

Ledic Slovakia a.s.

Vajnorská 8/A

831 04 Bratislava

Slovenská Republika



uni system  
Jakub

Development and realization program of special methods, devices and equipments for training, rehabilitation prevention, recreation sport and free time

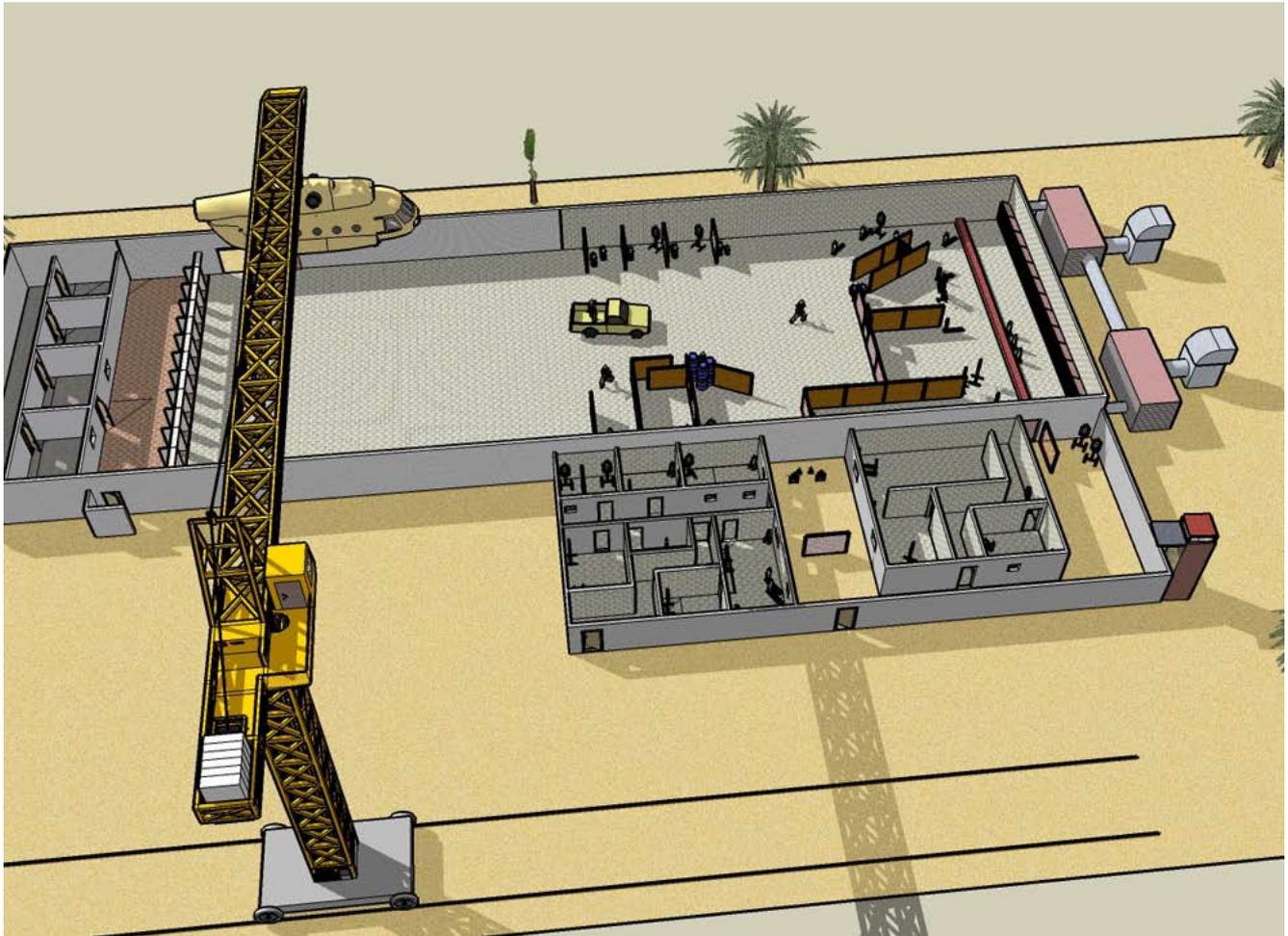
## MULTIPURPOSE SHOOTING RANGE AND CQB VILLAGE

# JAKUB GUN

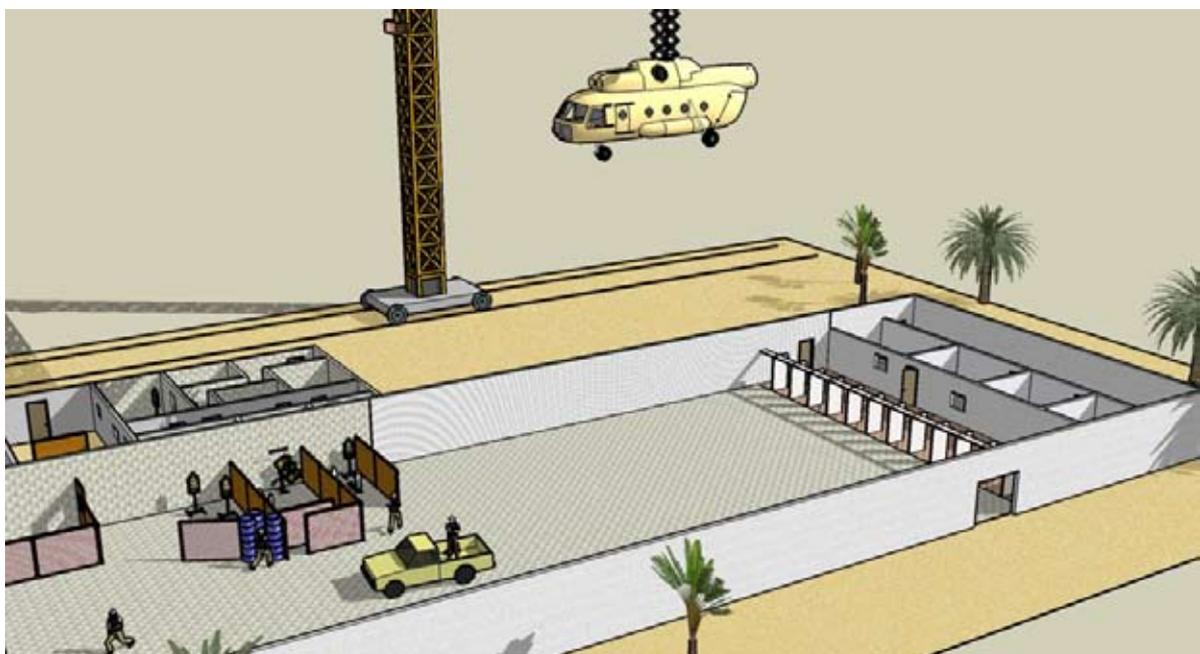


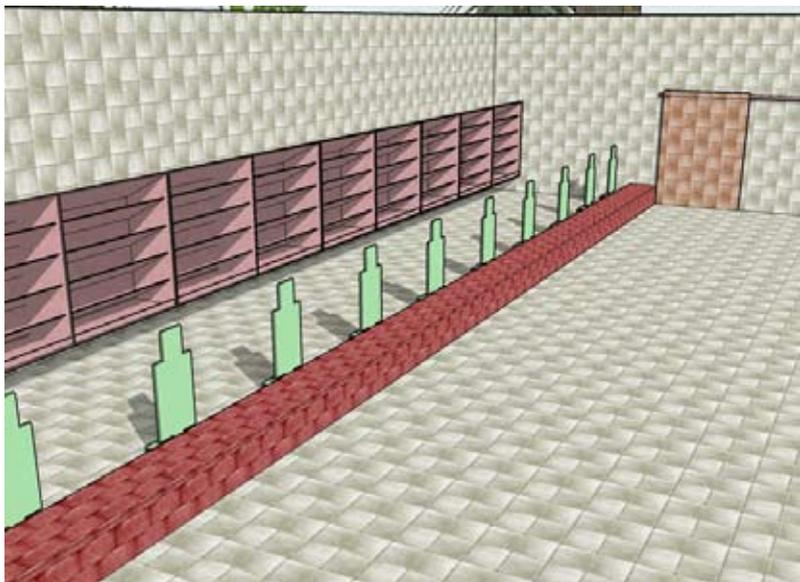
**Slovak Republic  
2009**

## Multipurpose Indoor JAKUB GUN Shooting Range



JAKUB GUN Shooting Range and CQB Village, which is part of it, can be located in the same place as JAKUB KOLOSEUM and JAKUB CLIMBING. The combination of these training systems meaning the possibility of training on all of these simulators at the same time can be very useful for advanced practice by special troops. We also recommend the longer rail-track of JAKUB KOLOSEUM alongside the CQB village to achieve cooperation with this simulator in the whole area of the shooting range.





The basic version of the shooting range enables training shooting at targets up to 50 m away. Target machines are protected against bullets by steel and rubber wall. Behind the targets there is a steel the Venezian Bullet Trap for catching and collecting bullets. Bullets are caught in protected wall behind targets, in protected side walls or in the ceiling, too.

For official competition and training in sport shooting - instead of the infantry target machine the ISSF certified Electronic Target System Sius-Ascor can be used.

The shooting range is ready for shooting and tactical training with an Interactive Shooting Simulator. Interactive scenes, ready for use are displayed on the screen. Hits of targets on the screens are registered by an electronic system, that analyzes shooting result and set the subsequent scene accordingly (depending on what happened previously).

Weapons with laser beams or real ammunition can be used. It is possible to simulate long-distance shooting to about 500 m or to use a simulator for short-distance shooting. Action scenes can be easily prepared by the user or supplied by the seller.

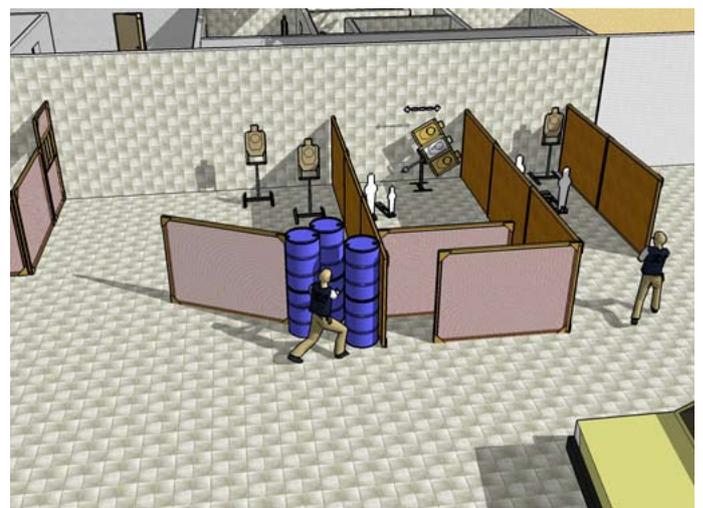
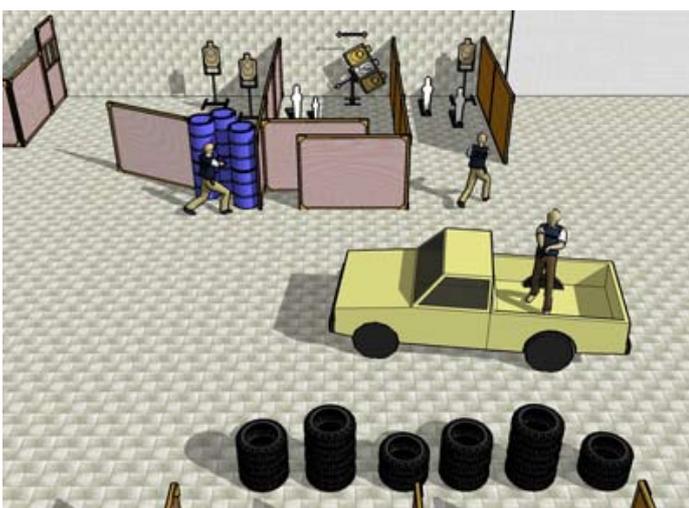


The control and rappel tower is designed for roping to the village and controlling troops. If the rail-track of Jakub Koloseum is long enough to run alongside the whole training area, the operation of Jakub Koloseum can be combined with the entire shooting range and the village.



Powered ventilation and air conditioning equipment can also be seen in the picture. At full power it must ensure exchange of all the air inside the shooting range 30 times in one hour. The ventilation system protects the user against the danger of air pollution from shooting.

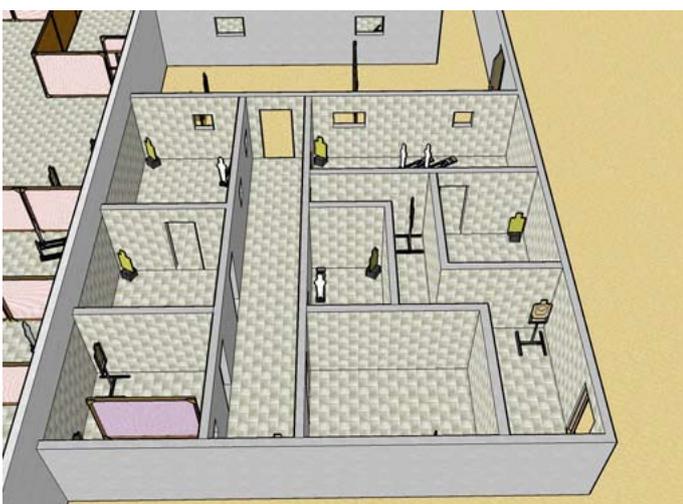
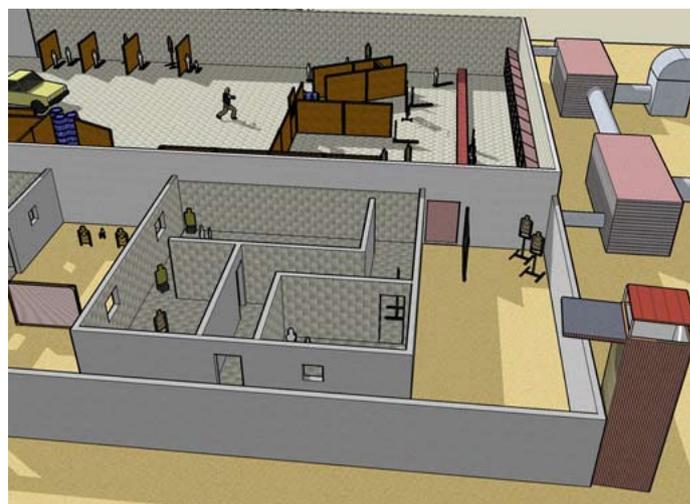
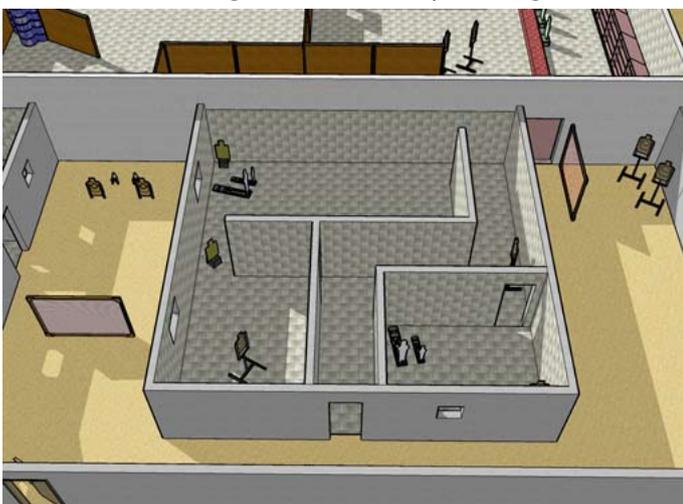
The shooting range is also ready for training combat shooting. After the training with ITS the screens showing different actions are draised to the ceiling to protect them against unnecessary hits, and unneeded targets are downcast. Training in combat shooting can be carried out simultaneously both in the shooting range and in the village or independently, and a door can be installed between both ranges. The side walls in the last 30 meters of their length are protected with steel and rubber against bullets and ricocheting.



Realistic shooting situations (stages) can be created from portable targets, transparent and non-transparent curtains, barrels, tires and other obstacles. Inside the shooting range it also possible to drive in a vehicle and practice shooting from moving cars.



The small village is designated for simulation of CQB (Close Combat Battle). The rooms and the buildings are made from concrete, and places designated for shooting are protected with steel and rubber panels against ricochets of bullets. The floor is also padded with rubber to protect against ricocheting. Some of the rooms are adapted for training in the use of real attack grenades. Some of the doors are designed and constructed as repeatedly breachable with tools, shotguns or explosives for training in forced entry through sealed door.



The variability of action scenes for tactical and CQB training are enabled by using portable targets, transparent and non-transparent curtains, tires and other obstacles. CTLD electronic control targets, designed for use in MOUT (Military Operation in Urban Terrain) also can be use.

All rooms in Village CQB have separate ventilators, adjustable lights and smoke machines.

The operation of the stressor technology and scenes can be controlled either from the control room or from the tower through a camera control system and programmable electronic system. Village CQB does not have any air conditioning system, because its purpose is to simulate conditions in real battle.

## Description of the multipurpose shooting range JAKUB GUN

### Usage:

The indoor shooting range will serve for shooting from the firing line at the distance of 50 m; the last 30m will also serve for combat shooting in 3 directions (180 degrees). As a part of the complex there will be a simulated CQB village adjoining to the shooting range 50 m.

The CQB village is assigned for shooting and tactical training of special units. Depend customer's order can be designed indoor or outdoor.

The complex enables the following activities:

- 1) Shooting at the distance up to 50 m on military or police targets, placed on target machines (TLDr Target Machines) with the functions PopUp and Rotation. 10 to 14 targets can be placed in the shooting range. The target machines are programmable, wireless and they react to the hit of the target. The data are sent online to the control computer for evaluation. Most of the bullets are captured with Venezian bullet trap; the other inaccurate shots are captured with the ballistic paneling or with protection barrier of the target machines.
- 2) Sport shooting according to the rules ISSF for small-bore rifle and pistol for organizing of official shooting contests in shooting at 25 and 50 m. In such cases the targets on the lifting devices will be flapped back behind the protection barrier and the electronic targets Sius-Ascor will be placed on it. In the case of shooting at the distance of 25 m the boxes of the electronic targets will be placed into the holders and posted in the distance of 25 m.
- 3) Shooting on classical paper or wooden targets.
- 4) Shooting on the projection screen, where the prepared scenes are projected, that are needed to shooting simulation with live ammunition at long about 500 m and with the electronic evaluation of the hits. It is possible to supplement the weapons with a laser beam for shooting without cartridges or with blank ammunition. The device can also be used for shooting at a short distance for the training of the hit tactics and for the shooting with realistic situations. When the shooting range is used for classical or combat shooting, the projection screen is wound back to its chamber not to be needlessly exposed to the shooting.
- 5) By the help of the portable transparent or non-transparent screens, various obstacles and targets it can be created many different realistic situations for the training of the hit tactics and for the shooting with live ammunition in the 50 m shooting range. Through the door on the left side of the shooting range a vehicle can enter the room, from which it is possible to train the shooting on targets on the run. The training unit can smoothly enter the room of the training village through the door on the right side, where it can carry on solving the combat situations.
- 6) The training CQB Village makes possible the training of the hit tactics and the shooting with live ammunition in realistic situations, which can go on independently on the drill in the 50 m shooting range or it can follow it. By the help of the portable screens, targets and obstacles it is possible to change the training situations inside the village. Some door openings are equipped with special breachable doors, which are resistible and designed for permanent usage. They can be broken down with tools, shooting the lock off with shotgun or with explosives. In total, about 4 teams each with 5 to 7 warriors can safely train both in the shooting range and the village at the same time.
- 7) A control and rappel tower can be built next to the village for rappel training. The tower will serve for training of the team airborne invasion into the village and for the supervision of the training around the complex.
- 8) In the case of installation of the training helicopter simulator JAKUB KOLOSEUM it will be very useful for advanced practice of special troops. Can be possible to use this simulator for airdrop training along the whole length of the shooting range, including the CQB Village.

The shooting range will be equipped with:

- The ballistic wall and ceiling protection, the floor will be covered with rubber anti-reflecting panels.
- Ventilation and AC
- 6 sets with projectors, projection screens and other equipment.
- Target machines TLDr a CTLD , which can be used for combat shooting and for shooting at a distance 25 or 50 m.
- Various kind of targets, portable bullet traps, transparent and non-transparent screens for

constructing the training situations.

- An electronic scoring system Sius-Ascor for sport shooting.
- Stressor technology (audio system, adjustable lights, smoke machines)
- The control room. From the control room all electronic equipment can be controlled, targets control and scoring record, scenes with audio system, smoke generators, lighting dimmer, stroboscopes and target equipment. Further, there will be the video system control including the recording, AC control, safety systems and communication systems.

The simulation CQB village will be equipped with:

- The ballistic wall protection to capture the bullets, the floor will be covered with rubber anti-ricochet panels.
- One room will be assigned to throwing the drill and live grenades
- Various kinds of targets and screens for constructing the training situations.
- Breachable doors
- Control and rappel tower
- Closed rooms ventilation
- Standby lightning

Required resistance of the bullet traps and side walls in the combat section:  
5,56 NATO, 7,62x51 NATO, ammunition for short weapons.

Dimensions:

Shooting distance: 50 m, 10 - 14 standpoints for shooting on target.

The distance of the technology from the firing line:

- Protective barrier - 49,5 m
- Target machines - 50 m
- Canvass (screen) - 52 m
- Hanging rubber - 53 m
- Steel bullet trap - 53,5 m

Building dimension: 65x21x4,0 m  
Interior dimension: 59x20x3,5 m  
Service space – rooms, corridor: 6x20 m  
Length of shooting from the firing line: 50 m  
Space for shooters and instructors: 5x20 m

Service rooms: 4x20 m, thereof:

- control room cca 4x4 m
- classroom cca 4x8 m
- WC cca 4x3 m
- storage room cca 4x5 m
- rear connection corridor cca 20x2 m with doors to separate rooms, access to the corridor sideways
- entrance door to the shooting range from sideways, from inside steel sliding door, from outside normal, width cca 100 cm
- large door to the shooting range, for vehicle, used also during construction and maintenance, from inside steel sliding door, from outside normal, width cca 3 m

Inside dimension: cca 64x20 m, ceiling supported in the middle with the pillars (module 10 m)

Simulation of CQB Village: 32x12 m  
Smaller building: 10x10 m  
Larger building: 12x12 m

## Ballistics protection:

### Downstream floor:

- Venetian wall (steel bullet trap 19,5 x1,5x0,5 m along the whole length of the wall), the rest covered with special steel and rubber panels, ballistic resistance B7
- Hanging belts for picking up of the projectile fragments, reflected from the collector.
- Safety barrier for targets and retractor – special steel, rubber blocks 100x30x25 cm piled up like bricks to the height 90 cm- ballistic resistance B7

### Wall protection:

- The last 30 m from the total length of the pistol range paneled walls to the height 2 m - special steel, ballistic resistance B6, over 2 m and the ceiling special steel, ballistic resistance B4, steel covered with rubber panels against ricochet.
- The first 20 m of the shooting range is not designed for side shooting, walls and ceiling are made of special steel, ballistic resistance B4, with plywood cca 18 mm and rubber 20 mm with acoustic modification (denticulation) – made for eliminating of accidental shots. Every cca 10 m a stump 0,5 m along the whole height of the wall to cushion the shots along the wall, special steel and rubber 50 mm on both sides.
- Floor area – concrete panel, chipboard 18 mm and rubber 50 mm against ricochet.
- The wall in front of the firing line will be made of special steel, ballistic resistance B5, chipboard and rubber 50 mm, two windows of bullet-proof glass 100x60 cm, ballistic resistance B6 (one of them to the control room, the other to the classroom).
- The ceiling above the firing line 3 m wide thickened with steel and 50 mm rubber, ballistic resistance B4.
- The ceiling for shooting from the firing line will be protected with angled panels cca 50 cm wide, along the whole width of the shooting range, with lighting and air conditioning outlets behind them.

### Air-conditioning and ventilation:

Required temperature range: inside 25 – 30 degrees, multilevel ventilation (min. two levels of vent power), and air exchange up to 30 times an hour. Set up an air circulation from the firing line to the bullet trap. Service rooms will be air-conditioned independently. Machine room (containers) will be placed outside the building in containers.

### Technology :

The shooting range will be equipped with canvass (screen) along the whole width (cca 18 m) with scenes projection including size reduction to simulate a distant scene with an adjustable distance. There is the option of laser and real ammo firing with full bore from many kinds of hand weapons (Kalashnikov, sniper rifle, M16, pistol). Enable Scoring assessment. Canvass protection from combat shooting, which will take part in the last 30m section of the shooting range, will be solved with lifting the coils with canvass upwards behind the ceiling safety barrier.

13 target machine TLDr, placed behind the floor safety barrier cca 90 cm high, also protected with retractor. Target machines can be displaced and used in another part of the shooting range (weight 45 kg).

10 target machine CTLD to be placed in the combat section or as needed (weight cca 20 kg)

1 trolley RMTF 400 (Robotic Movable Target Platform), remote control, with battery power, can move cross-wise the shooting range, behind the safety barrier 50m or any other place inside the shooting range.

### Other equipment including the CQB village:

- 10 pcs of portable bullet trap for combat shooting
- 20 pcs of steel target Popper
- 5 pcs of portable screens (transparent)
- 20 pcs of portable screens (non-transparent)
- 3 pcs of portable doors for combination with screens
- 20 pcs of stands for cardboard (paper) targets
- 3 pcs of breachable doors

Camera systems for monitoring and recording of the training:

DOME camera in the middle

2 cameras for monitoring of the firing line

1 camera at the entrance to the combat section,

1 DOME camera on the roof

Some cameras will be sensible even for recording during reduced visibility.

Camera system for monitoring CQB village:

4 cameras

1 DOME camera in Rappel and Control tower

Audio system:

- Sounding of the combat section for sound effects and communication
- Sounding of the firing line for communication

Stroboscopes:

- Will be used for effects on targets 50m and in combat section as well as against the firing line, also in CQB Village

Smoke generators:

- Will be used in combat section (stronger output) as well as above the firing line for 50 m (lower output), also in CQB Village

Rappel and control tower:

- On the outside of the simulation village there will be assembled a light rappel tower cca 6 m high with the possibility of rappelling into the village. The tower control function will be ensured with a camera, which will also enable the monitoring of the surroundings (unit approaching).

Lighting:

- operating (maintenance, etc), the whole shooting range 300 lx
- training lighting – the firing line cca 500 lx, others cca 300 Lx adjustable
- targets 50 m cca 1000 Lx ,
- combat section- walls and targets placement 800 – 1000 Lx adjustable

Equipment for sport shooting:

- 10 sets of target equipment Sius-Ascor or other for 25 m pistol a 50 m pistol and riffle. The equipment is certified for sport competitions according the rules ISSF, possible utilization for military contests in sport shooting.
- The equipment assess the shooting, projects the score on the shooter's monitor and sends over the data to the central computer.

Control room equipment:

- rack for server and other electronic devices.
- Back-up and stabilizing devices
- LCD monitor, laser printer
- control panel – desk with a chair
- software for effects controlling – a simple programming of the scenarios (level and the time axis of the lighting, audio, stroboscope, smoke, target lifting etc.) as well as manual control and its saving
- score assessment, possibility of combined utilization of the canvass as well as all the TLDr and CTLD targets.
- Possibility of the simultaneous or optional control of targets - and effect control from the instructor PDA for the combat section.
- Control of the monitoring system including LCD panels.
- Communication system for mutual connection with the firing line and the combat instructor.
- Radio for the firing line
- Manual switch for the operating lighting and reflectors for 1000 Lx on targets 50 m

- AC and ventilation control
- Chronometer with an acoustic signalization for the firing line, controlled from the control room (count-down etc.)
- Security signalization , blocking of the ballistic door in combat section
- Bullet-proof window, resistance BR6 according to EN1063 (cca 100x60 cm)
- Independent air-conditioning
- An electrical switchboard with circuit breakers for the shooting range
- Essential furniture – locker, shelves, chairs, etc.
- Direct access to the shooting range, ballistic door

Classroom equipment:

- Desks, chairs
- Air conditioning
- projector, canvass
- LCD panels pro the camera system – one for each camera.
- Bullet-proof window to the shooting range resistance BR6 according to EN1063

Stock equipment:

- Steel racks
- lockers
- workbench
- office desk, computer, laser printer
- chair

Copyright © Gustav Cinko 2009



Supplier :



**Ledic Slovakia a.s.**



Vajnorská 8A, 831 04 Bratislava  
Slovenská republika

E-mail: [ledic@volny.cz](mailto:ledic@volny.cz)  
<http://www.jakub-go.cz>  
<http://www.ledic.sk>