A city is not a building – architectural concepts for public square design in Dutch urban climate contexts

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Abstract
This article elaborates on an architectural approach to urban design – to the idea of ‘city as a building’ in relation to user’s perceptions and urban microclimate based on Dutch examples. A brief analysis of urban square design approaches in The Netherlands since WW II reveals a prominent tendency to use the metaphor ‘city as a building’. The architectural, often minimalist design of plazas frequently features a ‘void’ spatial layout, hard materialization, cool, bright colours and furniture that has its origin in interior design. The problems arising from this approach with respect to human bioclimatic needs and perceptions as well as urban microclimate will be elucidated and practical solutions proposed. As a general conclusion, a different approach to urban design that conceives the ‘city as landscape’ is suggested.

Introduction
The Dutch public is dissatisfied with the quality of its urban public spaces. This was clearly shown in the results of a sizable inquiry launched by an influential Dutch newspaper in 2007 [1]. The opinions aired in internet fora and the newspapers show similar concerns about the quality of many Dutch public squares, and they reflect the generally more negative than positive perceptions about these places. The ‘hits’ for positive search terms such as “beautiful/comfortable/cozy/appealing square” show that only a few Dutch squares are mentioned in a positive way, and these will be discussed later. The ‘hits’ for negative terms such as “ugly/uncomfortable/draughty/uninviting square” far outnumber them. A range of typical worries occurs: next to social nuisances (drug and alcohol addicts, loitering youngsters, vandalism, etc.) a number of problems in the physical urban surroundings are often mentioned. One of the most important seems to be the neglect of public spaces with indicators such as broken or rotten street furniture [2,3,4]. But the spatial setup of many Dutch urban squares is also criticized when squares have a too open and empty character. Another problem often mentioned is that squares appear too “hard and smooth” and “cold and grey”.

This criticism of the spatial setup and materialization is in almost all cases related to specific places and it is striking that the ones mentioned often are recently (re)designed squares in Dutch cities, and that they feature combinations of the above points of criticism. These squares are:
1. Spuiplein, Den Haag (fig. 1), designed by architect Joan Busquets in cooperation with Den Haag municipality and artist Peter Struycken, completed in 1996
2. Schouwburgplein, Rotterdam, designed by West 8 urban design and landscape architecture, completed in 1996
3. Zaailand, Leeuwarden (fig. 2), designed by Leeuwarden municipality, completed in 1990
4. Grote Markt, Groningen (fig. 3), part of the ‘ruimte voor ruimte’ inner city refurbishment masterplan by Mecanoo architects, implementation plans by Groningen municipality, completed in 1997
5. Heuvelplein, Tilburg (fig. 4), designed by diederendirrix architects, completed in 1996
6. Stadhuisplein, Zoetermeer, designed by Zoetermeer municipality, completed in 2004
7. Marie Heinekenplein, Amsterdam, designed by D.C. Apon, completed in 1995.
Questions arise about the evolution of design paradigms leading to the type of Dutch square design that features the “empty”, “hard” and “cool” characteristics so strongly criticized by the public. A brief overview of the developments in Dutch public space design over the last 50 years might help to explain this phenomenon.

A brief overview of developments in the design of Dutch public spaces since WW II

Present Dutch public design is in many ways related to design movements after WWII with the ‘coming and going’ of different design concepts, fashions and hypes that in the Dutch context represent strongly contrasting approaches.

After WW II the design of public spaces such as squares and parks was a minor priority for municipalities in The Netherlands because rebuilding the cities was more important. In the old city centres the squares were more and more used for mobility – rising car ownership after the war quickly generated a need for parking space. At that time many of the old squares were simply serving as open air car parks [Dordregter 2003:16] (fig. 8) and sometimes for commercial purposes such as street markets and funfairs. Because of these functional demands the squares were not used for resting, meeting and amusement and did not invite people to linger. Furthermore, Dutch society at that time was generally not accustomed to meeting and socialising outdoors in central urban squares [Wagenaar 1999: 43, Lemstra 1991:6-7]. Along with this, Dutch town planners in the early 1960s did not actually consider that public spaces could be used for both commercial and recreational purposes.

During the late 1960s, with the student movement in The Netherlands in the ascendent, many things changed abruptly. Young Dutch people developed a hedonistic way of life and accordingly made active use of public spaces with ‘sit-ins’ and ‘love-ins’. This new zeitgeist brought a different way of looking at the city and its public spaces. Public places were considered to be the meeting places in a “recreational city” [Dufour 1979; Reijndorp and Nio 1996: 151]. The layout of the modernist city that was considered too functionalistic, large, sterile and inhuman was rejected, and design for the small, human, scale was the answer [Reijndorp 1996:14], also inspired by the writings of Jane Jacobs and many others. Human beings and their behaviour in urban space became a major field of study and led to a strong inclusion of the ‘people in the street’ in design approaches. This attitude was reflected in new planning processes with a strong inclination to advocacy and participatory planning [Reijndorp 1996: 23].

Public spaces were increasingly shaped to meet the recreational needs of the city, also with the help of the people in the street in manifold participative design procedures. To offer a ‘cosy’ atmosphere the cities’ outdoor spaces were equipped with all sorts of colourful elements such as kiosks, pavilions, sitting corners, bicycle racks, playgrounds, sculptures and a lot of other urban furniture. Along with that, the streets and squares still had a strong commercial function, and gaudy advertising and displays of goods in the streets in showcases and on stalls was everyday practice (fig. 9).
These eventually led to unpleasant overcrowding, culminating in a decline of the central public places (Krop 1989: 11). The time arrived to rethink the role of urban designers whose design competences had been radically eroded by participatory planning practices.

From the late 1980s, Dutch city centres, like many European cities, went through a process of urban revitalization [Van Duren 1992, Oosterman 1992]. Dutch inner cities however, with their 1970s designs denigrated as crammed and outdated, were not fitted for this new liveliness – and a problem had arisen within the design professions: the artistic, creative aspect in design of public space had drawn little attention in the 1970s and 1980s. Through the years of participatory planning, many urban and landscape designers had abandoned their design practice for the role of facilitators, and landscape architects had a utilitarian rather than a creative role (Louwerse 1995: 13, 86). When landscape and urban planners still had ambitions in urban design, their ‘reference albums’ and artistic expressiveness needed new inspiration. This inspiration was often found in Paris, Lyon and especially in Barcelona (de Josselin de Jong 2003: 142).

In France at that time, artistic, architectural approaches for public spaces were fashionable. New public spaces such as the Place de Terreaux in Lyon were designed by architect Christian Drevet together with artist Daniel Buren, in Paris the Place de Stalingrad was designed by architect Bernard Huet, and last but not least, the Parc de la Villette by architect Bernard Tschumi. The French tradition of urban furniture design fed this development and Lyon became famous for its elegant and consistent urban furniture (Dordregter 2003: 15). The French influence on Dutch public space design, however, was limited. A much stronger influence can be traced to Barcelona’s architects.

Barcelona had developed a specific urban revival strategy under its city architect Oriol Bohigas. Design of public spaces showed some typical design features of the period. Bohigas interpreted urban public spaces in an architectural way – as urban ‘rooms’, the façades being their ‘walls’ (Dordregter 2003: 15), with ample use of hard materials and refined street furniture and little attention to the natural environment and its materials (de Josselin de Jong 2004: 150-151). Furthermore, public spaces were often designed in a minimalist manner: empty, dominated by the façades of surrounding architecture or containing few built elements or sculptures (Broadbent 1990: 286-290).

The new designs from Barcelona were highly influential abroad, and especially in The Netherlands, for several reasons. The minimalist designs from Barcelona coincided with the austere Dutch design tradition (Knuit et al. 1995: 51, van Dijk 1999: 144). At the same time it answered the need for a strong aesthetic counter-movement to the 1970s mediocrity of participatory and ecological design, an outgrowth of what Adriaan Geuze calls the ‘hippies’ approach (Geuze 2001).

The fact that the architectural places were ‘built’ created an instant aesthetic result and visual quality on completion (as opposed to ‘planted’ and hence slowly growing spaces). As a consequence some Dutch municipalities commissioned French and Barcelona-based architects to design their public spaces (Wiegersma 2007), but Dutch design professionals also quickly adopted the minimalist, architecturally inspired design mode that offered the quick success of instant spatial and visual results from their project work (Dettingmeyer 1991: 21).

The idea of a public square as a ‘building’
A closer look at squares redesigned or built in the 1990s that were inspired by the new architectural and minimalist trend reveals four main design characteristics: the idea of public space as an urban ‘room’ or ‘void’, the use of hard and smooth materials cool, and bright colours, and elegant, refined street furniture. These characteristics all relate to the idea of public spaces as ‘buildings’ or – as Kevin Lynch calls them – “large scale ar-
The concept of the ‘urban room/void’ as a sub-unit of the city as a house speaks for itself. The other characteristics actually follow from this idea of the urban ‘interior’. An architectural interior consists essentially of hard walls and flooring, generally stone, and the walls of the outdoor urban places – the ‘placas duras’ in Barcelona or ‘hard places’ elsewhere – correspond to this. Interiors are often decorated with bright colours for better daylight reflection and smooth materials for hygienic reasons, and this treatment was applied to outdoor space. Last but not least, a building’s interior allows the use of elegant and refined furniture – similarly, this kind of furniture was used to furnish outdoor space appealingly.

Further examination of design jargon reveals that the concept of urban places as ‘buildings’ was widely used in the profession, starting with Camillo Sitte (Sitte 1889: 146). Later, many more urban designers looked at urban open spaces as “unroofed buildings” (Louwerse 1995: 15) or even as buildings with a roof by the Barcelonan architect Andreu Arriola (Knuijt et al.: 1995: 29). In the Netherlands, too, this idea was often applied – architect Aldo van Eyck was already speaking of the “stad als huis” (‘city as house’) in the 1960s, and the term reoccurs in many concepts for public space development [5]. The idea of public space as the interior of the ‘city as a building’ perhaps becomes most manifest in the title of the Dutch professional education in urban public design: the ‘Urban Interior’ Master’s course taught at the Hogeschool voor de Kunsten Utrecht.

Interestingly, these characteristics of architecturally inspired outdoor spaces are often criticized by the Dutch public. There seems to be a striking congruence between criticism of the ‘emptiness’ of the squares, choice of materials and colours and neglected appearance of furnishing and the four aspects of the ‘city as building’ concept with its ‘voids’, ‘hard places’, cool colours and elegant furniture. These discrepancies between the four architectural concepts and public opinion merit further investigation, and will be discussed in the following, casting a critical eye on the validity of public perceptions.

**Urban squares as ‘voids’**

The notion of the city as a building with ‘rooms’ and the related concept of the ‘urban void’ is chiefly based on figure-ground theory (Trancik, 1986: 103), describing the spaces without buildings in the volume of the city, and has been widely used. According to the ‘city as house’ analogy, many Dutch public spaces were labelled ‘living rooms’ (Koers 2003: 85), ‘foyers’ and ‘theatres or stages’.

The term ‘urban stage’ was coined more than forty years ago by the social sciences to describe a setting for human behaviour and interactions in urban public places (Goffman 1959, Messinger, Sampson & Towne 1962) and was later increasingly applied to describe the physical open space of the city. For example, the notion of the ‘square as a theatre’ was frequently used in Barcelona’s urban revitalization programme (Dettingmeyer 1991: 22). Following this notion, many examples of ‘urban stages’ were developed from the 1980s. The seminal Schouwburgplein by Adriaan Geuze is one (Geuze 1995: 42), as is Spuiplein, which was conceived as a podium in front of the new town hall in Den Haag (Rodermond 1996: 80).

Many squares and streets have thus been conceived as a setting for the ‘theatre of urban life’, and emptiness is their main shared characteristic. In Barcelona several public spaces were designed with the ‘theatre idea’ in mind, while concurrently expressing the ‘poetry of emptiness’ (Esefeld 1994: 115) to epitomise urban life. These notions of offering empty space or ‘voids’ for individual expression and ‘the urban stage’ have often been mentioned in the same breath. The idea of the ‘void’ became a buzzword in the 1990s, initially in architecture, promulgated by Rem Koolhaas’ book S,M,L,XL where the term often occurs and a whole chapter is dedicated to the ‘strategy of the void’ (Koolhaas 1995: 603–661). It was also used by
architecture appeared in the Netherlands, often called ‘supermodernism’ which in many respects was a re-editing of old modernist ideas. These ‘voids’ as a specific type of very open urban squares cause some typical problems. To start with, Adriaan Geuze’s prediction that the citizens’ reaction to Schouwburgplein would be agoraphobia was absolutely right. People reportedly feel uneasy in these wide open spaces. General public opinion on many Dutch squares is that they are too big and empty (Spuiplein, Den Haag [13,14,15]; Schouwburgplein, Rotterdam [6]; Zaailand, Leeuwaarden [7,8,36]; Grote Markt, Groningen [18,19,20]; Stadhuisplein, Zoetermeer [22,23,24]; Binnenrotte, Rotterdam [21]; Brinkplein, Hengelo [11,12,37]; Bus station square Enschede [16,17]; Marie Heinekenplein, Amsterdam [9], Station Square, Leiden [10]).

Even the profession criticizes these ‘void’ squares: Hans Stevens remarks upon the emptiness and deadness of most Dutch squares (Stevens 1989) or Frank de Josseling de Jong ponders the distinction between “spacious” and “empty” squares (de Josselin de Jong 2004: 153). It is surprising that designers had not taken these predictable agoraphobic responses into account, when many classical writings on urban open space had touched upon this issue, starting with Sitte (Sitte 1889: 183-184). They were developed further after WWII with the prospect-refuge theory of environmental psychologists (Appleton 1975) and thorough behavioural research on public urban spaces by W. Whyte, A. Rapoport, J. Gehl and many others. Design approaches based on behavioural research that encouraged design for small human scale and behaviour resonated strongly in 1970s and 1980s urban design practice. These findings and resultant design approaches were then later either ignored or – in the case of Geuze and others – consciously rejected as an answer to the previously-discussed ‘hippie’ urban design.

The idea of emptiness in the city has become a more general theme in Dutch urban design for two main reasons. Repudiation of the earlier ‘cluttered’ public space in the 1970s Netherlands is one. Many of the recent urban refurbishment projects were primarily implemented to make urban places more “empty and tidy” (Reijndorp and Nio: 1996,152, 159). Streets and squares were freed not only from traffic, but also from furniture, advertising, commercial showcases, sculptures, old street furniture and other “white noise” (Blok 1998: 106) to create visual rest. The other, closely related reason for the celebration of ‘emptiness’ is the strong minimalist tradition in Dutch visual culture. This revaluation of minimalism occurred along with a re-appraisal of modernism. In the early 1990s a movement in architecture appeared in the Netherlands, often called ‘supermodernism’ which in many respects was a re-editing of old modernist ideas.

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The other main problem in ‘void’ squares is thermal discomfort. They offer no shade or shelter, and thus no microclimate variation; users are left with no choice between microclimate zones (Nikolopoulou 2004, Steemers, Ramos & Sinou 2004). Some squares are also considered windy or draughty by the general public (Zaailand, Leeuwarden; Schouwburgplein, Rotterdam, Station square, Leiden; Spuiplein, Den Haag; Bus Square, Enschede; Binnenrotte, Rotterdam). This perception is generally true – there are problems with wind discomfort, for different reasons. Firstly, the combination of square width and rather low surrounding buildings often makes open squares effective wind catchment areas, because the lee sides of lower buildings do not offer enough wind-protected depth (Boutet 1987: 57-63, Bottema 1993: 141-144, Alberts 1984: 26-32).

When a square is surrounded by taller objects, more problems with downwash and turbulence occur (Alberts 1984:31). This is the case in many Dutch squares with a high church spire on their margins. The oft-criticised Grote Markt in Groningen is a typical example, as is Spuiplein in Den Haag, where the wide, open square is flanked by the tall new town hall building causing hazardous wind situations at the foot of the building and on the square (Peutz associates 2000). Another typical wind problem on a square is the draughtiness of street canyons entering the squares due to corner streams (Bottema 1993: 84-88) or funnel effects (Bottema 1993: 97-101).

A representative example is Canadaplein in Alkmaar. This square was designed by the author in 2000 while working for Sant en Co landscape architects. The square, laid out in front of the city’s theatre, was conceived as an ‘urban stage’ for the citizens to enact their own urban ‘theatre of life’. The square was consequently designed as an open void with a low ‘stage platform’, which was appropriated by an outdoor café. After one summer season there were complaints about thermal discomfort, especially draughts in the outdoor café (fig. 10). Eventually the local authority asked the author to design a special wind screen to protect the outdoor

Figure 10 Layout of Canadaplein, Alkmaar

Figure 11 a-c Canadaplein, Alkmaar – from ‘open stage’ square towards a ‘cage square.'
café. This screen covered one third of the outdoor café area. This was still considered insufficient protection, so two years later the entire outdoor café was enclosed in a kind of ‘cage’ of wind screens. All these additions to create thermal comfort have entirely disrupted the initial ‘open stage’ design concept (fig. 11 a–c). Places that were supposed to be open are now completely enclosed by the wind screens. If microclimatic data had been available during the design process this type of ‘open void/stage’ design concept would have been considered unsuitable, and the square would have been designed very differently.

To recap the issue of ‘voids’: in general, public perception of these squares as wide and windy correlates with scientific knowledge of environmental psychology and the microclimatic reality on Dutch squares.

Dutch squares as ‘hard places’
The concept of ‘hard places’ with hard, stony and also often artificial materials that are not ‘grown’ but ‘built’ has various origins. One is the influence of inspirational French and especially Catalan squares with such typical architectural materials as stone, tiles, enamal, glass and metal (fig. 12), and elegant, smooth surfaces. Plants and natural contexts played a minor role. Barcelona’s inhabitants coined the term ‘placas duras’ (‘hard places’) for the numerous squares of this type being built in their city. It is interesting to note that even in Barcelona, where the tradition of architectural public spaces has always been strong, severe criticism was voiced by users of these ‘placas duras’. Many Barcelonans described the ‘placas duras’ as “uncomfortable, too grey, having too little green and no shadow” (Kesser, 1984: 24–25, Schneider 2002: 222).

On the other hand it was not only foreign inspiration that led to the design of ‘hard places’; the strong Dutch modernist design tradition also influenced their evolution. The typical characteristics of modernist architectural materialization have been widely discussed, and it is known that many of the typical hard, smooth and man-made materials are not highly regarded by the public. Critical voices about Dutch squares often mention their hardness (Spuiplein, Den Haag [30,31]; Schouwburgplein, Rotterdam [26,27]; Marie Heinekenplein, Amsterdam [28]; Stationsplein, Leiden [29]; Heuvelplein, Tilburg [25]; Brinkplein, Hengelo [11,12,37]; Stadhuisplein Zoetermeer [23,24]).

Problems with this ‘hard’ type of square in the Netherlands are strongly related to thermal discomfort and climate. The ‘hard places’ have a typically harsh microclimate that aggravates peak air temperatures because stony surfaces store heat and emit them via long-wave radiation (Santamouris 2001:160-165). Also the ‘touch’ of the hard materials with their heat conductivity properties plays a role. Stony materials, steel and glass are generally very dense, with comparatively high conductivity (Givoni 1998:119-122). These materials feel quite cold in cooler climatic circumstances, but in warm circumstances can become very hot. These thermohaptic properties of the materials and the accentuated peaks in air temperatures do not serve the human need for thermal comfort.

Next to their appearance, these widely used hard, smooth materials have functional deficiencies in the wet and rather cool Dutch climate. Smooth surfaces become dangerously slippery for pedestrians and cyclists, as seen in the ‘ruimte voor ruimte’ scheme in Groningen, where many people complain about hazardous situations caused by the pavement’s
smoothness, as well as in Den Haag’s Spuiplein (fig. 13). Schouwburgplein in Rotterdam is also described as very slippery [26].

Generally speaking, the negative impressions that many people have about the hardness and smoothness of many squares is easily verifiable.

Cool, bright colours

‘Cool’ or bright colours are often used in the newer squares. This can partly be attributed to inspirations from the Modern Movement, but also to the Mediterranean influence, where bright colours are ubiquitous in outdoor space and façades.

In the Dutch context, however, the public often sees these squares as too “cool and grey” [Heuvelplein, Tilburg [32]; Spuiplein, Den Haag [30,34]; Schouwburgplein, Rotterdam [38]; Zaailand, Leeuwaarden [33]; Binnenrotte, Rotterdam [35], Grote Markt, Groningen [18], Bus Station Square, Enschede [17]; Brinkplein, Hengelo [11,12], Marie Heinekenplein, Amsterdam [28]]. These perceptions are deeply rooted in Northern European colour perception schemata, attuned to the cold element of water and ice [Rijgersberg 1967: 56-57], and bright colours thus have rather negative connotations in the cool Dutch climate with its frequent grey skies. For many people, thermal perception is thus not only influenced by the physical facts but also by the colour schemata they have in mind. A place with a cool ambiance will generally not be preferred in Dutch circumstances and is thus avoided more quickly than ‘warmer’ places.

But the bright colours also create typical problems in the Dutch climate – a classic example is the previously mentioned urban refurbishment project, ‘ruimte voor ruimte’, for the inner city of Groningen, where Barcelona influence is seen in its bright, cheerful colours [Houben/ Mecanoo 2001: 65, 67; de Josselin de Jong 2006: 213]. These colours often do not suit the dampness of the Dutch climate, where algae develop quickly and dust particles and water leave traces, making the places or objects look neglected (fig. 14).

Along with this, bright colours are quite reflective, so additional discomfort from glare can often arise, making a place even less attractive.

Refined urban furniture

Site-specific or, as in Lyon, city-specific design lines of street furniture have often been developed. Great attention was devoted to very refined design and fancy materials such as soft wood, special ceramic tiles, light metal and others. These materials, bright colours and delicate construction were often derived from design principles for interior space. Street furniture of this type gave the public places an instant appeal, tactile quality and elegance [ten Cate 1990: 11]. Unfortunately the Dutch climate was not taken into account when light and elegant street furniture was installed in outdoor space. Many materials proven to be unsuitable because they rot much quicker in the wet, cool Dutch climate. This particularly applies to materials such as light wood, certain types of concrete, terracotta, ceramic tiles, etc. As a result of weathering by wind and rain, much urban furniture quickly becomes unusable. The effects show quickly, often after less than five years: wooden seats are splintered, filigree steel starts to corrode, tiles crack etc. (fig. 15). These deficiencies considerably detract from the appearance and amenity value of a public space, and eventually lead to depreciation and under-use.
Specific conclusions and design recommendations

Voids

Obviously the choice of the ‘open void’ concept is wrong in the Dutch context. Public criticism of the emptiness of squares is based not only on the users’ personal impressions but also on the findings of behavioural science, environmental psychology and microclimatology.

People’s preferences for places that offer sufficient prospects as well as refuge calls for a square design that offers both – an open space combined with points or lines of refuge elements. Refuges can be built or planted elements, as long as they are high enough to provide shelter. These elements can help make an empty square less agoraphobic, but they can also – if intelligently designed – fulfill microclimatic functions. When the refuge elements are high enough they create shade in a square that might otherwise be uncomfortable to cross, or they can offer protection from rain. These elements can also provide wind protection, although the typical wind problems of squares can only be partially solved with refuge elements. Trees or hedges are most beneficial in this case, as more effective windbreaks than solid built elements (Boutet 1987: 47–50). Of course, the large wind catchment of a wide square area can also be minimized by changing the surrounding building configuration to reduce the proportions of the square. This, however, is often difficult because many squares also need a critical size to accommodate markets, festivals, circuses etc. The problems close to large buildings with downwash winds can best be solved with changes in the architecture of the respective buildings such as lean-to roofs, canopies or protrusions to deflect the downwash at the foot of the buildings (Bottema 1993: 110–118). The last typical wind problem is of wind from street canyons, and here, too, efforts should be made to deflect the wind – if necessary – from areas of intensive use or where people gather.

Seeing these measures cumulatively, to provide protection from unpleasant microclimates on a typical ‘void’ square, it might appear that making a large open square bioclimatically comfortable will always result in breaking the emptiness. Even so, the squares also do not have to be cluttered with elements and vegetation, as happened in the times of ‘hippie design’. A good balance of prospect, open areas and ‘refuge’ – protective elements – is necessary to create a comfortable place.

Hard places

The hard places cause problems with their heat and cold storage and conductivity of their materials, but the smoothness of many materials is also a problem in outdoor climates.

The simplest way to mitigate the temperature problems in hard places is to introduce vegetation that casts shade and buffers temperature peaks with extra evaporation (Olgyay 1963: 74). But other softer materials should also be introduced because they have lower conductivity and their ‘touch’ is warm. This influence of soft materials on temperature perception has been proven in experiments where people were exposed to ‘hard’ rooms and ‘softer’ ones clad with wood and textiles. Although the temperatures were exactly the same in both environments, people estimated temperatures in the ‘soft’ environment to be higher than in the ‘hard’ one (Rohles 1980).

But the wetness of the Dutch climate should also be taken into account with respect to the slipperiness of hard and smooth materials. If hard materials cannot be avoided, such as in pavements and other heavily used elements, they should be rougher or coarser to reduce the risk of skidding.

Cool and bright colours

The choice of colour in Dutch squares should focus less on cold and neutral colours, because the vault of the sky as an important part of the visual field in outdoor space often contains these cold grey tones. A ‘warming’ contrast of colours will make outdoor spaces visually more diverse, and thus more appealing to a larger group of people, because colour preferences differ strongly (Rijgersberg 1967: 63–69).

The use of bright colours on the squares should be very carefully considered. On ground surfaces it should be avoided because the generally wet Dutch climate means that surfaces quickly become stained, and in the summer months glare can be annoying for users, especially when the surfaces are smooth. On the other hand, bright and warmer tones can substantially ‘cheer up’ an atmosphere and should hence be part of the total colour scheme. But the bright colours should rather be used as accentuations in facades or special elements that are not heavily used or exposed to strong weathering.
Refined urban furniture

The elegant street furniture that was inspired by indoor furniture should be replaced by suitable outdoor furniture. Sturdy weatherproof outdoor furniture, however, need not be inelegant; it is more a question of smart design becoming aware of climatic circumstances and material durability. Furniture that lasts longer has a very strong impact on the liveability of public spaces.

A closer examination of the few public squares that are in fact cherished by the Dutch public, such as Onze Lieve Vrouwenplein in Maastricht [39,40], Brink in Deventer (fig. 16) [41,42] and Oude Markt in Enschede (fig. 17)[43,11] shows that these squares could actually be called built versions of the above-mentioned design recommendations. They are either rather small (Onze Lieve Vrouwenplein, Maastricht) or the space is deflected in shape (Brink, Deventer) or subdivided by a building such as an old-scale building or church (Brink, Deventer; Oude Markt, Enschede). Next to that, all the examples have a substantial number of trees along their margins, and some in the middle of the space which also break the emptiness and balance the hardness of the stone surfaces. The colours used in all these places are classic Dutch: mainly brick in warm tones with a few brighter accentuations in special elements.

For better examples of climate-responsive outdoor places it is also valuable to ‘backtrack’ the setup of historical Dutch squares. This reveals that old squares were often well suited to climatic circumstances and offered sufficient elements for human comfort. The markets were either enclosed by buildings that offered protection by arcades in the ground floor or featured a town hall in the middle of the square that had an open market hall underneath (fig. 18), or they had protective elements for the perishable goods, which at the same time offered protection to the stallholders and visitors (Abrahamse 2007: 39). Typically, for example, the old fish stalls were made of stone (fig. 19) or there were groups or lines of trees shading the market square (fig. 20).
General conclusions

As argued in the previous pages, the general public’s perception is closely related to their experience ‘in situ’ on public squares. Human “perceptual acuity” [Tuan 1974: 77-79] or intuitive understanding of physical environments is generally a reliable indicator of environmental quality, in this case spatial properties in relation to microclimate.

From the examples of the four typologies of architectural minimalist public space discussed here, clearly a lack of understanding of the physical natural circumstances and especially of climate can be discerned among designers using the ‘city as building’ approach. The architectural approach to urban space especially has created problems through a supposed ‘interiority’ which has proven deceptive. In a building, various technological devices (air conditioning etc.) can regulate the environment to create stable, homogenous conditions. But in public squares the urban climate with its very specific mechanisms is omnipresent. People in outdoor space experience this climate, and are unfortunately more often exposed to the unpleasant effects than to the beneficial ones. So it comes as no surprise that the architectural, minimalist square is heavily criticized by the general public.

However, what is surprising is that it is precisely this type of public space that is often valued by architecture, urban design and landscape architecture professionals. Many examples have been celebrated in professional organs as ‘cutting edge’, ‘epoch-making’ works – Schouwburgplein [Ibelings 2000: 224-225] and Brinkplein in Hengelo [Van Dooren 1999: 22-25] – or made it into the yearbooks of Dutch urban design like Spuiplein [Jaarboek landschapsarchitectuur en stedebouw 1998: 138-141], the bus station square in Enschede [Jaarboek landschapsarchitectuur en stedebouw 1998: 142-143] as well as the ‘ruimte voor ruimte’ project in Groningen [Jaarboek landschapsarchitectuur en stedebouw 1998: 146-149] and won awards as did the Enschede square [44]. So there seems to be a wide gap between the perceptions of the general public and the design league at their desks.

This could be due to the fact that designers are too detached [Giorit 2006:95] from the places they design and from the climatic reality ‘out there’ in the public spaces they design. Another reason may be that they are still too preoccupied with design for visual effect alone and neglect basic physiological needs such as thermal comfort and the other senses [Pullasmaa 2005].

It may also be that the complex nature of urban microclimate processes is considered incomprehensible by designers, although some literature on the issues of microclimate and urban form is available [Brown 1995, RUROS project 2004, Givoni 1998, Boutet 1987, etc.]. Yet there is a lack of simple design guidelines taking urban climate into account, and these guidelines will have to vary regionally. Within the temperate zone for example, it makes a great difference if a place is situated close to windy coastlines or lies more inland [45].

Most existing public design for urban climate is climate-responsive, mitigating the problematic effects of climate. What has not been investigated further or experimented with is an approach that actively includes the climate – an approach that could be coined ‘climate-revelatory’ [in line with the existing term ‘eco-revelatory’, see Landscape Journal special issue 1998]. It has to be understood that the urban ‘voids’ are actually not empty, but full of climatic forces such as radiation patterns, airstreams and water/humidity. These climatic forces can be used – the sun to warm special places, shade to generate patterns, wind to move furniture or elements into or out of the wind, rainwater to induce the opening of rain protection elements etc. Another starting point for designing with climate could be the interaction of people and climatic forces where moveable elements can be shifted to change microclimate. It could be fascinating to see the occurring ever-changing dynamic spatial patterns and what they reveal about the interplay of climatic forces and people. This can provide a special poetic experience, but also enforce the experience of nature in the city. In inner cities, climate is often the only perceivable ‘reminder’ of natural landscape when the soil and water have disappeared under pavements and into canal systems. And people actually appreciate these climate experiences and actively look for them, as has been proven by Swedish research [Eliaussen et al. 2007:11-12].

The perceptions of people and the facts on Dutch squares discussed in this article clearly indicate that the ‘city as building’ approach for public design needs revising. The landscape’s forces, and especially climate, still play an important role in the urban physical reality and people’s perception of places. Hence an alternative approach, ‘city as landscape’, seems more appropriate for urban design when the term ‘landscape’ is interpreted according to Alexander van Humboldt’s idea of landscape being “the total character of a region on earth” with all its natural and cultural processes [Humboldt 1845]. The strength of Humboldt’s notion of ‘landscape’ lies in its inclusion of the natural and the human environment. An urban design paradigm of ‘city as landscape’ suggests a stronger respect for natural forces in the city, but also for the corresponding human perceptions. The ‘city as landscape’ idea suggests that designers should be made more aware of the natural forces within the city and the human habitat. ‘City as landscape’ also accentuates the characteristic of the city as something that changes and grows, and this aspect should also be reintroduced to the design of public spaces. Public places do not all have to be built ready to use; they can grow, along with the vegetation that structures them. As argued earlier, the general public appreciates the experience of nature in the form of vegetation, of water and climatic influence.

Within the ‘city as landscape’ approach, designing for the urban climate can take a prominent role – on the one hand to improve existing situations and adapt to future challenges by climate change, and on the other hand to create ‘climate-revelatory’ designs making ‘nature’ experienceable and legible in the urban human habitat. This, however, still requires more research: first, more fundamental empirical research on the relationships between human perception and microclimate, and second, research by design to supply the urban design community with comprehensible and easily applicable microclimate knowledge on the most dynamic and fascinating parameter of ‘landscape in the city’.