



Fire  
University



Embassy of Finland  
Warsaw



Ministry of the Interior  
Finland



Ministry of the Interior and Administration  
Republic of Poland

# INTERNATIONAL CONFERENCE CIVIL PROTECTION AND CIVIL DEFENCE IN FINLAND AND POLAND 2025



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# Planning and designing buildings with a protective function in Finland

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# LUKKA ARONEN

**1980**

Year of foundation

**~100**

A team of  
professionals

**10,8M€**

Revenue in 2024

**4**

Offices in Oulu, Helsinki,  
Turku and Kokkola

**+3000**

Designed projects

**2021 ➔**

Part of the Solwers Group



# Civil protection facilities in new building



Obligation to build civil defense shelters in new building, when

- Permanent building
- Floor area exceeds 1200 m<sup>2</sup> (housing, workplace)
- Floor area exceeds 1500 m<sup>2</sup> (assembly, industrial, warehouse) <sup>1</sup>

<sup>1</sup> Rescue Act

# Design basis of civil protection facilities

Design basis according to the purpose of the building <sup>2</sup>

- Housing, workplaces: 2 % of the floor area
- Industrial, retail, warehouses: 1 % of the floor area
- Assembly buildings: headcount basis (0,75 m<sup>2</sup> per capita)

<sup>2</sup> Government Decree on Civil Defense Shelters



# Designing civil protection facilities

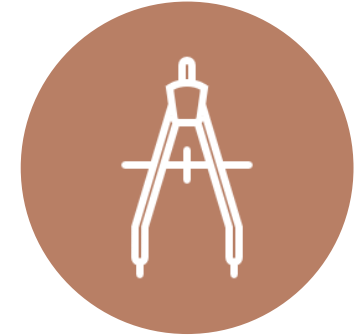
Classification based on area <sup>2</sup>

- Max effective floor area 135 m<sup>2</sup> - class S1 (minimum floor area 20 m<sup>2</sup>)
- Max effective floor area 900 m<sup>2</sup> - class S2
- Max effective floor area 4500 m<sup>2</sup> - underground rock shelter

Limited opening area -> limited number of doors and amount of daylight

Must be convertible to protective use within 72 hours

<sup>2</sup> Government Decree on Civil Defense Shelters



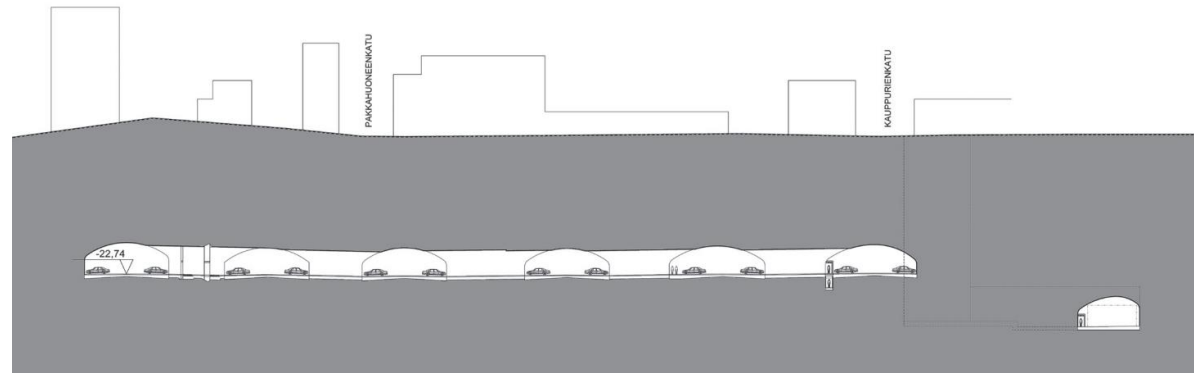
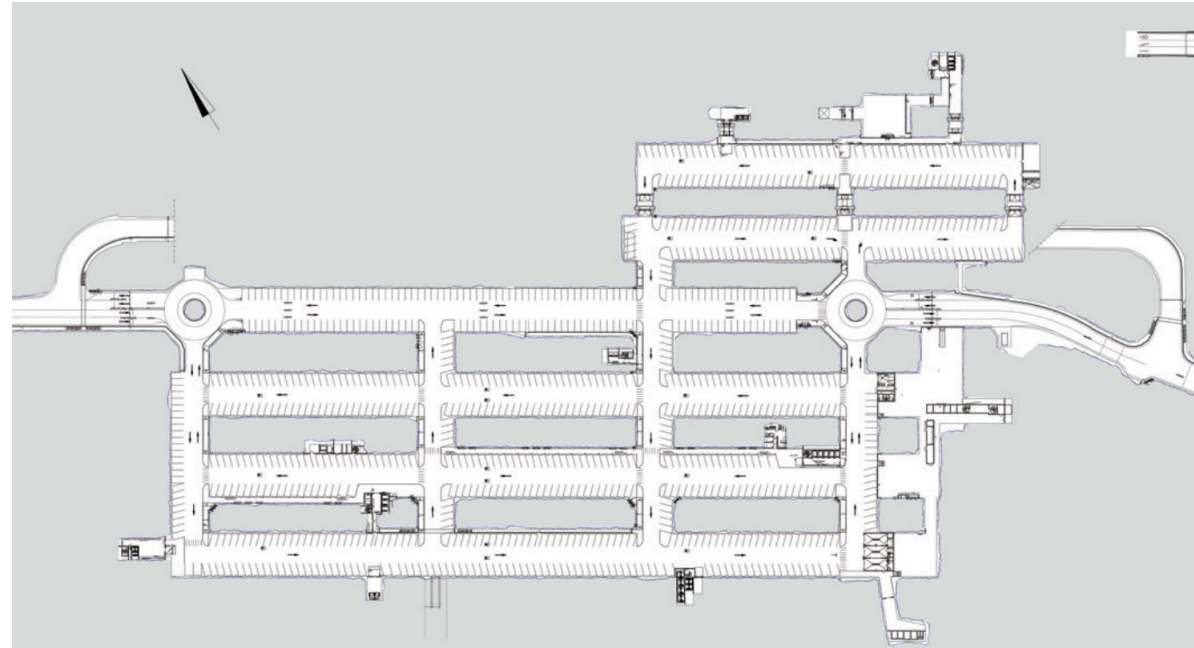


# Rock shelters



Photographs: YLE

# Rock shelters



Drawings: Betoni 4/2015

Photographs: Oulun Pysäköinti



# Dual-use in class S1 and S2

Dual-use typically

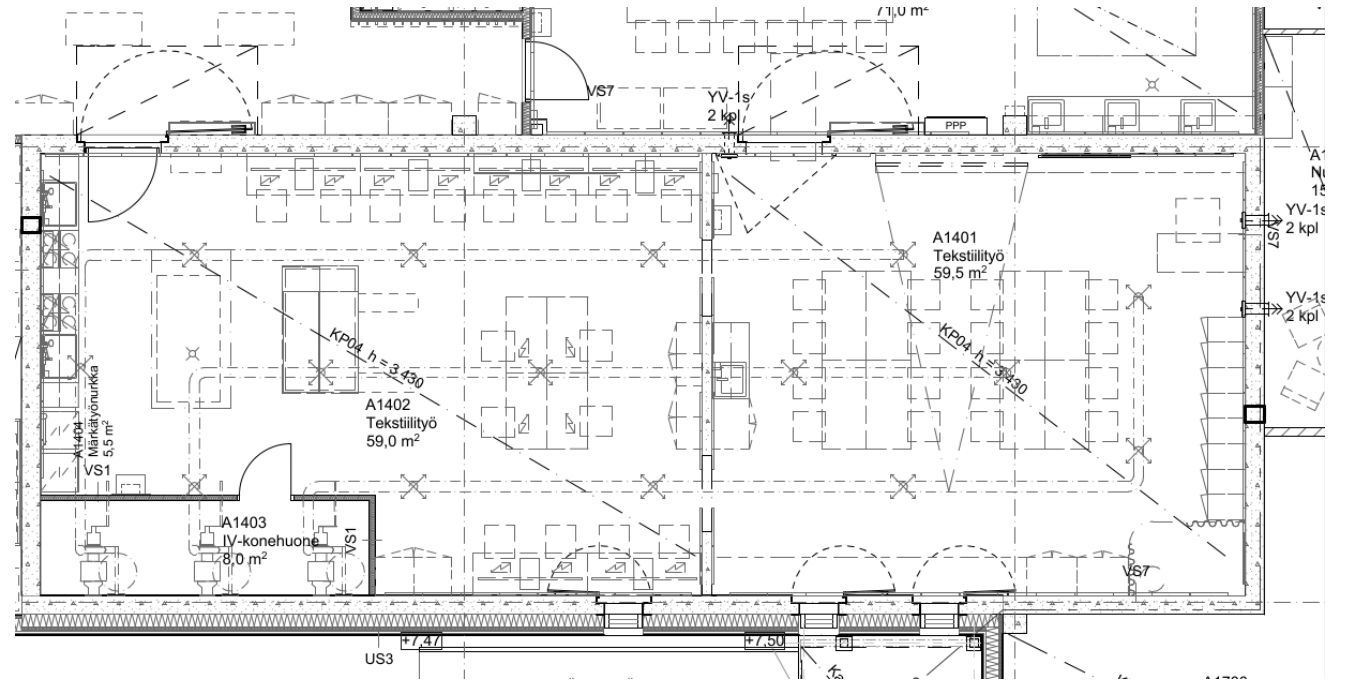
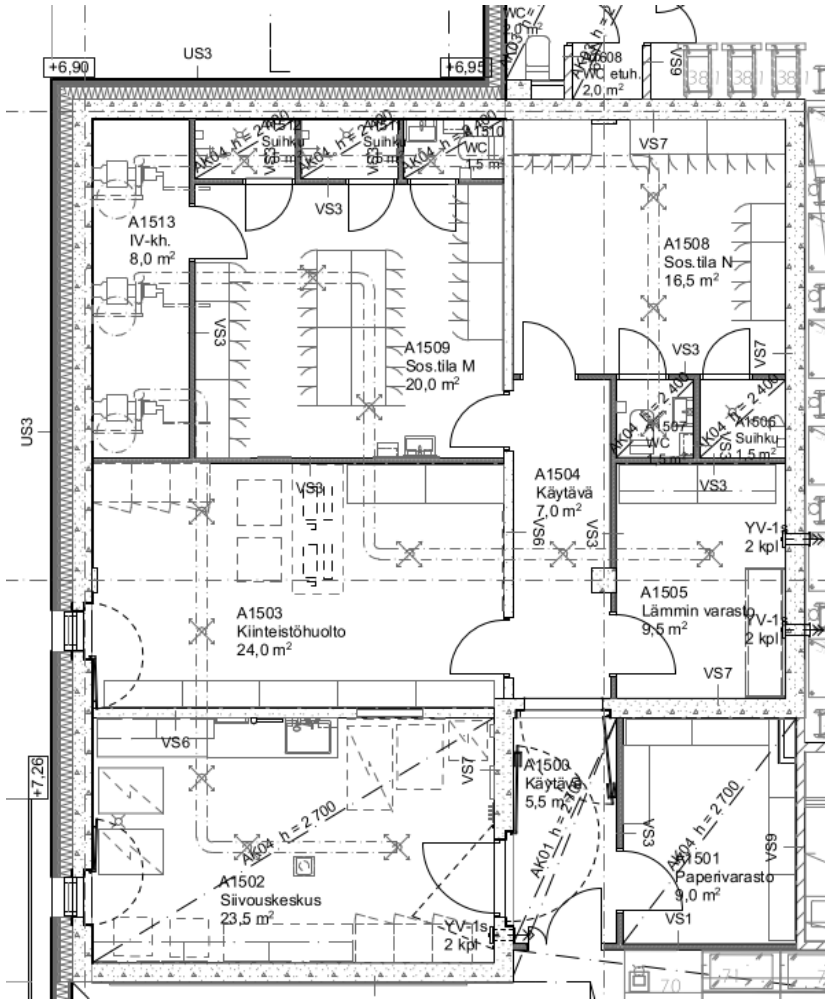
- Dressing rooms, showers, sauna
- Storage
- Storage space for each apartment

In public facilities for example

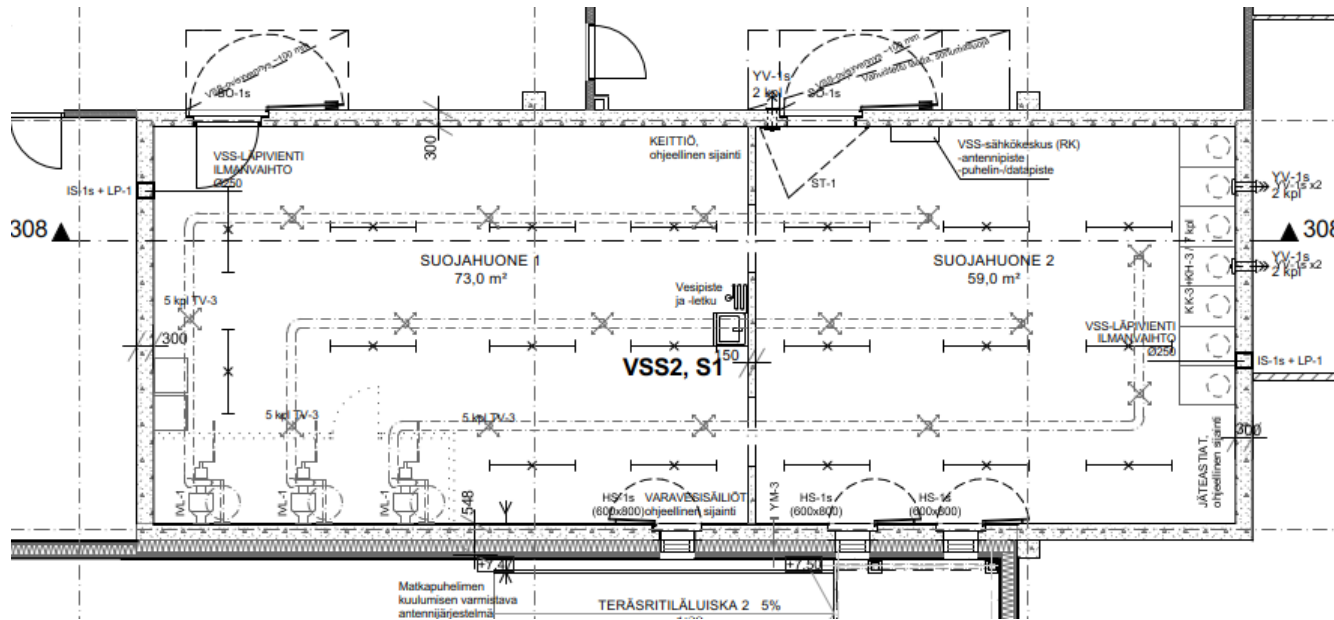
- Practice space for band rehearsals
- Classroom for home economics, arts, handicrafts
- Library corner
- Etc.



# Dual-use example: school building



# Dual-use: crisis layout



# Dual-use: music rehearsal room





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