



Workplace greenery

use, preferences, and health benefits of green outdoor environments at workplaces

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Lene Lottrup





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This industrial PhD project is a collaboration between Forest & Landscape, University of Copenhagen, Plan & Landscape, Arkitema Architects and the Stress Clinic, Institute of Occupational Health, Hillerød Hospital



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English abstract

Lottrup, L. 2012. Workplace Greenery: Use, preferences, and health benefits of green outdoor environments at workplaces. PhD thesis. University of Copenhagen, Denmark, and Arkitema Architects, Denmark

This industrial PhD project is a collaboration between Forest & Landscape, University of Copenhagen, Plan & Landscape, Arkitema Architects and the Stress Clinic, Institute of Occupational Health, Hillerød Hospital. The PhD thesis is based on research which was conducted at Forest & Landscape from 2007 to 2011, and on experience from implementing research into landscape architectural practice at Arkitema Architects during the same period.

The PhD project deals with outdoor environments at workplaces, and aims to investigate employees' use of these environments, their preference for certain characteristics in these environments, and the relationship between the characteristics and employees' health, wellbeing and work performance.

For this purpose, a literature review of 16 studies on the topic and a case study comprising six Danish companies was conducted. Furthermore, data from a Swedish questionnaire survey was used.

The findings from the literature review show that the window view was the issue, which was most often addressed by the studies, and that the workforce in general prefers a view of natural elements as opposed to a view of built elements. A view of natural elements was found to be associated with several benefits for the workforce and companies. Findings from the case study show gender differences regarding the frequency of use and perceived impediments to going outdoors. The presence of the perceived sensory dimension 'serene' increased the odds for respondents going outdoors and for five out of eight outdoor activities being performed. Furthermore, the findings show that a view of natural elements was related to high view satisfaction, and that high view satisfaction was related to high self reported work performance and job satisfaction. The findings from the Swedish survey show relationships between access to workplace greenery, and a positive workplace attitude and decreased level of stress for male respondents. For female respondents, a relationship between access to workplace greenery and a positive workplace attitude was found, but not between access to workplace greenery and level of stress. Furthermore, a positive workplace attitude was related to decreased levels of stress for female respondents, but not for male respondents.

The findings of this PhD study indicate that workplace outdoor environments could play an important role in increasing the health and wellbeing of the workforce, and should be recommended as a component of companies' future health promotion strategies.

Dansk resumé

Lottrup, L. 2012. Workplace Greenery: Use, preferences, and health benefits of green outdoor environments at workplaces [Uderum & Arbejdsliv: om brugen af, præferencer for og sundhedsrelateret udbytte af virksomheders grønne udemiljøer]. Ph.d.-afhandling. Københavns Universitet, Danmark

Denne erhvervs-ph.d. er et samarbejde mellem Skov & Landskab, Københavns Universitet; Plan & Landskab, Arkitema Architects, og Stressklinikken, Institut for arbejdsmedicin, Hillerød Hospital. ph.d.-projektet er baseret på forskning udført på Skov & Landskab fra 2007 til 2011, og på erfaringer fra implementering af forskning i konkrete landskabsprojekter i Arkitema i samme periode.

Ph.d.-projektet fokuserer på arbejdspladseres udemiljø, og har til formål at undersøge medarbejdernes brug af disse udemiljøer, deres præferencer for bestemte karaktertræk i udemiljøerne, samt sammenhænge mellem brug og udformning af udemiljøerne og medarbejdernes sundhed, trivsel og arbejds-evne. Projektet baseres på et litteraturstudium af 16 relevante studier og et casestudy af seks danske virksomheder. Derudover er data fra en svensk spørgeskemaundersøgelse analyseret.

Resultaterne fra litteraturstudiet viste, at de fleste studier fokuserede på udsigten fra vinduet på arbejdspladsen, og at de ansatte generelt foretrak udsigt til naturlige elementer frem for udsigt til byggede elementer. Udsigt til naturlige elementer var forbundet med positivt udbytte for både medarbejdere og virksomheder. Resultater fra casestudiet viste kønsforskelle med hensyn til hyppighed af udeophold og forhindringer for at gå udendørs. En oplevelse af udemiljøet som fredfyldt øgede chancen for at respondenterne gik udendørs og for at de udførte fem ud af otte udendørs aktiviteter. Derudover viste resultaterne at udsigt til naturlige elementer var forbundet med øget tilfredshed med udsigten, og at høj tilfredshed med udsigten var forbundet med øget arbejdsglæde og arbejds-evne. Resultaterne fra den svenske spørgeskemaundersøgelse viste sammenhæng mellem adgang til et grønt udemiljø på arbejdspladsen og høj trivsel og lavt stressniveau for mandlige medarbejdere. For kvindelige medarbejdere fandtes en sammenhæng mellem adgang til grønt udemiljø og høj trivsel, men ikke mellem adgang til grønt udemiljø og medarbejdernes stressniveau. Derudover viste resultaterne en sammenhæng mellem høj trivsel og lavt stressniveau for kvindelige medarbejdere, men ikke for mandlige medarbejdere.

Resultaterne fra dette ph.d.-projekt viser, at arbejdspladseres udemiljø kan spille en vigtig rolle for medarbejdernes sundhed og trivsel, og kan anbefales som en del af virksomheders fremtidige sundhedsfremmende strategier.

Table of contents

English abstract	3
Dansk resumé.....	4
Table of contents.....	6
Background.....	8
Motivation.....	8
An Industrial PhD project	9
Introduction	9
State of the art	9
Research aims	9
Theoretical background.....	11
Methods	12
Study 1: literature review (Paper I).....	12
Study 2: case study (Paper II and III)	13
Study 3: survey (Paper IV).....	19
Summary of results	19
Findings from Study 1: Literature review (Paper I).....	20
Findings from Study 2: Case study (data from questionnaire).....	21
(Paper II and III)	21
Discussion	27
Discussions of findings and implications for practice	27
Guidelines	29
Discussion of research design.....	32
Experiences from an industrial PhD project	34
Future research.....	35
Conclusion	37
Acknowledgements.....	37
References	39
List of papers	43

Appendix A:	44
Landscape analyses (in Danish)	
Appendix B:	82
Questionnaire (in Danish)	
Appendix C:	96
Question-guide for focus group interview (in Danish)	

Background

Motivation

It has happened more than once – the meeting table has been set, the drawings laid out and I have a really good feeling in my stomach. Only minor things need to be discussed today. The major lines have been determined, and everybody in the project team agrees that this office building should be located in green surroundings. Not green as ‘in the middle of a big lawn’, but the kind of green that includes trees, shrubs and flowers. Contractors, engineers and architects have shared the vision of an office building with outdoor surroundings, where employees will meet, eat lunch, hold meetings, or go for a run. Now, only some minor details need to be corrected before the drawings can finally be approved.

The meeting participants arrive, eat rolls and talk about the engineer’s new Audi. Then the contractor says ‘the developer has once again calculated the need for parking lots, and he wants us to make 200 additional parking lots, - for safety’s sake’. ‘Oh’, I say, ‘that’s impossible. If we do that, there won’t be room for anything except parking lots at the site.’ But it is not impossible and it is done, because no one ever calculates the employees’ need of a view of trees, the scent of flowers or the sound of birdsong.

The value of green outdoor environments is experienced intuitively by many people. We go for a run in the forest rather than in town, we pay more for a house with a view of the sea than for one with a view of the neighbor, and we seek out natural surroundings when we are experiencing a crisis in our lives. During the last decades, research has explored the positive effect of nature, focusing, e.g. on the value of gardens in hospital environments or the value of urban green space for public health. However, in the education and practice of Danish landscape architects, there is no strong tradition for including scientific research in the knowledge base upon which landscape architects base their projects. In my job as a landscape architect, I often found it difficult to communicate the potential value of the outdoor environment, and the landscape project was often given low priority compared to buildings and infrastructure. Based on my frustration with my inability to clarify the value of the outdoor environment at workplaces, and my curiosity about whether others had studied the subject, I began to examine the literature in the field. But it turned out that the effect of workplace outdoor environments on employees’ health and wellbeing was as equally neglected in the research community as it was in practice.

My manager saw an opportunity to develop a new health-related business area, and decided that the time had come for Plan & Landscape, Arkitema Architects to begin an industrial PhD project on workplace greenery.

An Industrial PhD project

The idea of the Industrial PhD project was developed by the Danish government in an attempt to bridge the gap between research and business communities. The government provides companies, which agree to employ a PhD student, with a financial grant, and the company declares that the PhD-student is not part of the daily operations of the company. In my case, the PhD is a collaboration between Plan & Landscape, Arkitema Architects; Forest & Landscape, University of Copenhagen; and The Stress Clinic, Institute of Occupational Health, Hillerød Hospital. I am employed by Arkitema Architects who can use my findings and receive my input to their projects, but they have no influence on the research design or the presentation of the results.

Introduction

State of the art

Even though the positive relation between the green outdoor environment and human health has received much attention during recent decades (for reviews, see Nilsson et al. 2011; Annerstedt and Währborg 2011), few studies have addressed the potential benefits of having access to a green outdoor environment at work for employees, companies and societies. However, these studies indicate that visual or physical access to such environments during the work day is related to improved health (Kaplan 1993), wellbeing (Hernandez 2007; Leather et al. 1998; Kaplan 1993), job satisfaction (Shin 2007; Leather et al. 1998; Kaplan et al. 1996; Kaplan 1993) and work performance (Pati et al. 2008; Kaplan et al. 1996), and to decreased stress levels (Pati et al. 2008; Shin 2007). Furthermore, the studies show that the preference for a view of natural elements as opposed to built elements which is found in residential contexts (Kaplan et al. 2004; Kaplan 2001), also exists at workplaces (Ozdemir 2010; Kaplan 2007; Kaplan 1993; Verderber 1986; Markus 1967). A recent study shows that, despite the possible benefits, most office workers consider themselves to be too busy to go outdoors and they tend to forget about the outdoors during their working day (Hitchings 2010b).

Research aims

The above mentioned studies indicate that access to a green outdoor environment at the workplace can be beneficial both at the individual and organizational level, but the research is, besides being limited, very heterogeneous in terms of research design, issues addressed, and findings. An overview is needed in order to interpret the findings and their implications for the future design of workplaces, and in order to recommend the direction of future

research. Furthermore, there is a lack of studies which address *when, how and for what purpose* the outdoor environments at workplaces are used, and what characterizes the user. The majority of the existing studies focus on the effect of the outdoor environment or the employees' preferences regarding these environments. However, the studies focus on a wide range of topics, such as the window view, the characteristics of the outdoor environment or the working culture, and there is still a lack of knowledge on how the outdoor environment at workplaces can contribute to a more healthy, joyful and productive working day for the employees.

This leads to several research questions for this PhD project:

- What is the current state of research on outdoor environments at workplaces (Paper I)?
- When, how and for what purpose are the outdoor environments at workplaces used (Paper II and future paper)?
- What are the employees' preferences regarding the outdoor environment at workplaces (Paper III and future paper)?
- What is the effect of the outdoor environment on employees' health, well-being and work performance (Paper III and Paper IV)?

The research aims and questions require a research design, which addresses different aspects of the companies and their outdoor environments. The research design should focus on the characteristics of the outdoor environments, and the employees' use of and preferences regarding these environments. Furthermore, it should address the employees' health, wellbeing and work performance. I assumed that the use, preference, effect and characteristics of the outdoor environment at workplaces would be related (see Figure 1).

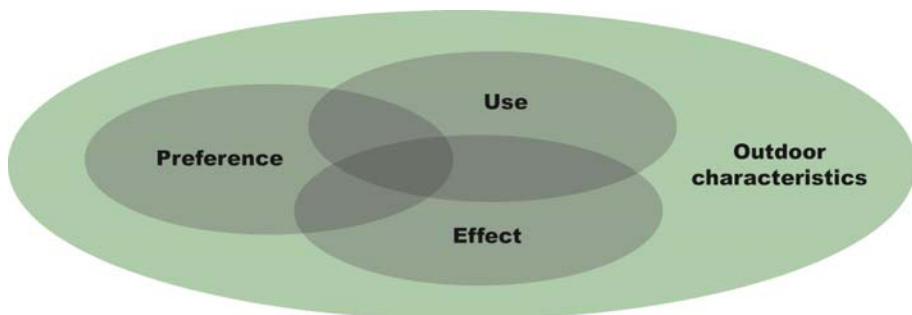


Figure 1: The four main focus areas of the PhD project.

Theoretical background

This PhD study is highly explorative as the research field is still in its infancy. It draws on theories from environmental psychology as well as theories on the working environment. In the following, I provide a brief explanation of the theories.

Theories from environmental psychology

The following two theories constitute the overall theoretical framework for this PhD project, and are discussed in more detail in Paper II and Paper III.

Attention Restoration Theory

This theory adopts a cognitive perspective, and describes two different types of attention (Kaplan and Kaplan 1989). ‘Directed attention’ is used to perform demanding tasks or to deal with disturbing environmental factors, and has limited capacity. If it is used without the opportunity for recovery, it can lead to mental fatigue. Natural environments are found to stimulate the other type of attention called ‘soft fascination’, which requires less effort and offers opportunities for mental restoration (ibid.).

Stress Recovery Theory

Human evolution is the foundation of this theory, which explains the health promoting effects of nature as related to humans’ most primitive emotions, known as affects (Ulrich 1999). The theory argues that humans today, just as our ancient ancestors, unconsciously read information in nature that signals whether the surroundings are safe or not, and that humans automatically relax and recover from stress in nature surroundings which are perceived as being safe (ibid.).

Working environment theories

Three theories which address the psychological working environment were used in the development of the questionnaire, where they formed the basis for the questions about the psychological working environment at the companies. The theories are:

Job Strain Model, which address the balance between job demands and job decision latitude (Theorell and Karasek 1996).

Effort Reward Model, which addresses the balance between job efforts and job rewards (Siegrist et al. 1997; Siegrist 1996; Siegrist et al. 1990).

Social capital theory, which address the value of social networks (Lin et al. 2001; Putnam 2000; Bourdieu and Wacquant 1992; Coleman 1990).

Methods

This PhD thesis is based on data from three studies: 1. a literature review, 2. a case study of Danish companies, and 3. a Swedish survey (see Figure 2). Regarding the literature review and the case study, the data was collected as a part of the PhD project, and with respect to the Swedish survey, the data was collected before the start of the PhD project by Professor Patrik Grahn, SLU Alnarp, Sweden. In the following, the aims and practice regarding the data collecting methods are described.

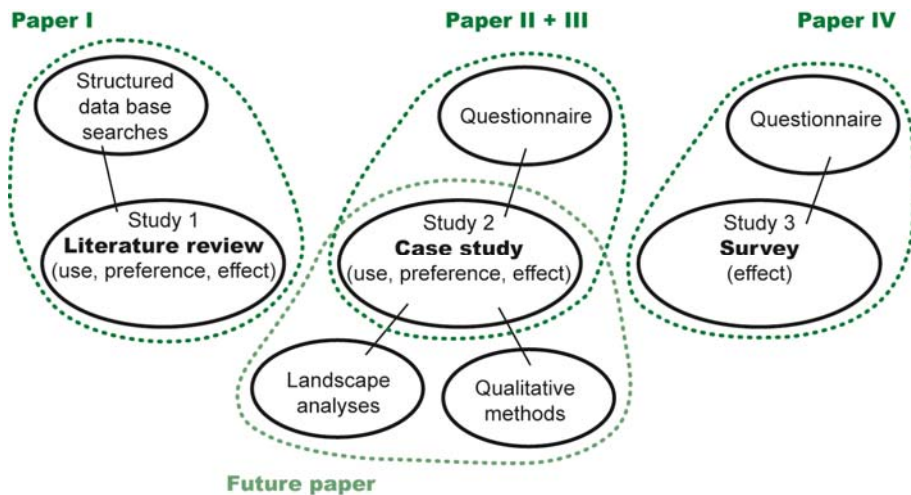


Figure 2: The studies and methods of the PhD project

Study 1: literature review (Paper I)

The literature review was based on structured database searches in Scopus, Web of Science, and Google Scholar. To be included in the review, the literature had to meet three selection criteria:

- The studies had to either focus on the outdoor environment at work-places, or the view of the outside from the work station
- The method had to be empirical
- The literature had to be peer-reviewed (grey literature was referred to in the discussion of the findings)

The search includes articles published before 1.7.2011, and yielded 19 articles based on data from 16 studies.

Study 2: case study (Paper II and III)

Case selection

The aim was to conduct an exploratory study on a number of companies in Denmark to investigate how they use their outdoor environments, what meaning the environments have for the employees and the company, and any possible relationships between access to the outdoor environment and employees' health, wellbeing and performance. The companies should have green outdoor environments, and the employees had to have physical and/or visual access to these environments. To investigate the use and possible benefits of different types of outdoor environments, the companies had to vary with respect to degrees and ways of being green. Furthermore, the companies had to be as similar as possible regarding the number of employees, production and organisation (more details on the case selection are reported in the methods section in Paper II and Paper III). In order to identify companies that met these criteria, all business councils in Denmark were contacted, and 15 large (min. 100 employees) knowledge-producing companies met all the criteria. The 15 companies were contacted and six agreed to participate. The details of each of the six companies are presented in Paper II, Table 1 and Paper III, Table 1.

Method triangulations

Because I wanted to investigate different aspects regarding the companies and their outdoor environments, such as the characteristics and use of the environment, the psychological working environment, and the employees' health, wellbeing and performance, I chose a triangulated approach to collect the data. At the six companies, I aimed to collect data from landscape analyses, a web-based questionnaire, and the companies' registration of absenteeism due to illness. In one of the cases, I also wanted to use a qualitative approach and conduct focus group interviews, individual interviews conducted as walk and talks, behavioural mapping, and studies on concentration, muscular tension, pulse, and blood pressure. For several reasons, the registration of absenteeism, behavioural mapping and studies on concentration, muscular tension, pulse, and blood pressure were excluded from the case study. Therefore, these methods are not described in the following. However, they are addressed in the section on the discussion of the research design. The findings from the landscape analyses and the qualitative methods are not yet described in a paper. However, these methods have been important elements in the PhD project, and will be included in the sections of methods and results as preliminary findings. They will be described and discussed in more details in a future paper.

Landscape analysis (Future paper)

I wanted to obtain information on the characteristics of the outdoor environments at the companies and on what kind of experiences the outdoor environment offers the visitor. In addition to a traditional functional approach to the landscape analysis, I used the concept of Perceived Sensory Dimensions (PSD) (Stigsdotter and Grahn 2011; Grahn and Stigsdotter 2010), which defines the following eight perceived sensory dimensions, based on how humans perceive, classify and process sensory information in a natural environment: 'Serene', 'Space', 'Nature', 'Rich in species', 'Refuge', 'Culture', 'Prospect' and 'Social' (ibid.). The first step of the landscape analysis was to record the functions in the outdoor environment in terms of street, path, parking area, living area and main entrance. In order to define the different rooms in the outdoor environments, a spatial analysis, originally developed by Gustavsson and Ingelög (1994) and further developed by Randrup and colleagues (2008) was conducted. In the original analysis, the different kinds of spaces were categorized as either 'open', 'enclosure', or 'closed', and Randrup and colleagues added the fourth kind of space 'semi-open' to the analysis. Based on the analysis, the outdoor area was divided into different spaces, and within each space eight different perceived sensory dimensions (PSD) were recorded. If a PSD was not present, it was rated as 0. If a PSD was present, it was classified as either weak (1), medium (2) or strong (3). The landscape analyses (in Danish) are included in Appendix A.

Questionnaire (Paper II and III)

The questionnaire consisted of five parts which addressed the respondent's background data; health status; work life situation; physical working environment (partly based on the concept of Perceived Sensory Dimensions) and psychological working environment. The questionnaire was inspired by two validated questionnaires, which addressed the psychological working environment (The National Research Centre for the Working Environment 2005), and health, wellbeing and ability to work (Tuomi et al. 1998; Tuomi et al. 1997). A pilot test was performed on a selected group of respondents, who were not part of the sample, and their feedback on their interpretation of the questions was incorporated in the final version of the questionnaire. The questionnaire was approved by the Danish Data Protection Agency. The questionnaire (in Danish) is included in the thesis as Appendix B, and parts of it are described in Paper II and Paper III.

The questionnaire was supposed to be distributed to the employees by personal emails with a link to the questionnaire, but in one of the companies, the management decided that this type of survey could not be mailed directly to the employees, but should instead be posted on the company's intranet, where employees had the opportunity to follow a link to the questionnaire. Therefore, in November 2008, a link to the questionnaire was sent by e-mail

to 581 employees in five companies, whilst it was made available to 454 employees on the intranet at one company. After one reminder, a total of 402 questionnaires were answered. In the companies where the questionnaire was distributed by email, the overall response rate was 48.2 %, varying from 35.1% to 76.1% between the companies. Possible explanations for the difference in response rates are discussed in Paper II and Paper III. In the company where the employees had access to the questionnaire via the company's intranet, the response rate was 26.9%. This low response rate might be explained by the fact that the questionnaire was not personally addressed, as it was at the other companies.

To analyse the data from the questionnaire, Chi-square tests of homogeneity, and binary logit models were used. Statistical analyses were performed using PASW statistics, Version 18, and a significance level of 0.05 was used.

Qualitative methods (Future paper)

By the time that I had to make an appointment with one of the six companies about participating in the qualitative part of the case study, I had discovered that in Company 1, the outdoor environment was used for a range of activities in which the environment played a vital role, such as meetings conducted as walk and talks, and sports days for the entire business park. Because of this, I felt curious to investigate the outdoor environment and its role in this company more closely. Fortunately, the company agreed to participate, but because the economic situation in Denmark had been rapidly deteriorating for some years at that time (spring 2010), the company found it hard to use work hours on research, and therefore only allowed one focus group interview. However, I was permitted to visit the company for as many days as I liked to talk to the employees, if they were able to find the time to do so. I ended up visiting the company for five days during August and September 2010. During these five days, I conducted a focus group interview and two walk and talks, and talked as much as possible to the employees. Furthermore, Company 6 agreed that I could conduct a focus group with four of their employees, which I did in November 2010.

In the preliminary analysis of the qualitative data, I listened to audio recordings of the focus group interviews, and read the transcripts of the walk & talks and informal conversations with an inductive approach, and categorized the data into different themes. In future in-depth analysis of the data, I assume a grounded theory approach will be appropriate, in order to gain as much information as possible from the highly explorative data.

Focus group interview

I conducted a focus group interview with five employees at Company 1 and with four employees at Company 6 in September 2010 and November 2010 respectively. The participants were chosen with respect to three issues: no employees with managerial positions were included; the focus group had to consist of both outdoor environment-users and non-users; and the focus group had to consist of both men and women. The interviews were semi-structured (Halkier 2008) with some overall themes, which had to be covered during the interviews. The question-guide (in Danish) is included in the thesis as Appendix C. The interviews took approximately 1.5 hours each, and were recorded for later transcription.

Individual interview (walk and talk)

Two of the employees invited me for a walk in the outdoor environment. One of them was going out to find some material to decorate meeting tables, and invited me to come along. The other wanted to show me, where she had previously conducted staff development interviews as walk and talks. During these walk and talks, I took a less structured approach than during the focus group interviews, and I let my guide decide the topic of the conversation most of the time. Still, I asked some broad open questions such as ‘what does it mean to you to work in these surroundings?’ and ‘are there any particular situations where you pay attention to the surroundings?’ Immediately after the walks, I wrote a summary based on my notes and memory.

Informal conversation

When the employees discovered that I was interesting in their view on the company’s outdoor environment, they were very interested in talking with me. Most of the conversations were short and very informal, such as over lunch in the canteen. Besides initiating the discussion with an opening question such as ‘what does it mean to you to work in these surroundings?’ I took a non-structured approach and let the employees decide the topic of the conversation. On a couple of occasions, an employee found time to meet me for approximately one hour to deepen the conversation. Immediately after each conversation, I wrote a summary based on memory and notes.

The following photos show the outdoor characteristics of the six companies.



Company 1



Company 2



Company 3



Company 4



Company 5



Company 6

Study 3: survey (Paper IV)

The questionnaire was sent to 2,200 randomly selected individuals who lived in the following nine Swedish cities: Enköping, Halmstad, Kristianstad, Lund, Trelleborg, Trollhättan, Uppsala, Varberg and Västerås, and the response rate was 47 %. The respondents did not differ from the representative demographics of Sweden. Only data from working people were used in the analyses (N=439). The questionnaire consisted of three parts which addressed the respondent's 1. Background data, i.e. home environment and access to garden at home and at work, 2. Use of urban green spaces, and 3. Health status. Data from parts 1 and 3 are described in more detail in Paper IV.

To analyze data from the questionnaire, T-tests and ANOVA type III analysis were used. The data have been statistically processed using SAS (SAS Statistics, version SAS 9.2), and a significance level of 0.05 was used.

Summary of results

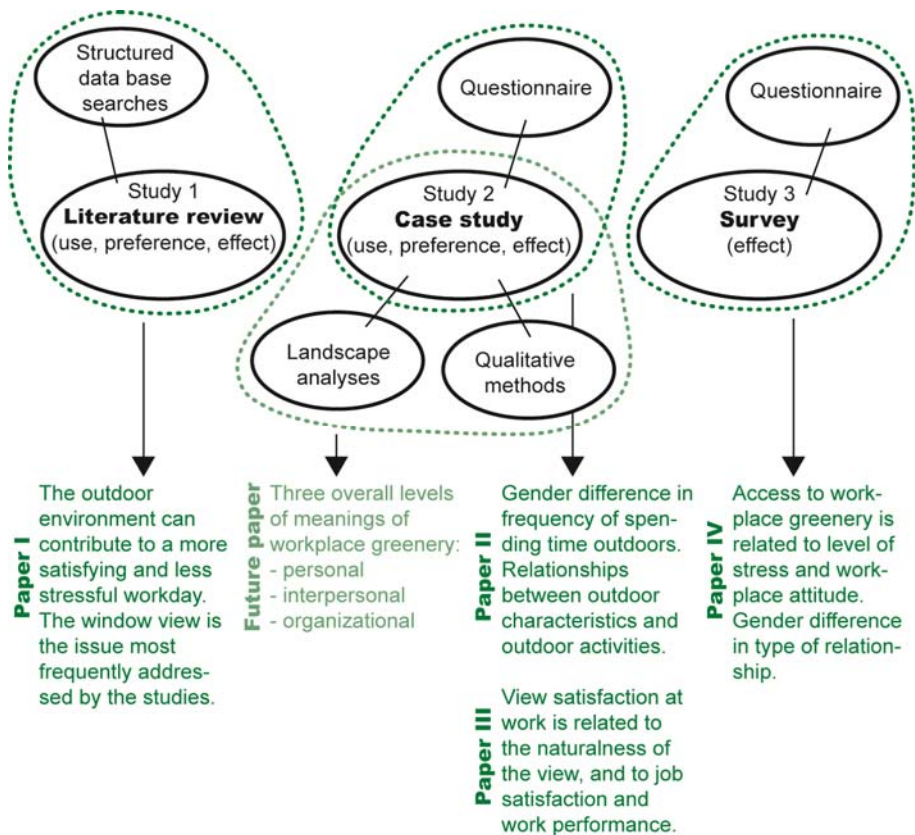


Figure 3: Core findings of the three studies.

Findings from Study 1: Literature review (Paper I)

These findings are based on a review of 16 existing studies on various aspects of the outdoor environment at workplaces. The studies were conducted in 9 different countries, representing North America, Europe, South East Asia, and the Middle East, and focus on various types of employees, such as office workers, university employees, hospital staff, industrial workers and manual workers. The studies used different data collection methods including questionnaires, photo ratings, behavioral mapping, interviews, internet blog, and environmental characteristics. Half of the studies combine two or more different data collection methods. The majority of the studies focus on the view from the window, but other issues are also addressed, such as the activities performed in the outdoor environment at the workplace, the characteristics of the outdoor environment, involvement in nature at the workplace, and the company's working culture.

The findings of the studies were categorized into three themes: 'use and user', 'preference', and 'effect'. The themes are identical to those used in the aim of the PhD (see Figure 1). The themes were based on issues addressed by studies on green outdoor environments in other contexts than workplaces, because of the limited existing research on outdoor environments at workplaces.

Use and user

Three studies address the activities in the outdoor environment at the workplace (Salama 2009; Salama 2008; Hernandez 2007; Sherman et al. 2005). They found that the most common activities were 'walk-throughs', having lunch, sitting and talking, and relaxing (ibid.). One study focuses on encouragement and impediments to going outdoors (Hitchings 2010a; Hitchings 2010b), and found that employees become socialized into indoor behavior, and tend to forget about the outdoors. Furthermore, employees considered themselves to be too busy to go outdoors during the working day. Seeing other people in the outdoor environment could trigger employees to think of joining them (ibid.).

Preference

Three studies address the employees' preference for certain elements or characteristics in the outdoor environment (Kaplan 2007; Hands and Brown 2002; Abu-Ghazzeh 1999). One study found that large trees and landscaped areas were related to increased satisfaction with the environment, and that mowed grass did not show any relationship with environmental satisfaction (Kaplan 2007). Four topics relating to respondents' preferences regarding a rehabilitation site were identified: color, variety, naturalness/human care, and vegetation density (Hands and Brown 2002). One study indicates that

the preference for natural elements might be stronger for employees than for students (Abu-Ghazzeh 1999).

Five studies address preferences regarding the content of the window view. They consistently found that a view of natural elements is preferred to a view of a built environment (Ozdemir 2010; Kaplan 2007; Kaplan 1993; Verderber 1986; Markus 1967). One study indicates that the preference for a natural window view might be stronger for hospital staff than for patients (Verderber 1986).

Effect

The studies address a very broad range of effects of visual or physical access to green outdoor environments at workplaces. The findings show that a view of natural elements was positively related to improved health (Kaplan 1993), wellbeing (Leather et al. 1998; Kaplan 1993; Verderber and Reuman 1987), job satisfaction (Shin 2007; Leather et al. 1998; Kaplan 1993), and work performance (Pati et al. 2008), and to decreased levels of stress (Pati et al. 2008; Shin 2007). In contrast, one study found a relationship between a view of nature and increased discomfort (Aries et al. 2010). Interestingly, this study showed that a view which was rated good was related to reduced discomfort (ibid.). Physical access to a green outdoor environment was found to be related to increased wellbeing (Hernandez 2007), and involvement with nature was found to be related to increased job satisfaction and work performance (Kaplan et al. 1996). One of the studies that found that a view of natural elements was related to high view satisfaction found that high view satisfaction was related to improved health, wellbeing and increased job satisfaction (Kaplan 1993).

Findings from Study 2: Case study (data from questionnaire) (Paper II and III)

Frequency of use of the outdoor environment during the workday and user characteristics (Paper II)

There were significant differences between the six companies with respect to frequency of outdoor environment use, with the number of respondents who spent time outdoors during their work day more than once a week varying between approximately 20 and 50 percent.

A clear pattern emerged in five of the six companies in that male respondents spent time outdoors more often than female respondents. The relationship between gender and the frequency of use of the outdoor environment was significant in two companies.

Types of activities performed in the outdoor environment at the workplace (Paper II)

The respondents were asked to report the outdoor activities, they had performed during their work day in the last six months. The activities ‘having lunch’, ‘talking to colleagues’, and ‘enjoying sunshine, flowers, birdsong or similar’ were the most commonly reported in five of the six companies.

To explore possible patterns in the performance of the outdoor activities, correlation matrices for the activities in each company were made. The matrices showed a cluster of social activities (‘having lunch’, ‘drinking coffee or similar’, ‘talking to colleagues’) that were moderately correlated with each other in all six companies, but one. The activity ‘enjoying sunshine, flowers, birdsong or similar’ showed a significant correlation with all the other types of activities, but the pattern differed between the companies.

Encouragement and impediments to going outdoors during the work day (Paper II)

With respect to the respondents’ encouragement to go outdoors, the majority of respondents in all six companies were not encouraged to go outside, not by their colleagues or managers.

Regarding perceived impediments to going outdoors, less than half of the respondents in all six companies reported such impediments. In two companies, significantly more female than male respondents experienced impediments to going outdoors, and in three out of the four remaining companies, also more females than males reported impediments to going outdoors although the differences were not significant.

The most commonly reported impediment in all companies was ‘I am too busy’. In five of the companies, more females than males considered themselves to be too busy to spend time outdoors during their working day, and the gender difference was significant in one company.

Relationships between the characteristics of the outdoor environment, frequency of use and activity types (Paper II)

Significant relationship between the presence of the PSD ‘serene’ and increased odds for spending time outdoors was observed. Furthermore the results indicate that the presence of the PSDs ‘serene’, ‘space’, and ‘refuge’ positively influences the odds of six of the eight outdoor activity types being performed. The PSD ‘serene’ was the PSD related to most activities. The activity ‘smoking’ had no significant relation to the PSDs, and ‘participating in meetings’ was the only activity which was significantly related to the PSD ‘social’. The PSDs ‘nature’, ‘rich in species’, ‘culture’ and ‘prospect’ were not associated with any activity types.

Relationships between use, activities, encouragement, impediments and outdoor characteristics, and employee health, job satisfaction or work performance (Paper III)

Only a few significant relationships were identified between the investigated aspects of the workplace outdoor environment and employees' health, job satisfaction and work performance, and there was no clear pattern in the relationships.

Relationship between the content of the window view and employee's view satisfaction (Paper III)

In order to investigate whether specific view characteristics were related to the respondents' view satisfaction, a binary logit model was used. It showed that respondents whose view was dominated by 'sky', 'trees', 'flowers' and 'park-like environment' had increased odds for being satisfied with the view compared to respondents, who did not report a view of such elements. Respondents with a view of 'buildings/signs' and respondents who reported 'no view of the outdoor environment', had decreased odds for being satisfied with the view. 'Cars/traffic', 'mowed lawns' and 'wild self-seeded natural environment' showed no significant relationship with view satisfaction.

Relationship between employee's view satisfaction and their work performance and job satisfaction (Paper III)

With respect to work performance, a binary logit model showed a significant relationship with view satisfaction. Respondents who reported a 'high view satisfaction' had higher odds for reporting 'high work performance' than respondents who reported 'low/medium view satisfaction', and the result remained robust when adjusted for four groups of control variables: 'background factors', 'general wellbeing', 'work station characteristics' and 'company'. When job satisfaction was added to the model as an additional control variable, the significant relationship between work performance and view satisfaction vanished.

With respect to job satisfaction, the model showed significant relationships with view satisfaction. Respondents who reported 'high view satisfaction' had higher odds for reporting 'high job satisfaction' than respondents who reported 'low/medium view satisfaction', and the result remained robust when adjusted for the four groups of control variables, and when work performance was added to the model as an additional control variable.

Preliminary findings from Study 2: Case study (qualitative data) (Future paper)

The meaning and benefit of a green outdoor environment at the workplace

At one of the six case-study companies, a focus group interview, two individual walk & talks, and several informal conversations were conducted. This company (C1) was located in a business park in a forest-like setting with tall old trees and rich wildlife, such as deer, hares and squirrels.

During the preliminary analysis of the data, three overall levels of statements about the outdoor environment at the workplace emerged: 1. a personal level, 2. an interpersonal level, and 3. an organizational level.

Personal level

Some of the interviewees talked about the outdoor environment as a place to find relief from strong feelings, so the feelings were not expressed in a destructive way in the office.

“... and when I begin to get these thoughts, then I go up to my good colleague saying “-This is a madhouse, let's get out and get some air” and so we go for a walk to let off steam.” (Employee)

The interviewees also talked about the outdoor environment as a place which reminds them that the world is larger than their daily working life at the company. And in some cases, the outdoor environment seems to provide the opportunity for a spiritual experience of being connected to nature.

“I run here in the morning. And then sometimes I see deer. You almost feel grateful. And find yourself completely in the background. The thing about nature being so large, and yourself being small and unimportant. It's a fantastic experience.” (Employee)



Company 1

Interpersonal level

Some of the interviewees talked about the outdoor environment as a space, which provides room for informal, non-hierarchical interpersonal relations.

At Company 1, the management uses this mechanism intentionally to get the employees to meet and network across the boundaries of the departments.

“We have these ‘open meetings’ where we, e.g. go for a walk in the forest, - to increase job satisfaction and provide possibility for informal contact between the employees.” (Team manager)



Company 1

Company level

Company 1 works with education and communication and is specializes in courses on management development. At the company level, the interviewees talked about how the company's location in the forest-like environment had become a symbol of the company's vision to be a place where knowledge flows.

“We see our company as the stream in the forest, -the stream of knowledge.” (Executive Assistant)

Most of the company's courses are held on site, and its location is perceived as being an essential factor in the course participants' experience of the courses.

“... and one of the course participants said “The sun is shining today. In fact, the sun always shines here...” (Executive Assistant)



Company 1

Findings from Study 3: Survey (Paper IV)

Relationships between employees' access to workplace greenery and their perceived level of stress and attitude towards their workplace

Respondents who had physical access to workplace greenery reported the most positive workplace attitude, whilst respondents who had visual, but not physical access, reported a less positive workplace attitude, and respondents who had no visual or physical access to workplace greenery reported the most negative workplace attitude. The positive attitude towards the workplace decreased less with a change from physical to visual access, than it did with a change from visual to no access.

Furthermore, for male respondents the following relationship was observed: Respondents who had physical access to workplace greenery reported the lowest level of stress, respondents who had visual access reported a middle level of stress, and respondents who had no access to workplace greenery, reported the highest level of stress. The relationship between access to workplace greenery and levels of stress was not significant for female respondents, for whom a positive workplace attitude was related to a lower level of stress, which was not the case for male respondents.

Discussion

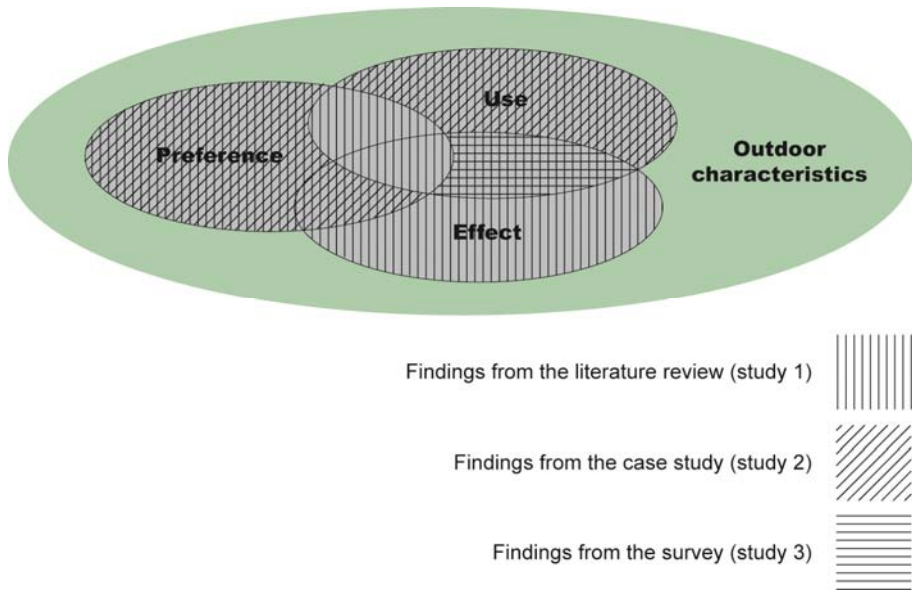


Figure 4: Relationships between the four main focus areas of the PhD project.

Discussions of findings and implications for practice

The basic assumption that the use, preference, effect, and characteristics of the outdoor environment at workplaces were related was supported by the findings from the PhD studies. Figure 4 shows how the three studies address different types of relationships.

The overall findings of this PhD thesis show that a green outdoor environment at the workplace can contribute to a more healthy, joyful and productive working day for the employees. The employees' exposure to the environment can be due to a natural view from the window or the performance of outdoor activities, e.g. having lunch, going for a walk, or relaxing, but some of the findings indicate that, with respect to a relationship between green outdoor environments at workplaces and perceived levels of stress, physical access is more beneficial than a window view. Besides these positive relationships between green outdoor environments and employee health, wellbeing and work performance, the findings also show that, in order to fully unfold the beneficial potential, a change of the working culture is necessary in many companies. In contrast to the use of outdoor environments in leisure time, the use during work time is based on a conscious or uncon-

scious cost benefit analysis, whereby the benefits of using the outdoor environment are compared to the cost in terms of time spent away from work tasks. As shown in the findings of this PhD thesis and also in an English study on lawyers in London (Hitchings 2010b), the majority of employees do not go out during their working day, and the major reason is that they consider themselves to be too busy (ibid).

If employees are going to benefit from outdoor environments during their working day, two basic criteria have to be met: there has to be a green outdoor environment close to the company, and the employees have to be exposed to this environment.

Regarding accessible green workplace outdoor environments, the location of the company is, of course, crucial for the opportunity to create such environments in close connection to the working buildings. Still, even in dense urban environments, there may possibly be room for green courtyards or a green rooftop terrace. Today, many companies are located in business parks, which are often dominated by large expanses of lawn and parking lots. The findings from the case study and literature review in this PhD thesis show that mowed grass does not have any significant relationships with any benefits for employees. This might be because mowed grass does not meet the expectations of a nature experience as it shows a very high degree of human attention, and is possibly perceived as being more of a surface than a natural element. Both companies and employees in these business parks would benefit from changing some of the lawns to areas with trees, scrubs and flowers, and from making the parking lots as green as possible.

With respect to employees' exposure to the outdoor environments, this study suggests several ways to increase the contact with the outdoor environments during their workday:

- First of all, if employers and employees are aware of the benefits of access to green outdoor environments, they may, despite impediments such as being busy, be more motivated to use the outdoor environment and to encourage their colleagues to do the same. Thus is knowledge a key factor in increasing use of the outdoor environment.
- The easiest way to access a green outdoor environment during the working day is to view it from one's work station. This type of 'visual visit' only takes a moment and may not even be perceived as time away from one's work task. Even though every occasion is very short, the window view is a part of the immediate working environment and therefore presents a continuous opportunity to access the outdoor environment, in contrast to physical access, which is usually limited to breaks during the workday.
- Another way to increase use of the outdoor environment is to make it easy for the employees to go outdoors during their breaks. The findings from this

case study show that ‘having lunch’ is the most common outdoor activity, and this is supported by other studies (Præstholm and Lassen 2008; Sherman et al. 2005). Because of this, a canteen with outdoor seating and an attractive location and design might be an important way to encourage employees to take a break outdoors.

- An obvious, but in most professions rare, way to spend time outdoors during the working day is to perform some of the working tasks outside. This issue was not addressed by any of the studies in the literature review, but in the case study, a few respondents from all six companies reported that they had participated in outdoor meetings. Furthermore, the qualitative data collected at Company 1 showed that the outdoor environment at this company was used for different kinds of meetings, such as meetings during which the tables and benches close to the building were used, and meetings which were conducted as walk and talks in the environment.

An obvious question, which is not addressed by the literature review, the case study, or the survey, is whether any negative effects occur if employees begin to use the outdoor environment at the workplace more often. Would this, e.g. have a negative effect on the productivity of the company, because the employees hold more and longer breaks, which are not compensated for by improved work performance? Or would it affect the employees in a negative way by, e.g. exposing the employees to allergenic plants, or biting or stinging insects?

Guidelines

Based on the findings from the three studies included in this PhD thesis, some guidelines can be considered for making the workplace outdoor environments an asset for the employees and the company. The first part of the guidelines addresses practitioners, such as city planners, architects and landscape architects. This part shows seven guidelines categorized into three groups: ‘City planning’, ‘location and overall design of workplaces’, and ‘specific suggestions for the design of workplaces’. The second part address people who work at the workplace, such as corporate managers, employees, and those responsible for maintaining the outdoor environment, and contain four guidelines categorized into two groups: ‘Encouragement and impediments to going outdoors’ and ‘increased contact with the outdoor environment’ (see Table 1). The guidelines mentioned here are a summary of the guidelines described in the four papers.

I. Guidelines for practitioners concerning the planning and design of the physical work environment	
<i>City planning</i>	
Mix different user groups and different functions in one area.	As seeing other people in the outdoor environment encourages office workers to go outdoors, it would be beneficial to maximize window views of popular outdoor areas from the workstations. This could, for example, be achieved by mixing different user groups and different functions in one area, so the users who are more likely to be active and the functions which are more popular during daytime (e.g. user groups such as students and seniors, and functions such as coffee shops and kindergartens) can inspire the workforce to go outside
<i>Location and overall design of workplaces</i>	
Maximize natural window views	Buildings should be designed and located in such a way that natural views from the windows are maximized. If the location does not provide the possibility for a natural outdoor environment, then it is important to have a few trees, some landscaping, or some signs of vegetation (besides mowed grass).
Eliminate physical barriers to going outdoors	Buildings should be designed and located in such a way that there are as few physical barriers as possible to going out in a green environment.
Design for the specific use and site	When designing the outdoor environment, the activities that are to take place in the area should be clarified, as well as how these activities can be supported by the design and maintenance of the area. Attention should be given to the specific site and its challenges, such as sunshine, shade, wind, etc.
<i>Specific suggestions for the design of workplaces</i>	
The characteristics of the outdoor environment	Focusing on what kind of characteristics the outdoor environment offers its visitors, and particularly the Perceived Sensory Dimension 'serene', followed by 'space', 'refuge', and 'social' might be important to support different activities in the workplace outdoor environment.

	Trees are especially important. Large trees should be preserved when building sites are developed. Some mowed areas should be converted to more natural landscaping and some flowers should be added
Parking lots	Reduce the need for parking lots, and ensure that the remaining parking lots have a green appearance.
The canteen	As 'having lunch' seems to be the most common activity in the workplace outdoor environment, the location and design of a canteen with outdoor seating might be an important way of giving employees the opportunity to take a break outdoors during their work day.
II. Guidelines for users concerning the inclusion of the outdoor environment in the working culture	
<i>Encouragement and impediments to going outdoors</i>	
Encouragement	Encourage the employees to use the outdoor environment, even when they feel that they are too busy.
Impediments	Investigate the employees' perceived impediments to going outdoors, and take action to limit these impediments. Gender differences should be included in these investigations.
<i>Increased contact with the outdoor environment</i>	
Involvement	Involve employees in planning and care of natural areas in the workplace outdoor environment.
Events	For employees who do not naturally come into contact with the outdoor environment during their work day, it may take conscious desire and careful effort to establish such contact. Examples of initiatives to establish the contact could be staging outdoor events, or giving employees the opportunity to buy fruit or vegetables grown near the workplace, or meat from animals that have been grazing on grassland near the workplace.

Table 1: Guidelines for practitioners and users

Discussion of research design

Selection of cases and respondents

A clear lesson from this PhD project is that different types of research questions require different types of research design. My initial aim was to investigate almost every aspect regarding workplace outdoor environments, and during the PhD period, it became apparent that the research design that I had chosen for the case study was appropriate with respect to some of the aspects, but inappropriate with respect to others. The decision to only choose 'good cases' was made due to two assumptions: I expected that the project would be able to collect the greatest possible amount of information on the potential use of green outdoor environments at workplaces in Denmark, and that the choice of cases would make it possible to investigate whether different types of green environments are related to different types of effect on employees' health, wellbeing and work performance.

I was correct with respect to the first assumption. The dataset showed a wide range of outdoor activities and provided fine information about encouragement and impediments to going outdoors. I still think that outdoor environment activities, which are not performed in these cases, are unlikely to be performed anywhere else in workplace outdoor environments in Denmark.

With respect to the second assumption, I was incorrect. The analyses showed only few and heterogeneous relationships between the characteristics of the outdoor environments and employees' health, well-being and work performance, and the same was the case with frequency of spending time outdoors, outdoor activities and encouragement /impediments to going outdoors. The reason for these few relationships may of course be that only few relationships exist. Another explanation could be that the variation in respondents' exposure to the green outdoor environment may not be large enough to enable us to detect such kinds of relationship. Most of the respondents were exposed to a green, natural outdoor environment during their working day, even if they did not go outside. They could see the outdoor environment through the window; they walked through it on their way to work, etc. In order to investigate such kinds of relationship, it would have been more appropriate to include cases with considerable variation in accessibility of green outdoor environments.

By including the Swedish survey in the PhD project, I had the opportunity to analyze data from randomly selected respondents, in contrast to the case study data, and I assumed that these data would encompass a variety of characteristics of workplace outdoor environments that might be more appropriate in order to investigate relationships between the outdoor characteristics and employees' health. This turned out to be true, and it taught me a valuable lesson about the relationship between the research question and the research design.

Methods

Another important discussion regarding the research design of the case study is the number of planned methods for data collection. Looking back, it was very optimistic to include landscape analysis, a questionnaire, registration of sickness absenteeism, focus group interviews, walk and talks, behavioral mapping, and tests on concentration, muscular tension, pulse, and blood pressure in the case study. It turned out that some of the methods did not, or at some point in the study were not longer expected to, provide useful data. After collecting data on sickness absenteeism, it became apparent that the reports were very different across the companies, and could not be compared. The behavioural mapping was inspired by (Cosco et al. 2010) approach, where all activities on the site are recorded in structured ways at specific times. The mapping exercise was scheduled to take place on ten working days at Company 1, but after two days, I decided to stop because very few activities had been observed. A part of the explanation for this may be the weather, which was more cloudy and windy than expected for late summer. The studies on concentration, muscular tension, pulse, and blood pressure were excluded from the case study, because I realized that the case selection might not be appropriate for these types of studies. Our analyses on relationships between characteristics of the outdoor environments and employees' health, wellbeing and work performance, based on data from the questionnaires, showed very few significant relationships, and I concluded that the lack of variety in the cases' outdoor environment could be a reason for this, because most of the respondents were exposed to a green outdoor environment even though they did not report using the outdoor environment. Regarding studies on the relationship between the characteristics of the outdoor environment and employees' concentration, muscular tension, pulse, and blood pressure, I assumed that the case would probably be the same. Still, even though the methods did not provide useful data, they took time to prepare and conduct, with the exception of the tests on concentration and physics which were canceled. To conduct all these methods may seem like poor time prioritization due to the fact that only the landscape analysis and analyses of some parts of the questionnaire were completed, whilst the questionnaire is the only method, which is referred to in the papers.

However, despite the content of the papers, I consider it valuable to have spend time at the companies to conduct the landscape analyses and the qualitative studies. Even though the methods are not referred to in the papers, and even though the qualitative data are still only analyzed on a preliminary level, the methods provided me with valuable knowledge about the companies and the meaning of the outdoor environments, which I used as basic knowledge throughout the PhD project. Furthermore, I consider it important to have gained knowledge about how and when to conduct such a wide range of methods. With regard to the case study, I think the types of methods were

adjusted to a useful and appropriate level. With regard to future studies, I feel that I now have quite a lot of tools in my toolbox to choose from. Still, if I could do the PhD all over again, I would prioritize to conduct an in-depth analysis of the qualitative data. I am convinced that this would provide new valuable knowledge about employees' relation with the outdoor environments at their workplace, which would complement the findings from the questionnaire.

Experiences from an industrial PhD project

Besides the work involved in a traditional PhD-study, my project has included an effort to communicate and implement the findings into the projects of Plan & Landscape, Arkitema. The current discussion on the integration of scientific knowledge and methods in practice primarily focuses on health design. Since 2009, the Center for Health Design has offered a certification in evidence-based design (The Center for Health Design 2012), which is implemented as a part of the program in a range of large hospital projects in the USA and Canada, and is also now a requirement in most Danish hospital competitions. However, a recent discussion, raised by Brown and Corry (2011), addresses the need for evidence-based landscape architecture, and I agree that this could be a contribution to a more sustainable and socially responsible landscape architecture by including scientific knowledge as a part of the knowledge base for landscape projects and by evaluating the projects in a structured way. Landscape architects usually work in a team together with engineers, contractors and developers, and for such collaboration, an evidence-based design process could provide strong arguments to support the architectural solutions. Still, during this PhD study, I have met some challenges in the communication of scientific knowledge to practitioners. Based on my efforts to overcome these challenges, I share some thoughts about this kind of communication in the following. The thoughts are based solely on my own experiences, and therefore only represent a snapshot of the topic at a given time in a given context.

'What's in it for them?'

Practitioners almost always focus on specific business areas, and are very busy working on specific projects. If the research is to be perceived as being relevant, it has to add value to these business areas or projects. If the landscape architect realizes that the research can be used to better position him or her in the business market, or can solve specific problems in a project, it will probably be used. Otherwise, it will presumably be stacked in a pile with all the other potential ideas to be looked at in a spare moment, which means never.

Landscape architects don't read

A challenge to communicating scientific knowledge to practitioners is that this kind of knowledge is often described in words. Landscape architects, on the other hands, are used to visual communication, such as drawings, diagrams and photos, and are neither prepared nor motivated to read, e.g. scientific articles. Because of this, buzzwords, diagrams and photos are very useful in communicating research to practitioners. However, every time a scientific finding is transformed into a short statement or described by a glossy photo, a lot of information is lost, and the balance between clear and simplistic communication must be considered in each case of communication.

Landscape architects are also not used to the way in which results are reported in the scientific community, where a lot of shortcomings of the methods and reservations for the findings are reported. To a practicing landscape architect, this way of reporting results is probably not interpreted as serious and reliable, but rather as weak and uncertain. Therefore, it is important to consider how clearly the results can be communicated without being untrustworthy.

'Don't tell me what to do'

Landscape architects perceive themselves as creative professionals with a holistic focus, whose creativity can be limited by requirements based on research, which often focus on specific aspects of a topic and do not provide the overall picture that the landscape architect wants to see. Therefore, it is important to understand that values and not evidence (Biesta 2010) is the base for practice, and scientific evidence should not determine what landscape architects do, but give them reasons to go in a specific direction and arguments for this direction.

However, despite these challenges, I am convinced that research will play an increasingly important role in landscape projects in the future, not just in connection to health care projects, but in a broad range of projects at different scales and in different contexts.

Future research

As existing research on the use, preference and benefits of outdoor environments at workplaces is limited and heterogeneous, a variety of avenues for future research can be proposed. The four papers in this thesis all discuss some aspects of recommendations for future research, with the discussion in Paper I being the most comprehensive. Therefore, in the following, I only discuss some specific steps for future research, which I am involved in.

Intervention study on outdoor environments at workplaces

As mentioned in the discussion of the findings, the decision to take time off from work tasks to go outdoors is often due to a cost benefit analysis, where the benefits of using the outdoor environment are compared to the cost in terms of time spent away from work tasks. In the existing peer reviewed literature on use and effects of outdoor environments at workplaces, there is a lack of cost benefit analyses. This might be because of the lack of longitudinal studies, which implies that we do not know much about the causal relationships between the outdoor environment at workplaces and employees' health, wellbeing and work performance. Because of this, I have been searching for opportunities to do a longitudinal study or an intervention study which addresses the cost-benefit or cost-utility (where the outcome is not monetary value, as in the cost-benefit analysis, but quality of life) of workplace outdoor environments. I was, therefore, very pleased to be invited to participate in a project on a new green master plan for an existing business park in Aarhus, the second largest city in Denmark. The project is a collaboration between Forest & Landscape, University of Copenhagen; Aarhus municipality; and companies in the business park, and besides the master plan, it will focus on a number of specific projects to be realized as part of the overall project. We are now in the process of raising money to conduct an intervention study on how the changes in the outdoor environment of this business park affect the employees' use of the environment, as well as their health, wellbeing and work performance, and the companies' branding, recruitment and earnings.

Case study on how evidence-based landscape architecture can be developed

In order to integrate some of the knowledge from the PhD study in the department of Plan & Landscape, my managers and I have come up with an idea for a pilot-project, which will be our first step in conducting Evidence-Based Landscape Architecture. At the same time, it will be a way to engage my landscape architect colleagues at Plan & Landscape in new ways of acquiring knowledge, such as scientific knowledge and user-based knowledge, and structured ways to evaluate projects, so that the evaluation can serve as new knowledge to be incorporated in the next project. We imagine the pilot-project as a project on nursing homes, which is a type of project that we do a lot of, and often on a very tight budget. These projects have very weak users, and conducting such a pilot-project, in which scientific knowledge and the users' own opinions are part of the knowledge base, may benefit residents, staff, and relatives. The project is still mostly an idea, but is envisaged to be a collaboration between Plan & Landscape, Arkitema Architects; Forest & Landscape, University of Copenhagen, the OK Foundation (which operates private nursing homes in Denmark), and a Danish municipality.

Conclusion

Recent years have witnessed an increased focus on health promoting policies at companies (e.g. European Agency for Safety and Health at Work 2010), but the role of the outdoor environment in these policies has been absent at the vast majority of companies. The findings from this PhD thesis suggest that green outdoor environments in close proximity to work buildings are a health promoting asset for the company, and access to such environments seems to be beneficial for employees, regardless of their age, gender, educational level, or managerial position. This indicates that the benefits of green workplace outdoor environments are very broad and have potential to positively affect different types of employees in different types of companies. Still, the findings also show that there are challenges regarding the use of these environments during work time. Indeed, both physical and cultural changes at companies are necessary to fully exploit the benefits of these assets. Based on the findings, I recommend that workplace outdoor environments are included in future health-promoting strategies of companies and society.

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List of papers

The thesis is based on four papers and some preliminary findings. The papers will hereafter be referred to by Roman numerals. The full text papers are included in the thesis after the introduction.

I. Lottrup, L.P., Stigsdotter, U.K. In review. The use, preference and effects of green outdoor environments at workplaces: A review. *Urban Forestry & Urban Greening*.

II. Lottrup, L.P., Stigsdotter, U.K., Meilby, H., Corazon, S.S. 2012. [Associations between use, activities and characteristics of the outdoor environment at workplaces](#). *Urban Forestry & Urban Greening*. 11 (2), 159-168

III. Lottrup, L.P., Stigsdotter, U.K., Meilby, H. In review. The Workplace Window View: A Determinant of Office Workers' Work Performance and Job Satisfaction. *Landscape Research*.

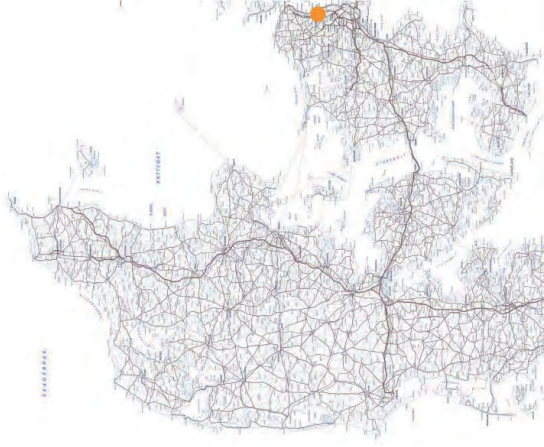
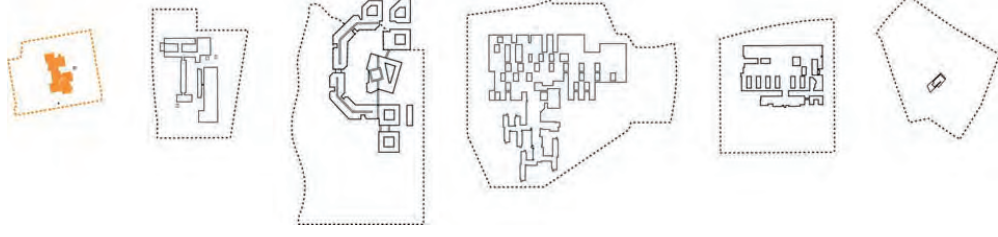
IV. Lottrup, L.P., Stigsdotter, U.K., Grahn, P. In review. Workplace greenery and perceived level of stress: Benefits of access to a green outdoor environment at the workplace. *Landscape and Urban Planning*.

The five papers are not included in this internet version of the thesis due to copyright.

Appendix A

Company 1

8. oktober 2008 kl 13.00-14.00



Registrering



Ophold



Gang- og cykelsti



Kørebane



Parkering



Skov



Have



Sø





1 Foderhus ved sø



2 Sø



3 Udemiljø ved kantine



4 Udemiljø langs vestfacade



5 Gårdrum



6 Ankomst



7 Parkering



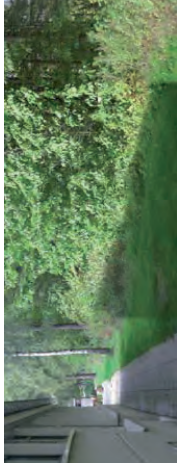
9 Kantine



8 Udemiljø mellem huse



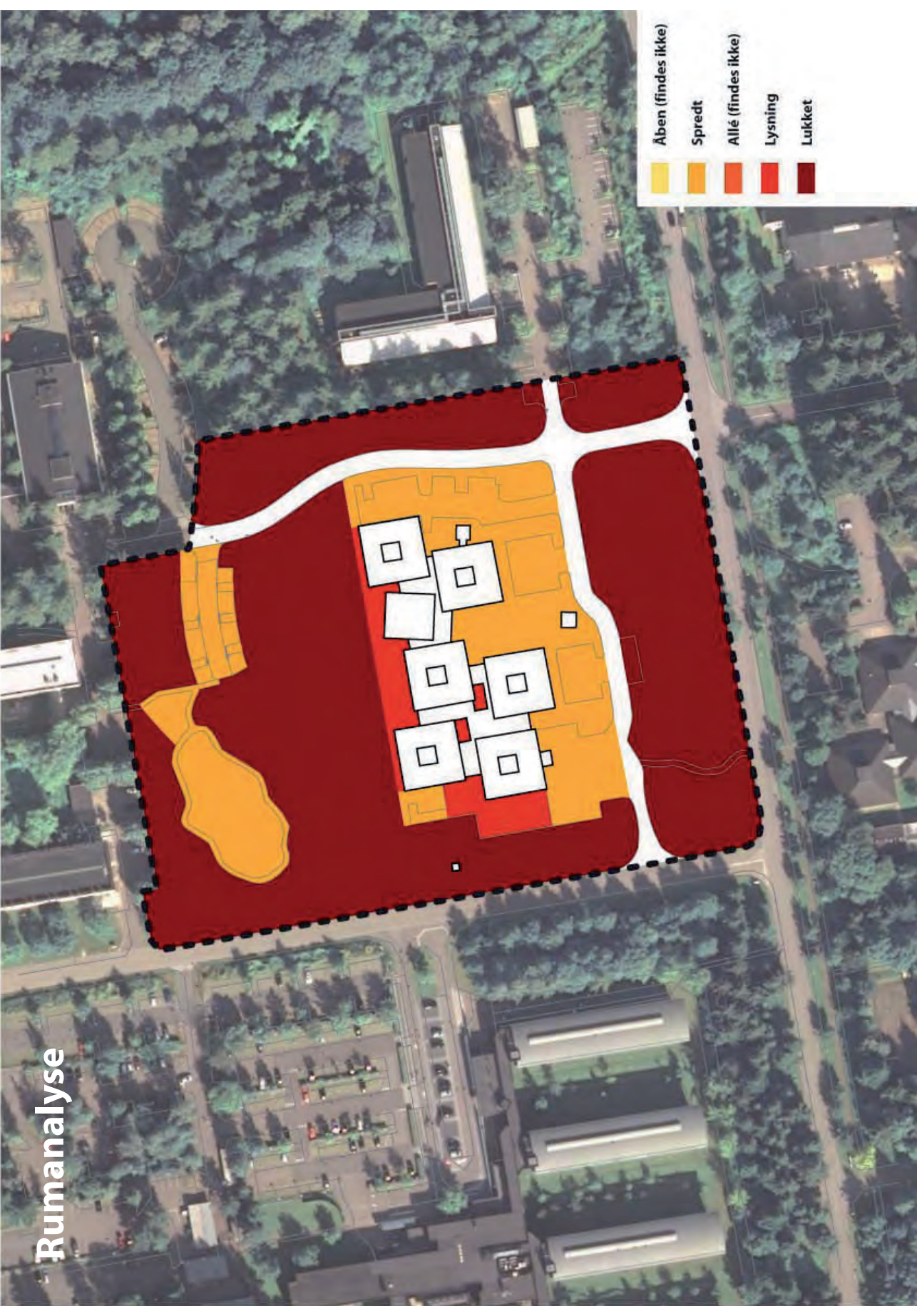
11 Svampe



10 Udemiljø langs nordfacade



Rumanalyse



Oplevelsesværdier

Åbent (ikke til stede)



Artsrigt



Naturpræget



Socialt



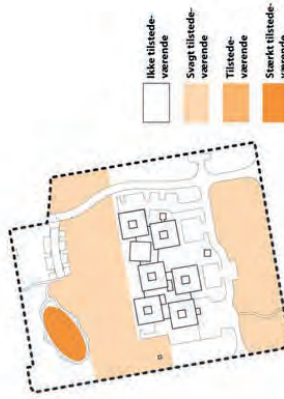
Trygt



Kulturelt



Rumdannende

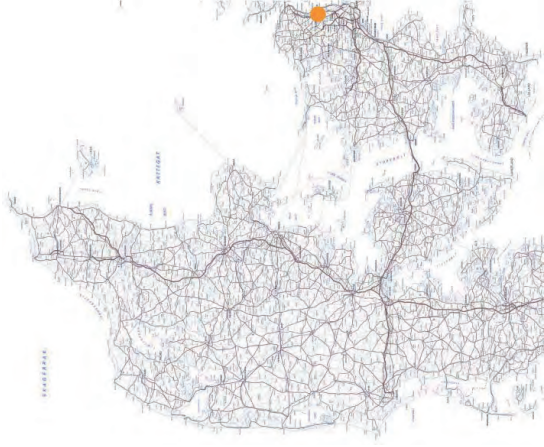


Fredfyldt

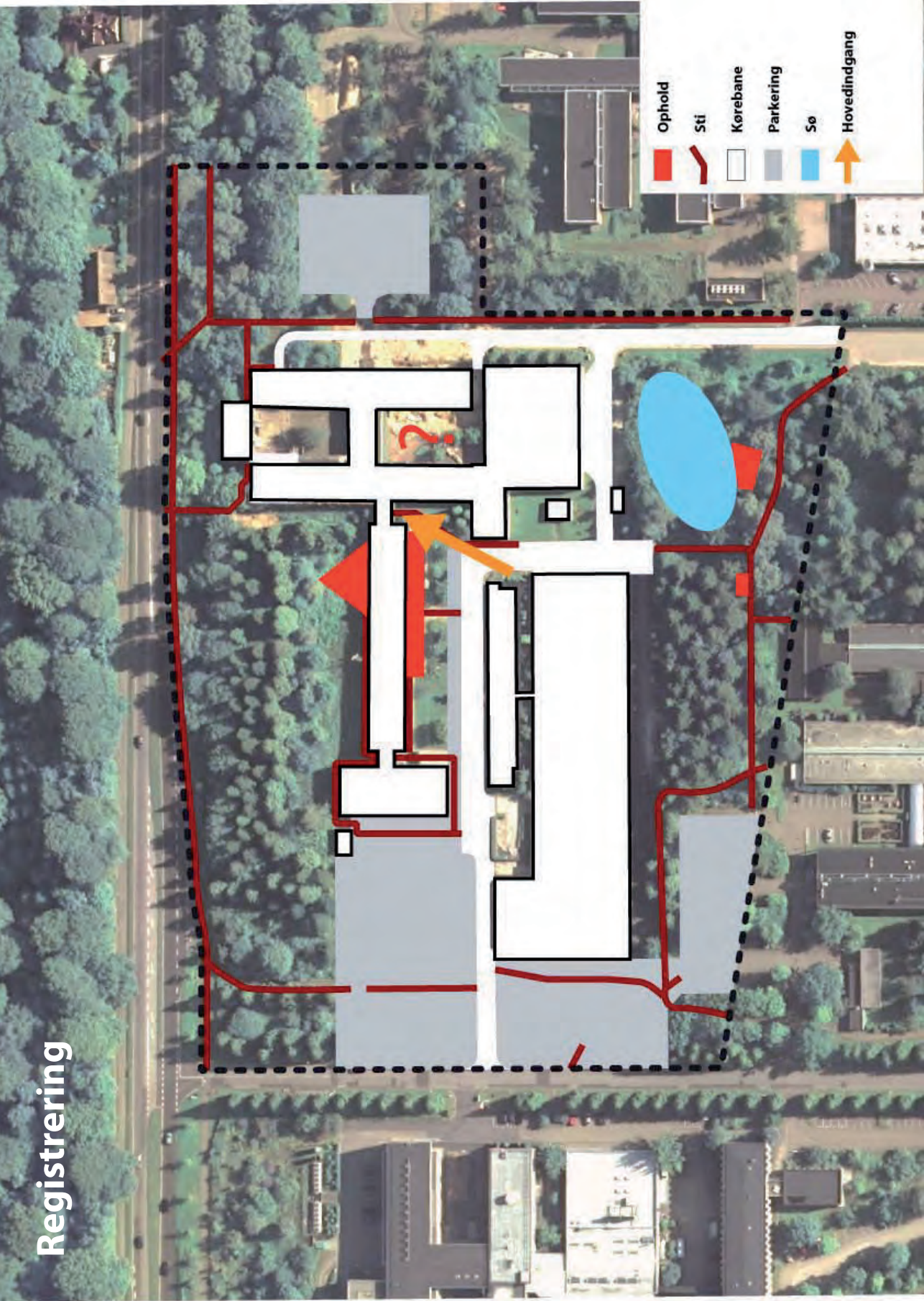


Company 2

11. august 2008 kl 12.00-14.30



Registrering



Ophold

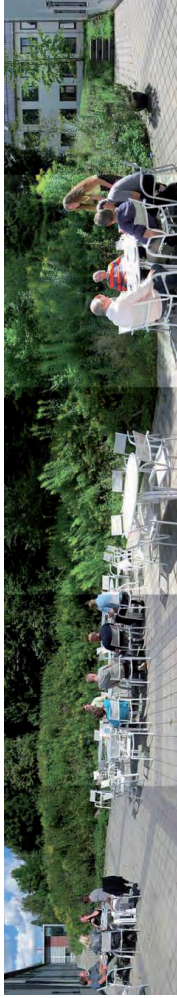
Sti

Kørebane

Parkering

Sø

Hovedindgang



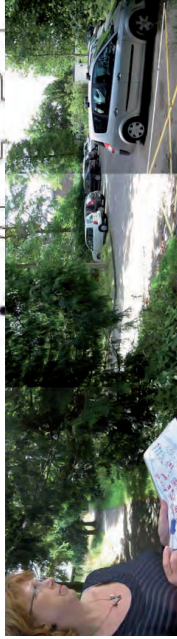
1 Kantinegård



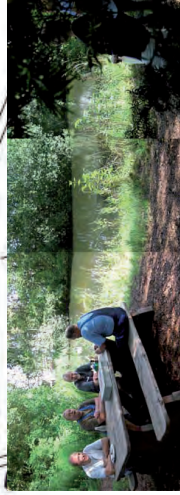
2 Parkeringsplads



3 Udsigt fra hovedindgang

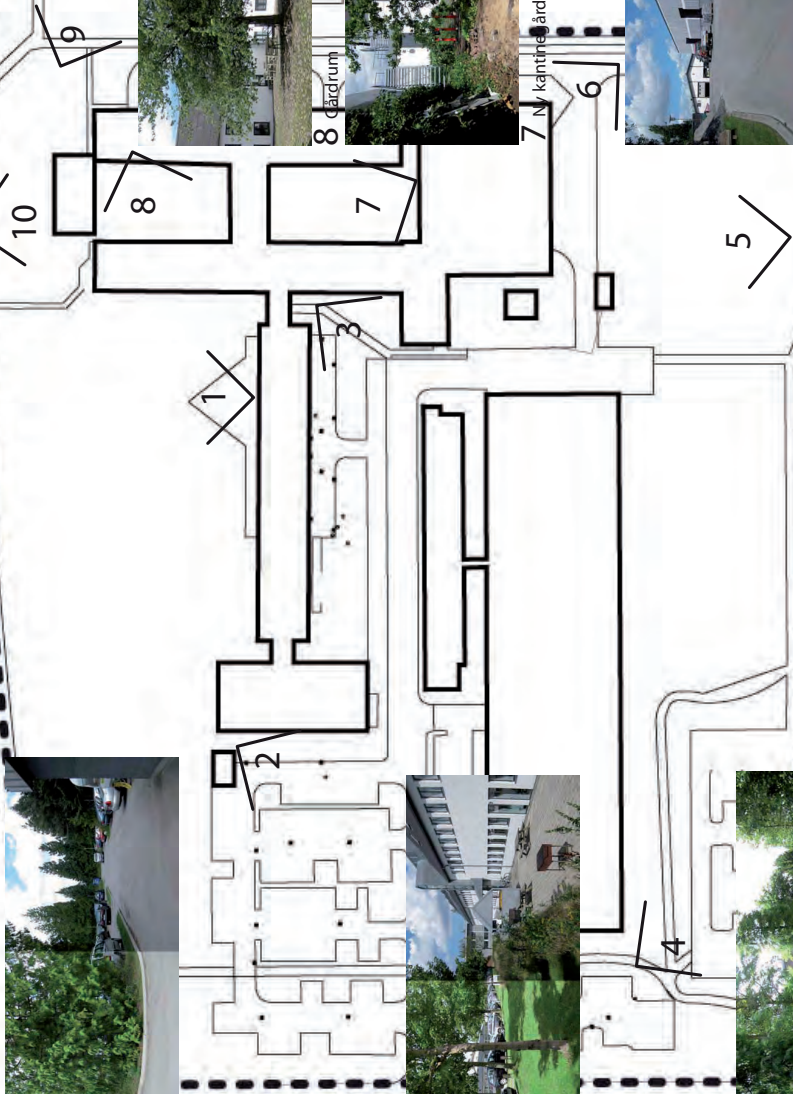


4 Parkeringsplads + sti



5 Frokost ved sø

10 Gl. stuehus set fra indfaldsvej



10 Gl. stuehus set fra indfaldsvej



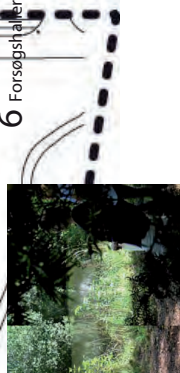
2 Parkeringsplads



3 Udsigt fra hovedindgang



4 Parkeringsplads + sti



5 Frokost ved sø

9 Sti



8 Carport

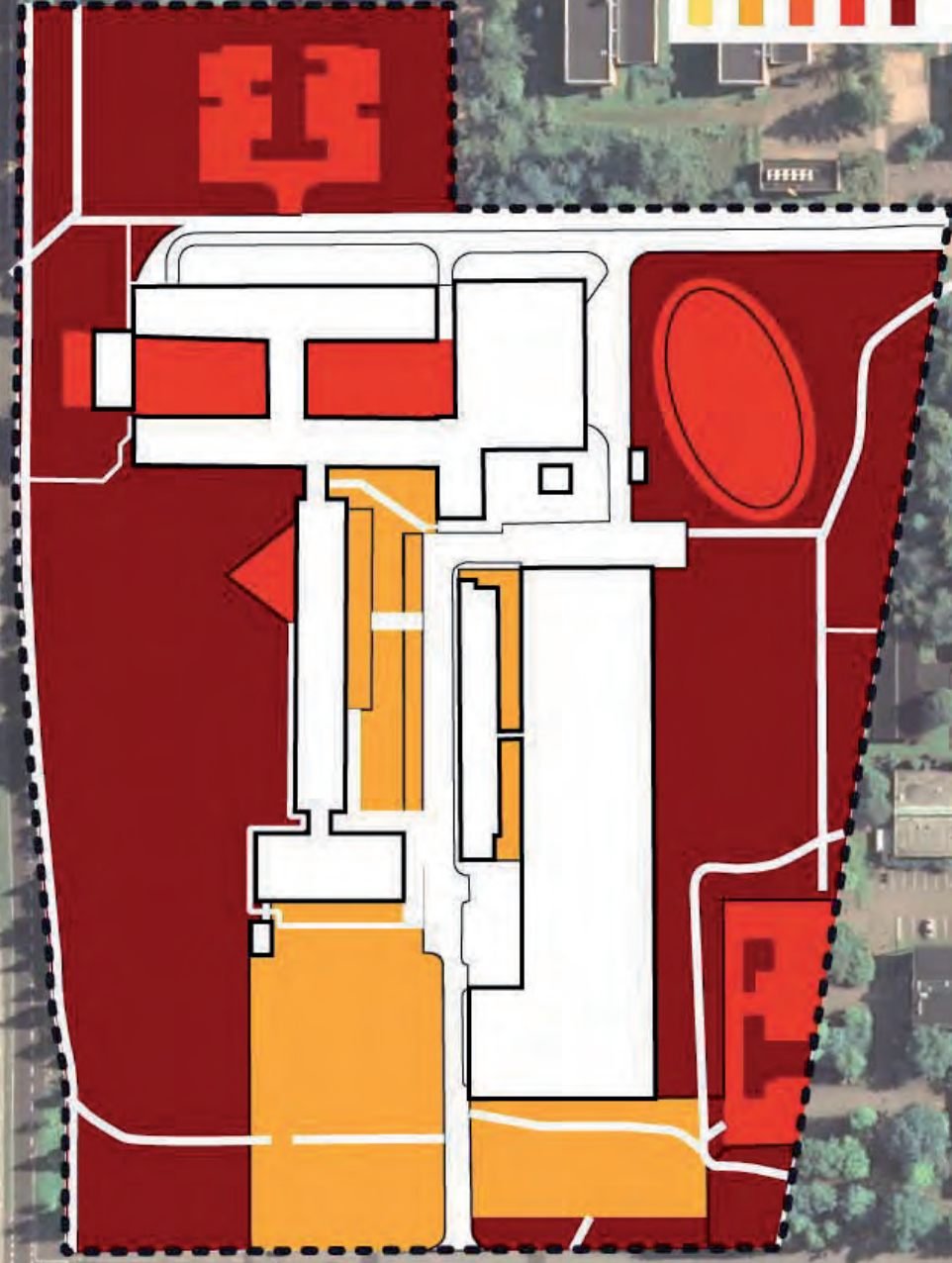


7 N. kantstuegård



6 Forsøgshaller

Rumanalyse



Åben (findes ikke)

Spredt

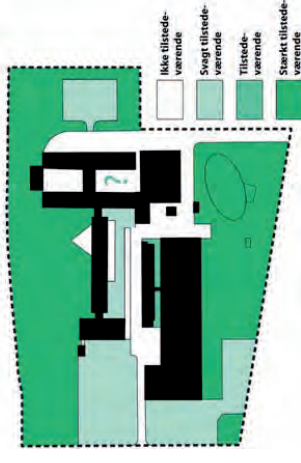
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Lysning

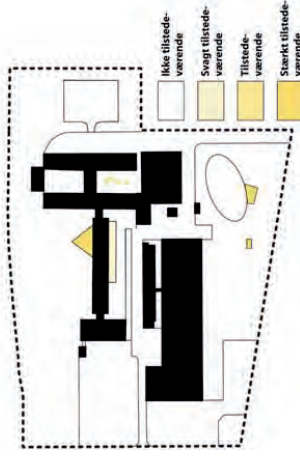
Lukket

Oplevelsesværdier

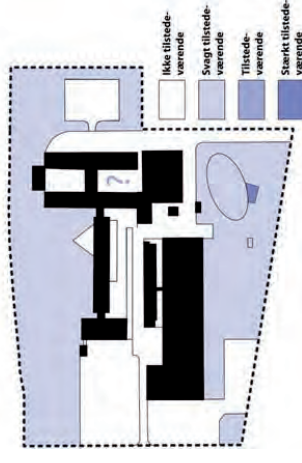
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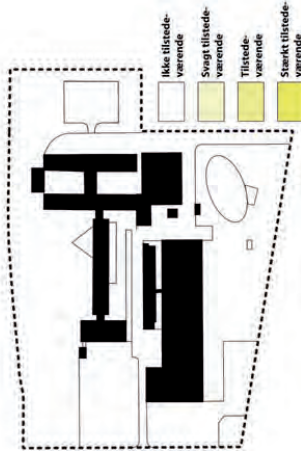
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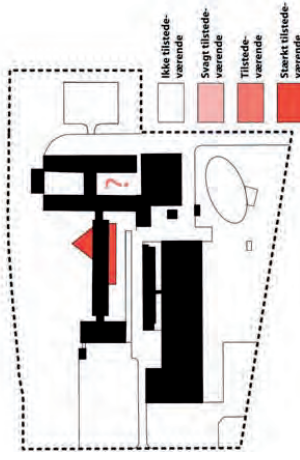
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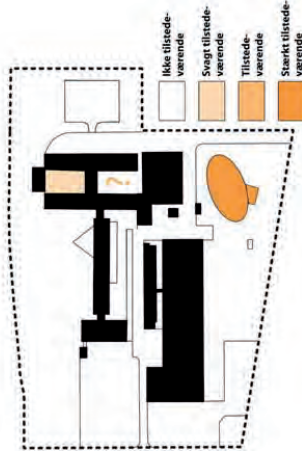
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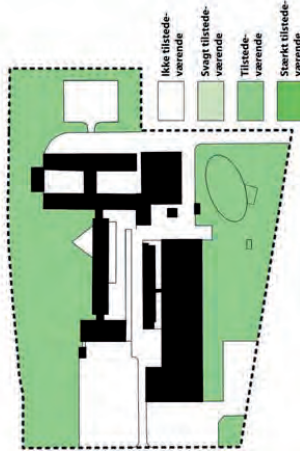
SOCIALT



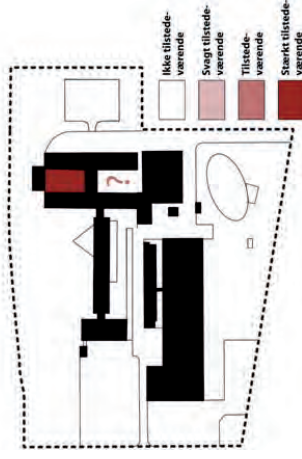
RUMDANNENDE



NATURPRÆGET

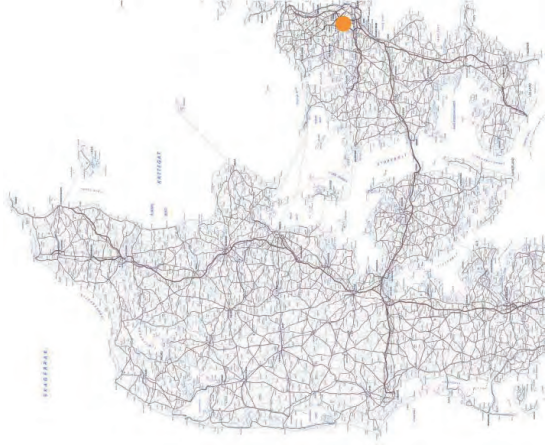
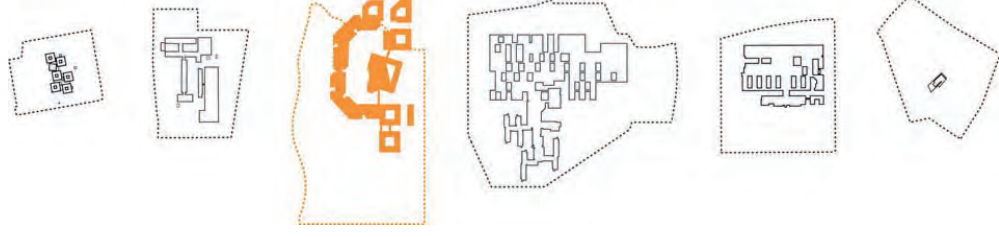


KULTUREL

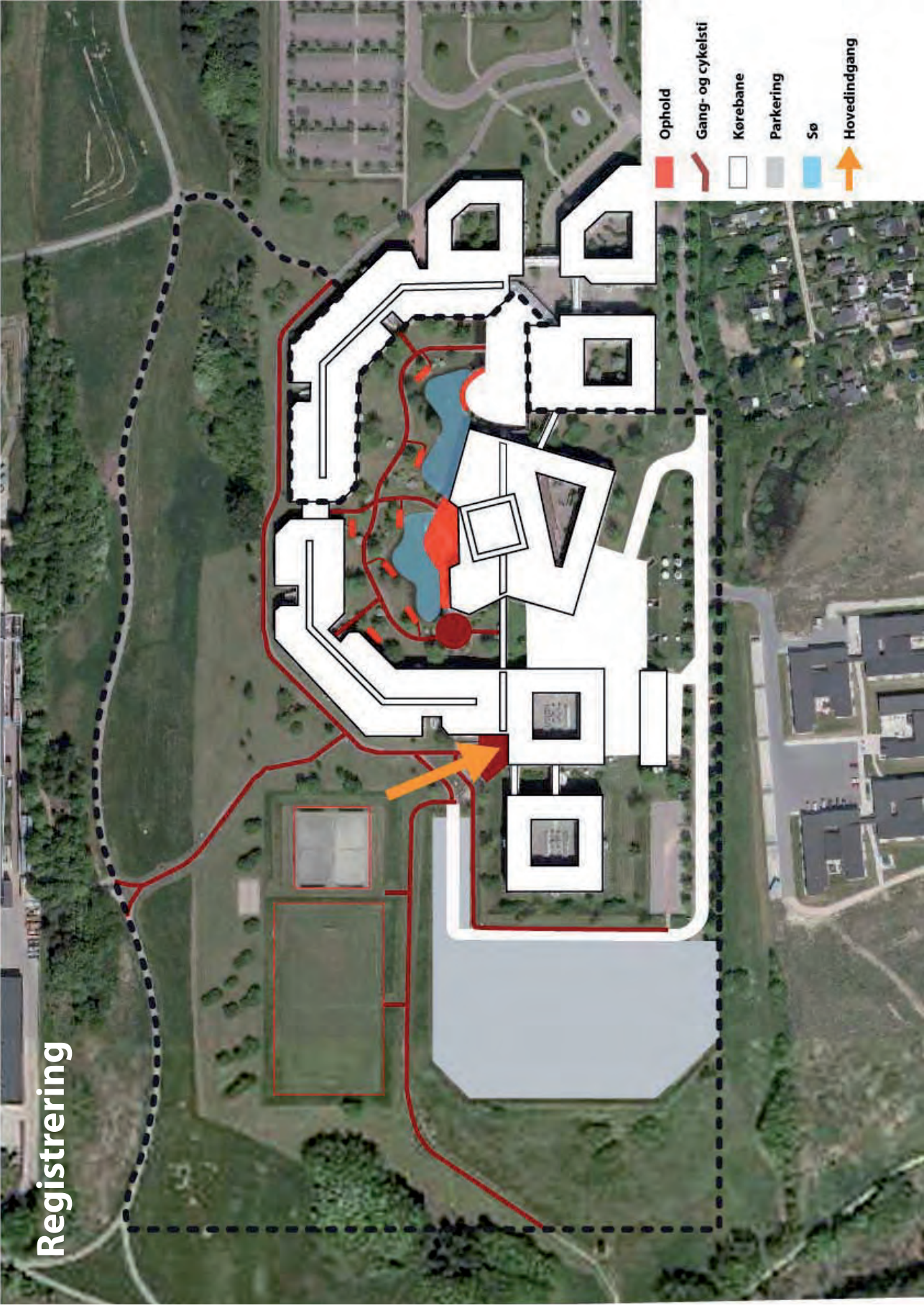


Company 3

6. oktober 2008 kl 12.00-14.00



Registrering





1 Ankomstareal



10 Udemiljø langs vestfacade



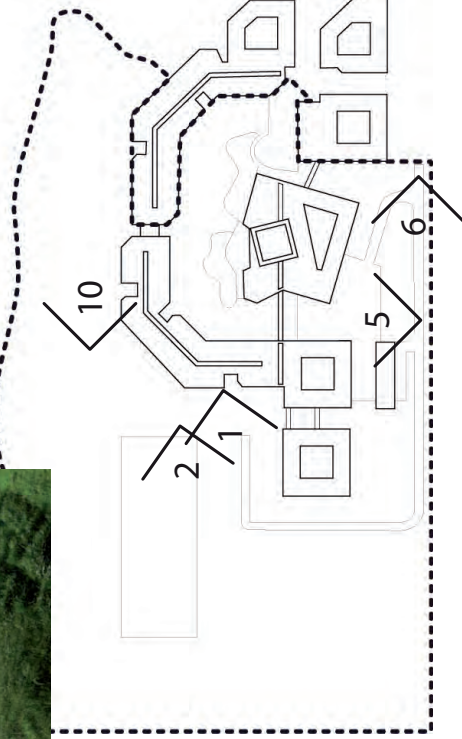
2 Sportsbaner + parkering



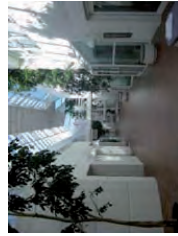
9 Erhvervsparkens udemiljø



8 Erhvervsparkens udemiljø



3 Kantine



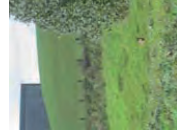
4 Gangareal



5 Glasgang til kantine



6 Ankomstvej langs østfacade



7 Erhvervsparkens udemiljø



11 Parkrum



12 Parkrum



13 Parkrum



14 Parkrum



20 Parkrum



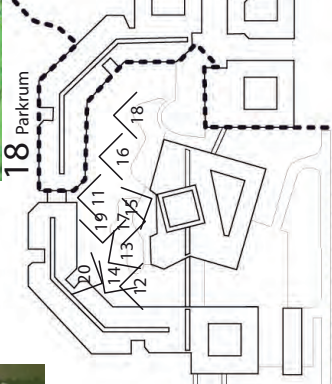
19 Parkrum



18 Parkrum



17 Parkrum

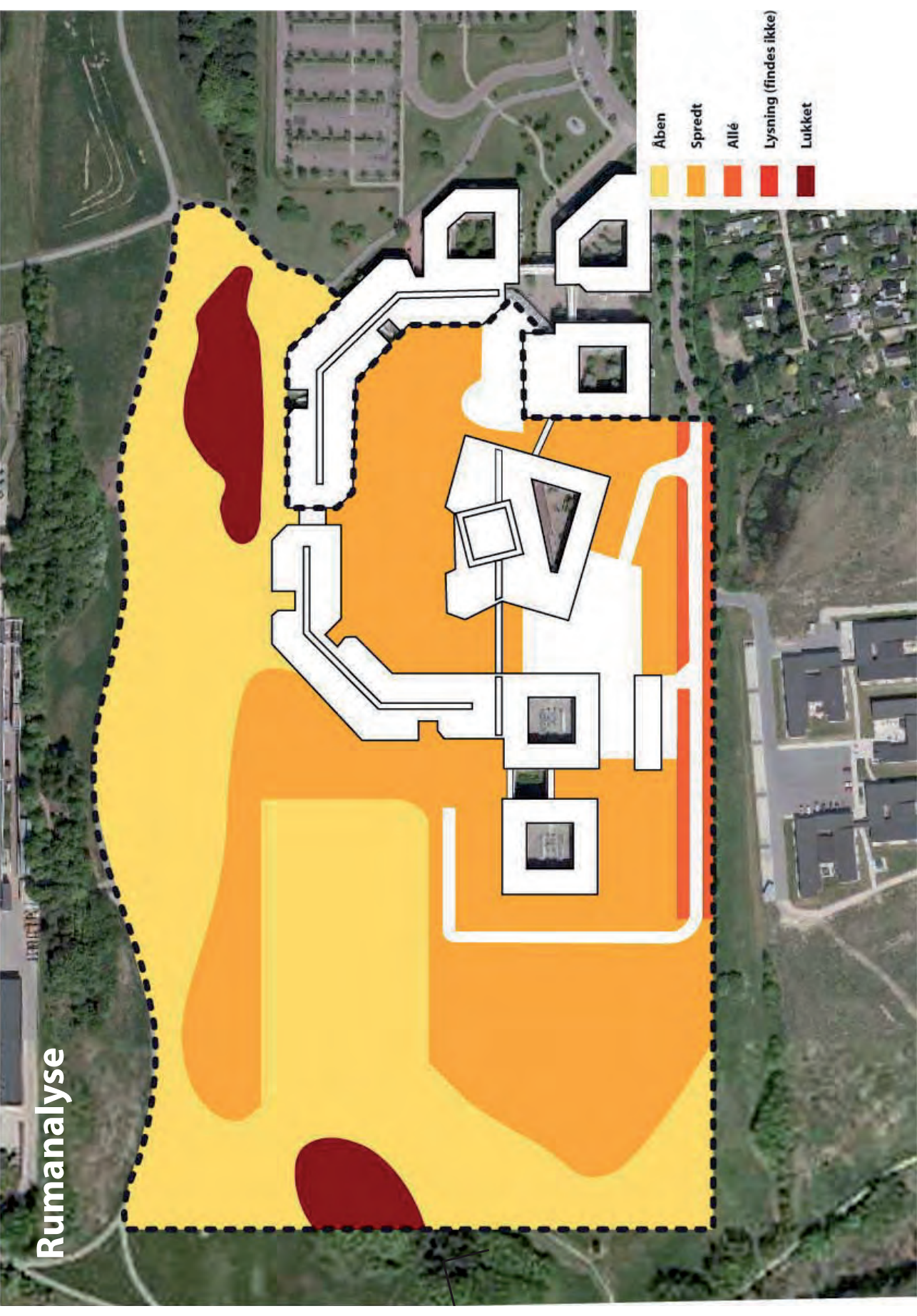


15 Parkrum ved kantine



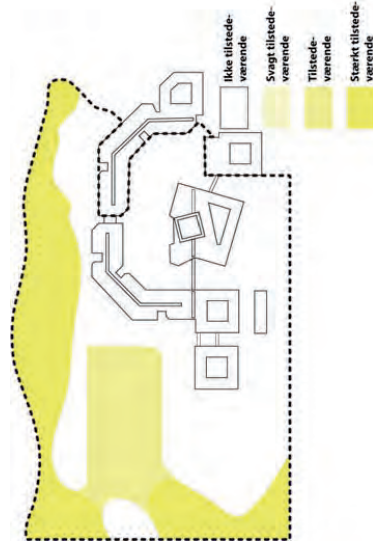
16 Parkrum

Rumanalyse



Oplevelsesværdier

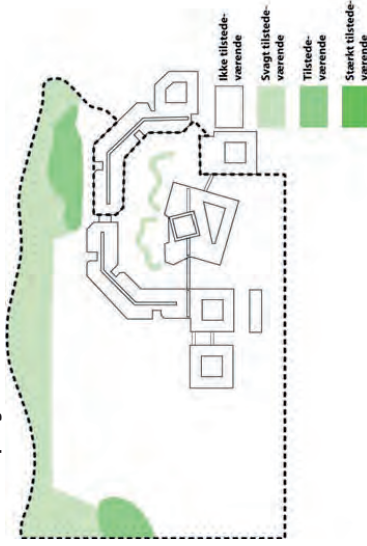
Åbent



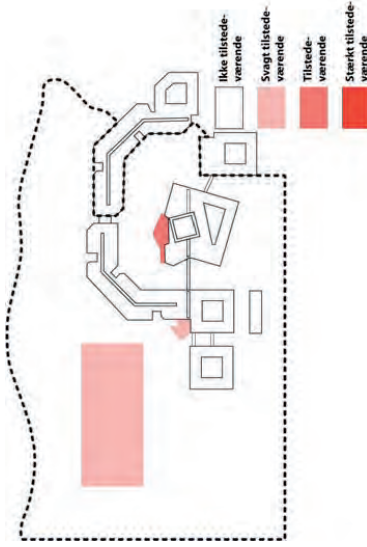
Artsrigt



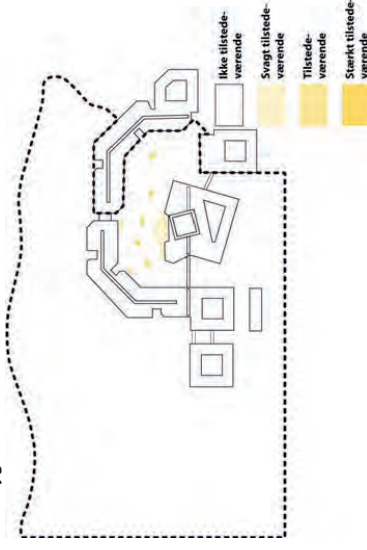
Naturpræget



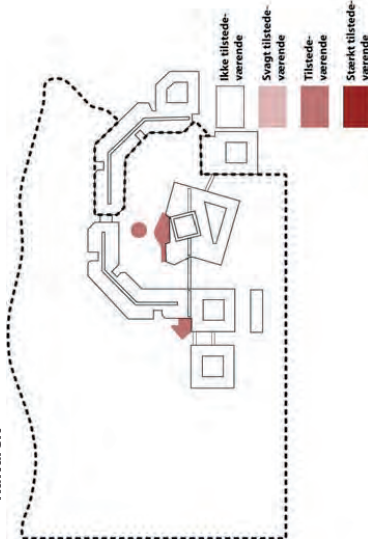
Socialt



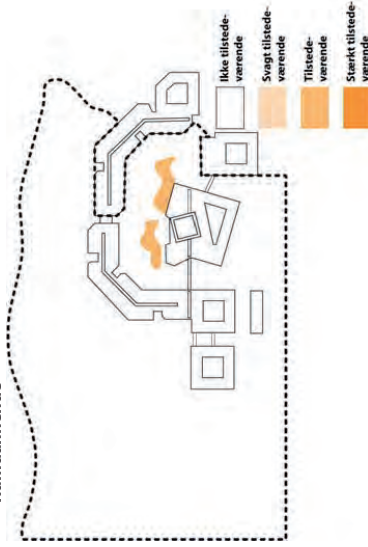
Trygt



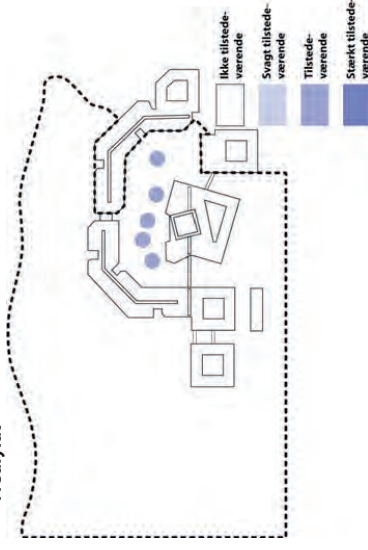
Kulturelt



Rumdannende

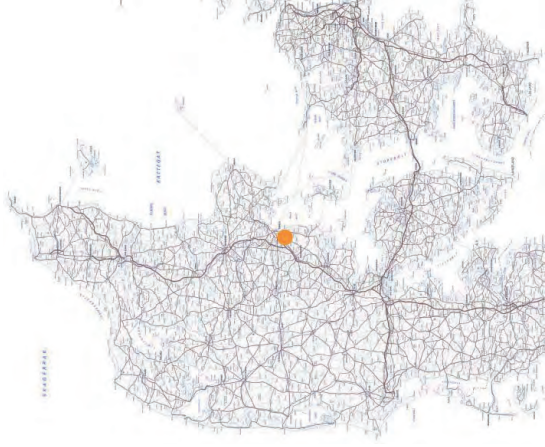
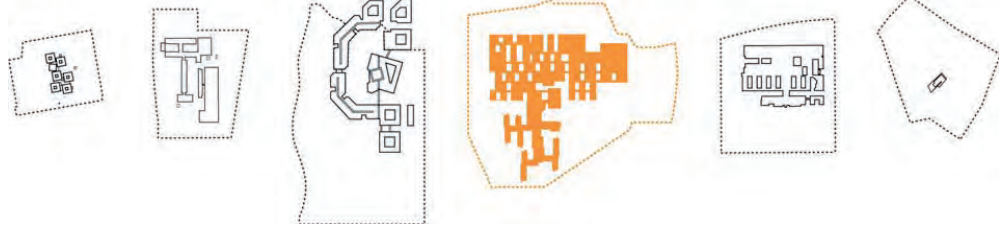


Fredfyldt

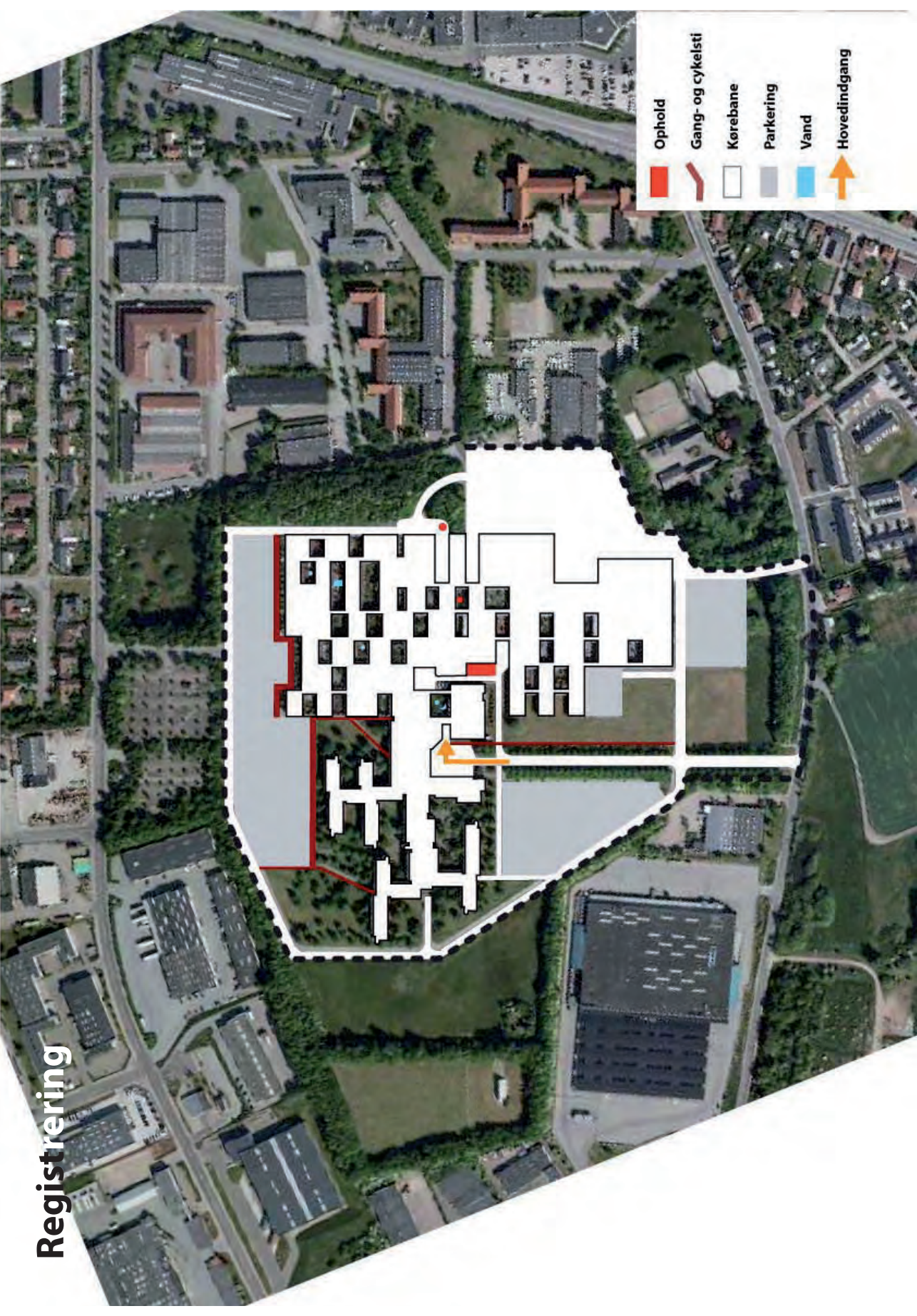


Company 4

19. september 2008 kl 10.30-13.30



Registrering



Ophold



Gang- og cykelsti



Kørebane



Parkering

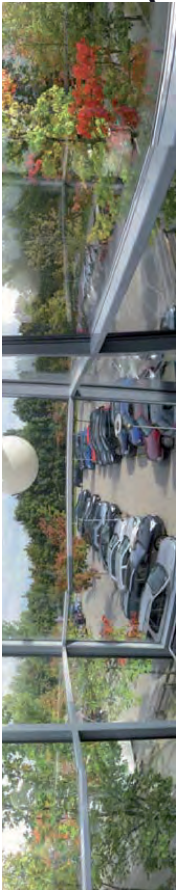


Vand



Hovedindgang





1 Parkering



2 Park



3 Ankomstallé



4 Ankomstareal



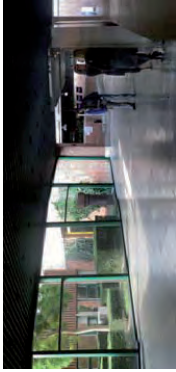
5 Parkering



6 Kantinegård + varegård



9 Facade mod øst



8 Gangareal



7 Ophold ved parkeringsareal





10 Gärdhave



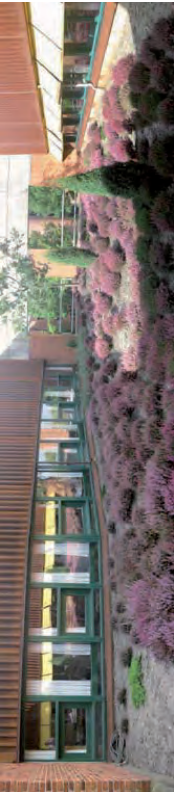
14 Gärdhave



11 Gärdhave



15 Gärdhave



12 Gärdhave



16 Gärdhave



13 Gärdhave



17 Gärdhave

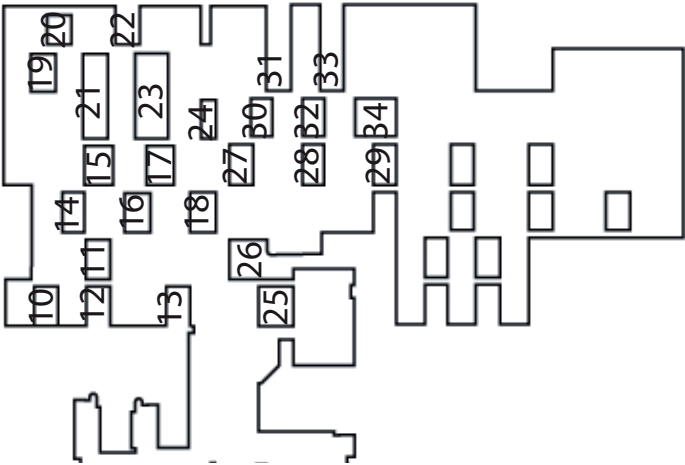
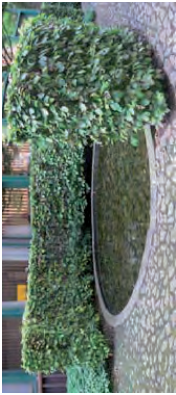


18 Gärdhave





19 Gärdhave



20 Gärdhave



21 Gärdhave



22 Gärdhave



24 Gärdhave



23 Gärdhave



25 Gårdhave



26 Gårdhave



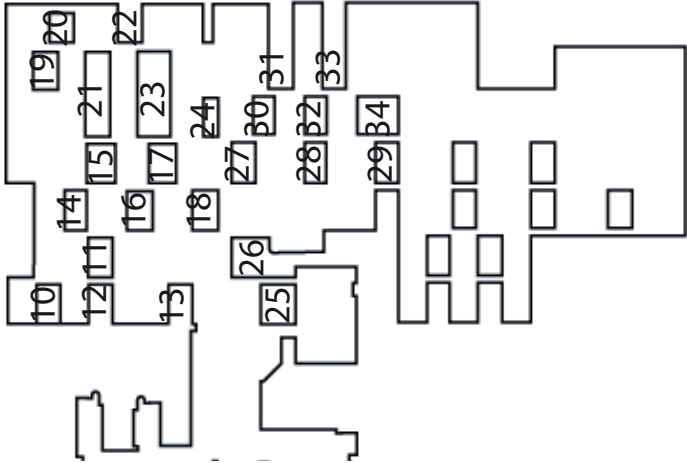
27 Gårdhave



28 Gårdhave



29 Gårdhave



30 Gårdhave



31 Have ved parkering



32 Gårdhave

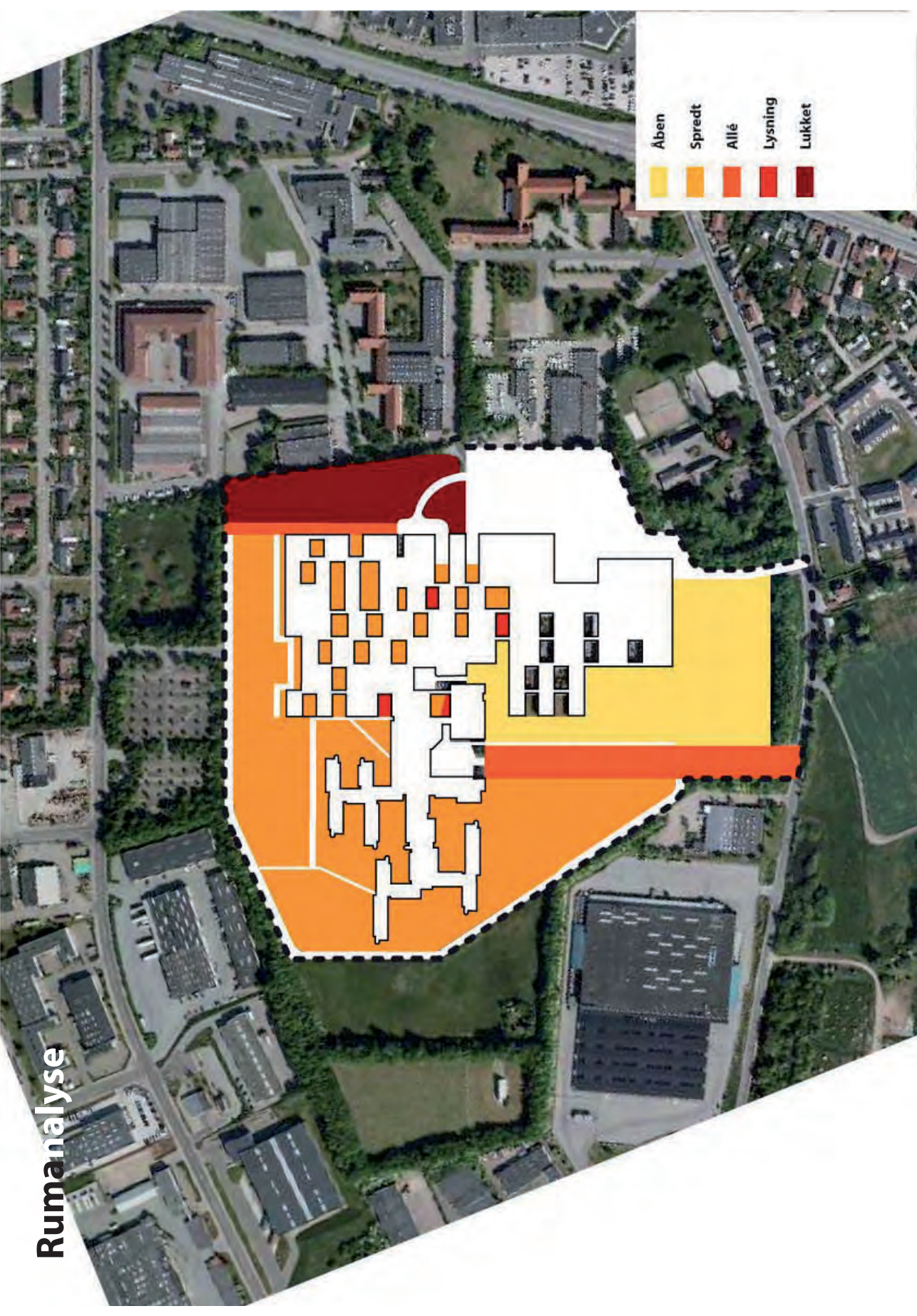


33 Gårdhave



34 Gårdhave

Rumanalyse



Oplevelsesværdier

Åbent



Artsrigt



Naturpræget



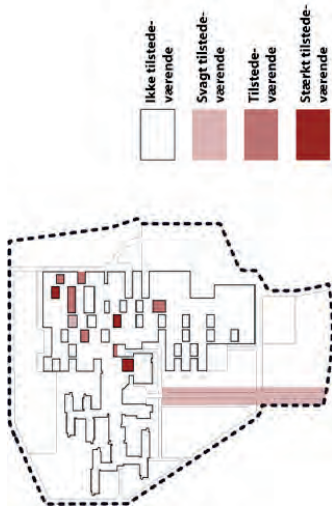
Socialt



Trygt



Kulturelt



Rumdannende

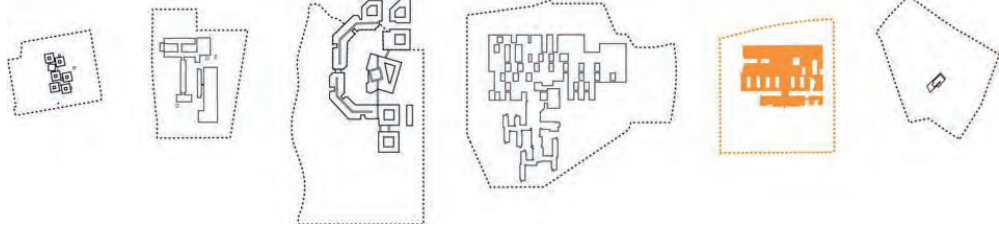
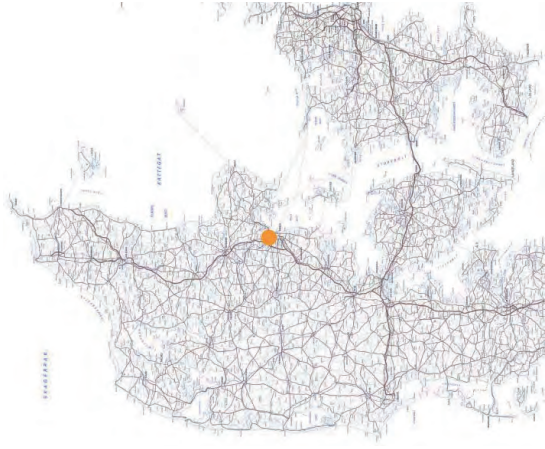


Fredfyldt



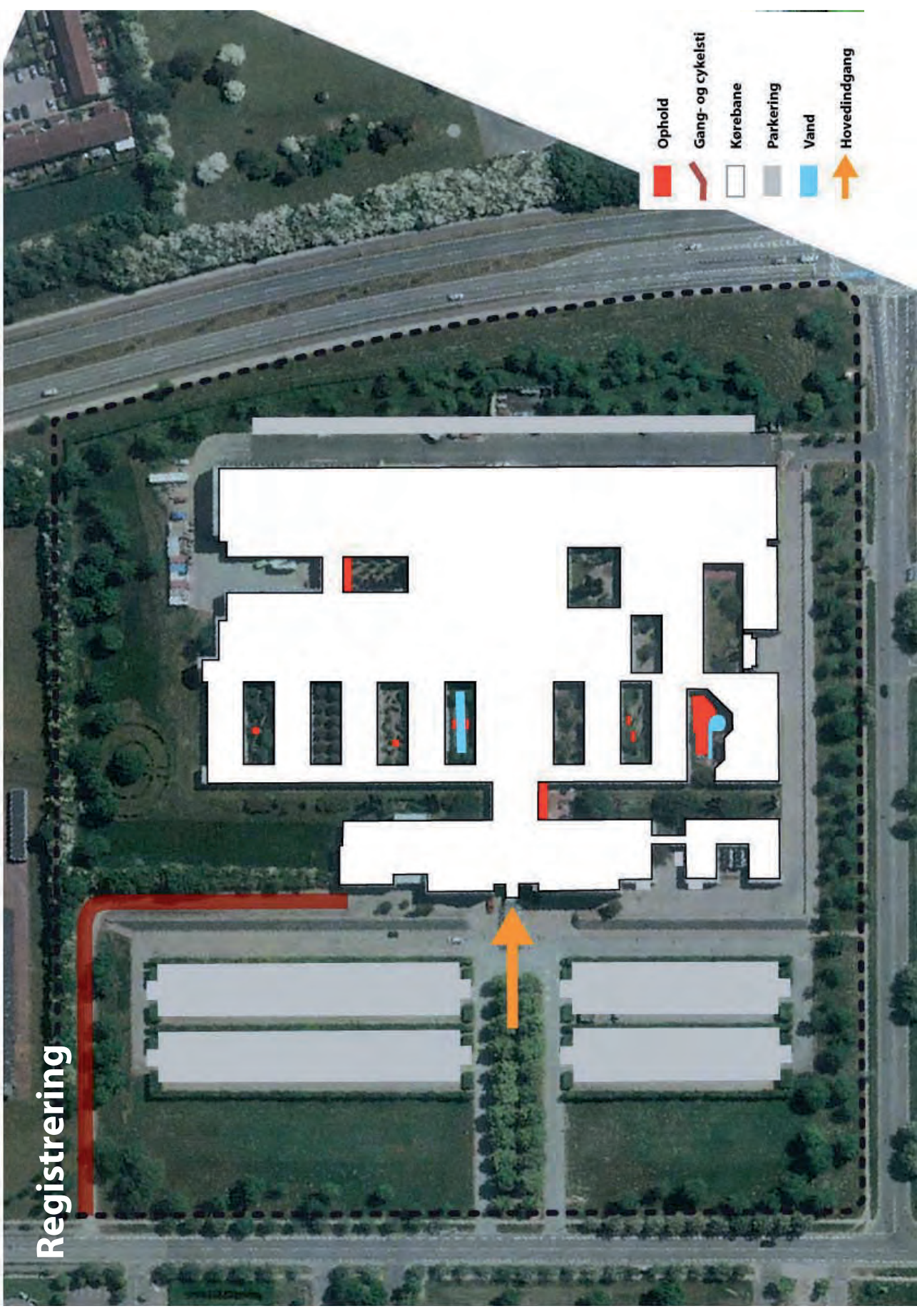
Company 5

2. september 2008 kl 11.00-13.00



Registrering

- Ophold
- Gang- og cykelsti
- Kørebane
- Parkerings
- Vand
- Hovedindgang





1 Udemiljø langs nordfacade



2 Bastion



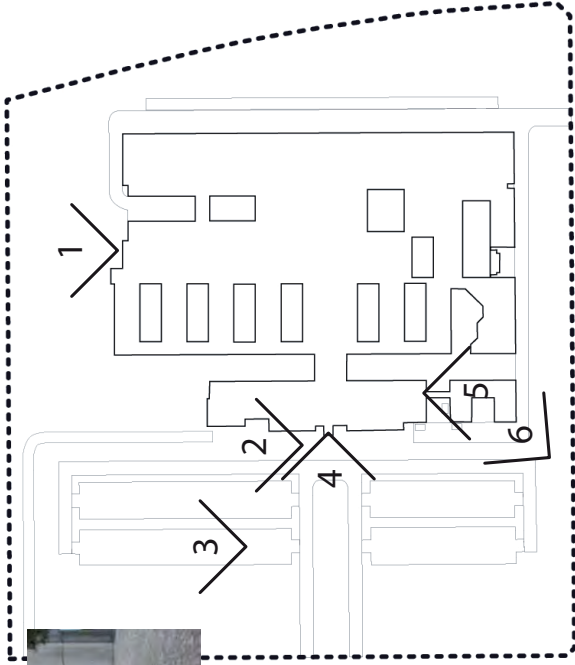
3 Parkeringsplads



4 Ankomst



5 Glasgang



7 Gangareal



6 Bastion



8 Gårdhave



9 Udemiljø ved fællesrum



10 Gårdhave under renovering



11 Gårdhave



12 Gårdhave



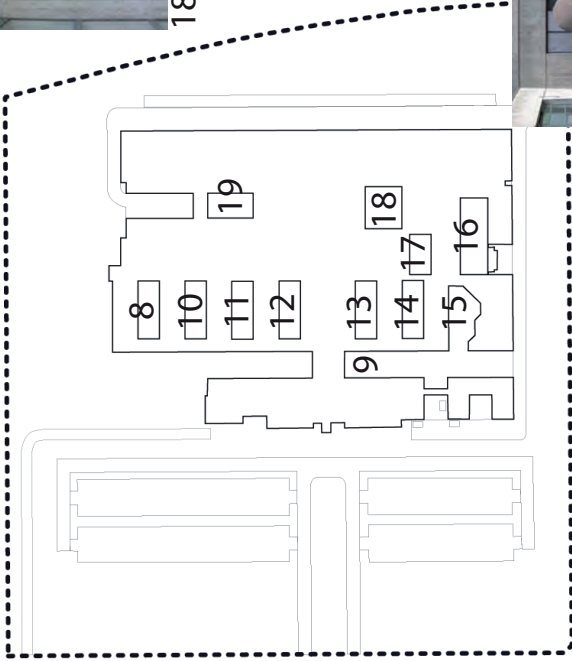
13 Gårdhave



14 Gårdhave



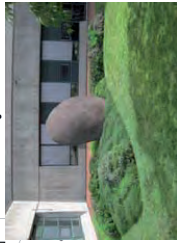
19 Gårdhave



18 Gårdhave



17 Gårdhave



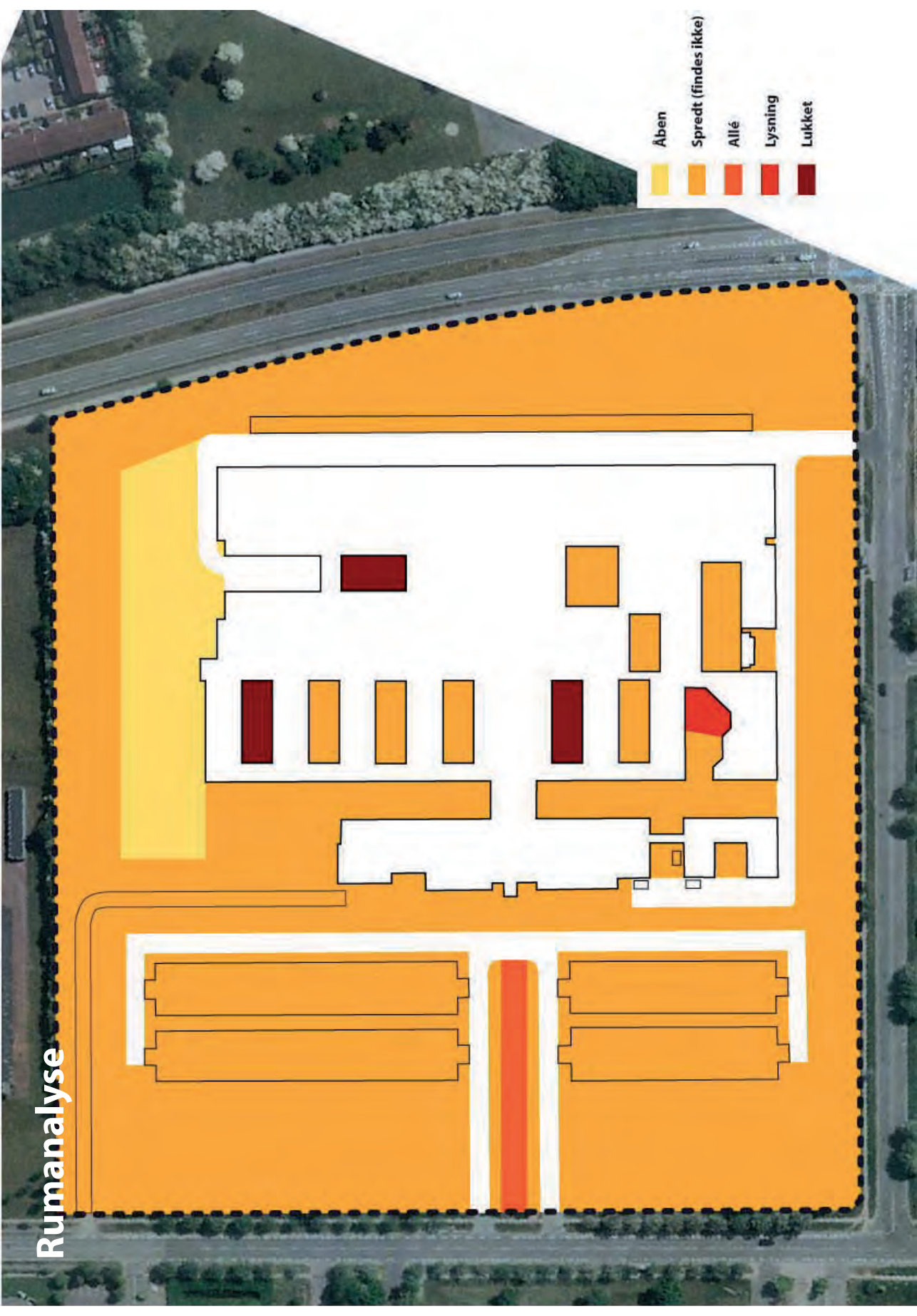
16 Gårdhave



15 Gårdhave ved kantine



Rumanalyse

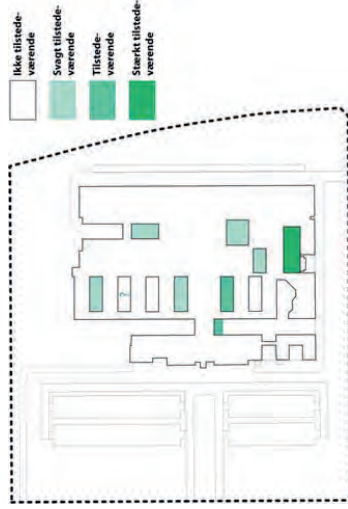


Oplevelsesværdier

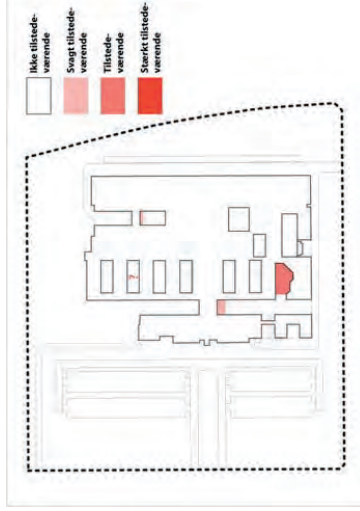
Åbent



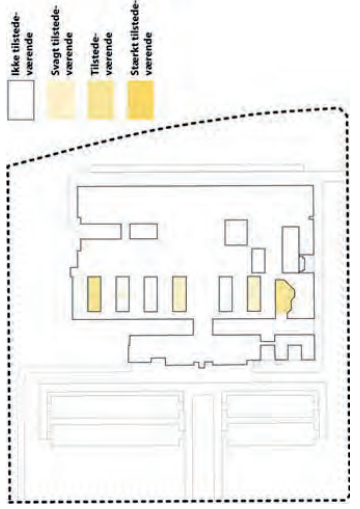
Artsrigt



Socialt



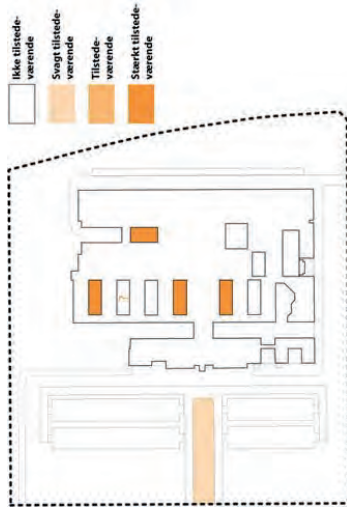
Trygt



Naturpræget



Runddannende



Fredfyldt

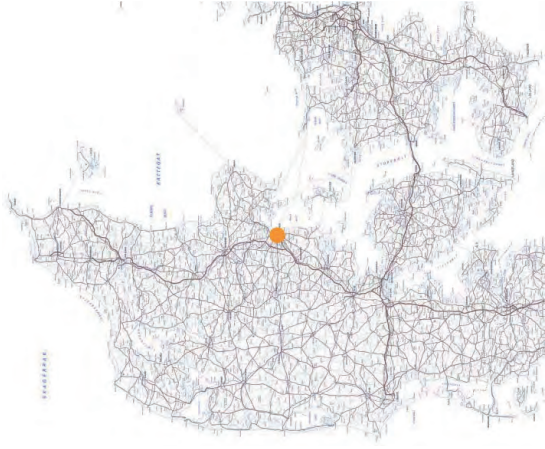
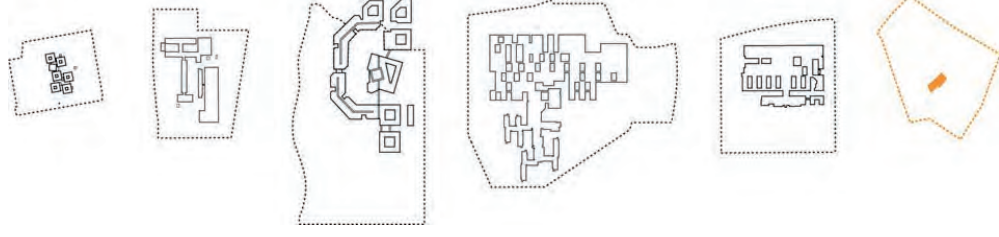


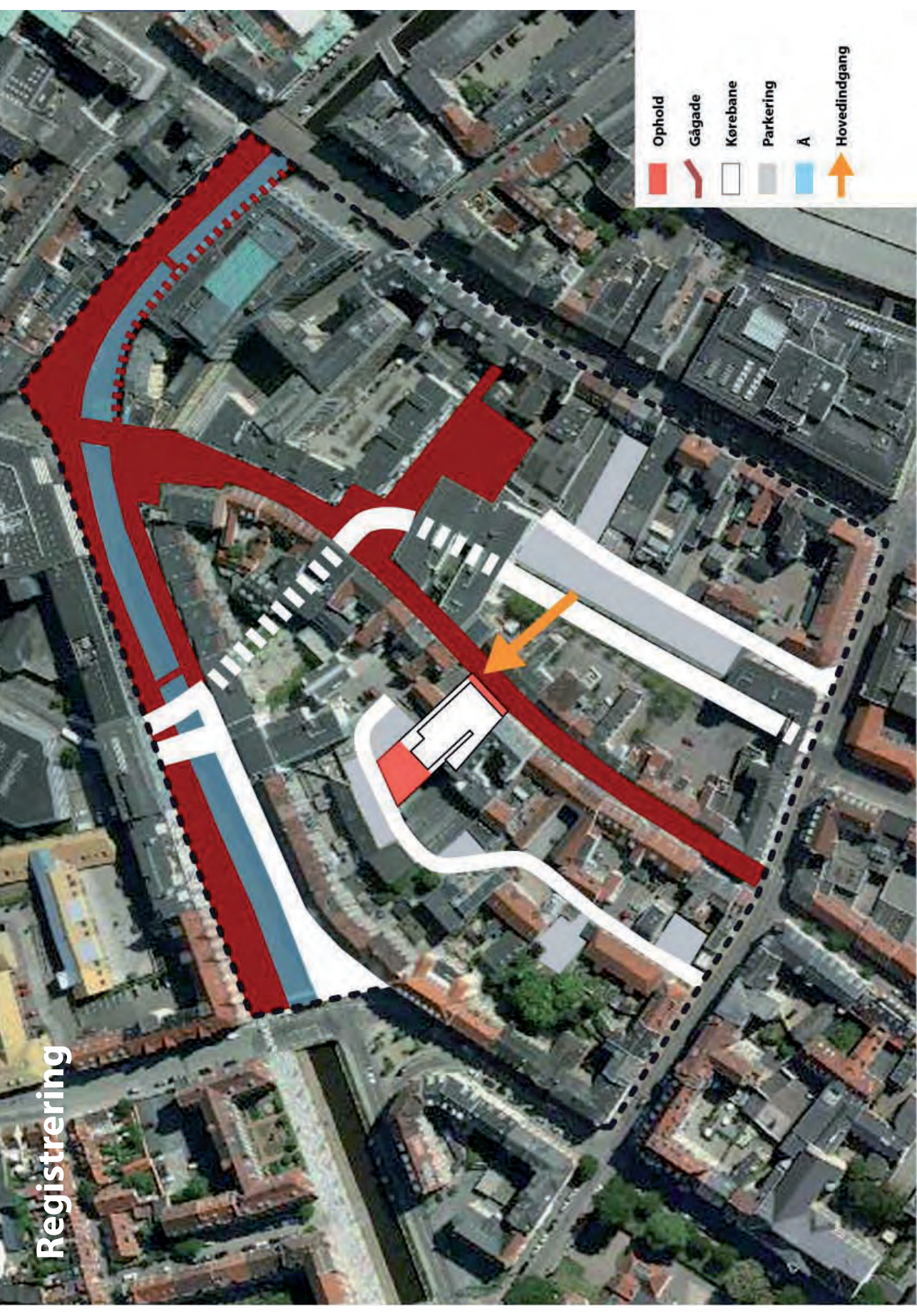
Kulturelt



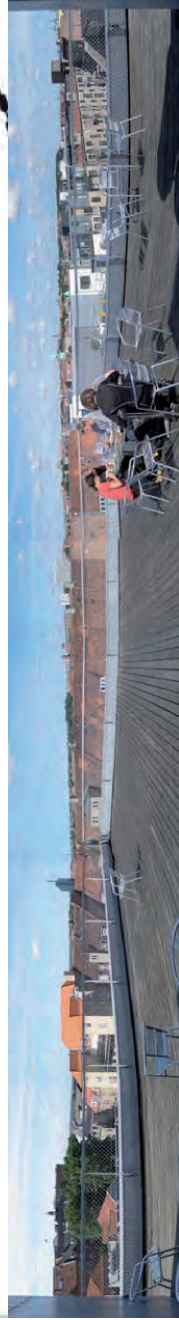
Company 6

29. august 2008 kl 12.00-12.30





- Ophold
- Gågade
- Kørebane
- Parkering
- A
- Hovedindgang



1 Tagterrasse mod nordøst



2 Tagterrasse mod nordøst



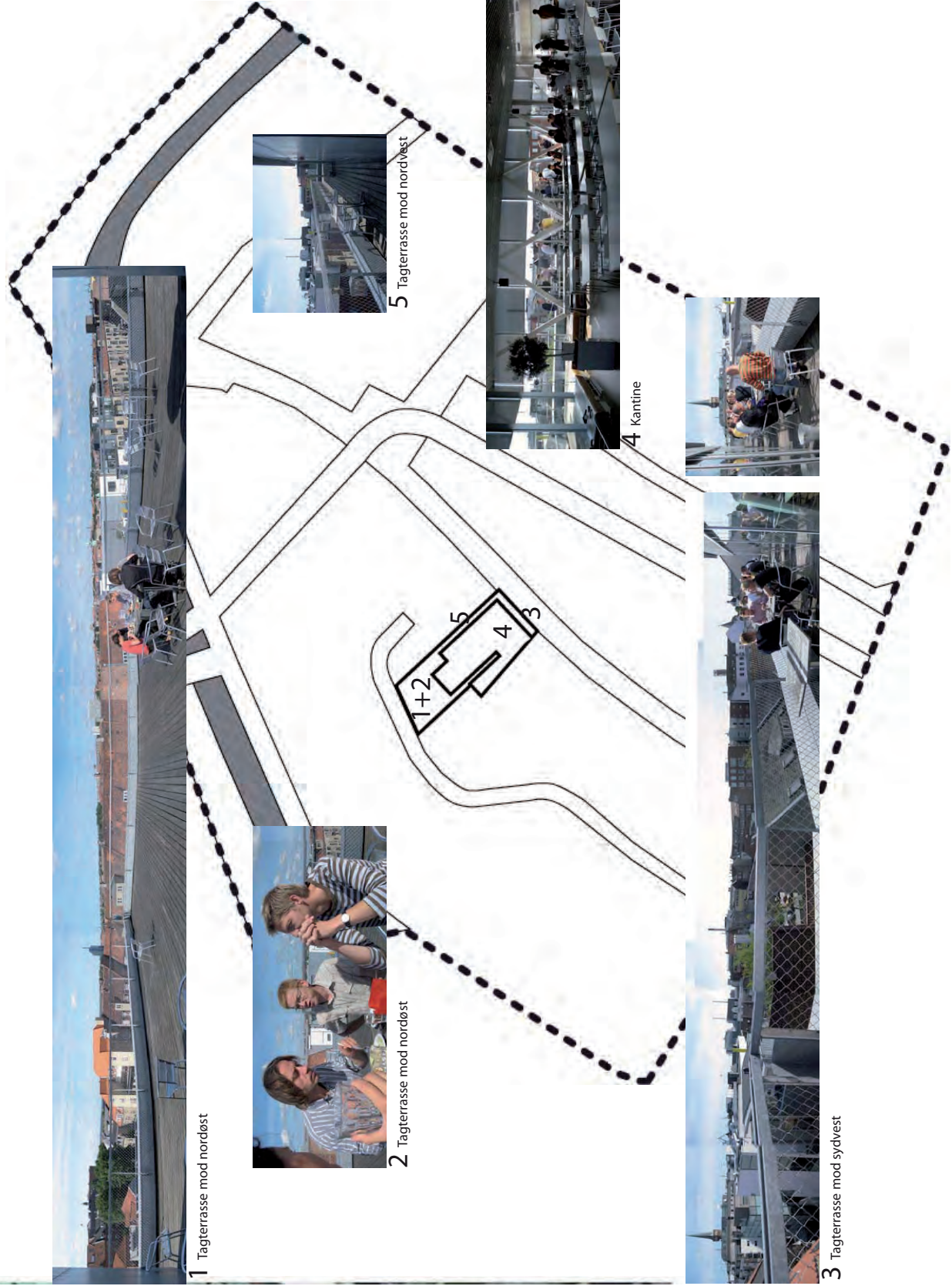
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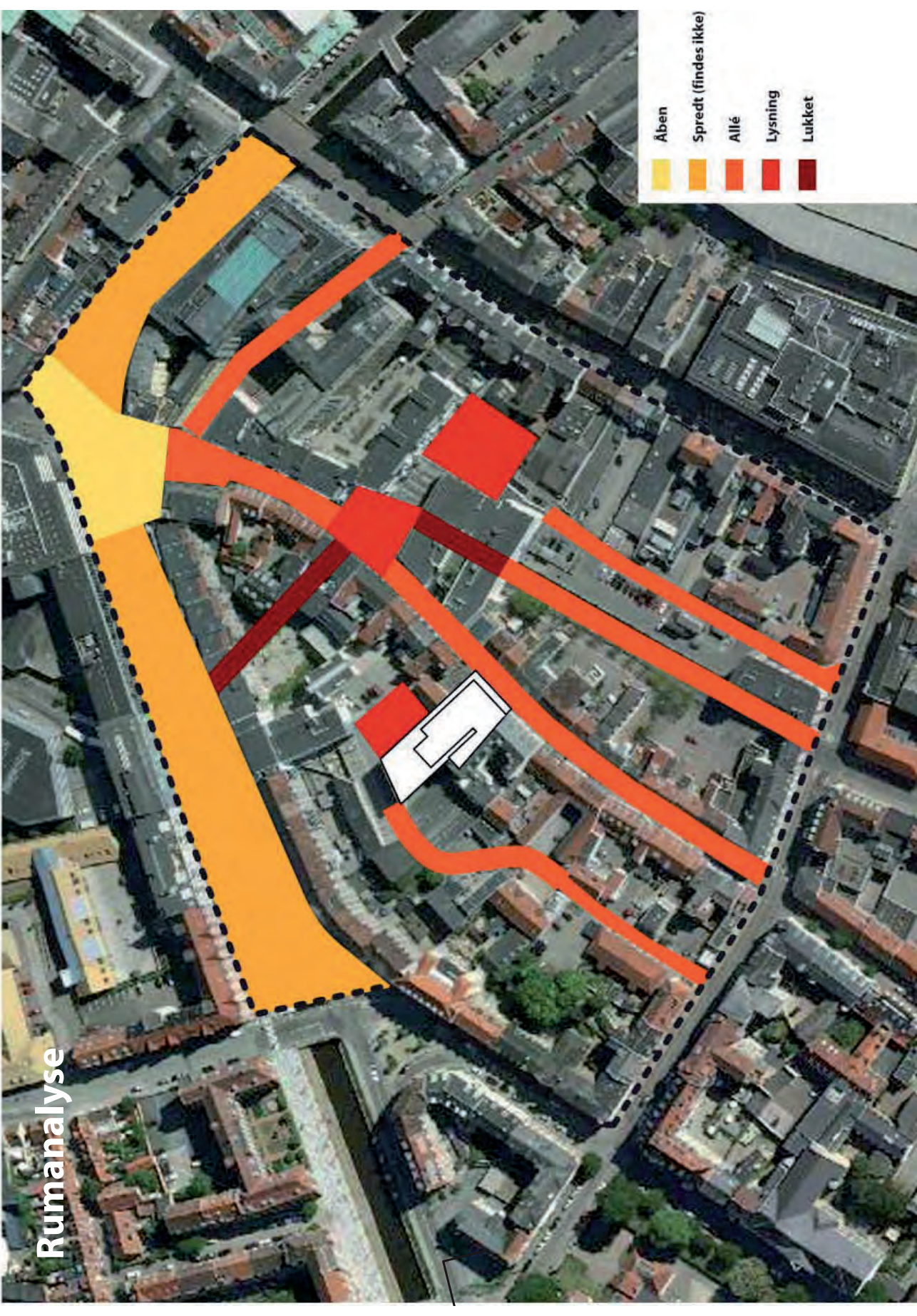


4 kantine



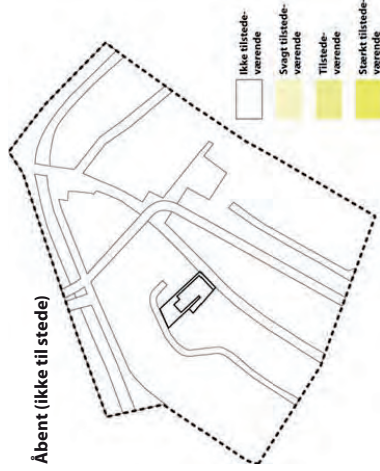
3 Tagterrasse mod sydvest



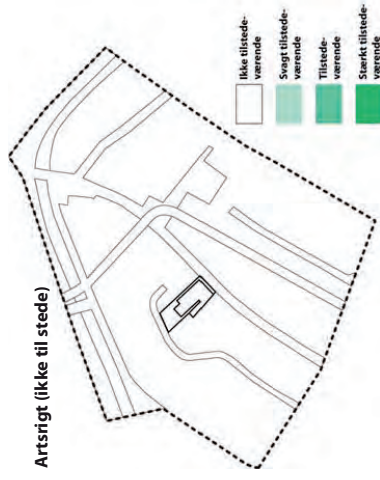


Oplevelsesværdier

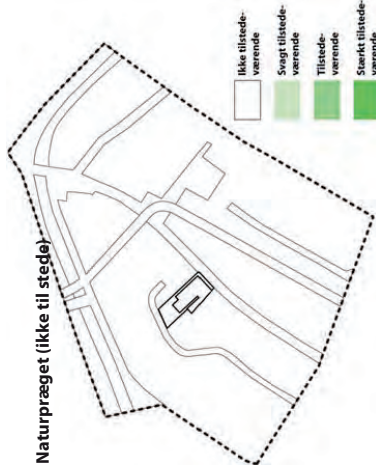
Åbent (ikke til stede)



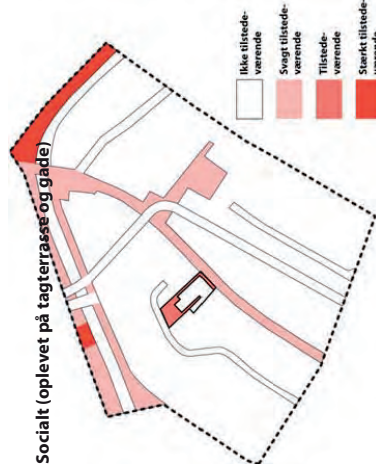
Artsrigt (ikke til stede)



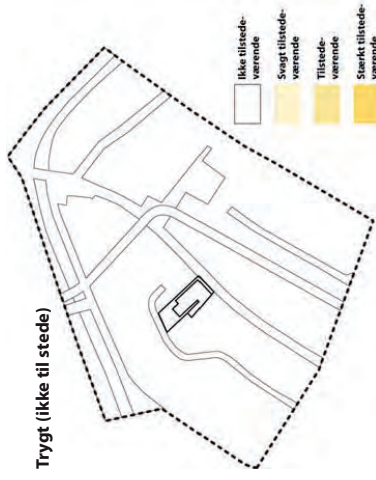
Naturpræget (ikke til stede)



Socialt (oplevet på tagterasse og gade)



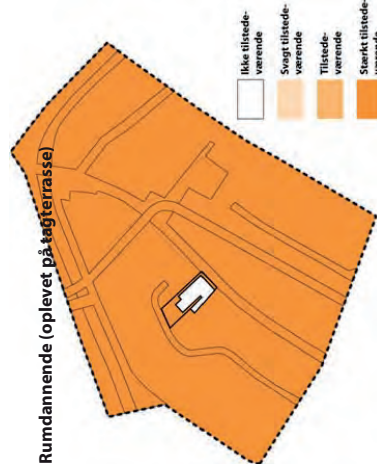
Trygt (ikke til stede)



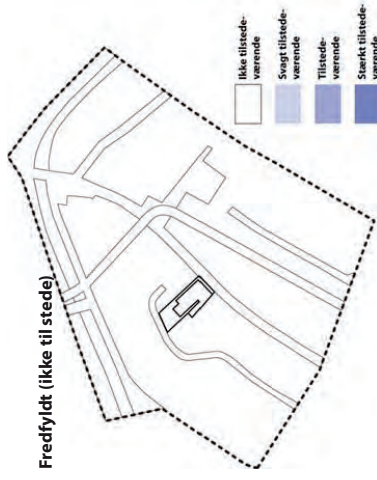
Kulturelt (oplevet på tagterasse og gade)



Runddannende (oplevet på tagterasse)



Fredfyldt (ikke til stede)



Appendix B

Velkommen til undersøgelsen!

Tak, fordi du tager dig tid til at deltage!

Undersøgelsen er en del af et forskningsprojekt om sammenhængen mellem stress, trivsel og det fysiske arbejdsmiljø. Den handler om dine forhold og din mening. Der er ingen rigtige eller forkerte svar, og du er fuldstændig anonym i undersøgelsen.

Spørgeskemaet er delt op i følgende afsnit:

1. Baggrundsoplysninger
2. Helbred
3. Arbejdsliv
4. Fysisk arbejdsmiljø
5. Psykisk arbejdsmiljø

Det tager ca. 10 min. at udfylde skemaet.

Hvis du er i tvivl om noget i forbindelse med udfyldelsen eller undersøgelsen i almindelighed, er du meget velkommen til at kontakte mig.

Med venlig hilsen

Lene Lottrup
ErhvervsPhD-studerende
llo@arkitema.dk

28 30 25 56

Sociale forhold, baggrund og levevaner

Først vil vi bede om nogle generelle baggrundsoplysninger.

1. Er du:

☐ Kvinde

☐ Mand

2. I hvilket år er du født?

3. Hvilket land er du født i?

☐ Danmark

☐ Andet land, skriv hvilket: _____

4. Hvor mange år har du boet i Danmark?

5. Hvilken uddannelse har du?

- Markér kun et svar.

☐ Ingen uddannelse

☐ Mindre end tre års uddannelse

☐ Faglært (EFG eller mesterlære)

☐ 3-4 års teoretisk/praktisk uddannelse (mellemt tekniker, laborant, sygeplejerske el. lign.)

☐ 3-4 års teoretisk uddannelse (folkeskolelærer el. lign.)

☐ Lang videregående uddannelse (over 4 år), skriv hvilken: _____

☐ Anden uddannelse, skriv hvilken: _____

☐ Under uddannelse, skriv hvilken: _____

6. Har du adgang til udemiljø i forbindelse med din bolig?

- Markér kun et svar.

- ☐ Nej
- ☐ Ja, altan eller terrasse
- ☐ Ja, fælles gårdhave
- ☐ Ja, egen have, mindre end 600 m²
- ☐ Ja, egen have, 600 m² eller større
- ☐ Andet: _____

7. Hvilke elementer indgår i udemiljøet?

- Markér gerne flere svar.

- ☐ Sten, fliser eller anden belægning
- ☐ Græsplæne
- ☐ Beplantning af træer eller buske
- ☐ Blomster
- ☐ Urtehave
- ☐ Andet: _____

8. Hvad er det dominerende element / de dominerende elementer i udemiljøet?

- Markér gerne flere svar.

- ☐ Sten, fliser eller anden belægning
- ☐ Græsplæne
- ☐ Beplantning af træer eller buske
- ☐ Blomster
- ☐ Urtehave
- ☐

9. Hvor ofte opholder du dig i udemiljøet (i sommerhalvåret)?

- Markér kun et svar.

- ☐ Dagligt
- ☐ Flere gange ugentligt
- ☐ Ugentligt
- ☐ Månedligt
- ☐ Sjældent / aldrig

10. Hvor ofte besøger du et grønt område eller et naturområde (i sommerhalvåret)?

- Som f.eks. strand, skov, park, eng el. lign.
- Markér kun et svar.

- ☐ Dagligt
- ☐ Flere gange ugentligt
- ☐ Ugentligt
- ☐ Månedligt
- ☐ Sjældent / aldrig

Helbred

De følgende spørgsmål handler om dit helbred. Det er ligegyldigt, om symptomerne skyldes arbejdet eller andre forhold. Spørgsmålene handler om, hvordan du har haft det i de sidste 4 uger.

11. Hvordan synes du, at dit helbred er alt i alt?

- Markér kun et svar.

- ☐ Fremragende
- ☐ Vældig godt
- ☐ Godt
- ☐ Mindre godt
- ☐ Dårligt

12. Hvor tit har du:

	Hele tiden	En stor del af tiden	En del af tiden	Lidt af tiden	På intet tidspunkt
Ikke orket at beskæftige dig med andre mennesker?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Haft spændinger i forskellige muskler?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Følt dig udkørt?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Haft problemer med at sove?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Haft svært ved at huske, koncentrere dig eller tænke klart?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Været irriteret?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Følt dig ænstelig, urolig, nervøs eller angst?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. Hvor tit har du:

	Hele tiden	En stor del af tiden	En del af tiden	Lidt af tiden	På intet tidspunkt
Følt dig fuld af håb for fremtiden?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Følt dig veloplagt og fuld af liv?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Følt dig rolig og afslappet?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kunnet glæde dig over dagligdags aktiviteter?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Føler du at:

	Ja, helt sikkert	Ja, til en vis grad	Ja, men kun lidt	Nej, slet ikke	Ved ikke
Dit arbejde tager så meget af din energi, at det går ud over privatlivet?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dit privatliv tager så meget af din energi, at det går ud over arbejdslivet?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. Hvor mange sygedage har du haft på dit arbejde inden for de sidste 12 måneder?

Antal dage, cirka:

16. Hvad vil du anbefale en god ven, der føler sig stresset og urolig?

Arbejdsliv

17. Hvor længe har du været ansat i virksomheden?

- Angiv antal år

18. Hvad er din stilling?

- Vær gerne specifik

19. Indebærer din stilling at du er leder for andre ansatte på virksomheden?

☐ Ja, jeg er leder. Skriv venligst antal underordnede: _____

☐ Nej, jeg er ikke leder.

20. Hvad er din ugentlige arbejdstid?

- Her tænkes på den aftalte arbejdstid ifølge overenskomst eller anden aftale, f.eks. 37 timer pr. uge.

21. Hvor mange timer arbejder du rent faktisk om ugen?

- Gennemsnit pr. uge de sidste 12 måneder.

22. Hvor mange af dine ugentlige arbejdstimer opholder du dig i virksomheden?

- Her tænkes på om du ofte er ude af huset i forbindelse med møder, rejser eller andet. Gennemsnit pr. uge de sidste 12 måneder.

☐ under 15 timer

☐ 15-24 timer

☐ 25-36 timer

☐ 37 timer eller derover

23. Din nuværende arbejdsevne sammenlignet med da den var bedst?

- Forestil dig at din arbejdsevne er 10 point værd, når den er bedst. Hvor mange point, vil du give din nuværende arbejdsevne?

0 betyder at du ikke kan arbejde for tiden.

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10

Fysisk arbejdsmiljø

24. Hvad er karakteren af dit nære arbejdsmiljø?

- ☐ Kontor til 1-2 personer
- ☐ Kontor til 3-6 personer
- ☐ Kontor til 7 eller flere personer
- ☐ Værksted
- ☐ Andet _____

25. Hvor tilfreds er du med de fysiske rammer for dit nære arbejdsmiljø?

- ☐ Meget tilfreds
- ☐ Tilfreds
- ☐ Hverken eller
- ☐ Utilfreds
- ☐ Meget utilfreds

26. Hvad dominerer udsigten til udemiljøet fra dit arbejdsbord?

- Markér gerne flere svar.

- ☐ Bygninger / skilte
- ☐ Biler / trafik
- ☐ Himmel
- ☐ Træer
- ☐ Græsplæne

- ☐ Blomster
- ☐ Parklignende naturmiljø
- ☐ Vildt selv-groet naturmiljø
- ☐ Andet, skriv: _____
- ☐ Jeg kan ikke se udemiljøet fra mit arbejdsbord

27. Hvor tilfreds er du med udsigten?

- ☐ Meget tilfreds
- ☐ Tilfreds
- ☐ Hverken eller
- ☐ Utilfreds
- ☐ Meget utilfreds

I hvor høj grad er virksomhedens indemiljø domineret af planter?

- ☐ Slet ikke
- ☐ I nogen grad
- ☐ I høj grad
- ☐ I meget høj grad

28. Har du haft mulighed for at gå udendørs i løbet af arbejdsdagen, f.eks. i kaffe- eller frokostpause, i løbet af de sidste 6 måneder?

- ☐ Nej
- ☐ Ja, muligheden eksisterer, men jeg har ikke udnyttet den.
- ☐ Ja, muligheden eksisterer og jeg har udnyttet den mere end 1 gang per måned.
- ☐ Ja, muligheden eksisterer og jeg har udnyttet den mere end 1 gang per uge.
- ☐ Ja, muligheden eksisterer og jeg har udnyttet den dagligt eller flere gange dagligt.

29. Hvad har du lavet udendørs i løbet af de sidste 6 måneder?

Her tænkes på aktiviteter i arbejdstiden.

Markér gerne flere svar.

- ☐ Gået til og fra bus, tog, p-plads el. lign.
- ☐ Spist frokost
- ☐ Drukket kaffe el. lign.
- ☐ Røget
- ☐ Talt med kollegaer
- ☐ Holdt møde
- ☐ Stresset af
- ☐ Motioneret
- ☐ Nydt solen, blomster, fuglesang el. lign.
- ☐ Andet: _____

30. Bliver du opfordret til at bruge virksomhedens udemiljø i arbejdstiden?

- Markér gerne flere svar.

- ☐ Nej
- ☐ Ja, af kollegaer
- ☐ Ja, af ledelsen
- ☐ Ja, af andre: _____

31. Hvad bliver du opfordret til at bruge udemiljøet til?

- Markér gerne flere svar.

- ☐ Spise frokost
- ☐ Drikke kaffe el. lign.
- ☐ Samtale
- ☐ Holde møde
- ☐ Motionere
- ☐ Andet _____

32. Oplever du forhindringer for at bruge virksomhedens udemiljø i arbejdstiden?

- Markér gerne flere svar.

- ☐ Nej
- ☐ Ja, jeg har ikke lyst
- ☐ Ja, der er for langt fra mit arbejdsbord til en dør til udemiljøet
- ☐ Ja, jeg har for travlt
- ☐ Ja, det er ikke velset af mine kollegaer at gå udenfor i arbejdstiden
- ☐ Ja, det er ikke velset af ledelsen at gå udenfor i arbejdstiden
- ☐ Andet _____

33. Hvilke af nedenstående udsagn, mener du, kan karakterisere virksomhedens udemiljø?

- Markér gerne flere svar.

- ☐ Vild, fritvoksende natur.
- ☐ En oplevelse af kultur / en svunden tid.
- ☐ Et stort, åbent rum med lange kig.
- ☐ Organiseret til forlystelse, udeservering el. lign.
- ☐ En oplevelse af at træde ind i en anden verden, hvor alle elementer opleves som en helhed.
- ☐ Udsigt over et stort område, f.eks. havet, en sø eller byens tage.
- ☐ Stor variation af plante- og dyreliv.
- ☐ En oplevelse af at være tryk og skærmet i et afgrænset rum.
- ☐ Et stille og fredfyldt rum, hvor man kan trække sig tilbage og være uforstyrret.
- ☐ Ingen af udsagnene karakteriserer udemiljøet

34. Hvad er den mest dominerende karakter / de mest dominerende karakterer i udemiljøet?

- Markér gerne flere svar.

- ☐ Vild, fritvoksende natur
- ☐ En oplevelse af kultur / en svunden tid.
- ☐ Et stort, åbent rum med lange kig.
- ☐ Organiseret til forlystelse, udeservering el. lign.
- ☐ En oplevelse af at træde ind i en anden verden, hvor alle elementer opleves som en helhed.
- ☐ Udsigt over et stort område, f.eks. havet, en sø eller byens tage.
- ☐ Stor variation af plante- og dyreliv.
- ☐ En oplevelse af at være tryk og skærmet i et afgrænset rum.
- ☐ Et stille og fredfyldt rum, hvor man kan trække sig tilbage og være uforstyrret.

35. Hvordan oplever du denne type udemiljø?

	Meget positivt	Positivt	Hverken eller	Negativt	Meget negativt	Ved ikke
Vild, fritvoksende natur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
En oplevelse af kultur / en svunden tid.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Et stort, åbent rum med lange kig.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Organiseret til forlystelse, udeservering el. lign.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
En oplevelse af at træde ind i en anden verden, hvor alle elementer opleves som en helhed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Udsigt over et stort område, f.eks. havet, en sø eller byens tage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stor variation af plante- og dyreliv.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
En oplevelse af at være tryk og skærmet i et afgrænset rum.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Et stille og fredfyldt rum, hvor man kan trække sig tilbage og være uforstyrret.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Psykisk arbejdsmiljø

De følgende spørgsmål handler om psykisk arbejdsmiljø, tilfredshed og trivsel i arbejdet.

36. Sæt et kryds ud for hvert spørgsmål ved det svar, der passer bedst.

	I meget høj grad	I høj grad	Delvist	I ringe grad	I meget ringe grad
Har du indflydelse på mængden af dit arbejde?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Er arbejdstempoet højt gennem hele arbejdsdagen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kommer du bagud med dit arbejde?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Er dine arbejdsopgaver meningsfulde?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kan medarbejderne give udtryk for deres meninger og følelser?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Har du stor indflydelse på beslutninger om dit arbejde?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Føler du dig som en del af et fællesskab på din arbejdsplads?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Får du på din arbejdsplads information om f.eks. vigtige beslutninger, ændringer og fremtidsplaner i god tid?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Føler du, at du yder en vigtig arbejdsindsats?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

37. Sæt et kryds ud for hvert spørgsmål ved det svar, der passer bedst.

	I meget høj grad	I høj grad	Delvist	I ringe grad	I meget ringe grad
Bliver dit arbejde anerkendt og påskønnet af ledelsen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bliver du behandlet retfærdigt på din arbejdsplads?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stoler ledelsen på at medarbejderne gør et godt stykke arbejde?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stoler medarbejderne i almindeligvis på hinanden?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Er der klare mål for dit eget arbejde?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ved du nøjagtigt, hvad der forventes af dig i dit arbejde?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prioriterer den nærmeste ledelse trivslen på arbejdspladsen højt?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Er der et godt samarbejde blandt kollegaerne på arbejdspladsen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bliver du hjulpet og støttet af din nærmeste overordnede?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

38. Angående dit job i almindelighed:

Hvor tilfreds er du med dit job som helhed, alt taget i betragtning?

- ☐ Meget tilfreds
- ☐ Tilfreds
- ☐ Hverken eller
- ☐ Utilfreds
- ☐ Meget utilfreds
- ☐ Ved ikke

Har du flere kommentarer om dit arbejde, helbred, arbejdsmiljø eller til skemaet?
- Skriv venligst her:

1000 tak for din deltagelse i undersøgelsen!

Du er nu færdig med spørgeskemaet, og det er gemt.
Hvis du ønsker det, kan du udskrive din besvarelse ved at trykke på printer-ikonet herunder.

Venlig hilsen Lene Lottrup

Appendix C

Fokusgruppe _spørgeguide
september 2010

Introduktion (Halkier, 2008 p. 52-55)	
<p>Hej, jeg hedder Lene. Jeg kommer fra Skov & Landskab på Københavns Universitet. Jeg er i gang med et forskningsprojekt, der handler om, hvilken betydning arbejdspladsens udemiljø har for virksomheden og medarbejderne.</p> <p>Interviewet i dag varer ca. 1½ time og bliver optaget på diktafon. Hvis jeg gengiver noget I siger, bliver det i fuldstændig anonym form.</p> <p>Interviewet handler om hvilken betydning udemiljøet her omkring jeres arbejdsplads har for jer og hvordan I bruger det. Jeg har nogle meget åbne spørgsmål med og så vil jeg bede jer selv køre diskussionen. Hvis f.eks. diskussionen går i stå eller ikke alle bliver hørt, skal jeg nok komme på banen. Jeg er først og fremmest interesseret i jeres erfaringer og oplevelser, og alle oplevelser er lige vigtige. Der findes ikke forkerte svar i den her sammenhæng.</p> <p>Navnerunde</p>	
Teoretisk guide: Forskningsspørgsmål	Operationel guide: Interviewspørgsmål
Åbent spørgsmål: Betydning af udemiljø	
<p>Hvilken betydning har udemiljøet for medarbejderne?</p> <p>- mht. til sundhed, trivsel, stress, effektivitet, sociale forhold, videndeling, andet?</p> <p>(Hvilken betydning har udemiljøet for virksomheden?</p> <p>- mht. identitet/branding, medarbejdertilfredshed, fastholdelse/rekruttering, andet?)</p>	<p>Hvilken betydning har udemiljøet her omkring for jer? I skal blive ved med at diskutere til I føler at emnet er udtømt.</p> <p>Kan I give nogle eksempler på situationer i jeres arbejdsdag, hvor udemiljøet har betydning?</p>
Strukturerede spørgsmål: Brug af udemiljø	
<p>Hvordan bruges udemiljøet?</p> <p>Hvordan kan brugen af uderummet optimeres?</p> <ul style="list-style-type: none"> - Ændring af fysiske rammer? - Ændring af mentalitet og vaner? - Ændring af ledelsens holdninger? 	<p>Hvordan bruger i udemiljøet?</p> <p>Kan I forestille jer måder, hvor brugen af udemiljøet forbedres eller værdien på anden måde øges?</p> <p>Hvad skal der til for at få det til at ske?</p>

Afrunding	
Er der usagte pointer?	Nu er det ved at være tid til at afslutte. Vi har været omkring XXXXX og XXXXXX og der har været noget diskussion af XXXXXXXX. Er der nogen af jer, der har noget at tilføje? Nogle kommentarer I sidder og brænder inde med?
Debriefing	
Feedback på interview-processen (Halkier, 2008, p. 62).	Hvordan har det været at være med i denne her fokusgruppe?
Vurdering af validitet: hvor socialt genkendeligt oplevede deltagerne samtalen? (Halkier, 2008, p. 62)	Mindede den her snak vi lige har haft om noget I kunne have snakket om i jeres dagligdag? I løbet af arbejdsdagen eller i fritiden?

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