



GEORGIA
HEALTHCARE
GROUP

TBILISI

**FIRE STOPPING TECHNICAL SPECIFICATION
EVEX-SUNSTONE-KAR-SPC-007**

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Employer

Georgia Evex Healthcare Group - TBILISI

prepared by



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TECHNICAL SPECIFICATIONS

1. General Information

- 1.1. Evex Healthcare Group (hereinafter referred to as Employer) intends to contract out "Fire Stopping System Application" 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. These specifications reveal technical features and details that need to be respected to perform the said work.
- 1.3. Within the scope of "Application of the Fire Stopping System", Contractor shall provide material supply, installation and engineering services, constructional works as a package, to ensure delivery of the system, in operational state, according to the standards mentioned within this technical specification and in accordance with specific approved/listed system details which will be submitted by the contractor.
- 1.4. In this scope, the employer may appoint a certified organization as an auditor to control the company that it will do business with, following the issuance of the work after the tendering process and procurement works. This organization shall have all the powers held by the employer.

2. General Description of the Work

- 2.1. Work, in general, includes furnishing and installing fire and smoke stopping systems for openings in floors and walls (i.e. through penetrations and linear joints) of the existing building of Sunstone Hospital in Tbilisi.
- 2.2. The properties of the building are as follows:
 - Location : Georgia Tbilisi
 - Construction Type : Concrete Structure
 - Number of Floors : 1 Basement Floor + 7 Floors + Roof
 - Building Height : 24 m
 - Atrium : N/A
 - Occupation of building : Occupied / Existing
- 2.3. The Work of this contract is also to include dismantling, renew, reconstruct -if necessary- in order to achieve access to the point of sealant application.
- 2.4. Prior to this work a Site Survey Report was prepared for fire stopping system requirements of Sunstone Hospital Building in accordance with the below stated standards. The result of that study set out considerable amount of deficiency in fire stopping of related fire barriers. The Defect Schedule & Fire Stopping System Location Plan revealed by that previous Site Survey report is also presented in Appendix-1 and Appendix-2 of this technical specification.
- 2.5. In "Appendix-1 - Defect Schedule" of this report, elements penetrating fire barriers (walls, floors etc.) are listed and each penetration point is designated with a certain numbering. These numbers are unique for each penetration and the procedure for numbering aim to identify the location and the quantity of penetrations. As given below the first part located before dash line indicates the room number which were determined by the designers during construction period and the part located after dash line indicates the number of defect on that fire compartment.

G06-AR-107

Floor Number / Name

Zone Number

Process Type

Number of Location

- 2.6. Each row in "Defect Schedule" provides detailed information for the subject penetration such as, applicability level, possible fire stopping methods and necessary explanations on the item. In conjunction with defects schedule each item is indicated on plan drawing of the building.

3. Related Standards

- 3.1. Works to be done shall comply with international fire protection and fire safety protection rules and standards. Furthermore, all relevant standards incorporated by reference in this standard, shall prevail with the same validity. In this context, the standards to be valid and applicable in design, installation (assembly), commissioning, trial and acceptance process are;

EN European Norms

UL Underwriters Laboratories Standards

Recommended systems and Application Schedule for the UL and/or ULC systems are;

Construction Condition

UL Designation

Metal Pipe or Conduit through Round Opening	49, 95, 138, 202
Insulated Metal Pipe through Round Opening	91, 152, 203
Metal Pipes or Conduits through Large Opening	63, 93, 94, 137, 233, 234
Busway through Rectangular Opening	97, 99
Cables through Opening	33, 65, 140, 204
Cable Tray	66, 105, 139
Glass Pipe through Opening	90, 212
Blank Opening	61, 62, 92, 102, 104, 136, J900B, U900J
Non-metallic (Plastic) Pipe or Conduit through Opening	64
Metal Pipe or Conduit through Gypsum Board Wall	147
Non-metallic (Plastic) Pipe or Conduit through Gypsum Board Wall	148
Cables through Gypsum Board Wall	149
Insulated Metal Pipe through Gypsum Board Wall	147
Glass Pipe through Gypsum Board Wall	154, 211
Metal Pipe or Conduit through Wood Construction	159, 169
Non-metallic (Plastic) Pipe or Conduit through Wood Construction	160, 167
Cables through Wood Construction	168
Top of Gypsum Wall Joint with Concrete/Steel Deck	HW-D-0001, HW-D-0014
Top of Concrete/Block Wall Joint with Concrete/Steel Deck	HW-D-0009

3.2. The Listing of systems and applications are intended as potential applications that may be reflected by the project's scope of work. Not all of the above listed systems and applications may be required, and additional systems and applications may be required. Furthermore, systems that are certified and tested in accordance with EN 1366-4 would be acceptable. The Contractor shall be responsible for reviewing the required existing through-system penetrations and the rated system being penetrated to determine appropriate systems required.

3.3. No matter which of the above-mentioned certifications the products bear, they shall be submitted to the material approval, notwithstanding the certifications they have, and the administration shall investigate whether they are compliant with where they will be used. Only after the material approval by the employer, supply and installation of such materials shall be permitted.

3.4. Even if the changes are highlighted during the proposal phase, and if the Employer does not accept in writing or even if they are accepted and/or installed but deemed to be non-compliant afterwards, such non-compliant material(s) shall not be accepted unless they have the required material certifications.

3.5. If any existing detail is not in conformance with the previously tested system by the manufacturer than an Engineering Judgement published and signed by the manufacturer's Registered Professional Fire Protection Engineer or by a NFPA Certified Fire Protection Specialist would be acceptable depending on the 3rd Party Reviewer and/or Employer approval.

4. Work Program and Duration of the Work

4.1. The Contractor shall make the necessary work planning to do the work on time and submit the work program for the approval of the Employer from the date of contract, within the period of 2 months. The work program that will be submitted shall contain the following information, in days and each individually, according to the order of priority and sequence basis, shall be specified as the actual calendar date: project, material supply time, unloading the site, power outage, fire protection water mains cutting-off periods, hot-work time.

4.2. 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.

4.3. Contractor, in order to complete the work within the Construction Period set forth in its proposal, is obliged to provide the necessary manpower and installation team.

4.4. The Work Program that will be prepared at beginning of the work shall be updated on weekly basis and submitted to the employer. Especially for the "High Security" sections contractor to inform employer and to get related work permission for the subject area.

4.5. Due to the high security precautions throughout the facility Contractor is subject to concomitance of an Escort assigned by the employer during all the construction period.

4.6. Following approval of the Work Program, in cases of failing to deliver the work place, to make decisions, to delay the approvals for reasons that may be attributed to the employer and if the contractor is not be able to perform another work due to the delays resulting from employer, those durations will be added to the Work Period. However, contractor may not claim any compensation from the Employer for such extensions.

4.7. Work Period shall be deemed the be started after the Provisional Acceptance and by the delivery of the work order.

4.8. The Contractor shall clearly state the period required to complete all the work.

4.9. The Contractor may ask revision or amendment of the work program content, duration and sequence.

5. Material Supply

5.1. All materials, equipment and tools to be used during construction shall be provided by the Contractor.

5.2. All materials shall be new, unused, made with first-class workmanship, in accordance with the specifications in the Technical Specifications and shall deliver the required performance.

5.3. All material to be used shall be submitted to the employer for approval. During the bidding, mentioning any brand and model, even if they fit in with the Technical Specifications does not mean that they may be used. Also, since

installation of the equipment will be realized under the responsibility of the contractor, it shall be essential that the material is received as mounted and operational.

- 5.4. The Contractor shall, before starting work, give a collective Application List for all the penetration points versus materials to be used. This list shall also indicate the appropriate listing (approval) number of the system and drawing of the system. Following the approval of Application List, in accordance with the order and install (assembly) program, all materials shall be submitted for approval separately. Applications shall start when the Application List and Materials are found to be compliant. Employer shall evaluate and answer the material applications for approval, within a maximum of two week, using the Approval / Conditional Approval / Rejection form. Employer may require more details related to the material which is submitted for approval at the approval stage as well as seeing the sample of the material and ensuring the trial.
- 5.5. Employer shall have the right to reject the materials at any time, if such materials are found non-compliant with all kinds of technical requirements and required performance, regardless of whether it was previously deemed compliant.
- 5.6. The Contractor shall submit those who are authorized representative of the provided materials in Turkey with their contact information at the approval process. If the employer needs these materials in the future, it shall have the direct power to procure them from this company. The contractor may not impose any restriction for sales related to the companies in this regard.
- 5.7. Provide materials classified by UL, ULC, FM, Warrington Fire, LPCB or VDS to provide equal rating of Fire Barrier being penetrated at minimum hourly rating stated in Appendix-2 Fire Stopping System Location Plans.
- 5.8. Provide asbestos free materials that comply with applicable codes and have been tested in accordance with UL 1479 or ASTM E-814.
- 5.9. All fire dampers stated within the material list shall be provided by contractor. Fire dampers shall be fusible linked. Dampers shall be certified for conformance to EN 15650. Dampers shall be classified as minimum EI90S, V-e-h-o, i->o). Provide dampers with supervisory switch for remote monitoring.

6. Quality Assurance

- 6.1. Applicator Qualifications: Three (3) years of experience on installing classified fire stopping systems.
- 6.2. Electrician: For the reinstatement of the electrical equipment on ceiling a 4 four years experienced electrical technician with an electrical technician diploma is required.
- 6.3. Suspended Ceiling Installer: For the reinstatement of the suspended ceiling 2 years experienced installer is required.
- 6.4. Performance: Materials shall have been tested to provide fire rating equal to that of the construction fire barrier. Any fire barrier not designated on drawings deemed to be having rating of two-hours as a minimum.
- 6.5. List past projects indicating required experience.

7. Submittals

- 7.1. Submit shop drawings showing each point of penetration seals, indicating proposed listed system materials, anchorage, methods of installation, and actual adjacent construction.
- 7.2. Submit a sample of the "Label" that is going to be attached near the penetrating item prior to application.
- 7.3. Submit a copy of UL/ULC or EN 1366-4 testing illustration of each proposed system indicating manufacturer approved modifications.
- 7.4. Submit copies of manufacturer's specifications, recommendations, installation instructions, and maintenance data for each type of material required. Include letter indicating that each material complies with the requirements and is recommended for the applications shown.

8. Delivery, Storage and Handling

- 8.1. Deliver materials undamaged in manufacturers clearly labelled, unopened containers, identified with brand, type, grade and UL/ULC/CE label where applicable.
- 8.2. Coordinate delivery with scheduled installation date to allow minimum storage time at site.
- 8.3. Store materials in clean, dry, ventilated location. Protect from soiling, abuse and moisture. Follow manufacturer's instructions.

9. Project Conditions

- 9.1. Verify existing conditions, substrates and accessibility options before starting work. Correct unsatisfactory conditions before proceeding.
- 9.2. Proceed with installation only after penetrations of the substrate and supporting brackets have been installed.
- 9.3. Attach a label near the fire stopping point indicating the hourly rating of element, material used, tested system number, approval and companies phone number and e-mail.

10. Environmental Requirements

- 10.1. Furnish adequate ventilation if using solvent.
- 10.2. Furnish forced air ventilation during installation if required by manufacturer.
- 10.3. Keep flammable materials away from sparks or flame.
- 10.4. Provide masking and drop cloths to prevent contamination of adjacent surfaces by fire stopping materials.

10.5. For the rooms or areas that are subject to "High Security" free personnel circulation is prohibited. Contractor is to get approval and subject to concomitance of an employer assigned escort only.

11. Acceptable Manufacturers

11.1. Subject to compliance with requirements, provide products of one of the following manufacturers as further defined in the Systems and Applications Schedule in Part 3 of this specification.

11.2. Hilti, Fischer, KBS, 3M, Tremco, Nullifire, MetaCaulk, Nelson, Flamesafe, USG for fire dampers Trox, Elektrotechnik, Kes Klima, Schako are acceptable manufacturers.

12. Preparation and Installation

12.1. Dismantle -if necessary- suspended ceilings and related appurtenances (speakers, lighting fixtures, detectors etc.) gently and store them temporarily at the locations indicated by employer.

12.2. Clean surfaces to be in contact with penetration seal materials, of dirt, grease, oil, loose materials, rust, or other substances that may affect proper fitting, adhesion, or the required fire resistance.

12.3. Install penetration seal materials in accordance with printed instructions of the UL Building Materials Directory and in accordance with manufacturer's instruction, for each new penetration in existing or new rated corridor construction and in areas to receive new acoustical sealants.

12.4. Seal holes or voids made by penetrations to ensure an effective smoke and/or acoustical barrier.

12.5. Protect materials from damage on surfaces subject to traffic or physical contact by occupants or construction personnel.

12.6. Fix -if necessary- or replace the broken damaged ceiling element with the new ones but compatible with the previous application.

12.7. Reinstall -if necessary- suspended ceilings and related appurtenances (speakers, lighting fixtures, detectors etc.).

13. Field Quality Control

13.1. Examine penetration sealed areas to ensure proper installation before concealing or enclosing areas.

13.2. Keep areas of work accessible until inspection by applicable 3rd Party Reviewer.

13.3. Perform under this Section patching and repairing of fire stopping caused by cutting or penetration by other trades.

13.4. Clean up spills of liquid components.

13.5. Neatly cut and trim materials as required.

13.6. Remove equipment, materials and debris, leaving area in undamaged, clean condition.

14. Inspection (Test) Operations

14.1. System, during and after manufacturing and assembly shall be subject to further trial processing.

14.2. After independent inspection of each element, the problems encountered during this test shall be eliminated. Any problems of the sub-systems, shall be deemed as if seen in all sub-systems, and all of them shall be examined and eliminated, then inspections shall be done again.

14.3. For conducting inspections on the systems which are brought into operation faultlessly, under the 3rd Party Firm's supervision, the Contractor shall contact with the Employer in writing. In this report;

- a) Description of the inspection to be performed,
- b) The purpose of the inspection,
- c) The items which will be observed for performance, and the necessary measurements.
- d) Values to be accepted for the events which will be observed for performance
- e) Methods and equipment to be used for measuring,

shall be specified clearly and detailed. The test, in which the 3rd Party Firm will participate as an observer, shall be made after this report is found compliant.

14.4. All kinds of Fire Stopping Systems that are designated as faulty during the inspection shall be replaced with new ones.

14.5. Inspections are not a part of the temporary admission procedure, but they are an integral part of the direct contracting work.

14.6. All measurements shall be made according to a form and procedure which will be submitted to Employer for approval by Contractor.

14.7. Inspections shall be made according to the material manufacturer's requirements as well.

14.8. All necessary test equipment, workmanship, testing and measuring equipment, engineering services, and so on shall be provided by the Contractor for delivering the fire stopping system in working condition.

15. Documents (Documentation)

15.1. The contractor shall present all kinds of certifications, system detail drawings prepared as a result of the testing process, engineering judgement reports, suggestions and so on, to the Employer.

15.2. In order to get approval of the material and system that will be used while the works are going on, the contractor shall present to the Employer approval of the following documents as 3 sets.

- Catalog pages of the products to be used (English or Turkish)

- MSDS of each item.
 - Application List for all system (as stated in section 5.4)
 - Listing/Approval/Certification and/or Declaration of Performance of the System Detail.
 - Labeling sample to be attached near the fire stopping point.
- 15.3. After completion of all works and operations, to be done in a healthy way of the operation and maintenance of each of the materials and components, related to the used material for the maintenance and use, detailed and complete documentation shall be provided. Document package in both Turkish and English includes the following;
- As-built data, (as stated in section 7.1)
 - Guarantee certificates of the products (taken from the manufacturer)
 - Guarantee certificates for the entire system (arranged by the contractor)
 - Maintenance and operating instructions
- 15.4. Binded documentation package shall be delivered as 3 sets. Also, the information shall be exported to a USB flash drive and burned on a CD as 2 sets.

16. Warranty Commitment

- 16.1. The system shall be under warranty commitment of the Contractor for 2 (two) years after the date of Temporary Admission. During the warranty period, all kinds of workmanship that may be required, materials, spare parts, etc. shall be paid by the Contractor.
- 16.2. The contractor, if any problems arise in the Warranty Period, after the written notification sent by the employer, shall send his competent and expert staff, necessary materials and hardware, not later than 48 (fourty-eight) hours.
- 16.3. If the Contractor doesn't come on time or not to give a satisfying response for the Employer, until making the necessary transactions, penalties will be applied as 0.5% (five thousandth) of the daily work cost and this amount shall be collected from the Letter of Guarantee by dissolving.
- 16.4. After having received the materials in the operating condition provided by the contractor, as individually and the system as a whole, during the Warranty Period, against manufacturing and assembly faults, they shall be under warranty of the contractor and material manufacturers and suppliers. For all warranty transactions, the Employer shall accept the Contractor as its answerer.
- 16.5. The contractor shall not be responsible of the Maintenance and Warranty related to the materials to be supplied by the employer.
- 16.6. Submit copies of written guarantee agreeing to repair or replace joint sealers which fail in joint adhesion, cohesion, abrasion resistance, weather resistance, extrusion resistance, migration resistance, stain resistance, or general durability or appear to deteriorate in any other manner not clearly specified by submitted manufacturer's data as an inherent quality of the material for the exposure indicated. The guarantee period shall be one year from date of substantial completion
- 16.7. Submit a letter of bank guarantee not less than 25% of the total contract amount which is valid for one year after completion of the work.

17. Application Rules

- 17.1. The contractor is obligated to maintain manufacturing and work with safety in all kinds of productions and operating.
- 17.2. During installation and field work, it always keeps a Responsible technical man in the field. Responsible technical man may be a technician or an engineer. He shall be responsible from controlling the environment and provide all kinds of work security. He also shall be responsible to ensure continuous works, in contact with the relevant departments in the workplace and thus the coordination.
- 17.3. The Contractor in the manufacturing of all kinds, placement of the device shall seek the Employer's comment and approval.
- 17.4. The Contractor during the work period, shall not give any damage to the pipes, cables, structure, hardware and installation. If damaged, the Contractor will fulfill all kinds of material supply, manufacturing, installation, also he will perform all corrupted hardware or installation works as free of charge.
- 17.5. The work to be performed under the project, integrity of the premises shall be kept under constant and reliable protection. "Continuity of Fire Safety" principle shall always follow in every stage of the work.
- 17.6. Due to "Continuity of Fire Safety" being an integral part of the work, the Contractor is obliged to take on all kind off delays and changes in the Schedule. Therefore, he cannot make a formal request regarding additional time and cost.
- 17.7. Temporary or partial work shall only be made in specified areas for carrying out the defined work. Prior to application permission for the area shall be taken. Without the written permission, even if the works are described in the design and specifications, they shall not be performed.
- 17.8. Contractor and subcontractor -without permission- cannot exceed prescribed workspaces and any image capture device (camera, video camera, usb flash disk, mobile phones, laptop computers etc.) cannot be used.

- 17.9. It is prohibited to smoke, to carry lighter or matches in the facility. However, smoking may be permitted in break rooms or designated smoking areas during break time.
- 17.10. Contractor will perform the connections, infrastructures with continued coordination and cooperation of the Employer's competent engineers.
- 17.11. The Contractor shall not make any works creating fire hazard in the building such as cutting, grinding, drilling, welding, etc. which are considered as "hot work". After making manufacturing in the workshop or safe areas, only assembly takes place in the building.
- 17.12. The Contractor shall comply with the Employer's quality control, occupational health and safety, environmental protection, work permits, etc. and generally accepted rules and the procedures. There will be no additional cost for this prompt.
- 17.13. The works will start after delivery the location to the Contractor.
- 17.14. The construction of the system's installation, assembly and all necessary workmanship for delivery in an operational mode, including the cost of construction work, as nonprivileged will be provided by the Contractor.
- 17.15. The connections will be performed with continued coordination and cooperation between the 3rd Party Firm, the Employer and the Contractor. The property shall not be subject to power outages, necessary measures will be taken to avoid such outages. If the power outage is scheduled and unavoidable, the Employer shall be notified in advance.
- 17.16. The Contractor during the work period, is obliged to respect the Employer's "Hygiene and Sanitation" rules. He shall seek the Employer's opinion regarding equipment cleaning and equipment without permission to use prior to manufacture and implement such opinions.

18. Works and Occupational Safety Rules

- 18.1. In all the works to be done on site, Georgia's "Occupational Health and Safety Regulation in Construction Works" strictly followed.
- 18.2. "Occupational Safety" is an integral part of the work. Contractor, because of this principle, is obliged to take into consideration of the changes at the work program and delays that may arise. Due to such a reason, the contractor cannot request any cost or additional time.
- 18.3. "Hot Work", "Work at height" "Working in the Closed Area" are subject to permission in the frame of "Occupational Safety". The contractor is obliged to take into consideration the changes in the work program due to permissions and delays. Due to such a reason, the contractor cannot request any cost or additional time.
- 18.4. Those who will work at the facility must take "Occupational Safety Compliance Training". The contractor is obliged to take into consideration the changes in the work program due to annual leaves or national holidays and regular working days of the employer. Due to such a reason, the contractor cannot request any cost or additional time.

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