CONCRETE

ARCHITECTURE IN FINLAND

PHOTOGRAPHED BY
JUSSI TIAINEN

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Preface

MATTI RAUTIOLA Professor, Director General, The Building Information Foundation RTS

Publications about contemporary architecture are most often either biographies or monographs based on different building types. They also may take a viewpoint on the role of buildings in the public domain or concentrate on one limited scale at a time, such as small structures or urban entities. *Concrete Architecture in Finland* is different. It is a material-oriented photographic study of Finnish architecture as seen by the Finnish master of architectural photography, Jussi Tiainen.

Jussi Tiainen´s photos are widely published in our country as well as abroad. He has worked with architectural photography and the best architects for over 30 years. For us in Rakennustieto he has published already seven books over a period of more than ten years.

This book is part of a continuous series of studies on Finnish architecture. The focus here is in the use of concrete in all aspects of architecture: exteriors, interiors, structures, spaces, textures, details and objects. It covers 23 designs, ranging from refurbishments to new constructions, from bridges to private houses, from places of tranquillity to busy working environments. The leading idea is the material – the reason, resource and source of architectural expression.

When Tiainen documents architecture the result is very disciplined, concentrated and intensive. With his vast experience, he is able to find the interesting and surprising new views into the ideas of the architect and deepen the understanding of the art of building. The photography is sensitive in touch and crystal clear in vision. He has the gift and skill to highlight with equal importance the intensity of the material and design, both in the large urban scale as well as in the quiet, small details.

The photos emphasize that architecture essentially grows from materiality. Concrete as a building material has its own rules, logic and language. It is peculiar and different from other materials. It is not strictly predestined to be used for a certain structure or scale. The liquid material can take many forms, poured on site or prefabricated. Still, its reference to traditional stone construction is evident. The atmosphere has the same feeling of eternity as the stone buildings of past centuries. The timelessness is born by means of light and shadow, the solid verses the immaterial, and when openings justify the closed and heavy.

The change in the conditions of the working environment in architecture can be seen through and in the use of material. The renovations of existing industrial buildings tell about a time when the materials were expensive and scarce, but human labour cheap and available. The site-built structures were made of concrete, and expressive in their intention to maximise the structural function with minimum material. The tendency in our time has been towards the opposite. The materials are affordable, construction mainly prefabricated, but site work expensive. Fortunately both technologies still exist and new innovations are also making their mark – graphic concrete is a great example.

I confess that when I wrote the preface for Jussi Tiainen´s previous book, *Wood Architecture in Finland*, I could not stop from dreaming already about the next one. To our great delight, my anxiety was not in vain. Once again, I have the opportunity to thank him for his beautiful work and for demonstrating that Finnish architecture is still alive and well.

Finnish Concrete Architecture

MARITTA KOIVISTO Architect SAFA, Editor-in-chief, *Betoni*

THE IMAGE OF CONCRETE

Concrete is what you make of it, or so the slogan for concrete goes. Concrete is stone made by man and cast in a formwork. It always reveals its maker and it may also surprise. In architecture concrete has always found its own form, language and strength, its own creative expression. The image of concrete also contains something primeval, even something mystical, something of the organic power of natural stone. Monolithic concrete structures and mono-materialness create an impression of a superior building material.

The Finnish built environment has largely been built from concrete, and thus we are used to its presence. Perhaps this is why concrete also awakens strong emotions, images, thoughts and changing moods. Concrete often brings to mind pairs of opposites, such as the abundance of forms vs. minimalism, smooth vs. coarse, beautiful vs. ugly, warm vs. cold, strong vs. sensitive, plastic vs. angular, soft vs. hard, light vs. shadow, which bring their own nuance also to concrete architecture.

Concrete is considered a cheap and everyday material, but it can also be festive and dignified. In construction it represents durability and a long user life – an ecological, natural material which, when used correctly, has a long lifespan.

Concrete undertakes a dialogue between the past and the future. Even though it is a 2000-year-old material, it is perceived particularly as the material that best expresses modern architecture and design. Concrete represents the culture of its time, and can even be called intellectual. As a material it is fashionable and trendy as needs dictate. At the same time, it represents simplicity, a return to the use of a basic material.

The strength of concrete lies in its aesthetics. The language of concrete is simultaneously both coarse and lyrical.

CONCRETE AS A MATERIAL

Concrete is, due to the easy availability of raw materials and simple production technology, the most used building material in the world. Concrete is "natural stone as adapted by man", the ingredients of which – aggregate, cement and water, pigments and surface treatments – form an adjustable and variable totality. Its characteristic features are stoniness, coarseness, massiveness and ruggedness. Concrete must, however, not imitate one of its ingredients, that is, natural stone. Polemically expressed, concrete starts where natural stone ends.

The appearance of concrete structures can be varied depending on the consistency of the aggregate, different finishes and colours, as well as coatings or renders. The architectonic and unique identity of the building can be emphasised by different patterns on the concrete surface and high-quality details. The surface of the concrete can be smooth, coarse, trowelled, patterned, washed, cut, rendered... Crushed stone chips can be used as stone aggregate, as can coloured glass, tile chips or other additives. Concrete can also be stained and painted or covered by other coatings.

The natural colour of concrete is grey, but in recent years pigments have been introduced into Finnish concrete architecture. Colour adds a further element to the architecture. Colours create variations in

scale; colour emphasises shape and directs or symbolises function. The choice of colours must adapt to the functional and aesthetic conditions of the building.

Apart from strength and durability, many other advantageous properties are emphasised in concrete, such as sound insulation, moistureproofness, environmental friendliness, flexible construction solutions and appearance, not to mention its cost-effectiveness. New development trends in concrete include coloured concrete, design freedom based on new technology and software, and different ventilated and differentiated facade solutions that allow for free composition with regard to seams and even large surfaces.

Concrete is a material that is cast, which takes on the plasticity of sculpture – and which gives architecture and space a form. It either interacts with other materials or works on its own as a single material. A skilful architect can, like a sculptor, find also the delicate aspects of the cast material – its plasticity, free forms, graphic aspects and smooth shiny surfaces.

Concrete requires skill from its user. In skilled hands anything can be achieved from it, but it does not forgive mistakes. Shaping it requires in-depth knowledge of the character and production methods of the material. From the point of view of the environment, concrete is both a demanding and appreciative material. The correct scale, sufficient variability, and carefully designed details are the basic requirements of a good environment and architecture. Concrete's stone-like nature, solidity or coarseness can act as a desired contrast when properties of other materials, such as wood, steel or glass, are combined with it.

CONCRETE IN ARCHITECTURE

For an architect concrete means honesty in the use of materials. A skilled and innovative designer will discover the vast potential of concrete.

The architect strives to create a built environment that is suited for its purpose, yet is also durable and beautiful. The image of our environment and architecture is based on subjective experience, which is always linked to time and place, an entity consisting of spatial series, in which visual and functional factors are included in the experience.

Architecture and the lifespan of a building are a continuous process. The challenge in design is indeed how the material responds to changing user needs and how it withstands time. Concrete can age with dignity when the architecture is designed to last and the ageing process of the material has been taken into account already at the design stage.

The monolithic and mono-material concrete building is a traditional archetype of architecture in which the structure is part of the architecture. The architecture

is unassuming, the detailing delicate or even spare, the building frame melds into the whole, the surfaces and colours are part of the form of the building.

In Finland the traditional in-situ casting of concrete had to give way as industrial production methods developed. The interest in industrial building production also led to a logical-mathematical concrete architecture, an emphasis on structurality as well as the building frame and systems being integral to the architecture. Now in the 21st century, due to the architectural objectives, concrete structures cast in-situ have risen to a position parallel with industrial prefabricated element production. Building systems can be combined or used as so-called composite constructions in the frame structures. In-situ casting technology enables the use of different forms, bringing out the feeling of a handicraft, enabling the use of festive, sculptural and slender structures, in addition to static and monolithic ones.

The Finnish prefabricated element technology has developed a great deal in recent decades. Particularly the properties of concrete facades – such as element thickness, detailing and seams, precision in dimensioning, durability and preservation as well as maintainability – have been improved considerably. Also the environmental properties of the products have been improved.

In Finland, as a result of the joint development work in concrete technology and architecture, designers have learnt to use concrete in a versatile way. From the point of view of design, concrete is a flexible material; it is also suited for a supportive role, to be used in the background in other structural solutions. In regard to the visible surfaces of buildings, concrete has re-emerged in a new way as its properties and structural solutions have been developed and made more varied.

Nowadays, designers want concrete surfaces to be uninterrupted. Coloured concrete, smooth formwork, screen effects or different surface treatments such as graphic concrete can be used on the surfaces. The sizes of elements or uninterrupted surfaces can vary. Element seams can be faded away or used as architectonic effects in the facades. Fairfaced formwork brings the desired contrast or liveliness when combined with other materials.

The concrete architecture of the 21st century seeks clarity and simplicity. The nature of the material manifests itself better than previously and the changes in light and shadow show on the surfaces. The concrete surface continues from the facades of the building into the interior, linking together the exterior and interior. The facade of a building is a series of events or a memory trace – a reference to the history and activities of the place or a prediction of the future.

The nature of several new commercial and office buildings exudes the high technology of their use.

The facades are simple harmonic entities containing high-quality details. Materials are used in a versatile way and with care. Different finishes are boldly selected for the concrete surfaces. Also the use of colour and a new kind of ornamentation and patterning have emerged to add dynamacy to the architecture. The building can be like modern sculpture, where a natural role is found for the combinations of concrete and other materials in a new informal way. The plasticity of concrete has been harnessed: concrete structures and surfaces create dignity and sublimity in both the exterior and interior public space.

Finnish residential architecture has a strong visual emphasis, with a systematic facade layout, often with varying geometric shapes in the massing. It is restrained in its use of colours or only emphasises primary colours. In residential design the interior spaces open up into their surroundings via the facades. Large window surfaces, facade layouts and restrained building massing are all part of the architectonic whole. Architects have begun to use concrete in a comprehensive way in the structures of housing as well as in the surfaces of the facades and interiors. Recently completed high-quality housing complexes are architectonically innovative and personal, and where professional handicraft skills are emphasised.

The concrete architecture of single-family houses has through skilful planning and material choices achieved unique, sustainable and safe homes. In the fairface facades self-compacting concrete has been used in an innovative way. Walls demarcate sculpturally distinct spaces in which the open interiors form a continuum. The advantageous properties of concrete are also highlighted in wear surfaces such as floors and other horizontal levels.

In industrial buildings – which earlier were designed as if they were shells for machines or a protective structure for the production process – it is again possible to see the function of the production. Nowadays the spatial requirements and character of the function are reflected in industrial buildings as recognisable motifs in both the interior and exterior forms.

Concrete was, and still is, suitable for the use of industrial construction methods due to its undeniable advantageous properties. The objectives of industrial mass production and the concrete production technologies of the 1960s and 1970s were economic and production related, while little attention was paid to aesthetics. Following the ideals of the time, concrete was then a coarse and massive building material, which mainly emphasised the durability of the structures and the basic properties of the material in a one-sided way. It is important to remember, however, that an abundance of excellent concrete architecture was created during that period – buildings which even today are internationally appreciated.

In refurbishment and renovation projects, concrete still has a visible role, even in the detailing. Concrete structures and surfaces have been skilfully highlighted in repair and refurbishment work. With the varied use of concrete, a harmonious mono-material atmosphere has been created in the spaces where the essence of the material is strongly present.

New structures and surfaces have been adapted to the old through the use of Constructivist motifs, an industrial character, scale, and systematicness, where the mono-material nature and structurality of concrete are emphasised. In structures, and architecture generally, the plastic and monolithic properties of concrete have been utilised. The interior architecture is based on the visibility of the concrete structures and surfaces. The memory traces of the old functions of the building are visible, in bold contrast to the new function. Skilful design has enabled the preservation of the architectural values of the renovated building.

The renovated buildings, along with their possible extensions, are examples of projects where, as a result of the long-term and professional cooperation between the different parties, high standards have been produced which are still part of the Finnish national landscape and the best of Finnish concrete architecture.

The ground level – the yards, streets and surrounding environment – is with its materials the fifth facade of the building, linking the building to its surroundings. In environmental construction concrete products, and concrete generally, have gained an important role as an integral part of architecture.

The old urban spaces reflect the historical background and local unique characteristics of their locality. In areas which have preserved their stylistically uniform architecture, it is particularly important that the materials adapt to the architectonic whole and respect the nature of the area. In the encounter between new and old one must not imitate the old, but rather the new can be accommodated with the old by methods characteristic of its own time.

THE FUTURE OF CONCRETE

A goal can be set for the future of creative and professional architectural design, where the architectural and building-technical solutions converge, and where it is possible to develop new systems as necessary. Designers take into account man's world of experiences but at the same time create something new. Skilful and innovative planning combines the aesthetical possibilities of concrete with technical sustainability.

In future construction the appearance and sustainability of the structures will be increasingly emphasised. Physical sustainability – which also includes ensuring

the requirements for maintenance, cleaning and upkeep – and the economic lifespan will regulate construction also in the future. The quality of construction, its ecological aspects, as well as sustainability also define the re-use value of a building. These features should also be visible in the building. When sufficient attention is paid to the appearance, an image is achieved for the building which endures time well. Concrete should be able to age beautifully. The ageing process should indeed be taken into account already at the design stage.

Research in concrete technology has developed the material to respond to emerging challenges. Nanotechnology has made concrete self-cleaning. Concrete can be transparent, ultra-strong, ultra-light or even float on water, and the structures can be thin, slender or curved. Nowadays one can make almost anything from concrete, and it is always full of surprises – in a positive way.

Concrete products are manufactured for individual clients. From the point of view of casting, colour options, surface treatments and preservation, the material offers varied possibilities.

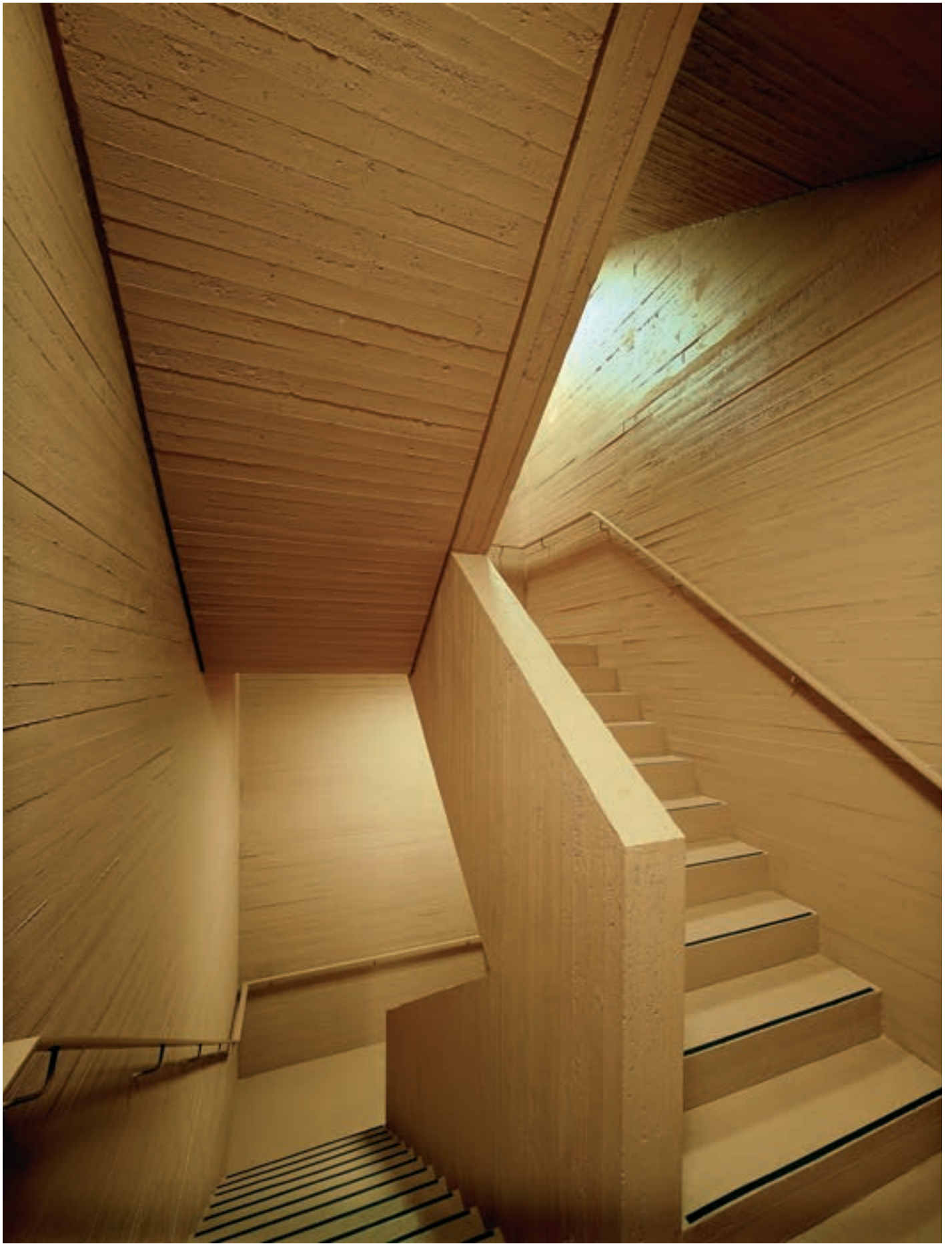
With the help of 3D-modelling, one can design big, awe-inspiring monuments, spaces where one moves virtually from one experience to another. At the same time, the sensory perceptions and observations are recorded in the designers' data base.

The cooperation between concrete technology and architecture has developed over the years and designers have learnt to use the materials in a versatile way. The development research in concrete which began in the 1980s is now emerging in concrete structures. Architectural design, finishing techniques, the properties of the entire building, lifespan costs, and environmental effects determine the direction of the development of concrete.

The aesthetics of concrete must walk hand in hand with technical developments. Subconscious imagery changes slowly. Good examples are needed in everyday building, but also festive buildings! A new stage can be seen in the architectural use of concrete. As the rational strip and mullioned windows step aside, expressive forms and architectural innovation seek new outlets for expression, but these are still exceptions. Primarily concrete architecture is practical architecture, from which, however, it is possible to build new, brave, unique Finnish concrete architecture.

Concrete enables on the one hand the really small and on the other hand large solid structures. Finnish architecture still awaits its skyscrapers, grand bridges and bold structures. While waiting for these to be built, concrete as a material begins to be ready to realise its new challenges.

But whether one thinks of large or small, why would concrete imitate other materials? Let concrete speak for itself!



CONCRETE

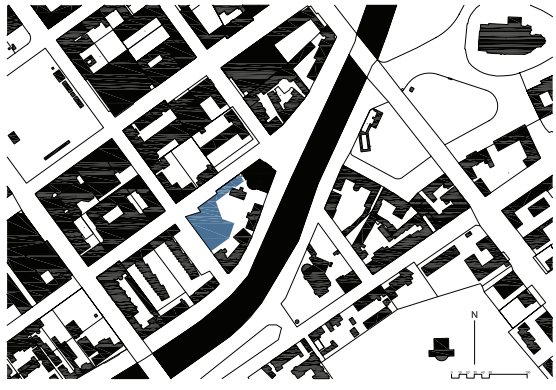
ARCHITECTURE IN FINLAND

16 BUILDINGS

TURKU CITY LIBRARY, TURKU

JKMM Architects / Asmo Jaaksi

Completed 2007
Floor area 6 478 m^2
Gross area 6 902 m^2
Volume 41 450 m^3

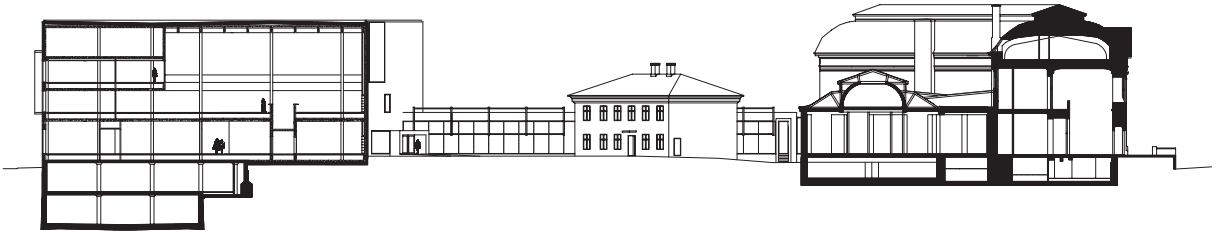


SITE PLAN

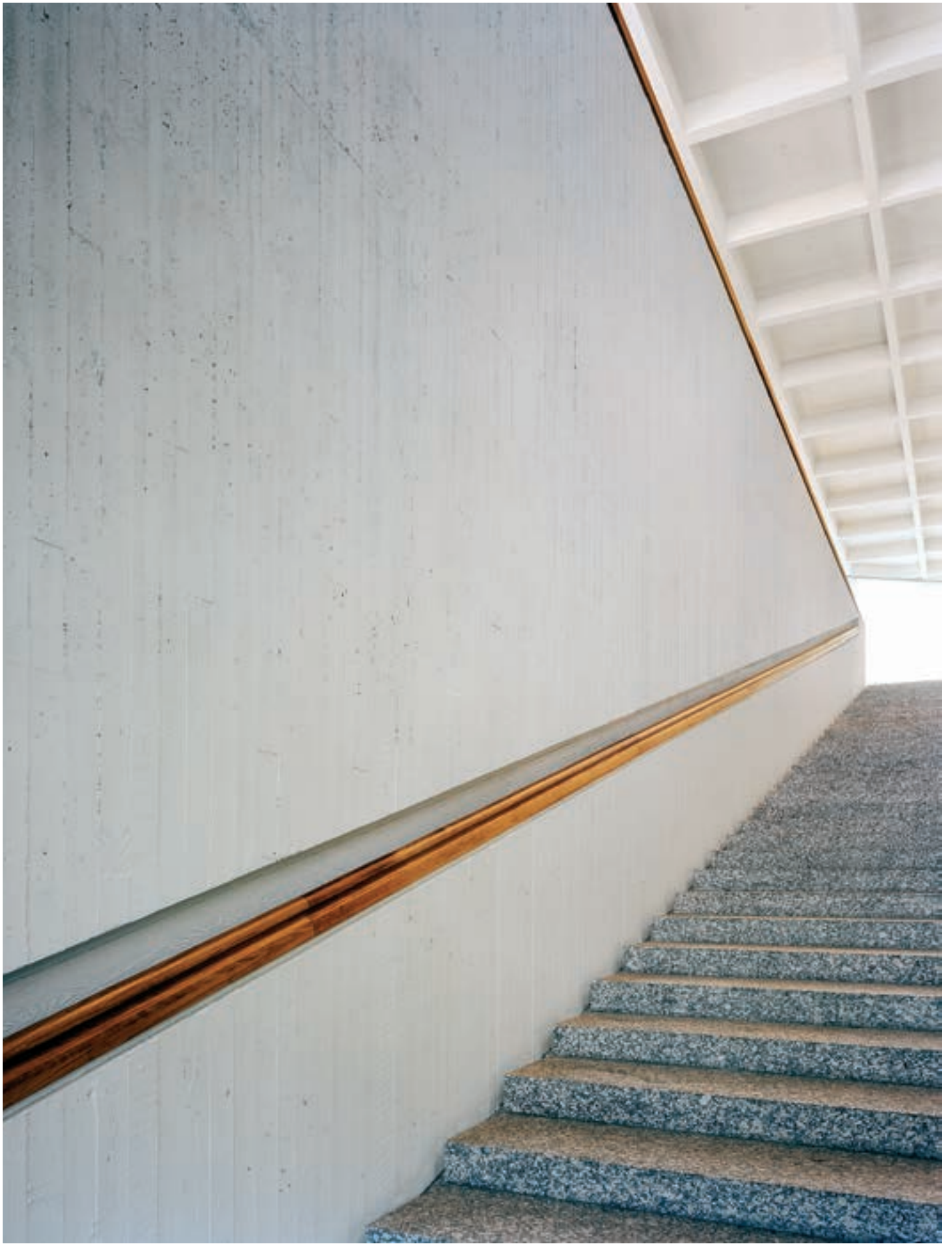
The library is situated in the historical centre of Turku. It is linked internally to a 100-year-old library as well as the former governor's chancery building, dating from the beginning of the 19th century, which has been renovated for use as a cafe and meeting facilities. The exterior space formed between the new and old buildings was given the shape of a public square for people to gather and as a stage for different cultural events.

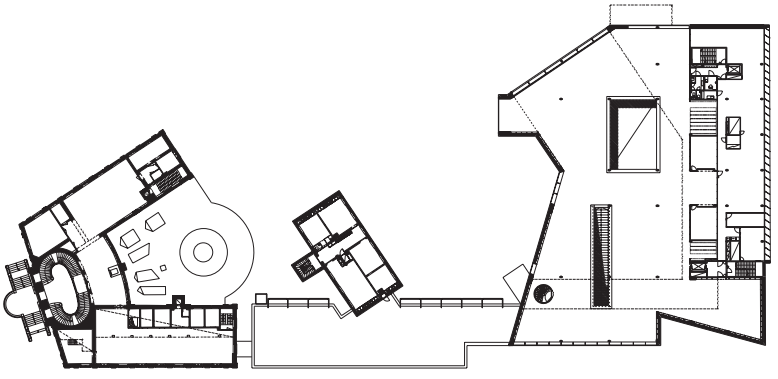
The building frame is a concrete structure built entirely in-situ. The structurality typical for the material profoundly shaped the basic solutions for the design. As an important part of the interior design, the concrete structures and surfaces were left exposed. Concrete is evident in a variety of ways: as slender and light columns and beams, and as intentionally solid wall-like structures. The implementation required in some ways more advanced construction techniques than normal, for instance the use of self-condensing concrete.

The library wants to adapt to its surroundings through the choice of surface materials. The facades are mainly rendered, which is the dominant material of the old buildings in the city block. Natural stone has also been used abundantly in the facades, as well as for the stairs and surrounding ground level. The use of wood – European oak – prevails in the interiors, both in the wall coverings and furniture. In the fairfaced concrete surfaces, constructed using timber plank formwork, a course feel typical for the material was strived for. Glass structures also play an important role, both in the exterior architecture and the interior ambience.

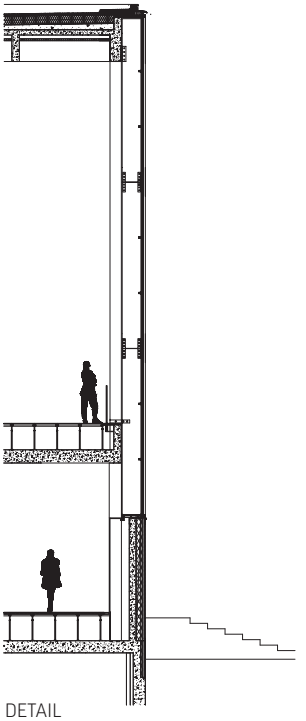


SECTION



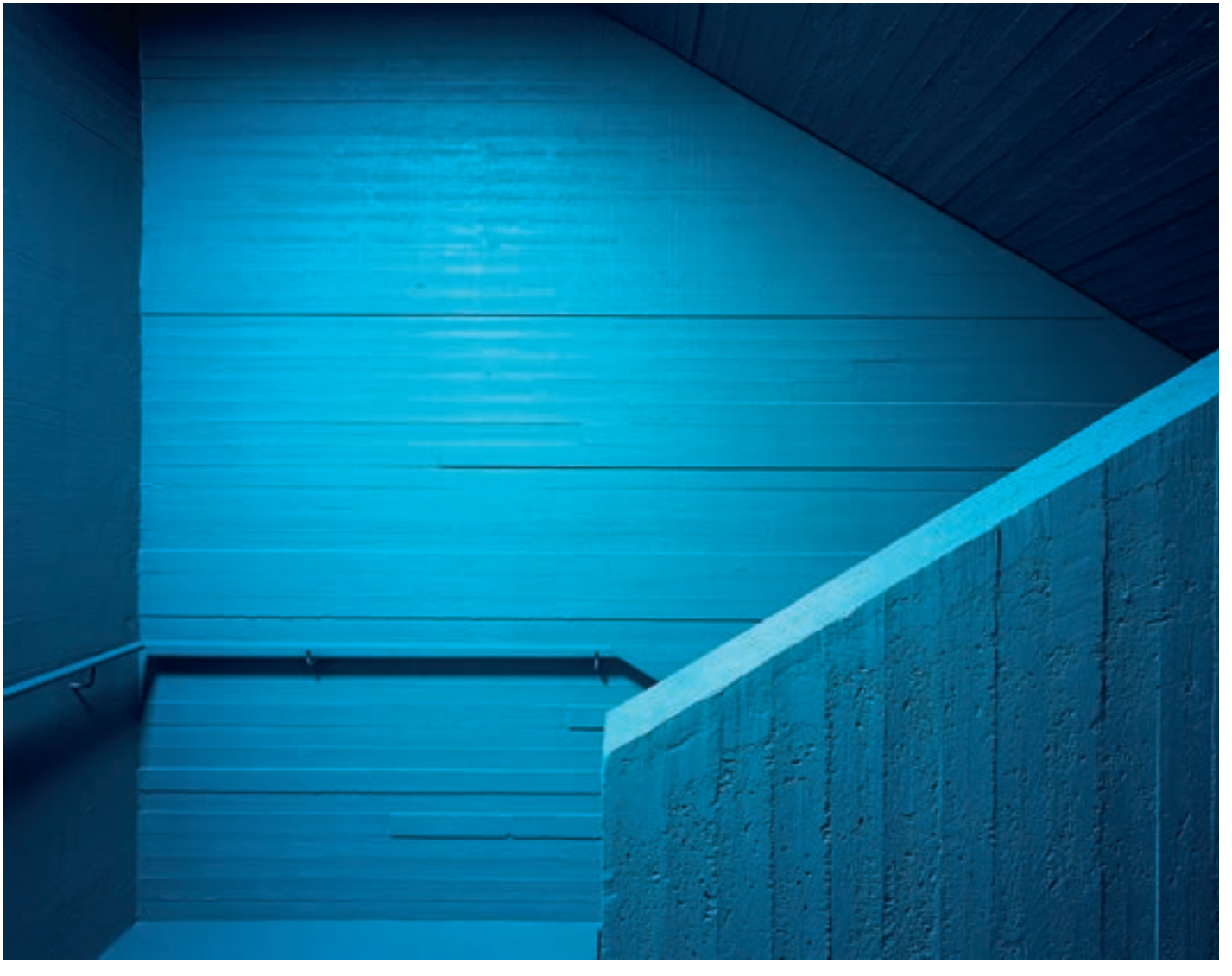


2ND FLOOR PLAN



DETAIL

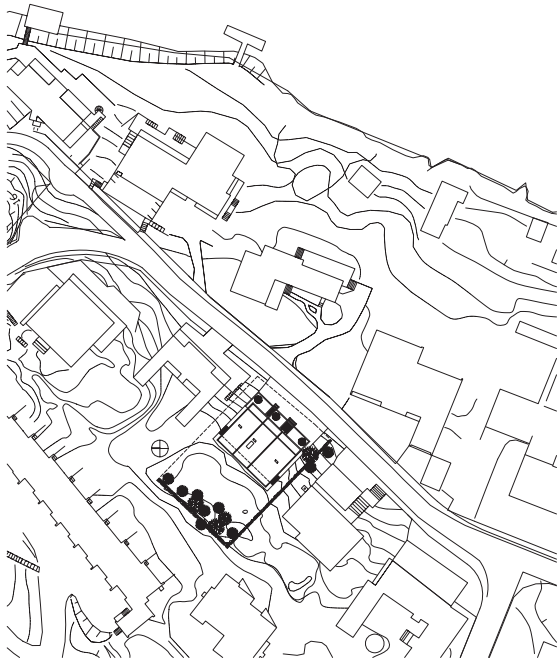

utlåning



HELSINGIN TRIADI HOUSING COMPANY, HELSINKI

Huttunen-Lipasti-Pakkanen Architects / Suvi and Risto Huttunen

Completed 2006
Floor area 323 m^2
Gross area 769 m^2
Volume 2 450 m^3

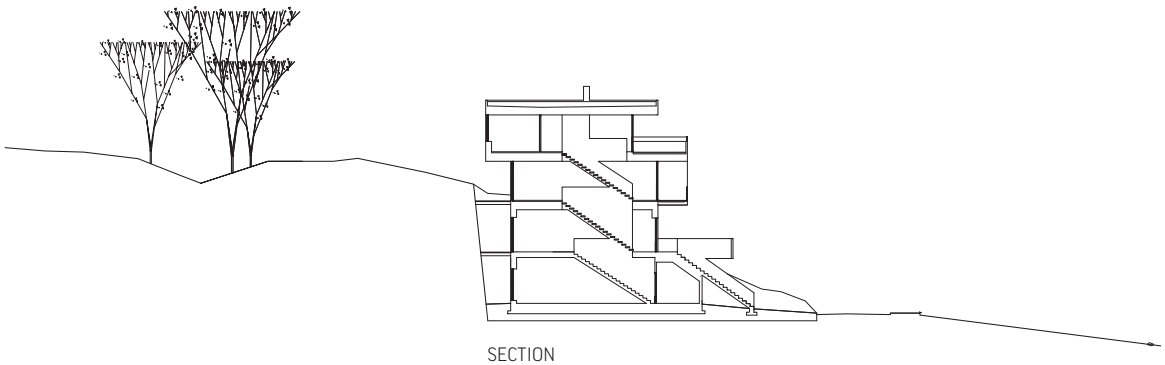


SITE PLAN

The four-storey three-family house is built on a steep rocky slope. The building has been lifted out from the quarried rock faces, so that a structurally and architectonically practical space is formed between the building and the rock face. The bearing frame, the dividing walls between the apartments, and the facades are built in concrete cast in-situ. White, self-condensing concrete was used in an innovative way for the fairfaced cast concrete facades. The internal walls of the apartments are concrete blocks. Concrete with different treatments was used for the floors of the apartments: painted, epoxy-finish and scattered coating.

Concrete has been used throughout for the structures and interior surfaces of the building. The advantageous properties of concrete emerged in the monolithic structures of the building. The fairfaced walls cast in-situ demarcate sculpturally clear spaces where the open interior spaces form a continuum. The concrete walls create a contrast to the partly white wall surfaces of the apartments.

The Helsingin Triadi housing company is a demonstration of the material advantages of a small concrete house. Skilful planning and material choices have created a personal, sustainable and safe home.



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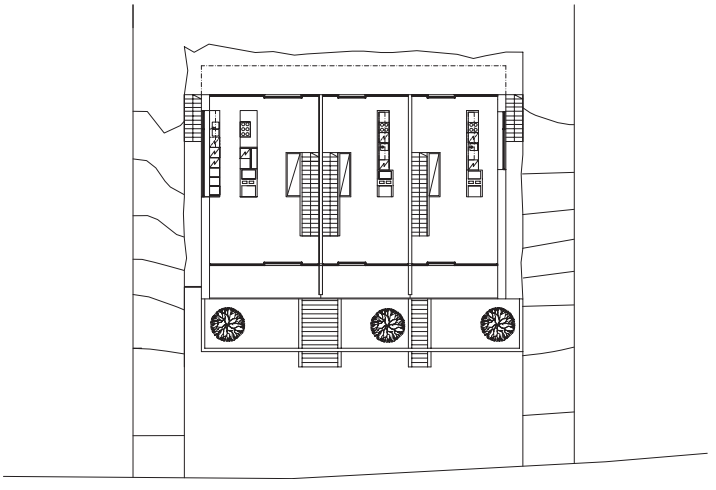
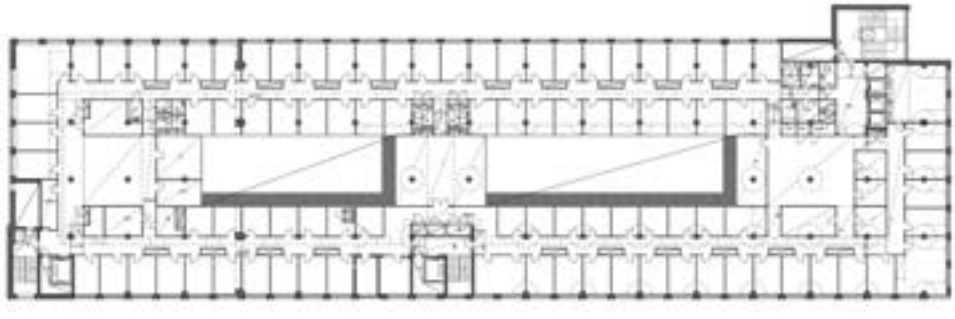


1ST FLOOR PLAN

HELSINKI COURTHOUSE, HELSINKI

Tuomo Siitonen Architects / Tuomo Siitonen, Mikko Lehto

Completed 2004
Floor area 24 000 m^2
Volume 175 000 m^3



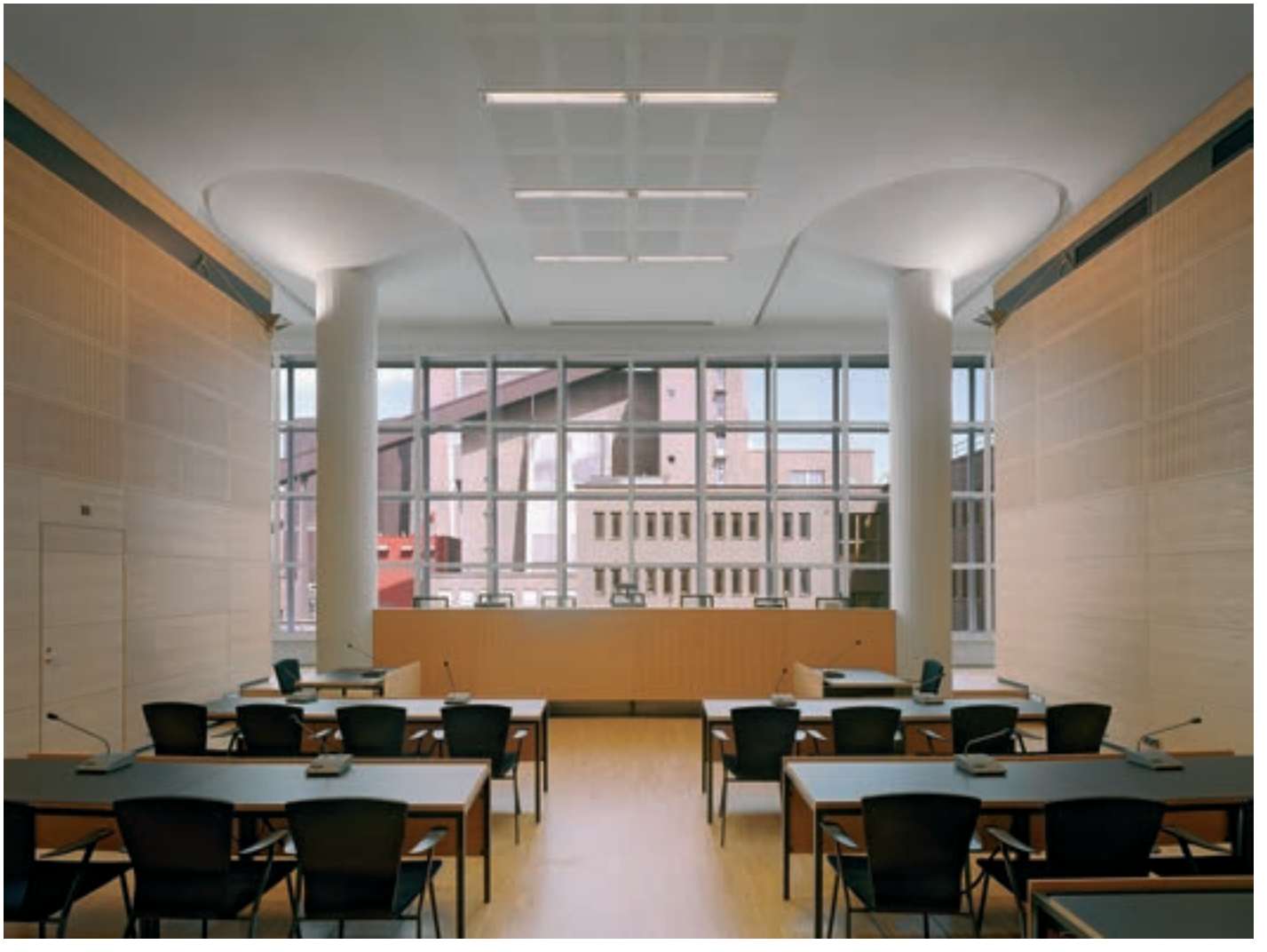
8TH FLOOR PLAN

The Helsinki Courthouse is situated in Salmisaari in the old Alko factory designed by architect Väinö Vähäkallio, completed in 1940 and extended in 1956. The property, which is protected in the town plan, was converted to house the district court, district prosecutor's office and legal aid office.

The concrete structures and surfaces play an important role in the interior architecture and in creating an atmosphere. Concrete creates a harmonious contrast with the rest of the interior design. The concrete pillars, beams and wall surfaces – all cast in-situ – demarcate interesting spaces. Particularly the sturdy, sculptural, lively-surfaced concrete mushroom pillars – the heights of which vary for each floor – and which are emblematic of the building, have been emphasised. In both the new and old concrete structures the coarseness and constructive sturdiness, on the one hand, and the plasticity and monolithic nature, on the other, are emphasised.

Daylight has been brought into the building by cutting two tall lightwells into the centre of the old building frame cast-in-situ. The sectional edges of the lightwells have been left as exposed concrete surfaces. The glass-covered lightwells open up impressive internal views for the work and meeting spaces, lounge areas and lobbies that surround them.

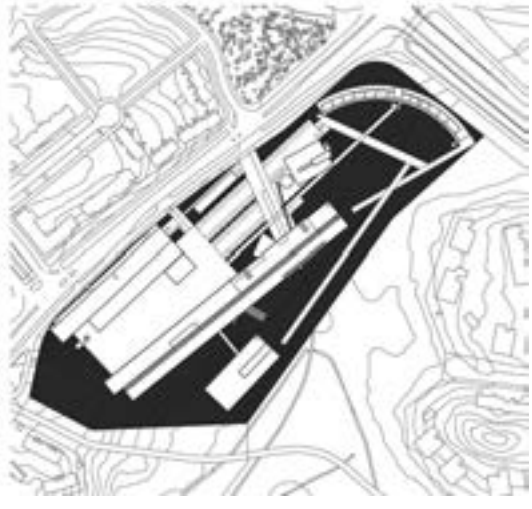
SECTION



THE EMERGENCY SERVICES COLLEGE, STAGE 4, KUOPIO

Heikkinen-Komonen Architects / Janne Kentala, Mikko Heikkinen, Markku Komonen

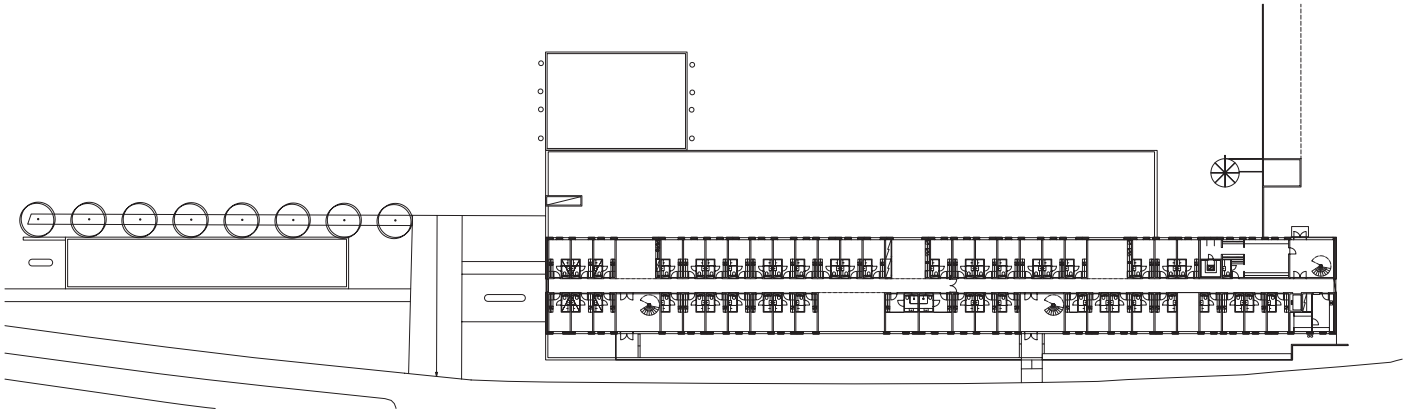
Completed 2005
Floor area 10 902 m^2
Gross area 13 928 m^2
Volume 56 584 m^3



SITE PLAN

The training centre hotel is a concrete building situated along the street, where it closes off the open street space and forms a pair with the previously built fire-hose tower as the end point of the Pyörönkaari boulevard. The ground level of the building comprises parking for cars and emergency vehicles. In the interior, red-coloured social spaces cut into the accommodation cells breaking up the one hundred-metre-long central corridor into a modern village street. The new training building is situated separately in a park area of the plot. The spatial structure of the building is simple: four lightwells are placed in the central zone of the building penetrating through all the floors. The architecture of the Emergency Services College attempts to be faithful to its purpose: the College trains its students to cope in chaotic circumstances. The clear, concise floor plan and precise exterior architecture provide a suitable setting for the training, which is intended to develop confidence, diligence and stamina – the foundation of professional skill.

The parking area and equipment hall of the training centre hotel are built with a reinforced concrete column-and-beam system. The residential floors have loadbearing dividing walls corresponding to the beams of the floor below, while other dividing walls between the residential rooms are non-loadbearing. This enabled flexibility with the spaces. The element walls of the residential rooms and the central corridor brace the building in the longitudinal direction. In the parking floors the perimeter walls function as braces. The building has been built on rock and apart from the column bases, which are cast in-situ, it is fully prefabricated. The facades are a combination of concrete and wood elements. The elements are mostly small in size and there are many of them.

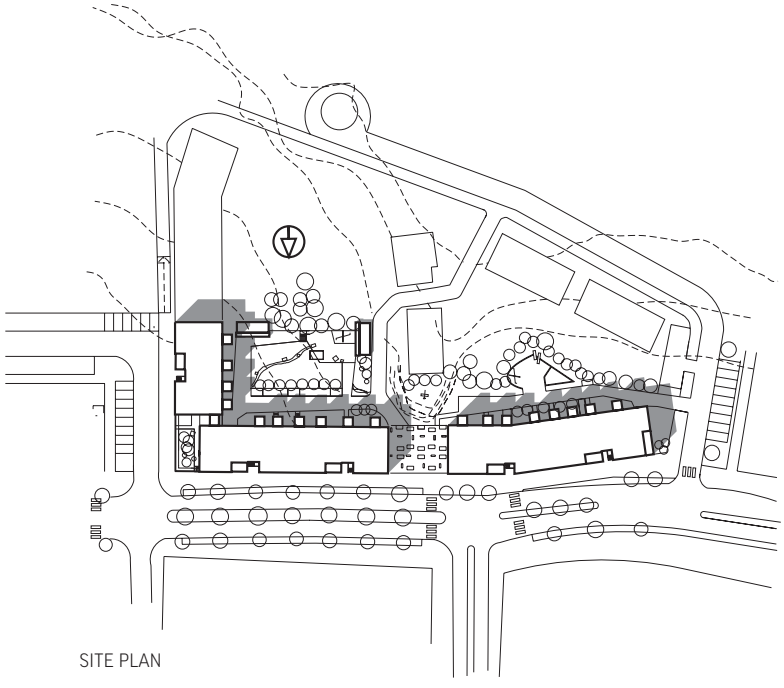


GROUND FLOOR PLAN

SÄTERI HOUSING COMPANY, ESPOO

Brunow & Maunula Architects / Anna Brunow

Completed 2002
Floor area 8 200 m^2
Volume 25 420 m^3



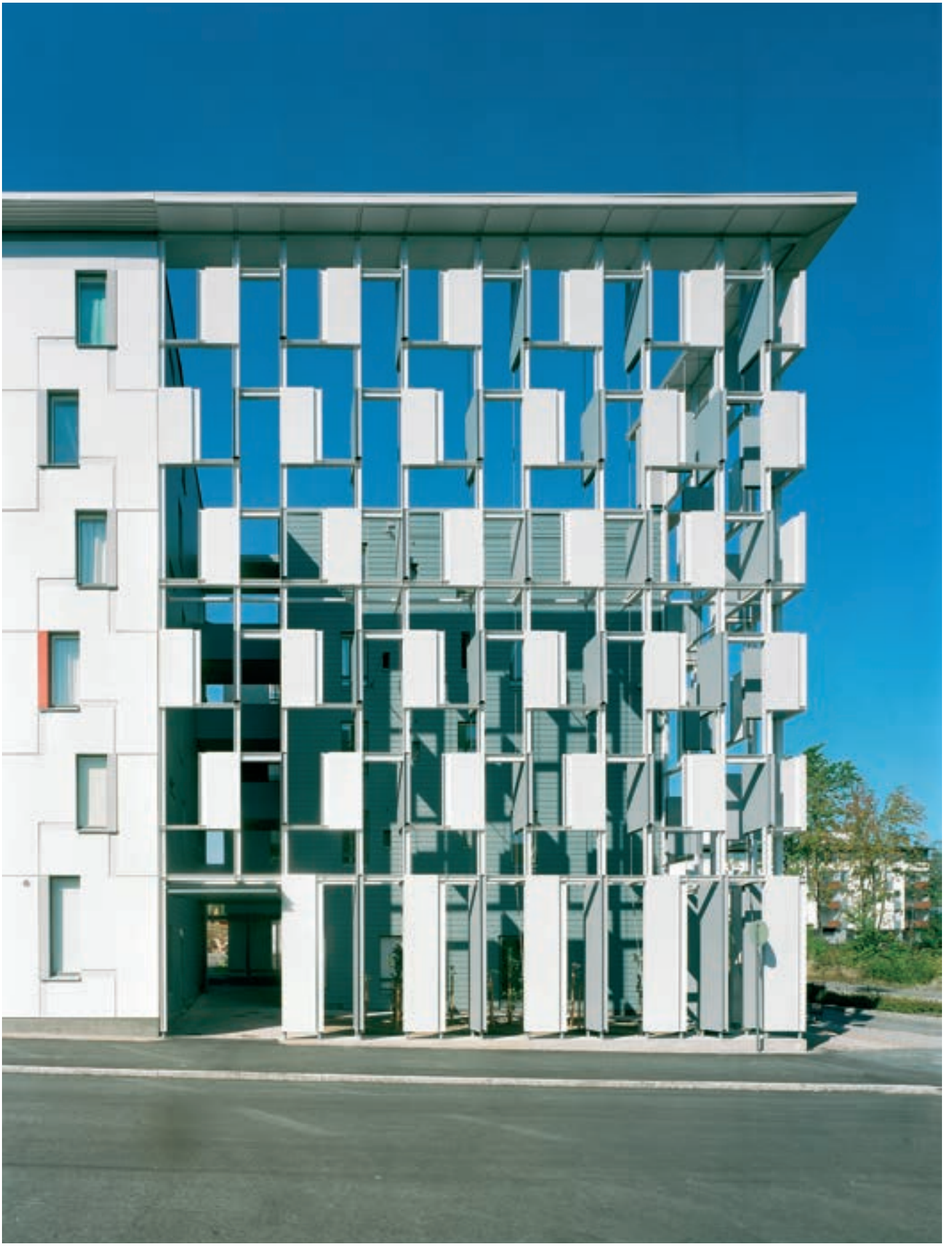
SITE PLAN

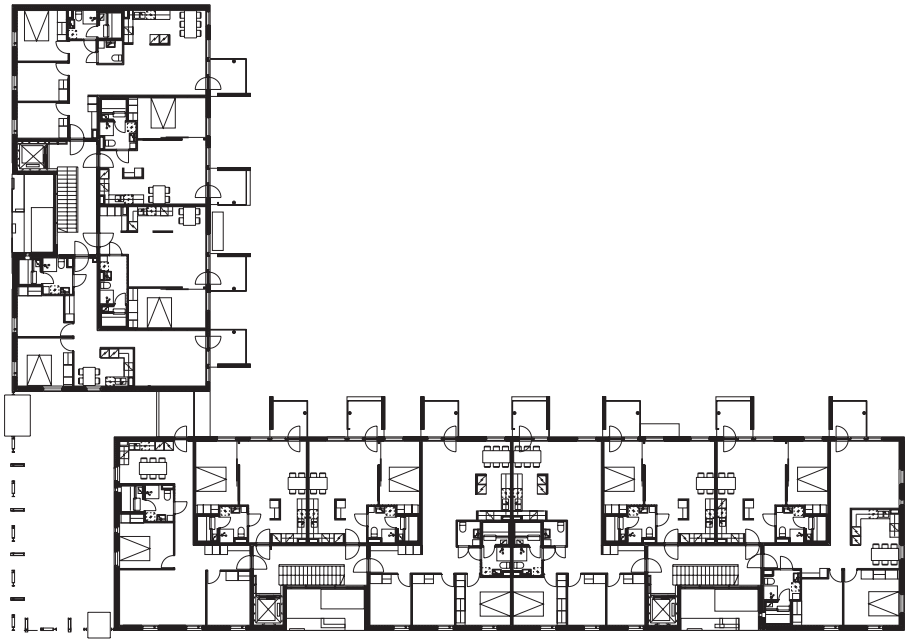
The non-load-bearing facade on the street side contains a frame structure and self-supporting 120mm concrete elements. To keep faith with the ideology of production engineering, the aim was to develop long series of prefabricated elements. The street facade was built using the same S-shaped element. The seams have been emphasised by the motif of mirroring the element shape. In the entrance areas the element structure continues as a free composition forming at the same time an entrance canopy and platforms to enable the cleaning of windows.

On the yard side the balconies have been placed like "bird boxes" of varying colours in a winding "tree trunk". The different blocks have been tied together visually in the gap between them by placing a "third facade" on the ground, that is, by continuing the same facade motif in the surface material of the intermediate space.

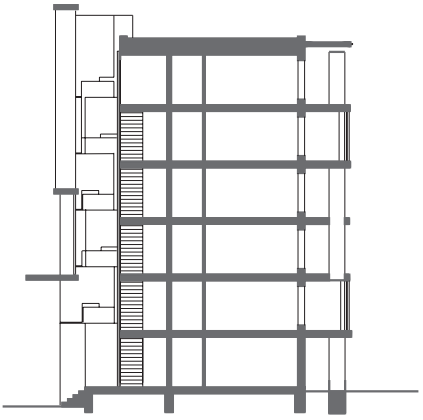
The most visible motif is the open corner of the block: the facades from the two adjacent sides continue to the corner, but behind the corner section are trees rather than apartments. The motif came about because according to the town plan the residential buildings had to be built up to the corner of the plot, despite the fact that a massive concrete bridge for public traffic, rising to the height of six metres, was to be built adjacent to it. By means of the motif, it was thus possible to follow the cityscape objectives of the town plan and yet avoid placing the apartments too close to the bridge.

The motif, the surface of which is the negation of a facade, was intended to be built from concrete elements but the architects ended up with a steel structure, which was easier to build, thus resulting in a "concrete element" made of steel.





PLAN



SECTION

TAPIOLA SWIMMING POOL, RESTORATION AND EXTENSION, ESPOO

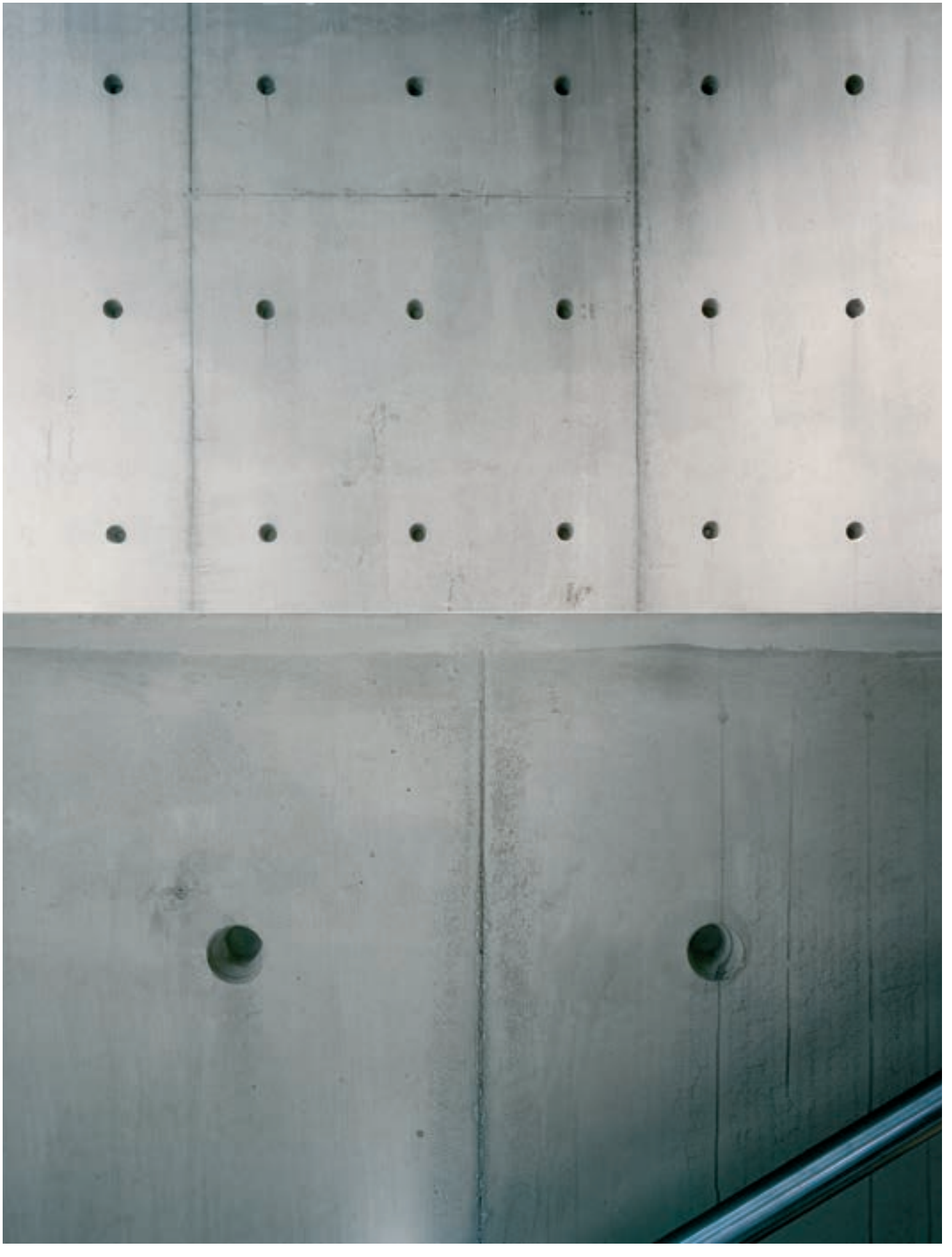
Nurmela-Raimoranta-Tasa Architects / Antti Luutonen, Eeva-Liisa Elo-Lehtinen, Kari Raimoranta

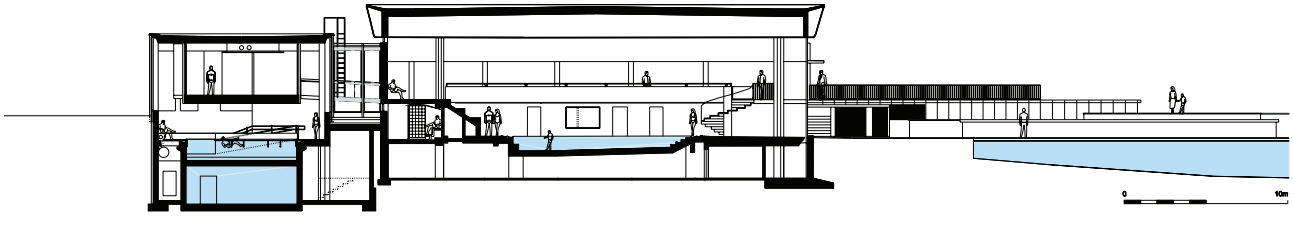
Completed 2006
Floor area: restoration 2 417,5 m^2
extension 548 m^2
Gross area: restoration 3 930,0 m^2
extension 1 223,0 m^2
Volume 20 738 m^3

Tapiola Garden City has been named one of Finland's national landscapes. The swimming pool, designed by Aarne Ervi, completed in 1965, is part of a totality that includes the central ornamental water basin. The building, nowadays protected in the town plan, is an important part of the centre of the garden city. The old swimming pool has been preserved in its original state as viewed from the centre of Tapiola. The repair of the building was faithful to the original architecture.

Also the relationship of the new extension to the protected building was given serious consideration. The cramped plot and the vegetation that had to be preserved determined the limits of the new building situated to its north. The part of the extension above ground is a pavilion-like object which opens out into the surrounding park like a "shining lantern", and is linked to the old swimming pool via a glass-walled joining section.

The extension has been built in concrete. The wear surfaces have been tiled, but otherwise the interior architecture is based on the joint impression of fairface concrete surfaces, water and light. Concrete structures and surfaces have a long tradition in Tapiola. The 1950s Finnish garden city model, modern society and lifestyle were implemented with an architecture in which the most important and natural building materal was concrete. Most of the public buildings in the area represent the best of Finnish concrete architecture.





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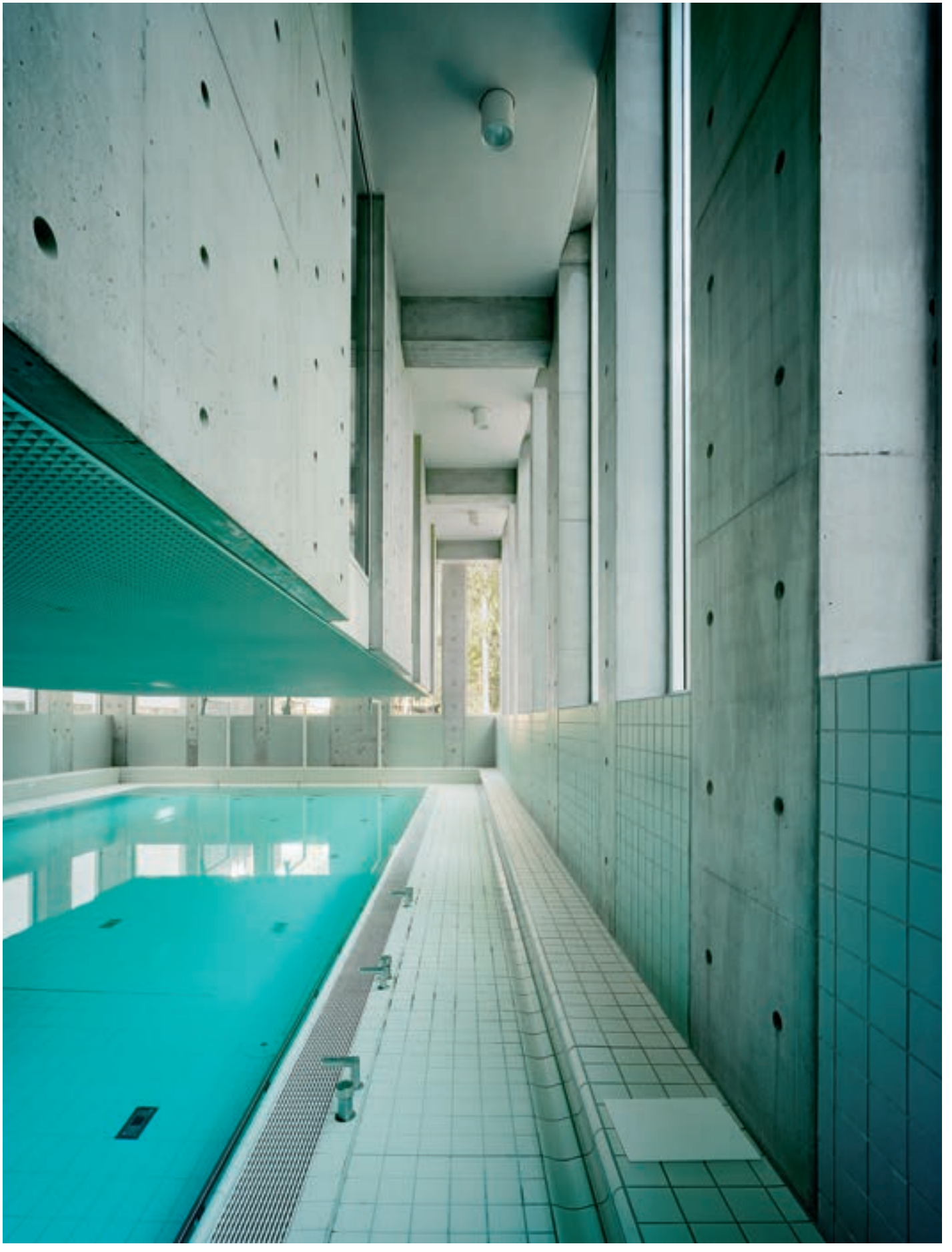
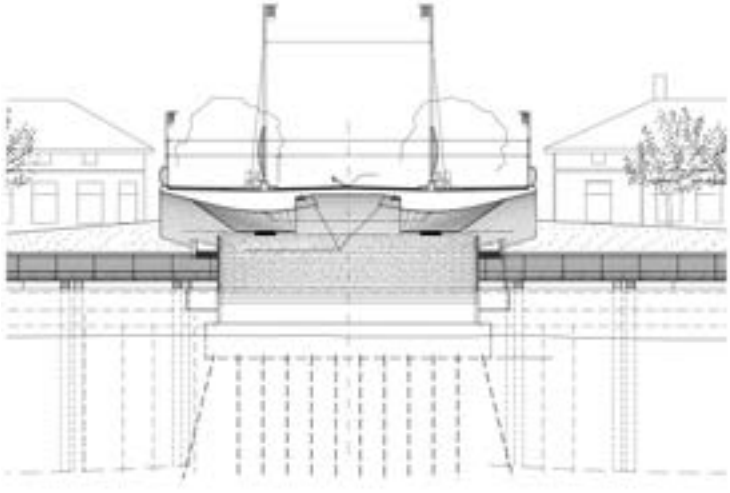


ALEKSANTERINKATU BRIDGE, PORVOO

Mikko Kaira Architects

Completed 2005
Length 129 m, width 21 m



SECTION

The Aleksanterinkatu Bridge is a triple-span pre-stressed concrete slab bridge. It has a total length of 129 metres and the overhead clearance at the centre of the bridge is 4,7 metres at mean water level. The width of the bridge is 21 metres. The form language of the bridge is based on curves – every aspect of the bridge, including the details, involves curves. By means of the curved expression, slenderness and lightness were sought for in the concrete structure. The mark of the skilled formwork maker is replicated in the magnificent, precise concrete surface. The white colour was a carefully considered solution for a modern structure in an old urban milieu. Light and shadow play on the high-quality concrete surfaces of the cast in-situ bridge, thus enlivening the form. The cutwater piers are curved like the sides of a ship. The bridge, harbour constructions, pedestrian routes passing beneath the bridge deck with their curved classical theatre-like landscape stairs, as well as the water basins adjacent to the abutments beneath the bridge deck, form a carefully considered totality that is well suited to the location. Both the piling and concrete work had been extremely demanding.

The concrete bridge deck was cast during the winter. The demanding pre-stressing of the deck was also carried out during the winter, roughly one month after the casting. The bridge deck has been painted white. The cutwater piers were cast in concrete tinted lighter with titanium dioxide. A total of 6500 m^3 of concrete was used in constructing the bridge and harbour constructions.

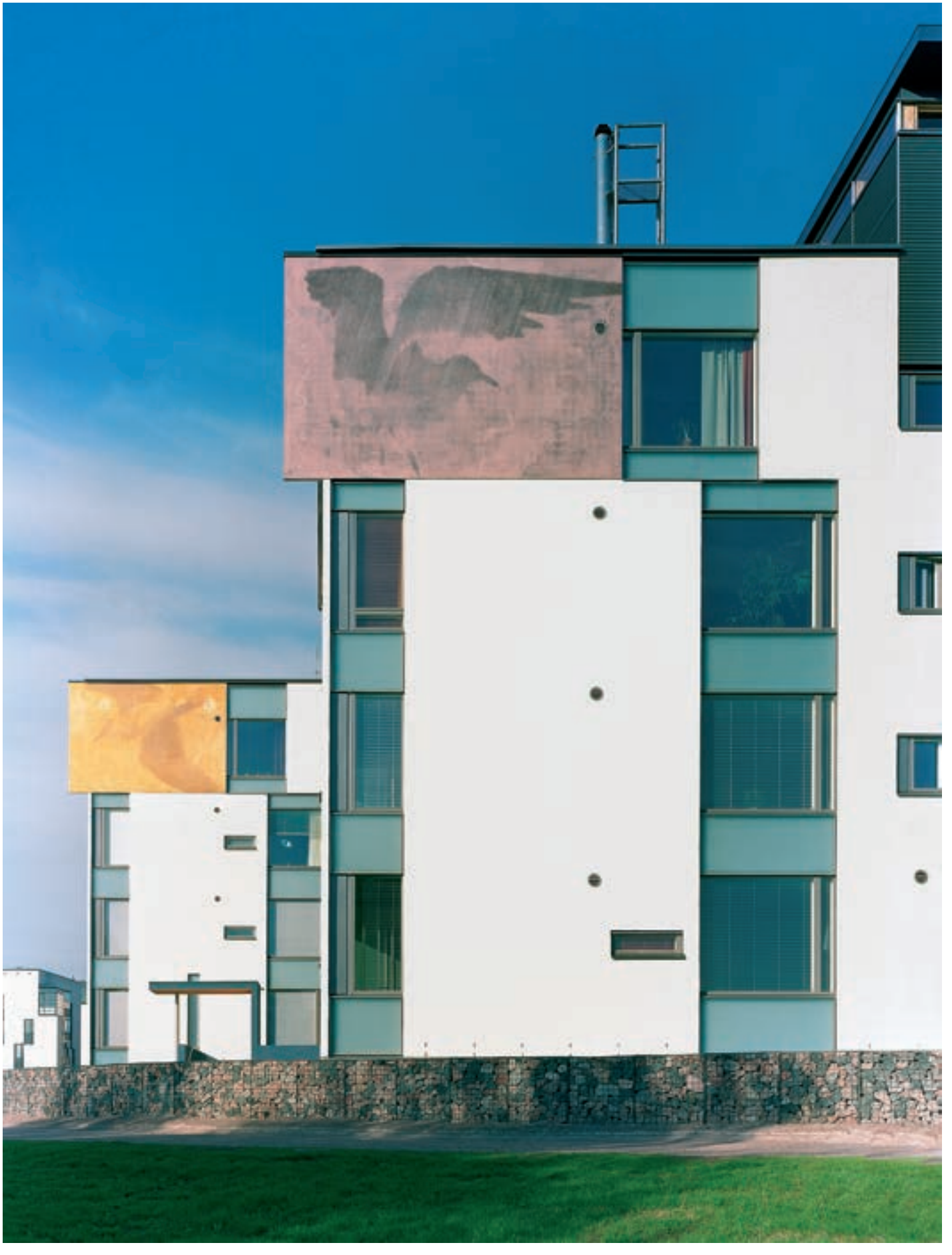
HELSINGIN ARABIANVILLAT HOUSING COMPANY, HELSINKI

ARK-House Architects /Hannu Huttunen, Jussi Karjalainen

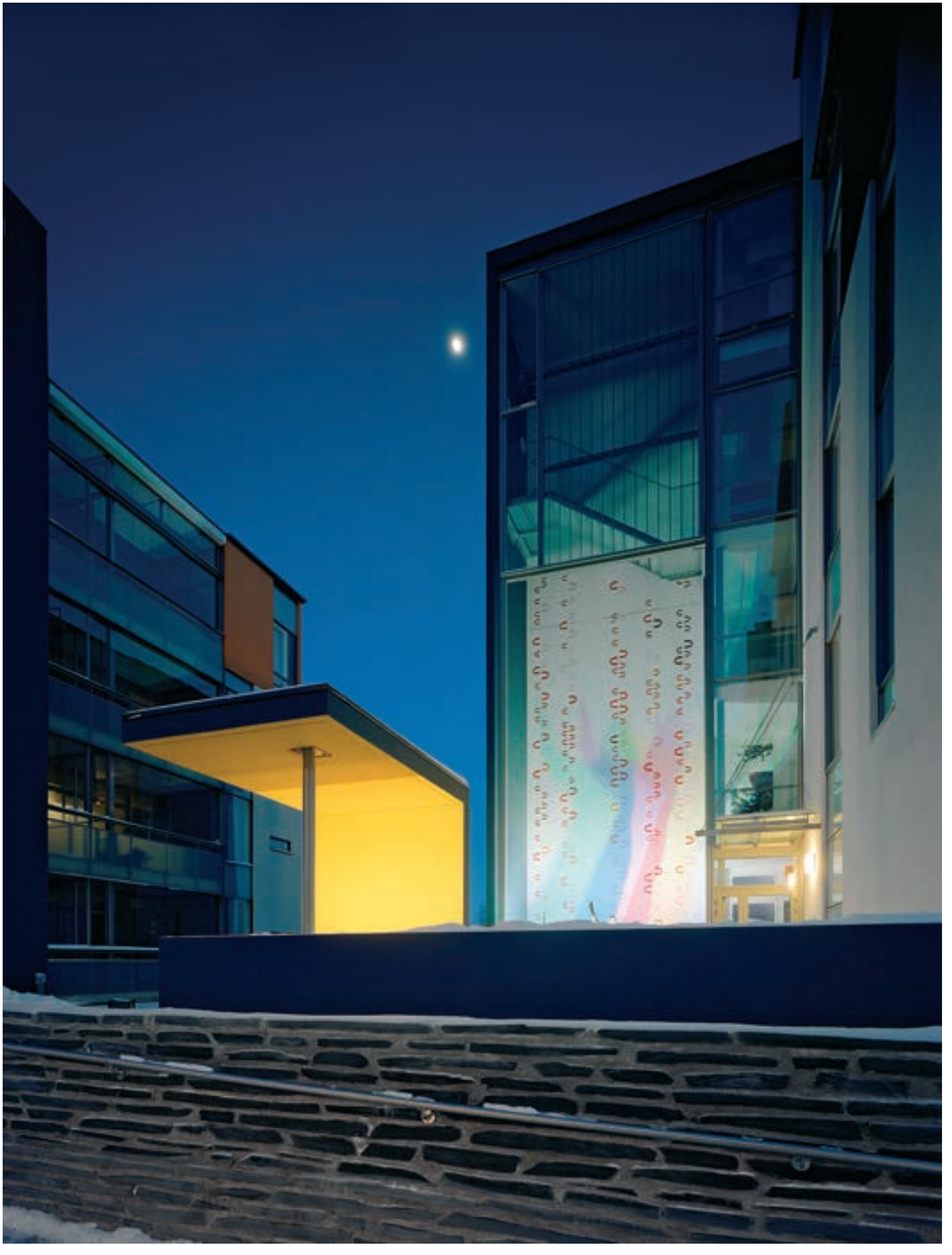
Completed 2005
Floor area 3 460 m^2
Gross area 4 264 m^2
Volume 14 610 m^3

The composition of the facades of the apartment block is characterised by the strips of balconies, the free arrangement of windows, the painted prefabricated concrete elements and the coloured pictures of seagulls – the emblem of the housing block – carried out in graphic concrete and positioned on the facades facing the shoreline. As a counter balance to the light-coloured masonry and lightly-rendered smooth surfaces, strong coloured concrete surfaces have been placed at the focal points of the facades. The intensive-coloured concrete surfaces of the facades, as well as the fences and gates, have been carried out using the so-called core element technique. The coloured concrete seagull elements are made from so-called graphic concrete. The design of the courtyards has made use of concrete and concrete landscaping products. The courtyard, with its carefully executed detailing and structures, is an integral part of the overall appearance of the facades. The paintings on the almost 5-metre-wide and 15-metres-tall art walls, designed by artist Tiina Kuhanen and artist-architect Johanna Hyrkäs, have been designed as "courtyard tapestry walls" which link the interior and exterior spaces.

A core element technique has been used in the concrete structure of the facades. The inner concrete core element is combined not only with concrete external cladding but also with several other materials such as brick, natural stone, glass and metal. The frame of the buildings is also a concrete construction. The intermediate floors and roofs have been built in concrete cast in-situ. The ground-floor vault is a hollow-core slab structure and the landings in the stairwells are solid slabs.



4TH FLOOR PLAN



SENATE PROPERTIES OFFICE BUILDING, HELSINKI

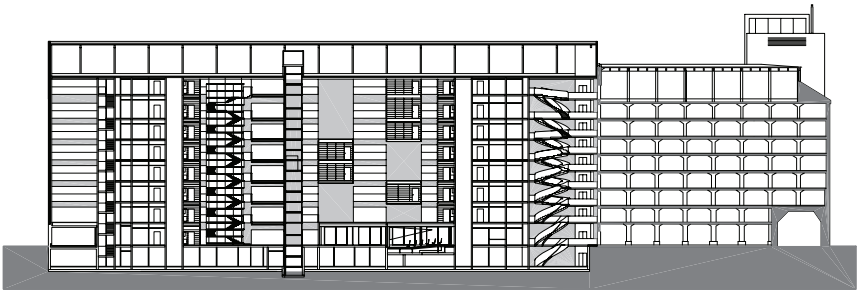
Heikkinen & Komonen Architects / Mikko Heikkinen, Markku Komonen, Markku Puumala

Completed 2002
Renovation gross area 11 760 m^2
Renovation volume 37 570 m^3

Senate Properties, a state-owned real-estate developer, chose the former grain and root vegetable warehouse as the location for its new head office. The new premises for STAKES (the National Research and Development Centre for Welfare and Health), next to the remodelled building, were constructed concurrently.

The deep plan of the warehouse restricted options for the spatial solution; an open plan office being the most viable choice. The array of sturdy mushroom-shaped columns, sand-blasted to reveal the concrete surface, creates a rhythmic system of smaller spaces within the open volume. Windows were enlarged to ensure sufficient natural light. The solid appearance of the façades was retained by covering the voids with brick-coloured aluminium screens.

The façade of the Sörnäisten rantatie street dominated by silos was to be preserved owing to its importance to the townscape. Seven of the former silos could be retained by using them as riser shafts, housing services, lifts, stairs and wc facilities. The low room height (approximately 2.25 m) required the ventilation to be installed in the external walls, and the electricity and computer network in the raised floor. Thus the ceiling free of any technical installation reflects the indirect illumination.

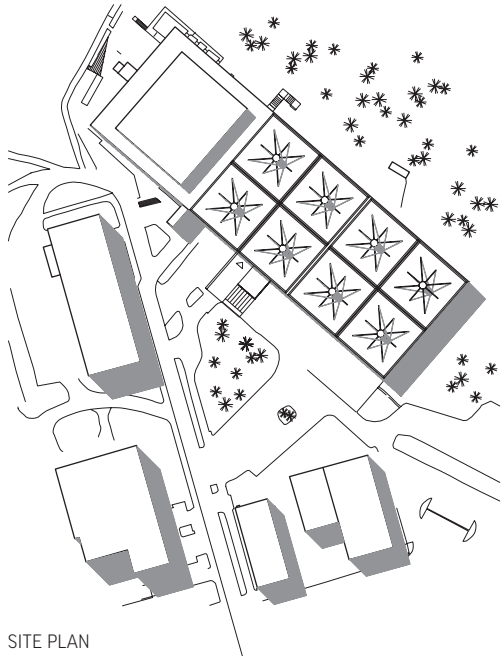


SECTION

WEEGEE HOUSE, ESPOO

Airas Architects / Timo Airas, Henna Helander, Kivi Keller

Completed 2006
Floor area 17 000 m^2

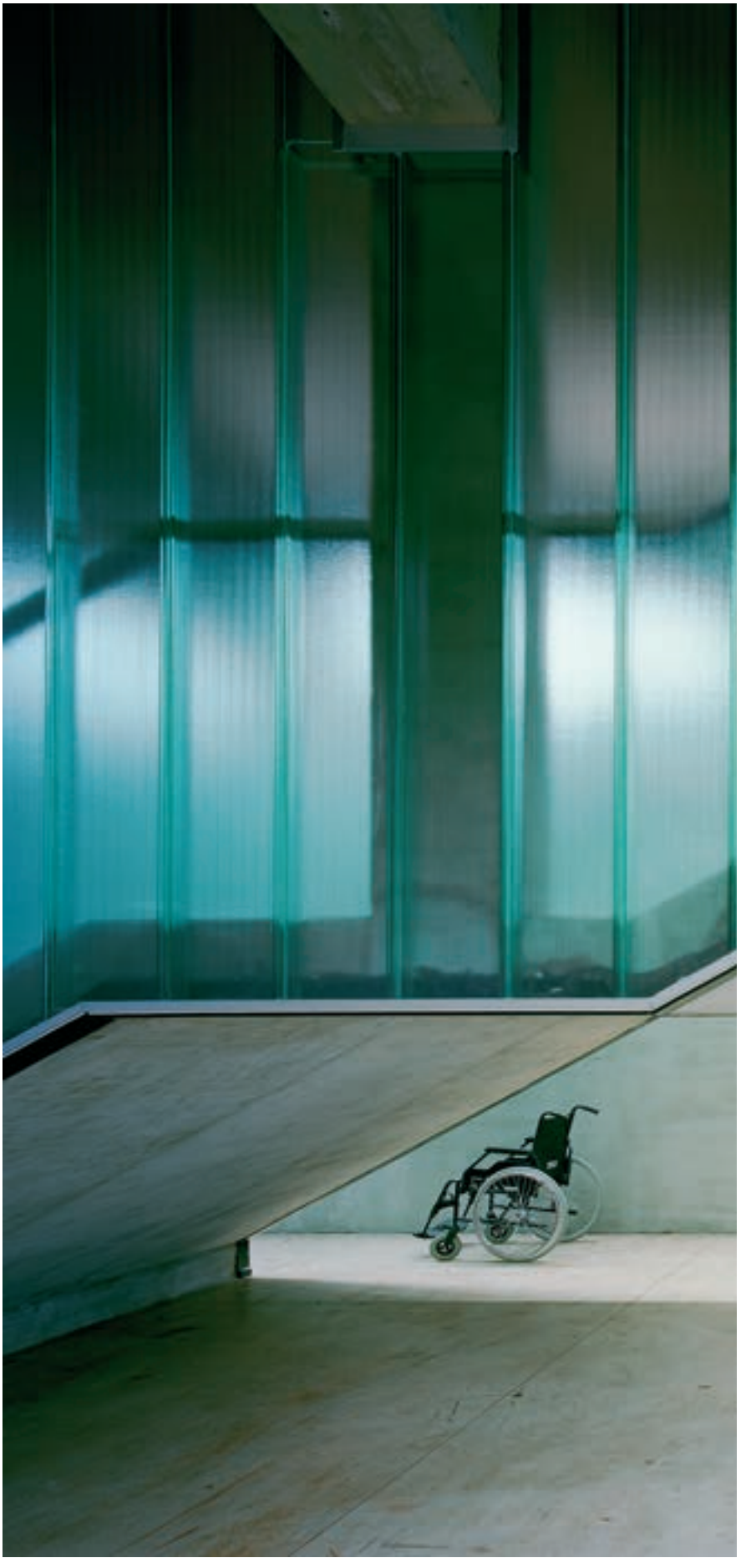


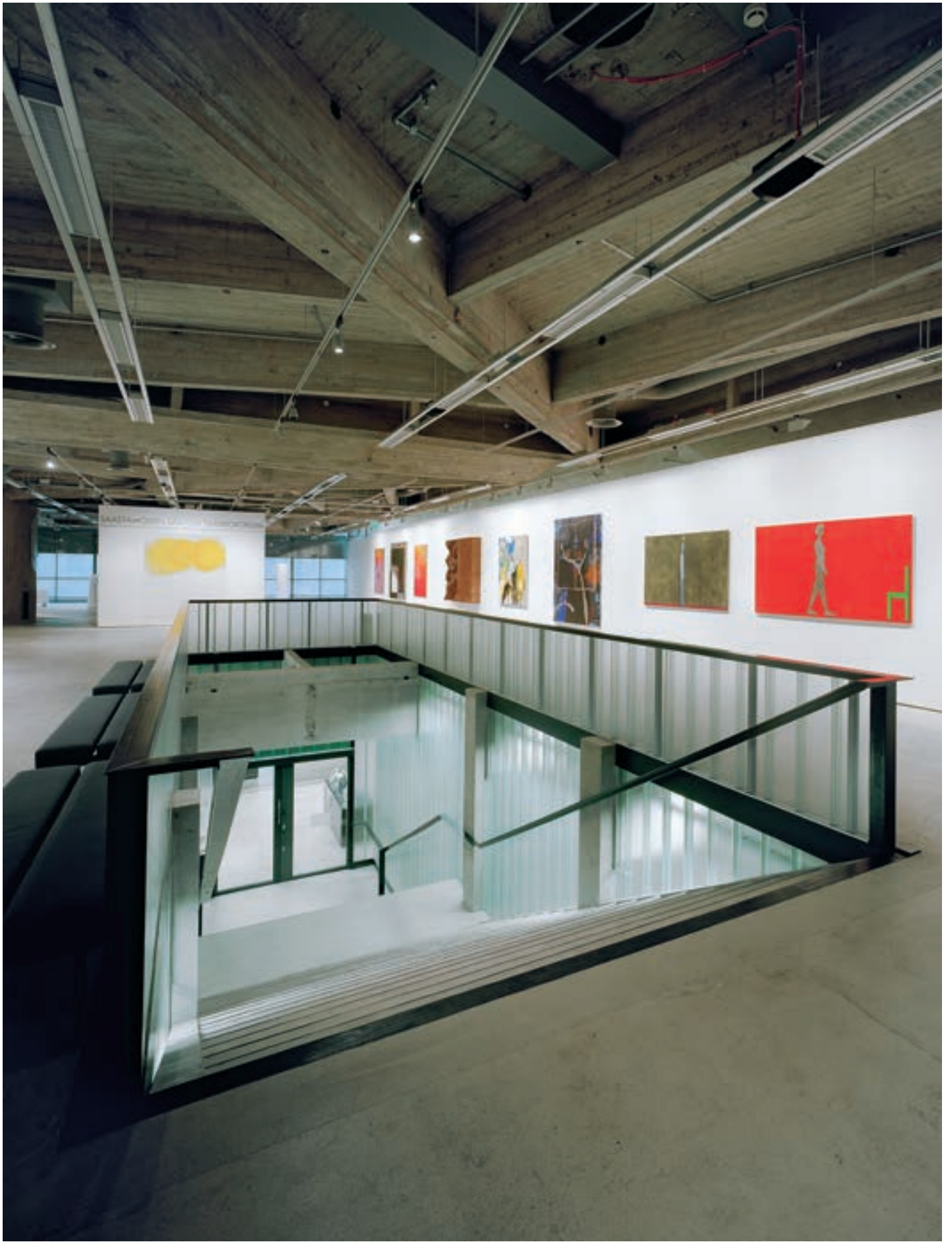
SITE PLAN

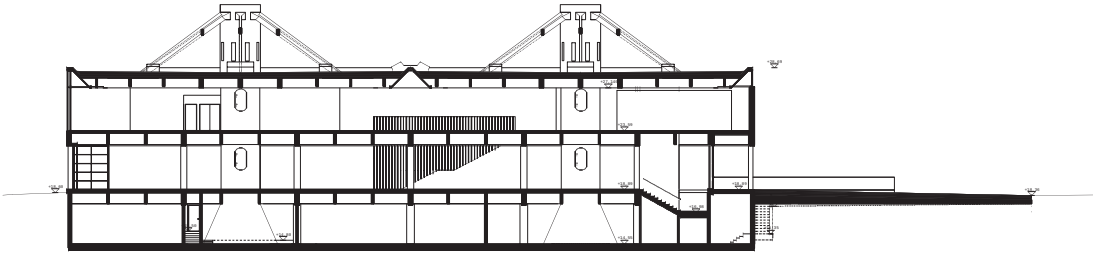
The Weilin & Göös printing works was designed by architect Aarno Ruusuvuori and built in three stages from 1967 to 1974. Nowadays it is a protected building of national significance. Through skilful planning the architectural values of the renovated building have been preserved in converting it into a centre for the arts and culture. The renewed or renovated structures and technical installations have been fitted into the old structures. A new basement floor has been excavated at one end of the building: the excavation work was carried out in stages and proved challenging. The roof structure of the building is suspended by means of external tension rods from eight concrete pylons, which have been renovated.

In addition to the new concrete structures, the old concrete columns and pylon footings have partly been extended and reinforced. The prefabricated concrete elements on the facade of the first floor have been renewed. The technical installations have partly been placed inside the old concrete pylons. The new expressive concrete staircase that leads up to the first floor exhibition space is suspended from the old concrete beams of the intermediate floor. The fairfaced concrete block walls in the museum spaces create both a mono-material feel and security.

The positive properties of concrete are reflected in the structures and wear surfaces. The new structures and surfaces have been adapted to the old by using Constructivist motifs, an industrial character, scale and systematicity, and with an emphasis on the mono-material nature and structurality of concrete. The plastic and monolithic properties of concrete have been utilised in the structures and architecture of the building. The interior architecture is based on the principle of exposing concrete structures and surfaces: the memory traces of the different functions of the building are visible, forming a bold contrast to the art being exhibited.







SECTION

EVIRA, FINNISH FOOD SAFETY AUTHORITY, HELSINKI

Lahdelma & Mahlamäki Architects / Rainer Mahlamäki, Ilmari Lahdelma, Riitta Id

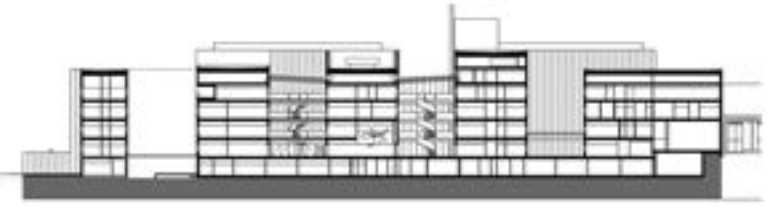
Completed 2006
Gross area 25 915 m^2
Volume 116 400 m^2

The frame of the building consists of steel-concrete composite pillars and steel beams. The intermediate floors are a hollow-core slab construction. The long spans maximise flexibility and a dense system of technical ducts runs through the middle of the building frame. By the ducts the long span has been covered with a TT-element.

The facades consist of the prefabricated concrete elements of the inner shell, in front of which is the external wall built on site. The facade cladding is made of silk-screen printed glass, the white printed pattern of which occurs on the external surface of the glass; the cell-like pattern refers to the subject matter of the users of the building. The facades are to a great extent mono-material, enlivened only by the warm wood surfaces of the recessed balconies and the coloured wooden board surfaces. Also the walls of the atriums are the same silk-screen-printed glass as the facades.

A contrast to the lightweight glass surfaces is created by the whitened concrete structures, both on the interior and exterior. The atrium bridges and the steps of the spiral stairs are prefabricated concrete structures, while the concrete balustrades of the stairs have been cast in-situ. The floors of the entrance lobby and restaurant are concrete. The deck, wall and vestibule of the entrance courtyard, as well as other external wall structures, the large air-conditioning "silos" and stairs reminiscent of a silo are all in concrete whitened with titanium dioxide and cast in-situ.

SITE PLAN



SECTION

ENTER –SENIOR SECONDARY SCHOOL AND VOCATIONAL COLLEGE, SIPOO

K2S Architects / Kimmo Lintula, Mikko Summanen, Niko Sirola

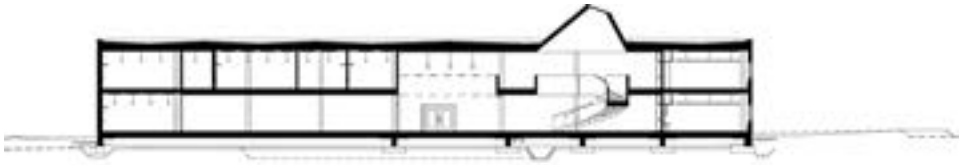
Completed 2007
Floor area 3 815 m^2
Gross area 4 125 m^2
Volume 17 600 m^3

SITE PLAN

Enter, the result of cooperation between the Municipality of Sipoo and Keuda Vocational College, was taken into use at the beginning of the 2007 autumn academic term. The two-storey building, containing both a senior secondary school and vocational college, is situated among other educational buildings in Nikkilä. In addition to the students, Enter also provides inhabitants of Sipoo with facilities for hobby and training activities.

The core of the building is the lobby that opens out towards a courtyard, and around which are the teaching facilities. Situated in the lobby are the students' work and rest areas and lockers, as well as the cafeteria run by the student council. The core of the lobby is formed by the cast in-situ concrete staircase lit from above by a conical roof light. In addition to the stairs, there are also other curved forms in the concrete structures, such as the curved plinth elements. Concrete was also needed for the foundations, and the soft soil was piled with reinforced concrete piles. Also the frame of the building is concrete, consisting of hollow-core slabs, composite structure pillars and beams, the intermediate floor structure and cast in-situ roof of the central lobby. The walls of the classrooms and corridors are fairface concrete block. The surfaces of the hollow-core slabs of the classroom ceilings are visible between metal grilles and the technical installations. The floor surface is a smooth and durable epoxy mass. Black Mastertop screed has been used for the concrete floors of the main lobby, the floated surface marks of which add vibrancy to the appearance. To bind together the dust, the fairfaced concrete surfaces of the stairs have been treated with a coloured opaque varnish that also lightens the colour of the concrete.

The facade materials are honest in their simplicity; warm vertical wooden cladding with a translucent finish, glass and concrete.



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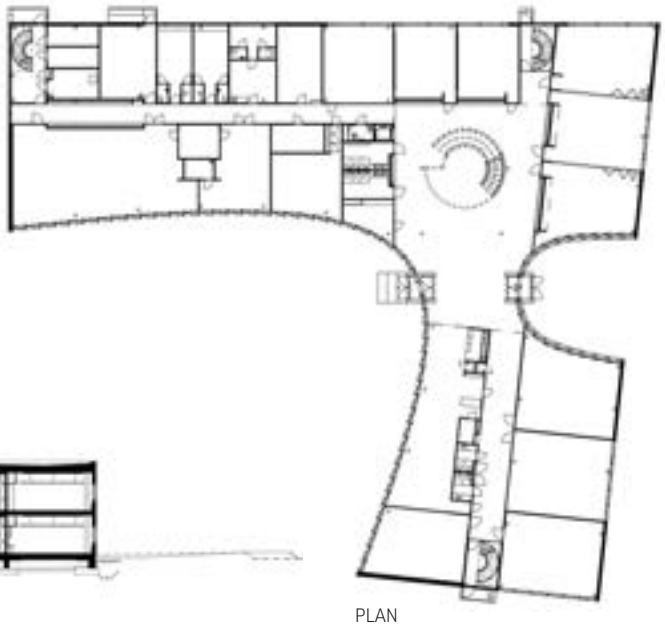
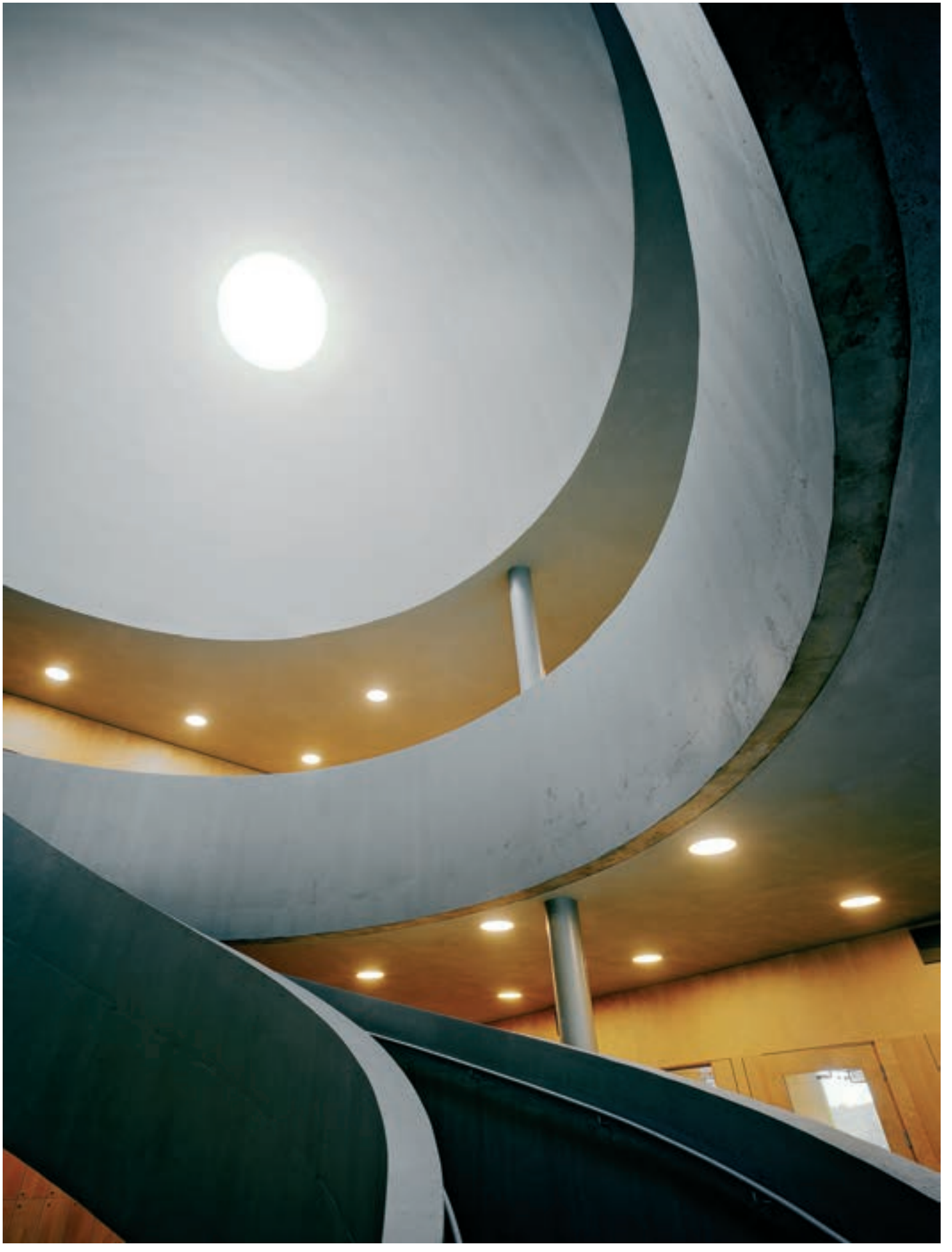


PLAN



TAPIOLA CHURCHYARD URN CEMETERY, ESPOO

Lahdelma & Mahlamäki Architects / Ilmari Lahdelma

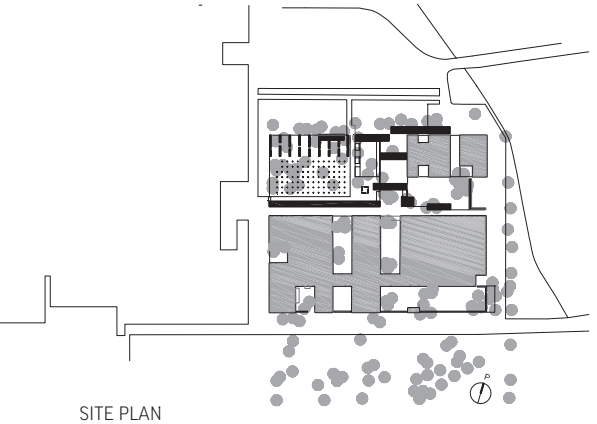
Completed 2004
Floor area 63 m^2
Volume 150 m^2

The urn cemetery is situated north of the Tapiola Church. The church, designed by Aarno Ruusuvuori and completed in 1965, is characterised by simplicity and plainness. The church and cemetery together form a unity in the cultural landscape in terms of both ecclesiastical symbolism and landscape. The location offers the peace and privacy that a cemetery requires.

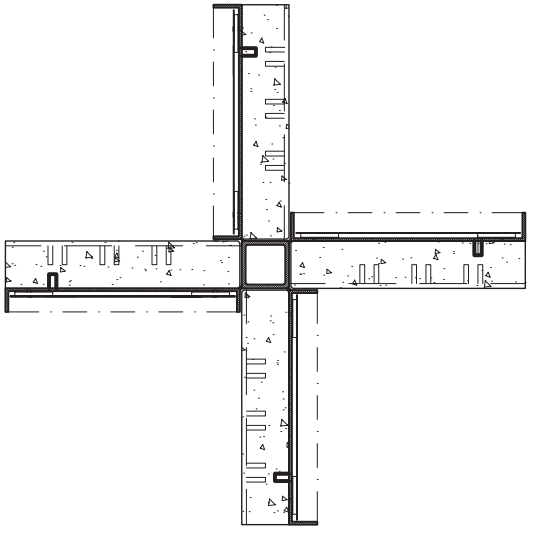
The urn graves and columbarium structures each have their own areas, evenly subdivided by a grid. This man-made regularity is broken up by the trunks of the existing trees. The urn grave markers are in the form of a cross, echoing the religious symbolism linked to church architecture.

The main materials of the urn cemetery are concrete cast in-situ and natural stone. The appearance of the urn cemetery complements the material harmony created by Ruusuvuori's church through a clear, restful, material touch. The concrete storage building, the memorial slabs, and the low concrete walls demarcating the cemetery border integrate the cemetery into the ecclesiastic totality. Concrete enables the making of simple objects with precise edges. Concrete brings a feeling of permanence to the atmosphere of the urban cemetery. The concrete surfaces of the urn graveyard have been made without using fly ash and have been lightened with titanium dioxide.

The urn markers are in light grey granite, the columbarium structures in black granite. The name plaques on the markers are made of metal plates that have been treated in different ways. The cemetery area has mainly a grass surface, while the main paths are paved with concrete flagstones.



SITE PLAN



DETAIL OF THE URN MARKER

SAUNA AND GUEST FACILITIES IN THE BASEMENT, HELSINKI

Seppo Häkli Architects / Seppo Häkli

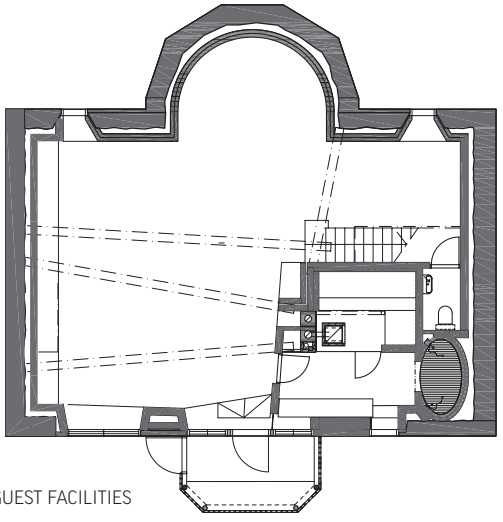
Completed 2007
Floor area 110 m^2
Volume 410 m^3

The two-storey private house, designed by architect Matti Välikangas in the 1920s, is situated in the "Wood Käpylä" garden city-type residential area of Helsinki. The house was renovated by restoring the exterior in accordance with the original drawings. The house was built on rock. The originally low basement was later partly excavated deeper to accommodate a garage and a large door was cut into the handsome stone foundation. The client wanted the entire basement to be in use. A sauna and auxiliary spaces were placed there and the remaining space was made into a uniform multi-purpose space, which is equally well suited as a family lounge and for accommodating guests. The garage door was replaced with a suitable window and the surrounding plinth was rebuilt in granite.

As a counter balance to the traditionality of the spaces above ground, the objective in the basement was to use a contemporary form language and mainly untreated surfaces. The load-bearing walls of the sauna facilities were cast in-situ in coloured concrete using plywood formwork. Some red and black pigment was used to colour the concrete and red stone was used as the main aggregate. Iron tubes were placed in the anchorage holes and left exposed. The floors were cast, like the walls, using a very pliable concrete mix. The concrete surfaces were then given a light acid wash. With the aggregate slightly exposed, the surface resembles the velvety surface of a very fine grade sandpaper. As a finishing treatment, the surfaces were waxed.

The wall of the sauna supports sturdy steel beams which replaced the old dense row of log beams that had been laid on to the stones forming the plinth. The cladding of the fireplace and the jambs of the etched glass doors are waxed black steel, as are also the roof beams. The ceiling is waxed common alder, and the stairs is made from waxed steel and solid oak. The walls have been laid out in a stepped fashion so as to follow the existing situation, and the rendered masonry surfaces have been given a light-coloured stain with a mineral-based paint.

SECTION



PLAN: SAUNA AND GUEST FACILITIES

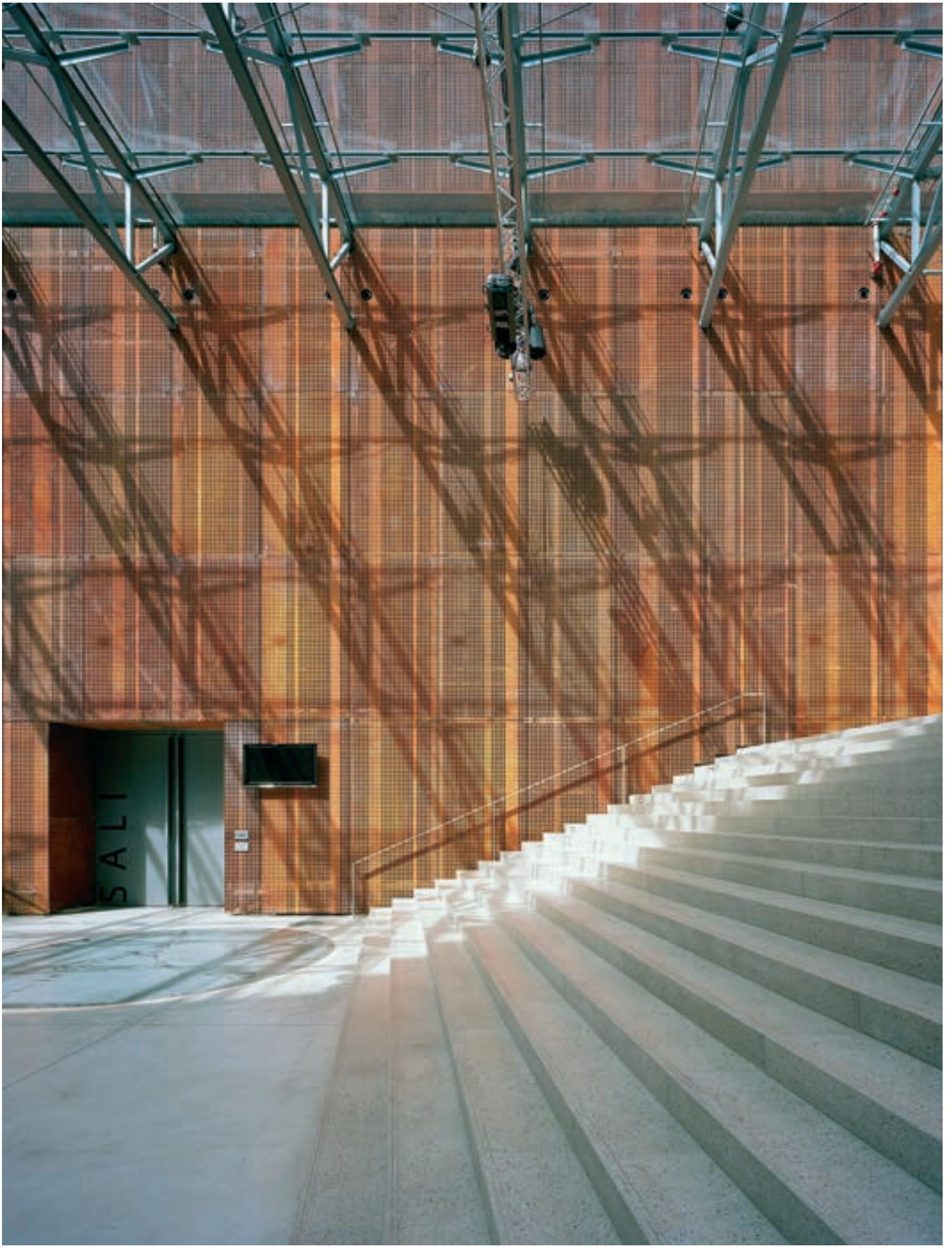
THE VERKATEHDAS CULTURAL AND CONGRESS CENTRE
HÄMEENLINNA

JKMM Architects / Juha Mäki-Jylllilä, Jaakko West

Completed 2007
Floor area 10 400 m^2
Volume 56 000 m^3

The Verkatehdas is a new cultural and congress centre in the centre of Hämeenlinna. The old factory, which was built in several stages – the oldest parts of which are over one hundred years old – has been respected in the refurbishment and renovation work. The building repairs have been carried out preserving the old rough spirit of the factory milieu; old structures that have been left exposed include, for example, the roof beams in the foyers and restaurant. The materials of the new parts complement the coarse material palette of the factory area. The frame of the new building is built primarily of concrete. The facades of the concert hall are covered with perforated Corten steel sheeting. The facades of the cinema centre and auxiliary areas are mainly in brick, in accordance with the facade of the old factory, combined with coloured and clear glass sections. An abundance of in-situ castings were made, both for the foundations and the concert hall.

Situated between the new Vanaja Hall and the congress facilities in the renovated old factory building is the glass-roofed courtyard, part of the pedestrian route that cuts through the Verkatehdas area. The impressive main staircase, built in concrete and with the patterns from the wood formwork showing, leads up to the first floor and a foyer. The second staircase in the glass-roofed courtyard, which leads to the exterior yard, has been built using prefabricated elements, with the concrete steps given a polished surface. The floors of the ground-floor glass-roofed courtyard, the corridor and other public spaces are made of concrete. The floor surfaces have been steel-trowelled and then finished with a protective matt wax. Set into the floor of the glass-roofed courtyard is the artwork 'Musta aurinko' (Black Sun) by Olli Larjo, Anssi Taulu and Olli Jalonen.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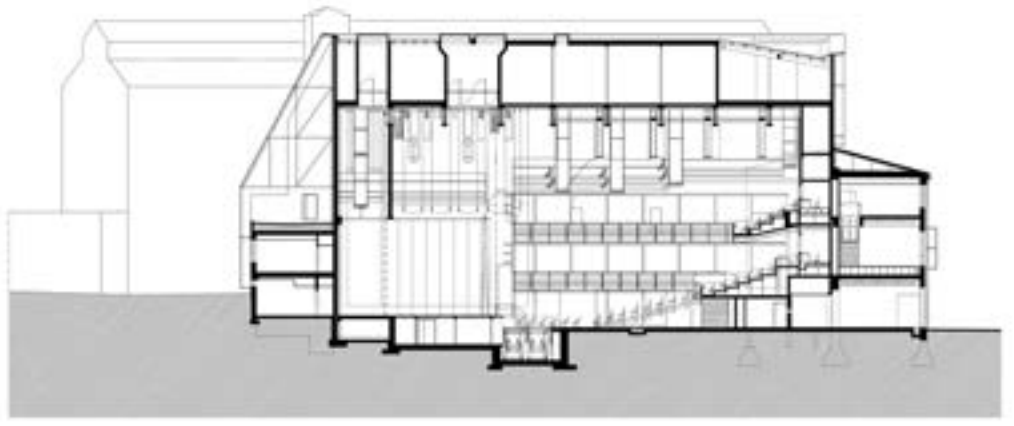

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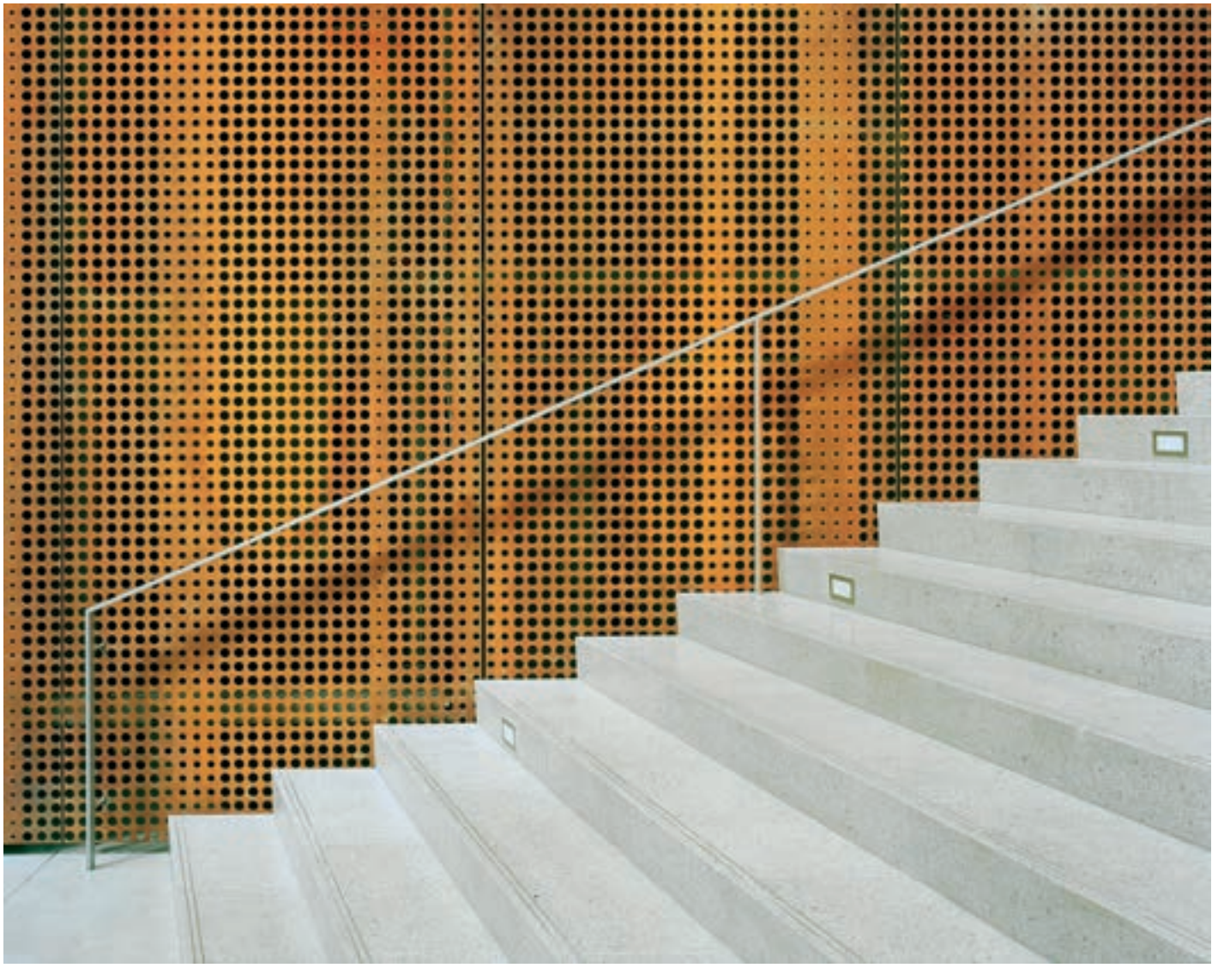
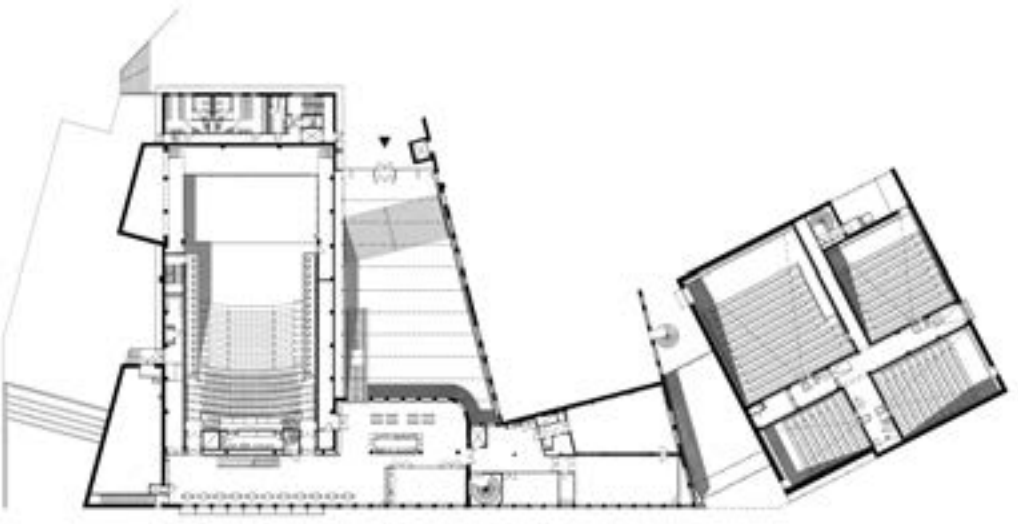
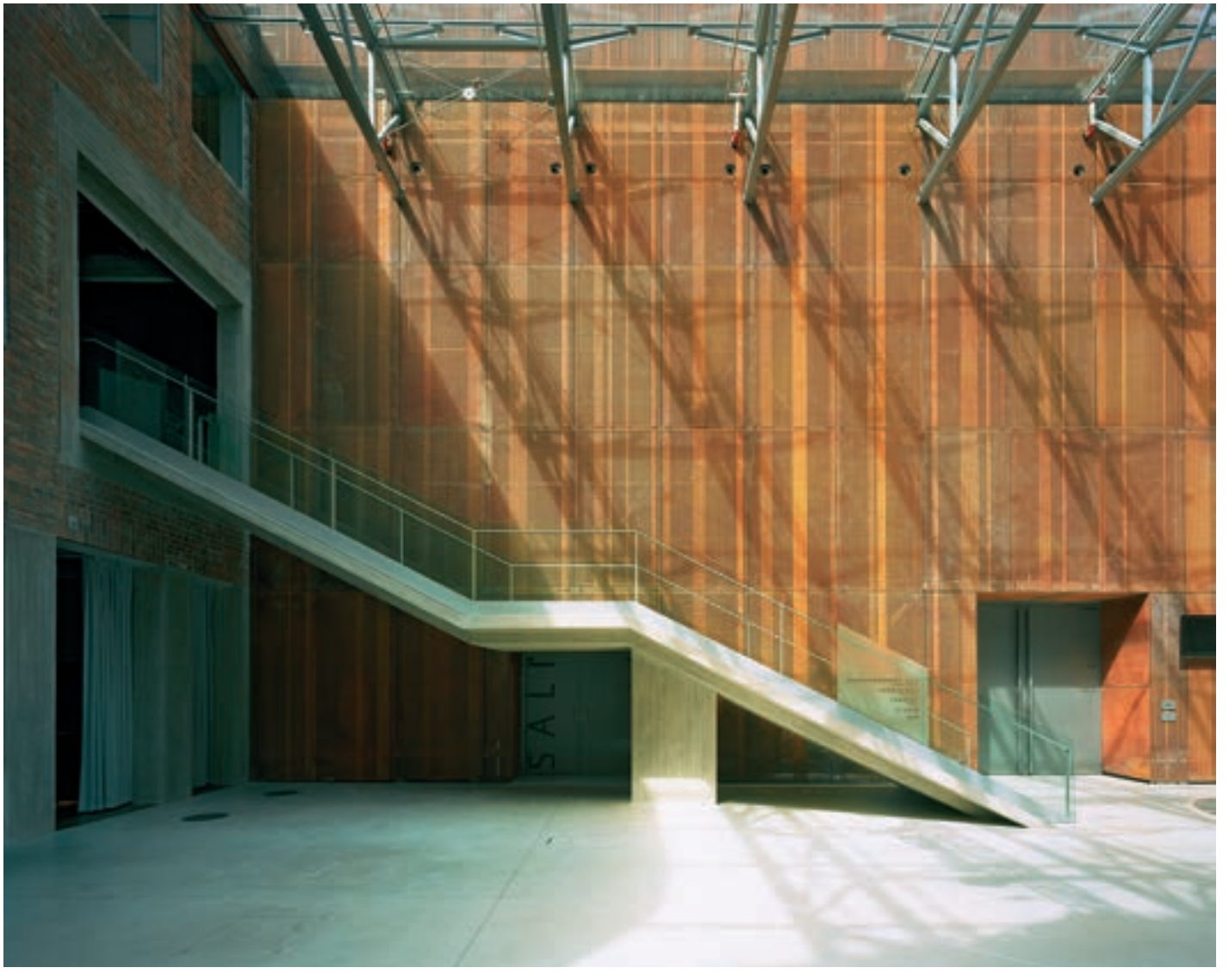




1ST FLOOR PLAN



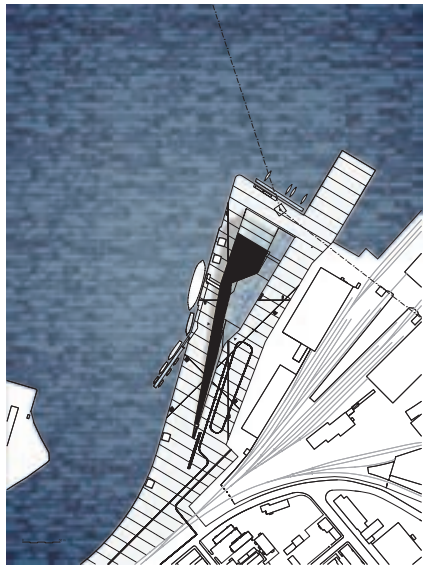

RESTAURANT
CAFE
INFO


WC

VELLAMO MARITIME CENTRE, KOTKA

Lahdelma & Mahlamäki Architects / Ilmari Lahdelma, Juha Heino, Marko Santala

Completed 2008
Floor area 14 601 m²
Gross area 14 366 m²
Volume 118 039 m²

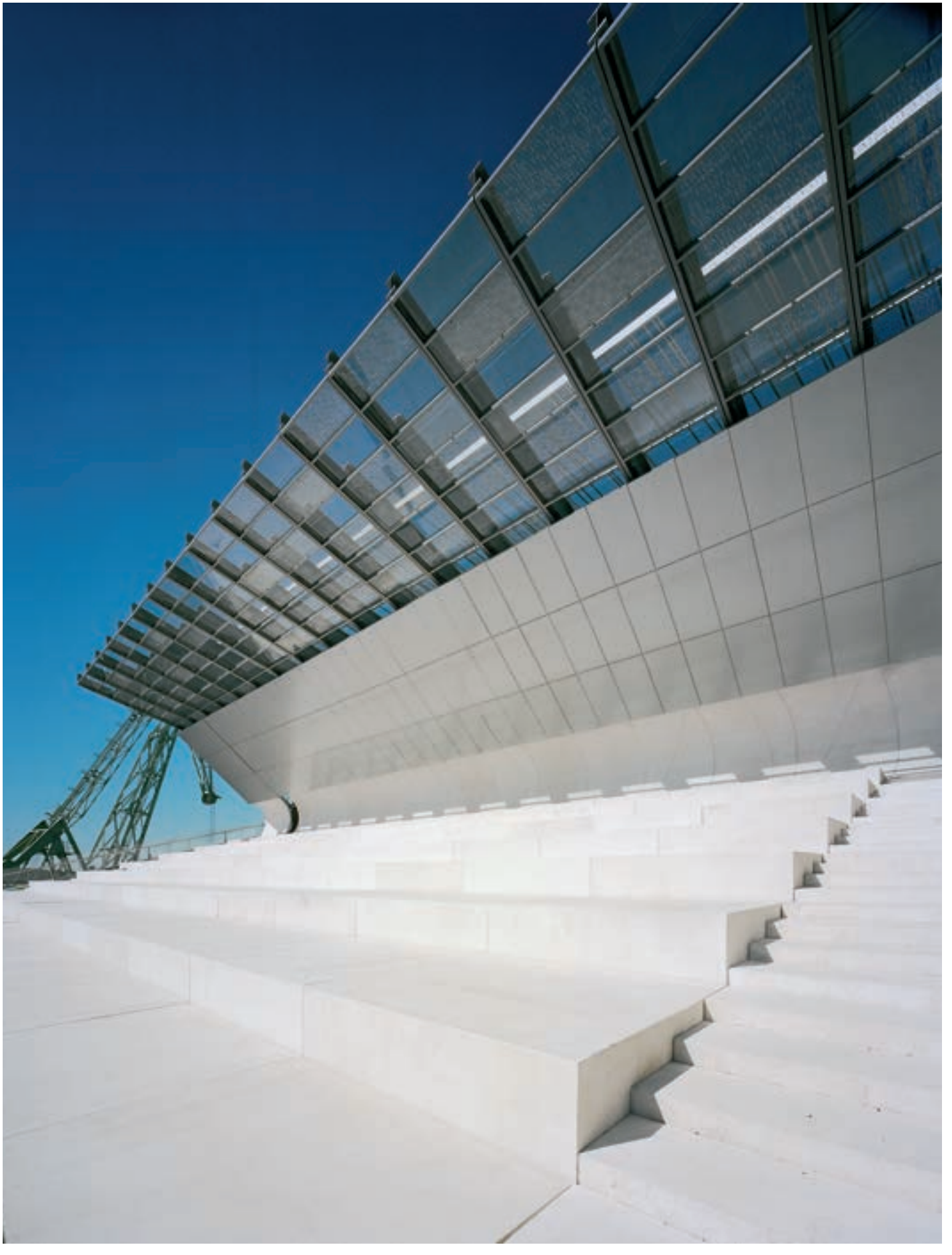


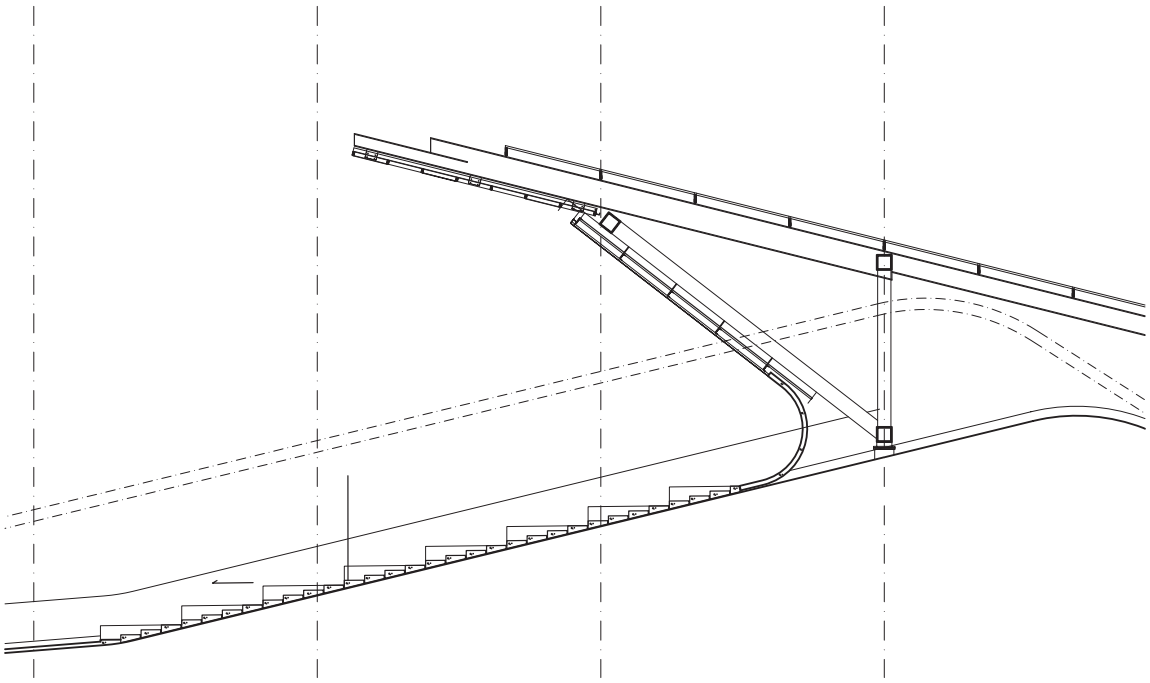
SITE PLAN

In terms of its construction method, the Vellamo Maritime Centre is a modern Finnish building. The structure is based mostly on a reinforced concrete pillar-and-beam frame system. The ground floor is mainly a load-bearing hollow-core slab structure, the intermediate floors and roof deck are hollow-core slab structures, and the promenade deck is built as a so-called reverse structure.

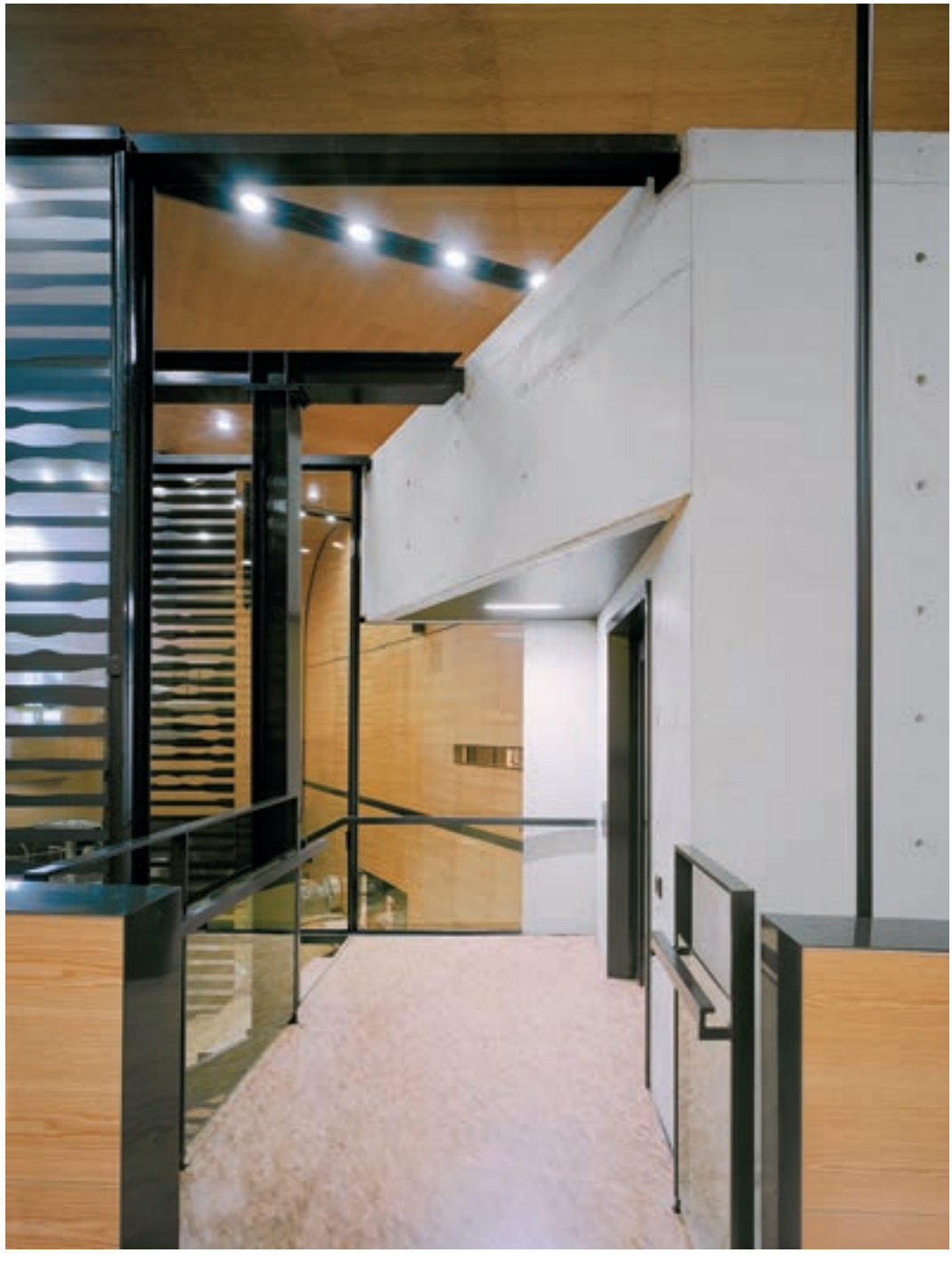
Steel beams have been used for the roof structure of the spacious, tall central hall. The canopy covering the public square, the roof structure containing technical equipment, and the maintenance area is a steel-glass-aluminium structure. The external walls are a lightweight frame construction. The main facade material is metal sheet in the form of cassettes painted in different colours, and on top of which is an aluminium/silk-screen-printed-glass grid.

The concrete building parts play an important role in the overall structure. The functionally essential stair-lift tower of the tall central exhibition hall and the external bridge leading to the museum ships are concrete cast in-situ. The stage steps of the roof plaza and the lower part of the architectonically central awning, the so-called “surge”, are built from prefabricated concrete elements. The appearance of the in-situ cast concrete has been adjusted to fit the location, with titanium dioxide bleach and the formwork of film-coated plywood. The most challenging aspect in building the concrete elements for the roof area was to control simultaneously the curved and diagonal geometry. The white cement elements use so-called “full depth colouring”; the coarse part of the aggregate is white and the fine part yellow; pigments were not used.





SECTION




VMVII

CONCRETE IMAGES

Concrete often brings to mind pairs of opposites, such as the abundance of forms vs. minimalism, smooth vs. coarse, beautiful vs. ugly, warm vs. cold, strong vs. sensitive, plastic vs. angular, light vs. shadow, which bring their own nuance also to concrete architecture. It is considered a cheap and everyday material, but it can also be festive and dignified. Concrete undertakes a dialogue between the past and the future. Even though it is a 2000-year-old material, it is perceived particularly as the material that best expresses modern architecture and design. As a material it is fashionable and trendy as needs dictate. At the same time, it represents simplicity, a return to the use of a basic material.

Maritta Koivisto

MARIENKIRCHE CONCERT HALL, NEUBRANDENBURG, GERMANY 2001

Pekka Salminen Architects

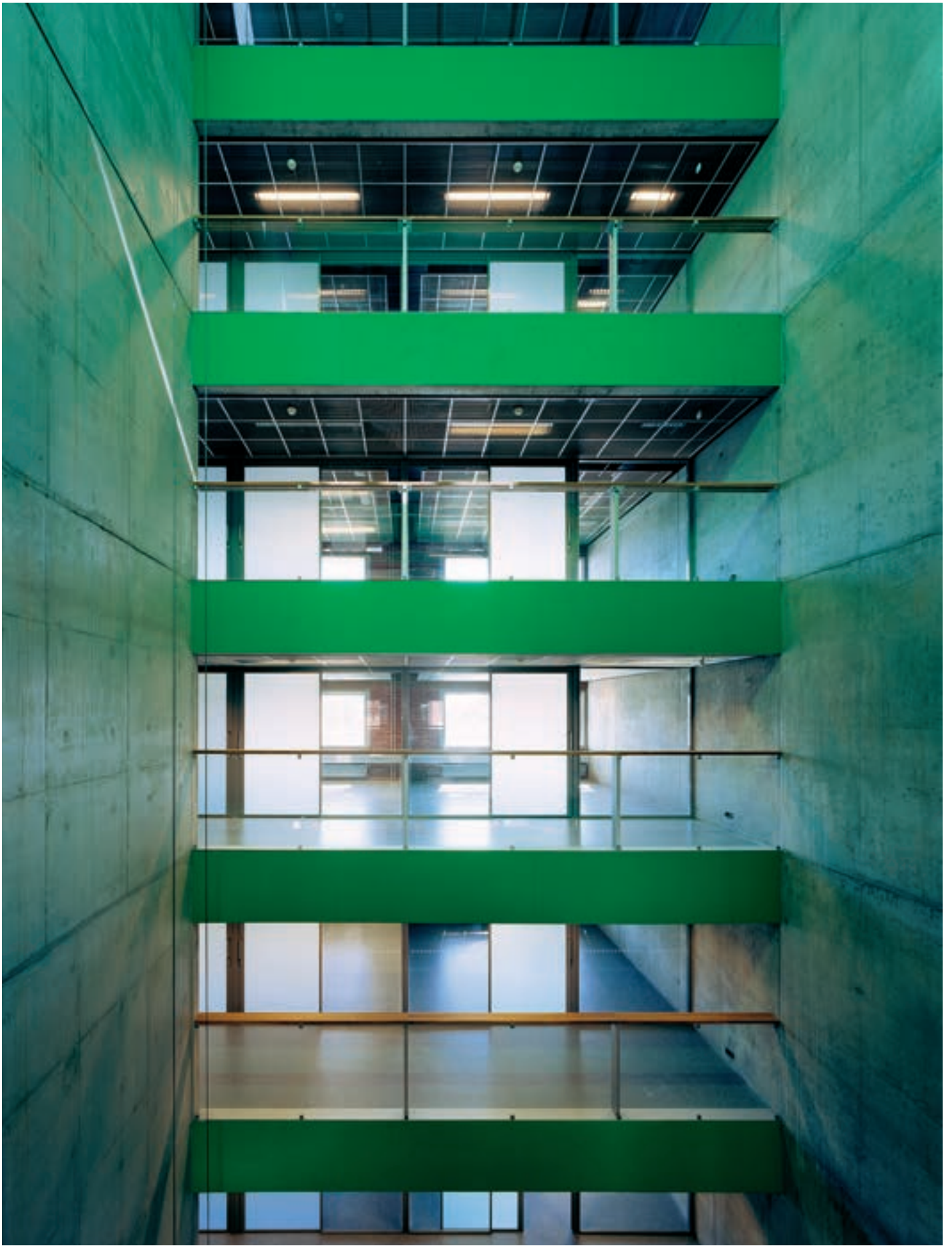
MAX PLANCK INSTITUTE OF MOLECULAR CELL BIOLOGY AND GENETICS

DRESDEN, GERMANY 2001

Heikkinen & Komonen Architects

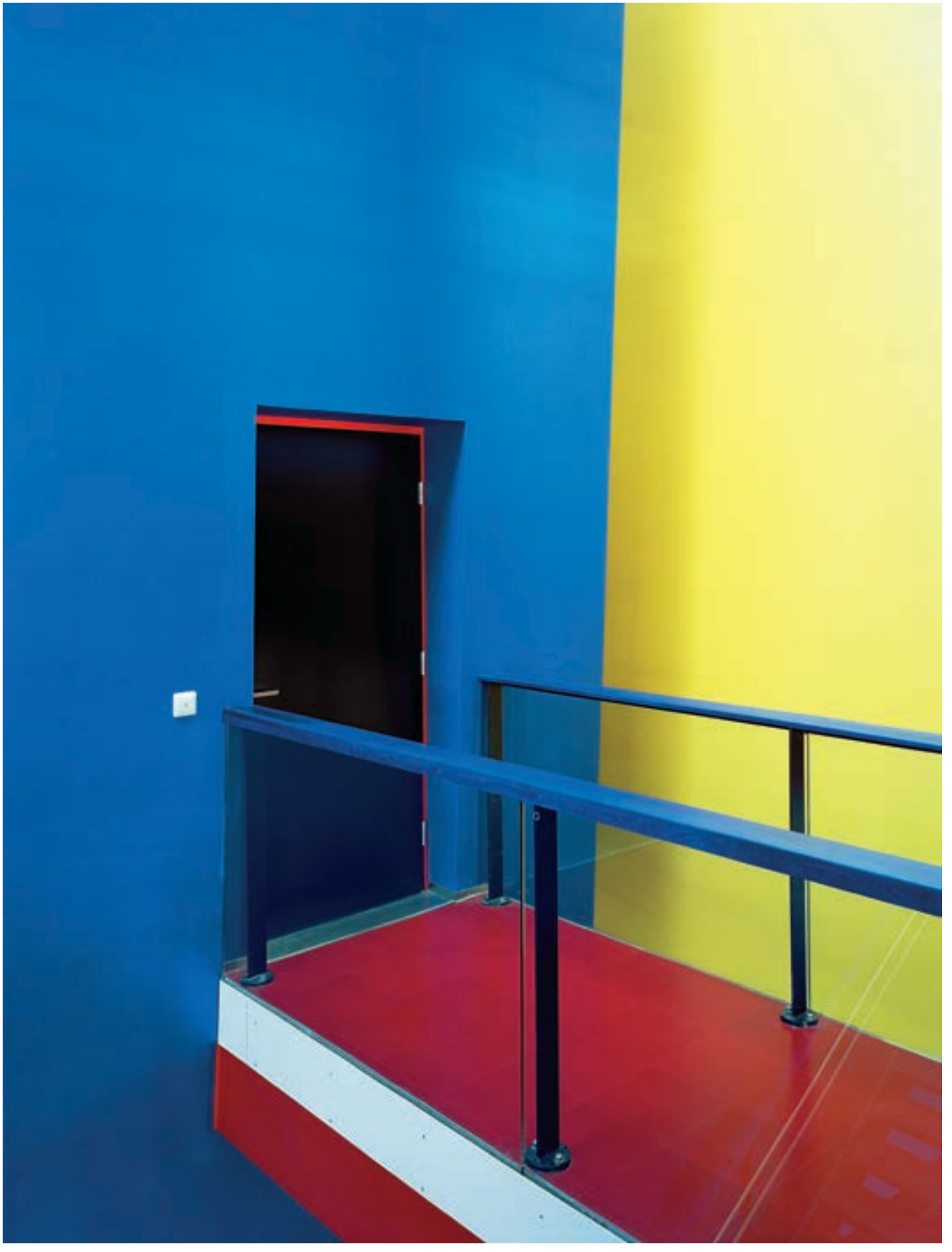
STAKES OFFICE BUILDING, HELSINKI, FINLAND 2002

Heikkinen & Komonen Architects



MARTINKALLIO SCHOOL, HELSINKI, FINLAND 2004

Lehto-Peltonen-Valkama Architecs



UNIVERSITY OF HELSINKI – ALEKSANDRIA LEARNING CENTRE

HELSINKI, FINLAND 2003

Davidsson Architects

VUOSAARI CHURCH, HELSINKI, FINLAND 2006

Pirkko and Arvi Ilonen Architects

HIENOVIRTA HOUSE, KAUNIAINEN, FINLAND 2004

Architect Yrjänä Vuojala