COMFORT

Open space is enjoyed more and used more often when it is designed to be a comfortable place for people. Whether the space is to be used for exercise, sitting and relaxation, gathering, or play, its design should take into account whether it is a comfortable space. This includes psychological as well as physical comfort.

Microclimate
Temperature, water, sun/shading, and wind are all aspects of microclimate that need to be taken into consideration when designing open space. At temperatures above 55 degrees Fahrenheit, the number of people waking, standing, and sitting outdoors in urban malls and plazas typically increases, but at temperatures above 75 degrees Fahrenheit, shading options should usually be included in order to keep stationary users comfortable.
The chart on the previous page indicates how a person’s typical natural comfort zone based on temperature and humidity can be expanded with the addition of sun, wind, or evaporation (water). Designers of open space can maximize users’ comfort and usage of spaces by designing to include sun, wind, and water where appropriate.

Why consider temperature?
- Physical comfort

Water can be used effectively as a cooling agent in public spaces. Through evaporation and reflection, or as a thermal mass, water in the form of fountains or reflecting pools can cool open space areas. The City of Cambridge has included water features in its newer parks, like Franklin Street Park and Dana Park, which are used by children and adults to cool off daily during the summer.

Why consider water?
- Cooling properties
- Opportunities for play
- Natural aesthetic
- Sense of place

Water Configuration Types:
1. Ornamental fountains [1]
2. Reflecting pools
3. Water play fountains [2]
4. Ponds, reservoirs [3]
5. Streams, canals [4]

These water features may frequently take center stage, as in an ornamental fountain in the center of a plaza, or may shape and/or run throughout the open space, like streams or canals.

Name, Legend
Sun and shade are essential considerations when designing open space and the buildings around it. A source of energy for plants and people, sun encourages outdoor activity and plant growth as well as improves air quality through reducing mold growth. In many situations, design strategies should try to include as much sun as possible, taking into account structures and the seasonal movement of the sun. [1] However, shading strategies should also be included at temperatures above 75 degrees Fahrenheit. Shade can be included through built components (i.e. buildings, awnings, trellises, umbrellas, etc.) or through landscaping and trees. The density of trees and types of trees (deciduous vs. evergreen) will also have an impact on the availability of shade. In general, since individuals have different tolerance for changes in temperature, outdoor seating and strolling areas should allow a choice of sun and shade at different times of the day.

Why consider sun and shade?
- Sun is a source of energy
- Shade controls effect of sun
- Different temperature needs for various uses and users

Wind can and should also be controlled to maintain good air circulation, allow light breezes in warm climates, and avoid negative impacts. This can include tunnel effects created by long parallel rows of smoothfaced buildings and downdrafts that can be avoided by stepping facades of tall buildings away from the prevailing wind. [2] The larger building dimension should not face into the predominating wind. In warm areas, on the other hand, streets should be straight, continuous, wide, and oriented 20-30 degrees from prevailing cooling breezes. Wind can be controlled through careful orientation of buildings surrounding open space as well as awnings, walls, trees, and buffer plantings.

1. Note users seated in sun in Yerba Buena Pk.
   Source: www.nativecc.com

2. Wind flow around and over buildings
   Source: Carmona
Why consider wind?
- Cooling properties
- Good air circulation
- Avoid too-strong wind, downdrafts, and tunnel effects

**Street Furniture/Seating**
Seating areas should be included in nearly all open spaces. Whether for people relaxing, eating, watching children at play, or observing a sporting event, appropriate seating makes open space more usable and comfortable. Seating opportunities should not be limited to formal chairs or benches, as steps or other casual seating arrangements can be conducive to attracting open space users, especially in urban plazas. Designers should also consider sun and shade as well as the safety of children when determining appropriate locations for seating.

Types of Seating:
1. Street furniture benches
2. Tables and chairs
3. Large rocks
4. Low walls and planters
5. Bleachers
6. Steps

Why consider seating?
- Comfort and needs of users

**Boundaries**
Designers of open space should not only consider the bodily comfort of users but also their psychological comfort. This includes understanding the relationship of open space to its surroundings—buildings, streets, and sidewalks—as well as scale.

The relationship of open space to adjacent buildings changes depending on the use and type of building. Frontages with public, semi-public, and private buildings will create different relationships. In urban settings, parks frequently abut residential buildings, as in Franklin Street Park. [1] Gore Street Park abuts a shopping center with a somewhat uncomfortable transition between parking lot and baseball field. [2]

1. Franklin Street Park abutting residential use Cambridge, Massachusetts

2. Gore Street Park abutting shopping center Cambridge, Massachusetts
When in public space adjacent to streets, users may feel more comfortable in spaces that feel protected from cars. Landscaping or buffers can be used to protect and transition users. Walls or arcades can also be used, to a different effect. However, the desire for protection should be balanced with a need for visual and spatial accessibility. Walls or landscaping that obscure small public spaces from view may reduce visibility and use. Clearly delineated entrances can help define and open up these public spaces. Within an open space or open space system, diversity of spatial enclosures should be considered.

Parks will also have a different relationship with the street depending on their location within a street block—if it is on a corner, like Cooper Square, if it is midblock, like Franklin Street Park, or if it goes through the block, like Dana Park. [1, 2] Perceptions of openness and accessibility from within the park and outside the park will radically differ.

Plazas and parks should also be differentiated or separated from the sidewalk. While they may be adjacent to each other, the sidewalk is primarily a zone of circulation and movement, and the plaza is a place for lingering. If the relationship between the plaza and sidewalk becomes too blurred, the space may become unusable for both travelers and users.

Why consider boundaries?
- Physical and psychological comfort of users
- Protection from cars and other hazards
- Visual impacts for users and passers-by
- Transition from open space use to other uses/spaces

1. Corner location of Cooper Square
Cambridge, Massachusetts

2. Dana Park, a through-block park
Cambridge, Massachusetts
VISUAL QUALITY

The visual quality of open space is an extremely important part of design. While people do frequently use unattractive open spaces that meet a need or provide a use (such as specialized fields or playgrounds), open spaces that are visually appealing and provide a variety of things to explore and see will typically be more successful. This report considers the impact of surface/material, landscaping, public art, and maintenance on visual quality within an open space.

Surface/Material
Surface and materials provide a means to make spaces more interesting and desirable places. The ground and walls (of buildings or freestanding) enclose and frame smaller or urban open spaces. Detail, choice of material, and appropriate variety of material add to the visual complexity of a place and can make it a more attractive or compelling place.

Changes in Pattern, Material & Texture of Ground Surface
Source: Cliff Moughtin, Urban Design: Ornament & Decoration
Variety in ground surface in open space is useful not only for visual reasons. Through changes in pattern, texture, or material, it can be used for the following purposes.

Reasons for Variety in Ground Surface
1. indicate a change in ownership or usage
2. control traffic, define paths, or provide wayfinding assistance [1]
3. warn of hazards
4. create a sense of scale or proportion
5. reinforce the character or sense of place
6. define, organize, or unify a space [2]
7. delineate spaces for specific activities or games

Materials that can be used for ground surface in open space include brick, stone slabs, gravel, cobblestone, concrete, grass, tanbark, resilient floor surfaces, artificial turf, etc. These can and should be varied with the use and users of a given space. Gore St. Park is an example that could use more variety. [3]

Why consider surface and material?
- Define or indicate transitions
- Visual complexity and interest
- Sense of place

Landscaping
Landscaping is perhaps one of the first components considered by designers of open space. Some spaces will be more urban in character, while others will be more bucolic, but in nearly all, people desire some sense of a natural or nature-like setting. In addition to utilizing a variety of landscaping for visual interest, designers should consider the use of deciduous trees that change over the course of the year in order to emphasize the seasons and the passage of time. [4] Plantings can also stimulate senses other than the visual, as they can give off fragrances and odors or generate noises with the wind.
Aspects of sustainability should also be considered when selecting landscaping. Native plantings should be used as much as possible in order to reduce water usage, reduce pesticide use, and to attract local fauna. [1]

Why consider landscaping?
- Natural or nature-like aesthetic and character
- Emphasis on changing of the seasons
- Emphasis on local character of a place
- Sustainability and water conservation

Public Art
Public art is an important component of open space. Public art can educate and draw on local history. It can inspire joy and delight. And it can actively engage people and encourage interaction among users. Though not all open spaces include public art, it can fulfill a number of community and individual needs. [2]

Some aspects that should be considered when selecting or commissioning public art for open spaces include: the selection of local artists, the use of a variety of media, whether it works with a site, and appropriate scale for a given location. The selection process itself can be valuable to the community.

Why consider public art?
- Educate and draw on local history/community
- Joy and delight
- Encourage interaction among users
**Maintenance**

The level of maintenance of an open space indicates how much a space is valued. [1] If users value a space, they are less inclined to treat it carelessly, and if owners/managers value a space, they will ensure that someone is responsible for maintaining it. Open spaces are maintained through a variety of different arrangements. Public open spaces in the United States are typically owned and regularly maintained by a government entity, though they may contract with specialty vendors for particular landscaping or construction work. Exceptions include spaces like community gardens, where volunteer associations and individuals may take on the responsibility of landscaping and cleanup. [2]

There are also many examples where public open space is owned by private entities (i.e. many public urban plazas in New York that were created through density bonuses are privately owned) will also typically pay for maintenance. Semi-public or semi-private spaces, including open space within residential communities, also typically have paid maintenance staff or vendors.

Who are possible entities responsible for maintenance?
1. Public departments (public works, parks & recreation)
2. Private owners/management companies (developers, property management)
3. Volunteer associations

**Why consider maintenance?**
- Show that a space is valued
- Clarify what entity is responsible for all aspects of long-term care

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1. Immaculately maintained courts at Dana Park
   Cambridge, Massachusetts

2. Signs noting volunteer association role
   Boston, Massachusetts
SAFETY

Safety is a key consideration for designers of open space, as people will not spend time in a space where they feel threatened or insecure. Some of the key aspects of open spaces that influence an individual's feeling of safety include defensible space, visibility, management, and the consideration of physical hazards.

Defensible space
Oscar Newman’s concept of defensible space is particularly important in the design of open space located within residential neighborhoods and developments. In line with Jane Jacobs’s concept of eyes on the street, this term refers to an environment designed to allow residents to control the areas in and around it. While public and semi-public open spaces may or may not be technically owned by residents, the building and site configurations can be designed in such a way that residents feel a sense of ownership over certain spaces. [1, 2] Newman’s publications illustrate that designing buildings or a site to reduce the number of users for shared areas can increase a sense of accountability and responsibility. It can be more difficult to design defensible space for high-rises, which serve larger populations.

Why consider defensible space?
- Encourage accountability and responsibility

Visibility
People typically feel safer walking through or using public space when they perceive that there is a high level of visibility. Dark corners and high walls or bushes behind which people can hide should be avoided, and fences and landscaping with some level of transparency are encouraged. [3, 4] Lighting should be bright enough to enable one to see and identify others, yet not so bright to create glare or blind people as they move between darker...
and lighter areas. Spaces should be visible from the street or other places within the open space. On the other hand, having some hidden or enclosed subareas can create interesting semi-private spaces that users may enjoy. Designers should be wary of designing bland and uniform spaces simply in the name of visibility and safety.

Why consider visibility?
- Safety of users and perception of safety

Management
Security of open space is treated differently in public, semi-public, and private space. It can range from no security (as in most public parks) to the provision of emergency phones to cameras and/or security guards in many gated or private communities. [1]

Why consider management?
- Clarify appropriate level of security oversight

Consideration of Physical Hazards
Ensuring physical safety means not only avoiding the threat of other people but also identifying and marking physical hazards, particularly for children and the elderly. [2] This can include changes in the ground level or the presence of water bodies or the relationship with cars, bicycles, and other vehicles on the street. Designers should be careful to make sure that these transitions are marked through signage or other visual/physical indicators such as barriers or changes in floor surface.

Why consider physical hazards?
- Physical safety of users
CONVENIENCE/ACCESS

The location of open space within a neighborhood or development is essential to encouraging use. Designers need to consider how the open space is sited in relationship to residents’ circulation patterns within the site. Are open spaces adjacent to other uses that people seek? Are open spaces located on residents’ paths to and from work or school? Where are open space sites located to attract a variety of users? Will people travel out of their way, and how far will they travel, to get to a specific open space? While the importance of location will vary according to the type of use, spaces that are convenient, more visible, or at well-traveled intersections will typically be used more often.

Circulation within the open space should also be considered in order to make spaces or uses within the space easy to find and pleasant to use.

Signage can also educate residents and visitors on the location of open space. It can publicize what exists and help users find what they want. Signage can also indicate, whether directly or indirectly, for whom a space is designed.

Access to open spaces should also be made possible for disabled users. Disabilities can take a range of forms, so designers should make an effort to think through how a blind person might navigate a space, how a person in a wheelchair could get around a park, how someone with a cane or crutches would want to use a plaza.

Why consider circulation and access?
- Encourage use of public space
- Location of open space within a neighborhood or community or development
- Location of uses within open space
- Access to a variety of users, including disabled users

1. Dana Park Circulation, Cambridge, MA
   Source: Cambridge Community Development

2. Franklin St. Pk. Circulation, Cambridge, MA
   Source: Cambridge Community Development
HOLIDAY TOWN CASE STUDY

In this section, we will apply our findings to various open spaces of different scales in Holiday Town. We will analyze an urban public open space and two community public open spaces. We did not have enough data to analyze a semi-private open space.

Circulation Analysis
Urban Public
This open space is located along the main public street near the publicly accessed shops and restaurants in the development. It makes sense that this area, analyzed further on the next page, would contain a large variety of uses.

Community Public
Most open spaces in Holiday Town are only accessible by smaller roads internal to the development. The largest park located on the south edge of Holiday Town is also bounded on its south edge by a canal. Residents in the north part of the development may consider it too far away, and may not even know about it. Such a large-scale park may be used more frequently if placed closer to public access.

Semi-private
Semi-private open spaces are located off of secondary roads and even more private pedestrian paths. These parks are not visible from the main circulation routes, providing a greater sense of privacy and security but also possibly preventing other residents from noticing the parks and using them.
Urban Public Open Space Case Study

Size: 8,000 square meters
Location: on main public road, near community center and stores
Uses: tennis, swimming, a playground with manipulable water, exercise, walking, socializing, studying, and picnicking

Successful features for use:
- Variety of uses for various ages
- Visible from residences and streets
- Streambeds are the best kind of manipulable water source (Marcus and Francis)
- Largest, most complex playground

Challenges for use:
- No apparent accommodation of elderly uses
- Playground located on busy public street
- Potential to create more commercial spaces such as snack stands around the pool

Successful features for comfort:
- Water features provide cooling properties
- Pergola provides some sun protection
- Seating benches for parents

Challenges for comfort:
- Little wind protection for most users
- Lack of clear boundaries around play area

Successful features for visual quality:
- Variety of surface materials on the ground

Challenges for visual quality:
- Landscaping appears to be disjointed

Successful features for safety:
- Highly visible with significant foot-traffic
- Close to security guard station

Successful features for access:
- Most central location in the development
1. Community public open space
Source: Vanke

**Community public open space:**

**Size:** 2,800-5,000 m²
**Location:**
1: next to main street, corner location
2: through block lot, only one entrance to the main street. Difficult to enter
**Facilities:** Fountain, seating

**Challenges for use:**
Difficult to use.
Very few facilities for people to use
No play area for children, no sports court.

**Successful features for comfort:**
Informal chairs available for residents to use

**Challenges for comfort:**
Few built-in seating options
Poor sense of enclosure
Unclear whether there is wind protection or shading from buildings

**Successful features for visual quality:**
Variety of surface materials on the ground
Sculpture

**Challenges for visual quality:**
Little landscaping
May be too many ground surface changes

**Successful features for safety:**
Highly visible
Close to security guard station

**Challenges for safety:**
Unlikely to create sense of defensible space

**Successful features for access:**
Central location in development
Located on public road
Community public open space:

Size: About 1,500 m²
Location: In the center of the block, off of the main street.
Uses: seating, children’s play

Successful features for use:
- Different subareas for different groups of people
- Provides more protected area for children’s play

Successful features for comfort:
- Good sense of enclosure
- Small covered area provides shading
- Some benches available
- Area is protected from cars

Challenges for comfort:
- Seating options look uncomfortable
- Seating may not be coordinated with shade

Successful features for visual quality:
- Variety of surface materials on the ground

Successful features for safety:
- Visible from many housing units

Successful features for access:
- Easy access from the surrounding areas

2. Plantings and seatings
Source: Liang Zhao

3. Playground for children
Source: Liang Zhao