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1 Basic information

1.1.1 Parts of specification includes descriptions of used equipment. Units, size and weight quantities see in Bill of quantities.

1.2 Description of the site

1.2.1 Site is located in Rustavi, Georgia

1.2.2 The design area functionality is a Mall

1.3 Work capacity

1.3.1 CCTV and DATA network systems should be installed according the project design.

1.3.2 The work in this section provides for procurement, packaging, transportation, delivery, storage, installation, marking, testing and commissioning and handover the system under satisfactory operating conditions for use within the facility.

1.3.3 The winning contractor shall provide detailed technical specifications of the used equipment.

1.3.4 The contractor shall install and comission full system with all including system components according to local and international standarts.

1.4 Quality guarantee

1.4.1 All system components, system software, parts and devices provided by the System Contractor shall be with guaranteed for material and quality defects.

1.4.2 Subject to the requirements of the Contract Documentation, eligible manufacturers must be companies that are regularly involved in the production of all types and sizes of materials listed in this section, and whose products have been used successfully under similar operating conditions for at least 5 years.

1.5 System description

- 1.5.1 IP infrastructure devices are used according the design.
- 1.5.2 All used video cameras are Poe type and do not require any external power source.
- 1.5.3 There should be minimum 4 megapixel cameras and viewing angles should be agreed during installation with customer representative.
- 1.5.4 Components that meet the requirements of cat 6 in accordance with ISO / IEC 11801 shall be used when designing network infrastructure.
- 1.5.5 CCTV and DATA network cables are traveling in cable trays located in the ceiling.
- 1.5.6 CCTV recorder is located in the Monitoring room rack.
- 1.5.7 There is a CCTV workstation for direct viewing.
- 1.5.8 Recorder should record video data in min. 25fps during 4 week or more.
- 1.5.9 CCTV system should be separated from PC network and should be operated in standalone mode.
- 1.5.10 Flexible PVC corrugated conduits will be forseen for all types of installation (wall, ceiling, floor) from cable tray to termination box at direct device installation place. PVC corrugated conduits should be with steel wire rope inside to easily put cables.
- 1.5.11 All used WIFI access points are Poe type and do not require any external power source.
- 1.5.12 Cable trays are fixed directly on the concrete slab with special mounting brackets. For CCTV, Data and Wifi systems cabling was choosen 300X60 and 150x60mm cable tray. Data cables are 8 core fiber optic which must be installed separately from CCTV and Wifi system cables.

1.6 Products

- 1.6.1 Detailed specifications of the products used in the project can be found in the drawings and Bill of quantities.

2 Installation

2.1 Basic requirements

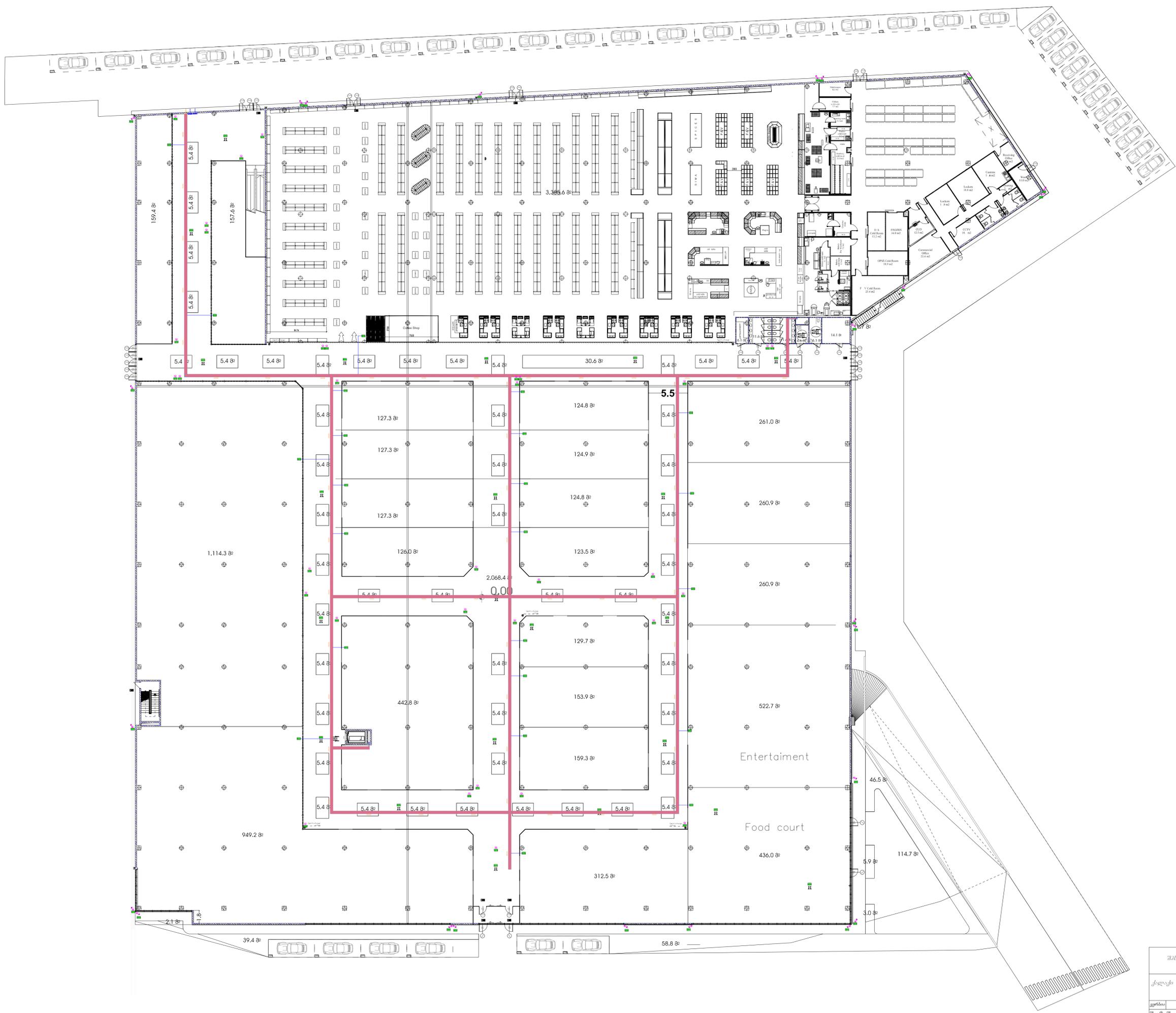
- 2.1.1 The contractor should provide a good quality installation. Installation should be carried out by manufacturer certified personnel who has good experience and knowledge.
- 2.1.2 Work should be organized so, not to interfere with other work.
- 2.1.3 Cables (DATA, CCTV) for working places should be layed in cable trays according the customer provided design drawing.

2.2 Training

- 2.2.1 All training should be provided by system manufacturer representative according specified guidelines.
- 2.2.2 One training session should be held at the end of installation and second after 45 days after installation completion.

2.3 Testing

- 2.3.1 Complete testing of the system shall be carried out with customer and system instalator.
- 2.3.2 Check all functional parameters required by the contract. between them:
- Work properly of all hardware.
 - All video cameras work properly.
 - Playback, pause.
 - Record-download the desired moment of recording.
- 2.3.3 If the CCTV system test is successful, the relevant system test document shall be signed



შპს შვეა ქონსტრუქციები			კოლე		
ქალაქი თბილისი, შარტავის გამზარი, №1 02.03.04.889			თბილისი მიწა		
პროექტი	გეგმა	სტრუქტურული	სტადია	შესა	შესწავი
შენიშვნა	გაბიძგა		მ		
დახაზა	გაბიძგა		ფურც. 1	ფურცლები 2	
შეამოწმა	გაბიძგა		კომპიუტერული და ვექტორული სისტემების საშუალებით 0.00 ნიშნულზე		
დაამუშავა	გაბიძგა		HVAC Georgia		

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1 Basic information

1.1.1 Parts of specification includes descriptions of used equipment. Units, size and weight quantities see in Bill of quantities.

1.2 Description of the site

1.2.1 Site is located in Rustavi, Georgia

1.2.2 The design area functionality is a Mall.

1.3 Work capacity

1.3.1 In the fire alarm system design is used addressable fire detection system for quick location identification and for immediate response.

1.3.2 Fire detection system is microprocessor based system, which is allowed to control smoke and voice evacuation systems. All monitoring and controlling devices should be integrated into the system as it is described in specifications and in design drawings.

1.3.3 Fire detection system loops should be operating properly. There shouldn't be any faults: wire break, short circuit, earth fault, etc.

1.3.4 All necessary labour, electrical equipment, mounting boxes, mounting materials and tools should be provided as specified in the specifications and shown in the drawings.

1.3.5 System should comply below standards

- NFPA 72 or
- EN54 or
- BS standard

1.4 Quality guarantee

1.4.1 All provided system components should be with manufacturer guarantee.

1.4.2 Subject to the requirements of the Contract Documentation, eligible manufacturers must be companies that are regularly involved in the production of all types and sizes of materials listed in this section, and whose products have been used successfully under similar operating conditions for at least 5 years.

1.4.3 For initial evidence, the amount of work performed by the Contractor in the last five years shall be ten times the budget of the project.

1.5 Submit of documentation

1.5.1 Three copies of the documentation describing the completed works shall be submitted to the Client upon completion of the works.

1.5.2 At least the following information must be provided:

- Completed work drawings in CAD format.
- Schemes in CAD format.
- Detailed specification of the equipment used.
- Operational requirements.

2 System description

2.1 Basic requirements

- 2.1.1 The Contractor shall consider the following sequence of operations only as a guide. It must comply with international and local norms, civil protection requirements and customer directives, prior to the sequence of operations and evacuations being completed.
- 2.1.2 Fire alarm control panel is located in monitoring room.
- 2.1.3 Operation of a heat detector, smoke detector or manual call button on the premises shall result :
- 2.1.3.1 A fire alarm will sound on the fire alarm panel and a red alarm lamp will be switched on.
- 2.1.3.2 The display shall show the activated detector name, number, location zone and text.
- 2.1.3.3 The alarm delay countdown indicator will start on the panel.
- 2.1.3.4 Fire alarm reset or switch to the active phase is decided by the action of the operator.
- 2.1.3.5 When switching to the active phase, a predefined scenario will be activated.
- 2.1.3.6 Voice alarm and visual alarm devices will be activated in the building.
- 2.1.3.7 Systems integrated to fire alarm systems will be activated (emergency lighting, Building main fire alarm system, Access control system, Intrusion detection system and archive fire suppression system)
- 2.1.3.8 There will be a turn off power to the appropriate locations.

3 Products

3.1 Cables

3.1.1 The entire fire alarm system detectors shall be fitted with fire-resistant 1x2x0.8 JE-H(ST)H FE180/E90 cables.

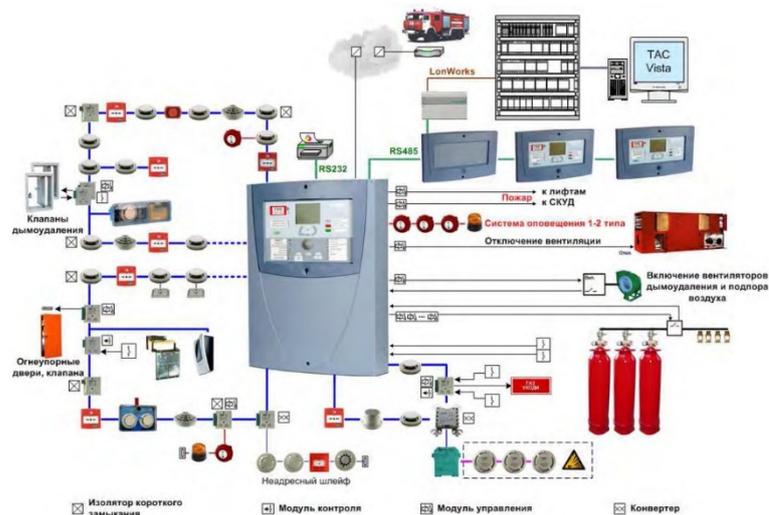


3.1.2 Type of cable, impedance, cable cross section and all other relevant parameters shall meet the system manufacturer's recommendations.

3.2 Fire detection panel

3.2.1 The system is designed to control analog-addressing detectors, which is very effective in responding quickly to specific alarm or fault.

3.2.2 The fire control panel shall scan and identify all equipment continuously in real time.



3.2.3 In the event of a power failure, the fire control panel shall have an alternating power supply which shall operate 24 hours independently.

3.3 Detectors

3.3.1 The following type of devices are used in the project:

- Smoke/Heat detector
- Smoke/Heat detector with siren/strobe base
- LED indicator for false ceiling
- Fire alarm siren/strobe
- Manual call points
- Input/Output modules

3.3.2 Fire detectors shall be equipped with a red identification light.

3.3.3 Each detector can be configured for two levels: "prealarm" "alarm" and also Individual settings such as is:

- Day/night mode
- Alarm delay
- Immediate reponce
- Double nock

These settings allow the system to work perfectly and allow false alarms to be eliminated.

4 Installation

4.1 Basic requirements

4.1.1 The contractor should provide a good quality installation. Installation should be carried out by manufacturer certified personnel who has good experience and knowledge.

4.1.2 Work should be organized so, not to interfere with other work

4.2 Training

4.2.1 All training should be provided by system manufacturer representative according specified guidelines.

4.2.2 Operator training includes sessions that will include the following:

- Operation preview sequence
- Use of all function
- Detection and elimination of sensor malfunctions
- Detect and eliminate system malfunctions

4.2.3 One training session should be held at the end of installation and second after 45 days after installation completion.

4.3 Testing

4.3.1 Complete testing of the system shall be carried out with customer, main building fire department representative and system instalator. Fire should be imitated in full compliance with safety standards.

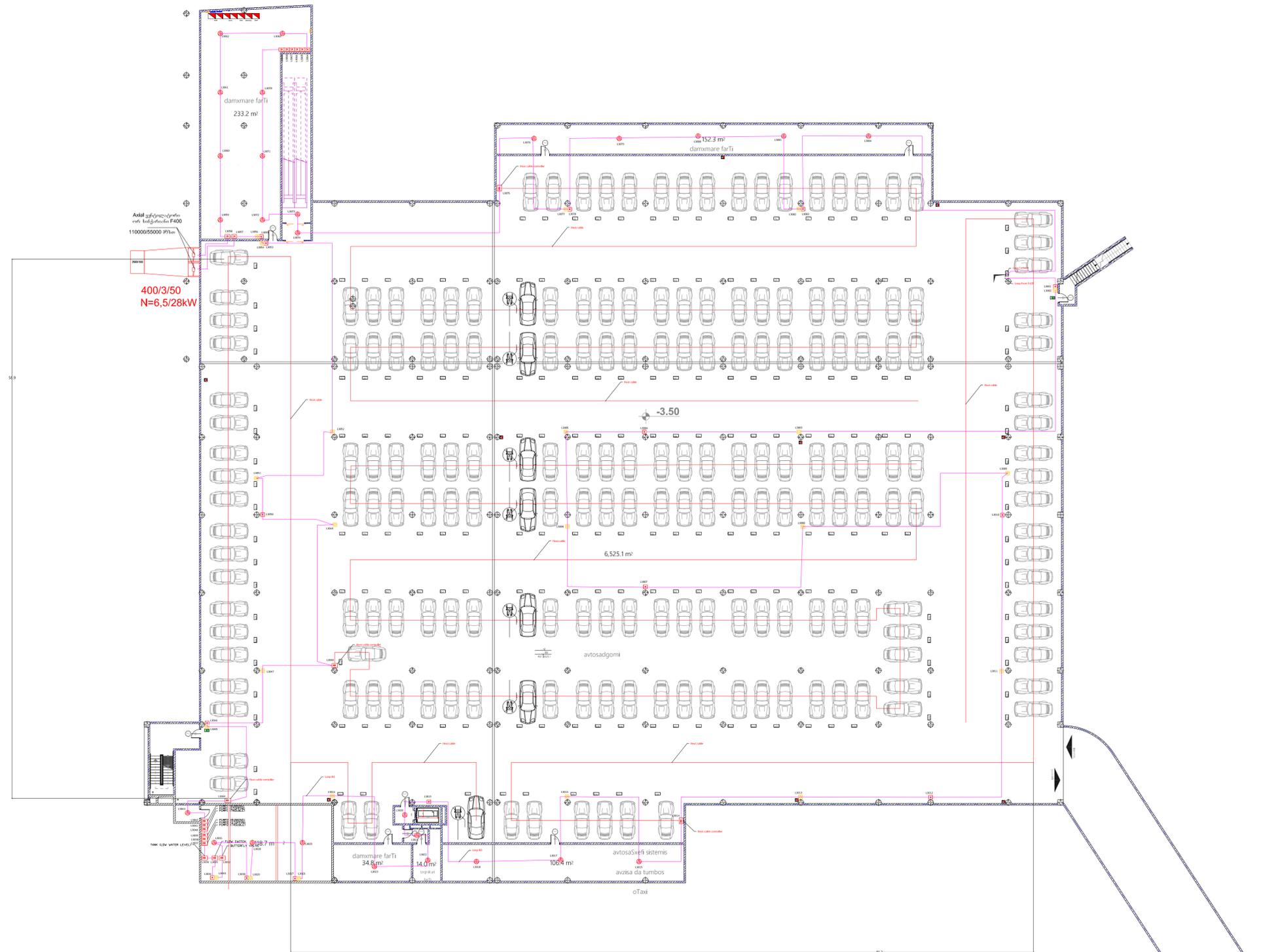
4.3.2 If the fire system test is successful, the relevant system test document shall be signed.



SYMBOL	FIRE ALARM SYSTEM SYMBOL LIST
(Symbol)	ADDRESSABLE OPTICAL SMOKE SENSOR
(Symbol)	ADDRESSABLE OPTICAL SMOKE SENSOR ON THE FALSE CEILING
(Symbol)	ADDRESSABLE OPTICAL SMOKE SENSOR WITH SENSING
(Symbol)	ADDRESSABLE OPTICAL SMOKE SENSOR WITH SENSING/FLASH
(Symbol)	ADDRESSABLE OPTICAL HEAT SENSOR
(Symbol)	ADDRESSABLE OPTICAL COMBINED SENSOR
(Symbol)	SMALL TYPIC SMOKE DETECTOR
(Symbol)	ADDRESSABLE MANUAL CALL POINT BREAK GLASS UNIT
(Symbol)	FIRE ALARM HORN
(Symbol)	FIRE ALARM HORN AND STROBE
(Symbol)	MONITOR/INTERFACE MODULE
(Symbol)	CONTROL MODULE-INPUT/OUTPUT
(Symbol)	CONTROL MODULE-INPUT/OUTPUT
(Symbol)	CONTROL MODULE-INPUT/OUTPUT
(Symbol)	MICROPROCESSOR SMOKE SHIPPER
(Symbol)	MANUAL ADDRESSABLE FIRE ALARM CONTROL PANEL

შპს შვეა ქონსტრუქცი		კოლე	
ქალაქი თბილისი, შარტავის გამზარი, №1 02.03.04.889		თბილისი მიწა	
პროექტი	გეგმა	სტადია	შსს
შემოწმებული	გამგზავნი	ფურცლები	შსს
დახაზა	გამგზავნი	სახანძრო სიგნალიზაციის სისტემის 0.00 ნიშნულებზე	
შეამოწმა	გამგზავნი	HVAC Georgia	
დაამუშავა	გამგზავნი		

SYMBOL	FIRE ALARM SYSTEM SYMBOL LIST
⊙	ADDRESSABLE OPTICAL SMOKE SENSOR
⊙*	ADDRESSABLE OPTICAL SMOKE SENSOR ON THE FALSE CEILING
⊙*	ADDRESSABLE OPTICAL SMOKE SENSOR WITH SENSORS
⊙*	ADDRESSABLE OPTICAL SMOKE SENSOR WITH SENSORS/FLASH
⊙*	ADDRESSABLE OPTICAL HEAT SENSOR
⊙*	ADDRESSABLE OPTICAL COMBINED SENSOR
⊙*	DUCT TYPE SMOKE DETECTOR
⊙*	ADDRESSABLE MANUAL CALL POINT BREAK GLASS UNIT
⊙*	FIRE ALARM HORN
⊙*	FIRE ALARM HORN AND STROBE
⊙*	MONITOR/INTERFACE MODULE
⊙*	CONTROL MODULE-INPUT/OUTPUT
⊙*	MICROSEES SMOKE SENSORS
⊙*	MANUAL ADDRESSABLE FIRE ALARM CONTROL PANEL



შპს შვეა ქიმიკა/ქიმიკა		კოდა	
ქალაქი თბილისი, შარტავის გამზარი, №1 02.03.04.889		თბილისი მთლი	
პროექტი	გეგმა	სტადია	შსს
შეიქმნა	გააკეთა	შეამოწმა	შეამოწმა
დაახ. ხა	გააკეთა	სახანძრო სივრცეების სისტემების	HVAC Georgia
შეამოწმა	გააკეთა	-3.50 ნიშნულზე	
დამამუშავებელი	გააკეთა		

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3.1	Cables.....	Error! Bookmark not defined.
3.2	Voice evacuation system controller.....	Error! Bookmark not defined.
3.3	Speakers	Error! Bookmark not defined.
4	Installation	Error! Bookmark not defined.
4.1	Basic requirements	Error! Bookmark not defined.
4.2	Training	8
4.3	Testing	Error! Bookmark not defined.

1 Basic information

1.1.1 Parts of specification includes descriptions of used equipment. Units, size and weight quantities see in Bill of quantities.

1.2 Description of the site

1.2.1 Site is located in Rustavi, Georgia

1.2.2 The design area functionality is a Mall

1.3 Work capacity

1.3.1 In the voice evacuation system design is used EN54 compatible speakers for ceiling mount.

1.3.2 Voice evacuation system is microprocessor based system, which is allowed to announce evacuation messages through the building. All monitoring and controlling devices should be integrated into the system as it is described in specifications and in design drawings.

1.3.3 Voice evacuation system lines should be operating properly. There shouldn't be any faults: wire break, short circuit, earth fault, etc.

1.3.4 All necessary labour, electrical equipment, mounting boxes, mounting materials and tools should be provided as specified in the specifications and shown in the drawings.

1.3.5 System should comply with the following standards

- NFPA 72 or
- EN54 or
- BS standard

1.4 Quality guarantee

1.4.1 All provided system components should be with manufacturer guarantee.

1.4.2 Subject to the requirements of the Contract Documentation, eligible manufacturers must be companies that are regularly involved in the production of all types and sizes of materials listed in this section, and whose products have been used successfully under similar operating conditions for at least 5 years.

1.4.3 For initial evidence, the amount of work performed by the Contractor in the last five years shall be ten times the budget of the project.

Project Name: Project name

Address: Tbilisi, Georgia

1.5 Submit of documentation

1.5.1 Three copies of the documentation describing the completed works shall be submitted to the Client upon completion of the works.

1.5.2 At least the following information must be provided:

- Completed work drawings in CAD format.
- Schemes in CAD format.
- Detailed specification of the equipment used.
- Operational requirements.

2 System description

2.1 Basic requirements

2.1.1 The Contractor shall consider the following sequence of operations only as a guide. It must comply with international and local norms, civil protection requirements and customer directives, prior to the sequence of operations and evacuations being completed.

2.1.2 Voice evacuation controller is located in monitoring oom.

2.1.3 Voice evacuation microphone is located in monitoring room.

2.1.4 Operation of voice evacuation microphone:

2.1.4.1 Anouncement possibility in each zone separately.

2.1.4.2 Anouncement possibility in all zone at once.

3 Products

3.1 Cables

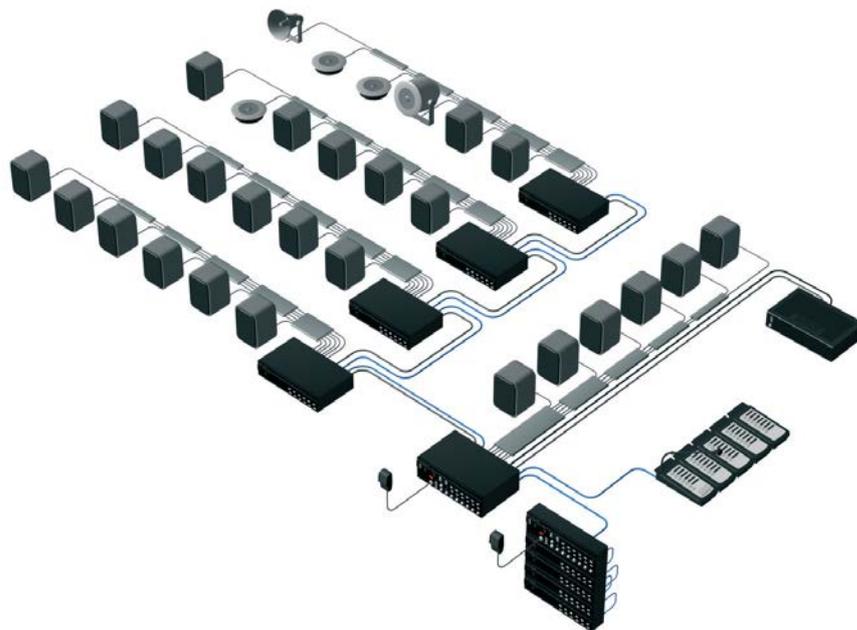
3.1.1 The entire voice evacuation system speakers shall be fitted with fire-resistant 1x2x0.8 JE-H(ST)H FE180/E90 cables.



3.1.2 Type of cable, impedance, cable cross section and all other relevant parameters shall meet the system manufacturer's recommendations.

3.2 Voice evacuation system

3.2.1 The system is designed to make announcement in all areas.



3.2.2 The voice evacuation system shall scan and identify all line speakers continuously in real time.

Project Name: Project name

Address: Tbilisi, Georgia

3.2.3 In the event of a power failure, the system controller shall have an alternating power supply which shall operate 24 hours independently.

3.3 **Speakers**

3.3.1 The following type of devices are used in the project:

- Ceiling speaker EN54
- Ceiling/Wall mount speaker EN54
- Paging microphone

4 Installation

4.1 Basic requirements

4.1.1 The contractor should provide a good quality installation. Installation should be carried out by manufacturer certified personnel who has good experience and knowledge.

4.1.2 Work should be organized so, not to interfere with other work

4.2 Training

4.2.1 All training should be provided by system manufacturer representative according specified guidelines.

4.2.2 Operator training includes sessions that will include the following:

- Operation preview sequence
- Use of all function
- Detection and elimination of system malfunctions

4.2.3 One training session should be held at the end of installation and second after 45 days after installation completion.

4.3 Testing

4.3.1 Complete testing of the system shall be carried out with customer, main building fire department representative and system instalator. Testing should be imitated in full compliance with safety standards.

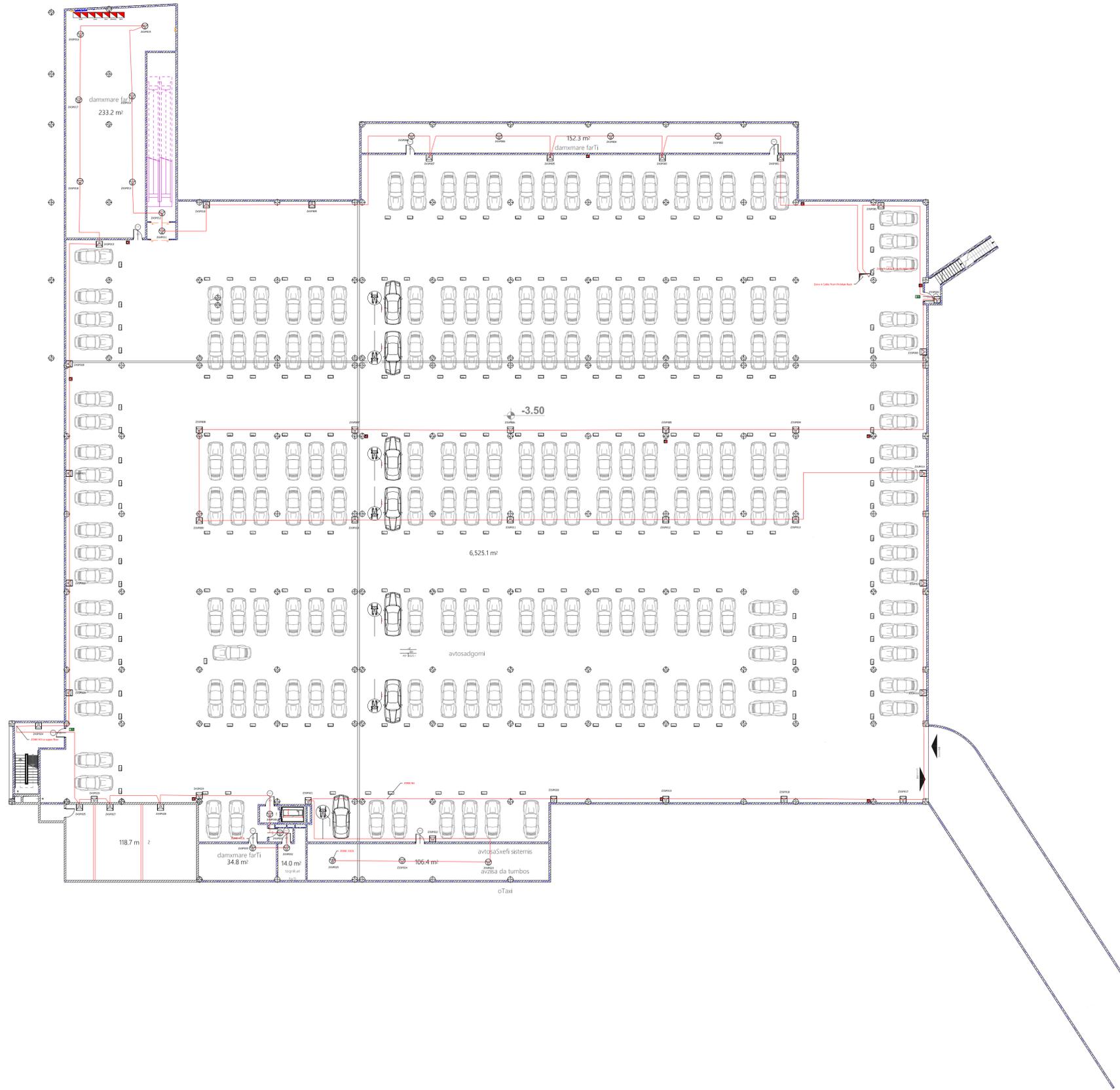
4.3.2 If the Voice evacuation system test is successful, the relevant system test document shall be signed.

SYMBOL	BUILDING MANAGEMENT SYSTEM
	CEILING SPEAKER
	WALL MOUNT SPEAKER
	BLANKED AREA OUTPUT



შპს ბეგა კონსტრუქციები		კოლე	
ქალაქი თბილისი, შარტავის გამზარი, №1 02.03.04.889		თბილისი მიწა	
პროექტი	გეგმა	სტადია	მასშტაბი
შენიშვნა	გაბარიტი	მმ	
დახას	გაბარიტი	მმ	
შენიშვნა	გაბარიტი	მმ	
დაამუშავა	გაბარიტი	მმ	
საპროექტო კავშირების სისტემა 0.00 ნიშნულზე		HVAC Georgia	

SYMBOL	BUILDING MANAGEMENT SYSTEM
	CEILING SPEAKER
	WALL MOUNT SPEAKER
	BLANKED AREA OUTPUT



შპს შვეა ქონსტრუქცია		კოლე		
ქალაქი თელავი, შარტავის გამზარი, №1 02.03.04.889		თელავი მთლიანად		
პროექტი	გეგმა	სტადია	შსს	შსშეჯი
შენიშვნა	გაქვამე	ფურცელი	შს	ფურცლები
დახას	გაქვამე	საგეგმარო კანონმდებლობის საბუთების მიხედვით		
შესაძლებელია	გაქვამე	-3.50 ნიშნულზე		
დამამუშავებელი	გაქვამე	HVAC Georgia		

Bill of quantities			
Fire Alarm System			
1	Smoke detector	PC	80
2	Combined smoke/heat detector	PC	11
3	Detector base	PC	91
4	Manual call point	PC	29
5	Addressable flasher	PC	40
6	Addressable flasher with sounder	PC	4
7	Duct smoke detector	PC	2
8	Input/Output module	PC	25
9	Input module	PC	37
10	GAS detector 220VAC	PC	1
11	EN54 Power supply 8 Amp With batteries	PC	1
12	Linear Heat detection controller	PC	3
13	Linear Haet cable	Meter	1300
14	Linear Haet cable fixings	PC	2600
15	Fire alarm panel for 4 loops with printer	PC	1
16	Fire resistant cable JE-H(ST)H FE180/PH120 - 1X2X1.5	Meter	4400
17	Additional installation materials	PC	1
Voice evacuation System			
1	Main voice alarm controller	PC	1
2	Voice alarm router for zone expansion	PC	1
3	Amplfiar 500W	PC	2
4	Amplifiar 250W	PC	1
5	Ceiling mount speaker 1.3W/3W/6W	PC	54
6	Wall mount speaker 1.3W/3W/6W	PC	39
7	Balanced Audio Output module	PC	24
8	Line termination box	PC	4
9	Paging microphone for 6 zones	PC	1
10	EN54 PA Power supply With batteries	PC	1
11	Rack with accessories	PC	1
12	Disabled alarm kit 4 zone	PC	1
13	Fire resistant cable JE-H(ST)H FE180/PH120 - 1X2X1.5	Meter	2300
14	Additional installation materials	PC	1
CCTV			
1	Network video recorder 64CH with 30day 25fps recording capacity	PC	2
3	4 MP bullet camera with 3.6mm lens	PC	60
4	Bullet camera installation box	PC	60
5	4 MP dome camera with 3.6mm lens	PC	33
6	24 port POE switch with SFP uplink	PC	5
7	L2 Gigabit switch with 24 SFP ports	PC	1
8	SFP modules	PC	10
9	Online UPS for CCTV	PC	1
10	UTP cat6 cable	Meter	7700
11	8 Core fiber cable	Meter	700
12	42 inch monitors	PC	2

13	Monitoring workstation	PC	1
14	Additional installation materials	PC	1
DATA			
1	42U rack 600X1000 with accessories	PC	1
2	18U rack 600X600 with accessories	PC	2
3	16 port POE switch with SFP uplink	PC	3
4	Patch panel 24 ports	PC	3
5	L2 Gigabit switch with 24 SFP ports	PC	3
6	SFP modules	PC	56
7	Media converter	PC	24
8	Online UPS	PC	1
9	UTP cat6 cable	Meter	1890
10	8 Core fiber cable	Meter	1800
11	Wifi access point 2.4/5 GHz	PC	22
12	Wifi Controller	PC	1
13	Router	PC	1
14	Firewall	PC	1
15	Galvanized cable tray 300X60	Meter	650
16	Galvanized cable tray 150X60	Meter	60
17	Ladder cable tray 300MM	Meter	50
18	Galvanized cable tray accessories	PC	1
19	Additional installation materials	PC	1