



GEORGIA  
HEALTHCARE  
GROUP

TBILISI/GEORGIA  
SUNSTONE HOSPITAL

**FIRE WATER PUMP ROOM TECHNICAL SPECIFICATION  
EVEX-SUNSTONE-KAR-SPC-006**

25<sup>th</sup> January 2021 – Rev.00

**Employer**

Evex Healthcare Group – TBILISI/GEORGIA

*prepared by*



**Independent Fire Safety and Fire Protection Consultant:  
KARİNA Tasarım, Danışmanlık ve Eğitim Hiz. Ltd.Şti.  
KARİNA Design, Consultancy and Training Services Ltd.Co.**

Çetin Emeç Bulvarı 2.Cad. No : 37/4  
A.Öveçler

06460 Ankara / Turkey tel.  
: +90-312-472 62 88- fax : +90-312-472 62 89

Meridian B Blok No:19 Ataşehir 34758 İstanbul / Turkey  
tel. : +90-216-456 70 51- fax : +90-216-456 70 04

e-mail : [info@karina.gen.tr](mailto:info@karina.gen.tr) url : <http://www.karina.gen.tr>

## TECHNICAL SPECIFICATIONS

### 1. General Information

- 1.1. Georgian healthcare provider Evex Healthcare Group (hereinafter referred to as Employer) intends to contract out "Procurement and Construction of Fire Water Pressurization System" works at Sunstone Hospital building in Tbilisi. For building the system, supply, assembly and production of the materials having at least the specifications stated herein and attached shall be carried out and the system shall be delivered, in operational state, according to the technical specifications and the relevant standards
- 1.2. This specification sets out the technical features and details that must be followed in order to do the work in question.
- 1.3. Within the scope of "Procurement and Construction of Fire Water Pressurization System", material supply, installation and engineering services will be provided by the Contractor as a whole for the delivery of the system in accordance with the drawings and standards presented in the Technical Specification annex.

### 2. Purpose of Work

- 2.1. The systems to be delivered in working condition will work together with each other and with other systems as a whole (fire water pressurization system, automatic water extinguishing systems, fire hose cabinet system, etc.) to ensure the control and extinguishing of a possible fire.
- 2.2. The purpose of the work is to design and build in accordance with NFPA (National Fire Protection Association) and FM (Factory Mutual) standards.
- 2.3. All relevant systems and works to be done will provide the desired fire protection performance (performance) by working either individually or as a whole.

### 3. Scope of the Work

- 3.1. The system that will serve the specified purpose is described with specifications and shown in the drawings attached to the specifications.
- 3.2. All works, materials to be used, system solutions, in accordance with the fact that the facility to be established is an industry with high standards, will be carried out at the highest level of technical quality, technical safety and reliability, so that these areas will be protected from fire.
- 3.3. All kinds of material, installation, workmanship required for the system to provide the desired fire protection and deliver it in working condition, whether specified in the request for proposal documents or not, will belong to the Contractor.
- 3.4. All unit prices given will be the prices of the assembled material, and in case of any future decrease or increase, these prices will be taken into consideration. All kinds of complementary-assembly materials and labor that do not have a unit price will be included in unit price materials.

The topics covered under the work are:

- a) Supply and installation of 2 new Electrical Motor Fire Pump (500 gpm @ 120 psi) and a new control panel
- b) Procurement and installation of 1 new Electric Motor Jockey Pump (10 gpm @ 130 psi) and a new control panel
- c) Completely dismantling the old not used plumbing in the existing pump room
- d) Supply and installation and piping of Fire Pump's environmental elements
- e) Manufacturing the discharge collector, making the connection of the discharge collector and to the underground fire water network.
- 3.5. For the realization of these works, the preparation of all kinds of infrastructure and installations, commissioning in accordance with the technique of the work and making it ready and functional are an integral part of the work.
- 3.6. The system and system elements that will serve the specified purpose will be aimed to have an economic life of 20 (twenty) years, and all necessary elements will be fulfilled in full to achieve this.

### 4. Related Standards

- 4.1. The work to be done will be in accordance with international fire protection and fire safety protection rules and standards. In addition, all relevant standards referred to as reference in these standards will be based on the same validity.

In this context, the standards that will be valid and based on design, installation (assembly), commissioning, test and acceptance processes are as follows:

- NFPA National Fire Protection Association
- FM Factory Mutual

Other major valid standards are:

- NFPA 20 Standard for the Installation of Stationary Pumps For Fire Protection
- NFPA 13 Standard for the Installation of Sprinkler Systems

- 4.2. Current editions and versions of the relevant standards valid at the time of construction will be considered. The contractor is obliged to obtain the relevant standards and publications. When there are documents that are difficult to find, they may request this from the employer in parts and benefit from the existing standards in parts within the boundaries of the facility.
- 4.3. Since the layout of the systems in the Pump Room, the final application design of the system will be prepared by taking into account the physical dimensions of the material to be used and the manufacturer's recommendations, and the system requirements will be made according to the Contractor's recommendations, the material manufacturer's catalogs and recommendations will also be considered as implementation rules.
- 4.4. Apart from the NFPA application rules, mechanical installation application principles, ASHRAE standards and publications will be taken as basis in piping works.

## **5. Related Product Approvals**

Except for the installation elements specified below, all system elements to be provided will be FM (Factory Mutual) approved and no other approval will be accepted.

The following installation elements will have at least EN approval.

- Pipes
- Pipe Supports
- Level Indicators

- 5.1. Regardless of the above-mentioned approvals, all products will be submitted for material approval, regardless of the approval they have, their suitability for the place of use will be questioned by the administration. However, material supply and assembly will be allowed after the material approval is given.

## **6. Projects and Drawings**

- 6.1. This specification forms an integral whole with design and application drawings. Within the scope of this work, the drawings based on the tender are attached. The contractor should study all drawings in detail before preparing his proposal. The fact that an offer is submitted indicates that the specifications and drawings are also accepted.
- 6.2. Shop Drawings and as-built drawings consisting of section and assembly details shall be drawn entirely by the Contractor after receiving the work. The Contractor, whose proposal has been approved, shall submit the manufacturing drawings prepared for each material to be used, together with catalogs containing the brand / model / approval information of the materials, to the approval of the Employer and shall only be able to procure and apply materials after approval. Employer officials have the right to request As-built Drawings, other than the one submitted by the Contractor.
- 6.3. The application can only be started after the Manufacturing Drawings and the materials specified in the specification are completely approved, the assembly and application details are finalized and the technical information is presented. The employer has the authority to refuse to apply any material, which it understands does not comply with the technical requirements, at any time, regardless of whether it was previously found appropriate. Modifications that can provide ease of installation or ease of operation and maintenance to the employer may be suggested, after the technical suitability of such suggestions is checked and approved, they are reflected in the application and shown in the manufactured status pictures.
- 6.4. After the contractor completes the work, before the Provisional Acceptance, it will show the final status of the work done and prepare the drawings containing the "As-built" information. Manufactured condition drawings will be prepared to include all kinds of manufacturing details such as the entire route and assembly details. "Manufactured Condition" drawings will be delivered in printed form on CD in tracing output and computer output format (plt, pdf, etc.) and also in dwg (Autocad) format. The extraction, drawing and reproduction of the "Manufactured Condition" drawings information is entirely owned by the Contractor.

## **7. Work Program and Duration**

- 7.1. The Contractor will make the necessary work planning in order to do the work on time and submit the Work Program to the Employer's approval within the period specified in the administrative specification from the date of contract signature. In the work schedule to be presented, the project, material procurement times, pier times, site discharge, power outage, fire water network cut-off times, hot work times, etc. It will be specified in days and each separately, on the basis of priority and sequence, with actual calendar dates.
- 7.2. Since the work will be done in an existing and working facility, site delivery, making the environment suitable for work, etc. The work will be counted within the construction period.
- 7.3. Because the work will be held in a running facility, place of delivery, making the environment suitable to work etc. shall be considered in the construction period.
- 7.4. The Contractor is obliged to provide the necessary manpower and installation team to complete the work within the Construction Period of the Work specified in its proposal.

- 7.5. The Work Program to be prepared at the beginning of the work will be updated once a week during the construction of the work and submitted to the Employer.
- 7.6. After the approval of the Work Program, the place cannot be delivered due to reasons arising from the Employer, the decision cannot be made, the approvals are delayed, etc. In cases, if the Contractor is not able to do another job at that time, the delays caused by the said Employer are added to the Duration of Work.
- 7.7. The contractor shall clearly indicate the time required for the completion of the entire work in his proposal.
- 7.8. The employer may request the content, duration and order of the Work Program to be reviewed or changed.

## 8. Material Supply

- 8.1. All kinds of materials to be used in the system will be provided by the Contractor. Only 2 existing fire pumps and control panels will be provided by the Employer.
- 8.2. All materials to be used will be new, unused, produced with first class workmanship, in accordance with the technical specifications specified in the Technical Specification, and will provide the desired performance.
- 8.3. All materials to be used will be submitted to the approval of the Employer. Having specified any brand or model during the offer does not mean that it can be used even if it complies with the Technical Specification. In addition, since the installation of the materials will be carried out under the responsibility of the Contractor, it will be essential to take the material installed and in working condition, a device that does not fulfill its function, even if it is installed, will not be accepted.
- 8.4. The contractor will provide an aggregate Bill of Materials for all materials to be used before starting work. After the Bill of Materials, it will submit all materials for approval along with the Manufacturing Drawing, in order of priority in accordance with the order and installation (assembly) program. Material ordering and application can only begin after the materials submitted for approval are fully approved and the assembly and application details are finalized. The employer will respond to material approval applications by evaluating them in the Approval / Conditional Approval / Rejection form within a maximum of one week. The employer may request more detailed information about the materials submitted for approval at the approval stage, see a sample of the material and request that they be tested.
- 8.5. The employer has the right to refuse to apply any material that it determines does not comply with the technical demands and the performance it should provide, at any stage and instantly, regardless of whether it was previously found appropriate.
- 8.6. The contractor will provide the materials Turkey who is the authorized representative in the approval stage, will present with open and contact information.
- 8.7. Non-fire-specific general installation materials (pipes, flanges, fittings, cables, etc.) shall have a respectable foreign approval or at least TSE certificate.
- 8.8. Interconnections (fittings, etc.) to be used in the piping and to be provided by the Contractor will be TSE certified and quality manufacturer product; In case of being foreign, it will have the quality certificate with a certain source.
- 8.9. Intermediate fittings (cast fittings, couplings etc.) to be used in the piping and to be provided by the Contractor shall be black steel.
- 8.10. In the materials that are not written as "or Equivalent" in the material brand section, the manufacturer will not be accepted except those specified or specified.
- 8.11. If the diameters of the material (valves, etc.) given in the bill of quantities cannot be provided exactly, it must be offered as an upper diameter.
- 8.12. Grooved Connection T, Elbow, etc. to the item of material specified as Grooved Connection Clamp. intermediate fasteners are also included. No additional item will be opened and no payment will be made for these materials..

## 9. Installation (Assembly)

- 9.1. Installation (assembly) of the devices is an integral part of the work and will be carried out by the Contractor.
- 9.2. The Contractor can do the installation work himself or have it done by another Subcontractor company. However, if the Subcontractor is to be used, the Contractor shall clearly indicate what will be the work to be done by the Sub-Contractor during the bidding phase. The Contractor shall add the letter of undertaking from the Sub-Contractor (stating that the Sub-Contractor agrees to work with him in case the Contractor receives the job) to his proposal.
- 9.3. The Contractor will specify with which Sub-Contractor it will perform the installation during bidding and will not change the Sub-Contractor specified without the request and approval of the Employer; will do the work with the Subcontractor that it has notified. The Contractor may declare more than one Sub-Contractor at the bidding stage. In all cases, the Contractor is responsible for the works to be done by the Subcontractor. If the Employer deems it necessary, he may request the Subcontractor to be changed.
- 9.4. All installations and materials will be installed, installed and applied by knowledgeable, trained and experienced people in accordance with the manufacturer's knowledge and technique, with first-class workmanship.

- 9.5. Pumps should be installed in consideration of the aforementioned standards as well as the manufacturer's recommendations as specified in the standards. For this reason, the assembly information of the proposed pump manufacturer will be directly reflected on the production.
- 9.6. Auxiliary connections such as the pump test line will be covered and completed within the scope of work. It will be completed in accordance with the requirements of NFPA 20 in accordance with the entire installation technique.
- 9.7. All installation will be protected against corrosion and devices, valves and equipment will be labeled with micron writing on the aluminum plate and numbered, and the piping will be marked.
- 9.8. Installation height of the pumps from the ground will be adjusted according to the suction mouth.
- 9.9. Pump bases will be newly made and a 4 cm styrofoam plate will be placed on the base of the base concrete and the concrete will be BS25 or C20. Necessary fixing apparatuses will be placed in the concrete reinforcement according to the supplied pumps. The fixing screws to be selected will be at least 25 mm, material manufacturer's information will be complied with.
- 9.10. Pressure monitoring line (lines between pump discharge lines and pump control panels) will be made of stainless steel pipe.
- 9.11. All fire installation valves will be monitored in the future by the fire alarm system. As the Pump Control Panel monitoring will be performed by the Fire Alarm System, the connection diagrams of the monitoring contacts will be submitted. Links will be carried out by different disciplines.
- 9.12. The flow chart and isometric column chart of the system installed on the pump room wall will be hung. Summary instructions for use and necessary safety information will be posted next to the water-protected scheme indicating the latest state of the installation.
- 9.13. Pipe welding will only be done by welders with pipe welding certificate.
- 9.14. The works to be carried out in the field will only be installation, installation (assembly), piping, wiring, device connection and finishing works; fabrication, cutting, boiling, sandblasting, painting, etc. The work will be done entirely in the workshop (workshop) using standard production techniques and machines.
- 9.15. The electrical installation will be made from steel conduit with suitable diameter according to the number of cores and cables.
- 9.16. Cables will be drawn in one piece without joints; It will be combined in junction boxes where additional is required. The connection boxes will be labeled, the terminal number will be given and their locations will be processed into the manufactured case projects.
- 9.17. Cables will be marked with indelible, indestructible labels and their compatibility with the projects will be ensured.
- 9.18. All pipes are painted with 2 coats of RAL 3000 red paint after undercoat.

## 10. Test Procedures

- 10.1. The system will undergo detailed Test Processes during and after manufacturing and assembly.
- 10.2. After the independent tests consisting of the tests of each element, the Contractor will make at least two total performance tests on its own, and the problems encountered during these tests will be eliminated. Any problem seen in the subsystem will be considered as if it were seen in all subsystems and will be examined and resolved in all of them; After elimination, tests will be made again.
- 10.3. The Contractor will make a written application to the Employer in order to make tests of the systems that are made working flawlessly under the supervision of the Employer. In this report;
  - a) description of the test to be made,
  - b) the purpose of the experiment,
  - c) events whose performance will be observed,
  - d) the acceptable values of events whose performance will be observed,
  - e) methods and devices to be used for measurement,
  - f) the way the test was recorded,

will be stated clearly and in detail. Tests in which the employer will participate as an observer will be made after this report is approved.

It will submit a "Test Results Report" on the test conducted after the test under the supervision of the employer.

In this report,

- a) events whose performance is observed,
- b) measured values of events whose performance is observed,

will be indicated.



- 10.4. After the piping is finished, flushing will be applied to the piping at a water speed of 3 m/second. For this, after the piping is ready for use with all the elements (sprinkler heads, test and discharge valves, etc.) installed, the test and discharge valve will be opened, water at 8 bar pressure will be supplied to the system, and the inside of the pipe will be washed after the sprinkler installation. The flushing process will continue until clean and particle-free water comes out of the drain valve.
- 10.5. A hydrostatic pressure test will be made at 14 bar by supplying water to the system, in which all elements (sprinkler heads, test and discharge valves, etc.) are installed in the installation. After the system is filled with water, it will be pressurized to 14 bar with a low capacity pump and it will be waited for at least 2 hours. It will be observed from the manometer that there is no drop in pressure during this time. In case of a drop in pressure, leaks will be detected and eliminated and the tests will be repeated for 2 hours until a constant pressure is achieved.
- 10.6. Any hardware that fails during the test will be replaced with a new one.
- 10.7. Test Procedures are not a part of the temporary acceptance process, but an integral part of the contract work.
- 10.8. All tests will be made within the framework of a form and procedure to be approved by the Contractor to the Employer.
- 10.9. Test will be carried out according to FM, NFPA and material manufacturer requirements.
- 10.10. All kinds of test materials, labor, test and measurement equipment, engineering services, etc. required for the delivery of all fire protection systems in working condition. It will be provided by the contractor..

### 11. Commissioning Process

- 11.1. Systems whose tests have been completed will be considered ready for commissioning.
- 11.2. After the successful completion of the Tests, the system will be left running as per the Commissioning procedure.
- 11.3. Commissioning is not a part of the temporary acceptance process, but an integral part of the direct commitment work.
- 11.4. The commissioning work will be carried out within the framework of a form and procedure that the Contractor will have approved by the Employer.
- 11.5. The Contractor will prepare the transactions, observations and read values during commissioning, together with their comments, as a "Commissioning Report" and submit it to the Employer.
- 11.6. All kinds of commissioning materials, labor, test and measurement devices, engineering services, etc. required for the delivery of all fire protection systems in working condition. It will be provided by the contractor.
- 11.7. Commissioning will be done according to NFPA, FM and material manufacturer requirements..

### 12. Documentation

- 12.1. All kinds of drawings, documents, engineering calculations, suggestion reports etc. prepared as a result of the contractor design process. will submit the documents for the approval of the Employer.
- 12.2. In order to obtain approval for the materials to be used during the works, the Contractor will submit the following documents in three sets to the approval of the Employer.
- Catalog pages of the products to be used (English or Georgian)
  - Product and Material List (Brand, Model, Description, Manufacturer, Supplier Information)
  - Product Catalogue
  - Technical Data Sheet
- 12.3. With the completion of all works and processes, detailed and complete documentation for maintenance and use of each material used will be provided in order to ensure the operation and maintenance of each material and element used. The document package will include the following in both English and Georgian.
- Manufactured-status information
  - Warranty documents of the products used (obtained from the manufacturer)
  - Warranty documents for the whole system (issued by the contractor)
  - Maintenance, test and operating instructions
- 12.4. The documentation package will be bound together and delivered in 3 sets. If the information is in a computer file, it will be provided in 2 sets of hardcover and 1 set of CDs in print.

### 13. Training

- 13.1. The Contractor will provide technical training for the user and maintenance staff of the Employer regarding the works done and the systems installed.
- 13.2. The training will be carried out at the facility itself.



- 13.3. The training will be given to at least two groups, and written training notes will be distributed to the user during the training. At the end of all training, the Contractor will deliver a list (Training Program Form) of those who attended the training and the training they attended. In addition, the training given will be recorded as audio-visual (using video cameras, etc.) and delivered to the Employer for the future use of the personnel.
- 13.4. In case of problems related to the quality of the education, inadequacy of the educator, the level of education attained, or the insufficiency of the training documents, the Employer may request that the training be renewed partially or for all the missing parts of the training.

#### **14. Warranty Commitment**

- 14.1. The system will be under the Contractor's Warranty Commitment for 1 (one) year after the Provisional Acceptance date. During the warranty period, any workmanship, material, spare parts, etc. that may be required. It will be covered by the contractor without any charge.
- 14.2. The Contractor will ensure that the system operates normally by sending its authorized and expert personnel with the necessary materials and equipment within the Warranty Period, within 24 (twenty four) hours after the written call is sent by the Employer in case of any problem.
- 14.3. In the event that the Contractor fails to arrive within the specified period or fails to intervene satisfactorily to the Employer a penalty of 0.5% (five per thousand) of the daily work will be applied until the necessary actions are taken, and this amount will be collected from the Letter of Guarantee.
- 14.4. The materials provided by the Contractor will be under the warranty of the Contractor and the material producer and supplier companies separately against manufacturing and assembly faults during the Warranty Period after the materials provided by the Contractor are received individually and as a whole system.
- 14.5. The Contractor is not responsible for Maintenance and Warranty related to the materials provided by the employer.

#### **15. Application Rules**

- 15.1. The contractor is obliged to work and manufacture in a manner that does not pose any danger to the facility security in all kinds of works and manufacturing.
- 15.2. During the installation and field work, a "Responsible Technical Person" will be kept on site at all times. The Technical Person in Charge will be an engineer or technician and will be in charge of controlling the work and environment and ensuring any necessary work safety. The Responsible Technical Man, who will always be in the works, will coordinate with the relevant units of the Employer.
- 15.3. The Contractor shall obtain the opinion and approval of the Employer in all kinds of manufacturing, device placement.
- 15.4. During the construction of the contractor work existing pipes, cables, structures, etc. will not damage the hardware and installation, if it damages, any material supply, manufacturing, assembly, etc. It will perform the works of making the damaged hardware or installation work for the Contractor at no time.
- 15.5. During the works to be carried out within the scope of the project, it is essential to keep the entire facility under continuous and reliable protection. The principle of "Continuity of Fire Safety" will not be ignored at any stage of the work.
- 15.6. Since the principle of "Continuity of Fire Safety" is an integral part of the work, the Contractor is obliged to consider the changes to be made in the work schedule due to this principle and the delays that may arise from this. Therefore, no additional time or fee can be requested.
- 15.7. Temporary or partial work cannot be done in areas other than the work areas determined by the Employer in order to realize the defined work. Prior permission is obtained for the areas to be used. Without written permission, the works cannot be carried out even if they are described in detail in the projects and specifications.
- 15.8. Contractor or subcontractors cannot go outside the work areas described without permission and cannot use any image recording device (camera, video camera, etc.).
- 15.9. Smoking, lighters and carrying matches are prohibited throughout the facility. However, smoking is allowed in the rest areas or in the marked areas where smoking is allowed during the break times.
- 15.10. The Contractor will carry out the connections to be made, the infrastructure to be used, with the continuous coordination and cooperation of the Employer's authorized engineer.
- 15.11. Installation and commissioning of all elements will be carried out in accordance with NFPA, FM Standards and manufacturer company requirements. The lack of any subject or information in the tender documents (specification, material list and technical specifications, projects, etc.) cannot cause the work to be done to be contrary to the relevant standards.
- 15.12. The contractor is responsible for cutting, grinding, drilling, welding, etc. which are considered any "hot work" in the building. will not perform any action that will create fire hazards, and only install inside the building after manufacturing in a workshop or in safe areas.



GEORGIA  
HEALTHCARE  
GROUP

Tbilisi / Georgia

## PROCUREMENT AND CONSTRUCTION OF FIRE WATER PUMP ROOM



- 15.13. Contractor, Employer's quality control, work and worker safety, environmental protection, work permit, etc. It will fully comply with the general rules and procedures and will not request any additional fees for this.
- 15.14. The works will start after the Site Delivery to the Contractor.
- 15.15. All kinds of workmanship required for the installation, assembly and delivery of the system in working condition, including the construction cost of the work, will be provided by the Contractor without any privileges.
- 15.16. Contractor or subcontractors cannot leave the work areas described without permission and cannot use any image recording device (camera, video camera, etc.).
- 15.17. Connections to be made will be made by the Contractor, the permanent coordination and cooperation of the Employer project engineer. Electricity will not be interrupted in the facility and necessary measures will be taken for this. If the deduction is mandatory, the Employer will be informed in advance.
- 15.18. The Contractor is obliged to comply with the "Hygiene and Cleaning" rules of the Employer during the manufacturing works. It will take the opinion of the Employer about equipment cleaning, equipment that are not allowed to be used, etc. prior to manufacturing and apply them.

----- O -----