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Workshop participants conducted a ranking game “Green Negotiations” to arrange the LEED categories from highest to lowest priority. The results were as follows (but should be interpreted cautiously):

- Renewable Energy
- Optimize Energy Performance
- High Energy Performance
- Site Selection
- Increase Ventilation Effectiveness
- Thermal Comfort
- Controllability of Systems
- Low Emitting Materials
- Indoor Chemical Pollutant Control
- Daylight and Views
- Recycled Content
- Local / Regional Materials
- Rapidly Renewable Materials
- Construction Waste Management
- Reduced Site Disturbance
- Stormwater Management
- Innovative Wastewater Technologies
- Water Efficient Landscaping
- Water Use Reduction
- Measurement and Verification
- Storage and Collection of Recyclables
- Fundamental Building Systems Commissioning
- Certified Wood
- Alternative Transportation
- Design to Reduce Heat Islands
- Light Pollution Reduction
- Construction IAQ Management Plan
- Resource Reuse
- CFC Reduction in HVAC&R Equipment
- Carbon Dioxide (CO<sub>2</sub>) Monitoring
- Building Reuse
- Elimination of HCFCs and Halons
- Green Power
- Additional Commissioning



## VIII. SCHEMATIC DESIGNS

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# Initial Schematic Designs

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# Initial Schematic Design Feedback

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**Table 1: Design Team Criteria Ranking**

Cabins in the Woods	Cabins on Laurel Hill	Village Garden	Garden Courtyard	Building Entry	Minimum Impact	Criteria
	●	●	●			People Friendly
●	●	●				Indoor/Outdoor
●	●	●	●			Sense of Place
		●		●		Environmental Building
●	●	●				Scale & NCBG Essence
			●	●		Gateway
●	●	●	●	●	●	Aesthetics
		●	●	●	●	Function
			●	●	●	Context
2	3	2	3	5	4	LEED



# Final Schematic Design

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