Mohamed Khaider University - Biskra
Department of Architecture

Urban Design Handbook

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Course Handout
Semester 5 | ERF 5
Architecture

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Target Audience

This educational document contains theoretical chapters and learning exercises primarily intended for third-year students in Architecture training, as part of the Urban Design module at the University of Biskra.

Course Identification

- Semester: Semester 5
- Teaching: Unit ERF 5
- Module Title: Urban Design
- Coefficient: 1
- Eliminatory Mark: Mark below 05/20
- Evaluation Mode: Final examination 100%

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General Introduction

Urban design helps you understand, read, and improve the spaces of the city. It focuses on the relationship between buildings, streets, public spaces, landscape, movement, activities, and human experience. In this module, you will not study the city only as a physical form. You will also study it as a lived environment where people walk, meet, rest, work, interact, and create memories.

Urban design is located between architecture, urban planning, and landscape design. It helps you move from the large scale of the city to the human scale of the street, the square, the façade, the tree, the bench, and the body.

The main purpose of this handbook is to guide you step by step in understanding the basic concepts of urban design and learning how to observe, analyze, diagnose, and propose design strategies for urban spaces.

Official Learning Objectives

By the end of this module, you should be able to:

1. Understand urban design as an interdisciplinary practice connected to architecture, urban planning, landscape design, and environmental quality.
2. Explain the role of urban design in shaping streets, squares, parks, public spaces, urban form, and human experience.
3. Analyze an urban site by observing its physical, social, cultural, morphological, and environmental characteristics.
4. Understand how urban spaces are formed, used, perceived, and transformed over time.
5. Distinguish between different scales of urban design, from the city and territory to the neighborhood, the street, the public space, and the human scale.
6. Identify the main qualities and problems of urban spaces, such as accessibility, comfort, safety, identity, vitality, public life, and environmental conditions.
7. Use basic tools of urban design analysis, such as observation, sketches, maps, diagrams, photography, participation, and diagnosis.
8. Move from observation and analysis toward diagnosis and design strategy.

How to Use This Handbook

This handbook is designed to support your learning throughout the Urban Design module. You can use it before the lecture to understand the main ideas, during the lecture to follow the key concepts, and after the lecture to revise and prepare for the exam.

Each chapter introduces an important theme in urban design. You are encouraged to read the chapters progressively, because the ideas are connected. The first chapters help you understand what urban design is. The following chapters help you read urban space, understand urban form, work across scales, analyze site and ambiance, and finally move toward diagnosis and design strategy.

When reading this handbook, do not memorize definitions only. Try to connect each concept with real urban spaces that you know, such as streets, squares, parks, university spaces, residential areas, and public places in your city.

Learning Logic of the Handbook

The handbook follows a simple learning logic:

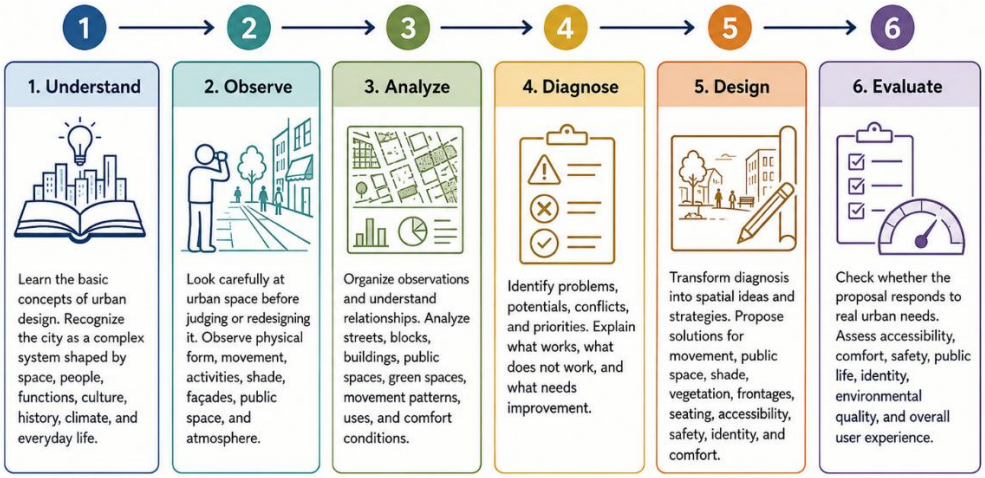

Figure 1: A step-by-step urban design process

This logic reflects the way urban designers work. Before proposing any design solution, you first need to understand the city, observe the place, analyze its components, diagnose its problems and potentials, develop design strategies, and evaluate whether the proposal improves the urban space.

Understand

To understand means to know the basic concepts of urban design. At this stage, you learn what urban design is, how it differs from architecture and urban planning, and why it is important for the quality of urban life.

Understanding also means recognizing that the city is not only a collection of buildings and roads. It is a complex environment shaped by space, people, functions, culture, history, climate, and everyday practices.

Observe

To observe means to look carefully at urban space before judging it or redesigning it. Observation allows you to see how a place really works.

You observe the physical form of the place, the movement of people and vehicles, the activities taking place, the presence or absence of shade, the condition of façades, the use of public space, and the general atmosphere.

Analyze

To analyze means to organize what you observed and understand the relationships between different elements. You analyze the street network, blocks, buildings, public spaces, green spaces, movement patterns, uses, activities, and sensory conditions such as light, sound, shade, heat, and comfort.

Analysis helps you understand why a place is successful, why it is weak, or why it is not used as expected.

Diagnose

To diagnose means to identify the main problems, potentials, conflicts, and priorities of an urban space. A diagnosis does not only describe the place. It explains what works, what does not work, and what needs to be improved.

For example, a street may have good accessibility but poor pedestrian comfort. A square may have a central location but weak social activity. A park may have vegetation but lack safety, seating, or maintenance.

Design

To design means to transform diagnosis into spatial ideas and strategies. At this stage, you propose solutions that respond to the real conditions of the place. These solutions may concern movement, public space, shade, vegetation, frontages, seating, accessibility, safety, identity, or environmental comfort.

Urban design is not only about creating beautiful forms. It is about improving the relationship between space and people.

Evaluate

To evaluate means to check whether the proposed design responds to the problems identified in the diagnosis.

A good urban design proposal should improve accessibility, comfort, safety, public life, identity, environmental quality, and the overall experience of the place.

Evaluation helps you understand that design is not only an artistic act. It is also a responsible process that must answer real urban needs.

Part 1. Foundations of Urban Design

This first part introduces the basic foundations needed to understand urban design. Before analyzing streets, squares, public spaces, landscapes, or urban projects, it is important to understand why urban design matters and how it contributes to the quality of urban life.

Urban design is not only about the physical form of the city. It is also about how people experience, use, and give meaning to urban spaces. Streets, squares, parks, buildings, and frontages are not isolated elements. Together, they create the everyday environment where public life takes place.

In this part, you will begin by understanding the city as a human invention, shaped by needs, activities, culture, and collective life. You will also learn how urban design improves comfort, identity, accessibility, social interaction, and the quality of public spaces.

This part prepares you to see the city not only as a built environment, but as a living system where space, people, movement, climate, and meaning are continuously connected.

Chapter 1. Why Urban Design Matters

Urban design matters because the quality of the city directly affects everyday life. The way streets are shaped, buildings are connected, public spaces are organized, and landscapes are designed influences how people move, meet, rest, feel, and interact.

This chapter introduces urban design as a human centered field. It explains why the city is not only a technical system of roads, buildings, and infrastructure, but also a place of public life, comfort, identity, and social meaning.

The aim of this chapter is to help you understand the importance of urban design before studying its tools and methods. It shows that good urban design can improve quality of life, support social interaction, strengthen the identity of places, and create more comfortable and meaningful urban environments.

1.1 The City as a Human Invention

The city is one of the most important human inventions. It was not created only to provide shelter, but also to organize collective life. People came together to live, exchange, work, protect themselves, practice culture, and share public spaces. [1]

A city is therefore more than a group of buildings. It is a living environment shaped by space, people, functions, culture, history, and climate.

Figure 2: The City as a Human Invention : Space, People, Function and Culture [2]

Humans created cities for several reasons:

- To live close to each other
- To exchange goods and services
- To organize work and daily activities
- To protect the community
- To create places for religion, power, culture, and social life
- To share infrastructure such as streets, water systems, markets, and public spaces
- To develop identity and collective memory

The city was born from both necessity and desire. Necessity created the need for shelter, protection, resources, and organization. Desire created the need for contact, exchange, beauty, culture, and belonging.

When we observe a city, we often see its visible elements first: buildings, streets, squares, trees, vehicles, and people. However, urban design asks us to understand the relationships between these elements. [2, 3]

A city includes:

- **Physical space:** streets, buildings, squares, parks, and infrastructure
- **Social life:** movement, gathering, interaction, and public activities

- **Functions:** housing, commerce, education, work, transport, and leisure
- **Culture:** traditions, symbols, identity, memory, and ways of life
- **Environment:** climate, landscape, vegetation, light, shade, wind, and sound

This means that every urban space has several dimensions at the same time. A street, for example, is not only a traffic corridor. It is also a public space framed by buildings, activated by ground floors, influenced by shade and materials, and experienced by pedestrians.

1.2 Urban Design and Quality of Life

Urban design has a direct influence on quality of life because it shapes the places where everyday activities happen. The way streets, squares, parks, buildings, and public spaces are designed affects how people move, meet, rest, feel safe, and enjoy the city.

A good urban environment is not only functional. It should also be comfortable, accessible, safe, attractive, and meaningful. This is why urban design is concerned with both the physical form of the city and the human experience of urban space. [4–6]

Urban design can improve quality of life through:

- **Accessibility:** making places easy to reach and use
- **Walkability:** creating safe and comfortable conditions for pedestrians
- **Comfort**: providing shade, seating, vegetation, protection from traffic, and pleasant materials
- **Safety:** improving visibility, lighting, active frontages, and public presence
- **Social interaction:** creating spaces where people can meet, wait, talk, play, and observe
- **Identity:** strengthening the character and meaning of places
- **Environmental quality:** integrating trees, green spaces, water, ventilation, and climate sensitive design
- **Inclusiveness:** making urban spaces usable by different groups of people, including children, elderly people, women, and people with reduced mobility

Figure 3:Urban Design and Quality of Life [7]

Quality of life in the city depends on small and large design decisions. A shaded sidewalk can encourage walking. A bench can transform a passage into a resting place. An active ground floor can make a street

more lively and safer. A tree line can improve comfort and give identity to a street. A well designed square can become a place for meeting, events, and public life [4–6].

Urban design therefore connects spatial quality with human well being. It asks simple but important questions:

- Can people walk comfortably?
- Can they find shade and places to sit?
- Do they feel safe?
- Is the place easy to understand?
- Are public spaces active and welcoming?
- Does the place have identity?
- Does the design respond to climate and local context?

In architecture and urban planning, quality of life should not be treated as an abstract idea. It can be observed in the way people use urban space. If people walk, stop, sit, meet, play, and return to a place, this usually means that the place offers a certain level of comfort, attraction, and meaning [8–10].

Figure 4: From Design Decisions to Everyday Urban Life [11]

Urban design improves quality of life by creating urban spaces that are accessible, comfortable, safe, active, inclusive, and meaningful.

1.3 Public Space as a Common Good

Public space is one of the most important elements of urban life. It includes streets, squares, plazas, parks, sidewalks, and other open spaces that are used collectively. These spaces are not only empty areas between buildings. They are places where public life becomes visible.

Public space can be considered a common good because it belongs to everyone in the way it is used and experienced. It should support daily movement, social interaction, rest, play, cultural expression, and civic life [9, 10].

Public space is important because it allows people to:

- Walk and move through the city
- Meet other people
- Rest and observe urban life
- Participate in social and cultural activities
- Access services, shops, schools, and public facilities
- Experience the identity and atmosphere of the city
- Feel part of a shared urban environment

A good public space should be open, accessible, safe, comfortable, and welcoming. It should not be designed only for one group of users or one type of activity. It should allow different people to use it in different ways and at different times [12, 13].

Figure 5: Public Space as a Common Good [14]

Public space also has a democratic value. In a city, not everyone has the same private space, but everyone needs access to streets, squares, parks, shade, seating, and safe pedestrian movement. For this reason, the quality of public space is closely linked to social justice and urban inclusion.

In urban design, public space must be studied as both a physical space and a social space. Its quality depends on its form, dimensions, materials, vegetation, furniture, lighting, edges, and accessibility. But it also depends on how people use it, how safe they feel, how long they stay, and what meanings they attach to it [10, 13].

A public space can succeed when it supports all the points in figure 6 and not only the physical characteristics:

Figure 6: Qualities of a Successful Public Space

For example, a square with good shade, seating, active edges, pedestrian access, and different activities can become a lively urban place. On the other hand, a large empty paved area without comfort, shade, or social activity may remain unused even if it is located in the city center.

1.4 Urban Design, Comfort and Public Life

Urban comfort is one of the main conditions for active public life. People do not stay in a place only because it exists. They stay when the place offers acceptable conditions for walking, waiting, sitting, meeting, and observing urban life [10].

Comfort in urban design is not only about beauty. It depends on how the body experiences space. Shade, temperature, wind, noise, seating, visibility, and materials [15] can encourage or discourage people from using public spaces [8, 16, 17].

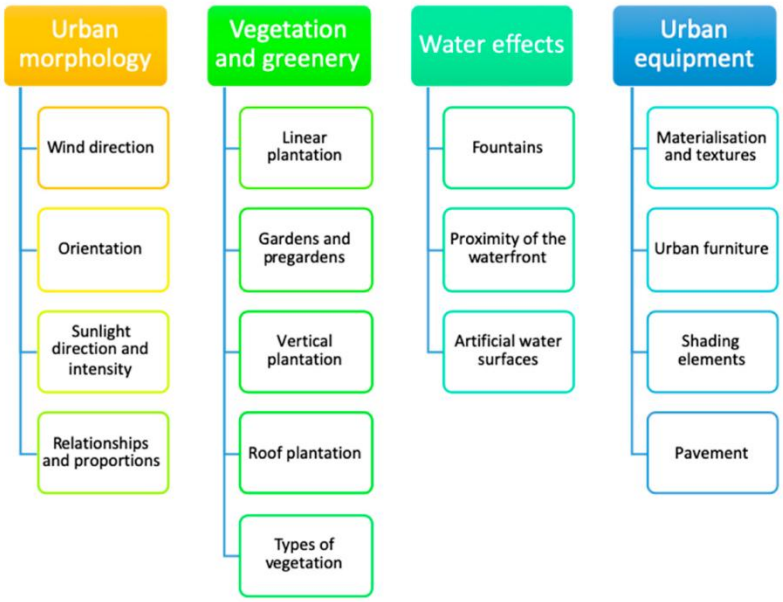

Figure 7: Urban Comfort parameters [15]

In urban spaces, comfort can be understood through four main dimensions:

- **Thermal comfort:** shade, sunlight, ventilation, heat, and protection from extreme climate
- **acoustic comfort:** acceptable sound levels and reduction of disturbing noise
- **visual comfort:** clear views, human scale, lighting, and readable spaces
- **social comfort:** feeling safe, accepted, and able to use the place without conflict

When these conditions are weak, public life becomes limited. People may cross the place quickly instead of staying. A square without shade, a sidewalk without protection, or a noisy street with no seating can reduce social interaction, even if the space is well located.

When comfort is improved, public life becomes more possible. People can stop, sit, talk, wait, play, or simply observe the city. This is why small design decisions can have a strong effect on urban life.

Examples:

- Trees and arcades can make walking more pleasant
- Benches can transform a passage into a resting place
- Lighting can improve the feeling of safety at night
- Active edges can make a space feel more alive
- Suitable materials can reduce heat and improve the walking experience

Public life is therefore not produced by form alone. It appears when urban space supports the presence of people over time.

Comfort is a basic condition for public life. A place becomes more active when people can use it safely, comfortably, and for more than just passing through.

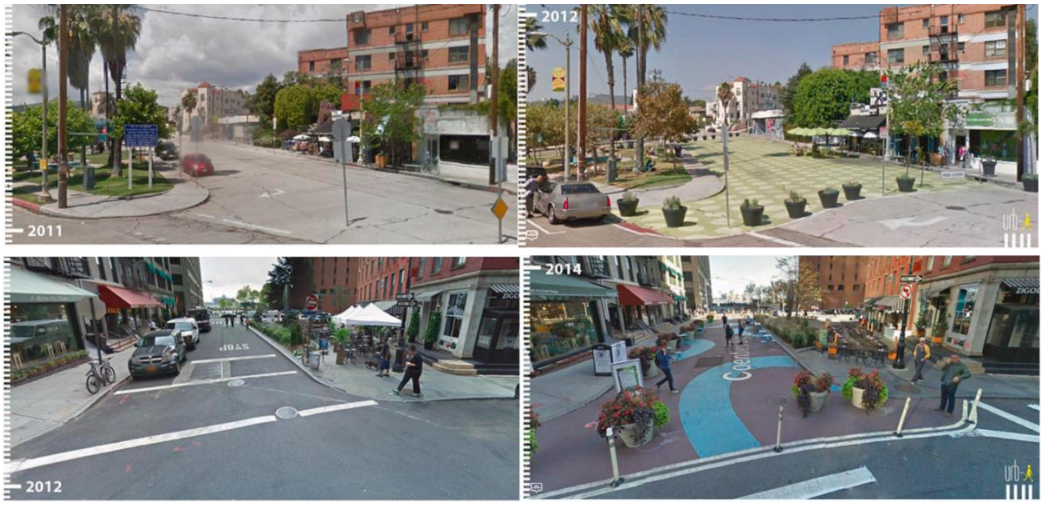

Figure 8: From Poor Comfort to Active Public Life [18]

1.5 Urban Design, Identity and Place Meaning

Urban design is not only about organizing space. It also helps create places that people can recognize, remember, and feel connected to. A place has identity when it has a clear character, a specific atmosphere, and elements that make it different from other places.

Place meaning appears when people attach memories, uses, symbols, or emotions to an urban space. A square, a street, a market, or a park can become meaningful because of daily activities, historical value, cultural practices, architectural character, or collective memory [19, 20].

Urban identity can be created or strengthened through:

- Local architectural character
- Traditional materials and colors
- Landmarks and visual references
- Historical buildings and urban traces
- Cultural activities and everyday practices
- Public art and symbolic elements
- Landscape, vegetation, and climate adaptation
- The relationship between buildings, streets, and public spaces

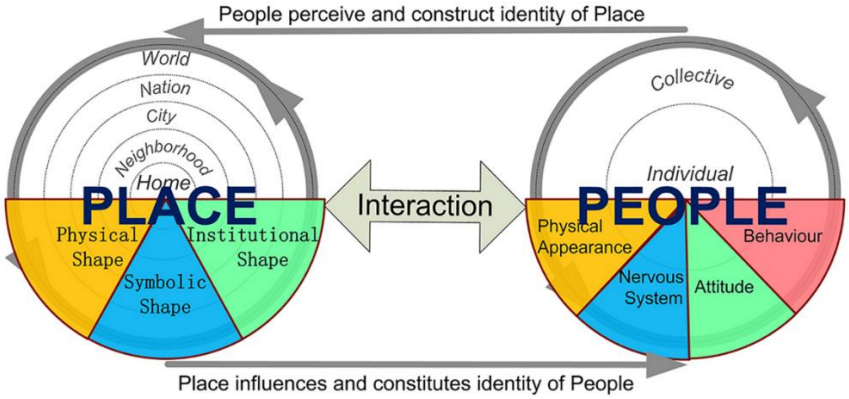

Figure 9: Urban Identity and Place Meaning [21]

A place with identity is usually easier to understand and remember. It gives people orientation, belonging, and attachment. For example, a street with repeated arcades, shaded sidewalks, active shops, and local materials can express a strong urban character. A square used for markets, meetings, or public events can become part of collective memory [19].

However, identity should not mean copying the past without reflection. In urban design, identity means understanding the character of a place and using it as a basis for sensitive and meaningful intervention.

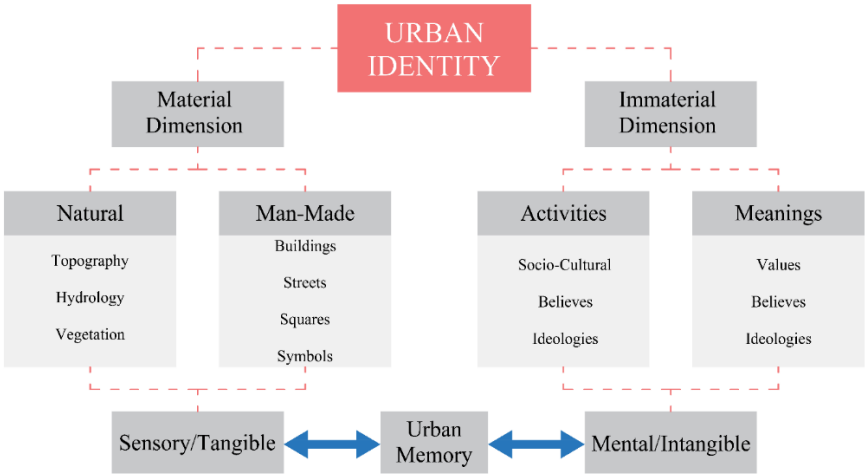

Figure 10: Elements That Create Urban Identity [22]

Urban design should therefore ask:

- What makes this place different?
- What elements should be preserved?
- What memories or practices are attached to this place?
- How can new design respect the existing character?
- How can the place become more recognizable and meaningful?

Urban design strengthens identity by respecting local character, memory, culture, and everyday practices. A good urban place is not only functional, but also recognizable and meaningful.

1.6 Urban Design and Sustainability

Sustainability in urban design means creating urban spaces that can work well for people, the environment, and the city over time. It is not limited to adding trees or using ecological materials. It is about designing streets, public spaces, neighborhoods, and landscapes in a way that reduces environmental pressure and improves everyday life [23–25].

Figure 11: Key Elements of a Sustainable Urban Space

In urban design, sustainability can be understood through four main ideas:

Environmental responsibility

Urban design should reduce negative impacts on the environment [23–25]. This can be done by:

- Protecting existing natural elements
- Adding trees and vegetation
- Reducing heat in public spaces
- Improving shade and ventilation
- Managing rainwater when possible
- Limiting soil sealing
- Encouraging walking and public transport
- Reducing dependence on private cars

In hot climates, environmental sustainability is strongly connected to shade, materials, vegetation, and air movement.

Social usefulness

A sustainable place should not only be ecological. It should also be useful and accessible to people.

This means designing spaces that:

- Are easy to reach
- Are safe to use
- Welcome different age groups
- Support daily activities
- Encourage social interaction
- Offer places to walk, sit, wait, and meet

A green space that people cannot access or use is not truly sustainable.

Economic durability

Urban spaces also need to be durable and easy to maintain. A design may look attractive at the beginning, but fail later if it is too expensive, fragile, or disconnected from local needs.

Good urban design should consider:

- Local materials
- Maintenance capacity
- Adaptable spaces
- Support for local commerce
- Active ground floors
- Long term use of public spaces

A sustainable street or square should remain useful after the project is completed.

Climate adaptation

Urban design must respond to local climate. This is especially important in hot and semi-arid contexts, where outdoor comfort is a major condition for public life.

Climate sensitive urban design can include:

- Shaded pedestrian paths
- Trees adapted to the local climate
- Arcades, canopies, or pergolas
- Light colored and low heat materials
- Water conscious landscape design
- Protection from excessive sun
- Orientation that improves shade and ventilation

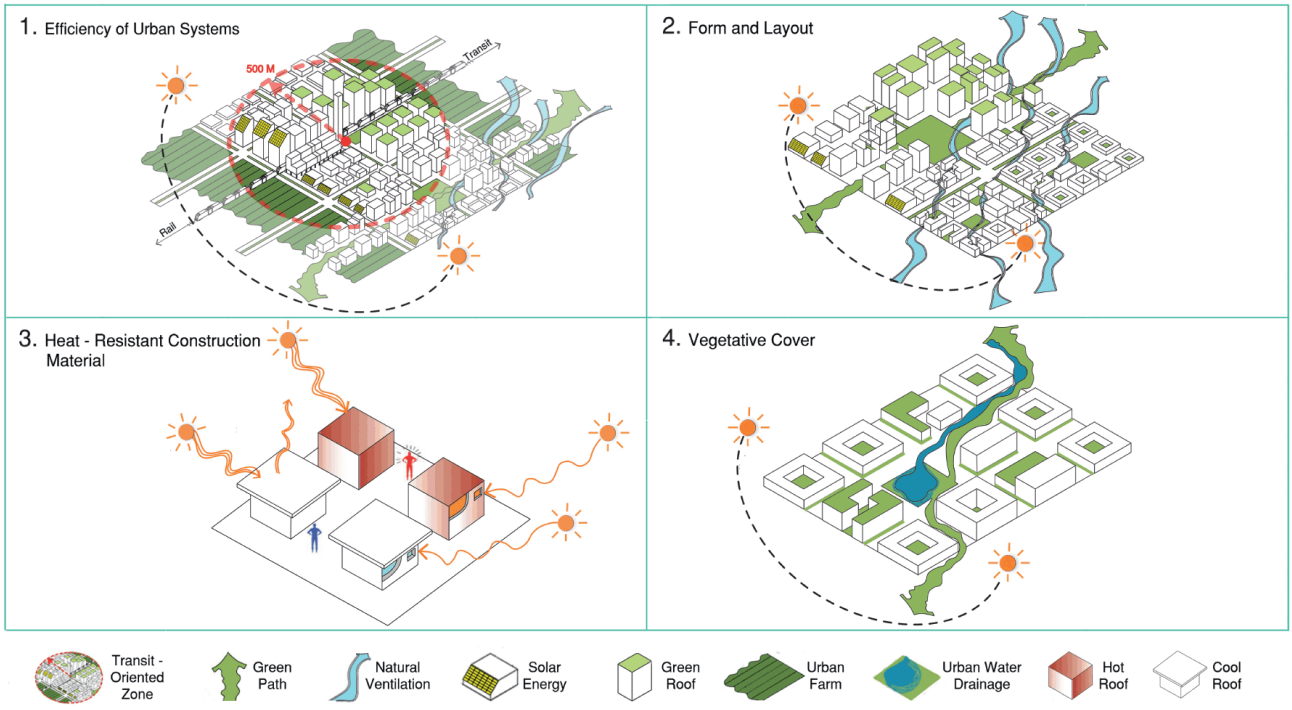

Figure 12: ***Climate Sensitive Urban Design Strategies*** *[26]*

Sustainability is therefore not an additional decoration added at the end of the project. It should guide the design from the beginning: how the street is oriented, how people move, where shade is placed, how vegetation is used, how public life is supported, and how the place can remain useful over time [23, 24].

A sustainable urban space is a place that is environmentally responsible, socially useful, climatically adapted, and capable of lasting.

1.7 Key Ideas to Remember

This chapter introduced why urban design matters and how it affects everyday urban life. The main idea is that urban design is not only about arranging buildings and streets. It is about creating places that support people, comfort, identity, public life, and sustainability.

Main points

By the end of this chapter, you should remember that:

- The city is a human invention created to organize collective life
- Urban design connects buildings, streets, public spaces, landscape, movement, and people
- Quality of life in the city depends on accessibility, comfort, safety, identity, and environmental quality
- Public space is a common good because it supports shared urban life
- Comfort is a basic condition for public life, especially in outdoor spaces
- A successful urban place is not only functional, but also recognizable and meaningful
- Identity comes from local character, memory, culture, materials, uses, and everyday practices
- Sustainability in urban design is not only about greenery, but also about climate adaptation, walkability, social usefulness, and long-term durability
- Good urban design must respond to both physical form and human experience

What to keep in mind

Before proposing any urban design intervention, always ask:

- Who uses this place?
- How do people move through it?
- Can people stop, sit, meet, and feel comfortable?
- What gives this place its identity?
- What environmental conditions affect its use?
- How can design improve everyday life without erasing the character of the place?

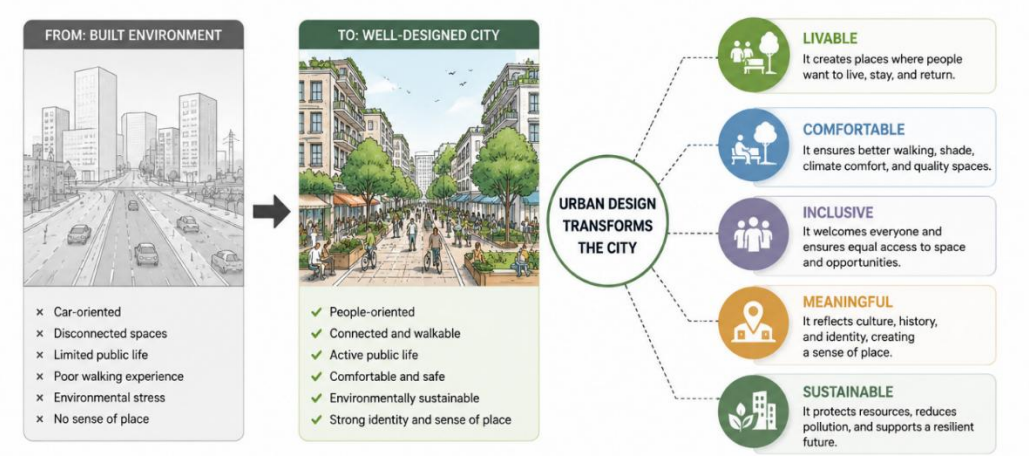

Figure 13: why urban design matters

1.8 Mini Exercise

Choose one urban space that you know well, such as a street, square, park, university space, market area, or neighborhood public space. Observe it carefully and answer the following questions.

1. Identify the place

1. Write the name or location of the selected place.
2. Describe briefly what type of space it is.
3. Example: street, square, park, pedestrian path, campus courtyard, commercial street.

2. Observe how people use it

Answer the following questions:

1. Who uses this space?
2. When is it most active?
3. What activities take place there?
4. Do people only pass through it, or do they also stop and stay?
5. Are there places to sit, wait, meet, or observe?

3. Evaluate the quality of the place

Complete the table below.

Urban design quality	**Observation**
Accessibility	Is the place easy to reach and use?
Comfort	Is there shade, seating, vegetation, or protection from heat and noise?
Safety	Does the place feel safe during the day and at night?
Public life	Do people meet, sit, walk, play, or interact?
Identity	What makes the place recognizable or meaningful?
Environmental quality	Are there trees, natural elements, ventilation, or climate adaptation?

4. Identify main problems and potentials

Write:

1. one main problem in the place. Example (lack of shade and seating.)
2. one positive quality or potential that can be improved. Example (good location and active pedestrian movement)

5. Propose a simple improvement

Suggest one small urban design intervention that could improve the place.

It can be related to: shade; seating; lighting; pedestrian safety; vegetation; ground floor activity; public space organization; identity and local character

6. Short conclusion

Write three to five lines explaining how your proposal could improve everyday life in this place.

Chapter 2. What is Urban Design?

After understanding why urban design matters, this chapter explains what urban design actually means. It introduces urban design as a field that connects architecture, urban planning, landscape design, mobility, public space, and human experience.

Urban design is not limited to drawing beautiful streets or arranging buildings. It is concerned with how urban spaces are shaped, used, perceived, and improved. It studies the relationship between buildings and streets, private and public spaces, movement and activities, form and atmosphere, design decisions and everyday life.

This chapter also clarifies the difference between urban design and related disciplines such as architecture, urban planning, landscape design, and interior design. This distinction is important because urban design works between these fields. It translates large planning ideas into spatial quality, and connects architectural projects to the wider public realm.

By the end of this chapter, you should be able to understand urban design as both a way of thinking and a way of making better urban places.

2.1 Defining Urban Design

Urban design is the field that studies and shapes the spaces of the city. It focuses on the relationship between buildings, streets, public spaces, landscape, movement, activities, and people.

It is not limited to designing one building, and it is not only about preparing a city plan. Urban design works between these two levels. It connects the architectural scale of buildings with the larger scale of neighborhoods, streets, public spaces, and urban life [27, 28].

A simple definition can be:

Urban design is the process of shaping urban spaces in order to improve the relationship between people, buildings, public spaces, movement, and the environment [29]**.**

Urban design is concerned with both the form and the experience of the city.

It studies questions such as:

1. How are buildings connected to streets?
2. How do people move through urban spaces?
3. How are public spaces organized and used?
4. Is the place accessible, comfortable, safe, and readable?
5. Does the place encourage public life and social interaction?
6. Does the urban form respond to climate, culture, and local identity?
7. How can design improve the quality of everyday life?

Urban design is therefore not only about appearance. A beautiful space can fail if it is difficult to access, uncomfortable, unsafe, empty, or disconnected from its context. In the same way, a simple space can succeed if it supports movement, comfort, activity, identity, and social life.

Urban design focuses on many elements of the city, including:

1. Streets and sidewalks
2. Squares and public spaces
3. Parks and green spaces
4. Building frontages and façades
5. Entrances and ground floors
6. Blocks and plots
7. Pedestrian routes and accessibility
8. Urban furniture, lighting, materials, and vegetation
9. Views, landmarks, and spatial identity
10. Comfort, safety, and public life

The role of urban design is to make these elements work together. A street, a square, a building, or a park should not be treated as isolated objects. Each one contributes to the quality of the urban environment [28, 30].

For example, a building may be architecturally well designed, but it can weaken the city if:

1. Its ground floor is inactive
2. Its entrance does not connect clearly to the street
3. It creates long blank walls
4. It blocks pedestrian movement

5. It ignores shade, climate, or public comfort
6. It does not contribute to the surrounding public space

Urban design helps avoid this problem by asking how each project participates in the life of the city.

Urban design is the discipline that transforms separate urban elements into coherent, livable, comfortable, and meaningful urban places.

2.2 Urban Design as an Interdisciplinary Field

Urban design is an interdisciplinary field because the city cannot be understood from one discipline only. Urban space is shaped by buildings, streets, infrastructure, landscape, climate, economy, culture, mobility, regulations, and everyday human behavior [29, 31, 32].

For this reason, urban design brings together knowledge from several fields. It uses the spatial sensitivity of architecture, the strategic vision of urban planning, the environmental approach of landscape design, and the social understanding of how people use public spaces.

Urban design works at the point where these disciplines meet [31, 33].

It connects:

- **Architecture**, because buildings define streets, squares, frontages, and urban character
- **Urban planning**, because land use, density, zoning, mobility, and public facilities shape the structure of the city
- **Landscape design**, because vegetation, topography, water, shade, and open space influence comfort and environmental quality
- **Transport and mobility**, because streets must support pedestrians, cyclists, public transport, and vehicles
- **Environmental design**, because climate, heat, wind, sunlight, noise, and air quality affect how people experience outdoor spaces
- **Sociology and public life studies**, because urban spaces are used by different people, groups, and activities
- **Heritage and culture**, because places carry memory, identity, symbols, and local ways of life
- **Economics and governance**, because urban projects need investment, management, maintenance, and public decision making

Urban design therefore does not replace these disciplines. It creates a dialogue between them. For example, designing a public square requires more than drawing its shape. It requires understanding:

- How people arrive and move through it
- Which buildings and ground floors surround it
- Where shade and sunlight occur
- How safe and visible the space feels
- What activities can take place there

- How the square connects to streets and public transport
- How materials, furniture, trees, and lighting support daily use
- How the place reflects local identity and memory

This shows that urban design is both a spatial and a social practice. It deals with physical form, but it also considers human experience, environmental comfort, and public life.

A good urban designer must therefore think like an architect, planner, landscape designer, and observer of everyday life at the same time. The objective is not to produce isolated objects, but to create coherent urban places where different systems work together.

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Urban design is interdisciplinary because good urban places depend on the connection between buildings, planning, landscape, movement, environment, culture, and people.

Figure 14: Urban Design is an Interdisciplinary Field

2.2 Urban Design Between Architecture and Urban Planning

Urban design is often described as a field located between architecture and urban planning. This position is important because it explains the specific role of urban design in the making of the city.

Architecture usually focuses on the design of buildings and architectural spaces. Urban planning usually focuses on the organization of the city at a larger scale, such as land use, zoning, infrastructure, transportation, density, and urban growth. Urban design works between these two levels. It gives spatial quality to planning decisions and connects architectural projects to the public

realm. Urban design asks how a building contributes to the street, how a street contributes to the neighborhood, and how the neighborhood contributes to the city [29, 34, 35].

Architecture, urban planning and urban design

Urban design is therefore not simply a smaller version of urban planning, and it is not only a larger version of architecture. It has its own focus: the quality of urban space. For example, urban planning may define that an area should contain housing, shops, public facilities, roads, and green spaces. Architecture may design the individual buildings. Urban design works on the relationship between these elements:

- How buildings frame streets and squares
- How entrances connect to sidewalks
- How public spaces are distributed and connected
- How pedestrians move safely and comfortably
- How ground floors support activity
- How building heights create enclosure or openness
- How landscape improves comfort and identity
- How the whole area becomes readable, livable, and coherent

Why this position matters

If architecture is disconnected from urban design, buildings may become isolated objects. They may look interesting, but fail to create good streets or public spaces. If urban planning is disconnected from urban design, plans may remain abstract. They may define zones, roads, and densities, but fail to produce comfortable, active, and meaningful places. Urban design helps bridge this gap. It transforms planning rules into spatial experience, and transforms buildings into parts of the urban environment.

Example

A planner may decide that a new neighborhood needs a central public square, an architect may design the buildings around that square.

Urban design asks:

1. Is the square easy to reach?
2. Are the surrounding façades active?
3. Are there entrances, shops, cafés, or services around it?
4. Is there shade, seating, lighting, and vegetation?
5. Are pedestrian routes clear and safe?
6. Does the square feel enclosed enough to be comfortable?
7. Can it support daily life and public activities?

This example shows that urban design is concerned with the relationship between decisions, not only with the decisions themselves.

Figure 15: Urban design connects the scale of architecture with the scale of urban planning

Urban design connects the scale of architecture with the scale of urban planning. It ensures that buildings, streets, public spaces, movement, and landscape work together to create good urban places.

2.3 Urban Planning, Urban Design, Architecture and Landscape Design

2.4.1 Urban Planning

Urban planning works at the large scale of the city, the district, or the territory. It organizes land use, infrastructure, mobility, housing, public facilities, environmental protection, and urban growth. Its role is mainly strategic and regulatory. It defines how the city should develop, where different activities should be located, how networks should be organized, and which areas should be protected, renewed, densified, or extended. Urban planning gives the general framework for urban development. However, planning alone does not always define the detailed quality of streets, squares, façades, public spaces, and everyday experience. This is where urban design becomes necessary [36].

2.4.2 Urban Design

Urban design works between the large scale of planning and the specific scale of architecture. It focuses on the spatial quality of the public realm: streets, squares, parks, blocks, frontages, pedestrian routes, and urban spaces.

Its role is to translate planning decisions into livable and coherent urban places. Urban design asks how buildings shape public space, how people move and stay, how ground floors support activity, how landscape improves comfort, and how the urban environment becomes readable, safe, attractive, and meaningful. Urban design is therefore not only concerned with form. It is concerned with the relationship between form, use, movement, comfort, identity, and public life [37].

2.4.3 Architecture

Architecture focuses mainly on buildings and the spaces they contain. It deals with program, form, structure, materials, construction, interior organization, façades, and the relationship between inside and outside.

In urban design, architecture is important because buildings are never isolated objects. Their height, ground floor, entrance, façade, shadow, materials, and relation to the sidewalk directly affect the quality of the street and the public space [38]. A building may be successful as an object but weak as part of the city if it creates inactive edges, poor entrances, blank walls, or uncomfortable public spaces around it.

2.4.4 Landscape Design

Landscape design focuses on open spaces, vegetation, topography, water, soil, climate, and ecological systems. It gives importance to outdoor comfort, biodiversity, shade, cooling, drainage, and the sensory quality of public space.

In urban design, landscape is not decoration. Trees, planting, water, soil, and topography are essential elements that shape how people experience urban spaces. They can improve thermal comfort, reduce heat, guide movement, create identity, and support environmental sustainability. For this reason, a good urban space is not only built. It is also landscaped, climatic, ecological, and sensory [39].

2.4.5 Interior Design

Interior design focuses on indoor spaces, furniture, lighting, materials, colors, atmosphere, and user comfort. It works at a smaller and more detailed scale than urban design. Although interior design is usually associated with buildings, it has an indirect relation with urban design. Both fields are concerned with human experience, atmosphere, proportions, materials, light, comfort, and the way people use space [40].

Urban design can even be understood as designing the “interior of the city”, where streets, squares, façades, trees, benches, lighting, and materials create the public atmosphere of urban life.

Table 1 : Comparative Overview

Discipline	**Main scale**	**Main focus**
Urban planning	City, district, territory	Land use, infrastructure, regulation, urban growth
Urban design	Street, block, neighborhood, public realm	Spatial quality, public life, movement, comfort, identity
Architecture	Building and plot	Form, function, structure, materials, indoor and outdoor spaces
Landscape design	Open spaces and natural systems	Vegetation, climate, topography, water, outdoor comfort
Interior design	Indoor space	Furniture, lighting, materials, atmosphere, user comfort

Urban planning organizes the city, architecture designs buildings, landscape design shapes open and natural systems, and interior design works on indoor experience. Urban design connects these fields by focusing on the quality of the public realm and the relationship between people, buildings, streets, landscape, and urban life.

2.4 The Main Scales of Urban Design Practice

Urban design does not work at one single scale. It moves between different levels of the city, from the large structure of the urban area to the small details experienced by the human body. This ability to move between scales is one of the main characteristics of urban design practice [27, 41].

A good urban design project should be coherent at several levels [42]. It should respond to the city structure, fit into the neighborhood, shape good streets and public spaces, and create comfortable human-scale experiences.

The city scale

At the city scale, urban design looks at the general structure of the city. It studies how districts, centers, main roads, public transport, green spaces, and natural systems are organized.

At this scale, urban design asks how a place connects to the whole city. For example, a new neighborhood should not be designed as an isolated area. It should be connected to mobility networks, public facilities, green systems, and surrounding districts [27].

The city scale helps answer questions such as:

- Where is the site located in the city?
- What is its role in the urban structure?
- How is it connected to main roads and public transport?
- What are the surrounding districts and major urban functions?
- How does the project contribute to the wider city?

The neighborhood scale

At the neighborhood scale, urban design focuses on daily life. This is the scale of walking distances, local services, schools, shops, public spaces, and social interaction [42, 43].

A neighborhood is not only a residential area. It is a living environment where people should be able to move easily, access services, meet others, and feel a sense of belonging.
At this scale, urban design studies:

- Street networks
- Blocks and plots
- Public spaces
- Local centers
- Pedestrian routes
- Land use mix
- Neighborhood identity
- Links between housing, services, and open spaces

This scale is important because it connects the large structure of the city with the everyday experience of people.

The street and public space scale

The street and public space scale is central to urban design. It is where buildings, movement, landscape, activities, and people meet directly. At this scale, urban design studies how streets, squares, parks, sidewalks, frontages, and public spaces are shaped and used. It asks whether the place is accessible, safe, comfortable, active, and readable [28, 29].

For example, a street is not only a line of movement. It is also a public space framed by buildings, influenced by ground floors, trees, lighting, materials, and pedestrian comfort.

This scale helps answer questions such as:

- Are sidewalks continuous and comfortable?
- Are public spaces connected and easy to reach?
- Do building edges support activity?
- Is there shade, seating, lighting, and vegetation?
- Can people walk, stop, meet, and use the space safely?

The human scale

The human scale is the scale of direct experience. It concerns what people see, feel, touch, hear, and perceive while moving through urban space.

At this level, small design details become very important. The height of a façade, the texture of paving, the position of a bench, the shade of a tree, the transparency of a shopfront, or the quality of lighting can strongly affect how a place is experienced [44, 45].

Urban design at the human scale focuses on the immediate qualities that shape how people experience a place. It considers comfort, visibility, safety, and the sense of enclosure created by buildings and urban edges. It also gives attention to materials, textures, seating, lighting, shade, sound, smell, and the details of façades and ground floors. These elements may seem small, but they strongly influence whether a street or public space feels pleasant, safe, active, and welcoming. This scale reminds us that the city is ultimately experienced by the human body, not only through maps or plans.

Moving between scales

Urban design practice requires the ability to move constantly between scales. This is often called “zooming in and zooming out”.

A design decision at one scale can influence another scale. For example, a large road planned at the city scale can affect neighborhood continuity and pedestrian comfort. A building façade designed at the architectural scale can improve or weaken the quality of the street. A tree line placed along a sidewalk can improve microclimate, walking comfort, and the identity of the whole neighborhood.

For this reason, urban design should never be limited to one drawing or one level of analysis. Plans, sections, diagrams, sketches, photographs, and observations should be combined to understand how the different scales work together.

Table 2: Comparative overview

Scale	Main focus	Typical questions
City scale	Urban structure, mobility, districts, green systems	How does the project connect to the whole city?
Neighborhood scale	Daily life, blocks, local services, public spaces	How does the area work as a living environment?
Street and public space scale	Streets, squares, frontages, pedestrian movement	How do buildings, movement, and public life interact?
Human scale	Comfort, perception, materials, details, sensory experience	How does the place feel when people use it?

Urban design practice works across several scales. A successful project must connect the city scale, neighborhood scale, public space scale, and human scale into one coherent urban experience.

2.5 The Public Realm

The public realm refers to all the urban spaces that are open, visible, and shared by people in everyday life. It includes streets, sidewalks, squares, parks, plazas, pedestrian paths, public gardens, waterfronts, and the external parts of public buildings. It also includes the edges that shape these spaces, such as façades, entrances, shopfronts, arcades, walls, fences, trees, and street furniture.

The public realm is important because it is the part of the city where collective life happens. People walk, wait, meet, rest, observe, shop, play, protest, celebrate, and interact in these spaces. For this reason, urban design gives special attention to the quality of the public realm [46, 47].

The public realm is not only the empty space between buildings. It is the space that connects buildings, movement, landscape, activities, and people. A street, for example, is part of the public realm not only because people move through it, but because it can also support social life, commercial activity, identity, and everyday experience. A good public realm should be accessible, safe, comfortable, readable, inclusive, and active. It should allow people to move easily, but also to stop and stay. It should support different users, including children, elderly people, women, students, workers, visitors, and people with reduced mobility.

The quality of the public realm depends on many design elements. Sidewalk width, street trees, lighting, seating, paving, crossings, building frontages, ground floor activities, shade, visibility, and maintenance all influence how a public space is used and perceived. Small design decisions can therefore have a strong effect on public life.

For example, a sidewalk with shade, active shopfronts, clear entrances, good lighting, and places to sit can become a pleasant public space. In contrast, a sidewalk bordered by blank walls, fast traffic, poor lighting, and no shade may feel uncomfortable or unsafe, even if it is physically accessible. The public realm also plays an important role in the identity of the city. Many people remember a city through its streets, squares, markets, parks, monuments, and public spaces. These places create images, memories, and meanings. They help people recognize where they are and feel connected to the urban environment.

Urban design improves the public realm by asking questions such as:

- Is the space easy to access and understand?
- Can people walk safely and comfortably?
- Are there places to sit, wait, meet, and observe?
- Do the surrounding buildings create active and attractive edges?
- Is there shade, vegetation, lighting, and protection from traffic?
- Does the place support different users and activities?
- Does the space contribute to the identity of the city?

Figure 16: public realm : accessible, safe, comfortable, readable, inclusive, and active [48]

The public realm is the shared space of the city. It is where urban life becomes visible, and its quality depends on the relationship between buildings, streets, landscape, movement, comfort, and people.

2.6 Main Outputs of Urban Design

Urban design is not only a theoretical field. It also produces practical documents, projects, and strategies that guide the transformation of urban spaces. These outputs can be used by architects, planners, municipalities, developers, and design teams to improve the quality of the built environment.

The main outputs of urban design are not always final construction drawings. Sometimes they are frameworks, guidelines, spatial visions, public space projects, or strategic documents that help organize future interventions. Their role is to translate ideas about urban quality into clear spatial directions [28, 49].

2.7.1 Urban Design Frameworks

An urban design framework is a document that gives a general spatial vision for an area. It does not usually design every building in detail. Instead, it defines the main principles that should guide future development.

An urban design framework can show how streets, blocks, public spaces, building heights, landscape, mobility, and land uses should work together. It helps ensure that different projects developed over time remain coherent and connected [13, 31, 50].

For example, in a new neighborhood, an urban design framework may define the main pedestrian routes, the location of public squares, the hierarchy of streets, the relationship between buildings and open spaces, and the general character of the area.

Its main purpose is to create a clear structure before detailed architectural projects begin.

2.7.2 Public Space Projects

Public space projects are among the most visible outputs of urban design. They concern the design or improvement of streets, squares, parks, plazas, pedestrian areas, waterfronts, university spaces, markets, and other shared urban places.

A public space project focuses on how people use and experience space. It may include the organization of movement, seating, shade, lighting, vegetation, paving, urban furniture, accessibility, safety, and activities [27, 28].

For example, redesigning a square is not only a question of changing its shape or materials. It also requires understanding how people arrive, where they stay, which edges are active, where shade is needed, how the space connects to surrounding streets, and how it can support daily life. Public space projects are important because they directly affect the quality of everyday urban experience.

2.7.3 Design Guidelines

Design guidelines are written and visual recommendations that help control the quality of future development. They do not always impose one fixed design, but they define principles that designers should respect. Design guidelines can address building height, façade treatment, ground floors, entrances, setbacks, street edges, materials, signage, landscape, lighting, public space furniture, and pedestrian comfort.

Their role is to ensure that individual projects contribute positively to the wider urban environment. Without guidelines, different buildings or interventions may be developed separately and create a fragmented, incoherent, or poor-quality urban space [27, 28, 35].

For example, design guidelines for a commercial street may recommend active ground floors, transparent façades, continuous sidewalks, shaded pedestrian areas, clear entrances, and limits on blank walls.

2.7.4 Spatial Strategies

A spatial strategy is a broader design direction that explains how an urban area should evolve over time. It is less detailed than a project but more spatial than a general policy.

Spatial strategies are used to guide urban regeneration, mobility improvement, green networks, public space systems, heritage areas, waterfront development, or climate adaptation. They help connect long-term objectives with concrete spatial actions.

For example, a spatial strategy for a city center may propose improving pedestrian connections, creating a network of shaded public spaces, strengthening local identity, reducing car dominance, and linking important civic buildings with public squares [27, 28, 35]. A good spatial strategy should identify priorities, explain relationships between places, and guide future interventions in a coherent way.

Urban design produces different outputs according to the scale and objective of the intervention. Frameworks give spatial vision, public space projects transform specific places, design guidelines control quality, and spatial strategies guide long-term urban improvement.

2.7 Key Ideas to Remember

This chapter clarified the meaning of urban design and its position among related disciplines. The main idea is that urban design is not limited to buildings, plans, or decoration. It focuses on the quality of the relationships that make urban places work.

Urban design connects architecture, urban planning, landscape design, mobility, environment, and public life. It works between the large scale of the city and the small scale of human experience.

By the end of this chapter, you should remember that urban design:

1. shapes the relationship between buildings, streets, public spaces, landscape, movement, and people
2. works between architecture and urban planning, without replacing either of them
3. translates planning ideas into spatial quality and connects buildings to the public realm
4. gives importance to the public realm as the shared space of urban life
5. works across several scales, from the city and neighborhood to the street, public space, and human body
6. considers both physical form and human experience
7. produces practical outputs such as urban design frameworks, public space projects, design guidelines, and spatial strategies
8. aims to create urban places that are coherent, accessible, comfortable, safe, active, inclusive, and meaningful

What to keep in mind

When studying or designing an urban space, always ask:

- What is the role of this place in the city?
- How does it connect to its neighborhood?
- How do buildings shape the street or public space?
- Is the public realm accessible, comfortable, and safe?
- Does the place support movement, staying, interaction, and public life?
- How do landscape, materials, shade, lighting, and ground floors affect the experience?
- What type of urban design output is needed: a framework, a project, guidelines, or a strategy?

2.10 Mini Exercise

Choose one urban space that you know well, such as a street, square, park, university entrance, commercial street, or neighborhood public space. The objective of this exercise is to understand the difference between urban planning, urban design, architecture, landscape design, and interior design through one real example.

1. Identify the selected place

1. Write the name and location of the place.
2. Briefly describe it in two or three lines:

- What type of space is it?
- Where is it located?
- Who uses it?
- What activities happen there?

2. Read the place from different disciplines

Complete the following table.

Discipline	What to observe in the selected place
Urban planning	Location in the city, land use, mobility, access, relation to surrounding districts
Urban design	Streets, public spaces, pedestrian movement, comfort, safety, public life, active edges
Architecture	Building façades, entrances, ground floors, heights, materials, relation to the street
Landscape design	Trees, shade, vegetation, topography, water, outdoor comfort, climate response
Interior design	Materials, lighting, furniture, atmosphere, human comfort in semi-public or indoor edges

3. Identify the public realm

In the same place, identify the elements that belong to the public realm.
You can mention: sidewalks; streets; squares; benches; trees; lighting; façades; shopfronts; entrances; pedestrian crossings; public gardens; shaded areas.
Then explain briefly how these elements affect the quality of the place.

4. Analyze the scale of intervention

Look at the same place through four scales.

Scale	Question
City scale	How is this place connected to the wider city?
Neighborhood scale	What role does it play in daily local life?
Street and public space scale	How do people move, stop, meet, or interact there?
Human scale	What do people see, feel, hear, touch, and experience directly?

5. Propose one urban design output

Choose the most suitable urban design output for improving the place: urban design framework; public space project; design guidelines; spatial strategy; Explain your choice in three to five lines.

6. Short conclusion

Write a short paragraph explaining how urban design can improve this place by connecting buildings, public spaces, movement, landscape, comfort, and people.

Part 2. Understanding Urban Form

Chapter 3. Evolution of Urban Form

Urban form has changed throughout history because cities have always responded to human needs, social organization, political power, economic activities, technology, mobility, and environmental conditions. The shape of the city is therefore not accidental. It is the result of many forces acting together over time.

This chapter introduces the main stages in the evolution of urban form, from early and organic settlements to planned cities, industrial urban expansion, modern urbanism, and contemporary human centered approaches. The objective is not to study urban history in detail, but to understand how different periods produced different ways of organizing streets, blocks, public spaces, buildings, and urban life.

By studying the evolution of urban form, you will understand why cities look different from one period to another, why some urban models succeeded or failed, and how past experiences can inform present urban design practice. This historical reading helps you see the city as a continuous process of transformation, not as a fixed object.

3.1 Why Urban Forms Change

Urban forms change because cities are living systems. They are not fixed objects. They grow, adapt, decline, expand, and transform according to the needs of society and the conditions of each period.

The form of a city reflects the way people live, move, work, trade, govern, protect themselves, and relate to the environment. When these conditions change, the shape of the city also changes.

Urban forms may change because of several factors:

Social change

Cities change when lifestyles, family structures, population size, and social practices change. For example, a city designed for small communities and pedestrian movement will not have the same form as a city shaped by rapid population growth, apartment buildings, cars, and large infrastructure.

Social needs influence:

- Housing forms
- Public spaces
- Neighborhood organization
- Density
- Services and facilities
- Places of meeting and interaction

Figure 17: AADL neighborhood as an example of how housing demand influences urban planning policy [51]

Economic change

Economic activities strongly shape urban form. Markets, ports, factories, commercial streets, business districts, industrial zones, and shopping centers have all influenced the structure of cities [52–54].

When the economy changes, urban spaces also change. A city based on agriculture or trade does not have the same structure as an industrial city or a service-based city [55].

Economic change can create:

- New centers of activity
- Commercial streets
- Industrial districts
- Transport hubs
- Office areas
- Redevelopment of old urban spaces

Figure 18: Bab Ezzouar business district as an example of how economic change influences urban form and neighborhood transformation

Political and administrative change

Political power has always influenced the form of cities [55]. Fortified cities, royal axes, administrative centers, colonial plans, civic squares, and capital cities often express authority, control, identity, or representation [52–54].

Urban form can therefore reflect:

- Power and governance
- Defense and control
- Symbolic axes
- Public institutions
- Administrative organization
- Planning regulations

Figure 19: Brasília as an example of an administrative capital planned by political decision

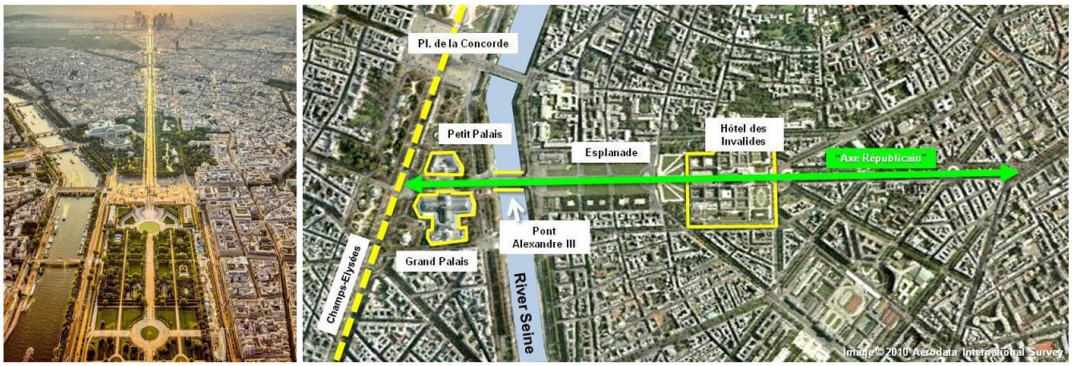

Figure 20: Champs Élysées as an example of a monumental urban axis shaped by political power and representation

Technological change

Technology has transformed cities many times. Water systems, construction techniques, railways, elevators, electricity, automobiles, public transport, digital systems, and environmental technologies have all changed how cities are built and used [17, 49]. For example, the arrival of the car changed street widths, urban expansion, parking needs, and the relationship between housing, work, and services. In the same way, public transport can support compact and connected urban development.

Technology affects:

- Mobility systems
- Building height
- Infrastructure networks
- Construction methods
- Urban expansion
- Environmental performance

Environmental and climatic change

Cities also change in response to environmental conditions. Climate, topography, water, vegetation, natural risks, and resource availability influence the shape of settlements [52–54]. In hot climates, traditional urban forms often used narrow streets, compact fabrics, courtyards, shade, and local materials to improve comfort. In flood-prone areas, settlement patterns may avoid risky zones or adapt to water systems.

Environmental factors influence:

- Street orientation
- Density and compactness
- Vegetation and open spaces
- Water management
- Materials
- Shade and ventilation
- Adaptation to risks

Figure 21: Masdar City as an example of how urban design responds to hot climate through shade, compact form, and water management [56]

Mobility change

The way people move has a major impact on urban form. Walking, animal transport, railways, tramways, cars, buses, cycling, and metro systems each produce different urban patterns. Pedestrian cities are usually compact and fine-grained. Car-oriented cities are often more spread out, with wider roads, parking areas, and separated land uses. Transit-oriented development encourages density around public transport stations [52–54].

Mobility affects:

- Street networks
- Block sizes
- Distances between activities
- Density
- Accessibility
- Public space quality

Cultural change

Cities also change because cultures change. Values, traditions, beliefs, lifestyles, and collective identities influence how people build and use urban spaces.

Culture can shape:

- The form of houses
- The organization of neighborhoods
- Public and private boundaries
- Markets and religious spaces
- Symbols and landmarks
- Local identity and memory

Urban form changes because the city must continuously respond to new social, economic, political, technological, environmental, mobility, and cultural conditions.
A good urban designer should therefore read the form of the city as the result of history, needs, forces, and transformations. Understanding why urban forms change helps explain why cities look different from one period to another and why each urban form carries traces of its time.

3.2 Forces Behind Urban Form

Urban form is shaped by different forces. These forces influence where cities are located, how streets are organized, how buildings are arranged, and how public spaces are created. In many cases, the form of a city cannot be understood only by looking at its geometry. It must be read through the needs, pressures, and priorities of the society that produced it [53, 54, 57].

Among the most important forces behind urban form are defense, economy and trade, and transport technology. Each of these forces has produced specific urban patterns, from fortified cities and market towns to railway cities and car-oriented urban expansion.

3.2.1 Defense

Defense was one of the earliest forces shaping urban form. Many ancient and medieval cities were built to protect people, goods, political power, and strategic territories. Their form was often influenced by the need to control access, resist attacks, and provide security [58].

Defensive urban forms commonly included walls, gates, towers, citadels, narrow streets, elevated sites, and controlled entrances. The city was often compact because it had to fit within a protected perimeter. Streets could be irregular and narrow, making movement difficult for enemies and easier to control by inhabitants [58].

Defense influenced urban form through:

- Fortified walls and gates
- Compact urban fabrics
- Citadels and castles
- Strategic hilltop or coastal locations
- Narrow and winding streets
- Controlled access points
- Separation between inside and outside

In these cities, the wall was not only a physical boundary. It was also a political and social limit. It defined who belonged to the city, where protection started, and where danger or outside territory began.

Examples of defense-based urban form include medieval walled cities in Europe, fortified kasbahs in North Africa, hilltop settlements, and military cities designed around citadels or defensive axes.

3.2.2 Economy and Trade

Economy and trade have always played a major role in shaping cities. Many cities developed around markets, ports, caravan routes, rivers, crossroads, industrial areas, or commercial streets. When exchange becomes important, urban form begins to organize movement, access, storage, production, and public gathering [55].

Market squares, souks, bazaars, ports, warehouses, commercial streets, and business districts are all spatial expressions of economic activity. In traditional cities, the market was often located near the center, close to religious, civic, or administrative buildings [59]. In port cities, the waterfront became a major structuring element. In industrial cities, factories, railways, worker housing, and warehouses created new urban patterns.

Economic activity influenced urban form through:

- Market squares and commercial streets
- Ports and waterfronts
- Warehouses and storage areas
- Production zones and industrial districts
- Links between trade routes and city gates
- Concentration of services and exchange activities
- Creation of central places and business areas

Trade also affects the intensity of public life. Commercial streets are often lively because they combine movement, exchange, display, social interaction, and daily services. For this reason, economic forces do not only shape buildings and infrastructure. They also shape the rhythm and atmosphere of urban life.

Examples include traditional souks in Islamic cities, European market squares, Mediterranean port cities, colonial trading towns, and modern central business districts.

Figure 22: Market street as an example of economy and trade shaping urban form [60]

3.2.3 Transport Technology

Transport technology is one of the strongest forces behind the transformation of urban form. The way people and goods move directly affects the size, structure, density, and organization of cities.

In pedestrian cities, distances were short and urban form was compact. Streets were narrow, activities were close to each other, and daily life depended on walking. With the arrival of railways, cities expanded along railway lines and around stations. Stations became new urban centers and influenced the location of industry, housing, and commerce.

Later, the automobile changed urban form even more deeply. Roads became wider, cities expanded outward, parking became necessary, and many activities became separated by distance. Car-oriented development often produced urban sprawl, large road networks, low-density suburbs, shopping centers, and fragmented public spaces [52, 54, 57].

Transport technology influenced urban form through:

- Street width and hierarchy
- Block size and accessibility
- Railway stations and transport hubs
- Bridges and infrastructure corridors
- Suburban expansion

- Separation or mixing of land uses
- Parking areas and road networks
- Connection between housing, work, commerce, and services

Public transport can also shape more compact and connected urban development. Tramways, metros, buses, and transit-oriented development can support density around stations and reduce dependence on private cars. Transport technology therefore changes not only how people move, but also how cities grow, how neighborhoods are connected, and how public spaces are experienced [61].

Figure 23: Tramway corridor as an example of transport technology influencing urban form

3.2.4 Social Organization

Social organization strongly influences urban form because cities are shaped by the way people live together. Family structure, community life, social hierarchy, religion, traditions, and daily practices all affect the organization of neighborhoods, houses, streets, and public spaces.

In many traditional cities, urban form reflected strong social and cultural rules. Residential areas were often organized around family groups, tribes, religious communities, professional groups, or social classes. Public, semi-public, semi-private, and private spaces were carefully separated [27, 45, 55].

For example, in many historic fabrics, the main streets were more public and connected to markets, mosques, churches, or civic buildings, while inner residential streets were quieter, narrower, and more private. This created a gradual transition from public life to domestic life.

Social organization can influence urban form through:

- Neighborhood structure
- Housing types

- Separation between public and private spaces
- Location of religious and community buildings
- Social hierarchy and access control
- Places of meeting and interaction
- Gender, age, family, and community practices

Urban design should therefore understand how people use space socially, not only physically. A street, courtyard, square, or neighborhood is never neutral. It often expresses social relations, cultural practices, and ways of living together.

Figure 24: Shared open spaces as an expression of social organization in urban design [62]

3.2.5 Politics and Power

Politics and power have always shaped cities. Rulers, states, colonial administrations, religious authorities, and modern governments have used urban form to express authority, control, identity, and representation [27, 55, 57].

Urban form can show power through monumental axes, administrative centers, royal squares, government districts, military layouts, ceremonial routes, and symbolic buildings. In many cases, the city becomes a political image.

Capital cities are often clear examples of this relationship. Their plans may include wide avenues, large public squares, monumental buildings, and formal compositions designed to represent the state. Colonial cities also often used urban planning to impose control, order, segregation, and administrative visibility.

Politics and power can influence urban form through:

- Administrative centers
- Civic squares
- Monumental axes
- Royal or presidential avenues
- Colonial grids and segregated quarters
- Military control of strategic areas
- Symbolic landmarks and institutions
- Planning laws and regulations

However, political power does not only appear in monuments. It can also appear in zoning, land ownership, housing policies, infrastructure decisions, and the distribution of public services. Urban design must therefore ask who makes decisions, who benefits from them, and how power is expressed in space.

Figure 25: Colonial urban design in Algiers as an expression of political power through façades, windows, stairs, and street atmosphere [63]

3.2.6 Public Health

Public health became a major force in the transformation of urban form, especially during the nineteenth century. Industrial cities often suffered from overcrowding, poor sanitation, pollution, lack of light, poor ventilation, disease, and unsafe housing conditions. These problems pushed planners, architects, engineers, and governments to rethink the form of the city [55, 64].

Urban reform introduced wider streets, sewer systems, water supply networks, public parks, housing regulations, ventilation standards, sunlight access, and separation between unhealthy industrial areas and residential areas.

Public health influenced urban form through:

- Wider and more ventilated streets
- Sanitation and sewage systems
- Access to clean water
- Public parks and green spaces
- Housing density regulations
- Sunlight and ventilation requirements
- Separation of harmful industrial activities
- Improvement of working-class neighborhoods

The idea that the city should support health remains important today. Contemporary urban design continues this concern through walkability, green spaces, thermal comfort, air quality, active mobility, noise reduction, and access to public spaces. A healthy city is not only a city without disease. It is a city that supports physical activity, mental well-being, social interaction, comfort, and environmental quality.

Figure 26: Public Health and Urban Reform [65]

3.2.7 Climate and Topography

Climate and topography are among the most fundamental forces behind urban form. Before modern technologies, cities had to adapt directly to local environmental conditions. Street orientation, building density, materials, roof forms, courtyards, vegetation, and settlement location were often shaped by sun, wind, slope, water, heat, cold, and natural risks [13, 27, 50].

In hot and dry climates, many traditional cities developed compact fabrics, narrow shaded streets, courtyards, thick walls, light-colored materials, and controlled openings to reduce heat and improve comfort. In cold climates, urban form often aimed to capture sunlight and protect from wind. In mountainous areas, settlements adapted to slope, terraces, views, and water paths. In coastal or river cities, topography and water shaped ports, waterfronts, bridges, and flood protection.

Climate and topography can influence urban form through:

- street orientation
- compactness or openness
- wind protection and ventilation
- slope adaptation

- building height and spacing
- courtyards and patios
- shade and sunlight
- water management
- vegetation and local materials
- protection from floods, heat, and erosion

Urban design should not treat climate and topography as secondary constraints. They are design generators. A good urban form responds to its physical context and transforms environmental conditions into spatial quality. In contemporary cities, this force is becoming even more important because of climate change. Heat waves, flooding, water scarcity, and extreme weather require urban forms that are more adaptive, resilient, and climate sensitive.

Figure 27: Topography as Forces Shaping Urban Form [66]

Defense, economy and trade, and transport technology are major forces that explain why urban forms differ across history. Each force produces specific spatial patterns, and many cities contain several layers of these forces at the same time.

3.3 Organic Cities

Organic cities are urban forms that developed gradually over time rather than through a complete plan drawn in advance. Their streets, blocks, plots, public spaces, and buildings were shaped step by step by daily life, local needs, climate, topography, defense, trade, and social organization.

In this module, organic cities are important because they help you understand that urban design is not only about geometric order. A city can look irregular and still have a strong spatial logic. The role of urban design is to read this logic before judging or transforming the place [67, 68].

Organic cities usually have:

- Irregular street networks
- Compact urban fabric
- Narrow pedestrian streets
- Strong adaptation to slope, climate, and local materials
- Gradual transitions between public, semi-

- Small and varied plots
- Mixed uses close to each other
- public, semi-private, and private spaces
- Strong relationship between buildings, streets, and daily life

The form of an organic city is often produced by use. A street may curve because of topography, property limits, defense, shade, or the connection between important places. A small square may appear where several paths meet. A market street may develop where movement and exchange are strongest.

For urban design, the main lesson is that form must be understood as the result of relationships. Organic cities show how streets, buildings, activities, climate, and social life can shape each other over time.

Organic cities and human scale

Many organic cities were formed before the dominance of the car. For this reason, they are often strongly connected to walking, proximity, shade, enclosure, and sensory experience.

Their urban spaces are usually experienced at the human scale through:

- Short walking distances
- Narrow shaded streets
- Close relationship between façades and pedestrians
- Small public spaces
- Changing views and visual sequences
- Local materials, textures, doors, stairs, balconies, and thresholds
- Strong sense of enclosure and atmosphere

This is directly related to urban design because the quality of a place is not only seen from above in a plan. It is also experienced from the street, by the body, the eye, and the senses.

Example: the Casbah of Algiers

The Casbah of Algiers is a strong example of organic urban form. Its dense fabric, narrow streets, stairs, irregular paths, white buildings, interior courtyards, and adaptation to slope create a distinctive urban identity.

Its form reflects several forces at the same time:

- Topography
- Defense
- climate adaptation
- privacy
- social organization
- pedestrian movement
- relationship with the sea

The Casbah is useful for this module because it shows how urban form can emerge from local conditions. It also shows that the street, the house, the courtyard, the façade, the slope, and the public space cannot be studied separately.

Figure 28: The Casbah of Algiers as an Example of Organic Urban Form [63]

What urban design can learn from organic cities

Organic cities should not be copied superficially. Their value is not only in their visual appearance, such as narrow streets, irregular forms, or traditional façades. Their real value is found in the principles that shaped them over time. They show how urban form can respond to walking, proximity, compactness, climate, topography, social practices, and local identity [69].

For urban design, organic cities teach the importance of creating places that are walkable, compact, shaded, and adapted to their environment. They also show the value of mixed uses, small public spaces connected to movement, gradual transitions between public and private spaces, and human-scale urban experiences. These qualities can help contemporary urban design create places that are more comfortable, meaningful, and connected to daily life.

At the same time, organic cities should not be idealized without criticism. Many of them face contemporary problems such as difficult vehicle access, weak infrastructure, overcrowding, lack of maintenance, and pressure from tourism or uncontrolled transformation. For this reason, urban design should protect their spatial qualities and identity while carefully improving their performance and adapting them to present needs.

Organic cities are not simply “unplanned” cities. They are urban forms shaped gradually by use, climate, topography, culture, economy, and social life. For urban design, they teach the importance of adaptation, human scale, local identity, and the relationship between form and everyday life.

3.4 Planned Cities

Planned cities are urban forms designed according to a clear spatial order before their construction or expansion. Unlike organic cities, which grow gradually through use and adaptation, planned cities are usually based on a deliberate design idea. Their streets, blocks, public spaces, axes, districts, and landmarks are organized according to a predefined structure [55].

Planned cities are important because they show how urban design can be used to organize space intentionally. They help understand the role of geometry, hierarchy, circulation, visibility, symbolism, and control in shaping urban form.

Planned cities often use recognizable spatial principles such as grids, axes, radial layouts, monumental perspectives, regular blocks, zoning, or planned public spaces. Their form is not accidental. It usually expresses a political, administrative, military, economic, or social vision [70, 71].

Planned urban form can appear in different contexts:

- Ancient cities organized around religious or civic centers
- Roman military towns structured by main crossing axes
- Renaissance ideal cities based on geometry and symmetry
- Colonial cities imposed through grids and administrative order
- Capital cities designed to represent political power
- Modern new towns planned around zoning, mobility, housing, and services

Main characteristics of planned cities

Planned cities are usually easier to read because their spatial structure is clear. Streets may follow a regular grid, main avenues may create strong axes, and public spaces may be placed at important intersections or civic centers. This can help orientation and movement [70, 71].

Their main characteristics often include:

- Clear street hierarchy
- Regular blocks and plots
- Planned public spaces
- Strong axes and perspectives
- Visible landmarks
- Organized districts or zones
- Controlled expansion
- Planned relation between buildings, streets, and public spaces

For urban design, planned cities show how spatial order can guide movement, create identity, organize functions, and give coherence to the urban environment.

Planned cities and urban order

The main strength of planned cities is their ability to create order. A planned street network can make movement easier. A regular block structure can support development and land division. A central square can organize public life. A civic axis can connect important buildings and create symbolic meaning. However, urban order alone is not enough. A planned city can be clear and monumental but still feel empty, rigid, or uncomfortable if it ignores human scale, climate, public life, and everyday uses. This is why urban design does not evaluate planned cities only by their geometry. It also asks whether the planned form works as a lived environment.

A planned city should be evaluated through questions such as:

- Is the structure clear and easy to understand?

- Are streets and public spaces connected?
- Does the plan support walking and daily life?
- Are public spaces active and comfortable?
- Does the geometry create useful places or only visual order?
- Does the city respond to climate, topography, and local culture?

Example: Roman planned cities

Roman cities often used a planned structure based on two main axes: the cardo, generally north south, and the decumanus, generally east west. These axes organized movement and divided the city into a regular grid of blocks. The forum was often located near the intersection of the main axes and acted as the civic, commercial, and political center [72].

This example is useful for urban design because it shows how planning can organize circulation, public space, civic identity, and urban hierarchy within a coherent structure.

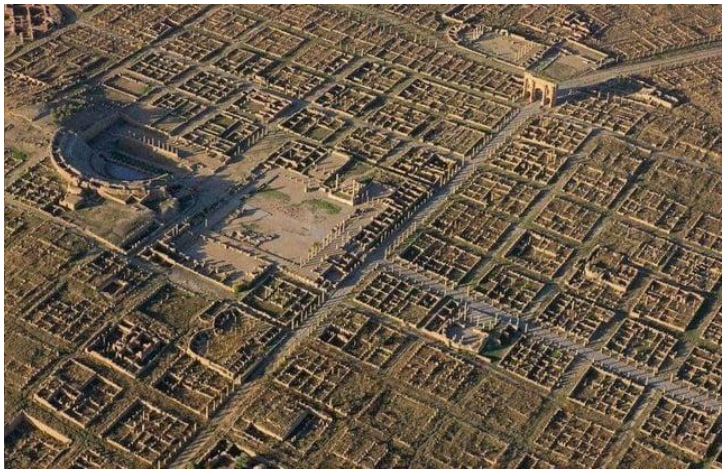

Figure 29: Timgad the Roman Planned City [73]

Example: colonial planned cities

Many colonial cities were also planned through regular grids, administrative centers, military control, and segregated districts. In this case, planning was not only a technical tool. It was also a tool of power, control, and representation [73, 74].

The grid made land division easier, improved control, and allowed administrative order. However, colonial planning often produced spatial inequalities by separating populations, functions, or urban quarters according to political and social hierarchies [75].

For this reason, planned cities must always be read critically. Their form can express order and efficiency, but it can also express domination, exclusion, or imposed identity.

Planned cities and contemporary urban design

Contemporary urban design still uses planning principles, but with more attention to human experience. A good planned urban form should not only organize land and circulation. It should also create walkable streets, active public spaces, mixed uses, environmental comfort, and strong connections between buildings and the public realm.

Today, planned urban design should balance order and flexibility. It should provide a clear spatial structure, but also allow adaptation, diversity, and everyday life to develop over time.

A planned neighborhood, for example, may have a clear street network and public space system, but it should also include shaded sidewalks, active ground floors, varied housing types, green spaces, local services, and places for social interaction.

Planned cities are urban forms created through deliberate spatial organization. They show the importance of order, hierarchy, geometry, circulation, and public space structure. For urban design, the main lesson is that planning should not only create clear forms, but also support human scale, comfort, identity, public life, and adaptation to context.

3.5 Ancient Urban Models: Four Ways of Organizing the City

Ancient cities are useful in urban design because they show that urban form can be organized according to different spatial logics. Some cities were shaped by geometric order, others by military control, political symbolism, climate adaptation, trade, or social organization.

The aim of this section is not to study ancient urban history in detail. The aim is to understand how each model produced a specific way of organizing streets, blocks, public spaces, buildings, and movement. These models still help urban designers think about order, hierarchy, centrality, human scale, climate, and identity [73, 74].

3.5.1 The Grid Model: Miletus

Miletus is often associated with the ancient grid model. Its urban form was organized through regular streets and blocks, creating a clear and readable structure. The grid made movement easier, simplified land division, and allowed the city to expand in a more controlled way.

For urban design, the grid is important because it shows how geometry can organize the city. It creates clarity, orientation, and regularity. However, a grid is not automatically a good urban form. If it is applied without attention to topography, climate, public space, and human scale, it can become rigid or monotonous.

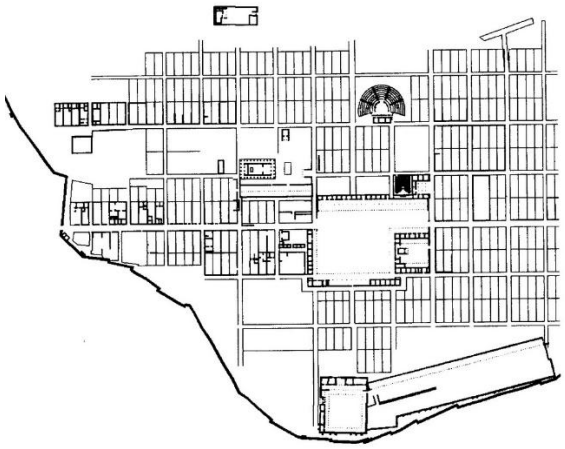

Figure 30: Miletus and the Grid Model

3.5.2 The Military Model: Roman Castra

Roman castra were military camps organized through a clear and disciplined structure. They were usually based on walls, gates, and two main crossing axes: the cardo and the decumanus. These axes created orientation, controlled movement, and divided the settlement into organized parts.

This model shows how urban form can be shaped by defense, order, and control. The city was easy to read, easy to manage, and easy to reproduce in different territories [73].

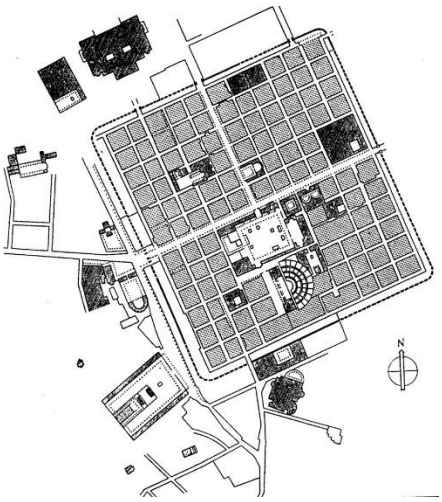

Figure 31: ***Roman Castra: Walls, Gates, Cardo and Decumanus***

3.5.3 The Symbolic Central Model: Baghdad Round City

The Round City of Baghdad represents another type of planned urban model. Its circular form was organized around a powerful center, where the caliph's palace and the main mosque were located. The city used concentric organization and gates connected to important directions. Here, urban form was not only functional. It was also symbolic. The circular plan expressed central authority, unity, control, and political meaning. The city form communicated power and identity [76].

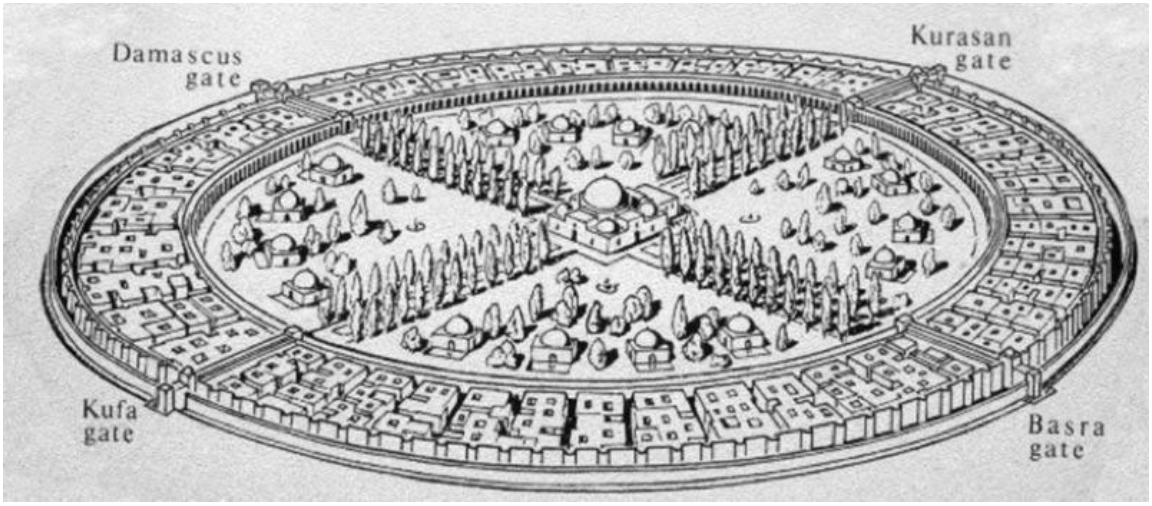

Figure 32: **Baghdad Round City: Centrality and Symbolic Order**

3.5.4 The Climatic and Social Fabric: Islamic and Mediterranean Cities

Many Islamic and Mediterranean urban fabrics developed through a strong relationship between climate, social life, trade, and privacy. Their forms often included compact buildings, narrow shaded streets, courtyards, souks, religious buildings, and gradual transitions between public and private spaces. These fabrics may appear irregular from above, but they often have a clear internal logic. Main streets connect markets, gates, religious buildings, and important public spaces. Smaller streets and alleys create quieter residential areas and protect privacy [77].

Their compactness and narrow streets also respond to climate by creating shade and reducing heat exposure. Courtyards provide light, air, and private outdoor space [78, 79].

Figure 33: Ghardaïa Urban Fabric: Shade, Courtyards and Public Private Transition [77]

Ancient urban models are not important because they should be copied today. They are important because each one teaches a different urban design principle: the grid teaches order, the Roman castra teaches hierarchy, Baghdad teaches symbolic centrality, and Islamic and Mediterranean fabrics teach adaptation to climate, social life, and human scale.

3.10 Key Ideas to Remember

This chapter showed that urban form is not accidental. Cities change because societies change. Their shape reflects the needs, values, technologies, powers, economies, cultures, and environmental conditions of each period.

The most important idea is that urban form should always be read as the result of several forces acting together. A street network, a block, a square, a wall, a market, or a public building can reveal how people lived, moved, traded, protected themselves, governed, and adapted to climate.

By the end of this chapter, you should remember that:

- Urban forms change over time because cities are living systems
- Defense produced compact cities, walls, gates, citadels, and controlled access
- Economy and trade shaped markets, ports, commercial streets, souks, and central places
- Transport technology changed street widths, city expansion, block size, mobility patterns, and the relationship between housing, work, and services
- Social organization influenced neighborhood structure, privacy, housing types, public spaces, and community life
- Politics and power produced axes, administrative centers, civic squares, monuments, colonial plans, and symbolic urban forms
- Public health transformed cities through sanitation, wider streets, parks, ventilation, sunlight, and housing regulations
- Climate and topography shaped street orientation, compactness, courtyards, shade, materials, slopes, water systems, and settlement location
- Organic cities teach adaptation, human scale, walkability, local identity, and gradual growth
- Planned cities teach order, hierarchy, readability, circulation, and spatial structure
- Ancient urban forms provide design lessons, not models to copy directly
- Good urban design should learn from history while responding to contemporary needs

What to keep in mind

When analyzing an urban form, always ask:

- What forces shaped this place?
- Was it shaped mainly by defense, trade, climate, mobility, power, or social life?
- Is the urban form organic, planned, or a combination of both?
- How do streets, blocks, public spaces, and buildings express the history of the place?
- Which historical qualities should be preserved?
- Which problems need careful improvement?
- How can new design respect the existing urban logic without copying the past superficially?

The evolution of urban form teaches that every city is a historical record written in space. Urban design begins by reading this record carefully, understanding the forces that shaped it, and using this knowledge to guide sensitive, coherent, and context-aware interventions.

3.12 Mini Exercise

Choose one old urban area that you know, such as a traditional neighborhood, a colonial district, an old city center, a market street, a kasbah, a medina, or a historic public square. The objective of this exercise is to read urban form as the result of historical forces, not only as a physical shape.

1. Identify the selected urban area

1. Write the name and location of the place.
2. Briefly describe it:

- Is it an old center, a traditional fabric, a planned district, or a mixed area?
- What are its main streets, public spaces, buildings, or landmarks?
- Is the urban form regular, irregular, compact, open, or mixed?

2. Identify the forces behind its form

Observe the place and identify which forces may have shaped it.

Force	What to look for
Defense	walls, gates, compact fabric, controlled access, elevated site
Economy and trade	markets, commercial streets, workshops, ports, storage areas
Transport technology	street width, road hierarchy, railway, car access, parking
Social organization	neighborhood units, privacy, courtyards, public-private transitions
Politics and power	administrative buildings, axes, monuments, colonial order
Public health	wide streets, ventilation, sanitation, parks, sunlight access
Climate and topography	shade, slope adaptation, narrow streets, courtyards, vegetation

3. Read the spatial structure

Describe how the area is organized.

You can focus on:

- Street network
- Blocks and plots
- Public spaces
- Markets or commercial streets
- Important buildings
- Entrances and access points
- Relationship with topography or climate

4. Identify one historical quality and one current problem

- Write one historical quality that should be preserved. Example: shaded narrow streets, active market street, strong public square, local materials, human scale.

- Write one current problem that needs improvement. Example: poor maintenance, traffic pressure, lack of greenery, weak accessibility, loss of identity, overcrowding.

5. Propose a sensitive urban design intervention

Suggest one small intervention that improves the place without destroying its historical logic.

It can be related to:

- Improving pedestrian comfort
- Adding shade or vegetation
- Restoring façades or materials
- Organizing traffic and parking
- Improving lighting and safety
- Protecting public spaces
- Strengthening local identity
- Improving accessibility carefully

6. Short conclusion

Write five to seven lines explaining how understanding the evolution of urban form helps you propose a better and more respectful urban design intervention.

Chapter 4. Reading Urban Fabric

4.1 From Urban Form to Urban Fabric

Urban morphology begins with the observation of urban form, but it does not stop there. Urban form refers to the visible shape of the city, while urban fabric refers to the way different urban elements work together. This distinction is important because urban design is not only concerned with isolated forms, but with relationships between streets, plots, buildings, public spaces, movement, and activities.

In simple terms, urban form helps us see what the city looks like, while urban fabric helps us understand how the city is put together [27, 30, 54].

4.1.1 Urban form as the visible shape of the city

Urban form is the physical and visible shape of the city. It includes the elements that can be observed, mapped, photographed, measured, and drawn.

Urban form includes:

- Streets and road networks
- Blocks and plots
- Buildings and built volumes
- Squares and public spaces
- Parks and open spaces
- Infrastructure and mobility systems
- Urban edges, landmarks, and skylines

When we look at a city from a map, an aerial image, a street view, or a section, we are reading its urban form. We can see whether the city is compact or dispersed, regular or irregular, dense or open, planned or organic. For example, a grid city has a different urban form from a medina, a modern housing estate, or a suburban extension. Each one produces a different spatial structure, different movement patterns, and different urban experiences [27, 30, 54].

Urban form is therefore the first layer of urban reading. It allows us to identify the visible organization of the city before moving toward deeper interpretation.

4.1.2 Urban fabric as the relationship between parts

Urban fabric is more than the visible shape of the city. It refers to the relationship between the different parts that compose urban space. It explains how streets, plots, buildings, public spaces, landscape, and activities are connected. A fabric is not created by one element alone. It is created by the way elements are assembled [27, 54].

For example, a street becomes part of an urban fabric when it is connected to blocks, plots, façades, entrances, sidewalks, trees, shops, houses, public spaces, and daily movement. A building becomes part of the fabric when its height, frontage, entrance, ground floor, and position contribute to the street and neighborhood.

Urban fabric can be understood through:

- The relation between streets and blocks
- The relation between plots and buildings
- The relation between buildings and public spaces

- The continuity or discontinuity of façades
- The rhythm of entrances and ground floors
- The density and compactness of the built form
- The connection between movement and activities
- The balance between built and open spaces

This means that two areas can have similar building types but different urban fabrics if their streets, plots, public spaces, and edges are organized differently. Urban fabric is therefore the "texture" of the city. It gives character, continuity, rhythm, and identity to urban space.

4.1.3 Why reading urban fabric is important for urban design

Reading urban fabric is important because urban design interventions should respond to the existing logic of the place. Before proposing a new street, square, building, or public space, it is necessary to understand how the area is already organized.

A good urban designer should ask:

- How are streets connected?
- What is the size and shape of blocks?
- How are plots divided?
- How do buildings meet the street?
- Are façades continuous or fragmented?
- Where are the active edges?
- Where are the weak or empty spaces?
- How do people move through the area?
- What gives the fabric its identity?

Without this reading, a design intervention may damage the existing character of the place. For example, inserting a large isolated building into a fine-grain historic fabric can break the rhythm of plots, weaken street continuity, and create inactive edges. In contrast, a sensitive intervention can respect the existing scale, reinforce public space, improve connections, and strengthen identity.

Reading urban fabric also helps identify what should be preserved, what should be transformed, and what should be repaired. Some fabrics need protection because they carry historical, cultural, or environmental value. Others need improvement because they are fragmented, disconnected, unsafe, or poorly adapted to contemporary needs.

For urban design, the aim is not to freeze the city in its existing state. The aim is to understand its structure before changing it. A successful intervention should enter into dialogue with the existing fabric, improve its weaknesses, and reinforce its qualities.

Urban form is the visible shape of the city. Urban fabric is the relationship between its parts. Urban design needs both: it must observe the form, understand the fabric, and intervene in a way that improves the coherence, identity, and quality of urban space.

4.2 The Logic of Urban Fabric

Urban fabric has a logic. It is not only a visual texture seen from above, but a system of relationships between streets, plots, buildings, public spaces, movement, and activities. To understand an urban area, it is not enough to describe its form. It is necessary to understand how its parts are connected and how they work together. The logic of urban fabric can be understood through three main relationships .

First, there is the relationship between streets and blocks. Streets organize movement and divide the city into blocks. The size, shape, and continuity of blocks influence walkability, accessibility, permeability, and the rhythm of urban life. Small blocks usually allow more route choices and easier pedestrian movement, while very large blocks may reduce connectivity and create long walking distances.

Second, there is the relationship between plots and buildings. Plots define how land is divided, occupied, and transformed. Their size, depth, width, and repetition influence building types, façades, entrances, and density. A fine plot structure often creates varied façades and many entrances, while large plots can produce larger buildings, longer frontages, and sometimes less active street edges [52, 70].

Figure 34: relationship between plots and buildings from Barcelona [80]

Third, there is the relationship between buildings and public space. Buildings do not only occupy land. They shape streets, squares, courtyards, and open spaces. Their height, alignment, frontage, entrance, transparency, and ground-floor use influence enclosure, visibility, safety, comfort, and public life.

Figure 35: buildings and public space

The logic of urban fabric can therefore be read through several questions:

- How are streets connected to each other?
- Are blocks small, large, regular, irregular, open, or compact?
- How are plots divided?
- Do buildings follow the street alignment or stand as isolated objects?
- Are façades continuous or fragmented?
- Are ground floors active or inactive?
- Are public spaces connected to movement, or are they isolated?
- Does the fabric support walking, orientation, and daily activities?

In traditional fabrics, the logic is often based on proximity, shade, privacy, gradual transitions, and pedestrian movement. Streets may be narrow and irregular, but they often create strong enclosure, short distances, and a clear hierarchy between public and private spaces. In planned fabrics, the logic is often based on order, geometry, visibility, and circulation. Streets and blocks may be regular and easy to read, but their quality depends on how well they support human scale, public life, and environmental comfort.

In modern fabrics, buildings are sometimes separated from streets and placed inside open plots. This can create more light, air, and green space, but it may also weaken the relationship between buildings and the public realm if the ground level is poorly designed. For urban design, the most important point is that every fabric has its own internal logic. Before proposing an intervention, this logic must be understood. A design that works in a grid fabric may not work in an organic fabric. A solution suitable for a modern housing estate may not be appropriate in a historic center [28, 35].

Reading the logic of urban fabric helps identify:

- what gives the area its character
- how movement and access are organized
- where public life is concentrated
- where the fabric is continuous or fragmented
- which parts should be preserved
- which parts can be transformed
- where new connections, edges, or public spaces are needed

Urban design should not impose a solution without understanding the existing fabric. It should work with the logic of the place, repair its weaknesses, and reinforce its spatial qualities.

The logic of urban fabric is found in the relationships between streets, blocks, plots, buildings, public spaces, and activities. Understanding this logic is essential before making any urban design intervention.

4.3 Street Pattern and Block Structure

The street pattern and the block structure are among the first elements to read in an urban fabric. They organize movement, access, orientation, and the general shape of the neighborhood. Before looking at buildings in detail, the student should first understand how streets divide the land and how blocks are formed.

A street pattern is not only a network for cars or pedestrians. It is also the basic structure that connects places together. It can make an area easy to cross, or it can create barriers and isolation. It can support public life, or it can reduce the street to a simple traffic corridor.

Blocks are the urban units created by streets. Their size, shape, and continuity influence walkability, density, frontage, land use, and the relation between public and private spaces. A small block usually offers more choices of movement and more street frontage. A very large block can reduce permeability and make walking less direct [28].

4.3.1 Streets as the organizing structure of the fabric

Streets organize the urban fabric because they connect buildings, plots, public spaces, activities, and movement. They give access to homes, shops, schools, services, squares, parks, and transport stops. In this sense, the street is not only a line on a plan. It is a structuring element of urban life.

Different street patterns create different urban experiences. A connected street network allows people to move easily from one place to another. A fragmented network can make distances longer and reduce accessibility. A grid pattern can create clarity and direct routes. An organic pattern can create variety, surprise, and adaptation to topography or historical growth.

For urban design, the important question is not only what type of street pattern exists. The important question is how this pattern works for movement, access, orientation, comfort, safety, and public life [28].

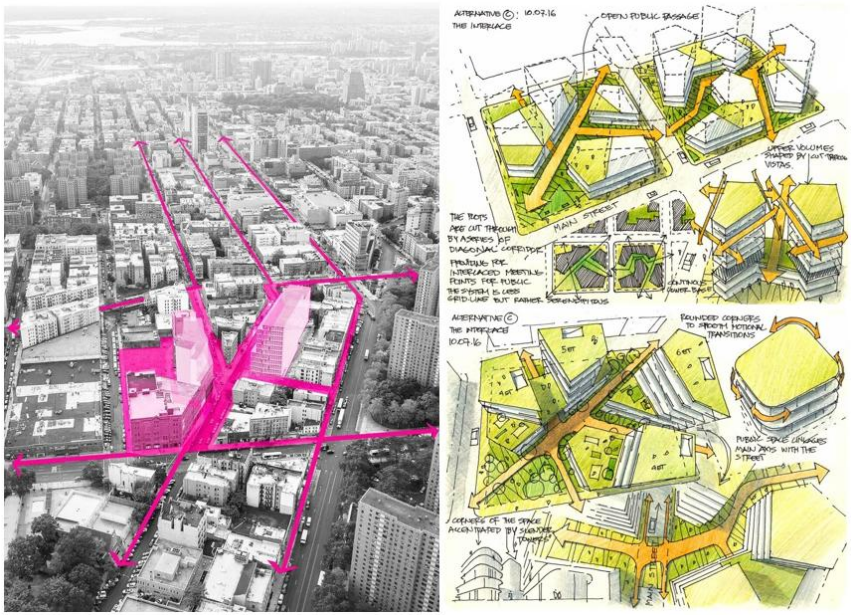

Figure 36: Streets as the organizing structure of the fabric

4.3.2 Blocks as the basic units of urban form

A block is the piece of urban land surrounded or defined by streets. It is one of the basic units of urban form because it links the street network with plots and buildings. The block influences how buildings are arranged, how people enter them, where open spaces are located, and how public and private spaces are separated. A compact traditional block can create continuous street edges and internal courtyards. A modern open block can place buildings freely within open space. A large administrative or commercial block can create strong edges but sometimes weak pedestrian permeability.

The size and shape of blocks are very important. Small and medium blocks often support walking because they create short routes and many corners. Large blocks can be useful for major institutions, campuses, industries, or large facilities, but they can also create long facades, dead edges, and difficult pedestrian movement if they are not carefully designed [29].

4.3.3 Connectivity and permeability

Connectivity describes how well streets are linked to each other. A connected network offers several possible routes. A poorly connected network gives fewer choices and often forces people to use long indirect paths. Permeability describes how easily people can move through an urban area. It is not only about the number of streets. It is also about whether streets are open, safe, readable, comfortable, and accessible for pedestrians.

A neighborhood with good connectivity and permeability is easier to walk through. It supports daily movement, local commerce, social interaction, and access to public spaces. A neighborhood with weak permeability may feel closed, isolated, or difficult to use, even if it contains many buildings and services. In urban design, improving permeability does not always mean opening many new roads. Sometimes it can mean creating pedestrian passages, reconnecting blocked streets, improving crossings, activating edges, or making existing routes more comfortable and readable [29].

Figure 37: Connectivity and permeability example

4.3.4 Large blocks, small blocks and urban experience

Block size has a direct effect on urban experience. Small blocks usually create more intersections, more route choices, more active corners, and shorter walking distances. They can make the city feel more open to pedestrians and easier to explore.

Large blocks create a different experience. They may reduce the number of intersections and make walking distances longer. They can also create inactive edges if their frontages are closed, fenced, or occupied by parking. However, large blocks are not always negative. They can be necessary for universities, hospitals, industrial areas, sports facilities, or large public institutions [81].

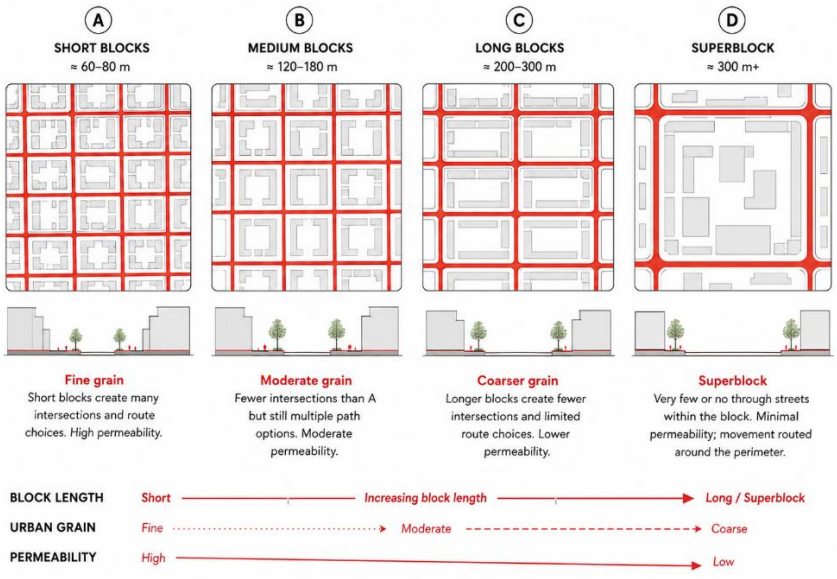

Figure 38: Illustration of the relationship between block length and urban grain

The urban design question is therefore not simply whether blocks are small or large. The real question is how block size affects access, frontage, walkability, public life, and continuity. A large block can work well if it includes internal passages, active edges, clear entrances, shaded routes, and connected public spaces. A small block can also fail if its streets are unsafe, inactive, or poorly connected.

At this stage of reading urban fabric, the student should observe the street pattern and block structure together. Streets create the network. Blocks give shape to the land. Together, they form the skeleton of the urban fabric and prepare the reading of plots, buildings, frontages, and open spaces [81].

4.4 Plot Pattern and Building Arrangement

After reading the street pattern and block structure, the next step is to look inside the block. A block is not empty land. It is usually divided into plots, and each plot receives one or more buildings. The way plots are divided and the way buildings are placed on them strongly influence the character of the urban fabric.

Plot pattern and building arrangement help us understand how land is used, how buildings meet the street, how private and public spaces are separated, and how the fabric can change over time. Two blocks may have the same size, but they can produce very different urban experiences depending on plot size, building position, frontage, setbacks, and courtyards [81].

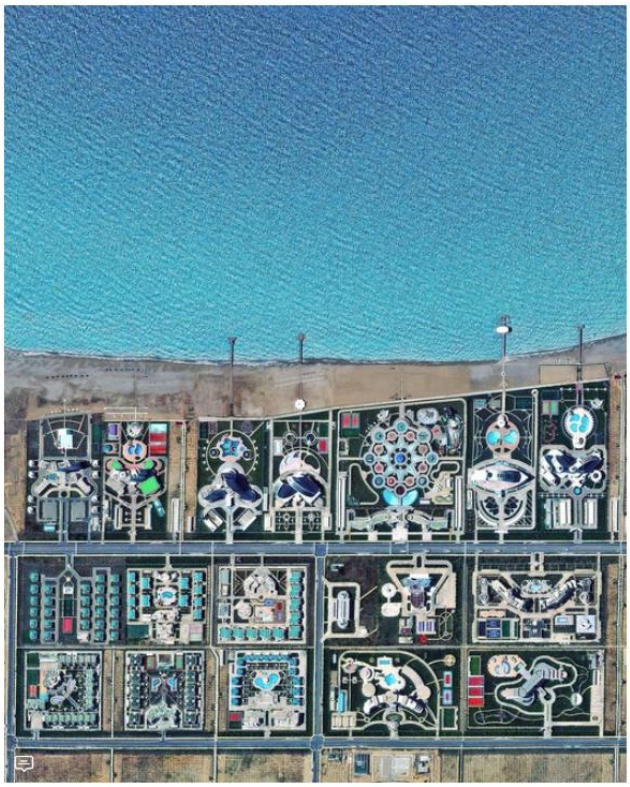

Figure 39: ***Plot pattern and building arrangement inside the urban block***

4.4.1 Plot division and urban form

Plots are the smaller land units that compose the block. They define ownership, access, building size, and possible future transformation. In many traditional fabrics, plots are small and narrow, which creates frequent entrances, active frontages, and a fine urban rhythm. In many modern or institutional fabrics, plots are larger, which can produce bigger buildings, fewer entrances, and longer street edges [81].

Plot division influences urban form because it controls how buildings can be placed and how they can change. A small plot may support gradual transformation, small commerce, housing adaptation, and mixed uses. A large plot may allow larger buildings, collective housing, public facilities, campuses, or commercial centers. However, if large plots are not well connected to the surrounding streets, they can create barriers and reduce urban continuity.

When reading plot division, the student should observe the size of plots, their rhythm along the street, their depth, their access points, and their relation to the block. This reading helps explain why some streets feel active and varied, while others feel closed, repetitive, or difficult to cross.

4.4.2 Building position on the plot

The position of the building on the plot is a key element in the reading of urban fabric. A building can be placed directly on the street edge, set back from the street, located in the middle of the plot, or arranged around a courtyard. Each position creates a different relation between the building, the street, and the open space.

When buildings are aligned with the street, they create a continuous frontage and a clear urban edge. This often gives the street a strong spatial character. When buildings are set back, the space between the building

and the street becomes important. It can be used as a garden, entrance space, parking area, or unused leftover space. When buildings stand isolated in the middle of plots, the street edge may become weaker, especially if the surrounding open space is not designed for public use [81]. We should not judge one arrangement as automatically good or bad. The important question is how the building position affects access, street definition, privacy, shade, enclosure, activity, and continuity.

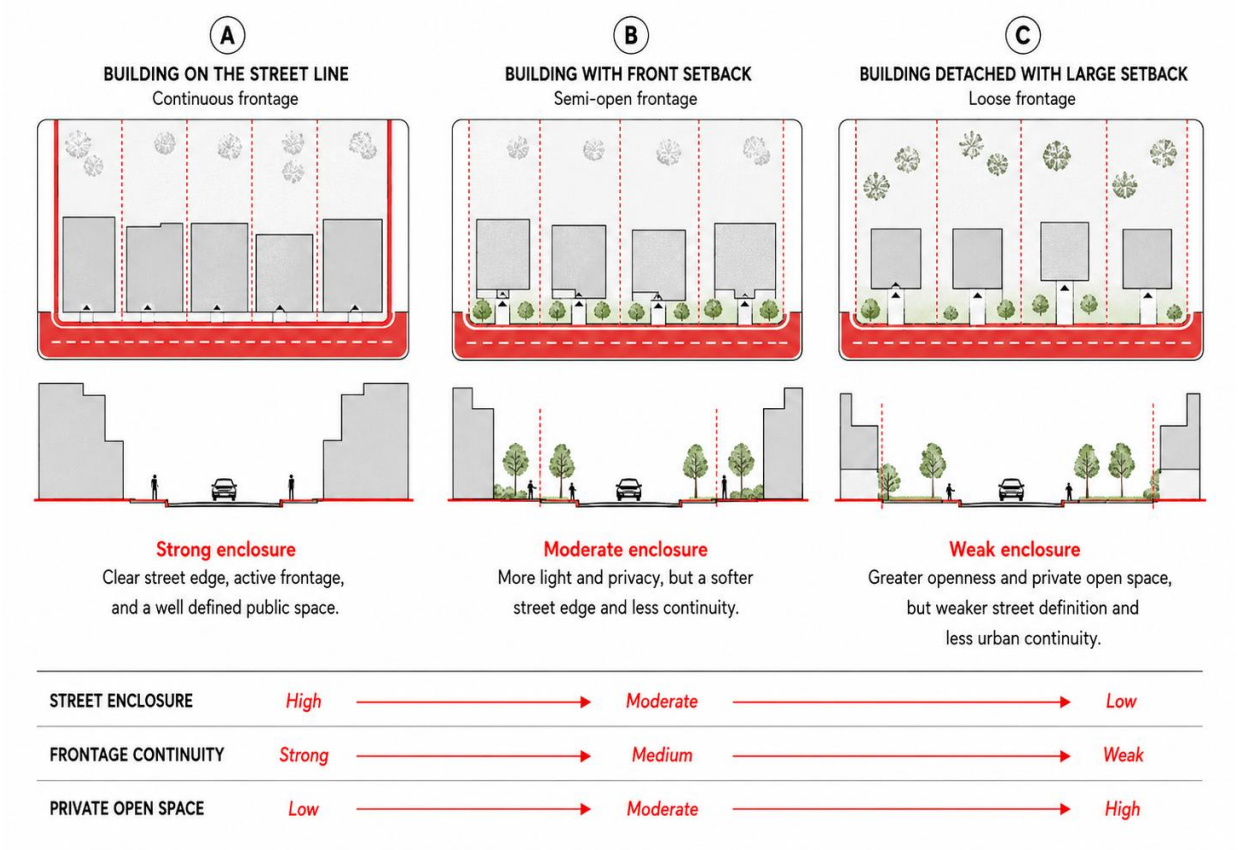

Figure 40: Building position on the plot and street effects

4.4.3 Frontages, setbacks and courtyards

The frontage is the part of the building or plot that faces the street. It plays an important role in urban life because it forms the contact zone between public space and private space. A frontage can be active, with doors, windows, shops, balconies, and visible activity. It can also be inactive, with blank walls, fences, parking, or closed façades. Setbacks are the distances between buildings and the street line. They can improve comfort when they are used for trees, gardens, shaded entrances, or transition spaces. However, they can also weaken street life when they are occupied by parking, walls, or undefined empty spaces.

Courtyards are open spaces located inside or between buildings. They can provide light, ventilation, privacy, social interaction, and climatic comfort. In many traditional fabrics, courtyards are important elements of domestic life and environmental adaptation. In contemporary fabrics, courtyards can also support collective housing, schools, public facilities, or mixed-use blocks [81–83].

Figure 41: Urban Courtyard example

4.4.4 Adaptability of plots and buildings over time

Urban fabric is not fixed. Plots and buildings can change over time according to family needs, economic activities, regulations, land value, mobility, and social practices. A house can become a shop. A plot can be subdivided between heirs. Several plots can be merged to create a larger building. A building can be extended vertically. A courtyard can be covered. A garden can become parking. A ground floor can be transformed into commercial frontage [81–83].

These transformations are important because they show how the urban fabric adapts to daily life and long term change. Some fabrics are highly adaptable because their plots are small, accessible, and flexible. Other fabrics are less adaptable because plots are too large, buildings are isolated, or access is controlled by fences, parking areas, or internal roads.

When reading adaptability, the student should look for visible signs of change. These signs may include added floors, modified façades, new shops, closed balconies, divided plots, merged buildings, informal extensions, new walls, or changes in entrances. Understanding adaptability helps the designer avoid rigid interventions. A good urban design proposal should respect the capacity of the fabric to evolve while guiding this evolution toward better access, comfort, continuity, and public life.

Plot pattern and building arrangement explain how the block works from the inside. They show how land is divided, how buildings meet the street, how public and private spaces are separated, and how the urban fabric can adapt over time.

4.5 Built Form and Open Space Structure

After reading streets, blocks, plots, and building arrangement, the student should observe the relationship between built form and open space. Urban fabric is not made only of buildings. It is also made of the spaces between buildings. Streets, squares, courtyards, gardens, setbacks, parking areas, playgrounds, and leftover spaces all participate in the structure of the city [28].

Built form and open space should therefore be read together. A building gives shape to open space, and open space gives meaning to the building. When this relationship is clear, the urban fabric becomes readable, comfortable, and coherent. When it is weak, the city may feel fragmented, empty, or difficult to use.

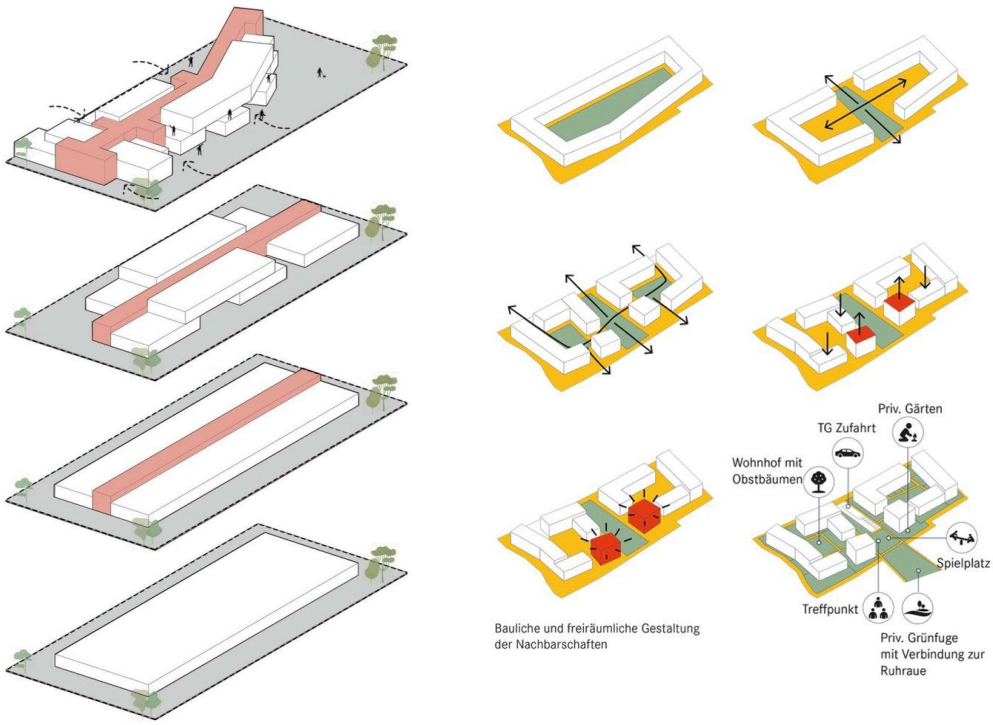

Figure 42: ***Built form and open space as one urban system***

4.5.1 Built mass and open space as one system

Built mass refers to the physical volume of buildings. Open space refers to the unbuilt areas around or between them. In urban design, these two elements should not be studied separately because they define each other.

A continuous row of buildings can create a clear street edge. A courtyard building can create an internal open space protected from noise, wind, or excessive sun. A tower placed in the middle of a large open area can create openness, but it may also weaken the sense of street if the ground level is not well designed.

The student should therefore ask: what kind of open space is created by the built form? Is it a street, a square, a courtyard, a garden, a passage, or only a leftover space? The quality of urban fabric depends not only on the amount of open space, but on its shape, use, accessibility, and relation to surrounding buildings.

4.5.2 Continuous and discontinuous built form

A continuous built form is created when buildings are aligned and connected along the street. This creates a strong urban edge and gives the street a clear spatial definition. Continuous built form is common in traditional centers, compact neighborhoods, commercial streets, and many historic fabrics.

A discontinuous built form appears when buildings are separated from each other. This can create more light, air, greenery, and visual openness. However, if the spaces between buildings are not well defined, they may become empty, inactive, or unclear.

Neither continuity nor discontinuity is automatically good or bad. The important question is how each condition affects the experience of the street and the quality of open space. A continuous street can be lively and comfortable, but it can also feel narrow or overcrowded. A discontinuous fabric can be green and open, but it can also feel fragmented and weak if buildings do not frame public space.

Figure 43: From discontinuous to continuous built form: comparison between Googleplex, Belo Horizonte, and Toledo

4.5.3 Public, semi-public and private open spaces

Open spaces in the urban fabric do not all have the same role. Some are public, such as streets, squares, parks, and sidewalks. They are accessible to everyone and support collective urban life. Others are semi-public or semi-private, such as shared courtyards, school yards, university spaces, collective housing gardens, or entrance spaces. These spaces are used by a specific group but still contribute to the character of the neighborhood. Private open spaces, such as domestic gardens, internal patios, and private courtyards, mainly belong to individual houses or buildings [13].

Reading these categories is important because the quality of urban fabric depends on the transition between public and private space. A good transition can create comfort, privacy, safety, and social interaction. A weak transition can create conflict, insecurity, or unused spaces.

The student should observe whether open spaces are clearly defined. Who can use them? Are they connected to movement routes? Are they visible from surrounding buildings? Are they shaded and comfortable? Do they support real activities, or are they only empty spaces left after construction?

4.5.4 Enclosure, openness and spatial character

Enclosure describes the feeling of being spatially framed by buildings, walls, trees, or other urban elements. A street with buildings on both sides can feel enclosed and clearly defined. A square surrounded by active frontages can feel like an outdoor room. This sense of enclosure helps people understand where they are and how the space is organized [83].

Openness is different. It gives long views, light, air, and visual relief. Open spaces can be important in dense cities because they provide breathing space, gathering areas, landscape, and climatic comfort. However, too much openness without clear edges can make space feel empty, exposed, or disconnected.

Spatial character comes from the balance between enclosure and openness. A successful urban fabric does not simply contain buildings and voids. It creates meaningful spaces with clear edges, useful openings, comfortable proportions, and visible relations between buildings and public life.

When reading this part of the urban fabric, the student should look at the height of buildings, the width of streets, the position of open spaces, the continuity of edges, the presence of trees, and the way people use the space.

Built form and open space must be read as one system. Buildings shape streets, squares, courtyards, and open areas, while open spaces give buildings access, light, visibility, comfort, and urban meaning. The quality of urban fabric depends on the balance between continuity, openness, enclosure, and use.

4.6 Urban Grain and Human Scale

Urban grain describes the size, rhythm, and frequency of the physical elements that form the urban fabric. It is visible in the width of plots, the size of blocks, the rhythm of buildings, the number of entrances, the variation of façades, and the distance between streets and intersections [53]. Urban grain is important because it affects how the city is perceived at walking speed. A place with many small elements is usually easier to read closely, while a place with very large elements can feel less detailed and less adapted to pedestrian experience. This does not mean that one type of grain is always better than another. The value of urban grain depends on context, use, scale, and the quality of the relationship between buildings, streets, and open spaces [84].

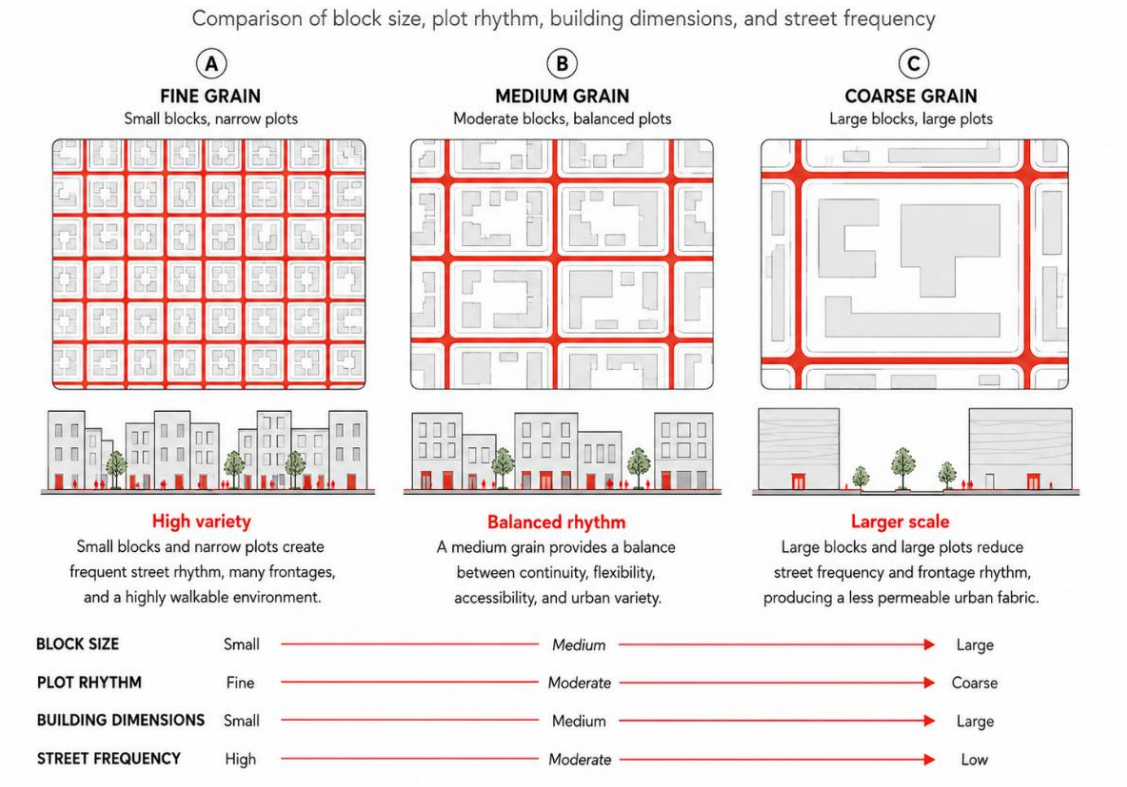

Figure 44: Fine, medium and coarse urban grain

4.6.1 Fine grain, medium grain and coarse grain

Fine grain refers to an urban fabric composed of small blocks, narrow plots, frequent entrances, short façades, and close street connections. It often creates variety and a strong relation between buildings and pedestrians. Traditional centers, medinas, old commercial streets, and compact mixed use neighborhoods

often present a fine grain structure. Medium grain is an intermediate condition. It may contain larger plots and buildings than traditional fabrics, but it still keeps a readable rhythm, accessible streets, and a clear relationship between buildings and public space. Many residential neighborhoods, planned extensions, and mixed urban areas can belong to this category [84].

Coarse grain refers to large blocks, wide plots, big buildings, long façades, and fewer intersections. It is common in industrial zones, campuses, large housing estates, commercial centers, administrative districts, and areas organized around car movement. Coarse grain can be useful for certain functions, but it needs careful design to avoid weak pedestrian connections and inactive edges. The purpose of this reading is not to classify the fabric mechanically. It is to understand how the size of urban elements influences movement, access, frontage, and the feeling of the place.

4.6.2 Rhythm, diversity and visual richness

Urban grain is also related to rhythm. Rhythm appears through repeated elements such as doors, windows, balconies, shopfronts, trees, plot widths, façade divisions, and building entrances. When these elements are frequent and varied, the street becomes visually richer and easier to experience at walking speed [84].

Diversity does not mean disorder. A street can have variety while keeping coherence through alignment, height, materials, proportions, or repeated frontage patterns. In contrast, a very long blank wall, a fenced plot, or a large inactive façade can break the rhythm and make the walk feel longer and less comfortable. Visual richness is important because people perceive the city gradually while moving. At pedestrian speed, small details matter. Entrances, corners, shaded edges, shop windows, balconies, and changes in façade rhythm can make the urban environment more engaging and readable.

Figure 45: Rhythm, diversity, and visual aspect in the collective housing of Dunes El Harrach, Algiers

4.6.3 Urban grain, walkability and street life

Urban grain influences walkability because it affects route choice, distance, frontage activity, and the number of possible interactions along the street. Fine and medium grain fabrics often support walking because they provide shorter blocks, more corners, more entrances, and more opportunities for local activities [84].

Street life also depends on how the grain connects buildings to the public realm. Frequent doors, small shops, visible entrances, and active ground floors create more contact between indoor and outdoor activities. Large buildings can also support street life when they are designed with transparent frontages, several entrances, shaded sidewalks, and clear pedestrian routes. The key issue is not only the size of the urban elements, but how they meet the street. A coarse grain fabric can become more walkable if it includes pedestrian passages, active edges, smaller frontage divisions, and connected open spaces. A fine grain fabric can lose its quality if ground floors are closed, sidewalks are blocked, or public space is uncomfortable.

4.6.4 Human scale as a quality of urban fabric

Human scale means that the urban environment feels understandable, comfortable, and usable from the perspective of the body. It is related to walking distance, building height, street width, façade detail, shade, visibility, entrances, and the sense of enclosure. A human scale fabric does not necessarily mean low buildings or small streets. It means that the relationship between dimensions, details, and use remains comfortable for people. A tall building can still contribute to human scale if its ground floor is active, its entrance is clear, its façade is well articulated, and the sidewalk is shaded and generous. A low building can fail at human scale if it is surrounded by fences, parking, or empty undefined spaces [44, 45, 64].

Reading human scale requires attention to what is experienced at eye level. The most important part of the urban fabric is often the lower part of buildings, the edge of the street, the sidewalk, the entrances, and the spaces where people walk, wait, meet, or rest.

Figure 46: Human scale at street level

Urban grain links the physical size of the fabric with human experience. Fine, medium, and coarse grain fabrics create different conditions for movement, rhythm, visual richness, and street life. Human scale depends on how urban elements are perceived and used at walking speed, especially at street level.

4.7 Comparing Urban Fabrics

After reading streets, blocks, plots, buildings, open spaces, and grain, it becomes possible to compare different urban fabrics. The aim is not to memorize many types of cities, but to understand how different combinations of elements create different spatial qualities. A fabric can be compact or open, regular or irregular, continuous or fragmented. These qualities are not fixed labels. They are reading tools. They help describe how an urban area is organized, how it works, and how it may be improved.

4.7.1 Compact and open fabrics

A compact fabric is characterized by buildings close to each other, smaller distances between urban elements, and a strong relation between buildings and streets. It often creates clear edges, shaded streets, short walking distances, and a strong sense of enclosure. Traditional centers, old neighborhoods, medinas, and dense mixed use areas often show this kind of fabric [38, 52, 57]. An open fabric has more space between buildings. Buildings may be separated by gardens, parking areas, wide roads, setbacks, or large open spaces. This can provide light, air, vegetation, and visual openness. However, when open space is not clearly defined or connected to daily use, the fabric may feel empty or fragmented. The comparison between compact and open fabrics is therefore not a judgment between good and bad. The important question is how the fabric supports comfort, access, public life, climate adaptation, and spatial clarity.

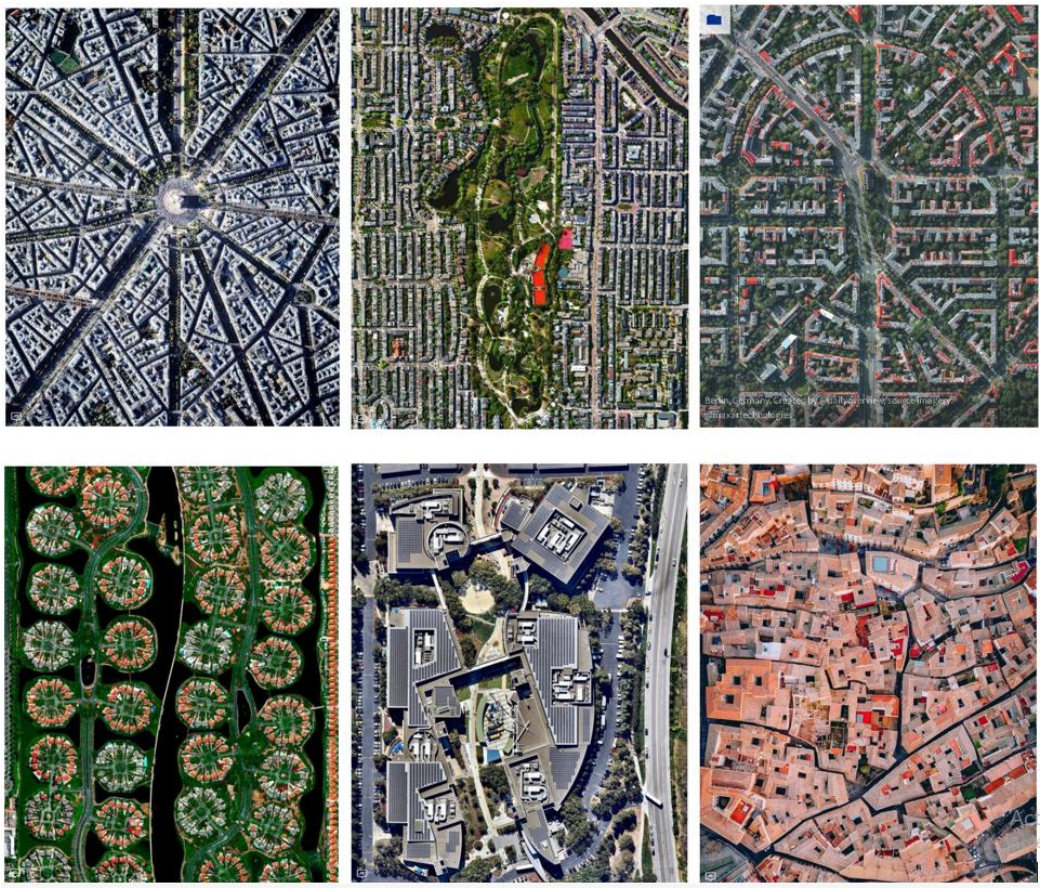

Figure 47: Comparing compact, open, regular and fragmented urban fabrics

4.7.2 Regular and irregular fabrics

A regular fabric is organized through clear geometric order. Streets may follow a grid, blocks may have similar dimensions, and plots may repeat with a visible rhythm. This kind of organization can make orientation easier and can simplify movement, subdivision, and planning. An irregular fabric does not follow a strict geometric order. Streets may bend, blocks may vary in size, plots may have different shapes, and buildings may adapt to topography, history, property limits, or gradual growth. Irregularity can create visual richness, surprise, and strong local identity, but it can also create problems when access, services, or connections are weak [38, 52, 55]. The value of regularity or irregularity depends on how the fabric functions. A regular grid can be clear but monotonous if all streets and blocks are treated in the same way. An irregular fabric can be rich and adapted to context, but it needs readable paths, clear entrances, and connected public spaces.

4.7.3 Continuous and fragmented fabrics

A continuous fabric has strong physical and visual connections. Streets connect clearly, frontages follow the street, public spaces are linked, and movement from one part to another is understandable. Continuity helps create orientation, walkability, and a coherent urban character. A fragmented fabric is marked by breaks in the urban structure. These breaks may come from large roads, empty plots, walls, fenced areas, parking lots, isolated buildings, leftover spaces, or disconnected street networks. Fragmentation can make walking difficult, weaken public life, and reduce the sense of belonging to one coherent place [38, 52, 55]. Fragmentation is especially important to identify because it often indicates where urban design action may be needed. A small connection, an active frontage, a shaded pedestrian route, or a better relation between buildings and open space can sometimes repair a weak part of the fabric.

Comparing urban fabrics helps describe the character of an area without repeating its history. Compact or open, regular or irregular, continuous or fragmented are not fixed categories. They are reading tools that help understand how the physical structure of the city affects movement, comfort, identity, and public life.

4.8 Urban Fabric Transformation

Urban fabric is never completely fixed. Even when streets, blocks, and plots seem stable, the city continues to change through small additions, replacements, extensions, and changes of use. These transformations are important because they show how the fabric adapts to new needs, new densities, new economies, and new ways of living [55]. Reading transformation means looking for visible signs of change in the physical fabric. It is not yet a full diagnosis, and it is not yet a design proposal. It is a way to understand how the area has evolved and what kind of pressures are acting on it.

Figure 48: Visible signs of urban fabric transformation

4.8.1 Densification, infill and vertical extension

Densification happens when an urban area receives more built volume, more activities, or more people within the same fabric. It can appear through new buildings on empty plots, additions inside existing blocks, the occupation of leftover spaces, or the replacement of low buildings by larger ones. Infill is one of the most visible forms of densification. It occurs when vacant plots, gaps, or underused spaces are built. When well integrated, infill can repair discontinuity, reinforce street edges, and bring new activity. When poorly designed, it can overload the fabric, reduce light and ventilation, remove useful open spaces, or create buildings that do not respect the surrounding scale [85].

Vertical extension is another common transformation. Existing buildings receive additional floors to respond to housing needs, commercial pressure, or land value. This can help accommodate growth without expanding the city outward. However, it can also affect sunlight, privacy, structural safety, street proportion, and the visual coherence of the fabric. A useful reading question is: does densification strengthen the urban fabric, or does it create pressure on access, comfort, open space, and public life?

4.8.2 Plot subdivision, plot merging and building replacement

Changes in plots often produce deep changes in urban form. Plot subdivision happens when one plot is divided into smaller units. This may create more entrances, smaller buildings, and a finer rhythm along the street. It can also result from inheritance, informal growth, land speculation, or the need to create more housing and commercial units. Plot merging is the opposite process. Several small plots are combined to create a larger project. This can allow new housing blocks, facilities, offices, or commercial buildings. At the same time, it may reduce the fine rhythm of the street if several small frontages are replaced by one long façade, one large entrance, or a closed edge [55].

Building replacement occurs when older buildings are demolished and replaced by new ones. Replacement can improve safety, services, density, and building quality. It can also erase local identity, reduce diversity, or break the scale of the existing fabric when the new building ignores plot rhythm, frontage, height, or street relation.

4.8.3 Street widening, barriers and frontage transformation

Some transformations affect the relation between buildings and movement. Street widening is often introduced to improve traffic flow, access, or infrastructure. However, it can also reduce sidewalks, remove trees, cut historical frontages, increase pedestrian crossing distances, and weaken the sense of enclosure.

Barriers appear when parts of the fabric become difficult to cross. They may be created by highways, walls, fences, large parking areas, railway lines, gated compounds, vacant land, or oversized blocks. Barriers interrupt continuity and can separate neighborhoods that were once connected. Frontage transformation is another visible sign of change. Houses may become shops, garages may become commercial units, walls may be opened, balconies may be closed, and ground floors may shift from residential to commercial use. These changes can bring life to the street, but they can also create conflict when signs, parking, noise, or informal extensions occupy the public realm. Reading these transformations requires attention to the edge between buildings and streets. This edge often reveals how daily life, economic activity, mobility, and regulation are reshaping the urban fabric.

Urban fabric changes through densification, infill, vertical extension, plot subdivision, plot merging, building replacement, street widening, barriers, and frontage transformation. These changes are not automatically positive or negative. Their value depends on how they affect continuity, access, comfort, scale, identity, and public life.

4.9 Morphological Reading Method

After reading the main components of urban fabric, it is useful to bring them together through a simple method. Morphological reading is not a list of separate observations. It is a way to understand how streets, blocks, plots, buildings, open spaces, grain, and transformations work together to create the character of an urban area. This method can be applied to a small urban fragment, such as a block, a street segment, a neighborhood edge, or a group of buildings. The aim is to move step by step from the general structure of the fabric to a clear description of its spatial character.

4.9.1 Read the structure

The first step is to read the basic structure of the urban fabric. This includes the street network, the shape of blocks, the main connections, and the barriers that interrupt movement. A useful reading begins with simple questions. Are the streets connected or disconnected? Are the blocks small, medium, or large? Are there direct routes between important places? Are there barriers such as walls, highways, vacant land, railways, or oversized plots? Is the area easy to cross, or does movement depend on a few limited routes?

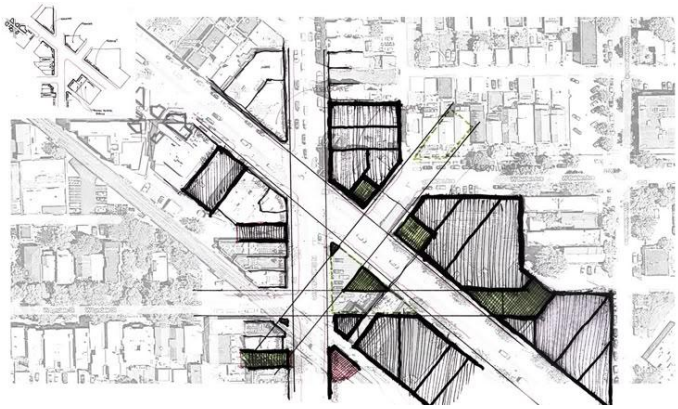

Figure 49: Read the structure of the urban fabric

This first layer gives the skeleton of the fabric. It explains how the area is organized before entering into the details of plots, buildings, and open spaces.

4.9.2 Read the land and buildings

The second step is to read how land is divided and how buildings occupy it. This includes plot size, plot rhythm, building position, frontage, setback, courtyard, and the relation between built mass and open space. A useful question is: how do buildings meet the street? Some buildings are aligned with the street and create continuous edges. Others are set back, isolated, or surrounded by open space. Some plots have frequent entrances and active frontages, while others create long closed edges. This layer helps explain the internal logic of the block. It shows whether the fabric is fine or coarse, compact or open, active or inactive at street level.

4.9.3 Read the experience of the fabric

The third step is to read how the fabric is experienced at pedestrian level. This means observing scale, rhythm, enclosure, openness, visual richness, shade, comfort, and continuity. The question is not only what exists on the plan, but how the place feels when it is used. A connected street network may still feel uncomfortable if sidewalks are narrow, edges are inactive, or routes are exposed to sun and traffic. A compact fabric may feel lively and shaded, but it can also feel congested if movement, light, and open space are weak. This layer connects morphology with everyday experience. It shows how physical form influences walking, orientation, public life, comfort, and the sense of place.

Figure 50: read the experience of users at pedestrian level

4.9.4 Summarize the fabric character

The final step is to summarize the character of the urban fabric in a short and clear description. This synthesis should combine the previous layers without repeating every detail. For example, an area can be described as a compact and continuous fabric with small blocks, narrow plots, active frontages, shaded streets, and strong pedestrian character. Another area can be described as an open and fragmented fabric with large plots, isolated buildings, weak street edges, and limited pedestrian permeability.The summary can also mention visible transformation signs, such as infill, vertical extensions, plot merging, building replacement, frontage change, or barriers created by new infrastructure.

A morphological reading method helps transform observation into understanding. It begins with the structure of streets and blocks, continues with plots and buildings, then reads the experience of the fabric, and finally summarizes the character of the place in a clear and useful way.

4.12 Mini Exercise

This exercise applies the morphological reading method to a real urban fragment. The aim is not to produce a full diagnosis or a design proposal. The aim is to observe the physical structure of an urban fabric and describe its character clearly.

Choose a small urban fragment, such as one street segment, one block, two connected blocks, or the edge of a neighborhood. The selected area should be small enough to read carefully, but large enough to show streets, plots, buildings, open spaces, and signs of transformation.

Step 1: Select and draw the urban fragment

Start with a simple base map of the selected area. This can be drawn from an aerial image, a cadastral plan, a site survey, or a direct field sketch. The drawing does not need to be complex. It should clearly show streets, blocks, building footprints, open spaces, and main access points.

Step 2: Read the structure

Identify the street pattern and block structure. Observe whether the streets are connected or disconnected, whether the blocks are small or large, and whether movement is direct or interrupted by barriers.

Use a few clear words to describe the structure, such as connected, fragmented, regular, irregular, permeable, closed, or difficult to cross.

Step 3: Read plots, buildings and open spaces

Observe how the land is divided and how buildings occupy it. Identify plot rhythm, building position, frontage, setbacks, courtyards, parking areas, gardens, and leftover spaces.

The aim is to understand how buildings meet the street and how open spaces are formed inside or around the block.

Step 4: Read grain and human scale

Describe whether the fabric is fine, medium, or coarse grain. Look at plot size, façade rhythm, number of entrances, block length, street width, building height, and details visible at walking speed.

This step helps connect physical form with pedestrian experience.

Step 5: Identify signs of transformation

Look for visible changes in the fabric. These may include added floors, new infill buildings, plot subdivision, plot merging, replaced buildings, widened streets, closed frontages, new commercial uses, fences, or informal extensions.

The purpose is to understand how the fabric is changing over time.

Step 6: Write a short fabric description

End the exercise with one short paragraph describing the selected area. The paragraph can follow this model:

The selected urban fragment has a _____ fabric. Its street pattern is _____, and its blocks are _____. Buildings are mainly _____ in relation to the street. Open spaces are mostly _____. The grain is _____, which creates a feeling of _____ at pedestrian level. Visible signs of transformation include _____. Overall, the fabric can be described as _____.

Part 3. Reading Urban Space

Chapter 5. Components of Urban Space

After reading the urban fabric in Chapter 4, the handbook now moves from the structure of the city to the space that people actually use and experience. Urban space is not only the empty area between buildings. It is the place where movement, social life, perception, comfort, and daily activities happen.

This chapter explains the main components that shape urban space. It begins by defining urban space, then presents it as a combination of physical setting, social life, and human experience. Streets, squares, plazas, parks, and green spaces are introduced as basic urban spaces, not as isolated elements, but as parts of a larger public realm.

The purpose of this chapter is to learn how to recognize the components of urban space and understand their role in public life. Before evaluating the quality of a place or proposing a design intervention, it is necessary to identify what the space is made of, how it is used, and how it is experienced at the human scale.

5.1 Defining Urban Space

Urban space is the part of the city that is open, visible, accessible, and used by people in everyday life. It includes streets, sidewalks, squares, plazas, parks, green spaces, courtyards, passages, and the open areas between buildings. Urban space is not only what remains after buildings are constructed. It is a central element of the city because it supports movement, meeting, exchange, rest, play, visibility, and public life [52, 70].

An urban space can be large or small, formal or informal, planned or spontaneous. A street can become an urban space when it supports walking, social interaction, and activities along its edges. A square can become an important public place when it is connected, visible, comfortable, and used. Even a small shaded corner, a threshold, or a widened sidewalk can have urban value when it supports everyday life.

Figure 51: Urban space as the open and shared part of the city

Urban space is therefore both physical and social. Physically, it has dimensions, edges, materials, trees, furniture, shade, and connections. Socially, it receives movement, activities, encounters, habits, and meanings. For this reason, urban space must be read not only by its shape, but also by the way it is used and experienced.

5.2 Urban Space as Physical Setting, Social Life and Human Experience

Urban space can be understood through three connected dimensions: physical setting, social life, and human experience. These dimensions must be read together because a space can look well designed but remain unused, or it can be physically simple but socially active and meaningful [27, 86].

- The **physical setting** refers to the material and spatial form of the space. It includes the ground surface, buildings, edges, trees, furniture, lighting, shade, sidewalks, crossings, entrances, and the relation with surrounding streets and buildings. This dimension answers the question: what is the space made of?
- The **social life** refers to the activities and interactions that happen in the space. It includes walking, sitting, meeting, playing, selling, waiting, gathering, watching, resting, and passing through. This dimension answers the question: how is the space used?
- The **human experience** refers to how people perceive and feel the space. It includes comfort, safety, orientation, enclosure, openness, shade, noise, smell, visibility, identity, and sense of belonging. This dimension answers the question: how is the space experienced?

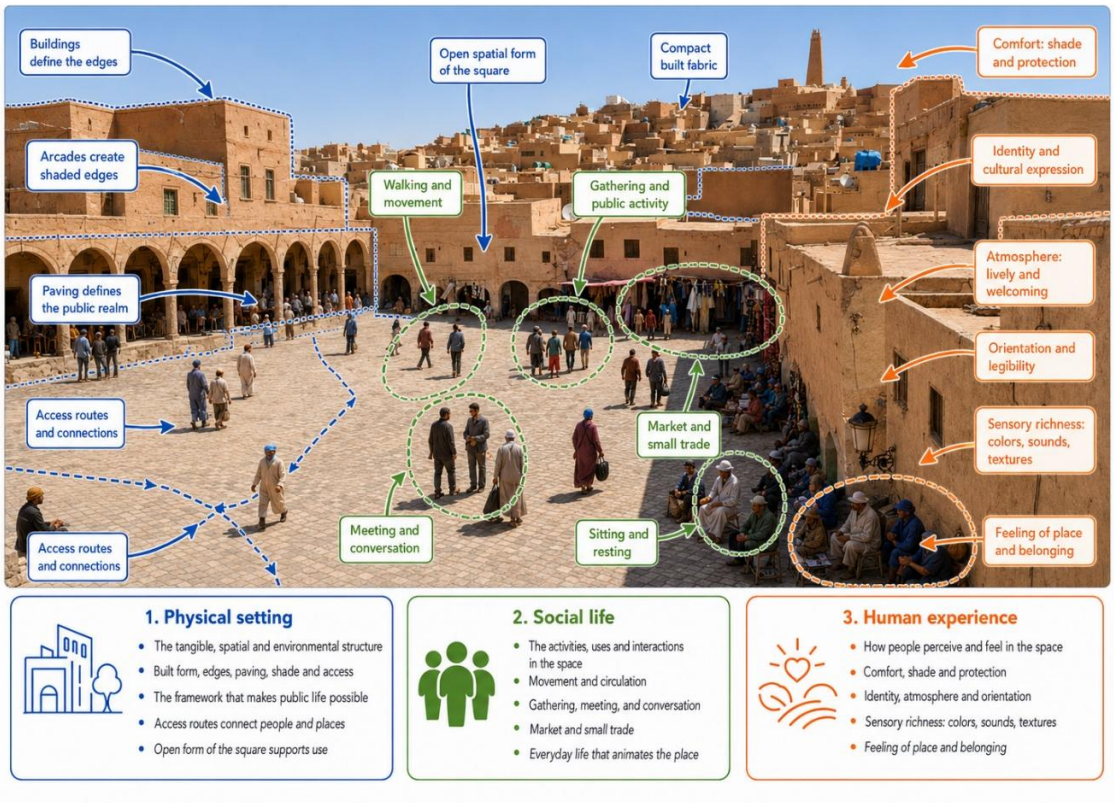

Figure 52: ***Three dimensions of urban space, physical setting, social life and human experience***

A good reading of urban space does not stop at naming its physical components. It also observes whether people use the space, how long they stay, where they sit, where they avoid passing, which edges are active, which areas are uncomfortable, and which elements create identity. This makes the reading closer to real urban life.

Urban space is created by the relationship between physical setting, social life, and human experience. A space becomes meaningful when its form supports use, and when its use creates comfort, identity, and public life.

5.2 Physical Components

Urban space is shaped by several physical components. These components are not isolated objects. They work together to create movement, comfort, visibility, safety, identity, and public life. A street, for example, is not only a path for circulation. It also contains frontages, sidewalks, trees, lighting, materials, furniture, and social activities. A park is not only a green area. It can be a place of rest, meeting, play, ecological balance, and climatic comfort.

This section presents the main physical components of urban space. Each component is explained according to its role in the city and its effect on human experience.

5.3.1 Streets

Streets are one of the most important components of urban space. They are not only corridors for movement. They are public spaces where daily urban life takes place. People walk, drive, wait, meet, shop, sit, observe, cross, and interact along streets. For this reason, a street must be understood both as a movement space and as a social space.

A street connects different parts of the city, gives access to buildings and plots, organizes mobility, supports economic activity, and shapes the image of the neighborhood. The quality of a street depends not only on its width or traffic capacity, but also on its sidewalks, crossings, frontages, shade, lighting, materials, vegetation, furniture, safety, and comfort.

Figure 53: ***Street as movement space and social space***

Definition of a street

A street is a linear urban space that connects places and gives access to buildings, plots, activities, and public spaces. It usually contains several parts, such as the carriageway, sidewalks, edges, frontages, trees, lighting, parking, public transport stops, crossings, and sometimes cycling lanes or planting strips. In urban design, a street is not defined only by traffic. A good street combines movement, access, public life, comfort, visibility, and identity. It is one of the places where the relationship between buildings and people becomes most visible [87–89].

Main roles of streets

Streets have several roles at the same time.

- They support **movement** by allowing pedestrians, cyclists, cars, buses, service vehicles, and emergency vehicles to circulate.
- They provide **access** to houses, shops, schools, public facilities, parks, workplaces, and transport stops.
- They create **public life** because they are places of encounter, exchange, waiting, walking, and informal social interaction.
- They shape **urban character** because their proportions, materials, trees, façades, and activities influence the image and identity of the area.
- They support **economic activity**, especially when ground floors contain shops, cafés, services, workshops, or markets.
- They contribute to **environmental comfort** through shade, trees, ventilation, drainage, and protection from excessive heat or wind.

Types of streets

Streets can be classified in different ways:

Streets according to urban role

- **Main streets :** Main streets connect important parts of the city. They often contain commercial activity, public transport, services, and high pedestrian movement. They are visible and easy to recognize. Their design must balance traffic flow with pedestrian safety, active frontages, crossings, shade, and public transport access.

*Figure 54: example of **Main streets** [90]*

Figure 55: Example of Pedestrian streets

- **Local streets:** Local streets mainly serve neighborhoods and residential areas. They provide access to homes, small shops, schools, and local services. They should support slow movement, safety, walking, social interaction, and a calm urban atmosphere.
- **Pedestrian streets:** Pedestrian streets are designed mainly for walking. They can support shopping, tourism, cultural activities, markets, and social life. Their quality depends on accessibility, shade, seating, lighting, materials, active frontages, and connection to surrounding streets.
- **Commercial streets:** Commercial streets are defined by shops, services, cafés, workshops, and active ground floors. They need wide and comfortable sidewalks, visible entrances, transparent façades, loading solutions, clear signage, lighting, and safe crossings.
- **Residential streets:** Residential streets are connected to daily domestic life. They require privacy, calmness, safety, shade, and comfortable pedestrian movement. Their edges may include entrances, gardens, balconies, thresholds, small setbacks, and places for informal social contact.
- **Transit streets:** Transit streets carry buses, tramways, taxis, or other public transport systems. Their design must give importance to stops, shelters, crossings, waiting areas, pedestrian access, and clear connections to surrounding public spaces.
- **Shared streets:** Shared streets reduce the separation between pedestrians, cyclists, and vehicles. They are usually designed for slow movement. Their success depends on low traffic speed, clear surface treatment, good visibility, and careful management of conflicts between users.
- **Service street:** a secondary street used for deliveries, parking access, garages, and technical functions.

Figure 56: example of Shared streets

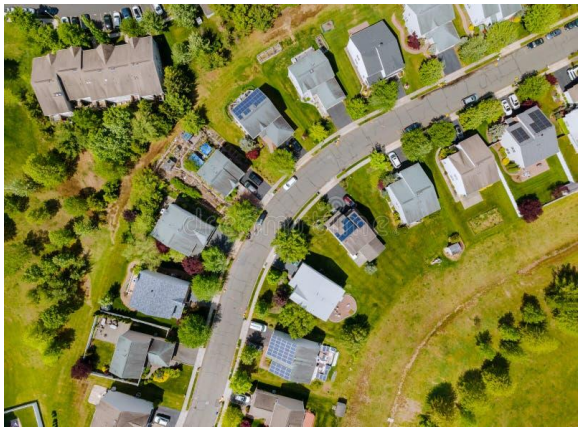

Figure 57: example of a residential street

Types of streets according to form and character

Avenue

An avenue is a wide and important urban street that usually connects major parts of the city. It often has a strong visual direction and may link important buildings, squares, institutions, commercial areas, or transport nodes. Avenues are frequently planted with trees and may include wide sidewalks, central medians, public transport lanes, or important public frontages. The avenue often has a representative role in the city. It can create an image of order, importance, and civic identity. However, an avenue should not be reduced to a traffic corridor. Its quality depends on the balance between movement and public life. A good avenue offers safe crossings, shaded sidewalks, active edges, clear orientation, and comfortable pedestrian movement. In reading an avenue, attention should be given to its width, tree alignment, traffic organization, pedestrian crossings, building height, frontage activity, and its role as an urban axis.

Figure 58: the Champs-Élysées avenue

Figure 59: Avenue de l'Opéra in Paris

Boulevard

A boulevard is a broad urban street, often designed with trees, a central median, side lanes, or generous pedestrian areas. It is usually more than a route for movement. It can act as a landscaped urban space where circulation, walking, seating, public transport, and social life can coexist. Boulevards are important because they can soften traffic through landscape and create a comfortable urban atmosphere. Their trees, medians, and sidewalks can provide shade, visual rhythm, and spatial identity. In hot climates, the boulevard can also contribute to thermal comfort when vegetation and pedestrian shade are well designed.

Lane

A lane is a narrow street or secondary access route. It is usually smaller and more local than a street. Lanes often serve houses, small shops, workshops, rear entrances, or internal neighborhood movement. In traditional fabrics, lanes can create intimacy, shade, slow movement, and a strong local character. Because of their small scale, lanes are often experienced at walking speed. Their quality depends on visibility, safety, lighting, drainage, building entrances, and the relation between private thresholds and public movement. A lane can be attractive and comfortable when it is active, shaded, clean, and connected. It can become problematic when it is dark, poorly maintained, blocked, or used only for service access without social presence.

Figure 60: Foster Lane in London

Figure 61: Urban passage (passage charlotte) [91]

Alley

An alley is a very narrow passage between buildings, plots, or walls. It may provide access to houses, service areas, back entrances, courtyards, or shortcuts through dense urban fabric. Alleys are often found in historic centers, medinas, dense residential areas, and older commercial districts. Alleys can create a strong sense of enclosure and local identity. They may offer shade, protection from traffic, and intimate pedestrian movement. However, their quality depends greatly on safety, lighting, cleanliness, visibility, and maintenance. An alley should be read carefully. It may be a valuable pedestrian connection, or it may be an uncomfortable leftover space. The difference depends on whether it is connected, visible, used, cared for, and integrated into the surrounding urban life.

Passage

A passage is a pedestrian connection through or between buildings, blocks, or public spaces. It can be open-air or covered. It is often used to shorten walking distances, connect streets, provide access to courtyards, or improve permeability inside large blocks. Passages are important in urban design because they can repair weak connectivity without creating full vehicle streets. A well-designed passage can make the urban fabric more walkable and more interesting by creating alternative routes and small-scale experiences. A good passage should be visible from its entrances, well lit, accessible, safe, and connected to active uses. If it is hidden, dark, empty, or poorly maintained, it may feel unsafe and remain underused.

Main characteristics of a good street

A good street is not only functional. It must be readable, safe, comfortable, active, and adapted to its context [28, 87, 88].

- **Connectivity:** A street should connect clearly with other streets and public spaces. Good connectivity makes movement easier and gives people several route choices. Poor connectivity can create isolation, long detours, and weak pedestrian use.
- **Accessibility:** A street should be accessible for different users, including pedestrians, children, elderly people, people with disabilities, cyclists, public transport users, and service vehicles. Accessibility depends on sidewalks, crossings, ramps, surface quality, clear paths, and the absence of obstacles.
- **Safety:** Safety includes protection from traffic accidents and the feeling of being secure. Narrow crossings, excessive vehicle speed, poor lighting, blank walls, hidden corners, and inactive edges can reduce safety. Visible entrances, active frontages, lighting, and people's presence usually improve it.
- **Comfort:** Comfort depends on shade, seating, sidewalk width, protection from traffic, surface quality, lighting, vegetation, noise level, air quality, and climatic conditions. In hot climates, shade and tree cover are especially important for walkability.
- **Active edges:** The edge of the street strongly affects its quality. Shops, doors, windows, balconies, cafés, workshops, and transparent ground floors create activity and visual connection. Blank walls, fences, parking lots, and closed façades weaken the street experience.
- **Human scale:** A street has human scale when its width, building height, details, trees, furniture, and frontages are comfortable at walking speed. Human scale is not only about small dimensions. It is about how the street is perceived and used from the pedestrian point of view.
- **Legibility:** A legible street is easy to understand. People can recognize direction, entrances, crossings, landmarks, and important destinations. Legibility helps orientation and reduces confusion.
- **Adaptability:** A street should be able to support different activities over time. It may receive daily movement, markets, events, outdoor seating, temporary uses, public transport changes, or improved pedestrian facilities. A rigid street is harder to adapt to new urban needs.

Figure 62: Main characteristics of a good street

Street section and street proportion

The street section shows the relationship between buildings, sidewalks, carriageway, trees, furniture, and sky opening. It is one of the most important drawings for understanding street quality. A street with very wide traffic lanes and narrow sidewalks usually gives priority to vehicles. A street with generous sidewalks, trees, crossings, lighting, and active frontages gives more importance to people. The balance between these parts defines the experience of the street.

Street proportion is also important. The relation between building height and street width can create enclosure or openness. A street that is too wide may feel exposed and difficult to cross. A street that is too narrow may feel shaded and intimate, but it can become uncomfortable if it lacks ventilation, light, or pedestrian space.

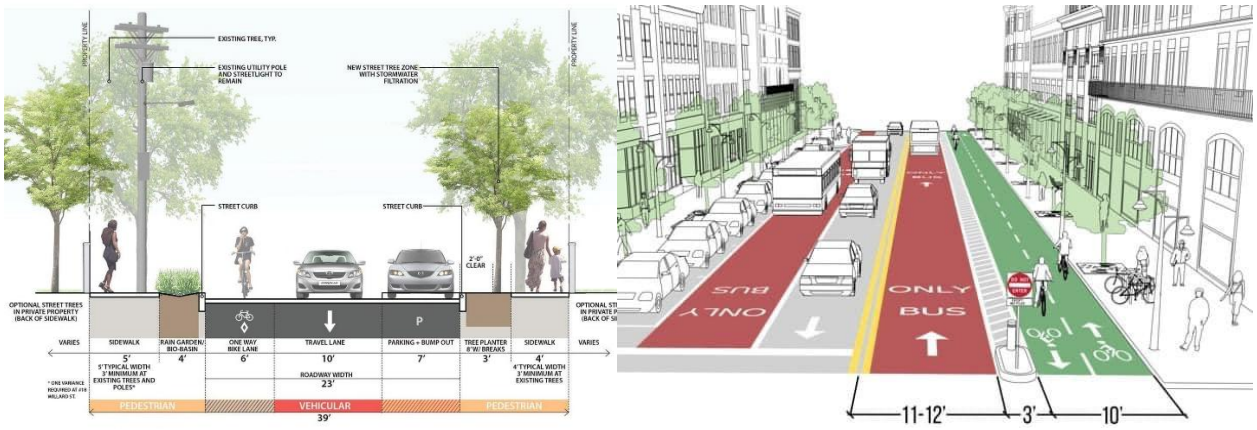

Figure 63: ***Street section and street proportion***

How to read a street

Reading a street requires attention to both physical form and everyday use. The following questions can guide observation:

- What is the role of the street in the city or neighborhood?
- Is it mainly residential, commercial, pedestrian, transit oriented, or mixed?
- Are sidewalks continuous, wide, shaded, and accessible?
- Are crossings safe and well located?
- Are building frontages active or inactive?
- Is there enough lighting, seating, vegetation, and urban furniture?
- Does the street feel comfortable at walking speed?
- Are there conflicts between pedestrians, cars, parking, commerce, and public transport?
- Does the street support public life, or is it only a traffic corridor?

A street is one of the main public spaces of the city. It must be read as a place of movement, access, activity, comfort, and social life. Its quality depends on the balance between circulation, sidewalks, crossings, frontages, shade, lighting, vegetation, materials, safety, and human scale.

5.3.2 Squares

Squares are important public spaces in the city. They are open urban spaces usually framed by buildings, streets, arcades, trees, monuments, or public facilities. Unlike streets, which are mainly linear spaces, squares are places of pause, gathering, visibility, meeting, celebration, protest, markets, and civic life.

A square is not defined only by being empty or open. It becomes meaningful when it has clear edges, good access, comfortable proportions, visible activities, and a strong relationship with surrounding buildings and streets. A square can be formal and monumental, or small and everyday. It can be located in front of a mosque, church, town hall, market, school, transport station, or inside a neighborhood [28, 52, 70].

Figure 64: Place Jemâa el-Fna Marrakech, Morocco

Main roles of squares

Squares can play several roles in urban life.

- They create centrality because they often become reference points within the city or neighborhood.
- They support social interaction by offering a place for meeting, waiting, sitting, observing, and informal contact.
- They provide civic value when they are connected to public buildings, monuments, ceremonies, public events, or collective memory.
- They support economic activity when they host markets, cafés, street vendors, shops, or events.
- They improve orientation because they often act as visual pauses, landmarks, or nodes in the street network.

Types of squares according to role and character

This classification helps understand that not all squares have the same function. Each type requires a different reading of access, edges, activity, comfort, and scale [28, 92].

Civic square: A civic square is connected to important public buildings, such as a town hall, court, mosque, church, cultural center, university, or administrative building. It often carries symbolic meaning and may host ceremonies, gatherings, or public events. Its quality depends on clear spatial definition, strong visibility, generous pedestrian access, and a respectful relationship with surrounding buildings.

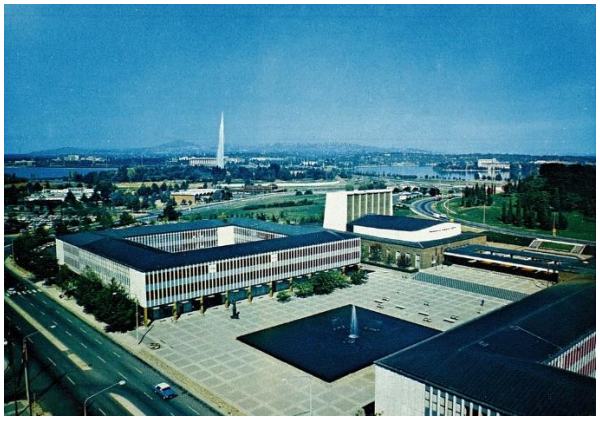

Figure 65: Civic Square, Canberra

Figure 66: Market Square

Market square: A market square is used for buying, selling, exchange, and daily or weekly commerce. It can be permanent or temporary. Its character depends on accessibility, shade, flexible ground surface, service access, storage, cleaning, and pedestrian comfort. A good market square supports economic life without blocking movement or damaging the comfort of surrounding public spaces.

Neighborhood square: A neighborhood square serves daily local life. It may be used by residents, children, elderly people, shopkeepers, and passers-by. It is often smaller than a civic square and more connected to everyday activities. Its quality depends on safety, seating, shade, lighting, visibility from surrounding buildings, and proximity to homes, shops, schools, or local services.

Monumental square: A monumental square is designed to emphasize power, memory, history, or symbolic identity. It may contain monuments, axes, large perspectives, or important architectural façades. This type can be impressive, but it must still remain usable. If the scale is too large, shade is absent, or activities are weak, the square may become only a visual space and not a lived public space.

Figure 67: Monumental square - Plaza del Comercio

Transport square: A transport square is located near a station, bus stop, tramway stop, taxi area, or major mobility node. It receives high pedestrian flows and needs clear organization. Its design must manage movement, waiting, crossings, accessibility, signage, safety, and the connection between transport and surrounding urban activities.

Small urban square or pocket square: A small urban square is a modest open space inserted into the urban fabric. It may appear at a street corner, between buildings, near a public facility, or inside a dense neighborhood. Its value is often local and human scale. Even when small, it can provide shade, seating, meeting space, and visual relief in dense areas.

Main characteristics of a good square

A good square is not only an open surface. Its quality depends on the relationship between form, edges, access, comfort, and use.

- **Clear edges:** The edges of a square give it shape. Buildings, trees, arcades, walls, steps, or continuous frontages can define the square and create a sense of place. If the edges are weak or undefined, the square may feel like a leftover open area.
- **Good access:** A square should be easy to reach from surrounding streets and pedestrian routes. Entrances should be visible and comfortable. If a square is surrounded by fast traffic, fences, parking, or barriers, it may become physically open but difficult to use.
- **Active frontages:** The buildings around a square strongly influence its life. Shops, cafés, public buildings, entrances, windows, balconies, and shaded arcades create activity and surveillance. Blank walls, closed fences, and inactive ground floors reduce vitality.
- **Comfortable proportions:** The relation between the size of the square and the height of surrounding buildings affects the feeling of enclosure. A very large square with low or distant edges may feel empty and exposed. A very small square with high edges may feel intimate, but it can become uncomfortable if it lacks light, ventilation, or space for movement.
- **Shade and climate comfort:** In hot climates, shade is essential. Trees, arcades, canopies, pergolas, and building shadows can make the square usable during the day. Materials, wind, water, vegetation, and orientation also influence thermal comfort.
- **Seating and staying possibilities:** A square needs places to stay. Seating can be formal, such as benches and chairs, or informal, such as steps, low walls, edges, fountains, or shaded platforms. Without places to sit or pause, a square may become only a crossing space.
- **Flexibility:** Many squares need to support different uses over time: daily sitting, children's play, markets, public events, religious gatherings, festivals, protests, or evening activities. Flexibility depends on ground surface, furniture placement, service access, lighting, and the absence of unnecessary obstacles.
- **Visibility and safety:** A square should be visible from surrounding streets and buildings. Clear sightlines, lighting, active edges, and regular use improve the feeling of safety. Hidden corners, poor lighting, abandoned edges, and lack of maintenance can weaken public confidence.

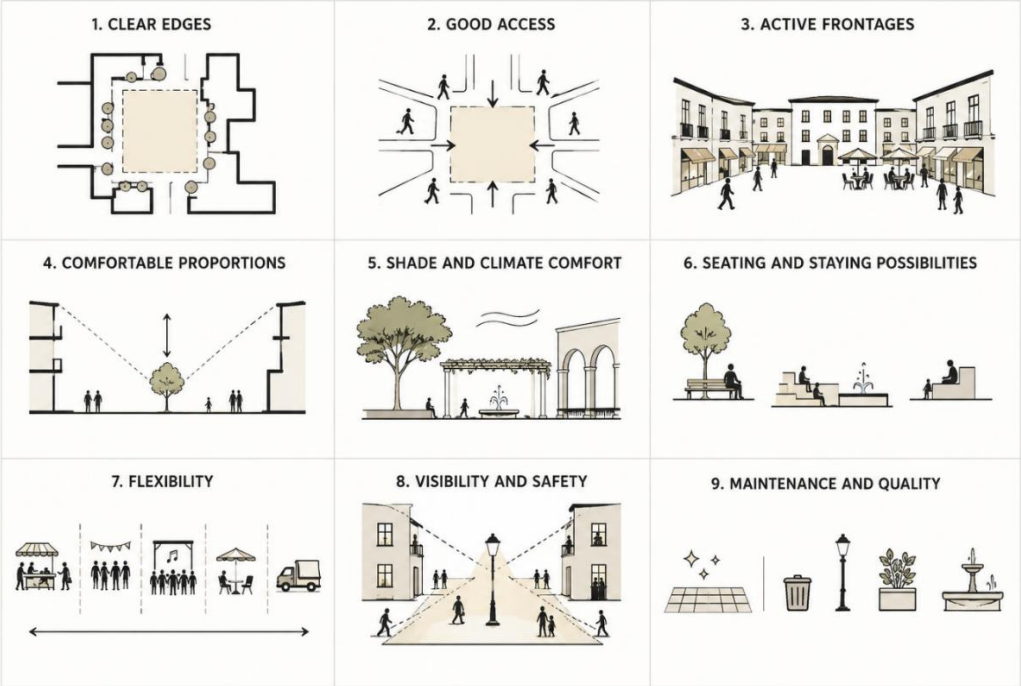

Figure 68: Main qualities of a good urban square

How to read a square

Reading a square requires observing both its physical form and its use. The following questions can guide the reading:

- What is the role of the square in the city or neighborhood?
- Is it civic, commercial, local, monumental, transport related, or mixed?
- Are its edges clearly defined?
- Are surrounding frontages active or inactive?
- Is the square easy to reach and cross?
- Are there shaded areas and comfortable places to sit?
- Does the square support staying, or only passing through?
- Are activities present during different times of the day?
- Is the scale comfortable in relation to surrounding buildings?
- Are there barriers, traffic conflicts, empty zones, or unsafe corners?

These questions help understand whether the square works as a real public space or only as an open area.

Common problems of squares

Many squares fail because they are treated as decorative empty spaces rather than lived public spaces. Common problems include excessive paved surfaces, lack of shade, absence of seating, weak edges, inactive frontages, poor lighting, traffic barriers, uncontrolled parking, oversized dimensions, and lack of maintenance.

Another common problem is the confusion between visual monumentality and public life. A square can look impressive in plan or photograph but remain uncomfortable if it does not support everyday use. The success of a square depends on how it works at ground level.

A square is an urban open space designed or used for gathering, staying, meeting, orientation, civic life, and everyday activities. Its quality depends on clear edges, active frontages, good access, comfortable proportions, shade, seating, flexibility, safety, and its connection to surrounding urban life.

5.3.3 Plazas

A plaza is an open public space located within the urban fabric, usually connected to streets, buildings, commercial activities, civic functions, or transport nodes. It is generally smaller and more urban in character than a large square. While a square may often have a strong civic or symbolic role, a plaza is usually more flexible and everyday. It can work as a place for meeting, waiting, sitting, crossing, small events, outdoor cafés, informal trade, or simply observing urban life [93].

In urban design, the plaza is important because it creates a pause inside the movement of the city. Streets guide people from one place to another, while plazas give them the possibility to stop, gather, rest, and interact. A successful plaza is therefore not only an empty paved surface. It is a public room shaped by edges, access, activities, comfort, and human presence.

Figure 69: Plaza from Goslar- Germany

A plaza usually works well when it is connected to daily movement. If it is located near active streets, public buildings, shops, cafés, markets, transit stops, schools, or cultural facilities, it has a better chance of being used. A plaza hidden behind blank walls or separated from pedestrian routes may remain empty even if its physical design looks attractive. The edges of a plaza are essential. Buildings around the plaza should help define its shape and support activity. Transparent façades, entrances, cafés, shops, shaded arcades, balconies, and public facilities can make the plaza feel alive and safe. In contrast, blind walls, inactive ground floors, fences, parking edges, or oversized roads can weaken its public character.

A good plaza should provide a balance between movement and staying. People should be able to pass through it easily, but also find comfortable places to sit, wait, meet, and observe. This requires attention to seating, shade, lighting, paving, trees, visibility, and protection from traffic. In hot climates, shade is not optional. It is one of the main conditions that allows the plaza to be used during the day. Plazas can take different forms. Some are small neighborhood plazas located at street intersections. Others are commercial plazas connected to shops and cafés. Some plazas are civic spaces in front of public buildings. Others are transport plazas near stations or bus stops, where movement and waiting are strongly present. Their design should always respond to their role in the urban structure.

A plaza should be evaluated through simple questions. Is it easy to reach? Are its edges active? Does it offer shade and seating? Can people stay without feeling exposed or uncomfortable? Does it support different users and activities? Is it safe during the day and at night? Does it have a clear identity?

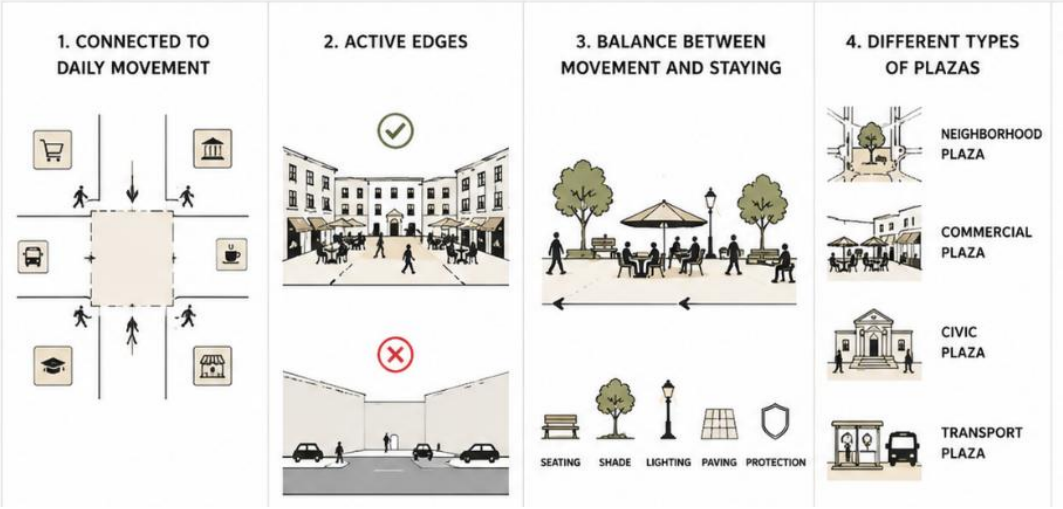

Figure 70: Main Design Qualities of a Successful Plaza

For urban design, the plaza should be understood as a small but powerful public space. Its quality depends less on size and more on how well it connects movement, comfort, edges, activities, and identity.

5.3.4 Parks

A park is a public open space where landscape, recreation, comfort, movement, and social life come together. Unlike a plaza, which is usually more mineral and directly connected to buildings and streets, a park is mainly structured by vegetation, open ground, paths, shade, activities, and natural elements. In urban design, a park is not only a green area on a plan. It is an important component of the public realm. It offers places for walking, resting, playing, meeting, exercising, observing nature, and escaping from the pressure of dense urban environments. A well designed park improves the quality of life of a neighborhood or a city because it supports both environmental comfort and social use.

The quality of a park depends first on its relationship with the surrounding urban fabric. A park should be easy to reach, visible from nearby streets, and connected to pedestrian routes. If its entrances are hidden, if it is surrounded by fences, parking, blank walls, or fast traffic, it may become isolated and weakly used. A good park should feel open and welcoming while still offering a clear sense of safety and spatial organization. Inside the park, paths, trees, lawns, shaded areas, playgrounds, seating, lighting, and activity zones should work together. The design should allow different rhythms of use. Some areas may be active and noisy, such as playgrounds or sport areas. Other areas may be calm and suitable for reading, resting, or walking. This balance is important because a park is used by different people at different times.

Figure 71: ***Park as a Public Landscape within the Urban Fabric example of*** *NY central park*

Parks also have an environmental role. Trees and planted areas can reduce heat, improve air quality, provide shade, support biodiversity, absorb rainwater, and create more comfortable microclimatic conditions. In hot and semi-arid contexts, the design of shade, drought-resistant vegetation, soil permeability, and water-conscious planting becomes essential. A park that is green but unusable during hot hours fails to support daily public life.

Common problems appear when parks are treated only as decorative green surfaces. A large green area without paths, shade, seating, lighting, activities, or clear entrances may remain underused. A park that is poorly maintained may quickly lose its public value. A park that is disconnected from the neighborhood may become a leftover space instead of a shared public place.

A park is a public landscape that supports recreation, comfort, ecology, and social life. It becomes successful when it is accessible, safe, shaded, well maintained, connected to the urban fabric, and able to support different users and activities.

5.3.5 Green Spaces

Green spaces are all vegetated or natural spaces within the city. They include parks, gardens, planted squares, green corridors, street trees, urban forests, riverbanks, planted courtyards, green buffers, and small neighborhood gardens. Some green spaces are designed for public use, while others mainly have ecological, climatic, visual, or protective functions [10, 23].

The difference between a park and a green space is important. A park is usually a defined public place designed for use and recreation. Green space is a broader term. It may include spaces that people use directly, but also spaces that improve the urban environment without necessarily being places to stay.

Figure 72: High Line Green Corridors

In urban design, green spaces should not be considered as empty land left after buildings and roads. They are active elements of the city. They can organize movement, soften dense fabrics, create shade, improve comfort, define edges, connect neighborhoods, protect ecological systems, and give identity to urban places. Green spaces contribute to the city in several ways. They improve thermal comfort by reducing heat and providing shade. They support environmental quality by increasing permeability, managing rainwater, filtering air, and supporting biodiversity. They also improve visual quality and psychological well-being by introducing nature into everyday urban experience.

At the scale of the street, trees and planting can transform the walking experience. A sidewalk with trees feels different from a sidewalk exposed to sun and traffic. At the scale of the neighborhood, small gardens and green pockets can provide places for rest and social interaction. At the scale of the city, green corridors and riverbanks can connect public spaces, support walking and cycling, and form ecological networks. Green spaces must also be designed carefully. Vegetation should respond to local climate, water availability, soil conditions, maintenance capacity, and the type of use expected. In hot and dry contexts, the choice of species, irrigation strategy, shade capacity, and resistance to drought are essential. A poorly adapted green space can become expensive to maintain or fail over time.

Green spaces also need good spatial integration. A planted area that is fenced, hidden, or disconnected from daily routes may have limited public value. In contrast, a small green space located near pedestrian movement, schools, housing, shops, or public facilities can become an important everyday place.

For urban design, the objective is not simply to increase the quantity of green spaces, but to improve their quality, distribution, accessibility, ecological value, and connection to public life. A city does not become better only because it has green areas on a map. It becomes better when these green areas are usable, comfortable, connected, maintained, and adapted to local conditions.

Green spaces are not decorative additions to the city. They are environmental, social, climatic, and spatial components of urban design. Their value depends on how well they are connected, adapted, maintained, and integrated into everyday urban life.

5.3.6 Buildings

In urban design, buildings are not studied only as isolated architectural objects. They are also components of the urban space. Their height, position, entrances, façades, ground floors, shadows, and relation to the street influence the quality of the public realm. A building can improve urban life when it helps define streets and public spaces. It can create enclosure, support activity, give identity, protect pedestrians from sun or wind, and make the city more readable. On the other hand, a building can weaken the city if it turns its back to the street, creates blank walls, blocks movement, or ignores the scale of the surrounding fabric.

Figure 73: Buildings as Urban Components: Defining Public Spaces photo from place Eltoute Blida

The most important question in urban design is not only “Is the building beautiful?” but also “How does the building contribute to the city?” A well designed building should respond to its plot, its street, its neighboring buildings, and the public spaces around it.

Buildings affect urban space through several aspects. Their alignment can create a continuous street wall or a fragmented edge. Their height can create enclosure or openness. Their ground floor can activate the street or make it inactive. Their entrances can support pedestrian movement or create confusion. Their materials and architectural language can strengthen the character of the place.

The relationship between buildings and public space is especially important at the ground level. This is where people walk, enter, look, stop, shop, wait, and interact. A building with clear entrances, transparent ground floors, shaded arcades, balconies, and active uses can make a street feel lively and safe. A building with high walls, closed façades, parking fronts, or service backs can make the same street feel empty and uncomfortable.

Buildings also shape the microclimate of urban spaces. They create shade, block or channel wind, reflect heat, and influence the amount of sunlight reaching streets and squares. In hot climates, building height, orientation, arcades, courtyards, and shaded edges can help improve outdoor comfort. For urban design, buildings should therefore be evaluated through their urban role, not only their architectural form. A building is successful when it works well for its users and also contributes positively to the surrounding public realm.

Buildings are urban components. Their value in urban design depends on how they shape streets, public spaces, movement, comfort, identity, and public life.

5.3.7 Frontages

The frontage is the part of a building or plot that faces the public realm. It is the interface between private space and public space. Frontages include façades, entrances, windows, shopfronts, arcades, balconies, setbacks, fences, walls, and ground-floor activities. In urban design, frontages are very important because they strongly influence how a street or public space feels and functions. They define the edge of the public realm and shape the experience of pedestrians. A street with active and transparent frontages usually feels more lively, safer, and more interesting than a street bordered by blank walls or closed façades.

Figure 74: Frontage as the Interface Between Building and Street

Frontages can be active or inactive. An active frontage creates visual and physical connection between buildings and public space. It may include shops, cafés, entrances, windows, workshops, public facilities, shaded arcades, or residential doors facing the street. These elements create movement, visibility, and social presence. An inactive frontage, in contrast, reduces the quality of the public realm. Long blank walls, closed fences, parking edges, service areas, opaque façades, or buildings with no entrances can make the street feel unsafe, monotonous, and disconnected from urban life.

Good frontages help create:

- Visual interest along the street
- Clear entrances and orientation
- Natural surveillance
- Interaction between inside and outside
- Active ground floors
- Comfort and protection for pedestrians
- Continuity and rhythm in the urban fabric

Frontage design is also related to scale. At pedestrian level, details matter: door rhythm, window proportions, materials, signs, balconies, canopies, arcades, lighting, and thresholds. These elements make walking more engaging and help people understand the function and character of the place. In commercial streets, frontages often support activity through shopfronts, displays, cafés, and transparent façades. In residential streets, they may support urban life through entrances, small gardens, balconies, windows, and semi-private thresholds. In civic spaces, frontages can give dignity and identity through public buildings, arcades, colonnades, or institutional façades.

Figure 75: frontage in commercial and residential streets

The quality of frontages should always be studied in relation to the type of street or public space. A main commercial street does not need the same frontage character as a quiet residential lane or a civic square. However, in all cases, the frontage should contribute to safety, readability, human scale, and the identity of the place.

5.3.8 Edges

Edges are the boundaries that define urban spaces. They can be created by buildings, walls, fences, trees, arcades, slopes, water, roads, changes in level, or landscape elements. Edges help shape the form, character, and perception of streets, squares, parks, plazas, and neighborhoods. In urban design, edges are important because they influence how people understand and use space. A good edge can define a place clearly, create enclosure, support activity, guide movement, and provide comfort. A weak edge can make a space feel undefined, empty, unsafe, or disconnected.

Figure 76: Natural Edges of Oran as Elements That Shape Public Space

Not all edges have the same quality. Some edges are active, permeable, and welcoming. Others are passive, closed, or hostile. An active edge may include entrances, windows, shops, cafés, shaded areas, seating, balconies, or public uses. A hostile edge may include blank walls, high fences, parking lots, service backs, fast roads, or poorly maintained spaces. Edges can be understood in several ways. A building edge defines the limit between interior and exterior. A landscape edge can separate a path from a garden or frame a park. A street edge can guide pedestrian movement. A water edge can create a public promenade. A topographic edge can create views, terraces, or barriers.

The quality of an edge depends on its form, use, permeability, visibility, and relation to people. A continuous building edge can create a strong sense of enclosure and urban character. A soft green edge can improve comfort and environmental quality. A transparent edge can create visual connection and safety. A broken or inactive edge can reduce public life.

Edges are also important for transitions. Good urban spaces often need gradual transitions between public and private, active and quiet, built and green, movement and staying. Thresholds, arcades, steps, small gardens, setbacks, trees, and semi-public spaces can make these transitions more comfortable and meaningful. For example, the edge of a park should not only be a fence. It can include visible entrances, shaded paths, active uses, seating, transparent boundaries, and connections to surrounding streets. The edge of a square should not be a blank wall. It should help frame the space and support activities around it.

Edges define the limits and character of urban spaces. Good edges create enclosure, connection, activity, comfort, and identity, while poor edges can weaken public life and spatial quality.

5.3.9 Urban Furniture

Urban furniture refers to the small physical elements placed in public spaces to support use, comfort, safety, and organization. It includes benches, bins, bollards, bus shelters, drinking fountains, bike racks, signs, kiosks, railings, planters, pergolas, and information panels [94, 95]. In urban design, furniture is not decoration. It affects how people use public space. A bench can encourage people to stop, rest, wait, observe, or meet. A bus shelter can make public transport more comfortable. A bollard can protect pedestrians from vehicles. A sign can improve orientation. Poorly placed furniture, however, can block movement, create visual disorder, or make a space uncomfortable.

Figure 77: ***Urban Furniture as Support for Public Life***

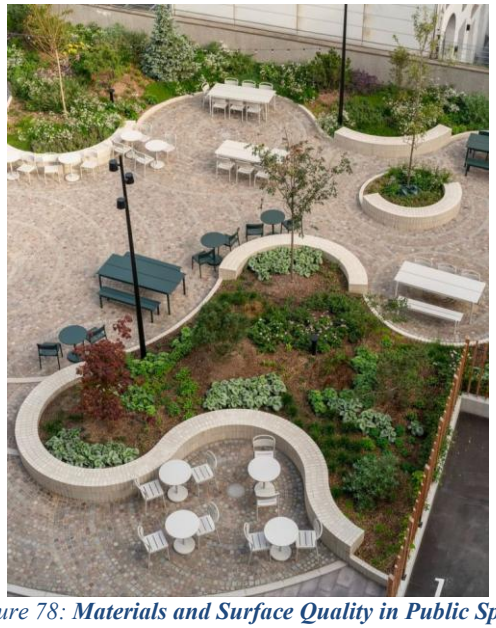

Figure 78: ***Materials and Surface Quality in Public Space***

Urban furniture should respond to the function of the place. A plaza may need seating, shade structures, bins, and lighting. A commercial street may need benches, bike racks, signs, and café furniture. A park may need picnic tables, playground equipment, drinking fountains, and shaded resting areas.

The placement of furniture is as important as its design. Benches should be located where people naturally want to sit: near shade, views, activity, entrances, paths, or public transport stops. Bins should be visible and easy to use without disturbing movement. Signs should be clear and readable. Furniture should support public life without overcrowding the space.

Urban furniture also contributes to identity. Materials, forms, colors, and details can express the character of a place. In historic areas, furniture should respect the existing urban atmosphere. In contemporary spaces, it can create a stronger visual identity. In all cases, furniture must be durable, easy to maintain, safe, and adapted to climate.

5.3.10 Materials

Materials give physical character to urban space. Paving, stone, concrete, brick, wood, metal, tiles, asphalt, gravel, and earth surfaces all influence how a place looks, feels, performs, and ages over time. In urban design, materials are important because they affect both visual quality and user experience. A paving material can guide movement, define zones, improve accessibility, or create identity. A surface can feel pleasant or uncomfortable, safe or slippery, cool or hot, durable or fragile.

Materials should be chosen according to the role of the place. A pedestrian street needs comfortable, continuous, and accessible paving. A plaza may use different textures to distinguish walking areas, seating areas, and activity zones. A park may combine hard surfaces for movement with softer surfaces for rest, play, and landscape.

Material choice should also respond to climate. In hot climates, dark surfaces can absorb heat and make outdoor spaces uncomfortable. Light-colored materials, permeable surfaces, shaded paving, and natural materials can help reduce heat and improve comfort. In rainy contexts, drainage and non-slip surfaces become important.

Materials also affect maintenance. A beautiful material that breaks easily or requires expensive maintenance may fail in daily use. Good urban design should balance appearance, durability, cost, accessibility, climate response, and local availability. The use of local materials can strengthen identity and connect a project to its context. Stone, tiles, brick, or traditional paving can help preserve the character of historic areas, while contemporary materials can be used carefully when they respect scale, texture, and atmosphere.

Materials shape the visual, tactile, climatic, and practical quality of urban space. Good material choice improves comfort, accessibility, identity, durability, and long-term maintenance.

5.3.11 Vegetation

Vegetation is one of the most important components of urban space. Trees, shrubs, grass, climbing plants, flower beds, green walls, and planted edges can improve comfort, identity, environmental quality, and public life. In urban design, vegetation should not be treated as a final decorative layer. It is a spatial and climatic element. Trees can define a street, shade a sidewalk, frame a plaza, soften a hard edge, reduce heat, and make walking more pleasant. Planting can separate movement from staying areas, create privacy, guide views, and improve the atmosphere of a place.

Figure 79: Vegetation as Shade, Structure and Urban Comfort

The choice of vegetation should respond to local climate, soil, water availability, maintenance capacity, and the type of public use. In hot and semi-arid contexts, trees with strong shade capacity and low water needs are especially important. A green design that requires too much water or maintenance may not be sustainable over time.Vegetation works at different scales. At the street scale, tree lines improve pedestrian comfort and give rhythm to the urban space. At the plaza scale, trees can create shaded sitting areas. At the park scale, vegetation can organize paths, activities, biodiversity, and microclimate. At the city scale, green corridors can connect neighborhoods and support ecological continuity.

The location of vegetation must be carefully designed. Trees should not block important pedestrian paths, building entrances, visibility, or lighting. Their roots, growth, and maintenance must be considered from the beginning. A badly placed tree can create problems, while a well placed tree can transform the quality of a public space.

Vegetation is a design element, not only a natural element. It improves shade, comfort, identity, ecology, and spatial structure when it is well selected, well placed, and adapted to local conditions.

5.3.12 Lighting

Lighting shapes how urban spaces are used and perceived after dark. It affects safety, visibility, atmosphere, identity, and nighttime activity. A public space that works well during the day may become uncomfortable or unsafe at night if lighting is poor.

Urban lighting is not only about adding light. It is about placing the right amount of light in the right places. Streets, sidewalks, crossings, entrances, benches, stairs, public transport stops, parks, and plazas need lighting that supports movement, orientation, and security.

Figure 80: ***Lighting and Nighttime Quality of Public Space***

Good lighting improves visibility without creating glare. It should help people recognize faces, read the space, see obstacles, and feel safe. Lighting can also highlight landmarks, trees, façades, monuments, water features, or important public spaces, giving the place a nighttime identity. Lighting should be adapted to the character of the place. A commercial street may need active and brighter lighting. A residential street may need softer lighting that supports safety without disturbing residents. A park may need lighting along main paths and entrances, while preserving calmer areas and avoiding excessive light pollution.

Poor lighting can create dark corners, unsafe passages, visual discomfort, or excessive contrast between bright and dark areas. Over-lighting can also damage atmosphere, waste energy, and disturb residents or wildlife. For urban design, lighting must be integrated with other components such as trees, furniture, façades, signs, paths, and public activities. A light pole should not block pedestrian movement. Tree canopies should not hide light. Building entrances and pedestrian crossings should be clearly visible.

5.4 Social Components

Urban space is not defined only by its physical form. A street, square, park, or plaza becomes meaningful when people move through it, use it, interact in it, and give it social life. For this reason, reading urban space requires attention to social components as much as physical components [86, 93, 96]. Social components describe what people do in space. They include movement, activities, interaction, and public life. These elements help explain why some spaces are active and comfortable, while others remain empty even if they are well designed physically.

Figure 81: Social components of urban space - Design Competition For The Enhancement Of Promenade Fleury, Montreal 2016

5.4.1 Movement

Movement is one of the first social components to observe in urban space. People move through the city for many reasons: going to work, reaching school, shopping, visiting services, using public transport, walking for pleasure, or simply crossing from one place to another. Movement can be pedestrian, bicycle-based, public transport-based, or vehicle-based. In urban design, pedestrian movement is especially important because it reveals how people experience space at human scale. A space that is difficult to walk through is usually weak as public space, even if it looks attractive in plan.

Figure 82: Movement in urban space

Movement can be direct or indirect, fast or slow, continuous or interrupted. A good urban space allows people to move clearly and safely, without unnecessary barriers. Crossings, sidewalks, ramps, passages, shaded routes, visible entrances, and readable paths all influence movement quality. It is also important to observe desire lines. These are the informal paths people create when the official route does not correspond to their real movement needs. A desire line across grass, between buildings, or through a parking area often shows where the urban space needs a better connection.

Figure 83: desire lines in urban space

Movement shows how people actually use the urban space. Reading movement helps identify connections, barriers, shortcuts, unsafe crossings, and the difference between planned routes and real daily practices.

5.4.2 Activities

Activities are the uses that take place in urban space. They can be necessary, optional, or social. Necessary activities include walking to work, waiting for transport, entering a building, buying basic goods, or crossing a street. Optional activities include sitting, strolling, resting, looking, playing, or enjoying shade. Social activities include meeting, talking, watching others, gathering, celebrating, or participating in public events. A good urban space supports different activities at different times. During the morning, it may receive movement to school or work. During the afternoon, it may support commerce, waiting, sitting, or children's play. In the evening, it may become a place for walking, meeting, cafés, or informal social life.

Activities depend strongly on physical conditions. Shade, seating, lighting, safety, active frontages, ground floor uses, surface quality, trees, and protection from traffic can encourage people to stay. Lack of comfort, poor visibility, excessive noise, heat, insecurity, or blank edges can reduce activity. When reading activities, it is useful to observe where people stay, where they pass quickly, where they gather, and which parts of the space remain empty. Empty areas are not always a problem, but they become important when they indicate discomfort, poor access, lack of shade, weak edges, or unclear function.

Figure 84: Different Activities That Animate Public Space

5.4.3 Interaction

Interaction refers to the contact between people in urban space. It can be direct, such as conversation, meeting, playing, buying, selling, or helping. It can also be indirect, such as seeing others, being seen, listening to street activity, or sharing the same public space without speaking. Urban space supports interaction when it creates conditions for people to encounter each other naturally. This depends on pedestrian routes, seating, active edges, public transport stops, cafés, markets, schools, shaded areas, and places where people can pause without blocking movement.

Not all interaction needs to be planned. Many important urban interactions are informal. A person greeting a neighbor, children playing near a building entrance, people waiting near a bus stop, or customers standing near a shop all contribute to the social quality of the street or square. The edge between buildings and public space is especially important. Entrances, thresholds, balconies, shopfronts, arcades, steps, and shaded sidewalks create contact zones between private life and public life. When these contact zones are active, urban space feels more alive and more secure.

Figure 85: Interaction in urban space

Interaction is not limited to organized events. It often appears through everyday encounters, visual contact, waiting, buying, playing, and sharing space. Urban design can support interaction by creating comfortable edges, active frontages, and places to pause.

5.4.4 Public Life

Public life is the collective life that appears in streets, squares, plazas, parks, and other shared spaces. It includes movement, activities, interaction, observation, events, markets, celebrations, protests, and everyday coexistence. Public life is what makes urban space more than a physical setting.

A space with public life is usually visible, accessible, comfortable, and connected to daily needs. It does not need to be large or monumental. A small shaded street corner, a lively sidewalk, a neighborhood square, or a market edge can support strong public life when people have reasons to use it. Public life changes during the day, the week, and the season. A space may be active in the morning because of schools and work trips, calm at midday because of heat, active again in the evening because of walking, commerce, or social meetings. Reading public life therefore requires observation at different times, not only one visit.

Public life also depends on inclusiveness. A good public space should allow different users to feel welcome, including children, elderly people, women, workers, visitors, residents, and people with disabilities. If a space is dominated by one group, one use, or one form of movement, its public character may become limited.

5.5 Experiential Components

Urban space is not experienced only through its physical form or its social use. It is also perceived through the body and the senses. Comfort, perception, scale, light, sound, and atmosphere influence whether a space feels welcoming, stressful, calm, lively, safe, exposed, shaded, noisy, or pleasant. Experiential components are important because two spaces with similar physical dimensions can create very different feelings. A street with shade, active edges, comfortable proportions, and moderate sound can encourage walking and staying. Another street with heat, glare, traffic noise, blank walls, and poor lighting can feel uncomfortable even if it is well connected [46, 86, 93].

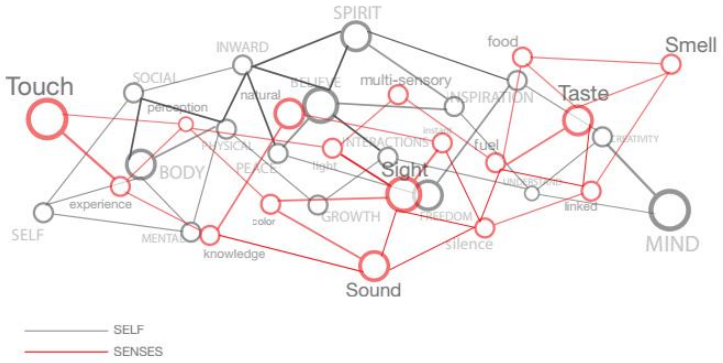

Figure 86: Architecture & Senses © Vasquez Marshall Architects

5.5.1 Comfort

Comfort is the condition that allows people to use urban space without physical stress or discomfort. It includes thermal comfort, walking comfort, seating comfort, visual comfort, acoustic comfort, and the feeling of safety.

In hot climates, comfort depends strongly on shade, trees, arcades, canopies, building shadows, air movement, surface materials, and the availability of places to rest. A public space without shade may remain empty during the day even if it is well located. A shaded sidewalk, a tree-lined street, or a covered passage can make walking possible and pleasant. Comfort is also linked to the body. Sidewalk width, surface quality, ramps, stairs, obstacles, seating height, crossing safety, and protection from traffic all influence how easily people can move, stop, and stay. A comfortable space is not only beautiful; it is usable.

5.5.2 Perception

Perception refers to the way people see, understand, and interpret urban space. It includes visibility, orientation, enclosure, openness, visual order, landmarks, edges, and the clarity of routes and entrances. A space is easier to use when it is readable. Clear paths, visible entrances, recognizable landmarks, active edges, and coherent materials help people understand where they are and where they can go. Confusing layouts, hidden entrances, poor lighting, excessive visual disorder, and unclear boundaries can create discomfort and hesitation. Perception is also influenced by what appears at eye level. Ground floors, doors, windows, shopfronts, walls, signs, trees, benches, and people's activities are often more important than the general plan. The experience of urban space is built gradually while walking.

Perception determines how urban space is understood. A readable space helps orientation, confidence, and movement, while a confusing space can feel uncomfortable even before any physical problem appears.

5.5.3 Scale

Scale describes the relationship between the size of urban space and the human body. It is linked to building height, street width, façade rhythm, distance between elements, size of open spaces, and the amount of detail visible at walking speed. A space has human scale when it feels understandable and comfortable from the pedestrian point of view. This does not mean that all buildings must be low or all spaces must be small. A large square, a wide avenue, or a tall building can still feel human-scaled if the ground level is well designed with shade, seating, active frontages, visible entrances, trees, and clear pedestrian routes. Problems appear when dimensions become too large without details or uses at ground level. Long blank façades, oversized roads, empty open spaces, and isolated buildings can make people feel small, exposed, or disconnected.

Figure 87: Designing Public Space for Human Scale, Comfort, and Use

5.5.4 Light

Light shapes the visibility, comfort, safety, and atmosphere of urban space. During the day, natural light affects shade, glare, heat, color, and the visibility of buildings and public spaces. At night, artificial lighting affects safety, orientation, activity, and the possibility of using space after sunset.

Good daylight conditions require balance. Too much exposure can create heat and glare, especially in open paved spaces. Too little light can make streets, passages, and courtyards feel dark or unsafe. Shade is important, but it should not create hidden or uncomfortable areas. Night lighting should help people move safely and recognize paths, crossings, entrances, steps, seating areas, and public transport stops. Lighting can also highlight trees, façades, monuments, and important public spaces. However, excessive lighting can create glare, visual discomfort, and loss of atmosphere.

5.5.5 Sound

Sound is an important part of urban experience. It affects comfort, attention, stress, communication, and the feeling of place. Urban spaces can include traffic noise, voices, footsteps, birds, water, markets, music, construction, public transport, and many other sounds. A space is not judged only by how loud it is. The type of sound matters. The sound of people talking, water, trees in the wind, or local activity can make a place feel lively and pleasant. Continuous traffic noise, horns, engines, and construction can make the same place stressful or difficult to use. Reading sound requires attention to sources, intensity, rhythm, and perception. Where does the dominant sound come from? Is it constant or occasional? Does it support the identity of the place, or does it disturb use and comfort? Can people speak, rest, wait, or sit without acoustic stress?

Urban space must be read as a combination of form, use, and experience. A successful urban space is not only visible and accessible. It must also support movement, staying, interaction, comfort, identity, and public life.

5.11 Mini Exercise

This exercise applies the reading of urban space components to a real place. The aim is not to produce a full diagnosis or a design proposal. The aim is to observe one urban space carefully and describe how its physical, social, and experiential components work together.

Choose one urban space such as a street segment, a square, a plaza, a park edge, a university space, a neighborhood open space, or a commercial frontage. The selected space should be small enough to observe in detail, but rich enough to include movement, edges, activities, materials, vegetation, lighting, and human use.

Step 1: Identify the type of urban space

Begin by describing the selected space. Is it a street, square, plaza, park, green space, passage, courtyard, or mixed urban space? Mention its location, its surrounding uses, and its main role in the neighborhood.

A useful sentence can be:

The selected space is a _____ located near _____. It is mainly used for _____ and connected to _____.

Step 2: Read the physical components

Observe the visible and material elements of the space. Identify streets, sidewalks, buildings, frontages, edges, trees, ground materials, seating, lighting, crossings, walls, fences, shade, and open areas.

The aim is to understand what the space is made of and how its elements are organized.

Useful questions:

- What are the main physical elements of the space?
- Are the edges clear or weak?
- Are the frontages active or inactive?
- Is there shade, seating, lighting, vegetation, or urban furniture?
- Are the materials comfortable and well maintained?

Step 3: Read the social components

Observe how people use the space. Look at movement, activities, interaction, and public life. Identify where people walk, sit, wait, gather, sell, play, rest, or avoid passing.

The aim is to understand whether the space supports only circulation or also staying and social life.

Useful questions:

- Where do people move?
- Where do people stop or stay?
- What activities are visible?
- Are there interactions between people?
- Which parts are active and which parts remain empty?

Step 4: Read the experiential components

Observe how the space feels at human scale. Pay attention to comfort, perception, scale, light, sound, and atmosphere.

The aim is to understand the quality of the experience, not only the physical form.

Useful questions:

- Is the space comfortable or uncomfortable?
- Is it shaded or exposed?
- Is it calm or noisy?
- Is it easy to understand and move through?
- Does it feel safe, welcoming, lively, empty, stressful, or neglected?

Step 5: Summarize the urban space

End the exercise with one short paragraph that describes the space clearly.

Suggested model:

The selected urban space is a _____. Its main physical components are _____. The space is used mainly for _____. Social life appears mostly in _____, while weaker areas are located in _____. The experience of the space is influenced by _____. Overall, the space can be described as _____ because _____.

Chapter 6. From Space to Place: Public Space Quality

6.1 Difference Between Space and Place

In Chapter 5, urban space was presented through its physical, social, and experiential components. Chapter 6 goes one step further. It explains how an urban space can become a place. This difference is important because urban design is not only about creating open areas, streets, squares, or parks. It is also about creating environments that people use, remember, recognize, and value.

A space can be understood as a physical area. It has dimensions, edges, materials, access, furniture, vegetation, and functions. A place is more than a physical area. It is a space that has meaning. It is recognized by people, connected to memories, used in daily life, and associated with identity, comfort, and belonging.

For example, an empty paved area between buildings may be a space, but it does not automatically become a place. It becomes a place when people use it, meet there, remember it, give it a name, associate it with events, or consider it part of their daily life. In the same way, a street is not only a line of movement. It can become a place when it has active edges, familiar activities, social interaction, shade, sounds, smells, and memories.

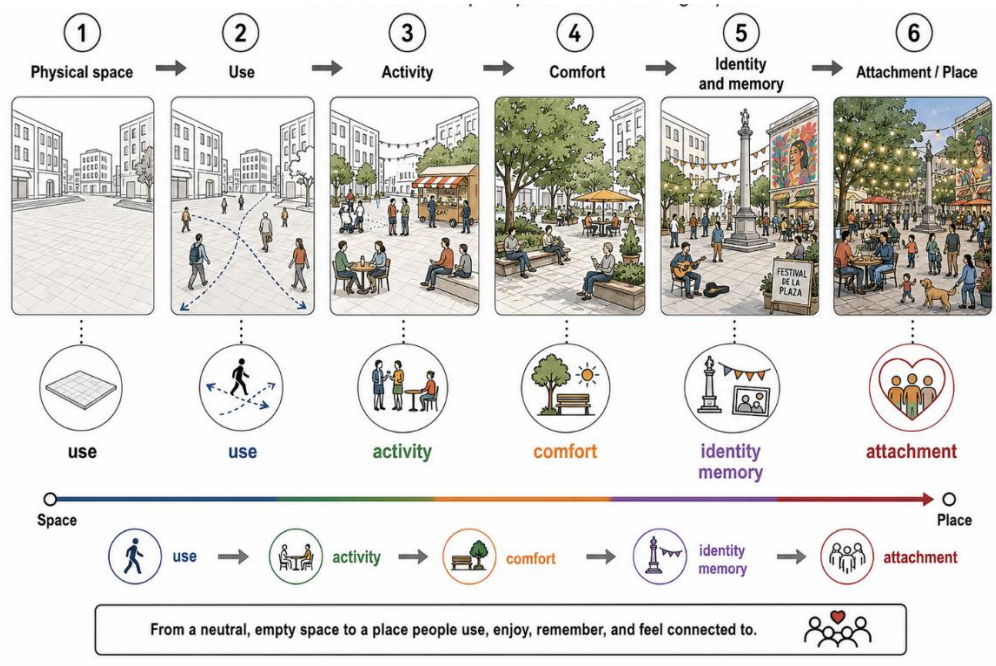

Figure 88: ***From space to place***

A space is usually described by asking:

- What is its size?
- Where is it located?
- What are its physical components?
- How is it connected?
- What functions does it contain?

A place is understood by asking:

- What does it mean for people?
- Who uses it?
- What memories are connected to it?
- What activities give it life?
- What makes it recognizable?
- Why do people return to it?

This distinction does not mean that space and place are separate. Every place needs a physical space, but not every space becomes a meaningful place. The role of urban design is to help physical spaces support use, comfort, identity, and public life so they can become real places in the city.

6.2 Place, Meaning and Memory

Place is strongly connected to meaning and memory. People do not experience the city only through buildings, streets, and open spaces. They also experience it through personal memories, collective events, cultural practices, daily routines, and emotional attachment. Meaning can come from many sources. It can come from history, architecture, religion, commerce, landscape, social life, or everyday habits. A square may become meaningful because it hosts public gatherings. A street may become meaningful because it contains traditional shops, cafés, schools, or family memories. A park may become meaningful because people walk there every evening, children play there, or important events take place there. Memory also gives depth to urban places. Some places carry collective memory, such as historic squares, monuments, old markets, religious spaces, colonial streets, traditional neighborhoods, or public buildings. Other places carry everyday memory, such as a corner where people meet, a shaded bench, a school entrance, a local café, a bus stop, or a small neighborhood square [20, 27].

Figure 89: Place Meaning Through Memory: La Grande Poste Square and El Hirak Demonstrations

Meaning is not always official or monumental. A place can be important even if it is small, simple, or informal. What matters is the relationship between the space and the people who use it. A modest street corner can have strong meaning if it supports daily meetings and local identity. A large designed square can remain weak if people do not feel attached to it or find reasons to use it.

Reading place meaning requires attention to visible and invisible signs. Visible signs include monuments, names, buildings, markets, religious elements, materials, trees, signs, and activities. Invisible signs include memories, habits, stories, emotions, and social practices. These elements are not always drawn on plans, but they are essential for understanding place quality.For urban design, respecting meaning and memory does not mean freezing the city or refusing change. It means understanding what gives a place its identity before transforming it. A good intervention can improve comfort, access, safety, and use while preserving the elements that people recognize and value.

Place meaning is created through memory, use, identity, and attachment. A place can be important because of history, daily routines, social practices, or emotional value. Before transforming a public space, it is necessary to understand what people recognize, remember, and value in it.

6.4 Functions of Urban Places

Urban places are important because they do more than occupy land in the city. They support social life, civic expression, cultural identity, economic activity, and symbolic meaning. A street, square, market, campus space, or neighborhood place can have several functions at the same time. In urban design, the function of a place is not only defined by its official use. It is also defined by what people do there, how they remember it, and how it contributes to daily urban life [28, 52, 70].

6.4.1 Social Function

The social function of an urban place refers to its ability to bring people together. A good place allows people to meet, talk, sit, walk, observe, play, and share daily life. This function is very important because cities are not only built environments. They are also spaces of human relations. Social function can appear in a small neighborhood corner, a shaded bench, a public square, a campus courtyard, a market street, or a children's play area. Even simple spaces can become socially important when they are used regularly by people. Urban design supports social function through: Comfortable sitting places; Shade and protection; Safe pedestrian access; Human scale; Visible and active edges; Spaces for meeting and staying; Opportunities for different age groups to use the same place.

Figure 90: ***Social Function of Urban Places***

6.4.2 Civic Function

The civic function refers to the role of urban places in public life, collective expression, and community participation. Civic places allow people to gather, celebrate, protest, attend ceremonies, discuss public matters, or participate in city life. Squares in front of public buildings, city halls, universities, mosques, monuments, and major public spaces often have a strong civic function. These spaces are important because they connect people with institutions, collective events, and public identity.

Urban design supports civic function through: Open and visible public space; Clear access and gathering areas; Connection to public buildings; Flexible surfaces for events; Good lighting and visibility; A strong spatial identity; Capacity to receive collective activities.

6.4.3 Cultural Function

The cultural function of an urban place is related to identity, traditions, local practices, memory, and ways of life. Urban places can express culture through architecture, materials, activities, public art, festivals, markets, rituals, food, crafts, sounds, colors, and everyday habits.

Cultural function does not only exist in historic monuments. It can also appear in ordinary streets, traditional markets, neighborhood squares, cafés, religious surroundings, and places where people repeat social practices over time. In urban design, cultural function is important because it prevents places from becoming neutral and anonymous. It gives public space a local character and helps people recognize themselves in the city.

Urban design supports cultural function through: Respect for local urban forms; Use of local materials and patterns; Spaces for festivals and traditions; Protection of heritage and memory; Support for local markets and crafts; Public art and cultural expression; Design adapted to local ways of using space.

Figure 91: ***Cultural Function of Urban Places***

6.4.4 Economic Function

The economic function of urban places refers to their role in supporting exchange, work, commerce, services, and local livelihoods. Markets, commercial streets, cafés, kiosks, workshops, street vendors, and shopfronts all show how public space can support urban economy.

A place with strong economic function often attracts movement and activity. However, economic activity should not dominate public space in a way that excludes people. A good urban place balances commerce with accessibility, comfort, and public use. Urban design supports economic function by creating spaces that are visible, accessible, flexible, and connected to pedestrian movement. Active ground floors and good public realm design can help local businesses and improve street life at the same time.

6.4.5 Symbolic Function

The symbolic function of an urban place refers to its ability to represent meaning, memory, identity, power, belonging, or collective values. Some places become symbolic because of their history, monuments, architecture, events, location, or emotional importance for people.

A symbolic place may be a national square, a historic street, a monument, a religious place, a university entrance, a public garden, or a square associated with important social events. Its value is not only physical. It carries meaning beyond its visible form. In urban design, symbolic function is important because it helps people read and remember the city. It gives certain places a special role in the urban image and collective imagination.

Urban design supports symbolic function through: Strong visual identity; Landmarks and monuments; Clear spatial composition; Connection to collective memory; Respect for historic layers; Meaningful public art; Spaces that allow ceremonies and collective events.

6.5 Qualities of Successful Public Spaces

A public space becomes successful when it is easy to reach, comfortable to use, safe to stay in, active during daily life, socially welcoming, inclusive for different users, and meaningful for the community. Quality does not come from one element alone. A beautiful square can fail if it is difficult to access. A well-connected street can remain weak if it has no shade, no activity, or no sense of safety. The qualities presented in this section are useful for reading and evaluating public spaces. They help move from a simple description of space to a clearer understanding of why some places attract people and others remain empty [10, 28, 49, 88].

6.5.1 Accessibility

Accessibility means that a public space can be reached, entered, crossed, and used easily. It includes physical access, visual access, and social access.

- Physical access depends on streets, sidewalks, crossings, ramps, entrances, public transport, bicycle routes, and the absence of barriers. A public space may be close in distance but difficult to use if it is surrounded by fast traffic, fences, parking, walls, level changes, or unsafe crossings.
- Visual access means that the space can be seen and recognized from surrounding streets. A visible public space invites people to enter because its entrances, edges, activities, and routes are clear. A hidden or confusing space may remain underused even when it is physically open.
- Social access means that people feel allowed and welcome to use the space. A place can be legally public but socially exclusive if it feels controlled, intimidating, too expensive, dominated by one group, or designed only for a limited category of users.

A useful reading of accessibility asks: Can people easily find the space? Can they enter it without difficulty? Can children, elderly people, people with disabilities, pedestrians, cyclists, and public transport users reach it safely? Are the entrances clear and welcoming?

6.5.2 Comfort

Comfort allows people to stay in public space without physical or psychological stress. It is related to shade, temperature, wind, noise, seating, lighting, cleanliness, surface quality, protection from traffic, and the possibility of resting.

In hot climates, shade is one of the most important comfort conditions. Trees, arcades, canopies, pergolas, building shadows, and shaded sidewalks can make a street, square, or park usable during the day. Without shade, even a well-designed public space may be avoided.

Comfort also depends on details at body scale. Seating must be well placed, surfaces must be walkable, steps and ramps must be safe, lighting must support evening use, and the space must offer protection from excessive traffic, dust, glare, and noise. Comfort is not only technical. It also influences behavior. People stay longer where they feel comfortable. They sit, talk, wait, observe, play, and return. When comfort is weak, public space becomes only a place to cross quickly.

6.5.3 Safety

Safety has two dimensions. The first is protection from physical danger, especially traffic accidents, falls, poor surfaces, obstacles, and conflicts between users. The second is the feeling of security, which depends on visibility, lighting, activity, maintenance, and the presence of other people. A public space feels safer when it is visible, well lit, active, maintained, and connected to surrounding uses. Entrances, windows, shops, cafés, balconies, and active ground floors create natural surveillance. People feel more confident when they can see and be seen.

Unsafe conditions can appear when a space has hidden corners, blank walls, poor lighting, abandoned edges, damaged surfaces, uncontrolled parking, fast traffic, or lack of regular use. Even if a space is physically accessible, fear or discomfort can prevent people from using it. Safety should not be confused with excessive control. A successful public space feels safe without becoming closed, restricted, or hostile. Design should support visibility, comfort, and shared use rather than relying only on barriers and surveillance devices.

6.5.4 Activity

Activity gives life to public space. It includes walking, sitting, playing, waiting, shopping, selling, meeting, eating, watching, exercising, celebrating, and participating in events. Activity can be permanent, temporary, formal, informal, planned, or spontaneous. A public space does not need to be busy all the time, but it needs reasons for people to use it. These reasons may come from surrounding shops, schools, transport stops, public buildings, markets, cafés, playgrounds, shaded seating, cultural events, or daily pedestrian routes. Activity depends strongly on edges. Public spaces with active frontages often attract more use because people have destinations, services, visual interest, and social contact. Empty edges, blank walls, parking lots, and closed façades weaken activity.

Different times should also be considered. A space may be active in the morning because of school and work trips, calm at midday because of heat, and active again in the evening. Reading activity therefore requires attention to daily rhythm, not only one moment of observation.

6.5.5 Sociability

Sociability is the capacity of a public space to support contact between people. It includes meeting friends, greeting neighbors, watching others, sitting near strangers, informal conversation, play, public events, and shared presence. Sociability does not always mean direct conversation. Sometimes it is enough to be in the same place with others, to observe street life, or to feel part of a collective urban environment. A lively sidewalk, a shaded bench, a market edge, or a small neighborhood square can create sociability through simple everyday presence.

Design can support sociability by providing places to pause. Benches, steps, low walls, shaded edges, café terraces, playgrounds, waiting areas, and active frontages create opportunities for people to remain in space without blocking movement.

6.5.6 Inclusiveness

Inclusiveness means that public space can be used by different people, not only by one group. It concerns age, gender, ability, income, culture, and different daily needs. A successful public space should welcome children, elderly people, women, men, people with disabilities, workers, visitors, residents, and people with different rhythms of use.

Inclusive public space provides different possibilities. Some people need quiet seating. Others need play areas, walking routes, shaded waiting areas, accessible paths, safe crossings, or open areas for gathering. Inclusiveness is not achieved by one design element, but by offering choice and reducing exclusion. Accessibility is part of inclusiveness, but inclusiveness goes further. A ramp may allow entry, but the space may still feel uncomfortable if there is no seating, no shade, no lighting, no safety, or no social acceptance. A public space must be usable and welcoming, not only physically open. Inclusive design also avoids hostile elements that prevent staying, such as uncomfortable benches, excessive barriers, unnecessary restrictions, or layouts that make some users feel unwelcome.

6.5.7 Identity

Identity is what makes a public space recognizable and meaningful. It can come from history, architecture, landscape, materials, activities, memories, local culture, names, views, monuments, trees, markets, sounds, smells, or everyday habits. A place with identity is not necessarily monumental. A small square, a local street, a market corner, a university courtyard, or a shaded sidewalk can have strong identity when people recognize it, use it, and connect it with memory or daily life. Identity helps people feel attached to places. It creates orientation, belonging, and continuity between past and present. When public spaces are designed without attention to local character, they may look clean and modern but feel generic, replaceable, or disconnected from their context.

Respecting identity does not mean refusing change. It means understanding what gives the place its character before transforming it. New design can improve comfort, access, and activity while preserving important traces, views, materials, trees, uses, or memories.

6.6 Failed Public Spaces

Not all public spaces become successful places. Some spaces are open and accessible in theory, but they remain empty, uncomfortable, unsafe, or disconnected from daily life. A failed public space is not always physically damaged. It can also fail because it does not attract use, does not support comfort, does not feel safe, or does not create meaning. Failure usually appears when there is a weak relationship between form, use, and experience. A space may have a good location but poor shade. It may have beautiful paving but no seating. It may be large but without active edges. It may be visually open but difficult to reach because of traffic. It may be designed as a public space but feel socially exclusive or controlled.

Figure 92: Example of a Failed Public Spaces

Main signs of failed public spaces

A public space may be considered weak or failing when several of the following signs appear:

1. **Weak accessibility:** A public space fails when it is difficult to reach, enter, or cross. This can happen because of fast roads, fences, parking, level differences, poor crossings, unclear entrances, or lack of connection to pedestrian routes. A space can be close in distance but still disconnected in practice. If reaching it requires unsafe crossing, long detours, or passing through uncomfortable edges, people may avoid it.
2. **Absence of comfort:** A space without shade, seating, clean surfaces, lighting, protection from traffic, or climatic adaptation will often remain underused. In hot climates, excessive sun exposure can be enough to make a square or street uncomfortable during large parts of the day. Comfort is not secondary. It is one of the basic conditions that allows people to stay.
3. **Inactive or closed edges:** Edges strongly influence public life. Blank walls, fences, parking lots, closed façades, service backs, and empty ground floors reduce visual interest and weaken the feeling of safety. A public space with inactive edges may look open, but it does not create enough contact between buildings and people. Without doors, windows, activities, or visible uses, the space may feel empty or abandoned.
4. **Oversized or poorly proportioned space:** Some spaces fail because their scale is not adapted to use. A very large square without shade, activities, or strong edges may feel exposed and empty. A narrow passage without light or visibility may feel unsafe. A public space must have proportions that support its role and expected activities.
5. **Dominance of traffic or parking:** Public spaces often fail when vehicles dominate the experience. Fast traffic, uncontrolled parking, wide carriageways, and unsafe crossings can transform streets and squares into barriers rather than places. When cars occupy the best parts of public space, pedestrians lose comfort, safety, and freedom of movement.
6. **Lack of activity:** A public space needs reasons to be used. If there are no destinations, no active frontages, no seating, no shade, no play, no commerce, no events, and no daily routes, the space may remain empty. Empty space is not always a problem, but permanent emptiness can indicate weak design, poor location, or lack of connection to everyday life.
7. **Poor maintenance:** Broken furniture, damaged paving, poor lighting, unmanaged waste, dead vegetation, vandalism, and neglected surfaces reduce trust in public space. Maintenance is part of quality because it affects safety, comfort, image, and respect for the place.
8. **Social exclusion:** A space can fail when it is not welcoming to different users. Excessive control, hostile furniture, lack of accessibility, gendered insecurity, absence of seating for elderly people, lack of play opportunities for children, or design only for consumption can reduce its public character. A public space is not fully successful if only some groups feel allowed or comfortable using it.
9. **Loss of identity:** Some spaces fail because they feel generic, disconnected from local life, or without recognizable character. When a place ignores existing memory, culture, climate, materials, activities, and social practices, it may become visually clean but emotionally weak.

Failed public spaces usually suffer from weak access, poor comfort, inactive edges, traffic dominance, lack of activities, poor maintenance, social exclusion, or loss of identity. Failure is rarely caused by one element alone. It often results from a weak relationship between physical form, social use, and human experience.

6.7 Public Space Evaluation Criteria

Evaluating public space means moving from general impressions to clear criteria. It helps explain why a place works well, why it remains weak, and what kind of improvements may be needed. Evaluation does not mean judging only beauty. It means reading how the space performs for people, activities, comfort, access, safety, and identity.

The criteria below can be used as a simple checklist for streets, squares, plazas, parks, campus spaces, neighborhood open spaces, or public building surroundings.

6.7.1 Access and connectivity

A public space should be easy to reach and well connected to surrounding streets, pedestrian routes, public transport, buildings, and daily destinations.

Useful questions:

- Is the space easy to find?
- Are entrances visible and welcoming?
- Are sidewalks and crossings safe?
- Is the space connected to important routes and activities?
- Can people with different mobility needs enter and use it?

6.7.2 Comfort and climate adaptation

A public space should offer conditions that allow people to walk, sit, wait, meet, and stay without discomfort.

Useful questions:

- Is there enough shade?
- Are seating areas available and well placed?
- Are surfaces walkable and maintained?
- Is the space protected from excessive heat, glare, wind, traffic, dust, or noise?
- Can the space be used during different times of the day?

6.7.3 Safety and visibility

A public space should reduce physical risks and support the feeling of security.

Useful questions:

- Are crossings and pedestrian routes safe?
- Is lighting sufficient at night?
- Are there hidden corners or unsafe edges?
- Are surrounding buildings visually connected to the space?
- Is there regular activity that creates natural surveillance?

6.7.4 Activity and use

A public space should support different uses and give people reasons to come, stay, and return.

Useful questions:

- What activities happen in the space?
- Are activities necessary, optional, or social?
- Are there active frontages, shops, services, public facilities, or events nearby?
- Does the space support both movement and staying?
- Is it used at different times of the day?

6.7.5 Sociability and public life

A public space should allow people to meet, observe, interact, and share space.

Useful questions:

- Are there places to pause without blocking movement?
- Do people meet, talk, watch, sit, or gather?
- Are there edges, benches, steps, cafés, shade, or waiting areas that support informal contact?
- Does the space feel lively without being overcrowded?

6.7.6 Inclusiveness and accessibility for all

A public space should be usable by different people, including children, elderly people, women, men, people with disabilities, residents, workers, and visitors.

Useful questions:

- Who uses the space?
- Who seems absent or excluded?
- Are paths, seating, crossings, and entrances accessible?
- Does the space offer choices for different needs and rhythms?
- Does it feel socially welcoming?

6.7.7 Identity and meaning

A public space should have recognizable character and connection to local life.

Useful questions:

- What makes the space recognizable?
- Does it contain local materials, trees, views, landmarks, activities, memories, or cultural practices?
- Do people seem attached to it?
- Does the space feel generic or rooted in its context?

6.7.8 Maintenance and management

A public space needs care over time. Even a well-designed space can fail if it is not maintained.

Useful questions:

- Are paving, lighting, furniture, trees, and surfaces in good condition?
- Is waste managed?
- Are informal uses organized or causing conflict?
- Is the space clean, repaired, and cared for?

6.7.9 Adaptability

A good public space can support change without losing its quality. It may receive temporary events, markets, seasonal uses, changing movement patterns, or new social needs.

Useful questions:

- Can the space host different activities?
- Can it adapt to different times of the day or year?
- Are furniture and open areas flexible?
- Can new uses appear without damaging comfort, access, or identity?

Simple evaluation scale

A practical evaluation can use three levels:

- **Strong:** the criterion is clearly present and supports public life.
- **Moderate:** the criterion exists but needs improvement.
- **Weak:** the criterion is absent, unclear, or creates problems.

This scale can be used in a table where each criterion is evaluated briefly, with one observation and one possible improvement.

Public space evaluation helps transform observation into clear judgment. A good evaluation does not only say that a place is good or bad. It explains how access, comfort, safety, activity, sociability, inclusiveness, identity, maintenance, and adaptability affect public space quality.

6.11 Revision Questions

These questions can be used to review the main ideas of Chapter 6 and to prepare for discussion, exams, or applied analysis.

A. Definition questions

1. What is the difference between **space** and **place** in urban design?
2. How can a physical space become a meaningful place?
3. What is meant by **public space quality**?
4. What is the role of memory in the construction of place meaning?
5. What is the difference between a successful public space and a failed public space?

B. Explanation questions

1. Explain how use, memory, identity, comfort, and attachment can transform a space into a place.
2. Why is accessibility not limited to physical access only?
3. Explain why comfort is essential for the success of public spaces, especially in hot climates.
4. How do safety and perceived security influence the use of public spaces?
5. Why are active edges important for public life?
6. Explain the relation between activity and sociability in public spaces.
7. Why is inclusiveness an important quality of public space?
8. How can identity make a public space more meaningful?

C. Comparison questions

1. Compare a **space** and a **place** using examples from the city.
2. Compare a successful public space and a failed public space.
3. Compare physical accessibility, visual accessibility, and social accessibility.
4. Compare comfort and safety as two qualities of public space.
5. Compare activity and sociability in the evaluation of public space quality.

D. Applied questions

1. Choose one public space you know. What makes it successful or weak?
2. Identify one public space that is often empty. What possible reasons explain its weak use?
3. Observe a square, street, plaza, or park. Is it accessible, comfortable, safe, active, sociable, inclusive, and meaningful?

4. What visible signs show that a public space has identity?
5. What design improvements could transform a weak public space into a better place?
6. How can shade, seating, active frontages, and lighting improve the quality of a public space?
7. How can a public space remain inclusive for children, elderly people, women, people with disabilities, workers, visitors, and residents?

E. Critical thinking questions

1. Can a beautiful public space fail? Explain why.
2. Can a small and simple public space become more meaningful than a large designed square? Explain with examples.
3. Is a public space successful only because many people use it?
4. Can too much control reduce the public character of a place?
5. How can urban design improve public space without erasing memory and identity?

Part 5. Methods and Application

Chapter 9. Urban Diagnosis and Tools

After learning how to read urban fabric, urban space, public space quality, scale, landscape, and ambiance, the handbook now moves to the practical stage of urban design work. Chapter 9 explains how to pass from simple observation to a clear urban diagnosis.

Urban diagnosis is an essential step because design should not begin directly with solutions. Before proposing a project, it is necessary to understand the existing situation, identify problems, recognize potentials, and explain the relationships between them. A good diagnosis helps avoid superficial proposals and guides design decisions toward real urban needs.

9.1 Urban Design Process

The urban design process is a progressive method that helps understand a place before proposing how to improve it. It begins with looking carefully at the existing situation, then organizing information, identifying the main issues, and finally translating this understanding into design ideas.

This process can be presented through four connected stages:

- **Observation** means seeing and recording what exists.
- **Analysis** means understanding how the elements work together.
- **Diagnosis** means identifying problems, potentials, causes, and priorities.
- **Design** means proposing spatial responses based on the diagnosis.

These stages are presented in sequence, but in real urban design practice they often overlap. Sometimes an observation leads to a new analysis. Sometimes a diagnosis needs more field verification. Sometimes a design idea reveals that the diagnosis needs to be refined. The process is therefore both structured and flexible [27, 32, 97].

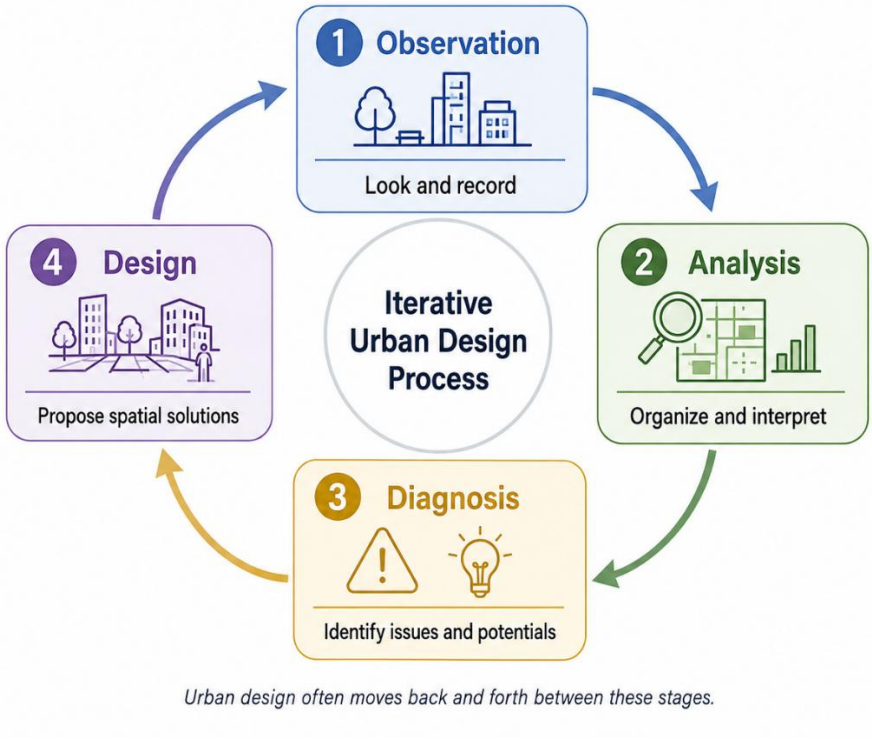

Figure 93: The four stages of the urban design process

9.1.1 Observation

Observation is the first stage of the urban design process. It consists of looking carefully at the urban area and recording what is visible, measurable, and experienced. Observation can be done through walking, mapping, photographing, sketching, counting, listening, and noting how people use the place.

Observation should not be limited to buildings or streets. It includes movement, activities, edges, public spaces, vegetation, materials, shade, lighting, sound, comfort, safety, and signs of transformation. It also includes the way people walk, stop, sit, avoid, gather, or interact.

Good observation is precise and neutral at the beginning. It records what exists before judging it. For example, instead of writing “the street is bad”, a better observation is: “the sidewalk is narrow, cars are parked on pedestrian space, there is no shade, and crossings are not clearly marked.” This kind of observation can later support analysis and diagnosis [98, 99].

Observation can be organized through simple tools such as: site notes; photographs; field sketches; base maps; movement traces; activity mapping; street sections; sound or comfort notes; short interviews; time based observation.

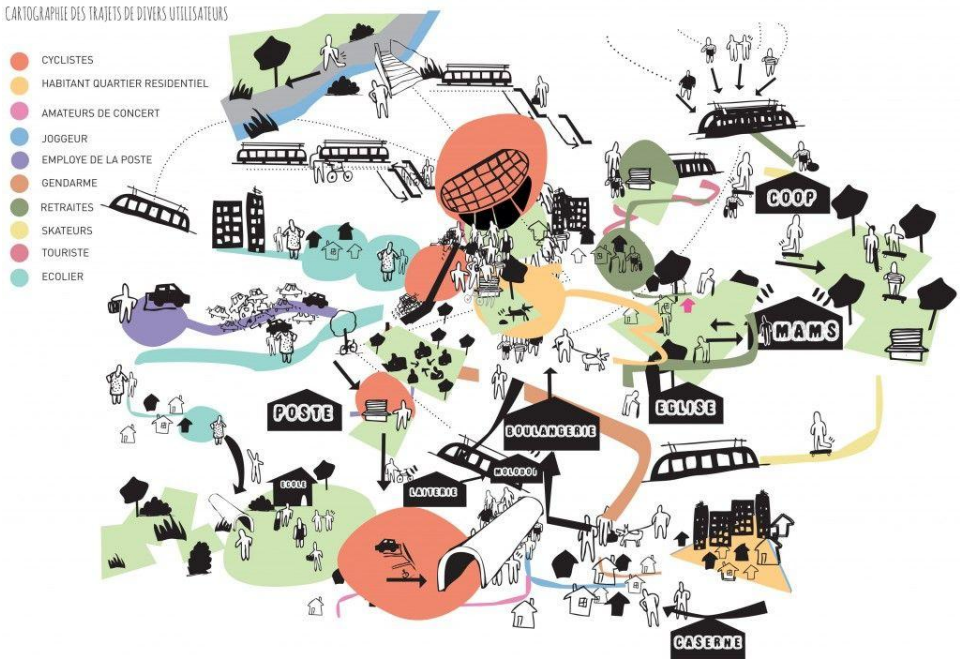

Figure 94: Mental Mapping example

9.1.2 Analysis

Analysis is the stage where observations are organized and interpreted. It explains how the different elements of the urban area work together. While observation asks “what exists?”, analysis asks “how does it work?”

For example, observation may show that a square is empty during the day. Analysis tries to understand why. The reasons may include lack of shade, weak access, inactive frontages, poor seating, traffic noise, excessive heat, or absence of activities around the square. Analysis connects information. It relates street pattern to movement, building edges to public life, vegetation to comfort, land use to activity, and scale to human experience. It also compares different parts of the site to identify contrasts, patterns, and relationships.

Useful analytical readings may include: accessibility and connectivity; land use and activities; public space structure; frontages and edges; pedestrian movement; traffic conflicts; shade and thermal comfort; safety and visibility; urban grain and scale; identity and landmarks; environmental conditions; social use and public life [98, 99]. A good analysis does not only describe problems. It also identifies strengths. A site may have poor sidewalks but strong local commerce. It may have weak lighting but good social activity. It may have fragmented open spaces but valuable trees. Recognizing potentials is as important as identifying weaknesses.

9.1.3 Diagnosis

Diagnosis is the stage where the main urban issues are clearly identified. It is more focused than analysis. It selects the most important problems and potentials, explains their causes, and defines priorities for action.

A diagnosis should answer three main questions:

- What are the main problems?
- What are the main potentials?
- What should be improved first?

For example, the diagnosis of a public space may identify that its main weakness is not its size, but its lack of shade, inactive edges, and poor pedestrian access. Another site may suffer from fragmentation because large roads, walls, and parking areas interrupt pedestrian movement. A third site may have strong social use but weak comfort and poor maintenance.

A good diagnosis avoids vague statements. Instead of writing “the area lacks quality”, it is better to write: “the area has weak pedestrian comfort because sidewalks are narrow, shaded routes are absent, and crossings are unsafe.” This makes the diagnosis useful for design [100–102].

Diagnosis can be presented through: problem maps; potential maps; cause and effect diagrams SWOT tables; priority matrices; photo analysis; short written synthesis; diagnosis diagrams

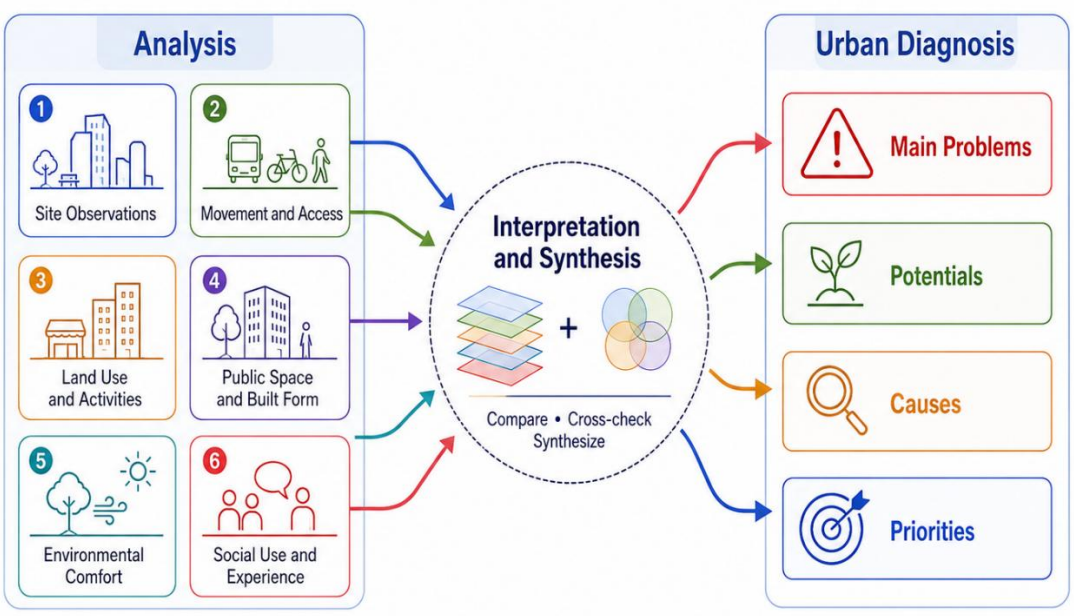

Figure 95: From analysis to urban diagnosis

9.1.4 Design

Design is the stage where diagnosis is translated into spatial responses. It does not mean drawing forms without reason. It means proposing actions that respond to identified problems and use existing potentials.

A design proposal may improve connections, create shade, activate frontages, repair public spaces, calm traffic, introduce seating, strengthen identity, improve accessibility, add vegetation, reorganize movement, or create new public places. The design should be justified by the diagnosis.

For example:

- If the diagnosis shows weak pedestrian connectivity, the design may propose new passages, safer crossings, and clearer routes.
- If the diagnosis shows poor comfort, the design may propose trees, shaded seating, better materials, and protection from traffic.
- If the diagnosis shows inactive edges, the design may propose active ground floors, visible entrances, transparent façades, or small public uses.
- If the diagnosis shows loss of identity, the design may preserve meaningful elements and reinforce local materials, landmarks, or activities.

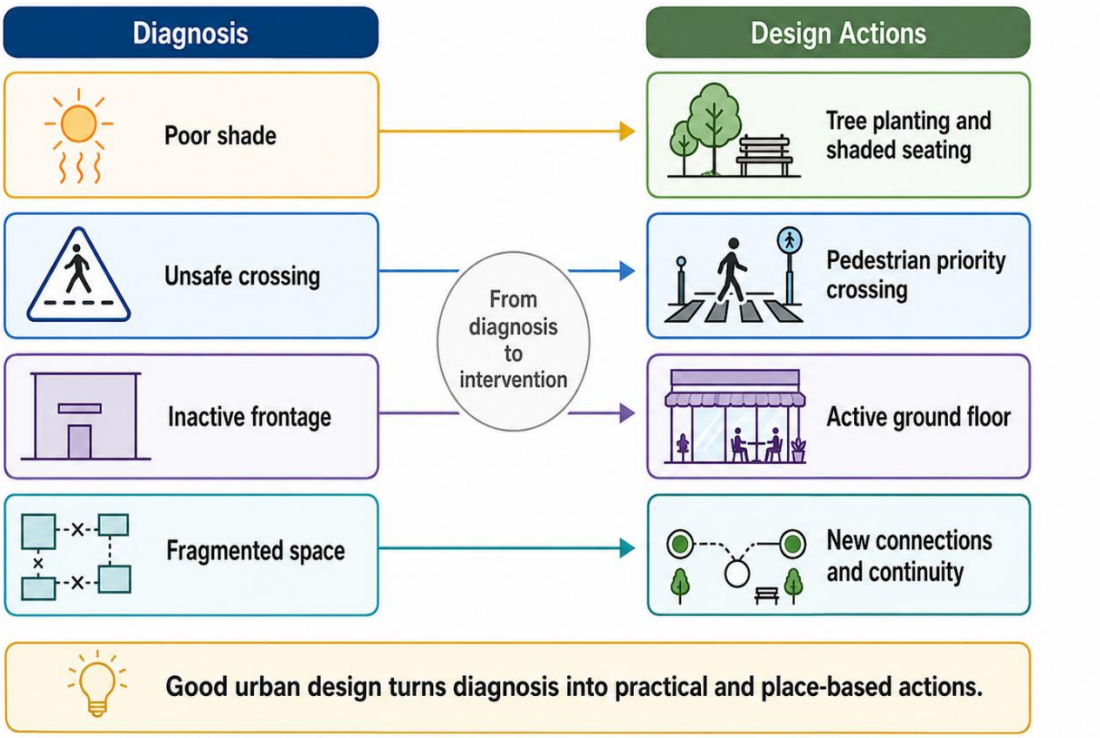

Figure 96: ***Translating diagnosis into design actions***

Design should remain connected to scale. Some actions are small, such as adding seating, lighting, or crossings. Others are larger, such as reorganizing a street, redesigning a square, opening new pedestrian links, or restructuring a block. The important point is that every action should respond to a clear urban issue.

Design is not the starting point of urban design work. It is the result of observation, analysis, and diagnosis. A strong proposal is one that responds clearly to real problems and builds on existing potentials.

9.2 Defining Urban Diagnosis

Urban diagnosis is the stage where the existing urban situation is understood in a clear and structured way. It comes after observation and analysis, and before design strategy. Its purpose is to identify the main problems, the main potentials, their causes, and the priorities that should guide future intervention.

Diagnosis is different from simple description. Description says what exists. Diagnosis explains what is working, what is not working, and why. For example, saying “the square is empty” is only an observation. A diagnosis would explain that the square is underused because it lacks shade, seating, active edges, safe access, and daily activities around it.

Urban diagnosis is also different from design. It does not yet propose final solutions. Instead, it prepares the ground for design by clarifying the real issues. A weak diagnosis often leads to superficial solutions, while a strong diagnosis helps produce interventions that respond to the actual needs of the place [100–102].

A good urban diagnosis should be:

- **Clear**, because it identifies the main issues without confusion.
- **Evidence based**, because it uses observations, maps, photos, measurements, and user information.
- **Spatial**, because it shows where problems and potentials are located.
- **Relational**, because it explains links between causes and effects.
- **Prioritized**, because not all problems have the same importance or urgency.
- **Useful for design**, because it leads directly to possible design objectives.

For example, if the diagnosis shows that a street has weak public life, the cause may not be only the lack of activities. It may also be related to narrow sidewalks, lack of shade, inactive frontages, poor crossings, excessive traffic speed, or weak connection to surrounding spaces. Diagnosis helps reveal these relationships.

9.3 What to Diagnose

Urban diagnosis should not focus on one aspect of the city only. A place may have physical problems, social problems, environmental problems, movement problems, or public space quality problems. These aspects are connected. For this reason, the diagnosis should examine several dimensions of the urban area.

The following components provide a practical framework for diagnosis: urban form, uses and activities, movement, social life, environmental factors, and public space quality.

9.3.1 Urban Form

Diagnosing urban form means understanding the physical structure of the area. It includes streets, blocks, plots, buildings, open spaces, edges, density, height, and the relationship between built and unbuilt areas.

This diagnosis helps identify whether the urban fabric is continuous or fragmented, compact or open, fine grained or coarse grained, well connected or isolated. It also reveals whether buildings define public space clearly or whether the area contains leftover spaces, weak edges, large barriers, or disconnected fragments.

Useful questions include:

- How is the urban fabric structured?
- Are streets and blocks connected clearly?
- Are plots and buildings organized in a coherent way?
- Do buildings define streets and public spaces?
- Are there empty, undefined, or leftover spaces?
- Is the scale adapted to pedestrian experience?

- Are there signs of transformation such as infill, vertical extension, demolition, or plot merging?

The diagnosis of urban form is important because many design problems begin with spatial structure. Poor connectivity, oversized blocks, weak edges, isolated buildings, or fragmented open spaces can limit movement, public life, comfort, and identity.

9.3.2 Uses and Activities

Diagnosing uses and activities means understanding what functions exist in the area and how they generate urban life. Uses include housing, commerce, education, administration, services, culture, worship, industry, recreation, and transport. Activities include walking, sitting, waiting, shopping, playing, working, gathering, and informal exchange.

This diagnosis helps identify whether the area is active or inactive, mixed or mono-functional, lively at different times or empty for long periods. It also reveals the relationship between ground-floor uses and public space.

Useful questions include:

- What are the main land uses in the area?
- Are uses mixed or separated?
- Which uses generate pedestrian movement?
- Where are the active ground floors?
- Which parts are inactive during the day or evening?
- Are there temporary or informal activities?
- Do activities support public life or create conflict?
- Are some important services missing?

Uses and activities should also be read over time. A street may be active in the morning, calm at midday, and lively in the evening. A public space may work during market days but remain weak the rest of the week. Diagnosis should therefore consider daily and weekly rhythms.

9.3.3 Movement

Diagnosing movement means understanding how people and vehicles move through the area. It includes pedestrian movement, cycling, public transport, private cars, service access, parking, crossings, and connections between important destinations.

Movement diagnosis should not focus only on traffic flow. In urban design, pedestrian movement is central because it directly affects public life, accessibility, safety, and comfort. A place may be well connected for cars but difficult for pedestrians.

Useful questions include:

- How do people enter and cross the area?
- Are pedestrian routes direct, safe, shaded, and continuous?
- Where are the main desire lines?
- Are crossings safe and well located?
- Are there barriers such as wide roads, walls, parking, vacant land, or level changes?
- Is public transport easy to reach?

- Does parking support or disturb public space?
- Are there conflicts between pedestrians, vehicles, commerce, and public transport?

A good movement diagnosis identifies both connections and interruptions. Sometimes the main problem is not distance, but the quality of the route: lack of shade, unsafe crossings, poor lighting, blocked sidewalks, or inactive edges.

Diagnosing movement explains how people and vehicles use the area. It identifies routes, barriers, conflicts, unsafe points, and opportunities to improve accessibility and walkability.

9.3.4 Social Life

Diagnosing social life means observing how people use, share, and experience the urban space. It includes meeting, sitting, waiting, playing, talking, watching, informal selling, gathering, and everyday coexistence.

This diagnosis helps identify whether public spaces support real social use or remain only physical spaces. It also shows who uses the space and who may be absent. A socially strong space usually offers reasons to stay, possibilities for interaction, and a sense of comfort and belonging.

Useful questions include:

- Who uses the space?
- Who seems absent or excluded?
- Where do people sit, wait, gather, or interact?
- Which spaces are lively and which remain empty?
- Are there informal activities or social practices?
- Do people stay or only pass through?
- Does the space support different age groups and users?
- Are there conflicts between users?

Social life should be observed at different times. Some spaces are used mainly in the evening, during school hours, on market days, after prayer, during weekends, or during specific seasons. A single observation may not reveal the full social rhythm of the place.

9.3.5 Environmental Factors

Diagnosing environmental factors means understanding how climate, landscape, vegetation, sound, air, water, topography, and microclimate affect urban experience. These factors are especially important because they influence comfort, health, walkability, and the daily use of public spaces.

In hot and semi-arid contexts, environmental diagnosis should give particular attention to shade, solar exposure, surface materials, tree cover, wind, glare, heat accumulation, and access to comfortable resting areas. A public space may fail mainly because it is climatically uncomfortable.

Useful questions include:

- Where is the space exposed to sun?

- Where are shaded areas located?
- Is there enough vegetation?
- Do materials increase heat or glare?
- Is there air movement or wind discomfort?
- What are the main sound sources?
- Is traffic noise disturbing public use?
- Are there problems of dust, pollution, drainage, or waste?
- Does topography affect access and comfort?

Environmental diagnosis connects physical form with human comfort. Wide paved areas, lack of trees, dark asphalt, exposed sidewalks, traffic noise, and poor drainage can strongly reduce the quality of urban space, even when the spatial layout is clear.

9.3.6 Public Space Quality

Diagnosing public space quality brings together many previous dimensions. It evaluates whether streets, squares, plazas, parks, and open spaces are accessible, comfortable, safe, active, sociable, inclusive, and meaningful.

This diagnosis helps identify why a public space succeeds or fails. It also allows comparison between different public spaces in the same area.

Useful questions include:

- Is the public space easy to reach and enter?
- Is it comfortable enough to stay?
- Is there shade, seating, lighting, and good surface quality?
- Does the space feel safe during the day and evening?
- Are edges active or inactive?
- Are different users able to use the space?
- Does the place have identity or meaning?
- Is it maintained and cared for?
- Does it support daily use and occasional events?

Public space quality diagnosis should avoid vague judgments such as “good” or “bad”. It should explain the reasons. For example, a square may be weak because access is blocked by traffic, seating is absent, shade is insufficient, and surrounding frontages are inactive. This kind of diagnosis can later guide clear design priorities.

9.4 Observation Tools

Observation tools help record the existing situation before analysis and diagnosis. They make fieldwork more precise by transforming what is seen, heard, counted, and experienced into usable information. Good observation does not depend on one tool only. Field notes, photography, sketching, and counting work together to create a clear understanding of the urban area.

These tools are simple, but they are essential. A notebook, a camera, a base map, a pencil, and a counting sheet can reveal important information about movement, activities, edges, comfort, safety, and public life. The aim is not to collect information randomly, but to observe with a clear purpose.

9.4.1 Field Notes

Field notes are written observations recorded directly on site. They help capture details that may not appear in maps or photographs, such as atmosphere, behavior, conflicts, comfort, noise, smell, maintenance, informal use, and temporary activities.

Good field notes should be precise and factual. Instead of writing “the place is bad”, it is better to write: “the sidewalk is blocked by parked cars, there is no shade, the crossing is far from the pedestrian desire line, and most people walk on the carriageway.” This kind of note can later support analysis and diagnosis.

Field notes can include:

- Location and time of observation
- Weather and climatic conditions
- Main users present in the space
- Visible activities
- Movement patterns
- Problems and conflicts
- Signs of comfort or discomfort
- Maintenance conditions
- Temporary or informal uses
- First impressions of atmosphere

It is useful to separate observation from interpretation. Observation records what exists. Interpretation explains what it may mean. For example, “people are sitting on the steps because there are no benches” is already an interpretation. It may be correct, but it should be supported by several observations.

9.4.2 Photography

Photography is one of the most useful tools for documenting urban conditions. It records physical elements, activities, problems, details, and changes over time. A photograph can show street edges, sidewalk conditions, shade, traffic conflicts, building frontages, vegetation, furniture, materials, and public space use.

However, photography should not be random. Each photo should have a purpose. It can document a problem, a quality, a view, a spatial relation, an activity, or a detail. A good photographic survey usually includes general views, street-level views, details, and repeated photos from different times of the day.

Useful photo categories include:

- General view of the site
- Street section and proportions
- Frontages and edges
- Sidewalks and crossings
- Public spaces and open areas
- Vegetation and shade
- Urban furniture and lighting
- Materials and maintenance
- Activities and movement
- Problems, barriers, and conflicts

Photography should be accompanied by short captions. A photo without a caption can lose its analytical value. The caption should mention where the photo was taken, what it shows, and why it is important.

For example:

- “Photo 1: Blocked sidewalk near the market entrance. Pedestrians are forced to walk on the carriageway.”
- “Photo 2: Shaded seating area under trees. This area is used by elderly people during the afternoon.”

Figure 97: ***Photographic survey for urban diagnosis*** *[103]*

Photography documents what exists, but it becomes useful for diagnosis only when photos are selected, located, captioned, and connected to a clear observation theme.

9.4.3 Sketching

Sketching is a fast and flexible tool for understanding urban space. It does not need to be artistic. Its value is in simplifying what is observed and showing relationships that may be difficult to see in photographs.

A sketch can show the relation between buildings and streets, the position of trees, the width of sidewalks, the location of activities, the direction of movement, the feeling of enclosure, or the conflict between pedestrians and vehicles. Sketching helps focus attention on structure and experience rather than visual appearance only.

Useful urban sketches include:

- Street section
- Building frontage sketch
- Movement sketch
- Activity sketch
- Edge condition sketch
- Shade and comfort sketch
- Problem sketch
- Before and after idea sketch

Sketching also helps during fieldwork because it slows down observation. When drawing a street section, for example, it becomes easier to notice sidewalk width, building height, tree position, parking, lighting, and the relation between ground floors and pedestrians.

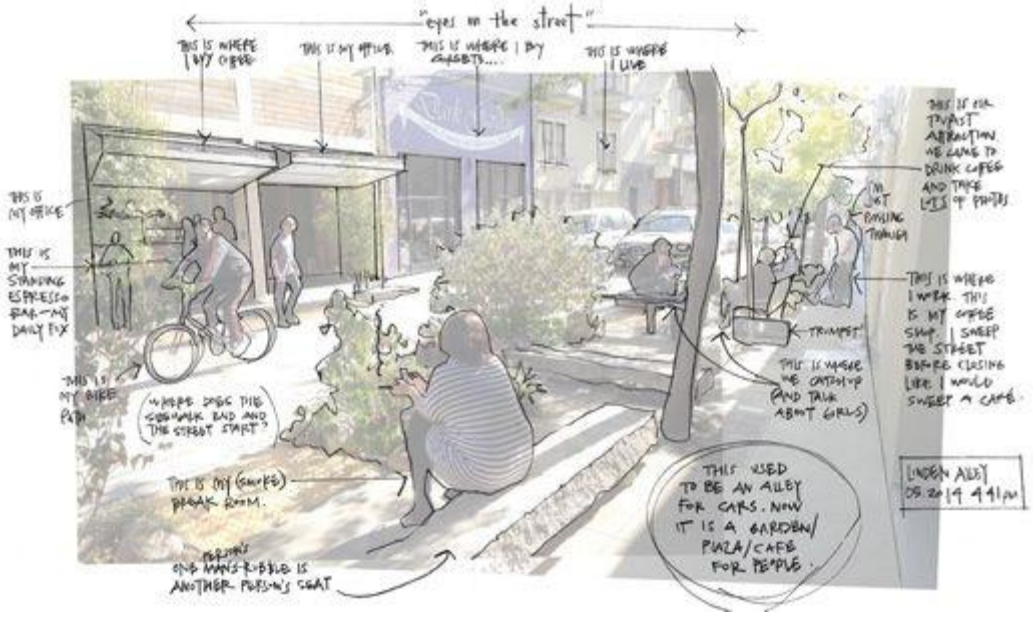

Figure 98: ***Field sketching as a tool for reading urban space*** *[104]*

A good sketch should be clear, labeled, and linked to observation. It can include arrows, notes, symbols, measurements, and short comments. The aim is not beauty, but communication.

9.4.4 Counting

Counting is used to measure what happens in urban space. It gives numerical support to observation and helps avoid vague statements such as “many people use this street” or “few people sit in this square.” Counting can be simple, but it must be organized.

Counting can include pedestrians, vehicles, cyclists, public transport users, parked cars, people sitting, people waiting, children playing, commercial activities, shaded seats, empty benches, or crossing movements. The choice depends on the objective of observation.

Examples of useful counts include:

- Number of pedestrians passing in ten minutes
- Number of people sitting in a square
- Number of vehicles passing in five minutes
- Number of parked cars occupying sidewalks
- Number of active and inactive frontages
- Number of shaded and unshaded seating places
- Number of safe and unsafe crossings
- Number of users by age group or activity type

Counting should always mention time, duration, location, and observation conditions. A count made in the morning is not the same as a count made in the evening. A weekday is not the same as a market day or weekend. Weather conditions also affect results, especially in outdoor public spaces.

Location / Date / Weather condition

Gate counts

GATE	TIME	Moving MEN	Moving WOMEN	Moving CHILDREN	Moving ELDERLY
G1	09:00–09:05	𝍸 𝍸 |	𝍸 ‖	‖	‖
G2					
G3					
...					

Figure 99: ***Simple counting sheet for urban observation*** *[105]*

Counting does not replace qualitative observation. It complements it. For example, counting may show that many people cross a dangerous road at the same point. Field notes and photography can then explain why: the official crossing is too far, the desire line is stronger, or the sidewalk leads naturally to that location.

9.5 Analytical Tools

Analytical tools help transform field observations into clear spatial understanding. After collecting information through notes, photos, sketches, and counts, the next step is to organize this information so that problems, potentials, relationships, and priorities become visible. These tools do not replace observation. They clarify it. Plans, sections, diagrams, maps, GIS, and behavior mapping make it possible to see patterns that are not always obvious during fieldwork. They help compare areas, explain causes, and prepare a stronger diagnosis.

9.5.1 Plans

Plans are basic tools for reading the city from above. They show the horizontal organization of streets, plots, buildings, open spaces, vegetation, public facilities, and movement routes. A plan helps understand how the parts of an urban area are arranged and connected. In urban diagnosis, plans are useful because they reveal structure. They can show whether streets are connected, whether blocks are large or small, where public spaces are located, where barriers exist, and how buildings occupy the land. A plan can also help identify empty plots, leftover spaces, fragmented areas, and weak connections.

Different types of plans can be used according to the objective:

- Site plan
- Street network plan
- Figure ground plan
- Land use plan
- Public space plan
- Building footprint plan
- Vegetation plan
- Accessibility plan
- Problem and potential plan

A plan should not be overloaded with too much information. Each plan should have one clear purpose. For example, a land use plan should focus on functions, while a movement plan should focus on routes, crossings, barriers, and flows. When too many layers are placed on one drawing, the analysis becomes difficult to read.

9.5.2 Sections

Sections are drawings that cut through the urban space vertically. They show the relationship between building height, street width, sidewalks, trees, traffic space, ground level, shade, and open space. While plans show how the city is organized from above, sections show how the city is experienced from the side. Sections are especially useful for understanding streets, squares, courtyards, slopes, waterfronts, and public spaces. They reveal proportions that may not appear clearly in plan. A street may look wide in plan, but a section can show that sidewalks are too narrow, buildings are too high, trees are absent, or pedestrians are exposed to traffic.

A good urban section can show:

- Building height
- Street width
- Sidewalk width
- Traffic lanes
- Parking
- Trees and shade
- Lighting
- Urban furniture
- Level changes
- Ground floor relation
- Public and private edges
- Sun exposure and enclosure

Sections are also useful for climate reading. In hot climates, a section can show where shade is produced, where pedestrians are exposed, and how building height, trees, arcades, and canopies affect comfort.

Figure 100: ***Street section as an analytical tool***

9.5.3 Diagrams

Diagrams are simplified drawings that explain relationships, processes, or problems. They do not need to show every detail of the site. Their purpose is to make one idea clear. In urban diagnosis, diagrams can explain how movement works, where barriers interrupt continuity, how activities are concentrated, how public spaces are connected, or how a problem is produced. A diagram can also show cause and effect, such as how traffic dominance leads to unsafe crossings and weak pedestrian use.

A good diagram should be simple, selective, and readable. It should use clear symbols, arrows, colors, labels, and hierarchy. The aim is not to decorate the analysis, but to communicate the main idea quickly. For example, instead of writing a long paragraph about poor pedestrian connectivity, a diagram can show blocked routes, unsafe crossings, missing links, and desire lines in one visual explanation.

9.5.4 Mapping

Mapping is the process of locating information in space. It connects observations to specific places. Instead of saying that an area has poor shade, mapping shows exactly where shade exists, where it is absent, and where discomfort is strongest. Mapping is one of the most important analytical tools because urban diagnosis must be spatial. Problems and potentials are not abstract; they happen in specific locations. A map can show where movement is concentrated, where activities happen, where people gather, where conflicts occur, and where public space quality is weak.

Common urban design maps include:

- land use map
- movement map
- pedestrian flow map
- activity map
- frontage map
- shade and sun exposure map
- noise map
- vegetation map
- safety and visibility map
- problem and potential map

Mapping can be done by hand on a base map or digitally using software. The most important point is clarity. Each map should have a title, legend, scale, orientation, and a clear message.

9.5.5 GIS

GIS, or Geographic Information System, is a digital tool used to collect, organize, analyze, and visualize spatial data. It allows different layers of information to be combined on one geographic base. These layers may include roads, buildings, land use, population, slope, vegetation, transport, services, noise, heat, or flood risk.

In urban design, GIS is useful when the analysis needs more precision, larger scale information, or comparison between several layers. It can help measure distances, identify service coverage, analyze accessibility, calculate density, locate green space distribution, or compare social and environmental data. GIS is powerful, but it should not replace field observation. A GIS map may show that a park is close to a neighborhood, but fieldwork may reveal that the route is unsafe, unshaded, or blocked by traffic. Digital analysis and site observation must therefore work together.

9.5.6 Behavior Mapping

Behavior mapping records how people actually use a space. It locates activities, movements, staying areas, interactions, conflicts, and avoided zones on a base map. This tool is especially useful for understanding public life.

Behavior mapping can show where people walk, sit, wait, play, sell, gather, talk, cross, or avoid passing. It can also show differences between user groups, such as children, elderly people, workers, visitors, or students. The aim is not to control behavior, but to understand how space supports or limits everyday use.

A behavior map usually includes:

- location of users
- type of activity
- time of observation
- duration of stay
- movement routes
- sitting and waiting areas
- interaction points
- conflict points
- empty or avoided areas
- user categories when relevant

Behavior mapping should be repeated at different times when possible. A space can be empty in the morning and active in the evening. A square can be quiet during weekdays and full during market days. A campus space can change between class hours and breaks. Time is therefore essential in behavior mapping.

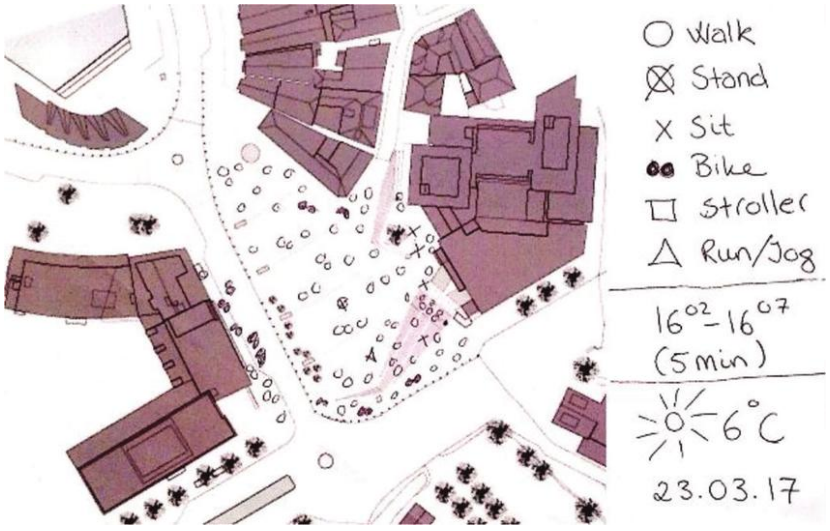

Figure 101: ***Behavior mapping of activities in public space****[106]*

Behavior mapping is useful because it connects design with real use. It can reveal that people prefer shaded edges, avoid exposed areas, sit near active frontages, cross outside official crossings, or gather where visibility and comfort are better.

9.6 Participation Tools

Urban diagnosis should not depend only on what is observed from outside. A place is also understood through the people who use it every day. Residents, shopkeepers, workers, children, elderly people, visitors, and local institutions often know problems and potentials that are not immediately visible in maps or field observation.

Participation tools help collect this local knowledge. They make the diagnosis more realistic because they reveal daily practices, needs, memories, conflicts, fears, preferences, and expectations. These tools do not replace professional analysis. They complete it by connecting spatial observation with lived experience [100, 107].

9.6.1 Surveys

Surveys are structured questionnaires used to collect information from a larger number of people. They are useful when the diagnosis needs repeated answers about use, satisfaction, problems, priorities, comfort, safety, mobility, or public space quality.

A survey can include closed questions, where people choose from fixed answers, and open questions, where they express ideas in their own words. Closed questions are easier to compare, while open questions can reveal unexpected issues. For example, a public space survey may ask: How often do you use this square? At what time of day? What do you do there? What makes it comfortable or uncomfortable? What is the first improvement needed?

Surveys must be simple and clear. Long or complicated questionnaires often produce weak answers. It is also important to choose respondents carefully so that different users are represented, not only the most visible group.

9.6.2 Interviews

Interviews are conversations used to understand people's experiences in more depth. They are useful when the diagnosis needs explanation, memory, personal perception, or detailed local knowledge.

Unlike surveys, interviews are more flexible. They allow follow-up questions and help understand why people use or avoid a place. Interviews can be done with residents, shopkeepers, local workers, school users, transport users, municipal staff, community leaders, or people who spend time in the space.

For example, a shopkeeper may explain how parking affects access to the street. An elderly resident may describe where shade is missing. A student may identify the safest and most used path across a campus. These details may not appear clearly in plans.

Interviews should be respectful, short enough to remain comfortable, and connected to the diagnosis objectives. It is useful to record the main ideas immediately after the conversation, while keeping the identity of participants protected when needed.

9.6.3 Workshops

Workshops are collective sessions where different participants discuss the urban area, identify problems, share ideas, and sometimes propose priorities or design directions. They are useful when the diagnosis needs dialogue between several actors.

A workshop can bring together residents, students, local associations, municipal representatives, professionals, shopkeepers, or users of a specific space. The aim is not only to collect opinions, but to build a shared understanding of the place. Workshops can reveal agreements and disagreements. For example, one group may see parking as the main problem, while another may see shade, safety, or lack of activities as more urgent. This difference is useful because urban diagnosis often involves multiple needs.

A good workshop needs clear structure. The topic, time, materials, and expected result should be prepared in advance. The discussion should remain focused, and the final outputs should be summarized visually or in writing.

Figure 102: ***Workshop process for urban diagnosis*** *[108]*

Workshops create collective discussion around urban problems and potentials. They help compare viewpoints, identify priorities, and build a shared understanding of the site.

9.6.4 Community Mapping

Community mapping is a participatory tool where users mark important information directly on a map. It helps locate local knowledge in space. Participants can identify places they use, avoid, value, fear, remember, or want to improve. This tool is useful because people often describe space through daily experience rather than technical language. A resident may mark a dangerous crossing, a shaded meeting point, a noisy edge, a shortcut, a place of memory, or an area avoided at night.

Community mapping can include:

- favorite places
- unsafe places
- important routes
- barriers and difficult crossings
- comfortable shaded areas
- places with strong memory
- active and inactive areas
- missing services
- conflict points
- priority improvement zones

The map does not need to be complex. A printed aerial image, cadastral map, or simple base plan can be enough. Colored stickers, markers, symbols, or notes can help participants express their observations. Community mapping is especially valuable when several groups are involved. Children, elderly people, women, shopkeepers, visitors, and workers may mark different places and reveal different spatial experiences.

9.6.5 Participatory Walks

Participatory walks are field visits carried out with users or local actors. Instead of discussing the place only in a room, participants walk through the site and comment directly on what they see and experience. This tool is useful because many urban issues become clearer when they are experienced in place. A narrow

sidewalk, an unsafe crossing, a lack of shade, a noisy street, a hidden entrance, or an inactive edge can be discussed directly while standing there.

The walk should follow a prepared route, but it can also allow participants to suggest important stops. Notes, photos, sketches, and audio comments can be recorded during the walk. The final result can be a map of observations linked to specific locations. Participatory walks are particularly useful for understanding everyday experience. They show how different users perceive the same route. For example, a route that seems short on a map may feel difficult for an elderly person, unsafe for a child, or uncomfortable during hot hours.

Figure 103: ***Participatory walk as a field tool for urban diagnosis*** *[109]*

9.11 Revision Questions

1. What is the difference between **observation**, **analysis**, and **diagnosis** in the urban design process?
2. Why is it important to diagnose urban form, movement, activities, social life, environmental factors, and public space quality before proposing a design strategy?
3. How can tools such as field notes, photography, mapping, behavior mapping, participation, and the diagnosis matrix help transform site observation into clear design priorities?

Chapter 10. From Diagnosis to Urban Design Strategy

After observation, analysis, and diagnosis, the next step is to transform understanding into design direction. Chapter 9 explained how to identify problems, potentials, causes, and priorities. Chapter 10 explains how these findings can become an urban design strategy.

An urban design strategy is not a collection of isolated ideas. It is a coherent direction that explains what needs to change, why it needs to change, and how spatial actions can improve the urban area. It connects diagnosis with design objectives, design concept, urban design principles, and spatial interventions.

10.1 Defining Design Objectives

Design objectives are clear statements that explain what the project aims to improve. They come directly from the diagnosis. If the diagnosis identifies weak pedestrian connections, one objective can be to improve walkability and continuity. If the diagnosis identifies lack of shade and comfort, one objective can be to create climate-responsive public spaces.

Objectives are different from design actions. An objective explains the intention. An action explains how this intention will be achieved. For example, “improve pedestrian safety” is an objective. “Add raised crossings, widen sidewalks, reduce vehicle speed, and improve lighting” are possible design actions.

Good objectives should be clear, realistic, spatial, and connected to users’ needs. They should not be too general. An objective such as “make the area better” is weak because it does not explain what must be improved. A stronger objective is: “improve pedestrian accessibility between the neighborhood, the school, and the main public space.”

A useful way to write objectives is to begin with an action verb:

- Improve pedestrian continuity.
- Strengthen public space comfort.
- Activate ground-floor frontages.
- Reconnect fragmented urban spaces.
- Protect meaningful landscape elements.
- Create inclusive spaces for different users.
- Reduce the dominance of traffic.
- Reinforce local identity.

10.2 Developing an Urban Design Concept

The urban design concept is the main idea that organizes the strategy. It gives unity to the project and helps connect different design actions. Without a concept, the proposal may become a list of disconnected improvements.

A concept can be based on the main problem identified in the diagnosis, on the strongest potential of the site, or on the desired future character of the area. For example, if the diagnosis shows fragmented public spaces, the concept may be “a connected public space network.” If the site has strong landscape potential, the concept may be “a shaded green pedestrian spine.” If the area lacks identity, the concept may be “recovering local memory through public space.”

A good concept should be simple enough to remember and strong enough to guide decisions. It should not be only a slogan. It must have spatial consequences. For example, the concept of “walkable neighborhood” must lead to better sidewalks, safer crossings, active edges, shaded routes, and connected destinations.

The concept can be communicated through a short sentence, a concept diagram, a schematic plan, or a series of keywords. The most important point is that all design decisions should remain coherent with it.

10.3 Urban Design Principles

Urban design principles are general guidelines that help transform objectives and concepts into spatial decisions. They are not ready-made solutions. They are criteria that guide the design process and help evaluate whether the proposal responds to the diagnosis.

The following principles are commonly used in urban design. They can be selected and adapted according to the context, because not every project needs the same emphasis.

10.3.1 Connectivity

Connectivity refers to how well different parts of the urban area are linked together. A connected urban area allows people to move easily between homes, services, schools, transport stops, public spaces, and commercial activities.

- A strategy can improve connectivity by opening missing links, reconnecting interrupted routes, creating pedestrian passages, improving crossings, linking public spaces, and reducing barriers created by roads, walls, parking areas, or oversized blocks.

10.3.2 Accessibility

Accessibility means that spaces, services, buildings, and routes can be reached and used by different people. It includes physical accessibility, visual accessibility, and social accessibility.

- A strategy can improve accessibility through continuous sidewalks, ramps, safe crossings, clear entrances, public transport access, visible routes, and inclusive design for children, elderly people, people with disabilities, and other users.

10.3.3 Walkability

Walkability refers to the quality of the walking experience. A walkable area is safe, direct, shaded, comfortable, interesting, and connected to useful destinations.

- A strategy can support walkability through wider sidewalks, shaded routes, safe crossings, traffic calming, active frontages, lighting, seating, and short connections between daily activities.

10.3.4 Human Scale

Human scale means that the urban environment feels understandable and comfortable from the perspective of the body. It is related to street width, building height, façade rhythm, entrances, details, shade, seating, and visual richness at eye level.

- A strategy can reinforce human scale by designing active ground floors, smaller frontage rhythms, comfortable street proportions, shaded sidewalks, visible entrances, and spaces where people can pause.

10.3.5 Mixed Use

Mixed use means combining different functions in the same area, such as housing, commerce, services, education, work, recreation, and public facilities. Mixed use can create activity during different times of the day and reduce dependence on long-distance movement.

- A strategy can encourage mixed use by supporting active ground floors, local services, flexible buildings, public facilities near housing, and public spaces connected to daily needs.

10.3.6 Active Frontages

Active frontages are building edges that create contact with public space. They include doors, windows, shops, cafés, workshops, balconies, transparent façades, and visible activities.

- A strategy can activate frontages by avoiding blank walls, placing public or commercial uses at ground level, increasing entrances, improving transparency, and connecting indoor activities with the street.

10.3.7 Legibility

Legibility means that the urban area is easy to understand and navigate. Clear routes, landmarks, edges, nodes, entrances, views, and spatial hierarchy help people know where they are and where they can go.

- A strategy can improve legibility by clarifying paths, reinforcing landmarks, improving signage, opening views, organizing public spaces, and making entrances more visible.

10.3.8 Safety

Safety includes protection from physical risk and the feeling of security. It is influenced by traffic speed, crossings, lighting, visibility, active edges, maintenance, and the presence of people.

- A strategy can improve safety through traffic calming, safer crossings, better lighting, clear sightlines, active frontages, maintained spaces, and reducing hidden or neglected areas.

10.3.9 Comfort

Comfort allows people to walk, sit, wait, meet, and stay without stress. It includes thermal comfort, acoustic comfort, seating, shade, lighting, clean surfaces, protection from traffic, and walkable materials.

- A strategy can improve comfort by adding trees, shade structures, seating, better paving, wind or sun protection, lighting, and quieter pedestrian areas.

10.3.10 Inclusiveness

Inclusiveness means that urban space can be used by different people with dignity and comfort. It concerns age, gender, ability, income, culture, and different daily needs.

- A strategy can support inclusiveness by providing accessible routes, varied seating, safe lighting, play spaces, resting areas, shaded places, clear information, and spaces that do not exclude users through control or hostile design.

10.3.11 Identity

Identity gives character and meaning to urban space. It can come from memory, history, local materials, landscape, architecture, activities, landmarks, cultural practices, or everyday habits.

- A strategy can strengthen identity by preserving meaningful elements, reusing local materials, highlighting views, supporting local activities, protecting memory places, and avoiding generic design.

10.3.12 Environmental Sustainability

Environmental sustainability means designing urban spaces that reduce environmental pressure and improve comfort, resilience, and ecological quality. It includes vegetation, shade, water management, biodiversity, permeable surfaces, energy efficiency, and climate adaptation.

- A strategy can support sustainability by increasing tree cover, reducing heat-absorbing surfaces, using permeable materials, managing rainwater, supporting walking and cycling, improving microclimate, and protecting existing landscape elements.

10.4 Translating Strategies into Spatial Actions

An urban design strategy becomes useful when it is translated into clear spatial actions. A strategy explains the direction of change, while spatial actions show how this change can appear in the urban area. Without spatial actions, the strategy remains too abstract. Without strategy, actions can become disconnected and random.

Spatial actions must come from the diagnosis, objectives, concept, and design principles. For example, if the diagnosis identifies weak pedestrian continuity, the strategy may aim to reconnect the area, and the spatial actions may include new pedestrian crossings, improved sidewalks, shaded routes, and reopened passages.

A spatial action can be small, medium, or large. Small actions include adding benches, lighting, trees, signs, or crossings. Medium actions include redesigning a street section, activating ground floors, improving a square, or creating a shaded pedestrian route. Large actions include restructuring blocks, creating a new public space network, reorganizing mobility, or transforming an urban edge.

Linking actions to design objectives

A useful method is to connect each action to one design objective. This makes the proposal easier to justify.

Diagnosis finding	Design objective	Spatial action
Sidewalks are narrow and blocked by parking	Improve pedestrian accessibility	Widen sidewalks and reorganize parking
The square is exposed to sun	Improve thermal comfort	Add trees, pergolas, and shaded seating
Ground floors are inactive	Strengthen public life	Introduce active frontages and visible entrances
Routes are fragmented	Improve connectivity	Create pedestrian links and safer crossings
The place lacks identity	Reinforce local character	Preserve meaningful elements and use local materials

From action to design coherence

Spatial actions must work together. A shaded route, for example, becomes stronger when it also has safe crossings, active edges, lighting, and seating. A new public space becomes stronger when it is connected to movement, surrounded by active uses, and adapted to climate. The aim is not to add many actions, but to create coherence between them. A good urban design strategy selects the right actions and combines them around one clear concept.

10.5 Testing the Proposal Across Scales

An urban design proposal must be tested at different scales. A solution that works at one scale may create problems at another. For example, a new road may improve access at the city scale but create a barrier at the neighborhood scale. A new public space may look attractive in plan but fail at the pedestrian scale if it lacks shade, seating, active edges, or safe access. Testing across scales helps verify whether the proposal is coherent from the larger urban structure to the everyday experience of users.

Macro scale

At the macro scale, the proposal is tested in relation to the larger city. This includes major connections, public transport, ecological networks, important facilities, urban growth, and the relationship with surrounding districts.

Useful questions include:

- Does the proposal connect well to the wider city?
- Does it improve access to important destinations?
- Does it support public transport, walking, or cycling networks?
- Does it reduce barriers or create new ones?
- Does it contribute to environmental continuity, such as green corridors or drainage systems?

Meso scale

At the meso scale, the proposal is tested at the level of the neighborhood or district. This includes street structure, public spaces, land use, blocks, frontages, local services, and daily movement.

Useful questions include:

- Does the proposal improve neighborhood connectivity?
- Are public spaces well located and connected?
- Do land uses support daily activity?
- Are streets, blocks, and frontages coherent?
- Are barriers, leftover spaces, and inactive edges reduced?
- Does the proposal strengthen the identity of the area?

Micro scale

At the micro scale, the proposal is tested at human level. This includes sidewalks, crossings, seating, shade, lighting, materials, entrances, trees, furniture, visibility, comfort, and public life.

Useful questions include:

- Can people walk comfortably and safely?
- Are there places to sit, wait, meet, and rest?
- Is there enough shade and climate protection?
- Are frontages active and visible?
- Are materials comfortable and accessible?
- Does the place feel safe, readable, and welcoming?

Why scale testing matters

Testing across scales prevents common design mistakes. A proposal may be visually strong in a general plan but weak at street level. It may improve traffic movement but reduce walkability. It may create open space but not usable public space. It may introduce greenery without creating real shade or ecological value. A strong proposal works across scales. It connects to the city, improves the neighborhood, and creates comfort at the level of the body [10, 42].

10.6 Communicating the Urban Design Strategy

A good urban design strategy must be clearly communicated. Even a strong proposal can become weak if it is not explained well. Communication helps others understand the diagnosis, the objectives, the concept, the principles, and the spatial actions. Communication is not only graphic presentation. It is the organization of ideas. The proposal must show why the strategy is needed, what it aims to achieve, and how it transforms the site.

The communication should remain selective. It is better to present a few strong drawings with clear titles than many overloaded graphics. Each drawing must answer a question. For example, a connectivity diagram explains how routes are improved. A shade diagram explains comfort. A frontage diagram explains public life. A section explains human scale.

The role of diagrams

Diagrams are useful because they simplify the main ideas. A concept diagram can show the organizing idea of the proposal. A movement diagram can show new connections. A public space diagram can show the network of streets, squares, and green spaces. A problem and action diagram can show how each issue is addressed.

Writing the strategy statement

The strategy should also be explained in a short written statement.

Example:

The strategy aims to **reconnect the neighborhood and improve public space quality** by **creating a shaded pedestrian network**. It responds to w**eak connectivity, poor thermal comfort, inactive edges, and fragmented public spaces** identified in the diagnosis. The main concept is **a green public spine linking housing, schools, shops, and public transport**. The proposal is based on **connectivity, walkability, comfort, active frontages, inclusiveness, and environmental sustainability**.

Clarity and coherence

Good communication avoids decorative complexity. The most important ideas must be visible. Drawings should use clear legends, titles, scale, orientation, and simple graphic hierarchy. Text should be short, precise, and linked to drawings.

The strategy must always show the relationship between problem and response. This is what makes the proposal convincing.

Communicating an urban design strategy means explaining the logic of the proposal clearly. Good communication connects diagnosis, objectives, concept, principles, spatial actions, and expected improvements through simple drawings and precise text.

10.7 Evaluating the Proposal

Evaluation is the final check before considering an urban design proposal complete. It verifies whether the proposed strategy responds to the diagnosis, supports the design objectives, and improves the quality of urban space. Evaluation is not only a judgment at the end. It can also be used during the design process to refine and correct the proposal.

A proposal may look attractive in drawings but still fail if it does not solve the main problems identified earlier. For example, a redesigned square may appear visually organized, but if it still lacks shade, seating, safe access, and active edges, the public space quality remains weak. Evaluation helps test the real value of the proposal beyond its appearance.

What to evaluate

The proposal should be evaluated according to the main issues identified in the diagnosis and the design principles selected for the strategy. The criteria may include connectivity, accessibility, walkability, human scale, mixed use, active frontages, legibility, safety, comfort, inclusiveness, identity, and environmental sustainability.

Evaluation can begin with simple questions:

- Does the proposal respond to the main diagnosis findings?
- Are the design objectives clearly addressed?
- Are pedestrian connections improved?
- Are public spaces more accessible and comfortable?
- Are shaded areas, seating, crossings, and active edges better organized?
- Does the proposal support different users and daily activities?
- Does it protect or reinforce local identity?
- Does it improve environmental comfort and sustainability?

Comparing before and after

A useful evaluation method is to compare the existing situation with the proposed situation. This can be done through before and after plans, sections, diagrams, or short tables.

For example:

Diagnosis issue	Existing situation	Proposed improvement	Expected result
Weak pedestrian continuity	Routes are interrupted by parking and unsafe crossings	Continuous sidewalks and safer crossings	Easier and safer walking
Lack of shade	Public spaces are exposed to sun	Trees, pergolas, and shaded seating	Better thermal comfort
Inactive frontages	Blank walls and closed ground floors	Active uses and visible entrances	Stronger public life
Poor legibility	Entrances and routes are unclear	Clear paths, landmarks, and signage	Better orientation
Weak identity	Local elements are neglected	Existing trees, materials, and memory elements are highlighted	Stronger place character

Evaluating across users and time

A proposal should not be evaluated only from one point of view. It should be tested for different users, such as children, elderly people, pedestrians, public transport users, residents, workers, visitors, and people with disabilities. A space that works only for one group is not fully successful.

Time is also important. A proposal should be checked during different moments of the day and different seasons when possible. A public space may work in the morning but fail in the afternoon because of heat. A street may feel active during business hours but unsafe at night because of poor lighting or inactive edges.

Evaluation as refinement

Evaluation should lead to improvement. If the proposal does not fully respond to the objectives, it should be revised. This may require changing the location of a crossing, adding shade, improving the frontage, reducing traffic dominance, increasing seating, clarifying entrances, or strengthening the connection between public spaces.

The goal is not to prove that the first proposal is correct. The goal is to make the proposal stronger, more coherent, and more useful for the place.

Evaluation checks whether the proposal truly responds to the diagnosis and improves urban quality. A strong proposal should be tested through objectives, design principles, users, time, and before and after comparison.

10.11 Revision Questions

1. How can design objectives, design concepts, and urban design principles help transform an urban diagnosis into a coherent strategy?

2. Why should spatial actions be linked to diagnosis findings rather than selected as isolated design ideas?

3. How can an urban design proposal be evaluated across scales, users, time, and public space quality before being finalized?

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