

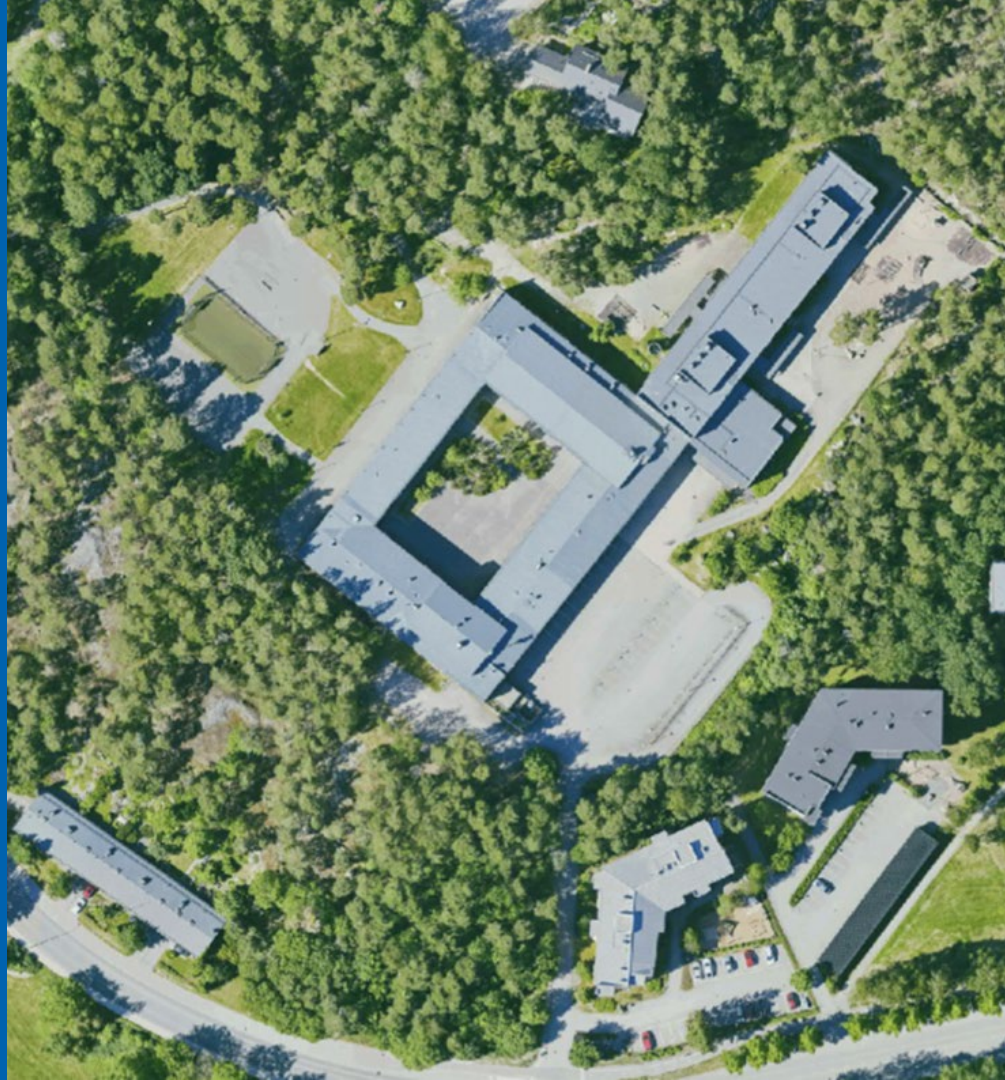


Luolavuori School

**Johanna Koskinen-Koski,
Facility controller / Facility Services**

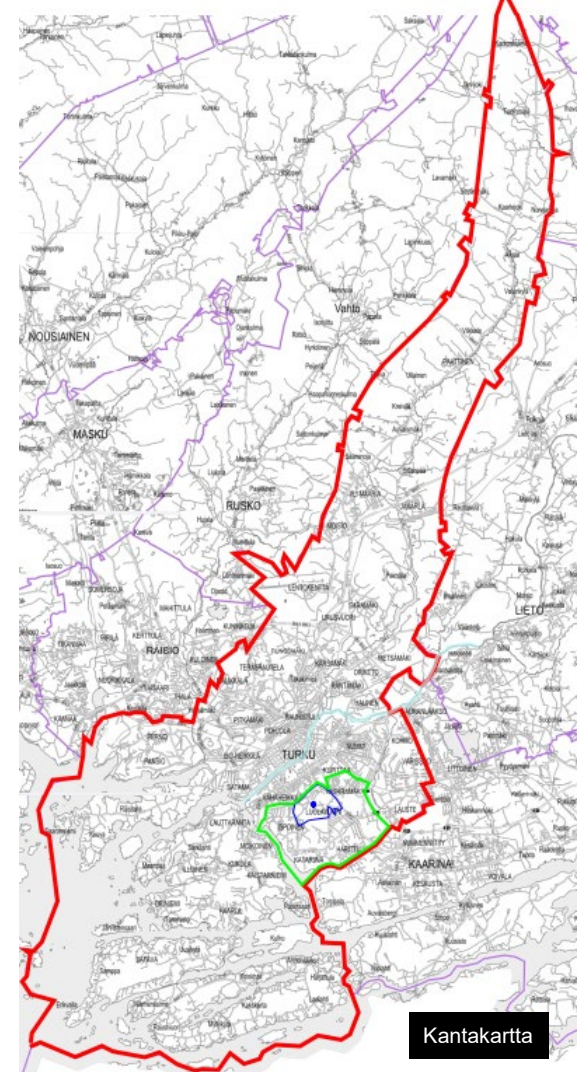
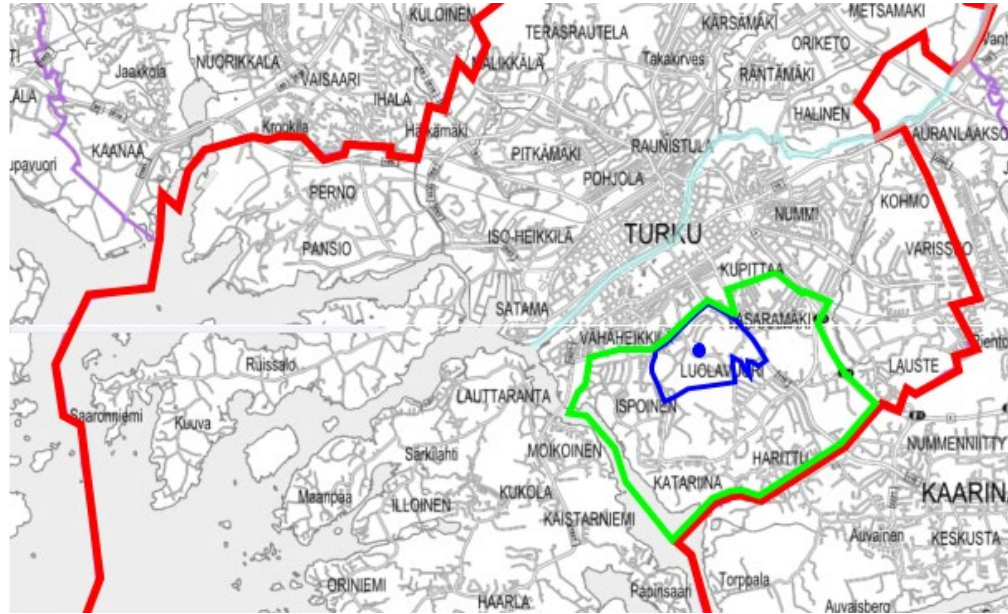
**Marko Koskinen, Construction project
manager / Construction of Premises**

12.09.2023



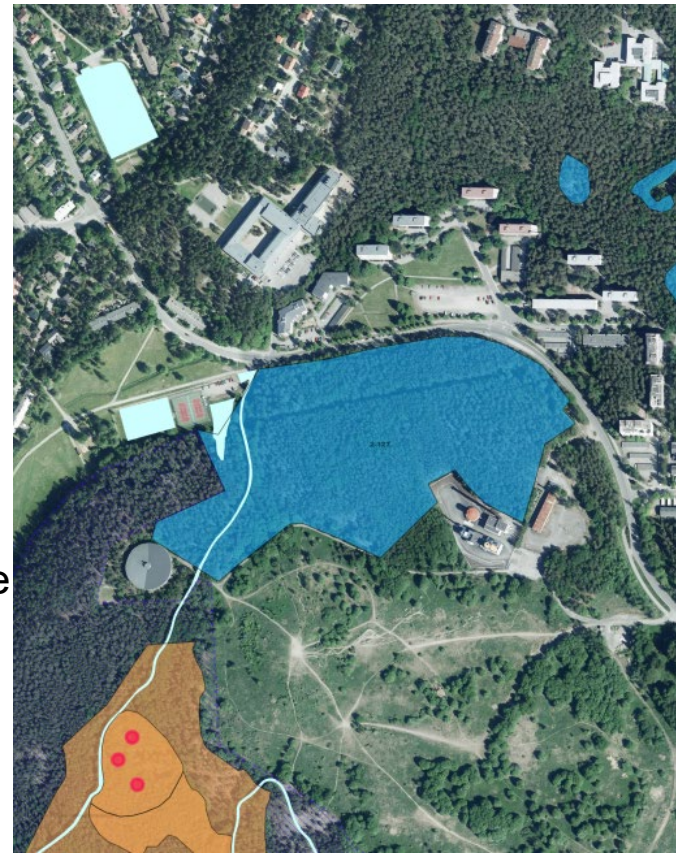
Luolavuori

- Luolavuori district is located approximately 3 kilometers southeast of the city center of Turku.
- It belongs to the large area of Uittamo-Skanssi



Luolavuori

- In honor of Finland's centenary celebration (Suomi 100), a 25-hectare **nature conservation area** was established in the Luolavuori district.
- The conservation area is located within the forested area between the Ilpoinen district and the Luolavuori water tower. Within this area, you can find one of Finland's most impressive caves, burial cairns from the Early Metal Age, and the historic boundary stone known as "Ropovaha," dating back hundreds of years, marking the old border of the city of Turku.
- The area consists of pristine pine forests and ancient forested wetlands, which serve as a habitat for **flying squirrels**. The forest is abundant in decaying wood, making it valuable for biodiversity.



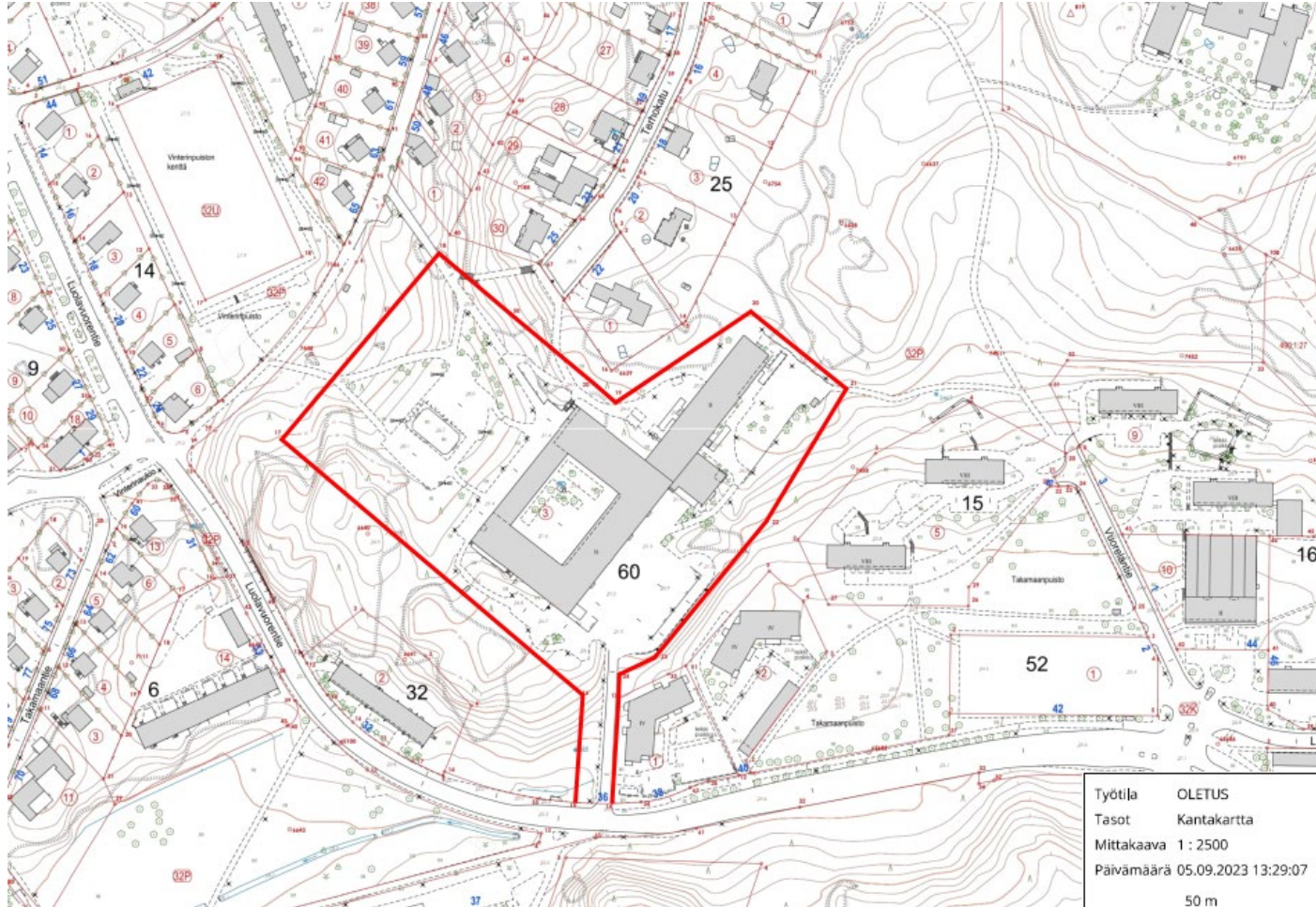
Within the rocky pine forest, you can also discover the ancient shoreline of the Litorina Sea dating back 7000-8000 years.

Luolavuori School - plot & area

The Luolavuori building stock mainly consists of apartment buildings and small houses built in the 1950s.

The plot is surrounded by a rocky and coniferous tree-dominated park.

The elevation differences are significant.



Työtila	OLETUS
Tasot	Kantakartta
Mittakaava	1 : 2500
Päivämäärä	05.09.2023 13:29:07
50 m	

Luolavuori School - City plan

- Asemakaava 853 19/2004
- YO: "A block area for educational buildings."
- Plot area: 29 257m²
- Permitted construction area: 9 000m²
- Permitted number of floors: II
- The highest point on the plot is 36m above sea level, and the lowest point is 23m above sea level.

The elevation difference is ~13m.



Luolavuori School

Qualitative objectives for the construction project

- All design work is carried out through modeling (Level 3). Modeling follows the guidelines of “Yleiset tietomallivaatimukset 2012”

"General Information Requirements for Building Information Modeling 2012," as well as the relevant RT-cards for each specific design field

- The building should represent a high standard of contemporary school architecture



Luolavuori School

In **Turku City's Climate Plan for 2029**, goals and guidelines are established for both technical and qualitative objectives. In its strategy, Turku City has set the objective of progressing towards **carbon neutrality in the urban area by 2029** through climate and environmental policy measures.

In the lists of actions in strategic programs, several points are highlighted, including:

- Improving **the energy efficiency and intelligence** of the building stock.
- **Considering greenhouse gas emissions and lifelong energy consumption** in Turku City's and the urban group's own investments in space, real estate, infrastructure, and vehicles, as well as in other applicable investments and procurements.
- Guiding construction in the Turku area **towards being more low-emission**, including both energy and mobility solutions.
- Besides **mitigating climate change**, also taking into account measures for **adapting to climate change in all planning and construction**, with particular attention to **stormwater management**.



Luolavuori School



- **RTS environmental classification system**

The goal is to achieve a 4 star rating in the RTS environmental classification. The RTS Environmental Classification is based on European standards (CEN TC 350 standards) and it brings together the common practices in the sector in Finland, such as the Finnish Classification of Indoor Environment, the M1 Classification building life cycle indicators, Kuivaketju10, and the Green Factor tool

- **Green Deal** The City of Turku is participating in the Green Deal commitment for **emission-free construction sites** established by the Ministry of the Environment. The central goal is to completely eliminate all fossil fuels (such as liquid fuels, gasoline, diesel, fossil gases, coal, peat, etc.). In this project, the city follows the city's guidelines concerning the emission classes of construction machinery as well as on-site transportation within the framework of the Green Deal agreement



Luolavuori School

- **EU Taxonomy** As part of **the climate change mitigation process**, the City of Turku has adopted the assessment criteria in line with the EU Taxonomy in its investment projects. This approach aims to leverage the opportunities for green financing. In this Luolavuori School project, compliance with the Taxonomy requirements should be ensured.
- **ToVa-käsikirja**
Ensuring the functionality of the building **in terms of energy efficiency and indoor air quality** is crucial.
- Rakennustöiden puhtausluokka on luokkaa **P1**
The cleanliness class for construction work is Class P1.
- Materiaali- ja komponenttivaatimus luokkaa **M1**.
The material and component requirement is Class M1.
- Rakennuksen sisäilmaluokka on **S2**.
The indoor air quality class for the building is S2.



Luolavuori School

- Actors and users:
 - Comprehensive school
 - 1st to 6th graders
 - Day care
 - Preschool children
 - Morning and afternoon activities
 - 1st and 2nd graders
 - Student welfare
 - healthcare, counseling and other support services
 - City sports services
 - associations and sports clubs
- (Volleyball, Basketball, Badminton, Handball, Floorball, Futsal, Dance, Gymnastics, Cheerleading)



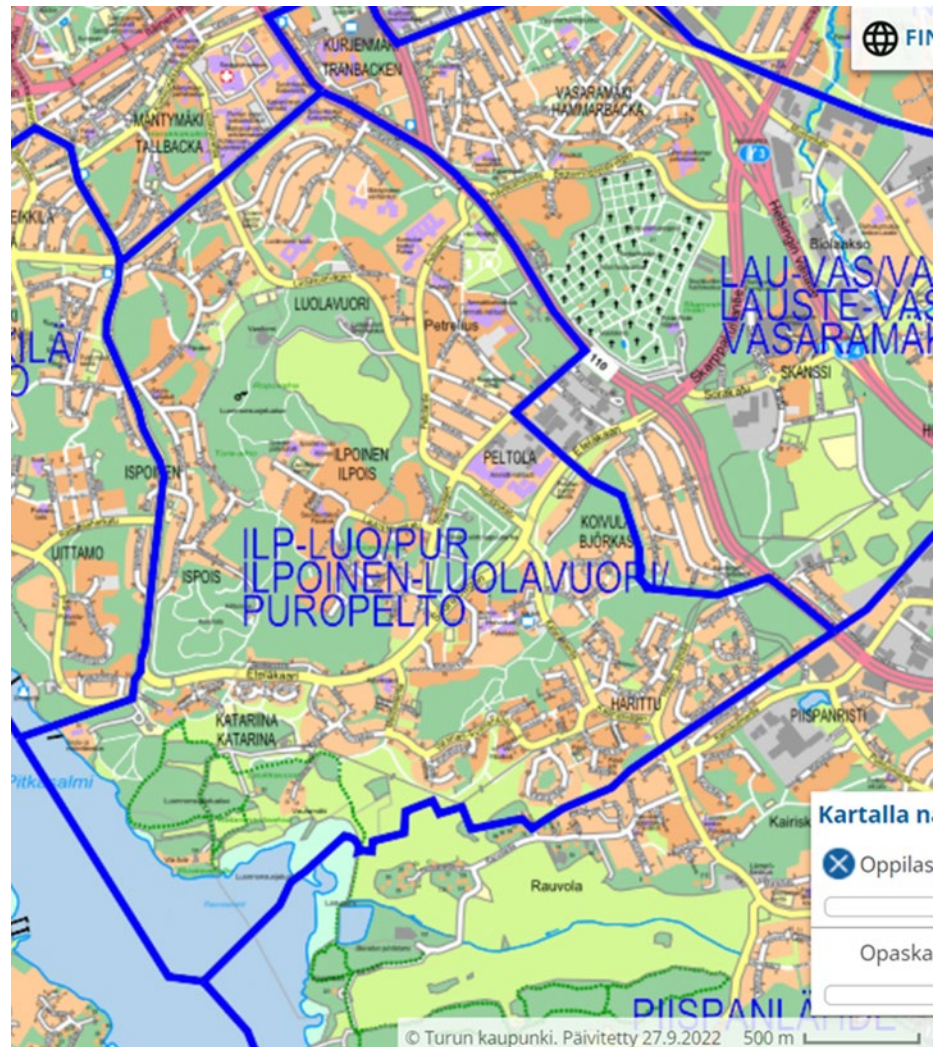
Luolavuori School

The school will provide teaching on

- the basic education for children from age 7 to 12 from regions of Luolavuori, Ilpoinen, Harittu, Katariina and Ispoinen
- the basic education for students who need **intensified and special support** from age 7 to 12 from all around Turku region

The day care will provide

- the preschool education for children to age 6 from regions of Luolavuori, Ilpoinen and Ispoinen



Luolavuori School

Groups	Grades		Maximum capacity
General education group	1.-6. graders	2 groups / grade	25 * 12 groups = 300 students
Small group of special support	1.-6. graders	1 group / grade	10 * 6 groups = 60 students
Extended compulsory education	1.-6. graders	1 group / grade	8 * 6 groups = 48 students
Small group of Students with Severe Intellectual Disabilities	1.-6. graders	1 group / grade	6 * 6 groups = 36 students
Preschool education group	1 year	2 groups	21* 2 groups = 42 preschoolers
Total			32 groups / 486 students

Personnel	
Principals, teachers, assistants, secretary (school, preschool, morning and afternoon activities)	113
Student welfare	10
Others: property maintenance, food services	12
Total	135



Luolavuori School

- The future size of the building has been estimated using preliminary room program evaluations
- The total usable area will be further specified during the project planning phase in conjunction with the actual building design.
- Permitted construction area: 9 000m²
- Permitted number of floors: II
- During the project planning and building design phases, special attention should be paid to ensuring that the overall extent of the room program does **not exceed the total room area** specified in the room program.



Room program	m ²
School entrance hall, coatrooms, mudrooms, toilet facilities	1218
Home classrooms, craft and art subject classroom, differentiation/small group spaces	2800
Preschool facilities	282
Morning and afternoon activities facilities	130
Sports and physical education facilities	1095
Student welfare facilities	206
Staff workspaces, break areas, and social facilities	388
Property maintenance	56
Kitchen for preparing 2000 daily servings	230
Outdoor sports equipment storage	50
Total usable floor area	6455
Gross floor area ratio	1,4
Gross floor area estimate	9037

Luolavuori School

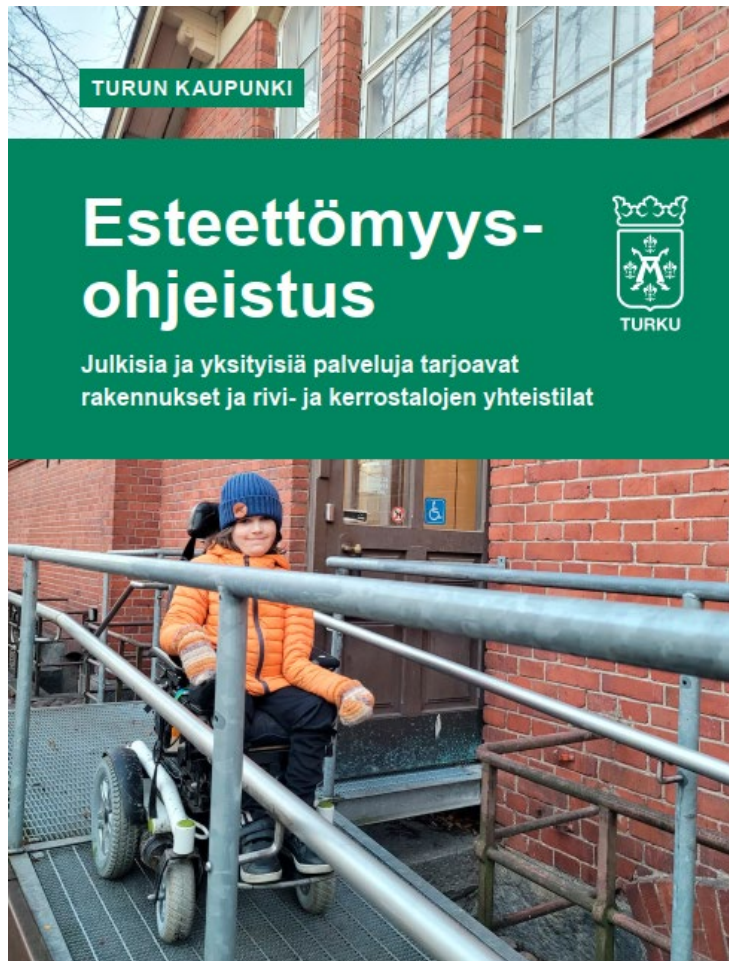
- At the Luolavuori School, especially due to the students' varying degrees of developmental disabilities, features of the autism spectrum, and various levels of neuropsychiatric symptoms, **accessibility requirements are emphasized.** This includes both physical accessibility for movement and considerations for sensory stimuli (noise, light, motion etc.)
- More information

Turun kaupunki, Esteettömyysohjeistus

<https://www.turku.fi/esteettomyys>

Jyri Kuparinen, accessibility coordinator

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Luolavuori School

- In the future Luolavuori School, **each grade level consists of a total of five groups**. The spaces should be organized in a way that **each of the six annual grades** forms its own “**learning cell or learning area.**”
- **The entrances should be grouped into either two-grade level units** (1st-2nd, 3rd-4th, and 5th-6th) or **three-grade level units** (1st-3rd and 4th-6th) and **own entrance to preschool**, to **individual differentiation spaces** and to **sport facilities** (evening and weekend users). Each grade-level "learning cell or area" should have adequate lobby, coatroom, restroom, auxiliary, and circulation spaces (corridors, hallways, walkways etc.).
- Taking into consideration **the significant number of individuals with mobility impairments or disabilities**. Some of the students move using **wheelchairs**, with the support of **standing aids / walkers**, or while in **hospital beds**
- for **individual or small-group differentiation spaces** for students who cannot even study in groups, should have spaces for relaxation and the possibility to complete the school day **without disturbance, separate** from the rest of the school community and possibly a separate entrance to their own playground area



Luolavuori School – outdoor areas

- **Separation of walking and cycling routes from taxi and car traffic** to ensure safe access for all students.
- Drop-off and pick-up traffic: Approximately 20 large taxis in the morning and afternoon. **Drop-off and pick-up parking should be located close to the entrances.**
- "Invapysäköinti" for individuals who have a valid disabled parking permit.
- Staff parking area: "Mitoitusohje autopaikkojen ja pyöräpysäköintipaikkojen laskemiseen kaavoituksessa."
- Distribution traffic for kitchen food servings, ranging from 1000 to 1500 servings.
- **Crossing of traffic between pedestrian and cycling paths and vehicular traffic is not allowed for safety reasons!**
- Service yard for property maintenance and waste management.



Luolavuori School – outdoor areas

- Consideration of Finland's climate conditions in all yards: the need for shade, rain shelters, stormwater management, snow removal and snow stacking.
- **3-4 different playground and sports areas:** for preschoolers, 1st-3rd graders, 4th-6th graders, and a separate "quiet" playground separated from others.
- The terrain of the plot is challenging due to significant elevation differences, making it impossible to place a large sports field on it. For this reason, the school has been using the Vinterinpuisto field located to the northwest of the plot for school sports activities



Preservation of trees and other vegetation to the extent possible.



Thank you!