PATTERNCATALOGUE

STEFAN VAN BELLEN

PATTERNS FOR URBAN ENVIRONMENTS FOR PEOPLE TO WALK

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PATTERNS FOR URBAN ENVIRONMENTS FOR PEOPLE TO WALK

version: October 2010

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FOREWORD

If you start to look for required conditions for pedestrians in relation to the urban environments, you will soon find out that there is written a lot about it. Different urban planners and designers obtain different conditions or criteria on different themes, from different standpoints and at different scale levels. After a while you tend to get lost in the complexity of planning and designing the urban environment for people to walk. How to deal with all this information? How could we order this?

The result of the search for these conditions is gathered in this pattern catalogue. This booklet present a pattern language for pedestrians that is able to give order to the complexity of conditions for an urban environment for people to walk. It enables planners and designers to make more complete, coherent and profound designs and plans for pedestrians. This pattern language translates the existing theory into practical solutions. It is especially developed for city centers. But it could be used as a reference book for all who are interested to improve other types of urban areas for pedestrians.

This pattern catalogue is related to the work for the graduation project '*City Pedestrianized*' for the department of Urbanism at the faculty of Architecture, Delft University of Technology. In this graduation project the pattern catalogue is tested at the city center of Rotterdam.

I would like to thank Remon Rooij, Stefan van der Spek, John Westrik and Liliane Geerling for guiding my graduation project. And for introducing and helping me on the knowledge of pattern language. Without it, I would be lost. I also would like the participants of the workshop '*The Language of Pedestrians*' for giving my valuable input and feedback on the pattern catalogue.

Capelle aan den IJssel/Delft, October 2010
Stefan van Bellen

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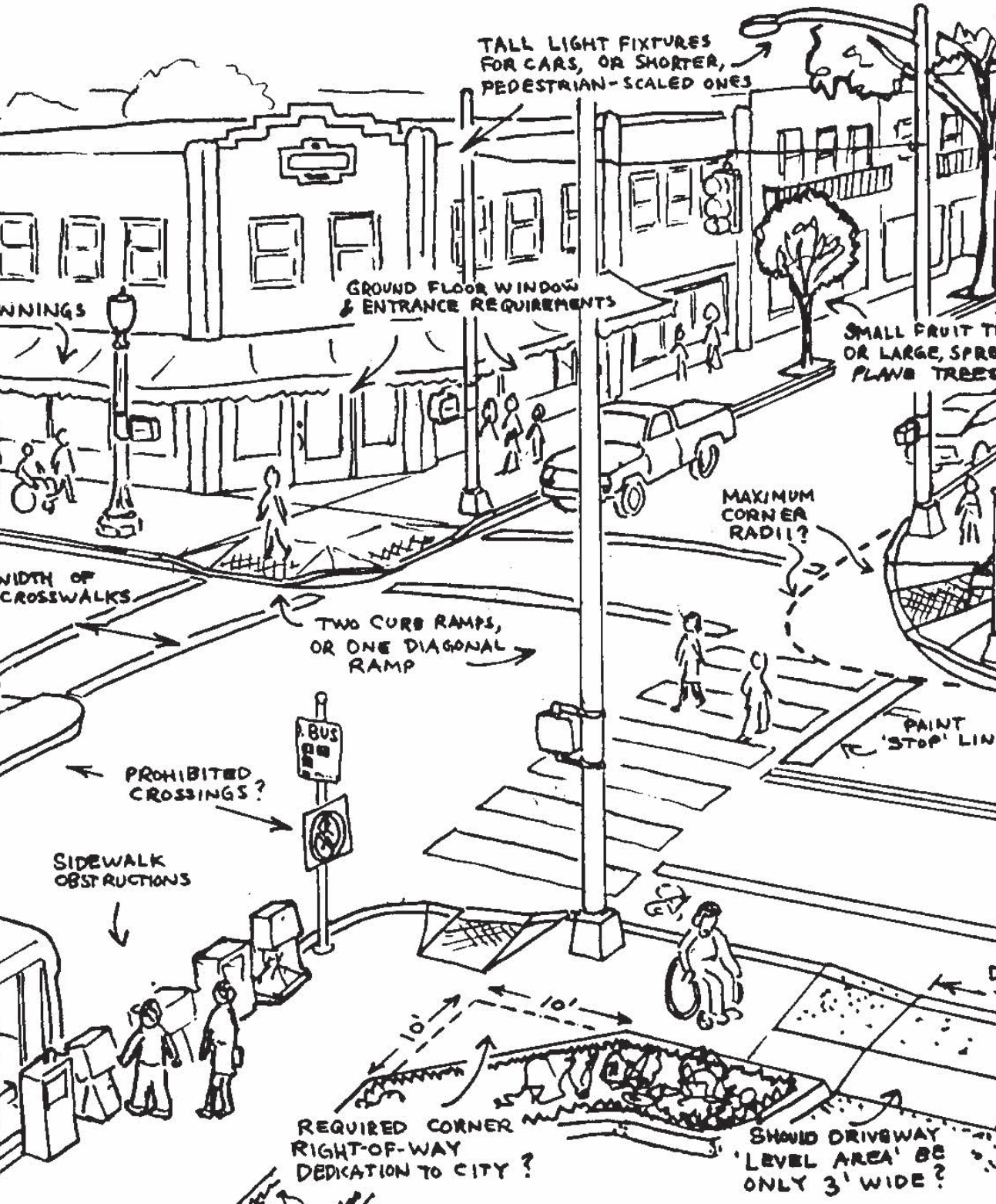

TALL LIGHT FIXTURES FOR CARS, OR SHORTER, PEDESTRIAN-SCALED ONES
NNINGS
GROUND FLOOR WINDOW & ENTRANCE REQUIREMENTS
SMALL FRUIT T
OR LARGE, SPR
PLANE TREE
MAXIMUM CORNER RADII?
WIDTH OF CROSSWALKS
TWO CURB RAMPS, OR ONE DIAGONAL RAMP
PAINT 'STOP' LIN
BUS
PROHIBITED CROSSINGS?
SIDEWALK OBSTRUCTIONS
10'
10'
REQUIRED CORNER RIGHT-OF-WAY DEDICATION TO CITY?
SHOULD DRIVEWAY 'LEVEL AREA' BE ONLY 3' WIDE?

Image on left page: Fragment of a sketch by Doug Klotz (City of Portland, 1998)

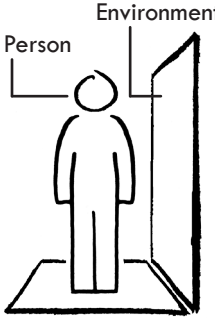
INTRODUCTION CH 01

Everyone knows that walking is the most primary form of mobility in the city. It is the most essential way for us to move around, enabling us to go from one place to another. The most of us have experienced the city center by walking. Some of us walk through the city center on a daily basis, others do it less frequently. Maybe you walked through the city center to get to work or to school. Or you went shopping or sightseeing with some friends. Or you just made a walk to take the dog outside. We all have our own reasons and motives to walk in the city center.

Walking is more than just a form of mobility, allowing people to go from one place to another (Gehl 2000). There are several benefits to walking, compared with other modes of transportation. People are more flexible by walking. The slow speed of walking positively influences the exchange of information and the quality of communication. If necessary or desired the pedestrian can easily and quickly change direction, stop to watch something or someone, even go back to have a better look. The interaction with the surrounding is much greater by walking. While walking you are close to buildings, vegetation and other people (Gehl 2006). Pedestrian have more social interaction with other people. A pedestrian does not only meet other people; he also encounters ideas and is able to act upon them spontaneously (Morris & Zisman 1962). Furthermore, like cyclist, pedestrians have a low environmental impact. Walking is an environmentally friendly mode of transportation, it is quietly and clean. By walking people do not only have a positive influence on the surrounding environment. Walking also includes enjoyment and exercise (Litman 2004). People can promote their personal health condition. The health benefits are reduced stress, stronger bones, weight control and mental alertness and creativity (Southworth 2005). Additionally, walking is an affordable mode of transportation.

Walking in the city center can be exceptionally interesting. A short walking trip through the city center can give a wide variety of positive experiences. You are able to discover new and unexpected things that you never have seen before. You can be amazed by the beauty of places or buildings at different areas of the city center. Or maybe you just enjoyed the first day of summer or went outside to enjoy the beautiful colored leaves of the trees in autumn. Even a cold snowy day during winter can give a positive experience while walking through the city center. Maybe you met other people that inspired you. The city center can be a amazing place that offers a wide variety of things and activities to do and to see. At almost every instant, there is something different and perhaps unexpected to see, to hear or to do.

However, despite the positive experiences walking through the city center can give. It could give you negative experiences as well. Some areas are unattractive, unsafe or uncomfortable for people to walk. Maybe you experienced that a destination is not within the range of walking. Most likely, you decided to use a more efficient and faster mode of transportation to get there or you decided not to go there at all. Or you avoid certain places in the city center, because that place is deserted and empty. You could relate that place with criminal activities becoming an unattractive, unsafe area for you to walk.



different influences on walking

The decision of people to actually walk depends on personal and environmental factors (Handy 2002). Personal factors, such as age, fatigue or other health conditions, can restrict people to walk. Moreover, the urban environment has a great influence on the decision to walk (Gehl 2006, Handy 1996, Southworth 2005). If the urban environment does not provide the conditions for walking, people will not decide to walk or offered no choice to walk at all. In order to walk safely, conveniently, directly and comfortably, pedestrian require an urban environment that corresponds to their needs (Toronto City Council 2002).

As urban planners and designers, we are capable to adapt and change the urban environment to correspond to the needs of pedestrians. To create an urban environment that makes sense for pedestrians. The following questions comes to mind: what are the conditions of an facilitating and encouraging urban environment for people to walk? And what are the needs of pedestrians? With these questions, several urban planners and designers have derived a wide variety of conditions from different standpoints and at different levels of scale, in relation to the walkability of the urban environment. It becomes clear that designing the urban environment for people to walk is complex. As a planner or designer, you should take care of all these conditions to make a complete, coherent and profound urban environment for people to walk. It will not be enough if you

would change or adapt just one aspect of the urban environment. Like Gemzøe (2006) stated: it takes more than just good paving to produce an excellent pedestrian landscape. It is the whole environment around the person walking that has to be understood. To encourage walking it is necessary to go beyond utilitarian access (Southworth 2005).

The pattern language in this booklet is developed to order this complexity of conditions. It enables urban planners and designers to make more coherent, more complete and profound designs for the urban environment for pedestrians. The pattern language is distilled with help of a wide variety of writings, which deal with the walkability of the urban environment. The existing body of knowledge is ordered and translated into practical spatial conditions. Although, this pattern language is developed specifically for city centers, with some adjustments it is also suitable for other types of urban environments.

A PATTERN LANGUAGE

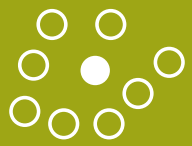
CH 02

(Based on: Alexander 1975, 1977, 1979)

A Pattern Language: Towns, Buildings, Construction (Alexander 1977) describes a practical architectural system *(named: Pattern language)* for building and planning. The book contains the detailed patterns for towns and neighborhoods, houses, gardens, and rooms. It is one halve of a single work. The book *The Timeless way of Building* (Alexander 1979) provides the theory and instructions for the use of the language. It explains the discipline which makes it possible to use these patterns to create a building or a town. The third book *The Oregon Experiment* (Alexander 1975) describes in full detail how this theory may be implemented in practice. The University of Oregon takes on a new planning proces for the future planning and design of the campus.

The fundamental thought of the work of Alexander, is that towns and buildings will not be able to become alive, unless they are made by all the people in society. And unless these people share a common pattern language, within which to make these towns and buildings, and unless this common pattern language is alive. In other words, the theory suggests that the design of towns and buildings should correspond to the common needs of humans in a community.
Alexander (1977) states that when you build a thing you cannot merely build that thing in isolation, but must also repair the world around it, and within it, so that the larger world at that one place become more coherent, and more whole; and the thing which you make takes its place in the web of nature, as you make it.

The authors have developed one possible pattern language, which they distilled from their own building and planning efforts. And it could be used, by anyone, to improve their own town or neighborhood. It could be used to design a house with your family. Or at work with other people to design an office or workshop or a public building like a school. It enables people to make more coherent, more complete and profound designs in relation to towns and buildings.



Each dot respresents one pattern.

A pattern is no isolated entity. It is supported by other patterns

A pattern is connected to certain 'larger' patterns which come above it in the language; and to certain 'smaller' patterns that are 'below' it.

A pattern language is build up by singular patterns. Each pattern describes a problem which occurs over and over again in our environment. For convenience and clarity, each pattern has the same format. First, a clear title, with a picture which shows a typical example of the pattern. Second, each pattern has a introductory paragraph, which sets the context for the pattern. Followed by a statement with the essence of the problem and after that a clarification of the problem. It describes the empirical background of the pattern, the evidence for its validity, the range of different ways the pattern can be manifested in a building, and so on. Thirdly, the solution to solve the problem in the form of a instruction, clarified by a sketch or diagram of the solution. The solution is stated in such a way that it gives the essential field of relationships needed to solve the problem, but in a very general and abstract way – so that you can solve the problem for yourself, in your own way, by adapting it to your preferences, and the local conditions at the place where you are making it. Finally, a paragraph which relates the pattern to all smaller patterns in the language.

No pattern is an isolated entity. Each pattern can exist in the world, only to the extent that it is supported by other patterns. In the book the patterns are ordered, beginning with the largest, for regions and towns, then going down to neighborhoods, clusters of buildings, buildings, rooms and alcoves, ending with details of construction. A pattern is connected to certain 'larger' patterns which come above it in the language; and to certain 'smaller' patterns which come below it in the language. The pattern helps to complete those larger patterns which are 'above' it, and is itself completed by those smaller patterns which are 'below' it.

To get a better understanding of pattern language it is essential to examine a pattern and illustrate the connections with other patterns. The pattern SMALL PUBLIC SQUARES (61) is used as an example, but it could be done with any other pattern.

If a person wants to create a small public square, he also should take care of the patterns that are related to the patterns that are 'below' it. Just making a empty space with the given dimensions will not be enough to make a successful public square. The connections with 'smaller' patterns enables a person to make a more coherent and complete *small public square*. The final paragraph of the pattern which relates *SMALL PUBLIC SQUARES (61)* to other patterns 'below' it:

> *"An even better estimate for the size of the square: make a guess about the number of people who will typically be there (say P), and make the area of the square no greater than 150 to 300P square feet – PEDESTRIAN DENISTY (123); ring the square*

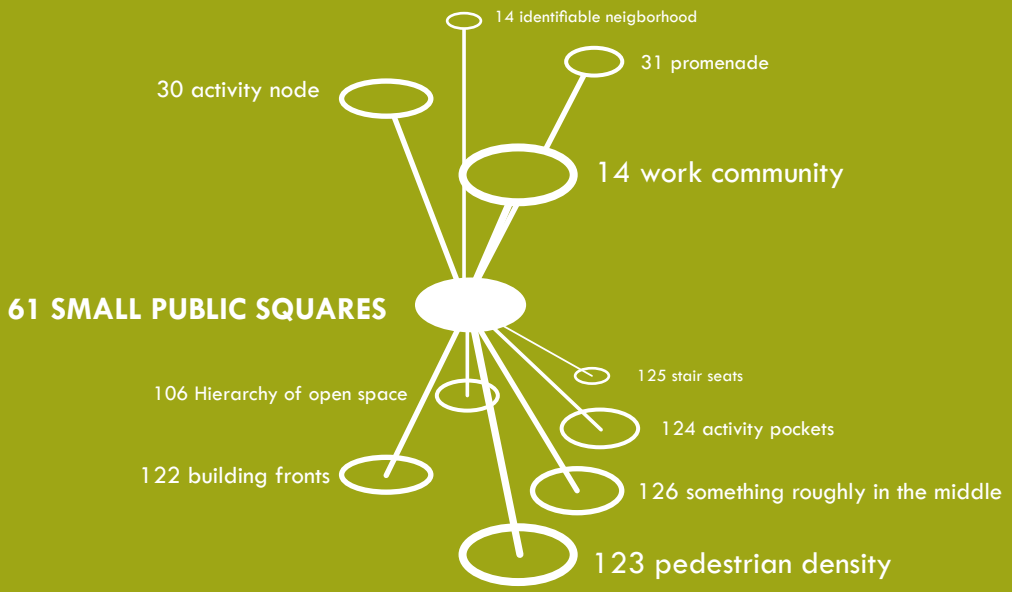
around with pockets of activity where people congregate – ACTIVITY POCKETS (124); build buildings around the square in such a way that they give it a definite shape, with views out into larger spaces – POSITIVE OUTDOOR SPACE (106), HIERARCHY OF OPEN SPACE (114), BUILDING FRONTS (122), STAIR SEATS (125); and to make the center of the square as useful as the edges, build SOMETHING ROUGHLY IN THE MIDDLE (126) …" (Alexander 1977)

See the book *A Pattern Language: Towns, Buildings, Construction* (Alexander, 1977) for the full descriptions of all patterns.

The paragraph mentions the 'smaller' patterns which will complete the pattern. If the person will take care of these 'smaller' patterns, it will become a more complete and coherent small public square.

Even so, the pattern SMALL PUBLIC SQUARE (61) helps to complete 'larger' patterns. The introductory paragraph of pattern SMALL PUBLIC SQUARES (61), which connects the pattern to patterns 'above' it:

"… this pattern forms the core which makes an ACTIVITY NODE (30); it can also help to generate a node, by its mere existence, provided that it is correctly place s along the interaction of the paths which people use most often. And it can also help to generate a PROMENADE (31), a WORK COMMUNITY (41), an IDENTIFIABLE NEIGHBORHOOD (14), through the action of the people who gather there. But it is essential, in every case, that it is not too large." (Alexander 1977)



The pattern SMALL PUBLIC SQAURES (61) will help to complete the pattern ACTIVITY NODE (30) and the other patterns mentioned in the introductory paragraph. If you will examine the pattern ACTIVITY NODE (30), you will find out that this pattern is connected with other 'smaller' patterns. The pattern SMALL PUBLIC SQUARES is merely one part to complete an ACTIVITY NODE (30).

The authors of the book hope that people who read and use their language, will try to improve the patterns. So that the language will evolve in a more true and profound language, which is common to all of us. You could look at each pattern as a hypothesis. Each pattern represents the current best guess as to what arrangement of the physical environments will work to solve the problem presented. Patterns are able to change under the impact of new experience and observation.

The authors called the book '*A Pattern Language*' with the emphasis on the word '*A*'. They hope people will make pattern languages themselves. *The Timeless Way of Building* (Alexander 1979) says that every society which is alive and whole, will have its own distinct pattern language; and further, that every individual in such society will have a unique language, shared in a part, but which as a totality is unique to the mind of the person who has it.

The book is written as an example, an manual or a teacher, or a version of a possible pattern language. The hope is that when person use it, they will be impressed by its power. And will adapt to this new approach to architecture, building and planning.

EXPLANATION CH 03

In order to use the pattern catalogue correctly and successfully an explanation about the pattern language is essential. This will not only enable the user to understand and use the pattern language, it will allow the reader to improve or to adjust the pattern language. The user should read the following explanation, in order to make more complete, more coherent and profound designs for the pedestrian-friendly environment. The pattern catalogue does the following for the user:

- The pattern catalogue explains the separate patterns that construct a pedestrian-friendly environment.
- The pattern catalogue shows the connections between the different patterns. It reveals the connective structure of the pattern language which enables it to become a language.
- The pattern catalogue operates on multiple levels of scale. Not only detailed conditions on the local scale level are revealed, but also the conditions needed at the scale level of the city center.
- The pattern catalogue is able to operate as a communication instrument between the users and planners or designers. The user, the pedestrian, provides valuable input and can determine the required conditions for a walkable environments. For planners and designers, it becomes clear what is needed from the standpoint of the pedestrian and are able to apply it in the design.
- The pattern catalogue reveals potential solutions for planners and designers. However, the solution could be used in numerous ways. Patterns reveal possible solutions, but no ready-to-use designs. The end result is still determined by the planner or designer.

USE The pattern catalogue could be used differently. The use will differ between projects, designers or planners. The reader should determine which of the different uses fits best. This could depend on the type of project, stadium of the project, the design process of the project and much more. Even though, none of the uses is incorrect. The following uses are possible:

- Flip through the pages. As a source of inspiration or for random ideas.
- Search for a problem, a topic or an interest. Use the indexes to deal with a specified theme. Related patterns, which are dealing with the topic of the theme, could be found easily.
- By a specific problem within designing. Use the word index to find a specific pattern dealing with the certain problem.

Each pattern represents a 'rule' of the complex system of the urban environment for people to walk. A pattern describes a need and provides a solution for one aspect of the pedestrian-friendly environment. All patterns are constructed in an uniform format to be compared with others and to increase clarity.

Inspired by the work of Van Dorst (Dorst 2005) and Van Duijn (Duijn 2004), there is are differences within the format in comparison with the format presented by Alexander (1977). Alexander opens the patterns with a critical statement on the existing situation. However, to inspire and motivate users of the pattern catalogue, the patterns in the catalogue does not state problems, but are positively formulated. Furthermore, the introductory paragraph and statement of the problem are replaced by a statement of the pattern. This is underpinned in the clarification of the pattern.

The format of a pattern within this pattern catalogue:

TITLE

In a title of a few words the condition is described. If a condition could be described with different names, both should reoccur in the title.

STATEMENT

A clear and informative statement describes the condition needed for pedestrian in relation to the urban environment. The statement gives a spatial description of an non-spatial perspective of the user.

CLARIFICATION

The statement is clarified, underpinned by academic literature and research results.

SOLUTION

A solution for the stated condition. It should be able to be used in numerous ways. It does not give a ready-to-use design proposal. The solution could be interpreted differently resulting in different designs.

RELATION

A pattern is related to patterns 'below' it, which complete the pattern. And also to patterns 'above' it.

SOURCES

If available, literature that help or give examples in relation to the problem are mentioned here.

INDEXES

The pattern catalogue suggest that all patterns are linear ordered. However, patterns are not linear ordered. A designer or planner will not go through the book in the order of the pa ges. In practical use, the designer will leap from one pattern to another. To assist this process, patterns are related to other patterns.

The mentioned indexes help the designer in the search for a solution for a specific problem, topic or interest. It enables the reader to search more rapidly for relevant patterns that are associated to a certain problem or topic. Several indexes are arranged to help to reader to use the pattern catalogue.

INDEX BASED ON DIFFERENT LEVELS OF SCALE

CITY CENTER/DISTRICT

PLACE/STREET

INDEXES BASED ON THEME

PATHS

[P40] NOT TOO WINDY
[P41] ACOUSTIC COMFORT
[P42] RAIN PROTECTION
[P43] ROOM TO WALK
[P44] NO OBSTACLES
[P45] PAVEMENT & SURFACE CONDITIONS
[P46] AWNING
[P47] ARCADE
[P49] STREET LIGHTING
[P48] TREES
[P51] SPECIAL PAVEMENT

DESTINATIONS

[P01] NETWORK OF PATHS AND GOALS
[P02] ORIENTATION
[P03] HUMAN SCALE
[P04] WALKABLE DISTANCES
[P07] PLACES OF INTEREST
[P08] PUBLIC SQUARES
[P09] ACCESIBLE GREEN
[P10] PUBLIC BUILDINGS
[P11] LINKAGE WITH OTHER MODES
[P12] DIRECT ROUTES
[P13] CHOICE OF ROUTE
[P17] ENCLOSURE
[P18] LANDMARKS
[P19] SAFETY OF CRIME
[P20] SAFETY AT NIGHT
[P23] VISUAL CONNECTION
[P28] ACTIVITY
[P32] SUPPORT FACILITIES
[P34] PLACES TO REST
[P35] PLEASANT CLIMATE CONDITIONS
[P38] LANDSCAPING
[P39] SOMETHING TO SEE
[P40] NOT TOO WINDY
[P41] ACOUSTIC COMFORT
[P42] RAIN PROTECTION
[P48] TREES
[P49] STREET LIGHTING
[P50] SIGNS
[P51] SPECIAL PAVEMENT
[P52] PUBLIC ARTS

BUILDING BLOCK

[P24] MIX OF LANDUSE
[P25] SHORT BUILDING BLOCKS
[P26] NARROW BUILDING FRONTAGES
[P27] HEIGHT OF BUILDING
[P33] TRANSPARENCY
[P46] AWNING
[P47] ARCADE

SAFETY

[P06] SAFETY
[P19] SAFETY OF CRIME
[P20] SAFETY AT NIGHT
[P21] SAFETY FROM OTHER TRAFFIC
[P29] CROSSING OPPORTUNITIES
[P31] SLOW TRAFFIC
[P49] STREET LIGHTING

LEGIBILITY

[P02] ORIENTATION
[P05] DIVERSITY
[P15] HIERARCHY OF OPEN SPACE
[P18] LANDMARKS
[P23] VISUAL CONNECTION
[P50] SIGNS
[P51] SPECIAL PAVEMENT
[P52] PUBLIC ARTS

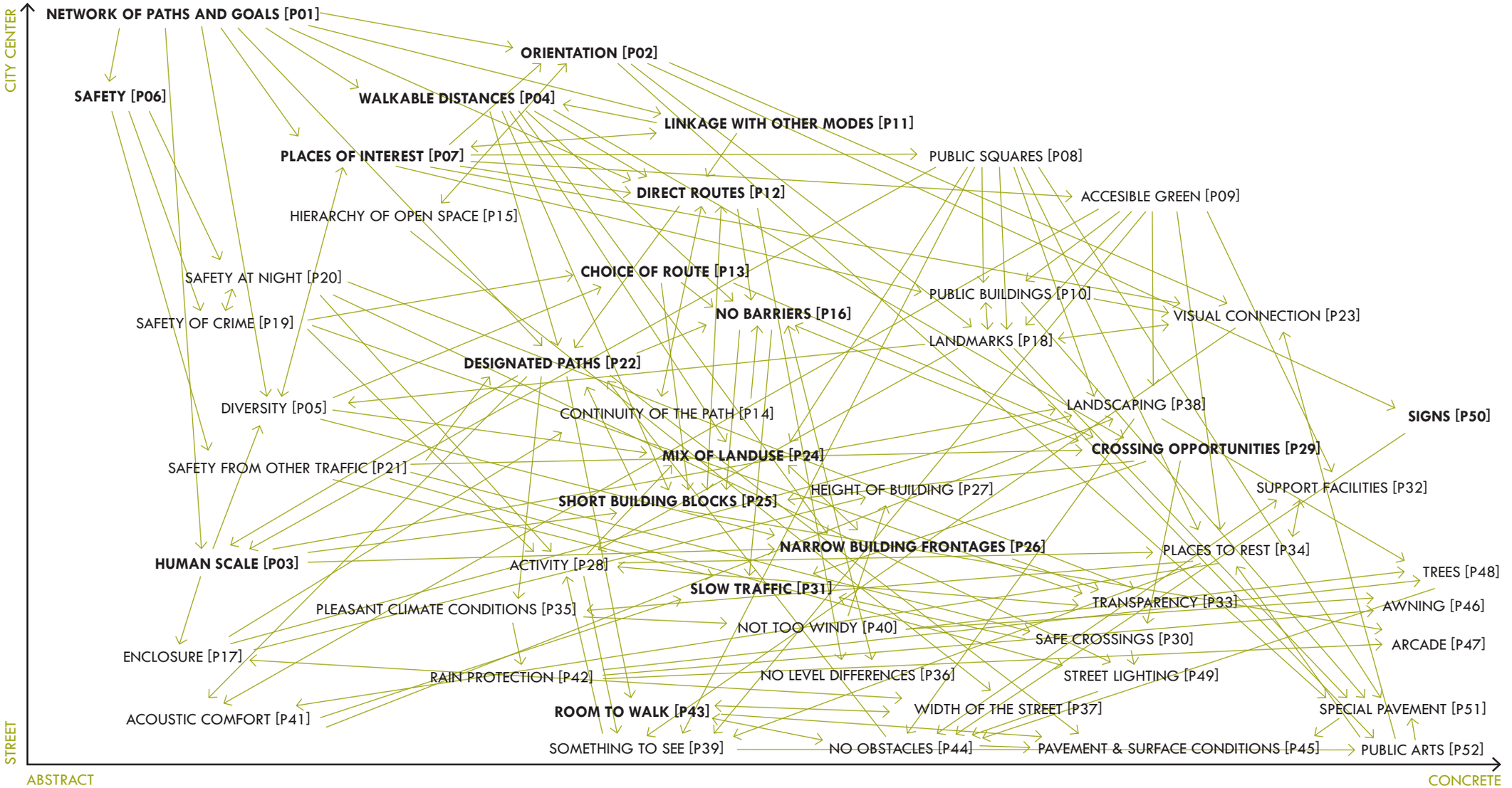
PATTERN FIELD

The pattern field map illustrates all connections between the patterns that are described in the pattern catalogue. It could be used to search for the relations between the different patterns.

The horizontal axis represent the scale of a pattern. The vertical axis shows if a pattern is abstract or concrete. The green arrows show the relation between the patterns. A green line with arrows on each end means the patterns are complementary to each other or that they solve the same problem alternative, equally ways.

Some patterns are more important than others. The patterns are divided into two groups. The patterns with a bold font are more important than the patterns with a regular font.

The bold patterns form a set of basic patterns that are needed for the urban environment to facilitate pedestrians. If designers and planners take care of these bold patterns, they are able to create an urban environment that facilitates pedestrians. The regular patterns are a set of extra patterns that are intended to encourage the people to walk.



PATTERNS

http://www.flickr.com/photos/8233549@N07/3995757531/

BINNENWEGPLEIN, ROTTERDAM, NL

NETWORK OF PATHS AND GOALS

P 01

Alexander 1977

STATEMENT

Pedestrians need a network of paths and goals.

CLARIFICATION

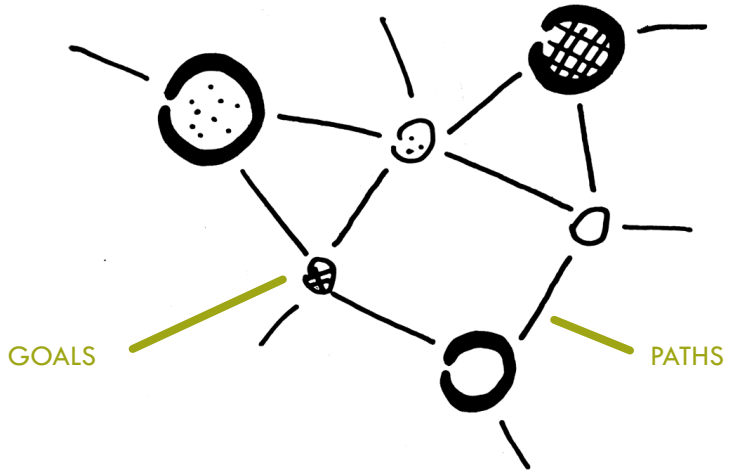
Pedestrians need paths and goals to be able to go somewhere and to get there. It enables them to walk safely and comfortably. An urban environment with no paths or goals for pedestrians will not facilitate or encourage people to walk. A network for pedestrians will provide an urban environment for people to walk.

SOLUTION

Make a network of paths and goals for pedestrians. First place goals, then connect the goals to one another to form the paths. The paths may be straight, or gently curving between goals. The goals should never be more than a few hundred meters apart.

RELATION

Places of interest [P07]
Designated paths [P22]
Linkage with other modes [P11]
Direct routes [P12]
Human scale [P03]
Orientation [P02]
Diversity [P05]
Safety [P06]
Walkable distances [P04]



http://www.flickr.com/
photos/justgerald/
4147728467/ ROTTERDAM, NL

ORIENTATION

P 02

Ewing 2006
Fruin 1971
Lynch 1960

STATEMENT

Pedestrians need orientation to understand and navigate with ease through the urban environment.

CLARIFICATION

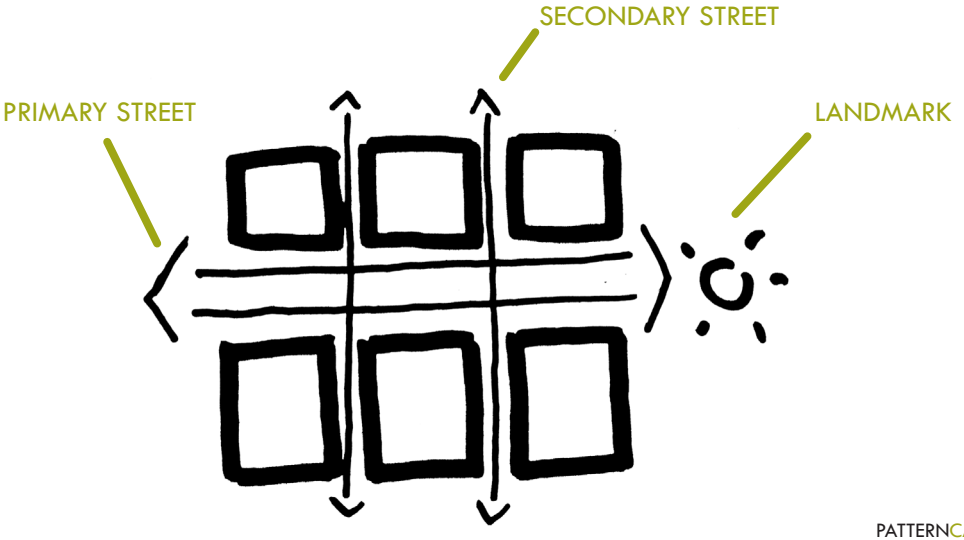
A confused pedestrian searching for orientation has limited sense to secondary visual inputs such as aesthetics. When pedestrians are assured of their primary concern of orientation and direction, the level of sense of the surrounding changes, such as changes in color, light, smell, sounds and textures, is increased.

SOLUTION

Make elements of the city center, including transit facilities, office buildings, civic center and theater complexes, and shopping areas, with have a clear visual statement that convey their direction, function and purpose. Orientation can be improved by physical elements that serve as reference point. Hierarchy of different spaces gives the pedestrian sense of the urban structure.

RELATION

Visual connection [P23]
Hierarchy [P15]
Landmarks [P18]
Signs [P50]
Special pavement [P51]



http://www.flickr.com/
photos/edericoverani/
3174209974/

SCHOUWBURGPLEIN, ROTTERDAM, NL

HUMAN SCALE

P 03

Gehl 2006

STATEMENT

Pedestrians need physical elements that match the size and proportions of humans.

CLARIFICATION

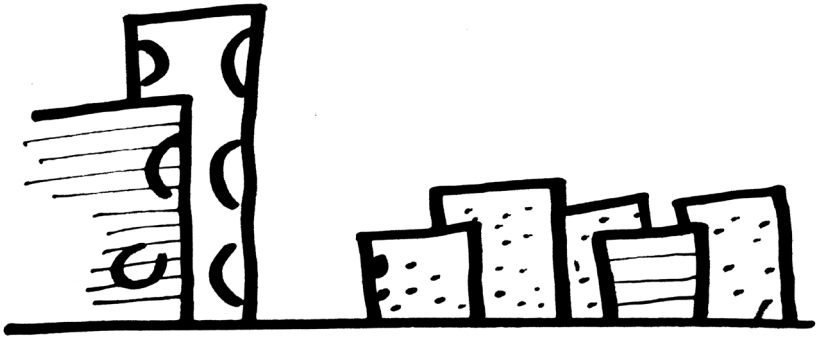
The relationship between distance and intensity, closeness and warmth, in various contact situations has an important parallel in the prevalent perception of architectural dimensions. In cities and building projects of modest dimensions, narrow streets, and small places, the buildings, building detail, and the people who move about in the spaces are experienced at close rang and with considerable intensity. These cities and spaces are comparably perceived as intimate, warm, and personal. Conversely, buildings projects with large spaces, wide streets, and tall buildings often are felt cold and impersonal.

SOLUTION

Make sure that the buildings you design, the paths you plan and even the details correspond to the human scale. Building details, pavement texture, street trees, and street furniture are all physical elements contributing to human scale.

RELATION

Enclosure [P17]
Diversity [P05]
Short building blocks [P25]
Narrow building frontages [P26]
Landscaping [P38]



LARGE SCALED BUILDINGS

HUMAN SCALED BUILDINGS AND STREETS

http://www.flickr.com/
photos/milov/
3407013579/

MUSEUMPARK, ROTTERDAM, NL

WALKABLE DISTANCES

P 04

Forsyth & Southworth 2008
Gehl 2006
Fruin 1971

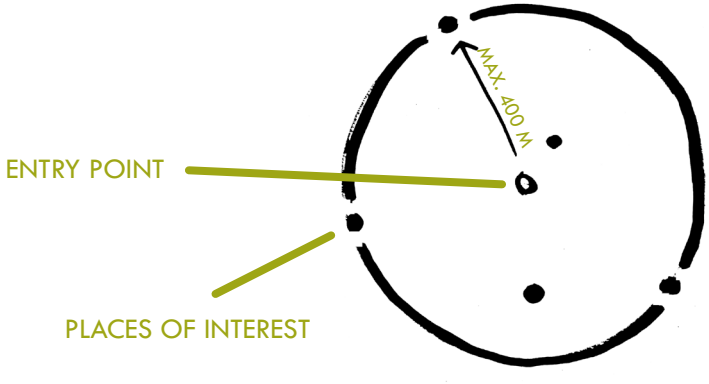
STATEMENT
Walking environments involves short distances towards destinations.

CLARIFICATION
Walking is a physical demanding activity, and therefore walking is limited to how far most people can or will walk. The acceptable walking distances for most people in ordinary daily situations has been found to be around 400 to 500 meters. For children, elderly, and disabled the acceptable walking distance is often considerably less.

Not only the physical distance plays a role in determining the acceptable walking distance, but also to great extent the experience distance. A long straight dull street is perceived to be longer, while the same length can be experienced shorter if the street is perceived in stages. Acceptable walking distances are an interplay between the length and the quality of the route.

SOLUTION
Make sure that entry points and destinations are within walking range of another. An acceptable walking distance for people has to be found around 400 to 500 meters. But make sure that the distance wind a bit or is perceived in stages to accommodate the experience distance. A long straight distance is experienced much longer.

RELATION
Direct routes [P12]
No barriers [P16]
Short building blocks [P25]
Narrow building frontages [P26]
Designated paths [P22]
Mix of land use [P24]
Crossing opportunities [P29]



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OUDE HAVEN, ROTTERDAM, NL

DIVERSITY

P 05

STATEMENT

Diversity creates an urban environment for pedestrians that is stimulating and vibrant.

CLARIFICATION

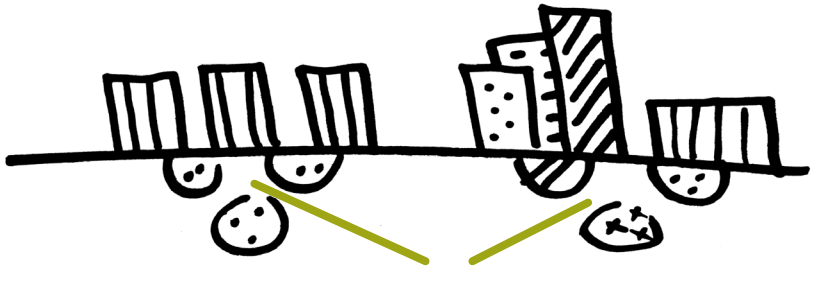
A diverse area is an area with a multitude of people and activities occurring at different times of the day, week and year. Diverse urban areas provide their own natural surveillance through the presence of inhabitants and visitors, and therefore are more likely to be perceived as safe and comfortable areas. Dwellings have the positive effect in generating life during the time.

SOLUTION

Make places, paths and routes and buildings that are not identical towards another. By making them different it is easier to recognize them and to identify them. Also make sure that there are different things to do and to see at each place. In other words: Make things different from each other, both on the larger scale and on the scale level of the street.

RELATION

Choice of route [P23]
Mix of land use [P24]
Narrow building frontages [P26]



PLACES OF INTEREST

MONOTONOUS ENVIRONMENT DIVERSE ENVIRONMENT

http://www.flickr.com/photos/milov/22212367/

VASTELAND, ROTTERDAM, NL

SAFETY

P 06

STATEMENT

Pedestrian need an urban environment that ensure them of safety from different standpoints.

CLARIFICATION

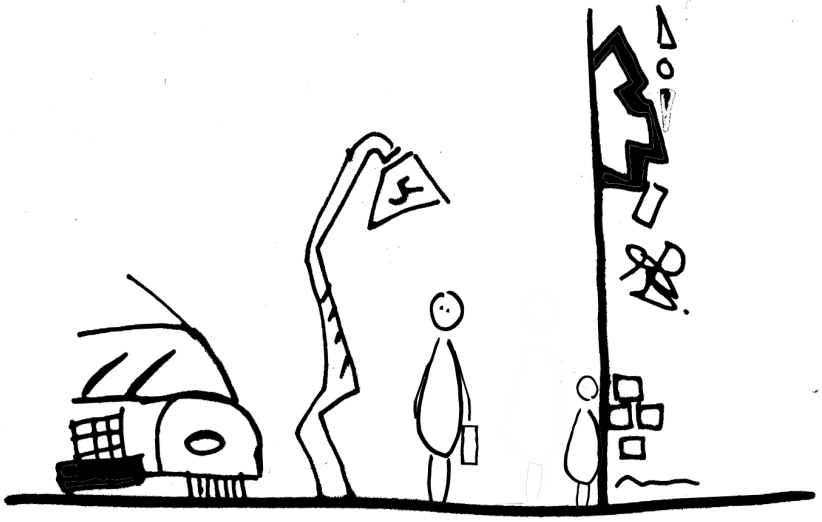
The pleasantness of a place is partly contingent on protection from danger and physical harm, primarily protection from insecurity due to feat of criminality and vehicular traffic. If pedestrian do not feel safe they will experience the urban environment as a negative area. This will not enhance the urban environment, instead these places become deserted and unattractive for people to walk.

SOLUTION

Make places that provide pedestrian protection from any crime or other traffic. A place that does not ensure safety on all front, will not become an attractive place to walk.

RELATION

Safety from crime [P19]
Safety at night [P20]
Safety of other traffic [P21]



NOT A PLEASANT PLACE FOR PEDESTRIANS

http://www.flickr.com/photos/neekinator/4029947696/

SCHOUWBURGPLEIN, ROTTERDAM, NL

PLACES OF INTEREST

P 07

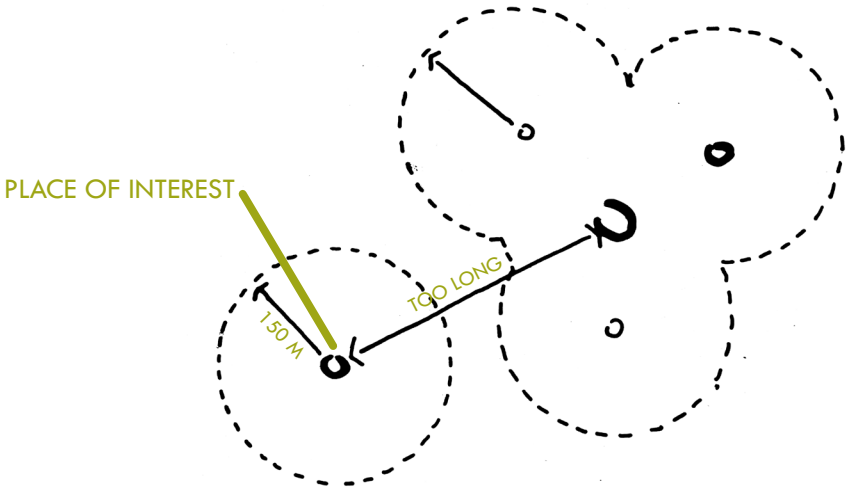
Ewing 2001
Alexander 1977

STATEMENT
Pedestrians need interesting places that inspire and attract them.

CLARIFICATION
The urban environment must engage the interest of the user. At these places there is a concentration of other people. Nearby public parks, public squares, waterfronts or public buildings serve as attractions for pedestrians. People are more likely to walk when they have some place specific and nearby to go to.

SOLUTION
Create places of interest throughout the city center, spread about 150 meters apart. These places contribute more to the urban environment when they appear as extensions of paths rather than as stand alones. Modify the layout of the paths in the city center to bring as many people through these places as possible and to connect them together.

RELATION
Public squares [P08]
Accesible green [P09]
Public buildings [P10]
Linkage with other modes [P11]
Direct routes [P12]
Orientation [P02]
Visual connection [P23]



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BINNENWEGPLEIN, ROTTERDAM, NL

PUBLIC SQUARES

P 08

Alexander 1977
Gehl & Gemzøe 2004

STATEMENT

Pedestrians need public squares for other types of activities in addition to movement.

CLARIFICATION

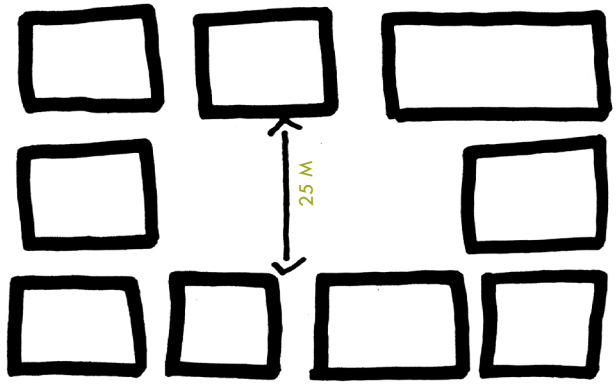
Public squares provide space for city functions that needs space. These open space in the urban structure of the city provide a opportunity for pedestrian to stop walking. Streets are primarily used for movement, because their linear form. Public squares invite people to do other activities, such as standing, sitting and doing other things. These are places where people gather or take a break for lunch. Public squares are like public rooms for the city.

SOLUTION

Make public squares that provide plenty of space for different types of activity, but don't make it to large because it will become deserted and empty. Make them smaller than you would first imagine, usually no more than 25 meters across, never more than 40 meters. This only applies for the width in the short direction. In the long direction it can be certainly longer. Make sure that there is public square within the range of three minutes walking, that is approximately a distance of 250 meters.

RELATION

Human scale [P03]
Mix of functions [P24]
Special pavement [P51]
Landmark [P18]
Places to rest [P34]
Public building [P10]
Something to see [P39]
Landscaping [P38]



http://www.flickr.com/photos/frenchy_rip/216241365/ HET PARK, ROTTERDAM, NL

ACCESSIBLE GREEN

P 09

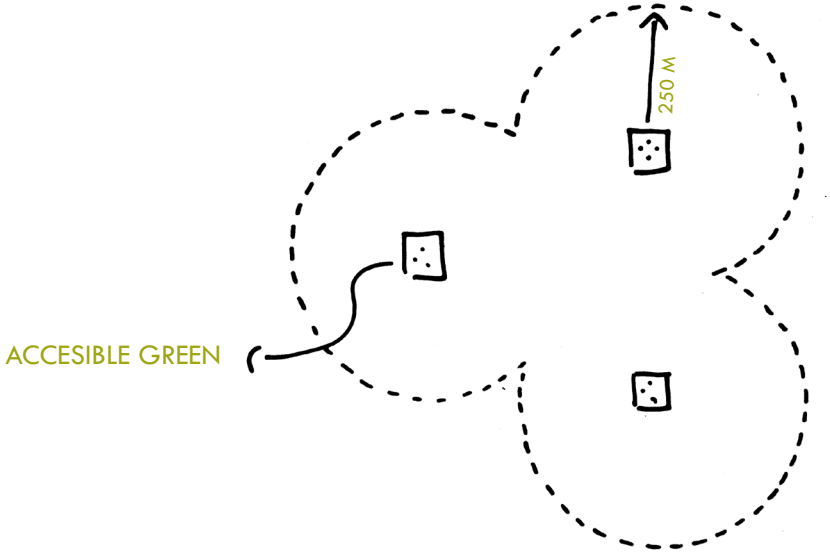
Alexander 1977

STATEMENT
Pedestrians need public parks to provide a place to be with nature.

CLARIFICATION
People need green open places to go to. These are the places where they can get in touch with nature. It gives the opportunity for people to go for a walk in nature, to run or relax and to play on open green fields. It provides a place for people to retreat from city life.

SOLUTION
Make sure that there is accessible green within the range of three minutes walking, that is approximately a distance of 250 meters. But no more than 400 meters apart from another. These places should have a dimension of at least 150 meters across and at least 5500 square meter.

RELATION
Landscaping [P38]
Public building [P09]
Landmark [P18]
Acoustic comfort [P41]
Places to rest [P34]
Something to see [P39]
Support facilities [P32]



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LAURENSKERK, ROTTERDAM, NL

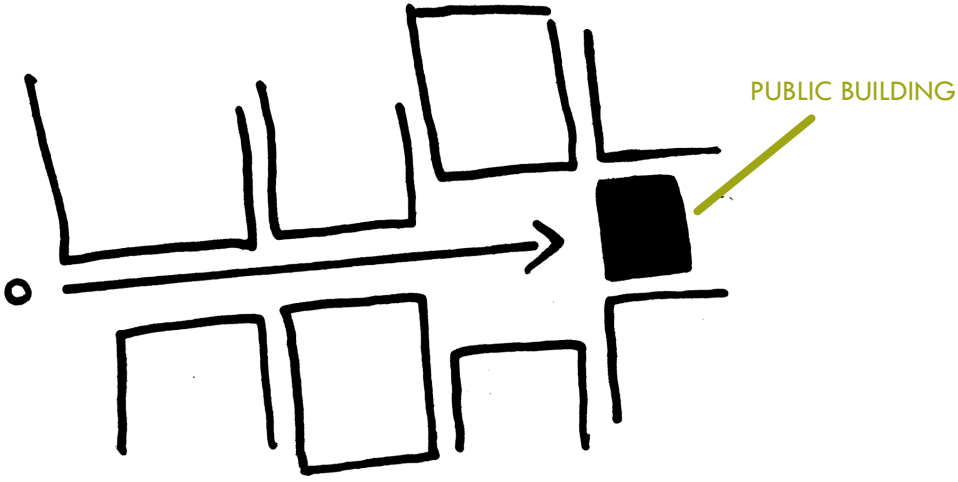
PUBLIC BUILDINGS P 10

STATEMENT
Pedestrians need public buildings that interest them and attract to go to.

CLARIFICATION
Public buildings are buildings that attract a lot of people. These buildings are public libraries, museums, large warehouses, cinemas, theaters, churches and governmental buildings. Most of these buildings attract different types of people. Even so, people could make a trip towards the city center, especially for these public buildings.

SOLUTION
Make public buildings that are easy to recognize. A public buildings are best situated at places of interest. The combination of a public building and a landmark provide both a recognizable and usable public building for a wide range of people.

RELATION
Visual connection [P23]
Landmark [P18]
Special pavement [P51]



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CENTRAAL STATION, ROTTERDAM, NL

LINKAGE WITH OTHER MODES

P 11

Southworth 2005

STATEMENT

Pedestrians need entry points that provide the link with other modes, connecting the urban environment with the larger city and region.

CLARIFICATION

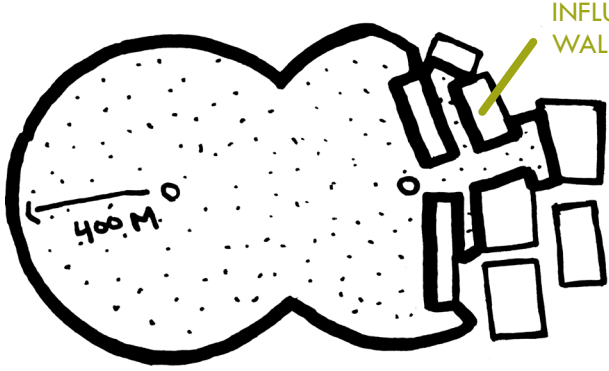
Walking is strongly related with other modes of transportation. Almost each journey towards the city center starts with a mode of transportation other than walking. Entry points provide connectivity with the larger city and region through convenient and accessible links to other modes, such as bus, tram, subway, or train. Entry points are the places where pedestrians enter or leave the city center. Such places are public transport stations or stops, parking garages and even bicycle racks. The urban environment should offer full connectivity between all modes so that one can navigate seamlessly from foot to trolley or subway to train or air without difficult breaks.

SOLUTION

Provide enough entry points throughout the urban environment. There always should be an entry point within a range of 10 minutes walking, approximately 400 meters. Note that certain elements, such as buildings and building blocks or barriers, influences the walking distance from or towards an entry point. Entry points are most efficient if they are located at intersections, instead of mid-block locations.

RELATION

Places of interest [P07]
Walkable distances [P04]
Direct routes [P12]



INFLUENCE OF BUILDINGS ON WALKING DISTANCE

http://www.flickr.com/photos/dorancellarius/4650276953/

LIJNBAAN, ROTTERDAM, NL

DIRECT ROUTES

P 12

Gehl 2006

STATEMENT

Pedestrian need and prefer direct routes to destinations.

CLARIFICATION

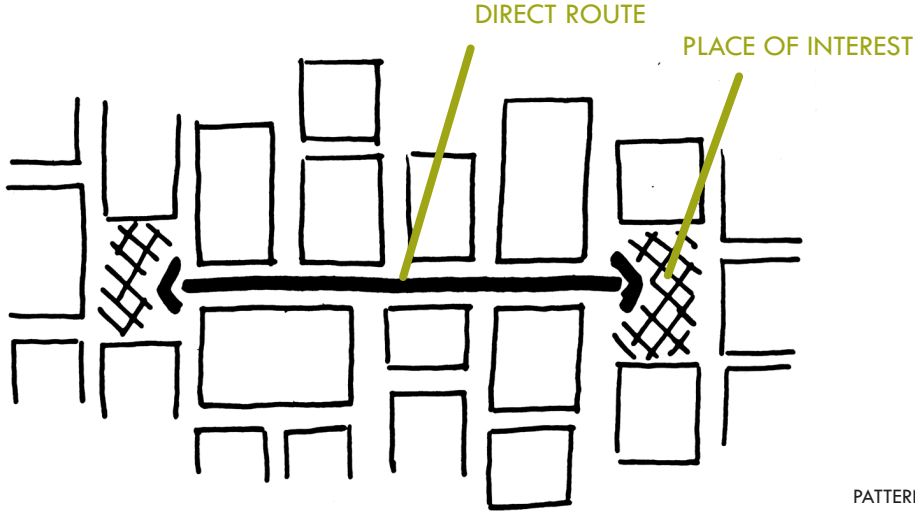
Pedestrian prefer direct routes and shortcuts towards destinations. Obviously, because of the fact that walking can be tiring. For pedestrians it is unacceptable and tiring to be forced to use other routes that the direct one. Especially if the destination is in sight. Only very great obstacles or barriers, like dangerous traffic, topographical features and so on, seem to be able to interrupt people to choice a direct route.

SOLUTION

Provide continuous direct routes between interesting places and between those places and entry points. Eliminate the presence of barriers and obstacles to prevent uncomfortable detours and unreasonable obstruction of the pedestrian route.

RELATION

Designated paths [P22]
Short building blocks [P25]
No barriers [P16]
No level differences [P36]
Continuity of the path [P14]



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WILLEMSPLEIN, ROTTERDAM, NL

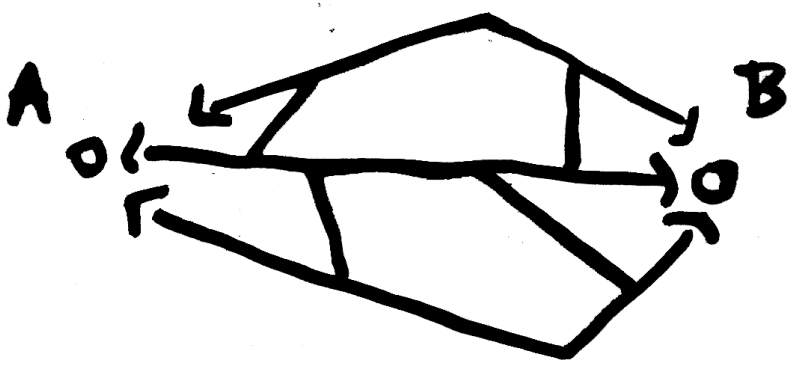
CHOICE OF ROUTES P 13

STATEMENT
Offering choice of route give pedestrians more opportunities for new experiences.

CLARIFICATION
If pedestrian are offered a choice of routes, he is able to make a choice based on factors of time, familiarity, objectives, convenience, safety, and attractiveness. It could be that there is a tendency to maintain a general direction of movement, to avoid street crossings, to avoid alleys or other passageways that appear to be unsafe or overloaded with other pedestrians, to use private ways or uncongested areas or routes offering maximum convenience in stops. Although the shortest route may be generally preferred, these other considerations enter the route-making decisions.

SOLUTION
Make sure there is more than one choice of route towards a specific place. It is also recommended to make this different routes unique to each other. This could mean that there is a secondary route available with a different dimension, character, activities or functions toward a certain place.

RELATION
No barriers [P16]
Short building blocks [P25]
Crossing opportunities [P29]



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KORTE HOOGSTRAAT, ROTTERDAM, NL

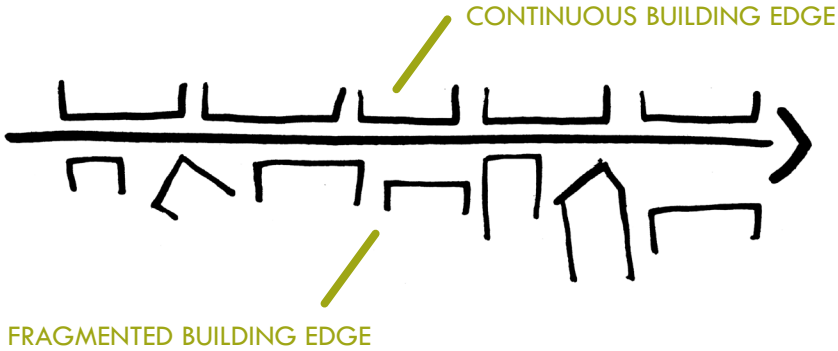
CONTINUITY OF THE PATH P 14

STATEMENT
Pedestrians need continuous path towards their destination without gaps or barriers.

CLARIFICATION
Pedestrians need continuous path to make sure that they can walk unobstructed towards their destinations. It makes it safer and more convenient for pedestrian to travel on paths that are continuous. It also makes more clear where the path is leading to, which make it easier for pedestrians to navigate.

SOLUTION
Make paths with buildings that provide a 'wall' facing the path, by this it becomes more clear where the path goes to. It will make the path continuous. Also make sure there are no obstacles or barriers along the path to ensure a continuous route for pedestrians.

RELATION
Direct routes [P14]
No barriers [P16]



http://www.flickr.com/photos/reinier/13148582/

KORTE LIJNBAAN, ROTTERDAM, NL

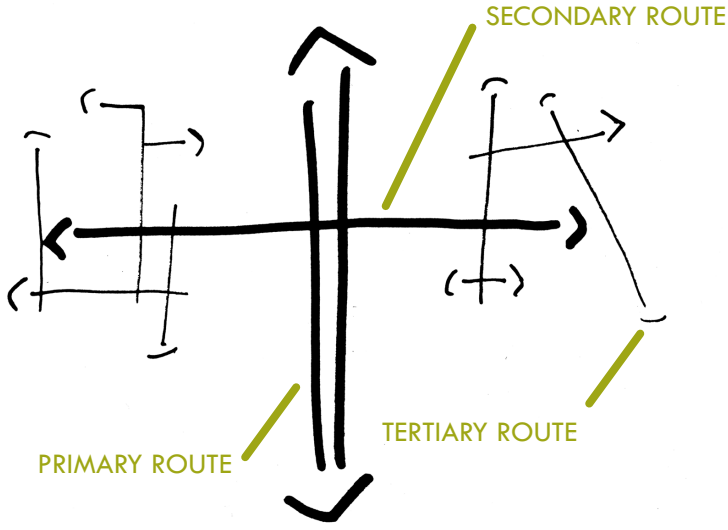
HIERARCHY OF OPEN SPACE P 15

STATEMENT
Pedestrians need a hierarchy of open space for orientation.

CLARIFICATION
Pedestrians need to be able to know if they are the main route, a secondary route or a tertiary route. The network for pedestrians should be designed as a hierarchical network that provides different levels of use and convenience. It enables pedestrians to find routes or places which they feel comfortable with more easily.

SOLUTION
Make difference between primary, secondary and tertiary streets by making them different in width. Also pavement can make a difference between the hierarchy for pedestrians. The different levels of land use can make clear which route is primary, secondary or tertiary. This means that primary routes will have more commercial land use along the route, in comparison with secondary routes or tertiary routes.

RELATION
Orientation [P02]
Width of the street [P37]



http://www.flickr.com/photos/milov/4546673828/

STRAATWEG, ROTTERDAM, NL

NO BARRIERS

P 16

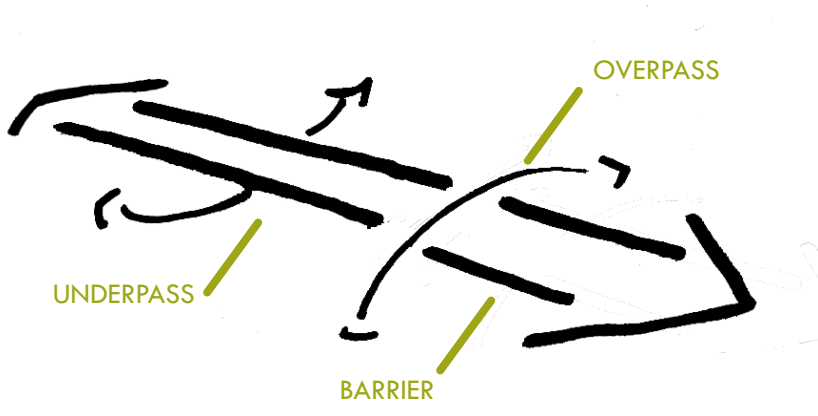
Gehl 2006
Southworth 2005
Forsyth & Southworth 2008

STATEMENT
A walkable environment is traversable, without major barriers.

CLARIFICATION
Pedestrians need continuous paths towards their destinations without major gaps or barriers. The freedom of movement of pedestrians is restricted by these barriers, resulting in irritating detours and unreasonable restrictions on walking. It also will deaden pedestrian movement in urban areas. Examples of barriers are: cul-de-sacs and dead end streets, roads with heavy vehicle traffic, excessive vehicle speeds or roads that have a lack of crossing opportunities, topographical features like hills, water surfaces or inaccessible areas like constructions sites, great building blocks or private terrain.

SOLUTION
Barriers should be eliminated or prevented to provide a comfortable environment for pedestrians. Barriers caused by heavy vehicle traffic can be reduced by introducing more crossing opportunities for pedestrians and by slowing or reducing vehicle traffic. Private terrains and great building blocks could be partly accessible by introducing shortcuts. If a barrier cannot be removed it is recommended to introduce a tunnel or bridge for pedestrians.

RELATION
Short building blocks [P25]
Crossing opportunities [P29]
Slow traffic [P31]
No level differences [P36]



http://www.flickr.com/photos/schepop/469729749/

BLAAK, ROTTERDAM, NL

ENCLOSURE

STATEMENT

Pedestrians need a room-like feeling in relation to public space to feel comfortable.

CLARIFICATION

Enclosure refers to the degree with which the streets and other public spaces are visually defined by buildings, walls, trees and other elements. Spaces where the height if vertical elements is proportionally related to the width of the space between them have a room-like quality.

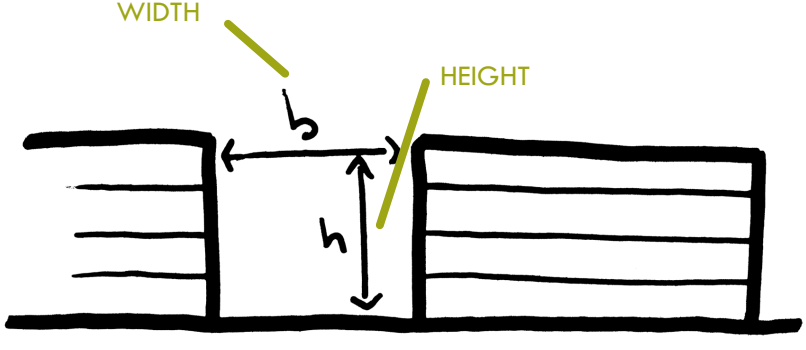
Streets that have the proportion like rooms are more pedestrian-friendly. People like rooms; they relate to them daily in their homes and work places, and feel comfortable and secure in them.

SOLUTION

Building fronts should be closely align and create a continuous front, punctuated by store entrances and windows. A appropriate height-to-width ratio for city centers is around 1:1 or 3:2. As a general rule, the tighter the ratio, the stronger the sense of place. Trees, walls and other vertical elements can be very effective in providing enclosure at wide, open places. They can divide a place in smaller places.

RELATION

Height of Buildings [P27]
Width of the street [P37]
Landscaping [P38]
Continuity [P14]



http://www.flickr.com/photos/28531928@N03/2967164563/

HET PARK, ROTTERDAM, NL | EUROMAST

LANDMARKS

P 18

Lynch 1960

STATEMENT

Landmarks help pedestrians to navigate the urban environment.

CLARIFICATION

Landmarks can be considered as references points for pedestrians. Landmarks enables pedestrian to memorize and understand the urban environment. These are simple physical elements which may vary widely in scale. But landmarks have the a key physical characteristics of singularity, it is unique and memorable. They have a clear form and in contrast with their background. Note that not only objects are landmarks for pedestrians, but also activity, functions and emptiness.

SOLUTION

Make landmarks at places that need to be marked. So people can relate a place with a landmark. This can be done by making a unique building in contrast with its surroundings. Make use contrast in height, form, color or function. A visual connection makes them easy to spot from a longer distance. Also public arts, special street lighting or special pavement can be used to mark a place.

RELATION

Public building [P10]
Visual connection [P23]
Special pavement [P51]
Activity [P28]
Public arts [P52]
Diversity [P05]

http://www.flickr.com/
photos/rienkmebius/
518357537/ LIJNBAAN, ROTTERDAM, NL

SAFETY FROM CRIME

P 19

Gemzøe, 2006
Tolley, 2003

STATEMENT

Pedestrians need protection of crime to ensure sense of safety.

CLARIFICATION

Dark, deserted and isolated spaces and streets are often experienced unsafe by pedestrians. If nobody is on the street, people tend to stay away. Also the evidence of crime of graffiti, drugs taking and prostitution deter people to walk. Especially women and elderly people base their decision on fear for crime whether they would walk or not. But also ethnic minorities are more likely to feel unsafe when walking alone.

SOLUTION

To feel safe at places there have to be people around with things to do. This is best achieved by the presence of diverse functions. A mixture of housing, offices, shops and restaurants should be there. So windows show light and people are nearby at all times of night and day. Create places which are easy to maintain and which are well lit by good street lighting.

RELATION

Choice of route [P13]
Safety at night [P20]
Activity [P28]
Transparency [P33]
Street lighting [P49]

EYES ON THE STREET

MIX OF FUNCTIONS

http://www.flickr.com/photos/24909757@N04/3244983498/

WILLEMSPLEIN, ROTTERDAM, NL

SAFETY AT NIGHT

P 20

STATEMENT

Pedestrian need to be able to walk safely at night.

CLARIFICATION

Pedestrian feel much more unsafe and insecure when walking at night. At night the city center becomes a different environment in comparison with daytime. A lot of facilities close down and put down their shutters. Less people are on the street, and this means less activity during nigh time.

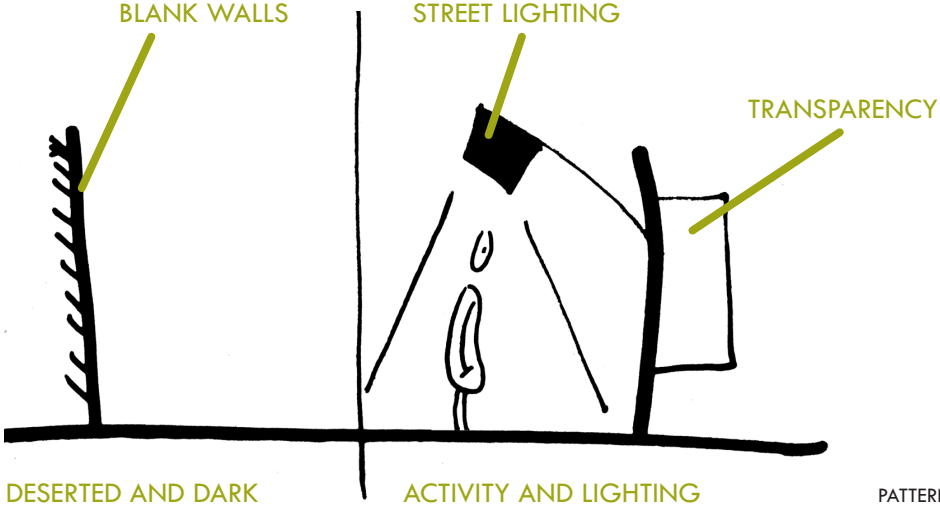
This does not only involve criminal activities, but also safety from other traffic. Since pedestrians are less visible at night.

SOLUTION

Provide an urban environment that is safe for pedestrians at night. This involves providing street lighting that is designated for pedestrians. Also activity provides a more social controlled urban environment. And eyes on the street gives the pedestrian sense of the presence of other people.

RELATION

Activity [P28]
Transparency [P33]
Street lighting [P48]



http://www.flickr.com/photos/23837798@N04/3051357536/ COOLSINGEL, ROTTERDAM, NL

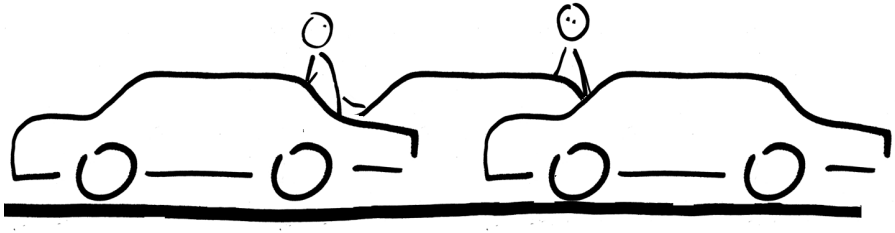
SAFETY FROM OTHER TRAFFIC P 21

STATEMENT
Pedestrians need to be kept safe from accidents and other traffic discomfort.

CLARIFICATION
Urban environments that support fast and efficient car travel are not enjoyable, safe or interesting for pedestrians. Pedestrian-friendly environments provide good traffic safety that we do not have to fear being run down or remain on constant alert.

SOLUTION
Make streets that support slow traffic and have enough crossing opportunities for pedestrians. Ensure designated paths for pedestrians where they can walk safely and comfortably.

RELATION
Designated paths [P22]
Crossing opportunities [P29]
Slow traffic [P31]
Safe crossings [P30]
Street lighting [P49]



http://www.flickr.com/photos/neekinator/4030320120/

LIJNBAAN, ROTTERDAM, NL

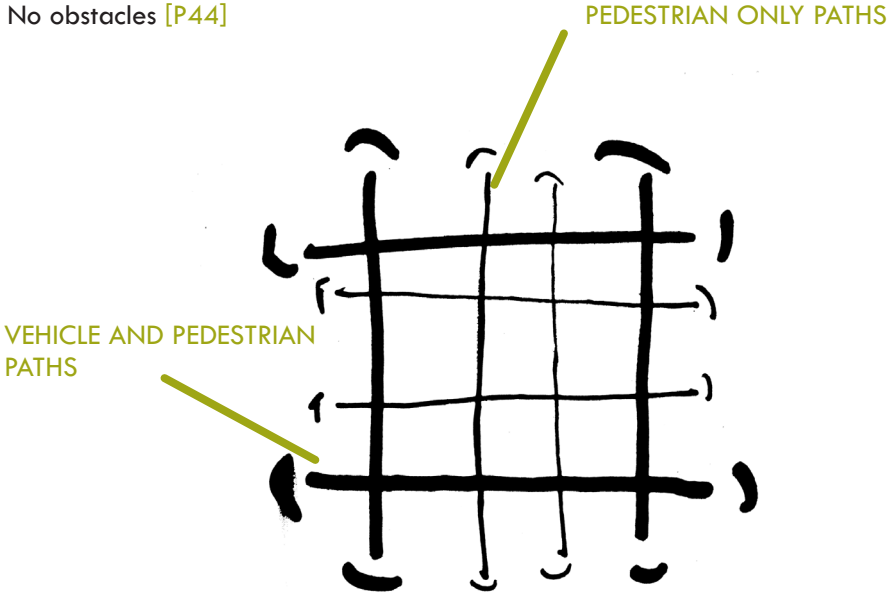
DESIGNATED PATHS P 22

STATEMENT
Pedestrians need paths where they can walk safely and comfortably.

CLARIFICATION
Pedestrian need their own path to walk. This should be the place where they have can walk undisturbed. Without danger or by other modes of transportation. They should be able to walk safely and comfortably. Furthermore, they should be able to walk in a urban environment that is fully designated for pedestrian, without noise or air pollution caused by vehicle traffic.

SOLUTION
Make paths that are accessible for pedestrian only. This could mean that a street can be closed for all other traffic, except for pedestrians. But also provide a designated space for pedestrian within each street in the city center, by providing side walks.

RELATION
Human scale [P03]
Pleasant climate conditions [P35]
Acoustic comfort [P41]
Room to walk [P43]
No obstacles [P44]
Pavement & surface conditions [P45]



http://www.flickr.com/photos/marik/3709789870/

KORTE LIJNBAAN, ROTTERDAM, NL

VISUAL CONNECTION P 23

STATEMENT
Pedestrians need a view on their objective or destination.

CLARIFICATION
It is difficult for people to know which direction they need to go in unfamiliar places. It is frustrating for pedestrians to find out that they walked into the wrong direction. Especially, by the limited walking range and the effort that is associated with walking. If pedestrians have a visual connection with their destination or an object or place that is related with their destination, it is easier to navigate. It prevents uncomfortable detours or valuable time and effort in finding your way. If the goal is insight, people tend to steer directly toward it. If a pedestrian is permitted a view on their objective the relative distance of the trip shortens.

SOLUTION
Keep or create visual connections with objects or places that are easy to recognize or that are related with a certain area. The introduction of new objects that are clearly visible and could be associated with a particular area can help pedestrians to navigate or see their objective or destination.

RELATION
Landmarks [P18]
Something to see [P39]

http://www.flickr.com/photos/topaas/4063912010/

BINNENWEG, ROTTERDAM, NL

MIX OF LAND USE

Jacobs 1961
Morris & Zisman 1962

STATEMENT

Pedestrians need mixed land use to be able to reach different types of functions in a short distance.

CLARIFICATION

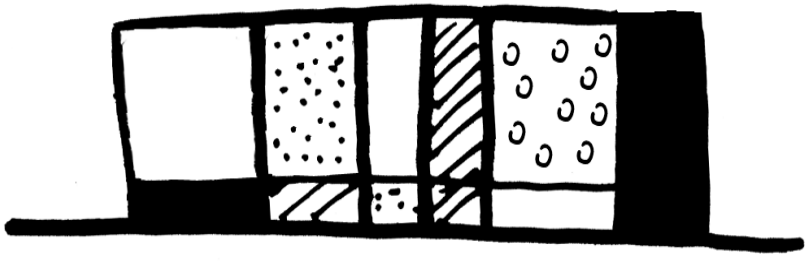
The concentration or zoning of uses of one kind in a urban area make it difficult for pedestrians to get to multiple destinations by walking. Areas with massive buildings not having on-street-activity, have a negative influence on pedestrian use. Mix of land use or functions generate diversity and activity during different times of the day. Areas with one primary use, such as office buildings, tend to be areas that are only lively in the morning, at lunch time and again during the evening rush. Outside these hours, the areas appear deserted and can act as barriers within the city. The clustering of similar functions is detrimental for the city life and the perceived safety of the city.

SOLUTION

Make sure that urban areas have a mix of offices, housing and other functions. Provide a mix of land use on the level of the street or the building block. Each street or building block should have a mixture of housing, different types of commercial buildings, public buildings and offices.

RELATION

Diversity [P05]
Narrow building fronts [P26]



http://www.flickr.com/photos/jansluijter/3501712737/

PASSAGE (DESTROYED DURING WOII), ROTTERDAM, NL

SHORT BUILDING BLOCKS

P 25

STATEMENT

Pedestrians need short to medium block lengths to provide direct and shorter routes towards destinations.

Ewing 2001
Fruin 1971

CLARIFICATION

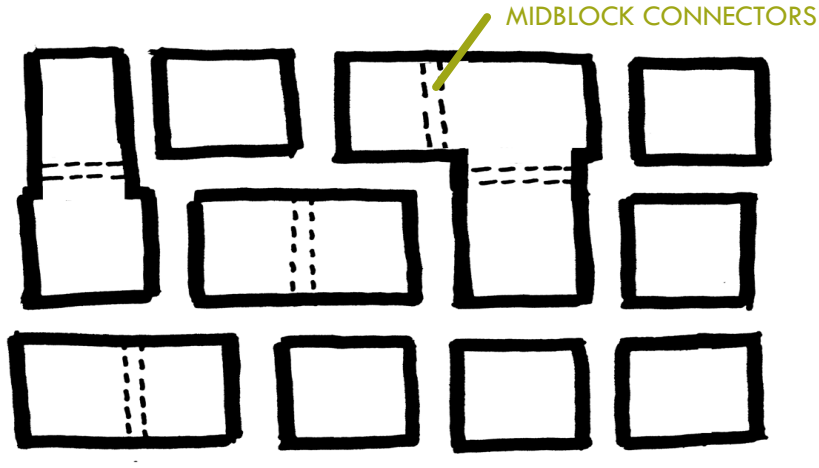
An urban environment with short building blocks influences walkability for numerous reasons. Short building blocks creates more potential for more direct routes for pedestrians It also results into more intersections meaning more places where cars must stop and pedestrian are able to cross. More intersections give pedestrians more sense of freedom and control as they do not have to take the same path to a given destination. This makes the network more eventful. It also shortens the sense of elapsed time on walking trips, since progress is judged to some extent against the milestone of reaching the next intersection.

SOLUTION

For walkability, block lengths of 90 meters are desirable. Blocks of 125 meters up to 150 meters still work well. Blocks of 180 meters or even higher have a negative influence on the walkability of an urban environment. Create pedestrian pass-troughs or midblock connectors on block longer than 150 meters.

RELATION

Direct routes [P12]
Designated paths [P22]
Arcade [P47]



http://www.flickr.com/photos/willemvanbergen/2318341912/

VEERKADE, ROTTERDAM, NL

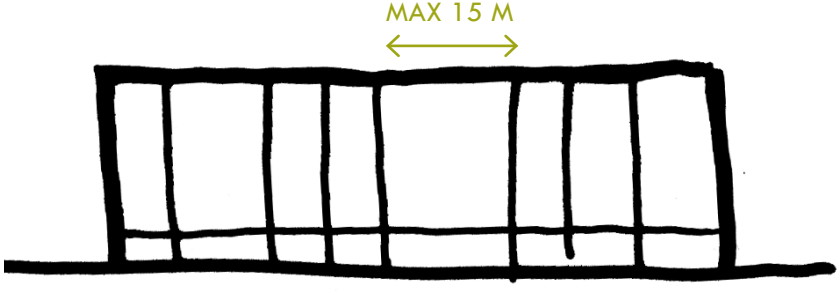
NARROW BUILDING FRONTAGES P 26

STATEMENT
Pedestrian need narrow building frontages.

CLARIFICATION
Large building units increases walking distances, because entrances and functions are dispersed over a greater length or area. Big buildings with long facades, few entrances, and few visitors means an affective dispersal of events. Narrow building fronts will shorten walking distances, because more functions are located within a shorter range.

SOLUTION
Make building frontages around 6 to 15 meters wide. If building frontages are longer it has a negative influence on walking distance and activity.

RELATION
Mix of functions [P24]
Transparency [P33]



http://www.flickr.com/photos/leahuadrian/2787682173/

DELFTSE POORT, ROTTERDAM, NL

HEIGTH OF BUILDINGS

P 27

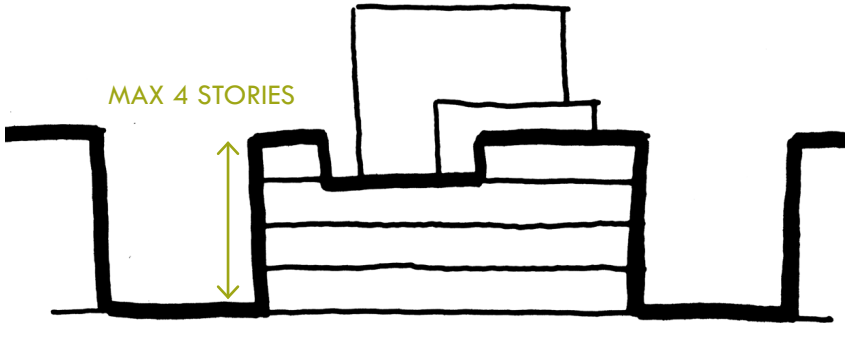
Alexander 1977
Gehl 2006

STATEMENT
Pedestrian do not need high buildings along their path or at places.

CLARIFICATION
At three or four stories, people can still walk comfortably down the street, and from a window you can still feel part of the street scene. Above four stories there is no sense of detail of the building, street or people. Furthermore, high rise buildings have a negative influence on climate conditions on street-level. Strong winds and shadow give uncomfortable climate conditions for pedestrians.

SOLUTION
Make sure that buildings are not higher than four stories along the path and at places for pedestrians. If high rise buildings are necessary then make setbacks or limit the amount of high rise buildings. So that these high buildings do not dominate the street or a place.

RELATION
Enclosure [P17]



http://www.flickr.com/photos/leoroubos/3681535279/

WITTE DE WITHSTRAAT, ROTTERDAM, NL

ACTIVITY

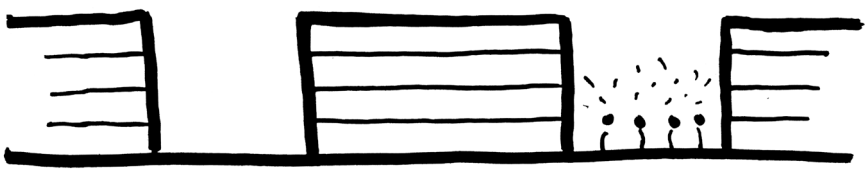
P 28

STATEMENT
The presence of other people will encourage people to walk.

CLARIFICATION
Pedestrian have a great interaction with their surroundings, other people are a part of this interaction. The presence of others provides the pedestrian the opportunity to see and meet others. It also gives pedestrians the sense of safety, since the security of others. If there are no people around at a certain place becomes a deserted area.

SOLUTION
Make places that provide room for other activities than walking. These could be places to sit, or to have a drink at a terrace. Places that are at the edge are the most suitable to make give room for activity.

RELATION
Transparency [P33]
Places to rest [P34]
Mix of land use [P24]
Something to see [P39]



DESERTED PLACE

PLACE WITH ACTIVITY

http://www.flickr.
om/photos/p_
villa/2103506364/ COOLSINGEL, ROTTERDAM, NL

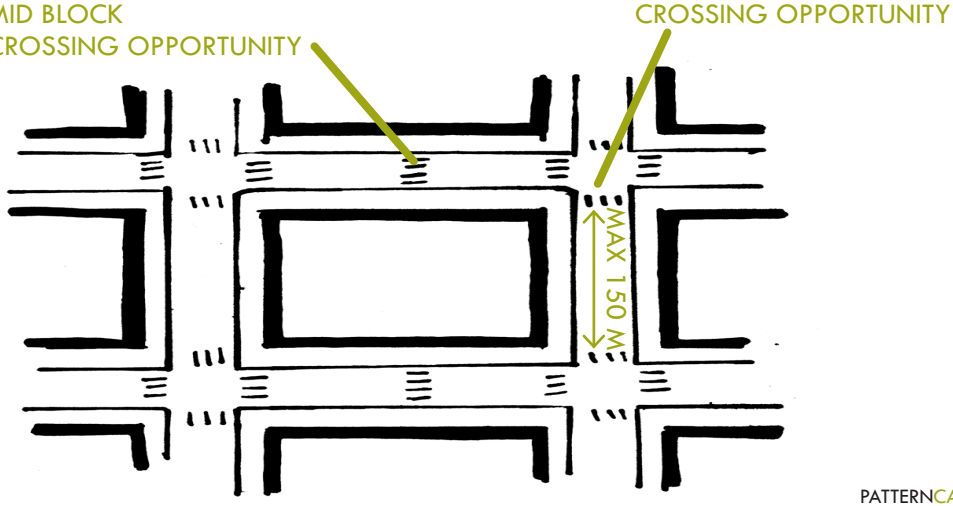
CROSSING OPPORTUNITIES P 29

STATEMENT
The pedestrian need clear and sufficient designated locations to cross paths of other modes of transportation.

CLARIFICATION
Pedestrian need to be able cross the paths of other modes of transportatioA n. If pedestrians are not able to cross, they can do two things. Or they take a risk by crossing or they need to take a detour. This results in dangerous situation, whereby the pedestrian has the disadvantage of having no protection at all.

SOLUTION
Make sure that there are frequently crossing opportunities with other modes of transportation for pedestrians. At least, every 150 meters there should be a crossing opportunity. If longer, a mid block crossing opportunity should be provided.

RELATION
No Barriers [P16]
Short building blocks [P25]
Slow traffic [P31]
Safe crossings [P30]



http://www.flickr.com/photos/zoetnet/3423308016/

KRUISKADE, ROTTERDAM, NL

SAFE CROSSINGS

P 30

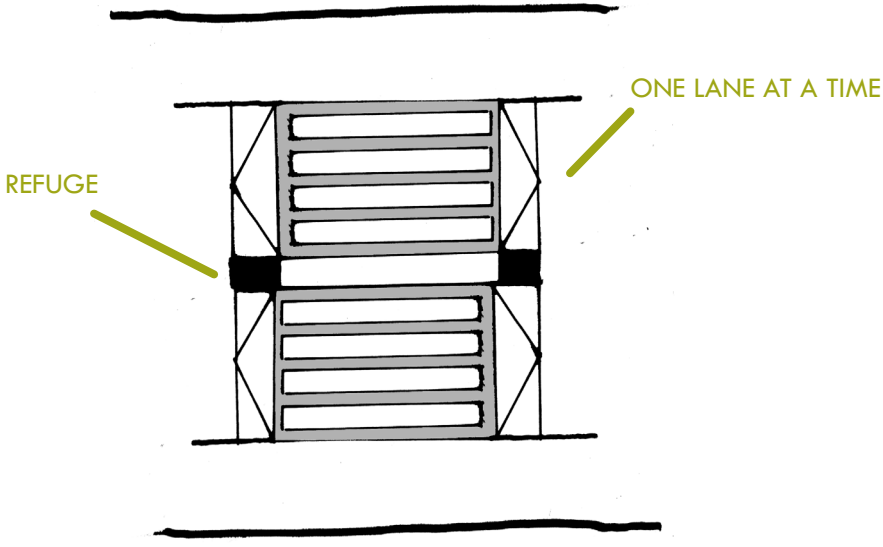
(Ewing 2001)

STATEMENT
Crossings with other modes of transportation need be safe.

CLARIFICATION
Most injuries and fatalities involving pedestrians occur as pedestrians attempt to cross streets. Pedestrian are the most vulnerable at crossings. Especially, at crossing that are poorly marked, signed or maintained. Also traffic speed/ volume make crossings difficult to cross. Wide crossings are more difficult to cross.

SOLUTION
Make crossings that are well marked, signed and visible. Also make sure that other traffic drives slowly. If necessary, in case of multiple lanes of vehicle traffic, provide a crossing refuge to ensure pedestrians can cross safely. Make sure that pedestrian do not have a level difference, but rather for cars so they have to slow down.

RELATION
Slow traffic [P31]
Street lighting [P49]



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POMPENBURG, ROTTERDAM, NL

36 SLOW TRAFFIC

P 31

Gehl 2006

STATEMENT

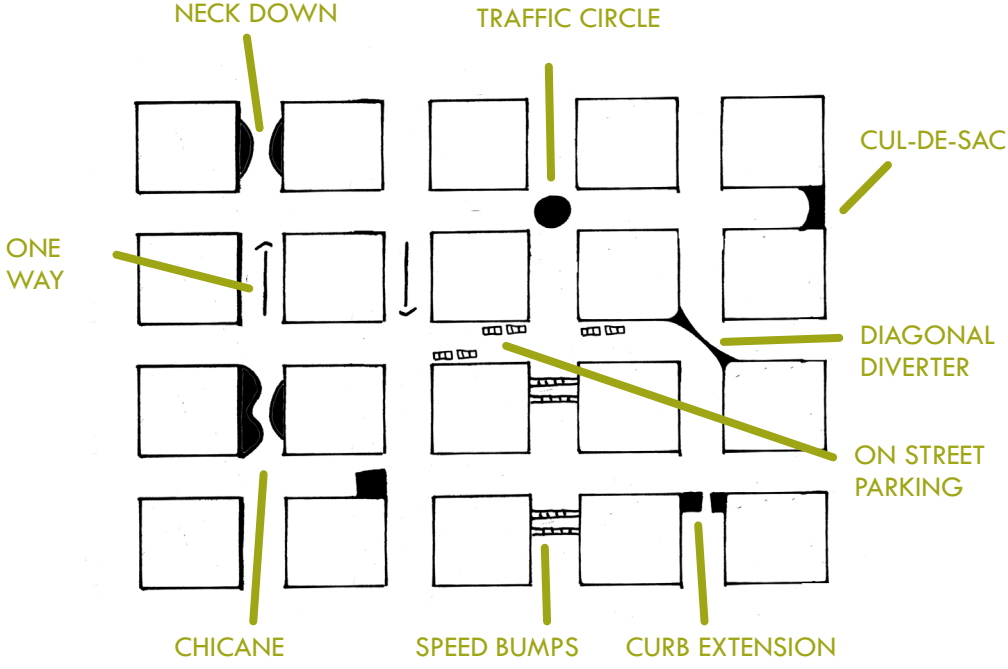
It is safer and more comfortable for pedestrian if other traffic move with a slower velocity

CLARIFICATION

Slow traffic means lively cities. When all traffic is slow, there is more life in the street. And more pedestrian appear on the street. Furthermore, for pedestrians it is easier to cross other traffic if they move at a slower speed. Traffic calming is intended to slow down vehicle traffic to make it safer for pedestrians.

SOLUTION

Make sure that the dimensions for vehicles are not too wide. The more room for vehicle traffic, it is possible to ride with a higher velocity. There are several options to slow down vehicle traffic, such solutions are chicane, one way traffic, on street parking, curb extension, speed bumps, etc. Also a combination of these solutions is possible.



http://www.flickr.com/photos/23837798@N04/4532342084/

LIJNBAAN, ROTTERDAM, NL

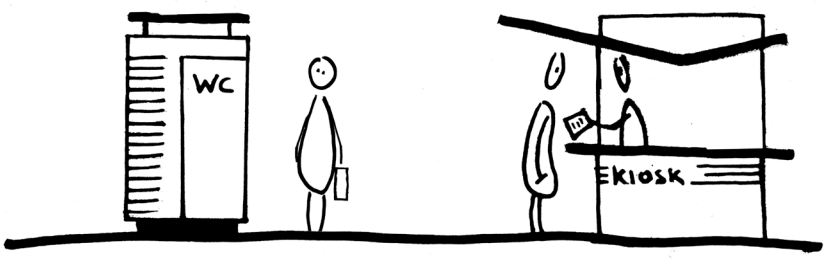
SUPPORT FACILITIES P 32

STATEMENT
Pedestrians depend on support facilities that will make them enable to travel longer distances.

CLARIFICATION
Support facilities can help pedestrians to travel further and longer. These support facilities are easy to access and quick to use, like kiosks, public toilets, newspaper stands, fruit stands and much more. For example, public toilets and benches makes it for people of all ages and abilities easier to use outdoor space.

SOLUTION
Provide space for support facilities along pedestrian paths. Make sure they are clearly visible and easy to use.

RELATION
No obstacles [P44]
Places to rest [P34]



http://www.flickr.com/photos/dicksnaterse/3732847624/

WESTPLEIN, ROTTERDAM, NL

TRANSPARENCY

STATEMENT

Pedestrians need transparency to feel safe and comfortable in a street or place.

CLARIFICATION

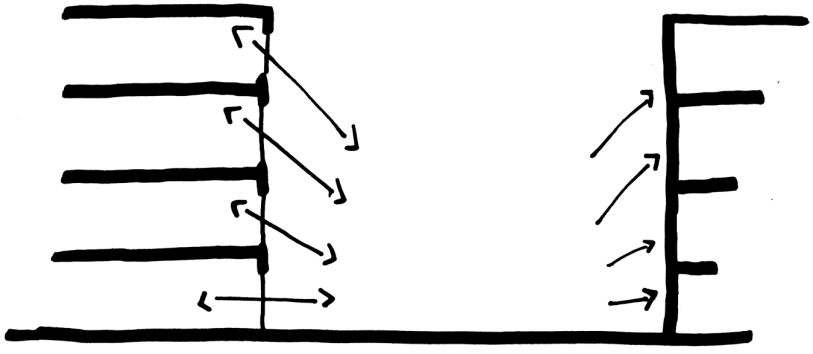
Transparency refers to the degree to which pedestrian can see or perceive what lies beyond the edge of a street and, more specifically, the degree to which people can see or perceive human activity. If a pedestrian is able to see what lies beyond the edge of the street, he or she knows what is there and what is going on and has a greater sense of safety.

SOLUTION

Make walls transparent with windows and doors towards the street. Blank and unattractive walls should be prevented.

RELATION

Activity [P28]



http://www.flickr.com/photos/skintype/371228921/

SCHOUWBURGPLEIN, ROTTERDAM, NL

PLACES TO REST

STATEMENT

Along the path and at interesting places there should be an opportunity to take a rest or break

CLARIFICATION

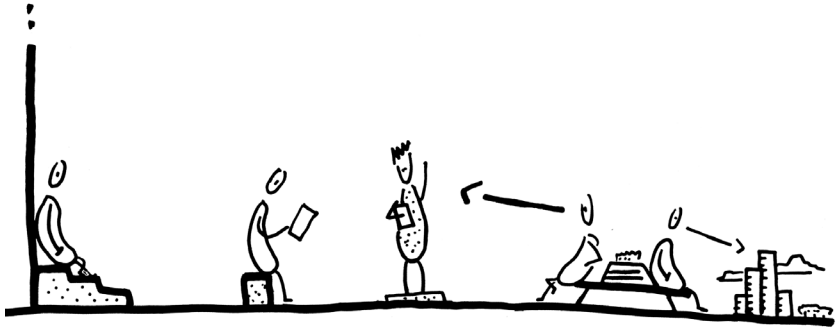
Pedestrians do not walk all the time, getting from one place to another. They also tend to go for a walk to see things or to enjoy the outdoors. And as walking is a physical demanding activity, pedestrians need places to rest. A place to rest provides to opportunity to observe a certain place or other people. Places to rest could be objects, such as benches or ledges or stairs. Also outdoor terraces provide a great opportunity to take a seat and enjoy a certain place.

SOLUTION

Provide enough places to rest for pedestrians. Do not only make terraces, but also make public sitting areas with benches. Ledges and stairs can be considered as a place to sit as well. Make sure there is a view on something interesting or activities that take place. Take care for comfortable climate conditions, such as protection from wind, rain and hot sun. Although, sunlight can also provide a comfortable warm place to sit.

RELATION

Support facilities [P32]
Something to see [P39]
Acoustic comfort [P41]
Pleasant climate conditions [P35]



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photos/docski/
2742813007/

ROTTERDAM, NL

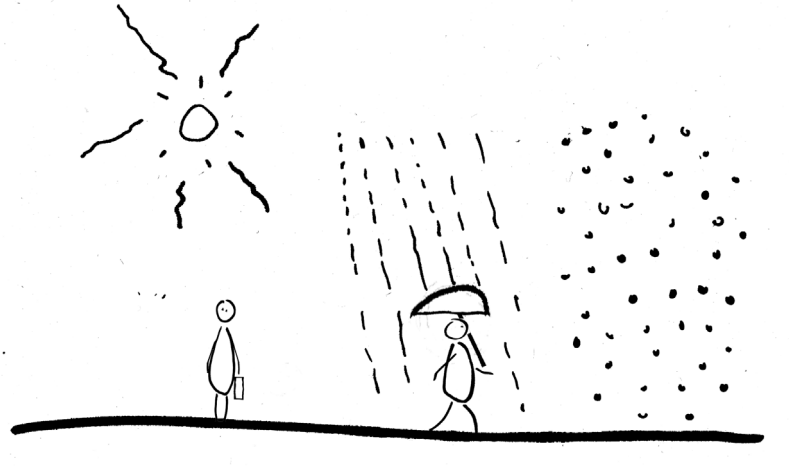
PLEASANT CLIMATE CONDITIONS P 35

STATEMENT
Pedestrians need protection against unpleasant climate conditions that will discourage them or make it impossible for people to walk.

CLARIFICATION
Pedestrians must be able to walk in the urban environment every day throughout the year. Bad weather should not keep them from the streets and the good weather should give them the opportunity to enjoy the outdoors. Pleasant climate conditions means two thing, first the protection of bad weather conditions and secondly good access to enjoy the positive aspects of the weather.

SOLUTION
Make sure pedestrians are protected from bad weather, such as rain, heat and wind. But most certainly, provide good access to good weather conditions as well. This means that rain protection and protection from wind and sun must be in cooperated within the design. To enjoy the good aspects of weather there should be places to sit in the sun.

RELATION
Not too windy [P40]
Rain protection [P42]



http://www.flickr.com/photos/redhero/3789553711/

ERASMUSBRUG, ROTTERDAM, NL

NO LEVEL DIFFERENCES

STATEMENT

Pedestrian don't need uncomfortable differences in level.

CLARIFICATION

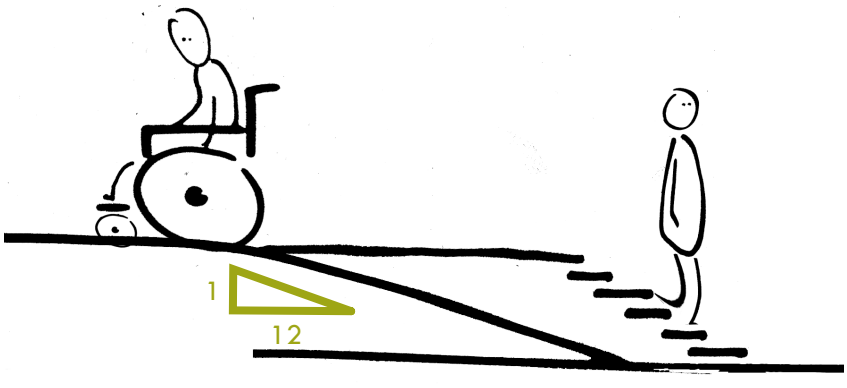
Differences can be an obstacle for pedestrians, in particular for less mobile people, such as elderly or disabled people. For elderly and disabled people even the slightest difference in height can become a problem.

SOLUTION

Make, as much as possible, use of ramps to overcome the difference in height. If this is not possible, make use of easy-to-use stairs. For younger people stairs will do, but not for elderly or disabled people. Also provide a ramp for these type of pedestrians.

RELATION

No barriers [P16]



MAX SLOPE 1:8 (NORMALLY 1:12)

http://www.flickr.com/photos/8233549@N07/3999381560/

OUDE BINNENWEG, ROTTERDAM, NL

WIDTH OF THE STREET

STATEMENT

Pedestrian need narrow streets.

CLARIFICATION

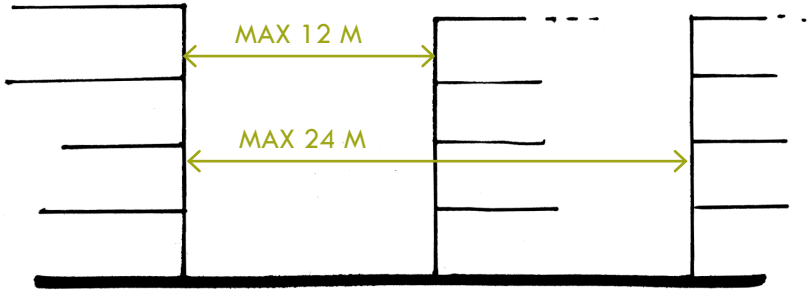
By making streets more room like, it becomes more pedestrian-friendly. The width of the street has an influence on this room like feeling for pedestrians. Streets cannot be too wide.

SOLUTION

Make streets narrow, more narrow then you might think. Make streets not wider then 12 meters for pedestrians. Even so, if the streets is shared with other modes of transportation, the street may not be wider that 2 times the height of the buildings. This means a maximum of 24 meters. Make use of street trees to divide the street into smaller room-like spaces for pedestrians.

RELATION

Room to walk [P43]
Enclosure [P17]



http://www.flickr.com/photos/mariekemvs/3932606838/ BINNENROTTE, ROTTERDAM, NL

LANDSCAPING

P 38

Brambilla & Longo
1977

STATEMENT

Landscaping can create an attractive visual environment for people to walk.

CLARIFICATION

Landscaping creates interesting and attractive urban environments It is able to muffle noise of traffic, absorb noxious gases and retain dust and dirt particles. They can also reduce glare, from buildings, cars, signs and other objects. It also provides shade and a effective shield against strong winds. Planting creates a sense of intimacy.

SOLUTION

Permanent planting should be sited outside the flow of pedestrians and consist of trees, flowers, shrubs or grass. Species should be selected with care to ensure they fit in the surrounding area and are appropriate for the environment.

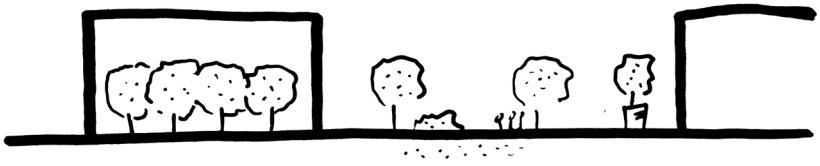
It is particularly important that:

- root systems do not damage buried utilities or buckle the footpath surface
- canopies do not interfere with overhead lighting
- plants do not obscure pedestrian or driver visibility when installed or when mature, at any time of the year. This generally requires new trees to be five meters tall at installation
- vegetation and tree limbs do not protrude into the through route or block sight lines when installed or when mature, at any time of the year
- plants are capable of surviving with minimal maintenance and (in drier areas) preferably do not need irrigation
- the landscaping does not create cover for criminal or antisocial activities.

Moveable planters can be placed in the frontage zone (or street furniture zone in a traffic calmed area) as long as they do not protrude into the through route.

RELATION

Trees [P48]
No obstacles [P44]



http://www.flickr.com/
photos/p_villerius/
242384040/ WITTE DE WITHSTRAAT, ROTTERDAM, NL

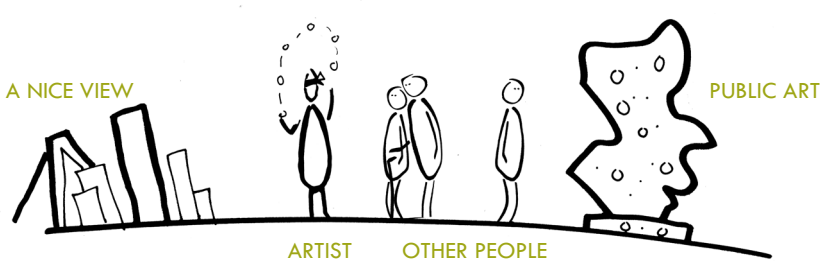
SOMETHING TO SEE P 39

STATEMENT
Pedestrian need to be able to see something along their way.

CLARIFICATION
If there is nothing to see in the nearby surrounding, people tend to stay away. If there is something to see people tend to stay longer and are encouraged and attracted to make use of the urban environment. It inspires people to see things they are unfamiliar with.

SOLUTION
Make sure there are plenty of things to see in the urban environment. Something to see could be vary diverse, such things are street artist, public arts, a view on a landscape or other people. If things want to occur there is space needed for these things to happen.

RELATION
Public arts [P52]
Activity [P28]



http://www.flickr.com/
photos/mrhayata/
112450454/

NOT TOO WINDY

P 40

STATEMENT

Strong wind will make it difficult and uncomfortable for people to walk.

CLARIFICATION

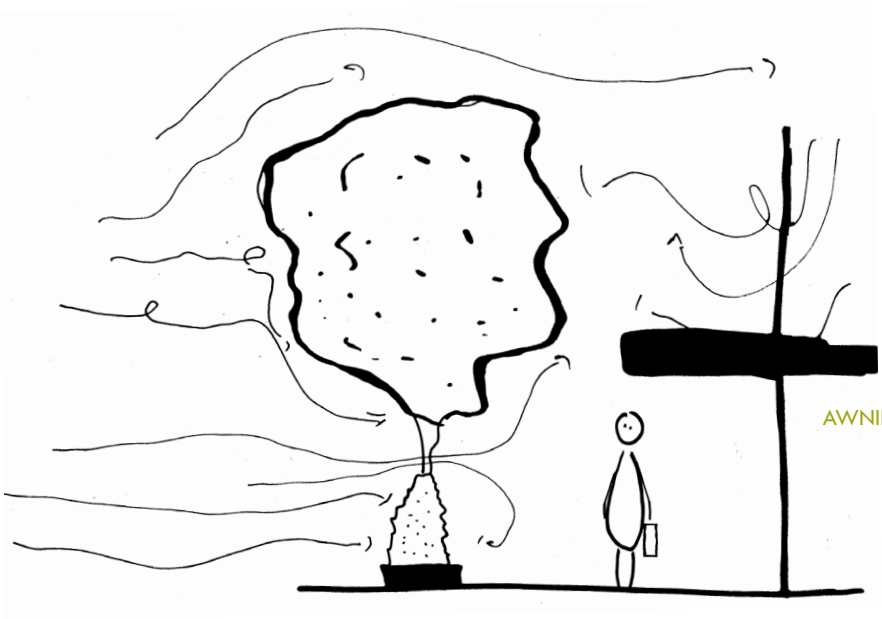
Like cyclist, pedestrian are more vulnerable for uncomfortable weather conditions in comparison with other modes of transportation. Walking against strong winds is difficult and uncomfortable for pedestrian, especially for elderly, children and disabled people. Uncomfortable wind occurs more often at areas with high-rise buildings, caused by the turbulence and wind displacement around these buildings.

SOLUTION

Make use of awnings or arcades to prevent down wind caused by high rise buildings. Also trees or plants can provide protection of uncomfortable wind.

RELATION

Height of buildings [P27]
Trees [P48]
Awning [P46]



TREES AND PLANTS PROVIDE PROTECTION

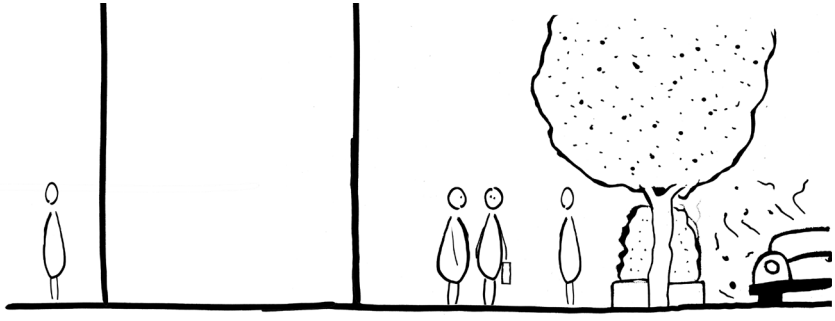
ACOUSTIC COMFORT P 41

STATEMENT
Pedestrians avoid areas or streets with uncomfortable acoustic conditions.

CLARIFICATION
The presence of noise can influence the decision of people to walk in a certain area. In most cases, noise is caused by the presence of motorized traffic. A conversation with another person becomes more difficult, because the person cannot hear the other person and needs to speak very loud. In these areas the intimacy and social interaction is lost and it becomes an area just for passing through. Silent places give people the opportunity to pause, to think or to talk.

SOLUTION
Make paths which are protected from any noise, protected by walls, by a distance or by buildings. Trees and other types of vegetation can also provide protection from noise, they can block the noise. Reducing traffic also enhances the acoustic comfort.

RELATION
Landscaping [P38]
Slow traffic [P31]



PROTECTION BY BUILDINGS

PROTECTION BY LANDSCAPING

http://www.flickr.com/
photos/susanaserrato/
2741676221/ COOLSINGEL, ROTTERDAM, NL

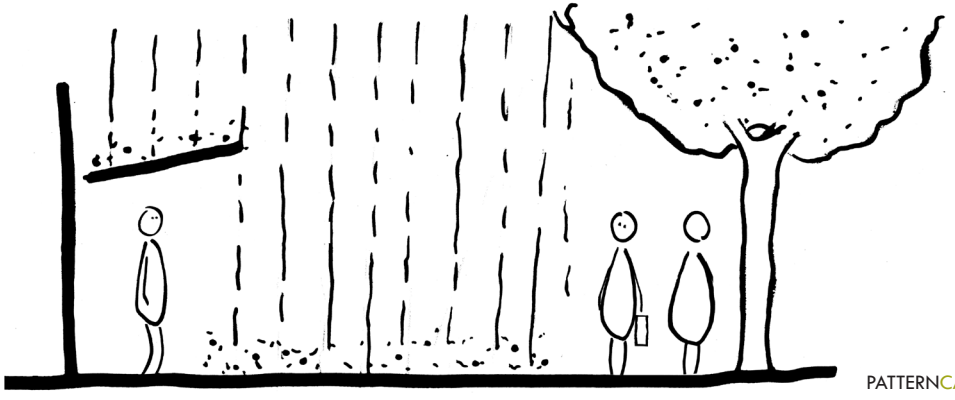
RAIN PROTECTION P 42

STATEMENT
Pedestrian need to be able to walk dry.

CLARIFICATION
Pedestrian are very much exposed to the weather conditions, more like vehicular traffic are. Even the forecast of rain or the slightest change of rain can withhold pedestrians to walk. And even so a short period of rain can make people very wet and make it less comfortable to walk. Pedestrian need to able to walk even when it rains. It should not keep them from the streets or discourage them to walk.

SOLUTION
Make sure that pedestrian have the opportunity to walk protected from rain. This can be achieved by making awnings or arcades at buildings. But if this is not possible trees can also protect pedestrians from rain.

RELATION
Arcades [P47]
Awning [P46]
Trees [P48]



http://www.flickr.com/
photos/houdtbaar/
3552531364/ MEENT, ROTTERDAM, NL

ROOM TO WALK

P 43

STATEMENT

Pedestrian should be able to pass one another or walk together or in groups.

Gehl 2006
Southworth 2005

CLARIFICATION

Pedestrians need to be able to walk reasonable freely without being disturbed, pushed or without having to maneuver too much (Gehl 2006). The path should not be too narrow not allowing people to pass another, but on the other hand not too wide becoming an empty space.

The width also determines the opportunity for other activities besides transportation. At narrow busy paths there is no room left to do other activities besides walking. Activities, such as window watching, sitting, street performance or standing, are not possible at too narrow streets. People no longer meet but walk behind on another in ranks.

SOLUTION

The demand for space varies great from person to person, within groups of people, and from situation to situation. The width of the path must at least allow 2-3 person to pass another or to walk together in groups. In very urban situation, such as city centers, the path could or must be much wider to provide space for incidental activities or larger flows of pedestrians. If the pedestrian stream is very limited, streets can be comparably narrow.

RELATION

Width of the street [P37]
No obstacles [P44]

MINIMUM WIDTH
ROOM FOR 2-3 PERSONS

http://www.flickr.com/photos/betsyshepard/3591023120/

LIJNBAAN, ROTTERDAM, NL

NO OBSTACLES

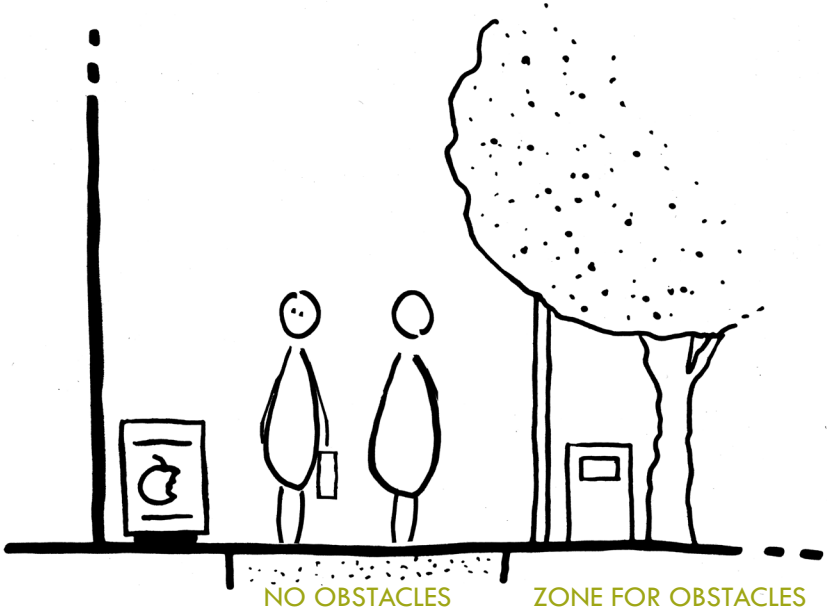
Gemzøe 2006
Fruin 1971

STATEMENT
Pedestrians do not need obstructions along the path.

CLARIFICATION
Obstacles have a negative influence on the comfort and convenience for pedestrians. Even minute objects could obstruct the pedestrian flow, leading to irritation and detours. It disturbs the walking rhythm of an individual. The obstruction could be caused by numerous objects, such as mailboxes, poles, bicycle racks, trashcans, newsstands and sort alike objects.

SOLUTION
Keep the path of pedestrians clear of any obstacles. Provide an specifically assigned place for obstacles. A zone or strip within the sidewalk could bundle these obstacles, keeping the path clear for pedestrians. Other types of objects, such as street lighting or signs, could be attached to building frontages, to avoid the use of poles or posts.

RELATION
Room to walk [P43]
Pavement & surface conditions [P45]
Support facilities [P32]



http://www.flickr.com/photos/daaynos/85203667/ - COOLSINGEL, ROTTERDAM, NL

PAVEMENT & SURFACE CONDITIONS P 45

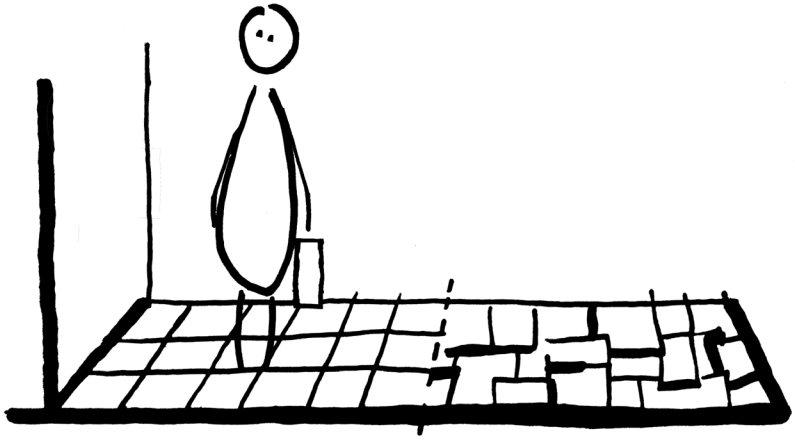
Gehl 2006

STATEMENT
Pedestrians require a walkable pavement or surface conditions for a comfortable journey.

CLARIFICATION
Pedestrians are sensitive to pavement and surface conditions. People avoid pavements or surfaces that are uneven, slippery, unclean or treacherous. These kind of surfaces are: cobblestones, sand, loose gravel and other uneven ground surface. Weather conditions can influence the walkability of pavement or other surfaces. For example, some types of pavement become slippery, if they become wet or are covered by snow or ice. Uneven surfaces cause water pools on the path of pedestrian, which result in detours or an obstruction of the route.

SOLUTION
Use pavement materials that are suitable for walking at different weather conditions. Pavement materials that result in a uneven ground surface are in most cases unsuitable. On the other hand, even surface conditions can also have a negative influence on walking. They could become slippery. Keep different users in mind, like disabled, elderly, mothers with buggies, women on high heels.

RELATION
No obstacles [P44]
Designated paths [P22]



COMFORTABLE PAVEMENT UNCOMFORTABLE SURFACE

http://www.flickr.com/photos/masakowskiphotography/4047446927/

LIJNBAAN, ROTTERDAM, NL

AWNING

STATEMENT

Pedestrian need awnings for shelter.

CLARIFICATION

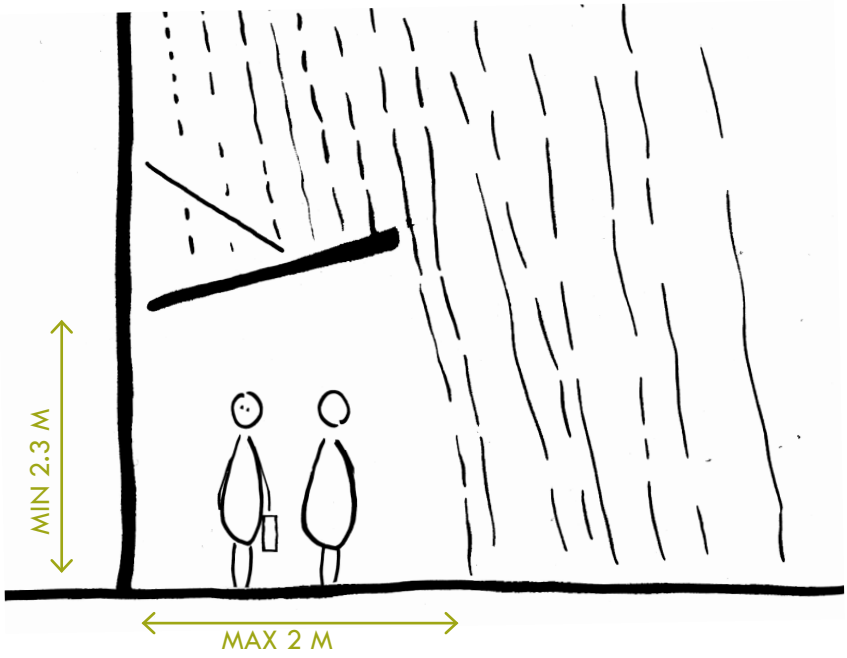
Awnings, like arcades or tree canopies, provide pedestrian protection against rain, hot summerheat and uncomfortable wind. It also provides protection building entries, a transition between indoors and outdoors.

SOLUTION

Choose an awning that match the character of the building and reflect the shape of the storefront, window, or door opening it covers. Break long expanses of awnings into segments to reflect the composition of the building and maintain pedestrian scale. Awnings cannot project more than 2 meter from the building over the public right-of-way and must be a minimum of 2.3 meter above path of pedestrians. Do not use awnings to hide significant architectural features.

RELATION

Pleasant climate conditions [P35]



http://www.flickr.com/
photos/piet_musterd/
404385597/ NAI, ROTTERDAM, NL

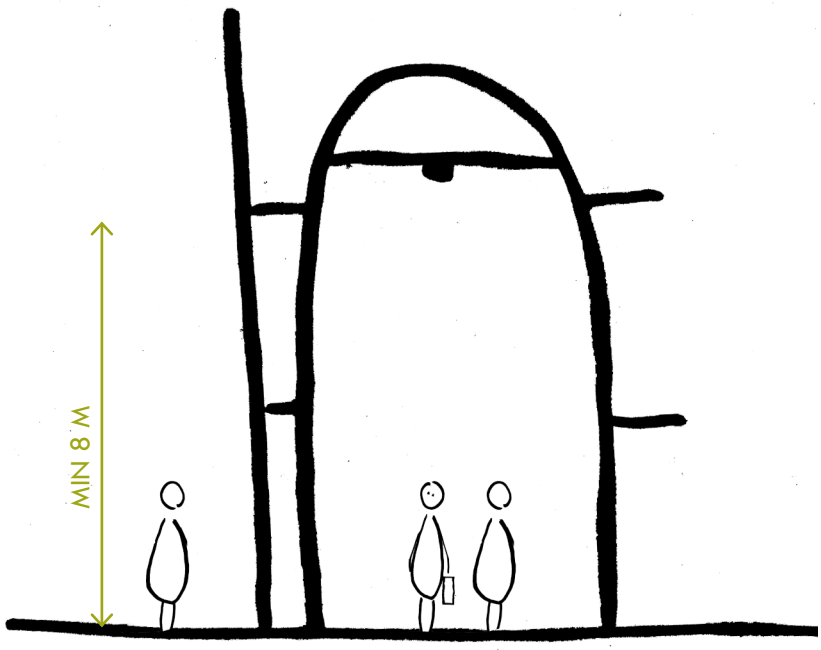
ARCADE

STATEMENT
Pedestrian arcades encourage people to walk.

CLARIFICATION
Pedestrian arcades along buildings encourage people to walk. It provides a comfortable place to walk. Arcades provide protection from negative climate conditions, such as rain, hot summer and uncomfortable wind. These are weather conditions that otherwise would have a negative influence on walking. Arcades enable pedestrians to walk protected from one place to another.

SOLUTION
If possible incorporated arcades into building design along major pedestrian routes. Arcades can also be used as pass throughs.

RELATION
Pleasant climate conditions [P35]



http://www.flickr.com/
photos/riotradio_x/
3694192618/ WILLEMSKADE, ROTTERDAM, NL

TREES

STATEMENT

Pedestrian need trees for safety, scenery, protection, comfort, nature, enclosure, and so on.

CLARIFICATION

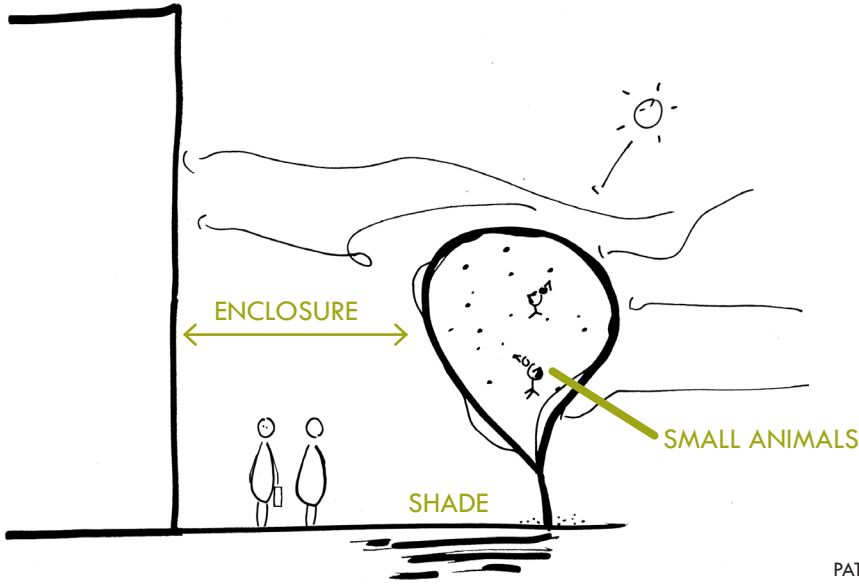
Trees provide a wide range of benefits in relation to the walkability of urban environments. Urban street trees create vertical walls framing streets, and a defined edge between pedestrians and motorist. Furthermore, trees create more pleasant walking environments, bringing about increased walking, talking, pride, care of place, association. For light or moderate rains, pedestrians find less need for rain protection. In cities with good tree coverage there is less need for chemical sun blocking agents. Temperature differentials of 5-15 degrees are felt when walking under tree canopied streets. Furthermore, street trees provide natural qualities for urban life, bringing a wide range of insects and other small animals

SOLUTION

Place trees at locations, so that the trees have a function. Such as, providing enclosure, shade, rain protection or marking a specific location. Just placing trees with no function should be limited.

RELATION

No obstacles [P44]



http://www.flickr.com/photos/fotolivier/3215509851/

SCHOUWBURGPLEIN, ROTTERDAM, NL

STREET LIGHTING

Fruin 1971

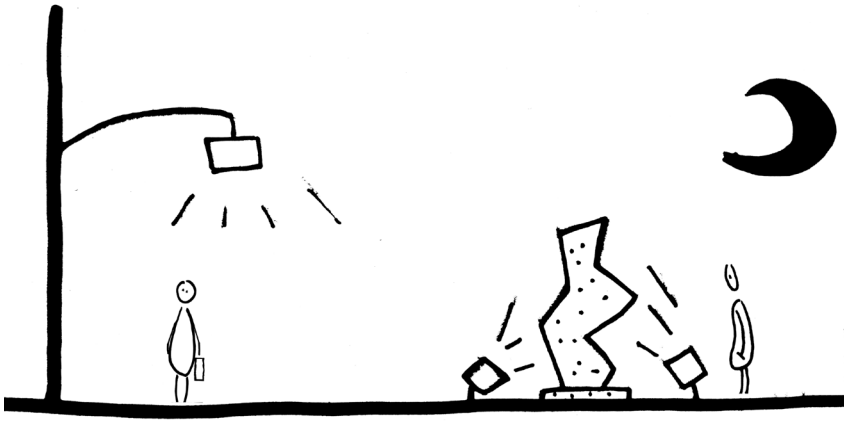
STATEMENT
Pedestrian need well-light areas to travel during night-time.

CLARIFICATION
Street lighting enables pedestrians to travel at night. It not only allows pedestrians to be better seen by motorists at night, it allows pedestrians to see better and feel more secure during nighttime hours. With street lighting, pedestrians are able to read street name signs or to identify any obstacles in or near the sidewalk or path at night.

Some areas features that appear relatively uninteresting in the daylight can be considerably enhanced by lighting them at night.

SOLUTION
Make sure that streets are well-light to encourage pedestrian shopping and attendance at events and other recreational activities at night. In these areas, it is best to consider separate pedestrian level lighting, directly over the sidewalk area. In some cases, this lighting may be designed directly into or nearby statues, architectural attractive buildings and structures to put a emphasis on these special features.

RELATION
No obstacles [P44]



http://www.flickr.com/photos/19731002@N03/2258351093/ WEENA, ROTTERDAM, NL

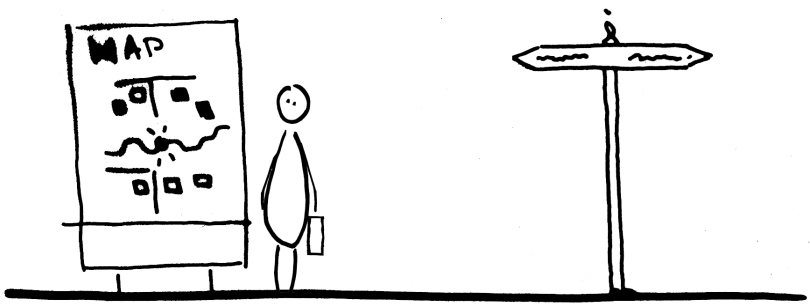
SIGNS

STATEMENT
Signs should be intended and designed for the pedestrian.

CLARIFICATION
Pedestrian need to know where they can go to. Maps and signs encourage people to walk and make use of the urban environment more easy and comfortable. Maps provide information for pedestrian to understand the surrounding area. This enhances the orientation of pedestrian. Maps and signs can help pedestrian navigate through the urban environment more easily.

SOLUTION
Make signs that are intended for pedestrian. Place maps and signs at points where pedestrian need to make a decision in walking direction and at entry points. They should be clearly visible, so make them identical to another. This makes it easier for pedestrians to recognize them. Signs need a suitable place, so that they do not form an obstacle for pedestrians, but are still easy and clearly to consult.

RELATION
No obstacles [P44]



http://www.flickr.com/
photos/milov/
2092890920/

WIJNHAVEN, ROTTERDAM, NL

SPECIAL PAVEMENT

P 51

Ewing, 2001

STATEMENT

Special pavement can emphasis exceptional places for pedestrians.

CLARIFICATION

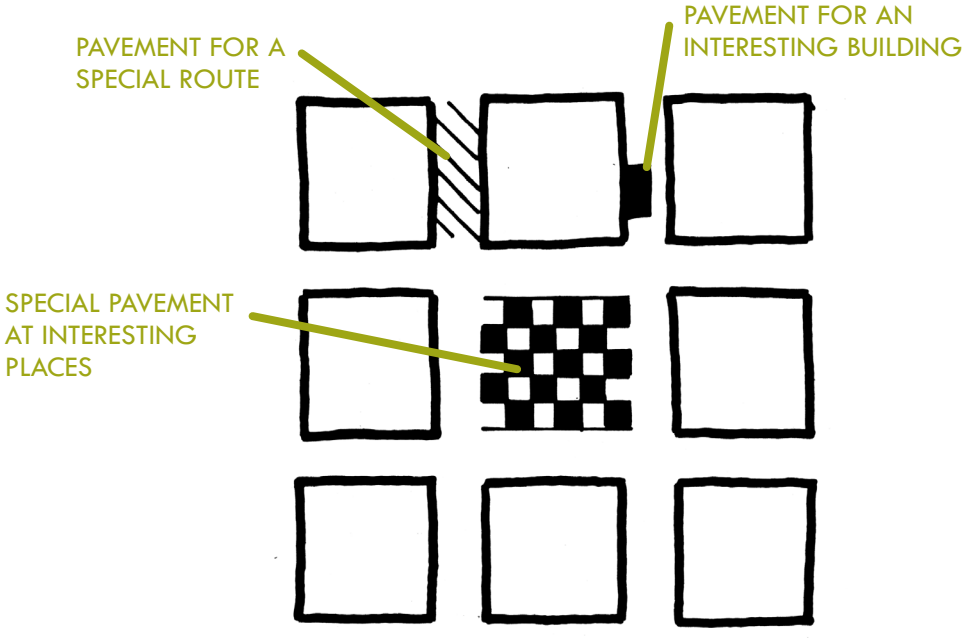
Pedestrian need to be able to recognize exceptional places. Some places or areas could be emphasized with different pavement. Special pavement may be used to visually break up large paved areas; provide linkage between buildings and public spaces, or emphasize particular routes through the city center.

SOLUTION

Make use of a different color, texture or pattern to put an emphasis on a particular city area or specific location. Special pavement is best used as an accent rather than as fill-in material, and used mainly where it serves some purpose other than purely decorative one.

RELATION

Pavement & surface conditions [P45]
Public buildings [P10]



http://www.flickr.com/photos/p_villerius/1301427666/

WESTERSINGEL, ROTTERDAM, NL

PUBLIC ARTS

P 52

Ewing, 2001

STATEMENT

Public arts can give a place meaning and give a pleasant experience to pedestrians along their journey.

CLARIFICATION

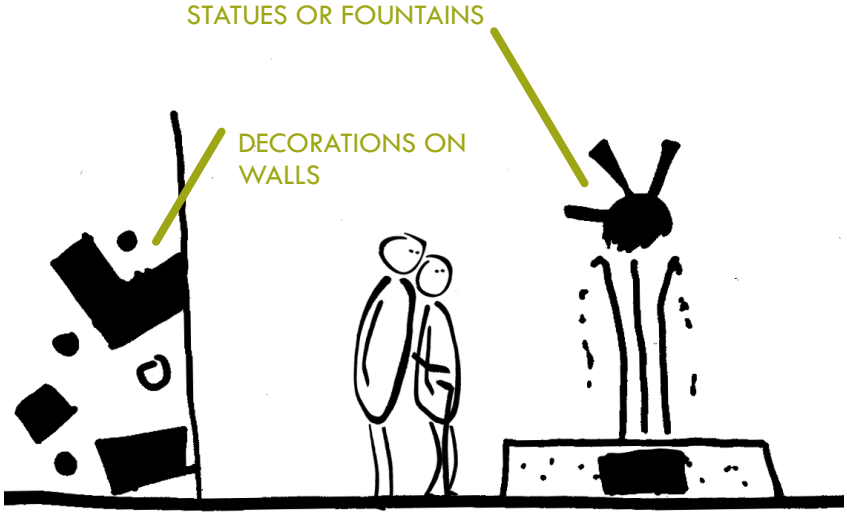
Pedestrians have a great interaction with the surrounding environment. They have the opportunity to respond on the unexpected. Public arts is place-making and give meaning to places. It could relate to the past, remember people and events, adding decorative richness, celebrating the natural environment, or introducing aspiration and humor. Public arts could appear as sculptures, murals, decorative shaped fountains, inlaid pavement, artistic benches or other artistic objects.

SOLUTION

Public arts could occur anywhere, at end points, parks, squares, along streets or other public spaces. Public arts can only occur if there is enough space or special places reserved for it. Also temporary public art could occur as a unexpected feature for the familiar pedestrian or to make unfamiliar/non-interesting public space more interesting.

RELATION

Special pavement [P23]
Places to rest [P34]
Visual connection [P50]



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