Master thesis by Martin Andersen

EXPERIENCING **SPACE FOR SPORTS**

in theory

MA4-ARK40 . Department of AD:MT . Aalborg University . May . 2012

TITLE PAGE

Title	Experiencing space for sports *in theory - part 1*
Theme	*Architectural quality in space for local assembly and physical activities*
Author	Martin Andersen, 1st half, long Master Thesis 2011/2012, Aalborg University, Department of Architecture, Design & Media Technology, Specialisation in Architectural Design
Project period	01.09.11 - 04.01.12
Supervisors	Anna Marie Fisker, Architect MAA, PhD, Associate Professor, Aalborg University, Department of Civil Engineering Alberto Pugnale, Architect, PhD, Assistant Professor, Aalborg University, Department of Civil Engineering
Cooperative partners	Lyngbjerggårdskolen, Godthåb, Denmark Contact; Erik Steffensen, vice principal Arkitema Architects, Copenhagen, Denmark Contact; Morten Stahlschmidt, Job Manager
Copyrights	Belongs to the author, none of the presented material must be reproduced without permission.
Number of copies	6
Number of pages	103

MASTER THESIS **CONTENTS**

MOTIVATION

Personally, I have experienced space for sports ever since I was a little child.

I did various ball games and loved them all. Several times a week I spend time in the local sports hall of the village I lived in. When selecting teams for sports in school class I was chosen first. Socially, this was my best card at hand. Doing good in math did not pay off socially in the same way, and I did not feel confident with my self. This changed when doing sports.

Like every other child I also used to run around, play and laugh. In the schoolyard we did 'game of tag', 'hide-and-seek', and played soccer using the benches as goals. The physical exertion related to this felt good. Later I was introduced to gymnastics. The physical challenges and team spirit were extraordinary.
Doing regular sports or simply playing around have never mattered to me. The satisfaction was the same. Physical activity was my only, or at least my best, means of social interaction. The social significance of this was priceless to me.

I have experienced space for sports ever since I was a little child. But did not pay any attention to its significance. I simply identified a place to meet other children and to be active.
A conscious appreciation of the significance of quality in space was sparkled through my first year of studying architecture at the university. In particular, I remember a study trip to Italy that year as an essential experience for founding my interest in understanding and designing architectural space. Architectural works as Notre Dame du Haut in Ronchamp, France, by Le Corbusier with its attention to light, volume and space, and the Brion Cemetery near Treviso, Italy, by Carlo Scarpa with its extraordinary attention to material and level of detailing, were both experiences of a particular impact which have been a point of reference in architecture for me ever since.

Three years ago my architectural training was expanded by working first at Dorte Mandrup Architects and followed by Arkitema Architects. The combination of the sensitivity of Mandrup's architecture and the process leading to it, as well as the punctuality and specialized knowledge at Arkitema, have greatly affected my work since this architectural training.

Then, a couple of years ago I was aiming at running a longer race. One day I realized that I was alone on a treadmill in the gym with poor air quality, no view of the surroundings, and spatial qualities being absolutely absent. And I never spoke one single word with others at the gym.

What happened to fun and laughter?
What happened to social interaction?

These aspects that I always loved about physical activity was gone in my life. Now I miss the play-time break in the schoolyard. I miss more creativity and less predetermination when doing sports. I miss the social interaction of doing sports - both planned and impulsive.

Shortly after this realization I came into contact with the management of the primary school Lyngbjerggårdskolen in the village of Godthåb, 10 kilometres South of Aalborg. This proved to be a decisive point.

In Godthåb there is a feeling that the village misses locally based alternatives to the seemingly outdated assembly hall, with a shared place for primarily sporting activities but also local assembly. Both to support and improve the identity of the local community and the well-being, health and happiness of its citizens. To put a name on it; a citizen's house for assembly, physical activity, culture and creativity.

The initiative is already taken, and it is people involved in Lyngbjerggårdskolen together with the local activity association who is behind the initiative. They imagine a project consisting of around 1500 m2 for sports, play, learning and assembly activities build just next to and in direct connection with the local school *Lyngbjerggårdskolen*.

Hence, the challenges present in Godthåb are the thematic starting point for this report that forms first half of the Master thesis 'Experiencing space for sports' concerning the architectural significance of local assembly and body movement around sporting activities. This will contribute to the architectural content of new spaces for sports.

The purpose of present report should therefore be seen as a theoretical and design specific investigation and discussion of how the fields of architecture, local assembly and body movement are related.

It is my aim through this first half of the master thesis to formulate a design strategy for future spaces for sports in a rural context of Denmark.

The second half of the project serves to answer the challenges in Godthåb by developing this design strategy into a specific design proposal for the new facilities at Lyngbjerggårdskolen. Throughout this thesis it has been chosen to use the name; GodtHuset, as a synonym for the specific design proposal developed for Godthåb within the design part of this project. The name GodtHuset represents new satisfying and stimulating facilities gathered under one roof in Godthåb.

The Master thesis is carried out in dialogue with the management of the school, and with the renowned Danish architectural firm Arkitema Architects as cooperative partner with their profound knowledge and experience on facilities for learning as well as landscape and outdoor areas.

With my gained academic skills and personal background I feel ready to design and affect the experince of space for sports in a village context like that of Godthåb.

Let's move. And enjoy.

Martin Andersen

ACKNOWLEDGEMENTS

Throughout this Master thesis concerning the subject of space for sports I have had the pleasure of being enlighted and enriched by various people. To these I owe great appreciation.

Head of Centre at 'Center for Idræt og Arkitektur' Rene Kural and academic assistant Anne Margrethe Wagner agreed on a meeting in March 2012 for discussing the thematic content and initial design ideas of the project. Their expertise and insight on the field was rewarding.

This project has involved regular correspondence and meetings with vice principal Erik Steffensen. He has provided insight in a real life problem within the subject. His dedication to the project for improving Godthåb as a place to live is inspiring.

Throughout the master thesis I have had my daily basis at the Danish architectural firm Arkitema Architects. Arkitema Architects has kindly been sharing of their knowledge and expertise on own and other's projects. More people at Arkitema are somehow involved but a special thanks to Job Manager Morten Stahlschmidt and landscape architect Christian Restorff-Liliegreen.

I give a special appreciation of contributing to my supervisors Alberto Pugnale and Anna Marie Fisker. Both have kindly been sharing of their experience and knowledge - in each their inspiring way. Thanks for being available at any time needed.

I am grateful for the enlightment and enrichment offered to me and the project by these collaborations.

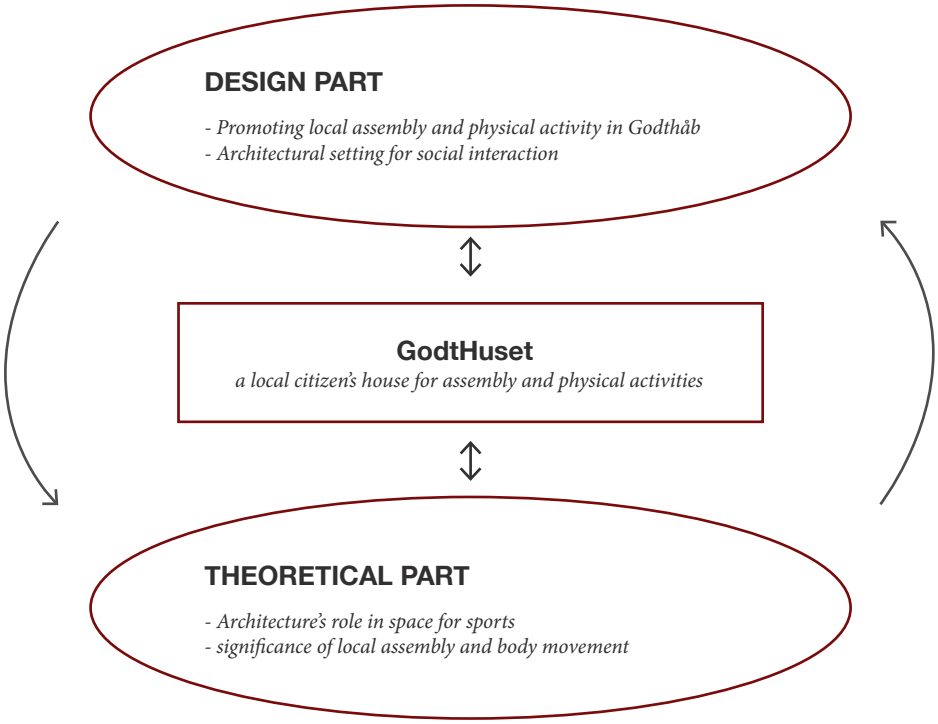
Privately, I owe special gratitude to my girlfriend, Sisse. You have been extremely tolerant with me during the process of this Master Thesis. I look forward to turn my attention to you again.

SYNOPSIS

This report is the result of the 3rd semester Master in Science, forming the first half of the extended master thesis: "Experiencing space for sports". The report constitutes a theoretical study concerning future space for sports.

The objective of this project stresses an investigation of the design of future space for sports in a small scale community in a Danish context. This issue is approached by placing social interaction at the core of the interplay between space for sports, body movement and cultural identity. The decision to let this approach initiate the investigation of quality in future space for sports started out as something intuitive: To look at space for sports from the perspective of a bodily experience implied by body movement.

This project identifies the significance of body movement, social interaction and cultural identity facilitated by space for sports. These identifications forms the basis for articulating a design strategy concerning architectural quality in future space for sports in a small-scale community. The design strategy serves as the foundation for designing future space for sports in the village of Godthåb in Northern region of Denmark, presented in the second half of this extended master thesis.


DESIGN PART
- Promoting local assembly and physical activity in Godthåb
- Architectural setting for social interaction
GodtHuset
a local citizen's house for assembly and physical activities
THEORETICAL PART
- Architecture's role in space for sports
- significance of local assembly and body movement

INTRODUCTION

The significance of sports is no new discovery reaching back to ancient Greece. Today The Council of Europe identifies the significance of sports in its convention on sports as following:
"The Council is aware that sport has a distinctive role to play as a force for social integration, tolerance and understanding. It is open to all, regardless of age, language, religion, culture, or ability. It is the single most popular activity in modern society. Sport provides the opportunity to learn to play by commonly agreed rules, to behave admirably both in victory and in defeat and to develop, not only the physical being, but also social competences and ethical values. Its contribution to education is increasingly acknowledged. Sport has a key contribution to bring to the promotion of the core values of the Council of Europe; democracy, human rights and the rule of law."
[web: Council of Europe, 2011]

A considerable significance of sports in various respects seems evident. But what is the significance of sports in relation to architecture?

Architecture and sports

Since the ancient Greek athletics, architecture has played a significant role in offering space for sports. It remains in this position. A position where the relations between architecture and sports is linked by the experiencing body.

As in experiencing architecture, sports are characterized by engaging one's body.

Through this body victories are claimed, defeats are suffered, times of joy and feeling of joint effort arise. Through this body, space is experienced.
The relationship between human and environment is dynamic. Human experience is affected by the environment, and vice versa [Sharr 2007:9, Roessler 2003:20]. This precondition takes decisive meaning when dealing with space for sports and body movement in the 21st century, since the focus and participation has made some major shifts within these fields in the previous decades. A new architectural challenge has aroused.

(New) content - (new) space

Lately, the conventional sports halls left us rather mono-functional standardized spaces for sports creating isolated environments stemming from a demand on producing measurable and comparable results. The Danish sports hall is present in almost every corner of the country. Today the number is around 1500 halls, primarily build before 1983. In this way Denmark has the most handball courts pr. citizen in the world [Mogensen 2005:97]. This typology has become the icon of sports facilities in the provinces of Denmark, as a result of the successful era of industrialization. How does this fit with movement culture of today?

Alongside a comprehensive professionalization where sports have become a considerable part of the common entertainment industry, an increase in types of sports and also in alternative and self-organized variations of exercise is found in Denmark. Furthermore, women and elderly are increasingly taking part in sports, which primarily used to be a matter for children and youth [Wikke & Melgaard 2007:5].

The most recent numbers on sports participation in Denmark proclaims that weight training, gymnastics/aerobic and swimming are the top three indoor adult sports. Yoga has 50% more participants compared with that of handball (Pilgaard 2008:50). The overall sports participation has increased fourfold from 1964, and self-organized exercise makes up for more than half of the activities [Pilgaard 2008:42,55].

The link between body and mind in sports is reintroduced. The way we move and consider our body has simply changed.

The main purpose of doing sports appears to have made a change from focusing on defeating an opponent to mastering oneself. New content calls for new spaces. Recent architectural trends within the field of sports imply more activities, merging functionality and diversity in use, new architectural understandings and forms of social interaction. Sport and body shares a cultural link. This link is to mirror the societal developments at any given time.

New space for sports in rural Denmark

With around 1500 sports halls in the country many towns and villages has one of the previously mentioned conventional sports halls in its implied outdated form. Moreover, more of these rural towns miss an alternative to the seemingly outdated assembly hall, with a shared place for primarily sporting activities but also local assembly. Both to support and improve the identity of the local community and the well-being, health and happiness of its citizens. The character would be a citizen's house. The content: Assembly, physical activity, culture and creativity.

The village of Godthåb is one of these places. There are no actual spaces for sports, except in the bigger neighbouring town of Svenstrup 10 km South of Aalborg. The traditional assembly hall located in Godthåb is seemingly not offering satisfactory space for assembly and other cultural activities. At the beginning of the 1990's the municipality closed the municipal school in Godthåb, and the town is now merging with Svenstrup. The identity of the town was threatened.

But a strong and inherent united will to defend the existence of Godthåb in its own right seems to exist among the citizens. A group of parents responded by raising money for buying a field for construction and then establishing a new private school, *Lyngbjerggårdskolen*, with help from local workmen. Lyngbjerggårdskolen developed into a success and has expanded several times since then.

Now the importance of facilities and identity has come to relevance again through the lack of sports facilities in the village of Godthåb. Or more correctly, a local citizen's house for assembly and physical activities.

In this way the contact to the management at Lyngbjerggårdskolen has confirmed the initial observations on a need of appropriate facilities for sports. This proved as fertile ground for developing a relevant project around the theme of 'Experiencing space for sports'.

OBJECTIVE AND DELIMITATION

In the introduction I ask what is the significance of sports in relation to architecture. Within the main theme of architectural quality concerning space for local assembly and sporting activities, present Master thesis is to be considered an exercise, motivated by an interest to explore the architectural potential and significance of space for sports; looking at sports in the perspective of bodily experience and social interaction. That is, to test the possibilities of architectural space for sports by focusing on how rethinking programme and space in this context can enhance the experience of space for sports, guided by the following formulation of problem:

It is the aim of this project to investigate if and to which extent space for sports in a small scale community in Denmark appropriately can be developed around the concept of the historical assembly hall as a contemporary citizen's house with its key values being bodily experience, social interaction and cultural significance together supporting a unique identity of place.

The subjects described in my motivation for this project theme initiate this formulation of problem. I feel strongly involved in the challenges at stake, both personally and academically. In this way the objective is both a personal aim of contributing architecturally to a function and context to which I can relate to myself, as well as an academic potential of being concerned with space for social interaction and bodily experience in which I find great interest and inspiration.

As delimitation this report will focus on a small scale community as context, reasoned by the aim of contributing to the village of Godthåb, and thereby this project only superficially treats the trends towards sports becoming an integrated part of urban space and everyday life.

With this particular formulation of problem three main subjects of particular interest for further investigation arise:

- A state of affairs;
including both societal changes in body culture and ways of engaging oneself in body movement as well as recent trends within space for sports.

- Cultural identity;
the potential cultural significance of space for sports is investigated to identify possible parameters for supporting a cultural identity of a small scale community.

- Body and architecture;
the interdependency between body and architecture affects human behaviour and is thus of particular interest in space for body movement.

My goal is to develop a concrete design proposal on assembly and sports facilities for the village of Godthåb in the second half of this Master thesis. To do so the objective of this theoretical, first part of the Master thesis is to develop a design strategy on architectural quality in future space for sports addressing societal changes.

A strategy that will challenge the conventional idea of a sports hall in a small scale community by addressing the potential of promoting social interaction at the interplay between architecture, sports and the culture of local community, creating a character of what may be considered a contemporary citizen's house by combining the functions of the historical assembly hall with that of the conventional sports hall.

Reader's guide

The design challenges offered here includes such aspects as programme, context and space; an architectural answer to these challenges is needed. In order to bring forward an informed answer various field of subjects will be taken into account.
Chapter 1 addresses the evolution of space for sports putting it in a historical perspective. Then in Chapter 2 this understanding will help placing recent trends within space for sports. These two chapters are to identify and exemplify various aspects of space for sports.
Chapter 3, 4 and 5 provides deeper understanding of some main aspects of significance found in the first two chapters. Here Chapter 3 concerns the regained contextual relations of space for sports. Chapter 4 provides insight on the relation of body and architecture in the perspective of an aesthetic experience. Chapter 5 is to be considered a structural elaboration of the aesthetic experience concerning the relations of structural design and character of daylight. These chapters are to analyse, characterize and deduce some main aspects of space for sports.
Finally, Chapter 6 is the concluding chapter evaluating the previous chapters through an original conclusive research contribution providing directions for state-of-the-art concerning architectural space for sports in a small-scale community. The result is a design strategy utilized in the second half of this Master thesis for designing the future GodtHuset.

The figure below illustrates the relations between the subjects of present Master thesis. The project concerns 'architecture' and 'sports', and the 'culture' both subjects are a part of. More specifically, these subjects will be addressed in the project as concerning 'space for sports', 'body movement' and 'cultural identity' - all surrounding the subject of social interaction.

“ATHLETICS MUST BE PRESENT, BUT NOT DOMINANT, IN THE WHOLE MAN.”

[MILLER, 2004:240]

1 **SPORTS AND SPACE** - A HISTORICAL PERSPECTIVE

This chapter is serving as an outline of the history of sports architecture. A Danish context is kept in mind primarily focusing on the last 200 years, but firstly a step back in time to ancient Greece is relevant since later developments can be referred back to this period. This chapter does not claim to be historical scientific since the aim is contemporary, seeking a historical foundation for breaking with conventional space for sport and creating new spaces for bodily expression. The latest trends within the field of space for sport will be put forward at the end of this chapter and placed as well as analyzed in a historical perspective.

THE ORIGIN - **ANCIENT GREEK ATHELETICS**

It is hardly possible to date the origin of sports. But the first known organised events of sport is found in ancient Greek athletics at the first Olympic Games in 776 B.C. [Miller, 2004:20] In principle the ancient Olympia was functioning as one big venue for the most magnificent architecture and art erected for both spiritual as well as physical rituals. [Miller, 2004:89] The fighting athletes were a tribute to both the gods, Zeus in particular, and equality before the law. This being the foundation on which democracy is based. [Miller, 2004:232]

The ancient Games at Olympia, and the other ancient Greek crown Games lasted for more than a millennium, and they are essential to understanding the differences between ancient and modern ideas about athletics. There was no team competitions, no subjective judging, and no prize for second place. Every event pitted man against man, one on one. One man won, and everyone else lost. The winner was chosen by obvious, objective standards: who crossed the finish line first, who hurled his jarvelin the farthest, who threw his wrestling opponent to the ground. [Miller, 2004:19] The foundation of the later modern Olympic notion of 'Citius, Altius, Fortius' i.e. faster, higher, stronger was born.

There was no concern with standardization from place to place, for no time records were kept for comparison. [Miller, 2004:11] Instead each stadium was built upon a synthesis between the character of the specific place, the surrounding city, the architecture and the life in ancient Greece as a whole. The Panathenaic stadium in Athens from about 330 B.C. is one example of this, being tucked into a natural ravine between two hills, and the open end serves as a direct connection between the place of competition, the athletics and the spiritual with a glimpse of Akropolis in the background. [Miller, 2004:137] This stadium was later to be rebuild as an exact copy of the original for the first modern Olympic Games in 1896, but then this model was left behind in favour of the model we know today shielding off the surroundings; *"Objective as the Games were, so should the buildings for them be as well".* [Wimmer, 1976 cited in Kural, 2000:13]

The architectural design of the ancient Greek stadions staged the experience both for athlete and spectator, and produced various bodily impressions for the athletes. Into the stadion at Olympia the athletes pass from the sunlight into the dark tunnel, back into the sunlit track. The alternation of light and dark, heat and cold, will increase their tension, which heightens further as the noise of the crowd hits them. The moment is dramatic - and magical. Athlete and spectator transcend their usual selves. For a few moments everyday life is left behind. [Miller, 2004:126]

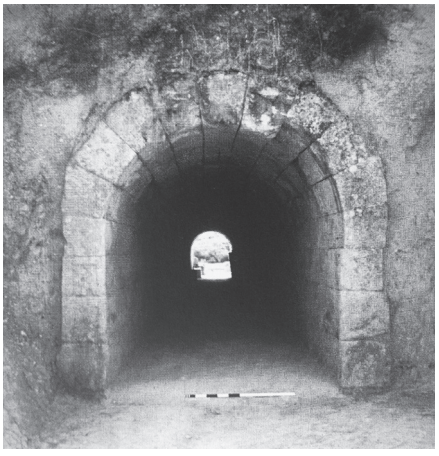


Fig.1. The entrance tunnel at the crown Games of Nimea which is better preserved than the one in Olympia, providing a hint of the overwhelming feeling that were to meet the athlete at the end of the tunnel when facing thousands of spectators

The two buildings that served the purpose of training were the gymnasion and the palaistra. Each had a distinct architectural form, but the two were so interconnected physically and functionally that even in antiquity one word, usually gymnasion, was often used for both buildings. [Miller, 2004:176]
Both typologies are described by ancient writer, architect and engineer Vitruvius who identified three fundamental elements of architecture in 'The Ten Books on Architecture' written more than two millennias ago: Firmitas (stability), Utilitas (utility) and Venustas (attractiveness). These remain as central elements of understanding architecture even today.

Vitruvius describes his ideal palaistra as a large central courtyard, open to the sky and surrounded by roofed colonnades. Single colonnades on three sides, with a double colonnade on the north to protect the room behind from storms and sun. Behind the single colonnade he set exedrai (bays) with seats where classes would be held in philosophy, rhetoric, and other disciplines. One wall of the exedra would be open, and this opening usually would have columns to support a roof. There

are many of these in the palaistra at Olympia, some with benches attached to the three solid walls and some without. These introduce us to the fundamental feature of the palaistra-gymnasion; it is a place where the mind as well as the body is exercised and trained. [Miller, 2004:177]

Vitruvius describes the ideal gymnasion as a building composed of three colonnades surrounding an open space; the fourth side is open. A double colonnade adjoins the back (north) wall of the palaistra, with two single collonades a stadion (about 200 metres) in length perpendicular to the first on the other sides. The single colonnades are called xystoi, and they provide a covered track for running in bad weather. Outside, parallel to each xystos is an open-air track called the paradomis. [Miller, 2004:180]

Plato's Akademy and Aristotle's Lykeion were both such palaistra-gymnasia. But these were not only for young athletes. Rather, these were training grounds for every young man and for every aspect of the man. Succesfull athletes emerged from the playing fields of the Akademy and Lykeion, and succesfull poets, playwrights, politicians, and philosophers emerged as well. We should always remember that both the Akademy and Lykeion were first and last gymnasia and that there is no inherent reason to separate the activities of the mind from those of the body. [Miller, 2004:185] In ancient Greece, both mind, body, and soul must all be engaged, must all be conditioned to lead a life filled with *arete* (excellence or virtue).

The preceding section has provided a glimpse of athletics in ancient Greece. The space for athletics was at the same time venue for exquisite architecture and art serving for both spiritual as well as physical rituals. Athletics were not isolated from society and physical surroundings but stemming from the specific place as well as they were a tribute to democracy and played an important role in educating the whole man in the palaistra-gymnasia through engaging both mind, body and soul. In ancient Greece these were inseparable matters.

Fig.3. The Panathenaic stadion renovated for the first modern Olympic Games in 1896.

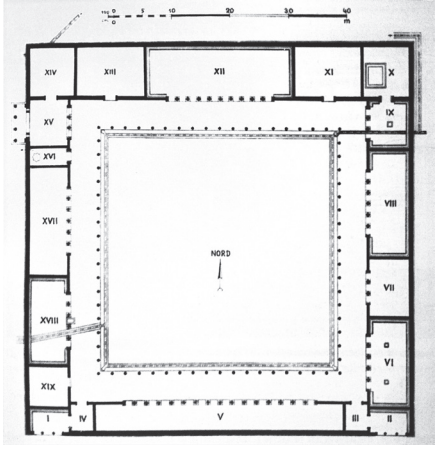
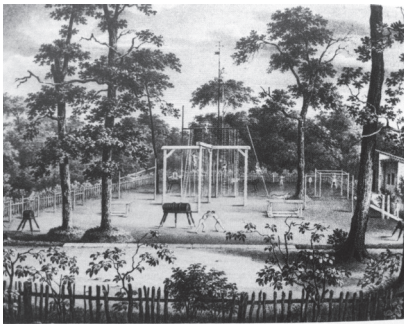
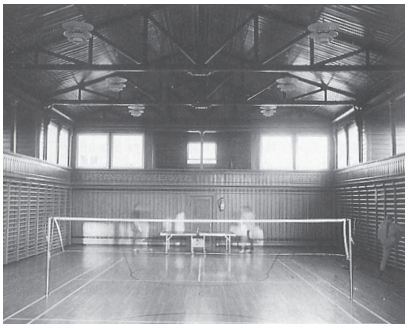


Fig.2. Plan of the palaistra at Olympia, similar to the ideal palaistra described by Vitruvius. p. 177

FROM ‘PRE-SPORT’ TO **MODERN SPORT**

How did the space surrounding sport’s moving bodies constitute itself in modern times, and what does it tell us? With the answer to this question being the objective of this section, the point of departure will be taken in the period of rapid changes at the end of the 18th century where also the first changes of Nordic ‘pre-sport’ is found.
The timeline below is primarily developed on the basis of readings from [Lyngsgård, 1990], [Eichberg, 1998] and [Nielsen, 2005], and provides a total overview of the present section ‘From ‘pre-sport’ to modern sport’. The question mark at the end of the time line will be addressed in Chapter 2.





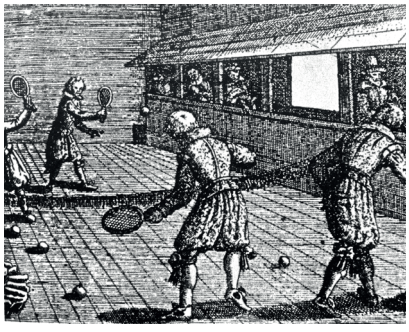
Middle ages — Enclosure — Green revolution — National movement — Local association

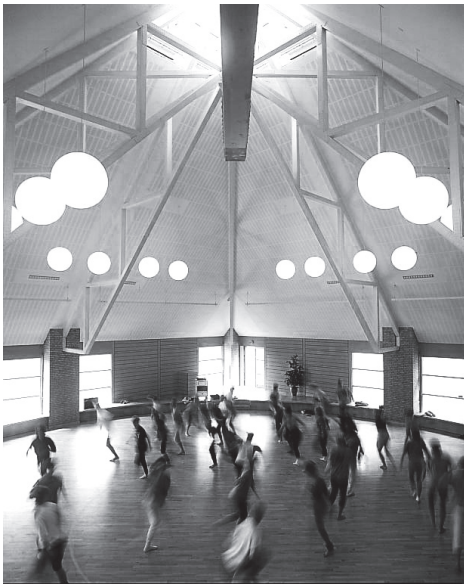
1500 — **1600 - 1800** — **1800** — **1850** — **1880**

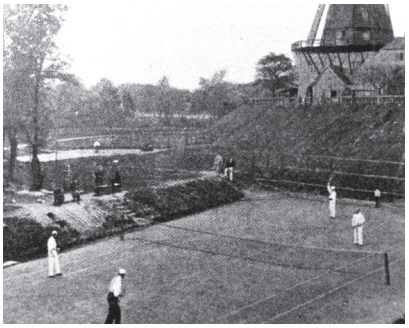
1500	1600 - 1800	1800	1850	1880
Open air Games	The feudal nobility Courtly exercise Exclusion	Philanthropic teachers Open country Open-air gymnasia	Separate indoor gymnasia Formal exercises Equipment / machinery	Village halls in Denmark Grundtvigian movement Ling gymnastics

BAROQUE — NEOCLASSICISM — BIEDERMEIER/HISTORICISM

FEUDAL SOCIETY — ENLIGHTENMENT — INDUSTRIALIZATION







Second green wave

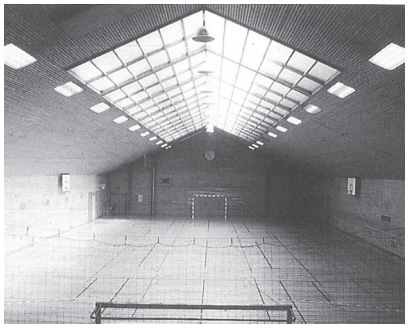
Colonization of space

'Green criticism'

1900	1920 - 1970	1970S	?
Youth movement Back to nature Liberation of the body English 'grass' sport Ball clubs in Denmark	Open sports field into concrete stadiums Indoor gym Sport monocultures Standardization	Social significance (of space for sport) Back into the open e.g. running Spiritual gymnastic (East Asia) Critique of immuring Critique of artificial nature	?

MODERNISM/FUNCTIONALISM

POSTMODERNISM



Outdoor games

The development of physical exercise in the Middle Ages and the early modern period had its origin in games and exercises taking place in the open air at festivities or in everyday life. [Eichberg, 1978 cited in Eichberg, 1998:48] This period of games and play constitutes the longest period of sports history.
Games and play did not have any designated space. They took place where it was easiest; in meadows, hay fields, streets and squares. Nordic 'pre-sport' had to fit in with work and accommodate to the struggle for daily bread that dominated life. [Gaunt, 1983 cited in Nielsen, 2005:138] These games and exercises in open air were continued by the peasantry who gained a variety from daily struggle through playing.

Enclosure and exclusion

On the other hand was found the spatial demarcations that characterised courtly exercise culture in the seventeenth and eighteenth centuries which had their origins in the society of the feudal nobility. [Eichberg, 1998:50] Houses designated for either fencing, riding or a ball game not unlike tennis excluded children and the lower orders. Hence, a connection between three processes of exclusion existed: spatial separation, social division by rank or class, and exclusion of children. [Ariés, 1976 cited Eichberg, 1998:50]

A green revolution

The end of the 18th century brought the first changes to the pattern of 'pre-sport'. Knowledge, enlightenment, and reforms were the ideals of the times. [Nielsen, 2005:20] The revolt against the artificial and stiffened forms of feudalism was led by central terms as nature and rationalism.

The German gymnastics was led by the gymnastics pedagogue J.C.F. Gutsmuths who published his major work in 1793; 'Gymnastik für die Jugend'. His gymnastics was part of the bourgeois struggle for civil rights, and was aiming at educating the human body by taking it back to nature. [Lyngsgård, 1990:17] Not only were gymnastics now carried out in the open air, but also in public. Everyone could come and watch. [Lyngsgård, 1990:19]

In the 1790s the philanthropic idea appears in Denmark led by J.L. Reventlow, emphasizing education of both mind *and* body and taking the pupils out in the open. [Nielsen, 2005] The bodily senses now played an important role in understanding the world. Villaume writes about the basis of the education of the soul that "the soul gets its ideas, the reason to all its operations, only by help from the body: Through the senses". [Villaume, 1802 cited in Nielsen, 2005:30] Reventlow himself made a similar point that "the soul makes greater, more lasting, and more certain progress if the body is also educated and cultivated". [Nielsen, 2005:26]

Both the idea about body culture and architectural space changed in this period of moving back to nature, characterized as the first green revolution of recent history. In architecture the disguised, pictorial and mythical character of baroque was substituted by honesty and strength. Ancient virtues found new substance and Athens' Akropolis was the role model. Architecture now aimed at showing human the greatness of nature. Clear shapes as the sphere, cylinder and cube were interpreted as more natural than ornamented shapes. Neoclassicism was born. [Lyngsgård, 1990:15]

National Romantic movement

A national romantic movement was taking place first half of the 19th century after the first green revolution. The perception of Christianity and education was reformed by Grundtvig who founded the first *'folkehøjskole'* (folk high school) in 1844 in Rødding. A growing national feeling of identity and an urge to defense the country led to the foundation of '*den frivillige skyttebevægelse*" (the voluntary protection movement) in 1861. This movement soon gained strength with primarily the peasantry as members, using the movement for democratic means, fighting for civil rigths. With this strong movement they were soon able to build designated houses, the training house, by their own effort and funds. A number of training houses were initiated around the country in this period. The first one to be finished was the training house in Ryslinge in 1871. The house was used for exercises in German gymnastics and weaponry. [Lyngsgård, 1990:22-23]

Local association

The training houses grew rapidly in number, and was later to be called *'Forssamlingshuse'* (village halls). In the 1870s and 80s more than 500 village halls were built. [Lyngsgård, 1990:23] In a longer period from 1870 to 1905 a total number of around 1000 village halls were built. [Ottesen & Ibsen, 2000:12]
This was a period of local assembly, often with the village hall acting as 'Activist house' on the basis of Grundtvig's ideas with the peasantry fighting against the political power. [Lyngsgård, 1990:24]
Many of the village halls were built in a central spot of the village as a symbolic continuation of community traditions with assembly around the village pond. There was no actual assembly hall architecture. Usually a local master builder carried out the work with local help, local funding and local available materials. The village halls typically had structural and constructural similarities with a barn. [Lyngsgård, 1990:24]

Fig.4. Stenstrup assembly hall (1880), first functioning as training house and then later local assembly hall, is built on a typical barn typology.

Swedish gymnastics
The German gymnastics that occupied the assembly halls were dominated by military discipline with exercises in rank and file by command. With the national movement and the establishment of folk high schools, this was fertile ground for a revolution of movement culture. This came in Denmark by 1884 with the introduction of the swedish gymnastics at Vallekilde High School. The content was health-oriented and had an aesthetic content in favour of the whole man. This fitted very well with the peasant's battle for independence. [Lyngsgård, 1990:35]
With this new revolutionary gymnastic an architecture of similar character was desired. The Swedish gymanstics was introduced at Vallekilde together with a new training house by Andreas Bentsen and Martin Nyrop (Vallekilde new building). [Lyngsgård, 1990:36-40]
Swedish-Danish gymnastics were to develop a solidarity and community feeling, thereby constituting a special pattern of '*folkelig idræt*' (popular sports) based in local associations and village halls. [Eichberg, 1998:112]

The village hall was outdated
With the industrialization the migration from country to town increased. Left was an increasingly social distance between the working class and the farm owners. The peasant community who once fought for an village hall to allow permissive behaviour, now refused the workers to express themselves freely. The idea that the village hall was outdated was expressed by the workers from the 1930s. Instead, the idea about a '*forsamlingsgård*' (communal folk house) occured. This was to accommodate municipal administration, assembly hall with a scene, banqueting rooms, library, workshop and gymnastic hall. In this sense the place should be not unappealing to be used also for lectures, dining, dancing, theater, cinema, exhibitions, meetings and election days.

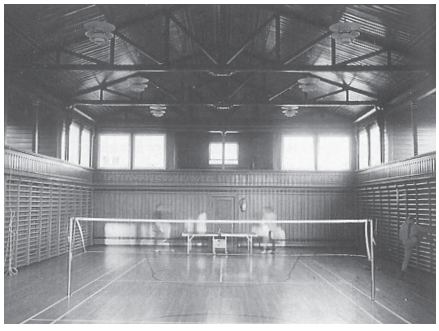


Fig.5. The new training house at Vallekilde High School (1884). The hall was used for both gymnastics, sports, lectures, and assembly. Remarkably, the space houses up to 500 people but does not seem empty in everyday situations with only few occupants.

The communal folk house never really succeeded, though. Soon the central school was to become the cultural centre of the parish. The idea about a communal folk house vanished shortly after World War II. [Lyngsgård, 1990:56]

A second green wave

A new green revolution was taking place around the beginning of the 20th century being between the old century with its worship of authority, "law", and control, and the new century which saw an onrushing and self-assured individualism demanding the right of free expression. [Nielsen, 2005:54] It was a time of worries but there were also signs that a strong, vigorous, and above all young generation was ready to breathe new life in the degeneration. [Nielsen, 2005:50]
Gymnastics faces a decline in favour of the English 'grass' sports taking place in open air. This was when many Danish ball clubs were established. However, the natural longing were mainly a bourgeois phenomenon from the city, and the peasantry maintained gymnastics as an indoor acticity. [Lyngsgård, 1990:50]
The trend to 'open' spaces was linked to the 'liberation' of the body. The erotic dimension in the 1930s is a significant part of the breakthrough of sport between the wars. [Nielsen, 2005:108]
Sport gained in popularity by taking place in open air and by bringing the two genders together in the summer half of the year. This was very different from peeping through a keyhole in the village hall when the girls were doing gymnastics. [Nielsen, 2005:107]
The call was for a new environment, a new body, a new hygiene. [Eichberg, 1998:57]

Colonization of space

Space, time, rules and equipment were all affected by the emerging division between performer and spectator. In the 'pre-modern' sports play and games it was more a question of winning over each other than of relating to an abstract record. Neither time nor space were decisive factors. But, gradually, it became important not only to win against the other competitors but also to win in an excellent time. And the excellence of this time could only be acknowledged in a space used only for sport without disturbance from non-sportsmen, the weather or the physical environment. [Nielsen, 2005]

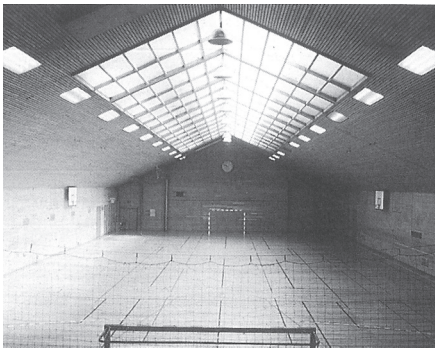


Fig.6. Otto Mønsted Hallen (1940) is one of the first sports halls to be built around the game of handball in a Danish context.

Here, at the beginning of the 20th century, the green wave is on the decline, and the interest for closed spaces are growing within sports. With the desire for comparability in space for sports followed standardization and colonization of space. Performance was the fulcrum of sports at this time, moving sports from open air towards a space excluding the surroundings. The focus on performance led to specialization, both of the athlete and the space, isolating each branch of sports from each other and other cultural events in designated spaces. [Lyngsgård, 1990:68], [Eichberg, 1998]

With this, a standardization of space for sport had become reality. The standardization of the sports hall was not only caused by the aim of providing comparability in results, but also by technology.
The Danish invented game of handball was to be the common denominator for almost every sports hall built after 1940. One of the first sports hall designated to handball was Otto Mønsted-hallen in 1940 measuring 20 x 46 m. In principle this typology has not developed since. [Lyngsgård, 1998:11]

Developments in building technology made it possible to make line production of frames in laminated wood making the product an affordable structure for the large space of the sports hall. Together with increased public funds this led to a remarkable increase in numbers of sports halls

in Denmark from the 1960s. [Lyngsgård, 1998:11] In the period from 1971 to 1983 the number of sports halls in Denmark was tripled from 365 to 1.107. Slowing down after this period, the total number of sports halls were 1.495 in 2005, which means that around 75 % of the Danish sports halls are more than 20 years old. [Mogensen, 2005:7]

The standard sports hall had become a product for contractors to compete on price alone, leaving no attention to the spatial design of the hall. With the available funds being limited many of the sports halls were only possible to construct because of volunteer labor. In the minor local communities the sports hall was considered a place of assembly. [Lyngsgård, 1998:12] With the local anchoring, volunteering and cultural significance the similarities with the cultural significance and feeling of common identity earlier experienced in the village halls are striking.
But the sports hall never really gained the ground as a contemporary village hall. The scale of the space was simply too large to be appropriate for other activities than the intended ball games. Music and theater events usually do not fit appropriately in the field of handball in the minor communities, and economic savings often remove the spaces for assembly from the scheme of the sports hall. [Mogensen, 2005:7]

'Green criticism'

During the 1970s a wave of criticism arose against the immuring of conventional sports architecture. A focus on professional standards was replaced by a philosophy of sports for all giving sports a particular social significance. [Eichberg, 1998:70]
In the field of facilities, green awareness turned critically against the 'container architecture' of sport and favoured new initiatives towards - among others - playgrounds and in towns as 'inner-town green'. The 'nature' of this third green wave was not any longer placed outside the urban world, but was found in the middle of towns. [Eichberg, 2010:88]

Now stress was identified as an issue, and physical activity was considered a possible cure. In popular mass activity something like jogging may signal a fundamental change of movement culture. Here, there is the possibility of running not as a creation of measurable results with the stop-watch on the wrist, but as a technique of de-stressing life. Also spiritual gymnastics from East Asia were introduced in this period supporting a new slowness. [Eichberg, 1998:153]
A new attitude was experienced when playing games; one of togetherness instead of winning, fantasy instead of standardisation. This brought a new time pattern as well; people were playing the game here and now without reference to earlier records. The game became situational in time and space instead of general [Eichberg, 1998:154]

The shift in body culture away from being achievement-oriented and towards being more experience- and perception-oriented called for a new architectural departure providing new spaces for a new content.

The swimming hall is a fine example of a new architectural derparture exemplified by the *Kildeskovhallen* (1972) by Karen & Ebbe Clemmensen in Gentofte. Swimming halls strictly following the international standards were built in large quantities until the 1970s. Though more than 90 per cent of the users did not need facilities of international sport standards for swimming. [Eichberg, 1998:81]
With the Kildeskovhallen nothing about the architecture, even with the competition pools still there, encourages craze for record-breaking. Here you go for a swim as you would at the beach. [Lyngsgård, 1990:126]

The swimming hall is situated in a green area with large old trees. With walls made of glass and a roof consisting of branching out trusses the interior almost becomes a man-made extension of the surrounding park. Inside the visitors are protected against cold and wind and are offered the experience of enjoying the seasonal variations as part of the architecture. [Arkitektur, 1970, 4:169 cited in Lyngsgård, 1990:125]

The remarkable about this project is the holistic approach to swimming hall and park, interfluencing spaces and the organic inspired structures and materials. The organic spirit of the architecture present here is added a certain character of Danish tradition, referencing to both Jørn Utzon and Alvar Aalto. [Lyngsgård, 1990:128]

The recreational ideas present at Kildeskovhallen breaks with the idea of a pure result producing body in space for sport. These ideas are showing the first steps towards new commercial configurations that was to be known as 'leisure pools' and 'bathing landscapes' that combined different recreational functions. [Eichberg, 1998:81]

Another example that was to mark the architectural significance of the changes in body culture was the '*Bevægelseshus*' (Movement House) (1986) by DOMUS arkitekter at Gerlev Sports High School.
The background of this project is on the one hand a change in society and on the other an evolution of activities and movement patterns at Gerlev Sports High School. Through several years the high school had practiced and developed new forms of movement such as theater, drama, entertainment, acrobatics, dancing, rhythmic gymnastics, meditative gymnastics, plays, games and martial dance. These had too little and inappropriate space in the existing gymnastic hall from 1932 and the sports hall from 1962 was too big, cold, rectangular and achievement-oriented. [Lyngsgård, 1990:147]

With this in mind an architectural competition on a new 'Movement House' at the high school was held in 1982. In the competition programme it is described that the future house 'in space, shape and atmosphere shall promote and inspire for new forms of movement'. With this as the starting point all the entries on the competition broke with the conventions dominating the past half century in buildings for sport. [Lyngsgård, 1990:147]

The winning project consists of a circular performance space inscribed in a square shape. The tension between these shapes and by the use of portable screen walls, a range of spatial potentials are provided for the multi-functional use asked for in the competition. A balcony ensures space for spectators without disturbing, and without seeming empty when no spectators are present.
A visible wooden lattice structure and a major natural light incidence at the top of the pyramid shaped roof creates the setting for a rediscovered connection between body and mind in an open space for sports. [Lyngsgård, 1990:151]

With this part 'From pre-sport to modern sport' an outline of developments in the space surrounding sport's moving bodies is clarified. The significance of this is in general an awareness of space for sports being dependent on ever changing societal conditions. Space for sports, body culture and society continues to both mirror as well as affect each other. More specifically, the significance of this outline is a more advanced understanding of the historical village hall and the standardized sports hall in a context of development reasoning.

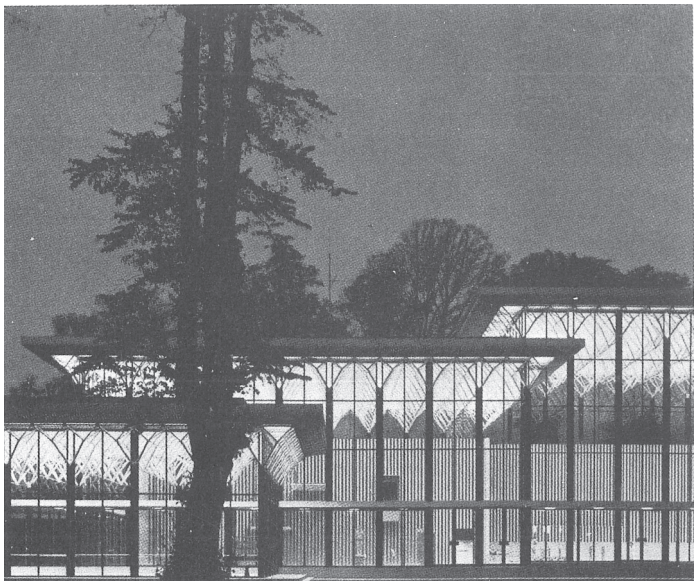


Fig.7. Kildeskovhallen exterior. The columns refer to the surrounding trees, supporting the roof. The structure suggests a floating interior connecting with the surrounding park supporting the recreational qualities of place and function.

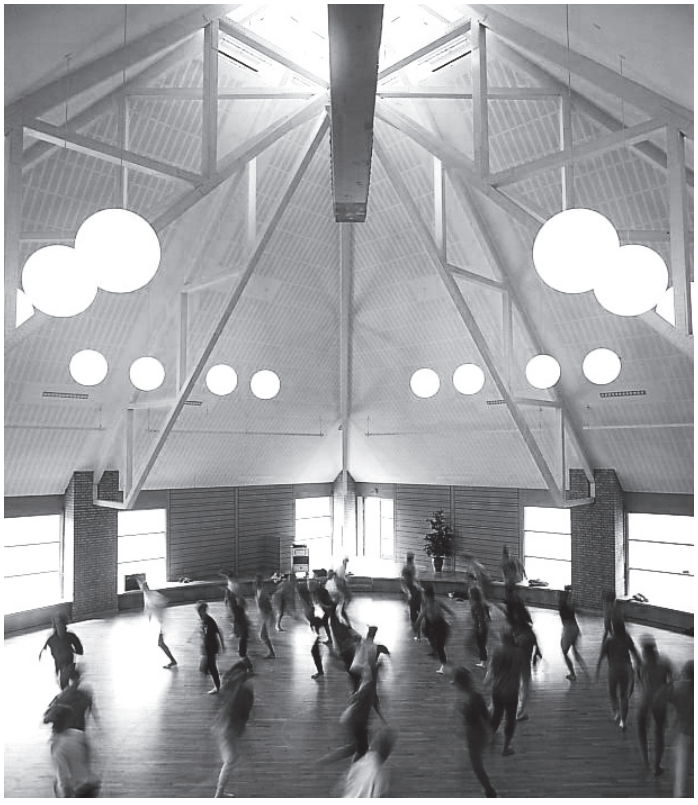


Fig.8. The result of the architectural competition on a new Bevægelseshus emphasizing multi-functionality, openness and a rediscovered connection between body and mind.

“ARCHITECTURE FOR SPORTS, GAMES, BODY AND MOVEMENT IS ABOUT MUCH MORE THAN PUTTING A ROOF OVER SOME COMPETITIVE ACTIVITIES. THE ARCHITECTURE MAY POTENTIALLY INCREASE THE JOY OF MOVEMENT AND INSPIRE BOTH CHILDREN AND ADULTS TO TAKE PART IN SPORTS, PLAY AND SOCIAL INTERACTION ENTIRELY NEW WAYS.”

[DORTE MANDRUP, 2011]

2 **STATE OF AFFAIRS** - ARCHITECTURE AND SPORTS

In the introduction to 'From 'pre-sport' to modern sport' I leave out the question mark at year 2012 in the time line. The characteristics of sports, and the architecture relating to this subject, as experienced nowadays is addressed in this chapter. The objective of this is to suggest possible answers to the question mark at year 2012 informed by an investigation of the state of affairs within architecture and sports.

INTRODUCING A **TERMINOLOGY OF SPORTS**

The importance of sport in welfare society is increasing with sport being both democratizing, healthy, socially and culturally engaging as well as an industry of entertainment. With the importance and popularity of sports in society an ambiguity of the term 'sport' has appeared. With this, a clarification of terminology used in this report is needed.

"Sport has gained increasing importance for welfare society, both for the general understanding of the 'good life' and for specific political measures.
In the process of welfare-building, however, the term 'sport' has become less and less clear. The limits of 'sport' with respect to other forms of movement, fitness activities and physical training have become blurred. Larger parts of what nowadays is called 'sport for all' are non-competitive and are derived from traditions of gymnastics, dance, festivity, outdoor activities, rambling and games, rather than from classical modern sports."
[Eichberg, 2010:2]

The terminology is obtained on the basis of Henning Eichberg's trialectic model, distinguishing types of physical activity from the social logic and emotional atmosphere linked to that activity. In this way the character of the social interaction is the decisive point for the subdivision of sports. This is in contrast to the more classical dialectic approach, distinguishing solely between the elite and the mass; '*The top makes the breadth, and the breadth bears the top*'.

'Sports' (comparable to the Danish *'idræt'*) is here used as a cover all term for the content of the trialectic model constituted by the model of '*competitive sport*', sports for '*health and exercise*', and sports as '*play and culture*'. A concept of '*the other*' is introduced in order to describe and distinguish how the fellow participants are met in different types of sports.

In competitive sport the social logic is one of measurement of results, comparison and competition. The emotional atmosphere is one of winning - or losing. This establishes a dissociation with the other. This model is most obviously experienced in the model of elite sport.

Sports for health and exercise represents another model of treating the other. It stresses discipline and fitness for the purpose of an integrating and normalizing the other.

Based on [Eichberg, 2010:231]

In this case, the emotional atmosphere in terms of the presentation and production of 'we'-feeling is affected by discipline and a collective demonstration of fitness and adherence to the rules. This model is characteristic for the activities held in the 2nd half of the 19th century in the village halls.
The strong collective forms of gymnastics has during recent years become threatened by more individualised forms of fitness exercise in fitness centres. But the configuration of normalization is kept. The young, smart, slim and healthy 'normal' body is produced under the command of the instructor and under the rules of scientific correctness. [Eichberg, 2010:17,230]
The normalising configuration of fitness exercise suppresses the other by not allowing for diversity or for developing deviation and dissent. Both this model of disciplinary fitness and the model of competitive sports have their fascination, and plays an important role in the term used nowadays, 'sport for all'. But when classifying every aspect into 'the correct' and 'the incorrect', whether by means of competition or by the rules of discipline, a production of sameness is inevitable. [Eichberg, 2010:230]

The model of sports as play and culture includes popular sports ('*folkelig idræt*'), games and festivity. This is a model of meeting the other, allowing for diversity and participation for all. Play and games often include competitive elements, but renounce the sportive production of results. In play, it is the process that matters. As we play the game evolves; *"we play the game, but the game plays us, too."* [Eichberg, 2010:140]
In popular festivity, the differences within the group are neither treated by streamlining nor by seeking uniformity, but by displaying or even exaggerating differences.
"The emotional atmosphere and the feeling of 'we' in popular festivity and games are produced by encounters, people meeting as 'brothers and sisters' in a temporary community of participation. In this situation, tradition and surprise are mixed as well as competition and laughter, skill and drunkenness." [Eichberg, 2010:17]

The term 'sport for all' used nowadays includes all three models of sport, but primarily sport for 'health and exercise', and sport as 'play and culture'.

Concepts of physical activity

The participation patterns of this outline on concepts of physical activity can all be categorized as belonging to the terminology 'sport for all' introduced earlier in this chapter, which *"... is often a mixture of popular festivity and gymnastic mass sport. It is therefore a field of diffuse and composed identities."* [Eichberg, 2010:18] This general problem of definition for sports and physical exercise is complicating the results of a survey on sports participation, especially when comparing with earlier surveys. This is due to a changing public definition and understanding of the concepts of sports and physical exercise. [Pilgaard, 2008:12] But whatever the concept is called, the common denominator is physical movement of the body.

Indeed, sport for all is a diffuse and constantly changing concept, continuously affected by new types of activities and movement patterns. An attempt to categorize more types of body movement, than the mere sportive activity performed in an association, was made in 2003 by the publication 'Den tredje bølge' (The third wave) by LOA, referring to three different ways of being physical active, each characterized by its activities, type of organization and participants. [Larsen, 2003] This is to be considered an expansion of the trialectic model of Eichberg put forward earlier in this chapter.

The first concept of physical activity is the one of association sports, deeply rooted in Danish society dating back to the second half of the 19th century in the village halls, originally based on

"WE PLAY THE GAME, BUT THE GAME PLAYS US, TOO."

[EICHBERG, 2010:140]

Fig.9. The local soccer team at the yearly photography session. The people surrounding this team of one of the typical associations sports were all volunteers.

Fig.10. Skaters meeting non-organized and informally in the newly opened concrete skate park in Fælledparken, Copenhagen.

Fig.11. An increase in bikes in Copenhagen is both due to means of effective transportation and an attention towards the potentials of everyday exercise.

disciplinary and educational means as well as voluntary actions of its members. From the 1940s the purpose had changed into one of a socioeducational character, turning the associations into outright children and youth movements. With the concept of sport for all, breaking through in the 1970s, this is about to change. Since then the sports associations have increasingly been joined by all age groups and by both genders. The volunteering aspect of association sports is still highly evident today [Larsen, 2003:16-20] Examples on association sports offered are handball, soccer, badminton, gymnastics and swimming where participation includes joining a team and set weekly trainings. [Pilgaard, 2008:57]

Another concept of physical activity is categorized 'non-associated' sports. Within this it is possible to distinguish between two categories of sports; one that is organized by others than the associations, and one that is self-organized. The first is either organized municipally or commercially. These non-associated sports gained ground from the 1980s especially through commercially driven wellness and fitness centres, dancing schools etc. where aerobics, weight training and modern dance are the main activities. [Larsen, 2003:20-22] Examples of self-organized activities are running, walking, cycling, mountain-biking or soccer in the park.
Yet another aspect of non-associated activities is the movement patterns of street culture integrated in urban space. *"Young people meet in non-organised and informal ways to play and demonstrate their expressivity in mutual communication. There are codes in terms of appearance and movement, and there is often an emphasis on skill and performance, but there are no formal hierarchies or ranking list. Movement patterns and techniques are developed in direct encounters and in a communicative atmosphere of creativity. Though there may develop new internal 'cool' hierarchies, indeed, and competitions of an informal character."* [Eichberg, 2010:18]
This truly implies how broad the concept of sports is. *"Perhaps today's youth movement culture is the true descendent of the earlier popular festivals".* [Rinehart cited in Eichberg, 2010:18]
In all, the concept of non-associated sports is ranging from an instrumentally oriented fitness activity for health and exercise to sports as play and culture in an emotional atmosphere of togetherness and community, e.g. in street culture.

The last defined concept of physical activity is the one taking place as an integrated part of the routines in everyday life, 'everyday exercise'. The World Health Organisation (WHO) has defined the concept of HEPA (Health Enhancing Physical Activity). These could be in the shape of cycling or walking as daily transportation, taking the stairs, walking the dog, gardening, DIY-work on the house or hunting and angling. These activities are not solely a responsibility of the individual, it remains a design and planning issue to provide showering and changing facilities at workplaces, maintaining and expanding bicycle paths as well as making the stairs the obvious choice in favour of the elevator. [Larsen, 2003:23-26]
These activities are not new, but it is rather new that we are consciously considering them as part of our physical exercises with its separate health significance. This newfound consciousness is a main contributor to the complications of comparing the sports participation from different periods. What we consider as exercise is simply subject for constant change.

With the trialectic model by Eichberg a clarification on types of physical activity is suggested. From this model it is established that the character of the social interaction and emotional atmosphere is the decisive point for the subdivision of sports, which is emphasizing the significance of the social aspects of sports. Every typology of sports in the model includes 'body movement', which then is to be considered the key term of all sports.
In this project a special emphasis is directed to the concept of 'sport for all' having the context of Godthåb in mind. This category of physical activity is expanded to concern the concepts of association sports, 'non-associated' sports and the concept of 'everyday exercise'.

CONTRIBUTORS AND ENTRANTS ON FACILITIES

With a vast number of aged sports and gymnastic halls, an ever changing movement culture, and an increasing number of participants over the years, raise the challenge of renewing old facilities and designing new ones appropriately. This part provides a survey of contributors and entrants on the field of facilities in a Danish context.

Besides architects and planners in general, especially three Danish bodies are engaged in the challenge of continuously developing the space for sports responding to modifications in society, movement culture and sports participation.

Realdania is an association founded in 2000. Realdania's investment enterprise is the foundation for its philanthropic enterprise, supporting projects concerning the built environment beneficial for the public interest. With this wide and general objective facilities for sports only constitute a limited share of Realdania's portfolio. But a certain share is indisputable with a focus area named 'Health and social sustainability'. It is the aim to support buildings, cities and city spaces that promote the physical and mental health of all Danes, and thereby improving quality of life for all. Since year 2000 Realdania has contributed with more than 10 billion DKK for projects in the built environment. [web: Realdania, 2012]

The '*Lokale- og Anlægsfonden*' (LOA) (Danish Fundation for Culture and Sports Facilities) is an initiative founded in 1994. Originally LOA was funded by 140 million DKK from different Danish associations and councils within sports. Now LOA receives around 80 million DKK every year from the Danish lottery funds.
In general LOA provides financial support to facilities within sports, culture and leisure activities. LOA is highly development and innovation oriented. This is mainly motivated by the intention to meet the significant changes in the sports patterns of the population that recent decades have led to. Developments are acheived through financial support, counseling and publications.
An emphasis is put on projects with a local engagement in planning, financing and operating the facilities, and that activities are based on volunteering. Equally important is it that different groups of users are involved and they can influence the activities in a democratic way.
The main objective for LOA is to support projects based on architectural quality and that will manifest itself as innovative in function and content. In the field of sports, especially the revitalization of the traditional sports hall constitutes a central figure in the work of LOA. This is specifically evident in the project *'Nyt liv i gamle haller'* (New life in old sports halls) launched in 1998, and the design competition for *'Fremtidens Idræts og Kulturbyggeri'* (Sports and Culture buildings for the Future) launched in 1999 in collaboration with three municipalities. In 2005 the publication *'Idrætshaller for fremtiden'* (Sports halls for the future) was released, with the objective of guiding the design of future sports facilities on the basis of experiences made in the two preceding projects and the realization of those. [web: LOA, 2012]

In 2002 The Royal Danish Academy of Fine Arts founded in collaboration with LOA, the '*Center for Idræt og Arkitektur*' (CIA) (Centre for Sports and Architecture) with René Kural being the centre leader. The ambition of CIA is to strengthen the architectural quality in buildings and environments containing sports, leisure and cultural aspects through research, communication and the sharing of counselling and knowledge. [web: CIA, 2012]
In 2004, with its point of departure in a vast number of municipalities standing in front of a building task, either including renovation, expansion or building new facilities for sports and body cultural activities in general, CIA initiated the preparations of a manual assigning contemporary tools and principles for revitalization of sports facilities. The result is the webpage www.aktivitetsrum.dk, including a guide for the overall planning decisions and for planning the process, as well as a product encyclopedia for inspiration divided into several categories ranging from

technical specifications of materials, daylight, acoustics and indoor climate to interior functionality, activities, atmosphere and expression.
The principles in the manual is supported by experiences from pilot projects. Like more experiences are to be collected from these pilot projects, it is the ambition for CIA to keep www.aktivitetsrum.dk updated, considering it as a continuous work in progress as the subject for research is continuously evolving.
CIA introduced the concept of 'hjemlighed' (homelike) and *'stemningsrum'* (atmosphere) to the framework of standardized sports halls in the exhibition 'Honey, I'm home' at Danish Design Center in 2006. The motivation was a typical absence of these concepts in space for sports.
[web: Aktivitetsrum, 2006]

Together with a long list of architectural competitions within the various typologies of facilities for physical activity, these three bodies imply a strong focus on developing such facilities in a Danish context.

RECENT DEVELOPMENTS WITHIN SPORTS AND ARCHITECTURE

With this part the characteristic tendencies for sports participation, as well as the space and culture surrounding it, are identified. This examination will be supported by a following collection of reference projects. Together, this serves to illustrate recent developments within sports and architecture in a Danish context.

The architectural competition on a the 'Movement House' at Gerlev high school, realized in 1986, was to mark a change in mindset on space for sports. Body and mind were again to be joined as in the time of the ancient Greeks or the philanthropic teachers around year 1800. And the architecture was to set an open framework to promote and inspire for new forms of movement.

The following two decades have offered more spaces for sports expressing a higher degree of complexity, multifunctionality and relation to its local context as the following collection of reference projects will prove. This is partly supported by the specific projects by LOA and CIA. But also the will, courage and curiosity of some architectural offices to challenge and reinterpret the idea of space for sports. Especially Dorte Mandrup Architects[1] and BBP Architects[2] have marked themselves in this category.

The design competition *'Fremtidens Idræts og Kulturbyggeri'* (Sports and Culture buildings for the Future) held by LOA in 1999 gave special attention to the cultural potential of sports in the context of a provincial town or village.
Later in 2005 the denomination '*indre byfælled*' (inner-town green) appeared in the publication *'Idrætshaller for fremtiden'* (Sports halls for the future) by LOA. The concept of the inner-town green is a reinterpretation of the historical town greens providing an open space for city residents to meet around sports, play, festivity and recreation. The open space of the town green was surrounded by niches among trees and bushes implying the idea of a similar indoor space with the same richness of opportunities for both organized as well as informal activities in a mix and variety inspired by the variations in activity spaces [Mogensen, 2005:23] This reinterpretation represent a contemporary answer on the challenge of providing sports facilities in the city.

A more open constellation in space for sports seems natural when considering how we organise space in other contexts, e.g. learning, working and living.

Parallel with these developments within architecture for sports, new pedagogical methods have affected school architecture and the school yards, and new cooperative patterns at work have changed office landscapes. In dwellings we organize the space more open with more functions in same space, in a desire for interaction, openness and flexibility. The kitchen is now considered a meeting place and in open connection with other functions of the dwelling. The common denominator in these typologies is that the strong separation between activities has vanished, suggesting movement across different activities. New spatial qualities can emerge and new patterns of activity can be met. [Mogensen, 2005:19-22]

Sports participation - numbers and figures

Not only are the sports halls built on a 70 year old typology, they are also not following the growing sports participation in numbers. The total number of sports halls and gymnastic halls in 2005 was 4.412. In 2008 this number was increased by 3. [Skousbøll & Wikke, 2010:40]

Looking at the sports participation today it is evident why space for sports is changing. The latest nationwide survey on the Danes' sports participation patterns was carried out in 2007 by '*Idrættens analyseinstitut*'. The general sports participation for adults has increased almost fourfold since 1964 from 15 % to 56 %. Within the last 10 years only the participation of adults older than 40 years has increased. For yonger groups it has decreased. Since 1993 there has been more active women than men, who historically have dominated the picture of sports participation. In average the ones who are active spend shorter time exercising. Only men counts for this negative figure. [Pilgaard, 2008:43]

The seven types of sports with the most participants are trekking, jogging, weight training, gymnastic, aerobic, swimming and cycling. Except from gymnastics these are all primarily participated in by not being a member of any club or association. Gymnastics is the sport with most participants in an association. [Pilgaard, 2008:57] This indicates a tendency towards individuality and flexibility in participation.

Looking at association sports the participation for children and youth the is rather stable around 84 % for the youngest ones. But when looking at the group between 13- and 15-year olds the participation is decreasing to 67 %. [Pilgaard, 2008:34] This figure keeps decreasing until the age of 30 to 39, with a sports participation in associations of 39 %. [Pilgaard, 2008:56]

The share of children and youth who are not active are primarily reasoning this by having other interests and spending time with friends or by simply not having the energy for it. The reason following these arguments for not being active, is the need for one to join the activities with. This is especially the case for the girls. [Pilgaard, 2008:69]
Especially the teenagers between 13 and 19 years old would do more sports if the near environment provided better facilities. [Pilgaard, 2008:78] This is remarkably the age group with the highest decrease in association sports.

The primary reason for adults to be physical inactive is the feeling of a lack of time. In general the women have a tendency to favour their family, and the men are favouring their job. [Pilgaard, 2008:70] Both adults who are satisfied and dissatisfied with existing facilities would to a high degree be more physical active if better facilities were provided in the near environment. It is of high importance to have facilities nearby since 76 % of all adults spend less than 15 minutes for

transportation to sports activities [Pilgaard, 2008:80] Around 20 % of all people above 13 years are inactive because of a feeling of not having the sufficient fitness condition for it. [Pilgaard, 2008:70]

Health

The aspect of improving health is a predominant parameter of doing sports today.
"*The general public's acknowledgement of sports as an efficient means of improving public health belongs to the twentieth century. The emphasis on bodily movement as means of improving health is even stronger today. In a visual Western culture health is idealised not only as a biomedical condition but also as an image and a social symbol of succes.*" [Eichberg, 2010:17] This suggests a reason for many having a feeling of inadequacy when it comes to physical activity and health. [CIFS, 2001; Beck, 2011]
The importance of physical activity, when it comes to the question of health, seems indisputable. In 2009 the Danish Minstry of Culture gathered 30 researchers and experts on physical activity and health in a consensus conference. The conclusions once again confirmed the assumed importance of physical activity when it comes to health. In Denmark around one third are considered inactive, and another third is too little active. Both groups suffer from an increased risk of getting life style related diseases, and having their life time shortened by nine years compared to those with a higher level of physical activity. [Ministry of Culture, 2010:7]
By means of maintaining one's health the recommendations for adults are, in short, two hours a week of being physical active corresponding to the strain of cycling, gardening, etc. Activities can be split into periods as small as five minutes. [Ministry of Culture, 2010:8] Children and youth should be physical active a minimum of one hour every day. Activities should be fun and varied in order to develop a positive relationship towards physical activity, stimulating them to keep being active as adults. [Ministry of Culture, 2010:9] For inactive elderly even a small daily effort can increase their state of health and performance level. [Ministry of Culture, 2010:10]

Social interaction

ON SPORT FOR ALL: "... SUITABLE TO PROMOTE INTEGRATION AND A FEELING OF TOGETHERNESS IN SOCIETY"

[MINISTRY OF CULTURE, 2010]

As scientific research has proven how crucial physical activity is for our health, the aspect of health has become the main argument among active themselves, organizations and politicians for living an or promoting an active life style. But other very good reasons to do sports and being physical active do equally exist.
Historically the value of doing sports in an association was considered to include discipline, fairness and respect for the opponent. Nowadays, sport for all is more likely considered in a perspective of "*... creating patterns for a healthy spirit of community based on mutuality and respect for diversity, and are therefore suitable to promote integration and a feeling of togetherness in society*". [Ministry of Culture, 2010:7] In this perspective the measure of sport for all is both social and cultural.

The call for social interaction between individuals is a concept that covers many different variations, from simple unpretentious contacts to more complex and emotional conversations and contact. [Gehl, 2003]

Compared to the health related aspects of sports, this claim of social and cultural significance is surprisingly poor documented. [Ministry of Culture, 2010:7] Indeed, sports is about more than mere physical health. Doing sports as being a part of a group, e.g. in association sports, carry some of these additional values. Refering to research the press release for the consensus conference stated that "*it is about social health as well - which is increasing the joy of life for many. The primarily individualistic type of training of the modern fitness centres seems to pay off less on this*

account than club life of the sports associations do, where social interaction helps motivating for staying active. For comparison, 80 % of people signing up for a fitness centre is opting out after around six months." [http://kum.dk/kulturpolitik/idraet/kif/pressemeddelelser/]

Another aspect of motivation for being active, and staying active, is closely related to social interaction; joy and laughter. A shift from achievement and obligation to an atmosphere of joy and laughter has the potential of changing the perspective of maintaining one's health and stimulating well-being through bodily engaging activities. Physical activity is healthy, but first and foremost it should be fun! This is one of the key parameters of the future for making people physical active and keeping them active. [CIFS, 2001; Beck, 2011]
Imagining fun being the fulcrum for physical exercise with social interaction through play, joy and laughter is inevitable. In future sports this may very well be the heart of what we seek. Physical activity as a fun and pleasurable event for playfull exertion of oneself. [CIFS, 2001; Beck, 2011]
What here appears as a scenario of the future, is actually very closely related to the model of sports as play and culture defined earlier in this chapter. It refers back to how we traditionally met each other and exerted ourselves through play and games. Usually this happened in the atmosphere of festivity but also spontanuously in everyday life.

A logical behavioral, and thereby appropriate spatial, consequence of acknowledging the importance of social interaction and its pleasurable perspectives is expressed by professor in movement, sports and society at Syddansk Universitet Henning Eichberg; *"In 1947 the Danish sports physician Ove Bøje formulated an imperative for the sportsperson: 'Don't waste your time after training by loafing about on the sports ground: train - and then go home!' This was as trivial as it was characteristic, relating to the one-dimensionality of modern sports as well as to a form of spatial disciplining. The actual tendencies in today's space of sports allow new questions: 'Isn't it just fun - and, by the way, social - to waste time before and after training? Let's loaf about! Shouldn't we even transform the sport space so that this waste could be furthered?' But this scenario would mean that the language was changing as well. 'Sports ground' would no longer be sports ground, 'training' no longer training and 'waste' no longer waste. And the change would be societal.*" [Eichberg, 1998:81]
As will show in the collection of reference projects, these tendencies are still highly relevant in relation to space for sports nowadays.

In recent years the concept of an inner-town green, explained earlier in this chapter, and the much used typology of the multipurpose hall, as will appear from the following collection of reference projects, have in particular a social measure. This is in terms of activating and integrating groups who usually are not physical active, e.g. socially marginalized groups as immigrants and elderly.
The cultural significance of space for sports was especially prominent in the case of the historical assembly hall. Sports activities, meetings and assemblies as well as festivity in the assembly halls, or alternatively the later local sports halls, provided the basis for a cultural understanding of the people in that specific community. [Agergaard, 2004] This cultural significance of space for sports is a potential quality for generating a sense of community and togetherness in deprived city districts and small communities in the countryside.
Indeed, the cultural significance of space for sports in a small community is one of great meanings. The sports clubs and associations gathers the community, and will leave the village later than options for grocery shopping. Enthusiastic volunteers are crucial for success. When succeeding the community inhabiting space for sports can enable a feeling of local pride and identity. [Beck, 2011]
Potentially the means of social and cultural significance of space for sports are overlapping, on the one side confusing the objective but on the other providing an opportunity of merging both these measures.

LET'S LOAF ABOUT! SHOULDN'T WE EVEN TRANSFORM THE SPORT SPACE SO THAT THIS WASTE COULD BE FURTHERED?'

[EICHBERG, 1998:81]

REFERENCE PROJECTS

This part is considered a continuation of the preceding part on 'Recent developments within sports and architecture'. These reference projects represent a study on contemporary evolution in space for sports carried out as a monograph serving as an architectural exemplification of the preceding part on contemporary movement culture in a Danish context. A range of reference projects are identified and constitute the study providing a state of the art. Each of these reference projects are described and classified consistently in order to understand and analyse them both individually and by comparison.

A delimination of reference projects are made to not include projects concerning urban planning and initiatives to promote physical activity in urban space (addressed in publications as; *'Afsæt - idræt og arkitektur i byen'* (Point of departure - sports and architecture in the city), *'Aktiverende arkitektur og byplanlægning'* (Activating architecture and urban planning), *'Idrættens fornemmelse for byrum'* (Sense of urban space in sports), *'Idrætten og byen'* (Sports and the city)) as well as the revitalization of existing sports halls (addressed in publications as; *'Idrætshaller for fremtiden'* (Sports halls for the future), *'Nyt liv i gamle idrætshaller'* (New life into old halls) is not included here either.

The foundation for analysis is ensured by a consistent examination of the projects through repeating the subjects of investigation on each reference project. The examination is directed by headlines instructing firstly for a description of 'project motivation'. This presents the initiative behind the project and what encouraged that initiative.

Next, 'contextual relations' introduces the societal and situational context for which the project is to relate. With the developments put forward in the preceding section, this subject has come into newfound importance within space for sports and body movement.

'Spatial organisation' describes how the project is organised spatially and functionally. This topic is closely related to the following 'performative spaces' and 'transitional spaces'. 'Performative spaces' is used as a denominator for the primary spaces, where the actual programmed physical activities are taking place. 'Transitional spaces' then are the adjoining spaces supporting the performative spaces. As the naming suggests the transitional spaces are in general characterized by a short-termed use on the way to or from the performative spaces. These spaces includes functions

as hallways, locker rooms, showers, sauna, massage as well as space for arrival and social interaction. These spaces in general have a character of transition, since the primary spaces typically are the reason for visiting.

With an increasing attention towards bodily experience in favour of competitive sports, within the field of physical activity, the topic of 'sensory qualities' is both of architectural and evolutionary interest. The sensory qualities are here covering a range of subjects such as materiality, details, atmospheres, etc.

In some projects, financially supported by LOA, a 'user evaluation' report is available. When available this is included in the examination, providing insight in what the users experience as fulfilled favorable visions, and what remains as good intentions.

Each project is concluded in a 'summary'. This summary is to capture the main characteristics of the project found under the preceding headlines in each specific project.

The chosen projects for this study represents a wide range of architectural developments within space for body movement. As implied by the subjects for examination above, the projects vary in contextual setting and relations, programme and architectural typology, and in the elaboration on sensory qualities.
The first group of projects are concerned with space for sports as means of communal gathering in a small scale community.
The next group of projects deal with the challenge of providing space for sport in the city. This, in a social approach, with the traditional inner-town green as point of departure, ending in a future setting placing body movement as part of a broader consumptional approach to culture. Another approach in the city is found in movement patterns of street cultures.
Two projects then introduce an architecture generated by and for children's culture and movement. This is surely a bodily engaging architecture, exaggerating but reflecting body movement as a joyful and playful event rather than governed by obligation, rules and comparison.
Lastly, a range of international distinguished projects are included providing an even wider range of references.

Sløjfen (2001)
Hadsten
Sophus Søbye & Klaus Toustrup

Fig.12. Multipurpose hall with the openable end wall in semi-transparent fibreglass connecting the space with the outdoor when opened for concerts, markets, outdoor cinema, etc.

Project motivation

This scheme is the result of the design competition for a Sports and Culture Centre of the Future held by LOA in 1999. Of the 3 different sites in the competition the choice is to focus on Hadsten, which provides the most similar contextual frame to the one chosen in this project, with its nearly 8.000 inhabitants of Hadsten. The challenge in Hadsten was to design multifunctional and flexible spaces in the context of a sensitive piece of nature. The chosen approach was a claimed reinterpretation of the traditional village hall for local assembly. [Arkitektur DK 4, 2002:233]

Contextual relations

The intended new town and park landscape is connecting the two sides of the adjoining Lilleåen stream with a footbridge landing just outside the entrance to the open cafe area. The library on the upper floor cantilevers nearly five meters towards the stream creating a pleasant experiantial connection to the surroundings. It is possible to arrive the Sports and Culture Centre from both sides of the stream.
The multipurpose hall is possible to open towards the exterior by means of a large overhead door in semi-transparent fibreglass, and thereby creating a venue for summer concerts, markets, outdoor cinema, etc.

Spatial organisation

The scheme constitutes 2.500 m^2 consisting of four main parts with the central one being a stairway formed as a grandstand with integrated ramp. The stairway functions as a link between the remaining three parts; a multipurpose hall, a library, and an activity and service wing.

Performative spaces

The multipurpose hall is intended for both sports, concerts and different types of performances. The space can be separated from the central space with the stairway by closing a large folding door with a traditional, box shaped space as result. When open, the stairway and floor potentially serves as seating area for various performances in the two-storey space.
An architecturally more closed version of a performative space is found in the activity and service wing where both rehearsal room for musics and activity rooms are located.

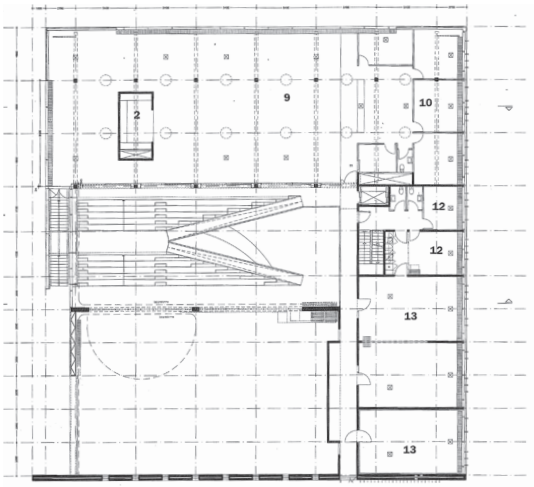
Transitional spaces

The stairway has an appearance as an open foyer for different overlapping functions such as bar, playroom, Internet café, exhibitions, newspaper reading room, etc. Beneath the stairway a play area for children emerges in close contact with the adjoining café.
"This stairway and spectator structure gives the central space a dynamic character, which this type normally does not posses, and functions also as an intermediary in the interplay between the different rooms in the building". [Arkitektur DK 4, 2002:262] The transitional spaces are the very fulcrum of this scheme with the central one being the stairway connecting to both the multipurpose hall, the library, and the activity and service wing.

Sensory qualities

The floor in the multipurpose hall is finished with a sports floor in ash parquet which continues on the stairway and slides into the library on the upper floor. Together with opening the large folding door this provides a clear perceptional coherence between the actual performative space and the adjoining transitional spaces, challenging a clear distinction in this particular case.
The rough exposed concrete walls are complementet by the wooden floor and a warm coloured curtain to be pulled between multipurpose hall and stairway when appropriate.
The natural light incidence in the multipurpose hall is varied and generous, provided by a translucent glazed end wall as well as transparent slim vertical openings on the side wall. Depending on activity there is a minimum risk for glare to ocure. The beam structure providing the span of the Multipurpose hall is exposed informing that the end wall is not load bearing allowing a choice of material like glass or fibreglass as in this case.
The service wing is architecturally separated from the rest by a long skylight ensuring natural daylight incidence in the middle of the building.

Fig.13. Plan view of first floor showing the central stairway, library to the top, multipurpose hall at the bottom, and the serice wing to the right.



User evaluation

The management at what is now called The Sports and Culture Centre 'Sløjfen' in Hadsten express the vision for the project as a *"meeting-place where dialogue is first priority, and the scheme as a whole will function democratizing across generations and interests"*. In general the management consider the vision fulfilled, supported by the multifunctional design and high degree of experienced flexibility where also in- and outdoor activities is found to work well together. Sløjfen is used for both cultural events as well as democratizing and general educative purposes such as concerts, lectures, dancing, theatre, workshops, general assemblies, citizen meetings and trade fairs. Privately the house has been used for weddings and other festivities. [LOA, project evaluation Sløjfen]

On the downside is an experienced disadvantage of the multifunctional scheme; noise pollution. Acoustic improvements by sound absorbing measures has been an ongoing process. Furthermore, the management experiences an almost absence of sporting activities in Sløjfen, in contrast to the apparently busy cultural activities going on. One of possibly more reasons is a practical one; the dilemma between the associations on the one side that wish to use the facilities on a regular weekly basis for sporting activities, and on the other the management that wish to provide space for various activities and users. [LOA, project evaluation]

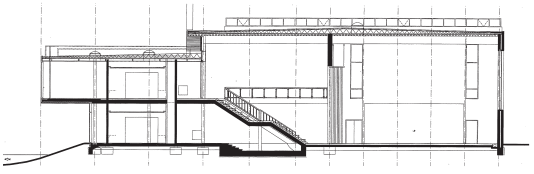


Fig.14. Section showing the multipurpose hall to the right connecting to the upperfloor by the central stairway.

Summary

Sløjfen represents the result of a design competition held by LOA with an innovative aim within the typology of local assembly. Design provides a high degree of experienced multifunctionality and flexibility making Sløjfen an attractive place for various local activities. Sporting activities are almost not existing though, and the open layout of the scheme causes major issues regarding noise pollution.

Multihus Højen (2001)
Ny Højen
Nøhr & Sigsgaard

Project motivation

This scheme unites the functions of a village hall, a sports hall and the school in one cultural centre. Before 'Multihus Højen' there was no sports facilities in the village. The project is included here to study a rural counterpart to the developments in the city. This project is to be considered parallel with the ideas presented in the design competition for the Sports and Culture Centre of the Future held by LOA in 1999 with 'Sløjfen' in Hadsten as one of the winners. But this project is to represent an even smaller community as context.

Contextual relations

The multipurpose hall is located in the middle of the village Ny Højen with its nearly 700 inhabitants just 7 km South of Vejle.
Architecturally the project appears deliberate, subordinating itself to the character of the existing school by its choice of materials, proportioning and disposition of plan solution, where the service area forms a connection point between school and multipurpose hall, making the new construction appear as a separate volume with its own architectural expression.
According to LOA's project description this scheme is a promising proposal for a multipurpose hall to establish the foundation on which the village society is to rise with its unity, wellbeing and sense of community. [web: LOA on multihus Højen, 2012]

Spatial organisation

The functional layout of the scheme is designed to provide connections between simultaneous activities. The large central activity hall is possible to subdivide into an activity/sports/movement hall and a gymnastic hall with foam pit, gymnastic facilities, and is possible to arrange as a stimulating space for children's motor skills. Besides the activity hall the scheme contains cloak room, cafe, meeting and club room, and an internal street for connecting the different activities. In generel, the degree of flexibility is achieved through spaces varying in scale, and by foldable partition walls in the central activity hall.

User evaluation

The initiators of Multihus Højen have later filled in an evaluation on the project. They experience the new facilities completely fullfilling purpose and objectives. With this they have in every aspect been given the facilities capable of bringing together a local community, and providing new opportunities to groups that else would never be physical active. [LOA, project evaluation Multihus Højen]

The users are primarily the school in daytime and the local sports association outside school hours. There is a pronounced interaction between the school and the multipurpose hall since it provides facilities for home economics, sports and music. But also the daycare centre, sports for elderly, a school for mentally disabled, the parish council choir, the whist club, cooking classes, external users and other sports associations are using the facilities. In all, this means many weekly hours of activity and movement together with cultural and meeting activities. [LOA, project evaluation Multihus Højen]

In generel Multihus Højen has succeeded in attracting children and youth. A crucial factor in this succes is that the facilities are a part of the village's near-environment. Going there and being there feels safe. On top of that comes skilled leaders and instructors. [LOA, project evaluation Multihus Højen]

The spatial initiatives have provided the desired flexibility in order to appropriately accommodate activities of varying group sizes. [LOA, project evaluation Multihus Højen] It is important that smaller groups are taken into consideration regarding the scale of space, especially in a small community like this with a natural tendency to a limited number of participants.

Summary

'Multihus Højen' provides an example of how modest architecture in combination with appropriate spaces and functionality is able to generate the desired facilities and capable of bringing together a local community.

Fig.15. (left) Exterior showing the subordination of the Multihus Højen to the existing school by its choice of materials, proportioning and disposition of plan solution.

Fig.16. (right) Interior showing the one opening for natural daylight in the activity hall.

Landsbyhuset (2010)
GYRSTINGE
CEBRA

Project motivation

The small village of Gyrstinge with its 350 inhabitants, is an example of a village where the social activities have moved to larger towns, even though the citizens have stayed. Gyrstinge is situated 9 km from the bigger Ringsted (population: 21.000) and 12 km from Sorø (population: 7800). The vision and hope is that by the new '*Landsbyhuset*' (Village House) a successor to the former village pond, and later the village hall for local assembly, as gathering point is found.

In this way the purpose of the Landsbyhuset is to be an attractor in the small community, a generator for sports and social activity. When being a facility for the whole village accommodating a varied range of functions an opportunities the Landsbyhuset has the potential of becoming a part of a common consciousness for the citizens of Gyrstinge.

Contextual relations

Architecturally the idea is to create a reference to the traditional pitched roof. The original intension was to connect the interior with the outdoor landscape by means of cutouts in the volume. Only the cutout at the entrance survived the process of economic rationalization. The original landscaping in connection with the Landsbyhuset were never established either.

Spatial organisation

The Landsbyhuset consists of a sports hall, a minor hall, cloak rooms, fitness center, meeting room and hostel, which in all constitutes 1.530 m². The sports hall is proportioned around three badminton courts, and is equiped with a mobile stage for performances and concerts. In addition to sports this space can be used for parties, Christmas events and markets. If it is big and open then it is flexible and suitable for all occasions seems to be the approach.

The other functions are organized along the central sports hall, forming a 'bar' on each side. These other spaces are rather monofunctional, except the minor hall which is intended for both dancing, yoga, aerobic, karate, gatherings and parties. All the activities are visually connected through the central sports hall but no internal flow overlaps to merge the function of the sports hall with the other functions.

Sensory qualities

The two end walls with gable are fully covered with frosted glass providing the interior a diffuse natural daylight. Though, with window openings behind the frosted glass only representing a limited share of the end wall surfaces, an inherent logic is absent when mostly covering regular facade beneath. The openings vary in size as well as in vertical and horizontal placement. The remaining exterior surfaces are cladded in black aluminium panels. The overall layout produces many odd angles in the final plan solution.

Summary

The Landsbyhuset in Gyrstinge provides one of the latest examples of a contemporary edition of the historical village hall. But with an architectural main idea relying on a disposed landscape design, the project appears awkwardly amputated, leaving a plain standard sports hall attached with some odd angles, and not much incitement and space to interaction across function except for mere visual interaction.

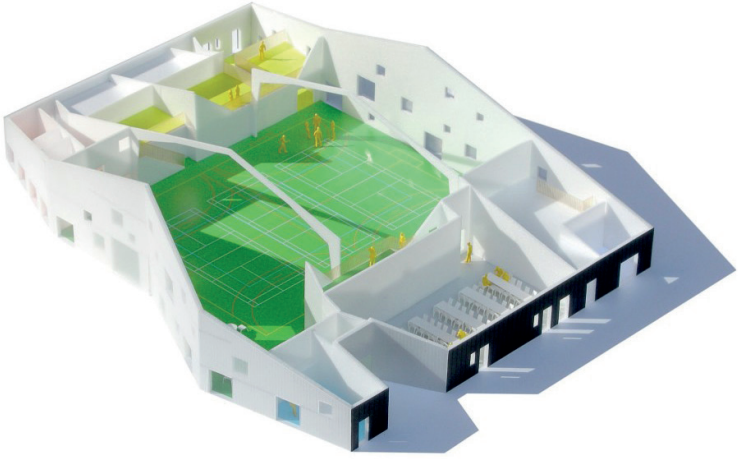


Fig.17. Model of the Landsbyhuset in Gyrstinge with its central sports hall and the wings with fitness and cloak rooms in the one, and the minor hall in the other.

Fig.18. The central sports hall with the transparent end wall covered by regular facade only allowing daylight through minor window openings.

DGI-huset (2003)
Århus
3XN & Schmidt, Hammer og Lassen

Project motivation

This scheme is located at DSB's former train garage area in Århus midtown, and it demonstrates what can be considered a continuation on the ideas outlined in the design competition for a Sports and Culture Center of the Future held by LOA in 1999. Multi-functionality, merging spaces for different activities, and flexibility for the user are all in a key position.
The main idea with this scheme was to provide a contemporary parallel to the inner-town green, where different types of sports, activities and users could meet for mutual inspiration. At the same time the idea was to offer flexible sports participation in these facilities.

Contextual relations

The 4.300 m^2 scheme is housed in three connected halls dated 1910 based on the existing industrial character of the architecture. That is, exposed structures, open spaces, large skylights and light incidence from the facades, and a sturdy materiality.

Spatial organisation

The former garage block contains three open sport halls, a minor hall, a separate room for gymnastics and aerobic, fitnessfacilities, climbing wall and cafe. Together, this offers space for cultural activities as well. A new attached building contains reception, offices and meeting rooms for DGI's administration.
This scheme emphasizes performative space above transitional spaces as the cafe and the locker rooms. Physical activity is predominant and taking place in open connection with each other, on balconies and end walls.

Sensory qualities

New footbridges and balconies in steel and wood, together with the bright wooden floors, forms a warm complement to the ceilings and white walls where technical installations are carried unadorned and exposed. According to the architects own description of the project, the new functions are designed as a discrete and precise complement to the original unworked facades and structures. And adds that DGI-huset is a qualitative and sensuous experience.

User evaluation

According to the evaluation report from LOA in 2005 on the project, both ideas have been realized to great satisfaction for the users through the interplay between the organization of sports and the physical settings for it. With this a combination of the popular aim of association activities and the flexibility and liberty of the fitness centres is achieved. A combination that the users find supported by the physical arrangement of functions and spaces. A wide range of users are attracted to DGI-huset with both its popular, flexible and individual appeal. The users ranging from people with a sporting identity over active recreational athletes to the social athlete representing both association members and the non associated users. With this diversity of users it is remarkable that the different groups of users all are satisfied by the organization and physical settings for doing sports. Furthermore DGI-huset has affected especially the social athlete to engage himself with physical activity.

The integrated environment offered in DGI-huset has an experienced downside as well. The most significant one being noise pollution. It is worth mentioning that the users would prefer DGI-huset as it is now if they had to choose between the integrated environment present at DGI-huset or improved acoustics they would prefer the current design.
The flexible system for doing sports at DGI-huset is popular and thereby it reaches its immediate restrictions. The badminton courts and the popular fitness classes are often overbooked which decreases the actual degree of flexibility when having to book way ahead. When using the voucher system often it becomes expensive and as the classes are kept at a continuous level for flexible reasons the frequent user is uninspired by the same class. Another consequence of the flexible system is that it is hardly consistent with social interaction in connection with doing sports. Many users experience that the physical surroundings does not suggest socializing either. This is especially regarding the café area. In general these points of critique are in this case to be considered as proposals for improvement from the users rather than actual dissatisfaction.
[LOA, project evaluation DGI-huset]

Summary

The DGI-Huset resembles the ideas of LOA behind the project Sløjfen, addressed earlier in this chapter, and introduces a mindset of creating an inner-town green. The flexible and individual character of participating in sports is popular in DGI-Huset. This is in contrast to the small scale context found at Sløjfen where the demand of the non-associated participants does not correspond the facilities.

Fig.19. The open interior of DGI-Huset with its unadorned character contrasted by new footbridges and balconies in steel and wood.

Prismen (2006)
Copenhagen S
Dorte Mandrup Arkitekter

Project motivation

Meanwhile DGI-huset was realized in Århus, LOA had spent the past years on developing and defining a concept of *'den indre byfælled'* (the inner-town green). In many ways DGI-huset embeds the same philosophy as the concept of the inner-town green, that are inspired by the city's traditional commons in the shape of green areas. These commons provided a space, especially during the summer season, for social interaction and recreation. The concept of an inner-town green is to provide covered spaces, a haven in the city, where activities such as meetings, recreational sports, games, festivities and relaxing can happen.

In 2006 two projects were realized both based on the concept of an inner-town green; *Prismen* (the Prism) by Dorte Mandrup Arkitekter and *Korsgadehallen* by BBP Arkitekter, both of them in Copenhagen. Together with the municipality of Copenhagen LOA provided heavy financial support in both cases in order to test this typology with sufficient funds. In this, only the Prism will be dealt with architecturally.

Contextual relations

The Sports and Culture Centre is part of a comprehensive strategy that serves to regenerate the local district. In this way sports and culture are included as important parameters for boosting the social environment. The Prism is located on a former parking lot, transforming a no man's land into an identity-creating and multifunctional inhabitant's place for sports and culture. The centre should establish a venue for the athletes of the neighbourhood to meet and get mutual inspiration as well as inspire new potential athletes to get started.

Spatial organisation

The Prism constitutes 3.400 m^2 with its main space being the *arena,* a big court for ball games (20 m x 40 m). Besides the arena there is a dance hall, culture hall, locker room, offices and a cafe at the entrance. These functions on the ground level connects to the upper level by the green cover that fills the whole arena and transforms into a slope with integrated seating for spectators and then into a balcony that connects to four minor spaces. The slope and balcony covers spaces beneath.

Performative spaces

The arena is a remarkable reinterpretation of what a sports hall could look like, using translucent polycarbonate for facade and roof material as well as creating an architectural element by the green surface constituting both floor, an inhabitable slope and balcony. The facade material provides an incredible naturally well-lit interior, avoiding glare since the relatively high luminance level on the facades are distributed equally.
The dance hall was designed in open connection with the arena but due to acoustic challenges it was decided to put a glazed partition wall and a curtain between the two spaces.

Transitional spaces

The green architectural element creating both floor, slope and balcony provides the character of the interior. Being on the balcony there is a direct and open connection to both the arena as well

as the four niches on the upper floor. These niches can be freely used for self-organized activities. The whole arrangement takes on an informal character and undermines the separation between spectator and athlete.

Sensory qualities

It feels like a sheltered outdoor area covered in a way that adds a both poetic and industrial character. A being outside indoor. With that said, there is no functional connection between indoor and outdoor.
The green soft mix-elastic sports floor, transforming into a slope and then balcony, provides an architectural element allowing for seating as well as inviting young and adults to play. The sum of the building envelope and this green architectural element constitutes the character of this place with all its inherent sensory qualities.

User evaluation

In the evaluation report from LOA both the Prism and Korsgadehallen are praised by the users on a visual level but are more criticized on a functional level. In general the users are satisfied with both centres. The Prism in particular is praised for its spaciousness and quality of natural daylight as well as for its distinctive architecture which suggests diversity in use. On the other hand it is in particular criticized on indoor climate and acoustic conditions. Furthermore a proper catering option is lacking. If functioning many users consider this as a possible generator for social interaction. [LOA, project evaluation Indre Byfælled]

The architecture suggests diversity in use, but actually the Prism is rarely used for cultural activities. Different simultaneous activities are only possible with an additional partition wall, few have tried a new sport or started doing sports after the Prism was realized, and the mix of users are positive for some but reason to irritation for the most.
Parrents spend hours each day in the Prism waiting for and watching their active kids, while they themselves are inactive. [LOA, project evaluation Indre Byfælled]

Problems on indoor climate are evident. The problems in thermal indoor climate are mainly caused by the poorly insulating building envelope. The acoustic conditions are both a problem externally and internally. Externally the building envelope allows a lot of noise from the building to reach the surrounding environment which limits the use of the Prism. [LOA, project evaluation Indre Byfælled]

Summary

The reinterpretation of a sports hall as an inner-town green provides new answers on how sports facilities can be spatially organised and architecturally expressed. The aesthetic and sensory qualities are evident but so are the functional challenges when doing things remarkable differently which is the case in the Prism. The functional challenges are due to an experimental building envelope and open spatial organisation. The aesthetic qualities, though, are founded on the same factors.

Fig.20. The exterior of the Prism connects with the four existing gables on the site, making it a natural but yet remarkable addition and contribution to place.

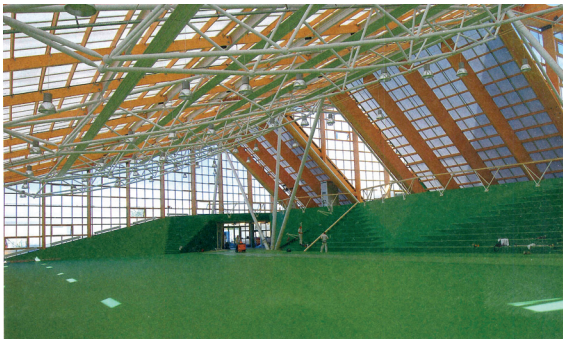


Fig.21. The interior is characterized by the green floor as architectural element, and the steel and wood structure allowing daylight through the translucent polycarbonate all over the building envelope.

Flintholm SPARK (2015)
Frederiksberg
MVRDV/ADEPT

Project motivation

This project is included to understand an example of recent developments in the relation between sports and society. The knowledge presented here is produced on the basis of the competition programme [KU.BE, competition progamme] and judge's report [KU.BE, judge's report] on the competition. The vision is to create a synergy and symbiosis between movement, culture and health in an urban context. Joy and play is the fulcrum rather than obligation and sporting regulations.

In 2009 the municipality of Frederiksberg, Copenhagen, together with Realdania and LOA started a design competition on a new culture and movement centre with the working title KU.BE. This scheme is to be a catalyst for the urban renewal going on in the Flintholm-area. The vision in general is a pioneering and sustainable architecture that will be a central figure of the character of the place. As a lively and innovative meeting place for exertion and experiences the centre will make people from Frederiksberg, visitors from the rest of the region and tourists want to visit and associate the area with urban life, culture and movement.

More specifically the vision is to create a;
- experimenting culture and movement centre which accommodates a diverse range of forms of exercise and represents an experience-oriented laboratory on how the physical environment can promote our desire to move, indoor as well as outdoor.

- spectacular building structure where significant architecture, exclusive design and inspiring art within new medias, visuals, light and audio, both indoor and outdoor, will make it an experience to visit and use the centre.

- lively meeting place where many different people from the neighbourhood as well as the rest of the city can gather and generate constructive and exciting overlaps between everyday exercise, everyday cultural activities and solitary art and culture events.

- 'green' building that sets the agenda environmentally by experimenting with zero energy solutions and by making sustainabilty a core element in both the design, identity and activities of the house.

Contextual relations

The winner of the KU.BE design competition, Flintholm SPARK by the design team MVRDV/ADEPT, is proposing a layout that suggests an interchanging relationship between indoor and outdoor. The SPARK square and the surrounding green areas on the site are by the judges considered an inspiring and well thought out proposal for the outdoor space. A space that can be used by a diverse range of users for a diverse range of activities - from the quiet and meditative to the dynamic, playing and sportive. An oversized urban curtain provides character of place and marks the transition from the city to the SPARK square and surrounding green areas.
It is the ambition that the character of Flintholm SPARK will contribute to the identity of the whole Flintholm area.

Spatial organisation

The visions are to be fullfilled by seven zones constituting around 4.000 m² in three overlapping categories; movement, culture and health. The ambition is to attract different types of users with the varied range of activities. *"This is not by multifunctionality where a specific room used for everything by everyone, but by differentiating and confronting in both time and space in a way that different activities meet, overlaps and replaces each other over time."*

Performative spaces

With the division into three categories it is evident that performative space is not the single fulcrum of this place. Space for 'thinking', 'food', 'zen' and 'well-being' are equally included with performative spaces in the scheme. These spaces in general are primarily intended for self-organized and spontaneuos activities, while more collective and organized activities will be given less importance. Visiting should provide a sense of play and recreation, but also provide the opportunity for a regular weekly exercise both for children, young and adults.

Transitional spaces

The playzone is central in this scheme, and the Flintholm SPARK proposal suggests this zone to be the link between the other zones, to be the 'glue' so to speak, joining the different parts of the scheme with its joyful lively character.

Sensory qualities

Each zone is conceived with its distinct character, atmosphere and materiality. This ambition is still to be answered more specifically in the proposal.

Summary

The ambition of making the playzone join the other zones appears as an interesting approach to transitional space as providing the lively character of place. But if the actual character will be of play and joy, or simply recall depressing images of empty playgrounds around the city, will remain unanswered untill 2015, at least in this particular case.
This scheme is a clear indication of the role of sports, or body movement, in relation to culture and society. Body movement is supposed to add a lively and joyful character of place, and is placed in close relation to both health and culture. The potential significance of body movement is emphasized by the ambition that Flintholm SPARK will contribute to the identity of the whole city area.

Fig.22. Render of the future Flintholm SPARK. The actual architectural qualities are hard to judge before the ideas are materialized since the proposal is still rather diagrammatic.

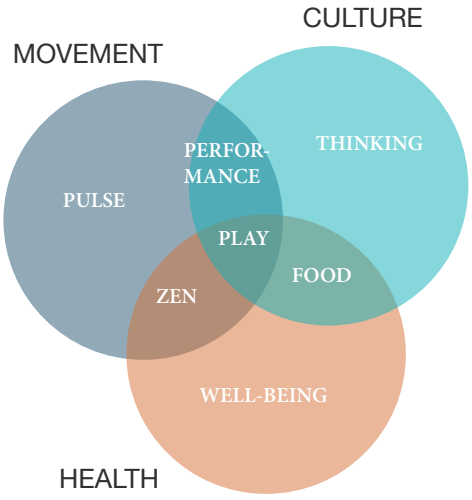


Fig.23. Diagrammatic representation of the programmatic idea of Flintholm SPARK showing the seven overlapping zones with the ambition of 'PLAY' being the 'glue' between the other zones.

Streetmekka (2010)
Copenhagen
BBP Arkitekter

Project motivation

The non-organized structures and mechanisms of street culture are characteristic for developments in sports participation in general. With its organization and types of activities Streetmekka provides an interesting glimpse of what street culture and physical activity is capable of socially and culturally.

A main element in street culture is about physical activity; streetballers, streetdancers, breakdancers, streetmovers, etc. And this in a form where no sporting regulations will decide or restrict the activities or the participants imagination. The body is gaining experience in a free, social environment.

Behind the idea of a Streetmekka is the non-profit organisation GAM3, who have engaged the youth in physical activity on street level since 2002. They have developed methods for gathering and engaging the youth whatever gender, ethnicity and social background. The project is financially supported by the municipality of Copenhagen and LOA. [web: Streetmekka, 2012]

Streetmekka is basically about putting roof over the street culture for making use of the winter season as well, but without compromising on accessibility, user involvement and flexibility. In Streetmekke you should be free to take part in the physical active street culture when you want and in the way you want. Streetmekka is about making physical activity easy accessible and fun. [web: Streetmekka, 2012]

In contrast to other sport centres open to non-associated athletes it is not possible to reserve facilities. You pay for a day or a longer period, and then you simply show up when you feel like it and take part in a scheduled activity or whatever you make up on your own. You can never be sure if there will be many or few participants, but since there are no strict rules to follow the activity will change accordingly. Pretty much like in the street.

Contextual relations

The wide and five meters high doors at the front of Streetmekka are possible to open in a way that they create a large outdoor cover. This provides a great connection between indoor and outdoor areas. In the DJ-school on first floor the windows can be fully opened providing direct contact between the DJ and the crowd outside at outdoor summer activities.
The outdoor area is designed by Arkitema Architects and NORD Architects. It functions as a movement scape for jumping, crawling, rolling, swinging, etc. but keeps a character of being a recreational hangout place.

Spatial organisation

Streetmekka is housed in the former engine sheds at the Southwest district of Copenhagen. It takes up around 2.000 m^2, with the most dominant space being the largest hall of 890 m^2 primarily used for streetbasket. A smaller hall next to it is used for street soccer and parkour on specially

designed movable racks. Both halls are newly paved with asphalt. At the rear of the building is a large dance hall with parquet flooring and seating. On the first floor is a DJ-school and a street art gallery. There is a lounge with foosball tables and an open view to the large hall and the three floors with administration opposite. The spaces are well lit by natural daylight and possess the rough character and energy of street culture. The atmosphere is untidy and casual, as is the old buildings that houses Streetmekka.

Sensory qualities

The old industrial buildings provide a rough setting for experiencing and participating in street culture. The sensory qualities are presented by the old industrial architecture with its tactile surfaces, large openings and exposed structure. The character of street culture adds to the sensory experience since many users are in direct contact with the physical environment through the activities.

This is well illustrated by the activity of parkour. The parkour activities at Streetmekka are organized and held by a group named Street Movement. They describe parkour as *"a lifestyle which nurtures the simple joy of movement."* They claim to be a *"part of a movement revolution - an alternative to the popular body culture of our time, which predominantly focuses on measurable and visual results."* [web: Streetmovement, 2012]
In parkour the sense of kinaesthetic is the fulcrum. Bodily learning and control through experience is the resource to achieve freedom and joy of movement. Also the sense of tactility is highly stimulated through the art of parkour; a sense of material hardness and gravity when landing on the pressure absorbing ground, a sense of material and tactility when hanging on the side of a concrete wall or swinging in a metal bar. The body is truly the medium for sensory impressions, experience, learning and achievement.

Street Movement is not only engaged in parkour as moving your body freely and creatively. It also includes an alternative to how traditional sports are taught. *"We start together and we finish together"* is the mantra. Many will recall discriminating memories from sports class in school of activities displaying who finnish first - with the consequence that everyone is looking at the ones finishing last. The alternative represented by Street Movement is hard to explain but must be experienced when both genders and all age levels join the same session and share the same activities, challenges and overcomings.

Summary

Streetmekka is unique within the category of space for sports. They way space and facilities are used is first priority at Streetmekka. The actual requirements to space and facilities are less important. Or at least, so it manages to appear. The concept of participating in sports takes on a new meaning when joining the activities at Streetmekka.

Fig.24. The outdoor environment appears to be a regular recreational area but is used for jumping, crawling, rolling, swinging, etc.

Fig.25. The large hall, primarily used for streetbasket, is the central space of Streetmekka. The old rough industrial building has kept its charming untidy character - like its users.

Børnekulturhus (2008)
Kolding
Dorte Mandrup Arkitekter

Project motivation

The culture of children as a separate research area came into focus at the beginning of the 1980s. With its basic differences from other cultural matters, the culture for, with and by children not always thrives within the frames of the traditional culture institutions. Recent years have provided different ventures offering children's culture its own spaces with a special attention towards stimulating children's senses and curiosity. [Jensen, 2009:41] This special attention towards stimulating the senses and inspiring for not predefined forms of movement are the main qualification of including this project in the present research.

This particular scheme in Kolding is a part of a greater remodelling of the Sct. Nicolai School from the 17th century providing the town different cultural offers at what is now the Sct. Nicolai cultural centre. The *'Børnekulturhus'* (Children's Culture House) is conceived on the basis of LOA's project *'Arkitektur i børnehøjde'* (Architecture from the perspective of children), providing space where children is not simply considered small adults, but are indtroduced to a more complex world of learning, culture and nature. [web: LOA, Børnekulturhus, 2012]

Contextual relations

A continuous exterior corten wall addresses the different buildings at the Sct. Nicolai cultural centre and linking them as a whole. Together with the old brick architecture, the corten steel provides a certain character to the place.
The Sct. Nicolai cultural centre constitutes 6.000 m^2, and apart from the Children's Cultural House it consists of a Cinema House and cafe, House of History, House of Crafts, and a new foyer.

Spatial organisation

The Children's Culture House itself constitutes 1.000 m^2 providing spaces with different spatial and sensory qualities; each with its distinct atmosphere. On the ground floor is a multipurpose area in direct spatial connection with 'the Jungle'. A centrally located red hall is providing the vertical flow, with a space for theatre, 'the Cave', opposite to the Jungle. On the 1st floor is a computer room for making movies above the multipurpose space on the ground floor. Opposite is a workshop for painting or doing creative installations. On the 2nd floor is 'the Sky*, a workshop for sewing and designing clothes. From the 2nd floor is acces to 'the Cloud'.

Fig.26. Section

Sensory qualities

Especially three of the spaces at the Children's Culture House invite and inspire to physical activity and play. The Cave is a space for theatre and play, and is accessed by a landscape of steps leading down to the stage. The feeling of going down into the ground is emphasized by earthen colours, taking you to another world before immersion and fantasy take over when clothes and properties are given life. Now the steps are serving as spectator seating.

The Jungle has a soft green floor with green ropes reaching from floor to a ceiling of mirrors, like lianas reaching to the jungle canopy far above. Playing and moving is nearly inevitable.

The Cloud is not like a regular cloud. It is rectangular and made of glass. But still, it appears to be free floating on top of the workshop with the ability to watch people directly below - like watching from a cloud. Some will use the Cloud for tumbling around with all the balls, others will immerse themselves in the activities below or the real clouds passing by in the window above.

Summary

The Children's Culture House generates bodily engaging environments - enhancing experience, sensuous impressions and motor skills. The architecture is playing with the concept of atmospheres, of here and there, under and above. The bodily directions are enhanced and challenged through the architecture.

Fig.27. (left) The Cloud provides visual connections between bodily orientations as above and below.

Fig.28. (right) The two stories high Jungle in direct spatial connection with a multipurpose area.

SUB-**CONCLUSION**

With these introducing chapters on space for sports an outline of its historical evolution and state of affairs is provided. It outlines a diverse landscape of sports in recent years, both regarding the social logic and emotional atmosphere linked to various activites, the character of participation as well as types of facilities.

- Recent developments prove changes in popular types of activities, changes in pat terns of participating with more being individually active or organized privately instead of in associations. Also changes in numbers of physical active are experienced with the number for adults being fourfold the number in the 1960s with women and elderly being the new categories of physical active. A recovered link between body and mind is evident in our culture and body culture as well. Such changes call for facilities that address these changes.

- With an innovative focus on quality in the built environment the bodies of Realdania, LOA and CIA provides fertile ground for adressing the changes found in sports and body culture. The challenge is a matter of physical environment giving importance to the architectural matter of this issue.

- The potential significance of doing sports is proved to count both health, wellbeing, social interaction and a potential support of cultural identity. In architecture, the reference projects illustrate a recovered link between architecture and site creating a place of felt value for its users. In general the reference projects illustrate an attention towards decentralization, flexibility and diversity in use, optional social activities apart from sports, and an integration with other cultural events in space for sports.

- The interdependence of architecture and the human body has long been neglected by space for sports with the opposite being the desirable; the perfomance should not be affected by any outer circumstances. Now a recovered link between architecture and the human body is slowly gaining ground with an awareness of the concept 'sport for all' not having the strict demands for standardization of space and facilities as is the case of professional sport. This allows for an aesthetic relation between space for sports and its users.

On a basis of the knowledge gained in preceding chapters, the following chapters is an elaboration of central aspects of architectural significance in space for sports. These are to address the relation of 'Place and Identity', 'Body and Architecture', and 'Structural aesthetics' with the latter being a structural elaboration of the aesthetic aspects found in the chapter on 'Body and Architecture'.

“THE ‘FUNCTION’ OF SPORTS SPACE IS TO FURTHER THE PRODUCTION OF RESULTS; AND FOR THIS PURPOSE THE SPACE MUST BE STANDARDISED ACCORDING TO UNIVERSAL NORMS THAT ARE DETERMINED BY VARIOUS LEVELS AND AGENCIES OF SPORTS BUREAUCRACY; THIS DEVELOPMENT MAKES THE SPACE OF SPORT INDEPENDENT OF CONCRETE PLACES, RENDERING IT UNSPECIFIC, PLACELESS.”

[EICHBERG, 1998:151]

3 **PLACE AND IDENTITY** - CONTEXTUAL RELATIONS

The quotation of Eichberg on space for sport is directed towards the standardized space for modern sport. As identified and exemplified in chapter 2 this discription is no longer dictating the design of space for sports in the widest sense. This chapter is to elaborate on the architectural significance of space for sports detached from placelessness and the potential contextual relation between site, community and space for sports.

CULTURAL IDENTITY

As put forward in chapter 2, in "Social interaction" on page 36, space for sports has a great potential for promoting cultural identity in a local community. Cultural identity is here a shared sense of belonging, a sense of togetherness.

The cultural significance was strongly evident in the traditional village halls for gymnastics and assembly, mainly constructed in Denmark from around the 1870s until 1905 (see "Local association" on page 23). More recent references for cultural significance of space for sports are put forward in "reference projects" on page 38. In particular, the Multihus Højen has succeeded in bringing together a local community, and providing new opportunities to groups that else would not be physical active. This is particularly due to great diversity in user groups and activities, ranging from gymnastics and ball games to cultural and social activities and gatherings. Space for sports is here providing cultural identity for a village community as a whole.

The Prism in Copenhagen is providing cultural identity for a city district as part of a comprehensive strategy that serves to regenerate that district. In this way sports and culture are included as important parameters for boosting the social environment. The Prism is located on a former parking lot, transforming a no man's land into an identity-creating and multifunctional inhabitant's place for sports and culture. Here, space for sports is supporting the regeneration of the identity of that particular city district. The means of doing so is mainly through providing architectural significance to place, and through social integration and interaction of its inhabitants.

Another particular project in the perspective of cultural identity is Streetmekka in Copenhagen. Streetmekka is providing space for street culture, with the space being the generator for a common meeting place and shared understanding of street culture. In this case, space for sports is providing cultural identity for a distinct group of people within the overall group of people in the city.

A new way of gathering

With these three distinct examples, from the collection of project references, the cultural significance of space for sports is addressed. The means of providing cultural identity are typically of social character, establishing space for sharing experiences and for developing a shared sense of community. Recognizing this, the social potential of space for sports appears to follow two specific, yet overlapping paths; one of social integration, and one of social interaction.

Space promoting social integration is pursuing to include groups that is usually not physical active, i.e. immigrants, elderly or disabled people. The means are primarily accessibility and encourage for diversity in use. This is both a matter of physical planning and design, but also of activities and organization of participation. A diversity in activities, ranging from actual sports to other forms of body movement as well as cultural activities, and in forms of participation are experienced to promote the social integration in space for sports.

Space supporting social interaction is highly an architectural issue. The overlapping with social integration is natural; social integration forms the basis for a widely founded social interaction in society, and vice versa. This suggests an interdependent relationship between social integration and social interaction. The architectural matter in this issue is to provide space suggesting social interaction. How this space is to be designed is an issue for further investigation.

SPACE FOR **SOCIAL INTERACTION**

Firstly, this part will introduce some of the general theories regarding social interaction and human behavior in the public space that architects and designers has used until now when planning and designing urban scapes. Although the context is not directly the same in this project, there are still believed to be considerable similarities between social interaction in the public city scape and the social spaces of future village assembly and activity scapes.
Secondly, this part will describe how social interaction is promoted by diversity in space.
This part on 'Space for social interaction' is consequently based on the theories by architect and professor Jan Gehl described in 'Livet Mellem Husene' (Life between buildings) [Gehl, 2003] and 'Byer for Mennesker' (Cities for people) [Gehl, 2010].

The cultural identity and social significance of future space for local assembly around sporting activities is in this project considered facilitated through social interaction that may appear in various different levels and intensities. The social interaction experienced in and around local assembly and sporting activities is far ranging from the passive contacts, where people may observe others of equal status, through informal meetings as comparable to those we experience in trains, parks, city squares, etc. and to the deeper conversations and profound social relationships we recognize from our homes in safe and comfortable surroundings. [Gehl, 2010] Through these human interactions, the opportunity for developing cultural identity and social significance will arise. Knowledge sharing and inspiration with other inhabitants of equal or different status are potentially forthcoming. In order to facilitate these social interactions, the physical surroundings should provide ideal settings for both initial contact and developed social relationships. In this regard, the social space may be seen as a fusion of public space and the atmosphere of a homely environment.

Fig.29. Social interactions sorted by their intensity based on [Gehl, 2010].

The basis for social interaction

Jan Gehl defines in '*Byer for mennesker*' [2010], the various contacts by their intensity, where close relationships have great intensity, and the passive and casual meetings have low intensity.
From this figure (below), the public space primarily represents the casual and passive kind of contacts, which compared to the more intense contacts are considered modest. However, they still possess great quality and potential, as the basis for the development of other kinds of contact. For instance, as maintenance of existing relationships, and especially as inspiration of acts and activities, that other people are performing. [Gehl, 2010] If this basic social contact is not obtainable, the boundaries between isolation and social contact are too pronounced, and you are either alone or in closed connection with others. The social contact on the low intensity scale is therefore an evident and important possibility for persons to interact with others on a casual level, and perform as transition between various kinds of contact. [Gehl, 2003]

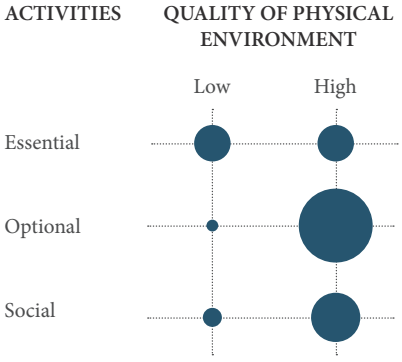


Fig.30. Activities in the public space is depending on the quality of the physical environment based on [Gehl, 2010].

Activities in public space

In regards to activities in public space, Gehl [2010] defines three types; essential activities, optional activities and social activities – all with different demands to the physical environments. The essential activities are conducted regardless the physical environments [Gehl, 2010] In relation to assembly and sporting facilities this may be planned meetings or sports participation, which have no influence on the physical planning of the social environments at the hospital.
The optional activities however, are defined as activities only accomplished when desired, and these activities are only seen, when the physical environment is appropriately suitable. [Gehl, 2010] In the perspective of this project, the optional activities may be informal conversations or settling down, together or alone, before or after after the scheduled exercises or assembly activities. Or even taking part in the following activity. These optional activities have great value

regarding the social conditions, however if the public or social space is in unfulfilled state, the only activities present would be of essential character.
Social activities are often included in other activities with the presence of other people as condition. These activities may be described as resulting activities and appears usually instinctively, when people are interacting. [Gehl, 2010] Hence, the great social potential of assembly and doing sports.

Social activities

Social activities have various different characters depending on the situation in which they occur. Ranging from comprehensive greetings, conversations and discussions to less intense public occasions, where superficial passive contacts (see and hearing contacts) act independently as a significant form of contact. These initial social contacts may in all cases be further developed, if a common foundation is created, where people have background, interests or problems alike. [Gehl, 2010] These aspects of initial social contacts are highly evident in a minor local community, stressing the distinct social potential of local assembly around various activities.

The physical environment and the functional programming of the space is, in aspects of social contact, greatly responsible for the opportunity for expression, and room layouts, accessibility, common facilities, materials, textures and sensory aspects etc. have significant influence on the human behavioral patterns. [Gehl, 2010]
The architect may, when designing common spaces, consider the intended social structure of the environment and correspond the physical environment with these objectives. In this case, a graduation between public and private spaces is advisable in order to facilitate flowing transitions between different social or private spaces, creating greater comfort and affiliation in public spaces, hence increasing the actual use. [Gehl, 2010]
Another aspect to consider regarding activities in public spaces is use of invitational effects. If it is possible to see ongoing social activities, this will act as invitation for others to join. This may be even further enhanced by planning public destinations, where it is obvious to go for social interaction. This presupposes that the destinations have meaningful activities, which beside the activity itself provides subjects of conversation during and after the activity is carried out. [Gehl, 2010]

Importance of space

The physical planning itself has no influence on the quality, content and intensity of social relationships and activities. However, the surroundings still provide the essential possibility for people to meet and interact and are especially important for creating passive contacts. [Gehl, 2010]
It is in this way possible to influence behavioral patterns through detailed planning, and in this way give better conditions for social activities and interactions. In urban areas this is exemplified in districts with high-rise buildings, underground parking and lots of traffic, where only few people are walking or staying outside. Contrary to this, we see many people outside in those districts dominated by smaller buildings in human scale, where the indoor spaces are complimented by usable and active outdoor public spaces. [Gehl, 2010]

Designing in details

Even small details may change our perception of any space rapidly, and if prioritized by the architect, spaces for social interaction may improve the social significance in future facilities for local assembly and sporting activities significantly.

In regards to the human interaction in public spaces, this is best unfolded on the horizontal level, where it has a rather large area of function. On this level, the social visual field is capable of intercepting other person's features and mood in distances up till 20 meters, and in shorter distances (1-3 meters), where we normally perform social conversations, our visual senses are supplemented with other senses in order to form a general impression of the person we are talking to. [Gehl, 2010] The character of social interaction thus differs according to distance. The space should correspond to these differences.

Through studies of human behavior in public spaces, Gehl [2010] argues, that social activities in public space has a self-perpetuating effect, where human actions attracts attention and thereby more people. Life generates life. This is both a matter of interior organization of functions, with different functions gaining from activities of other functions, and a matter of interior design making people want to use the spaces so more people will join.
One example is the placement of furniture in a space. Here, seating environments along with the inner facades of open common spaces, or in the transition zone between two areas, are usually preferred. In these places one's individual exposure is limited, and it is easier to create an overview of the surroundings and to feel comfort in these situations. [Gehl, 2010]

The potential diversity in social interactions should be encouraged by diversity in space for social interactions. The challenge for the architect is consequently to design attractive and inviting public spaces as a basis for promoting social interaction in future space for sports with a particular emphasis on diversity of space for both programmed and optional activities. Designing a diversity between the different spaces provides a choice of social interaction or privacy depending on the circumstances and the visitor's state of mind. Being a place for both creating initial contacts and for nurturing more developed social relations an atmosphere of space ranging somewhere between public space and private living room is suggested.

IDENTITY OF **PLACE**

The beginning of this chapter introduces that space for sport, in the modern sense, is suffering from a loss of place. A recovered sense of place in space for sports is indicated by more examples in the collection of reference projects. But what actual challenges and potentials are implied for creating place?

More of the reference projects are concerned with the situational aspect of the context, making it dependent of the concrete place as it is before intervening. This situation can in general be treated either by the concept of unity, variation or contrast. The quest is typically emphasizing a formal contribution to the site with the potential of providing an identity of place as a synergy found between existing landscape and/or buildings, and the new contribution to the situation.

Potentially, the identity of place may be of a more emotional character, providing man a sense of belonging. Both the cultural and social significance of space for sports involves a sense of belonging to a group of people. But actual place holds that potential, too. Christian Norberg-Schulz [1980:22] argues that *"Human identity presupposes the identity of place."* and *"... identification is the basis for man's sense of* belonging ...".

To concretize the concept of human identification with place and identity of place, the concept of 'dwelling' and 'being lost' will here be introduced. *"To be lost is evidently the opposite of the feeling of security which distinguishing dwelling."* [Norberg-Schulz, 1980:20] Both the concept of dwelling and of being lost are describing a total man-place relationship. To understand what prevents man from being lost, Norberg-Schulz [1980] stresses the importance of two psychological functions; 'orientation' and 'identification'.
Thus, dwelling is characterized by a feeling of security which presupposes the capability of orientation in space and identification with place.
"To gain an existential foothold man has to be able to orientate *himself; he has to know* where *he is."* [Norberg-Schulz, 1980:19] Orientation is facilitated by recognizable and comprehensible objects in space making it possible to navigate.
"But he also has to identify *himself with the environment, that is, he has to know* how *he is a certain place."* [Norberg-Schulz, 1980:19] This concept of identification with place is harder to grasp. With an established close relation between human identity and identity of place, focus will be directed to the latter.

The distinction between place and space has been drawn in various ways. From an architectural perspective, Norberg-Schulz [1980] observes that *"... a place is a space which has a distinct character"*. Architecturally, this distinct character is an embodiment of the properties of a place, gathered and brought close to man conveying a distinct identity of place. Hence, the idea of *genius loci*.
Another way of expressing the distinct character of space is by atmosphere. This term is strongly emphasized by the Swiss architect Peter Zumthor in his aim of creating an architecture with great affection on the perceiving human. [Zumthor, 2006] Professor at School of Architecture at The Royal Danish Academy of Fine Arts, Carsten Thau, describes in a broadcast on architect and professor Claus Bonderup atmosphere as what being between us and the physical borders of the space. [Arkitektens Hjem (on Claus Bonderup)] Thus, the atmosphere of a space is made up by an interplay between architectural measures such as proportion, scale, light, shadow, structure, materiality, etc.

As we establish an identification with this distinct character of space it becomes a place of felt value - a place for dwelling. *"What begins as undifferentiated space becomes place as we get to know it better and endow it with value."* [Tuan, 1977:6]
Identity of place is providing the basis for human identification with place. This identification promotes dwelling and thereby the inherent feeling of security.

Dwelling implies a distinct character of space that springs from a uniqueness of place. We feel the value of this place as we are capable of orientation in space and experience identification with place. The identification is promoted by getting to know the place better, or to *"become friends with the particular environment"* as Norberg-Schulz [1980:21] states, through engaging in cultural and social activities endowing place with common value.

The aspect of human identification with a distinct character of place is linked to the potential of a place to become meaningful and kept in our memory. *"To at least some extent every real place can be remembered, partly because it is unique, but partly because it has affected our bodies and generated enough associations to hold it in our personal worlds."* [Bloomer & Moore, 1977:107]
The embodied memory is capable of taking us back to the vast meadow of our childhood or our

grandmom's hen house. In this regard body and memory links to the capacity of imagination and identification.
This role of the body with its capability of remembering is supported by Pallasmaa [2005:72]; *"An embodied memory has an essential role as the basis of remembering a space or a place."*

Dwelling through orientation and identification is thus closely related to identity of place. This identity implies uniqueness of place, and from that springs a sense of place that creates sites possessing meaning and are memorable. A uniqueness of place is constituted by understanding the properties of the concrete place and the character of the social and cultural context.
In providing a human sense of belonging, a connection between identity of place and bodily experience is established.
For architecture to obtain a long term belonging and connection to place it needs to affect its users. On the other hand the architecture should allow to be affected by its users over time, adjusting to changing needs and desires of its users.

Non-standardization of space for sports affects the opportunity for integrating both context and social relations. An architecture inviting and inspiring for comprehensive and diverse social interactions as well as providing a strong identity of place is of great cultural significance. Potentially, cultural identity will not only be maintained but also generated from an architecture with such qualities.

"HUMAN IDENTITY PRESUPPOSES THE IDENTITY OF PLACE."

[CHRISTIAN NORBERG-SCHULZ, 1980]

"AN EMBODIED MEMORY HAS AN ESSENTIAL ROLE AS THE BASIS OF REMEMBERING A SPACE OR A PLACE."

PALLASMAA [2005]

“OUR PRIMARY MEANS OF EXPERIENCING EVENTS IS THROUGH OUR SOMATIC (BODILY) RECEPTORS. ... EACH CONTRIBUTES TO ONE’S ORIENTATION IN SPACE, TO AN AWARENESS OF SPATIAL RELATIONSHIPS, AND TO THE APPRECIATION OF THE QUALITIES OF PARTICULAR PLACES.”

[BALE & VERTINSKY, 2004:26]

4 **BODY AND ARCHITECTURE** - AESTHETICS OF EXPERIENCE

The subject of the body is directly linked with the subject of architecture. As implied in preceding chapters this link has been dismissed in space for sports since the ancient Greeks up until recently. In this chapter the relation between body and architecture will be examined in the perspective of an aesthetic experience.

The reasons for the broken link between body and architecture in space for sports are historically founded by modern sports science primarily taking its point of departure in human biological research. Sports in practice, though, have been concerned with both social scientific, pedagogical and psychological problems and contexts, but only in connection with a revived interest in a holistic view of body and movement, there is a regained interest in understanding aesthetics in contexts other than the traditional artistic. [Engel, Rønholt, Nielsen and Winther, 2006]

As a consequence of standardization in space for sports, demanded especially by competitive sports, architecture was reduced to framing the activities providing a neutral environment for comparison. This is contrasted by the distinct potential and inherent qualities of architecture for affecting human behavior and experience.
"Architecture continues to exert a direct impact on the senses and feeling. The body responds, as it has always done, to such basic features of design as enclosure and exposure, verticality and horizontality, mass, volume, interior spaciousness, and light." [Tuan, 1977:116]

With the recovered connection between body and architecture in space for sports, the architecture can prosper from simply encircling physical activities and body movement to both implicitly and explicitly invite and inspire these.

As described and exemplified in chapter 2 the culture and patterns of sports participation are varied and multifarious. Though, the common denominator for all these are the physical activity of exerting and engaging one's body in movement. The inherent values and meanings of bodily experience is what constitutes the architectural significance of space for sports in an experiential perspective.

The need for sensory stimulation is a key aspect in architecture when it comes to bodily movement. [Roessler, 2003:33] In architecture, and in architecture for physical activities in particular, the sensory experience has a great influence on our understanding of our self and our being in the world. With a strong tendency towards sensory empowerment in society, space for sports should emphasize and enhance the immidiate bodily experiences found in body movement. This statement is to be elaborated on in present chapter.

"EVERY TOUCHING EXPERIENCE OF ARCHITECTURE IS MULTI-SENSORY; QUALITIES OF SPACE, MATTER AND SCALE ARE MEASURED EQUALLY BY THE EYE, EAR, NOSE, SKIN, TONGUE, SKELETON AND MUSCLE."

[PALLASMAA, 2005:]

ARCHITECTURE AND **THE SENSES**

The link between body and architecture is particularly found in the bodily senses. This part is to illustrate the general sensory empowerment experienced in recent years, and then link this to the architectural significance of this matter.

According to Copenhagen Institute for Futures Studies we are in a new rationality, one that is directed by sensuality. *"It is a new manifestation of the immaterial focus that the society of dreaming and storytelling has provided us."* [CIFS, 2004]
Sensuality is found in our general focus on physical well-being. *"It applies for everything from healthy food to physical exercise, sex and other body movement."* [CIFS, 2004] We are increasingly worshipping a balance between body and mind. We find ourselves in a paradigm where *"being increasingly in touch with oneself, the subconsciousness and intuition is the path leading towards a better life."* [CIFS, 2004]
Basically, the establishment of sensory empowerment is about returning to the basic instincts. *"Mankind has again reached the point, where we need to feel ourselves, having a desire to see, taste, smell, hear, fell and sense the world. Rather than being mere passive consumers and recipients."* [CIFS, 2004]

The burgeoning desire for returning to the basic instincts is a possible consequence of the distancing features of vision dominating Western culture. This is argued by the Finnish architect Juhani Pallasmaa: *"Vision separates us from the world whereas the other senses unite us with it."* [Pallasmaa, 2005:25] And furthermore: *"The eye is the organ of distance and separation, whereas touch is the sense of nearness, intimacy and affection."* [Pallasmaa, 2005:46] In architecture, however, it is important to stress that *"the privileging of sight does not neccessarily imply a rejection of the other senses, as the haptic sensibility, materiality and authorative weight of Greek architecture prove; the eye invites and stimulates muscular and tactile sensations."* [Pallasmaa, 2005:26]

Another possible motivation for returning to the basic instincts stimulated in bodily experience is found in the increasing dominance of communications media. *"... the more the new communications media strive to free us from the need for physical bodily presence, the more our bodily experience seems to matter.* [Shusterman, 2008:12]

The experience of architecture holds an inherent potential of satisfying the desire for sensory empowerment. *"Architectural experience brings the world into a most intimate contact with the body."* [Pallasmaa, 2005:60] Pallasmaa further argues that a truly affecting architecture is one that succeeds in involving several realms of sensory experience which interact and fuse into each other; *"Every touching experience of architecture is multi-sensory; qualities of space, matter and scale are measured equally by the eye, ear, nose, skin, tongue, skeleton and muscle."* [Pallasmaa, 2005:41] By a multi-sensory experience *"architecture strengthens the existential experience, one's sense of being in the world, and this is essentially a strengthened experience of self."* [Pallasmaa, 2005:41]

This architectural approach of a multi-sensory experience corresponds very well with the newfound emphasis in society on sensory empowerment. This is reflected in architecture by *"numerous architects attempting to re-sensualise architecture through a strengthened sense of materiality and hapticity, texture and weight, density of space and materialised light."* [Pallasmaa, 2005:37] Here, Pallasmaa refers to practicing architects as Steven Holl, Peter Zumthor and Glenn Murcutt.

With space for sports detaching itself from the tedious space and neutral environment of standardization in space for competitive sport, a re-sensualization of architecture for sports can be initiated. In this respect all senses are to be directed for establishing the environment for a multi-sensory experience.

"MY BODY IS TRULY THE NAVEL OF MY WORLD, NOT IN THE SENSE OF THE VIEWING POINT OF THE CENTRAL PERSPECTIVE, BUT AS THE VERY LOCUS OF REFERENCE, MEMORY, IMAGINATION AND INTEGRATION."

[PALLASMAA, 2005]

However, with architecture for sports implying bodily movement there is a particular incitement for utilizing the inherent potentials of the haptic sense. *"The haptic sense is the sense of touch reconsidered to include the entire body rather than merely the instruments of touch, such as the hands. To sense haptically is to experience objects in the environment by actually touching them (by climbing a mountain rather than staring at it)."* [Bloomer & Moore, 1977:34] The sensory stimulating potential of body movement is emphasized by the kinesthetic aspects of the haptic sense; *"Similarly, you may sense body motion haptically by detecting the movement of joints and muscles through your entire bodyscape. (This property of haptic sensing is called kinestesia.) No other sense deals as directly with the three-dimensional world or similarly carries with it the possibility of altering the environment in the process of percieving it; that is to say, no other sense engages in feeling and doing simultaneously."* [Bloomer & Moore, 1977:35]

A general tendency towards sensory empowerment and a balance between body and mind is experienced in society these years. The architectural significance of this is an affecting experience of architecture not being substantially different from what we desire in a context different from architecture. We will be open and ready for perceiving the experience. With this introductory part on 'Architecture and the senses' a basis for further elaboration on the relations between body and architecture is established.

BODY AND **MEMORY**

Placing the body at the centre of how we experience the world, what then constitutes the subject of experience? How de we ensure that our body is in the right condition for perceiving the world and thereby ourselves? What kind of knowledge is that perception of the body providing us? These questions are to be answered by this part on 'Body and memory'.

"We behold, touch, listen and measure the world with our entire bodily existence, and the experiential world becomes organised and articulated around the centre of the body." [Pallasmaa, 2005:64]

The following elaborations on the relations between body and architecture is suggesting an epistemology of phenomenology, where the appearance of a phenomenon is always an appearance of something for someone – and therefore introducing the intentional first person perspective as a basic precondition. [Zahavi, 2007:16] This precondition is expressed by Pallasmaa [2005:11]; *"My body is truly the navel of my world, not in the sense of the viewing point of the central perspective, but as the very locus of reference, memory, imagination and integration."* Thus, the body is placed at the very center of perceiving the world.

Experience

The experience is here considered as being constituted by sensation, perception and conception. Sensation is more emotional than conception. Thought is less dominant in sensation than in conception. *"Experience is a cover-all term for the various modes through which a person knows and constructs a reality."* [Tuan, 1977:9] The cover-all term of 'experience' then may be divided into more sub-categories. In this way a purely sensory experience consists of simple sense-data. An aesthetic experience then may require that we perceive more than simple sense-data in order to arrive at aesthetic understanding. In the aesthetic experience perception and conception are required simultaneously with sensation.

Recognizing these different ways of knowing and comprehending, a special emphasis should be directed to the common denominator of these; *"Experience is directed to the external world. ... On the other hand manifests and reveals the way in which the self is inwardly affected."* [Tuan, 1977:9]

Thus, experience carries an inherent aesthetic dimension. The philosophical discipline of aesthetics was defined by Baumgarten (1750/58) as engaged with the study of sensory cognition. As a philosophy and in practice the aesthetics is exploring the link between sensation, form, language (both verbal and non-verbal), experience and perception. [Engel, Rønholt, Nielsen and Winther, 2006:12]

With the body being the medium for perceiving the world, then *"body consciousness surely warrants cultivating, not only to improve its perceptual acuity and savor the satisfactions it offers but also to address philosophy's core injunction to 'know thyself'."* [Shusterman, 2008:3] These abilities of the body for providing knowledge and experience should not simply be taken for granded. An advocacy of an improved and enhanced body consciousness is promoted by the American philosopher Richard Shusterman making his point of departure in Baumgartens understanding of aesthetics as sensory cognition.

Somaesthetics

An improved and enhanced body consciousness is introduced by the disciplinary framework of somaesthetics which is defined by Shusterman [2008:1] as *"concerned with the critical study and meliorative cultivation of how we experience and use the living body (or soma) as a site of sensory appreciation (aesthesis) and creative self-fashioning."*
Thus, somaesthetics is to be considered an extension of phenomenology, not merely placing the body at the centre of perceiving and understanding the world, but equally emphasizing the sensory appreciation taking place in the body. The two terms constituting the framework of somaesthetics are further elaborated; *"The term 'soma' indicates a living, feeling, sentient body rather than a mere physical body that could be devoid of life and sensation, while the 'aesthetic' in somaesthetics has the dual role of emphasizing the soma's perceptual role (whose embodied intentionality contradicts the body/mind dichotomy) and its aesthetic uses both in stylizing one's self and in appreciating the aesthetic qualities of other selves and things."* [Shusterman, 2008:1]

This introduces a body/mind relationship where the body is not merely for registering the external world, but perception and comprehension is taking place in both mind *and* body. Furthermore, the elaboration of the terms constituting somaesthetics is introducing an emphasis on aesthetic *appreciation,* both directed internally to the body itself and externally to the surrounding environment and its content.
Thus, somaesthetics is contrasting the concept of a mere registering body, with a concept of the body which is both capable of knowing and understanding as well as being a site for aesthetic appreciation.

Somaesthetic is a familiar term within neurophysiology. Here somaesthetic is referring to sensory perception through the body itself rather than its particular sense organs. The somaesthetic senses are divided into three different modes of sensing; exteroceptive (stimuli outside the body and felt on the skin), proprioceptive (within the body, orientation of body parts relative to one another and the orientation of the body in space), interoceptive (deriving from internal organs and usually associated with pain). [Shusterman, 2008:2]
This is to be considered as an extended elaboration of what was designated as the haptic sense in the preceding part on 'Architecture and the senses'. Exteroceptive sensing is consequently what we conventionally consider as sensing; by the eye, ear, nose, skin, tongue. Proprioceptive sensing

is both relating to the property of haptic sensing called kinestesia and the sensory experience of bodily balance, position, tension patterns and movement. Engel, Rønholt, Nielsen and Winther [2006:11] give special emphasis to this dimension of perception when elaborating on the poetic dimension of body movement. The interoceptive sensing is hardly described by conventional terms. It includes sensing how the body truly feels, typically associated with pain since this is usually the only attention this sense is awarded. With an improved body consciousness the interoceptive sensing is forming the basis for appreciation of bodily well-being (having sex is an else neglected occasion for this type of consciousness).

The body consciousness promoted by Shusterman is in opposition to the way contemporary culture pays enormous attention to the body; *"Somatic self-consciousness in our culture is excessively directed toward a consciousness of how one's body appears to others in terms of entrenched societal norms of attractive appearance and how one's appearance can be rendered more attractive in terms of these conventional models."* [Shusterman, 2008:6]
Shusterman argues that these models are distracting us from our actual bodily feelings, pleasures, and capacities, and blinding us to the diversity of ways of improving our embodied experience. *"Virtually no attention is directed toward examining and sharpening the consciousness of one's actual bodily feelings and actions so that we can deploy such somatic reflection to know ourselves better and achieve a more perceptive somatic self-consciousness to guide us toward better self-use."* [Shusterman, 2008:6]

What appears as an excessive focus of oneself in somaesthetics too, is rejected by the experienced environmental background as a precondition for somatic self-consciousness. *"... any acutely attentive somatic self-consciousness will always be conscious of more than the body itself. To focus on feeling one's body is to foreground it against its environmental background, which must be somehow felt in order to constitute that experienced background."* [Shusterman, 2008:8] The concept of the experienced background when focusing on feeling one's body suggests an architectural significance of influencing the bodily experience of self.
The parallel between architecture and an inwardly experience of oneself can illustrated by the case of tranquility. *"The most essential auditory experience created by architecture is tranquility"* [Pallasmaa, 2005:51] *"Tranquil practices of meditative awareness in breathing, sitting, and walking can generate subtle streams of deep delight and initiate radical transformations, often burgeoning into experiences of intensely exhilarating, yet quiet, joy.* [Shusterman, 2008:9]

The relevance somaesthetics is both argued by the demand of sensory empowerment through bodily experience as well as the need for a way to cope with the many inputs provided by technology all over in everyday life. *"The more information and sensory stimulation our new technologies provide us, the greater the need for cultivating a somaesthetic sensitivity to detect and deal with threats of stressful overload."* [Shusterman, 2008:13]

Learning

Somaesthetics suggests the living, feeling, sentient body, implying both the ability of knowing and remembering. In the earlier part on 'Architecture and the senses' in this chapter, Pallasmaa placed the subject of memory in close connection to that of body. Adding architectural significance to that property, supporting the take on the body in somaesthetics, he adds; *"The body knows and remembers. Architectural meaning derives from archaic responses and reactions remembered by the body and the senses."* [Pallasmaa, 2005:60]

A body that knows and remembers implies engaging one's body in experience in order to achieve knowledge. This kind of knowledge is typically in the form of tacit knowledge carried by the body, and barely accessible to consciousness.

Body movement and experience is related to knowledge and learning in more ways. The Danish Ministry of Culture held a consensus conference for discussing the possible connections between physical activity and learning. The conclusion was simple and clear; there is a documented link between physical activity and learning regardless of age. [Ministry of Culture, 2011] This is supported by Engel, Rønholt, Nielsen and Winther [2006:12] stating that, along with Shusterman's philosophy of somaesthetics, *"Also modern phenomenological body theory and phenomenological inspired cognitive research stresses that the body and perception is the very foundation of human experience, knowledge and existence.*

The main conclusion of the consensus conference is based on several subconclusions found in scientific research on the link between physical activity and learning;

> *physical activity provides improved cognitive capabilities regarding both problem solving, logical thinking, spatial perception, linguistic skills, memory capacity, sense of self and the capability of paying atention.*
>
> *physical activity can be a tool for the successful development of mental, emotional and social processes.*
>
> *physical activity increases the formation of substances that can promote brain structural and functional change through learning and experience.*
>
> *learning is best promoted if the physical activity is challenging, varied and involves experience of succeeding.*
>
> *physical activity increases the brain's resistance to cognitive decline due to age and disease physical activity integrated in teaching beyond physical education has been shown to promote learning.*
>
> [Ministry of Culture, 2011]

Along with these conclusions there is still research to be carried out in the field of linking physical activity and learning. Here, an emphasis is put on a lack of knowledge about the significance of physical environment for affecting and potentially enhancing the link between physical activity and learning. [Ministry of Culture, 2011]

The subject of experience is a cover-all term for sensation, perception and conception which are all ways of knowing and constructing a reality. The aesthetic experience is thus linking the external world of language, form and space to the inwardly affected body in a multi-sensory experience. In this sense body consciousness surely warrants cultivation when being crucial for aesthetic appreciation both of the surrounding environment and of self. The subject of somaesthetics is concerned with this matter. The knowledge produced by the experiencing body is to a great extend a tacit knowledge of being in the world. Body movement and body consciousness are surely the foundation of human experience, knowledge and existence.

"... MODERN PHENOMENOLOGICAL BODY THEORY AND PHENOMENOLOGICAL INSPIRED COGNITIVE RESEARCH STRESSES THAT THE BODY AND PERCEPTION IS THE VERY FOUNDATION OF HUMAN EXPERIENCE, KNOWLEDGE AND EXISTENCE."

[ENGEL, RØNHOLT, NIELSEN AND WINTHER, 2006]

MOVING AND DWELLING

With the preceding part introducing the relation between architecture and the experiencing body, the following will investigate the relationship between body and the surrounding environment in relation to the aspects of moving and dwelling, together with the architectural significance of these.

As preceding parts in this chapter has illustrated, the body is the centre for experiencing. This counts for moving and dwelling as well; *"All experiences in life, especially experiences of movement and settlement in three-dimensional space, are dependent on the unique form of the ever-present body."* [Bloomer & Moore, 1977:44]

The concept of space is closely related to body movement and proprioceptive sensing.
"Movements such as the simple ability to kick one's legs and stretch one's arms are basic to the awareness of space. Space is experienced directly as having room in which to move. Moreover, by shifting from one place to another, a person acquires a sense of direction. Forward, backward, and sideways are experientially differentiated, that is, known subconsciously in the act of motion. Space assumes a rough coordinate frame centered on the mobile and purposive self." [Tuan, 1977:12]
Space is experienced and understood through body movement. Proprioceptive sensing is adding significance to spatial orientation and direction. Thus, significant meaning can be ascribed to organisation of space and movement in space.

The human body is in principle capable of an infinite range of movements. But in a time where we move mainly by means of transportation, and many have sedentary work, only a fairly narrow range of that possible spectrum is utilized when most of us move. The use of transportation is not the only one to blame. *"One of the critical determinants of this range is the built environment: the space and stuff that we construct and inhabit."* [Bloomer & Moore, 1977:59]

"All architecture functions as a potential stimulus for movement, real or imagined. A building is an incitement to action. It is one partner in a dialogue with the body." [Bloomer & Moore, 1977:59] As a consequence of this implied action *"... a bodily reaction is an inseparable aspect of the experience of architecture."* [Pallasmaa, 2005:63]
This implies that the body and the environment is related by interacting with each other. A process of bodily integration in environment. *"Our bodies and movements are in constant interaction with the environment; the world and the self inform and redefine each other constantly."* [Pallasmaa, 2005:40]

The architectural significance of space for sports is highly characterized by this interaction between body and environment. In this respect architecture is not merely containing the activity of sports, it is suggesting, inspiring and inviting for body movement.

Experiencing the built environment through this interaction may happen consciuosly as well as unconsciously. Recall the plays and activities of childhood and it appears that the interaction is easily triggered.
"Consider the simple game of stepping on every crack in the sidewalk. Here the child plays his body (its dimensions, shapes, and rhythms) against the given grid of the sidewalk paving." [Bloomer & Moore, 1977:59]

The architectural significance of the interaction between body and environment is emphasized by proposing a concept of coreographing body movement by intended stimulations of the haptic sense; *"Changes of texture often signal special events and can trigger to slowing or quickening of one's space. It would be possible to generate a whole choreography of movement through the composition of textural changes alone."* [Bloomer & Moore, 1977:71]
Potentially, this suggests an architecture conceived as a coreography of movement rather than composition of spaces or shapes. This holds an implication of bodily inhabitation and experience of space and place rather than being a mere configurative issue of form.

The relationship between body and the surrounding environment is not limited to movement in space, it concerns dwelling and place as well.
"Place is a special kind of object. It is a concretion of value, though not a valued thing that can be handled or carried about easily; it is an object in which one can dwell. Space, we have noted, is given by the ability to move. Movements are often directed toward, or repulsed by, objects and places. Hence space can be variously experienced as the relative location of objects or places, as the distances and expanses that separate or link places, and - more abstractly - as the area defined by a network of places." [Tuan, 1977:12]
This is how the relation between space and place is to be considered here. Space for movement separating or linking places allowing for appreciation of pause. In this constellation space and place need each other for definition. Consequently, movement and dwelling need each other, too, for defining and complementing each other.
This is supported by Engel, Rønholt, Nielsen and Winther [2006] with their book on 'Bevægelsens poetik' (the poetry of movement) marking that bodily practice is fundamental for creation, expressed in both life and arts. *"Creative processes unfolds in a field constantly involving 1) impressions understood as experience, learning and cognition, 2) expression or articulation understood as creating something, and finally 3) space in between or the pause understood as tranquility or resonances between contributing and receiving."* Considering body movement as a creative process, space for sports should imply perception, expression and pause.

As established in chapter 2, space for sports both implies aspects of public health as well as social and cultural significance. But yet another potential consequence of physical activity, and thereby space for sports, essential for human being, should neither be forgotten nor neglected. Physical activity *"must be considered in the context of the good and meaningful life ... as a fundamental part of human being."* [Ministry of Culture, 2010:7]
The importance of sports and physical activity is additionally justified *"... as a sense-seeking and sense-making activity providing existential significance to human being equivalent to for example music. That is, an inseparable part of the good life, as the Greek philosophers related to sport and physical exercise. When we take part in sports and physical activity, we experience the joy of moving and experiencing our body's capabilities and limitations in very different contexts and situations. This has an existential value."* [Ministry of Culture, 2010:7]
The freedom of movement carries so much more meaning than the dreary obligation of maintaining one's health. It carries an inherent feeling of being alive!

The relation between body and architecture affects human behavior as an incitement to move or the ability to dwell. In a context of facilities for local assembly and physical activities the potential of this relation is of great significance.

"ALL ARCHITECTURE FUNCTIONS AS A POTENTIAL STIMULUS FOR MOVEMENT, REAL OR IMAGINED. A BUILDING IS AN INCITEMENT TO ACTION. IT IS ONE PARTNER IN A DIALOGUE WITH THE BODY."

[BLOOMER & MOORE, 1977]

“IF WE CAN AESTHETICALLY UNDERSTAND THE STRUCTURE’S VISUAL APPEARANCE, WE WILL APPRECIATE IT FULLY, BOTH WITH OUR INTELLECT AND ALL OF OUR SENSES.”

[SANDAKER, 2008:97]

5 **STRUCTURAL AESTHETICS** - ON STRUCTURE AND DAYLIGHT

Being concerned with space for sports, the matter of providing a large span and control of natural daylight is inevitable. Both are technical aspects of choosing and designing a complying structure. At the same time both the large span, the control of daylight and the structure providing these, carries an inherent potential for enhancing the aesthetic experience of architectural space.
The goal of this chapter is to be able to identify and discuss the structural and aesthetic aspects of large span structures and control of daylight. Allowing architectural arguments in a wider sense this chapter will not be limited to space for sports.

When dealing with the architectural potentials of structure and daylight, I choose to focus on structures with their characteristic feature being that they are in somehow an inherent part of the architectural expression, as well as they somehow influence the architectural space - or are influenced by the architectural space.

STRUCTURE AND **AESTHETICS**

In an architectural context, structure is a real physical object, in opposition to abstract structures, e.g. the social or cultural structures of human relations. The functions of the physical structures are multifarious, but always involve a struggle against gravity, in the pursue of keeping materials up in the air. Though, an understanding of architectural structures solely in terms of a load-bearing function is not adequate. Following this, I will here introduce the relation between structure and aesthetics.

Architectural structures are load bearing as a physical necessity for meeting the practical purpose of it. But a load-bearing structure is more than a question of merely preventing a building from collapsing. Structure, architectural space and expression, traditionally forms a close relationship. As a consequence of this, an understanding of architectural structures solely in terms of a load-bearing function is not adequate. As argued by Bjørn Normann Sandaker a more full understanding of structures *"... will frequently also mean that we see structures as space-defining elements or as devices that control the inflow of daylight; or we may assign them numerous other functions that are required of architectural spaces."* [Sandaker, 2008:2]

Given this, structures in architecture concerns both mechanical and spatial functions. Considering structure as a mechanical object relies on available technology and natural science describing specific material properties and statics in relation to its load-bearing function. The spatial function links structure with architectural space, refering to the utilitarian purpose of enclosing space, physically as well as visually. [Sandaker, 2008] In this sense, structures have a practical purposes other than the mechanical function of support.

"... given that aesthetic appreciation refers to experiences, 'aesthetics' should not be seen as an aspect of structures in the same way that we think of mechanical and spatial functions." [Sandaker, 2008:107] We appreciate structural form as inseparable from mechanical and spatial aspects being the satisfying experience of appropriateness. An appropriateness perceived when mechanical and spatial aspects of the form emphasise an expression of unity and intellectual coherence. [Sandaker, 2008:107] *"... the aesthetic experience of structures is constituted through the basic concepts of the structure's mechanical and spatial functions."* [Sandaker, 2008:107] This implies that the functional and mechanical efficiency of structures are not sufficient in order to obtain a full aesthetic appreciation of structures.

The aesthetic experience

It seems evident that an aesthetic appreciation of architectural structures is desirable. In order to understand, and thereby being capable of designing, the aesthetic appreciation this project seeks an identification of the origins for such appreciation.

An aesthetic experience, as put forward in "Experience" on page 70, consists of more than a purely sensory registration. It requires sensation, perception and conception simultaneously in order to arrive at an aesthetic understanding.

Sandaker [2008:121] puts particular emphasis on an experienced unity in architectural design; *"The experience of unity, which is the mark of aesthetic understanding and appreciation, is not necessarily an experience of objects as 'being of the same kind' or 'arranged in the same way' or any such formula, but rather the experience of some sort of attention to intellectual consistency."*
This intellectual consistency relates to both the technical (the natural sciences) and the perception-based (the artistic) aspects of architecture. Consequently, architecture is both material and immaterial. [Fisker & Keiding, 2005]
The concept of such an experienced unity can be described as being contained in an '*architectural main idea*', being the main synthesis of a project when this project consists of details, resolved subproblems which in a synthesis form the unity of the project in the case of a maintained architectural main idea. [Fisker & Keiding, 2005]

The concept of the architectural main idea thus emphasizes that architecture is made of details and by identifying and elaborating the relationship between the detail and the complete work we may conceive an aesthetic experience.

"DETAILS, WHEN THEY ARE SUCCESSFUL, ARE NOT MERE DECORATION. THEY DO NOT DISTRACT OR ENTERTAIN. THEY LEAD TO AN UNDERSTANDING OF THE WHOLE OF WHICH THEY ARE AN INHERENT PART."

[ZUMTHOR, 2010:15]

The importance of detailing

Details carry the potential of communicating an architectural main idea by forming a unity, an intellectual consistency of the project. A consistency that relates to both the material and immaterial aspects of architecture.
Here, the immaterial aspects of architecture relates to its context; being it historical, social, cultural, situational, functional context. The immaterial aspects of architecture also counts the provided experience with all its contributing parameters.The material aspects of architecture may concern the aspects of structure, construction, energy consumption, waste, etc. When detailed, all these aspects should synthesize in an architectural main idea, an intellectual consistency communicated in the detailing of the project.

The aesthetic experience of architectural structures depends on a satisfying experience of appropriateness. Such an experience consists of both complex ad abstract matters, but are potentially conceived by an intellectual consistency communicated through a strong architectural main idea. This communication strongly depends on a synthesis of elaborated details.

Fig.31. Brion Cemetary by Carlo Scarpa. The vast number of highly elaborated details informs the architectural main idea and enhances the aesthetic experience.

THE RELATIONSHIP BETWEEN **MATERIAL AND FORM**

Fig.32. (top) The global form of the original slaughter hall in Lyon (1914) is a three-hinged frame in steel.

Fig.33. (bottom) The hinged connection between frame and foundation is characterizing the technological properties of the material on the level of local form.

Detailing carries a great potential of communicating the relationship between form and material. Being concerned with the architectural work, many aspects of form are relevant, e.g. spatial forms, solid forms and surface forms. In this case structural forms are under investigation. Structural form will here be separated into global form and local form.

Global form

The global form refers to the overall formal characteristics of the structural system. With this, global form provides information on how the structure roughly is shaped, and how it works structurally.
typical examples of the global form of structures or structural systems are the arch, the dome, the structural frame, the beam, the column, etc.

Local form

The structural form on a lower, more specific level will here be referred to as local form. This level of structural form includes the articulation of element section and elevation, structural detailing, and proportion. Looking at a beam the elevation might be trussed or solid, the cross-section might be regtangular or H-shaped. The geometrical proportions of the beam in both cross-section and elevation belongs to local form as well. Joints and other structural detailing will typically adress the local form.

Relating material characteristics and form

To discriminate how materials influence form, Sandaker [2008] classifies materials according to three important characteristics; the materials' structural, technological and geometrical characteristics.

The structural characteristics of materials concern strength, stiffness and weight, all unambiguously measurable and quantitative by natural sciences. These characteristics also include how the material acts structurally, whether it is able to resist different kinds of stresses or not. Materials that resist both tension and compression will react differently to form than materials that resist only tension or compression. [Sandaker, 2008:41] These will accordingly be referred to as being bi-directional and mono-directional.

The technological characteristics of materials are mainly reflected in the structure's local form. This is experienced in the material's response to being cut, drilled, cast or welded. Detailing of joints, thus, is strongly influenced by the technological characteristics a material.

The geometrical characteristics of materials describes whether a material is likely to adapt to a skeletal structural type or to a more solid, continuous structure. These two categories will accordingly be referred to as linear/modular materials (line-forming) and surface/mass materials (surface-forming).

With the terms for discriminating between structural form on different levels (global form and local form) and between different material properties (structural, technological, and geometrical characteristics) it is possible to relate materials to form, as put forward by Sandaker [2008:53]

	mono-directional		*bi-directional*
	tension	compression	tension + compression
linear/modular materials	steel wires, glass-, aramid and carbon fibres	cast iron	profiles of steel, aluminium, RC, wood, ductile iron, polymer composites
surface/mass materials	fabrics, foils	stone, masonry un-reinforced concrete	plates of steel, aluminium, RC, polymer composites, (glass)
global form	form-active by necessity, material-specific form		non-, semi- or form-active as options, not material-specific form
local form	material-specific form		material-specific form

This scheme allows for three main formulations of the relationship between structural materials and form;

- *the global form of structures using mono-directional materials necessarily depend on the structural properties of the materials.*

Meaning, the use of e.g. steel wires or fabrics implies that the global form causes only tension, and the use of stone or masonry implies that the global form causes only compression. Thus, mono-directional materials are highly form-sensitive. In this case, the global form needs to correspond with the structural properties of the material; 'form resides in the material', so to speak.

- *the global form of structures using bi-directional materials do not necessarily depend on the structural properties of the materials.*

Meaning, the use of e.g. steel profiles, wood and reinforced concrete do not set up any restrictions for the global form, other than offering a geom etry with structural potential. This implies that a steel wire can always be replaced structurally by a wooden profile, but the wooden profile can not necessarily be replaced by the steel wire.

- *the local form of structures using bi-directional materials is thus the primary material-specific form of such structures.*

Hence, the particular properties of bi-directional materials are most clearly exposed *"in the detailing, in the proportions and in the articulation of their structures."* [Sandaker, 2008:42]

Structural detailing

Local form becomes the decisive parameter for expressing the specific properties of bi-directional materials. This is reasoned by bi-directional materials not suggesting a material related global form, and distinction between the different bi-directional materials on the level of global form is hard because of similar structural properties. Even with similar structural properties, bi-directional materials have different technological properties, expressed in ways of manufacturing and joining structural members as well as the shape and proportions of elevation and cross section for different bi-directional materials. The technological properties of mono-directional materials are also highly specific to each material.

On the level of local form, form really seems to 'reside' in the material due to each material's technological properties. This leads to a great potential of local form for expressing the specific characteristics of a material, be it mono- or bi-directional.
The importance of detailing on the level of local form becomes important for revealing the characteristics of bi-directional materials in particular, since the global form does not possess this potential in the particular case.

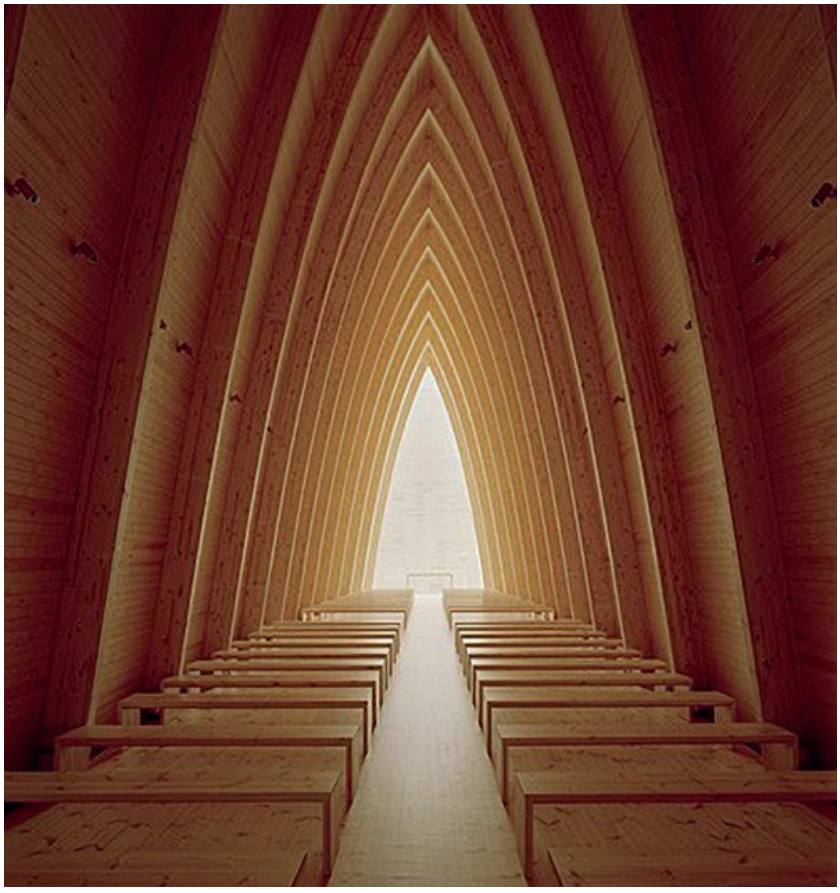


Fig.34. Chapel in Turku, Finland, by Matti Sanaksenaho. The space is characterized by experiencing the aesthetics of the wooden structure.

EXPERIENCING STRUCTURAL AESTHETICS

As established earlier in this chapter structural form in architecture both holds a mechanical function as well as a spatial function. The following investigation of the aesthetic aspects of these structural functions will address these seperately.

Aesthetics of the mechanical function

Structures may imply various purposes, but the omnipresent character of structures is that of supporting loads. The aesthetic evaluation of structures will inevitably involve this mechanical aspect. Sandaker [2008:125] claims that "*... to consider the aesthetics of structures from a mechanical point of view implies the appreciation of the capacity of materialised form to act structurally.*"

Following that, he puts forward four strategies [Sandaker, 2008:126] for guiding the aesthetic reflections of the mechanical aspects of structures. We should encourage;

- *structural form that meets basic knowledge of the relationship between geometry and structural behaviour, the result being an appropriate structural efficiency;*
- *structures that resolve satisfactorily the relationship between material properties and structural form. This applies to both the global and the local level of structural form, and may also involve questions of structural scale;*
- *to avoid over-simplification of form in larger-scale structures, displaying less structural efficiency than is considered appropriate;*
- *to avoid a complexity of form that seeks inappropriately high structural efficiency in a structure of a small scale, the result being a lack of technological efficiency.*

Structures that avoid violation of these strategies may then be object for an aesthetic appreciation from its mechanical appropriateness. [Sandaker, 2008:126]

However, specific spatial concepts can lead to an aesthetic appreciation of structures, even if not being appropriate from a pure mechanical point of view.

Aesthetics of the spatial function

The omnipresent character of structures, being the support of loads, is never the main purpose of architectural structure; the purpose is to materialize architectural space, and the means are structural. This suggests why and how architectural structures may be influenced not only by its mechanical function, but by the spatial function in particular. In order to fully understand, appreciate and succesfully design aesthetically pleasing architectural structures the spatial aspects of structures should be taken into account. This calls for architectural competence and sensibility.

The spatial function of architectural structures is primarily one connected with utility. The utility functions of structure implies fundamental architectural features such as organization and scale of architectural spaces as well as influencing incoming daylight. Thus, the spatail aspects of structures influence how we utilize and perceive space. Here a special emphasis is put on the spatial function in the perspective of experiencing daylight.

EXPERIENCING **DAYLIGHT**

In architectural space the structure has a direct relationship to natural daylight. The feature of light not only being quantifiable and useful in a practical sense of providing sufficient light, but also being non-utilitarian and qualitative providing character to space has great architectural significance.

This is made clear by architect Louis I. Kahn [in Sandaker, 2008:147]; *"the structure is the maker of light"*, and *"the light of the vault is a choice out of structure. When you choose a vault you are already choosing the light. When you choose the column you are choosing a kind of light."* In this way Kahn considers structure as a tool for designing the character of light; its quantity, direction, color, and its rhythm of absence and presence. In this sense light, and the structure defining it, belongs to both the material and immaterial aspects of architecture.

When Kahn chooses the barrel vault for Kimbell Art Museum he chooses the character of light as well. The same relation between choice of structure and choice of natural light is evident at the Nordic Pavilion designed by Sverre Fehn for the Venice Biennale 1962. The generator of the structural design of the roof is a protection of the paintings from direct sunlight. This is achieved by two layers of orthogonal beams. The beams are made of thin concrete elements narrowly spaced to prevent direct sunlight. This roof structure is a fine example of clearly expressing both the mechanical and spatial function of architectural strucures, both exposing and emphasizing the load bearing elements as well as providing a free span space characterized by the diffuse light from the sky with a reference to the shadowless Scandinavian twilight. Here both the material and immaterial aspects of architecture are adressed in a consistent architectural main idea.

These examples demonstrate how structure in the perspective of experiencing daylight can affect how we utilize and perceive space by providing a distinct character of space. With light comes also the appreciation of its opposite - shadow. Every phenomenon needs its opposite for truly understanding the significance of it. Day gets its characteristics from knowing about night. Day is only day, because night exists.

The appreciation of shadow as the opposite of light is treated by Japanese author Junichiro Tanizaki with his 'In praise of shadows' [Tanizaki, 1977], the original in Japanese being from 1933. His work has possibly strong metaphorical meanings with shadow being a place for retraction and dwelling in traditional Japanese interiors, in opposition to the dazzling light of the modern age in Western society. These values represents both another time and another culture, but the essence of distinguishing between light and shadow, extrovert and introvert spaces, exposure and enclosure, are highly relevant in the perspective of differentiating space for various levels of social interaction as adressed in "Space for social interaction" on page 61.

The importance of both light and shadow is emphasized in other aspects of architecture by Modern Swiss architect Le Corbusier [Corbusier, 1923]; *"Architecture is the masterly, correct and magnificent play of volumes brought together in light. Our eyes are made to see forms in light: Light and shade reveal these forms: cubes, cones, spheres,and cylinders or pyramids are the great primary forms which light reveal to advantage."* When considering a cube or pyramid the visible sides appear in different intensity of light making the form comprehensible to the eye and mind. Considering a cone, sphere or cylinder the surface will gradually turn from being in light to shadow. In this sense both light and shadow are important aspects of perceiving architectural form.

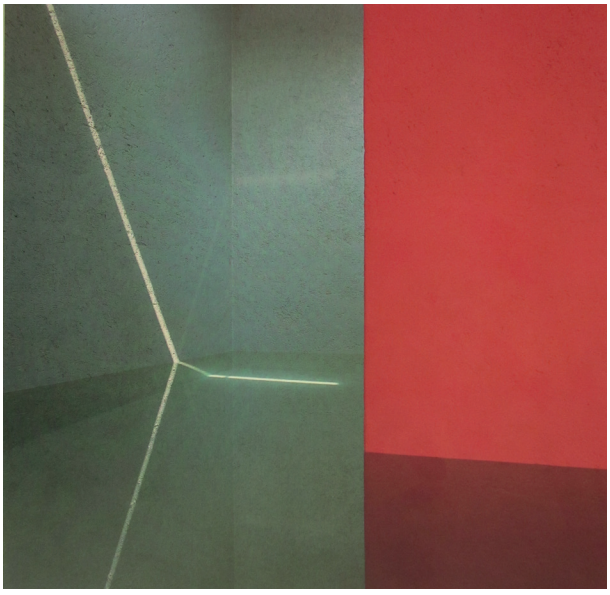
Fig.35. Kimbell Art Museum (1972) by Louis I. Kahn. The choice of the barrel vault with the opening in the middle provides a natural washing light. Here the choice of structure is a choice of light, and vice versa.

Fig.36. Nordic Pavilion (1962) by Sverre Fehn. The mechanical and spatial functions of architectural structures meet beautifully, providing a distinct character of space.

Fig.37. (top) The perception of space as surface at the James Turrell Museum at Colomé, Argentina

Fig.38. (below) Santa Catalina Monastery in Arequipa, Peru. Portuguese architect Álvaro Siza writes in the guest book that this place was to him like a lesson on architecture.

Fig.39. Interior at the Francisci Gilardi House (1977) in Mexico by Luis Barragán. Light and color creates the space of the interior.



Not only form but also the experience of colors depends on light. Light consists of colors, and the visual registration of color strongly depend on amount and character of light. This subject is adressed by Danish-Icelandic artist Olafur Eliasson in more of his work. Lately, some of his work relating to the colors of light was exhibited at the Art Museum ARoS in Århus. By engaging one's body in the installations of light and colors a strong impact is felt. Light is treated as having material properties: Density, lightness, space enclosing, etc. At the same time light is treated immaterially with its dreaming and poetic effects.

Space as a constellation of the mind sensitive to the perception of light is mastered by American artist James Turrell. Experiencing his work at the James Turrell Museum at Colomé, Argentina, one is truly a slave of the perception of the eye and mind. Whether a 2-dimensional surface perceived as 3-dimensional form, or 3-dimensional space perceived as 2- dimensional surface is unpredictable in his work. But it surely enlights the full potential of the relation between light and perception rendering light as a key en perceiving space.

With color being dependent on the presence of light, colors have the potential of informing about the intensity and character of light in architecture. The significance of this is masterly executed in the 400 years old Santa Catalina Monastery in Arequipa, Peru. The monastery is like a town within the city, where you move through shadow to light, darkness to color. When visiting, Portuguese architect Álvaro Siza wrote in the guest book that this place was a lesson on architecture.

A more contemporary master of designing an aesthetic experience of light and colors is the Mexican engineer and architect Luis Barragán. His work in general is characterized by a noble exterior and happiness in the interior where life is lived. The simplicity but yet richness in the experience of its most basic characteristics as space and light are consistent features of his work. The light is activated and utilized in the most intriguing ways adding great quality and significance to space.

The experience of daylight in architecture both relates to structural form and to the perception of colors. The aesthetics of architectural structures, and their spatial function, are closely related to that of light, adding more than mere quantifiable amounts of daylight by providing character and significance to space.

ARCHITECTURAL QUALITY IS TO MATERIALIZE A PHYSICAL ENVIRONMENT IN A WAY THAT PROMOTES BODILY PHYSICAL SATISFACTION OF BEING IN THE WORLD."

[CARSTEN THAU, 2011]

6 **ARCHITECTURAL QUALITY** - DESIGNING SPACE FOR SPORTS

Throughout this theoretical study of architecture's role in the context of space for sports I have been focussing on the relationship of body movement, social interaction and space for sports. This focus has provided the identification of a number of different design aspects potentially providing the desired attractive point of local assembly and physical activity. In this way present chapter serves as a conclusion of previous chapters, seeking a formulation of a design strategy guiding the design of future space for sports, ensuring the desired qualities and functionality.

In preceding chapters the knowledge of space for sports in a historical perspective (chapter 1) has provided a framework for understanding contemporary movement culture and space for sports. Hence, history is regarded an integral part of the context in which to design.
Identifying contemporary trends in space for sports (chapter 2) is to characterize the state of the art. These characteristics are primarily understood historically as well as culturally, and then become applicable in future space for sports.
These two chapters constitute the foundation for identifying the content of the following two chapters. The fields of particular architectural interest for further research in this matter are; the contextual relations of space for sports (chapter 3), and the relation between the experiencing body and architecture (chapter 4). Structural aspects (chapter 5), including the character of daylight, is treated as a technical elaboration on the subjects of chapter 4, placing structure and character of daylight in an experiential and aesthetic perspective.

DESIGN **STRATEGY**

These previous chapters have provided an identification of a number of different design aspects, potentially providing the desired attractive point of local assembly and physical activity in Godthåb. The aspects will here be gathered and expressed in a design strategy developed towards how to approach the architectural space for future space for locally founded physical activities in general. This general purpose of the design strategy is developed to become a specific purpose when applied to the actual case of Godthåb in the second half of this Master thesis. In both cases the overall aim is architectural quality in space for sports.

Quality is thus considered as the integral whole constituted by the different parts in this chapter. The notion of functionality in this case is not merely concerned with the purpose of use; functionality is as much concerning an architecture, which facilitates a bodily experience and contextual relations. Thus, functionality of space has a direct influence on how we understand the architecture and its desired qualities. With this determination, functionality is an inherent aspect in more parts of this chapter.

The architectural main idea

The intellectual consistency of architecture, experienced as a unity of both material and immaterial aspects of architecture, can be conceived as an architectural main idea. The experienced consistency is highly dependent on details - resolved sub problems that in a synthesis form the unity of the project in the case of a maintained architectural main idea.

The concept of the architectural main idea thus emphasizes that architecture is made of details. By identifying and elaborating the relationship between the detail and the complete work we may conceive an aesthetic experience. The consistency and appropriateness of the architectural main idea can potentially lead to experienced architectural quality.

Professor Carsten Thau [Arkitektens hjem, 2011] comments on architectural quality as; *"Architecture attempts to put a certain quality in the surroundings". "Architectural quality is to materialize a physical environment in a way that promotes bodily physical satisfaction of being in the world."* Architectural quality is to succeed in consistently making the invisible visible. Architectural quality is thus a materialization of demands and dreams in society or another given context. A materialization of the immaterial.

This abstract value, of architectural quality through a materialized architectural main idea, will be answered by the following design strategy in this chapter.

Throughout the theoretical study of architecture's role in experiencing space for sports I have been focussing on the relationship of space for sports, body movement and cultural identity, all relating to the significance of social interaction. This focus has fostered an identification of a number of different design aspects potentially providing the desired place of experienced value for local assembly and physical activities.

Those aspects are to be considered the main parameters of the design strategy developed towards how to approach architectural quality in the case of future space for locally founded physical activities of small scale communities in general. When applied to the actual case of the design proposal for the GodtHuset in Godthåb, the aspects of the design strategy should synthesize in an architectural main idea of the final design proposal. Thus, the design strategy and its four aspects will be materialized in the final design proposal for future space for sports in Godthåb presented in the 2nd half of this Master thesis.

Architectural quality is here considered the result of a clear and maintained architectural main idea stemming from the following aspects of the design strategy;

CONTEXT

The aspect of 'context' primarily relates to the situational context, the character of local community, the general societal development in terms of body culture.

The situational context is always characterized by a specific present scenario and various potential future scenarios, influenced by landscape, neighbouring buildings and other volumes, paths and edges, and orientation of site serves as possible challenges and potentials. When addressed thoughtfully, either by contrast or unity, the situational context holds an inherent potential of rooting the architecture to site. The significance of obtaining this is to generate a sense of obvious and effortless addition to place in order to connect with the potential users of local community. The architectural matter is to address the situational context consciously.

The character of local community affects the appropriate content of future space for sports of that particular context. Simply, the difference in numbers of potential users in a small-scale village compared to that of a larger scale town will affect the offered activities, as well as the available types of participation, as a result of different desires and needs according to the context. Additionally, the degree of engagement in local association life should affect the content of the provided facilities. The architectural matter is one of providing appropriate functionality to the specific local community.

The general societal development in terms of body culture is affecting the facilities in a less community specific manner, but a distinction between villages and cities should be placed. Contemporary body cultures are characterized by a strong rootedness in association life. Together with this traditionally dominant type of sports participation, new tendencies occur in relation to physical activity, e.g. individuality, flexibility in participation, sensory empowerment and amusement. Together with an awareness that these tendencies change over time, the architectural matter of the general societal development in terms of body culture is one of functionality and flexibility.

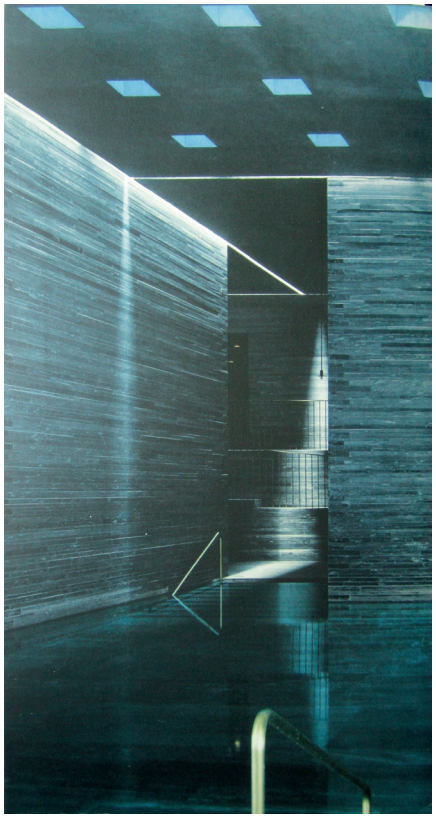


Fig.40. Therme in Vals (1996) by Peter Zumthor. The architectural main idea is a consistent elaboration of various aspects as context, scale and experience.

SCALE

The aspect of 'scale' relates to both exterior and interior matters referring to both the aspects of 'context' and 'experience'.

Where the exterior matters of 'scale' should address the situational context both in the scale of landscape, settlement and building, the interior matters range from the scale of space to scale of the hand.

Addressing diversity in the scale and character of space with the human body being the measure holds a potential of supporting diversity in use, from activities to settling down, as well as in social interactions. The significance of this being a support of diversity in functionality, social interactions and experiences.

The scale of the hand should be addressed through the detailing of joints and enhanced tactility in order to support an architecture that affects the experiencing body.
Together, an elaboration on all scales serves to express a maintained architectural main idea adding significance and quality to the architecture.

EXPERIENCE

The aspect of 'experience' relates to the potential bodily affection of experiencing architecture and the social and cultural experiences facilitated by that architecture.

Sport's moving bodies imply a pronounced encounter between built environment and human body. This calls for detailing in scale of the body and the hand. In this regard, the choice of materials, detailing of joints and structural form as well as perception of light, holds great potential. The sensory empowerment in such architecture is likely to provide the desired affection on its users. The potential result of bodily affection in architecture is to become a place of experienced value and meaning. To do so, the architecture should support both sensation, perception and conception. The significance of this being an architecture that stimulates both body and mind, and is kept by memory.

In all scales, from city and landscape to detail, a design that seeks to invite and instruct to engage one's body in actions and interactions should be encouraged. The experience of the architecture should suggest patterns of movement as well as stimulating a sense of dwelling and well-being. Thus, the architecture should provide space for impression and expression as well as the space for tranquillity in between in order to facilitate diversity in social and cultural experiences. The significance of this being a support of cultural identity in local community.

CONCLUDING **PERSPECTIVE**

On a basis of the introduction, the objective of this project stresses an investigation of the design of future space for sports in a small-scale community in Denmark. This issue is approached by placing social interaction at the core of the interplay between space for sports, body movement and cultural identity. The decision to let this approach initiate my particular occupation with quality in future space for sports started out as something intuitive: To look at space for sports from the perspective of a bodily experience implied by body movement.

In the introduction to this project three main issues are introduced. These deserve to be addressed separately:

As in experiencing architecture, sports are characterized by engaging one's body.

The relation between body and architecture affects human behaviour as an incitement to move or the ability to dwell. Relating sports to the subjects of body and architecture, the significance of space for sports is the potential of evoking social interactions and bodily experiences through the architectural design.
In this respect architecture is not merely containing the activity of sports, it is suggesting, inspiring and inviting for actions and interactions.

The link between body and mind in sports is reintroduced. The way we move and consider our body has simply changed.

Space for sports should mirror such societal changes. Architecturally, this implies an architecture that facilitates diversity in use to meet the desire of multi functionality, as well as an architecture that addresses the bodily experience in space for sports to meet general tendency towards sensory empowerment. An approach to architecture where a maintained architectural main idea is ensuring an intellectual consistency of the design is adding layers that potentially satisfy both body and mind when experiencing the architecture.

Now the importance of facilities and identity has come to relevance again through the lack of sports facilities in the village of Godthåb. Or more correctly, a local citizen's house for assembly and physical activities.

The village context of Godthåb exemplifies the issue of a threatened cultural identity in small-scale communities. This issue is justified by a lack of space for local assembly and physical activities - space for interacting socially on a local basis.
Space for sports hold a great potential of providing cultural significance to a small-scale community. The support of cultural identity presupposes space that invites and inspires for comprehensive and diverse social interactions. The significance of this is an enhanced sense of community feeling.
However, the cultural identity presupposes a place of felt value as well. This felt value of place will arise through a strong identity of place, and by the citizens getting to know the place and endow the architecture with value through visiting and using the facilities for various activities over time. A strong identity of place is supported by a strong maintained architectural main idea. Potentially, cultural identity will not only be maintained but also generated from architecture with such qualities.

The issues introduced in the introduction is thus answered by an occupation with the following subjects of investigation; body and architecture, societal changes within the concepts of body movement, and cultural identity supported by space for sports.

To inform the design of future space for sports in Godthåb a design strategy is put forward on the basis of the subjects of investigation, which are communicated in this report. The design strategy seeks to make these investigations applicable to architecture by stressing the subjects of 'Context', 'Scale', and 'Experience'.

The design strategy provides a tool for designing space for sports that is suggesting diversity in social interactions and use, generating culture in a sense of community feeling by inviting for local assembly, and being an effortless extension of the existing place by integrating with site and community.

This project identifies the concepts of body movement as being related to both increased health and well-being, implying social interactions, as well as emphasizing a feeling of being alive. Social interactions are identified as holding the significance of a sense of belonging culturally. Cultural identity is thus supported by space for sports through social interactions implied by local assembly and physical activities.

All this, based on the concept of bodily experience as the fulcrum of space for sports.

Ever since I read 'The eyes of the skin' for the first time in 2007, I have perceived architecture with different 'eyes'. My occupation with this specific project in Godthåb has rendered the significance of approaching architecture as a bodily experience more specific and clear, but yet widely open, than ever before.

I consider this project a humble step down the road of conceiving space for sports as a bodily experience. The intention of designing future space for sports in the village of Godthåb has led to a various field of subjects for investigation. In some way, they all appear to be possible to refer to the bodily experience of architecture. This implies that I have identified a way of perceiving and conceiving architecture that I will keep with me.

Let's move. And enjoy.

REFERENCE LIST

[Agergaard, 2004]
Agergaard, Sine; *Fra forsamlingshuset over idrætshallen til multiaktivitet-shuset*
Syddansk Universitetsforlag, 2004
ISBN: 87-7674-015-3

[Bale & Vertinsky, 2004]
Bale, John & Vertinsky, Patricia; *Sites of sport - Space, Place, Experience*
Routledge, London, 2004
ISBN: 0-7146-5343-8

[Berg, 2006]
Berg, Wim van den; *Luis Barragán - The eye embodied*
Pale Pink Publishers, Maastricht, 2006
ISBN: 978981008914

[Bloomer & Moore, 1977]
Bloomer, Kent C. & Moore, Charles W.; Body, *Memory, and Architecture*
Yale University Press, London, 1977
ISBN: 0-300-02139-9

[Caruso, 2008]
Caruso, Adam; *The feeling of things*
Ediciones Polígrafa, Barcelona, 2008
ISBN: 978-84-343-1186-2

[Corbusier, 1923]
Corbusier, Le; *Towards a new architecture*
Architectural Press, Oxford, 1923
ISBN: 0-7506-0627-4

[Eichberg, 1998]
Eichberg, Henning; *Body cultures: essays on sport, space, and identity*
Routledge, London, 1998
ISBN: 0-415-17232-2

[Eichberg, 2010]
Eichberg, Henning; *Bodily democracy*
Routledge, Oxon, 2010
ISBN: 978-0-415-55933-1

[Engel, Rønholt, Nielsen and Winther, 2006]
Engel, Lis; Rønholt, Helle; Nielsen, Charlotte Svendler & Winther, Helle; *Bevægelsens poetik*
Institut for Idræt, Københavns Universitet
ISBN: 87 635 0501 0

[Fisker & Keiding, 2005]
Fisker, Anna Marie & Keiding, Tina Bering; *Det Arkitektoniske Hovedgreb*
In: L. Botin & O. Pihl, ed.; *Pandoras boks*
Aalborg Universitets forlag, 2005, pp. 31-58
ISBN: 87-7307-741-0

[Gehl, 2003]
Gehl, Jan; *Livet mellem husene*, 5th edition
Arkitektens Forlag, Copenhagen, 2003
ISBN: 87 7407 280 3

[Gehl, 2010]
Gehl, Jan; *Byer for mennesker*
Jan Gehl and Bogværket, 2010
ISBN: 978-87-92420-11-4

[Jarvie, 2006]
Jarvie, Grant; *Sport, Culture and Society*
Routledge, Oxon, 2006
ISBN: 978-0-415-30647-8

[Jencks, 2002]
Jencks, Charles; *The new paradigm in architecture*
Yale University Press, New Haven, 2002
ISBN: 0-300-095139

[Jensen, 2009]
Jensen, Jens-Ole; *RUM der bevæger børn*
Lokale- og Anlægsfonden, 2009
ISBN: 978-87-989966-5-1

[Kural, 1999]
Kural, René; *Spillerum - alternative steder til idræt, kultur og fritid*
Kunstakademiets Arkitektskoles Forlag, 1999
ISBN: 87-87136-34-1

[Kural, 2000]
Kural, René; *Fremtidens idræts- og kulturbyggeri*
Lokale- og Anlægsfonden, 2000
ISBN: 87-986579-3-3

[Kural, Jensen & Kirkeby, 2010]
Kural, Rene; Jensen, Bjarne Bruun & Kirkeby, Inge Mette; *AproPOS - Arkitektur, Pædagogik og Sundhed*
Kunstakademiets Arkitektskoles Forlag, 2010
ISBN: 978-87-87136-95-2

[Larsen, 2003]
Larsen, Knud; *Den tredje bølge*
Lokale- og Anlægsfonden, 2003

[Lyngsgård, 1990]
Lyngsgård, Hans; *Idrættens rum*
Borgens Forlag, Copenhagen, 1990
ISBN: 87-418-8914-2

[Lyngsgård, 1998]
Lyngsgård, Hans; *Nyt liv i gamle idrætshaller*
Lokale- og Anlægsfonden, 1998
ISBN: 87-986579-1-7

[Markula & Pringle, 2006]
Markula, Pirkko & Pringle, Richard; *Foucault, sport and exercise*
Routledge, Oxon, 2006
ISBN: 978-0-415-35863-7

[Miller, 2004]
Miller, Stephen G.; *Ancient greek athletics*
Yale University Press, London, 2004
ISBN: 0-300-10083-3

[Ministry of Culture, 2010]
Ministry of Culture; *Fysisk aktivitet for sundhed*
ISBN: 978-87-994277-1-0

[Mogensen, 2005]
Mogensen, Mette; *Idrætshaller for fremtiden*
Lokale- og Anlægsfonden, 2005

[Nielsen, 2005]
Nielsen, Niels Kayser; *Body, sport and society in Norden*
Aarhus University Press, Aarhus, 2005
ISBN: 87-7934-177-2

[Norberg-Schulz, 1980]
Norberg-Schultz, Christian; *Genius Loci - Towards a phenomenology of architecture*
Academy Editions, London, 1980
SBN: 85670 700 7

[Ottesen & Ibsen, 2000]
Ottesen, Laila & Ibsen, Bjarne; *Forsamles og forenes om idræt*
Lokale- og Anlægsfonden, 2000
ISBN: 87-986579-4-1

[Pallasmaa, 2005]
Pallasmaa, Juhani; *The eyes of the skin*, 2nd edition
John Wiley & Sons Ltd, Chichester, 2005
ISBN: 978-0-470-01578-0

[Pilgaard, 2008]
Pilgaard, Maja; *Danskernes motions- og sportsvaner 2007*
Idrættens Analyseinstitut, Copenhagen, 2008

[Roessler, 2003]
Roessler, Kirsten Kaya; *Arkitekturpsykologi*
Lokale- og Anlægsfonden, 2003
ISBN: 87-986579-7-6

[Roessler & Overbye, 2006]
Roessler, Kirsten Kaya & Overbye, Marie; *Kvinder og mænd i idrættens rum*
Lokale- og Anlægsfonden, 2006

[Sandaker, 2008]
Sandaker, Bjørn Normann; *On Span and Space*
Routledge, Oxon, 2008
ISBN: 978-0-203-00394-7

[Sharr, 2007]
Sharr, Adam; *Heidegger for Architects*
Routledge, Oxon, 2007
ISBN: 978-0-415-41517-0

[Shusterman, 2008]
Shusterman, Richard; *Body Consciousness*
Cambridge University Press, New York, 2008
ISBN: 978-0-521-67587-1

[Skousbøll & Wikke, 2010]
Skousbøll, Karin & Wikke, Helle Bøcken; *Arkitektur, krop og rum*
Kunstakademiets Arkitektskoles Forlag, 2010
ISBN: 978-87-87136-93-8

[Stürzebecher & Ulrich, 2002]
Stürzebecher, Peter & Ulrich, Sigrid; *Architecture for sport*
John Wiley & Sons Ltd, Chichester, 2002
ISBN: 0-470-84698-4

[Tanizaki, 1977]
Tanizaki, Junichiro; *In praise of shadows*
Leete's Island Books, 1977
ISBN: 978-0918172020

[Till, 2009]
Till, Jeremy; *Architecture depends*
MIT Press, Cambridge, 2009
ISBN: 978-0-262-01253-9

[Tuan, 1977]
Tuan, Yi-Fu; *Space and place - the perspective of experience*
University of Minnesota Press, Minneapolis, 1977
ISBN: 0-8166-3877-2

[Wikke & Melgaard, 2007]
Wikke, Helle Bøcken & Melgaard, Ebbe; *Afsæt - idræt og arkitektur i byen*
Kunstakademiets Arkitektskoles Forlag, 2007
ISBN: 978-87-87136-73-0

[Zahavi, 2003]
Zahavi, Dan; *Fænomenologi,* 1st edition
Roskide Universitetsforlag, Denmark
ISBN: 9788778672124

[Zumthor, 2006]
Zumthor, Peter; *Atmospheres*
Birkhäuser, Basel, 2006
ISBN: 978-3-7643-7495-2

[Zumthor, 2010]
Zumthor, Peter; *Thinking architecture*, 3rd edition
Birkhäuser, Basel, 2010
ISBN: 978-3-0346-0582-3

Articles

[Arkitektur DK 4, 2002]
Dirckinck-Holmfeld, Kim, et al.; The Meeting-hall of the future in Hadsten
Arkitektens Forlag, Copenhagen, 2002

[CIFS, 2004]
Article on *'Sanseliggørelse'* (Sensory empowerment) by Copenhagen Institute for Futures Studies available at; <http://www.cifs.dk/scripts/artikel.asp?id=974&lng=1> (Accessed 1 May 2012)

[CIFS, 2001]
Article on *'Den fragmenterede idræts mange fremtider'* (The futures of the fragmented field of sports) by Copenhagen Institute for Futures Studies available at; <http://www.cifs.dk/scripts/artikel.asp?id=449&lng=1> (Accessed 1 May 2012)

[KU.BE, competition programme]
Competition programme available for download at;
<http://www.frederiksberg.dk/ByOgKultur/Byudvikling/kube/~/media/NYVERSION/ByOgKultur/Byfornyelse/kube/KubeKonkurrenceProgramTilHjemmeside.ashx> (Accessed 1 May 2012)

[KU.BE, judge's report]
Judge's report available for download at;
<http://www.frederiksberg.dk/ByOgKultur/Byudvikling/kube/OmKU,-d-,BE/~/media/NYVERSION/ByOgKultur/Byfornyelse/kube/KUBE_100dpi.ashx> (Accessed 1 May 2012)

[LOA, project evaluation Sløjfen]
Evaluation on the project in Hadsten, available for download at;
<http://www.loa-fonden.dk/inspiration/kulturhuse/fremtidens-forsamlingshus-i-hadsten> (Accessed 1 May 2012)

[LOA, project evaluation DGI-huset]
Evaluation on the project DGI-huset, available for download at;
<http://www.loa-fonden.dk/inspiration/idraetshuse/dgi-huset-aarhus> (Accessed 1 May 2012)

[LOA, project evaluation Holbæk Foreningshus]
Evaluation on the project in Holbæk, available for download at;
<http://www.loa-fonden.dk/inspiration/klublokaler-og--huse/fremtidens-foreningshus,-holbaek> (Accessed 1 May 2012)

[LOA, project evaluation Indre Byfælled]
Evaluation on Indre Byfælled projects, available for download at;
<http://www.loa-fonden.dk/publikationer/evalueringer/evaluering-af-fondsprojekter> (Accessed 1 May 2012)

[LOA, project evaluation Multihus Højen]
Evaluation on Multihus Højen, available for download at;
<http://www.loa-fonden.dk/inspiration/idraetshuse/multihus-hoejen> (Accessed 1 May 2012)

[Ministry of Culture, 2011]
Ministry of Culture; *Fysisk aktivitet og læring.* Electronical publication, available at: < http://kum.dk/Servicemenu/Publikationer/2011/Fysisk-aktivitet-og-laring/> (Accessed 1 May 2012)

Interviews

[Beck, 2011]
Beck, Carsten; Cand.polit., head of research at Copenhagen Institute for Futures Studies. Telephone interview 19 November 2011.

Film

[Arkitektens hjem, 2011]
Arkitektens hjem; Claus Bonderup, 2011. TV programme, DR, 15 March 201. Available through: <http://www.dr.dk/nu/player/#/arkitektens-hjem> (Accessed 1 May 2012)

Press releases

[Dorte Mandrup, 2011]
in LOA, 2011. *Idrættens arkitektpris 2011 til Dorte Mandrup Arkitekter.* 15 April 2011, Available at: <http://www.loa-fonden.dk/nyheder/pressemeddelelser/pressemeddelelser-2011/pm-2011/idraettens-arkitektpris-2011-til-dorte-mandrup-arkitekter> (Accessed 1 May 2012)

Websites

[Aktivitetsrum, 2006]
The process of creating aktivitetsrum.dk. Available at:
<http://www.aktivitetsrum.dk/t2w_777.asp> (Accessed May 14 2012)

[CIA, 2012]
Profile of CIA. Available at:
<http://www.karch.dk/cia/Menu/Profil> (Accessed May 14 2012)

[Council of Europe, 2011]
Sport Conventions. Available at:
<http://www.coe.int/t/DG4/sport/default_en.asp> (Accessed May 14 2012)

[LOA, 2012]
About the LOA-fund. Available at:
<www.loa-fonden.dk/om-fonden> (Accessed May 14 2012)

[LOA, Børnekulturhus, 2012]
LOA on Børnekulturhus. Available at:
<http://www.loa-fonden.dk/inspiration/kulturhuse/boernekulturhus-i-kolding> (Accessed May 15 2012)

[LOA, Multihus Højen, 2012]
LOA on Multihus Højen. Available at:
<http://www.loa-fonden.dk/inspiration/idraetshuse/multihus-hoejen]> (Accessed May 15 2012)

[Realdania, 2012]
About Realdania. Available at:
<http://www.realdania.dk/> (Accessed May 14 2012)

[Streetmekka, 2012]
About Streetmekka. Available at:
<http://streetmekka.dk/om-streetmekka> (Accessed May 15 2012)

[Streetmovement, 2012]
About Streetmovement. Available at:
<http://www.streetmovement.dk/#/about-us> (Accessed May 15 2012)

Articles (and other unsorted publications)

Arkitekten 1, 2008 - Nye mutationer
Arkitektur DK 8, 2003 - Brændstof i byudviklingen
Arkitektur DK 8, 2006 - Genstridige gadehjørner
LOA, 2007 - Arkitektur, kvinder og idræt
LOA, 2003 - Arkitekturpsykologi
Idrættens analyseinstitut, 2008 - Danskernes motions- og sportsvaner
LOA, 2003 - Den tredje bølge
LOA, 2004 - En idrætslegeplads skal ligge i vejen
LOA, 2009 - Energiske faciliteter, bæredygtig idrætsarkitektur
LOA, 2000 - Forsamles og forenes om idræt
LOA, 2000 - Fremtidens idræts- og kulturbyggeri
LOA, Peter Holst Arkitektur, 2009 - Idekatalog til næraktivitetsanlæg
Idrætten og byen
LOA, 2004 - Idrættens fornemmelse for byrum
LOA, 2007 - Idrættens største arenaer, fra OL til hverdag
LOA, 2005 - Idrætshaller for fremtiden
Syddansk Universitet, 2006 - Kvinder og mænd i idrættens rum
Realdania, Ny Thisted Kommune, 2006 - Ny dynamik i Danmarks yderområder
LOA, 1998 - Nyt liv i gamle idrætshaller
LOA, Peter Holst Arkitektur, 2011 - PLAYSPOTS
LOA, 2009 - Rum der bevæger børn
Tribune 11, 2009 -
Tribune 7, 2007 -
Tribune 9, 2008 -

John Bale; Landscapes of modern sport

Vitruvius; The ten books on architecture

Ruskin, John; The stones of Venice

Pallasmaa, Juhani; Encounters

Rasmussen, Steen Eiler; Om at opleve arkitektur

Norberg-Schulz, Christian; Existence, space and architecture

Bek, Lise; Rumanalyser (kompendie)

Lund, Nils-Ole; Arkitekturteorier siden 1945

Bachelard, Gaston; The poetics of space

[Merleau-Ponty, 1945]
Merleau-Ponty, Maurice; Phenomenology of perception

FIGURE CREDITS

Fig.1 on page 18 Entrance tunnel at Nimea [Miller, 2004:111]
Fig.2 on page 19 The palaistra at Olympia [Miller, 2004:177]
Fig.3 on page 19 The Panathenaic stadion [Miller, 2004:137]
Fig.4 on page 23 Stenstrup assembly hall (1880) [http://www.geocaching.com]
Fig.5 on page 23 The new training house at Vallekilde [Lyngsgård, 1990:38]
Fig.6 on page 24 Otto Mønsted-hallen (1940) [Lyngsgård, 1990:81]
Fig.7 on page 27 Kildeskovhallen exterior [Arkitektur, 1970(4):169]
Fig.8 on page 27 Bevægelseshus in Gerlev [http://www.denstoredanske.dk]
Fig.9 on page 32 Local soccer team [Mom's photo album]
Fig.10 on page 32 Skating in Fælledparken [Own photo]
Fig.11 on page 32 Biking in Copenhagen [Own photo]
Fig.12 on page 40 Sløjfen Multipurpose Hall [Arkitektur DK, 2002, 4:234]
Fig.13 on page 41 Sløjfen, plan view, first floor [Arkitektur DK, 2002, 4:232]
Fig.14 on page 41 Sløjfen, section [Arkitektur DK, 2002, 4:234]
Fig.15 on page 43 Exterior Multihus Højen [http://nsark.dk/projekter/idraet/multihus-hojen.html]
Fig.16 on page 43 Interior Multihus Højen [http://nsark.dk/projekter/idraet/multihus-hojen.html]
Fig.17 on page 45 Landsbyhuset Gyrstinge, model [http://www.archdaily.com/138397/landsbyhuset-cebra/]
Fig.18 on page 45 Landsbyhuset Gyrstinge, sports hall [http://www.archdaily.com/138397/landsbyhuset-cebra/]
Fig.19 on page 47 DGI-Huset, interior [http://shl.dk/dan/#/home/about-architecture/sport-leisure/the-dgi-building/download]
Fig.20 on page 49 The Prism, exterior [Wikke & Melgaard, 2007:47]
Fig.21 on page 49 The Prism, interior [Wikke & Melgaard, 2007:49]
Fig.22 on page 51 Flintholm SPARK, render [http://www.adeptarchitects.com/]
Fig.23 on page 51 Programmatic diagram. Based on [KU.BE, competition programme]
Fig.24 on page 53 Streetmekka, outdoor environment [Own photo]
Fig.25 on page 53 Streetmekka, the large hall [Own photo]
Fig.26 on page 54 Børnekulturhuset, section [Arkitektur DK, 2009, 3:48]
Fig.27 on page 55 Børnekulturhuset, The Cloud [Arkitektur DK, 2009, 3:47]
Fig.28 on page 55 Børnekulturhuset, The Jungle[Arkitektur DK, 2009, 3:49]
Fig.29 on page 61 Intensity of social interactions based on [Gehl, 2010]
Fig.30 on page 61 Activities in public space based on [Gehl, 2010]
Fig.31 on page 79 Brion cemetery [Own photo]
Fig.32 on page 80 Global form [Sandaker, 2008:36]
Fig.33 on page 80 Local form [Sandaker, 2008:36]
Fig.34 on page 82 Chapel in Turku [http://virtualsacredspace.blogspot.com/2011/07/matti-sanaksenahos-ecumenical-art.html]
Fig.35 on page 85 Kimbell Art Museum [http://content.lib.utah.edu/cdm4/item_viewer.php?CISOROOT=/coa&CISOPTR=2335]
Fig.36 on page 85 Nordic Pavilion [http://www.flickr.com/photos/seier/1064574486/]
Fig.37 on page 86 James Turrell Museum [Own photo]
Fig.38 on page 86 Santa Catalina Monastery [Own photo]
Fig.39 on page 86 Francisco Gilardi House [Berg, 2006:247]