INSTITUTE OF BLAST & IMPACT PROOF CONCRETE

DEFENCE INDUSTRY

Made to save you

WITKOWITZ

CTU CZECH TECHNICAL UNIVERSITY IN PRAGUE

Prague Airport

VVU

CzechTrade

CSBETON

Europäisches Patentamt
European Patent Office
Office européen des brevets

ABOUT US

- Development of specific protective elements.
- Including test **protocols and certifications** by the Military Research Institute (MRI) of the Czech Republic.
- State Testing Laboratory of the Czech Technical University in Prague.
- Our elements are made from patented Ultra High Performance Fiber Reinforced Concrete - **UHPFRC**.
- They provide protection for **Defence Industry, Critical Infrastructure and Civil Defence**.
- Potential to use unique **know-how and hi-tech products** through licence - FRANCHISE.

SUMMARY OF THE EU COUNCIL DIRECTIVE

EUROPEAN PARLIAMENT AND COUNCIL DIRECTIVE (EU) 2022/2557

- Addresses providers of **critical services**.
- Defines resistance/resilience of critical assets to all types of threats (uniform rules across the EU).
- Critical entities will be monitored on their compliance with a **Resilience Plan** based on a **risk assessment** that is updated periodically or as required.
- **Critical entities** will strengthen their capabilities to prevent, **protect themselves**, respond to and withstand incidents, **mitigate, absorb, adapt and recover** from the consequences.
- Possible support from the State or the EU.

2023	1.	Preparation for the implementation of the Directive.
2024	2.	Acceptance of the measures of the Directive.
2025	3.	Strategy to strengthen the resilience of critical infrastructure.
2026	4.	Submission of a report to the European Parliament.

INSTITUTE OF BLAST & IMPACT PROOF CONCRETE

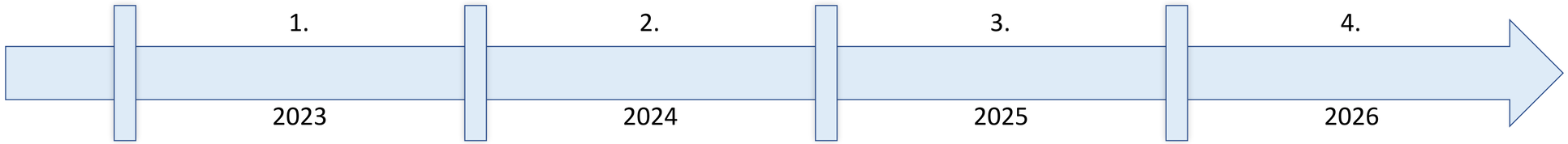
A. Prepared an analysis on the implementation of the Directive.

B. Has a capacity of scientists, experts and specialists.

C. Has developed unique security features to protect CI.

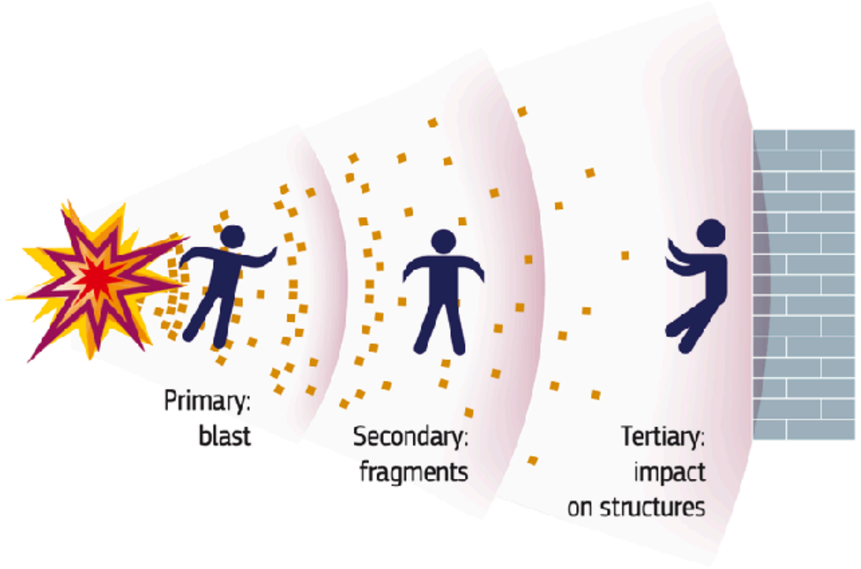
D. It is ready to participate in the CI solutions of European countries.

Implementation plan for the new directive



SECURITY BY DESIGN

Our elements are developed in accordance with the guidelines of the **European Commission's Joint Research Centre for Scientists, Experts and Academics** "Security by Design: Protecting Public Spaces from Terrorist Attacks" , which introduces the concept and practical implementation of building security in the design.



NATO STANAG STANDARD

STANAG 2280:2016

By NATO standard

- Composite safety features at a **high level of durability**.
- Made of patented **salinity-resistant** UHPFRC.
- According to the military standard **NATO STANAG 2280**, used for all protective structures built during military missions.

Ballistic resistance	A5
Shrapnel resistance	C4
Blast resistance	D6

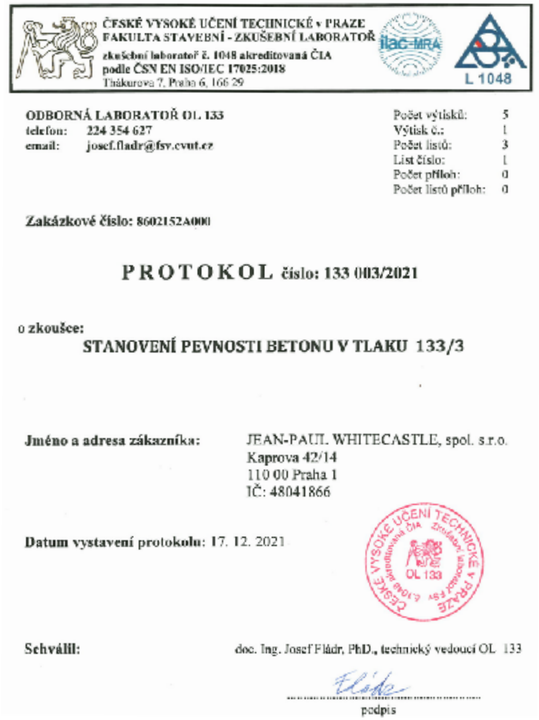
		A **Projectiles**[1]	B **Direct Fire Warheads**[2,3]	C **Indirect Fire Munitions**[3,4]	D **High Explosives (TNT Eqvt)**	E **Moving Vehicles**[5]
Severity of Effect (level)[7]	9				≤ 5,000kg	
	8	**120/125mm** SABOT **Anti tank**	**Anti-tank** 120/125mm HESH / HEAT	Scud	≤ 1,000kg	
	7	**Automatic cannon** 40mm APDS		333mm Rocket	≤ 250kg	
	6	**Automatic cannon** 30mm APDS	**Advanced ASM** Anti Structure Munitions	240mm Rocket	≤ 50kg	Tracked Vehicle
	5	**HMG** 14.5mm (0.57)	**Tandem ASM**	155mm Artillery 122mm Rocket	≤ 10kg	Large Truck ≤ 32,000kg
	4	**HMG** 12.7mm (0.50)	**Anti-personnel** Thermobaric or conventional charge <2.5kg	120mm Mortar 107mm Rocket	≤ 2kg	Truck ≤ 7,500kg
	3	**Assault /Sniper Rifle** 7.62mm AP	**Anti-tank** Shaped charge	82mm Mortar	≤ 1kg	Small Truck ≤ 2,500kg
	2	**Assault Rifle** 5.56 - 7.62mm Ball	**40mm Rifle grenade** shaped charge	60mm Mortar	≤ 0.5kg	Passenger Car ≤ 1,500kg
	1	**Pistol**	(reserved)	Hand grenade	≤ 0.1kg	Motorcycle

PROTOCOLS AND CERTIFICATIONS

By NATO standard

Ballistic resistance	A5
Shrapnel resistance	C4
Blast resistance	D6

- Fulfillment of the principle of legitimate expectations.
- Ballistic, blast and shrapnel resistance.
- Tested and certificated by the **Military Research Institute s.e.**



ČESKÉ VYSOKÉ UČENÍ TECHNICKÉ v PRAZE
FAKULTA STAVEBNÍ - ZKUŠEBNÍ LABORATOŘ
zkušební laboratoř č. 1048 akreditovaná ČIA
podle ČSN EN ISO/IEC 17025:2018
Thákurova 7, Praha 6, 166 29

L 1048

ODBORNÁ LABORATOŘ OL 133
telefon: 224 354 627
email: josef.fladr@fsv.cvut.cz

Počet výtisků: 5
Výtisk č.: 1
Počet listů: 3
List číslo: 1
Počet příloh: 0
Počet listů příloh: 0

Zakázkové číslo: 8602152A000

PROTOKOL číslo: 133 003/2021

o zkoušce:
STANOVENÍ PEVNOSTI BETONU V TLAKU 133/3

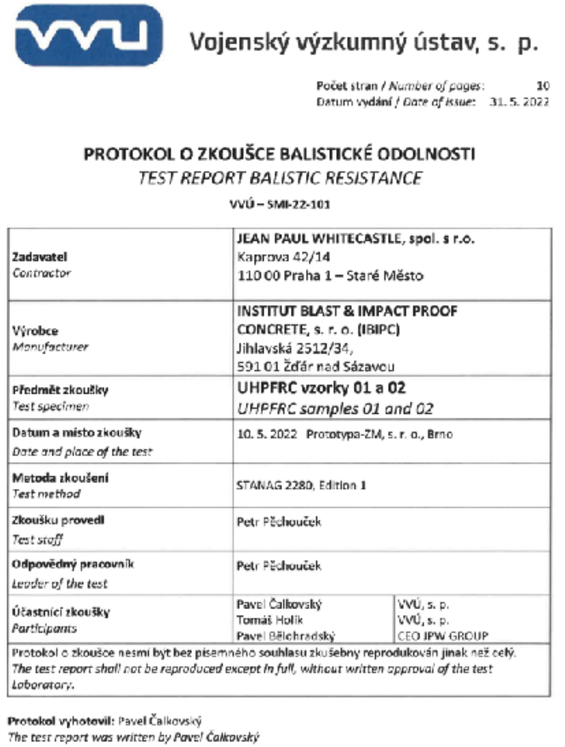
Jméno a adresa zákazníka: JEAN-PAUL WHITECASTLE, spol. s.r.o.
Kaprova 42/14
110 00 Praha 1
IČ: 48041866

Datum vystavení protokolu: 17. 12. 2021

ČESKÉ VYSOKÉ UČENÍ TECHNICKÉ v PRAZE OL 133

Schválil: doc. Ing. Josef Fládr, PhD., technický vedoucí OL 133

podpis



Vojenský výzkumný ústav, s. p.

Počet stran / *Number of pages*: 10
Datum vydání / *Date of issue*: 31. 5. 2022

PROTOKOL O ZKOUŠCE BALISTICKÉ ODOLNOSTI
TEST REPORT BALISTIC RESISTANCE
VVÚ – SMI-22-101

Zadavatel *Contractor*	**JEAN PAUL WHITECASTLE, spol. s r.o.** Kaprova 42/14 110 00 Praha 1 – Staré Město	
Výrobce *Manufacturer*	**INSTITUT BLAST & IMPACT PROOF CONCRETE, s. r. o. (IBIPC)** Jihlavská 2512/34, 591 01 Žďár nad Sázavou	
Předmět zkoušky *Test specimen*	**UHPFRC vzorky 01 a 02** *UHPFRC samples 01 and 02*	
Datum a místo zkoušky *Date and place of the test*	10. 5. 2022 Prototyp-ZM, s. r. o., Brno	
Metoda zkoušení *Test method*	STANAG 2280, Edition 1	
Zkoušku provedl *Test staff*	Petr Pěchoučk	
Odpovědný pracovník *Leader of the test*	Petr Pěchoučk	
Účastníci zkoušky *Participants*	Pavel Čalkovský Tomáš Holík Pavel Bělichradský	VVÚ, s. p. VVÚ, s. p. CEO JPW GROUP

Protokol o zkoušce nesmí být bez písemného souhlasu zkušebny reprodukován jinak než celý.
The test report shall not be reproduced except in full, without written approval of the test laboratory.

Protokol vyhotovil: Pavel Čalkovský
The test report was written by Pavel Čalkovský

Vojenský výzkumný ústav, s. p.
Veslařská 230, 63700 Brno, Česká republika

CERTIFIKÁT
č. VVÚ 2280-001-2022

Objednatel: JEAN PAUL WHITECASTLE, spol. s r.o.
Kaprova 42/14
110 00 Praha 1 – Staré Město

Výrobce: INSTITUT BLAST & IMPACT PROOF CONCRETE, s. r. o. (IBIPC)
Jihlavská 2512/34,
591 01 Žďár nad Sázavou

Výrobek: UHPFRC
Materiálové složení vzorků je v souladu Patentem ČVUT v Praze – fakulta stavební č. 304 478 a s Evropským Patentem ČVUT v Praze č. EP 3 351 518 A1.

Zkušební sestava: 1 ks vzorku (500 x 500 x 200 mm)
1 ks základní díl bunkru (2400 x 2400 x 200 mm)

Úroveň ochrany: A4, C4 a D5 dle STANAG 2280 ed.2 / ATP-3.12.1.8, vydání 1., verze 1

Platnost certifikátu souvisí se Zkušebními protokoly z testů vzorků UHPFRC č. VVU-SMI-22-101, VVU-SMI-22-102 a VVU-SMI-22-103, kde jsou specifikovány testované vzorky UHPFRC.

Zkušební sestava vyhověla požadavkům pro zařazení do úrovně ochrany **A4, C4 a D5 dle STANAG 2280 ed.2 / ATP-3.12.1.8, vydání 1., verze 1.**

Brno, 30. května 2022

Ing. Pavel ČUDA, Ph.D.
ředitel

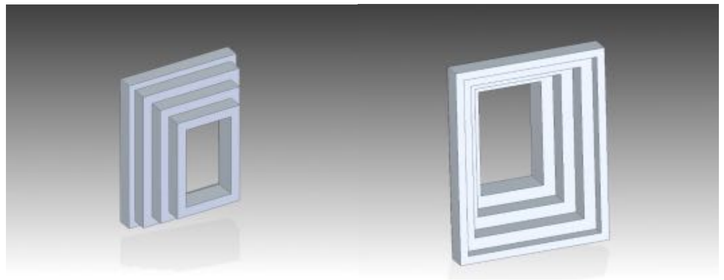
1. CHECKPOINT - BUNKER

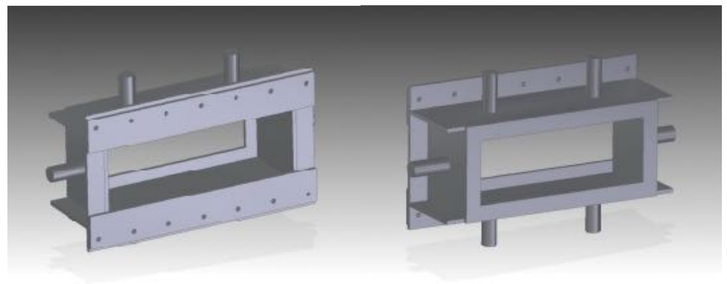
STANAG 2280:2016

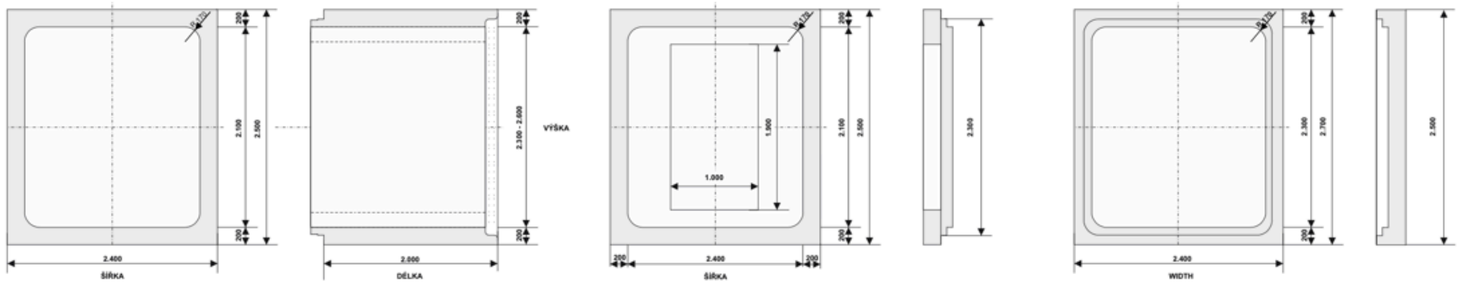
By NATO standard

Ballistic resistance	A5
Shrapnel resistance	C4
Blast resistance	D6

- Used to control the interest perimeter.
- The base structure can be equipped according to the **client's requirements** (beds, benches, chemical toilet, cartridge traps, ammunition and food storage boxes, fitting with guns or cabling).
- Ability to react quickly to defined threats in case of national emergency and **war**.







1. CHECKPOINT - BUNKER

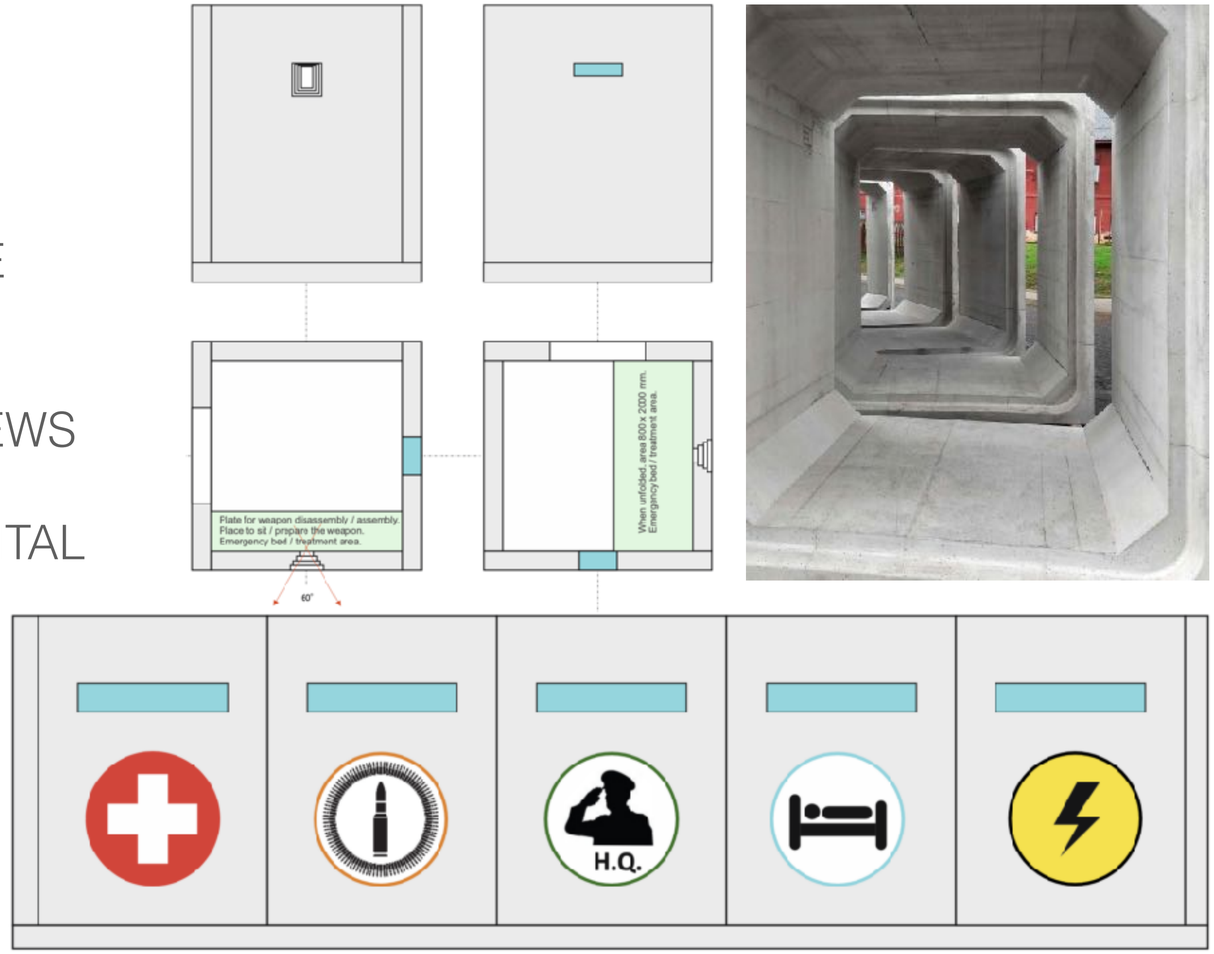
STANAG 2280:2016

By NATO standard

Ballistic resistance	A5
Shrapnel resistance	C4
Blast resistance	D6

OPTIONS

- EMERGENCY
- SHELTER
- WAREHOUSE
- HEADQUARTERS, NEWS, INTELLIGENCE AGENCY
- ACCOMMODATION FOR FIRST LINE CREWS
- A HARDENED PART OF A MOBILE HOSPITAL
- GENERATORS
- SUPPLY DEPOT
- LAUNDRY



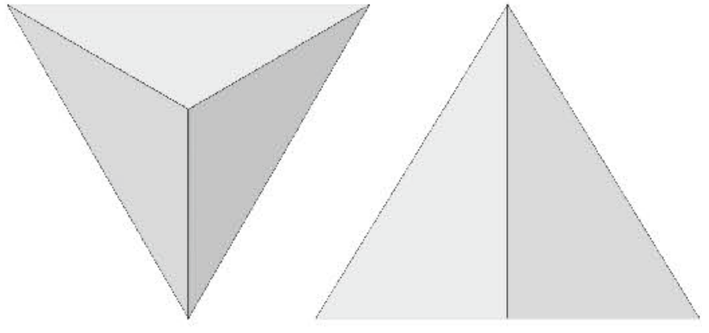
2. MOBILE ROADBLOCK

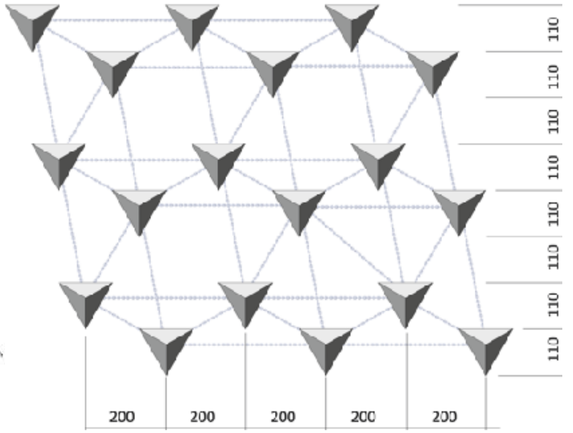
STANAG 2280:2016

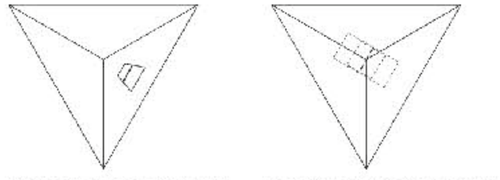
By NATO standard

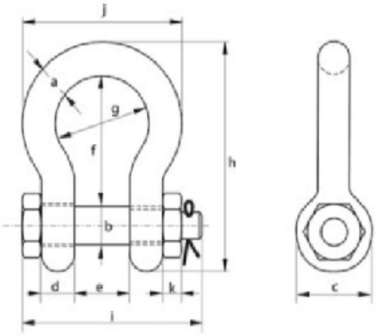
DISTRIBUTION
- LIGHT - 0.6m
- MEDIUM - 1.0m
- HEAVY - 1.35m

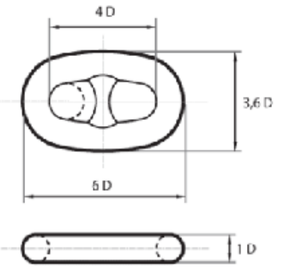
Ballistic resistance	A5
Shrapnel resistance	C4
Blast resistance	D6











- Connected by **marine chains** to make difficult passage and removing individual elements.
- Used for operational positioning in multiple lines in the direction of the enemy's expected approach and **to stop** tracked or wheeled combat **vehicles**.
- Known as “**DRAGON TEETH**”.

3. WIRING TUNNEL

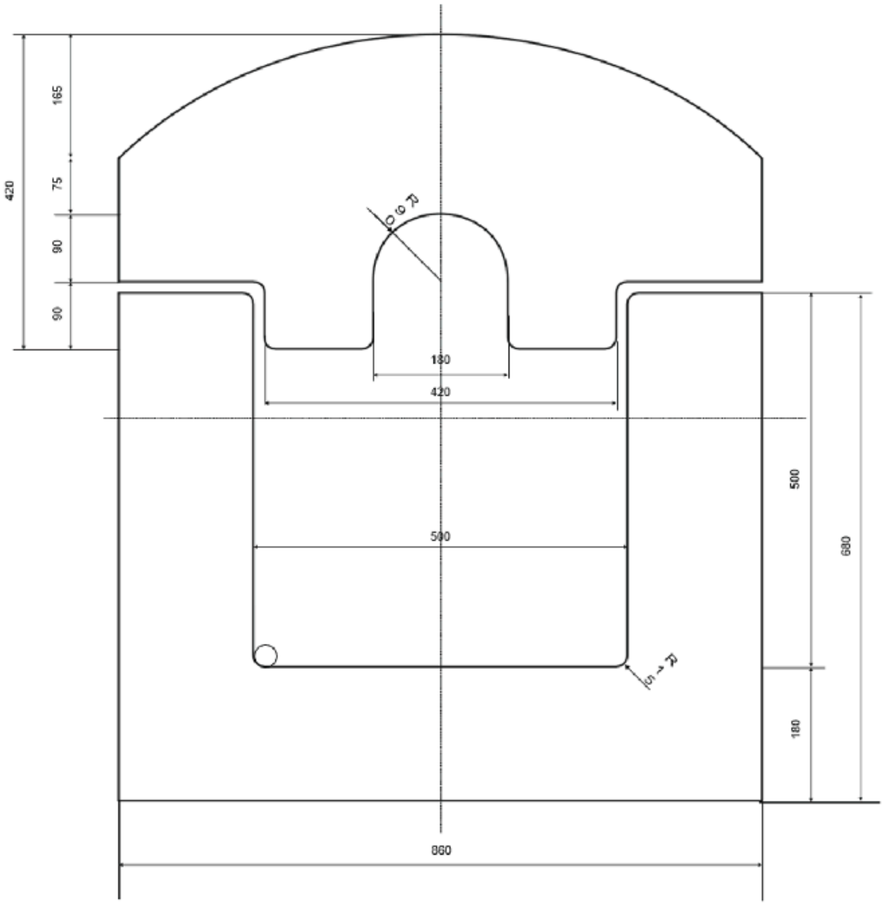
STANAG 2280:2016

By NATO standard

Ballistic resistance	A5
Shrapnel resistance	C4
Blast resistance	D6

DISTRIBUTION
- LIGHT
- HEAVY

- UHPFRC tunnel used **to protect** high priority **cables** and IOT technology systems.
- The board is fitted with an internal tongue fitting into the groove to secure the position of the board.
- It folds behind itself usually below the surface.
- The connection of the elements is provided by a tongue at one end and a groove at the opposite end.



4. COMPOSITE SHIELDS

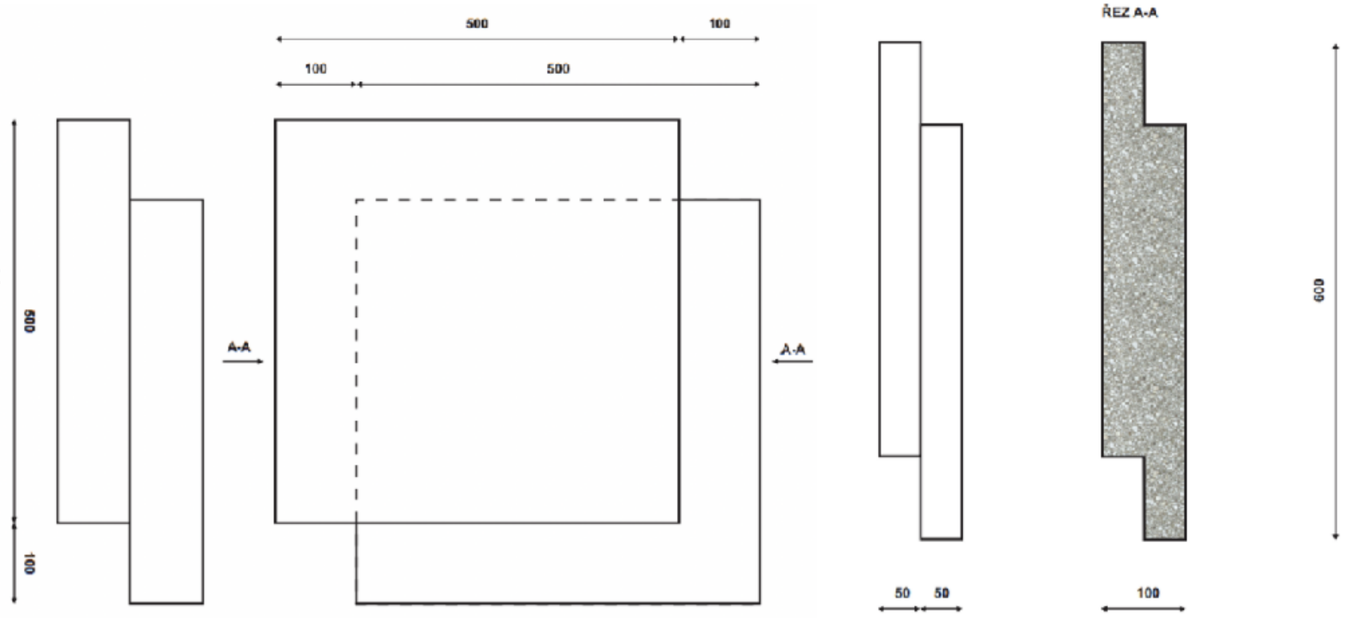
STANAG 2280:2016

By NATO standard

DISTRIBUTION
- LIGHT
- HEAVY

Ballistic resistance	A5
Shrapnel resistance	C4
Blast resistance	D6

- Shields **to protect buildings** and objects.
- Designed for buildings that are important from a political, military or economic point of view for ensuring the protection for basic functions of the state and the security of the armed forces.



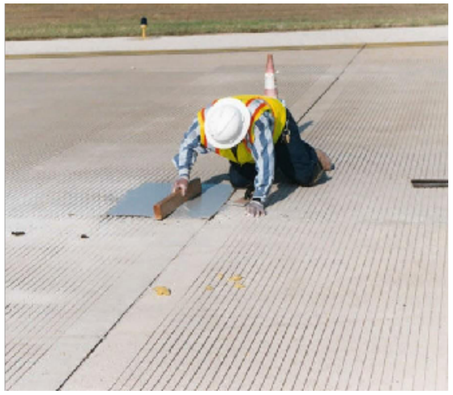
5. RUNWAY REPAIR

- Emergency team ready to go within **24** hours up to **1.000km** with a ready mixture of UHPFRC.
- Designed to quickly repair a damaged runway or motorway.
- For **military and civilian airports** requiring the highest residual strength class A.
- Advantage of **high quality** and fast hardening compound for the required load.

STANAG 2280:2016

By NATO standard

Ballistic resistance	A5
Shrapnel resistance	C4
Blast resistance	D6



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