SAINT-GOBAIN

ARCHITECTURE STUDENT CONTEST

CONTEST TASK

ARCHITECTURE STUDENT CONTEST 2024

Helsinki, Finland

Last modified: 24th Oct. 2023

WORLD GREEN BUILDING COUNCIL

GREEN BUILDING COUNCIL FINLAND

One Click LCA

UNIVERSITY OF HELSINKI

Helsinki

ABOUT THE ARCHITECTURE STUDENT CONTEST BY SAINT-GOBAIN

The Architecture Student Contest, formerly Multi Comfort Student Contest is a two steps competition: the **National Stage** and the **International Stage**. It was organized for its first time in 2004 by Saint-Gobain Isover in Serbia and became an international event in 2005. Today, it attracts more than 1,600 students in 30 countries.

The goal of the Architecture Student Contest is to provide students a **unique experience** more **closely related to a "real" client request**. Thus, student can **propose ideas under realistic constraints** while addressing sustainability criteria.

ACNOWLEDGMENTS

Special thanks to our partners, University of Helsinki, the city of Helsinki, Green Building Council Finland (FIGBC), professors participating in the Teacher's Days and Saint-Gobain Finland for all the support during the development of the contest task.

SPONSORSHIPS

CONTENT

1. BACKGROUND

HELSINKI A GREEN CITY

Helsinki is the capital of Finland. It is in the southern part of Finland, on the northern shore of the Gulf of Finland. Helsinki city has 665,000 inhabitants. Together with the neighboring cities (Espoo, Vantaa and Sipoo), the population of the capital region rises to 1.6 million inhabitants.

Helsinki is a green city by the sea. Green areas currently cover about 40 percent of Helsinki city's land area, offering residents recreation, exercise opportunities, interesting natural sites, and pleasant places to rest. They also maintain the diversity of nature and the cultural environments of different eras.

The framework of Helsinki's green recreation network consists of three main parts: the “green fingers” extend radially from the seashores and the city core all the way to the countryside, while the “blue palm” is maritime Helsinki with its beaches, islands, and water areas. The green lines as transverse connections complete the green area network covering the entire city. These “green fingers” will continue to strength the Helsinki of the future, thus the green area structure must be nurtured and further developed to meet the needs of the Helsinki residents of the future as well.

Helsinki has 60 nature conservation areas with a total area of 955 hectares. The largest nature reserve is the Viikin-Vanhankaupunginlahti area (306 hectares), **and it is located less than 700 meters away the contest task site**.

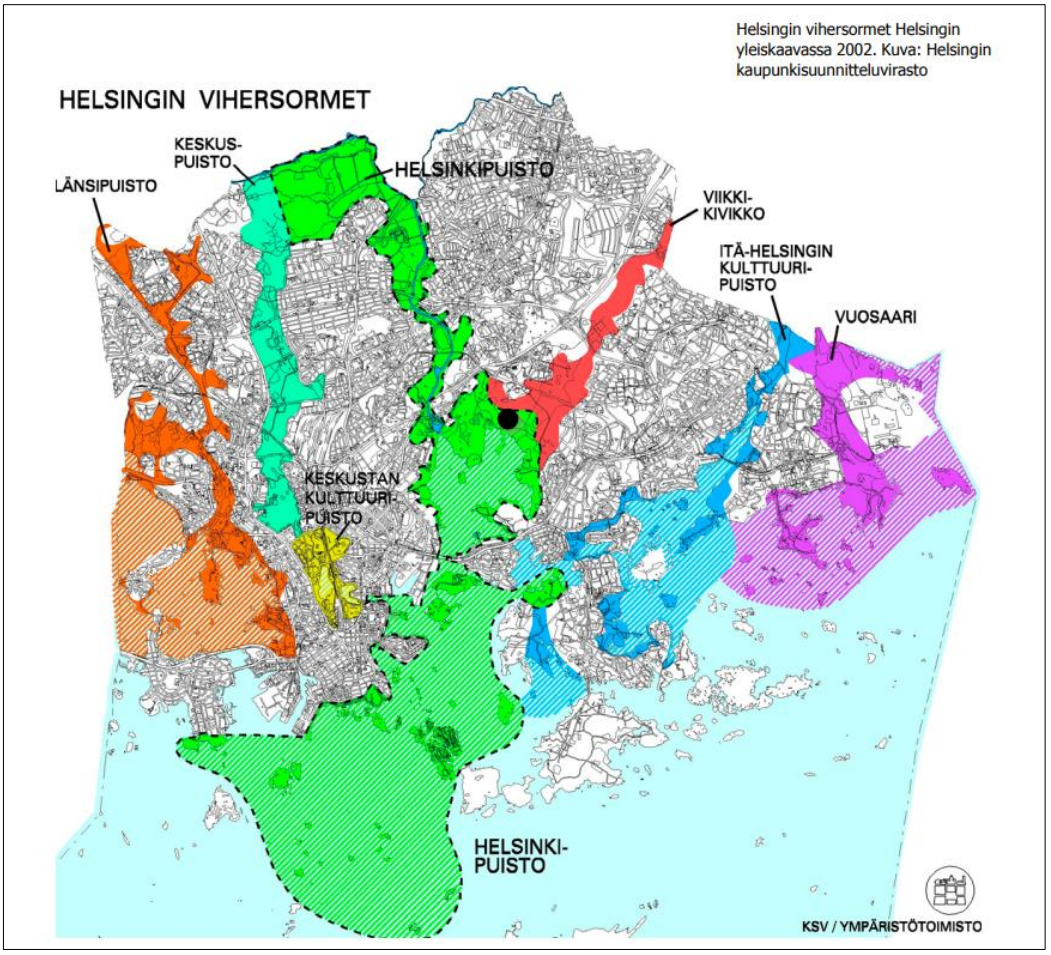


Figure 1. On the map you can see the coloured areas called the “green fingers” of Helsinki. The big green area over the sea in the picture below is “the blue palm”. The contest site is marked on the map with a black spot.

THE CONTEST TASK GENERAL DESCRIPTION

The task of the 19th edition of the international student competition organized by Saint-Gobain Group in close cooperation with Helsinki University and the City of Helsinki is to develop a residential area (for citizens, and researchers) in an area located near the Viikki research Farm and Veterinary Teaching Hospital. Helsinki University is the property owner of the contest task area and has commissioned Helsinki City to provide a development plan for the coming years.

Participants in the competition should propose a vision for the area, considering both the natural characteristics of the location, and the expectations of students and researchers living and visiting this area. The project involves the renovation of an existing building, which will be used to host researchers, as well as the construction of a new residential building. The proposal should also consider the link to the Gardenia (current tenant is a craft brewery by CooHead Brew) building and its Japanese garden, the preservation of the stone walls of the old farm museum, and the connection to the exterior spaces. The project must be innovative and sustainable and comply with the technical guidelines prepared by Saint-Gobain.

2. ABOUT VIIKKI POSITION AND CLIMATE

THE VIIKKI DISTRICT

Figure 2. Viikki is a district located by the sea about 8 kilometers north-east from the city of Helsinki. Source : link

Viikki is a district of 12,000 inhabitants in Northeast Helsinki, about 8 kilometers north-east from the city center of Helsinki. Viikki has a long history, and its name appears in documents dating from 1543. The area was originally called ”Vijch” and even today, the Swedish name of the area is Vik, which translated into English means “Bay”. Viikki district is located close the Vanhankaupunginkoski (meaning ”Old Town rapids” in Finnish) - site of ancient Helsinki. The king of Sweden (and Finland) Gustav I founded Helsinki in 1550 to compete with Tallinn for Baltic Sea trade. Vanhankaupunginkoski was originally called Helsinge fors in Swedish, meaning Helsinge rapids. The name soon eroded to Helsingfors , which is what the capital is now called in Swedish. Per Brahe the Younger (Pietari Brahe), the General Governor of Finland in 1637–1640 and 1648–1654, moved Helsinki further south. When Helsinki was moved closer to the open sea, it began to rise. Tough years were ahead but eventually in 1812, Helsinki was made the administrative center of Finland.

Figure 3. Viikki area showing in the blue the Light-rail line.

The Viikki campus began to emerge in the 1960s when the University of Helsinki moved its natural science teaching to the lands of the Viikki experimental farm. The growth of the area continued in the 1990s with the construction of new university buildings, business incubators and an ecological residential area called “Eko-Viikki”. Nowadays almost most of the zoned areas have already been built. Viikki is known as an area of science and research. The Science Park is the functional centre of Viikki and a campus of more than 6,000 students. The Science Park campus is a centre for teaching and research in life sciences, agriculture and forestry, pharmacy and veterinary medicine at the University of Helsinki. The campus area is also home to a growing number of businesses born from local expertise.

Eko-Viikki[1] is the first ecologically planned district in Finland. The planning of the area has been based on the principle of a sustainable, healthy and adaptable living environment. The same principles will continue to guide the future planning of the area: despite the construction, Viikki will remain as it is now: a nature paradise open to everyone, where the entire story of the city began.

The cultural and historical landscape and natural areas provide a framework for housing, jobs, research, study and leisure. Helsinki's new master plan and the construction of the Raide-Jokeri Light Rail will launch the next phase of development inviting, which will continue well into the 2030s. New housing and services for around 6,000 people are planned near the tramway stops. With the new tramline, more companies will be attracted to Viikki, as the area is developing into a sustainable innovation hub. In addition, there are plans to expand the campus area.

Nature has always been - and still is - of great importance for Viikki, as the recreational areas form an important natural and recreational area for the Helsinki green area network. The animal and plant species of Viikki's fields and Vanhankaupunginlahti are diverse and abundant.

Figure 4. Viikki-Vanhankaupunginlahti nature reserve -area on a map with the contest task to the North.

In Viikki there is a large arable area serving as the university's experimental field, a significant arboretum (an area of about 20 hectares and more than 250 different species of trees and shrubs) and the Viikki-Vanhankaupunginlahti nature reserve (338 hectares). During the summer season cows can be seen grazing around the University of Helsinki research facilities. Viikki-Vanhankaupunginlahti nature reserve (located less than 1 kilometer from the contest site) is an important natural conservation area, and one of Finland's 96 internationally important bird areas and part of the Natura 2000 network. Lammassaari being the most important bird sanctuary with its accessible duckboards for every nature lover. The area has been a research area for ornithologists since the beginning of the 19th century and is well-known as **“a birdlife paradise in the middle of the city”.**

The reserve lies around Vanhankaupunginlahti Bay, a reed-fringed sea inlet, and consists of the mouth of the river Vantaa with its accompanying floodplain forests, alder marsh and coastal meadows. Its value is in its birdlife: 2,500 pairs, representing 110 different species, breed here while sometimes up to 10,000 individuals each of the ruff (Philomachus pugnax) and the wood sandpiper (Tringa glareolus) descend annually on site to stage. Finally, it is an important spawning area for fish like lamprey. After years of recovering of river Vantaa waterway, it has become one of the best trout rivers in the Gulf of Finland area other important species being whitefish and salmon.

[1] Link with more information: https://www.hel.fi/static/kanslia/uuttahelsinkia/Eco-Viikki_aims_implementation_results.pdf

A picture is worth a thousand words. The following a video on Viikki campus highlights the diversity of the Viikki and reflect on the importance of the contest.

HELSINKI CLIMATE

In Helsinki, the summers are comfortable, and the winters are long, freezing, snowy and windy. Over the course of the year, the temperature typically varies from -8°C to 22°C and is rarely below -20°C or above 26°C. The warm season lasts for 3 months, from June to August, with an average daily high temperature above 16°C. The hottest month of the year in Helsinki is July, with an average high of 21°C and low of 13°C. The cold season lasts for nearly 4 months, from late November to late March, with an average daily high temperature below 2°C. The coldest month of the year in Helsinki is February, with an average low of -8°C and high of -2°C. Helsinki has a maritime climate. In spring and early summer, coastal areas are cooled by the Gulf of Finland, which in turn warms them in autumn and winter. The rains are evenly distributed throughout the year, although in the winter season it often doesn't rain, but there is snow or sleet.

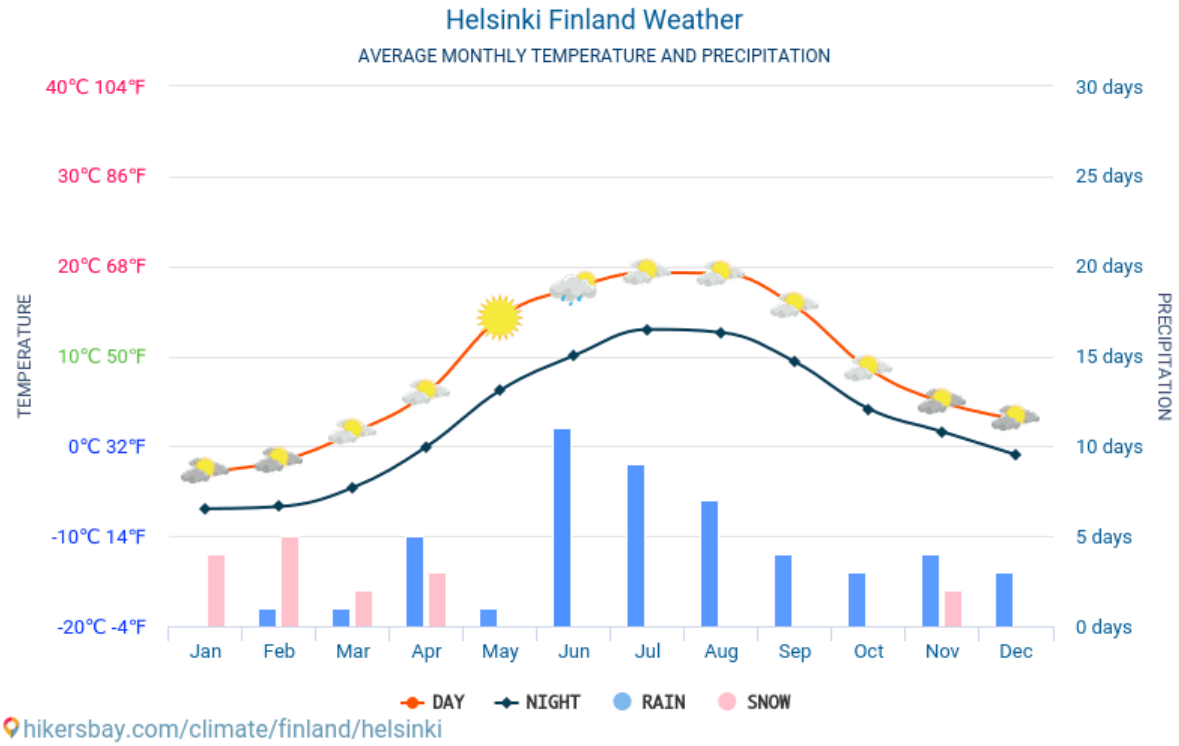
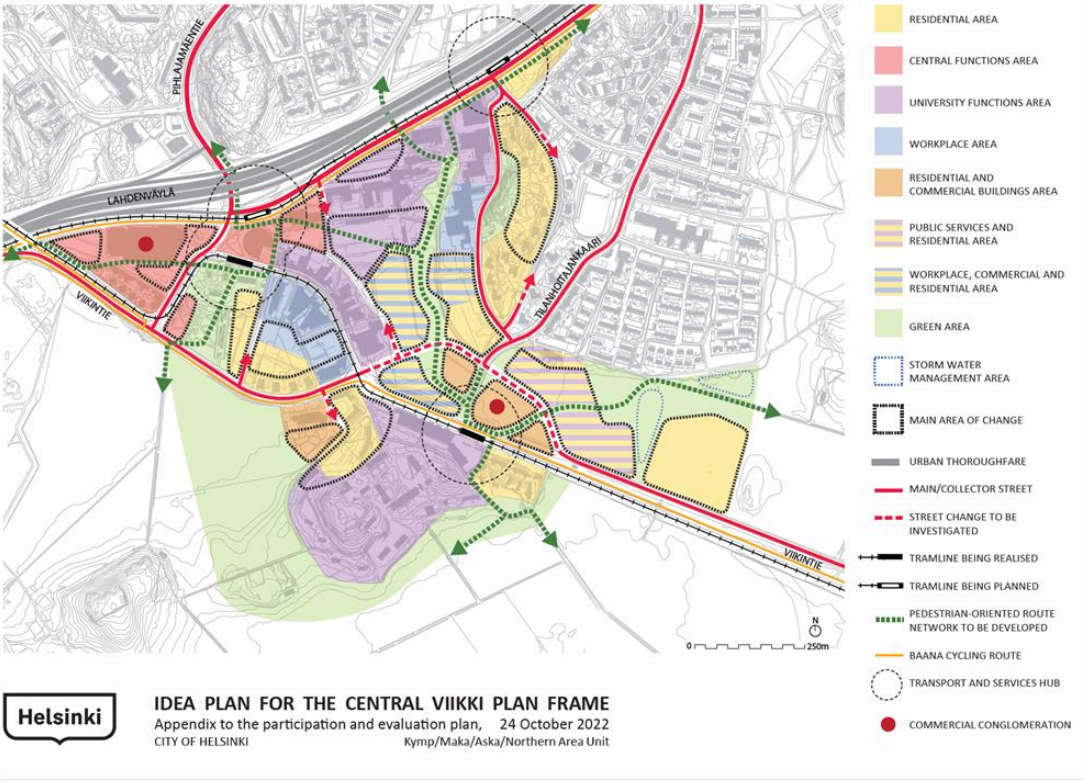


Figure 5. Helsinki weather

VISION FOR THE VIIKKIS FUTURE

Moreover, the Viikki area is looking to further develop around existing and coming public transportation hub (Raide-Jokeri and Viima – tramline)[2]. The initial plannign draft is to build new apartments for 4000-7000 inhabitants in the coming years. Viikki district will be vital, sustainable, “15 minutes to everywhere” university campus area with versatile residential, work, research and innovation as well as learning facilities. Street- and pedestrian level spaces will be liveable and diverse spaces with restaurants, shops, working and co-working spaces. “Viikish” living environment combines urban living with connection to unique green and leisure spaces close to everyone. The plan is currently under development, public hearings and local inhabitants are engaged in development work. Ready plan is forecasted to be presented to Helsinki City environmental council during autumn 2023.



[2] More information on the existing public transportation route here: https://kartat.hsl.fi/linjakartta/

OVERVIEW OF THE CONTEST TASK SITE LOCATION:

Figure 6. View over the project site (circled)

Figure 7. Top aerial view of the project site.

The contest task plan is surrounded by residential, university buildings and green areas. To the north there are existing student housing as the University of Helsinki has several campuses nearby, and the Science park. The Science park is Viikki's functional center and at the same time a campus of more than 6,000 students. To the east, there is the Veterinary Teaching Hospital, and the equestrian hospital. In the South, the Viikki Research Farm, and Viikki's lost and found animal house. To the west, the entrance to the Viikki Arboretum and the ecosystem for bird preservation.

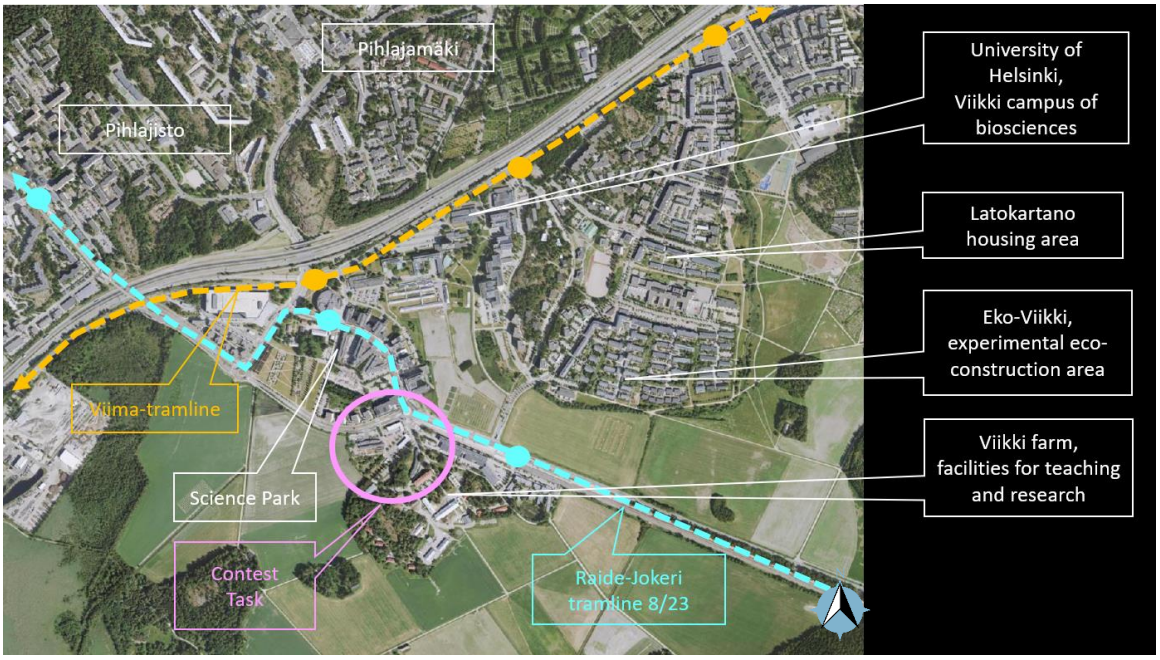


Figure 8. View of nearby tramline and nearby buildings.

The turquoise line shows the new tramline (Raide Jokeri) that starts operating in August 2023. The 25km long fast tram line will offer better public transportation connections between the eastern and western parts of the capital area. The yellow-marked line following Helsinki-Lahti motorway is the Viikki-Malmi tramline (Viima), that is still in the planning phase.

3. GENERAL INFORMATION ABOUT THE TASK

The goal of the Architecture Student Contest is to provide students a unique experience more closely related to a “real” client request. Thus, student can propose ideas under realistic constraints while addressing sustainability criteria.

The task of the 19th International Saint-Gobain Student Contest is to provide building ideas and solutions of an area located in Viikki (northeast of Helsinki), through a combination of temporary housing for students and researchers or permanent housing for residents as part of the new Viiki district, and nearby outdoor functions. The challenges of the 19th edition are:

a) to design a new residential building in the new residential part (temporary or permanent),
b) to renovate and change use of an existing office building to residential function for visiting researchers or students,
c) To design the interconnection of the buildings by exterior public green space.
d) Circularity and potential reuse of building parts and materials is encouraged.

To complete information shared in this document, you can have a look at two videos

a. The task in itself: Find here drone views of Helsinki, Viikki district and the plot

b. 360° view of the plot: Find here an immersive experience “on the field” . *Click on the screen and move to see the 360 view*

A. The master plan

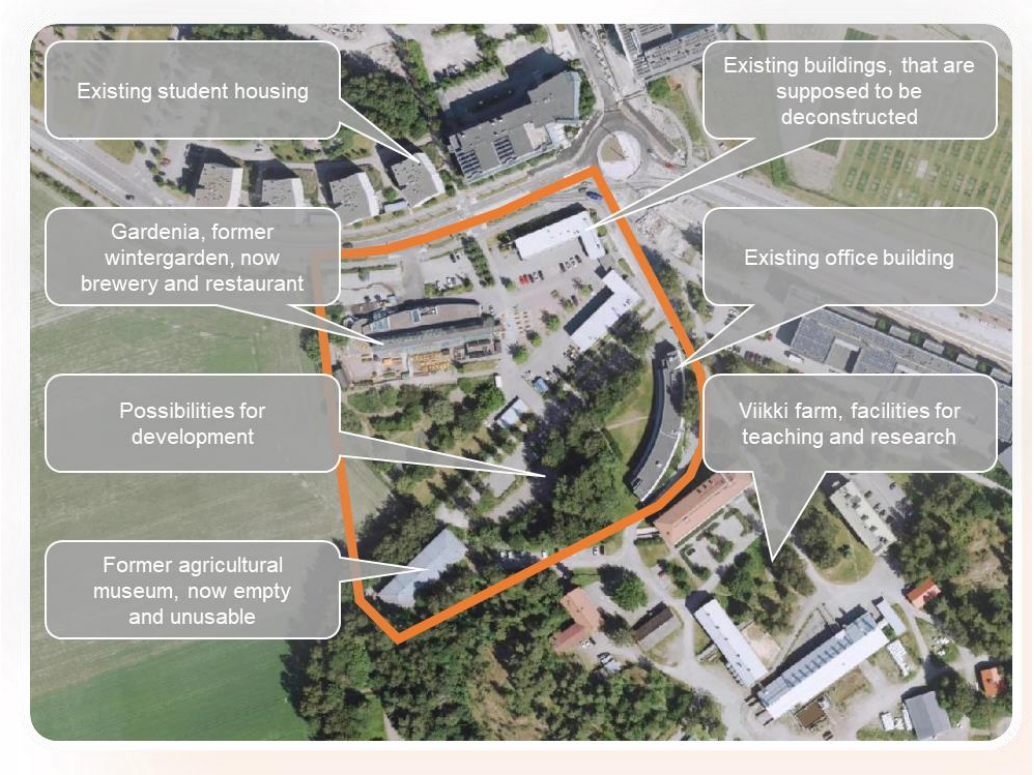


Figure 9. Current view of the project site and its limits.

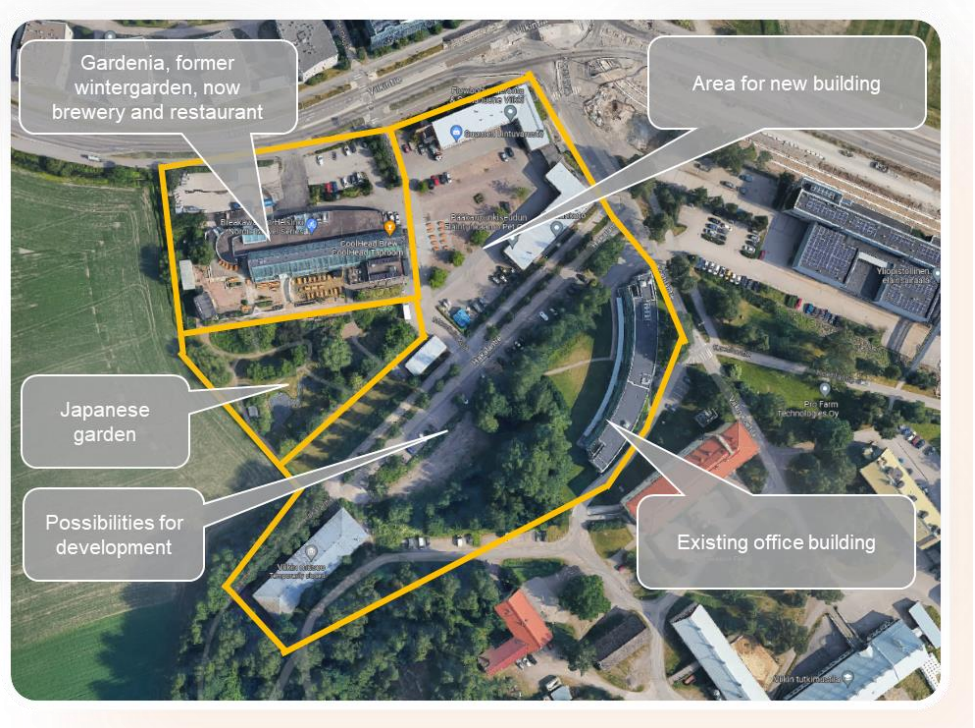


Figure 10. Current view of the project site and internal limits for Gardenia and Japanese garden.

To the west of the contest site, you'll find grazing areas for animals, the Viikki Arboreum which is next to the largest nature reserve in Helsinki, Viikki Vanhankaupunginlahti. To the South the Viikki farm, and facilities for research and

teaching. To the East the buildings of the University of Helsinki To the North (across the street) student housing buildings and more university buildings. The site is currently composed of several buildings and open exterior areas. The current zoning plan includes four zones, A, B, C and D:

- In zone A – Building renovation: This old building is expected to be transformed into short- or long-term residential purposes e.g. to host visiting researchers and professors. The suggested functions include: dormitory for researchers, temporary accommodation, cafeterias, and possible mix of commercial use in the ground floor. Also expansion and demolition or renovation and expansion of the existing building can be considered.
- In zone B – New construction: The existing two L-shaped commercial/retail buildings will be demolished. The contest should propose a high-raise residential building between 5 to 6 stories high, with parking limit set to 1 car per 140-200 m^2 (parking to be considered underground). The current structure of building B is wall cladding with plywood over a concrete structure.

Zones A and B should be studied together to answer the contest task for both short- and long-term residential functions.

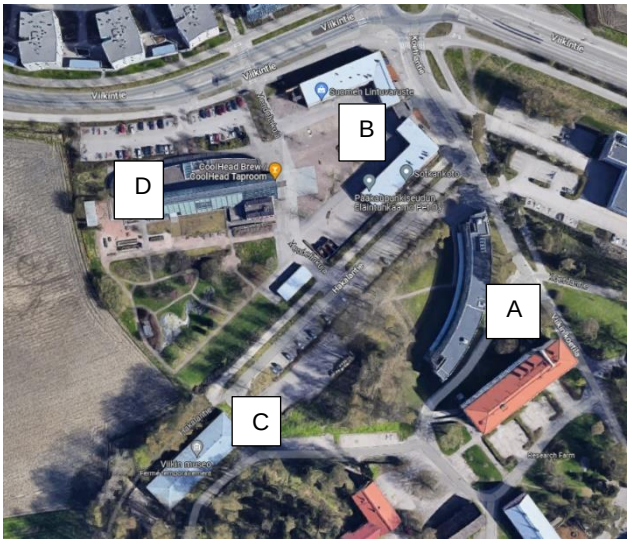


Figure 11. Location of four main areas within the contest task.

- In zone C – The old museum is contaminated with mold internally. The old museum is heavy stone building and heavy stone exterior parts are wished to be saved. The contest can propose new exterior uses for landscaping, recreation and sports among other. This area is the connection to the nature reserve area.

  [NEW INFORMATION]

  - *After conversations between the Helsinki city, Helsinki University, city museum and the museum agency it has been confirmed that the museum is listed as protected and can't be demolished. Potential developments may lead to the museum building becoming some sort of ancient monument. In this competition, "out of the box" ideas could be obtained from students. Please note that the museum cannot be used as an interior space, but at least some role could be found for its stone walls in such a way as to preserve its character and dignity as to avoid demolition. So at least in this competition we are looking for use as environmental structure.*
- In zone D – Gardenia: This building will maintain its function together with the Japanese garden. The contest should integrate this building into the overall design as to show coherence and connection among them.

Site views:

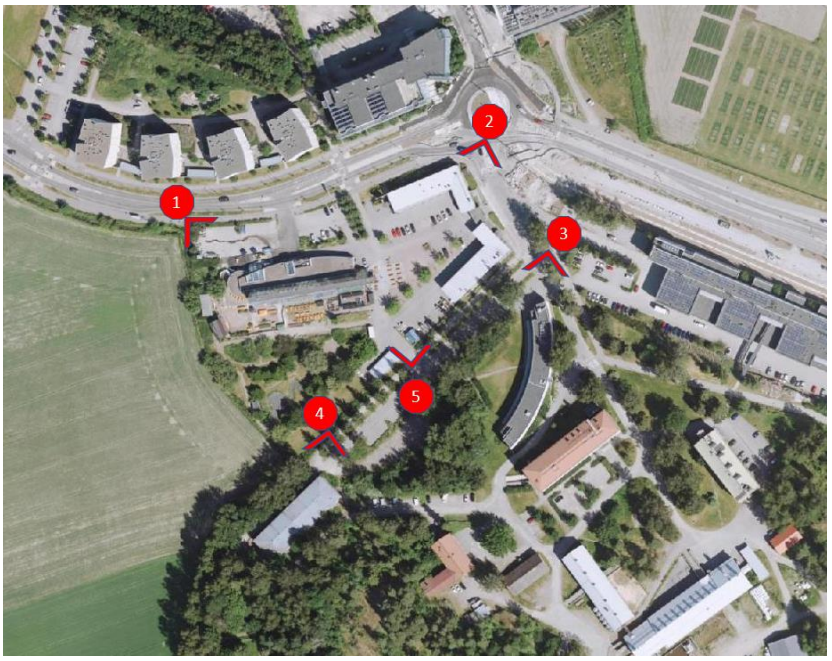


Figure 12. Five street views of the current buildings in the project site.


5

Zone A: Renovation of the Existing Building.

The existing building that is currently used for office activities for the university staff, will be renovated for housing visiting researchers to the Helsinki University campus. Also, permanent residential function can be studied.

New proposals can be made to the external architectural form of the building as well as extension with demolition or renovation. In addition to rooms, it is allowed to introduce a new function to the building that fit the new use (eg administrative area, cafeteria, meeting rooms, leisure spaces…), while adapting the original layout according to needs. The task could include the renovation of the façade (eg insulation, glazing, solar protection, …) which should be justified by the respective calculations. Consider sound comfort and privacy, as a residential development is proposed to be located on adjacent plots.

The structure of the existing building is made of concrete. The renovation works should be compatible with the original architectural and building characteristics. The drawings of the existing building can be downloaded from the Student Design contest page. The exterior envelope of the building should be free of dissonant elements, such as equipment, cables and ducts.

The building program should include areas dedicated to living spaces (consider that rooms should vary between 36-57 m2) to accommodate for researchers, common spaces, services (deposit archive room, small meeting room, reading space). The contest is open to propose mix used with commercial activities in the ground floor. More information on the existing floor plans and sections of the building can be found in contest website.

ZONE B : New building: The residential building

According to the master plan, the existing buildings in this zone will be demolished to build a high-raise residential building. The apartments within the building are not intended only for student housing, but targets also for families (visiting professors, local families) thus giving the Viikki district more diversity. The following assumptions should be made for designing purposes:

1. Ground floor is dedicated to general services, and could be combined with small commercial activities, such as galleries, bakeries, … The ground floor might include semi-private hall to connect the exterior to the internal part facing the Gardenia
2. 80% of the floor's area should be dedicated to private residential apartments. 30% 3-bedroom, 50% 2-bedrooms, and the remaining 20% studio. The apartments will target young professionals and young families.
3. Living units should include living area, sleeping area, kitchenette, bathroom and storage. Common areas should include laundry, bike room, chilling and enjoyment area, common sauna / Spa area and other common use services. External parking should be evaluated for a capacity of 1 parking per 140-200 m2. Team can evaluate the potential utilization of Veterinary parking facilities for shared parking with the residential building.

Please note that Zones A and B should be analyzed as a whole, i.e. residential buildings combining both short- and long term residential functions.

ZONE C: Exterior area and old museum

The museum cannot be used as a museum or any other interior purpose either. In addition, it cannot be demolished (*see new information in page 13*). It is a heavy stone building, and the city hopes that the stone walls could be saved and used as a ruin garden or ancient memorial linked to outdoor activities, e.g. a small tennis court, etc. The exterior area should be designed in a way that answers to some requirements:

a) Allow the interconnection between the buildings and the surrounding streets, creating routes for pedestrian circulation.

b) Allow for resting and enjoyment zones, supporting the residents, students, researchers and passing people.

c) Maximize the green coverage, minimizing the ground waterproofing.

d) Assure the pedestrian connection with the Gardenia and the bird reservation area.

e) Propose new landscape and/or exterior activities in the area near to the stone wall where the old museum is located.

4. TYPE OF CONSTRUCTION, TECHNICAL PARAMETERS

A. **Thermal comfort**

The project should maintain a good internal environment, the proposed project sure ensure comfort around the year. In order to achieve this, students will integrate both passive measures (e.g. sun shading, light colors for exterior surfaces, green roofs and facades…) and active measures (e.g. ventilation).

To supply the energy needed teams can propose renewable energy and heating systems that fit the city strategy. Currently district heating is available, but Helsinki University is pushing for Geothermal as it supports nicely the Campus objective of energy independence from grid energy.[3]

B. **Acoustic comfort**

Noise is extremely damaging to human health. Providing a good indoor environment from the acoustic point of view is crucial for human wellbeing. Sleep deprivation, because of high levels of noise, has adverse effects on humans' health. The sound sources that bother, annoy, or disturb the most in residential functions are road traffic and neighbors. Technical parameters – selected partitions (as examples) should be designed in line with requirement of Finnish standard SFS 5907:2022 on acoustic classes for dwellings. A1 level is recommended.

Partition	Factor	Class A2 (mandatory)	Class A1 (better choice)	SG recommendations
Wall between units (airborne noise)	$D_{nT,w}$ ($R'_{A,1}$, ie. including flanking transmission)	≥ 55 dB	≥ 60 dB	≥ 63 dB
Ceiling between floors (airborne noise)	$D_{nT,w}$ ($R'_{A,1}$ ie. including flanking transmission)	≥ 55 dB	≥ 60 dB	≥ 63 dB
Ceiling between floors (impact noise)	$L'_{nT,w}$+ $C_{I,50\text{-}2500}$ (ie. including flanking transmission)	$L'_{nT,w}$ ≤ 53 dB	≤ 48 dB	≤ 43 dB

Because of the nearby tramline it is recommended to also consider relevant acoustic quality of windows.

The participants are advised to analyze also the level of noise generated by the technical equipment (such as HVAC) and if necessary to propose solutions to reduce it (sound insulated HVAC ducts, sound absorbers installed on the ducts).

C. **Indoor air quality**

To provide the best indoor conditions for the inhabitants, low levels of CO_2 concentrations (maximum 1000 ppm) inside the apartments should be achieved. To reach this low CO_2 concentration, the design should guarantee a minimum ventilation rate of 30 mc per hour per person. Also, propose a strategy to achieve an excellent indoor air quality; e.g. air renewal with mechanical or natural ventilation, selection of low emissive products, active products to capture VOCs and formaldehyde, moisture management.

D. **Fire safety**

All products in the façades and the roof should be made of non-combustible materials. Take into account, e.g. evacuation paths, fire barriers, material selection (reaction to fire), system selection (fire resistance), etc. Fire sections between stories and apartments shall fulfill EI 60 requirements.

[3] https://www.hel.fi/en/urban-environment-and-traffic/plots-and-building-permits/construction-project-instructions/geothermal-heating

E. **Natural daylight**

A minimum level of natural light is necessary to achieve a good quality of life. Therefore, in the rooms, a natural daylight autonomy of 60% should be achieved. The windows/floor surface ratio should not be lower than 1/8. Consider size and orientation of windows, high performance glazing products…

F. Carbon emissions & Energy consumption

The building shall be designed to be highly energy efficient. At least, the following minimum levels of performance shall be achieved:

- Annual energy demand for heating < 15 kWh/m^2 (passive house standard)
- U value for roof < 0,07 W/m^{2}K
- U value for external wall < 0,14 W/m^{2}K
- U value for floors on the ground < 0,10 W/m^{2}K
- U value for windows < 0,70 W/m^{2}K, with g-value around 50%
- Air tightness: n50 < 0,6 1/h or q50 < 0,60 m3/(h m2) (Finnish regulation for building envelope)

A particular attention shall be paid to energy simulation[4] and the embodied carbon[5].

1. Strategy to achieve thermal comfort, e.g.: performance of the building envelope (insulation and airtightness), sun shading measures, ventilation, etc.
2. A calculation of the energy demand should be done for one year (Jan-Dec). Students will explain how they were able to reduce and optimize the energy performance of their project design. Student can research and propose low carbon energy supply (e.g. solutions such as locally produced renewable energies (geothermal, photovoltaic) or heat pump might be appreciated).
    -
3. A calculation of the carbon emissions over the whole building life cycle shall be carried out with the tool provided for free during the competition by OneClick LCA. Students will explain how they have been able to reduce/optimize the embodied carbon while progressing in their project design, e.g. lightweight constructions, wood construction, product reuse.

G. Resources & circularity

Over its whole life cycle, a circular building minimizes the use of primary non-renewable raw materials and the generation of non-valorized waste. To achieve those two overarching goals on primary raw materials and valorized waste, the following five points shall be taken into account. In this contest, it is expected that students will pay particular attention to the above first 2 points (design for longevity and resource efficient solutions):

1. A circular building shall be designed for longevity: it shall be flexible in use and easily adaptable over time, possibly allowing for usage reorientation; and it shall be made of durable and resource efficient materials, products and systems, easy to repair, maintain or replace and to reuse or recycle at their end of life;
2. Resource efficient materials, products, systems are made with a minimum use of non-renewable primary raw materials; they shall incorporate a maximum share of recycled or renewable raw materials; their installation shall generate a minimum amount of waste; regarding the valorization at their end of life, reuse shall be the preferred option followed by recycling; to be easy to reuse or recycle, systems shall be easy to dismantle and components easy to sort out; and products and

[4] For the energy simulation students can use any software (EnergyPlus, Design Builder, TranSys Comfie and the PHPP can also be used). Saint Gobain will make available a specific plug in for OpenStudio SketchUp, SG SAVE International. SG SAVEI is a plug in to SketchUp which contain a database of SG's products and allows automatic calculations of heat loss from a drawn house in SketchUp. More information on how to obtain the plugin will be available in the contest website.

[5] Carbon emissions associated with materials and construction processes throughout the whole lifecycle of a building or infrastructure. Embodied carbon therefore includes: material extraction (module A1), transport to manufacturer (A2), manufacturing (A3), transport to site (A4), construction (A5), use phase (B1, but excluding operational carbon), maintenance (B2), repair (B3), replacement (B4), refurbishment (B5), deconstruction (C1), transport to end of life facilities (C2), processing (C3), disposal (C4).

materials shouldn't reduce exposure to hazardous substances to avoid their further dissemination in the built environment. All jobsite and deconstruction waste shall be valorized. Off-site prefabricated building elements, modular construction and lightweight systems (in particular for facades and internal partitions) belong to the solutions that allow to meet these criteria.

3. Renovation and extension of existing buildings shall be preferred over demolition/deconstruction and new built.
4. Selective deconstruction shall always be preferred over demolition at buildings' end of life; to facilitate the deconstruction and the valorization of the waste, a detailed inventory shall be kept over time of all materials, products and systems used to build, maintain and renovate the building, and of their composition; a building material passport (logbook) shall be attached to the building (from the design stage until the building's end of life).
5. To support the choice of alternative options, decisions shall be based according to their actual environmental impacts at building level; those impacts shall be calculated over the entire life cycle of the building (LCA at building level).

5. COMPETITION REQUIREMENTS

Participants are advised to choose appropriate scales for all drawings, design ideas and directions to allow appropriate detail and clarity to be reviewed by the judges. Also, to present a complete description of the project within the poster following the respective guidelines.

A. **Master plan**

- Basic representation of the zone, at scale 1:500, including Building B implantation, providing the understanding of general organization of the Project proposal.
- Relevant details of specific areas should be provided (eg Gardenia, agricultural museum, …).
- Visualization of the experience of living in the analyzed areas -Views, 3D perspectives and/or photographs of physical models as seen fit by the participants to better explain their proposal.
- Relation and link to nearby protected ecological areas.

B. **Building** A - Renovation

- Development of architectural proposal, at the level of draft, for the proposed design program for the intended use.
- Floor plans, elevations, relevant sections that can allow to understand the proposal, at scale 1:200.
- Short description of project options and renovation solutions to be implemented, with focus on the specific technical solutions for the specific services.
- Few 3D views to help the understanding of design proposal.

C. **Building B – New construction for r**esidential function

Following information must be presented **for the residential building in zone B**

- Floor plans, elevations, relevant sections that can allow to understand the proposal, at scale 1:200.
- Technical details at scale 1:20 or otherwise convenient for adequate understanding.
- 3D views to help the understanding of design proposal.
- A life cycle analysis should be done at building level, using available tool (One Click LCA).
- Calculations for energy efficiency, that can be done with any energy simulation tool. (If student use SketchUp see note 2 on page 15).

In order to explain the requirements mentioned above the participants can present: Exterior/Interior 3Ds, text, diagrams, calculations, drawings or information as they seem fit.

D. **Calculations**

- For energy efficiency, students can use any energy modelling software. Teams can use Saint-Gobain's Plug-In SG SAVE International that includes a SG material database.
- The weather data to use for calculations should be the one for Helsinki.
- A whole life carbon calculation will be made using the OneClick LCA tool : tool and trainings will be provided for free. Recommendations to use the LCA according to international standards.

6. JUDGING CRITERIA

A. General judging criteria

There are various aspects which are key and unique to the Architecture Student Contest.

- The first aspect is that the task addresses two building proposals: a) a new building and b) the renovation of an existing building within a plot assigned by the Municipality.
- The second aspect is the sustainability considerations.
- Lastly, the respect of minimum requirements, correct usage of Saint-Gobain products and solutions in the project, and the quality and consistency of the proposed construction details with regards to building physics.

Tackling these aspects are important and will be considered by the jury during the National stage and to pass to the international stage, under the criteria below:

NEW CONSTRUCTION 60%	**RENOVATION 40%**	
ARCHITECTURE (30%)	ARCHITECTURE (20%)	• Design excellence, functional concept, adapted to context, and building information. • Master plan, interconnection of the buildings to the exterior public green space.
SUSTAINABLE CONSTRUCTION (30%)	SUSTAINABLE CONSTRUCTION (20%)	• Design clearly addresses sustainability criteria: carbon & energy, resources & circularity, health & wellbeing, as well as fire safety requirements. • Quality and consistency of the proposed construction details with regards to building physics (thermal and acoustic bridges, airtightness, and moisture management). • Correct usage and mentioning of Saint-Gobain products and solutions in the project.

Note: A judging evaluation document[6] will be provided which will describe how the judging criteria will be implemented during the National and the International stages.

[6] The document will include (among others): judging roles and responsibilities for the National stage (e.g. projects must comply with minimum requirements such as respect of height, zone limits and proper use of Saint-Gobain products, prior to acceptance to International stage), judging roles and responsibilities for the international stage, jury methodology for pre-selection prior to the international stage, methodology for finalist selection, communication of ranking of top 10 projects of International stage, and type of prizes.

ARCHITECTURE STUDENT CONTEST

SAINT-GOBAIN