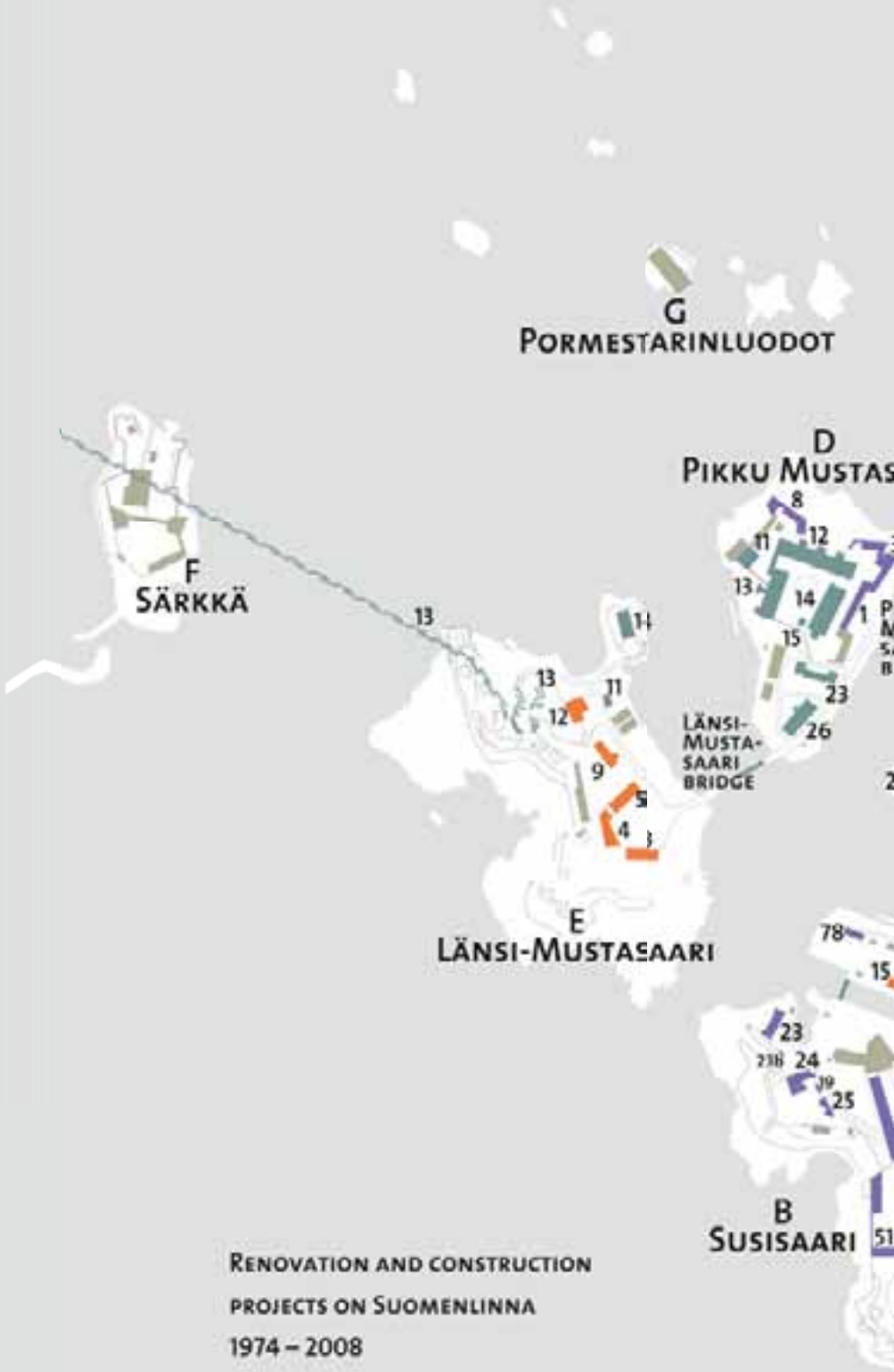
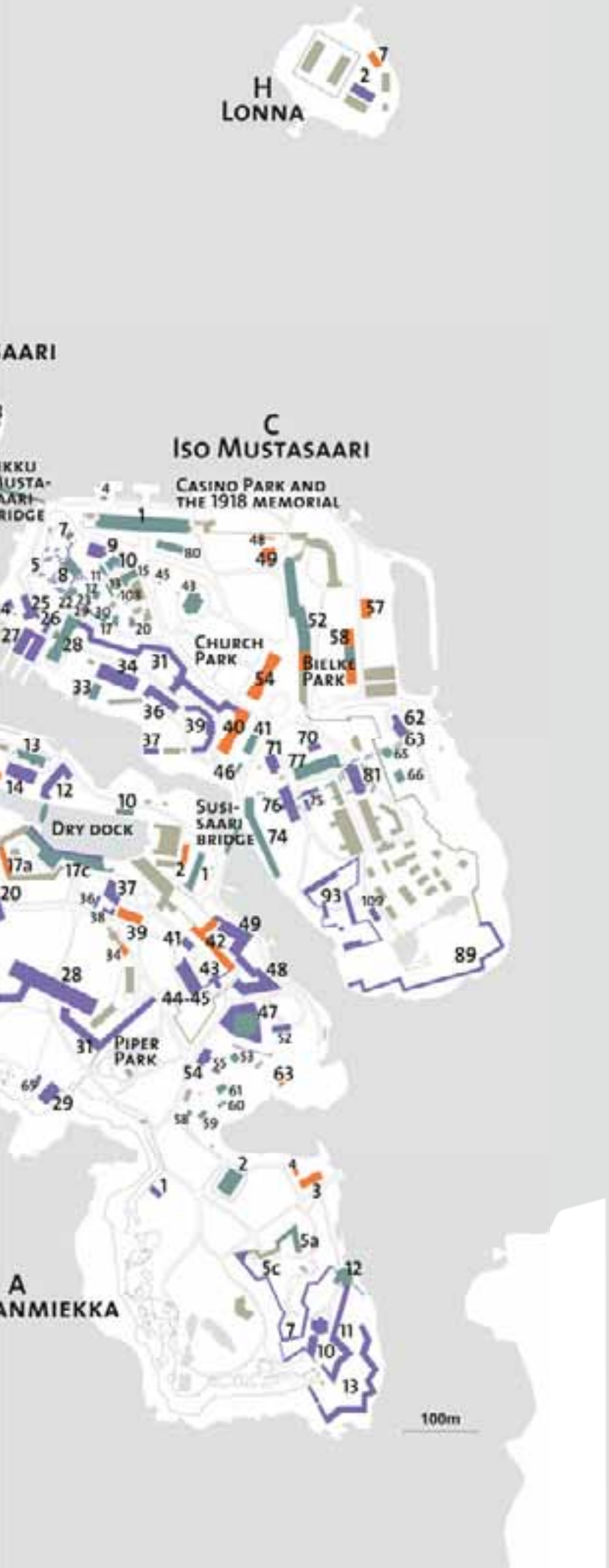
Suomenlinna
Conservation and Reuse

GOVERNING BODY OF SUOMENLINNA

Suomenlinna has been entered in the UNESCO World Heritage List to be preserved for posterity as an example of European fortress architecture from the 18th to the 20th century.

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Foreword

Jaakko Antti-Poika
Director
Governing Body of Suomenlinna

Named **Sveaborg** in Swedish when originally built (rendered in Finnish as **Viapori**) and renamed **Suomenlinna** in 1918, the island fortress off Helsinki has periodically been in the news in the course of its history – sometimes even worldwide. In its day, the fortress project required a massive investment by two of the greatest military powers in Europe and as such must have been well known in military circles. Indeed, the original fortress of Sveaborg acquired a formidable reputation once it was completed in the late 18th century, and its offensive potential was at least as significant as its importance in the defence of the realm, according to historian Matti Klinge.

During the Crimean War (1853–1856), the name of Sveaborg and images from the northern front became very familiar to the British public. Though photography was a brand-new technology at the time, there are no photographs from the Baltic Sea theatre of war; the press abroad relied on high-quality engravings to illustrate the defeat of the fearsome Gibraltar of the North.

Throughout its existence, the fortress has had a substantial impact on its surroundings. Its cultural importance during the Swedish era (1748–1808) has long been known and acknowledged. During the Russian era (1808–1918), it was kept up to date with cutting-edge European military technology, as witness the introduction of sea mines and the telegraph. During the Finnish era (from 1918), technological advancements included a dock for servicing battleships, a submarine base and the demagnetizing station on Lonna islands.

The most distressing phase in the history of Suomenlinna was the establishment of a major prison camp in 1918–1919, following Finland's Civil War. This was eventually closed down, partly because of massive criticism in the Nordic press, and Suomenlinna was given over to the Finnish military. The Defence Forces mainly used the existing facilities as they were, without embarking on any significant new construction. On the other hand, developments in armaments had rendered the old greystone fortress largely obsolete in terms of its defence function.

The idea of rescuing Suomenlinna from its stagnation emerged in the late 1960s and was taken up as a personal project by President Urho Kekkonen at the beginning of the following decade. A major design competition was organized, and the thorough preparatory stage following this competition set the scene for an effort on which initially no expense was spared. Many individual repair projects even had a separate allocation in the central government budget. Permanent Secretary Jaakko Numminen supervised the project as Kekkonen's trustee for more than two decades.

The repairs on Suomenlinna have followed a dynamic pattern all their own which is easily discernable in retrospect. The flamboyant beginning of the project was more about building new structures than sensitively preserving the various historical layers of the fortress. However, the Venice Charter of 1964 began to have an impact on the work about ten years into the project, and after an international expert seminar held in 1985, the aims and objectives of the repairs shifted substantially.

The recession of the early 1990s effected a permanent cut in the resources allocated to repairs on Suomenlinna. The repairs and partial reconstruction of the wings of Crownwork Ehrensvärd were cancelled after a design competition had already been held, demonstrating that a sea change had occurred in attitudes to restoration. However, repair technologies have also become more ecological, and projects are now smaller in scale. The use of original materials or materials similar to the original ones has resulted in the creation of a databank on restoration on Suomenlinna that is unique in Finland.

The inclusion of Suomenlinna in UNESCO's World Heritage List in 1991 caused a major change in attitudes to repairs. Reconstruction was abandoned, and this together with the reduced level of available financial resources shifted the focus of repairs to preservation and upkeep.

The World Heritage Convention rather challengingly requires the site to be preserved while still making it available to visitors, even in large crowds. Now, 35 years after methodical renovation and repairs began on Suomenlinna, the fortress has 650,000 visitors annually, all of them needing basic services and easily available information on the history of the fortress and its repairs. At the same time, visitors create new stress factors such as wear and tear on the structures and the islands' natural environment.

The repair work continues, still with the grand objective set decades ago: to preserve the fortress for future generations, to maintain a record of all the phases of its history, and to maintain a lively community.

The Governing Body in charge

Heikki Lahdenmäki
Head of Planning
Governing Body of Suomenlinna

The military use of Suomenlinna ended in 1973 when the garrison moved out and the Defence Forces gave the islands over to civilian administration. The fortress had been receiving tourists since the 1920s, and some tourist services had been set up by the Archaeological Commission (now the National Board of Antiquities), the Ehrensvärd Society and the Finnish Tourist Association. Repairs on the fortifications had been carried out as unemployment relief work, particularly in the 1930s. In the late 1960s, the Archaeological Commission and the Suomenlinna labour colony – an open prison unit located on the islands – engaged in a systematic joint effort to convert buildings no longer used by the military for residential use. Some of the facilities involved were administered by the Uusimaa Regional Building Administration and others still by the Defence Forces. Authority and responsibilities were not always clear because of the number of bodies involved, and this hindered the maintenance and repair work. The fortress thus had no single master.

Foundation of the Governing Body

The Governing Body of Suomenlinna was set up in 1973 to take charge of the maintenance and development of Suomenlinna as a whole. The development aspect was officially launched with the completion in 1974 of the plan for the use of Suomenlinna and the adoption in 1975 of the related Government Resolution. The plan provided a description of each building together with a suggested use compatible with its character and location and the overall prestige of the national monument. It also explored the potential and requirements for creating a viable living community on the islands. The draft plan for the use of Suomenlinna remains to this day the general plan for repairs on Suomenlinna.

When the Governing Body of Suomenlinna took over the fortress, the place was in poor condition. The disused buildings in particular had been neglected for decades. Five residential buildings had already been repaired, however, and a handful of other buildings were being worked on. A waste-water treatment centre and an oil-fired district heating plant had been built to serve the largest buildings on Iso Mustasaari island, though these were intended as temporary facilities with a view to the proposed later installation of full public utilities.

Under the Government Resolution, the most urgent repairs involved "the repair of structures falling into ruin and of buildings that now have a specific purpose" … "taking into account both antiquarian and architectural perspectives". These two clauses from 35 years ago capture the essence of repairs on Suomenlinna in a nutshell. From the general plan level down to the tiniest detail, the aim is to create a balance between preserving the character of the premises and the materials used, on the one hand, and the demands of new uses, on the other. Project priorities have been determined by the condition of the structures and their purpose.

Suomenlinna is an exceptional site with regard to building protection. To this day, Suomenlinna has no local plan, and no buildings have been protected under the Act on the Protection of Buildings. The assumption, sometimes questioned, is that the entire site is covered by the Antiquities Act, and it is generally considered that the Act and Decree on the Governing Body of Suomenlinna guarantee sufficient protection. Under this legislation, the National Board of Antiquities has a permanent representative on the Board of the Governing Body. Work is now in progress on a local plan, in connection with which the protected status of Suomenlinna as a World Heritage Site will be thoroughly reviewed.

Long-term planning

The Governing Body of Suomenlinna has drawn up general plans based on the 1974 plan for the use of Suomenlinna to further specify its principles. The most important of these are the plan for condensing the low-rise areas (*Pientaloalueiden tiivistämissuunnitelma*, 1983) and the landscape renovation plan (*Suomenlinnan maiseman kunnostussuunnitelma*, 1987). Other individual general plans include a comparison of heating options (*Lämmitysvaihtoehtojen vertailu*, 1977), a new construction analysis for Länsi-Mustasaari island (*Länsi-Mustasaaren uudisrakentamisselvitys*, 1985), a plan for the reconstruction of the Great Courtyard (*Linnanpihan entistämisselvitys*, 1985) and general plans for the depot and shipyard areas (1991 and 1992, respectively). An open design competition for the reconstruction of Crownwork Ehrensvärd was held in 1984. Suomenlinna has also been the subject of several academic theses, including a plan for the use of Lonna island (*Lonnan käyttösuunnitelma*, 1999) and a plan for new construction on Länsi-Mustasaari island (*Länsi-Mustasaaren uudisrakentamissuunnitelma*, 2007). All plans have to be approved by the Board of the Governing Body of Suomenlinna, which efficiently communicates information on the status and progress of repairs to other national and municipal bodies involved. Thanks to the Board, decision-making and cooperation with the various actors has been smooth.

Suomenlinna is a popular tourist destination even in winter. EJ

A vibrant community

It was noted in the 1975 Government Resolution that "planning, repairs and new construction on Suomenlinna shall be scaled so as to allow for a maximum population of 2,000 permanent and 500 temporary residents". Today, for a number of reasons, the population consists of only 800 permanent and 100 temporary residents. Firstly, the projects for major new construction, such as supply building blocks on Länsi-Mustasaari island, have been abandoned as increasingly conservative restoration principles are being applied worldwide. Secondly, the average living space has increased by more than anticipated, in Finland in general and on Suomenlinna in particular. Thirdly, the possible floor area yielded by buildings to be renovated for residential use was rather optimistically overestimated. Although it is still possible to create some more housing on Suomenlinna, it is doubtful whether a permanent population of even 1,000 could be reached.

With regard to jobs and the range of functions on the islands, however, objectives have been met. There are some 500 jobs on the islands in the summer and about 400 in the winter.

The number of jobs available and the number of employed persons living on the islands is fairly well balanced. About 150 people from the mainland work on Suomenlinna, and an equal number of Suomenlinna residents work on the mainland. It is expected that the number of jobs will increase once unoccupied and disused facilities are repaired and current functions are enhanced. The number of municipal service outlets has been cut, as in other Helsinki districts, yet services vital to the community such as the school and daycare centre are guaranteed for the time being.

Tourism, public utilities and transport

Under the Government Resolution, the aim in developing the islands for recreation and tourism is "to prevent wear and tear and to even out seasonal variation". Water supply, energy supply, waste management and transport "shall be organized in keeping with modern requirements, jointly with the City of Helsinki". By 2008, public utilities had been extended to all buildings, including those on Särkkä and Lonna islands. Visitor management is an ever-growing challenge, as visitor numbers have more than doubled in the past 35 years.

Concerning transport, the Government Resolution notes that "transport between Suomenlinna and the mainland shall continue to be based on water transport" and that "the use of motor vehicles shall be avoided in the man-

Suomenlinna seen from the north-west, with Vallisaari island in the background. KMO

agement of outdoor areas and supply transport". Proposals for complementing the ferry and boat connections have included a railway line and a bridge in the 1940s, a cable car in the 1970s, and a car and tram tunnel and even a metro tunnel in the 1980s; the Governing Body, however, has steadily maintained the water-transport-only policy. The ferry service works quite well at the moment, though in winter the service is felt to be infrequent. Water traffic on Kruunuvuorenselkä will increase in the near future as the current oil terminal on Laajasalo is developed into a residential district and islands currently held by the military, including Vallisaari and Kuninkaansaari islands, are released for civilian use. Suomenlinna will also be served by these new water transport connections.

Contrary to the Government Resolution, supply transport on Suomenlinna is principally managed using motor vehicles. Horse-drawn carriages have actually been seriously discussed, but they are not considered efficient enough, at least not for renovation work. The use of electric cars and other environmentally preferable vehicles has been tested for instance in postal deliveries.

Ongoing work

The guiding principle in repairs on Suomenlinna is to maintain the military nature of the fortress despite its current civilian status. The Governing Body has succeeded in striking a balance between preservation and innovation, an achievement that has been duly noted in several national and international forums: recognition includes the SAFA prize of the Finnish Association of Architects (1983), inclusion in the UNESCO World Heritage List (1991), the Rose for Building award of the City of Helsinki (1995) and an Europa Nostra honorary mention (2000).

Suomenlinna is not finished yet. There is ongoing work all around the fortress, and there will be more in the near future, particularly at the shipyard and on Lonna island. Even if there were no new renovation projects, the fortress would still require continuous maintenance. There are plans to extend the operations of the Suomenlinna Open Prison to Vallisaari and Kuninkaansaari islands. Global warming may bring a completely new set of challenges.

The present book is a retrospective survey of the work carried out by the Governing Body of Suomenlinna over its 35 years of existence. This English version of the book is being published as part of the World Heritage Site Management Plan, a report to the World Heritage Centre of UNESCO on the threats faced in protecting the site and how these are to be dealt with.

Fortress

"Thousands of men have left the imprint of their hands on these stone walls, and even I myself, over the past 20 years, have seen hundreds of prisoners working on them, a motley crowd made up of many different nationalities."

Pentti Koponen, foreman, Suomenlinna Open Prison

Walls and earthworks

Suomenlinna is a greystone bastion fortress with an irregular ground plan, mainly built in the late 18th century. In the next century, the fortifications were modernized and the walls raised and reinforced to improve their defence potential, right up to their bombardment in the Crimean War in 1855.

After the Crimean War, the fortifications guarding the shipping channels became obsolete, and the line of fire of the fortress was instead oriented towards the open sea. Before the Crimean War, fortifications had been largely built in quarried stone, but now these were replaced with turf-covered sand earthworks, with vertical retaining walls built of shaped stones and bricks. At the very end of the 19th century, concrete replaced stone for fortification construction.

Construction

In the 18th century, the stone for the fortress walls was mainly cut from exposed, weathered bedrock on Suomenlinna itself. Commonly known as 'greystone', it is primarily gneiss, with some granite and migmatic compounds. The stone for elements requiring more refined shaping – fillets, the cheeks and vaulting of the embrasures, and the memorial plaques – was brought from farther away: sandstone from Roslagen quarry outside Stockholm and marble from deposits in Helsinki, Sipoo and Kalkkisaari in nearby Vuosaari. During the Russian era, limestone was imported at least from Estonia.

The Kustaanmiekka fortifications in an explanatory drawing dating from 1751. KrA

All the quarried stone structures in the bastion fortress are masonry walls with rubble infill, i.e. they have exterior stone facings with a mixture of small stones and mortar between. Dry-stone walls, built without mortar, were used as retaining walls for sand earthworks and powder magazines.

Although the vast majority of masonry walls on Suomenlinna are of a similar design, i.e. masonry walls with rubble infill, their technical quality varies hugely. Some are extremely durable structures, made of large, precisely cut and laid stones, while others were hastily built using smaller stones. The Swedes appear to have favoured the use of wedge stones, while the Russians spent more time shaping the stones used for the masonry; yet in both eras both exemplary and execrable walls were erected. The result probably depended on the availability of building materials and lifting equipment, the skills of the men doing the job, and the time available to complete it. On the other hand, fortresses were never intended to be everlasting monuments; they were simply built to serve the military purposes of the day. The placement and layout of a fortress, and above all its armaments, were strategically much more important than the structural soundness of its walls.

Restoration of the walls before the Governing Body

Although the bastion system was no longer relevant as a defensive structure by the late 19th century, repairs were undertaken on the walls of Suomenlinna for other purposes. Barracks, warehouses and workshops were built into the fortifications at many locations, though in other places the walls fell into disuse and decayed.

It was fortunate that as soon as Finland became independent, the fortifications on the southern islands of Suomenlinna were protected under the Antiquities Act as forming part of a national monument. This meant that repairs on the walls in the worst shape could begin as early as in the 1920s, even though the military was still in possession of the islands. Restoration of the Suomenlinna fortifications, supervised by the Ministry of Education, also began at that time.

The Kustaanmiekka shore fortifications project in the late 1920s was one of the first extensive repair projects on the monument, alongside several local repairs. The walls constituting these shore fortifications had collapsed extensively when blasting work was done just before the First World War to dredge the adjacent shipping channel. The

Repairs being made to the inside wall of the Kustaanmiekka shore fortifications in 1928. OE

extent of this collapse is fairly well documented in photographs in the archives of the Archaeological Commission and the City of Helsinki; these also show the wooden scaffolding and lifting equipment used at the site. Workmen are also visible in the photographs. The work was at least in part financed as unemployment relief. There are annual reports on the volume of such work done, but no detailed explanations as to what the funding was used for. This was the documentation practice up to the 1960s.

Restoration work at the beginning of the 20th century operated on much the same principles as today: the aim was to restore the walls to their pre-collapse condition, meaning that repairs were only carried out to the extent essential for ensuring their preservation. The materials used were mortar, very similar to concrete in its composition, and small stones, probably because of the limited lifting capacity of the equipment available. The parapets were waterproofed using clay and birch bark. Judging from the photographs, technical work was limited to a minimum – for instance, the earth layers on top were not completely removed.

Repairs on Suomenlinna were discontinued because of the Second World War but begun again in the early 1950s, as some of the fortifications on Kustaanmiekka, including caponniere Delwig, were repaired in preparation for the Helsinki Olympics in 1952. At the same time, the principle of 'revealing' the original Swedish fortress was adopted in the restoration work. Because of this, some of the sheet metal roofs over the defensive walls built during the Russian era were dismantled – after all, they were not part of the original fortress – even though they provided excellent protection for the fortifications. Late 19th-century sand earthworks were also removed to uncover 18th-century greystone walls. Materials used from the 1950s onwards included reinforced concrete and bitumen.

In the following decades, structural improvements were introduced in repair work on the monument. A case in point is the repair work done on bastion Stiernroos on Pikku Mustasaari island, which is still occupied by the Naval Academy. The soil was completely removed from the tops of the casemates so that a concrete slab and modern rainwater drains could be installed to lead water away from the cores of the walls, where it causes damage. In terms of documentation, it is interesting that there are fewer work site photos in the archives of the National Board of Antiquities from the 1960s than there are from the period before the Second World War.

Repairs to fortifications from the 1970s onwards

A turning point for preservation of the fortifications of Suomenlinna came in the 1970s. In that period, the Suomenlinna labour colony and the Governing Body of Suomenlinna were both set up and now share responsibility for maintenance and restoration. The former unpredictable funding was replaced by an annual grant from the Ministry of Justice and the Ministry of Education for upkeep of the monument. This enabled the start of a systematic and long-term repair programme on the fortifications. Unemployment relief funding was also allocated for the major project of repairing the earthworks on Kustaanmiekka between 1977 and 1984.

In 1956–1957, caponniere Coyet on Kustaanmiekka was excavated from under a Russian-era sand embankment, and its walls were raised to their original Swedish-era height. MV

A photo from 1962, with the caption: "Restoration of bastion Stiernroos". FR

The soil layers covering the 'rifle gallery' between bastions Wrede and Hyve were removed in an exploratory dig carried out by the National Board of Antiquities in 1977.

In 1992, soil was removed from the top of the Kustaanmiekka shore fortifications only to the extent required by the wall repairs. MV

This long-term effort has involved the year-round presence not only of the developer (the Governing Body) and the contractor (the labour colony) but also of the research and measurement unit of the National Board of Antiquities. Work site documentation was much more comprehensive than in the 1960s. Although in the 1970s and even into the 1980s the work still involved removing old soil layers from the tops of the walls, the National Board of Antiquities analysed the excavated soil using archaeological methods and documented the work with measurements and photos. Also, site logs were introduced to record what was done on the work sites. The main objective was to repair the masonry walls, although restorative measures were also still taken. A new approach introduced was the grouting method developed by the National Board of Antiquities; this involved injecting new mortar behind the stones in a wall. The method allowed the preservation of as much of the old wall structure as possible and also the repair of walls that were in poor condition but had not yet collapsed.

The material used for this was Parmu cement mortar, which had good injection properties and which only used lime, traditionally used for the walls, as aggregate material. The 1970s and 1980s also saw the introduction of other new materials for wall repairs, such as plastic drainage pipes, waterproofing blankets and rolled roofing, and filter fabrics. One of the major wall repair projects undertaken following these principles was the repair of the shore fortifications on Iso Mustasaari island, begun in the 1970s and completed in the 1990s. Apart from the earthworks repairs, this was the first repair project involving a

fortification with no in-built practical facilities which was based on both an architectural and a structural plan and which was documented by both the National Board of Antiquities and the Governing Body through photographs and detailed descriptions in site logs.

In the late 1980s and early 1990s, there was debate in Finland, led by the National Board of Antiquities among others, about the use of 'traditional' building materials, particularly in repairs to old structures. It had been discovered that modern materials were not 'everlasting' solutions ensuring structural durability. Therefore, when the next major round of repairs started on Kustaanmiekka in the early 1990s, a return was made to the good old ways: lime-based mortar and old-fashioned waterproofing. In these repairs, as little of the stone and earth structures was dismantled as possible, and high-quality materials were used even in places which would not remain visible after completion. Even the labour force now had to have more competence in stonework, as the quality of such work was much more important when working with lime-based mortar than with cement-based mortar. When the cement in the mortar was replaced with hydraulic lime, much more attention had to be paid to the shaping, laying and wedging of the stones. The repair principles developed in the early 1990s are still followed on Suomenlinna today.

Repairs to earthworks and other earth structures

Aerial photos of Suomenlinna taken in the 1970s show that the earthworks were in poor condition at the time and that paths had been trodden into the sensitive structures. There were paths along the tops of the defence line, between the sectors of fire of the gun emplacements and on the slopes. In that decade, work began on an extensive landscape plan, one of whose trial grounds was on the earthworks on Kustaanmiekka. The aim in repairing these was to respect the original flora, earth structure and working methods and to reduce erosion from wear and tear by providing reinforced and marked access routes.

Over the birch bark, clay and soil covering of the tops of the fortifications, slabs of turf cut from grassy areas on the island (known as 'turf tiles') were laid. A view of the winter tent over bastion Hårleman in 2003. PM

However, after this great earthwork project these sensitive repair principles were abandonded. Too much attention had been given to developing repair methods for stone walls and not enough to consulting landscape architecture experts. Many of the earthwork repair projects undertaken on Kustaanmiekka from the 1990s onwards failed: either the grass-covered earthworks were made too steep, or the humus provided for the grass to grow in was too thin and the plants died.

After the extensive unemployment relief project that ended in the 1980s, annual repairs have been carried out on the earthworks at various locations in the fortress, both by the labour colony and by the Governing Body. The most difficult aspect of this work is how to steer walkers away from a repaired area to allow the new plant cover to grow enough to withstand wear. From the 1990s, repaired locations have been protected against weather erosion using nets made of hemp. However, it is not possible to patch up erosion damage as fast as it occurs, so a large portion of the earthworks in the fortress is awaiting a new round of repairs. **TL**

Repairing the earthworks on Suomenlinna and making them more resistant to wear and tear take up an increasing amount of the Governing Body's time. The photo shows a decayed staircase in Battery 4 on Kustaanmiekka; this was replaced in 2000. PN

C 89
Southeast bastion line and shore defences

History

The southeast and south shores of Iso Mustasaari island were fortified to Augustin Ehrensvärd's plan in 1753–1756. From north to south, the line comprises bastions Ribbing, Åkerhielm and Aminoff and the curtains between them. In the north, the line of defences turned in towards the island's interior, linking up with the Angled Building (Vinkkelitalo) used as barracks and since dismantled. The defences on the south shore, a low three-section granite wall, were largely left unfinished in the first construction stage. A close defence gallery was built inside the shore defences (building C 90).

At the second stage, in 1773–1776, the fortifications were completed according to the plan by J.M. Sprengtporten. The defensive walls were raised, and firing platforms were built against the cold wall on the yard side. Casemates were only built in bastion Aminoff. A new bastion called Horn was linked to bastion Ribbing, and the construction of hornwork Hessenstein to the rear completed the fortification design.

Work done in the Russian era greatly transformed the appearance of the fortifications from what it had been in the Swedish era. The work included strengthening the fortifications and adding embrasures which at a later date were closed up. The last stage of shore defences construction was in the 1870s and 1880s.

A unique landscape comprising bastion Aminoff's garden and freshwater cisterns has taken shape inside the fortifications in the southeast part of Iso Mustasaari island. The garden was initially Gustavian in style, then a fashionable Russian creation, and finally turned into a vegetable garden with allotments. The fortifications never stood

The Iso Mustasaari island shore defences and southeast bastion line, with the Russian garrison quarter and the buildings of the Helsinki Open Prison in the background. The garden and cisterns are in the foreground. SIk

The shore fortifications and the Angled Building in a map dating from 1763. KrA

in the way of changes, and were never put to use, so the walls were allowed to sink into an untouched state for many decades.

Repairs on the walls in the shore defences were begun by the Suomenlinna labour colony in 1972. These repairs were based on the appearance of the structures in the middle of the Russian era, in 1860–1863, although the Horn-Ribbing curtain was restored to its Gustavian-period appearance. The project was designed and supervised by the National Board of Antiquities.

Repairs in 1986–1999

In 1977, responsibility for designing the repairs was turned over to the Governing Body of Suomenlinna. The work continued in May 1986, the work area comprising not only the greystone wall but also the open accessway between earthworks behind it, the rifle gallery, the 'Cherry Garden' and three cisterns built for collecting and treating fresh water. The walls were repaired initially with hard Parmu mortar, then a mixture of lime and cement and hydraulic lime mortar.

In 1990, the water in the Upper Cistern (Yläallas) began to stink, and examination revealed the presence of sulphur in the bottom sediment and spring water with sulphur content emerging continuously from the ruins of the Swedish-era gunpowder magazine. A biological solution was sought by planting irises in the cistern; their roots act as a 'treatment system'. Also, the catchment area of the cistern was extended, the water level was raised, water plants of types occurring naturally on Suomenlinna were planted, and groundwater was extracted. Water fleas (Daphnia) were planted in the cistern to reduce the cloudiness of the water. **RA**

In 1986, the Governing Body of Suomenlinna continued the repairs begun by the National Board of Antiquities.

Repaired firing platforms, with a parapet on the right. LH

The repaired shore defences as seen from Susisaari island, with hornwork Hessenstein and the Vaasa Barracks in the background. PH

Building period: 1986–1999
Developer: Governing Body of Suomenlinna / (variously) Heikki Pyykkö, Heikki Lahdenmäki, Eeva-Liisa Rautalahti, Petri Mikonsaari, Leena Häkli
Architects: Härö Arkkitehti Oy, architects / Merja Härö
Earthworks and structural design: Viatek Oy / Helge Ampuja, Sirje Hokkanen
Antiquarian supervision: National Board of Antiquities / (variously) Aulis Nieminen, Liisa Eerikäinen, Päivi Luppi
Builder: Suomenlinna labour colony

A 13
Kustaanmiekka shore fortifications

History

Beginning at the King's Gate and merging with the adjacent earthworks, the Kustaanmiekka shore fortifications are illustrative of developments in fortification technology. They were built entirely in 1750–1753 and equipped with three watchtowers for monitoring the shipping channel. The portion of the fortifications with casemates and armaments was linked to the King's Gate with a glacis. If an enemy ship had been able to penetrate the shipping channel all the way to the glacis, it would have been fired upon from the firing platform between tenaille Kyhlenbeck and the King's Gate.

The Kustaanmiekka shore fortifications in 2008. SIk

Test pits were dug to investigate the drainage system in the shore fortifications and ventilation shafts in the structures. The photo shows foreman Pentti Koponen examining a structure between casemates in 1992.

In the 1830s, the south side of the channel was raised, and more firepower was added. The idea was that guns in the embrasures in the casemates would fire on the hull of a passing ship, while fire from the tops of the casemates would be aimed at its rigging. After bombardment in the Crimean War in 1855, a new gun emplacement was built on the sea side of the fortifications. The gun emplacement fell into disuse and by the end of the 19th century was partly covered by earthworks; since the greystone shore fortifications were no longer armed, they became a non-functional monument.

Restoration

The condition of the walls on Suomenlinna was monitored in the 1980s through displacement measurements using stereo photography. One of the reference points was on the watchtower pedestal at the southernmost salient of the Kustaanmiekka shore fortifications. It was observed that this stone was being pushed outwards by several millimetres per year. When visual inspection of the shore fortifications was begun in the late 1980s as part of a broader survey of damage, the location was noted to pose a risk of fatalities, and it was fenced off to await repairs, which began in 1992.

The shore fortifications had previously been repaired in the 1920s and 1930s. A set of very good architectural historical research material compiled by the National Board of Antiquities made it easy to set the parameters for restoration. The aim was quite simply to repair the fortifications with due respect for the marks left on the structure by the passing centuries.

A condition survey was performed to find the runoff paths of the most common cause of damage – water. Problem points in the walls and the areas where rainwater pooled were entered on the same base map. By comparing these data to drawings from the Swedish and Russian eras and by digging test pits, it proved possible to reconstruct the original drainage system of the shore fortifications. In the following repairs, this system was reconditioned; changes were only made at locations where the original system no longer functioned.

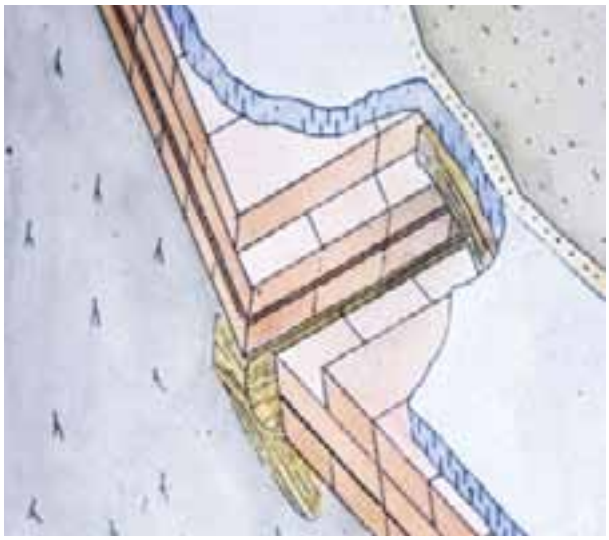
The scope of the repairs was dictated by the condition of the masonry walls. Soil layers were carefully extracted using spades, as little of the wall was dismantled as possible, and repairs were made with grouting. In the early stages of the work, complicated scaffolding was constructed to hold the original masonry in place, but experience soon taught the project team how to know when the original wall could be saved and when not.

In selecting building materials for the repairs, the aim was to use only materials similar to the ones originally used to build the fortifications. For example, Kustaanmiekka was the first site where lime-based mortar was reintroduced. Expertise on how to use lime-based mortar to replace the cement-based mortar favoured earlier was found in Denmark. However, it took a few years for the repair team to be convinced by the new mortar, produced from hydraulic Jura lime and factory-produced slaked lime using a pan mixer. The waterproofing of the wall tops was also undertaken using traditional materials: clay from fields in Jokela and birch bark from the lands of Pelso prison. Lead sheet was also used in places to cover the wall tops. The motivation behind this was to find a material more durable than the clay-and-bark waterproofing for the locations that experienced the heaviest wear and tear. This was not the best solution, however, since the visible lead sheet is aesthetically unsatisfactory.

The guttering, water spouts and drainage apertures were replaced and repaired, the ground drainage slopes were improved, and the earth covering was turfed over. Plastic pipes were not used at all, and all guttering that was covered by earth was made of either stone or concrete.

The work on the shore fortifications lasted for five years, and site meetings were held every two weeks. Memos were written detailing the progress of the work, the justification for the measures taken, and the number of people working on the project. In all, the work cost the government just under FIM 8 million [about EUR 1.35 million], or FIM 3,914 [EUR 658.29] per square metre of wall elevation repaired.

Because the work mostly focused on developing new methods for repairing masonry walls, landscaping was given less attention than it should have been. The profiling of the wall tops was also not quite as successful as anticipated, and because of increasing wear and tear, the shore fortifications already need new repairs. **TL**



Initially assumed to be guttering, this turned out to be a ventilation shaft covered by a layer of hard, red mortar overlaid with clay. Drawing: Tuija Lind.

A masonry wall in imminent danger of collapsing was dismantled around an arch which was propped up in hopes that the leaning structure could be preserved and pushed back to its original location using a digger's scoop. This unfortunately proved futile, and the arch was eventually brought down in a controlled collapse.

Reconstructing the dismantled arch and surrounding wall in winter conditions. MV

Building period: 1992–1997
Developer: Governing Body of Suomenlinna / Tuija Lind, Eeva-Liisa Rautalahti, Helena Hökkä, Petri Mikonsaari
Supervisor: Governing Body of Suomenlinna / Kaj Holmberg
Architects: Governing Body of Suomenlinna / Tuija Lind, Helena Hökkä, Petri Mikonsaari
Structural design: Insinööritoimisto Innostructura Oy, engineers / Eero Kotkas
Antiquarian supervision: National Board of Antiquities / Aulis Nieminen, Liisa Eerikäinen
Contractor: Suomenlinna labour colony / foremen Pentti Koponen, Seppo Salmio, Juhani Vuorela

A 12
King's Gate

Building and rebuilding the ceremonial gate

When King Adolf Fredrik of Sweden came to inspect the building site in 1752, his ship anchored between the low shore fortifications of Kustaanmiekka and the high inner structure of bastion Lantingshausen (building A 7b). It was at this spot that the King's Gate (Kuninkaanportti) was built in 1753–1754, probably to plans by Court Superintendent Carl Hårleman, the leading architect in 18th-century Sweden.

The gateway rises out of the bedrock in a semi-circular shape, and the loopholes in it enable the front of the gate to be covered with crossfire. The rusticated portion of the gateway, the fillets and the famous memorial plaques were made of marble. These memorial plaques – with the inscription exhorting posterity to stand on their own ground and not to trust to foreign help – are not in Hårleman's sketch; they first appear in the explanatory drawing signed by Ehrensvärd and dated 1753.

Plan for the King's Gate quay drawn up by fortress engineer Nils Mannerskantz in 1776. KrA

Laying the reinforcing irons for the new quay slab in December 1997. TL

In 1774, construction was begun on a quay and sandstone steps in anticipation of a visit by King Gustav III. It is not known exactly what the quay was like, because it sustained damage in bombardment during the Crimean War in 1855 and collapsed. The steps, however, remained intact. New steps were built of wood and granite for a visit by King Gustav V in 1925. The rectangular square-cut greystone steps formed a curious contrast to the elegant design of the gateway.

When the 200th anniversary of the founding of Suomenlinna was celebrated in 1948, the landscape was improved by dismantling and covering up the steps built twenty years earlier. In connection with the Helsinki Olympics in 1952, a waterbus shuttle service to Suomenlinna was inaugurated, and the City of Helsinki harbour authority built a separate jetty on the north side of the King's Gate. The new King's Gate quay, a reconstruction of the 18th-century quay which was later destroyed, was completed on the eve of the 250th anniversary of Suomenlinna on 11 May 2008.

Restoration

The facing of the King's Gate is made of very small and, structurally speaking, poor-quality stones. Perhaps a tight timetable was the reason for the shoddy masonry; the rear of the largest stones should have been hollowed out. In the late 1960s, stones were noted to have fallen out of the Gate, and the gaps were repaired under the supervision of the National Board of Antiquities in the early 1970s. At this point, the drawbridge was completely replaced apart from the chains.

By the 1990s, the walls had again bulged dangerously outwards, and this damage was repaired by the labour colony. At the same time, waterproofing was laid on the top of the wall. There was a thorough discussion of material options, resulting in the wall top being experimentally covered with a few stone slabs sawn from Kuru grey granite. Because these changed the appearance of the gateway too much, the idea was abandoned, and waterproofing was devised from lead sheet and a grass-covered earth layer created with 'turf tiles'.

Although many of the reconstruction initiatives concerning Suomenlinna proposed in the 1970s were gradually abandoned, reconstruction of the King's Gate quay was considered even in the 1990s to be an acceptable solution to harmonize the architecture of the location. The front face of the steps up to the King's Gate also required attention by then, as the currents caused by large passing ships eroded the shore more and more each year.

In 1996, the principal architect on the project was asked to provide alternative designs, based on the history of the gateway and repair plans dating from the Russian era; the design selected was that which most resembled the original appearance of the quay. It was noted at the outset that modern technology would have to be used for the foundation of the quay. Land uplift over the past two centuries faced the construction project with an extra challenge.

The architect's design was based as closely as possible on the explanatory drawing signed by fortress engineer Nils Mannerskantz and dated 1774, where the central portion of the curved quay and the three steps above it are in Roslagen sandstone and the slope between the gateway steps and the quay is earth infill. But the 18th-century drawings did not indicate how the stones in the original quay were laid or how the foundations were built. Not even the diver's report could shed light on the latter. The parts of the quay for which the original design was not known were built in grey, black and red quarried stone.

The foundation for the King's Gate quay posed a considerable problem: the rock plunges to a depth of 10 m from the shore, and the currents caused by passing ships are extremely powerful. The structural designer proposed that the elements making up the edge of the quay should be suspended from a slab built on ten pillars anchored into the bedrock. In the initial plan, the deck slab rising from the quay joined the existing structure at the lower end of the steps. This, however, would have meant allowing the sea to erode the foundations of the 18th-century gateway steps; the design was therefore changed in mid-project, and soil already removed was replaced to protect the old steps. The two lowest courses of stone covering the quay edge elements, which were to remain underwater, were fixed in place beforehand; all other masonry was laid in situ.

The King's Gate in 1990, before reconstruction of the quay. KP

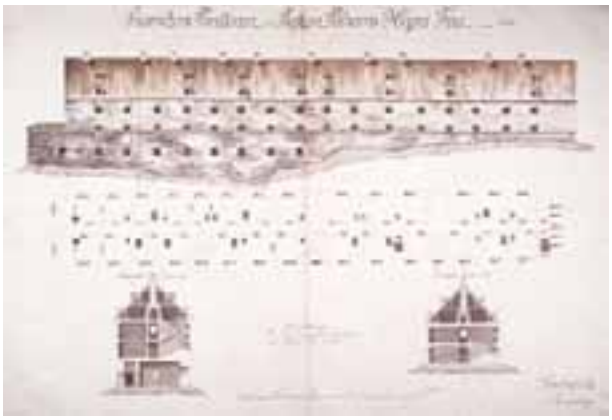
The King's Gate in 1998, after the quay was built. HS

As the Roslagen quarry outside Stockholm had been exhausted, the sandstone was sourced from near Mora in Sweden. However, this Orsa sandstone is calcareous sandstone, which means that it will be less resistant to the weather than the original quartz sandstone.

When the King's Gate quay was completed, the National Board of Antiquities and the Governing Board held a joint evaluation session. Most of those present agreed that the design chosen was justified, but the idea was also voiced that instead of reconstruction the King's Gate might have merited a new approach: preventing erosion of the shore and landscaping the front of the gateway to merely simulate the shape of the lost quay. **TL**

The new quay
Building period: 1996–1998
Developer: Governing Body of Suomenlinna / 1st stage Helena Hökkä, 2nd stage Tuija Lind
Supervisor: Governing Body of Suomenlinna / Kaj Holmberg
Architects: Arkkitehtitoimisto Koskinen & Schalin Ay, architects / Keijo Koskinen, Harri Simola
Structural design: Insinööritoimisto Innostructura Oy, engineers / Matti Haaramo, Eero Kotkas
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Principal contractor, framework structure: YIT-yhtymä Oy / Erkki Lahti, Jorma Karttunen
Stone installation: Iittalan kivijaloste Oy / Jouni Soramäki
Sandstone supplier: Lenners Orsasten / Torsten Lenners
Granite supplier: Suomen Graniittikeskus Oy / Loimaa stone processing unit

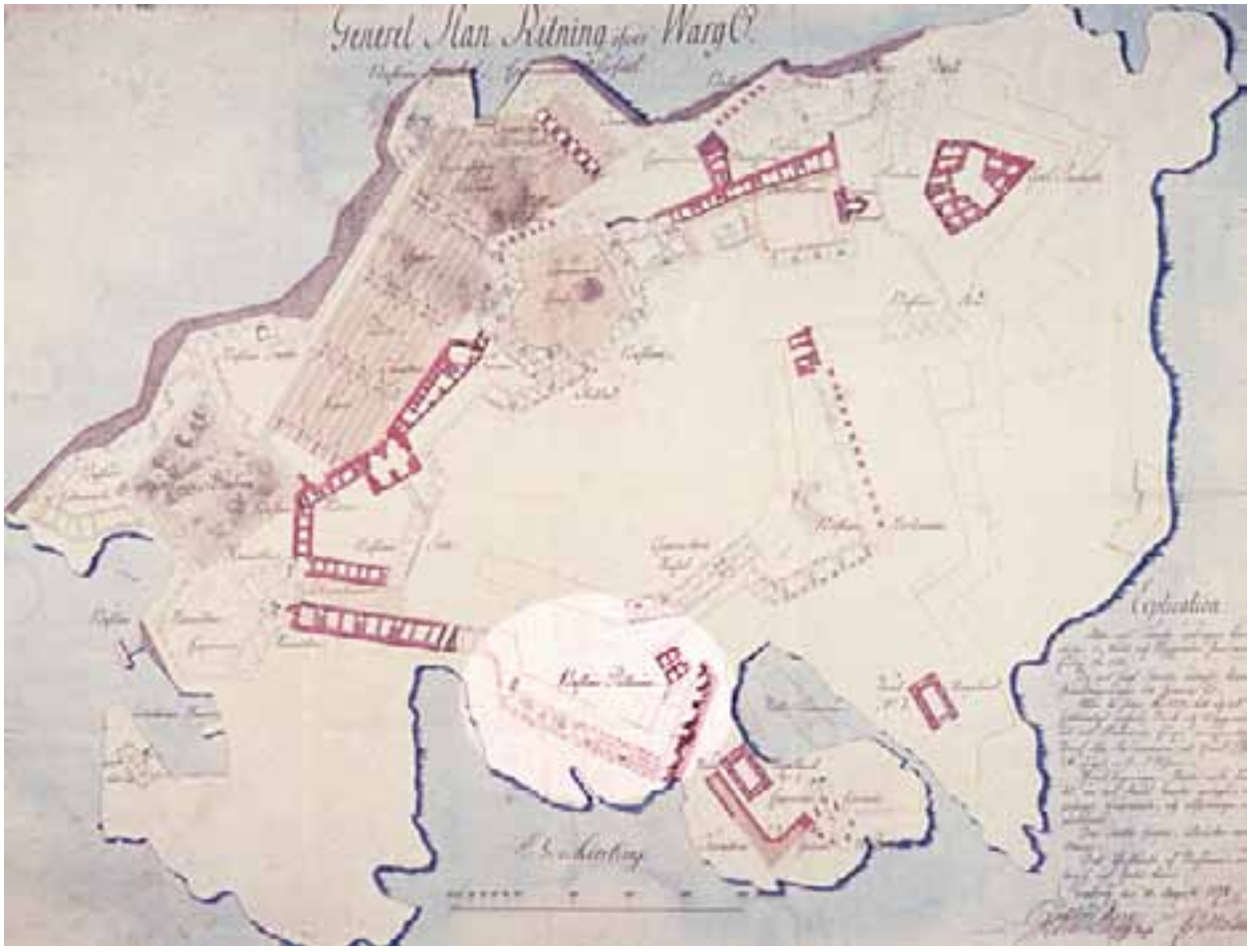
B 51
Bastion Polhem



Plan drawing from 1770. KrA

History

Bastion Polhem, which forms part of the line of defence towards the sea, protecting Suomenlinna against attacks from the southeast together with bastion Hårleman, was named after Christoffer Polhem, technical advisor and tutor to Augustin Ehrensvärd. There were three distinct phases in the construction of the bastion. The first of these in the early 1750s comprised the building of cellars, which still exist. In the second stage between 1763 and 1770, a two-storey garrison pavilion was built on top. This was dismantled after the Crimean War. Between 1864 and 1880, the lower floor of the bastion was covered with a sand earthwork, a stone extension built to one side, and a four-gun battery erected on top of the entire structure. A road was built up to the battery.



Bastion Polhem in a ground plan depicting the Susisaari fortifications, dated 1792. KrA

A view from the tower crane to the sand covering of the right flank of bastion Polhem, which is in the process of being waterproofed.

The Finnish Defence Forces used Polhem for storage right up to the end of the Second World War, after which it was left empty. The Archaeological Commission undertook local repairs in the walls in the 1940s, and in the early 1980s the casemates in the left flank were renovated to provide workshops for the Nordic Arts Centre. By the 1990s, however, all the seaside elevations of bastion Polhem were in imminent danger of collapsing.

Repairs and rebuilding

The basic principle in the repairs was to maintain a situation where the various layers of the history of the fortress are visible. Expectations were high due to the positive experiences gained with the Kustaanmiekka shore fortifications. Also, efforts were made to eliminate the mistakes made in that project. The following was recorded in the project plan (Ahokanto, Lind, Rosén):

"In architectural terms, the restoration involves repairing walls and reshaping rooflines. In technical terms, this means reconditioning or supporting the walls and rebuilding the waterproofing. In philosophical terms, the restoration project aims simply to enhance the *genius loci*. The patina and feel of an old ruin which is palpable in the casemates will be sensitively preserved. The walls will be repaired so that they merge with the surrounding masonry; the repairs will not be visible in the wall elevations, merely documented in the archives." The project plan further stated: "The soil layers are a record of history from the 18th century onwards. Because nearly all of the historical soil layers have been removed at other repair sites in the fortress, it is vital in this extensive project that every single scrap of soil that now exists remains there after the work is completed, even if this requires building extensive supports."

A survey of the bastion's condition showed that the wall of the left flank not only required repairs but also had to be anchored to the backing bedrock with iron bars. In the course of the repair work, too much earth infill was perhaps removed from the top of the left flank; the idealistic restoration principles declared in the project plan were thus somewhat compromised in the early stages of the work.

In addition to normal masonry wall repairs and waterproofing of wall tops, there was a further challenge in repairing the seven casemates in the right flank of the bastion. The cellars had not had a waterproof roof for

Bastion Polhem during the work process, seen from the top of bastion Hårleman. KH

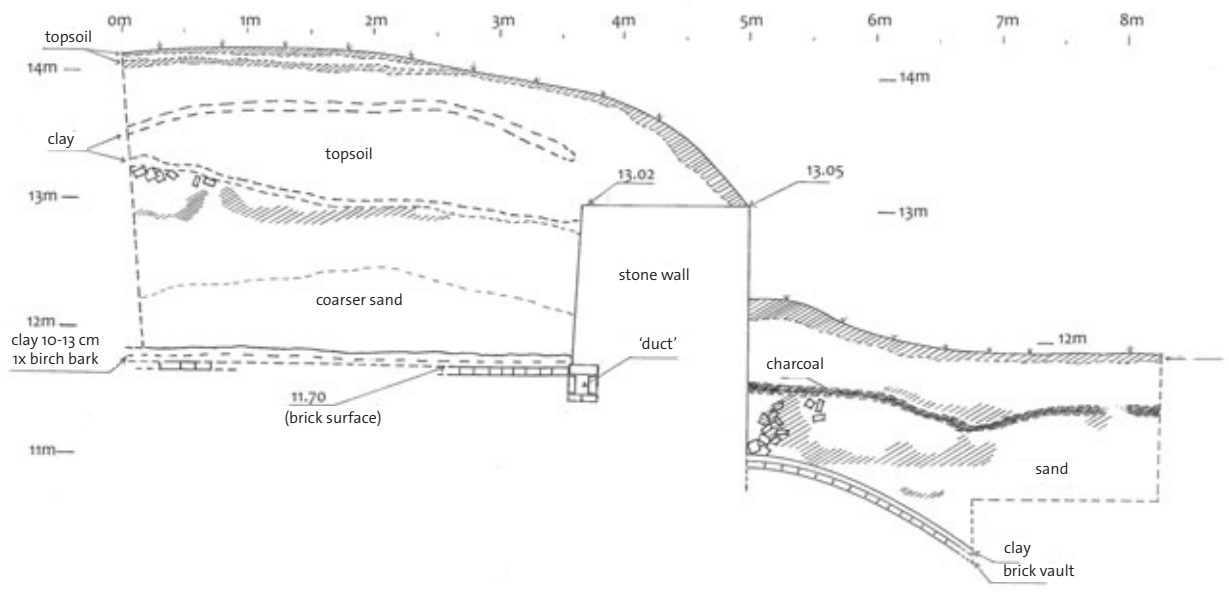
It is important for a wide range of stones to be available, so that as little work as possible has to be done in dressing them. When the stones are fitted with lifting hooks and there is a crane at the work site, progress is fast. KH

more than a century, and the sand layer covering them had filtered water into the casemate vault structures. The freezing of this water had collapsed ventilation shafts, accessway vaults and embrasures in the elevation, besides detaching most of the plaster from the inside surfaces of the brick barrel vaults. Doorway vaults had to be repaired from below, which was technically difficult.

Repairing the casemates required extensive know-how in working with both brick and greystone. The stones for the vaulting in Polhem were mainly shaped using manual tools that the foremen had been inspired to acquire following a course in sandstone dressing in Tyrvää. Indeed, the Polhem work site was the first in Suomenlinna for a long time to ring with the sound of stone being worked manually.

Repairing the collapsed chimney flues in the walls between the casemates was laborious. Several cubic metres of brick and mortar had crumbled and fallen to the foot of the chimney, on top of the base of the old stove. Although the easiest solution would have been simply to fill the flues with mortar to close them up, it was nevertheless decided to repair them. This means that the flues can be reopened if the decision is ever taken to reconstruct the lost garrison pavilion. The floors of the casemates were scarcely touched apart from repairing one brick floor, so they can still be studied using archaeological methods.

To prevent rainwater from damaging the laboriously repaired casemates, the sand earthwork covering them was waterproofed with a generous layer of birch bark and clay. It was difficult to lay the birch bark on the fine, yielding sand, so an iron reinforcing mesh was used to level the surface. Repairing the exterior walls was routine work. The aim was to leave the changes to the elevation at the various building stages visible for future generations to see.



Test pits were dug on the firing platform to establish the structure of the fortification. Remnants of the wooden gun mounts were also sought, but with no results. Drawing: Alpo Forsström.

The repaired left flank and side of the bastion in 2005.

Replacements for vaulting stones missing from a collapsed embrasure being manually dressed in Kuru gray granite. TL

Before the work site was laid out, the firing sectors cut into the sand earthwork in the late 19th century were clearly visible. At some point, passageways had been dug between these sectors, the role of which has never been discovered. These depressions collected water, so during the repairs they were filled in with building waste and sand. A tower crane was used to move soil, mortar and stones and proved a great help. Small birds like to nest in cracks in the walls, and since it was not possible to leave cracks in the walls, some external outward-leaning nooks were built for birds to nest in.

The objectives regarding the quality of work and the repair principles were attained in the repairs and rebuilding of bastion Polhem, but the test pits and wall reconditioning were not documented as comprehensively as with the Kustaanmiekka shore fortifications. **TL**

Building period: 1998–2004
Developer: Governing Body of Suomenlinna / Tuija Lind, Petri Mikonsaari
Supervisor: Governing Body of Suomenlinna / Kaj Holmberg
Architects: Governing Body of Suomenlinna / Tuija Lind, Minerva Ahokanto, Petri Mikonsaari
Structural design: Insinööritoimisto Innostructura Oy, engineers / Eero Kotkas
Mortar expert: Tureida / Thorborg von Konow
Antiquarian supervision: National Board of Antiquities / Helena Rosén, Alpo Forsström, Karim Peltonen
Contractor: Suomenlinna labour colony / foremen Pentti Koponen, Juhani Vuorela

A 5 and A 7
Bastions Gyllenborg, Zander and Lantingshausen

History

The closed chain of fortifications formed by bastions Carpelan, Gyllenborg, Zander and Lantingshausen at the highest point of Kustaanmiekka was completed in 1750. Its position allowed defenders on top to fire at Vallisaari island across the channel and at enemies approaching from the sea.

Except for bastion Carpelan, these fortifications have only ever had a defensive function. Bastion Zander is the flag bastion of Suomenlinna, flying the colours of the power controlling the fortress. Very few alterations have been made here; embrasures were bricked up in the 19th century but re-opened in the 1950s. There is very little documentation on repairs carried out in the 20th century. Principally, only the locations where a new waterproofing was made out of reinforced, pitch-covered concrete are known.

Bastions Gyllenborg and Lantingshausen, flag bastion Zander and bastion Carpelan, the latter built for quartering soldiers, are located at the highest point of the fortress. KP

During summer 2005, an educational film on the wall repairs on Suomenlinna was shot at the bastion Gyllenborg work site. This film was mainly meant for the instruction of workmen from the Open Prison. KH

Repairs principles and methods

Since the chain of fortifications is a coherent entity that today principally has a sightseeing function and there is no need to change its use, the restoration that began in 2005 aimed mainly at preserving the status quo. Apart from the reconditioned wall tops, the existing stones and mortar are largely original, from the 18th century, and they are interfered with as little as possible.

Ever since the repairs on the Kustaanmiekka shore fortifications, the greystone walls on Suomenlinna have been repaired using hydraulic lime mortar. After the shore fortifications project, quicklime was replaced with industrial lime soaked in water on site. The coarseness of the sand used was analysed through its granularity curve, and quartz filler added to increase the percentage of fine fraction. When the quarrying and production of the Jura lime used in the mortar was discontinued in 2004, a replacement French product named St. Astier Natural Hydraulic Lime 5 was chosen after lengthy deliberation. This product has been used since 2006.

When a wall being repaired has to be patched up, stones resembling those in the surrounding wall in size and

colour are generally chosen. There have been no stones available on the islands themselves since the late 1990s – neither loose stones from the shores nor stones from dismantled structures – and today the Open Prison gets its stones from the mainland, either from old quarries or from demolition sites.

The reconditioning begins with removal of the weathered mortar and the soil accumulated in cavities in and between the stones. Voids are then filled with added stones, mortar and wedge stones. The aim is to support all main stones and wedge stones so well that they will not fall down even when the mortar begins to erode.

Because of the severe weather conditions at the site, it was estimated that masonry laid with hydraulic lime mortar would not be strong enough on the top surface of the parapet. Thus, test areas were laid in autumn 2005 with Prompt quick cement manufactured by the French company Vicat. It was found that this mortar could survive the winter without frost damage only if it was laid very thick, whereas thinner layers were eroded, so the experiment was abandoned. Eventually the tops of the right and left faces of the bastion were repaired on the same principle as the elevations: as little space was left between the stones as possible, and the cavities were filled with injected hydraulic lime mortar.

Remnants of an old birch bark and clay waterproofing, probably dating from the 19th century, were found on the top of the left face of bastion Gyllenborg. Depressions in the plaster layer on top of the wall showed that the sheets of birch bark had been pressed into wet mortar. Initially an effort was made to preserve the old waterproofing, but eventually it was removed so that the entire wall top could be repaired.

The maximum grain size of the sand used for mortar is 8 mm. For grouting, the sand is sieved manually at the work site using a 6 mm sieve. KH

The birch bark and clay waterproofing for the top of the parapet on bastion Gyllenborg was laid in summer 2006. OH

The repaired parapet on the left face of bastion Gyllenborg, seen from the firing platform. KH

Waterproofing made of clay and birch bark is very durable if the grass on top of it does not die and the soil layer does not erode. In recent years, 'turf tiles' have been successfully used on the wall tops. Using these, the soil is first shaped precisely to fit the desired profile, and soaked pieces of turf are then laid side by side, like tiling, with the grass side up. This technique was used in shaping the parapets on the left face of Gyllenborg, whereas on level surfaces grass seeds were simply sown. **TL**

Repairs to the bastion chain
Building period: 2005–
Developer: Governing Body of Suomenlinna / Tuija Lind
Supervisor: Governing Body of Suomenlinna / Kaj Holmberg
Architects: Governing Body of Suomenlinna / Tuija Lind
Building history study and damage survey: Governing Body of Suomenlinna / Kaisa Paavilainen
Structural design: Insinööritoimisto Oy Matti Ollila & Co, engineers / Eero Kotkas
Mortar expert: Tureida / Thorborg von Konow
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Contractor: Suomenlinna Open Prison / foreman Pentti Koponen


OPAS I GUIDE
SUOMENLINNA
SVEABORG

Experience

"I love taking guided tours to see the casemates and the tunnels in the bastions. It is much more exciting to tell stories of recruits, field guns and secret societies by torchlight. Many visitors are pleasantly surprised to hear that there are now homes, workshops and meeting rooms within our old walls."

Carita Wilenius-Rantala, development manager and guide, Ehrensvärd Society

Nine decades of tourism

Suomenlinna is one of the most popular tourist destinations in Helsinki, and indeed in the whole of Finland; in terms of visitor numbers, it is outranked only by the amusement parks of Linnanmäki (in Helsinki) and Särkänniemi (in Tampere).

The initial impulse for turning Suomenlinna into a museum and a tourist site emerged when the Kustaanmiekka and Susisaari islands were turned over to the Archaeological Commission (now the National Board of Antiquities) in 1919. The first visitor services were the Piper Café opened in 1928 and the Ehrensvärd Museum set up in 1930.

Tourism on Suomenlinna began to grow in 1948, when the 200th anniversary of the fortress was celebrated and the Defence Forces no longer required every visitor to have a pass. In the same year, the Finnish Tourist Association took over the guided tours of Suomenlinna and was given the right to collect a 'landing fee' from visitors to the museum site. Tourism was further boosted by new services built for the 1952 Olympics: opening of the Walhalla restaurant and a new ferry connection provided by m/s Suomenlinna. Särkkä island was a key venue for sailing events at the Olympics. After the landing fee was abolished in 1963, recreational use of the islands expanded rapidly.

Suomenlinna's inclusion in the UNESCO World Heritage List in 1991 was significant for tourism too. The 250th anniversary celebrations in 1998 inaugurated a new era in tourism in the fortress, with the introduction of a whole range of new visitor services. A tourist info desk, the Suomenlinna Museum of the National Board of Antiquities complete with multimedia presentations and the starting point for the guided tours were all now housed in a new Suomenlinna Visitor Centre. Two new restaurants were opened, Café Chapman and the Suomenlinna Brewery. At the turn of the millennium, a marina was added complete with Café Bar Valimo, and Hostel Suomenlinna was opened for accommodation and school camps.

Tourism and service surveys commissioned by the Governing Body of Suomenlinna indicate that the attraction factors of the fortress are its history, its monuments, its natural environment and its island setting. SIk

A path has formed along the route popular with visitors along the top of the earthworks on the southern shore of Kustaanmiekka and Susisaari islands. In order to prevent erosion, visitors will in future be guided along specially reinforced access paths. YT

Although functions such as this suit the islands very well, the visitor capacity of the monument was exceeded in the mid-1980s, when there were nearly half a million visitors per year.

By 2008, this figure had risen to 680,000. There are two major visitor groups: residents of Helsinki who spend leisure time walking outdoors and swimming there, and tourists who come to see the fortress. Suomenlinna is also a venue for excursions, meetings and parties. The majority of visitors are from Helsinki or the greater Helsinki area, but the percentage of foreign visitors is constantly growing. Most come from the UK, Germany, Sweden and the USA. Foreign visitors are particularly conspicuous outside the summer season.

There are now round-the-year visitor services on Suomenlinna, comprising the Visitor Centre, Suomenlinna Museum, guided tours in English at weekends, two restaurants, the Jetty Barracks Gallery, a food shop, a kiosk and Hostel Suomenlinna. In summer, the range of services is wider, with ten restaurants and cafés and six museums. There is also a marina, a museum shop, an arts and crafts summer shop and a summer kiosk. In the summer, there are guided tours daily, and some of the artisans' workshops are open to visitors. The fortress has also become an established venue for various cultural events. In the summer, it hosts the Viapori Jazz Festival, the Enlightenment-era cultural festival Les Lumières, and summer theatre performances for both adults and children.

In 2005, the Governing Body of Suomenlinna assumed responsibility for the development of Suomenlinna's tourism, visitor coordination and tourist information. In 2008, 230,000 people visited the info desk alone. The Governing Body also produces the general and seasonal brochures, provides for road signs and other signage, and manages the info monitor system. It rents out nine different meeting and function rooms around the year; in 2008, some 700 separate bookings were made. The season for such functions extends from April to Midsummer and from the beginning of August to the end of October. Various events are also organized in the restaurants on Suomenlinna and at the Officers' Club [Upseerikerho].

The greatest challenges facing the development of the islands for tourism are the seasonal nature of the site, meaning that some services can only operate in the summer, and the flood of visitors during these months: on a warm summer Saturday, there may be up to 12,000 visitors on the islands at one time. Winter visitor numbers have been increasing slightly, even though three quarters of the annual visitor total is still logged between May and September. An increasing number of winter visitors would enable a wider range of services for both visitors and permanent residents in the winter. **MÖ**

The largest function room is tenaille von Fersen, a popular venue for corporate parties, wedding receptions and seminars. EJ

C 74
Suomenlinna Visitor Centre

History

The inventory chambers and adjacent mast store were built in 1778–1783 to provide storage for gear from vessels entering the dry dock. The channel leading into the dock passed by the inventory chambers at that time.

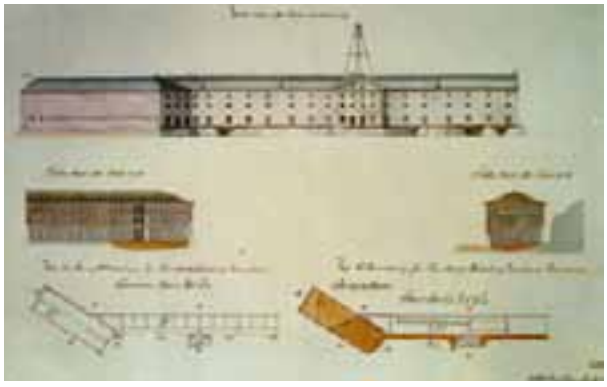
The inventory chambers originally had three floors, with a wooden mast hoist at the centre point and an obliquely positioned mast store at the north end that was simpler in its elevation design.

The building was badly damaged in 1855 in a fire caused by bombardment during the Crimean War. The intermediate floor was wooden, so only the outside and inside bearing walls survived. After the war was over, the building was repaired as a construction with two storeys and converted into a foodstuffs store. The mast hoist had already collapsed at an earlier date. An extensive conversion in 1868 involved dismantling the entire front wall and giving the elevation of the building its present appearance. The mast store was destroyed in 1944 during the Second World War.

The building had been used for storage by the Army throughout the Finnish era. More recently, only the ground floor had been used, as the intermediate floor built after the Crimean War was already rotten. The building was occupied by the defence administration until 1996, and there were plans for it to house the Military Museum.

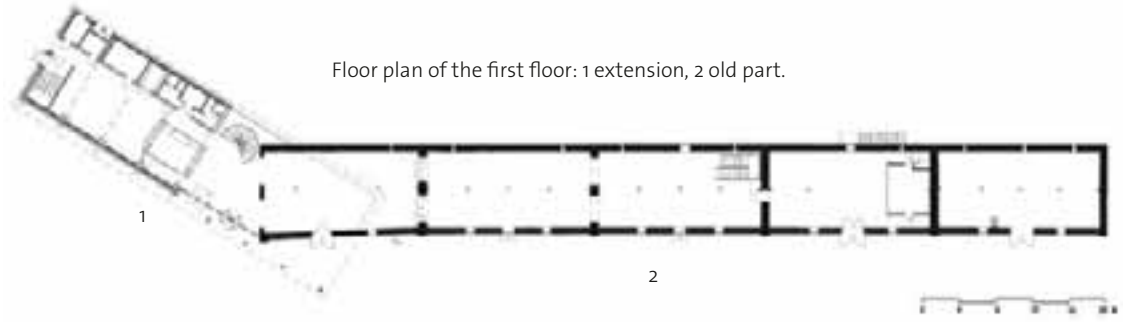
From inventory chambers to Visitor Centre

One of the key projects of the 1998 anniversary year was to set up a visitor information centre in the former inventory chambers. The building was well suited to the purpose, being located in the centre of the fortress along the main tourist route; also, the rooms in its older part were suitable for exhibition use with no further conversion.



Plan drawing for a roundwood shed, 1781. KrA

This photograph taken at the beginning of the 20th century shows the mast store, which was destroyed in 1944, at the end of the inventory chambers. MV



Floor plan of the first floor: 1 extension, 2 old part.

The auditorium on the ground floor was given sufficient height by lowering part of the floor to the level of the 18th century floor. The offices, museum shop, toilets and technical facilities were housed in the extension, which was designed to match the size of the Russian-era mast store. The roof is carried on pillars in places and indicates the original, Swedish-era size of the mast store. Where the old and new parts meet, the buildings seem to fit one inside the other, underlining their historical cohesion.

The old part of the building has space not only for a museum on Suomenlinna past and present but also for changing exhibitions. The Suomenlinna Experience multivision show can be seen in the auditorium, and the lobby displays a model of Viapori as it was at the end of the Swedish era. **RA**

The thick pillars and beams supporting the floor in the old part – partly replaced and partly repaired (lower photo) – and the floor boards (upper photo) were left exposed. VN

The vaulting in the doorway clearly shows where the doorway has been widened. MK

The main staircase where the old and new parts meet. VN

Building period: 1997–1998
Gross floor area: Gross floor area: 2,330 m², of which 510 m² in the new building
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki
HPAC and electrical work supervision: JP-Terasto Oy / Pekka Hautamäki, Vesa Kröger
Architects: Arkkitehtitoimisto Laiho–Pulkkinen–Raunio, architects / Mikko Pulkkinen, Tiitta Itkonen
Structural design: Insinööritoimisto Innostructura Oy, engineers / Eero Kotkas
Antiquarian supervision: National Board of Antiquities / Liisa Eerikäinen, Helena Rosén
HPAC and electrical design: Projectus Team Oy
Main contractor: Seicon-Rakennus Oy
HP contractor: LVI-Karjalainen Oy
AC contractor: Huber Talotekniikka Oy
Electrical contractor: ABB Installaatiot Oy Sähkö-Nordström
Regulatory equipment contractor: Kiinteistöautomaatio K & K Oy

Art and culture

During the Swedish era, Viapori was an important centre for culture in Finland. Today, it is a robust cultural and artistic community where artists from different branches of the arts mingle and network.

There are five other museums on Suomenlinna besides the Suomenlinna Museum. The oldest and most venerable is the Ehrensvärd Museum, opened by the Ehrensvärd Society in 1930. This is located on the original central plaza of the fortress, in the Commandant's House (building B 40), whose first occupant was Augustin Ehrensvärd, the founder of Viapori. The rooms of the Museum have been fitted to recreate the appearance of the Commandant's residence in the 18th century. There are also portraits, weapons and model ships on display.

There used to be another interior museum, the Armfelt Museum operated by the National Museum, which was housed in the upstairs rooms of bastion Carpelan (building A 5) in 1953. Its collections came from Åminne Manor in Halikko, which was once owned by Finnish-born Count Kustaa Mauri Armfelt, a military leader and statesman who served in both Sweden and Russia in turn. When the Museum closed down in 2002, its premises were renovated for residential use.

The Coastal Artillery Museum occupied the old earth-covered powder magazine on Kustaanmiekka (building A 2) from 1948 to 2006. The Ministry of Defence renovated the Museum in 1987–1988. Some of the field guns that were in its collection are still on display outdoors on Kustaanmiekka.

The submarine Vesikko (B 79) was opened to the public as part of the Military Museum in July 1973. The Vesikko was built in Turku in 1933 and served with the Finnish Navy in the Winter War (1939–40) and Continuation War (1941–44). In 1947, when the Paris Peace Treaty prohibited Finland from using submarines for military purposes, the whole fleet was scrapped with the exception of the Vesikko. It, too, would have gone to the scrap yard, but thanks to the active efforts of enthusiasts it was rescued.

The Ehrensvärd Museum organizes museum workshops and tours on 18th-century themes. JL

From the outside, the Manège housing the Military Museum retains its early 20th century appearance. PP

The Customs Museum. EJ

The Coastal Artillery Museum exhibition depicted the development of coastal defence since prehistorical times and explained the importance of Suomenlinna in the defence of the Gulf of Finland. HL

In a demanding restoration project, the interior of the submarine was rebuilt practically from scratch. Visitors to the Vesikko can experience for themselves the conditions in which its crew of 20 operated, hemmed in by banks of gauges dozens of metres underwater.

The Suomenlinna Toy Museum is a private family enterprise based on the collections of artist Piippa Tandefelt. It was opened in 1985 in premises renovated for the purpose in the basement of Villa Vasiljev (building C 65), Tandefelt's home. In the early 1990s, a small café was added.

New premises for cultural use

Since the founding of the Governing Body, several buildings unsuitable for residential use have been repaired for the use of museums, galleries and other cultural purposes.

The Manège on Iso Mustasaari island (C 77), completed in 1878, was converted into an exhibition space for the Military Museum in 1987, at which point the plan was eventually to locate the entire Museum on Suomenlinna. The permanent exhibition there deals with Finnish defence since independence. Heavy Army and Air Force equipment is on show, and there are displays such as a recreated dugout. The building was comprehensively renovated in the course of the conversion work and connected to municipal utility networks. The roof structures were straightened and reinforced, and the insulating layer of earth was replaced with mineral wool. The ovens were dismantled, and the floor was wholly rebuilt.

The Customs Museum moved to the Hamilton-Polhem curtain on Susisaari island (B 20) after its renovation was completed in 1991, although the planned relocation of the Customs training centre on Suomenlinna was never realized. The Museum houses a basic exhibition on the history of the Finnish Customs authority and an annual thematic exhibition. The building also houses Art School Maa, a private institution which gives evening classes and also provides vocational education. Art courses are organized in the summer for instance by the Helsinki Artists' Association.

The office of the Nordic Culture Point (Kulturkontakt Nord), the successor to the Nordic Arts Centre, occupies premises in the Garrison Barracks (building B 28) repaired

Pot Viapori is a ceramics workshop that also organizes sales exhibitions on its premises. MR

The students of Art School Maa bring a splash of colour to the quiet winter of Susisaari island. YT

Like its predecessors, the Nordic Culture Point is located in the Jetty Barracks on Susisaari island. SR

in 1985. The Nordic Culture Point manages publicity and advice for actors in the cultural sector and coordinates the work of the Nordic Culture Forum. Galleria Katharina in the Jetty Barracks on Iso Mustasaari island (building C 1), previously occupied by the Nordic Arts Centre, was taken over by the Helsinki Artists' Association in 2004 and renamed Galleria Rantakasarmi (the Jetty Barracks Gallery).

The Suomenlinna summer theatre has been staging productions within the walls of ravelin Hyvä Omatunto (Good Conscience, building B 47) since 1968. Many other stage productions and ambulatory performances are given in the indoor and outdoor spaces of the fortress. The concert scene is lively, and many active musicians are permanent residents on the island. The Seawolf recording studio is located in the Jetty Barracks on Iso Mustasaari island, and the local artists' association, Viapori Forum, organizes a wide variety of public events. Suomenlinna Church is also a popular venue for concerts. RA

The Vesikko, now the property of the Military Museum, is the only surviving Finnish submarine. YT

B 47
Ravelin Hyvä Omatunto

Ravelin Hyvä Omatunto in the late 1970s, at which time the sheet metal roofing over the salient and main body of the ravelin had not yet been removed.

The old sheet-metal roofing being dismantled in 1991. TS

History

Ravelin Hyvä Omatunto (Good Conscience) on Susisaari island was completed in the 1770s after several stages of design and construction. Together with bastions Kunnia (Honour) and Hyve (Virtue), it forms a regular bastion fortress where the function of the ravelin is to protect the weakest point in the line of defence, the curtain. The ravelin itself is unusual in shape. There is a firing platform on top, as is usual for a ravelin, but the structure is in two sections and has casemates. The theory was that if the salient were destroyed, the defenders would retreat to gun positions in the main body of the ravelin and continue to defend the fortification.

The ravelin served as a fortification for some six decades. Conversion work was begun in the 1830s to turn it into a storage building by bricking up some of the embrasures. In the late 1840s, the fortification was given a sheet metal roof, which was subsequently replaced several times, for instance after the devastating bombardment in 1855. Hyvä Omatunto was used to store ammunition and gunpowder, and as late as in the early years of the 20th century there was an explosives and oil store within its walls. By the time the Archaeological Commission undertook cleaning and clearing work in the ravelin in the 1930s and opened up some of the previously closed embrasures, the fortification was at least partly empty and unused.

Hyvä Omatunto found a new use as a summer theatre in the late 1960s. It was initially used as such by Helsingin kesäteatteri, then by KOM-teatteri, and from the 1970s by Ryhmäteatteri. Until 1992, the salient and main body of the ravelin were covered by the Russian-built sheet metal roof, but the auditorium and stage remained uncovered in summer.

Renovation and alterations 1990–1993

The renovation undertaken in the 1990s had two objectives: to restore the ravelin to its Swedish-era appearance in keeping with the restoration principles employed on bastions Hyve and Kunnia, and to improve the operating conditions of the theatre. The brick additions to the firing platform of the ravelin built in the 19th century were dismantled, the bricked-up embrasures were opened up, the firing platforms were waterproofed, and grass was planted on top. The 150-year-old sheet metal roof, which was in poor condition, was also dismantled in accordance with a decision taken back in the 1970s, even though Suomenlinna had just been entered into the World Heritage List and international restoration principles dictated

that all historical layers must be preserved. Indeed, the ICOMOS inspector who visited Suomenlinna in 1992, Henry Cleere, indirectly reprimanded the Governing Body for dismantling the roof.

The National Board of Antiquities imposed certain conditions on any structures to be built for the theatre. The roof was not to be visible from outside the ravelin, and all auditorium and stage structures had to be designed so that they could be dismantled for the winter, when the ravelin was open to tourists. The roof thus had to be concealed below the level of the parapet. The roof as built is a white, rectangular sheet suspended from steel wires fixed to concrete beams and anchors installed on the firing platforms.

The auditorium structures were paid for out of funds donated by the Swedish government on the occasion of the 80th anniversary of Finnish independence. They were built out of modifiable elements, but in order to maximize audience capacity and to save on installation work, this flexibility has never been exploited; the auditorium is built in exactly the same shape each summer. However, the wooden frame structures remain in place over the

In 1998, *The Seagull* by Chekhov was performed at the summer theatre. The auditorium is sheltered by a canopy. HL

Hyvä Omatunto in winter 2006. The yellow shed in the foreground houses the theatre's utility rooms. SIk

winter. In connection with this project, heated dressing rooms and washrooms for theatre personnel were provided in the adjacent shed, B 52.

New roof 2005–2007

In 2005, the old roof, which had done service for 15 years, needed to be replaced. Because under the old roof both the actors and the front rows of the audience got wet when it rained, it was decided at the initiative of the theatre personnel to roof over the entire courtyard of the fortification.

This had to reconcile a number of goals. From the theatre's point of view, the roof had to protect the audience, the actors and the sets from both rain and direct sunlight. On the other hand, it would have to be designed so as to make no noise, not even in stormy weather. Because the lighting rigs of the theatre had for decades been installed on the tops of the walls – which also served as part of the stage – the roof had to be high enough to accommodate this.

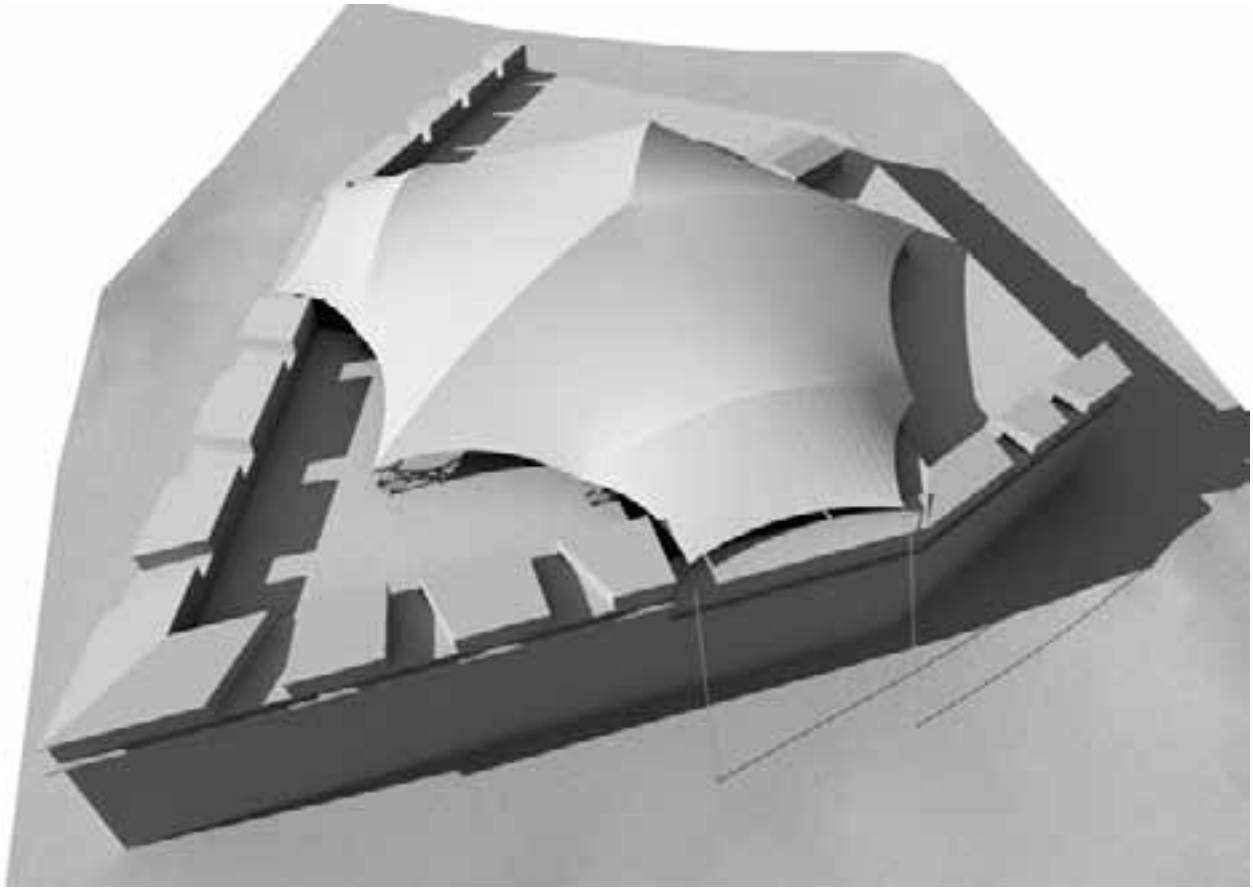
From the developer's point of view, the roof had to not only fulfil the needs of the theatre but also blend in with its environment. It had to be practical and executable with reasonable investment, and it had to be low-maintenance. The National Board of Antiquities, for its part, stressed that the roof should be inconspicuous in the historical landscape.

The architecture of the roof was thus influenced by its function, the shape of the space, the wind conditions and

Installation of the load-bearing structures for the new roof in May 2007. JL

experiences of outdoor canopies acquired from roofing design experts. The end result was a roof consisting of a single sheet of PVC, assembled from several hand-cut pieces and pressed into shape. It is supported by one 30-metre Y-shaped steel arch and two smaller steel arches, fastened to steel trestles anchored to the firing platform. The final dimensioning of the steel arches and their anchorages was determined according to the forces acting on the sheet.

The roof of ravelin Hyvä Omatunto, though simple, proved to be a complex and difficult project. It has also been received with mixed emotions, both at the design stage and after completion. **TL**



A 3D model of the new roof covering the entire theatre. Model: Johannes Laiho.

The first performance under the new roof was the Ryhmäteatteri production of *The Unknown Soldier* in summer 2007. JL

The roof, auditorium and restoration to Swedish-era appearance
Building period: 1990–1993
Auditorium seats: 500
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki, Tuija Lind
Supervisors: Governing Body of Suomenlinna / Jaakko Haikarainen, Kaj Holmberg
Architects: Arkkitehtitoimisto Osmo Mikkonen Ky, architects / Osmo Mikkonen, Antero Saarikoski
Structural design: Insinööritoimisto P & T Jauhiainen Oy, construction engineers / Tapio Jauhiainen
HPAC design: Timo Penttilä -yhtiöt / Jukka Sainio
Electrical design: Insinööritoimisto Joel Majurinen, engineers / Timo Meskanen
Landscape design: Ark-Viapori Oy / Pekka Nevalainen, expert consultant Professor Tom Simons
Antiquarian supervision: National Board of Antiquities / Liisa Eerikäinen, Aulis Nieminen
Main contractor: Suomenlinna labour colony / foremen Seppo Salmio, Hannu Piironen, Kauko Visti

New roof
Building period: 2005–2007
Developer: Governing Body of Suomenlinna / Tuija Lind
Supervisor: Governing Body of Suomenlinna / Kaj Holmberg
Architects: Governing Body of Suomenlinna / Johannes Laiho, Tuija Lind
Structural design: Insinööritoimisto Oy Matti Ollila & Co, engineers / Matti Haaramo, Eero Kotkas, Kyösti Nieminen
Roof design: Tensotech Consulting / Matti Orpana
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Construction: Helsinki Open Prison, Suomenlinna division / foremen Reijo Vedenpää, Olli Mörsky, Pentti Koponen
Steel structures: KL-Asennus Oy
Fabric: Oy Scanhall Ab

Restaurants

There are ten restaurants and cafés on Suomenlinna today. Many of them are somehow related to traditional functions on the islands and thereby contribute to their historical continuum.

For a long time, there were only summer restaurants catering to tourists on Suomenlinna. The oldest of these, Piper Café on Susisaari island and Särkänlinna on Särkkä island, were opened in the 1920s. The Walhalla restaurant was opened on Kustaanmiekka at the initiative of the Ehrensvärd Society, the Finnish Tourist Association and the Archaeological Commission in the early 1950s. The City of Helsinki funded the project as part of its effort to improve tourist services in the run-up to the Helsinki Olympics in 1952.

The above are to this day still only open in the summer, as are Café Bar Valimo at the marina and the Toy Museum café.

The Suomenlinna Brewery, Café Chapman and the Yläkerho (Upper Club) restaurant – which opened as a club for non-commissioned officers in the 1920s – are open all year round. The first two were opened in the late 1990s to cater to the increased number of tourists following the fortress's 250th anniversary celebrations. The tiny Café Vanille in the Russian merchants' quarter continues the area's shopkeeping traditions and is occasionally open in the winter too. The Upseerikerho (Officers' Club) restaurant is a banquet restaurant that can be booked the year round. Banquet bookings are an important source of income for restaurants in the winter season, when there are fewer tourists. **TK**

Suomenlinna Brewery brews beer using traditional methods. EJ

The Walhalla restaurant in caponniere Delwig on Kustaanmiekka was opened in the early 1950s and renovated in the 1980s. SR

Upseerikerho on Iso Mustasaari island is the oldest officers' club in Finland occupying its original premises. TV

With the increase in summer tourist flows, the kitchen and catering facilities of Café Piper have been modernized. This pavilion-like café building from 1928 is part of the original park design. RAm

The outdoor terrace of Café Bar Valimo at the marina. YT

B 1
Traverse Adlerfelt

Traverse Adlerfelt occupies a central location along the main tourist route. RAm

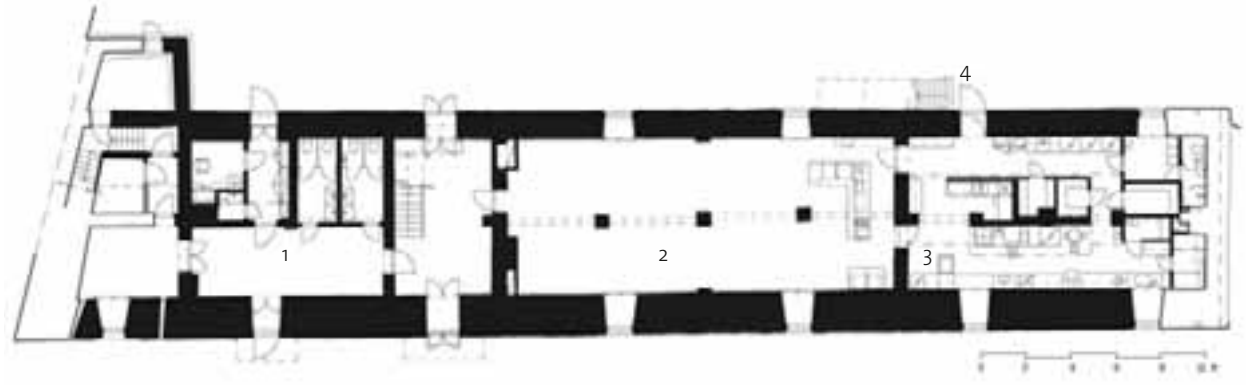
There is a sheltered outdoor terrace outside Café Chapman. Shed B 2 on the left, traverse Adlerfelt on the right. AK

History

Traverse Adlerfelt was built in the 1750s and 1770s as part of the outer ring of fortifications protecting the Susisaari island galley shipyard. The side facing the sea was built as a shield against gunfire from Vallisaari. The greystone casemates in the lower storey had embrasures and the upper, brick-built floor a row of loopholes. In the 1780s, storage space for the enlarged Archipelago Fleet was added, and the ground-floor vaulting was replaced with a wooden intermediate floor. The wooden mansard attic was converted into a normal brick-built storey.

The top floors of the building burned down in the Crimean War bombardment in 1855, after which Adlerfelt was changed back to a two-storey structure, with a sheet-metal roof. It was used as an artillery store by the Russians, and altered roughly to its present form in 1864–1866. At the end of the 19th century, the last parts of caponniere Adlerfelt at the end of the building were pulled down.

At the beginning of the Finnish era, the building housed the works canteen of the Air Force aircraft factory at the shipyard, but in the 1930s it was transferred to the government shipyard (later Valmet Oy) as storage and accommodation space. When the production of war reparations at the shipyard was at its peak, the building was used for the shipyard office and staff facilities, with the works canteen on the lower floor. In 1986, the upper floor was renovated as offices for the National Board of Antiquities, with the exception of the apartment in the south end.



Floor plan of the first floor of traverse Adlerfelt: 1 public WCs, 2 main restaurant, 3 kitchen, 4 access to the upstairs conference room.

Installation holes in the stone footing. KH

The shipyard works canteen, which was closed down in 1995. KH

The new restaurant interior. SW

Café Chapman

For the anniversary celebrations in 1998, the works canteen was converted into a 110-seat lunch and dinner restaurant to operate the year round and renamed Café Chapman. This is currently the only restaurant on Suomenlinna that is open for lunch on winter weekdays. The biggest changes were made on the ground floor, where the former works canteen kitchen and main restaurant were completely rebuilt. The restaurant's wooden and fine-plastered surfaces, which were treated with oil paint, tempera and distemper in shades of umber, cobolt and ultramarine, subtly merge the building's historical function and present use. An outside terrace was built in the yard. The restaurant ventilation equipment was housed in a specially built room in the attic. The air intake is through ventilation grids in the wood floor.

All heating, plumbing and electrical systems were replaced, and the building was connected to the city sewerage network. At the same time, the first phase of a new sewerage system for the whole shipyard area, complete with pumping station, was installed.

Café Chapman shed B 2

This log-frame wooden shed beside traverse Adlerfelt in the shipyard area was built in 1878 to store fortress artillery supplies. It was repaired as additional space seating 120 for the restaurant and used during the summer season for lunch, dinner and evening sittings.

Piirtämö conference room

Conversion work on the upper floor of traverse Adlerfelt began after the National Board of Antiquities closed down its Suomenlinna office in January 2007. After light renovation, the offices were leased out as workrooms. The former drawing office (known by its Finnish name, 'Piirtämö') was converted into conference space for 30 people. **HL**

Café Chapman
Building period: 1995–1996
Net floor area: project area 446 m²
Gross floor area: project area 720 m²
Developers: Governing Body of Suomenlinna, Engel rakennuttamispalvelut Oy
Architects: Vilhelm Helander, Juha Leiviskä architects SAFA
Structural design: Insinööritoimisto Innostructura Oy, engineers
HPAC design: Insinööritoimisto Timo Penttilä-yhtiöt, engineers
Electrical design: Konsultointi J W Majurinen Oy, consultants
Construction: Rakennusliike Reijo Muhonen Oy, builders

Café Chapman shed B 2
Building period: 1996–1997
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki
Architects: Vilhelm Helander, Juha Leiviskä architects SAFA
Structural design: Insinööritoimisto Innostructura Oy, engineers
HPAC design: Insinööritoimisto Timo Penttilä-yhtiöt, engineers
Electrical design: Konsultointi J W Majurinen Oy, consultants
Construction: Governing Body of Suomenlinna / foreman Erkki Ripatti

Piirtämö conference room
Building period: 2007
Developer: Governing Body of Suomenlinna
Architects: Ark-Viapori Oy / Reetta Amper
HPAC and electrical design: Insinööritoimisto Leo Maaskola Oy, engineers / Timo Meskanen, Jukka Sainio
Construction: Governing Body of Suomenlinna / foreman Antti Siintola
Paintwork: Maalityö Apollo Oy

C 1
Jetty Barracks

History

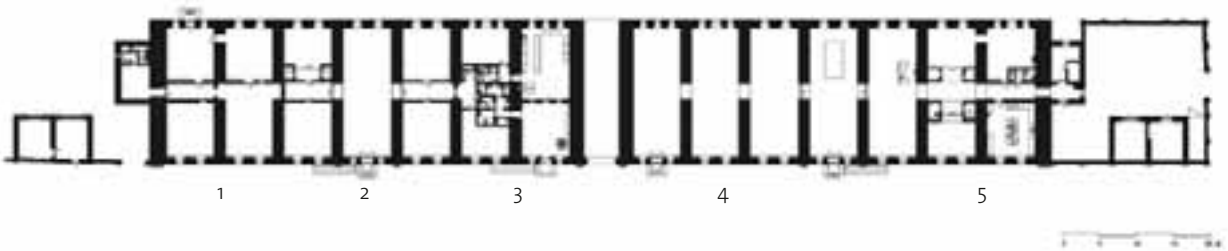
The building known as Jetty Barracks (Rantakasarmi) on the northern shore of Iso Mustasaari island was the principal entrance to Suomenlinna in the Russian era, whereas in the Swedish era the main ceremonial gateway was the King's Gate on Kustaanmiekka. Design work on the building was begun by an architect named Greifon in 1862. Following plans since the 1850s to replace the existing guardhouse, it was demolished to make room for the new brick building. A considerable portion of the cliff was quarried away to level off the slope, and the building was erected with only a narrow lane separating it from the cliff face behind it. The building work took place between 1868 and 1870, and at the same time roads, courtyards, stables, a quay and a waterfront boulevard were built.

The barracks were intended to quarter 250 soldiers during peacetime. The building housed a kitchen, an office, soldiers' quarters and privies. At least part of the building was used as the Main Guard, with cells for detainees and prisoners, and offices for guardsmen and the duty officer.

Suomenlinna Brewery restaurant. EJ

The building consists of fourteen transverse casemates, each about 110 m² in floor area, seven on each side of the gateway through the middle of the building. A clock tower stands on top of the gateway arch. The roof structure was reinforced with a layer of sand on top of the

The Jetty Barracks and the main quay seen from the sea. HL



Floor plan: 1 recording studio, 2 workrooms, 3 kiosk and public toilets, 4 gallery, 5 brewery restaurant.

vaults, over which the broad sheet-metal mansard roof was suspended.

During the First World War, in 1916, there were plans to build a second storey, but this was never realized. In the early years of Finnish independence (1918–1919), the building housed Prison Barracks I and also the office of the Prison District, the office of the Corrections Department, the office of parcel censorship and the harbourmaster's office. The passes of people landing on the islands were also checked at the Jetty Barracks. Later, the building was occupied by the Finnish Defence Forces until 1972, housing for instance the offices of the Commandant of Suomenlinna.

After the Governing Body of Suomenlinna was founded, the eastern end of the Jetty Barracks (the left-hand half viewed from the waterfront) was converted into a woodwork workshop. In 1985, the western end was renovated into exhibition and storage spaces for the Nordic Arts Centre. In 1992, the casemate to the east of the gateway vault was renovated to house a kiosk and public toilets. Since the Suomenlinna post office was shut down, the kiosk has also served as the island's postal service desk.

Gallery and Brewery Restaurant

The Jetty Barracks was connected to the district heating network in 1996–1997, and a heating distribution centre was built at its western end. The three vaults to the right of the gateway vault viewed from the waterfront were converted into gallery space. The repaired exhibition rooms were initially rented out to artists by the Governing Body of Suomenlinna itself, the Nordic Arts Centre having ended its presence in the building even before the renovation began. Since 2004, the gallery has been rented out to the Finnish Artists' Association, which organizes high-quality monthly arts exhibitions there.

The middle vault next to the gallery was converted into a waiting room for ferry passengers and a vestibule shared by the gallery and restaurant. A small storeroom and glass case were built at the back of this space to display the work of Suomenlinna artisans.

As far back as the 1974 plan for the use of Suomenlinna, a restaurant was planned for the Jetty Barracks. This project was taken up when the renovation was being planned, as a brewery entrepreneur in Helsinki offered to take a lease on the premises to house a micro-brewery and restaurant. The three outermost vaults of the building were repaired for this purpose: the restaurant occupies one vault, while the next two vaults contain a private function room, toilets and kitchen on the waterfront side and the brewery facilities on the opposite side of the longitudinal corridor. The floors in the public spaces were made of broad fir planks treated with oil and lye. The vaults were whitewashed, and an outlined dado was painted at the bottom. There is also a courtyard lined with brick walls at the gable end of the restaurant which is used as an outdoor terrace in the summer. The beers brewed here using traditional methods are given names relating to the history of Suomenlinna, such as Ale Coyet and Höpken Pils, referring to caponniere Coyet and bastion Höpken, respectively.

Kiosk

Viewed from the ferry approach, the kiosk is to the left of the gateway vault. Alterations and repairs on this kiosk were completed in 1998. It has a front room with tables and chairs for drinking coffee or just sitting down to relax, and gives access to the public toilets and to the spiral staircase leading up the tower. The clock in the tower is wound manually every week.

Recording studio and workrooms

The last premises in the Jetty Barracks to be repaired were the five easternmost casemates, on which work began when the woodwork workshop of the Governing Body was relocated. In 1999, five workrooms with shared toilet and kitchen were built into the three vaults next to the kiosk. From the first, these workrooms were rented out to musicians, who in the early years also held small-scale recitals and club nights in the foyer extending through the building.

A recording studio was built into the two easternmost vaults, since the thick walls and sand-lined roof of the building, together with the low level of ambient traffic noise on Suomenlinna, guarantee ideal conditions for recording. The interior of the Sea Wolf Studio, with a floating room for the recording studio itself and the control booth, was designed by Stefan Lindfors.

The elevations were given a coat of lime paint in 2001. The shade chosen was the original colour, a muted pink typical of the 1860s and 1870s. **LH**

Building period: 1996–1999, 2001
Developer: Governing Body of Suomenlinna / Jaakko Antti-Poika (gallery and brewery), Leena Häkli (kiosk, workrooms, studio)
Architects: Arkkitehtitoimisto Järvinen–Airas, architects / Kari Järvinen
Structural design: Insinööritoimisto Pentinmikko Oy, engineers / Juhani Pentinmikko
HPAC design: Calor Oy / Arvo Torssonen (brewery and gallery), Akvedukti Oy / Markku Kallio (kiosk, workrooms, studio)
Electrical design: Konsultointi J.W. Majurinen, consultants / Timo Meskanen (brewery, gallery, kiosk), Insinööritoimisto Leo Maaskola Oy, engineers / Timo Meskanen (workrooms, studio)
Antiquarian supervision: National Board of Antiquities / Liisa Eerikäinen, Seija Linnanmäki
Main contractors: Uudenmaan Mestarirakentajat / Tero Jacksén (gallery and brewery), Governing Body of Suomenlinna / Erkki Ripatti (kiosk), Rakennus Juri Oy / Jorma Kokkonen (workrooms and studio)
HPAC contractors: Kouvolan putkityö Oy (gallery, brewery, workrooms and studio), Hämeen Plumbing Oy (kiosk)
Electrical contractors: EA-Elektroasennus Oy (gallery, brewery, workrooms and studio), Governing Body of Suomenlinna (kiosk)

C 8
Yläkerho restaurant

The Retuperän WBK brass band performing in the Yläkerho restaurant at the Vibrant Viapori festival in October 2007. HL

History

This wooden barracks building was erected in 1892 to house an infantry company and school. Typically for a barracks building, its floor plan featured mainly large rooms arranged consecutively.

In 1918–1919, after the Civil War, the building was occupied by women prisoners-of-war. An Army club restaurant opened here in 1926, at which time it was given over to the NCOs' Club of Coastal Artillery Regiment 1. The building came to be known as Yläkerho ('Upper Club') to distinguish it from the Warrant Officers' Association restaurant farther down the slope, Alakerho ('Lower Club').

In the Russian-era log buildings, the outer faces of the logs were often left unhewn and simply boarded over, while the inside surface was hewn and plastered. A leaking ceiling had caused the upper part of a wall to rot at Yläkerho. RR

The north end of the building sustained heavy damage in an air raid during the Continuation War in February 1944 and was torn down. The building lost its library and kitchen and about one third of its length. Subsequently, the building was maintained mainly by volunteers for several decades. The previous renovation was carried out in 1952, although it was not until 1961 that running water and drains were installed.

Renovation

When the building was transferred from the Defence Forces to the Governing Body of Suomenlinna in the early 2000s, plans were made for a new renovation. There was talk of changing the use of the building, but this idea was abandoned, since the long history of Yläkerho as a meeting place was considered important. After the 2006–2007 renovation, the restaurant in the Upper Club continued to operate observing the traditions of an Army club restaurant, though open to the general public. A sauna suite was built adjacent to the restaurant; this can be rented out separately.

The kitchens and toilets were rebuilt and all heating, plumbing and electrical installations were replaced. Floors subject to subsidence and damp were rebuilt, the lowest courses of logs in the walls repaired, the old doors and windows reconditioned, and the inside walls and ceilings painted. The sauna suite is separate from the old structure.

When the barracks building was converted into a club restaurant in the 1920s, its floor plan was changed, but many of the typically Neo-Renaissance doors and elevations

New solid wood beams being installed in the floor of the billiard room. The load-bearing structures of the floors were replaced nearly throughout the building. TK

The floor structures being dismantled. TK

were preserved. In the renovation, these features were exposed and repaired. Not all the later additions were removed, however, because the aim of the renovation was to preserve the unique atmosphere of the restaurant, in which the historical layers of the building are essential components. **TK**

Yläkerho after the repairs. TK

Building period: 2006–2007
Net floor area: 371 m²
Gross floor area: 420 m²
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki
Architects: Governing Body of Suomenlinna / Tiina Koskenniemi
Structural design: Insinööritoimisto Pentinmikko Oy, engineers / Juhani Pentinmikko
HPAC design: Insinööritoimisto Leo Maaskola Oy, engineers / Jussi Tuomola
Electrical design: Insinööritoimisto Leo Maaskola Oy, engineers / Timo Meskanen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Main contractor: City of Helsinki PWD Technical Services, Construction / foreman Pentti Olli
Secondary contractor: Helsinki Open Prison, Suomenlinna division / foreman Reijo Rantatalo
HPAC work: Kouvolan Putkityö Oy
Electrical work: Vartiokylän Sähkö Oy
Paintwork: Rakennus ja maalaus Arlev Oy

The labels pasted to the wall of the storeroom over the decades were left intact. HL

Other tourist services

Tourist service improvement, launched after the Second World War, began to show results gradually in the 1960s. The beach and outdoor areas were developed, but facilities such as toilets and signage remained inadequate well into the 1980s.

In 1963, the Ehrensvärd Society opened a small kiosk by the Susisaari island bridge in a booth previously used to sell tickets to the Susisaari island museum area. This site is now occupied by a kiosk erected in the 1970s which was the starting point for guided tours until the 2000s. There is another traditional kiosk site opposite the Merchants' Quarter on Iso Mustasaari island. The building on this site is currently run as an ice cream stand (building C 45), though it was originally erected as a grill stand in 1992. In the same year, a kiosk and public toilet were built in the Jetty Barracks.

The shelter on the main quay was designed by Kari Järvinen and Merja Nieminen, architects SAFA / Kari Järvinen. MN

The new changing rooms at the beach were designed by Tiina Koskenniemi, an architect with the Governing Body. HL

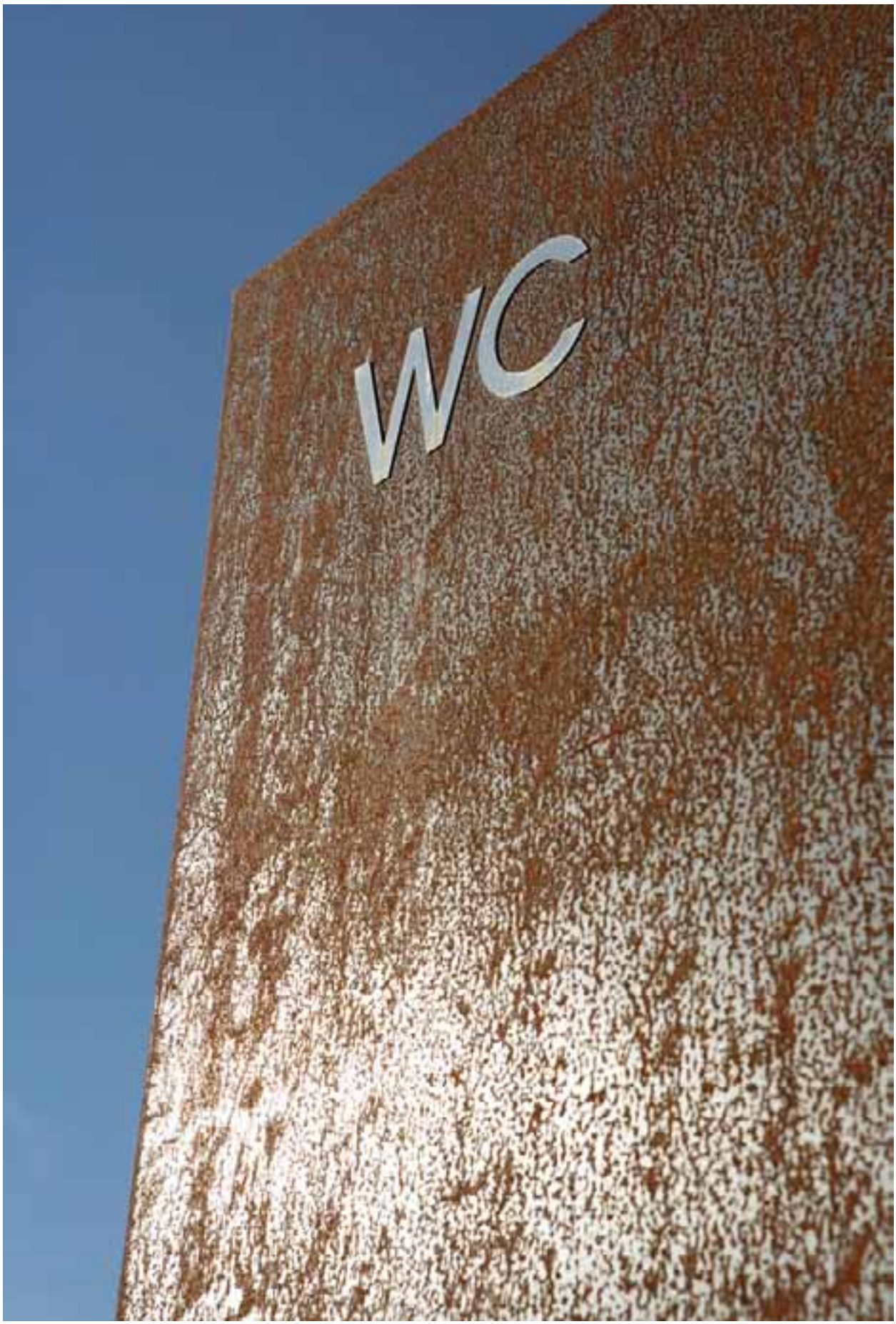
The summer shop in building B 34 on Susisaari island. HL

When the islands were connected to the City utilities in the 1980s, a network of public toilets connected to the sewer system could be designed. Currently there are plans for three or four further public toilets in addition to the existing seven.

In the late 1990s, a summer handicraft shop was opened in building B 34 on Susisaari island, a former storage shed. The Ehrensvärd Society's shop opened in the other room of the shed in 2005.

Under the cost-sharing agreement between the City of Helsinki and the central government, maintenance of the beach on Suomenlinna is the responsibility of the City. The 1950s changing rooms building, which was in bad condition and an eyesore on the beach on the isthmus between Susisaari and Kustaanmiekka islands, was torn down in 2006, and three separate smaller changing rooms were built to replace it.

Traffic flow arrangements and passenger channelling at the main quay have been developed in cooperation with Helsinki City Transport. A new waiting shelter in steel and glass was erected beside the quay in 2003. **TK**

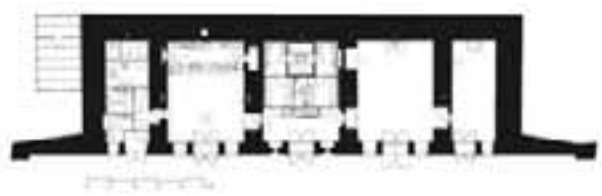


Providing a sufficient network of public toilets is an important tourist service. JKe

B 13
Marina

History

Building B 13 was constructed in the shipyard area in 1871–1872 as an ammunition foundry, replacing the demolished right face of bastion Cedercreutz. The earth-covered building comprises five brick-built, barrel-vaulted casemates with a stone-clad elevation.



Floor plan of the marina service building. The sauna suite is in the middle.

After the ammunition foundry stopped operating early in the 1900s, it was used for cold storage. The doorways between the casemates were bricked up probably at this time. The original earth cover reaching to ground level on the ends and rear was removed.

Marina service building

When the Suomenlinna marina was built at the turn of the millennium, it was located beside the former ammunition foundry, as this was considered suitable for conversion into the marina service building. It now houses a café, WC, sauna and meeting room facilities. Before repairs, the waterproofing of the earthen roof, especially at the eaves, had leaked and the interiors had suffered from damp. The chimneys were completely ruined. The building's only technical system was the electrical wiring.

Café Bar Valimo. MRi

The marina seen from the opposite shore of Varvilahti bay. KH

An installation duct for water mains, sewers and heating pipes was cut in the old flooring which was preserved. The base of an old fireplace can be seen in the middle. TL

The aim of the conversion work was to prepare the old building for what was expected to be quite heavy use by marina visitors, while preserving the five vaults and marks left by time. The foundry's earlier use for storing paints and solvents meant that some of the flooring had to be completely removed because it was contaminated.

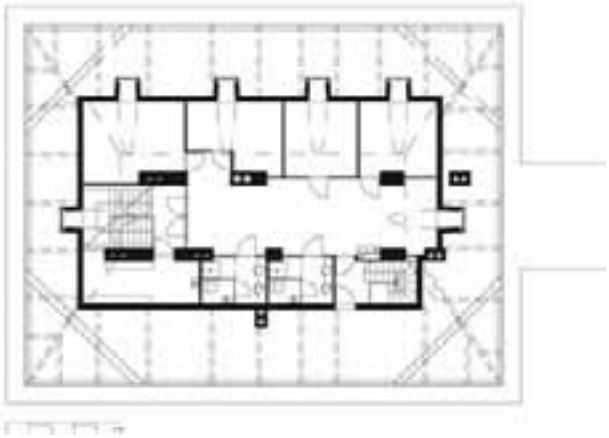
The floor constructions in the washrooms, toilets and kitchen were completely replaced. In dry areas, the old floor was left visible or covered with new wooden flooring. The lime-washed brick surfaces of the old walls and ceilings were cleaned, but not re-coated. The new walls were built as separate structures. The remaining outside doors and windows were renovated and any missing ones replaced. Openings for doors and windows were made in the bricked-up archways only where necessary. Because of its original function, the building had several large flues, and these were used as ventilation ducts. New chimneys were built to replace those that had collapsed. The waterproofing of the turf roof was improved by replacing the structural layers around chimneys and at the eaves. Traditional materials such as clay and lead sheeting were used as waterproofing.

The project also included fitting the quays with electricity, water and wastewater emptying systems. Since its extension, the marina can offer visiting craft 40 berths. **TK**

The old vaults in the foundry building were cleaned. JT

Building period: 1999–2000
Gross floor area: 459 m²
Net floor area: 272 m²
Developer: Governing Body of Suomenlinna
Architects: Governing Body of Suomenlinna / Tiina Koskenniemi, Juha Virtanen
Structural design: Insinööritoimisto Pentinmikko Oy, engineers / Juhani Pentinmikko
HPAC design: Insinööritoimisto Leo Maaskola, engineers / Jukka Sainio
Electrical design: Insinööritoimisto Leo Maaskola, engineers / Timo Meskanen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Construction project management contractor: Projektikonsultit Oy
Demolition and roofing work: Suomenlinna labour colony / foreman Raimo Raudaskoski

C 9
Hostel Suomenlinna



The attic floor.

The first floor.

For new accommodation to be built in the attic, the floor had to be reinforced. The old floor beams were suspended from new laminated wood beams. KH

History

The Viapori section of a Russian charity organization had this building constructed as a primary school for underprivileged children in 1908–1909. In 1912, the old indoor privies were moved into a wooden structure against the outside wall of the building, allowing the former space to be converted into a classroom.

When Suomenlinna was a prison camp in 1918–1919, this building, being in good condition and close to the ferry quay, was converted for use as a Central War Spoils Department office and the offices of the Commandant and Resident Major. A Finnish primary school moved into the building in the early 1920s, and the teachers, Ilmari and Katri Rautio, lived in rooms facing the yard. After the new primary school (building C 55) was completed in 1959, C 9 was used as a military clubhouse. From 1972 to summer 2000, it was the clubhouse of the Helsinki Warrant Officers' Association (Helsingin Toimiupseerit).

School camp centre

The building was renovated as teaching and accommodation space for a school camp centre in 2001–2002. A camp means a group of schoolchildren, usually a class of maximum 32 pupils, staying at the centre for 3–5 to days, making excursions locally and carrying out related projects. Some of the teaching takes place in the classroom. The school camp seasons are from March to May and August to October, and at other times the building functions as Hostel Suomenlinna, providing accommodation for tourists and course centre facilities.

The purpose of the repairs was to preserve the original characteristics of the building, which was designed as a school. Old interior surfaces such as ceiling panels were uncovered by removing more recent panelling, installed mainly in the 1960s and 1970s, and old panelled doors were repaired. The attic floor was converted into a heated space for accommodation purposes to increase the number of beds in the building. This rebuilding was distinct from the old structures, and the unfinished brick surfaces typical of the attic space were left largely exposed. Natural lighting is through skylights opened in the roof. The former downstairs classroom was turned into a room for meals and teaching. The new upstairs accommodation was fitted with mechanical air conditioning, while the ground floor has mechanical air extraction. Also, all water and sewer piping and electrical installations were replaced. TK

The building is in typical Russian garrison red-brick style. In modest utility buildings, it was typical to punctuate the elevation with brick fillets. HL

In 2007, former pupils who started school here in 1947 donated a 60th anniversary plaque to be affixed to the wall of their old school. SV

The main room is both a classroom and the breakfast room of the hostel. TK

Building period: 2001–2002
Net floor area: 433 m²
Gross floor area: 564 m²
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki
Architects: Governing Body of Suomenlinna / Tiina Koskenniemi
Structural design: Insinööritoimisto Pentinmikko Oy, engineers / Juhani Pentinmikko
HPAC design: Insinööritoimisto Matti Hallasaari Oy, engineers / Matti Hallasaari
Electrical design: Jikkon Oy / Juhani Ikonen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Builder: Suomenlinna labour colony / foreman Raimo Raudaskoski
HPAC and electrical work: Are Oy
Regulatory equipment: Arealtec Oy

A 1
Picnic shelter

History

This Russian army artillery storehouse was completed on Kustaanmiekka in 1883. There were once several storehouses built to more or less the same design dotted around the fortress, but only five survive. Built with a frame construction using stout timbers, the building has broad horizontal cladding. The floor is part cobblestone and part wood. There is a door and cart ramp at both ends.

The storehouse was originally used for keeping ropes, and later also ammunition. Once the National Board of Antiquities had completed comprehensive repairs on the storehouse in the 1970s, it was used as storage for instance for items belonging to the National Museum.

Picnic shelter and beach toilets

The storehouse was repaired in 2003–2004 and converted into a picnic shelter, a suitable location for this having long been sought. Groups from schools and daycare centres and others on daytrips can now eat their packed lunch protected from the wind and rain.

The repairs involved replacing rotted horizontal logs in the frame and other damaged wooden elements. The old wood and stone structures in the floor were reconditioned and left in situ. New frames were made for the window openings, as these had only survived in the top windows of the gable ends, the other windows having inside shutters and iron gratings. The roof was replaced, and the elevations were painted.

At the same time, public toilets for visitors at the adjacent beach were built in the storehouse. The possibility of erecting separate, light WC units just outside the storehouse was also studied. The new toilets are light in structure and distinct from the massive old structures of the storehouse. The uneven old slate floor at the end of the building where the toilets were built was covered with a wooden deck with metal railings. The WCs were connected to the summer water piping and sewerage network without needing to quarry into the rock. The building is unheated and is only used in summer. **TK**

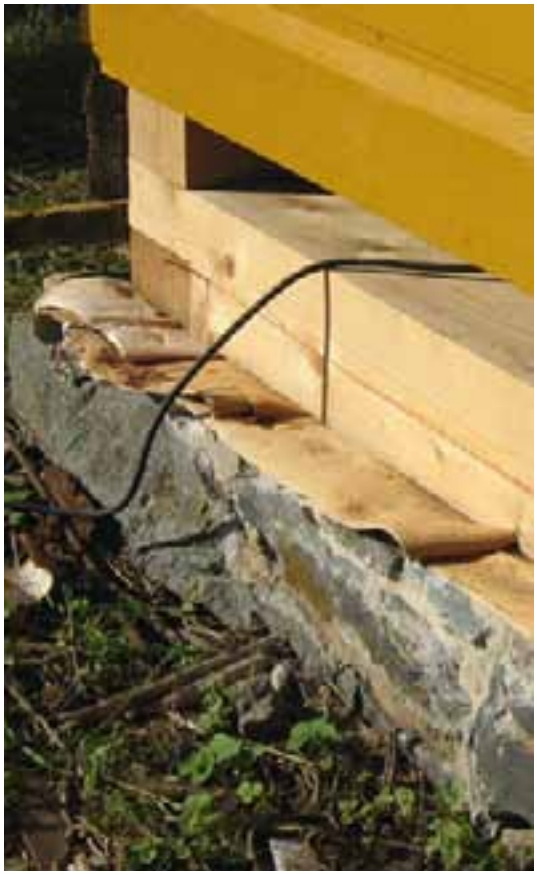
Floor plan.

The wall was jacked up so that logs could be replaced. KH

Building period: 2003–2004
Net floor area: 197 m²
Gross floor area: 214 m²
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki
Architects: Governing Body of Suomenlinna / Tiina Koskenniemi
Structural design: Insinööritoimisto Pentinmikko Oy, engineers / Juhani Pentinmikko
HPAC design: Insinööritoimisto Akvedukti Oy, engineers / Markku Kallio
Electrical design: Insinööritoimisto Jikkon Oy, engineers / Juhani Ikonen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Builder: Suomenlinna labour colony / foreman Kari Suominen
HPAC and electrical work: Are Oy

The picnic shelter. The panel-built WC unit is a distinct new structure at the end of the building. EJ

The toilets in the storehouse are open around the clock in summer. TK



Some of the lowest courses of logs in the exterior walls had to be replaced. Birch bark was used as waterproofing between the wood and the stone base. TK

C 46
Public toilets

In 2004, P & P Manner architects drafted five new public toilets for Suomenlinna. The aim was to create minimalist units comprising a few plane surfaces that do not clash with the historical setting and are not tied to any particular style. The first to be completed, building C 46 on the shore of Varvilahti bay, resembles a stack of rusty iron plates that someone happened to leave in the right position and location. The next to be built will be smaller WC units on the supply quay and Länsi-Mustasaari island.

The main idea was for the entrance side to be a single vertical plate visually echoing any vertical element nearby, such as a wall, slope or building. In C 46, that vertical element is a Russian-era brick wall reconstructed in the 1980s, parallel to which a Corten steel plate was installed. This conceals the toilet facilities, which are reached via a narrow gap between the plate and the wall. The vertical Corten surface will weather and become patinated like the quarried stone and brick that are Suomenlinna's main building materials.

The HPAC and electrical installations, e.g. ventilation, heat recovery, AC silencers, electricity unit and regulatory equipment, are packed in a central space reserved for services. The air intake and exhaust installations were placed not on the roof but in the walls so that the roof as seen from the road would be uncluttered by flues and other projections.

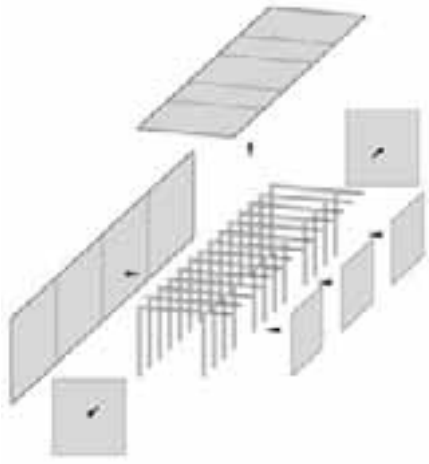
Pekka and Bitumi Manner

The polycarbonate sheet in the door has a random pattern of scratches to prevent visibility yet allows natural light to penetrate the interior. JKe

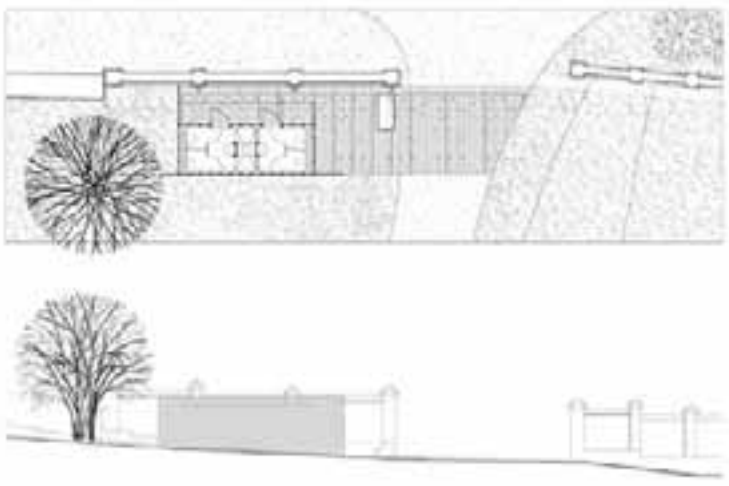
The ventilators in the elevation punctuate the smooth Corten steel surface. JKe

Building period: 2005–2006
Size: Gross floor area 17 m²
Developer: Governing Body of Suomenlinna / Leena Häkli
Architects: Arkkitehtitoimisto P & P Manner Oy, architects / Pekka and Bitumi Manner
Structural design: Insinööritoimisto Oy Matti Ollila & Co, engineers / Eero Kotkas
HPAC design: Insinööritoimisto Akvedukti Oy, engineers / Markku Kallio
Electrical design: Insinööritoimisto Leo Maaskola Oy, engineers / Timo Meskanen
Main contractor: Infratyö Oy
Steel contractor: Wötö Oy
HPAC and electrical contractor: Airring Oy

The vertical Corten surface will weather and become patinated like the quarried stone and brick that are Suomenlinna's main building materials. JKe



The exterior is wholly made of 8 mm Corten steel sheets, suspended from prefabricated steel frames.



Floor plan and building elevation to the west. Drawings: Arkkitehtitoimisto P & P Manner Oy, architects

Conference and banquet rooms

The furniture in the conference room in the Hamilton-Polhem curtain was salvaged from a renovation in what was then the Ministry of Trade and Industry. EJ

The Governing Body of Suomenlinna has nine rooms of different sizes and types available for rent for conferences or functions. This allows the general public access to the fortress's fine interiors.

The conversion of rooms to be rented out for conferences and banquets began in the early 1990s. The first to be completed was the 20-seat conference room in the Hamilton-Polhem curtain (building B 20), built in one of the ground-level vaults when the curtain was renovated.

Paarlastihuone (Ballast Room), built in the 1770s, is located in the basement of the east wing of crownwork Ehrensvärd (building C 40). It is a room originally used to store ballast, i.e. heavy materials used to stabilize ships. The room was converted for conference use in 1993. The rock surface sloping up towards the back of the room provided a ready base for an auditorium with seating for 54.

The Piirtämö conference table seats about 30 people. JL

The floor in Paarlastihuone (Ballast Room) is part limestone, part wood; the entrance hall has a cobblestone floor. JL

Other rooms converted for conferences and functions in the 1990s are the earth-covered powder magazine on Susisaari island (B 29), tenaille von Fersen and the west wing of crownwork Ehrensvärd, known as Pirunkirkko ('Devil's Church', C 28). The repairs and rebuilding of these rooms are explained in more detail in the following pages.

The newest conference room is Piirtämö, the converted drawing office upstairs in traverse Adlerfelt (building B 1). Until the beginning of 2007, this was used by draughtsmen from the National Board of Antiquities to prepare detailed measured drawings of Suomenlinna and other sites of historical value. Café Chapman is located downstairs. The renovation of this building is described in the chapter on restaurants.

There are plans to develop Lonna island into a conference and training centre, providing a tranquil setting for a wide variety of functions.

The new furniture was chosen with a view to timeless elegance, and existing furniture of high quality was reused wherever possible. The Paarlastihuone auditorium seating came from the University's storerooms, while some conference rooms were furnished with items discarded by various ministries during renovations, and a sofa group was inherited from the Valmet shipyard. All facilities available for rent have a kitchen and a broadband connection.

There is robust demand for the facilities, and they are used for a wide variety of events. The smallest rooms are suitable for ordinary meetings, while the larger ones are commonly used for organizing concerts, theatre performances, corporate recreational events and formal functions, Christmas parties, family gatherings and seminars.

The buildings on Lonna island are being repaired by inmates from the Open Prison. SIk

The facilities are rented out 'as is'; organizers may order decorations and other services from restaurant and catering businesses on the islands or from the Ehrensvärd Society, which also provides guided tours and organizes water bus transportation as required. **RA**

C 28
‘Devil’s Church’

History

Work on the west wing of crownwork Ehrensvärd began together with the east wing in 1776. Construction was soon interrupted, however, and not resumed until 1785. The following year, the building was completed and was taken over by the naval dockyard of the Army. The ground floor had a large vaulted smithy and stores for coal and iron. The first floor had a vaulted ‘Grand Storeroom’ and rooms for two storeroom clerks. The second floor had offices and living quarters along a central corridor, and the third floor had a library and model rooms for storing ship rib templates and scale models.

At the beginning of the Russian era, the building housed a Lutheran church. In the 1850s, the wing’s top level, which previously had a wooden mansard roof, was converted into a proper, brick-built storey. At the same time, a T-shaped privy wing was added at the centre of the building. Just after these alterations were completed in 1855, the building was badly damaged by bombardment in the Crimean War. After the war, the top storey was dismantled and the second storey left as an attic in a ruined state under a temporary roof. Later, the smithy on the ground floor was converted into a bakery, and a school was housed in the northern end of the first floor. The first floor of the privy wing was converted into an Orthodox chapel. When Suomenlinna was used as a prison camp in 1918–1919, the building was Prison Barracks no. 4.

The Swedish ‘Grand Storeroom’ became a venue for meetings and banquets. In 1984, a design competition was organized with the intention of converting the wings of the crownwork to house a central government administration training centre, raising the wings to their original height in the process. However, this reconstruction was abandoned because it did not comply with international restoration principles.

Ruins in the attic.

The upstairs meeting room before renovation in 1984.

Pirunkirkko, Pajasali and Tynnyrintekijänhuone

The building has been gradually renovated for use as a meeting and banquet venue since 1992. Meeting rooms were built at the southern end of the first floor, the windows were repaired and the building was connected to the district heating system. Between 1994 and 1996, the old privy wing was converted to house new toilets, and a new kitchen was built to cater to the main hall. An apartment and two studies were built at the northern end of the main hall floor. In 2002, Pajasali (Smithy Hall) and Tynnyrintekijänhuone (Cooper's Room) were built as conference rooms for renting out.

The attic has been kept in the ruined state in which it has been since the Crimean War. Some of the brick and stone surfaces in the cellar and on the elevation still remain to be repaired. Accessibility is a challenge, because the building stands on a slope and the rooms are located on different levels. The entrances on both floors allow for wheelchair access, but so far only the first floor has a disabled toilet.

As the repairs progressed, it was considered important to preserve the various historical surface layers. The murals on the walls of the private rooms and stairwell on the main hall level dating back to the Finnish Army period have been conserved. Mechanical exhaust ventilation was installed in the kitchens and toilets.

Dozens of meetings, courses and parties are held in these premises every year. The main hall in the west wing of crownwork Ehrensvärd, Pirunkirkko ('Devil's Church'), is particularly popular as a venue for wedding receptions. Because of the heavy use, the rooms require constant upkeep. **HL**

The Smithy Hall earlier housed a window repair workshop.

Art conservator Anne Karjalainen at work on the stairwell mural.

The foyer of the Smithy Hall ready for meetings and functions. KP

Both wings of the crownwork were lowered to their present height after they were damaged in the Crimean War bombardment in 1855. This illustration shows the original mansard floor in grey. Scale model by Hannu Lunkka.

The 'Grand Storeroom' is now an attractive function room.

The rugged vaults and unpainted wood floor provide an elegant setting for formal occasions. EJ

The Smithy Hall. EJ

Building period: 1992–1996, 2002
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki, Tuija Lind (2002)
Architects: Vilhelm Helander, Juha Leiviskä architects SAFA / Vilhelm Helander and Tytti Valto
Structural design: Insinööritoimisto Paloheimo-Ollila, engineers; Insinööritoimisto Innostructura Oy, engineers / Eero Kotkas
HPAC design: Timo Penttilä group; Insinööritoimisto Leo Maaskola Oy, engineers / Jukka Sainio
Electrical design: Insinööritoimisto Joel Majurinen Oy, engineers; Insinööritoimisto Leo Maaskola Oy, engineers / Timo Meskanen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Main contractor: Oy Huber Ab (1992), Vantaa Institute of Art and Design (1993), Oy Rakennus Origo Ab (2002)
Construction: Governing Body of Suomenlinna (1992), Muuraus- ja yleisrakennusliike Latva Oy (1992)
Heating and plumbing work: Helsingin asennus ja kiinteistöhuolto Oy (2002)
Air conditioning: Huopalahden huolto Oy (2002)
Electrical work: Oy Sähkönordström Ab (1992), Sähkö-Paganus Oy (2002)
Regulatory equipment: Arealtec Oy (2002)

B 29
Powder magazine

The central hall ready for users. JT

Coat racks and a steel-built balcony for AV equipment were built in the narrow circling corridor at the south end. JT

History

In the Gustavian period in the late 18th century, three large gunpowder magazines were built on Viapori, all constructed in stone to standard-project drawings; two survive to this day. The powder magazine on Susisaari island has a large barrel-vaulted space in the centre of which there used to be high wooden shelving for storing gunpowder barrels. Keeping the powder in working order required space that was dry and free of materials that might cause sparks. The door hinge mounts, for example, were made of bronze. There was a clever ventilation system in the walls and vaults and under the wooden floor. Window openings provided natural light.

There could be no direct access to the central storage space from the outer door on the north side, because the powder had to be shielded against direct shelling. For this purpose, the powder magazine proper was surrounded by a corridor with ventilation ducts and lighting apertures.

The roof structures of the gunpowder magazine were destroyed in the Crimean War bombardment. Afterwards, the magazine was completely covered over with a sand earthwork, leaving only the northeast elevation visible. In the Finnish era, the space was used as a potato cellar, and a doorway was made in the inside wall at the north end for easier access.

In the 1980s, the rotten wooden cellar storage cubicles were removed and a new wooden floor laid instead. The magazine was used for occasional functions and as a sports hall. However, its location in a depression where water tended to gather quickly caused the new floor structures to rot through as well.

Rebuilding and restoration

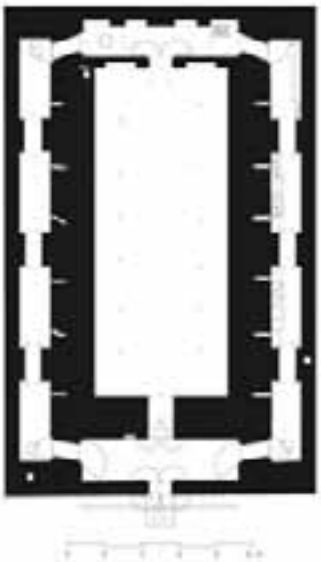
In the 1990s, there was a need on Suomenlinna for a sports hall and another space that could be rented out for private use. Also, changing rooms, toilets and shower and storage facilities were sorely needed for the beach and sports field. The repairs to the powder magazine, which had been planned for several years, aimed to meet all these needs.

Following the repairs, the central hall of the powder magazine is accessed through a rather dark side corridor paved with irregular concrete slabs. This leads to the cloakroom at the south end of the building, opening almost surprisingly onto the large, warm-toned central hall. The hall could comfortably accommodate more than 100 people, but as there is only one exit from the building, the number had to be limited to 60.

The only elevation of the powder magazine.

Every detail was specially designed for this building, and all the technical installations were cleverly concealed. A lot of new technology had to be installed, even though only a kitchen and electrical, heating and water connections were built. An air intake manifold was installed in the old lighting aperture above the vestibule. A vent for exhaust air was built at the south end, extending to the top of the earthwork. A kitchen was built in the circling corridor at the west end and a steel-built balcony for AV equipment at the south end. The floor of the central hall was laid of wooden planks, and the lighting fixtures were selected for durability so that the hall could be used for sports.

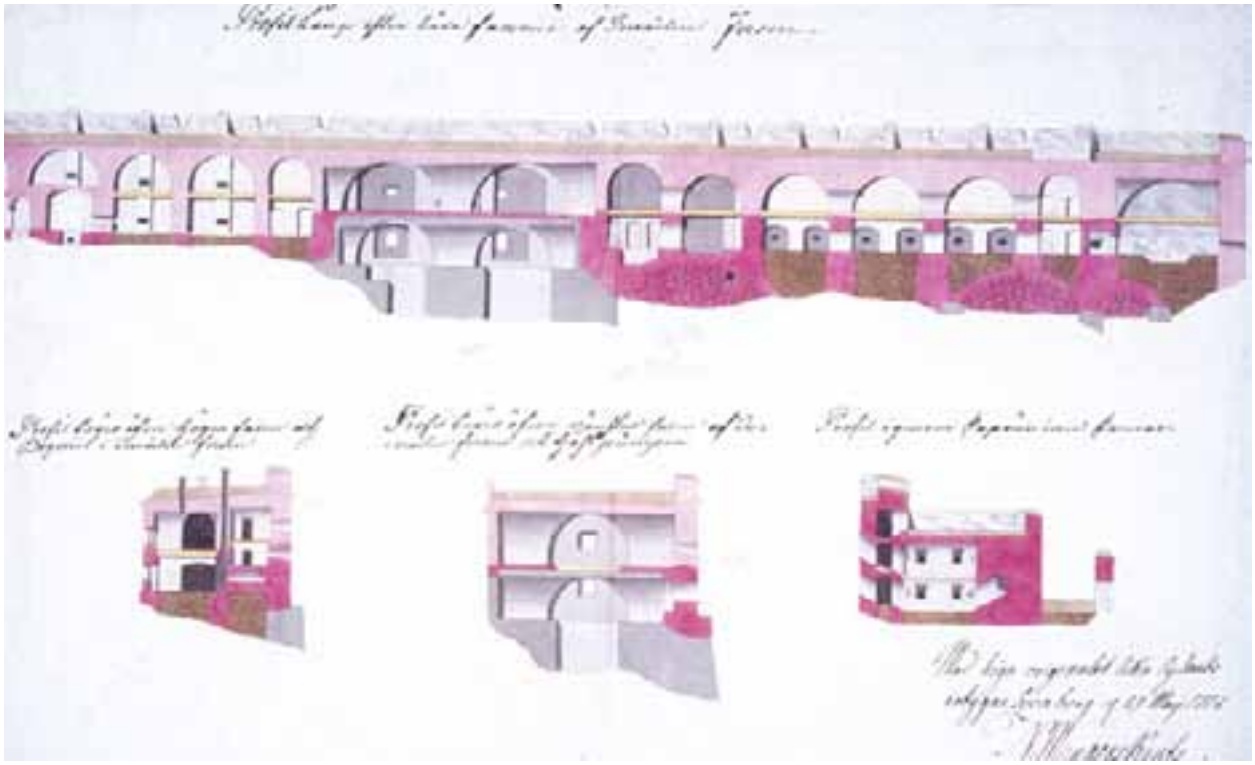
Changing rooms and shower rooms for the sports field, the WCs for the powder magazine and the heating distribution centre were housed in a new building alongside the field, leaving little storage space for the sports field equipment. Although the design and construction aimed to make the building usable for a variety of purposes, this was not achieved. In order to prevent vandalism, the changing rooms can only be accessed by customers who rent the sports field from the City, and the powder magazine WCs are for paying customers only. Public conveniences and a sports hall by the beach (building C 81) were eventually built as separate projects in the 2000s. **TL**



Floor plan.

Building period: 1997–1999
Interior floor area: 440 m²
Net floor area: 260 m²
Developer: Governing Body of Suomenlinna / 1st stage Helena Hökkä, 2nd stage Tuija Lind
Architects: Arkkitehtitoimisto Topi Tuominen Oy architects' office / Topi Tuominen
Structural design: Insinööritoimisto Magnus Malmberg, engineers / Hannu Piirainen
HPAC design: Insinööritoimisto Timo Penttilä Oy, engineers / Jukka Sainio
Electrical design: Konsulttitoimisto J.W. Majurinen Oy, consultants / Timo Meskanen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Main contractor: Suomenlinna labour colony / foremen Pentti Koponen, Juhani Vuorela, Hannu Piironen

B 17c
Tenaille von Fersen



Explanatory drawing from 1776. KrA

History

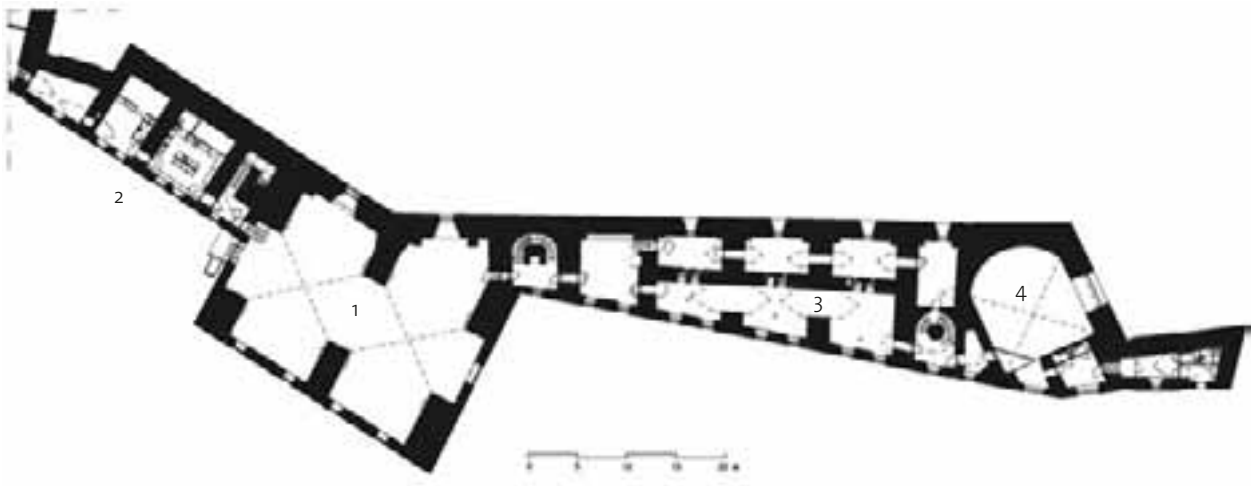
Tenaille von Fersen in the inner ring of Suomenlinna bastions is one of the most valuable buildings on the islands, and its vaulted rooms are among the finest in the fortress.

The oldest part of the building was constructed in the early 1750s, when work on a water storage system to collect rain water from the roofs of the buildings in the Great Courtyard began on the site of the present bakery section.

In 1759, work began on the shipyard pump house to the southwest of the large galley dock. By 1761, two wells had been quarried out for the pump house, connected to the docks via a vaulted underground passage. To empty the docks, there were two horse-powered pumping mechanisms above the wells which conducted the water along a wooden gutter into the passage, and hence into the sea below bastion Seth and the Polhem-Hamilton curtain.

A new phase began in von Fersen's history in 1773 when work started on the master plan drawn up under J.M. Sprengtporten. The water storage (Wattenarsenal) project

Tenaille von Fersen seen from the Great Courtyard. MN



Floor plan of the main hall level: 1 main hall, 2 kitchen, 3 biscuit drying chamber, 4 mill hall.

The main hall can be arranged for concerts, conferences or functions to seat a maximum of 240. The hall has a flexible lighting system thanks to movable free-standing lamps equipped with dimmers. AdlC

was abandoned, and instead work began on a large bakery building south of the galley dock, between the water storage and the pump house. The incomplete water storage building was incorporated into the foundations of the new building. The bakery, mainly completed in 1775, was a two-storey building connected to the pump house, which was also raised to two storeys. On top, there was an open firing platform with parapet. A handsome entrance framed in sandstone was erected at the east end.

The two-storey central part of the tenaille housed the bakery's six large ovens, with a vaulted biscuit drying chamber upstairs, and work spaces. A horse-driven grain mill was built at the east end. At the beginning of the Russian era, the building was still used for its original purpose, but in the 1830s the unheated attic was converted into barracks. However, documentation from 1843 indicates that both the horse-driven pump and the grain mill of the shipyard were damaged and disused at that point. In the Crimean War bombardment, the top floor of the building was damaged so badly that it was demolished, leaving only a low attic under a sheet metal roof. In the 1880s, the pump shafts were earthed up, and the pump house was given an asphalt floor and fitted up as a manège for firing practice.

In 1918, at the beginning of the Finnish period, the building was used to house prisoners. Later uses included a battery-charging plant and store house for the submarine fleet, and even later storage space and workshops used by Valmet Oy.

In 1915, when the mill was converted into an electricity substation, the loopholes were closed up and replaced

Public conveniences were built in the greystone casemates in bastion Seth so that the new structures stand free of the stone vaults. KJ

with big new arched windows. Since then it has been used as storage and work space and to house a transformer station, at which point floor ducts were installed.

In 1964, the building passed into the hands of the Archaeological Commission, which had several of the more recent historical layers demolished so as to reveal the original spatial arrangement. Subsequently the building was a derelict ruin until the end of the 1990s.

General repair principles

Repairs and alterations to tenaille von Fersen began in the 1990s. The main principles followed have been to do only essential work, to preserve the original material, and to use for repairs, etc. only materials that had been used in the past and that do not interfere with the function of the structures or increase their salinity. The additions have been designed so as to be removable. The renovation work has been done in stages, while monitoring the integrity of the building and changes in the structures and observing needs of use.

The solid brick structures have absorbed a lot of salt and moisture because of the building's location, its history of use and structural damage, and its surfaces are badly spalled. The salts in the bricks and the effect of changes in the indoor air have been studied intensively in a laboratory built in tenaille von Fersen. A report on a three-year international 'TvF study', funded by the EU, was published in 2002.

The structures of the 'Wattenarsenal' water storage building, which were used as part of the bakery and mill foundations, still collect seepage water from the surroundings and cause rising damp in the brick structures. A pump was installed in a bore well to remove this water. Replacing the soil would reduce and correct some of the moisture and salt damage in the floor structures, but this could not be done without degrading the building's antiquarian value.

The bakery contains six large baking ovens built for provisioning the Archipelago Fleet. The new floor was made of bricks from a dismantled structure elsewhere and built to the level of the original brick flooring, which had been dismantled in the 1960s. The paintwork on the walls was conserved. JT

Conservator Riitta Karjalainen repairing the bakery walls. HL

Main hall

In the first phase of repairs to tenaille von Fersen in 1998, the former grain store above the pump house was converted into a concert hall and conference and function room for a maximum of 240 people. In the second phase in winter 1999–2000, the auxiliary facilities and industrial kitchen catering to the great hall were built in the residential part of the building to the rear. In the third phase in 2001–2002, hot-water radiators were installed practically throughout.

The central part of the building is a sequence of spaces with antiquarian value, and it would have been impossible to build the auxiliary facilities or the lift, required by regulations, without spoiling the building. The public toilets were built 'outside', in the open earth-floored casemates of bastion Seth, which face the same courtyard and actually housed the privies and kitchens of the troops quartered in tenaille von Fersen in the 19th century. The stone-built barrel vault in the toilets was left untouched. To save space, the lift for disabled visitors was built outside the fabric of the building, in the rear yard, without a separate lift shaft.

The dilapidated vaults of the great hall were cleaned and left without plaster for the time being. This had the effect of retaining the existing ambience of the hall and also allows the changes in the brick surfaces caused by regular use to be monitored. Because the original, badly eroded brick floor of the main hall would not have withstood continuous use, a new floor was built of wooden planks to cover it. All the technical installations (water floor heating, electrical installations, telecommunications and sound system) were made under this floor. The hall has a flexible lighting system thanks to movable free-standing lamps equipped with dimmers. Mechanical ventilation and complicated technical installations were felt to be harmful to the dignity of the building and its quiet atmosphere. The hall has natural ventilation; the blinds installed mainly in the existing apertures are opened and closed according to hygrometer and thermometer readings.
The shape of the hall is problematic as far as the sound system is concerned, but thanks to the damped wooden floor and the uneven surfaces of the vaults, which were left untreated, it has good acoustics. The fire safety of the building was improved for example by installing flame-retardant coatings in the intermediate floors and by building fire compartments. A rapid-reaction smoke detector system based on a sampling system was installed in the hall.

New components replacing old or missing ones, such as doors, are restored old parts or new parts designed in the spirit of the old; however, the components which are completely new are also completely modern. The new fixtures in the hall were designed so as to be removable. The furniture was required to be light and stackable.

The elevations have been repaired in several years. The windows and part of the brick elevation were repaired in summer 1996–1997. The defensive wall, a high stone-built structure damaged by fires, was repaired between 1997 and 2005.

The repairs and conversion have been challenging. Because of problems with the physiology of the building, the new technical installations, the lift, compliance with fire regulations and improvement of fire safety have required exceptional designs, a lot of work and monitoring.

Main hall
Building period: 1998–2002
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki
Architects: Arkkitehtitoimisto Järvinen Kari ja Nieminen Merja, architects (SAFA) / Merja Nieminen
Structural design: Insinööritoimisto Pentinmikko Oy, engineers / Juhani Pentinmikko
HPAC design: Projectus Team / Juha Åberg
Electrical design: Projectus Team / Pertti Vikman
Acoustic design: Insinööritoimisto Akukon Oy, engineers / Henrik Möller
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Conservator: National Board of Antiquities / Päivi Eronen
Main contractor: Rakennusliike R. Muhonen Oy, builders
HPAC contractor: Kouvolan Putkityö Oy
Electrical contractor: ABB Installaatiot Oy Sähkönordström
Regulatory equipment contractor: Kiinteistöautomaatio K & K Oy

A new oil-finished plank floor was laid on the second floor of the bakery, with all the technical systems installed underneath. JT

Mill hall, bakery and biscuit drying chamber

In 2004–2005, the bakery was renovated as an attraction and as interval/exhibition space for the concert hall/great hall. The mill and its auxiliary space were turned into a café, a meeting room and a small theatre.

Originally, a wooden intermediate floor divided the mill space formed by the great cross-vault into two storeys. Now, a new accessway was built to the rear of the second floor in the mill hall, and a small, triangular platform added to mark the location of the original intermediate floor. At the same time, the doorway between the bakery and the mill hall, which had been bricked up for a long time, was reopened.

There were over 30 layers of lime paint on the walls of the bakery and stairways, which were badly damaged and largely blistering off the substrate. However, as it was considered desirable to preserve the atmosphere and general appearance of the bakery in its rather weathered state, the picturesque wall surfaces were conserved and repaired. Peeling paint was reattached using isinglass; broken bricks were replaced, and those whose surface was damaged were patched with lime plaster and retouching paint. The crack in the corner of the cross-vault in the mill hall, caused by rupture of the load-bearing stone vault, was repaired, and the vault was partly plastered over and whitewashed with lime.

The mill hall was renovated for use as the main hall foyer, a meeting room and a small-scale theatre. JT

The original herringbone-pattern brick floor in the bakery had been demolished in the 1960s, and the remaining floor was partly brick subfloor, partly robust stone foundation wall. A new floor was now built to the original level, using bricks from the dismantled attic fire floor in an early 20th-century building, making adjustments to the slope of the old subfloor. The bricks were laid on a sand base on top of the old floor protected with a filter cloth, then sealed with hydraulic pigmented lime mortar. All electrical installations were hidden under the floor.

The main space on the second floor of the bakery had no floor, apart from a temporary walkway carried on the great old beams of the intermediate floor. A new plank floor was now laid down, with all the technical systems installed under it.

The mill hall floor, which comprised various ages and materials, was preserved and renovated. The ceramic tiling of the electrical substation floor, made in 1915, was patched, the old floor ducts were covered with new steel plating, and the concrete sink holes with floor drains under the transformers were filled with special pigmented cast concrete. The old concrete floors in the auxiliary areas were retained. The old floor ducts in the transformer unit floor proved excellent for the new installations.

All the kitchen and WC facilities needing air conditioning and access to water, and those to be used mainly as staff or theatre changing rooms, were built in the areas to the rear of the mill hall. Public toilets are located in the casemates of bastion Seth around the same courtyard.

The facilities in tenaille von Fersen described above have been designed for a degree of use year-round but mainly in the summer, but the bakery is meant only as a tourist attraction. With its ovens and layered painted surfaces, it speaks in a unique way of its original function as a utility building that also formed part of a fortress.

Merja Nieminen

The mill hall, a large cross-vaulted space, was originally divided into two storeys by a wooden intermediate floor. The modern steel-and-glass platform that leads to the rear rooms on the second floor marks the location of the dismantled floor. JT

The small kitchen adjacent to the mill hall was built in an intermediate space that had undergone numerous alterations. The mill hall, kitchen and toilets have mechanical extractor fans, though elsewhere the ventilation is natural. JT

Mill hall, bakery and biscuit drying nook
Building period: 2004–2005
Developer: Governing Body of Suomenlinna / Leena Häkli
Architects: Kari Järvinen and Merja Nieminen, architects SAFA / Merja Nieminen
Structural design: Insinööritoimisto Pentinmikko Oy, engineers / Juhani Pentinmikko
Mortar expert: Tureida / Thorborg von Konow
HPAC design: Projectus Team Oy / Juha Åberg
Electrical design: Projectus Team Oy / Erkki Hakanen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Main contractor: Rakennus Oy Wareco / foreman Mika Sirén
Electrical contractor: Vartiokylän Sähkö Oy
HPAC work: Governing Body of Suomenlinna
Regulatory equipment contractor: Arealtek Oy
Bakery conservation: Governing Body of Suomenlinna / Riitta Karjalainen, Sari Salo-Kiviluoma; Kari Helenius Oy / Tauno Satolainen (brick repairs)

Home

"Our first-born, Hertta, had her name-giving ceremony in the mill hall along the Great Courtyard. In that year, 14 babies were born to families in the fortress. It will be good for her to grow up with other children here. The environment is clean and beautiful, and on a human scale."

Saara Kuusela and Jouko Piilola, Suomenlinna residents

My home is my fortress

Suomenlinna is not only a monument of military architecture included in the UNESCO World Heritage List but also home to 900 permanent residents. When the islands were transferred from the Defence Forces to a civilian administration, it was decided that the fortress would be maintained both as a museum and as a living part of the city.

The current housing renovation project will end in autumn 2010 with the completion of the last stage in building C 54. Maintenance repairs on homes are continuous, principally taking place during tenant changeover. Turnover is highest in the homes rented to Defence Forces personnel, which comprise about one third of the total.

When the 1974 plan for the use of Suomenlinna was drawn up, the public utilities network and amenities in apartments were far from adequate. Housing renovation was thus considered the key objective. The aim of the Governing Body has since been to build and repair homes so that the end result is individual in terms of layout and material choices and respectful of the antiquarian value of the buildings, following the principle that resorting to easy standard solutions would obscure the character of the architecture.

The aim is for buildings suitable for residential use to be renovated primarily for housing. Most of the current resi-

Tending an allotment garden is a beloved hobby for many Suomenlinna residents. Ida Lindström in her garden. YT

Up to 1993, the apartments in bastion Bielke were heated with wood.

In the Russian Merchants' Quarter, wooden houses from various periods blend in a harmonious whole. The new buildings were designed by Arkkitehtitoimisto Kari Järvinen ja Timo Airas, architects. HL

dential buildings were built as barracks or as housing for officers, and some of these quarters were converted into family residences as early as the 19th century. In general, the character and features of buildings have been well preserved in conversion projects. The principle has been not to introduce into an old structure any new materials alien to traditional construction. Any new structures deemed essential have been built using either traditional or new materials on a case-by-case basis, always so that they can be dismantled later without destroying the old underlying structure.

Construction of the district heating network in the early 1980s meant that burning wood for heating could gradually be abandoned. However, the aim is to ensure that every home has at least one functioning chimney flue and fireplace as a backup heating source, though this has not always been possible.

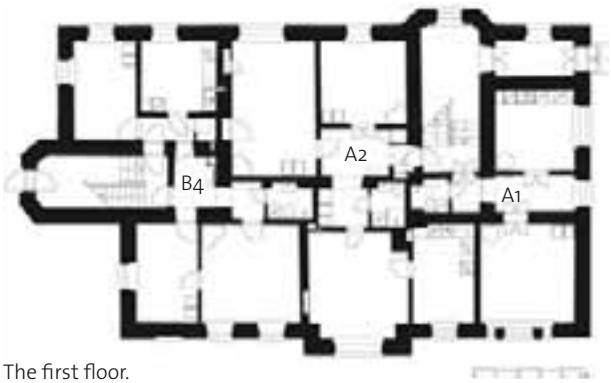
Even as recently as the late 1980s, some of the apartments that had not been renovated did not have running water or drains. Renovation has involved replacement of water mains and sewers, installation of a hot water supply and repair of the natural ventilation system. Homes have been fitted with bathrooms, and the kitchens have been re-equipped and re-fitted. The furniture is produced at the Governing Body's own woodwork shop. The old doors and windows have been repaired and painted with linseed-oil-based paint. Apartments have painted wooden floors and walls covered in traditional wallpaper.

Some two dozen of the homes on Suomenlinna are in privately owned houses. Some moderate condensing of the low-rise areas has been undertaken in accordance with a plan drawn up in the 1980s. The largest complementary building project involved the new housing project in the Russian Merchants' Quarter, built by Helsinki City Housing Production Office in the 1990s.

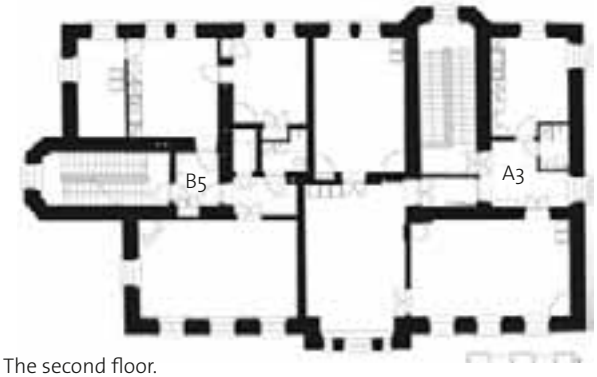
Suomenlinna is generally considered an attractive place to live. It is often described as a small village that happens to be located only a 15-minute ferry ride from the centre of the capital. The proximity of the sea, the natural environment and the historical values of Suomenlinna are also important factors. Today, there are more than 300 fully modernized homes on Suomenlinna, and while vacancies are infrequent, dozens of applications are received for each new tenancy. The housing division responsible for allocating the apartments has managed to maintain a diverse population structure on Suomenlinna, avoiding élitism, over which some concern has been voiced. The aim is to perpetuate this positive trend so that the community remains diverse and viable and the living environment enjoyable and safe. In the future, steps must also be taken to ensure that a growing volume of tourism does not unreasonably hamper the lives of permanent residents. **TK & HL**

The sea is never far away. SW

C 71
Telegraph office building



The first floor.



The second floor.

The elevation in its original guise in the early 20th century. MV

There are many kinds of stoves in the apartments, from simple sheet-metal ones to highly ornate tiled stoves. The photo is from apartment B4. RAm

History

Building C 71 was constructed in 1906–1910 to house Russian officers and the military telegraph office. The upstairs was used as the office manager's apartment. The surroundings were heavily terraced to allow for construction of the adjacent the ice cellar, building C 72.

C 71 was a residential building until the 1930s, when Suomenlinna's kindergarten moved into the upstairs, while the public health nurse's surgery and apartments for the nurse and cook were on the lower floor. These apartments were taken over by a crèche in 1977. Later, the cartouche with date and the ornamental balcony with iron railing were removed from the façade; inside, most of the work done was resurfacing. When the kindergarten moved into renovated facilities in crownwork Ehrensvärd in 1990, the building was used temporarily as a Naval Academy dormitory.

During the repairs and rebuilding in 1993–1995, the building was renamed the Telegraph office building instead of the Nursery. The original cobblestones in the courtyard were uncovered, well-preserved in their Russian-era condition, and the façade of the building was painted with lime paint tinted with green umber according to the façade colour scheme drawn up by Professor Vilhelm Helander for Suomenlinna in 1977. The ice cellar is in the foreground. RAm

An ornamental railing in A staircase. RAm

The ceiling height is 4 m. RAm

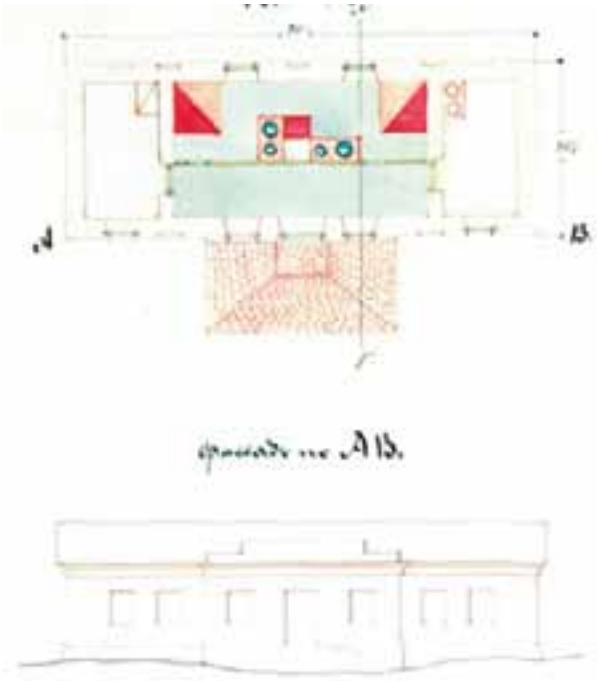
Repairs and rebuilding

Increasing the permanent population was considered an important element in the plan for the use of Suomenlinna. In the early 1990s, as building C 71 was found to be well suited for residential purposes, it was converted into five apartments emulating Jugendstil, the smallest a 42 m² bedsit and the largest a 117 m² three-room apartment.

The building was in good condition apart from the windows. The changes made mainly involved the replacement of light partition walls and relocation of doorways. A new building was constructed in the yard for the heat distribution unit and main power distribution room. The ice cellar, the only one of its kind on Suomenlinna to survive in its original guise, was repaired and used as outdoor storage. **TL**

Building period: 1993–1995
Developer: Governing Body of Suomenlinna / Tuija Lind, Jaakko Antti-Poika
Antiquarian supervision: National Board of Antiquities
Supervisor: Governing Body of Suomenlinna / Kaj Holmberg
Architects: Arkkitehtitoimisto Kaisa Vepsäläinen Ky, architects / Kaisa Vepsäläinen and Mervi Savolainen
Landscape design: Ympäristötoimisto Oy – Miljöbyrån Ab / Camilla Rosengren
Structural design: Rakennusinsinööritoimisto P & T Jauhiainen Oy, construction engineers / Tapio Jauhiainen
HPAC design: Timo Penttilä -yhtiöt / Jukka Sainio
Electrical design: Konsulttitoimisto J.W. Majurinen, consultants / Timo Meskanen
Construction: Suomenlinna labour colony / foreman Hannu Piironen

C 49
Military kitchen



There were originally six symmetrically placed real and false windows in both the long elevations facing east and west; the entrance was in the middle of the east side elevation. MV

The front door of apartment B was built where the original front door had been converted into a window.

History

C 49 was built in 1841 as a military kitchen. In 1868, the building was turned over to a private master baker named Karl Henrikson, but in 1889 it was renovated to accommodate the head of the gendarme detachment. In 1893, a small garden was laid out, surrounded with a picket fence. The room arrangement was changed in 1903, when the head of the telegraph office moved in: the old kitchen was turned into an ordinary room, and an extension was built onto the east end to accommodate a new kitchen. A Jugendstil stone entrance was added to the west front; at one time this had a metal fleche on the ridge of its steeply pitched roof.

In 1918–1919, the building was used by the central office of the prison camp operating on Suomenlinna at that time. In the following decade, the post and telegraph administration transferred the Suomenlinna post office from crownwork Ehrensvärd to C 49. The post office was

The wooden floor of apartment C had been destroyed by furniture beetle and was demolished. RAm

The finished kitchen of apartment C. RAm

Entry to the post office was through an ornamented vestibule. RAm

renovated in 1972, and ten years later the elevations were repaired. Eventually in May 1991, the post office, representing post code Helsinki 19, was closed down.

Conversion into apartments

When the post office closed down, the building passed into the hands of the Governing Body of Suomenlinna, which decided to convert it into apartments. Once the original outside door was reopened, it was possible to form three apartments comprising one room and kitchen, variously 60 m², 60 m² and 68 m² in size.

The kitchens and bathrooms were placed side by side to minimize the structural dismantling needed to accommodate new plumbing installations. The district heating, water piping and sewers, and antenna cabling are routed via building C 52. The inside and outside doors are wooden panel models, some new and some old items taken from storage.

The old shed was demolished and a new one built to house the main electricity distribution unit and cold storage space. Vegetable plots were laid out in the yard, and fruit bushes and apple trees were planted.

Between 2002 and 2007, indoor air problems were recorded in the south side apartment. This problem was addressed by replacing floor structures, improving drainage and the waterproofing of the footing of the building, and enhancing ventilation. **RA**

The new shed. RAm

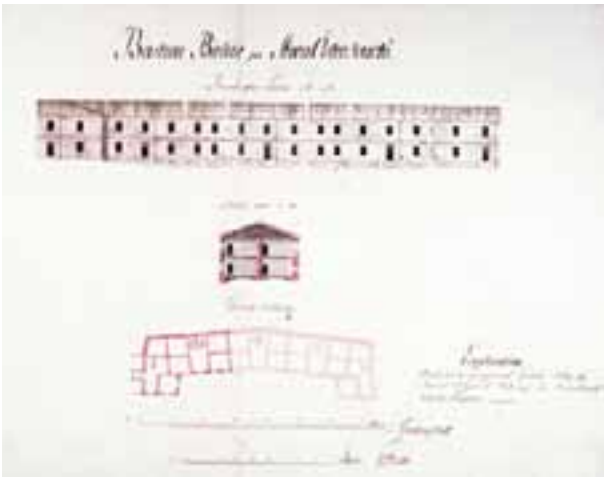
Building period: 1995
Net floor area: 188 m² (residential building)
Gross floor area: 258 m² + shed 42 m²
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki
Architects: Ark-Viapori Oy / Reetta Amper
Structural design: Rakennusinsinööritoimisto P & T Jauhiainen Oy, construction engineers / Tapio Jauhiainen
Electrical design: Konsulttitoimisto J.W. Majurinen, consultants / Timo Meskanen
HPAC design: Insinööritoimisto Matti Hallasaari Oy, engineers / Risto Ikonen
Antiquarian supervision: National Board of Antiquities / Seija Linnanmäki
Construction: Governing Body of Suomenlinna / foreman Erkki Ripatti

C 52
Bastion Bielke and Curtain Building

History

Building C 52 comprises the Kurtiinitalo (Curtain Building) and bastion Bielke and forms part of the north-eastern defences of Suomenlinna. The vaulted basement and the side of the ground floor facing the sea were made of stone, as a defensive wall. Typically of Ehrensvärd, it combines military with residential uses. The corner stoves were along the outside walls.

The brick Curtain Building was constructed in 1756–1762 as a two-storey central corridor barracks for apprentice seamen and officers. Bastion Bielke was built in brick in 1762–1775 as a two-storey extension to the Curtain Building. The left face and flank were constructed to Augustin Ehrensvärd's design and the right face and flank to J.M. Sprengtporten's later plan for barracks with a core wall.



Plan drawing of bastion Bielke from 1773. KrA

Bastion Bielke lines the eastern side of the parade ground on Iso Mustasaari island. The photo shows a scene for the film *Anna Karenina* being shot in spring 2000.

The occupants were civilian officials working at the fortress and NCOs.

In the Russian era, the entire building was given a third floor. The loopholes in the Curtain Building wall were converted into windows, and a 'privy tower' was added at the north end. Bastion Bielke was equipped with new staircases and accommodation. After the Crimean War, the Commandant moved into a fine 16-room apartment on the first and second floors which had an imposing grand staircase with balustrade (staircase F). There was also a garden on the shore side with a gazebo.

In the second half of the 19th century, there was a Catholic church on the ground floor and a Lutheran church on the top floor at the south end of Bielke. The elevations were clad in brick up to the end of the Russian era, after which the yard elevation was rendered all over, while the defensive wall side was only partly rendered.

During the Finnish Army's occupancy of Suomenlinna, the building held the Commandant's apartment and offices and a test firing establishment. It continues to house Defence Forces personnel though now administered by the Governing Body of Suomenlinna.

Apartment repairs

Residential building C 52 was renovated in six stages between 1993 and 1998. It was the last large residential building on Suomenlinna to still have stove heating. The building was connected to the district heating system at two of the aforementioned stages while retaining the old stoves, though most of them cannot be used because of the poor condition of the chimney flues. However, at least one stove in each apartment was put into working order. The hot water system was built into the attic. The biggest apartments were given separate WCs.

The building now has 48 apartments on six staircases. Apartment sizes vary from a 30 m² bedsit to a 141 m² apartment with four rooms and kitchen. The renovation project preserved the apartment division largely unchanged. **LH & RA**

The new kitchen fittings. LH

Some of the floors in the apartments are made of varnished or painted planking; some, as here, are covered with linoleum. LH

Building period: 1993–1998
Net floor area: 2,436 m²
Developer: Governing Body of Suomenlinna / Eeva-Liisa Rautalahti, Leena Häkli
Architects: Arkkitehtitoimisto Järvinen-Airas, architects / Timo Airas
Structural design: Insinööritoimisto Sormunen-Uuttu, engineers / Markku Mikkola
HPAC design: Insinööritoimisto Matti Hallasaari Oy, engineers / Matti Hallasaari
Electrical design: Konsultointi J.W. Majurinen, consultants / Timo Meskanen
Antiquarian supervision: National Board of Antiquities / Seija Linnanmäki
Main contractors: Governing Body of Suomenlinna / foreman Antti Mykrä; Rakennus-Paltila Oy / Pekka Paltila; Uudenmaan Mestarirakentajat Oy / Tero Jacksén, Jari Tiusanen
HPAC contractors: Kouvolan putkityö Oy, Hämeen Plumbing Oy, Hanatek Oy
Electrical contractors: ABB-Installaatiot Oy, Amplit Oy, E A Elektroasennus Oy

Staircases: history and repairs

When a third storey was added to building C 52, the Swedish-era staircases D and E were moved from the defensive wall side to their present location on the parade ground side. In 1897, the privy tower built at the end of the Curtain House was converted into staircase A. The Russian-era staircase E was completely rebuilt after 1911 and divided into two staircases. The first two floors of staircases B and C and the grand staircase F are preserved in their Swedish-era layout. When the third floor was renovated in the early years of Finnish independence, it was linked to staircase F with wooden stairs.

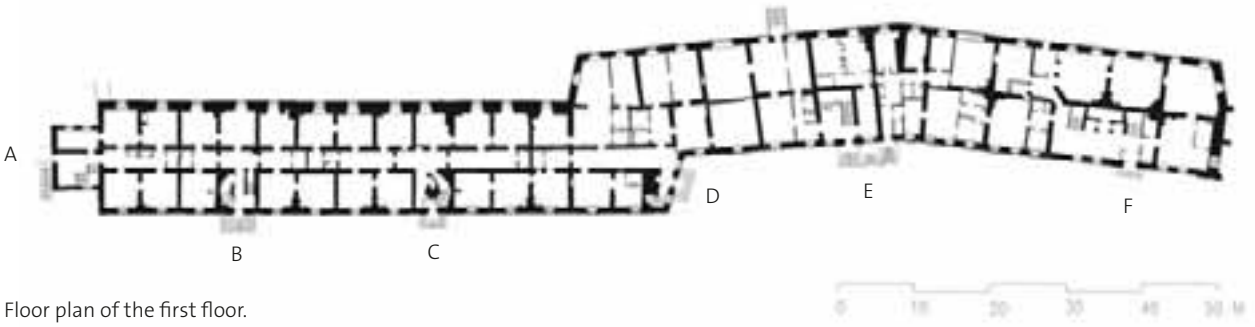
The six staircases were repaired in several stages while the apartments were being repaired between 1995 and 1998. The stairwells were originally painted with lime paint, but in 20th-century renovations five of them had been painted using alkyd and latex paints. Only the walls of staircase B had been spared this modern surface treatment.

The differences in the history, characteristics and surface conditions of the staircases required different reconditioning approaches. The stairwell walls had excessive paint layers which were peeling and had to be removed, but it was deemed desirable to preserve the rich colour scheme history under the new surface treatment. All of the lower paint layers were examined, and new surface treatments were carried out with materials compatible with the older ones. The traditional paint-outlined dado was restored on the wall surfaces that had been painted over in a single colour in the 1970s.

Staircase A

Built in the late 19th century, staircase A has cap vaults built on railway rails supporting the half-landings and rails supporting the concrete flights. The walls, painted with organic-based paint, were flaking badly and were thus cleaned and primed for a new surface treatment. The colour chosen for the lower part of the walls matched the oldest colour scheme of the staircase: pink, with red and white splashes. The doors had been replaced with flush doors at some point, and these were in turn replaced with doors panelled to reflect the shape of the original high and narrow double doors.

The colour chosen for the lower part of the walls matched the oldest colour scheme of the staircase: pink, with red and white splashes. MN



Floor plan of the first floor.

In staircase C, the vaults are whitewashed, and the dado is painted with a grey oil-based paint with a red painted outline. MN

Staircase C

No fewer than 24 layers of paint were found on the walls of staircase C, a handsome vaulted structure dating from the Swedish era. The three latest layers were latex, oil-based and alkyd paints. The harder modern paints were removed from the vaults and the upper parts of the walls, where they came off in large sheets. The vaults were whitewashed, while the lower parts of the walls were treated with oil-based paint laid over the reconditioned earlier layers. The colour scheme adopted was that which appeared in a number of variations in the earlier paint layers: grey dado, red line and yellowish-white upper part. The flush doors of the apartments were replaced with late 19th-century panelled doors found in storage.

Staircase D

The walls and ceilings of the Russian-era staircase D, mainly painted with lime paint and distemper, were repainted using the same materials. The high dados, painted with an oil-based paint and patched up, were painted with a matt tempera paint darkened with lamp black, colour examinations having indicated that this had been used in several of the underlying layers. The patinated wood floor in the topmost apartment corridor was left untreated. The doors, dating from various periods, were painted and glazed using oil-based paint tinted with ochre and unburnt terra.

Staircase E

Prior to the repairs, this Jugendstil staircase, built in a new location in the early years of the 20th century, and the austere foyer occupying the space of the dismantled staircase had been given a uniform coat of blue-grey alkyd paint. In the repairs, the hard and fragmented paint layers were removed, and the heavily patched surfaces were completely repainted. An intensive ultramarine colour was chosen for the upper part of the walls, while a dado tinted with caput mortum was created for the lower part; the colour specimen came from colour fragments from an earlier date, discovered at the location of the dismantled staircase. The decorative Jugendstil railing from the same date as the present staircase was reconditioned, and the ceramic tile floor and cement mosaic steps were repaired.

The strong colour scheme in staircase D is based on Russian-era colours discovered in the surface layer examination. MN

The grand staircase in staircase F led to the residence of the Commandant of Viapori. MN

Staircase F

The Swedish-era staircase F is in its original location and differs from the other staircases in its spatial structure. The stairwell is dominated by a handsome grand staircase with an Empire-style balustrade. In its day this led to the luxurious apartment of the harbour commander and, after the Crimean War, the Commandant of Viapori.

Colour examinations have revealed fragments of the original Swedish-era paintwork on the walls, a grey-tinted pattern imitating masonry. The surfaces were painted over with tempera. The grey dado and the yellowish white upper part were splashed using two colours in the same manner as the Swedish-era masonry-imitation paintwork. The paintwork on the walls preceding the repairs also had large splashes on it, emulating the original design. The top edge of the dado was positioned at the Empire-style level to match the balustrade.

The wood flooring on the main floor was painted and glazed using an Empire-style yellow ochre shade. The worn wood floor in the grand foyer was covered with linoleum similar to that used in the early years of the 20th century. A fragment of the very early linoleum tile flooring is preserved beside the staircase.

The delicate plaster decorations on the pillars in the foyer, dating from the 1910s, were cleaned and thinly coated. The wood-stained 1930s doors on the third floor were reconditioned. The wooden staircase leading to the third floor and its walls were repainted following their earlier colouring and design.

Staircase B still has a Russian-era feel to it. MN

A flight of steps in staircase B before and after conservation; the aim was to preserve the staircase as it was while 'refreshing' it. MN, AdlC

Staircase B conservation

Built during the Swedish era, staircase B is today almost wholly in its Russian-era guise, complete with late 19th-century railings and privy. The historical layering – partly visible worn paint layers, doors of different ages and appearances, the worn lathed railing, the old privies and the graffiti and scratchings – bring a strong sense of time to the space. The worn surfaces emphasize the plasticity of the architecture and the massive material feel of the walls.

The present colour scheme of the staircase dates from the 20th century: dates in the graffiti on the walls indicate that the most recent layer of lime paint was painted in the 1940s at the latest. In a colour examination, 29 layers of lime paint were found on the walls. The oldest of these date back to the Swedish era, though the majority are from the Russian era. Some of these layers are covered by a mid-19th-century layer of plaster.

The aim in the conservation was to preserve the impression of wear and tear and of historical layering yet make the space more coherent. Only places which were fragmented or flaking on the walls and ceiling were patched up, and the surfaces of the stairwell were conserved. A test spot was first treated to test for suitable methods and materials. Conservator Anne Räsänen dry-cleaned the surfaces, patched and reconditioned the damaged plaster, conserved the paint layers and filled in the fragmented sections using lime water tinted to match the surrounding wall surface.

The flush and panelled doors of various ages in the staircase were reconditioned, with all their various fillets and fittings. The window sills almost worn down to the wood, the wood door to the cellar and the steel door to the attic with its graffiti were left unpainted. An original limestone floor was found underneath newish floorboards in the downstairs apartment corridor, complementing the other limestone floors in the staircase.

Merja Nieminen

There are 29 layers of paint on the walls of staircase B, going back over 200 years. MN

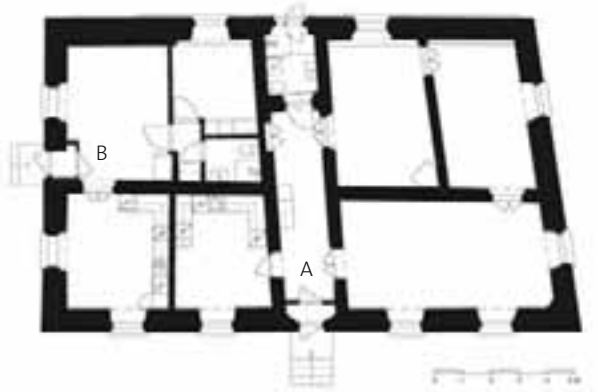
Building period: 1995–1998
Developer: Governing Body of Suomenlinna / Leena Häkli, Eeva-Liisa Rautalahti (staircase F)
Colour examinations: Staircase F: Merike Tiainen; staircases D and E: Tiina Sonninen; staircases A, B and C: Anne Räsänen
Architects: Kari Järvinen and Merja Nieminen, architects SAFA / Merja Nieminen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Paintwork contractors: Staircase F: Governing Body of Suomenlinna / foreman Antti Mykrä; staircases E and D: Vilen & Syrjänen / foreman Tomi Oksanen; staircases A and C: A. Niemisen maalausliike Oy / foreman Jari Tiusanen; conservation of staircase B: Consernova Oy / conservator Anne Räsänen

B 41
Bastion Palmstierna stable

History

In 1770, a stable was built in the courtyard of bastion Palmstierna, part of the inner ring of Susisaari island defences. In 1843, this was converted into accommodation for senior officers from the Russian engineering detachment. At that point, the little window openings were enlarged, but the room division remained unchanged. The wooden parts of the building burned down in the Crimean War bombardment in 1855, and during repairs a protective roof three timbers thick and reinforced with earth was added.

At the end of the 19th century, the building was converted into a one-family house, major repairs and conversion work were carried out, and a main entrance was built in the northeast elevation.



Floor plan.

The motley brick elevations reflect a multitude of alterations and repairs. HL

Conversion of the stable for residential use in the 1840s. MV

More recently, the building has been used as accommodation and offices. It was renovated after the National Board of Antiquities archives left the building in 1994.

Conversion into two apartments

Since the other buildings in the courtyard of Palmstierna were already in residential use, the former stable was well suited for a conversion into two apartments. At the preliminary planning stage, using the attic to provide more living space was considered, but this idea was abandoned because it would have required major structural alterations. The outside windows were replaced in the old style, and the inside windows, skylights and wooden doors were renovated. **HL**

Building period: 1996–1997
Gross floor area: 207 m²
Net floor area: 141.5 m²
Apartments: 94 m² and 47.5 m²
Developer: Governing Body of Suomenlinna / Jaakko Antti-Poika
Architects: Ark-Viapori Oy / Steinunn Guðmundsdóttir
Structural design: Insinööritoimisto Pentinmikko Oy, engineers / Juhani Pentinmikko
Electrical design: Insinööritoimisto Jikkon Oy, engineers / Juhani Ikonen
HPAC design: Timo Penttilä group / Jukka Sainio
Antiquarian supervision: National Board of Antiquities / Anne Mäkinen
Construction: Suomenlinna labour colony / foreman Hannu Piironen

A bathroom. MK

The kitchen of the smaller apartment. MK

The sitting room of the smaller apartment. MK

B 17a
Bastion Seth

History

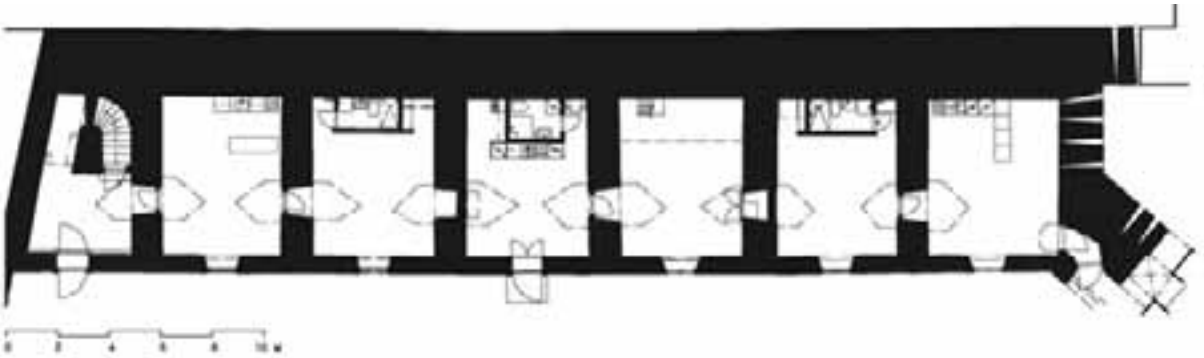
Bastion Seth dates back to the oldest stage of the fortress's construction, its left face and flank being almost fully built in 1750–1753. The same period saw construction of the Seth-Ekeblad curtain wall and the Thunberg windmill in the bastion courtyard, but these were later demolished. The right face (B17a) was left half-finished.

The structure of the whole bastion was altered in the 1770s in a new, architecturally ambitious fortress plan by J.M. Sprengtporten. This proposed the construction of a demi-bastion called Hjärne to replace Seth's right face and of a tenaille called von Fersen as an extension to the bastion's right flank. The whole chain of fortifications was roofed over.

Seth took on its present form in the repairs after the Crimean War bombardment, which destroyed the left face and flank. These were left in their ruined state. Seth and demi-bastion Hjärne were used as a prison from the 1820s onwards. Towards the end of the same century, however, Seth was converted into accommodation. The chain of fortifications functioned as a Red prison camp for a short while after the Civil War.

In the 1960s, the casemates in bastion Seth were converted into three apartments to plans by Osmo Mikkonen. The six vaulted casemates of equal size were provided with a floor built straight onto the ground, with a duct for the necessary piping. The bastion's left face and flank were roofed over in 1988.

The apartments are oriented towards the sheltered courtyard to the east. Because of its remote and quiet location, the area is known as the 'City of the Dead'. EJ



Floor plan. All the doors and windows in these apartments are in the courtyard side elevation.

A kitchen.

Although there are not many windows, the vaulted rooms are well lit due to their light-coloured surfaces. PM

Renovation

As they lacked modern amenities and had poor ventilation, the apartments in bastion Seth were renovated in three stages in 1996–1997.

The new plans aimed to minimize any structural additions and preserve the fine vaulting as far as possible, using loose fittings instead. New fresh-air ventilators were installed in the front wall, the old stove flues being enlarged to act as exit air ducts. The heating was improved by installing additional radiators and under-floor heating in the bathrooms. The vaults were painted in tempera, and the existing varnished floors were repainted with linseed varnish.

Indoor air measurements were conducted in the apartments in autumn 2005, and damage from damp was noted in the floors. The repairs were set up as a test case for electrical solutions. Duct fan ventilation was installed into the flooring of apartment 1, and a self-governing heating cable was installed under the tiled floor in the front hall. A drying system based on electro-osmosis was installed on the outside wall of apartments 2 and 3. Humidity in the structures continues to be monitored regularly. **PM**

Building period: 1996–1997 and 2006–2008
Gross floor area: 400 m², 3 apartments each 52–67 m²
Developer: Governing Body of Suomenlinna / Leena Häkli, Petri Mikonsaari
Architects: Governing Body of Suomenlinna / Jouko Piilola, Leena Häkli
Structural design: Insinööritoimisto Oy Matti Ollila & Co, engineers / Eero Kotkas
HPAC design: Insinööritoimisto Akvedukti Oy, engineers / Markku Kallio
Electrical design: Insinööritoimisto Jikkon Oy, engineers / Juhani Ikonen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Construction: Governing Body of Suomenlinna / foreman Kari Takala
Drying system: Oy OSM-Finland Ltd

E 3, E 4 and E 5
Länsi-Mustasaari island barracks

History

If the fortification plan devised by Ehrensvärd for Länsi-Mustasaari island in the mid-18th century had been realized, the result would have been a truly massive supply centre including a bakery, a brewery, a horse-powered mill, ample storage space and barracks, and also a hospital and a church, all grouped around a sequence of four quadrangular courtyards. However, only a fraction of the plan was built in the early 1760s, comprising a group of three three-storey barracks buildings (E 3, E 4 and E 5) and a separate bakery building (E 12).

The rectangular barracks buildings E 3 and E 5 that line the 'barracks yard' on the south and north sides are practically identical. They originally had four stairwells and entrances on both the north and south flanks, with the large barracks dormitories arranged symmetrically on both sides.

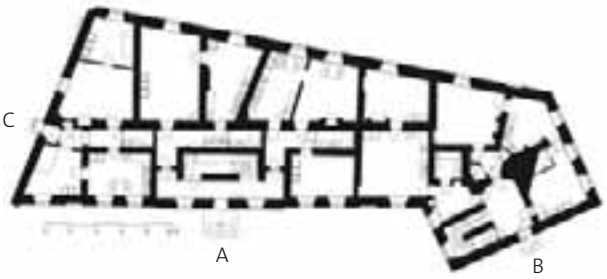
The asymmetrical E 4, completed in 1761, was a building housing officers' quarters that closed the west side of the 'barracks yard'. Its south end was meant to connect up with the building complex round the 'hospital yard'. It had three storeys and two staircases. One was on the south side of the northern end and the other in the middle of the east front, marked by a slight projection. The building had rectangular windows on the first and second floors but slightly arched ones on the top floor.

In 1776, there was a plan for a mansard roof for all three buildings, but this was never carried out; instead, they gradually deteriorated under temporary roofing up to 1798, when they were re-roofed. At this point, the dilapidated brickwork on the outside walls was also repaired. No mention of plasterwork on the elevations can be found until 1815.

In the Russian era, buildings E 3 and E 5 remained barracks for the rank-and-file. In the 1860s, the windows and outside doors were replaced, and the staircases exiting outside the barracks quadrangle were dismantled and replaced by large dining halls. A kitchen was built on the ground floor at the east end of each building. In the Russian era, building E 4 accommodated both married and unmarried officers from various units.

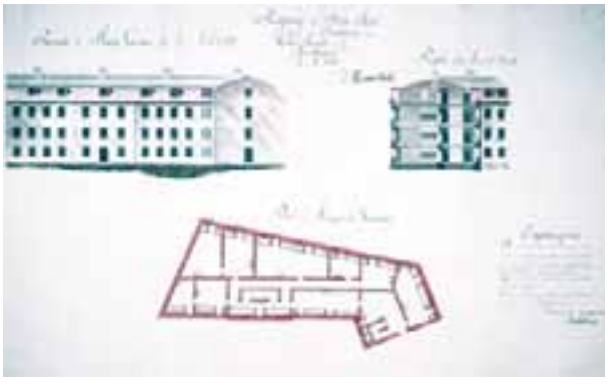
In 1918, the buildings were used as prisons, and afterwards were taken over by the Finnish Defence Forces as barracks. When shipbuilding on Suomenlinna picked up after the Second World War, the buildings on Länsi-Mustasaari island were converted into accommodation for shipyard workers to plans by Heikki Sysimetsä. When

Floor plan of the first floor in building E 3.



Floor plan of the first floor in building E 4.

Floor plan of the first floor in building E 5.

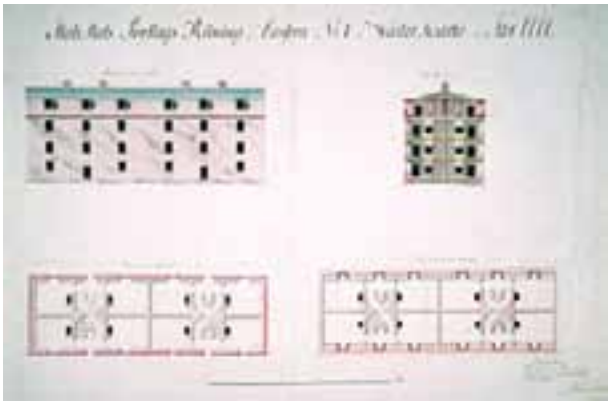

Drawing of the officers' pavilion (E 4) from 1776. KrA

Valmet moved away from Suomenlinna in 1985, the buildings passed into the hands of the Governing Body of Suomenlinna for renting out.

Repairs

The renovation of the buildings around the 'barracks yard' began with building E 5, which was repaired in six stages between 1995 and 1998. The next were buildings E 3 (1998–2000) and E 4 (2000–2002), both of which were repaired one staircase at a time, in two stages.

The building services dated from the last thorough renovation in the 1940s, and accordingly were replaced. In order to create more apartments suitable for families, the



Troop barracks (E 5) in a drawing from 1777. KrA

New lower cupboards were installed to complement the old, reconditioned kitchen fittings. Building E 3. SW

An open-plan kitchen in building E 3. SW

The built-in closets in building E 4 were retained. AdlC

Länsi-Mustasaari island: buildings E 3, E 4 and E 5 to the right and building E 12 to the left. SIk

room layouts were simplified and apartments combined by opening up old bricked-up doorways and dismantling wooden partition walls built in the 1940s. The brick frames of the buildings were left unaltered. Apartment sizes vary from a 30 m² bedsit to a 100 m² apartment with four rooms and kitchen. Storage for each apartment and shared laundry drying rooms are located in the unheated attics.

The surviving tiled stoves in building E 4 were repaired and made operational. The conservators conducted colour examinations in the apartments and in the stairwells. In one of the apartments, old border ornamentation was found on the wall and touched up.

In the mid-1990s, the elevations of the buildings were painted using lime paint pigmented with yellow and gold ochre to give it the original light yellow shade. **LH**

The bathrooms in the apartments at the ends of building E 3 command a view of the allotment gardens and earthworks. SW

Building period: 1995–2002
Net floor area: 2,686 m²
Apartments: 43
Developer: Governing Body of Suomenlinna / Eeva-Liisa Rautalahti (E 5 A), Leena Häkli (E 5 B, E 3), Steinunn Guðmundsdóttir (E 4)
Architects: Governing Body of Suomenlinna / Steinunn Guðmundsdóttir (E 5 B, E 3 A, E 4), Leena Häkli (E 5 A), Päivi Pennanen (E 3 B)
Structural design: Rakennusinsinööritoimisto P & T Jauhiainen Oy, construction engineers / Tapio Jauhiainen
HPAC design: Akvedukti Oy / Markku Kallio
Electrical design: Akvedukti Oy / Juhani Mäntylä
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Builder: Governing Body of Suomenlinna / foreman Erkki Ripatti
HPAC work: Governing Body of Suomenlinna, Vesijohtoliike Klaus Ahonen
Electrical work: Governing Body of Suomenlinna
Paintwork: Governing Body of Suomenlinna, Maalityö Apollo Oy

The ‘barracks yard’ seen from Pikku Mustasaari island. MP

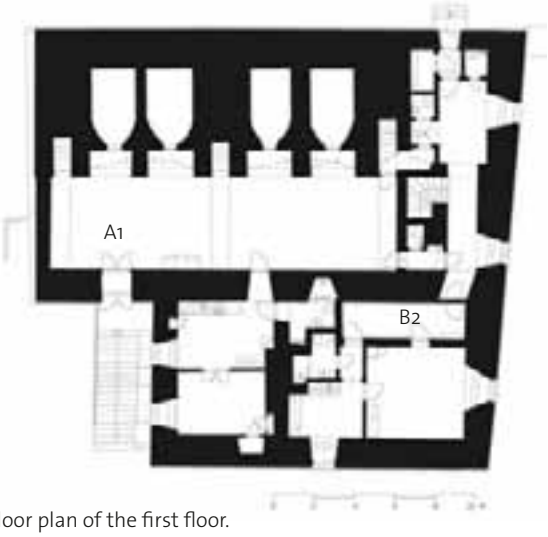
E 12
Bakery

History

The building was to have been part of a planned services centre for the fortress comprising a bakery, brewery and distillery. About a third of the bakery was completed in 1762 to form what is now building E 12.

The ground floor comprised the bakery kitchen, with four large ovens and two drying rooms above. The basement held storage space, the second floor had accommodation, and the third had both accommodation and a grain store accessed via a wooden loading bridge on the west side. The roof and all the windows were damaged in the Crimean War bombardment in 1855. Soon thereafter, extensive alterations were made; for example, the windows were enlarged, and the door in the south wall was turned into a large arched window. After the repairs in the 1880s, the building was mainly in residential use.

When Suomenlinna was a prison camp in 1918-1919, E 12 was used to house Finnish and German troops, the Prison District II office and a machine-gun guard post. Later, it was used as Defence Forces barracks and in 1949–1951 was converted into Valmet Oy staff housing to plans by architect Heikki Sysimetsä. The big bakery was turned into a residents' clubroom.



Floor plan of the first floor.

The Russian conversion plan. UUb

The ceilings of the lower floors are brick-vaulted, those of the upper floors wooden. RAm

Renovation

The renovation of the Bakery, E 12, completed in 2003, was the last of the renovations on the brick buildings on Länsi-Mustasaari island. The rendered and lime-painted elevations had been reconditioned in 1992.

In the renovation, small apartments on the second and third floors built for Valmet staff were combined to make larger ones. The apartment size now varies from a 22 m² bedsit to a 98.5 m² apartment with three rooms and kitchen. The bakery, which had been used temporarily as a clubroom and gym, was converted into a workroom/ apartment (142.5 m²), with access from both the staircase

The elegant sitting room in the old bakery. HL

and outdoors along the steep outside steps at the east corner of the building. One of the former biscuit drying chambers was also turned into a 27 m² workroom with its own entrance. The surviving old tiled stoves were reconditioned, and new brick stoves were built in some of the apartments, then plastered and whitewashed. Unfortunately, the old baking ovens could not be reconditioned into functioning fireplaces. The floor planking in the large bakery hall was given a dark brown pigment stain glaze.

Various recesses in the thick stone walls were turned into storage cupboards or even a complete WC or shower room.

The 1950s appearance of the staircase was preserved. The walls and ceilings were painted, and the concrete mosaic steps and floor were cleaned. The basement and attic floor hold storage space, and the attic also has a laundry drying area for residents. **PM**

The open-plan kitchen in an upstairs apartment. RAm

Building period: 2002–2003
Net floor area: 613 m²
Gross floor area: 1,574 m²
Developer: Governing Body of Suomenlinna
Architects: Governing Body of Suomenlinna / Steinunn Guðmundsdóttir
Structural design: Insinööritoimisto R J Heiskanen Oy, engineers
HPAC design: Insinööritoimisto Matti Hallasaari Oy, engineers
Electrical design: Insinööritoimisto Suunnittelukaari Oy, engineers
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Builder: Governing Body of Suomenlinna / foreman Erkki Ripatti
HPAC work: Kouvolan Putkityö Oy
Paintwork: Maalausliike Vilen & Syrjänen Oy

A 5a
Bastion Carpelan

Bastion Carpelan forms part of the Kustaanmiekka fortification system. LH

History

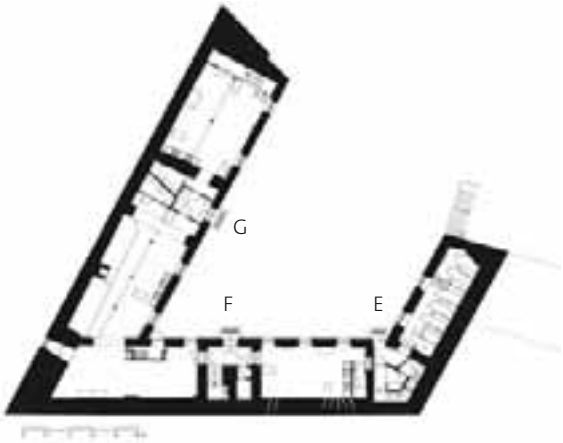
Bastion Carpelan is one of the oldest buildings on Suomenlinna, as initial work on the greystone bastion, built as a defensive wall, began in the first year following the fortress's foundation, 1748. It acquired a second storey some twenty years later when brick-built accommodation for officers was constructed on top of the bastion part. During the Russian era in the 19th century, it housed the Commandant's library, a bread store, apartments and cobbler's and tailor's workshops. In the Crimean War bombardment in 1855, the roof caught fire, and the following year the building was given a new sheet metal roof. The guns now guarding the east flank of the building are part of the Military Museum collection. For the last fifty years, bastion Carpelan housed the Armfelt Museum of the National Board of Antiquities.

Conversion into apartments

When the Armfelt Museum closed down, the building was temporarily leased to four artists as accommodation and studio space. This community proved such a success that it prompted plans for a more permanent arrangement, and six 41.5 m^2 to 171 m^2 apartments in Carpelan were designed as studio homes for artists and craftspeople.

The entrance is on the sheltered, south-facing side of the courtyard. The sharp angles that are an essential feature of bastion construction give the interiors their distinct character. The upper rooms are nearly four metres high, while the downstairs rooms are lower. The arches that now divide the spaces were uncovered when the partition walls of the Armfelt Museum were removed. The architects did not want to break up the building's large salon-like rooms with partition walls, so moveable elements are used as space dividers instead.

The second floor.



The first floor.

The ground floor has old concrete floors, patched in places. On the upper floor, two apartments have parquet from the Armfelt Museum period, and in two other apartments the old well-worn wood flooring has been preserved, with all its cracks and unevenness. **LH**

A thick defensive wall surrounds the ground floor of the bastion. The old surface layers on the wall behind the reconditioned stove have been conserved. AdlC

The floors in the downstairs apartments are of worn concrete that has been smoothed and waxed. AdlC

The laminate-surfaced kitchen fittings were commissioned to the architect's design. The cold storage appliances and dishwasher are hidden behind integrated doors. A movable cupboard was added to the fixed steel-frame unit. AdlC

Building period: 2002
Gross floor area: 991 m²
Developer: Governing Body of Suomenlinna / Leena Häkli
Architects: Arkkitehtitoimisto P & P Manner Oy, architects / Pekka and Bitumi Manner
Structural design: Insinööritoimisto Pentinmikko Oy, engineers / Juhani Pentinmikko
HPAC design: Insinööritoimisto Akvedukti Oy, engineers / Markku Kallio
Electrical design: Insinööritoimisto Jikkon Oy, engineers / Juhani Ikonen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Main contractor: Rakennusliike Aaltola & Haapsaari Oy, builders / foreman Vesa Mustakangas
HPAC contractor: Kouvolan Putkityö Oy
Electrical contractor: Sähkö-Paganus Oy
Paintwork contractor: Maalityö Apollo Oy
Furniture contractor: Koralli-Tuote Oy
Regulatory equipment contractor: Arealtec Oy

C 58
Non-commissioned officers' building

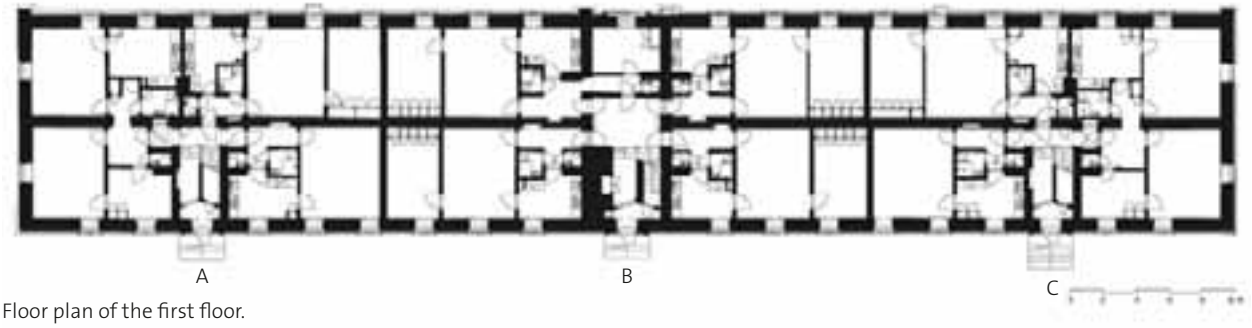
History

The two-storey building C 58 was built in 1877 as a food store. It originally had only one staircase, with four large asphalt-floored storerooms on both sides and both floors. The elevations were fair-faced brick. In 1892, a canopy carried on pillars was built in front, with a cobbled floor.

The building was used for storage up to 1920, when its interiors were destroyed in a fire that also burned down two adjacent boatsheds and building C 57. In 1931–1932, it was converted into accommodation for non-commissioned officers, with three staircases and 26 apartments. The intermediate floors were laid on concrete beams, and central heating, WCs and mains water and drains were also installed. In the late 1980s, communal showers and a sauna were built in the basement.

Plan from the 1890s. MV

The non-commissioned officers' building is on the eastern shore of Iso Mustasaari island. Boatsheds in the foreground, bastion Bielke and Suomenlinna Church in the background. HL



Floor plan of the first floor.

Renovation

The building was repaired one staircase at a time between 2002 and 2005. The small single-room apartments on both floors of staircase B were combined with the adjacent two-room apartments, and the apartments with one room and kitchen at the ends of the building were combined to form apartments with three rooms and kitchen. This reduced the number of apartments from 26 to 20. Storage units for each apartment and a laundry drying room were built in the attic. The building continues to house Defence Forces staff.

A fire broke out in the non-commissioned officers' building in 1920. The boatsheds on the right were not damaged in the fire. MV

Building period: 2002–2005
Net floor area: 1,345 m²
Developer: Governing Body of Suomenlinna / Leena Häkli
Architects: Kari Järvinen and Merja Nieminen, architects SAFA / Kari Järvinen
Structural design: Rakennusinsinööritoimisto P & T Jauhiainen Oy / Tapio Jauhiainen
HPAC design: Insinööritoimisto Akvedukti Oy, engineers / Markku Kallio
Electrical design: Insinööritoimisto Suunnittelukaari Oy, engineers / Klaus Korpela
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Builders: Rakennus Oy Paanurakenne / Kimmo Hietanen (staircase B); Governing Body of Suomenlinna / Erkki Ripatti (staircases A and C)
HPAC work: Kouvolan putkityö Oy (staircase B), Vesijohtoliike Klaus Ahonen Oy (staircases A and C)
Electrical contractors: Sähkö-Paganus Oy (staircase B), Governing Body of Suomenlinna (staircases A and C)
Automation contractor: Arealtec Oy
Paintwork contractor: Maalityö Apollo Oy

The concrete floor slab structure built in the 1930s exposed during the repairs.

The 1930s feel of the apartments was preserved. LH

The new kitchen fittings were made of blockboard. LH

E 11
Military courthouse

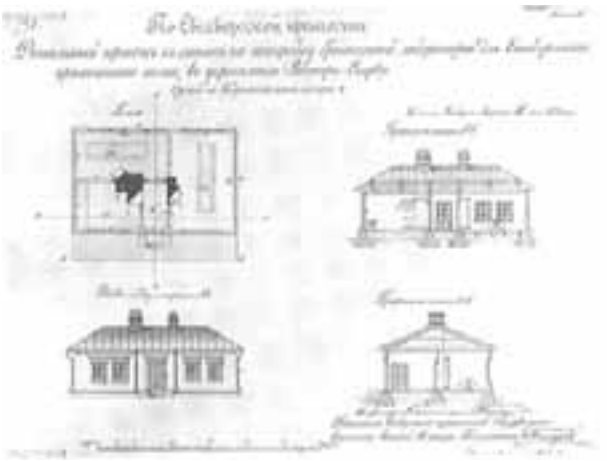
Building E 11 seen from the shore. HL

History

E 11 was constructed in 1875 for the fortress regiment as a rifle cartridge production laboratory. Though a stone building was initially projected, it was actually built of logs. In the early 1880s, the fortress battalion's military court operated there, for which purpose it was given a courtroom, meeting room, witnesses' room and lobby. In 1885, the building was completely renovated, and a new door was opened up between the courtroom and chambers. In the late 1890s, it held a pharmacy and the fortress battalion barber-surgeon's consulting and waiting rooms. Before the First World War, the building was converted into accommodation.

When Suomenlinna was a prisoner-of-war camp in 1918–1919, building E 11 was used as barracks for German troops and civilian guards, and later during the Finnish era once again as a residential building.

By 1931, it had been divided into two apartments, reached via a shared hallway. In 1951 these were given separate outside entrances. The building was also connected to mains water and sewerage, and indoor WCs and hot-water radiators were installed.



Original plan from the 1870s. MV

Renovation

In the renovation in 2004, the two apartments were combined to form a single apartment with four rooms and kitchen. The aim was to retain clear room spaces where the materials and details of the building's historical layers would be visible. The lowest timbers in the outside walls

The lowest timbers in the outside walls were replaced. KH

The old foundation wall was repaired by putting displaced stones back in place. The photo also shows some of the repaired log wall on the eastern side. KH

The plasterwork in the kitchen before repairs. TK

Bathroom installations in the floor structures. KH

A re-erected tiled stove in the sitting room. TK

had rotted and were replaced, and the floor structures, which rest directly on the ground, were repaired to improve their heat insulation.

The plasterwork on the inside walls, typical of log buildings built on Suomenlinna during the Russian era, had been preserved under the wall panelling but had badly deteriorated. The plasterwork was reconditioned in the renovation but then covered with porous chipboard which was papered over. Surface structures and interior doors from various periods were preserved, though some of the partition walls installed at a later date were removed. The 1950s kitchen fittings were repaired and modernized. **TK**

Building period: 2004
Net floor area: 97 m²
Gross floor area: 114 m²
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki
Architects: Governing Body of Suomenlinna / Tiina Koskenniemi
Structural design: Insinööritoimisto Pentinmikko Oy, engineers / Sampsa Karvinen
HPAC design: Insinööritoimisto Leo Maaskola Oy, engineers / Jussi Tuomola
Electrical design: Insinööritoimisto Leo Maaskola Oy, engineers / Timo Meskanen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Main contractor: Rakennusliike Aaltola & Haapsaari Oy, builders / foreman Vesa Mustakangas
HPAC contractor: Lvi E. Hulkko Oy
Electrical contractor: Vartiokylän Sähkö Oy

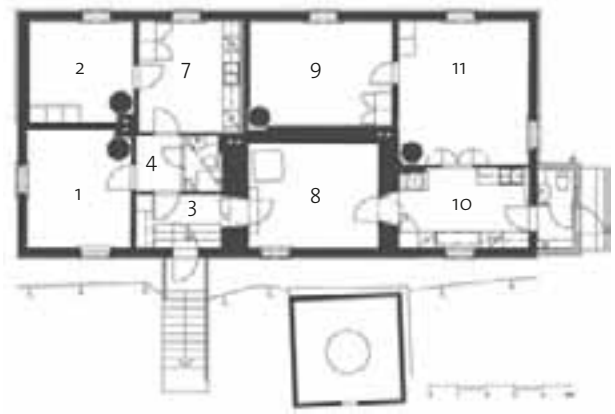
H 7
Mine laboratory

History

The year of completion of the mine laboratory on Lonna island is given variously as 1887 and 1890 in engineering command reports. The building originally had a symmetrical floor plan: the entrance was in the middle, with a guardroom behind and workshop and laboratory rooms the full width of the building on both sides. As explosive substances were handled in the laboratories, the two heating stoves were located in the brick-built entrance hall for fire safety reasons. Because the building stands between the rock face and the shore, a long ramp with steps and a railing led down to the entrance door.

The building was still functioning as a laboratory in the early 1900s, while the room at the east end was used as a heated mine supplies store. In the 1920s, a log-and-stone water cistern with a pitched roof was built on the southwestern side of the building, at the location of the original entrance, which was moved. In the early 1930s, one of the laboratory rooms was converted into an apartment with two rooms and kitchen for the master of the minesweeping equipment store on the island, his wife and three children. A new porch and entrance had previously been built at the opposite end of the building too, which housed the island's kitchen, a mess hall for the Defence Forces staff and conscripts on the island, and the boatman's residence. The building was used as a residence the year round until 1981, after which it was principally used by the Suomenlinna Officers' Association for leisure activities.

1889 plan. MV



Room no. 8 was originally the vestibule and housed the heating stoves. For fire safety reasons, this vestibule had thick brick walls and a brick floor. On the left is the laboratory hall that was converted into an apartment with two rooms and a kitchen in the 1930s, using partition walls (rooms 1–4 and 7).

Renovation

Once Lonna island was transferred from the Defence Forces to the Governing Body of Suomenlinna in 1998, repairs began there with the building in the worst shape, i.e. the mine laboratory. The lowest logs had partly rotted because of the rainwater that gathered between the building and the adjacent rock face. While the frame was being repaired, it became clear that the leaky sheet-metal roof had also caused damage to the upper parts of the wall facing the sea. Tests for dangerous substances found that heavy metals including mercury had accumulated in the underflooring packing from the building's time as a laboratory. The floor structures therefore had to be completely demolished and treated as hazardous waste.

Although the future use of Lonna had not yet been decided on, it was clear that at least one 'caretaker's apartment' would be needed on this island. The former mine laboratory, having been in residential use previously, was the best suited for this purpose. It was consequently converted into two apartments, one of which can be used as housing, as an office or as staff accommodation, as needed.

The renovation work principle was to preserve the renovated 1930s apartment at the northwest end of the building in the style of the time. The higher rooms and ornamental cornices on the ceiling at the southeast end in turn speak of earlier phases in the building's history.

The soil that had accumulated between the building and the adjacent rock face had rotted the lowest logs. The concrete foundation of the cistern is on the left and the original entrance with its stone step on the right. RAm

The window frame spline shows a trace of the original window or the hinge of a window shutter. The current windows were probably made in the 1930s. RAm

The Governing Body of Suomenlinna conservators carefully examined and documented the numerous layers of paint and wallpaper on the walls. RAm

In the renovation, the elevation cladding and weatherboarding were restored to match the old style. HL

The existing room division was retained. After the log walls had been reconditioned, the walls were given a lath-and-plaster covering inside as before. In early 2008, Lonna island was connected to the mains water and sewerage, electrical, telecommunications and fibre optic networks. Interior work could not be completed until the building was provided with heating. The heat insulation in the ceiling was improved with blowing wool.

A bathroom was built to replace the vestibule cupboards in one of the apartments. The WC and entry porch for the other apartment were built in a small extension on the site of the veranda dismantled in the 1970s.

The mouldings of the windows and the weatherboarding in two of the elevations had been replaced at some point, and these were replaced to match the surviving originals. One window boarded up after the 1930s was also re-opened. The wooden protective structures of the cistern were replaced apart from the log frames. **RA**

Building period: 2002–2009
Gross floor area: 160 m²
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki
Architects: Ark-Viapori Oy / Reetta Amper
Structural design: Insinööritoimisto Innostructura Oy, engineers / Eero Kotkas
Electrical design: Insinööritoimisto Leo Maaskola Oy, engineers / Timo Meskanen
HPAC design: Akvedukti Oy/ Markku Kallio
Colour and wallpaper examinations: Governing Body of Suomenlinna / Riitta Karjalainen and Sari Salo
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Builders at the various phases: MarHar-Rakennus Oy, Governing Body of Suomenlinna / foreman Timo Hagelin; and Helsinki open prison, Suomenlinna division / foreman Kari Suominen
HPAC work: Governing Body of Suomenlinna
Electrical work: Are Oy

C 54
‘Noah’s Ark’

History

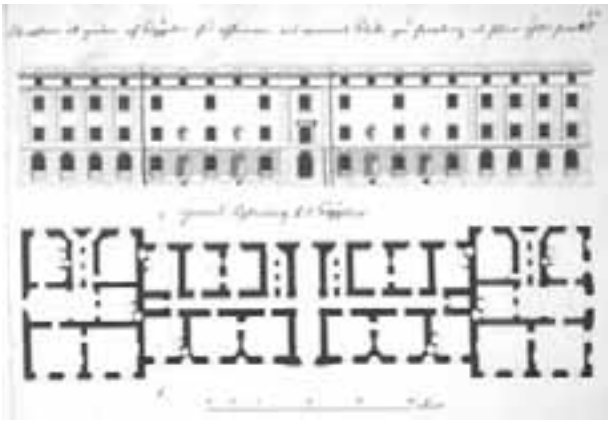
In 1764, Ehrensvärd drew up plans for an extensive Archipelago Fleet Bailey on Iso Mustasaari island, but the only building in this plan to be built is the east wing (C 54), called Noah’s Ark. This was built between 1764 and 1771 as a three-storey building to quarter officers, and in the 1780s a fourth storey was added. Being intended to line a ceremonial courtyard, the building is impressive in its external architecture: the elevations are exceptionally richly ornamented, with rusticated pilasters, ornamental bays and sandstone mouldings. It is one of the extremely few 18th-century multi-storey residential buildings in Finland. The building has been in residential use throughout its existence and today holds 30 apartments.

Several alterations have been made over the years. In extensive repairs undertaken towards the end of the Russian era in the 1890s, all four staircases and some of the intermediate floors were rebuilt. WCs, running water and drains were installed in the 1950s. The building was wood-heated right up to 1986, when it was connected to the district heating network and central heating was installed. Before the renovation, there was no hot water system; instead, residents heated their own water using individual boilers.

Repairs to staircases B, C and D

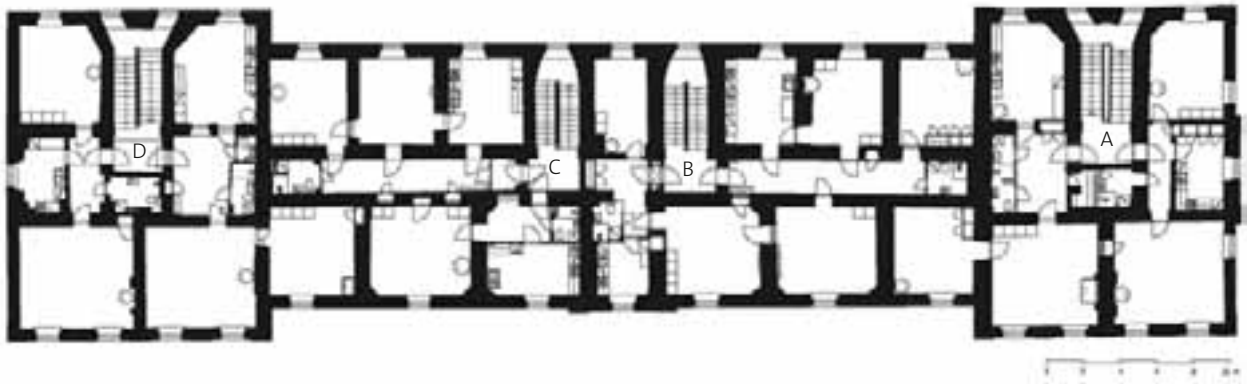
The repairs are being carried out in four phases, one staircase at a time. The work began in 2005, and by summer 2009 repairs had been completed in the apartments on three staircases and in the vaulted basement.

The kitchens and bathrooms were cramped and in poor condition, and they were now refitted and modernized.



Plan drawing from 1764. KrA

Elevation towards the church park. MN



Floor plan of the third floor.

Conservator Sari Salo-Kiviluoma finishing off the decorative stripe on the lime-painted wall of a stairwell. MN

The aim was to retain their existing locations but to enlarge them by combining rooms or taking some space from the front hall. In the case of the apartments with the smallest kitchens, one room was integrated with another apartment on the other side of the long central corridor, which now receives light from two directions through glass doors.

A hot water system was installed, and the water mains, drains and electrical installations were replaced. Some of the electrical wiring was surface-mounted, but because of the large amount of piping involved, some flooring had to be taken up at the walls and cable ducts cut behind skirting boards. Old conduits and switches were re-used as far as possible. The old burnt-out tiled stoves and sheet-metal stoves were completely rebuilt, and the flues sealed.

Restoration of details

The long history of 'Noah's Ark' can be seen in its structures and details. Although it has undergone numerous changes, there are many surviving details such as mouldings, doors and floorings dating from the 19th century and even the 18th century. Conservators Riitta Karjalainen and Sari Salo-Kiviluoma undertook comprehensive colour and surface layer examinations at all phases of construction. On the interior walls, they uncovered Gustavian painted wreath borders from the late 18th century, sphinx borders from the early 19th century and fragments of Empire-style wallpaper, reflecting a unique cross-section of changing fashions in interior decoration on Suomenlinna.

The walls and ceilings of the living spaces in the apartments were painted with tempera and the kitchens with

Limestone steps from the late 19th century, staircase C. AdlC

The wall in the front hall is decorated with a dark, splash-pattern 'lamp-black dado' in tempera, outlined in red. The old floor was given a translucent grey glaze. AdlC

egg matt. In late 18th-century and early 19th-century style, suites of consecutive rooms were painted in different colours – pink, light yellow, light blue and light grey – based on period colour schemes. Existing wallpapering was redone using modern products resembling the old paper in colour and design (typical late 18th-century wallpapers employed small leaf, flower or other plant motifs, or marbling or splash patterns). The stairwells were coated in pink whitewash based on the Finnish-era colour scheme discovered in the 1980s restoration project.

The doors and windows dating from various periods were reconditioned. To emphasize the character of the old building, flush doors were replaced with panelled models, and mouldings were added to match existing ones. Surfaces were treated mainly using traditional methods, while allowing for wear and tear caused by tenants.

The old wood flooring was patched up and new flooring installed to replace removed floor boards. The wood floors were painted either yellow ochre to match the oldest paint layer discovered in the colour examinations, or grey. Floors that had been smoothed and varnished in earlier repairs were now glazed a translucent grey using modern materials. The glaze was applied over the old varnish so that the old boards did not need to be sanded any more. The old concrete floor in staircase D on the parade ground side was dismantled, as it had been pierced several times for piping installations, and a reconstructured limestone floor was laid in the entry hall, using old stones from stone stockpiles on Suomenlinna itself.

Merja Nieminen

Grey-painted wood floors link consecutive rooms decorated according to a late 18th-century colour scheme. AdlC

Conservator student Satu Rantala documenting the wallpaper in an apartment in staircase D. OA

Building period: 2005–
Developer: Governing Body of Suomenlinna / Leena Häkli
Building history study: National Board of Antiquities / Ritva Veijola-Reipas
Colour documentation and conservation work: Governing Body of Suomenlinna / Riitta Karjalainen and Sari Salo-Kiviluoma
Architects: Kari Järvinen and Merja Nieminen, architects SAFA / Merja Nieminen
Structural design: Insinööritoimisto Oy Matti Ollila & Co, engineers / Eero Kotkas
HPAC design: LVI-insinööritoimisto Maaskola Oy, engineers / Jukka Sainio, Jussi Tuomola
Electrical design: Insinööritoimisto Suunnittelukaari Oy, engineers / Klaus Korpela
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Builder: Governing Body of Suomenlinna / foreman Erkki Ripatti
HPAC contractor: Kouvolan Putkityö Oy
Electrical work: Governing Body of Suomenlinna
Paintwork: Maalaustyö Apollo Oy

A fragment of 18th-century painted vine ornamentation framing a dado was uncovered in an apartment in staircase C and protected with a pane of glass. AdlC

The walls of the vaulted corridor are covered in splash-pattern wallpaper with a red border. Old glass doors allow natural light into the centre of the building. MN

The old wood floors are painted yellow ochre to match the oldest paint layer uncovered in the colour examinations. The wallpaper was chosen to match the late 18th-century colour scheme. AdlC


KOF
Dumle

Village

"The Jetty Barracks is a good place to run a kiosk. Our regulars are permanent residents well known to us, but we try our best to serve tourists too. It's a bit of this and that all the year round – we take a relaxed attitude to our work."

Jari Puolakka, operator of the Suomenlinna kiosk

Residents' services

Suomenlinna is a city district, providing its residents with the basic daily services they need. And, of course, the services of the city centre are only 15 minutes away. During the summer season, a broader range of services is available.

Municipal services and safety

The City of Helsinki is responsible for providing municipal services for the residents of Suomenlinna. Transport connections, the school and the daycare centre are vital for the permanent population of the islands. Suomenlinna also has a library, a public beach and a sports field, and in the winter a skating rink. Since the 1990s, however, health services have only been available on the mainland.

The rescue services only maintain a presence on the islands in the summer, and the police must be summoned from the mainland if required. The service tunnel was improved in 1991 so that it can now accommodate emergency vehicles. Official assistance is also available from the Coast Guard Station, which has a helipad. A rescue vessel is based on the islands during open water. There is an underground central civil defence shelter for 1,000 people on Iso Mustasaari island.

There was a grocery and dry goods shop in the Merchants' Quarter from 1923 to 2000. HL

A reliable year-round transport connection is vital for the community. The m/s Suomenlinna II docked at Helsinki Market Square on a winter evening. HL

In the 2009–2010 school year, the Suomenlinna primary school had 62 pupils. The school building dates from 1959. EJ

Shops and leisure services

At present, there is one food shop on Suomenlinna catering to residents and tourists alike, housed in a temporary building near the traditional Merchants' Quarter. Suomenlinna post office was closed down in 1991, since which time the kiosk in the Jetty Barracks has handled post office services.

An indoor sports hall and gym run by a private enterprise were completed in the former Artillery Manège in 2005. In addition to the outdoor leisure facilities managed by the City of Helsinki, activities are organized by the parish, the Suomenlinna Society, the Suomenlinna Yacht Club and Boat Club, and other associations. Many of these collaborate with the City of Helsinki regarding premises. At the moment, a former ice cellar is being renovated for proposed use as a 'village hall' catering for the various clubs and associations.

Residents naturally also use the tourist services. Those that operate the year round, such as the Yläkerho restaurant and the brewery restaurant, are particularly popular.

Heavy supply traffic is managed by the m/s Ehrensvärd, which operates out of Katajanokka. HL

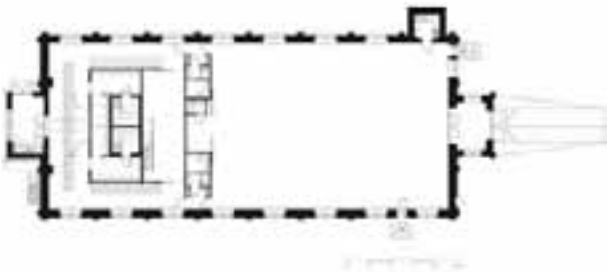
Highly popular as a wedding venue, Suomenlinna Church belongs to Helsinki Cathedral Parish, which organizes events in the church and the crypt clubroom. EJ

C 81
Artillery manège

History

Building C 81 was built between 1902 and 1905 as the artillery manège. It has elevations of fair-faced brick and originally comprised a single large room. The entrance was through a windowed vestibule projecting out of the main building at the north end.

Early in the Finnish era, probably in the early 1930s, the building was converted into a canteen for the rank-and-file of the Coastal Artillery Regiment. At this point, the large hall was divided into two spaces, the canteen and the kitchen, and a new heating centre with chimney was built. The old heating stoves were dismantled, some windows were bricked up, and the porch was converted into a fuel store. The entrance at the north end was closed up and a new one similar in design built at the south end. A film projector machine room was built on the second floor, with a separate exterior staircase. This was because the canteen doubled as a cinema for conscripts, commonly dubbed 'Bio Vanikka'. The kitchen and canteen remained until 1965, but in the early 1970s the building was taken over by the labour colony for storage functions, though these were moved to the depot area in 2000. Apart from its south end, C 18 is still in its Russian-era guise.



Floor plan of the Kuntomaneesi sports hall.

The south entrance. JL

The changing rooms are arranged around the sauna and washrooms on the window side. JT

Sports hall (Kuntomaneesi)

Indoor sports facilities had been desired on Suomenlinna for a long time, and in 1996 converting the Artillery Manège for this purpose was discussed with the City of Helsinki Sports Department, which had encouraged the Governing Body to design a sports hall for the permanent residents of the islands. Although the Sports Department subsequently pulled out of the project, the Governing Body went ahead with it.

The roof and the load-bearing structures of the ceiling were deemed to be in the most acute need of repair. The original sheet-metal roofing had largely rusted through and was no longer waterproof; this, in turn, had caused serious damage to the wooden load-bearing ceiling

The sports hall is used by gymnastics groups and for playing badminton, volley ball and the Finnish game of floorball (sähly). JT

structures. Rot and the splitting of truss beam joints had weakened the structure, and the roof was sagging badly. The roof trusses were dismantled and reassembled one at a time, the rotted components being replaced with new wood, and the joints were reinforced. The half-metre sag in the roof ridge was also corrected. The roofing was made of sheet metal panels and painted.

Inside, a single large open space recalling the original manège was built, its architecture underlined by the lighting design. All the light partition walls dating from the canteen conversion were dismantled, as was the chimney of the former heating centre. Mechanical air intake and exhaust and a heat recovery system were installed. The chimney flues originally used for stove heating were used as ventilation ducts, thus avoiding breaking up the old roof with new vents for air intake and exhaust. All rooms except for the old projector machine room were provided with hot-water underfloor heating. All the electrical systems, including the substation connection and switchboard, were replaced.

The sports hall was designed as a space that can accommodate a variety of sports, such as ball games. Since the space is only 4.7 m high, it does not conform to the official standards for all games, but is sufficient for amateur sports. A gym was also built. The facilities that by their nature must be enclosed – washrooms, WCs and storage – were built as a grouping structurally separate from the outside walls and ceiling. The changing rooms surround these in a free-form shape, flexibly accessible both for users of the sports hall and gym and for larger, public functions. A gallery was built over the washroom and sauna facilities to diversify the gym functions, and a bridge leads from this to the office above the entrance at the south end. Users of the sports facilities enter the changing rooms through the south entrance, while the north entrance, closed for more than 60 years, was reopened for the use of people attending public functions held in the hall.

The facilities are leased to a private entrepreneur who rents out times to associations and individuals and also arranges special days on themes related to wellbeing at work, for instance. **LH**

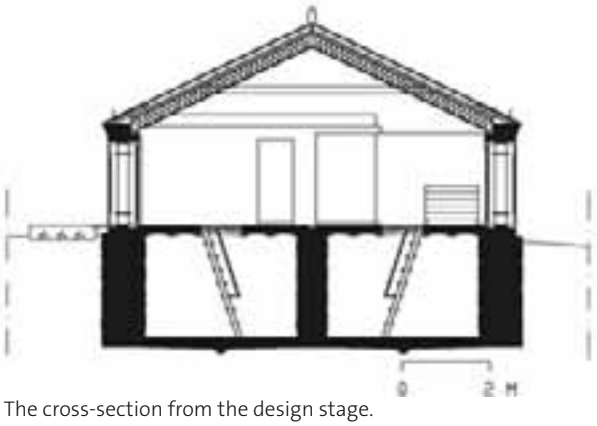
Natural light enters the washrooms through sloped clerestory windows. JT

Building period: 2001–2005
Net floor area: 635 m²
Developer: Governing Body of Suomenlinna / Leena Häkli
Architects: Arkkitehtitoimisto P & P Manner Oy, architects / Pekka and Bitumi Manner
Structural design: Insinööritoimisto Pentinmikko Oy, engineers / Juhani Pentinmikko
HPAC design: Insinööritoimisto Leo Maaskola Oy, engineers / Jukka Sainio
Electrical design: Insinööritoimisto Leo Maaskola Oy, engineers / Timo Meskanen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Builder: Suomenlinna labour colony / foreman Hannu Piironen
HPAC and electrical work: Are Oy

C 70
Ice cellar

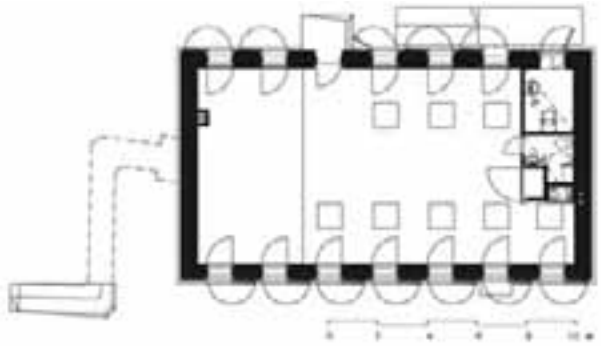
History

An ice cellar was planned as early as 1889 to meet the needs of the occupants of the nearby officers' quarters, but was not built until 1895–1898. At a period when there were no refrigerators, it was essential for households to have a good underground cellar. The part of the brick building above ground comprised 14 wooden units with shelving for stores, reached directly from the outside. The floor of each unit had a hatch giving access to an individual underground cellar. Blocks of sea ice cut in the winter would keep long into the summer in an underground cellar such as this. There was a similar structure on the site of what is now a garage (C 50), though possibly made of wood.



The cross-section from the design stage.

Cellar hatches. The raised platform in the background is the roof of the former civil defence shelter. PM



Floor plan of the first floor from the design stage.

Roof rafters being installed in winter 2005. PM

Each storeroom in the ice cellar had its own entrance. PM

During the occupancy of the Finnish Army, the cellar was turned into a bomb shelter, with an entrance in the east end. Later, the building was used for a long time for storage by those living in nearby buildings. In 1990, the roofing felt was replaced with sheet metal.

Repairs

Repairs to the ice cellar started at the end of 2004 and are being done by the Suomenlinna division of Helsinki Open Prison, mainly during the winter when the worksites on Lonna island cannot operate. The building was converted into a work and meeting room forming a single uniform space as per the room programme in the project plan. Because the roof trusses of the old roof had been supported by wood pillars in the middle of the building, the entire roof structure had to be rebuilt.

There were no fewer than 14 external doors in the building. New sealed glass doors were installed behind the old solid wood doors, effectively turning them into shutters: when they are open, natural light comes in through the glass doors.

The wet rooms and building services were centrally placed at the west end of the building. In addition to a miniature kitchen and a toilet, a disabled toilet for public use with its own entrance was built. The HPAC and electrical ducts run mostly through the cellar. The building was connected to the heating distribution centre of the adjacent Military Museum (C 77) and has mechanical ventilation with a heat recovery unit. The solid concrete slab cast on top of the civil defence shelter at the east end forms a stage-like raised platform.

It is not yet clear what the building will eventually be used for. It would be perfect as a sort of village hall or youth centre for the residents and associations of Suomenlinna. Alternatively, because of the numerous doors in the building, the space could be divided up into two or even more smaller rooms. At the time of writing (2009–2010), the ice cellar is serving as the canteen of the Open Prison until the new canteen building (C 96) is ready. **PM**

Building period: 2004–
Gross floor area: 153.5 m²
Developer: Governing Body of Suomenlinna / Steinunn Guðmundsdóttir, Petri Mikonsaari
Architects: Mikko Kämäräinen, architect SAFA
Structural design: Insinööritoimisto Pentinmikko Oy, engineers / Juhani Pentinmikko
HPAC design: Insinööritoimisto Akvedukti Oy, engineers / Markku Kallio
Electrical design: Insinööritoimisto Jikkon Oy, engineers / Juhani Ikonen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Builder: Helsinki Open Prison, Suomenlinna division / foreman Kari Suominen
Electrical contractor: Are Oy
HPAC contractor: Kouvolan Putkityö Oy

Work

"I have had a lot of different jobs here in the fortress: as a young girl I used to work as a ticket collector on the waterbus, a kiosk assistant and a waitress at the Walhalla café. I have been with the Governing Body for almost as long as it has been in existence. My father had a job at the Naval Academy, and my mother worked in the shop and at the kiosk.

"This is no place for careerism. Very few people 'just work here'; the rewards and satisfactions are in the beauty of the environment and the community spirit."

Tuula Saarinen, Personnel Manager, Governing Body of Suomenlinna

Work space

The 1974 plan for the use of Suomenlinna proposed that arts and crafts workshops should be set up in the fortress area on Susisaari island, while the supply centre and other functions and institutions requiring more space should be located on Iso Mustasaari island. Although the major new constructions projects then proposed have been abandoned, the plan has largely been implemented in other respects.

Studios for artists and craftspersons

It is characteristic of the Suomenlinna fortifications that the casemates and the spaces under the firing platforms behind the actual defensive walls have always also been used for other purpose, e.g. as storage space, workrooms, heated troop quarters and accommodation. Over time, a large number of these facilities fell into disuse and were no longer heated. Under the ongoing repair programme, however, such disused spaces have been converted for new use. The specific purpose to which any particular building is put is decided on a case-by-case basis, depending on what the building and its space are suitable for.

Anna Schroderus blowing glass in bastion Hyve. MRi

The summer shop (B 34) came about as a joint effort between the artisans on Suomenlinna. LM

The vaulted casemates, for example, are often very low, and their embrasures are insufficient to provide light for apartments. The increasing space needed for building services also sets limitations on the new use of old buildings. However, spaces converted into workrooms can be equipped more modestly, as long as health and safety requirements are fulfilled.

A considerable number of artists and craftspersons have a studio on Susisaari island. There are 24 studios rented out to individual artists and craftspersons inside the Susisaari island bastion zone alone, 13 of them in bastion Hårleman (building B 31). One of the tenants in the stable beside it (B 30) is an art foundry. Nearby institutions include Art School Maa (B 20) and the Nordic Culture Point (B 28). In 1980–1982, the Little Palmstierna barracks building known as Ateljeetalo (the Atelier, B 44–45) was renovated as accommodation and studio space for use by visiting artists. The building is also occupied by the Pot Viapori pottery workshop, founded in 1973. In 1997, two workrooms were renovated in the tiny caponniere de Carnal (B 43), which forms part of the same defence front.

In connection with the repairs made to bastion Hyve between 1978 and 1984, three vaulted casemates were converted into workrooms. Two of these are now used by art glass blowers, while the third is the meeting and

The Veistokaari boatbuilding workshop in bastion Taube. MRi

The administration and planning units of the Governing Body of Suomenlinna are located in the east wing of crownwork Ehrensvärd. AdIC

The service building attached to the Susisaari island slipway. RAm

ceremonial tea room of an association dedicated to the Japanese tea culture. The Susisaari island summer shop, which occupies a Russian-era shed (B 34), sells pottery, glass, textiles and silver and wood items made by members of the Association of Viapori Arts and Crafts.

Five further workrooms were built in the casemates of hornwork Hessenstein (C 93) on Iso Mustasaari island in the repairs project completed in 1984. The six apartments in bastion Carpelan (A 5) were designed as studio homes for artists and craftspeople working on Suomenlinna.

Other work and storage space

Considerable construction went on when the Russians were in residence: they built large barracks buildings in brick, many wooden houses and different types of workshop buildings. The largest clusters of workshops were near the dry dock on the south side of Varvilahti bay and what was known as the depot area on its north shore. Most of the former shipyard work spaces have been rented out to the Viapori shipyard association, which uses them for repairs to old sailing vessels. The sprawling shipyard complex also houses a sailmaking workshop (in building B 14), a smithy (B 15) and a boatbuilder's workshop (B 12). The Varvilahti depot area is the location of many of the offices, workshops and stores used by the Governing Body of Suomenlinna and the Open Prison; the renovation of these buildings is discussed in more detail in the following pages.

In the late 1970s, Russian-era buildings on the western shore of Iso Mustasaari island were renovated as a base for the Gulf of Finland Coast Guard. The main building of the Suomenlinna Coast Guard Station is the former infantry company kitchen (building C 25). The adjacent buildings – the former flour storehouse (C 26) and the boatsheds built at the beginning of the 20th century (C 27) – were likewise repaired for use by the Coast Guard Station. The boatsheds also house Customs boats during the winter. The Customs boat station office and staff rooms were built in the former telegraph station (C 41) in 1985.

At the southeast corner of Susisaari island is a slipway built for the Russian artillery in the late 19th century. In 1991, the winch shed built in the 1960s was demolished and replaced with a service building (B 63) also containing offices and washrooms.

The Finnish Army carried out excavation work in the western part of Iso Mustasaari island, creating for example caverns that were used as a fuel dump (C 5). In the early 1990s, these were converted into a storage facility for objects and drawings belonging to the National Board of Antiquities. Thanks to this new storage, temporary facilities unsuitable for storing museum artefacts could be abandoned and the buildings repaired for purposes better suited to them. A telephone exchange and transformer were also housed in the cavern complex. **PM & RA**

C 33, C 34, C 36, C 37 and C 39
Varvilahti depot

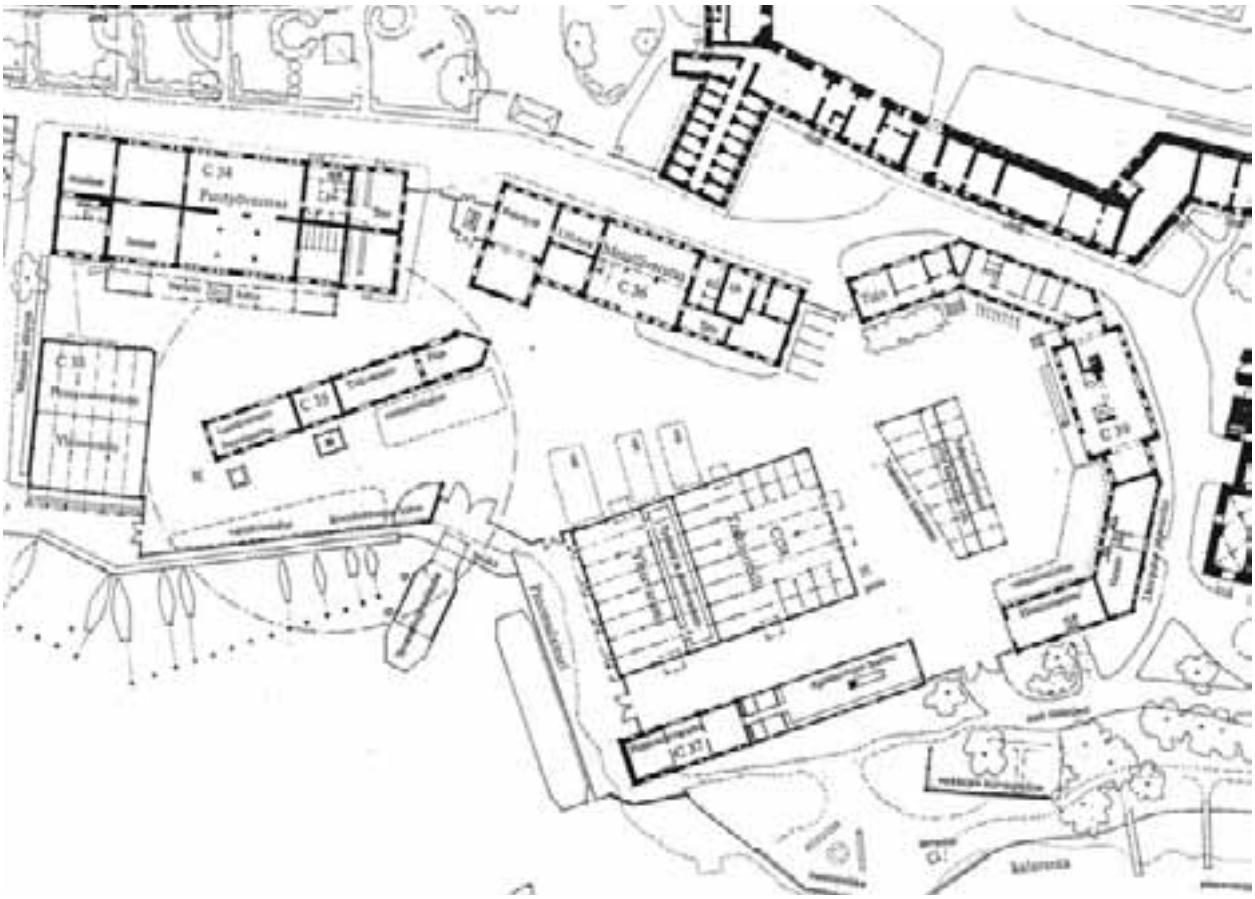
Iso Mustasaari island supply quay

The 1974 draft plan for the use of the fortress proposed that the entire Suomenlinna supply centre, including the tunnels, jetties and sheds, be located on the eastern shore of Iso Mustasaari island. However, this scheme was only partly realized. Building C 62 was erected in the 1910s as a laundry and desalination plant; in 1983–1985, it was renovated for use as offices and staff rooms by the Governing Body of Suomenlinna and the Suomenlinnan Liikenne transport company, and it also featured a separate laundry room. At the same time, a civil defence shelter (C 63) used in peacetime to store building materials and equipment was excavated in the bedrock of Iso Mustasaari island. The level waterfront area in front of building C 62 is also used by the property unit, for instance for sorting soil. Nearby is the jetty where the supply vessel m/s Ehrensvärd operating out of Katajanokka docks.

Iso Mustasaari island depot

The working facilities and stores of the Governing Body of Suomenlinna and the Suomenlinna division of Helsinki Open Prison used to be spread out across the islands but, with the exception of the facilities at the supply quay, have now been concentrated at the Iso Mustasaari island depot on the north side of Varvilahti bay. The purpose of this centralization is to make operations more efficient and to improve cooperation, and in particular to reduce the adverse effects of vehicular traffic. The premises thus vacated have been converted for uses better suited to their character and location.

The red-brick supply buildings by the slipway on the north side of Varvilahti bay date from 1915–1917, but because of the First World War the Russians never completed them. The 1974 draft plan proposed that these buildings be



General plan for the depot area from 1990–1991. Harris–Kjisik Architects.

replaced with new low buildings closer to the waterfront so that the shape of the adjacent crownwork Ehrensvärd (built between 1775 and 1787) and its wings could be seen better. Functions such as a fisheries training centre, a fishing museum, an extensive marina, a slipway and workshops related to fishing and shipping were envisioned for the waterfront area. However, it was later decided to preserve the existing buildings, and in 1990–1991 Harris–Kjisik Architects drew up a new general plan for the area, following which the buildings have been repaired bit by bit. The buildings repaired so far are the lumber store (C 33), the woodwork workshop (C 34), the sheet metal workshop (C 36) with a garage and machine repair workshop, and the fuelling station (C 37). The offices and staff rooms used by the Governing Body's construction unit and the foremen of the Open Prison were located in C 39, the former hoist dock machinery room. The only building that has not yet been renovated is the metal workshop (C 35), which is used by the Open Prison. The depot hall (C 67), a new building, and the depot supply quay have been planned but not built. The depot area is fenced and floodlit and has camera surveillance. Part of the fencing structure on the waterfront doubles as an outdoor storage shelter. In 1994, the administration and planning units of the Governing Body moved next door to the east wing of crownwork Ehrensvärd (C 40). The Open Prison area is also close by.

Lumber storeroom (C 33)

The new lumber storeroom, functionally connected to the adjacent woodwork workshop in the old mine workshop (C 34), was built in the first phase of work in the depot area. It has been used not only to store lumber but also for repairs and paint work on doors, windows, furniture and other building parts.

The building appears to consist of three units with pitched roofs, resembling in shape and scale the narrow boathouses that used to occupy the plot. Inside, however, the building is one large space. The load-bearing structure is a steel post-and-beam frame made up of twelve 6 x 6 metre modules. Because the terrain slopes towards the sea, the floor is split into two levels separated by fixed lumber shelving.

The building differs from the boatsheds and the Russian-era brick buildings in the depot area in its details too. The design is wholly modern, and its details are carefully considered. The eaves are very short, and broad horizontal clinker planking is used as cladding. At the draft stage, the cladding was to be Corten steel, which becomes rust-coloured through natural oxidation; however, a negative opinion from the National Board of Antiquities prompted this to be replaced with wood. The large sliding doors at the north end and the hatches at the south end are faced with sheet metal.

C 33
Building period: 1992–1995
Net usable area: 392 m²
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki, Eeva-Liisa Rautalahti
Architects: Harris–Kjisik Architects / Trevor Harris, Aimo Nissi
Structural design: Insinööritoimisto Magnus Malmberg, engineers / Mauno Lääveri, Hannu Piirainen
Ground survey: Viatek Tapiola Oy / Helge Ampuja
HPAC design: Insinöörikeskus Oy, engineers / Markku Kallio
Electrical design: Insinööritoimisto Joel Majurinen Oy, engineers / Timo Meskanen
Builder: Suomenlinna labour colony / foreman Heimo Aalto
HPAC and electrical contractor: Tekmanni Oy

The south end of the lumber storeroom is treated with tar. The other elevations are blue-grey. PM

Detail of the storeroom eaves. PM

The brick elevations of the former mine workshop (C 34) were in extremely poor condition when repairs began.

The woodwork workshop is used for reconditioning old doors, windows, furniture, etc., and for making new ones. HL

The tarred south end of the building extends almost as far as the jetties, and like them it is built on piles. The three-gabled roof continues beyond the outside walls, overhanging the split-level wooden terrace, which is used by the Suomenlinna Yacht Club. There is a shelter for sailboat masts along the long western outside wall of the building for boats in winter storage. The building was originally to have contained sauna and storage facilities for the Yacht Club, but these were abandoned at the design stage.

Converting the mine workshop (C 34) into a woodwork workshop

The mine workshop was built for the mine company in the final years of the First World War. It is possible that the Russians abandoned construction on the building, as the conspicuously shallow and low roof structure gives the impression of a temporary solution. In the 1960s, the building was scheduled for demolition, with only essential repairs being made.

However, in the event the building, which had been used as a workshop and storage by the Suomenlinna labour colony, was eventually renovated into a woodwork workshop jointly used by the Governing Body and the labour colony. The room plan was made as flexible as possible to allow for future changes in its function. A paint workshop was built at the west end, a woodwork hall in the middle and a building material storeroom for the Governing Body at the east end. Some of the high rooms were divided into two storeys with an intermediate floor. The changing rooms, washrooms and break rooms are upstairs, the toilets and heating distribution centre downstairs. As the space requirements increased, lofts were built in two of the storerooms, one used for storage and the other as a workshop for building conservators.

A loading and storage shelter was built on the south side, together with sawdust extraction machinery. HPAC and electrical systems were installed along the existing structures, mainly as surface mountings.

C 34
Building period: 1992–1996
Net floor area: 101 m²
Gross floor area: 1,146 m²
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki, Eeva-Liisa Rautalahti
Architects: Harris–Kjisik Architects / Trevor Harris, Aimo Nissi
Structural design: Insinööritoimisto Magnus Malmberg, engineers / Mauno Lääveri, Hannu Piirainen
HPAC design: Insinöörikeskus Oy, engineers / Markku Kallio
Electrical design: Insinööritoimisto Joel Majurinen Oy, engineers / Timo Meskanen, Pekka Anttila
Antiquarian supervision: National Board of Antiquities / Seija Linnanmäki
Construction: Suomenlinna labour colony / foreman Heimo Aalto
HPAC and electrical contractor: Tekmanni Oy

The woodwork workshop is in the middle. The three-gabled roof of the lumber storeroom can be seen in the background, with the marina and dry dock on the opposite side of Varvilahti bay. JKo

Metal workshop (C 36)

The Russian military engineers' workshop was built in the Varvilahti shipyard area around the same time as the mine workshop (C 34). It is in Jugendstil style with a Classical touch. While occupied by the Defence Forces, it housed a smithy, a welding workshop, a storeroom, a tractor repair shop and the storeroom clerk's office. The building was the metal workshop of the Suomenlinna labour colony from the 1970s. It was renovated for joint use by the labour colony and the Governing Body of Suomenlinna. In addition to workshops and storerooms, new changing rooms, break rooms and washrooms were built, together with offices. A car hoist and welding workshops were built in the high central hall.

Only slight alterations were made to the elevations and load-bearing walls, but the HPAC and electrical installations were completely replaced. The machinery and equipment were also upgraded.

The metal workshop in use after the repairs. RAm

Warehouse (C 37)

In 1999, the fuel tanks previously located at various places on Suomenlinna were brought together in building C 37, which already had a brick-built fuel storage facility. This red-brick warehouse was built at the same time as the adjacent buildings (C 35 and C 39). The building was badly damaged in February 1944 when Soviet bombers targeted the nearby shipyard area; as a result, two thirds of the building was dismantled.

C 36
Building period: 1997–1999
Net floor area: 650 m²
Gross floor area: 814 m²
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki
Architects: Ark-Viapori Oy / Reetta Amper
Structural design: Rakennusinsinööritoimisto P & T Jauhiainen Oy, construction engineers / Tapio Jauhiainen, Nina Vallius
Insinööritoimisto Pentinmikko Oy, engineers / Juhani Pentinmikko (elevations and roof)
HPAC design: Insinööritoimisto Matti Hallasaari Oy, engineers / Matti Hallasaari, Risto Ikonen
Electrical design: Insinööritoimisto Jikkon Oy, engineers / Juhani Ikonen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Construction: Helsinki County Prison, Suomenlinna labour colony / foremen Heimo Aalto, Kari Suominen
HPAC and electrical contractor: Are Oy

Warehouse C 37 at its full length, before it was damaged in air raids in 1944. MV

Fuel storage required improved ventilation, and fuel pumps and the necessary drainage were installed in front of the building. The original plan was to include a boat fuelling station, too, but this was abandoned. The fuelling station serves the vehicles of the Governing Body and the labour colony. The other half of the building is a building supplies warehouse.

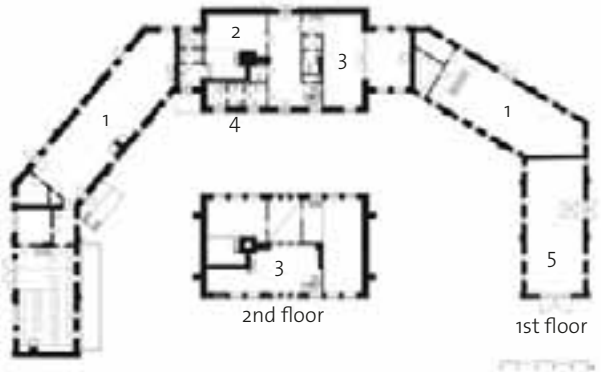
C 37
Building period: 1999
Net floor area: 103 m²
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki
Architects: Ark-Viapori Oy / Petri Mikonsaari, Reetta Amper
Structural design: Insinööritoimisto Magnus Malmberg, engineers / Hannu Piirainen
HPAC design: Insinööritoimisto Matti Hallasaari Oy, engineers / Matti Hallasaari
Electrical design: Insinööritoimisto Jikkon Oy, engineers / Juhani Ikonen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Builder: Suomenlinna labour colony / foreman Kari Suominen
HPAC and electrical work: Are Oy

The fuel pumps outside building C 37.

Construction office (C 39)

The Russians only managed to complete construction of the machinery room in the middle part of the main building of the Varvilahti hoist dock before the First World War intervened. The high chimney was built for the steam engine powering the hoist dock winches. When the wings of the horseshoe-shaped building were completed, they housed a stable and carriage shed and, later, the garage and workshop of the Coastal Artillery Regiment. In the 1960s, the Suomenlinna fire station occupied the building for a brief time. In 1973, the building was taken over by the Suomenlinna labour colony.

The low north wing of the building was rebuilt as storage space for the labour colony in 2000. This was necessary



Floor plan of the construction office: 1 Open Prison storeroom, 2 Open Prison foremen's offices, 3 Governing Body construction unit foremen's offices, 4 sauna, 5 sand store.

because the old warehouse housed in the Manège (C 81) was being rebuilt as a sports hall. The new location at Varvilahti depot provided better outdoor storage for building supplies and increased cooperation potential with the Governing Body. A loading dock and a long equipment shed were built by the yardside entrance to the warehouse. The sand and building supplies storage facilities in the south wing were retained in their existing locations, with minor changes.

The high central part of the building was renovated to house offices, meeting rooms and break rooms for the construction foremen of the Governing Body and labour colony. The elevations were mainly retained. Some of the windows on the yard side in the central part were enlarged, and a new floor was built dividing the central part into two storeys in order to allow for a meeting room. This meeting room with kitchenette is upstairs, with a sauna suite downstairs.

The doors and windows were in poor condition and had to be largely replaced. New concrete floors were laid to replace the old concrete floors and the earth floor in the central part. All the technical installations were replaced, and the central part was fitted with mechanical exhaust ventilation. All other parts of the building have natural ventilation. **PM & RA**

C 39
Building period: 2000–2003
Net floor area: 723 m²
Gross floor area: 904 m²
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki
Architects: Ark-Viapori Oy / (variously) Reetta Amper, Petri Mikonsaari
Structural design: Insinööritoimisto Pentinmikko Oy, engineers / Juhani Pentinmikko
HPAC and electrical design: Insinööritoimisto Leo Maaskola Oy, engineers / Timo Meskanen and Jukka Sainio
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Builder: Suomenlinna labour colony / foreman Kari Suominen
HPAC and electrical work: Are Oy

Open Prison foremen's offices. PM

The yard side windows in the construction office were extended downwards, and the garage door, a later addition, was restored to two windows (on the right in the photo). In the foreground is a brick wall erected for weather-testing lime mortars. PM

B 31
Bastion Hårleman

History

The Hårleman-Polhem hornwork formed part of Susisaari island's outermost line of defence. Its southern demi-bastion was principally built in 1750–1753 and named after Carl Hårleman, an important Swedish architect of the Rococo period. It was built in greystone, clad with brick on the inside, and comprises a left and right face and a right flank. The casemates in the left face were mainly built for defensive purposes, while those in the right face contained heated troop quarters. Two of the casemates in the right face were used as a bakery.

At the beginning of the Russian era, the right face of Hårleman was taken into residential use, and at this point the rooms were vaulted and topped by a firing platform. The building was badly damaged in bombardment during the Crimean War in 1855. In the subsequent repairs, the parapet was raised and all the casemates in the right face were renovated. Six of the casemates in the left face were demolished and replaced with a big log-built stable, which in turn was pulled down in the 1960s because it was on the brink of collapse. The curtain between the demi-bastions was demolished in 1866 to make way for the garrison barracks building B 28, today known as Kolhoosi ('commune').

At the beginning of the Finnish era, Hårleman was in very poor condition. The viable parts were used for storage up to 1949, when the entire building was emptied. The ruined two-storey casemates in the right face were covered with a turfed-over concrete slab in the 1950s, and in the late 1980s the right face too was protected with a temporary roof.

Repairs and development

The 1973 development plan for Suomenlinna proposed the renovation of Hårleman for use as workrooms and accommodation, and reconstruction of the entrance gateway demolished by blasting in 1880. Later plans for the new use of the bastion even included a monastery.

The basis for the repair plans drawn up in the 1990s was the potential offered by the monument and its current condition. Reconstruction of the demolished gateway – which in any case would have been too narrow for modern traffic – was not considered in accordance with contemporary restoration principles. Converting the casemates in the right face into apartments was also abandoned.

The two-storey portion of the right face of the bastion. PM

The new building erected on the site of the demolished left face. PM

The workroom of artist Inkeri Makkonen in the right face. PM

A casemate in the right face preserved in its ruined state. PM

The walls were renovated between 1993 and 2004. The remnants of the gateway and the five casemates in the left face that had been left without waterproofing urgently needed roofing over. The state of the two-storey casemates in the right face showed clearly how being unheated for half a century quickly turned a building into a ruin. There was no proper roof, the wooden structures were rotten, everything that could be carried away had disappeared, and the plaster and paintwork had fallen away. Because it was essential to protect the building with a new roof, windows and doors, it was decided to renovate it at the same time to make it usable again. The modest level of amenities required in workrooms was well suited to the architecture of the old casemates in the right face. Moreover, there was space for a new building in the left face, where the casemates had been demolished.

In the renovation work, the whole left face was covered with a single roof which protects not only the new building and the ruins but also those casemates from the Swedish era still in good condition. A new building was erected on the site of the missing casemates, with five workrooms and a joint recreational area, a transformer station and an electrical substation. The preserved casemates were renovated as storerooms.

Eight workrooms were built into five of the casemates in the right face and flank, partly on two levels, and three old staircases were repaired. Five casemates were left in their original condition as monuments. The intermediate floors were made of wood. Logs suitable for use as supporting beams were fortuitously discovered in the attic of traverse Adlerfelt (building B 1), which was being repaired at the same time. The workrooms all have mains water. The heating, lighting and water/sewerage systems needed could be installed in the new intermediate floor, leaving the other space and structures largely as they were. New metal-clad brick stoves were built in the four workrooms where the outside walls required most attention at the old flues. The greystone walls and the brick vaults in the stairways were left untouched, but the brick walls of the workrooms were repaired and their surfaces lightly plastered and whitewashed.

The leaking 1950s concrete slab covering the firing platform on the right face was waterproofed with rubber and bitumen. Another concrete slab was cast on top of this and covered with turfed landfill. This solution is not entirely unproblematic, and damp patches requiring repairs have appeared in some of the workrooms.

The thirteen workrooms in bastion Hårleman have seen a wide variety of occupants. In addition to the traditional craftspeople, tenants over the past ten years have included textile and visual artists, graphic artists, musicians, and people working in photography and cinema. The spectrum of crafts in the area, known as Tallinmäki ('stable hill'), is further augmented by the knife workshop and art foundry that occupy the adjacent Russian-era stable built of bricks and cement blocks (B 30). The summer shop of Viapori Arts and Crafts occupies another nearby stable (B 34). **TL & PM**

Building period: workrooms 1995–1998, wall repairs 1993–2004
Net usable area: 671 m²
Gross floor area: 1,957 m²
Developer: Governing Body of Suomenlinna / Tuija Lind
Architects: Ark-Viapori Oy / Petri Mikonsaari
Structural design: Insinööritoimisto Innostructura Oy, engineers / Eero Kotkas
Mortar expert: Thorborg von Konow
HPAC design: Timo Penttilä group, Insinööritoimisto Leo Maaskola Oy, engineers / Jukka Sainio
Electrical design: Konsulttitoimisto J.W. Majurinen Oy, consultants; Insinööritoimisto Leo Maaskola Oy, engineers / Timo Meskanen
Landscape design: MA-Arkkitehdit Oy / Marja Mikkola
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Construction: Suomenlinna labour colony / foreman Reijo Vedenpää

B 43
Caponniere de Carnal

History

Caponniere de Carnal, with its characteristic acute salient, is located behind the curtain wall linking bastions Kunnia and Hyve and is accessed from the Palmstierna courtyard. It appears for the first time in J.M. Sprengtporten's 1774 fortification plans, as part of the proposed courtyard for bastion Palmstierna.

The caponniere was built in 1775–1777. The upper floor of the two-storey part, with its wooden interflooring, was vaulted. There was a spiral stairway up to the firing platform in the salient, paved with sandstone tiles. A brick parapet was installed, and the top of the wall was turfed over. There were vaulted two-storey gateways on both sides of the caponniere.

The brick parapet was demolished in the 1830s, the firing platform reinforced and the whole building given a new roof. A kitchen with cooking stoves and baking ovens was built in the casemate. One of the gateways was converted into a privy. In the 1860s, a laundry was installed on the ground floor and a detention room upstairs.

In the Finnish era, the ground floor has been mostly empty and the upper floor used for storage.

Caponniere de Carnal in a layout drawing from 1818. MV

The caponniere before renovation began. The photo shows the privy built in the gateway closed in 1839, which has been preserved as an interesting feature. SG

Floor plan of the second floor: the former privy on the left, the staircase leading to the downstairs workroom on the right.

The caponniere after renovation. HL

The sharp salient of the caponniere is visible through the opening in the curtain wall between bastions Kunnia and Hyve. PN

Conversion into two workrooms

Because caponniere de Carnal had stood empty for a long time, it was in poor condition, so the repairs launched in 1996 focused first on the elevations, roof and windows. The building was connected to the district heating network and fitted with mains power, water and sewerage. A workroom with kitchenette was built on both floors, and a WC for both workrooms downstairs. The building has natural ventilation. **RA**

Building period: 1996–1997
Net floor area: 140 m²
Gross floor area: 296 m²
Developer: Governing Body of Suomenlinna / Jaakko Antti-Poika
Architects: Ark-Viapori Oy / Steinunn Guðmundsdóttir
Structural design: Insinööritoimisto Pentinmikko Oy, engineers / Juhani Pentinmikko
Electrical design: Insinööritoimisto Jikkon Oy, engineers / Juhani Ikonen
HPAC design: Timo Penttilä group / Jukka Sainio
Antiquarian supervision: National Board of Antiquities / Anne Mäkinen
Construction: Suomenlinna labour colony / foreman Hannu Piironen

C 27
Boat sheds

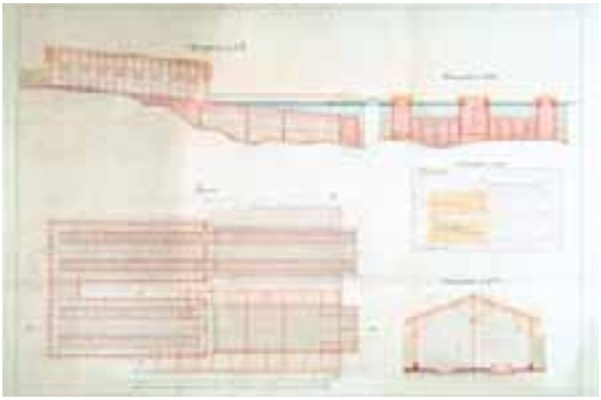
Coast Guard station. The boat sheds are on the right. HL

History

There have been boat sheds on this site ever since those used by the Archipelago Fleet in the 18th century. In 1916, two pairs of large sheds were built to house the boats of the Viapori Mine Battalion, though one pair was demolished in 1969. These were of a wooden frame construction and clad with corrugated metal, and there was a winch machinery room between them. Before the Second World War, the sheds were used for housing wooden minesweepers and torpedo boats, and after the war for wooden military boats. Between 1972 and 1976, the remaining sheds were used by the Naval Academy. In 1978, building C 25 next to the boat sheds was converted into a base for the Gulf of Finland Coast Guard. At the same time, the boat sheds were repaired, and a workshop for boat maintenance was built at the north end of the western boat shed. The western shed is now used to house boats belonging to both the Coast Guard and the Customs, and the eastern shed by the Defence Forces.

New staff facilities for the Coast Guard Station

The Coast Guard Station staff facilities were built at the northern end of the eastern boat shed in 2006–2007. A new, horizontal floor was laid over the sloping floor of the boat shed, and heat insulation was laid on the inside of the external walls and the roof. Inner frames were installed in the single-glazed windows. The premises were built in two storeys, with the changing rooms, washroom, sauna and equipment drying room downstairs and a gym and technical facilities upstairs. New electrical winches were procured for the southern part of the building, which continued to be used as a boat shed, and a new storeroom and WC were added.

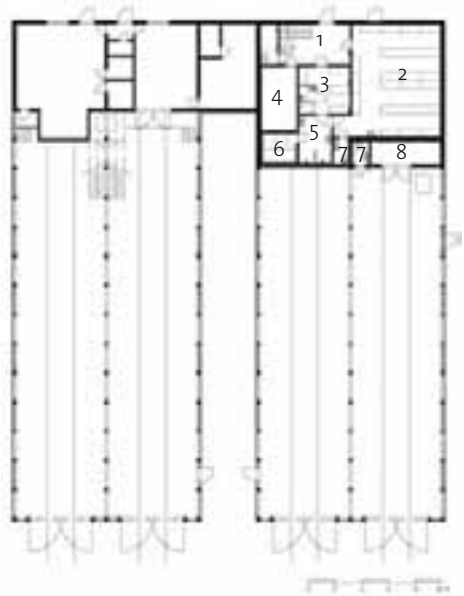


Original plan for the boat sheds from 1916. MV

The interior walls in the wet rooms were built of concrete blocks, and the floor was covered with an acrylic compound. The external walls were covered on the inside with galvanized corrugated metal. The new facilities were equipped with mechanical air conditioning. All alterations were carried out within the building, without changing the elevations and the inside structures were also preserved. **RA**

Prior to the repairs in the 1970s, the boat sheds had fallen into disrepair. JR

The old wood pillars still stand in the gym. The changing room light shaft can be seen in the background. RAm



Floor plan of the first floor of the boat sheds: 1 porch, 2 men's changing room, 3 women's changing room, 4 equipment drying room, 5 washroom, 6 sauna, 7 WC, 8 boat shed storeroom.

A light shaft was left in front of the windows at the height of the intermediate floor to allow natural light into the changing room. RAm

New load-bearing wood pillars were affixed to the existing wood pillars to support the new floor beams, and concrete blocks were used for the interior walls in the wet rooms. RAm

Building period: 2006–2007
Gross floor area: 290 m²
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki
Architects: Ark-Viapori Oy / Reetta Amper
Structural design: ISS Suunnittelupalvelut Oy, engineers / Keijo Kekoni
Electrical design: Jikkon Oy / Juhani Ikonen
HPAC design: Akvedukti Oy / Markku Kallio
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Builder: Helsinki Open Prison, Suomenlinna division / foreman Hannu Piironen
HPAC contractor: Putkiset Oy
Electrical contractors: Uudenmaan sähkömestarit Oy and Vartiokylän sähkö Oy
Automation contractor: Arealtec Oy

Shipyard

"When I am up on that crane, I do believe I have the highest position on the island. I use and service the shipyard cranes and other equipment owned by the Governing Body, and I manage ship dockings. The lock gate to the outer basin of the dock is opened and closed dozens of times a year for ships coming in for repairs. Ships docked in the inner basin in October will not be released until April, when the ice has broken."

Leo Haapanen, Shipyard Master, Governing Body of Suomenlinna

The shipyard lives

The core of the whole maritime fortress used to be the dry dock where ships were built and repaired for the Archipelago Fleet.

The big galley basin was created when the 'Thunberg dam' was built between two small islands in 1751–1754. This basin was initially drained with a windmill-powered pump, but a horse-powered pump was soon completed. The galley basin was not finally completed until 1782, although frigates had been built there since the 1760s. Some of the ships that took part in the Battle of Svensksund (Ruotsinsalmi) were built at this shipyard in 1789–1790.

Replacing the bottom timbers in the dock basin. Besides major repairs the dock structures require continuous maintenance.

When Viapori became a Russian garrison in 1809, the shipyard fell into disuse and decline. The bombardments during the Crimean War in 1855 damaged several of its buildings. Throughout the 19th century, the area was used for workshops and storage.

During the First World War, the Russians turned the shipyard into a naval base. In 1917, the big basin was dredged and a pump house and workshops building (B 5) erected on the site of the former repairs dock.

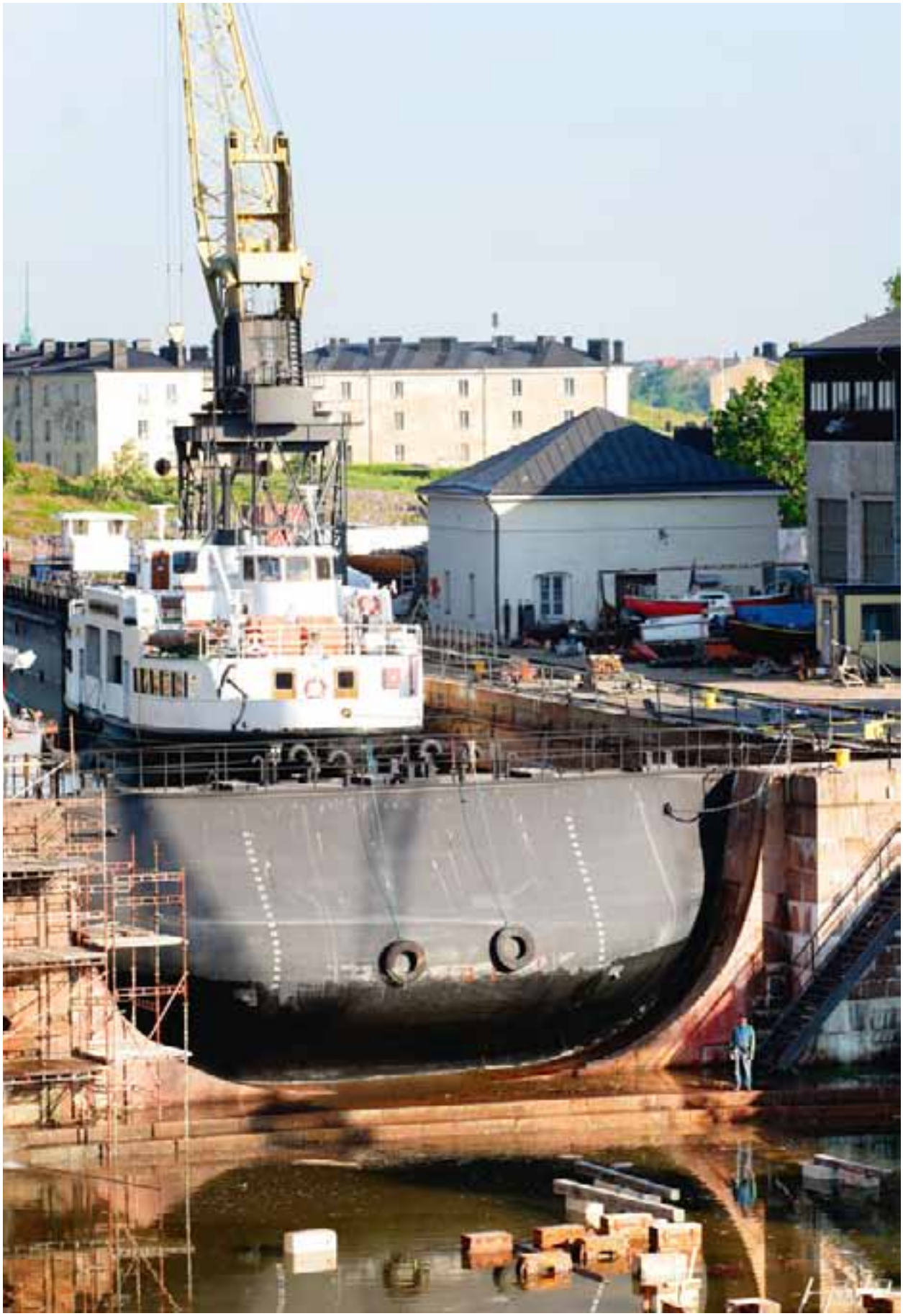
In the 1920s and 1930s, the Finnish Defence Forces used the shipyard for building aeroplanes and parking submarines. The shipyard was renovated in the years leading up to the Second World War: the outer basin acquired its present shape in 1933, and the first crane was procured. After the war, Valmet Oy used the shipyard for building ships delivered to the Soviet Union as war reparations.

Technical maintenance at the shipyard

After operating for 50 years, the Valmet shipyard was closed down in 1985 and the area given over to the Governing Body. Most of the buildings vacated by Valmet were derelict, as their maintenance had been neglected in the final years. Valmet also left technical installations, equipment and tools behind which were vital for the dock's operations.

For the preservation of the historical shipyard as a whole it was important that shipyard operations never completely ceased in the area. Thanks to the Viapori shipyard association (Viaporin telakka r.y.) founded in 1986, the big basin is still used a facility for the winter storage and repair of wooden sailing vessels. Some Valmet employees were engaged by the Governing Body to use and maintain the technical infrastructure of the shipyard, which was fortunate, because the Governing Body itself had no know-how in the area of shipyard technology.

The buildings in the shipyard were repaired according to the general plan completed in the early 1990s. The installations and equipment at the shipyard, on the other hand, were repaired on an as-needed basis when they became dangerously decrepit or ceased to function. The first major repairs were undertaken in the outer basin in 1993, when the crane runway load-bearing beam was propped up with steel trusses. A more methodical repair project on the technical installations and equipment began towards the end of the decade. The list of projected repairs was a long one.



The two dock basins are separated by an intermediate lock gate, thanks to which vessels can be docked in the outer basin without filling the inner basin with water. The original intermediate lock gate dated from 1862; it was replaced in 2004. MRa

The dock basins are rented out to the Viapori shipyard association, which in turn rents out berths mainly for traditional wooden sailing vessels owned by associations and private individuals. The big basin is usually flooded twice a year, in the spring and in the autumn. During the winter, the vessels berthed can be repaired. In the summer, the basin is practically empty. JKo

The condition of the dock's outer lock gate was investigated in the late 1990s. Its plates had been patched up several times using double sheets, and in places it had almost rusted through. Because the dock cannot function without this lock gate, design work on a repair project began immediately. It turned out that the entire lower part of the gate would have had to be replaced, and the decision was eventually taken to build a new gate, as simple and easy to use as possible. This gate was funded out of a supplementary central government budget.

Two of the three water intake valves in the outer lock gate were repaired in summer 2000. At that point, it was found that the gate mount, built of ashlar in 1916–1917, was on the brink of collapse. Divers also noted that the concrete gate mount built adjacent to the ashlar wall in the 1930s was dangerously cracked.

After this, the small T-shaped jetty by the mouth of the outer basin was examined; this had a log structure dating from the turn of the 19th century, covered by a concrete slab cast in the 1940s. The diver's report noted that the jetty top was supported by only a tiny portion of the log frame. A third hazard was found on the crane runway. The concrete structures propped up some ten years earlier had deep cracks in them, and test drilling showed that the slab between the rails was only 5 cm thick and thus could not withstand heavy loads.

The great range of repairs required at the dock, both underwater and overground, was eventually entered in the same work specification and commissioned as a single building contract. For experimental purposes, the work included patching up the wall of the outer basin using four different kinds of concrete mixture.

The next item to be examined was the intermediate lock gate. Built in St Petersburg in 1862, it was one of the world's oldest lock gates still in operation. Many leaks were found. The gate had originally been made of 14 mm steel, but this had lost up to 10 mm of its thickness in places, many of the reinforcing plates had rusted through or had been replaced with perforated plate, and the rivet heads had been ground flush some time in the 1970s. Although the lock gate looked solid enough, it would probably not have survived a ship colliding with it. The weakest spot on the gate had been repaired in 1995 by cutting holes into it and welding new plates onto them. However, joining old and new steel by welding was difficult. When the condition survey demonstrated that 80% of the lock gate structure would have to be replaced, the decision was taken to build a completely new gate instead. The old lock gate was lifted onto trestles on dry land. Because the shape of the lock gate, resembling a ship, had been part of the shipyard landscape for nearly a century, the new lock gate was built in the same shape but with a modern, welded structure.

There are two cranes at the shipyard that play an important role in its operations, built in the 1950s and 1960s, and after the departure of Valmet these have been repaired and maintained mainly as dictated by detailed inspection reports. Because piecemeal repairs and patches are laborious and expensive, the renovation plan drawn up for the cranes aimed at extending their useful life by at least 20 years. In summer 2008, the entire electrical system of the 'Liebherr crane' was replaced and several structural problems that came as a surprise to the Governing Body were solved. In the autumn, the turntable of the 'Pansio crane' was replaced and its technical condition investigated.

Over the past ten years, the technical installations and structures at the shipyard have also been improved by strengthening the rails of the crane runways and by repairing the wooden components, pumps and valves in the basins and the walls around them. The work continues in the hands of the Open Prison, the Governing Body and private contractors. **TL**

Aerial photo of the shipyard area in winter 2006, with twelve wooden and iron vessels berthed in the dock for the winter. SIk

New outer lock gate
Building period: 2000–2001
Developer: Governing Body of Suomenlinna / Tuija Lind, Kari Koskela, Jaakko Antti-Poika
Main designer: ILS Oy / Hannu Harittu, Timo Siirilä, Jyrki Lehtonen
Main contractor: Turun korjaustelakka Oy

Structural repairs to the outer basin
Building period: 2000–2001
Developer: Governing Body of Suomenlinna / Tuija Lind, Rauno Tynkynniemi
Supervisor: Governing Body of Suomenlinna / Kaj Holmberg
Architects: Governing Body of Suomenlinna / Tuija Lind, Mikko Kämäräinen
Structural design: Innostructura Oy, engineers / Eero Kotkas; Insinööritoimisto Pentinmikko Oy, engineers / Juhani Pentinmikko
Mortar and concrete expert: Tureida / Thorborg von Konow
Main contractor: Iittalan kivijaloste Oy

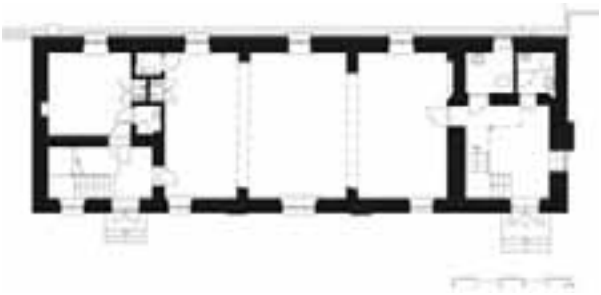
New intermediate lock gate
Building period: 2001–2004
Developer: Governing Body of Suomenlinna / Tuija Lind, Kari Koskela, Rauno Tynkynniemi, Jaakko Antti-Poika
Main designer: ILS Oy / Hannu Harittu, Jyrki Lehtonen, Timo Siirilä
Main contractor: Aker Finnyards

Liebherr crane renovation
Building period: 2008
Developer: Governing Body of Suomenlinna / Tuija Lind, Kari Koskela
Supervisors: Governing Body of Suomenlinna / Kaj Holmberg, Heikki Kuivaniemi
Main designer: ILS Oy / Jyrki Lehtonen
Main contractor: EKN-Group Oy

B 10
Dementyev sauna

History

Around 1877, a merchant named Dementyev constructed a two-storey brick-built sauna for the garrison on the dock basin. About a decade later, its western end was converted into a laundry. The original room division was subsequently changed, and the whole of the western end was demolished in the early 1960s to make way for the crane runway. Since Finnish independence, the building has been used as a workshop and for storage.



Floor plan of the first floor.

Shipyard office

In 2001, four workrooms were built in the building, with toilet and kitchenette. Wooden partition walls were used to build the new auxiliary rooms. The building was connected to the water and sewerage network. Earlier, wash water had merely been emptied into the adjacent dock basin. The interiors still retain mementos of earlier days, such as an electric water heater dating from the Valmet era.

The building originally had three staircases, one of which was demolished together with the north end. The original central staircase, now at one end of the remaining building, was restored to its original function as the main entranceway, and the closed-off front door was reopened. Access from the main staircase to the large central space on both floors was restored. Small offices were built at the south end which can be used independently from the large central spaces.

The old concrete floors and steps were retained and patched up. The wood floors, which were in poor condi-

There is a fine view from the second-floor windows of the old ships register office into the basin used by the Viapori shipyard association.

Building B 10 at its full length in 1922. MV

tion, were replaced. The old doors and windows were repaired and painted with linseed-oil-based paint. The colours used matched those used in the Russian era, as established in colour analyses. The old fluorescent-tube lighting fixtures in the offices were upgraded to give the large work spaces better lighting.

In 2003, the elevations were repaired and the bluish colour restored to the white of the original rendering layer in the plaster repairs.

As the building has such a central location in the shipyard, it was felt it should be used for related purposes, so the ground floor was leased for a shipyard association exhibition, while the upper floor accommodates the Maritime Museum's old ships register. **RA**

Interiors following completion of the renovation. MN

Mementos of the building's earlier functions, such as the electric water heater shown in the picture, were retained.

Renovating windows.

Building period: 2001, 2003
Net usable area: 196 m²
Total area: 348 m²
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki
Architects: Kari Järvinen and Merja Nieminen, architects SAFA / Merja Nieminen
Structural design: Rakennusinsinööritoimisto P & T Jauhiainen Oy, construction engineers / Tapio Jauhiainen
HPAC design: Insinööritoimisto Leo Maaskola Oy, engineers / Jukka Sainio
Electrical design: Insinööritoimisto Leo Maaskola Oy, engineers / Timo Meskanen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Main contractor: HK-Kinhar Oy / Heikki Silvennoinen
HPAC and electrical work: Rinvestia Oy / Kalevi Junni
Electrical work: Harex Oy / Jari Mäkimartti

B 14
New plate workshop

History

In 1945, the Valmet shipyard built a new plate shed and machine shop with a model maker's shop on the upper floor, to plans by architect Kalle Lehtovuori. The building was used for these purposes throughout the shipyard's lifetime, until 1985. The external parts of the crane runway leading into the building were demolished in 1987.

Today, the ground floor is used to store boats in the winter, while the upper floor is used for sail-making. To improve the latter's fire safety, an external stairway was constructed in 1996, comprising an old spiral staircase with surrounding walls in pre-rusted steel plate, as befits an old shipyard. In 2001–2002, the building's windows were repaired.

Floor plans of the ground floor (bottom) and loft floor (top) of the members' facilities: 1 break room, 2 drying room, 3 changing room, 4 sauna, 5 main hall

The plate shed before construction of the new members' coffee room.

The new cast framework.

The outer basin of the dock is in front of the plate workshop. MRi

The new members' facilities at the end of the plate workshop. JT

Viapori shipyard association members' facilities

As the Viapori shipyard association (Viaporin telakka r.y.), which renovates old ships, needed proper washrooms and other members' facilities, it was decided to build these on two floors at the end of the plate shop as a 'building within a building'. The lower floor holds a drying room, coffee room and kitchenette, the upper floor changing and washing facilities for about 25 people and a sauna. Steel was used as the construction material, in the spirit of the old plate shop. A new outside stairway was built as an emergency exit for the upper floor. The members' facilities were equipped with mechanical air conditioning, and the building was connected to the mains water and sewerage systems. **RA**

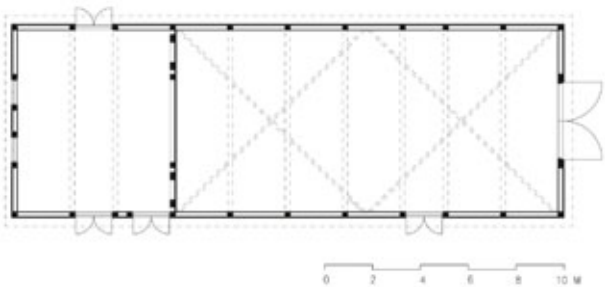
The new changing rooms. JT

Building period: 2002–2004
Developer: Governing Body of Suomenlinna / Heikki Lahdenmäki
Architects: Arkkitehtitoimisto Topi Tuominen Oy, architects / Topi Tuominen
Structural design: Insinööritoimisto Innostructura Oy, engineers / Eero Kotkas
HPAC design: Insinööritoimisto Leo Maaskola Oy, engineers / Jukka Sainio, Niko Lipponen
Electrical design: Insinööritoimisto Leo Maaskola Oy, engineers / Timo Meskanen
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Main contractor: Suomenlinna labour colony / foremen Raimo Raudaskoski (to 2003), Pentti Koponen (from 2003)
Hazardous waste removal: City of Helsinki PWD-Technical Division
HPAC work: Governing Body of Suomenlinna / Ari Kiuru
Plumbing work: Vesijohtoliike Klaus Ahonen Oy, Kouvolan Putkityö Oy
Electrical work: HPS-sähkö, Sähkö Paganus Oy, Vartiokylän Sähkö Oy
Regulatory equipment: Arealtec Oy / Kari Kumpulainen

B 78
New shipyard shed

This unheated storage building was completed in autumn 2008 adjacent to the old artillery shed (B 16) and the powder magazine (B 7) at the head of the Suomenlinna shipyard area. It replaced the storage containers that were parked here and is mainly used for storing lumber.

Because the landfill dumped in the area for decades consisted of sand used for sandblasting at the shipyard, a soil analysis was conducted before beginning construction. The soil samples turned out to contain heavy metals and solvents. The foundations of the shed rest partly on rock and partly on the landfill. The site is a challenging one also because the ruins of the Swedish-era bastion Cedercreutz lie close to the surface underground; these were not touched.



Floor plan.

A shelter for mast storage was built along the outside wall of the shed. PM

The weatherboarding was designed to allow air to pass through. PM

Lumber being tarred in the newly completed shed. PM

The design principle was for the new building to emulate the adjacent old artillery shed in its proportions and materials but to be obviously modern in its detail. The end result was a simple building made of traditional wood and stone materials. The frame was made of massive larch beams joined with steel bolts; the weatherboarding is of broad, bevelled spruce planks fitted with 10 mm gaps, ensuring the ventilation required for lumber storage. A traditional design was also used for the large, wood-frame doors. The stone foundation, cobblestone floor and paved ramps outside the doors were built as part of a masonry course at the Open Prison. **TK**

Building period: 2007–2008
Gross floor area: 186 m²
Developer: Governing Body of Suomenlinna / Tiina Koskenniemi
Architects: Governing Body of Suomenlinna / Tiina Koskenniemi, Juha Kämäräinen
Structural design: ISS Suunnittelupalvelut Oy, engineers / Keijo Kekoni
Electrical design: Insinööritoimisto Leo Maaskola, engineers / Timo Meskanen, Otto Lappi
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Construction: Helsinki Open Prison, Suomenlinna division / foreman Reijo Vedenpää, masonry foreman Pentti Koponen
Electrical contractor: Are Oy

Army

"I retired at the beginning of the year after 34 years at the Naval Academy, working most recently as the teaching equipment store manager. My husband Kari was a bosun aboard the mine-layer Pohjanmaa for a long time and retired from the post of Master Gunner a few years ago. Now that we no longer have a 'company flat' with the Army, we changed islands and moved from Kirkkosaari to Länsi-Mustasaari."

Mirja Mälkki, Naval Academy

"Sure, big changes happened when the Governing Body began to repair the Army apartments in the mid-1970s. It was a far cry from the place we moved into in crownwork Ehrensvärd in 1956: you could hear water running under the floor, and when my dad's foot went through the boards, he sank half a metre deep into the mud."

Kari Mälkki, Naval Academy

Naval Academy continues military traditions

Beyond the bridge to Pikku Mustasaari island lie the rendered yellow buildings of the Naval Academy: D 12 (at the rear), D 13 (on the right) and D 14 (in front). To the left stands the Headquarters building (D 23) with its high hipped roof. The end of the red-brick sauna building (D 26) is also in the picture. The earth-covered Mine Classroom (E 14) is barely visible in the background. PM

When the Defence Forces ceded control of Suomenlinna to the Ministry of Education in 1973, the fortress ceased to be a garrison. Although there had been plans for relocating the Naval Academy away from Suomenlinna for a decade or so, the Ministry of Defence eventually decided to leave it where it was on Pikku Mustasaari island, just as the Suomenlinna committee had proposed in its report of 1972.

The history of the Naval Academy can be traced back to the founding of the Archipelago Fleet in 1756 and the training of cabin boys begun soon after. Augustin Ehrensvärd, the designer of the fortress, later set up a school for midshipmen and junior officers at his own expense. State-funded naval officer training on Suomenlinna began in 1779.

The present Naval Academy was founded in 1930 through a merger of the Naval Defence Department of the Military Academy, the coastal artillery line of the Reserve Officer School and the Naval Defence NCO School. This new unit was initially set up on Katajanokka in mainland Helsinki and was transferred to Suomenlinna in 1935. Housed at first on Länsi-Mustasaari island, the Naval Academy moved to its present premises on Pikku Mustasaari island, originally the garrison hospital, in 1936.

Once the uncertainty about possible relocation was resolved in the early 1970s, repairs got under way in the buildings, which were in poor condition. The renovation of residential building D 14, originally completed in 1756, was carried out between 1975 and 1978. A few years later, the small brick-built Russian-era guard post (D 15) was converted into a maritime teaching planetarium. The sauna building (D 26), completed in the early years of the 20th century, was renovated between 1989 and 1992 and contains accommodation in addition to the downstairs sauna. The developer/builder for these projects was the

The main building, completed in 1852, was originally the Russian garrison hospital. The main designer of the renovation and conversion of this building and of the canteen building (D 12) was Keijo Koskinen of Koskinen & Schalin Oy, architects. EJ

Ministry of Defence. Renovation and conversion into offices of the Pharmacy (D 11), built as a guardroom in 1752–1756 and used most recently as accommodation, was commissioned by the Ministry of Defence in 2000.

In 2002, the Defence Forces turned over all its real estate to the government-owned asset management company Senate Properties. On Suomenlinna, this involved all the buildings on Pikku Mustasaari island except the bastion fortress surrounding the Naval Academy and the wooden residential building D 24 located right on the water's edge. These and the Mine Classroom (E 14) on Länsi-Mustasaari island, converted into teaching premises for the Naval Academy in 2002, are managed by the Governing Body. Senate Properties soon began an extensive renovation project on the Naval Academy buildings. The main building (D 13) was renovated between 2006 and 2008. All the wet rooms were rebuilt, and mechanical ventilation was installed and a lift built in the main foyer. The wooden balconies built in the school library in the 1930s were replaced with steel ones for fire safety reasons. Also, a new exit staircase was built into the former privy wing at the southwest corner.

Building D 12, which houses the canteen and classrooms, was renovated in 2007–2008. Because of damage from damp, all the intermediate floors were replaced except in the equipment store at the east end. The ventilation machinery room required by the new, larger kitchen was installed in the attic, and the compressors of the refrigeration equipment and the waste management room were housed in the vaulted casemates of the adjacent bastion Löwenhjelm. The soldiers' club that formerly occupied second-storey premises between buildings D 12 and D 13 was given a better location beside the main entrance to the canteen building.

The badly sagging floor of the Naval Academy Headquarters building (D 23) was replaced, and the workrooms and staff facilities on the first floor were repaired in 2007–2008. Barracks building D 14, which accommodates naval cadets and was last renovated some thirty years ago, will be renovated in 2009–2010. The former sauna building (D 22), now used for storage, and the empty and decrepit Mortuary (D 9), whose future use has not yet been decided, have yet to be renovated. **RA & PM**

The graffiti or 'inscriptions' on the walls of the corridors in the main building were restored by student Riikka Javanainen as a building restoration skills demonstration. EJ

Building D 12 housed the dermatology ward of the Military Hospital until 1965, at which point it moved to the Tilkka Military Hospital. The renovated canteen on the ground floor of building D 12. EJ

The great sauna is heated using one-metre logs. TL

During the renovations between 2006 and 2010, the Finnish Maritime Administration's depot ship Prisma, moored at the quay on the western shore of Iso Mustasaari island, provided canteen facilities and accommodation. The conscripts report the single cabins on board to be a vast improvement on the 12-bed dormitories in the main building. EJ

E 14
Mine classroom

History

A small fortification called caponniere Löwen was built on an islet northeast of Länsi-Mustasaari island in 1753–1756 and demolished during the Russian era. In 1826, a powder magazine in stone and brick was built at the same site, the remote location being necessary because of the danger of explosion.

In 1878, the metal roof of the building was demolished and replaced with a covering of stone and cement, and a vaulted corridor was built along the sides. Thereafter the powder magazine was covered in sand, like all the other buildings on Suomenlinna that were exposed to direct fire.

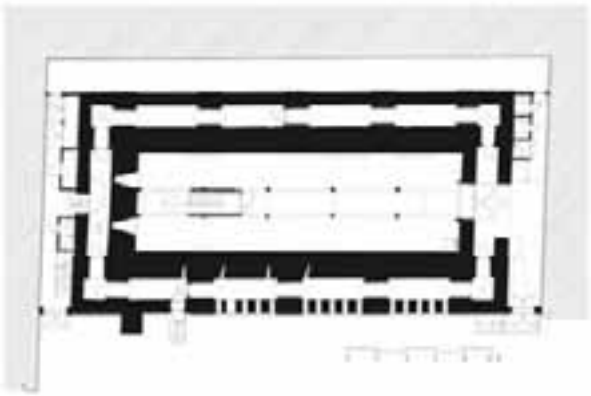
Probably in the 1950s, the powder magazine was converted into a Naval Academy training facility called Miinaluokka (the 'Mine classroom'). The old wooden floor was then replaced with a concrete one, and the high vaulted space was divided into two levels. The building was then used for teaching until the late 1970s, after which the flanking corridors were used as shooting ranges by Naval Academy staff, and the other space for storage. The building was connected to the district heating network in 1984.

Repairs and rebuilding

After the Naval Academy and the coastal artillery school that used to operate in Santahamina were integrated in 1998, the number of students rose, so the classroom was again needed for teaching purposes. However, it did not meet the fire safety requirements, and did not have mains water or sewerage.

Rainwater had been seeping through the turf roof into the building for a long time. The entire top of the structure therefore had to be waterproofed by installing a rubberized bitumen mat on top of the sand layer and a ventilation network under it made of drainage pipes and concrete covers. TL

The loft floor.



The ground floor.

The restoration project that began in 2001 fell into two clear parts: functional alterations and structural renovation. The latter included both outside and inside work. The layer of sand on top of the building had worn away, revealing the roof of the old powder magazine. Exploratory digging showed that the top of the building had no proper waterproofing. In the repair work, about 40 cm of sand and grass were removed from all over the powder magazine and replaced with rubberized bitumen matting to waterproof the roof, with a ventilation network of drainage pipes laid underneath. The sand was then put back on top, held down by slabs of turf.

Since the 1950s, a lot of rainwater had gathered behind the façade, and this had also made its way through the vaulting in the flanking corridors. After removal of the crumbling plaster on the stone face, the wall was repaired with hydraulic lime mortar and buffed up. The brickwork

on the outside was repaired and the plasterwork removed and replaced with hydraulic lime mortar.

When the underflooring was investigated, a nasty surprise was discovered. The original cast concrete formwork, which had not been removed, was found to be completely covered in mould. This had to be dismantled and cleaned using hazardous-substance precautions. Since the ground slab had been cast over solid stone walls about 70 cm apart, accessways and ventilation apertures had to opened up in each of the 'corridors' formed by these walls before dismantling of the wooden framework could begin.

A new emergency exit upstairs and toilets and a kitchenette downstairs had to be built before the building could be again used for teaching. Also, what had originally been a single high space had been turned into two floors, and these had to be divided into separate fire compartments. The old ventilation space in the upper floor was widened and the structure underneath demolished to make way for an exit. Designing and building this exit was a demanding task because though there was not much space, the differences in height were great. As in almost all the repairs on Suomenlinna, the architectural design for the 'Mine classroom' aimed to make only carefully considered and high-quality changes and additions essential for the intended use of the building.

The old peeling lime wash on the leaky brick vault was removed with steel brushes. The wall surfaces were then given a thin coating of lime mortar and repainted. A special clean room had to be built for computers. The auxiliary and technical facilities were placed along the flanking corridors, and the technical equipment needed for the teaching facilities was built into a compartmented flight of steps. The heating unit chimney built into the side of the 'mine classroom' in the Finnish era is used as a ventilation duct for both air intake and exhaust. **TL**

An emergency exit was built on the top floor by enlarging an old ventilator, making an opening in one of the brick walls of the flanking corridor, and building four flights of steps and four landings. KH

Because of the building's new use, each floor was made into a separate fire compartment. KH

Building period: 2001–2003
Net floor area: 558 m²
Gross floor area: 770 m²
Developer: Governing Body of Suomenlinna / 1st phase Tuija Lind, 2nd phase Jaakko Antti-Poika and Rauno Tynkynniemi
Supervisors: Governing Body of Suomenlinna / Kaj Holmberg, Heikki Kuivaniemi
Architects: Vilhelm Helander, Juha Leiviskä architects SAFA / Vilhelm Helander, Tytti Valto
Structural design (outside): Insinööritoimisto Innostructura Oy, engineers / Eero Kotkas; Governing Body of Suomenlinna / Tuija Lind
Structural design (inside): Insinööritoimisto Pentinmikko Oy, engineers / Juhani Pentinmikko
HPAC design: Insinööritoimisto Leo Maaskola Oy, engineers / Jukka Sainio
Electrical design: Insinööritoimisto Leo Maaskola Oy, engineers / Timo Meskanen
Mortar and paint expert: Tureida / Thorborg von Konow
Antiquarian supervision: National Board of Antiquities / Helena Rosén
Contractors:
External work, indoor rendering and test apertures: Suomenlinna labour colony / foreman Raimo Raudaskoski
Ground slab demolition work: City of Helsinki PWD / Alpo Valkama
Main and HPAC contractor: Kouvolan Putkityö Oy / Hannu Lemmetti
Building contractor: Rakennustoimisto Metsäpuro Oy / Vesa Saarinen
Electrical contractor: HPS-Sähkö Oy / Juha Pääkkönen
Regulatory equipment contractor: Arealtec Oy / Kari Kumpulainen

Landscape

"Spring is the best time in my job, when all the flowers come out and nature changes by the day. I always say that my summer ends around Midsummer, as June closes.

"We go by the landscape plan and try to keep the fortress looking like a garrison town. What makes the job challenging is that it is impossible to fulfil the personal wishes and expectations of every single resident and visitor."

Anja Pitkänen, Head Gardener, Governing Body of Suomenlinna

From rocky skerries to cultural landscape

The unique characteristics of Suomenlinna's natural environment stem from two factors: its location on the islands off Helsinki and the upheavals caused there by centuries of construction.

Winters are humid, spring comes about a week later than on the mainland, summers are dry, and autumns are long and mild. It is always windy, and the dryness stunts growth. Human hands, however, have shaped nature on the islands even more drastically than circumstances. The original rockery flora was probably largely destroyed when the fortress was built, but it was replaced by cultivated plants introduced both deliberately and unintentionally. These actually benefited from the shaping of the terrain, from increased nutrient levels in the soil and from animal husbandry. The original terrain can only be seen to any significant extent along the waterfront rocks and in the rocky areas in the interior of Kustaanmiekka island.

The landscape on Suomenlinna today is characterized by earthworks and by the invasive Russian-period plant species growing on them. The seeds of these plants were probably originally introduced with the soil brought to the site to build up the earthworks and in supply shipments for the garrison. Common species include the yellow-flowered Turkish Warty Cabbage (*Bunias orientalis*), the white-flowered Hoary Alyssum (*Berteroa incana*) and the impressive purple-flowered Great Willowherb (*Epilobium hirsutum*). Rarer invasive species from the same era include the Green Spurge (*Euphorbia esula*), Spring Sedge (*Carex praecox*) and Asiatic Dock (*Rumex confertus*).

The most typical tree on the islands is the Common Ash (*Fraxinus excelsior*). Ash trees need lime, which is abundant in the soil as the result of construction work. In addition to Norway Maple (*Acer platanoides*) and Common Linden (*Tilia vulgaris*), there are also Sycamore Maple (*Acer pseudoplatanus*) and English Oak (*Quercus robur*), and one solitary Crimean Linden (*Tilia euchlora*). The low-nutrient soil on Kustaanmiekka provides ample sustenance for the white-barked Downy Birch (*Betula pubescens*) and European Rowan (*Sorbus aucuparia*).

The only surviving features of Swedish-era landscape gardening are the sites of certain parks and gardens. The Russian era, particularly the latter half of the 19th century, was the real golden age of landscape gardening and garden design on Viapori. The then new fortification principles

The sand earthworks on Kustaanmiekka in the early 20th century. A covered freshwater cistern can be seen in the background. MV

Suomenlinna is a favourite destination for birdwatchers all year round. In the autumn, great flocks of passerines such as chaffinches, wagtails and thrushes gather in the southern parts of Kustaanmiekka and nearby islands, using this as a staging point for the crossing of the Gulf of Finland. In migration seasons, even the rare Sea Eagle (*Haliaëtus albicilla*) and Golden Eagle (*Aquila chrysaetos*) may be seen. Recent research suggests that the range of species in the local bird population has diversified. On the other hand, the numbers of nesting couples of some species that nest on open ground, such as the Wheatear (*Oenanthus oenanthus*) and the Meadow Pipit (*Anthus pratensis*), have declined. The photo shows a female Common Eider (*Somateria mollissima*) in its nest on Lonna island. KS

Local species and species rare in Finland can also be found among the earthworks. The proliferation of the moth known as the Green Silver-spangled Shark (*Cucullia argentea*, larval stage shown) is largely due to the preservation of locations that support its food plant, Field Sagewort (*Artemisia campestris*). KN

Suomenlinna landscape, renovation plan
Helander, Henttonen, Simons, Ahlquist, 1987
Kustaanmiekka landscape report
MA-arkkitehdit, architects, 1996
Macrofossil studies on Suomenlinna, research report. Terttu Lempiäinen, 1996
The palaeo-ecology of Suomenlinna as seen in the layering of Piper pond. Irmeli Vuorela, 1997
Landscape and flora report on Lonna island
MA-arkkitehdit, architects, 2003

The most typical tree on Suomenlinna, the Common Ash (*Fraxinus excelsior*), is easy to recognize even without leaves. AP

The rugged flora on the rocks in the interior of Kustaanmiekka. OH

served to create a completely new zone that is now typical of Suomenlinna: chains of ridge-like sand earthworks topped with grasses and the terre-plein behind them.

Landscape reconditioning

An extensive basic report on and general plan for landscape reconditioning on Suomenlinna was completed in 1987. This plan is being implemented gradually, side by side with various other projects. The aim is to preserve landscape features from the various historical eras, to make a distinction between rocky, rugged areas on the one hand and green areas on the other, and also to respect small details in the landscape.

Climate impact and considerable wear and tear caused by visitors in the past few decades have served to erode the shape of the earthworks so that the actual original shape is in places very hard to discern. In the repairs, the aim is to restore the original shapes of the earthworks based on their present appearance. Damage to the earthworks and firing platforms are repaired with turf tiles and coconut netting. Undamaged portions are touched as little as possible. Portions of earthworks growing tall grasses or herbs are sometimes burned over in the traditional way to remove dead plants, especially on slopes that are difficult to access.

The area within the earthworks on Kustaanmiekka is classified as a 'natural area'; there are not many such areas left on Suomenlinna. A renovation plan was drawn up for the area in 1996 aiming to restore it to something resembling the open space that it comprised in the 19th century while leaving sheltered places for birds to nest. There are also earthworks requiring special protection in the area: terre-plein, a wetland and freshwater cisterns.

Park restoration is undertaken gradually, replacements being introduced at the pace of natural attrition of the tree stock. Rebuilding traditional fences, paving and shrubberies helps guide visitor flows, protect sensitive areas and outline landscape gardening designs. Plantings are being augmented, and overgrown vistas are being re-opened.

When Lonna island was taken over by the Governing Body, it had been overrun by plants, and the shore areas were covered in Japanese Rose (*Rosa rugosa*). This landscape is being reconditioned on the basis of the landscape and flora report drawn up in 2003. The main principle is to preserve the tree stock on the waterfront in its natural state while removing the trees and shrubs in the middle of the island that are in poor condition and those that are growing too close to buildings.

Mika Hänninen and Kimmo Aronen, arborists with the property unit, tend the trees of Suomenlinna. EJ

Gardener Iina Johansson repairing erosion damage to the earth covering of a powder magazine on Kustaanmiekka. EJ

Burning-off dead plants on the earthworks. KH

The pathways and park walkways require constant attention. AP

Special equipment has been acquired for cutting the grass in tough spots. AP

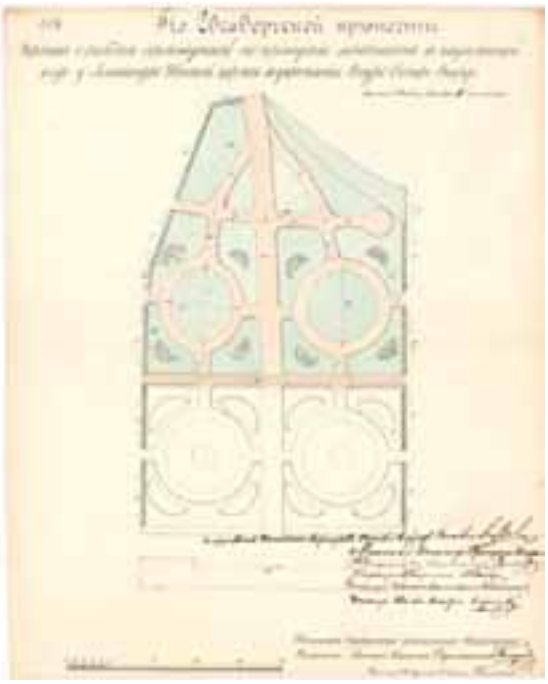
Church park on Iso Mustasaari island

The church park is formed by the church knoll and the park area in front of the 'Noah's Ark' building, seen here on the right. ScF

An Orthodox church was completed on Iso Mustasaari island in 1854, and a church park was laid out around it in 1858. This has two parts: the church knoll, where lilacs were planted, and the area in front of the officers' quarters (C 54, also known as 'Noah's Ark') where a park with circular and crossing pathways was laid out in the 1870s. The circular pathways were later replaced with curved pathways, which also eventually disappeared. In the 1920s, the park was encircled by a low wooden fence with nooks to accommodate benches.

The old linden trees, grown to a venerable height, lend the park an impressive and atmospheric feel, even though they cover up too much of the main façade of 'Noah's Ark'.

The church park was reconditioned in phases between 1991 and 1997. The plan for this project was derived from the landscape renovation plan of 1987. In 1992–1993, when the north end of the church park was being renovated, nine new rowan trees (*Sorbus aucuparia*) were planted in the park, and the extensive renovation project of 1994–1995 involved the planting of 24 new linden trees in two rows on both sides of the park and a 130-metre hawthorn hedge comprising 500 saplings. **PN**



Church park plan, Russian engineering detachment 1873. MV

Linden trees in the church park. RAm

Demolition of the old kiosk and building of a new grill stand (now an ice cream stand) at the north end of the church park
Building period: 1991–1992
Designer: Governing Body of Suomenlinna / Are Öyasäter

North end of the church park
Building period: 1992–1993
Client: City of Helsinki PWD Street and Park Unit
Designer: Governing Body of Suomenlinna / Pekka Nevalainen
Built: Governing Body of Suomenlinna / property unit

Suomenlinna church park renovation, 1st phase
Building period: 1994–1995
Client: City of Helsinki PWD Street and Park Unit / Pertti Lahtinen
Lighting plan for the east and north side of the church park: Helsinki Energy / Kari Rajakallio
Water mains and sewerage plan: Timo Penttilä group / Jukka Sainio
Landscape design: Ark-Viapori Oy / Pekka Nevalainen
Antiquarian supervision: National Board of Antiquities / Liisa Eerikäinen
Built: Governing Body of Suomenlinna / property unit

Casino Park and prison camp memorial

Casino Park

This park is located on the north shore of Iso Mustasaari island, outside the fortifications. Laid out in the late 19th century, it was named after the officers' casino which stood on the site at the time. There was also a bandstand and a bowling alley beside the wall, approximately where the tennis court is now.

When Casino Park was renovated in 1998, the pathway network was restored and reconditioned to better suit the antiquarian nature of the park. Overgrown vistas were re-opened, and the park was extended towards the east by taking over a herb garden. A row of linden trees had already been planted along the road running by the shore.

After the work on the park, the road from the parade ground to the shore was paved with stones, and the tennis court – built in the 1920s for the Suomenlinna tennis club – and its auxiliary rooms in caponniere C 44 were repaired.

Casino Park reconditioning
Building period: 1998
Developer: City of Helsinki PWD Street and Park Unit / Eeva Kuuluvainen, Hannu Airola, Asko Linko
Designer: Ark-Viapori Oy / Pekka Nevalainen
Antiquarian supervision: National Board of Antiquities / Liisa Eerikäinen and Helena Rosén
Built: Governing Body of Suomenlinna / property unit and Maanrakennusliike Lantman Oy

The prison camp memorial was created by modifying the existing environment and incorporates surrounding trees and grass. PN

Casino Park is located near the main quay, between the caponniere wall and the shore. The parade ground is visible on the left. Skf

Memorial

After the Civil War which broke out one year after Finland declared its independence in 1917, a number of prison camps were set up, one of them on Suomenlinna. This camp was in operation for less than a year, from April 1918 to March 1919. Nearly 10,000 actual or suspected members of the Red Guards who had been captured were imprisoned there; more than 1,500 died, mainly of starvation and disease.

In autumn 2004, an environmental art work by Marja Kanervo was unveiled in the presence of President of the Republic Tarja Halonen as a memorial to those who suffered and died in the prison camp. The memorial was nominated Environmental Artwork of the Year in 2005.

It consists of two rocks, one of them natural and the other cut. The dates 1918 and 1919 are carved into the natural rock and are washed by a constant flow of water. The other part of the work is a flat horizontal stone. The artist has said, "A passer-by who sits down on the stone can sense the harmony of the space and the soundscape in it before looking over his or her shoulder and appraising the work. The aesthetic experience can be enjoyed independently of the concepts involved. But the dates cut into the bedrock will disappear slowly like the marks of violence left on several generations. - - -I consider the work a success at least in that the birds like it. Perhaps they, together with any aesthetic pleasure the work generates, will finally restore to the camp inmates a little of the privacy and dignity from which they were deprived in life and in death by government violence."

The commissioning of the memorial by the State Arts Collection Committee arose from the public debate on the events of 1918 sparked by the publication of the book *Tie Tampereelle* (The road to Tampere) by Professor Heikki Ylikangas in 2000. Casino Park was chosen as the memorial site because it is in a quiet location away from the principal tourist routes and separate from the areas that formed part of the actual prison camp. The inmates who died in the camp were buried in the military zone on Santahamina island nearby. **RA & SV**

Casino Park reconditioning plan. Drawing: Ark-Viapori Oy / Pekka Nevalainen

Memorial
Building period: 2004
Client: State Art Collection Committee
Project coordinator: Ark-Viapori Oy / Pekka Nevalainen
Memorial design: Marja Kanervo
Landscape design: Saara Pyykkö
Water motif technology design: Insinööritoimisto Leo Maaskola Oy, engineers / Jukka Sainio
Excavation and well installation: KS-huolto Oy
Water basin casting expert: Jyrki Palmu
Water basin surface treatment: Uretek-Elastomer Oy
Sandblasting: Yläneen Hautauspalvelu Mäkelä Oy
Landscaping: Governing Body of Suomenlinna / Mika Hänninen
Electrical work: Governing Body of Suomenlinna / Juha Roikonen
Piping and pump installation: Governing Body of Suomenlinna / Ari Kiuru
Geological survey: Governing Body of Suomenlinna / Kari Takala
Memorial plaque carving and mounting: Kilpi-Koskinen Oy

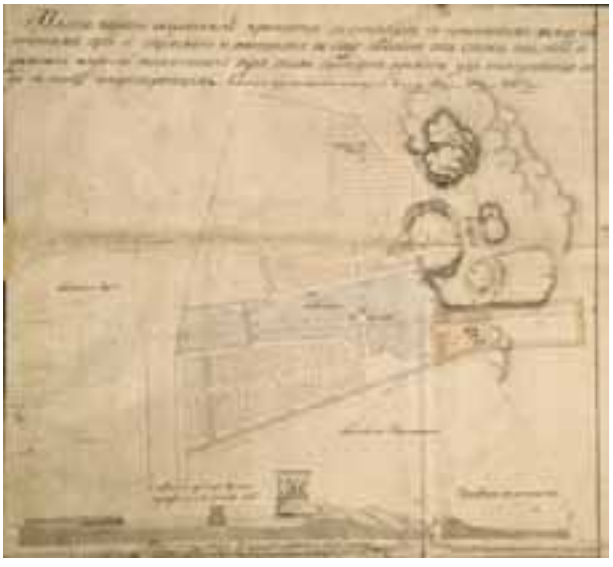
Piper Park

The ‘lovers’ pond’ is lined by a profusion of irises and the counterscarp wall. The pond ends at a vertical cliff.

History

Allotment gardens and horticulture have always played an important part in life and culture on Viapori. Both herb gardens and more advanced formal gardens are an inseparable part of the landscape of the fortress. The most important of these is Piper Park on Susisaari island. This began to take shape at the turn of the 1780s at the latest, when work discontinued on a ditch that was meant to be excavated in front of bastion Hårleman (B 31) and the counterscarp (a wall structure) beside it. Instead, the area came to be used for planting.

Towards the end of the Swedish era, the vegetable patches, orchards and trimmed hedges were still lined up along straight pathways, in the old formal garden style. By contrast, the newer style of landscape gardening was represented by a naturally shaped pond, a pavilion built on piles on the pond itself and a gazebo perched on the rock high above it. The principal esplanade in the garden was on the shore of the pond, and the unfinished wall lining it formed a perfect ‘faux ruins’ feature.



The 1811 plan for alterations to the west end of the pond shows the angular formal garden laid out in the Swedish era. MV

The park was finally properly laid out as a landscape garden according to plans signed by Lieutenant Colonel Benard in 1873. MV

The name 'Piper Park' was not coined until the early years of Finnish independence. It refers to Petter Bernhard Piper, the Commandant in charge of the construction of Viapori at the time when the garden was first laid out, and perhaps also to Fredrik Magnus Piper, a close relation and a major name in Swedish 18th-century landscape gardening. It is not known, however, whether Fredrik Magnus had anything to do with the design of this park.

At the beginning of the Russian era, the garden was still largely used for growing vegetables and fruit, but from the 1840s onwards it was described as a public park. It was finally properly laid out as a landscape garden according to plans signed by Lieutenant Colonel Benard in 1873. The park was fenced, and a dense network of curving pathways was laid out on either side of the main axis. The vistas from the main paths were evidently punctuated by abundant plantings such as low-growing 'Teppich groups' of decorative plants typical of the period.

This layout was retained in the early years of Finnish independence, though greatly simplified. In 1928, the café pavilion of the Ehrensvärd Society was erected on top of the former gazebo's cellar.

Having lost its fence and fallen into decline, in 1948–1950 the park – now recognized to be an important landscape element – was reconditioned to mark Suomenlinna's 200th anniversary. The plans for this project were drawn up by landscape architect Bengt Schalin.

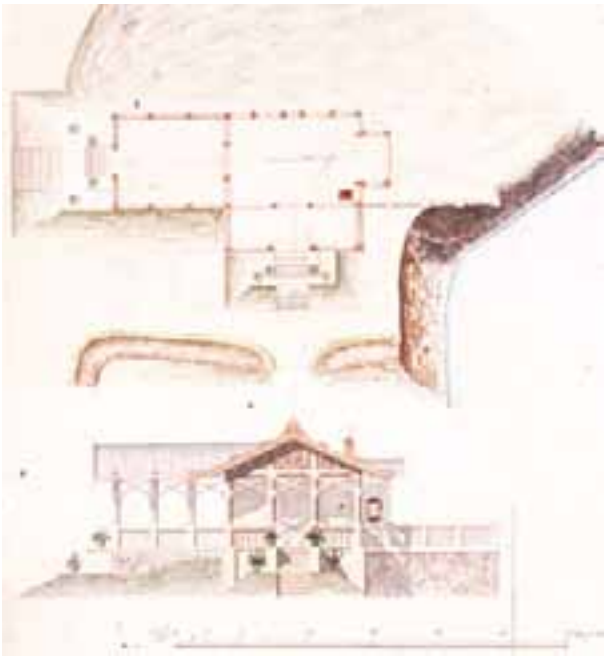
Aerial photo of Piper Park in 1978. RAh

Repairs and restoration

Since the 1974 plan for the use of Suomenlinna, the Governing Body of Suomenlinna has commissioned several reports and preliminary plans with an aim to recondition Piper Park. The 1987 landscape renovation plan (Helander, Henttonen, Simons, Ahlqvist) included a review of the park's history and a proposal for restoration principles. A more detailed historical report was published in 2001, the principal researcher being Päivi Luppi. As a basis for more detailed planning, a working group appointed by the Governing Body commissioned Vilhelm Helander to make an evaluation analysis of the park in 2003 and also to draw up a draft framework plan, which was completed in 2005. In the same year, the Street and Park Unit of the City of Helsinki Public Works Department published an inventory of the trees and grasses in Piper Park.

Today, the park is badly in need of tending. A dozen trees of high landscape value have died as a result of a few particularly dry summers, and some of the pathways have become overgrown because of repairs to adjacent walls. The Governing Body has undertaken minor repairs in the past few years: some pathways have been outlined, the pond was cleaned in autumn 2008 and the wall beside it was fixed.

The framework plan for reconditioning the park was updated in winter 2009. This plan is mainly based on the park's appearance after the reconditioning done in the early 1950s, which is accepted as established. No radical reconstructions of earlier designs are to be undertaken.



Plans for a log-built gazebo signed by Colonel Benard in 1874. MV

Maintenance and reconditioning are the most important and most urgent measures. Maintenance methods for the various components of the park – lawns and meadows – should be developed so as to maintain and enhance their characteristics. Some of the lawns are subject to

Lilacs in bloom surround the café pavilion in June. To the right is a great ash tree that has dried up as the result of two consecutive summers with practically no rain. LH

Framework plan for Piper Park. Vilhelm Helander 2005, updated in 2009.

heavy wear and tear because of recreational use; locations where sensitive and rare plant species grow must be specially protected.

Some two dozen trees, typically ash, must be planted to replace those that have died. Traditional shrub and grass species must be re-introduced to broaden the range of flora. The pathway network must be reconditioned and outlined particularly on the southern slopes, where impromptu paths have been trodden.

The framework plan further proposes a number of more drastic restoration measures. The pond is to be expanded closer to its original shape at the north end: a narrow channel is to be dredged through the present wetland and a bridge built over it, providing a view of the sea over the traditional 'lovers' pond'. A small jetty is to be built as a rest and observation point over the pond near the site of the pavilion dismantled long ago. The esplanade beside the pond is to be renovated, and a light pavilion and pergola are to be built as its end point at the base of the Piper Café to mask the café's service facilities. As in earlier centuries, the park proper will be fenced; the fence will, however, be low and subtle, though sufficient to guide visitors around sensitive spots. New pathways will be added at certain points: the pathway running along the circumference of the park on the east side according to late 19th-century plans will be restored as a grass path or 'green walk' that does not interrupt the uniform undulating terrain.

Because the plantings in the park have disappeared or become dispersed over time, and because the previously open immediate vicinity has become partly overgrown, Piper Park is no longer a distinctive landscape feature on Suomenlinna. The aim is to raise the park's profile as a product of landscape gardening and park management in the context of Susisaari island's fortress architecture.

The reconditioning work will be managed by the City of Helsinki under the leadership of the Street and Park Unit of the City of Helsinki Public Works Department, according to a division of functions related to the maintenance of Suomenlinna. Implementation planning for the restoration of Piper Park was begun in spring 2009.

Vilhelm Helander

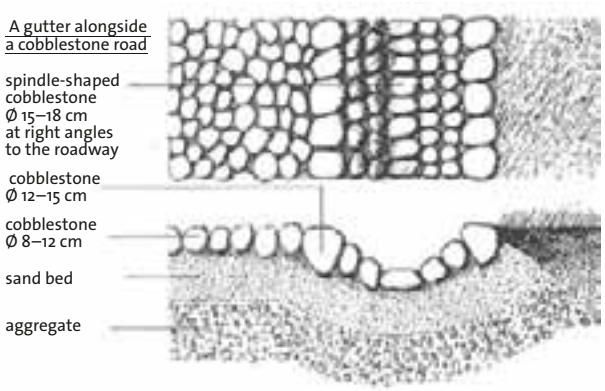
Framework plan for Piper Park
Client: Governing Body of Suomenlinna / Leena Häkli
Architects: Vilhelm Helander, Juha Leiviskä Arkkitehdit SAFA, architects / Vilhelm Helander
Antiquarian supervision: National Board of Antiquities / Helena Rosén

Roads and squares

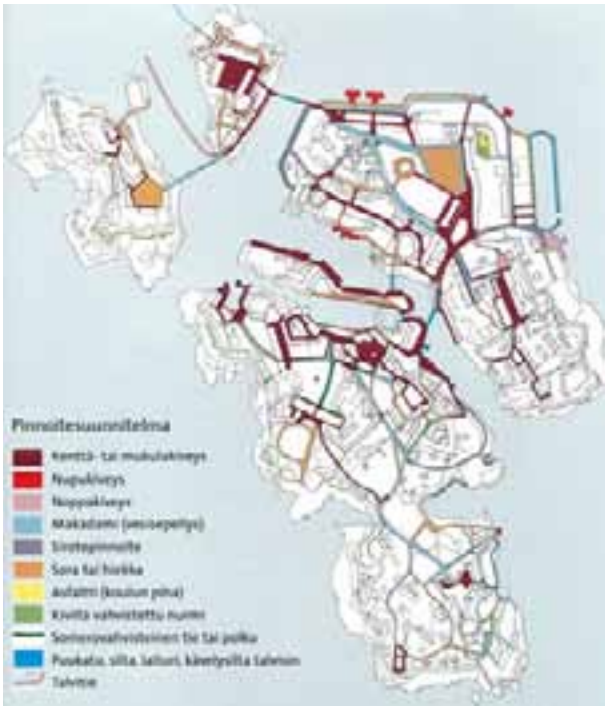
New rubble stone and cobblestone paving on Lennättimenmäki (Telegraph Hill), Iso Mustasaari island. EJ

The principal roads on Viapori have traditionally been paved or otherwise surfaced. The paving and gutters have served not only to convey surface water away but also to mark the border between the road and its setting. Traffic has changed over time, and modern heavy service traffic in particular puts stress on traditional paved surfaces. Alternative solutions have been studied and tested on roads particularly subject to vehicular traffic. Elsewhere, historical gravel or macadam paving or cobblestones are favoured. Macadam is a light paving consisting of an aggregate layer and layers of angular stones locked together with a heavy roller. This method is named after John Loudon McAdam, a Scottish engineer who pioneered the widespread use of aggregate in road paving in Britain in the early 19th century.

The provision of modern municipal engineering on Suomenlinna was agreed upon between the central government and the City of Helsinki in 1976. Under this agreement, the City of Helsinki is required to repair, build and provide lighting for areas designated in a separate appendix, including any roads, fields, parks, green areas, beaches, jetties and bridges in those areas. The total



A gutter alongside a cobblestone road. Suomenlinnan maisema 1987.



Paving plan from the landscape renovation plan of 1987.

road network amounts to 55,756 m² of road surface. The road area where the City is responsible for maintenance amounts to about 35,700 m² and is about 11,300 m in length. The City has been liable for upkeep of the pathways, parks and green areas in its areas of responsibility since 1978 and for upkeep of the road network since 1993.

The road network paving plan is included in the landscape renovation plan of 1987, which laid the groundwork for further planning. The purpose of the reconditioning project was to uncover or restore original pavings that had disappeared under layers of sand or had been destroyed in excavation, or to lay new paving resembling the original one as closely as possible. The principal roads from the main quay to the King's Gate were fully reconditioned in 1998, in time for the 250th anniversary of the founding of the fortress.

Between 1996 and 1999, the City of Helsinki repaired 5,200 m² of macadam paving, 4,100 m² of paved gutter and 6,700 m² of rubble stone or cobblestone paving. **PN**

Reconditioning roads and squares
Developer: City of Helsinki PWD Environmental Production, western Street Unit
Road surveying: City of Helsinki PWD Measuring Services
Framework planning: Ark-Viapori Oy / Pekka Nevalainen
Levelling planning: City of Helsinki PWD Street Unit / Seppo Huhtonen
Storm drain planning: City of Helsinki Water Works
Antiquarian supervision: National Board of Antiquities
Contractor: Iittalan kivijaloste Oy

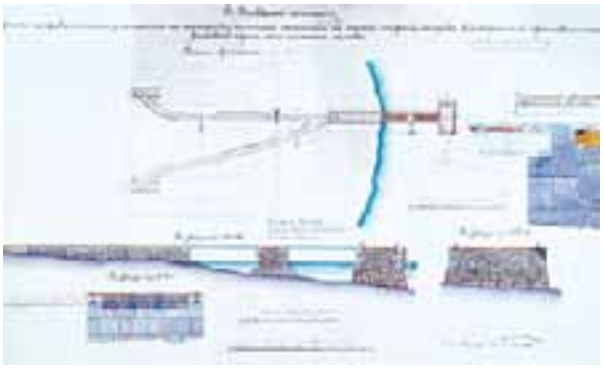
Laying macadam paving in autumn 1996. The aggregate layers are watered and then rolled to compress them into a solid surface. Moraine is spread on top as a binding agent. PN

Bridges and jetties

All the bridges linking the islands of Suomenlinna have been replaced during the existence of the Governing Body. The old bridges had reached the end of their useful lives: their foundations had subsided, and their load-bearing structures were damaged by rot and rust. As a result, their capacity had weakened – for example, it was no longer possible to drive a fully loaded waste removal truck over the Länsi-Mustasaari bridge.

According to the cost-sharing agreement, the City of Helsinki is responsible for building bridges. The new bridges have been designed with a view to the new waterbus route between the islands proposed in the 1974 plan for the use of Suomenlinna, and the bridges of Susisaari and Pikku-Mustasaari islands now have a 3-metre clearance.

The new bridges have foundations made of concrete anchored into the bedrock. The abutments and piers are faced with stone masonry or slabs. The load-bearing structures are in steel and wood. Steel was also used for the railings on the Länsi-Mustasaari bridge, while on the other bridges the decks and railings are in wood.



The jetty on the southern shore of Lonna island was completed in 1901. It was repaired in 2002, but the deck paving was again damaged by flooding in early January 2005. MV

Susisaari island bridge. PH

Länsi-Mustasaari island bridge. EJ

Suomenlinna has jetties for ferries and water buses, for the marina and for use by official bodies such as the Army and the Coast Guard. The water transport jetties fall within the domain of the City of Helsinki. Some of them are old, built of stone with log coffer foundations, while others are newer and made of concrete, steel or wood; some are fixed and others are on pontoons, and there is even a fully floating hovercraft jetty. The jetties are subjected to a great deal of stress because of the strong currents caused by passing ships, the pressure of ice in the winter and the flood tides raised by storms, and are thus in constant need of repair. A new waterbus jetty was built on Tykistölahti bay next to the Visitor Centre for the 250th anniversary in 1998, and the marina development on Varvilahti bay began at the same time. Most recently, the two stone jetties on Lonna island, which are more than a century old, were repaired. **HL & RA**

Susisaari island bridge 1982
Developer: City of Helsinki PWD Street Unit
Designers: City of Helsinki PWD Street Unit and architect Keijo Koskinen
Contractor: Oy Kreuto Ab

Pikku Mustasaari bridge 1999–2000
Developer: City of Helsinki PWD Bridge Office
Designers: Siltatekniikka Oy Viadukt and Viatek Oy
Contractor: Oy Kreuto Ab

Länsi-Mustasaari island bridge 2004
Developer: City of Helsinki PWD Bridge Office and Street Unit
Designers: SCC Viatek Oy
Contractors: Oy Kreuto Ab and Iittalan Kivijaloste Oy

The new Pikku Mustasaari bridge was first built alongside the old bridge, which was then dismantled. New piers were built on the location of the old bridge, and the new bridge was finally moved onto the new piers in the course of a single working day. KH

The new Pikku Mustasaari bridge completed. HL

Signage

The Governing Body of Suomenlinna is responsible for signage in the fortress area, including signposts, maps, and number and name plaques on the buildings. The signage system also includes poster showcases, island name boards, WC signs and info monitors, as well as worksite information boards and numerous individual signs. Signage design is a balancing act between being visible and being discreet, and between aesthetics, durability and price. At a historical site such as this, signage must be uniform and blend into the landscape while still being informative. It must be stylish and well designed down to the last detail yet able to withstand rough weather and vandalism. An increasing percentage of the visitors to Suomenlinna are foreign, so English is principally used alongside Finnish and Swedish.

The present signpost system, consisting of brass signposts and signs with a dark patina, has been in use since 1988. Over the years, the number of posts and signs has doubled. The basic designs for the poster showcases and map stands were produced by the Governing Body in the late 1980s. Some of the details of the signage, showcases and stands have been refined over the years, and they have been structurally reinforced.

The principal tourist route

Because of Suomenlinna's World Heritage status, the large number of visitors it attracts and the fact that it is also a residential city district, visitor management is very important. Methodical visitor management involves guiding visitors towards specific routes and increasing the physical durability of popular sites while minimizing the adverse effects of tourism on both residents and visitors. At the same time, information must be provided on the islands and their history. It is also important to promote understanding and acceptance of current efforts to protect the fortress.

The signage along the principal tourist route allow visitors to find information on the history of the landscape and nearby buildings even when the Visitor Centre is closed. HL

The dark patinated brass signposts withstand the harsh climate well. RAm

The backbone of the visitor management system is the principal tourist route signposted from the ferry quay to the King's Gate and leading past all the main attractions. The key colour of the principal tourist route is blue. This shows up as blue signs on signposts and a blue line on outdoor maps and the maps in seasonal brochures. Along the route, basic information on Suomenlinna is available on the info monitor and poster showcases in front of the Visitor Centre. Together with the flags flying outside, they direct the attention of visitors to the services available at the Visitor Centre.

The LED-backlit info boards along the principal tourist route ensure that information about the site and its history is available even at times when there are no guided tours or the Visitor Centre is closed. The first five such boards were erected in 2007 and describe the Russian merchants' quarter, the church park, the Great Courtyard, Piper Park and the Kustaanmiekka fortifications.

Address system

Suomenlinna has no streets, and finding a specific building on Suomenlinna can be a challenge. A reform of the address system was on the table a few years ago when a local plan was drafted for the islands, but it was eventually decided to retain the present system, where buildings are identified by a letter designating the island and a running number. The building codes are marked on guide maps and on the buildings themselves. A guide map is essential for finding a specific building. However, the loca-

The poster showcases at the main quay contain both advertisements for events and official notices. RAm

Building addresses consist of a letter denoting the island and the building number.

Name plates on buildings also show when they were built. PM

Warning signs indicate danger spots on popular routes. HL

tion of a building can also be found through the Suomenlinna website. Once the names and addresses of the buildings acquire official status with the approval of the local plan in the near future, the buildings will no doubt be found on other online maps and in GPS navigators too.

Building names

Almost all the buildings on Suomenlinna have a name. There are fortification names (e.g. bastion Hyve) that go back to Augustin Ehrensvärd's day, but there are also newer nicknames, as in the case of the residential building known as 'Noah's Ark'. In 1998, the most significant buildings along the principal tourist route were provided with plaques detailing their name and year of construction.

Safety

There is a danger of slipping and falling on the wall tops, earthworks and escarpments of the fortress, and visitors must thus proceed with care. There are warning signs posted here and there. Because it is impossible to pinpoint and mark all the danger spots, let alone fence them all off, there are warning signs at the beginning of each hazardous section of the most popular tourist routes. On all guide maps and in all brochures, visitors are generally cautioned to take extra care if venturing outside the marked routes.

Poster showcases at the Visitor Centre. YT

The WC signs are different from other signage and thus conspicuous in the landscape. RAm

The portable outdoor advertisement stands are also in a uniform style. HL

Worksite information boards

A uniform style has been created for worksite information boards. All major worksites have an information board detailing the history of the building under repair and the work being done, in words and pictures.

Advertisements

Numerous events of different kinds are organized on Suomenlinna in the course of the year. The diverse and colourful array of advertisements for these events used to be an eyesore, particularly in the summer. Because of this, a few years ago the Governing Body adopted a strict policy requiring all outdoor advertisements, even temporary ones, to be submitted to the Governing Body for approval. In return, event organizers are provided with uniform A-frame advertisement stands. **RA**

Worksite information boards are of interest to visitors. Graphic design: YAM / Outi Mansikkamäki.

Tech services

"Old buildings quickly fall into disrepair if they are not used. Their modern use requires amenities that need to be replaced from time to time. I have been 'piping' on Suomenlinna for some four years now. My biggest project so far was in Noah's Ark, the oldest multi-storey residential building in Finland. I installed a new heat distribution centre there and got rid of the old boilers."

Jouni Kunnas, pipefitter, Kouvolan Putkityö Oy

Technical maintenance

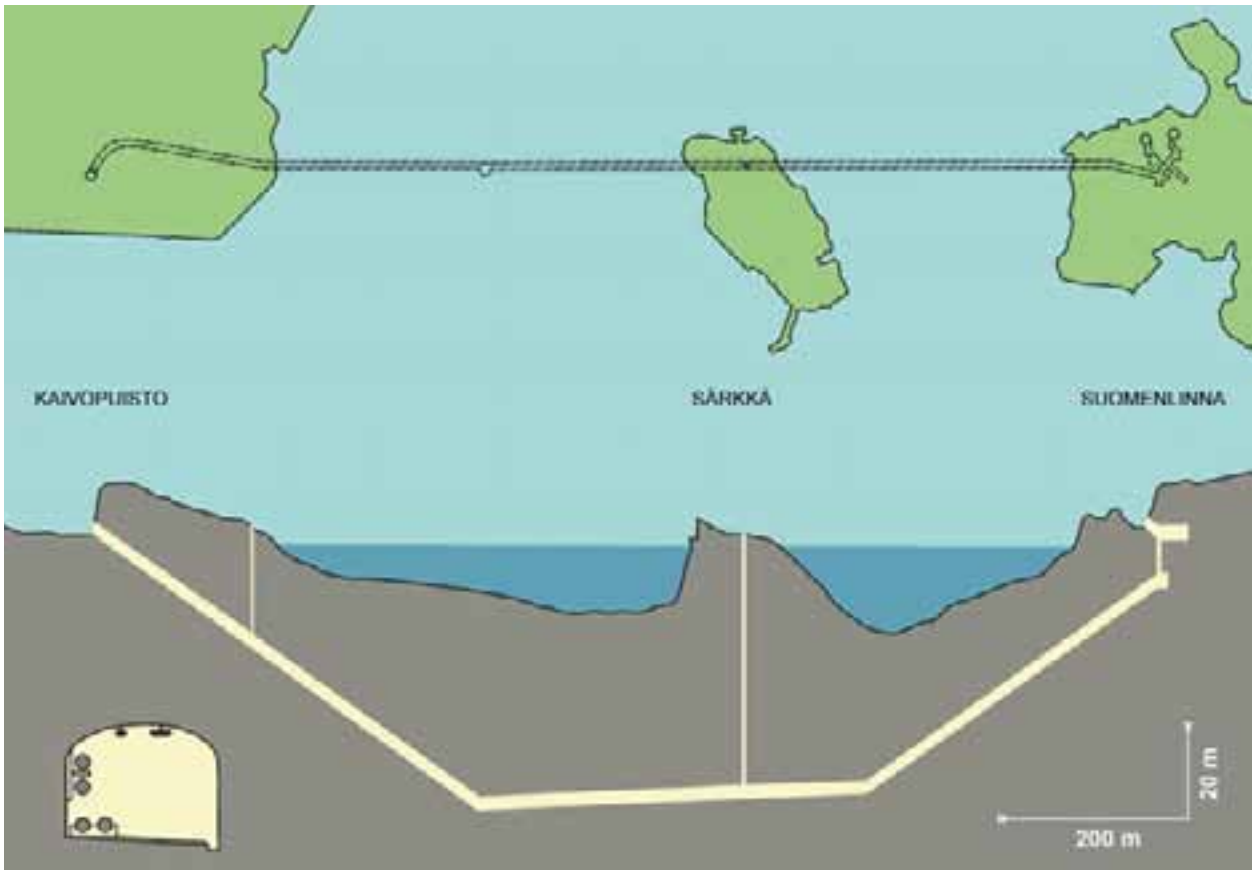
For the past 35 years, technical maintenance on Suomenlinna has been managed jointly by the City of Helsinki and the companies that own the systems. When the Governing Body was founded, there were already phone, electrical and water mains connections from the mainland to the islands, but these too have now been replaced.

Sewerage, district heating, monitoring and optic fibre networks today extend to all the islands and are connected to almost all the buildings, with only a handful of exceptions. The last island to be hooked up was Lonna island in 2008.

The excavation of the service tunnel from Kaivopuisto park to Länsi-Mustasaari island in 1980 was a turning point in the development of the fortress. This tunnel carries the heating, water mains, electrical and telecommunications piping and wiring and also provides access for emergency vehicles.

The possibility of building heating centres and waste water treatment systems on the islands was explored at the time the tunnel was proposed, and the tunnel option was eventually chosen because of the costs of transporting the fuel that would be required for heating and because of the space that would be required by waste water treatment plants and their environmental impact. Safety and backup systems in the tunnel have been improved over the years.

The trunk network on Suomenlinna extends from Länsi-Mustasaari island to the Walhalla restaurant on the southern tip of Kustaanmiekka. The water mains and sewerage connection from the service tunnel to Särkkä island was drilled in 1983. The possibility was explored



The service tunnel leading to Kaivopuisto park is about four metres in diameter. At its lowest point, it runs 64 metres below sea level.

of extending the service tunnel all the way to Kustaanmiekka, which would have enabled the trunk network connections to be built as vertical shafts like the one on Särkkä island. This would have avoided a large portion of the excavation and quarrying work required for building and maintaining the networks on the islands.

The Governing Body has a telecommunications network of its own covering the entire fortress. The trunk network is built of optic fibre cable and the building connections of copper cable. This network is used for the building automation, computer connections, TV signal distribution and security systems.

TV broadcasts are relayed to the fortress through the Governing Body's antenna amplifier system, which offers a selection of satellite channels. The HPAC, electrical and automation systems of all the utility buildings are connected to the Governing Body's property control room, which makes adjustments to heating and electrical systems and receives malfunction reports. There are emergency maintenance engineers on 24-hour call.

2002 saw the introduction of RYHTI, a building maintenance control system software application used for managing basic building data and documents, planning maintenance for HPAC and electrical systems, receiving malfunction reports, managing corrective action and monitoring energy consumption.

The buildings on Suomenlinna generally have natural ventilation or only mechanical exhaust ventilation. The restaurants, workrooms and sports hall and some conference facilities have completely mechanical ventilation.

There is an oil-fired backup heating plant operated by Helsinki Energy, temporarily located on the western shore of Iso Mustasaari island. This is only used occasionally, for instance during bridge-building work when the district heating is cut off. A final placement for the backup heating plant is being sought in the local planning process. In apartment renovations, the aim has been to recondition at least one wood-burning stove for antiquarian reasons, though they also have a practical function as a backup heating source. **HL & HK**

Emergency vehicles, except for the largest fire engines, can access Suomenlinna through the service tunnel. YT

Public utility service excavations in the Great Courtyard in 1980.

Electrical cable being laid between Lonna and Pikku Mustasaari islands in December 2007.

Power

"In the late 1960s, President Urho Kekkonen declared that Suomenlinna must be repaired, and that's when it began. The working group drafting the plan for the use of Suomenlinna was led by Markku Linna, head of the science bureau at the Ministry of Education. The plan has stood the test of time surprisingly well, and many of its basic principles are equally valid today.

"I have held a number of posts in the housing division and property management division of the Governing Body. I have been Chairman of the Board for more than a decade now. The 250th anniversary, the culmination of the restoration work that had gone before, was a high point. For me, summer is all about summer theatre and visiting the marina."

Rauno Anttila, Director, Ministry of Education

Organization and funding

The status of the Governing Body of Suomenlinna as a manager of government property is provided for in the Act (1145/1988) and Decree (168/1989) on the Governing Body of Suomenlinna.

The Governing Body administers the entire land area of the fortress, including Särkkä and Lonna islands. The only exception is the church site, which is owned by the Parish Union of Helsinki. There are some 270 numbered buildings and fortifications, of which the Governing Body controls 85%. The rest belong to the Senate Properties asset management company, the City of Helsinki, the Parish Union of Helsinki and the owners of private homes.

Finland ratified the Convention Concerning the Protection of the World Cultural and Natural Heritage on 13 February 1987. In 1991, the Suomenlinna fortress was added to the UNESCO World Heritage List.

The property unit of the Governing Body manages the cleaning of streets and parks on Suomenlinna and charges the City of Helsinki for the service in areas that fall within the City's domain.

The World Heritage Convention

The Finnish government is committed to preserving Suomenlinna for future generations under the World Heritage programme. Finland has ratified the Convention Concerning the Protection of the World Cultural and Natural Heritage adopted by UNESCO in 1972, which specifies that each member state shall undertake the protection of World Heritage sites within its territory through its own legislation.

The disused fortifications and ruins on Suomenlinna are protected under the Finnish Antiquities Act. The buildings that are in use are protected under the Act on the Governing Body of Suomenlinna. The purpose of ongoing local planning work is to collaborate with the National Board of Antiquities, the Ministry of the Environment and the City of Helsinki City Planning Department in safeguarding and further specifying this protection under the provisions of the local plan and the Act on the Protection of Buildings.

Organization

The Governing Body of Suomenlinna is subject to the monitoring and guidance of a Board chaired by a representative of the Ministry of Education. All the parties with a role in the development of Suomenlinna are represented on the Board: the Ministry of Education, the National Board of Antiquities, the Ministry of Finance, the Ministry of Defence, the Ministry of Justice, Senate Properties, the City of Helsinki and Suomenlinna residents. The City and the residents each have two representatives on the Board, the rest have one each.

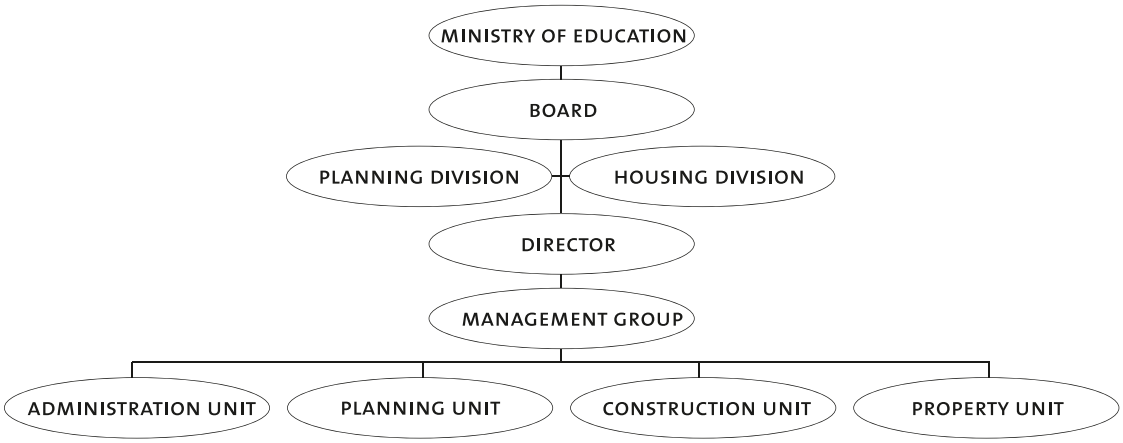
The core duties of the Governing Body of Suomenlinna involve the maintenance, development and presentation of this World Heritage site and significant national monument. In 2008, the Governing Body employed 102 people, some of them seasonal workers taking care of outdoor areas in summer and some of them part-time weekend help. The number of personnel person-years in 2008 was 93.

The Governing Body is divided into four units, for administration, planning, property and construction. The administration unit handles financial, information and HR management, and also PR and visitor coordination (24 employees in all), the planning unit construction projects (9 employees), the property unit cleaning and maintenance in buildings and outdoor areas (43 employees), and the construction unit repair work and certain renovation projects (26 employees).

The principal partners of the Governing Body are the Suomenlinna Open Prison, the City of Helsinki and the National Board of Antiquities. Common matters are decided on at Board meetings, and follow-up and development meetings with partners are held regularly.

Housing Secretary Leena Rautio helps residents and other Governing Body tenants at the administration unit service desk.

Winding up the clock in the Jetty Barracks tower is part of the job of maintenance man Jorma Hiltunen. The latest renovation of the clock machinery was undertaken in 1979 by precision mechanics students at the Westend Vocational Institute for the Disabled.



The Governing Body of Suomenlinna is a central government agency whose Board consists of representatives of government ministries, the City of Helsinki, the National Board of Antiquities and Suomenlinna residents. The Governing Body has between 90 and 100 employees in four units.

Co-operation with the City of Helsinki is based on a cost-sharing agreement signed in 1976; under this agreement, central government is responsible for maintenance of the monument, while the City is responsible for public utilities and the upkeep of public areas. There is a working group for monitoring and developing this cooperation, with representatives from the Governing Body and all agencies of the City of Helsinki operating on Suomenlinna.

Funding

The funding for repairing and maintaining the fortifications, buildings and landscape managed by the Governing Body is provided by the Finnish government and other building owners. On the basis of the cost-sharing agreement between central government and the City of Helsinki (1976), the City has contributed to the building and upkeep of streets, bridges, parks, water mains, sewers and other public utilities on Suomenlinna. City funding accounts for 10% of the cost of the upkeep of the monument; its contribution to capital investments peaked at about 30% in the 1980s, when public utilities and bridges were being built.

A labour colony under the Prison Service of the Ministry of Justice was set up to provide assistance with repairs on Suomenlinna as far back as 1969. Today, this unit is known as Suomenlinna Open Prison and forms part of the District Prison of Southern Finland. The number of inmates has varied between 50 and 100. These workers are employed in restoration work at various sites, supervised by professional foremen and assisted by outside contractors in projects requiring special expertise or fitter's qualifications. Today, the Open Prison is a 'release unit', meaning it houses inmates serving the final months of their sentence in conditions as closely resembling civilian life as possible. The inmates are paid for the work they do and use the money to pay for their accommodation and food. The Open Prison is funded out of budget funds allocated to the Ministry of Justice for open prisons. Each year, repairs on Suomenlinna worth about EUR 2 million are funded through the prison.

On the basis of a cooperation agreement signed with the prison, the Governing Body is responsible for planning the projects to be implemented by inmates, for obtaining the necessary statements and permits, and for carrying out other duties of the developer. The Ministry of Education has allocated EUR 1 to 2 million per year for renovations on Suomenlinna.

In 2008, the Governing Body spent EUR 6.6 million on the maintenance of Suomenlinna, two thirds of which was funded out of revenue from rents and fee-paid services. Rents accounted for 95% of this revenue. The largest expenditure items in maintenance costs are personnel costs in the property and construction units, procurement of substances and materials, property tax, energy and water supply, and waste management.

Attempts have been made to gauge the value of Suomenlinna to Helsinki tourism. No actual study has been conducted, but border interviews with tourists from abroad indicate that foreign tourists in Finland spend an average of EUR 50 per day (Statistics Finland 2008). Based on the number of foreign tourists who visit Suomenlinna and the average amount of time they spend there, a rough calculation would be that at least EUR 2 million of Helsinki's tourist revenues in 2008 can be credited to Suomenlinna. **HL**

The planning unit is responsible for designing and developing building projects on Suomenlinna. These are architects Reetta Amper and Tiina Koskenniemi.

Future

"In 30 years, I could be living on Suomenlinna alone, or if I have a family, with my family. I could design boats or boat parts – I haven't really decided yet. I hope that there will still be expertise here in fixing wooden boats and work available to people who build them.

"I'd really like it if the Suokki [Suomenlinna] village school carried on so that kids here could go to school together under the same roof.

"In the future there's going to be more people coming here, because there are so many people in the world who haven't seen Suomenlinna yet. Even those who have already been will want to come again when the place has been repaired. And 30 years from now, the tours will be better too, and you'll get a better idea of what's been going on."

Valtteri Rauhala, 6th grade, Suomenlinna primary school

Future

Finland ratified the UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage on 13 February 1987. The government is thus committed to preserving Suomenlinna as part of the collective memory of humanity.

The World Heritage Committee monitors the management of sites on the World Heritage List, for instance through Periodic Reports. Each site prepares its own report every five years, following instructions from the Committee. In evaluating the reports and maintenance of the sites, the Committee is assisted by the International Council on Monuments and Sites (ICOMOS).

For new sites to be considered in the 2000s, a Management Plan must already be appended to the application. For sites accepted in the 1990s and earlier, the Management Plan must be provided after acceptance. A Management Plan comprises a written record of the values on the basis of which the site has been accepted for the World Heritage List. It also describes the development of the site and the threats it faces, and the means and resources required to ensure its preservation.

In Finland, monitoring of World Heritage sites is centrally managed by the National Committee on World Heritage headed jointly by the National Board of Antiquities and the Ministry of Education. The National Committee decided in 2006 that every site must have a designated governing body made up of representatives of the site owners, regional and national authorities, and parties operating in the area. Suomenlinna has had a Governing Body since 1973. (3

The 1974 plan for the use of Suomenlinna fulfils quite closely the Management Plan requirements of the World Heritage Committee. A number of general plans have been drawn up for various component areas to complement the above plan. The 1974 plan for the use of Suomenlinna is currently in the process of being updated.

"The general conference of the United Nations Educational, Scientific and Cultural Organization meeting in Paris from 17 October to 21 November 1972, at its seventeenth session, [notes] that the cultural heritage and the natural heritage are increasingly threatened with destruction not only by the traditional causes of decay, but also by changing social and economic conditions which aggravate the situation with even more formidable phenomena of damage or destruction." (1

"Each State Party to this Convention recognizes that the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage referred to in Articles 1 and 2, and situated on its territory, belongs primarily to that State. It will do all it can to this end, to the utmost of its own resources and, where appropriate, with any international assistance and co-operation, in particular, financial, artistic, scientific and technical, which it may be able to obtain." (2

1) Convention Concerning the Protection of the World Cultural and Natural Heritage.

2) Convention Concerning the Protection of the World Cultural and Natural Heritage, article 4.

In January 2005, the sea level rose to 1.5 m above normal for a few hours along Market Square and Suomenlinna, almost flooding the dock basins. The ferry service was suspended, and the flood water caused damage along the shore.

3) A decision was taken in 2009 that a representative of the owner of Suomenlinna Church, i.e. the Parish Union of Helsinki, would be invited to attend Board meetings whenever matters pertaining to the World Heritage status of Suomenlinna are discussed.

Exceptional administrative model

The present administrative model for the Governing Body of Suomenlinna was established in the 1970s. It was based on the observation that if responsibility is shared by several different agencies, it is impossible to manage the upkeep and development of the monument in accordance with common objectives.

The highest authority on Suomenlinna is the Board appointed for a four-year term by the Ministry of Education to exercise broad authority over matters regarding the fortress (in accordance with the Act and Decree on the Governing Body of Suomenlinna). The Board members represent all the ministries and City agencies with interests in Suomenlinna. The residents elect two Board members to represent them. The Board meets three to five times per year.

The Board is assisted by two divisions, for housing and planning, each with members and deputy members. These may meet more often than the Board, on an as-needed basis. The housing division does nothing but decide on the renting out of the 330 apartments administered by the Governing Body. The planning division decides on renovation projects, although major projects are submitted to the Board for final approval. The Board may appoint other divisions to discuss far-ranging issues as required. In 2009, for example, a shop division was appointed to prepare a proposal to the Board regarding grocery shops on Suomenlinna.

Suomenlinna is an exceptional site in both central and local government terms. The fortress is a monument of national and international importance, but it is also a residential district of the city of Helsinki. It is also exceptional in that it is an archipelago environment, which is also an advantage. As a very basic example of this, the islands set very real and concrete limits on the responsibility and authority of the Governing Board. The fact that the fortress is located on islands was one reason cited for locating a prison there. Future funding for repairs on Suomenlinna seems secure, at least for as long as prison labour is available to carry out the work.

Future threats and opportunities

The importance of Suomenlinna in preserving the garrison and maritime heritage of 18th and 19th-century Helsinki has grown continuously as other old garrisons, shipyards and harbours in Helsinki have been converted into residential areas or for other purposes.

The annual number of people visiting Suomenlinna has more than doubled from 300,000 in the 1970s to almost 700,000 at present. The number of foreign visitors in particular has increased. Although it is difficult to predict trends in international travel in the present economic and ecological situation, it is likely that the number of Finnish visitors will increase once the development objectives of the fortress are attained. However, no increase in visitor numbers is sought for the high season, during which the fortress is already overcrowded.

Ensuring a balanced mix in the permanent population has been a goal since the plan for the use of Suomenlinna was drawn up in the 1970s. This goal has been attained even though Suomenlinna is located in the core of a dynamic and evolving capital city. Profit-seeking and allotting premises to the highest bidder with no questions asked have been avoided, because this would impoverish the day-to-day life of the fortress. Centralizing the currently well-functioning administration of Suomenlinna or outsourcing its functions are also threats, because the special conditions on the islands require expertise in various fields and considerable local knowledge.

The natural environment on Vallisaari island, seen in the background, has been spared the wear and tear focused on Suomenlinna. On the other hand, nature is encroaching on the valuable fortification structures on the island. SIk

The rising sea level will, according to the bleakest predictions, threaten the very existence of the fortress in the next century if global warming is not significantly curbed. However, in the next 50 to 100 years, it would seem that the global warming predicted will not yet constitute a threat, and indeed, damage from ground frost and subzero temperatures may even decrease. On the other hand, any increase in extreme weather may escalate rainwater erosion and flood damage.

An expanding maritime city park

Suomenlinna today is only part of what was referred to as *Krepost' Sveaborg* in the Russian era. The Russian fortress included not only the islands that now constitute Suomenlinna but also the nearby Vallisaari, Kuninkaansaari, Isosaari, Kuivasaari and Rysäkari islands, which are still occupied by the Defence Forces. The Defence Forces has recently announced, however, that at least some of these will no longer be needed for defence purposes in the future. Opening these islands up to the general public will create new opportunities for both tourism and recreation. They would constitute a logical continuation to the historical path that begins in Suomenlinna and outlines the evolution of fortifications while also significantly expanding the Helsinki maritime city park that spreads out from the mouth of the Vantaanjoki river. The opening up of more islands to the public would also relieve the occasional excess pressure on Suomenlinna caused by recreational use. **HL**

Appendices

Decades of renovation

1748	Work begins under Augustin Ehrensvärd on the construction of a fortress on islands off Helsinki, named **Sveaborg** or 'Sweden's fortress' in Swedish (rendered in Finnish as **Viapori**).
1788	King Gustav III launches a war against Russia in which Viapori is the principal Swedish naval base.
1808	The Russo-Swedish War of 1808–09 begins. The fortress surrenders to the Russians.
1809	Finland becomes an autonomous Grand Duchy in the Russian Empire, and the fortress becomes a Russian garrison.
1855	The Crimean War. The fortress sustains severe damage under bombardment by an Anglo-French fleet.
1906	The 'Viapori rebellion': the Russian garrison rises up against the Tsar.
1917	The Russian Revolution. Finland declares independence.
1918	The Finnish Civil War. A prison camp is set up in the fortress. Sveaborg/Viapori is taken over by the Finnish government and renamed **Suomenlinna**.
1919	Kustaanmiekka and Susisaari are given over to the Archaeological Commission (now the National Board of Antiquities).
1920–1935	An aircraft factory operates on Suomenlinna.
1921	Suomenlinna is transferred to the Ministry of War. Suomenlinna primary school opens.
1922	Design competition for reshaping the exterior of Suomenlinna Church.
1923	Architect Oiva Kallio designs the sailing centre and restaurant on Särkkä island for the Merenkävijät yacht club. The Naval Academy is founded.
1924	The permanent population of Suomenlinna exceeds 1,000.
1925	The Air Defence Command is founded. The Kustaanmiekka fortifications are reconditioned.
1928	Piper Park is reconditioned, and Piper Café is opened.
1929	Suomenlinna Church, now a Lutheran church, is re-consecrated.
1930	The Ehrensvärd Museum opens. The current outer basin of the dock is built.
1931	The city nursery opens. The Kustaanmiekka shore fortifications are repaired.
1933	The Military Museum is founded on Kustaanmiekka. Suomenlinna is used as a submarine base.
1936	The Helsinki Military Hospital moves from Suomenlinna to Tilkka Hospital.
	The number of annual visitors to Suomenlinna exceeds 60,000.
1939–1944	Winter War (1939–1940) and Continuation War (1941–1944). Anti-Aircraft Regiment I, the regional air surveillance centre and the Signals Centre of the Uusimaa Coastal Brigade are stationed on Suomenlinna.
1940	Armistice. The Kustaanmiekka straits are dredged.
1944	Air raids cause damage on Iso Mustasaari and Lonna islands. The war ends.

1946	The Ehrensvärd Society proposes to the Government that the whole of Suomenlinna be declared an ancient monument.
1947	Architect Aulis Blomstedt draws up plans to enliven the Kustaanmiekka fortress.
1948	200th anniversary exhibition in bastion Carpelan (A 5). Mandatory visitor passes are abolished. The Coastal Artillery Museum is opened in a powder magazine on Kustaanmiekka. Piper Park is reconditioned.
1950	Opening of the Walhalla restaurant, built in repaired caponnieres on Kustaanmiekka.
1951	Completion of the conversion of buildings on Länsi-Mustasaari island for use as shipyard staff accommodation.
1952	A new ferry, the m/s Suomenlinna, goes into service between Suomenlinna and Market Square. A City health centre on Suomenlinna opens.
1953	The Armfelt Museum in bastion Carpelan on Kustaanmiekka opens. The Suomenlinna Society residents' association is founded. The permanent population of Suomenlinna exceeds 1,600.
1957	A City branch library on Suomenlinna opens.
1958	Repairs to caponniere Coyet (A 6) are completed.
1959	A new primary school (C 55) is completed.
1961	The State Police Academy moves away from Suomenlinna. Some Russian-era wood buildings are pulled down.
1963	Guided tours and the kiosk on Susisaari island are taken over by the Ehrensvärd Society.
1962	The Archaeological Commission submits a proposal to the Ministry of Education concerning the organization of the administration, management and use of the fortress.
	The number of annual visitors to Suomenlinna exceeds 100,000.
1966–1969	The City of Helsinki appoints a Suomenlinna Committee to discuss the future use of the fortress.
1968	A summer theatre is set up in ravelin Hyvä Omatunto.
1969–1972	The central government appoints a Suomenlinna Committee to discuss the future use of the fortress.
1970–1971	Ideas competition for a local plan for Suomenlinna
1971	Suomenlinna labour colony (today the Suomenlinna division of Helsinki Open Prison) is founded. Ferry traffic is incorporated into the City transport tariff.
1972–1999	Repairs to the shore fortifications on Iso Mustasaari island (C 89).
1973	Suomenlinna is transferred to a civilian administration. The Governing Body of Suomenlinna is founded. The Pot Viapori pottery workshop is founded.
1974	The plan for the use of Suomenlinna is completed, based on the proposal that won an ideas competition. Repairs to residential building C 83 ('Vaasa Barracks') completed.
1976	The central government and the City of Helsinki sign a cost-sharing agreement. The Kustaanmiekka straits are widened on the Vallisaari island side.
1977–1984	The earthworks on Kustaanmiekka and Susisaari island are repaired.
1978	The Nordic Arts Centre is set up on Suomenlinna. The supply vessel m/s Ehrensvärd begins to serve Suomenlinna, operating out of Katajanokka.
1980	The district heating tunnel between Suomenlinna and Kaivopuisto park is completed. Premises are renovated for the Gulf of Finland Coast Guard on Iso Mustasaari island.

1981	The HOK grocery shop shuts down.
1982	A new bridge is built between Susisaari and Iso Mustasaari islands. Plan for condensing the low-rise areas.
1983	The Governing Body of Suomenlinna receives the prize of the Finnish Association of Architects. Renovation of the Walhalla restaurant is completed. The Linnanportti café closes down.
1984–1991	Renovation of crownwork Ehrensvärd (C 31): new premises for the daycare centre, library and health centre.
1985	The landscape renovation plan is completed. Valmet gives up the Suomenlinna shipyard. Restoration principles are discussed at an international Suomenlinna seminar.
1987	The conversion of the Manège (C 77) into the Military Museum is completed. The shipyard association, Viaporin Telakka r.y., is founded.
1988	Renovation of residential buildings B 24, B 37, B 42 and C 31.
1989–1992	Renovation of the Naval Academy sauna (D 26).
1990–1993	Renovation of the summer theatre (B 47).
1991	Suomenlinna is added to the UNESCO World Heritage List. The new houses in the Merchants' Quarter are completed.
1992–1997	The Kustaanmiekka shore fortifications are repaired.
1993	The east wing of crownwork Ehrensvärd (C 40) is converted into offices for the Governing Body of Suomenlinna.
1994	By this time, all residential buildings and the majority of all other buildings have been connected to the city sewer network.
1995	The Governing Body of Suomenlinna receives the Rose for Building award. ICOMOS seminar 'Conservation Training – Needs and Ethics'.
1996	Restaurant Café Chapman is opened in traverse Adlerfelt (B 1).
1997	The Suomenlinnan Panimo brewery restaurant is opened in the Jetty Barracks (C 1).
1998	Suomenlinna celebrates its 250th anniversary. The Visitor Centre and tenaille von Fersen, renovated for the celebrations, are opened. Lonna island is transferred to the Governing Body.
1999	Suomenlinna receives the 'Europa Nostra' and 'Village of the Year' awards.
2000	The marina on Susisaari island is expanded, and the former ammunition foundry B 13 is converted into a service building.
2001	The new gate of the outer dock basin is completed.
2002	The Defence Forces turns over all its real estate to the Senate Properties asset management company and all its land property to the Forest and Parks Service. Hostel Suomenlinna (C 9) opens.
2003	Concluding meeting of the EU Culture 2000 project 'Modern Re-uses for the Historic Architecture Today'.
2004	A new ferry, the Suomenlinna II, goes into service.
2005	A sports hall is completed in the former Artillery Manège (C 81).
2006	Suomenlinna receives the award for best conference venue in the Best of Helsinki Awards.
2007	The National Board of Antiquities closes down its office on Suomenlinna.
2008	The renovations of the Naval Academy headquarters and canteen (D 13 and D 12) are completed. Lonna island is connected to the water mains and sewerage network.
2009	Suomenlinna has a permanent population of about 850.
	The number of annual visitors to Suomenlinna is about 650,000.

Board of the Governing Body of Suomenlinna

The first term of office began in June 1973. Terms of office last three years, except for term 6, which was less than a year long because of a reorganization. The current term is term 13 and will end in April 2010.

Chairpersons	**Terms**
Mäkinen Anneli	1
Numminen Jaakko	2–8
Hirvi Vilho	9
Murtomäki Aimo	10
Anttila Rauno	11–13

Members	**Terms**
Antikainen Mika	11
Anttila Martti	2–5
Antti-Poika Jaakko	7–13
Erwe Marjatta	11, 13
Flink Selja	13
Hanhivaara Maire	9
Hedman Lars	2–7
Hyvärinen Silja	12–13
af Hällström Magdalena	10–13
Härö Mikko	5
Järvinen Katri	11
Kairamo Maija	7
Karkela Kauko	2
Kivi Antero	2–10
Kivipelto Antti	11–13
Kopisto Aarne	1–7
Korhonen Reijo	6–9
Kuivajärvi Kirsti	13
Kuuluvainen Eeva	10–12
Laiho Kalervo	7
Lempiö Ahti	12
Mattinen Maire	9–11
Merimaa Antero	10–13
Murtomäki Aimo	2–9
Niemi Matti	3–11
Nygren Leevi	1–3
Paljakka Anna	2
Pekkala–Koskela Eea	9–10
Perkkiö Paavo	7–8
Piirainen Hannu	6
Rajajärvi Tuomas	10–13
Rautapää Matti	1
Rosén Helena	11–12
Saarinen Mikko	4–5
Salovaara Jorma	9–12
Tanner Matti	1
Tapio Olavi	8
Tuominen Pertti	2–8
Varjonen Olli	13
Veltheim Antonio	6–8
Veltheim Kerttu	3–4
Välikauppi Raili	12
Väyrynen Antti	1
Wangell Ann–Marie	9

Directors of the Governing Body of Suomenlinna

Kalervo Laiho, architect	1990
Jaakko Antti-Poika, architect	1990 –

Heads of planning of the Governing Body of Suomenlinna

Reijo Lahtinen Lic.Sc.(Tech.), architect	1976–1984
Heikki Pyykkö, architect	1984–1989
Heikki Lahdenmäki, architect	1989 –

Heads of construction of the Governing Body of Suomenlinna

Seppo Lempinen, master builder	1991–2008
Sampsa Karvinen, construction engineer	2008–

Foremen of the Suomenlinna labour colony / Open Prison

Olavi Nikkanen, master builder	–1986
Seppo Salmio, engineer	1986–1994
Juhani Vuorela M.Sc.(Tech.)	1994–2006
Olli Mörsky, construction engineer	2006–

National Board of Antiquities, curators of Suomenlinna

Olof af Hällström M.A.	–1980
Liisa Eerikäinen M.A.	1980–2002
Helena Rosén M.A.	2002–

Master builder Kaj Holmberg has been the supervisor of the construction sites of the Governing Body of Suomenlinna since 1991, and electrical engineer Heikki Kuivaniemi has been the supervisor of electrical work since 2001, unless otherwise indicated in the project data.

Project list by address

Address	Name	Repairs period
A 1	Picnic shelter	2003–2004
A 12	King's Gate	1996–1998
A 2	Coastal Artillery Museum	1987–1988
A 3 & A 4	Disciplinary company	1992
A 5a	Bastion Carpelan	2002
A 5c & A 7	Bastions Gyllenborg, Zander and Lantingshausen	2005–
A 10	Walhalla restaurant	1980–1983
A 11	Tenaille Kyhlenbeck	1995–1997
A 13	Kustaanmiekka shore fortifications	1992–1997
B 1 & B 2	Traverse Adlerfelt	1995–1997, 2007
B 10	Dementyev sauna	2001, 2003
B 12	Bastion Taube	2004–
B 13	Marina	1999–2000
B 14	New plate workshop	2002–2004
B 15	Transformer	2001–2002
B 17a	Bastion Seth	1996–1997, 2006–2008
B 17c	Tenaille von Fersen	1998–2005
B 20	Hamilton-Polhem curtain	1987–1991
B 23 & B 23b	Admiral's Lodge	1988–1990
B 24	'Rectory'	1986–1988
B 25 & B 19	Kultaranta semi-detached house	1989–1991
B 28	Nordic Arts Centre	1983–1985
B 29 & B 65	Powder magazine	1997–1999
B 31	Bastion Hårleman	1993–2004
B 37 & B 36 & B 38	Resident Major's House	1986–1988
B 39	'Blue house'	1990–1991
B 41	Bastion Palmstierna stable	1996–1997
B 42a & B 42b	Great Palmstierna and caponniere Blomcreutz	1988–1989
B 43	Caponniere de Carnal	1996–1997
B 44–45	Atelier building	1980–1982
B 47 & B 52	Ravelin Hyvä Omatunto	1990–1993, 2005–2007
B 48	Bastion Hyve	1978–1984
B 51	Bastion Polhem	1998–2004
B 54 & B 55	'Edging Building'	1980–1982
B 63	Winch shed	1990–1991
B 78	New shipyard shed	2007–2008
C 1	Jetty Barracks	1996–1999, 2001
C 4	Ferry shelter	2002
C 5a	Archive caverns	1990–1994
C 8	Yläkerho restaurant	2006–2007
C 9	Hostel Suomenlinna	2001–2002
C 11–	City of Helsinki employee housing	1990–1991

C 25 – C 27	Coast Guard station	1980, 2006– 2007
C 28	'Devil's Church'	1992–1996, 2002
C 31	Crownwork Ehrensvärd	1984–1991
C 33	Lumber storeroom	1992–1995
C 34	Woodwork workshop	1992–1996
C 36	Metal workshop	1997–1999
C 37	Storehouse	1999
C 39	Construction office	2000–2003
C 40	Crownwork east wing	1993
C 41	Customs boat station	1984–1985
C 43 & C 42	Church	1986–87, 1994, 1997
C 46	Public toilets	2005–2006
C 49 & C 48	Military kitchen	1995
C 52	Bastion Bielke	1993–1998
C 54	'Noah's Ark'	2005–2010
C 57	Storehouse	1992–1993
C 58	Non-commissioned officers' building	2002–2005
C 61 & C 62	Boat sheds	1978
C 62	Office	1983–1985
C 63	Civil defence shelter	1985
C 70	Ice cellar	2004–
C 71	Telegraph office building	1993–1995
C 74	Suomenlinna Visitor Centre	1997–1998
C 76 & C 75a & C 75b	Military band building	1978–1981
C 77	Military Museum	1986–1987
C 81	Artillery manège	2001–2005
C 89	Southeast bastion line and shore defences	1972–1999
C 93	Hornwork Hessenstein	1979–1984
C 109	Accommodation cabin	2008–2009
D 1	Curtain Stromberg-Scheffer	1977–1978
D 11	Office	2000
D 12	Naval Academy canteen	2007 –2008
D 13	Main Building of the Naval Academy	2006–2008
D 14	Naval Academy dormitory	1975–1978
D 15	Planetarium	1980–1981
D 23	Naval Academy Headquarters	2007–2008
D 26	Sauna building	1989–1992
E 3 – E 5	Länsi-Mustasaari island barracks	1995–2002
E 9	Sauna, 'Nallensauna'	1988, 1995
E 11	Military courthouse	2004
E 12	Bakery	2002–2003
E 13	District heating tunnel	1978–1980
E 14	Mine classroom	2001–2003
H 2	Mine workshop	2004–
H 7	Mine laboratory	2002–2009

Project list by renovation date

Address	Name	Repairs period
C 89	Southeast bastion line and shore defences	1972–1999
D 14	Naval Academy dormitory	1975–1978
D 1	Curtain Stromberg-Scheffer	1977–1978
C 61 & C 62	Boat sheds	1978
E 13	District heating tunnel	1978–1980
C 76 & C 75a & C 75b	Military band building	1978–1981
B 48	Bastion Hyve	1978–1984
C 93	Hornwork Hessenstein	1979–1984
C 25 – C 27	Coast Guard station	1980, 2006–2007
D 15	Planetarium	1980–1981
B 44–45	Atelier building	1980–1982
B 54 & B 55	'Edging Building'	1980–1982
A 10	Walhalla restaurant	1980–1983
B 28	Nordic Arts Centre	1983–1985
C 62	Office	1983–1985
C 41	Customs boat station	1984–1985
C 31	Crownwork Ehrensvärd	1984–1991
C 63	Civil defence shelter	1985
C 77	Military Museum	1986–1987
B 24	'Rectory'	1986–1988
B 37 & B 36 & B 38	Resident Major's House	1986–1988
C 43 & C 42	Church	1986–87, 1994, 1997
A 2	Coastal Artillery Museum	1987–1988
B 20	Hamilton-Polhem curtain	1987–1991
E 9	Sauna, 'Nallensauna'	1988, 1995
B 42a & B 42b	Great Palmstierna and caponniere Blomcreutz	1988–1989
B 23 & B 23b	Admiral's Lodge	1988–1990
B 25 & B 19	Kultaranta semi-detached house	1989–1991
D 26	Sauna building	1989–1992
B 39	'Blue House'	1990–1991
B 63	Winch shed	1990–1991
C 11–	City of Helsinki employee housing	1990–1991
B 47 & B 52	Ravelin Hyvä Omatunto	1990–1993, 2005–2007
C 5a	Archive caverns	1990–1994
A 3 & A 4	Disciplinary company	1992
C 57	Storehouse	1992–1993
C 33	Lumber storeroom	1992–1995
C 34	Woodwork workshop	1992–1996
C 28	'Devil's Church'	1992–1996, 2002
A 13	Kustaanmiekka shore fortifications	1992–1997
C 40	Crownwork east wing	1993
C 71	Telegraph office building	1993–1995

C 52	Bastion Bielke	1993–1998
B 31	Bastion Hårleman	1993–2004
C 49 & C 48	Military kitchen	1995
A 11	Tenaille Kyhlenbeck	1995–1997
B 1 & B 2	Traverse Adlerfelt	1995–1997, 2007
E 3 – E 5	Länsi-Mustasaari island barracks	1995–2002
B 41	Bastion Palmstierna stable	1996–1997
B 43	Caponniere de Carnal	1996–1997
B 17a	Bastion Seth	1996–1997, 2006–2008
A 12	King's Gate	1996–1998
C 1	Jetty Barracks	1996–1999, 2001
C 74	Suomenlinna Visitor Centre	1997–1998
B 29 & B 65	Powder magazine	1997–1999
C 36	Metal workshop	1997–1999
B 51	Bastion Polhem	1998–2004
B 17c	Tenaille von Fersen	1998–2005
C 37	Storehouse	1999
B 13	Marina	1999–2000
D 11	Office	2000
C 39	Construction office	2000–2003
B 10	Dementyev sauna	2001, 2003
B 15	Transformer	2001–2002
C 9	Hostel Suomenlinna	2001–2002
E 14	Mine classroom	2001–2003
C 81	Artillery manège	2001–2005
A 5a	Bastion Carpelan	2002
C 4	Ferry shelter	2002
E 12	Bakery	2002–2003
B 14	New plate workshop	2002–2004
C 58	Non-commissioned officers' building	2002–2005
H 7	Mine laboratory	2002–2009
A 1	Picnic shelter	2003–2004
E 11	Military courthouse	2004
B 12	Bastion Taube	2004–
H 2	Mine workshop	2004–
C 70	Ice cellar	2004–
A 5c & A 7	Bastions Gyllenborg, Zander and Lantingshausen	2005–
C 46	Public toilets	2005–2006
C 54	'Noah's ark'	2005–2010
C 8	Yläkerho restaurant	2006–2007
D 13	Main Building of the Naval Academy	2006–2008
D 12	Naval Academy canteen	2007–2008
B 78	New shipyard shed	2007–2008
D 23	Naval Academy Headquarters	2007– 2008
C 109	Accommodation cabin	2008–2009

Writers

Governing Body of Suomenlinna

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Leena Häkli, architect	LH
Tiina Koskenniemi, architect	TK
Heikki Kuivaniemi, electrical work supervisor	HK
Heikki Lahdenmäki, Planning Manager	HL
Tuija Lind, architect	TL
Petri Mikonsaari, architect	PM
Synnöve Vaari, Communications Manager	SV
Milla Öystilä, Tourist Coordinator	MÖ

Ark-Viapori Oy

Reetta Amper, architect	RA
Pekka Nevalainen, landscape designer	PN

Arkkitehtitoimisto Kari Järvinen ja Merja Nieminen, architects
Merja Nieminen, architect

Arkkitehtitoimisto P & P Manner Oy, architects
Pekka and Bitumi Manner, architects

Vilhelm Helander, Juha Leiviskä architects SAFA
Professor Vilhelm Helander, architect

Building history data

National Board of Antiquities (1997): *Suomenlinnan rakennusten historia* (History of the buildings on Suomenlinna)

Plans

The construction drawings are based on measured drawings by the National Board of Antiquities.

Adaptation of construction drawings: Anna Lappalainen and Iina Valkeisenmäki, Governing Body of Suomenlinna

Appendix maps: © City of Helsinki PWD Measuring Services

Adaptation of appendix maps and timeline: Ark-Viapori Oy / Reetta Amper

Historical plans: National Board of Antiquities / Unit for Architectural Heritage, unless otherwise specified

Image sources

Image archives of the Governing Body of Suomenlinna unless otherwise credited in the list of photographers.

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JKo	Jani Koivula
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JKä	Juha Kämäräinen
JL	Johannes Laiho
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J-PL	J-P Lehtinen
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JSa	National Board of Antiquities / Juha Saari
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MRi	Mikko Rikala
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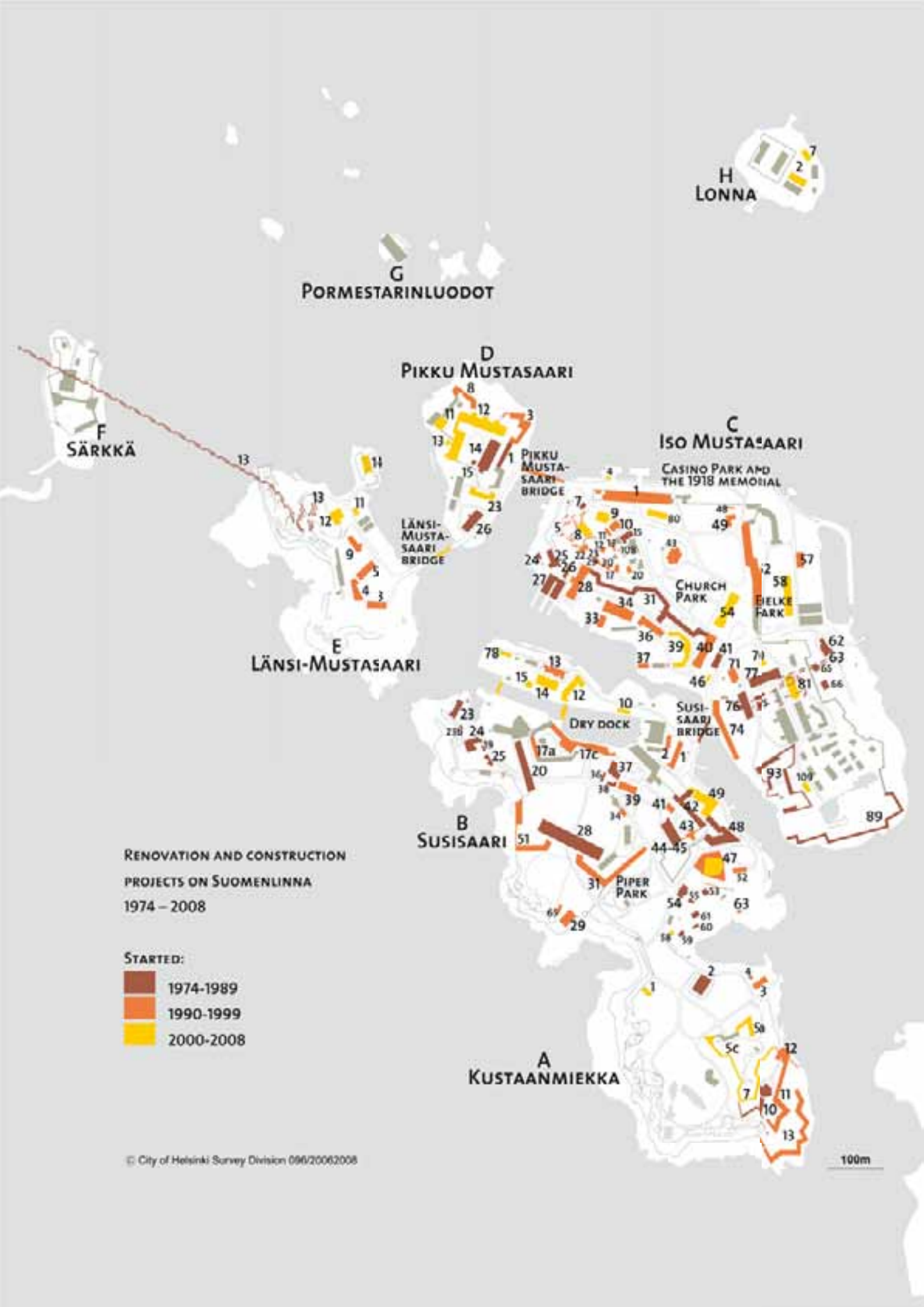
OA	Outi Aalto
OH	Olli Hakli
OK	National Board of Antiquities / O.E. Kivistö
PH	Pekka Hänninen
PK	Pekka Keskinen
PM	Petri Mikonsaari
PN	Pekka Nevalainen
PP	National Board of Antiquities / Perttu Paulasto
RAh	Richard Ahlqvist
RAm	Reetta Amper
RR	Reijo Rantatalo
ScF	Scan-Foto Oy
SG	Steinunn Guðmundsdóttir
SIk	Suomen Ilmakuva Oy
Skf	Skylinefoto Oy
SR	Simo Rista
SW	Samuli Woolston
TK	Tiina Koskenniemi
TL	Tuija Lind
TS	Timo Soppela
TV	Tiina Virolainen
UUb	Uppsala University Library
VH	Vilhelm Helander
VN	Voitto Niemelä
YT	Yrjö Tuunanen

Cover photos and portraits: Esko Jämsä


H
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C
ISO MUSTASAARI
PIKKU MUSTA-SAARI BRIDGE
CASINO PARK AND THE 1918 MEMORIAL
LÄNSI-MUSTA-SAARI BRIDGE
CHURCH PARK
BIELKE PARK
E
LÄNSI-MUSTASAARI
DRY DOCK
SUSI-SAARI BRIDGE
B
SUSISAARI
PIPER PARK
A
KUSTAANMIEKKA
RENOVATION AND CONSTRUCTION PROJECTS ON SUOMENLINNA
1974 – 2008
STARTED:
1974-1989
1990-1999
2000-2008
© City of Helsinki Survey Division 096/20062008
100m

Fortification terms

A = Bastion: a five-cornered fortification protruding from a defensive wall, consisting of two faces meeting at the salient and two flanks behind them.

B = Curtain: a wall or building that joins two bastions together.

C = Tenaille: a fortification formed by two walls or buildings joined at an angle.

D = Traverse: a transverse wall across a firing platform on an outwork.

E = Ditch.

F = Ravelin: a fortification in front of a curtain.

G = Firing platform on an outwork.

H = Glacis: a sloped parapet.

J = Field of fire.

Caponniere: a small, independent fortification outside the main fortification chain.

Casemate: a vaulted, bombproof space.

Crownwork: a fortification consisting of a bastion flanked by a curtain and a demi-bastion on both sides.

Hornwork: a fortification consisting of two demi-bastions joined by a curtain.

This book is a review by the Governing Body of Suomenlinna of the work it has carried out during its 35-year history. It presents a comprehensive overview of the challenges involved in renovating the fortress and also everyday life on the islands today. The publication of the book is timed to coincide with the completion of the renovation on residential building C 54, known as 'Noah's Ark'. All of the residential buildings on Suomenlinna owned by the government are now connected to the district heating, water mains and sewerage systems of the City of Helsinki and equipped with modern amenities.

However, Suomenlinna is far from being finished. Work is constantly going on in various parts of the fortress, the focus in the near future being on the shipyard and Lonna island. Although the majority of the work now tends to be maintenance rather than repairs, there is a new challenge in the offing with the proposal to extend the domain of the Governing Body of Suomenlinna to the adjacent islands of Vallisaari and Kuninkaansaari.

The book is divided into thematic sections where the architects responsible for the projects describe them. The projects presented have been selected principally from among those completed in the past 15 years. Earlier projects were presented in a previous publication, *Suomenlinna, Restoration projects 1974-1994*.

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