Hotdesking in academic environment

The flexible office environment of the Faculty of Architecture in Delft

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Abstract

Flexwerken in academische omgeving

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Abstract

This report illuminates the experiences of the employees of the faculty of Architecture concerning the flexible work environment of their new building. It also describes the old situation on the Berlageweg, the preparation process and the concept. A theoretical exploration forgoing these issues clarifies all principles brought up during the research. Conclusions and recommendations pertaining to the application of flex-working in the academic environment close the report.

I.   Cause

This research investigation arose from the complexity of the application of a new workplace concept in surroundings which are presently unfamiliar with innovative office concepts. Due to both space limitations and organization policy, the faculty of Architecture adopts a new flex-workplace concept, one that is not yet customary in the academic environment.

Problem definition, principle/sub questions, and objective

This abrupt change in work environment is proceeded by an accelerated preparation process, one in which a team of relocaters make essential decisions concerning the effects of the implementation of changing work surroundings to the activities within the faculty. Such a change places employees in a new and unfamiliar situation. One is left to question at which rate and to what extent these employees will be able to accept this and adapt.

The transformation of the headquarters located on the Julianalaan incorporates having to work around the existing building's appeal but also with certain limitations such as surface, structure and floor capacity. In this building, policy starting-points will have to be united with the wishes and objectives of the occupants.

The investigation of the application of flex-working in an academic environment is done on the basis of the following **problem definition**:

> Due to the May 13th fire of 2008, those at BK City are abruptly introduced to, having gone through an accelerated preliminary process, an entirely new and for many unfamiliar work situation. BK City is an innovative work environment for a creative educational and research building. It is unknown how employees will react to this, and which risks and opportunities will emerge for the organization.

The **principle question** then formulated reads as follows:

> What can we learn from the preparation process, the use and the experience of the flex-work concept at BK City:
> Under which preconditions can one effectively and efficiently execute flex-working in the academic environment at BK City and in an academic environment in general?

The objective of the research is to formulate conclusions and recommendations that can contribute to both an improvement of the work environment at BK City and the implementation of an innovative workplace concept in an academic environment.

II.   Methods

This research can be split into a theoretical investigation and empirical research. Through **theoretical investigation**, theories covering flex-working and workplace concepts are discussed, as well as those concerning the implementation process and the academic workplace in general. By doing so, all principles brought to light during this research are clarified.

The **empirical research** covers a variety of issues. To begin with, conversations were held with employees before they were to operate under the workplace. This was a way to collect expectations that were to lay the foundations for a survey to be brought forth by an external research organization in February of 2009.

The faculty hired this organization three months into the research to measure the satisfaction of the work environment by means of a survey distributed to all employees of the faculty of Architecture. Due to great similarity with this research, I worked together with the investigation organization Risbo from Rotterdam on certain issues.

Supplementary to this survey, several interviews were held with key figures to optimally answer the investigation questions concerning the preliminary process and concept. Also, participating observations were made and there was cooperation with Risbo during the measurement of the degree of occupancy.

Delineation

In the theoretical investigation, emphasis lies on the literature pertaining to workplace innovation (in both office and university surroundings), but behavioral sciences also play an important role. In this investigation, the costs of office innovation have not been considered; primarily the issues of use and experience are dealt with.

In the BK City case, emphasis is placed on the present: the use and the experience associated with the contemporary work environment. However, as fig. x shows, the past (the old situation) is also considered, as it is assumed that this context is also of influence when one evaluates the present surroundings.

The focus lies with the employees; the experiences of students are not considered in this investigation.

III. Theory: office innovation

The first branch of the theoretical investigation focuses on innovation in the office environment.

Housing concept, office concept or workplace concept?

It is of importance to clarify three terms that frequently appear alongside each other in associated literature: (1) A housing concept is a coordinated vision concerning the lay-out of a building, for example, how different sections are separated in accordance with one another and to what extent these are accessible to the public. (2) The office concept can be found one level lower where the use and the spacious division of the workplaces are considered to have primary significance. One-room offices, group offices, office gardens and any combination of the above are examples of this. (3) The workplace concept says more about the manner in which the office place itself is used. Within this concept, three sub-types can be distinguished: a personal workplace, a shared workplace with one or more persons and the non-territorial workplace, also known as the variable workplace, which is not coupled to fixed employees.

Flex-working or Activity related working?

The principle behind flex-working is the ability to be flexible with space and working space. Flex-working is an overlapping of the workplace and office concepts; it defines the manner in which a workplace is used, but also how the building itself is divided. Presently, flex-working and Activity related working (ARW) or non-territorial working (NTW) are seen as one and the same. The most important characteristics of these innovative workplace concepts are:

- no fixed spots;
- all workplaces are coupled to a specific activity;
- necessary rules of conduct.

Employees therefore choose the workplace that 'best suits' the activities that need to be executed at a specific moment. Examples of common workplaces include: the individual workplace, the silent workplace, the two-person workplace, team areas, open workplace meeting areas, but also informal workplaces such as nooks and coffee corners.

By optimizing support provided to employees concerning their tasks and functions, the principle objectives of organizations are to improve labor productivity and increase labor satisfaction. The strive for better 'communication and collaboration' is also of significant importance. The switch towards flex-working generates a culture change and is therefore of great importance. There is a desire to attain a larger user flexibility (and with it lower costs) with such newer, more flexible arrangements.

Lessons learned in practice

An analysis of several existing evaluation investigations from innovative work environments depict some lessons learned in practice:

- Inattentive spatial planning (elevated flex-factor) results in increased available workplaces and thereby hardly stimulating flex-working;
- Privacy is of importance and is correlated to distraction, focus, and noise nuisance;
- Adequate information and training are necessary as persons are not familiar with the new manner of working. (A brochure alone is not sufficient);
- More attention must be paid to the implementation process and any resistance must be accommodated.

Work process

A building is no longer 'a shell'; where housing issues are concerned, increasing attention is being allotted to the facilitation of work processes. There are different types of activities/processes taking place in an office environment. According to the Centre for People and Buildings (2005), what people are doing, and where they are doing it is preeminent:

- What: what is the nature of the type of activity being executed?
- When: how are the activities divided over a period of time?
- Which place: which demands are placed on the surroundings for the completion of the tasks? What is further required to do so?

IV. Theory: type-casting of the workplace

A work environment is the surroundings in which persons do work and is therefore essential in the facilitation of the work process. Using the literature (name 1, name 2, name 3), the work environment can be divided into three sub-divisions: the physical, the social and the psychological work environment.

Physical

The physical work environment covers several different levels (individual, group, organization). Both Visscher and Maslow consider physical comfort a fundamental need, but when compared with other 'basic' elements of the workplace (wind resistance, waterproofness, temperature etc.), it seems that the modern work environment must match the nature of the activities being performed in the manner in which it is arranged, layed-out (exposure, space placement) and dressed (character).

Social

The roots of a second aspect of the work environment, the social work environment, lie in the behavioral sciences. Here, the emphasis lies on the social behavior and actions of persons in society, with the main principles focusing on 'social interaction' and 'teamwork'. In stimulating

interaction, it is of importance that (1) persons and means of communication are in reach, (2) (in)-formal meeting places are available and (3) the building promotes the communication by means of proper lay-out and routing.

Psychological

A third type of work environment is the psychological one, the portion of the work environment where the focus lies on the 'comings and goings' of employees and the relationship between the aspects of the environment that typify the person, and those that are characteristic of the surroundings. Examples of this are: the time it takes a employee to react to a stimulus brought forth by the surroundings, and the need to personify the workplace for the benefit of marking territory or creating some form of recognition.

Personal characteristics

The way in which one experiences the workplace is dependant of one's personality. Aspects such as age, background, character and the ability to seclude oneself influence how persons react to change and the behavior of others which is furthermore of great influence for one's working manner.

In every work environment, there are so-called 'dissatisfiers' or hygienic factors which need to be mentioned. These issues do not necessarily rouse satisfaction, but when lacking, will lead to dissatisfaction. Examples of such include: poor acoustics, poorly functioning ICT and lack of awning. These types of factors have a noteworthy negative effect on the experience of the work environment.

Use and experience of the work environment

To summarize, there are three aspects which influence the use and experience of the flexible work environment: the three types of work environments, the work process and personal aspects characteristic for the employee.

The work environment serves the purpose of facilitating the work process and therefore influences the experience of the execution of activities and the assessment of the general work environment. Personal aspects are not only influential as to how one arranges the work process and how one interacts with others, but also have a direct impact on how the work environment is experienced.

V.   Theory: process of change

Step-by-step plan

Each relocation process of change demands its own preparatory process; one that can be, according to the literature (Ikiz-Koppejan, 2009; Groote, 2006), divided into six phases: (1) initiative: collecting information, (2) definite: determining intentions, (3) design: making conceptual choices, (4) elaboration, (5) execution: building and moving in (6) follow-up: use and management.

'Tuning and testing' is the principle and binding element of the relocation process. Ikiz-Koppejan e.a (2009:p29) talk about collecting information, setting intentions and making conceptual choices. What is known as 'feedback reporting': the recording and communicating of resolutions and what is or is not done with the contributed knowlegde, comments and/or ideas of employees also play an important role here.

Implementation

An implementation process embodies the period between initiative and management. Here, the collection of information about the organization and its activities, the conversion thereof to a design, the communication with those concerned and the accompaniment with the moving in are all aspects of the implementation process.

Traps in solution directions

Resistance towards new developments is common in many processes of change and is often the snag which necessitates the most attention. Support and acceptance counter attitudes of resistance. The figure below depicts three traps and their solution directions through which resistance can be prevented, and support can be generated. Acceptance of change or resistance towards it influences the perception of the use and the experience of the new work environment.

Moeskops (2004) describes change as a journey towards the unknown; goals, clear vision and distinct leadership provide structure. Transparence, in combination with communication and information prevent rumors. Substantial resistance is related to exclusion during the process of change: employees feel they are not taken seriously because they are not listened to or able to give input, according to Moeskops (2004). Scheijndel and Horsten (2009) believe the importance of such user participation lies in the feedback towards the user.

Lessons learned in practice

The analysis of the practical investigations concerning innovative office environments highlighted important lessons regarding the implementation process.

- involve employees in opting for flex-working and its realization;
- be informative throughout the entire process;
- an adequate preliminary analysis of the organization and its work processes is essential;
- take resistance seriously;
- accompany employees through workshops and other forms of training;
- an enthusiastic pull from the organization itself has a motivational effect.

Important decisions are made concerning the housing of an organization in the preparation process. This preliminary path is an important tool used both to collect information pertaining to how the new housing concept can best be incorporated into the organization and to create support for the users.

VI.   Theory: education and research environment

Innovation in the academic environment

Education and research environments have always had rather traditional work environments. Change, in any form, to the traditional lay-out of room offices can be deemed innovative. At universities, two forms of innovation are witnessed: firstly, the implementation of the office garden: where personal work spaces are preserved, and secondly, flex-working: the combination of office gardens, exposure and activity related working.

Activities in the academic environment

The following summary, based on several practical investigations, lists the most important activities in an academic environment:

- concentrated reading, writing or working at a computer;
- shorter or longer periods of work at a computer;

- teamwork with one or some employees;
- (in)formal consultations in small groups;
- working in peace and relaxation;
- use of materials and facilities (printer, scanner, stapler, etc.);
- receiving of visitors (students and others?);
- storage of personal belongings and work in progress;
- storage of division archives;
- telephoning from one's position;
- reading books, magazines and databases (Voordt, 2007, p:7).

Support for the work process

It is evident that the work environment plays an important role in facilitating the work process. This environment, and the demands employees make on it, is in turn also partly dependant on the work process. It is furthermore dependant on personal characteristics. The following four points are deemed the most important in support of the work process.

- a place where one work in a concentrated manner (for both academic and non-academic staff);
- a place where one can reflect and analyze in peace;
- a place where one can share knowledge with employees/a place for teamwork;
- a place where one feels at home.

Lessons learned in practice

Several evaluation investigations were analyzed in the areas of innovation in the academic environment. From this analysis the following lessons can be learned:

- There are three aspects of influence regarding concentration in an open environment: noise, interruptions and individual reactions to both aspects (Harrison and Cairns, 2008).
- The promotion of interaction and teamwork was seen by all projects as a key reason to switch to flex-working, thereby improving the functional effectiveness of the division.
- Even though silent spaces often received poor assessment, their absence was reported to result in problems. This type of space is recommended to be situated near the basic workplace.
- The colleges of Avans experienced problems as a result of an ambiguous division between students and teachers, and the lack of small consultation spaces for both.
- When there are sufficient workplaces, flex-working is not stimulated because one has the opportunity to appropriate a specific space, according to studies performed by Avans college (Voordt and Klooster, 2008).

In summary, an academic work environment shows some similarities to a 'normal office environment'. However, something which actually holds true for every office environment: one size does not fit all is perhaps even more applicable to a university work environment. A specific concept that functions well in one sector is not necessarily right for another. Small differences in activity patterns make different demands on the work environment.

VII. Context: the old situation on the Berlageweg

Sentiment need not be an issue in a chapter concerning the old building, however it is an essential part of the context through which the new situation is contrasted and assessed.

Closed structure

The headquarters had a fairly secluded character. Each wing was composed of a row of locked cabinets, a drawing room and a lecture hall. In the cabinets the majority of the employees had a

personal or shared work room, enough space to leave work in progress lying about and the option of placing archives in a closet.

Inefficient use of space

Measurements made in the late nineties revealed that the cabinets of employees had an occupancy of 31% and those of the supporting services one of 65% (Voordt e.a., 2001). Due to the secluded character of the building, this low occupancy was not always obvious. Even though the occupancy was recorded as 31%, employees felt the building was full. It seems therefore that the space was inefficiently used; in comparing supply and demand there is a difference of but 200m2.

Identity and meeting

Research in 2006 revealed that persons were generally satisfied with 'the street' as a lively meeting place and multifunctional block. Each floor has the department secretariats centrally located directly across from the elevators, which allows for spontaneous encounters between students and employees.

Steps towards renewal and openess

With the installation of the new dean in 2006, several adjustments were made to the building; the most important of these was meant to stimulate the communication and social interaction between and within the departments. For that purpose, the public function of 'the street', among other things, was strengthened and on the second floor, a pilot was initiated for newer, more transparent workplaces to allow employees to become accustomed to more commune facilities and fewer personal territories.

Hallway (old and new), 'street' of the former faculty

VIII.   Context: the organization of the faculty Architecture

Organization structure

The faculty Architecture is described by Wyrtze Patijn as a large archipelago, with the internal divisions as different islands. (W. Patijn in interview dd 16-9-2009). The dean is at the head of the organization, supported by a management team comprised of department chairs and the head of education. This management team is responsible for the different departments, Architecture, Urbanism, Building Technology and Real Estate & Housing, which are each in turn supported by an individual department secretariat. Finally, but of no less importance, are the services, which provide support on the levels of staff, marketing, communication, student administration, ICT and faculty management.

Function profiles of scientific staff

Within every organization, function profiles can be constructed, so too is the case for the faculty of Architecture and its departments whose profiles can be represented as follows:

- Professor: devotes time to research (33%), education (33%), and organization (33%)
- University level Head Teacher: devotes time to research (30%), education (30%), and organizing/coordinating activities (40%)

- University level Teacher: devotes time to research (40%), education (40%), and organizing/coordinating activities (20%)
- Researcher: 100% research
- Doctoral student: 90% research towards acquisition of title, 10% organizing/ coordinating activities
- Internal Teacher: in service of TU, 100% educative function
- External Teacher: guest teacher, 100% educative function

Based on the function profiles (research, education, support or management) all functions have differing activity patterns: a researcher shall allot more time to concentrated work at a computer/desk whereas an external teacher may only enter the building to give lectures.

Function families of university services

Next to the academic functions, other support, management and advisory functions can be distinguished: (1) technical staff: support and management in the field of ICT, (2) policy/management: supportive services such as the management team and department chairs, (3) administrative: secretariats, student administration, financial services and (4) advisory: program counselors, personal advisers.

Again, within these services differing activity patterns can be distinguished: persons with a more prominent management function will spend more time in consultation, secretariat employees would sooner be found behind desks and advisers tend to lead more one-on-one conversations.

Flex-factor per function

In 2008, Fokkema Architects, the architectural office that was involved in the rearrangement of the old situation, executed an investigation on the possibility of a flex-concept. Part of the investigation was also the allocation of a flex-factor to each function. A flex-factor represents the number of work places over the number of employees.

The centre column makes a division between the numbers situated between 0-0.5fte and 0.5-1fte. In this way, a researcher with a commission of more than 0.5 fte receives a flex-factor of 100% (personal space) and a researcher with a commission smaller than 0.5 fte receives one of 63%. In short, this amounts to 6.3 available places, for every 10 persons.

Functie	fte	aantal wp
Hoogleraar	1,0	100%
	0,5	90%
Universitair hoofddocent	1,0	100%
	0,5	45%
Universitair docent	1,0	50%
	0,5	45%
Docent	1,0	50%
	0,5	45%
Overig WP	1,0	50%
	0,5	25%
Onderzoeker/ Post Docs	1,0	100%
	0,5	63%
Promovendi	1,0	100%
	0,5	72%
Studentass.	1,0	50%
	0,3	45%
Universiteits Dienst	1,0	100%
	0,5	90%
OBP	1,0	100%
	0,5	90%

Table 1 Flexfactor per function (Fokkema, 2008)

IX. Flex-working at BK City: the concept

The final context related issue to be discussed is the workplace concept at BK City itself. Which objectives have been formulated by the organization and which work spaces can be found in the building?

Objectives

Wytse Patijn wanted to create a 'community building with defined identities' at BK City; a lively and dynamic building for research and education. Through exposure and transparence, more interaction amongst students and employees and amongst employees themselves must develop, generating in turn a platform to optimally facilitate intellectual debate and the exchange of knowledge.

Another important goal is to bring students back to the faculty. The work space allotted to employees was critically examined, and is now to be shared with students and employees alike. It is

important to note that flex-working and the clean-desk policy is applicable to everyone, with the exception of the secretariat staff.

Building structure

The majority of the building is of symmetrical form consisting of a central, winged hall. The east wings house large, high ceilinged rooms; the west wings contain a mix of rooms both large and small. As a result, the west wing is best equipped for employee workplaces with

office related functions (depicted in green) while the east wing primarily houses student studios (depicted in blue).
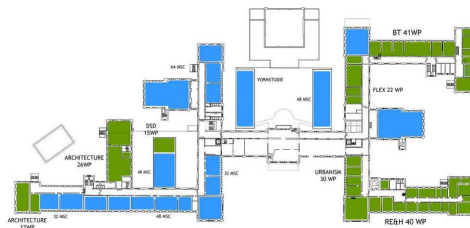
Building structure: workplaces for students and collegues

The arrangement of the building is characterized by horizontal dispersion. It was intentionally arranged in a manner such that employees had areas separate to those frequented by students, which resulted in certain departments being spread over the entire building (with rooms often located on top of one another).

Work space and workplace

There are three types of workplaces offered: a workplace in office-garden surroundings or group offices, a silent working place and a workplace for consultation. These are present in scales varying from work rooms for two, four, and six or more persons and with gradations of exposure and transparence. There are, for example, two-storey workplaces, work rooms that can be entirely isolated from the rest, and spaces in direct contact with one another and the adjacent hall. Closet space is limited to 1.2 meters per person alongside collective storage space at the secretariat or in the common rooms. With the implementation of house rules, an effort is made to assist flex-working along its way.

X.   Preliminary process

For three and half months, while employees and students alike were finding temporary work places spread over the TU campus and in the tents on the lawn adjacent to the previous faculty, the crisis-team did their best to provide a new accommodation for the coming year. While everyone was dealing with the loss of the building on the Berlageweg in their own way, important decisions were made quickly and decisively by the team.

Steps taken

Due to the brevity of the situation, certain steps recommended by the literature (name 1, name 2), were not thoroughly executed.

Initiative—Due to an investigation, executed by Fokkema architects, information pertaining to fte number and work place demand per department was already available.

Definition—The majority of policy was also specified in the old situation: exposure, transparence, liveliness and more interaction between employees. Flex-working would be a means of achieving this.

Design—As a result of limited space and time to insert this differentiation, it was decided that flex-working would be implemented over the entire building.

Elaboration—With the majority of the information available, the concept need only be fitted to the Julianalaan.

Execution—The building took place in phases: the first movings in September of 2008, the second was complete mid-November and the final in May of 2009. The building was therefore partially in use during the renovation of its other parts, which presented some inconveniences.

Follow-up—Use and management took place during the building process at different parts of the building. During this phase, informing users how to handle the new work environment best was an issue of prime importance.

Concerns, frustrations and incomprehension

At the time of the first movings a group of employees sent a letter to the faculty magazine B-Nieuws in which they share their concerns on the combination of flex-working and research activities. They suggest the flex solution is not suited for every employee and that there is no such thing as an 'average academic employee'. Different types of academic work require different spaces, according to the letter writers.

The employees also claim they were not consulted during the period of design and are of the opinion that by incorporating exactly those whose everyday work concerns spatial planning, adequate spatial organization can be achieved. (B-nieuws, October 2008). Wytse Patijn reacted calmly and matter-of-factly with: *'Go and have a look at the Julianalaan! I'll be hearing from you.'*

Expectations

Before the second phase the moving in began, a ten-fold of conversations were held with employees from different departments. Three strengths and three weaknesses were asked of each, with respect to the new building, but more specifically the new manner of working. The employees were moderately enthusiastic and remained especially critical regarding the primary activities that are most relevant to themselves: demand for a 'home-base', telephoning from the work place (without disrupting others), privacy, not being disrupted, concentrated working, consultation with graduates, means of being traced by fellow employees and students and safety and storage capability for personal possessions. Persons were positive about the surfacing of the building and the fact that one was once more able to work in one building.

Traps and success factors

In relation to the installment of a new workplace concept in an academic environment some pitfalls came forth in the preparation process:

- Limited time led to the simultaneous execution of certain tasks. As a result, decisions were made in an accelerated process. Practice will determine if these were just;
- Another consequence of limited time was the use of the building during its construction. The workplaces were situated in a completed section of the building, however not all facilities were up and running and problems related to climate and acoustics had not yet been solved;
- The willingness of the user to 'give the new building a chance' and try the new workplaces out is crucial for the success of a new concept;
- The user experiences an overload of information; one received countless mails and memos with information concerning the building and concept. It was difficult for some to see the point in all post. In spite of all this information, tall-tales sprung forth and one questions just how effective this method of informing was. Specific information, such as the two money streams (research and insurance money) did not reach the user;
- The loss of not only the building on the Berlageweg but also all the possessions once within it resulted in a rather heavy emotional blow. The project organizers dealt with this by providing distractions (a parade, a pub at the temporary tents) and assistance in

the processing of it all (posters, handed out book). Several employees still share the opinion that there was too little tribute paid to lost research and educative material.

XI.   Use and experience

Assistance was provided to the research office that collected the survey by aiding with the measurements of the degrees of occupation and the analysis of the open questions. The survey, which received a response of 100%, was executed three months after the complete introduction took place in February of 2009. The building was not yet complete, and solutions were presently being found for problems of acoustic nature and those concerning two student workplaces. For this reason noise nuisance, temperature, acoustics etc. were at present still problem issues.

Occupation

Front office versus back office
The degree of occupation for those domains with a counter related function (68-86%) and the secretariats (52%) boast the highest occupancy. Interestingly enough, the meeting rooms have the lowest occupancy at 16%, even though the survey suggests a demand for more meeting places. This triggers questioning whether or not the present meeting rooms are functional, or perhaps too far away from the departments.

A quick analysis of the spaces of good occupancy reveals that those spaces are (re)sealable, or that they are spaces which employees have claimed as fixed places differing from their intentional designation.

Variation
The average occupancy at BK City is a low 27%, which means that the employees who make use of the workplaces have ample choice, something which in turn makes choosing a preference and appropriating it quite possible.

The diary research, completed by 85 people over a period of 175 days reveals that the respondents worked in the same work space for 79 days (45%). Variation emerged through meetings, teachings, taking breaks or working from home. According to this investigation, a mere 19 days can be attributed to flex-working, when there was variation in type of work space.

The diversity of the workplaces was assessed as neutral; the analysis also shows that 14% of the respondents find there is enough diversity in the available workplaces at BK City. A third of the respondents consider this diversity of importance.

Functionality

One of the open questions in the survey revealed that 52 out of 152 respondents desired a space in which to telephone. This is something they wish to do at a table where a computer and further documents are at hand, as oppose to at the tables attached to the walls in the hall.

65 of the 152 respondents request a small (re)sealable space for (in)formal consultations. There is also a demand for smaller silent space, even though the occupancy of the present silent rooms is somewhat on the low side, at just 20%.

In the diary research, the home workplace was rated 4.4 (from a scale of 1 to 5). The respondents made known that they work 27% of the time from home, as oppose to 16%, as was the case in the old situation. The flex-workplaces for four persons received the best assessment of 3.5, compared to the 2.4 allotted to the spaces for six persons, and the 2.8 which represented the silent rooms.

General satisfaction

Entire versus independent situation
The survey asked the respondents to assess the housing situation of the faculty, the department and the individual work place. 35% were *satisfied* to *very satisfied* and but 7% were *dissatisfied* to *very dissatisfied*. The independent work place scored lower. The division of this analysis shows that 27% are *dissatisfied* to *very dissatisfied*, as oppose to a percentage of 29 *satisfied* employees.

From the open question which read 'In which aspects is the Julianalaan an improvement from the Berlageweg', 59 of 204 persons dealt the opinion that the 'atmosphere and character of the building' had bettered. The closed question revealed that 46% of the employees were *satisfied* to *very satisfied* with the character, as oppose to the 6% who were *dissatisfied* to *very dissatisfied*.

Flex-concept
The flex-concept was given upon assessment a 3.5 on average. The division of the responses shows that 49% of the respondents are not satisfied with the new concept as oppose to 35% who are *somewhat satisfied* to *very satisfied*.

How does the physical work environment support the architecture employee in activities?

Facilities and internal climate
With regards to physical aspects, acoustics and temperature are the foremost issues receiving negative assessment. This can be accounted for, as the building was still under construction at the time of the survey and was still figuratively 'teething'.

Personal archive space remains a critical factor. Employees are not at all satisfied with the amount of storage space they are allotted, and more than two-thirds of the respondents (64%) disagree with the statement: 'I have enough personal storage space.' Some respondents find the fixed position of the closet impractical and declare they prefer to work beside the closet where their personal possessions are stored.

(Re)sealable spaces
With an average score of 2.3 (on a scale of 1-5) employees disagree with the statement: 'I have a demand for more spaces behind closed doors.' However, the open question concerning desired adjustments sketches the opposite; 43 of the 160 respondents claim there is a need for more doors.

How does the psychological work environment support employees of architecture in activities?

Influence on work environment
Employees would like to have more influence in the arrangement of the work environment and the inside climate. 80% of the respondents *disagree* to *strongly disagree* with the 'influence [they have] towards the arrangement of the work environment'. Strikingly enough, they experience little inconvenience regarding the possessions of others, something which can be justified by the low occupancy (27%) of the building.

Privacy and safety

Privacy, both audio and visual, remains a tricky issue; its assessment received an average of 2.0-2.3 on a scale of 1 to 5. 73% of the respondents claim the audio privacy on the work floor is unacceptable. Another critical point is the safety of possessions. 66% of the respondents declare the work place is not safe enough to leave possessions lying about (on average assessed at 2.2 on a scale of 1 to 5).

How does the social work environment support employees of architecture in activities?

Social interaction

A second highlight that came forth in the survey praised the 'ability to meet others'. 69% of the respondents shared the opinion that the building offers sufficient opportunity to meet others, the origins of which, according to the open questions, lie in the exposure and horizontal arrangement of the building.

Traceability

On average, the statement: 'It is difficult to find those persons I seek at BK City' received a 2.8 in the assessment. The distribution of the answers reveals that 40% of the respondents are in agreement with the statement, while 30% claim they do suffer difficulty in finding certain persons. In the open question concerning 'downfalls in relation to the old situation', poor traceability was mentioned 20 times from a total 207 respondents.

Teamwork

The degree of teamwork support does not yet meet the demands of the respondents; it rates on average 2.9 on a scale from 1 to 5. In the open question: 'Which type of space do you miss' 11 of the 152 respondents appear to have a need for a team space in which a group of persons can leave possessions during, for example, the preparation of a publication.

Management

In closing, management is dealt with. This section reveals how satisfied persons are with regards to information, communication and management style of the flex-team.

Information, communication and management style of the flex-team

Employees generally feel adequately informed; the results affirm a rating of 3.6 on a scale from 1 to 5. However, commentary revealed that there was too much one-way traffic concerning the preliminary process; persons would have appreciated being consulted more.

The focus group reveals that employees did not experience the input opportunities they had desired. They emphasize that they would not mind if the flex-team was a little less 'inflexible' and that they 'should trust the abilities of employees to come up with their own solutions'.

Desired adjustments

In a final open question, the respondents were asked to mention any adjustments they feel would improve the work environment. Acoustics was acknowledged first and foremost, followed by the demand for doors by 51 of 160 respondents. Arguments for the latter ranged from safety of personal possessions, privacy, concentration and the noise nuisance penetrating from neighboring spaces characterized by busy traffic and breaks.

XII.   Reflection

Having treated the BK City case, the time has come to reflect on the results; this reflection takes several forms: the examination of the extent to which expectations made by employees prior to moving in were realized, the discussion concerning the extent to which set objectives were realized and finally a comparison of literature and practice.

Expectations versus results

The following is a list of collected snags expected to arise: consultations with graduates, engagement of telephoning, possible storage of personal belongings, concentrated working/disturbances, lack of a 'home-base'/continual traveling to and fro, privacy, ability to trace students and employees, safety, concern that the clean-desk principle is unsuitable for research work process, hygiene, necessary code of conduct, no fixed computers with specific and heavy software and loss of time due to workplace organization.

Positive aspects predicted were: character and atmosphere, dynamic environment, everyone in one building once more, more social interaction (meeting with others), persons are removed from isolation, more exposure and less paperwork (clean and systematic).

It is striking that all of the above mentioned aspects, both snags and triumphs, do in fact return in the survey, safety and character doing so most prominently (66% consider the work places unsafe and 63% are satisfied with the atmosphere).

Objectives versus results

The building on the Julianalaan can most certainly be considered an education building; a research building on the other hand remains questionable. Researchers claim they can find no peace and quiet in the building and that the facilities (ability to leave things lying about, storage space) needed in conducting research are lacking. In this aspect, the 'facilitation of the sharing of knowledge' with respect to research needs work. It is evident there is no lacking in livelihood, and through exposure, employees have the chance to meet. It must be noted however, that this exposure has an opposite effect on the safety, concentration and privacy of employees.

There is less flexing taking place than intended, however it seems to be working. The question remains whether or not this should be considered a problem. The cubby-hole-like structure of the Berlageweg is breached, there is more communication and persons are able to follow one another's activities better. Every now and again persons relocate, enhancing the importance of the 'home-base'. Not to be forgotten is the fact that students are finally present in and around the faculty once more. It seems though, that a switch has taken place, and employees are now the minority present and working from home as oppose to on location, where they once held the majority.

Literature versus practice

In summary, the most prominent issues brought forth during the investigation at BK City by the survey were either predicated by literature or were common occurrences in other flexible work environments. Positive aspects mentioned in theory were: more communication and more transparence.

The literature claims employees get along just fine in flex-spaces, if there is clear communication explaining the need and if certain preconditions are met. At BK, a step was missed at the communications and participation level and the preconditions were not met. In spite of the distinguished character of the building, and as the theory described, an adequate space in which persons could concentrate and make telephone calls while working was missing, as was enough archive space and the opportunity to hold confidential consultations.

Negative taint

The investigation towards the experience executed by Risbo, and the open questions in particular are fairly negatively tainted. A measurement of satisfaction is made on-the-spot, and in this case, was done at a moment when the building was not entirely finished; the acoustics were, for example, not optimal, and the noise nuisance as a result of building activities was ever present.

What's more, the majority of the users think negatively of the involvement and participation of the user during the preparation process. The views on this 'from the top-down' approach seem to influence the respondents in their answers.

XIII.   Conclusions BK City

> What can we learn from the preparation process of the flex-work concept at BK City?

The 'from the top-down' approach provoked much resistance. Due to minimal user participation, many opportunities with regards to knowledge the faculty already possessed slipped through the fingers of the organization. The BK City case reveals that decisiveness, daring and willingness to be disfavored are of importance when change needs to be implemented on an emotional issue over a short period of time. Wytse Patijn may not have always made the best choices, but one thing is certain, to make such a change a reality, one must show courage.

> What can we learn from the use and experience of the flex-work concept at BK City?

In spite of the negative experiences with archives, safety, confidentiality and concentration, it can be concluded that the most important lesson learned is, that it was right to breach the old pattern.

Would a traditional office environment perhaps have been better? The answer is no; based on the investigation results, it can be concluded that flex-working is most definitely more bountiful for the faculty of Architecture. Nevertheless, as it is now meant to be, is another extreme

It appears that such an exposed and transparent arrangement of the building allows for more communication and coincidental meeting. Because of low occupancy (27%), employees can seat themselves daily at their places of preference. Employees revealed there is little relocation; following a measurement taken from 85 people over a period of 175 days, it appears relocating takes place no more than a maximum of 14 times, and is done due to meetings, teachings, taking breaks or working from home. These are aspects towards which a flexible work environment is not deemed necessary. One could argue that the blame for these increased interactions lies primarily in the physical changes of the work environment, and not per sé in the use of the work places.

Of additional value for the organization Architecture was that the confinement and cubby-hole-like structure of the Berlageweg was breached and that, through exposure in the new building, one claims to meet more persons and that it is easier to approach employees. This exposure brings some disadvantages with it with respect to concentration, privacy, confidentiality and safety.

An innovative concept for universities does not mean that everyone must be flex-working. Gene-rating more sharing of knowledge, transparency and social interaction can be done by other means, such as an open arrangement like the one applied to BK City.

XIV.   Universal conclusions

> Which factors are of importance for the implementation process of a flexible workplace

User participation ensures support and acceptation and generates important input concerning the optimization of the design for the user as well. An analysis of present user profiles helps to

ensure a work environment linked to the work processes in the organization. Alongside the gathering and analysis of information, the preparation process is also a period in which the user is offered the chance to become familiar with the changes. Finally, decisiveness and courage are important traits when implementing an emotional change.

> Which factors are of importance for efficient and effective flex-working in an academic envi-

It can be summarized that when one must 'give up one's personal space', certain aspects of a higher level must be facilitated. Secondly, it is crucial that early in the process, transparency concerning the objectives is present and that employees are timely involved in concept forming. Enough time must be allotted for persons to become familiar with new situations, supported by ample information and eventual training.

There were however, also critical factors found on the basis of literature research, experience investigation and a comparison of the two. These important points of attention concerning flex-working at universities read as follows: balance between communication (exposure) and concentration, productivity loss due to external stimuli (noise nuisance, interruptions by passers-by), lack of privacy and confidentiality, traceability, loss of a 'home-base' and identity and problems with regards to archives.

The additional value of flex-working for universities lies primarily in increased transparency, more space for students, a culture change from a traditional organization of old, optimal support for various tasks (when executed sufficiently), the stimulus towards social interaction and consultation, more efficient use of space and the contribution towards a positive image of the faculty.

XV. Optimization recommendations BK City

> Under which preconditions can one effectively and efficiently execute flex-working in the academic environment of architecture?

Beneficiary to the management of large work spaces, the faculty of Architecture smartly introduced first and foremost several physical readjustments such as the addition of glass doors and the placement of division walls.

Considering the issues of concentration and confidentially, the addition of 'temporary personal work spaces which can be appropriated' should be striven for. In this way, attention is paid to several problems which can arise as a result of flexing, such as: safety, the ability to leave confidential things lying about, confidential consultation and telephoning from behind a desk without disrupting others.

Having completed a thorough user analysis, who is working where, and which function they are entertaining can be specified. Using this as a foundation, it can be recommended, just as was done for the concept development for the Berlageweg, that colleagues with a larger position (>0.5fte) require a fixed position.

Taking each complaint seriously, and more importantly, providing the user with feedback concerning the status and handling of the complaint deserve recommendation.

XVI.   Universal recommendations

Under which preconditions can one effectively and efficiently execute flex-working in the academic environment?

The preconditions can be further divided into process, product and management starting-points.

Process

- Firstly, it is crucial that all those involved are clear on the objectives of the change in the workplace concept. By being honest and transparent, one can generate the most understanding among users;
- It can be recommended to begin with the formulation of a 'stakeholder map'. This determines who is involved in the process and which expectations and preconceptions could emerge;
- By making a stakeholder analysis, the management can prepare itself for all possible preconceptions and can, in this way, devise a plan to 'manage the expectations'.
- Starting with a pilot is recommended to convince users of the plan. Those who took part in the pilot and feel positively about it can convince the perhaps more critical colleagues of the successes through their own positive experiences. A positive approach through personal experience is a strong tool to combat complaints and preconceptions.

Product

For the design of the office and workplace concept with objectives exposure, transparence and sharing of knowledge, three universal options have been made for flex-working in an academic environment. These options were developed around the investigation results and reflections with the handled literature and are listed as follows:

- option 1: entire flex-working
- option 2: partial flex-working
- option 3: no flex-working.

Option 2 is preferred for flex-working at universities, a median which keeps the number of fte. and percentage of desk activities in mind. A percentage to be determined later is offered a fixed workplace. One condition stands, the clean-desk rule applies to everyone; if colleagues with a fixed position are not present, the workplace can be used by others.

Other preconditions stand concerning accessibility, a fitting number of workplaces, unmanageable large spaces, spaces which are temporarily (re)sealable and sufficient storage.

It appears the workplace is more workable when it is furnished with worthy furniture and adequate technological provisions. It is crucial that universities which make the change towards a new concept do not cut budgets here to economize.

Flex-working for whom?

Flex-working is particularly highly recommended for staff with a small or 'zero fte' position. Colleagues with a slightly larger postion can also benefit from the diversity of workplaces brought about by a flexible workplace concept. The arbitration which determines who will be flex-working must be: the users profile in combination with the percentage of time spent in concentrated work.

Management
- Each concept has its own starting-points, but it is the task of the facility management to consult with the user and someone to guard the concept to determine which issues that will result in a better concept need adjustment. Flex-working must be a tool, not an objective;
- It can be recommended to make agreements under the supervisions of the department chair concerning working at home and days on which this is done, handling the clean-desk rule and consultations with students. It is also an option to supervise this per section.

XVII. Recommendations for further research

For continuation of this research, depth can be sought in the BK City Case, in more universal in-depth looks at certain aspects or through the comparison of the case at BK City with other innovate projects in the education and research environment.

- With regards to supplementary research at BK City: It would be interesting to take a second measurement to determine if the overall satisfaction has changed over time, and if certain adjustments had any effect; a supplementary measurement of the degree of occupancy could also be taken.
- Depth with regards to differences and characteristics of universities by means of visits and conversations at other faculties/universities: How are other faculties organized? Which work processes are at large? What kind of organization is it? And also, What are the opinions of other faculties with regards to flex-working?
- Depth with regards to 'preferred environment characteristics' for the colleagues of architechture: ask a group of colleagues, who are representative of the organization (with regards to extent of contract and function and department compilation), to make a list of environment characteristics they consider of most importance in the work environment for the execution of activities.
- Depth can also be sought in deeper research concerning the relationship between space characteristics and a 'pleasant workplace': Why would one rather not sit with one's back to the door? What is so unpleasant about starting at an empty wall? What is the ideal workplace for a scientist? A likewise question could be investigated by, for example, asking respondents (within certain frameworks) to sketch their ideal work environment.