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## RESILIENCE POLICY IN BUILDING AND FACILITATION WITH A FOCUS ON GEOPOLITICAL RISK

 Ministry of  
Environment  
Republic  
of Lithuania

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# LITHUANIAN POLICY ISSUES ANALISED BY ESPON TARGETEED ANALYSIS VREPO – Vulnerability, RESilience and REcovery POLicies of the physical living environment

(1) CALAMITIES DUE TO CHANGING CLIMATE:	(2) GEOPOLITICAL CRISES WITH POSSIBLE PHYSICAL IMPACT:
- Pluvial floods, extreme rainfalls	- WAR
- Fluvial and flash floods	- MIGRATION AND REFUGEES
- Droughts and heatwaves	- EMERGING CRISES WITH PHYSICAL IMPACT (E.G. CONTAMINATION)
- Extreme storms	- PRE- AND POST CRISIS LOCAL PARTICIPAITON
- Seasonal river droughts	- CROSS-BORDER EFFECTS
- Forest fires	
(3) EFFECTS OF CALAMITIES ON:	(4) OPPORTUNITIES OF INNOVATIVE APPROACHES
- agriculture, bioproduction	- Possibilities of innovation, technology and data
- fresh water supply	- Possibilities of nature based solutions
- land degradation	- Innovations in water management
- loss of biodiversity and ecosystem services	- Use of TIA
- communities and city(centers)	- Spatial distribution of jobs and people.
- local economy	
- Human health	



*Critical vulnerabilities of Lithuania's physical environment, identified and analysed by VREPO:*



Risks	Hazards	Exposure	Vulnerabilities
Climate risks	Floods	Individuals living in flood prone areas Critical infrastructure Border regions Areas near CBRNe installations Strategic targets	Infrastructure Social Technological Land & ecosystems
Geopolitical risks	Nature fires		
	Terrorism & cyberattacks		
	Armed conflict		
Public health risks	Pandemics		
	CBRNe		

# UNDERSTANDING OUR NEEDS: THE MINISTRY OF ENVIRONMENT'S REASONS FOR PARTICIPATING IN THE VREPO TARGET ANALYSIS

## VREPO stakeholders:

1. Department of Environment & Spatial Development, Flemish Government, **Belgium**
2. Municipality of Enschede, **Netherlands**
3. Southern Regional Council, **Malta**
4. General Territorial Planning and Sustainable Development Direction, Provence Alps French Riviera Regional Council, **France**
5. **The Ministry of Environment of the Republic of Lithuania , Lithuania**

**Characteristics:** Lithuania is 65.300 km<sup>2</sup> with ~ 2,801 million inhabitants (42,8 people/km<sup>2</sup>). Lithuania is scarcely populated with the biggest concentration in 5 cities. The urban structure is decentralized. The territories between cities are mostly occupied by farms and forests. The member-state can be characterized as bio-production based country.

## Ministry's reasons to be in VREPO:

The Ministry of Environment **regulates** key areas of the living environment, including **nature protection, climate policy, pollution prevention, spatial planning, architecture, and construction** – with the goal of protecting and improving the state of physical environment. In the **VREPO** analysis, the **Ministry aimed to identify the main vulnerabilities, assess existing political decisions and legal acts, and determine what strategies are still needed** to better manage new and recurring crises.

**Biggest concern:** Despite regaining independence (**again**) in 1991 and repeatedly warning others of the persistent threat from its former occupier, Lithuania remained strategically unprepared — lacking sufficient legislation, evacuation plans, and other measures — when Ukraine was attacked in 2014 and again in 2022.

Hence, one of the most critical aspects affecting **nearly all dimensions of the physical living environment** is **the current sensitive geopolitical situation** and the **country's overall level of preparedness and response**.

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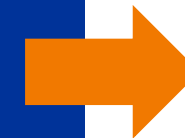
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Ministry of  
Environment  
Republic  
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## Key Physical Vulnerability Issues in Lithuania:



- **Geopolitical threats**
- Land degradation and hydrological changes
- Water quality & pollution
- Climate & coastal risks
- Public health / physical activity issues
- Regional inequalities and poverty
- Physical access to services varies
- Infrastructure vulnerabilities



# LITHUANIA DEFENSE POLICIES AND REGLAMENTATION

## Lithuania's Defense Policy:

The goal of **Lithuania's defense policy** is to ensure **deterrence** against an armed attack and, in the event of aggression, to **protect the country's independence, sovereignty, and territorial integrity**. The fundamental principle of Lithuania's defense is **total defense**, meaning that all national resources and both military and non-military means are mobilized.



## DEFENSE POLICY PRIORITIES;

**Strong Armed Forces:** *The Armed Forces and other defense institutions protect Lithuania, therefore Lithuania's military must be fully staffed, equipped, and trained to the highest standards.*

**Reliable Collective Defense Commitments:** *National defense efforts are strengthened through collective defense with NATO allies hence **Lithuania engages in international operations** to support allies and maintain stability, prioritizing NATO and U.S.-led missions, while also contributing to EU and UN efforts. Military training in Ukraine strengthens its forces and shows solidarity.*

**A Resilient State and Society. All civil institutions contribute by supporting the Armed Forces and maintaining vital state functions.** *Citizens defend the state through armed service and non-violent civil resistance:*

*- **Mobilization Preparedness.** The mobilization system ensures the state can operate under military threats by quickly reallocating resources for defense and vital functions to work in (during times of armed conflicts institutions continue to work in shelters). Institutions plan and prepare measures in peacetime, with readiness regularly tested through exercises.*

*- **Strengthening Cybersecurity.** In response to growing cyber threats and incidents, Lithuania continues to enhance national cyber resilience, with focus on protecting critical infrastructure, improving legal frameworks, building institutional capacity, and expanding international cooperation.*

*- **Citizen Will, Resilience, and Preparednes:** Lithuania's defense depends on citizens ready to resist aggression. Focus is on civic values, resilience to hybrid threats, military training, knowledge of mobilization and civil resistance, and support from the **Riflemen's Union** and **NGOs**.*

**Civil protection in Lithuania is organized at three levels:**

**National:** *Government, Government Emergency Commission, Emergency Management Centre, Ministry of National Defence, Civil Protection Department, State Fire and Rescue Service and other ministries and agencies make strategic decisions and coordinate implementation.*

**Regional (County) and Local (Municipal):** *Authorities ensure the execution of civil protection measures at their respective level.*

# NATIONAL DEFENSE ACROSS LITHUANIA'S SPATIAL PLANNING LEVELS

## 1. NATIONAL / STRATEGIC LEVEL

**Comprehensive Plan (CPTRL):** Defines strategic corridors (transport, energy) and national priorities shaping defense infrastructure siting.

**Law on Territorial Planning:** Establishes legal tools (special plans, "objects of national importance," expropriation rules).

**Defense Strategy & State Defense Plan:** Identify priorities (HNS, military mobility) that cascade into spatial planning instruments.

## 2. SECTORAL / REGIONAL LEVEL

**Sectoral Plans (transport, energy, environment):** Define technical standards and corridors supporting military mobility (load capacities, bridge reinforcement, rail compatibility).

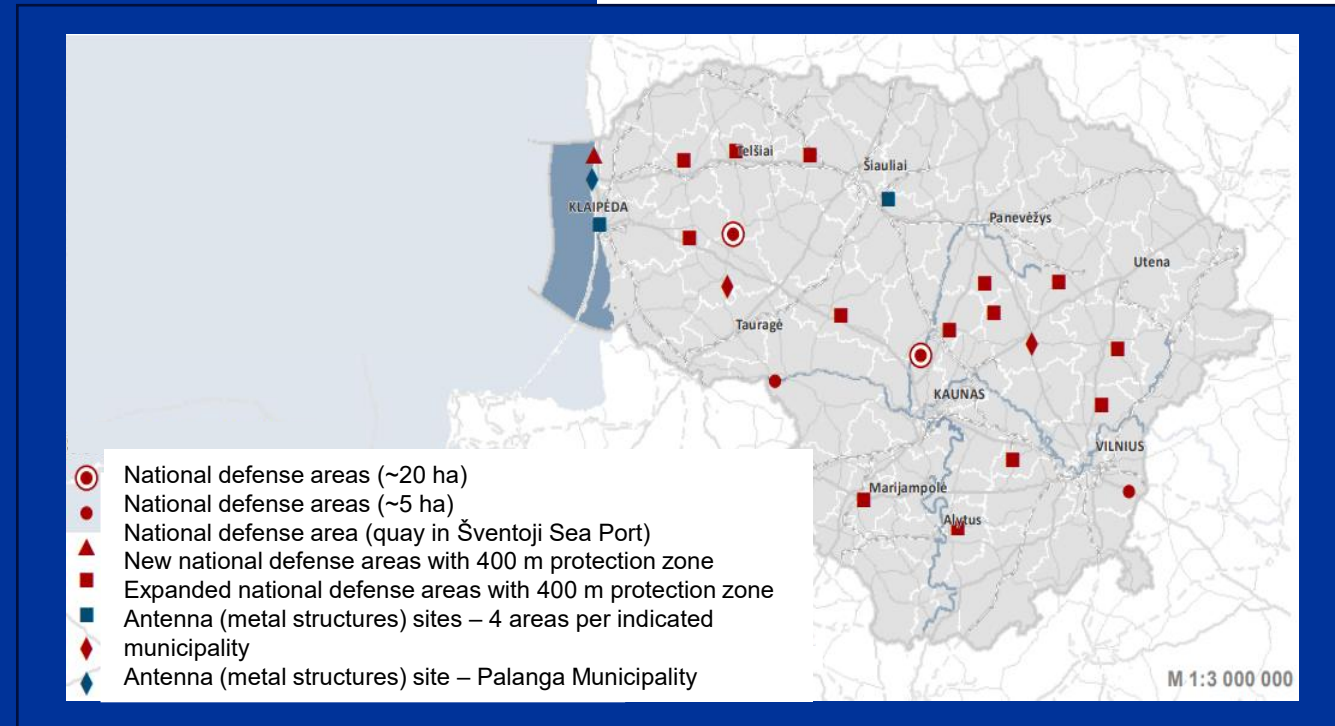
## 3. MUNICIPAL / LOCAL LEVEL

**Municipal General & Detailed Plans:** Determine zoning for training areas, barracks, storage, and access routes; municipalities must amend plans for defense uses.

## 4. SPECIAL PLANS / EMERGENCY PROCEDURES

**Special Territorial Plans:** Prepared for strategic defense sites (training zones, logistics hubs); expedited processes allow faster land acquisition for urgent HNS infrastructure.

CPRL: PLANNED AREAS FOR NATIONAL DEFENSE:



# KEY LAWS, PLANS AND POLICY DOCUMENTS

**Law on Territorial (Spatial) Planning**— establishes the planning hierarchy (national, regional/sectoral, municipal general plans, detailed plans) and the legal procedures for zoning, functional land-use designation and special planning. **Defence infrastructure and “objects of national interest” are handled inside this legal/administrative framework** (i.e., they must be accommodated in the relevant plan levels and can be subject to special procedures).

**Comprehensive Plan of the Territory of the Republic of Lithuania** — the national-level spatial plan that sets priorities and functional zoning across the whole state territory (transport corridors, infrastructure corridors, protected areas, strategic sites). **CPTRL creates the top-level spatial rules that affect where defence infrastructure, mobility corridors and training areas can be placed or upgraded.**

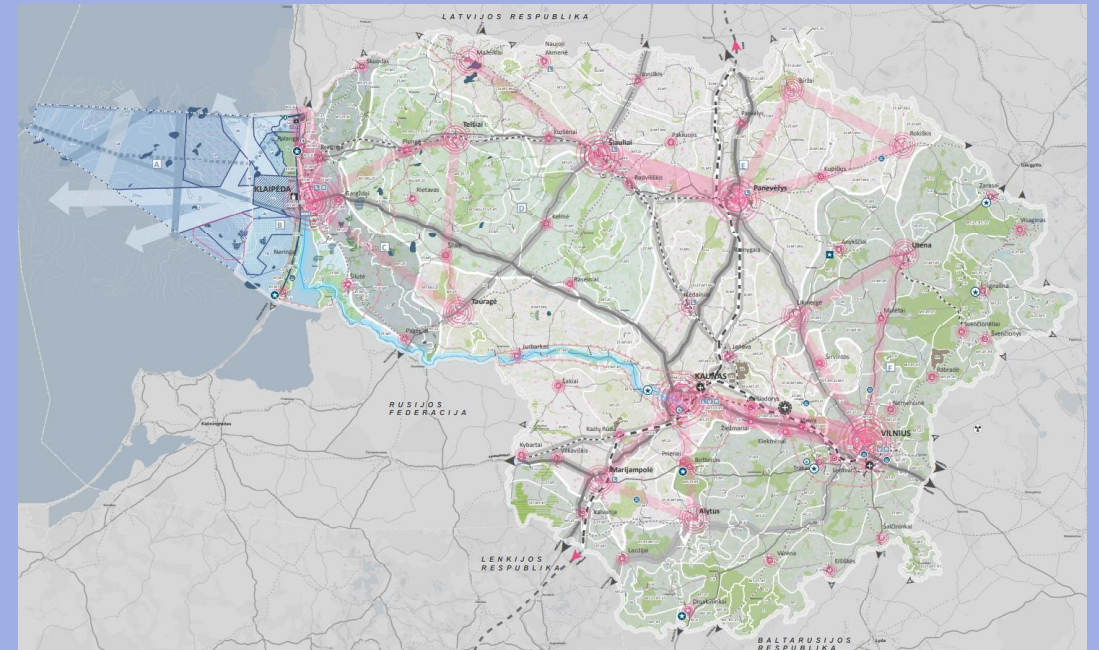
**Military Strategy / State Defence Planning documents** — these defence strategy documents explicitly assign **Host Nation Support (HNS), military mobility and training area development as priorities; those priorities trigger infrastructure projects and require changes in municipal and sectoral planning** (roads, rail, training ranges, storage). In practice these defence plans drive spatial projects that must be integrated into territorial planning (road upgrades, rail compatibility, training area designation).

**Host Nation Support (HNS) policy and HNS project roadmaps** — HNS spending and roadmaps identify concrete infrastructure (bases, accommodation, training areas, logistic sites, mobility control parks) and require rapid integration with municipal zoning, land-use designation and permitting. HNS objectives are a major driver of local land-use changes and municipal plan amendments.

**Amendments / proposed amendments to land-appropriation / expropriation procedures (MoD initiatives)** — to accelerate creation of military / HNS infrastructure the MoD (Ministry of defence) has advanced amendments simplifying procedures for taking private land for urgent defence infrastructure. Those legal changes directly affect how spatial planning and property rights are used for defence projects.

**Military mobility & major infrastructure projects** (Via Baltica, Rail Baltica, highway/bridge upgrades) — national programmes to upgrade roads, bridges and rail for NATO/EU military mobility are treated as strategic spatial projects: they require corridor protection, higher bridge load standards, route re-designation and sometimes land-take or planning constraints along the corridor. Rail Baltica and Via Baltica are explicit examples.

**Parliamentary national defence programmes & investment packages** (e.g., National Defence Enhancement and Development Programme) — **these allocate funding for concrete infrastructure** (training area expansions, ammunition storage, HNS facilities) and therefore trigger municipal plan amendments, new special plans and construction permits.



# GAPS IN LITHUANIA'S PREPAREDNESS AMID GEOPOLITICAL VULNERABILITIES

The **main documents** regulating the **environment in which we live**, prepared by the **Ministry of Environment**, and followed in their daily activities by the Ministry's Architecture and Construction Policy Group, are:

- *Comprehensive Plan of the Territory of the Republic of Lithuania (Comprehensive Plan), 2021*
- *Law on Territorial Planning, 1995*
- *Law on Architecture, 2017*
- *Law on Construction, 1996*
- *Construction Technical Regulations (CTR)*
- *Guidelines for Sustainable Cities, 2023 12*



However, with the geopolitical situation in our part of Europe becoming particularly tense, it has become clear that Lithuania is not adequately prepared for a potential war threat:

**Comprehensive Plan** The Comprehensive Plan includes only a brief chapter on national defense, notably shorter than the section on cultural heritage. While it addresses key steps for preparedness, it gives less attention to managing geopolitical crises or planning evacuation routes, reflecting the priorities of the period.

**Law of Construction** didn't even mention/ regulate shelter project procedures ;

**Construction Technical Regulations** were not regulating construction of shelters either in the newly built or existing buildings prior to 2024;

**CTR „Classification of Buildings and Premises“** had only one mentioning of the word „shelter“ and didn't specify any structures of shelters, coverings or collective protection buildings.

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## Examples of post-2022 responses to geopolitical threats in legislative/ action measures:

- **PUBLIC SECTOR** (top-down approach):
- **Ministry of Environment:** CTR „Requirements for the design and installation of shelters, collective protection structures, and coverings“, 2024 02
- CTR „Classification of Buildings and Premises“ (included and specified shelters, coverings and collective protection buildings into specification of buildings and structures), 2024 11
- **Vilnius municipality:** Evacuation Plan for the Residents of Vilnius City, 2025 03
  
- **PRIVATE/ SEMI PRIVATE** - bottom up approach:
- **Lithuanian Chamber of Architects:** recommendations for the installation of enhanced security rooms in buildings of various purposes (2024 01)
- **Lithuanian Riflemen's Union:** e.g. regularly participate in various educational programs for schoolchildren and implement a Citizenship and Defense Skills Course for ninth graders throughout

# NATIONAL DEFENSE IN LITHUANIA'S TERRITORIAL (SPATIAL) AND STRATEGIC PLANNING LEGISLATION

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Policy document	Current state	Responsibility
<p><b>COMPREHENSIVE PLAN OF THE TERRITORY OF THE REPUBLIC OF LITHUANIA (COMPREHENSIVE PLAN), 2021 09</b></p> <p><i>(Ministry of Environment)</i></p>	<p><b>12. (20,21)</b> Among others, <b>the General Plan solutions aim to ensure the combat capability and deterrence potential</b> of the Lithuanian Armed Forces, including infrastructure for international military mobility, and to <b>strengthen protection against cyber attacks;</b></p> <p><b>213. Adapt transport infrastructure to support military mobility,</b> including key roads, railways, and strategic projects like "Rail Baltica," with emphasis on connections to Poland and Latvia and access to military units.</p> <p><b>240. Develop railways for military mobility,</b> meeting international standards and allowing new sections as needed.</p> <p><b>268. Enhance air cargo capabilities via Šiauliai Military Airport</b> and its infrastructure.</p> <p><b>444.14.</b> Implement and mark measures to <b>protect cultural heritage sites and assets during armed conflicts</b> or other emergencies.</p> <p><b>564.7. Coastal and sea defense zones prioritize readiness activities;</b> the <b>military polygon enables live-fire training,</b> with defined sea and airspace restrictions.</p>	<p><b>NATIONAL SECURITY SECTION:</b></p> <p><b>597. By 2030, national security priorities</b> include <b>public, economic, energy, cyber, information,</b> and <b>social security,</b> along with <b>strong national defense</b> to meet NATO commitments:</p> <p><b>597.1. Integrate defense spatial needs</b> into development programs.</p> <p><b>597.3. Maintain and reserve military areas</b> on land and at sea.</p> <p><b>597.4. Include defense needs in local planning</b> documents and regulations.</p> <p><b>597.5. Develop naval infrastructure</b> for national and allied forces.</p> <p><b>597.6. Create a new military polygon</b> (~12,000 ha) and study other regions.</p> <p><b>600.3.</b> Plan 14 × 100 ha defense areas with 400 m buffer in specific municipalities.</p> <p><b>600.5.</b> Plan 2 × 5 ha defense areas in border zones.</p> <p><b>600.6.</b> Plan 2 ha and 100 m quay at Šventoji Port for military use.</p> <p><b>SOME OF THE RESULTS:</b></p> <p>In 2025, 10 new polygon territories were agreed with municipalities amid public concern and resistance. In 2021, Lithuania's Seimas approved restoring the Rūdininkai military polygon for Armed Forces use.</p>
<p><b>LAW ON TERRITORIAL PLANNING</b></p> <p><i>(Ministry of Environment)</i></p>	<p><b>1'. This law does not apply to some military infrastructure or special-purpose large-scale projects</b> deemed <b>critical for state security and defense;</b></p> <p><b>20. 3. Defense project construction</b> follows relevant <b>state, municipal, or local planning documents</b> under the Construction Law.</p> <p><b>28.7.</b> Municipal and local <b>plans</b> are <b>revised</b> when needed <b>for national defense,</b> with costs covered by the Ministry of National Defence budget;</p> <p><b>31.1.</b> Spatial planning is <b>public, except for national defense</b> areas or classified state borders and strategic sites;</p>	<p><b>OTHER STRATEGIES RELATED TO LITHUANIAN NATIONAL DEFENSE:</b></p> <p><b>National Security Strategy</b> – defines overall threats, risks, and security priorities for Lithuania.</p> <p><b>Military Strategy</b> – details the development, structure, and use of the Lithuanian Armed Forces.</p> <p><b>Civil Defense Strategy</b> – focuses on protecting civilians and ensuring the continuity of government and society in crises.</p> <p><b>Cyber Security Strategy</b> – addresses the protection of digital infrastructure and information systems.</p> <p><b>Hybrid Threats Response Strategy</b> – strengthens resilience against disinformation, cyberattacks, and unconventional warfare.</p> <p><b>Energy Security Strategy</b> – ensures reliable and independent energy supply, critical for defense and resilience.</p> <p><b>Host Nation Support Strategy</b> – ensures effective cooperation and logistics for NATO allies stationed or deployed in Lithuania.</p> <p><b>Mobilization and Host Nation Support Plan</b> – regulates national mobilization procedures and coordination with NATO forces.</p> <p><b>Strategic Communication Strategy</b> – strengthens public trust, resilience, and counter-disinformation measures.</p> <p>Republic of Lithuania crisis management and civil protection law, 2002</p>
<p><b>GUIDELINES FOR SUSTAINABLE CITIES WITH PERSPECTIVE OF RESILIENCE</b></p> <p><i>(Ministry of Environment)</i></p>	<p>In these recommendations the war threat appears only <b>once,</b> in reference to using historic buildings and basements as temporary shelters during emergencies.</p> <p><b>Proposal:</b> Implementing selected VREPO recommendations into these guidelines could help create safer, more resilient cities</p>	

# ADAPTING TO TURBULENCE: LITHUANIA'S APPROACH TO GEOPOLITICAL SHIFTS (militaristic aspect)



## Ministry of national defense:

The Ministry of National Defense is responsible for implementing the National Security Strategy's objectives related to national defense and societal resilience. It provides various civilian self-defense courses and communicates guidelines for citizens' behavior in times of crisis. **However, public preparedness initiatives remain fragmented and decentralized — there is no unified national system for citizen training.** As a result, defense exercises and awareness programs are often organized independently by local institutions, NGOs, or community groups.



## Lithuanian Riflemen's Union (LRU-

**Civilian enlistment in the Riflemen's Union has intensified.**

The **LRU plays a crucial role in our nation's defence and crisis management**, making it an integral part of these vital operations.

While the **LRU undertakes tasks assigned by state authorities**, it's important to emphasize that **it's primarily a volunteer organization**. Its members, driven by a deep sense of duty, selflessly dedicate their free time to the defense and strengthening of our Homeland.



## KAM Commandant's Offices – Military Commandant's Office (MCO) –

**a military institution** ensuring civilian-military cooperation within a defined territory (municipality or region/county).

### Main functions:

Mobilization of personnel, assets, and services, i.e., for the Army and/or Armed Forces.

Representation of the Armed Forces in the mobilization process within the designated territory (municipality).

Execution of functions defined by the Martial Law Act, including enforcing curfews and protecting critical infrastructure.

Ensuring civilian-military mutual support (assisting in evacuations, organizing fortifications, etc.).



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PRIVATE AND SEMI-PRIVATE  
INITIATIVES



### Security Code:

A private news portal is organizing a security conference in **October 2025**, where the following topics will be discussed: **Defense and Security; Cybersecurity; Economy and Business; Code: Officer and Civilian; Psychological Safety.**



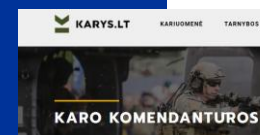
**AKYLAS** – A monitoring platform, **AKYLAS.LT**, created by the Riflemen together with the Ukrainian civic initiative **STIPRŪS KARTU**. Here, people can report various suspicious incidents, whether physical or cyber-related.



### Why LT72?

LT72 is a website intended to prepare Lithuanian residents for emergencies. It allows residents to learn how to be prepared for an accident, how to behave in the event of an emergency, how to receive the information needed during emergencies and other threats.

**LT72 App:** A Lithuanian emergency preparedness website providing guidance on how to prepare for a nuclear power plant accident, how to act in case of such an accident, as well as information on natural, technical, and social hazards. It also offers information on various resilience trainings and where to access them.



*Compulsory document):*

## 1. Construction Technical Regulations: Requirements for the design and installation of shelters, collective protection structures, and coverings (2023 10, 19 pages)

### Purpose of the Recommendation:

This document sets the minimum requirements for a **newly designed and constructed building**.

### This regulation is applicable for:

Shelters or protective coverings must be provided:

- 1 - In buildings where **residents work** to support state or municipal functions **during emergencies or wartime**.
- 2- In **collective protection** facilities.
- 3- In **public buildings** (>100 people) and **high-rise residential buildings** (>5 floors).

If a dedicated room is not planned, the protective covering should be designed as a separate structure or facility where residents can temporarily protect themselves from hazards.

### RECOMMENDED to follow the requirements set out in the Regulation when:

- 1- **reconstructing existing** buildings or rooms where a shelter, collective protection facility, or protective covering exists or is planned;
- 2 -**fitting out existing buildings or rooms** where a shelter, collective protection facility, or protective covering exists or is planned.

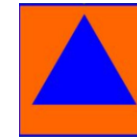
### 2. Additional document *Compulsory document* ):

“Description of the Procedure for Determining, Selecting, Marking, Preparing, and Using Shelters, Collective Protection Facilities, and Protective Coverings” (2023 01)



After Law on Crisis Management and Civil Protection:

**SHELTER (not being marked!)- a special-purpose structure or specially equipped room** for residents who **ensure the functioning of state and municipal institutions and agencies during emergencies or wartime**, or who have assigned essential tasks, designed to protect against factors that pose a danger to life or health



**Collective protection building (sign):** Collective protection structures are intended for the **temporary shelter** of the population to protect **against harmful environmental effects** and for the protection of evacuated residents **during emergencies or wartime**. (I, II, III categories)



**COVERING: room** that provides the opportunity, for a **short period of time (a few hours)**, to **avoid danger to life or health in the event of an air threat**, to **protect against direct and indirect fire** from aircraft, rockets, artillery, as well as from shrapnel, debris, blast waves, and stray bullets).



# New Lithuanian regulations on construction of shelters, collective protection structures and coverings

**SHELTER** – a special-purpose structure or specially equipped room for residents who ensure the functioning of state and municipal institutions and agencies during emergencies or wartime, or who have assigned essential tasks, designed to protect against factors that pose a danger to life or health.

The area of a shelter is determined based on the number of people to be protected during emergencies or wartime, including: Working residents who maintain the operation of state and municipal institutions and agencies during emergencies or wartime, or Individuals assigned essential tasks during such situations.

**The shelter must have a designed and installed heating and also ventilation systems; drinking water supply and wastewater disposal systems; electricity, internet.**

**COLLECTIVE PROTECTION STRUCTURES** are intended for temporary shelter of residents against harmful environmental effects and for the protection of evacuated residents during emergencies or wartime.

Under normal living conditions, these structures serve various public needs, but in emergencies they can be adapted to protect people from life- or health-threatening hazards. Such structures are most often schools, gymnasiums, cultural centers, or sports centers.

- On publicly available online maps, civilians can locate the nearest protection structure to their home or workplace.
- Each municipality is responsible for the safety of people living in or present within its territory and designates buildings for collective protection in advance.

**Category III**– Provides protection **against natural catastrophic meteorological events** (excluding hydrological phenomena).

**Category II** – Protects against **natural catastrophic meteorological events** and **kinetic threats**.

**Category I**– Provides the highest level of protection, covering: *Natural catastrophic meteorological events (excluding hydrological); Kinetic threats; Ionizing radiation; Harmful substances, gases, and aerosols.*

**Collective protection structures may be used normally in peacetime. It must have a designed and installed heating and also ventilation systems; drinking water supply and wastewater disposal systems; electricity, internet; fire detection and alarm systems.**

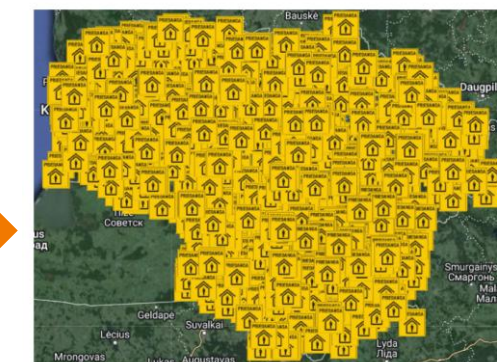
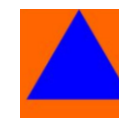
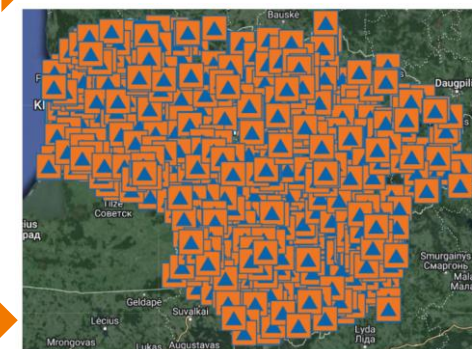
**COVERING** provides short-term protection (up to several hours) during aerial threats, shielding from attacks, debris, blast waves, and stray bullets.

When hearing the civil defense signal “Air threat”, one must immediately find the nearest marked **covering**.

If none is nearby, it is recommended to use a trench, depression, underground crossing, tunnel, or basement.

**Possible covering locations:** *Apartment buildings; Public, recreational, or entertainment facilities; Underground parking lots or garages; Basements or utility rooms; Tunnels (pedestrian, transport, or technological); Storage areas of non-combustible materials.*

No marking sign due to secrecy of the shelter



# PRIVATE/SEMI PRIVATE INITIATIVES



**LITHUANIAN CHAMBER OF ARCHITECTS** (non compulsory document)  
**Recommendations for the installation of enhanced security rooms in buildings of various purposes (2023 10, 64 pages):**



**Purpose of the Recommendation:**  
 While state regulations cover shelters, coverings, and collective protection facilities in new or renovated buildings, it will take time before a significant number of new shelters are available. **These recommendations aim to address existing buildings immediately.**

**Goals:**

- Provide guidelines for installing enhanced SAFE rooms in **existing buildings without delay.**
- **Raise public awareness** that personal safety is primarily the responsibility of citizens.
- **Encourage architects and engineers to support the initiative** by advising residents using their expertise.
- **Mobilize civic-minded individuals** to take action and begin organizing the installation of enhanced security rooms.

**Material used for preparing these recommendations:**

- ▶ Suomijos slėptuvių projektavimo normomis RT 92-11173,
- ▶ FEMA „Design Guidance for Shelters and Safe Rooms“,
- ▶ Homeland Security „Preventing Structures from Collapsing“,
- ▶ FEMA „Reference Manual to Terrorist Attacks Against Buildings“,
- ▶ TerraMIL „Mobile Underground City“,
- ▶ Statybos techniniai reglamentai;
- ▶ Rombit. 7 common and potentially deadly mistakes in evacuation management;
- ▶ Maidano svetainė. Slėptuvės ir reguliavimo sistema;
- ▶ FEMA. Explosive blast;
- ▶ TWP 1984. Technische Weisungen für den Pflicht-Schutzraumbau;
- ▶ Design Guidance for Shelters and Safe Rooms;
- ▶ Preventing Structures from Collapsing;
- ▶ Terramil. Mobile Underground City;
- ▶ LKA. Miesto ir gyvenvietės fortifikacija;
- ▶ Mark Spencer. Manual for the Urban Defender;
- ▶ Reference Manual to Potential Attacks Against Buildings;
- ▶ Instrukcijoje panaudoti fragmentai iš darbo grupės narių ir konsultantų rengtų projektų;
- ▶ Instrukcijoje panaudotos R. Miliūtės darytos nuotraukos

**! Writtent in a simplistic manner, these recommendations contains very explicitly description of possible rackets ( their speed -800 -1235 km/h, how fast one would reach Vilnius - 1o min if let from Minsk, Bellorussia...), explaining the mechanism of informing of the citizens hence how much time they would gave to hide.**



**Collective protection building (sign):** Collective protection structures are intended for the temporary shelter of the population to protect against harmful environmental effects and for the protection of evacuated residents during emergencies or wartime.



**COVERING:** room that provides the opportunity, for a short period of time (a few hours), to avoid danger to life or health in the event of an air threat, to protect against direct and indirect fire from aircraft, rockets, artillery, as well as from shrapnel, debris, blast waves, and stray bullets).

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**Examples of shelters proposed discussed in Recommendations:**

**In a multi-family residential building**



**In an office building**

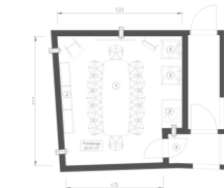
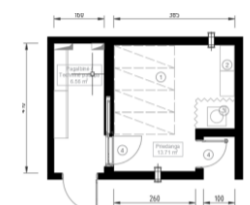


**In a cultural heritage building**



**Agitates for SAFE ROOMS**

**A proposed prototype of a SAFE ROOM for 12 people:**



# SHELTERS

## Slėptuvė

27



### ► POREIKIO PAGRINDIMAS:

- Pagal Tvarkos aprašo p.5: ūkio subjektas įsivertina rizikas, nustato kad poreikis pagrįstas, suderina su PAGD, priima sprendimą dėl slėptuvės įrengimo. Nepriklausomai nuo statinio kategorijos. Reikalavimus gauname su projektavimo sąlygomis;

### ► PLOTO NUSTATYMAS, KITI PARAMETRAI:

- Pagal STR p. 19.3.1 asmeniui skiriama ne mažiau kaip 2m<sup>2</sup> žmonių apsaugos patalpos + pagalbinės ir/arba techninės patalpos;
- Numatoma 1 WC ir viena dušo kabina 20 asmenų;
- Patalpos H≥2,10m, po vamzdžiais ar sijomis H ≥2,10m;
- **KONSTRUKCIJOS:**
- Perimetro sienos ir perdanga t≥300 mm, pertvaros – g/b konstrukcijos;
- Dinaminė apkrova ir atsparumas sprogimo bangai 0,20 MPa, ties avarinio išėjimo koridoriu 0,025 MPa



Pav. Suomia slėptuvių įrengimui sumaniai išnaudoja gamtines sąlygas

## SPKAS elementai – kas dar turi būti paminėta

68



Pav. slėptuvėse laikomų įrankių sąrašai Suomijoje, Šveicarijoje ir Izraelyje skiriasi. Lietuva nebus išimtis



Pav. bendras slėptuvėje laikomos įrangos sąrašo bruožas: išplėstinis medicinos krepšys ir cheminiam biologiniam užterštumui pritaikyti kostiumai, dujokaukės



## Slėptuvės inžinerinės sistemos

28



### ► ŠILDYMAS:

- Privalomas, turi užtikrinti HN reikalavimus;

### ► VĖDINIMAS:

- CO<sub>2</sub> koncentracija ≤10-15 tūkst.ppm. Recirkuliacijos režimu CO<sub>2</sub> koncentracija ≤20 tūkst.ppm. Viršslėgis 50 Pa, šalinamas per 35 Pa vožtuvus;

### ► VANDENTIEKIS/NUOTEKOS:

- Privalomas žmonių apsaugos patalpose virš 25 asm., medicinos punktuose, maisto ruošimo patalpose, išėjimuose, 1 čiaupas 30 asm + atsarga slėptuvėje esančiam žmonių sk., terminas neribotas;

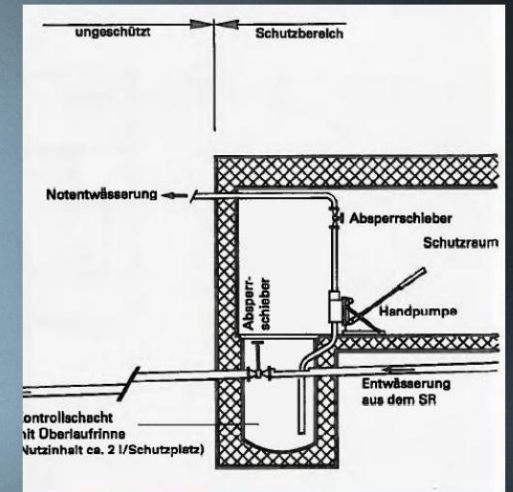
- Atskira nuo pastato nuotekų sistema ir rezervuaras tam atvejui, jeigu nebus galima naudoti įrengta sistema

### ► ELEKTROS ENERGIJA:

- Tinklas – 2 nepriklausomi šaltiniai + generatorius;

### ► KITOS SISTEMOS:

- Fiksuotas telefono ryšys, radijo ryšys;
- Turi būti GSS ir SGGS, įeigos kontrolė turi atsiblokuoti dingus elektrai



Pav. atsarginio nuotekų rezervuaro įrengimas. TWS 1982 figur 2.3-8  
Technische Weisungen für Spezielle Schutzräume

# COVERINGS:

## PRIEDANGA

31



### ► POREIKIO PAGRINDIMAS:

► Pagal STR p.1.3: visuomenės poreikiams naudojamam statiniui kur gali būti virš 100 žmonių, daugiau kaip 5 aukštų gyvenamajam pastatui;

### ► PLOTO NUSTATYMAS, KITI PARAMETRAI:

► Pagal tvarkos aprašo p.23.2 asmeniui skiriama 1,5 m<sup>2</sup> bendrojo patalpos ploto ne mažesiam nei 60% pastate būnančių žmonių skaičiui;

► Statytojo pageidavimu gali būti įrengiami WC ir dušai taškų skaičius neregamentuojamas;

### ► KONSTRUKCIJOS:

► Dinaminė apkrova ir atsparumas sprogimo bangai tik - 0,035 MPa, ties avarinio išėjimo koridoriumi 0,025 MPa;

► Langų būti negali;

► Evakuaciniai išėjimai gali būti užpilti biriu gruntu;

► Evakuacijai leidžiama naudoti inžinerinių tinklų kolektorius ar komunikacinius koridorius



Pav. vieta generatoriui parinkta toliau nuo pastatų grūties zonos, bet nėra apsaugos nuo kinetinio poveikio



## Kaip parinkti SPKAS vietą. Planiniai sprendimai 4

52



Pav. SPKAS Dnipro gatvėse

Ką šiuo atveju reikėtų daryti Lietuvoje?

1. Betono gamyklos priekpa g/b modulių. Būtų gerai kad prikeptų ir prieštankinių elementų ©
2. Skaičiuojam žmonių kiekį, sudedame kiek reikia modulių
3. Statome juos sklypuose, prie transporto stotelių, kitose kritinėse vietose
4. Gali būti komplektuojama su biotualetu

## Priedangos inžinerinės sistemos

32



### ► ŠILDYMAS:

► Tik rekomenduojama. Gali būti šildoma elektriniais šildytuvais. Jeigu projektuojama normali sistema – pagal normatyvų reikalavimus;

### ► VĖDINIMAS:

► Gali būti projektuojama Statytojo pageidavimu. Jeigu yra mechaninis arba natūralus vėdinimas – turite numatyti galimybę uždaryti nespecifinėmis priemonėmis;

### ► VANDENTIEKIS/NUOTEKOS:

► Rekomenduojamas neužšalantis čiaupas ir trapas, nuvedimo būdas neregamentuojamas.

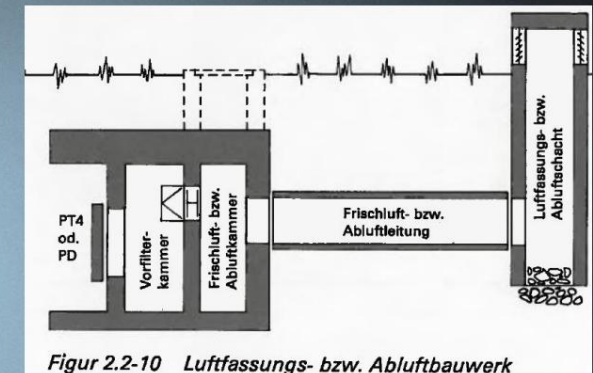
► Statytojo pageidavimu gali būti įrengiami tualetai, kiekis neregamentuojamas, gali būti sausi, bet reikia numatyti ŽN pritaikytą

### ► ELEKTROS ENERGIJA:

► Tiekimas iš tinklo. Turi būti įrengiamas apšvietimas. Turi būti rezervinis maitinimas iš generatoriaus arba numatyta galimybė prijungti išorinį šaltinį

### ► KITOS SISTEMOS:

► Turi būti įrengta GSS arba SGGS (STR p.184)



Figur 2.2-10 Luftfassungs- bzw. Abluftbauwerk

Pav. skirtingi oro paėmimo šachtų įrengimo variantai TWS 1982 figur 2.2-10.

Technische Weisungen für Spezielle Schutzräume



# PUBLIC INITIATIVES/ VILNIUS MUNICIPALITY



## RECOMMENDATIONS ON SHELTER, COLLECTIVE PROTECTION BUILDINGS:

### 1- Recommendations for Improving Protective Coverings:

Type of construction; Ventilation; Electricity; Fire protection; adjustment to people with disabilities; etc.;



### 2- Protective Cover Alternatives for Residents of Individual Houses. How to Prepare?

These recommendations are an attempt to find interim solutions for private house residents to feel safer by knowing which premises of the residential building are more reliable in withstanding kinetic threats



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## Vilnius City Evacuation Plan includes:

**Military Invasion** (Entry of hostile military forces into the territory of Lithuania);

**Hybrid Attacks** (Mass migration flows or border conflicts that may disrupt Vilnius city infrastructure and cause instability, usually linked to coordinated hostile provocations);

**Nuclear Threats** (For example, radiation threat from the Astravets nuclear power plant, with the main contamination cloud moving westward);

**Severe Natural Disasters** (Severe storms or other extreme natural phenomena in Eastern Lithuania);

**Severe Infrastructure Accidents** (For example, a fire in a multi-apartment building, etc.).



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## Thank you for your attention!

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