**T E N D E R**

**FOR PROVISION OF SERVICES FOR DEVELOPMENT OF BASIC DESIGN FOR IMPROVING THE HEATING SYSTEMS IN TWELVE HEALTH FACILITIES**

**IN SKOPJE AND TETOVO, NORTH MACEDONIA**

UNOPS-CLA-2025-S-002

**TENDER INFORMATION**

This procurement includes services for development of the basic design for improving the heating systems in 12 facilities in Skopje and Tetovo. Tender is formed into 5 lots:

| **LOT** | **PROPERTY** | **LOCATION** | **ADDRESS** |
| --- | --- | --- | --- |
| LOT 1 | Polyclinic “Bit Pazar” | Skopje | bul.Krste Misirkov br.28 |
| LOT 2 | 1. Polyclinic “Cento” | Skopje | ul.Madjari bb |
| 2. Polyclinic “Dracevo” | Skopje | ul.Dimitrija Cupovski bb |
| 3. Polyclinic “Gjorce Petrov” | Skopje | ul.Gjorce Petrov bb |
| 4. Polyclinic “Suto Orizari” | Skopje | ul.Suto Orizari bb |
| LOT 3 | Gerontology “13 Noemvri” (Sue Ryder) | Skopje | ul. Boris Sarafov br.129 |
| LOT 4 | Psychiatric hospital “Skopje” (Bardovci) | Skopje | ul. Skupi-20 br.56 |
| LOT 5 | 1. Clinical Hospital - Surgery Block | Tetovo | ul.29 Noemvri br.73 |
| 2. Clinical Hospital - Internal-Infectious Block | Tetovo | ul.29 Noemvri br.73 |
| 3. Clinical Hospital - Public Health (CJZ) | Tetovo | ul.29 Noemvri br.73 |
| 4. Clinical Hospital - Emergency Block | Tetovo | ul.29 Noemvri br.73 |
| 5. Ambulance (within the Clinical Hospital area) | Tetovo | ul.29 Noemvri br.73 |

**INSTRUCTIONS FOR THE BIDDERS SUBMITTING OFFERS FOR MORE THAN ONE LOT**

Bidders are allowed to submit bids for one or more lots.

UNOPS reserves the right to select different contractors for each lot, based on the results of evaluation.

Due to the activities planned for further stages, design services will be performed **simultaneously for all 12 properties** and delivery dates for all lots will be the same or similar.

If submitting bids for more than one lot, Bidders should previously estimate if their own resources would allow **performing the services for multiple properties in parallel**, having in mind that if the same service provider is awarded multiple lots, their contract obligations will encompass delivering all the designs at the similar time.

**DELIVERY TERMS AND PAYMENT SCHEDULES**

Mandatory delivery terms for all lots are identical:

*Completed design documentation should be finalised within* ***90 (ninety) calendar days*** *from the contract commencement date and submitted for design review to a licenced company selected by the Project Team of the project implementer. All eventual remarks submitted by the design reviewer to the planners must be addressed within* ***10 (ten) calendar days*** *of reception, thus obtaining a positive design review within this period of time.*

**LOT 1**

Polyclinic “Bit Pazar”

**TERMS OF REFERENCE**

**FOR PROVISION OF SERVICES FOR DEVELOPMENT OF BASIC DESIGN FOR IMPROVING THE HEATING SYSTEM IN POLYCLINIC “BIT PAZAR” - SKOPJE**

1. **BACKGROUND**

The EU for Clean Air Project, funded by the European Union (EU) through the Instrument for Pre-accession Assistance (IPA), is designed to contribute to improvement of air quality in North Macedonia and consequently decrease risks to human health. With the objective to contribute to the reduction of emissions of pollutants in four large urban centres in North Macedonia, the Project has an implementation period of 36 months, followed by the defects notification period (DNP) of up to 12 months. The United Nations Office for Project Services (UNOPS) is the implementing partner.

The Project is aligned with all national strategic and regulatory frameworks and will contribute to progress made towards meeting EU accession criteria, primarily under Chapter 27 (Environment) and to the achievement of the relevant United Nations (UN) Sustainable Development Goals.

A Project result pertinent to this particular intervention relates to improving heating systems through replacement of obsolete and inefficient boilers in public buildings in the cities of Skopje, Bitola, Kumanovo, and Tetovo. Under this specific ToR, UNOPS solicits provision of services for development of basic design for heating system improvement, to be performed under the applicable provisions of the Law on Construction.

1. **INTRODUCTION**

Polyclinic “Bit Pazar” is located in Skopje. The building is supplied with thermal energy from the boiler room which is located in the basement of the building by means of two boilers with a nominal capacity of 581.2kW and 697kW powered on EL fuel. The boilers are outdated and generally in very poor condition. Within the boiler room other accompanying equipment is located as well: manifolds for supply and return water, circulating pumps, valves etc.

A standard two-pipe hot water distribution system is installed in the building. Cast iron radiators with radiator valves and return lock shields are installed in all heated rooms.

The windows in the building were changed about 10 years ago but are in very poor condition and whole building facade does not have insulation.

For the purpose of energy supply to the newly designed boilers an ongoing project takes place for CNG plant and installation. This energy project financed by the user is being simultaneously developed and will be in coordination with the basic design for improving the heating system that is subject to this ToR.

**OBJECTIVE OF THE ASSIGNMENT**

The objective of the assignment is preparation of a Basic Design for improving the heating system and replacement of existing inefficient heating equipment in Polyclinic “Bit Pazar” - Skopje in order to reduce air pollution and decrease risks to human health.

1. **SCOPE OF THE ASSIGNMENT**

The scope of the assignment is to engage the design company under the direct supervision of UNOPS EU for Clean Air for preparation of the design documentation for Polyclinic “Bit Pazar”. For the purpose of this assignment, UNOPS provides a Technical Assessment Report on the current state of the heating system with all relevant data for the facility in Annex L1.

The company selected to develop the design should ensure it is done based on the:

* existing state and situation following valid design standards in the country
* ensuring that all legal and technical aspects required by national law, bylaws and regulations for this type of the building are respected
* applying best practices
* preventive measures in line with current international norms and standards are respected

The final designs for the execution of works should contain all details and calculations necessary for the execution of works, shop drawings, detailed BoQs and technical specifications for all groups of works as per national and UNOPS’ norms.

All designs must comply with the national legislation, the Law on Construction (“Закон за градење”) and Rulebook on the content of the project, information on the project designation, the method of certification of the project by the persons in charge and information on the use of electronic records („Правилник за содржината на проектите, означувањето на проектот, начинот на заверка на проектот од страна на одговорните лица и начинот на користење на електронските записи”).

**4.1 Design company main responsibilities**

Design company’s main responsibilities:

1. Confirmation of preparation activities completed by the UNOPS Project Team in an Technical Assessment Report by visiting the facility and recording the actual state by determining relevant data for design development: current condition of the building, heating capacity based on number of installed heating units - radiators in the facility, number and capacity of existing boilers, heating equipment installed in boiler room, etc.
2. Provision of Basic Design Documentation for all necessary phases, complemented with necessary analyses, calculations, drawings and a bill of quantity (BOQ) with assessed cost calculation for improvement of heating systems.
3. Provision of permits and approvals that are required for works described in the BoQ in basic design that is subject to this ToR (if any required)

**4.2 Contents of the Basic Design**

**А/ Legal documents**

1. Registration act issued by Central Registry
2. Business Registration Certificate (Тековна состојба)
3. Valid Authorization B for design of technical documentation as per national regulations for the company
4. Assignment of Chief Designer, Project phase Designers and associates for development of design documentation
5. Design scope of works-project task (Проектна задача)

**B/ Architectural Phase**

1. Technical description
2. Layout of the boiler room including transversal and longitudinal sections.
3. Detail on the facade wall or outdoor location in case new gas boiler(s) is foreseen
4. Site plan of the building showing the location of newly designed outdoor boilers

**C/ Mechanical Phase**

1. Technical description
2. Technical conditions
3. Creating of schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size.

NOTE: In case of any other consumers of hot water connected to the heating system that is subject of this design, ex. tanks for sanitary hot water (SHW), air handling units or other, to be considered when calculating the total heat demand

1. Selection of thermostatic valves for public buildings with integrated automatic flow limitation to replace existing manual valves. Replacement of existing lock shields. Selected elements by quantity determined by record made on site, to be expressed in the BoQ
2. Selection of balancing valves on the raisers by quantity determined by record made on site, to be expressed in the BoQ
3. Sizing the elements in the newly designed boiler room taking into consideration notes described in pt. 4.1 and demands as follows:

* dismantling of the entire heating equipment from the existing boiler room up to the transition of the heating pipes to the building (pumps, valves, fittings, measuring and regulating equipment, pipe installation including manifolds for supply and return water, expansion vessels, water softening system for preparation of water...) with removal and transport to the nearest licensed recycling company. Existing boilers completed with the fuel supply installation, remain in the boiler room as a redundancy (back-up).
* selection of adequate heating substation for connection to the district heating system (DHS) with all necessary elements as demanded by distributor ESM rulebooks and normatives. If connection to district heating system is not possible, technical solution by selection of modular gas boiler station in certified housing for outdoor installation consisting of built-in gas boilers with their own pumps and other elements, hydraulic switch as a separate primary circuit and the possibility of automation temperature control of three independent heating circuits depending on outdoor conditions
* new optimised functional diagram with the implementation of: frequency-regulated pumps, new valves, measuring instruments, balancing and control valves and other fittings, expansion vessels for an installed capacity up to 250kW i.e. systems for maintaining pressure in the system by pumps for larger capacities

1. Graphical enclosures - drawings: layout showing equipment position in the boiler room, complete view in the transverse and longitudinal section of the boiler room, detail on the facade wall / outdoor position where installation of the newly designed boiler is foreseen, raiser diagram (strang sema), and all other drawings necessary for works performance
2. Technical specification on selected equipment and elements
3. Bill of Quantity (BOQ)

**REMARKS 1**: The following positions should be envisaged within the project as well:

* Dismantling/cleaning/installation of heating elements - radiators
* Insulations of pipe segments passing through rooms/areas where heating is not envisaged
* Servicing of existing boilers and burners (together with existing automation control) to enable their future usage solely as back-up equipment (in cases of interruptions of supply of hot water from the DHS or defects of the newly installed boilers or interruptions in gas supply, etc.)
* Appliance for water softening
* Pipe insulation in the boiler room and outdoor segments with aluminium sheet protection
* Examination of installations, regulation and balancing of the heating system with commissioning and preparation of technical documentation for newly designed conditions
* In case of existing system for SHW production, technical solution to be foreseen for its temporary function while works for improvement of the heating system are ongoing (out of heating season)

NOTE: Neither SHW equipment nor installation is subject to this design.

* Provision of permits and approvals for works described in the BoQ of basic design that is subject to this ToR (if any required)

*\* Energy supply - Connection to the DHS or construction of CNG plant and gas distribution lines to newly installed gas boilers are not part of this project. This part will be done separately by the end beneficiary*

**D/ Electrical Phase**

1. Technical description
2. Technical conditions
3. Electrical calculations based on the defined consumers within the boiler room and newly designed gas boiler
4. Graphical enclosures - drawings presenting equipment power supply
5. Bill of Quantity (BOQ)

**E/ Fire Protection Elaborate**

**F/ Elaborate for Health and Safety at Work**

**REMARKS 2**: The following positions should be envisaged within the project as well:

* The scope of electrical design covers installation and elements for purpose of proper functioning of newly designed boiler room: selection of new electrical distribution box for the boiler room, replacement of existing cables including electrical supply cable from main distribution box to the boiler room, electrical supply to the new gas boiler station and replacement of existing lights, switches and sockets in the boiler room.
* Analogue addressable central unit for automatic fire protection alarm system of the boiler room including sensors, fire protection horn and other necessary elements
* Fire Protection Elaborate refers to spaces that are subject to the demands of this basic design within the building - boiler room and modular gas boiler station installed outdoors. The Elaborate ensures that all legal and technical aspects required by national law, bylaws and regulations for this type of the buildings are respected

1. **INPUTS PROVIDED BY UNOPS**

Upon conclusion of the contract UNOPS will give following inputs to the chosen service provider:

* Technical Assessment Report on the current state of the heating system with all relevant data for the facility
* Contact information for the final beneficiary

1. **DELIVERABLES**

The following will be considered as final documentation to be submitted by the design company, based on prior positive assessments received from the review conducted by UNOPS and the local review company:

1. design documentation based on which works could be executed
2. detailed BOQ necessary for launching a procurement procedure for selection of works contractor

The design documentation should be submitted in 4 (four) paper copies and 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD format. The entire documentation should be prepared in Macedonian. Only front page, technical specifications and BoQ are to be submitted in Macedonian/English language versions.

1. **DESIGN REVIEW**

The submitted design documentation will be subject to the following review:

a) Review of the project documentation by UNOPS - The documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files.

b) Review of the project documentation by a local licensed company, according to local regulations. Design review process will take place throughout basic design development in a staged approach where design teams progressively submit design documentation for review at 60% and 90% development.

Stage 60%: finalised architectural phase, finalised schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size, functional diagram of the heating system, preliminary selection of the capacity and location of newly designed gas boiler, preliminary selection of other accompanying heating equipment and basic calculation in electrical design

Stage 90%: finalised mechanical and electrical design, finalised elaborates: fire protection and health and safety

Final documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files. The documentation should be prepared in Macedonian.

1. **TIMETABLE**

Completed design documentation should be finalised within 90 (ninety) calendar days from the contract commencement date and submitted for design review to a licenced company selected by the Project Team of the project implementer. All eventual remarks submitted by the design reviewer to the designers must be addressed within 10 (ten) calendar days of reception, thus obtaining a positive design review within this period of time.

The services performance shall result at Designs for the execution of works respecting all requirements defined by this ToR. The design must comprise clearly defined solutions, without any variations, to ensure that a public call for contractors and the construction can proceed without difficulty.

The Design Company shall guarantee professional and technical competence of its staff/specialist and shall provide qualified design experts to complete the works in accordance with specifications as contained in this TOR. The Design Company shall ensure that the designs conform to the most recent national/or internationally adopted Standards and UNOPS’ technical framework for minimum requirements for heating system design. The Outputs shall be delivered in the timeframe accordingly to the timing indicated in this ToR and must be presented to the client and user representatives. Comments and notes from the representatives must be considered in the final version of the documentations. The Designs shall remain the intellectual property of UNOPS.

**LOT 2**

1. Polyclinic “Cento”

**TERMS OF REFERENCE**

**FOR PROVISION OF SERVICES FOR DEVELOPMENT OF BASIC DESIGN FOR IMPROVING THE HEATING SYSTEM IN POLYCLINIC “CENTO” - SKOPJE**

1. **BACKGROUND**

The EU for Clean Air Project, funded by the European Union (EU) through the Instrument for Pre-accession Assistance (IPA), is designed to contribute to improvement of air quality in North Macedonia and consequently decrease risks to human health. With the objective to contribute to the reduction of emissions of pollutants in four large urban centres in North Macedonia, the Project has an implementation period of 36 months, followed by the defects notification period (DNP) of up to 12 months. The United Nations Office for Project Services (UNOPS) is the implementing partner.

The Project is aligned with all national strategic and regulatory frameworks and will contribute to progress made towards meeting EU accession criteria, primarily under Chapter 27 (Environment) and to the achievement of the relevant United Nations (UN) Sustainable Development Goals.

A Project result pertinent to this particular intervention relates to improving heating systems through replacement of obsolete and inefficient boilers in public buildings in the cities of Skopje, Bitola, Kumanovo, and Tetovo. Under this specific ToR, UNOPS solicits provision of services for development of basic design for heating system improvement, to be performed under the applicable provisions of the Law on Construction.

1. **INTRODUCTION**

Polyclinic “Cento” is located in Skopje. The building is supplied with thermal energy from the boiler room which is located in the basement of the building by means of two boilers with a nominal capacity of 232kW each powered on EL fuel. The boilers are outdated and generally in very poor condition. Within the boiler room other accompanying equipment is located as well: manifolds for supply and return water, circulating pumps, valves etc.

A standard two-pipe hot water distribution system is installed in the building. Aluminium radiators with radiator valves and return lock shields are installed in all heated rooms.

The windows in the building are aluminum ones without rubber gaskets, they are in bad condition, therefore significant infiltration occurs. Building has no thermal insulation.

For the purpose of energy supply to the newly designed boilers an ongoing project takes place for CNG plant and installation. This energy project financed by the user is being simultaneously developed and will be in coordination with the basic design for improving the heating system that is subject to this ToR.

1. **OBJECTIVE OF THE ASSIGNMENT**

The objective of the assignment is preparation of a Basic Design for improving the heating system and replacement of existing inefficient heating equipment in Polyclinic “Cento” - Skopje in order to reduce air pollution and decrease risks to human health.

1. **SCOPE OF THE ASSIGNMENT**

The scope of the assignment is to engage the design company under the direct supervision of UNOPS EU for Clean Air for preparation of the design documentation for Polyclinic “Cento”. For the purpose of this assignment, UNOPS provides a Technical Assessment Report on the current state of the heating system with all relevant data for the facility in Annex L2.1.

The company selected to develop the design should ensure it is done based on the:

* existing state and situation following valid design standards in the country
* ensuring that all legal and technical aspects required by national law, bylaws and regulations for this type of the building are respected
* applying best practices
* preventive measures in line with current international norms and standards are respected

The final designs for the execution of works should contain all details and calculations necessary for the execution of works, shop drawings, detailed BoQs and technical specifications for all groups of works as per national and UNOPS’ norms.

All designs must comply with the national legislation, the Law on Construction (“Закон за градење”) and Rulebook “Rulebook on the content of the project, information on the project designation, the method of certification of the project by the persons in charge and information on the use of electronic records” („Правилник за содржината на проектите, означувањето на проектот, начинот на заверка на проектот од страна на одговорните лица и начинот на користење на електронските записи”).

**4.1 Design company main responsibilities**

Design company’s main responsibilities:

1. Confirmation of preparation activities completed by the UNOPS Project Team in an Technical Assessment Report by visiting the facility and recording the actual state by determining relevant data for design development: current condition of the building, heating capacity based on the number of installed heating units - radiators in the facility, number and capacity of existing boilers, heating equipment installed in the boiler room, etc.
2. Provision of Basic Design Documentation for all necessary phases, complemented with necessary analyses, calculations, drawings and a bill of quantity (BOQ) with assessed cost calculation for improvement of the heating systems.
3. Provision of permits and approvals that are required for works described in the BoQ in basic design that is subject to this ToR (if any required)

**4.2 Contents of the Basic Design**

**А/ Legal documents**

1. Registration act issued by Central Registry
2. Business Registration Certificate (Тековна состојба)
3. Valid Authorization B for design of technical documentation as per national regulations for the company
4. Assignment of Chief Designer, Project phase Designers and associates for development of design documentation
5. Design scope of works-project task (Проектна задача)

**B/ Architectural Phase**

1. Technical description
2. Layout of the boiler room including transversal and longitudinal sections. Detail on the facade wall / outdoor location foreseen for the new boiler(s) installation
3. Site plan of the building showing the location of newly designed outdoor boilers

**C/ Mechanical Phase**

1. Technical description
2. Technical conditions
3. Creating of schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size.

NOTE: In case of any other consumers of hot water connected to the heating system that is subject of this design, ex. tanks for sanitary hot water (SHW), air handling units or other, to be considered when calculating the total heat demand

1. Selection of thermostatic valves for public buildings with integrated automatic flow limitation to replace existing manual valves. Replacement of existing lock shields. Selected elements by quantity determined by record made on site, to be expressed in the BoQ
2. Selection of balancing valves on the raisers by quantity determined by record made on site, to be expressed in the BoQ
3. Sizing the elements in the newly designed boiler room taking into consideration notes described in pt. 4.1 and demands as follows:

* dismantling of the entire heating equipment from the existing boiler room up to the transition of the heating pipes to the building (pumps, valves, fittings, measuring and regulating equipment, pipe installation including manifolds for supply and return water, expansion vessels, water softening system for preparation of water...) with removal and transport to the nearest licensed recycling company. Existing boilers completed with the fuel supply installation, remain in the boiler room as a redundancy (back-up).
* selection of modular gas boiler station in certified housing for outdoor installation consisting of built-in gas boilers with their own pumps and other elements, hydraulic switch as a separate primary circuit and the possibility of automation temperature control of three independent heating circuits depending on outdoor conditions
* new optimised functional diagram with the implementation of: frequency-regulated pumps, new valves, measuring instruments, balancing and control valves and other fittings, expansion vessels for an installed capacity up to 250kW i.e. systems for maintaining pressure in the system by pumps for larger capacities

1. Graphical enclosures - drawings: layout showing equipment position in the boiler room, complete view in the transverse and longitudinal section of the boiler room, detail on the facade wall / outdoor position where installation of the newly designed boiler is foreseen, raiser diagram (strang sema), and all other drawings necessary for works performance
2. Technical specification on selected equipment and elements
3. Bill of Quantity (BOQ)

**REMARKS 1**: The following positions should be envisaged within the project as well:

* Dismantling/cleaning/installation of heating elements - radiators
* Insulations of pipe segments passing through rooms/areas where heating is not envisaged
* Servicing of existing boilers and burners (together with existing automation control) to enable their future usage solely as back-up equipment (in cases of defects of the newly installed boilers or interruptions in gas supply, etc.)
* Appliance for water softening
* Pipe insulation in the boiler room and outdoor segments with aluminium sheet protection
* Examination of installations, regulation and balancing of the heating system with commissioning and preparation of technical documentation for newly designed conditions
* In case of existing system for SHW production, technical solution to be foreseen for its temporary function while works for improvement of the heating system are ongoing (out of heating season)

NOTE: Neither SHW equipment nor installation is subject to this design.

* Provision of permits and approvals for works described in the BoQ of basic design that is subject to this ToR (if any required)

*\* Energy supply - CNG plant and gas distribution lines to newly installed gas boilers are not part of this project. This part will be done separately by the end beneficiary*

**D/ Electrical Phase**

1. Technical description
2. Technical conditions
3. Electrical calculations based on the defined consumers within the boiler room and newly designed gas boiler
4. Graphical enclosures - drawings presenting equipment power supply
5. Bill of Quantity (BOQ)

**E/ Fire Protection Elaborate**

**F/ Elaborate for Health and Safety at Work**

**REMARKS 2**: The following positions should be envisaged within the project as well:

* The scope of electrical design covers installation and elements for purpose of proper functioning of newly designed boiler room: selection of new electrical distribution box for the boiler room, replacement of existing cables including electrical supply cable from main distribution box to the boiler room, electrical supply to the new gas boiler station and replacement of existing lights, switches and sockets in the boiler room.
* Analogue addressable central unit for automatic fire protection alarm system of the boiler room including sensors, fire protection horn and other necessary elements
* Fire Protection Elaborate refers to spaces that are subject to the demands of this basic design within the building - boiler room and modular gas boiler station installed outdoors. The Elaborate ensures that all legal and technical aspects required by national law, bylaws and regulations for this type of the buildings are respected

1. **INPUTS PROVIDED BY UNOPS**

Upon conclusion of the contract UNOPS will give following inputs to the chosen service provider:

* Technical Assessment Report on the current state of the heating system with all relevant data for the facility
* Contact information for the final beneficiary

1. **DELIVERABLES**

The following will be considered as final documentation to be submitted by the design company, based on prior positive assessments received from the review conducted by UNOPS and the local review company:

1. design documentation based on which works could be executed
2. detailed BOQ necessary for launching a procurement procedure for selection of works contractor

The design documentation should be submitted in 4 (four) paper copies and 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD format. The entire documentation should be prepared in Macedonian. Only front page, technical specifications and BoQ are to be submitted in Macedonian/English language versions.

1. **DESIGN REVIEW**

The submitted design documentation will be subject to the following review:

a) Review of the project documentation by UNOPS - The documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files.

b) Review of the project documentation by a local licensed company, according to local regulations. Design review process will take place throughout basic design development in a staged approach where design teams progressively submit design documentation for review at 60% and 90% development.

Stage 60%: finalised architectural phase, finalised schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size, functional diagram of the heating system, preliminary selection of the capacity and location of newly designed gas boiler, preliminary selection of other accompanying heating equipment and basic calculation in electrical design

Stage 90%: finalised mechanical and electrical design, finalised elaborates: fire protection and health and safety

Final documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files. The documentation should be prepared in Macedonian.

1. **TIMETABLE**

Completed design documentation should be finalised within 90 (ninety) calendar days from the contract commencement date and submitted for design review to a licenced company selected by the Project Team of the project implementer. All eventual remarks submitted by the design reviewer to the designers must be addressed within 10 (ten) calendar days of reception, thus obtaining a positive design review within this period of time.

The services performance shall result at Designs for the execution of works respecting all requirements defined by this ToR. The design must comprise clearly defined solutions, without any variations, to ensure that a public call for contractors and the construction can proceed without difficulty.

The Design Company shall guarantee professional and technical competence of its staff/specialist and shall provide qualified design experts to complete the works in accordance with specifications as contained in this TOR. The Design Company shall ensure that the designs conform to the most recent national/or internationally adopted Standards and UNOPS’ technical framework for minimum requirements for heating system design. The Outputs shall be delivered in the timeframe accordingly to the timing indicated in this ToR and must be presented to the client and user representatives. Comments and notes from the representatives must be considered in the final version of the documentations. The Designs shall remain the intellectual property of UNOPS.

—----------------------------------------------------------------- LOT 2.1 - END --------------------------------------------------------------------

**LOT 2**

2. Polyclinic “Dracevo”

**TERMS OF REFERENCE**

**FOR PROVISION OF SERVICES FOR DEVELOPMENT OF BASIC DESIGN FOR IMPROVING THE HEATING SYSTEM IN POLYCLINIC “DRACEVO” - SKOPJE**

1. **BACKGROUND**

The EU for Clean Air Project, funded by the European Union (EU) through the Instrument for Pre-accession Assistance (IPA), is designed to contribute to improvement of air quality in North Macedonia and consequently decrease risks to human health. With the objective to contribute to the reduction of emissions of pollutants in four large urban centres in North Macedonia, the Project has an implementation period of 36 months, followed by the defects notification period (DNP) of up to 12 months. The United Nations Office for Project Services (UNOPS) is the implementing partner.

The Project is aligned with all national strategic and regulatory frameworks and will contribute to progress made towards meeting EU accession criteria, primarily under Chapter 27 (Environment) and to the achievement of the relevant United Nations (UN) Sustainable Development Goals.

A Project result pertinent to this particular intervention relates to improving heating systems through replacement of obsolete and inefficient boilers in public buildings in the cities of Skopje, Bitola, Kumanovo, and Tetovo. Under this specific ToR, UNOPS solicits provision of services for development of basic design for heating system improvement, to be performed under the applicable provisions of the Law on Construction.

1. **INTRODUCTION**

Polyclinic “Dracevo” is located in Skopje. The building is supplied with thermal energy from the boiler room which is located in the basement of the building by means of two boilers with a nominal capacity of 290kW each powered on EL fuel. The boilers are outdated and generally in very poor condition. Within the boiler room other accompanying equipment is located as well: manifolds for supply and return water, circulating pumps, valves etc.

A standard two-pipe hot water distribution system is installed in the building. Aluminum radiators with radiator valves and return lock shields are installed in all heated rooms.

The windows in the building are aluminum ones without rubber gaskets, they are in bad condition, therefore significant infiltration occurs. Building has no thermal insulation.

For the purpose of energy supply to the newly designed boilers an ongoing project takes place for CNG plant and installation. This energy project financed by the user is being simultaneously developed and will be in coordination with the basic design for improving the heating system that is subject to this ToR.

1. **OBJECTIVE OF THE ASSIGNMENT**

The objective of the assignment is preparation of a Basic Design for improving the heating system and replacement of existing inefficient heating equipment in Polyclinic “Dracevo” - Skopje in order to reduce air pollution and decrease risks to human health.

1. **SCOPE OF THE ASSIGNMENT**

The scope of the assignment is to engage the design company under the direct supervision of UNOPS EU for Clean Air for preparation of the design documentation for Polyclinic “Dracevo”. For the purpose of this assignment, UNOPS provides a Technical Assessment Report on the current state of the heating system with all relevant data for the facility in Annex L2.2.

The company selected to develop the design should ensure it is done based on the:

* existing state and situation following valid design standards in the country
* ensuring that all legal and technical aspects required by national law, bylaws and regulations for this type of the building are respected
* applying best practices
* preventive measures in line with current international norms and standards are respected

The final designs for the execution of works should contain all details and calculations necessary for the execution of works, shop drawings, detailed BoQs and technical specifications for all groups of works as per national and UNOPS’ norms.

All designs must comply with the national legislation, the Law on Construction (“Закон за градење”) and Rulebook “Rulebook on the content of the project, information on the project designation, the method of certification of the project by the persons in charge and information on the use of electronic records” („Правилник за содржината на проектите, означувањето на проектот, начинот на заверка на проектот од страна на одговорните лица и начинот на користење на електронските записи”).

**4.1 Design company main responsibilities**

Design company’s main responsibilities:

1. Confirmation of preparation activities completed by the UNOPS Project Team in an Technical Assessment Report by visiting the facility and recording the actual state by determining relevant data for design development: current condition of the building, heating capacity based on the number of installed heating units - radiators in the facility, number and capacity of existing boilers, heating equipment installed in the boiler room, etc.
2. Provision of Basic Design Documentation for all necessary phases, complemented with necessary analyses, calculations, drawings and a bill of quantity (BOQ) with assessed cost calculation for improvement of the heating systems.
3. Provision of permits and approvals that are required for works described in the BoQ in basic design that is subject to this ToR (if any required)

**4.2 Contents of the Basic Design**

**А/ Legal documents**

1. Registration act issued by Central Registry
2. Business Registration Certificate (Тековна состојба)
3. Valid Authorization B for design of technical documentation as per national regulations for the company
4. Assignment of Chief Designer, Project phase Designers and associates for development of design documentation
5. Design scope of works-project task (Проектна задача)

**B/ Architectural Phase**

1. Technical description
2. Layout of the boiler room including transversal and longitudinal sections. Detail on the facade wall / outdoor location foreseen for the new boiler(s) installation
3. Site plan of the building showing the location of newly designed outdoor boilers

**C/ Mechanical Phase**

1. Technical description
2. Technical conditions
3. Creating of schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size.

NOTE: In case of any other consumers of hot water connected to the heating system that is subject of this design, ex. tanks for sanitary hot water (SHW), air handling units or other, to be considered when calculating the total heat demand

1. Selection of thermostatic valves for public buildings with integrated automatic flow limitation to replace existing manual valves. Replacement of existing lock shields. Selected elements by quantity determined by record made on site, to be expressed in the BoQ
2. Selection of balancing valves on the raisers by quantity determined by record made on site, to be expressed in the BoQ
3. Sizing the elements in the newly designed boiler room taking into consideration notes described in pt. 4.1 and demands as follows:

* dismantling of the entire heating equipment from the existing boiler room up to the transition of the heating pipes to the building (pumps, valves, fittings, measuring and regulating equipment, pipe installation including manifolds for supply and return water, expansion vessels, water softening system for preparation of water...) with removal and transport to the nearest licensed recycling company. Existing boilers completed with the fuel supply installation, remain in the boiler room as a redundancy (back-up).
* selection of modular gas boiler station in certified housing for outdoor installation consisting of built-in gas boilers with their own pumps and other elements, hydraulic switch as a separate primary circuit and the possibility of automation temperature control of three independent heating circuits depending on outdoor conditions
* new optimised functional diagram with the implementation of: frequency-regulated pumps, new valves, measuring instruments, balancing and control valves and other fittings, expansion vessels for an installed capacity up to 250kW i.e. systems for maintaining pressure in the system by pumps for larger capacities

1. Graphical enclosures - drawings: layout showing equipment position in the boiler room, complete view in the transverse and longitudinal section of the boiler room, detail on the facade wall / outdoor position where installation of the newly designed boiler is foreseen, raiser diagram (strang sema), and all other drawings necessary for works performance
2. Technical specification on selected equipment and elements
3. Bill of Quantity (BOQ)

**REMARKS 1**: The following positions should be envisaged within the project as well:

* Dismantling/cleaning/installation of heating elements - radiators
* Insulations of pipe segments passing through rooms/areas where heating is not envisaged
* Servicing of existing boilers and burners (together with existing automation control) to enable their future usage solely as back-up equipment (in cases of defects of the newly installed boilers or interruptions in gas supply, etc.)
* Appliance for water softening
* Pipe insulation in the boiler room and outdoor segments with aluminium sheet protection
* Examination of installations, regulation and balancing of the heating system with commissioning and preparation of technical documentation for newly designed conditions
* In case of existing system for SHW production, technical solution to be foreseen for its temporary function while works for improvement of the heating system are ongoing (out of heating season)

NOTE: Neither SHW equipment nor installation is subject to this design.

* Provision of permits and approvals for works described in the BoQ of basic design that is subject to this ToR (if any required)

*\* Energy supply - CNG plant and gas distribution lines to newly installed gas boilers are not part of this project. This part will be done separately by the end beneficiary*

**D/ Electrical Phase**

1. Technical description
2. Technical conditions
3. Electrical calculations based on the defined consumers within the boiler room and newly designed gas boiler
4. Graphical enclosures - drawings presenting equipment power supply
5. Bill of Quantity (BOQ)

**E/ Fire Protection Elaborate**

**F/ Elaborate for Health and Safety at Work**

**REMARKS 2**: The following positions should be envisaged within the project as well:

* The scope of electrical design covers installation and elements for purpose of proper functioning of newly designed boiler room: selection of new electrical distribution box for the boiler room, replacement of existing cables including electrical supply cable from main distribution box to the boiler room, electrical supply to the new gas boiler station and replacement of existing lights, switches and sockets in the boiler room.
* Analogue addressable central unit for automatic fire protection alarm system of the boiler room including sensors, fire protection horn and other necessary elements
* Fire Protection Elaborate refers to spaces that are subject to the demands of this basic design within the building - boiler room and modular gas boiler station installed outdoors. The Elaborate ensures that all legal and technical aspects required by national law, bylaws and regulations for this type of the buildings are respected

1. **INPUTS PROVIDED BY UNOPS**

Upon conclusion of the contract UNOPS will give following inputs to the chosen service provider:

* Technical Assessment Report on the current state of the heating system with all relevant data for the facility
* Contact information for the final beneficiary

1. **DELIVERABLES**

The following will be considered as final documentation to be submitted by the design company, based on prior positive assessments received from the review conducted by UNOPS and the local review company:

1. design documentation based on which works could be executed
2. detailed BOQ necessary for launching a procurement procedure for selection of works contractor

The design documentation should be submitted in 4 (four) paper copies and 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD format. The entire documentation should be prepared in Macedonian. Only front page, technical specifications and BoQ are to be submitted in Macedonian/English language versions.

1. **DESIGN REVIEW**

The submitted design documentation will be subject to the following review:

a) Review of the project documentation by UNOPS - The documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files.

b) Review of the project documentation by a local licensed company, according to local regulations. Design review process will take place throughout basic design development in a staged approach where design teams progressively submit design documentation for review at 60% and 90% development.

Stage 60%: finalised architectural phase, finalised schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size, functional diagram of the heating system, preliminary selection of the capacity and location of newly designed gas boiler, preliminary selection of other accompanying heating equipment and basic calculation in electrical design

Stage 90%: finalised mechanical and electrical design, finalised elaborates: fire protection and health and safety

Final documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files. The documentation should be prepared in Macedonian.

1. **TIMETABLE**

Completed design documentation should be finalised within 90 (ninety) calendar days from the contract commencement date and submitted for design review to a licenced company selected by the Project Team of the project implementer. All eventual remarks submitted by the design reviewer to the designers must be addressed within 10 (ten) calendar days of reception, thus obtaining a positive design review within this period of time.

The services performance shall result at Designs for the execution of works respecting all requirements defined by this ToR. The design must comprise clearly defined solutions, without any variations, to ensure that a public call for contractors and the construction can proceed without difficulty.

The Design Company shall guarantee professional and technical competence of its staff/specialist and shall provide qualified design experts to complete the works in accordance with specifications as contained in this TOR. The Design Company shall ensure that the designs conform to the most recent national/or internationally adopted Standards and UNOPS’ technical framework for minimum requirements for heating system design. The Outputs shall be delivered in the timeframe accordingly to the timing indicated in this ToR and must be presented to the client and user representatives. Comments and notes from the representatives must be considered in the final version of the documentations. The Designs shall remain the intellectual property of UNOPS.

—----------------------------------------------------------------- LOT 2.2 - END --------------------------------------------------------------------

**LOT 2**

3. Polyclinic “Gjorce Petrov”

**TERMS OF REFERENCE**

**FOR PROVISION OF SERVICES FOR DEVELOPMENT OF BASIC DESIGN FOR IMPROVING THE HEATING SYSTEM IN POLYCLINIC “GJORCE PETROV” - SKOPJE**

1. **BACKGROUND**

The EU for Clean Air Project, funded by the European Union (EU) through the Instrument for Pre-accession Assistance (IPA), is designed to contribute to improvement of air quality in North Macedonia and consequently decrease risks to human health. With the objective to contribute to the reduction of emissions of pollutants in four large urban centres in North Macedonia, the Project has an implementation period of 36 months, followed by the defects notification period (DNP) of up to 12 months. The United Nations Office for Project Services (UNOPS) is the implementing partner.

The Project is aligned with all national strategic and regulatory frameworks and will contribute to progress made towards meeting EU accession criteria, primarily under Chapter 27 (Environment) and to the achievement of the relevant United Nations (UN) Sustainable Development Goals.

A Project result pertinent to this particular intervention relates to improving heating systems through replacement of obsolete and inefficient boilers in public buildings in the cities of Skopje, Bitola, Kumanovo, and Tetovo. Under this specific ToR, UNOPS solicits provision of services for development of basic design for heating system improvement, to be performed under the applicable provisions of the Law on Construction.

1. **INTRODUCTION**

Polyclinic “Gjorce Petrov” is located in Skopje. The building is supplied with thermal energy from the boiler room which is located on the ground level of the building by means of two boilers with a nominal capacity of 660kW each powered on EL fuel. The boilers are outdated and generally in very poor condition. In the basement nearby the boiler room, heating substation is located where other accompanying equipment is located as well: manifolds for supply and return water, circulating pumps, valves etc.

A standard two-pipe hot water distribution system is installed in the building. Aluminum radiators with radiator valves and return lock shields are installed in all heated rooms.

The windows in the building are old type, they are in bad condition, therefore significant infiltration occurs. Building has no thermal insulation.

For the purpose of energy supply to the newly designed boilers an ongoing project takes place for CNG plant and installation. This energy project financed by the user is being simultaneously developed and will be in coordination with the basic design for improving the heating system that is subject to this ToR.

1. **OBJECTIVE OF THE ASSIGNMENT**

The objective of the assignment is preparation of a Basic Design for improving the heating system and replacement of existing inefficient heating equipment in Polyclinic “Gjorce Petrov” - Skopje in order to reduce air pollution and decrease risks to human health.

1. **SCOPE OF THE ASSIGNMENT**

The scope of the assignment is to engage the design company under the direct supervision of UNOPS EU for Clean Air for preparation of the design documentation for Polyclinic “Gjorce Petrov”. For the purpose of this assignment, UNOPS provides a Technical Assessment Report on the current state of the heating system with all relevant data for the facility in Annex L2.3.

The company selected to develop the design should ensure it is done based on the:

* existing state and situation following valid design standards in the country
* ensuring that all legal and technical aspects required by national law, bylaws and regulations for this type of the building are respected
* applying best practices
* preventive measures in line with current international norms and standards are respected

The final designs for the execution of works should contain all details and calculations necessary for the execution of works, shop drawings, detailed BoQs and technical specifications for all groups of works as per national and UNOPS’ norms.

All designs must comply with the national legislation, the Law on Construction (“Закон за градење”) and Rulebook “Rulebook on the content of the project, information on the project designation, the method of certification of the project by the persons in charge and information on the use of electronic records” („Правилник за содржината на проектите, означувањето на проектот, начинот на заверка на проектот од страна на одговорните лица и начинот на користење на електронските записи”).

**4.1 Design company main responsibilities**

Design company’s main responsibilities:

1. Confirmation of preparation activities completed by the UNOPS Project Team in an Technical Assessment Report by visiting the facility and recording the actual state by determining relevant data for design development: current condition of the building, heating capacity based on the number of installed heating units - radiators in the facility, number and capacity of existing boilers, heating equipment installed in the boiler room, etc.
2. Provision of Basic Design Documentation for all necessary phases, complemented with necessary analyses, calculations, drawings and a bill of quantity (BOQ) with assessed cost calculation for improvement of the heating systems.
3. Provision of permits and approvals that are required for works described in the BoQ in basic design that is subject to this ToR (if any required)

**4.2 Contents of the Basic Design**

**А/ Legal documents**

1. Registration act issued by Central Registry
2. Business Registration Certificate (Тековна состојба)
3. Valid Authorization B for design of technical documentation as per national regulations for the company
4. Assignment of Chief Designer, Project phase Designers and associates for development of design documentation
5. Design scope of works-project task (Проектна задача)

**B/ Architectural Phase**

1. Technical description
2. Layout of the boiler room including transversal and longitudinal sections. Detail on the facade wall / outdoor location foreseen for the new boiler(s) installation
3. Site plan of the building showing the location of newly designed outdoor boilers

**C/ Mechanical Phase**

1. Technical description
2. Technical conditions
3. Creating of schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size.

NOTE: In case of any other consumers of hot water connected to the heating system that is subject of this design, ex. tanks for sanitary hot water (SHW), air handling units or other, to be considered when calculating the total heat demand

1. Selection of thermostatic valves for public buildings with integrated automatic flow limitation to replace existing manual valves. Replacement of existing lock shields. Selected elements by quantity determined by record made on site, to be expressed in the BoQ
2. Selection of balancing valves on the raisers by quantity determined by record made on site, to be expressed in the BoQ
3. Sizing the elements in the newly designed boiler room taking into consideration notes described in pt. 4.1 and demands as follows:

* dismantling of the entire heating equipment from the existing boiler room up to the transition of the heating pipes to the building (pumps, valves, fittings, measuring and regulating equipment, pipe installation including manifolds for supply and return water, expansion vessels, water softening system for preparation of water...) with removal and transport to the nearest licensed recycling company. Existing boilers completed with the fuel supply installation, remain in the boiler room as a redundancy (back-up).
* selection of modular gas boiler station in certified housing for outdoor installation consisting of built-in gas boilers with their own pumps and other elements, hydraulic switch as a separate primary circuit and the possibility of automation temperature control of three independent heating circuits depending on outdoor conditions
* new optimised functional diagram with the implementation of: frequency-regulated pumps, new valves, measuring instruments, balancing and control valves and other fittings, expansion vessels for an installed capacity up to 250kW i.e. systems for maintaining pressure in the system by pumps for larger capacities

1. Graphical enclosures - drawings: layout showing equipment position in the boiler room, complete view in the transverse and longitudinal section of the boiler room, detail on the facade wall / outdoor position where installation of the newly designed boiler is foreseen, raiser diagram (strang sema), and all other drawings necessary for works performance
2. Technical specification on selected equipment and elements
3. Bill of Quantity (BOQ)

**REMARKS 1**: The following positions should be envisaged within the project as well:

* Dismantling/cleaning/installation of heating elements - radiators
* Insulations of pipe segments passing through rooms/areas where heating is not envisaged
* Servicing of existing boilers and burners (together with existing automation control) to enable their future usage solely as back-up equipment (in cases of defects of the newly installed boilers or interruptions in gas supply, etc.)
* Appliance for water softening
* Pipe insulation in the boiler room and outdoor segments with aluminium sheet protection
* Examination of installations, regulation and balancing of the heating system with commissioning and preparation of technical documentation for newly designed conditions
* In case of existing system for SHW production, technical solution to be foreseen for its temporary function while works for improvement of the heating system are ongoing (out of heating season)

NOTE: Neither SHW equipment nor installation is subject to this design.

* Provision of permits and approvals for works described in the BoQ of basic design that is subject to this ToR (if any required)

*\* Energy supply - CNG plant and gas distribution lines to newly installed gas boilers are not part of this project. This part will be done separately by the end beneficiary*

**D/ Electrical Phase**

1. Technical description
2. Technical conditions
3. Electrical calculations based on the defined consumers within the boiler room and newly designed gas boiler
4. Graphical enclosures - drawings presenting equipment power supply
5. Bill of Quantity (BOQ)

**E/ Fire Protection Elaborate**

**F/ Elaborate for Health and Safety at Work**

**REMARKS 2**: The following positions should be envisaged within the project as well:

* The scope of electrical design covers installation and elements for purpose of proper functioning of newly designed boiler room: selection of new electrical distribution box for the boiler room, replacement of existing cables including electrical supply cable from main distribution box to the boiler room, electrical supply to the new gas boiler station and replacement of existing lights, switches and sockets in the boiler room.
* Analogue addressable central unit for automatic fire protection alarm system of the boiler room including sensors, fire protection horn and other necessary elements
* Fire Protection Elaborate refers to spaces that are subject to the demands of this basic design within the building - boiler room and modular gas boiler station installed outdoors. The Elaborate ensures that all legal and technical aspects required by national law, bylaws and regulations for this type of the buildings are respected

1. **INPUTS PROVIDED BY UNOPS**

Upon conclusion of the contract UNOPS will give following inputs to the chosen service provider:

* Technical Assessment Report on the current state of the heating system with all relevant data for the facility
* Contact information for the final beneficiary

1. **DELIVERABLES**

The following will be considered as final documentation to be submitted by the design company, based on prior positive assessments received from the review conducted by UNOPS and the local review company:

1. design documentation based on which works could be executed
2. detailed BOQ necessary for launching a procurement procedure for selection of works contractor

The design documentation should be submitted in 4 (four) paper copies and 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD format. The entire documentation should be prepared in Macedonian. Only front page, technical specifications and BoQ are to be submitted in Macedonian/English language versions.

1. **DESIGN REVIEW**

The submitted design documentation will be subject to the following review:

a) Review of the project documentation by UNOPS - The documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files.

b) Review of the project documentation by a local licensed company, according to local regulations. Design review process will take place throughout basic design development in a staged approach where design teams progressively submit design documentation for review at 60% and 90% development.

Stage 60%: finalised architectural phase, finalised schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size, functional diagram of the heating system, preliminary selection of the capacity and location of newly designed gas boiler, preliminary selection of other accompanying heating equipment and basic calculation in electrical design

Stage 90%: finalised mechanical and electrical design, finalised elaborates: fire protection and health and safety

Final documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files. The documentation should be prepared in Macedonian.

1. **TIMETABLE**

Completed design documentation should be finalised within 90 (ninety) calendar days from the contract commencement date and submitted for design review to a licenced company selected by the Project Team of the project implementer. All eventual remarks submitted by the design reviewer to the designers must be addressed within 10 (ten) calendar days of reception, thus obtaining a positive design review within this period of time.

The services performance shall result at Designs for the execution of works respecting all requirements defined by this ToR. The design must comprise clearly defined solutions, without any variations, to ensure that a public call for contractors and the construction can proceed without difficulty.

The Design Company shall guarantee professional and technical competence of its staff/specialist and shall provide qualified design experts to complete the works in accordance with specifications as contained in this TOR. The Design Company shall ensure that the designs conform to the most recent national/or internationally adopted Standards and UNOPS’ technical framework for minimum requirements for heating system design. The Outputs shall be delivered in the timeframe accordingly to the timing indicated in this ToR and must be presented to the client and user representatives. Comments and notes from the representatives must be considered in the final version of the documentations. The Designs shall remain the intellectual property of UNOPS.

—----------------------------------------------------------------- LOT 2.3 - END --------------------------------------------------------------------

**LOT 2**

4. Polyclinic “Suto Orizari”

**TERMS OF REFERENCE**

**FOR PROVISION OF SERVICES FOR DEVELOPMENT OF BASIC DESIGN FOR IMPROVING THE HEATING SYSTEM IN POLYCLINIC “SUTO ORIZARI ” - SKOPJE**

1. **BACKGROUND**

The EU for Clean Air Project, funded by the European Union (EU) through the Instrument for Pre-accession Assistance (IPA), is designed to contribute to improvement of air quality in North Macedonia and consequently decrease risks to human health. With the objective to contribute to the reduction of emissions of pollutants in four large urban centres in North Macedonia, the Project has an implementation period of 36 months, followed by the defects notification period (DNP) of up to 12 months. The United Nations Office for Project Services (UNOPS) is the implementing partner.

The Project is aligned with all national strategic and regulatory frameworks and will contribute to progress made towards meeting EU accession criteria, primarily under Chapter 27 (Environment) and to the achievement of the relevant United Nations (UN) Sustainable Development Goals.

A Project result pertinent to this particular intervention relates to improving heating systems through replacement of obsolete and inefficient boilers in public buildings in the cities of Skopje, Bitola, Kumanovo, and Tetovo. Under this specific ToR, UNOPS solicits provision of services for development of basic design for heating system improvement, to be performed under the applicable provisions of the Law on Construction.

1. **INTRODUCTION**

Polyclinic “Suto Orizari” is located in Skopje. The building is supplied with thermal energy from the boiler room which is located in the basement of the building by means of two boilers with a nominal capacity of 232kW each powered on EL fuel. The boilers are outdated and generally in very poor condition. Within the boiler room other accompanying equipment is located as well: manifolds for supply and return water, circulating pumps, valves etc.

A standard two-pipe hot water distribution system is installed in the building. Steel radiators with radiator valves and return lock shields are installed in all heated rooms.

The windows in the building were partly changed and remaining ones are with steel frames and generally in very poor condition. Building has no thermal insulation.

For the purpose of energy supply to the newly designed boilers an ongoing project takes place for CNG plant and installation. This energy project financed by the user is being simultaneously developed and will be in coordination with the basic design for improving the heating system that is subject to this ToR.

1. **OBJECTIVE OF THE ASSIGNMENT**

The objective of the assignment is preparation of a Basic Design for improving the heating system and replacement of existing inefficient heating equipment in Polyclinic “Suto Orizari” - Skopje in order to reduce air pollution and decrease risks to human health.

1. **SCOPE OF THE ASSIGNMENT**

The scope of the assignment is to engage the design company under the direct supervision of UNOPS EU for Clean Air for preparation of the design documentation for Polyclinic “Suto Orizari”. For the purpose of this assignment, UNOPS provides a Technical Assessment Report on the current state of the heating system with all relevant data for the facility in Annex L2.4.

The company selected to develop the design should ensure it is done based on the:

* existing state and situation following valid design standards in the country
* ensuring that all legal and technical aspects required by national law, bylaws and regulations for this type of the building are respected
* applying best practices
* preventive measures in line with current international norms and standards are respected

The final designs for the execution of works should contain all details and calculations necessary for the execution of works, shop drawings, detailed BoQs and technical specifications for all groups of works as per national and UNOPS’ norms.

All designs must comply with the national legislation, the Law on Construction (“Закон за градење”) and Rulebook “Rulebook on the content of the project, information on the project designation, the method of certification of the project by the persons in charge and information on the use of electronic records” („Правилник за содржината на проектите, означувањето на проектот, начинот на заверка на проектот од страна на одговорните лица и начинот на користење на електронските записи”).

**4.1 Design company main responsibilities**

Design company’s main responsibilities:

1. Confirmation of preparation activities completed by the UNOPS Project Team in an Technical Assessment Report by visiting the facility and recording the actual state by determining relevant data for design development: current condition of the building, heating capacity based on the number of installed heating units - radiators in the facility, number and capacity of existing boilers, heating equipment installed in the boiler room, etc.
2. Provision of Basic Design Documentation for all necessary phases, complemented with necessary analyses, calculations, drawings and a bill of quantity (BOQ) with assessed cost calculation for improvement of the heating systems.
3. Provision of permits and approvals that are required for works described in the BoQ in basic design that is subject to this ToR (if any required)

**4.2 Contents of the Basic Design**

**А/ Legal documents**

1. Registration act issued by Central Registry
2. Business Registration Certificate (Тековна состојба)
3. Valid Authorization B for design of technical documentation as per national regulations for the company
4. Assignment of Chief Designer, Project phase Designers and associates for development of design documentation
5. Design scope of works-project task (Проектна задача)

**B/ Architectural Phase**

1. Technical description
2. Layout of the boiler room including transversal and longitudinal sections. Detail on the facade wall / outdoor location foreseen for the new boiler(s) installation
3. Site plan of the building showing the location of newly designed outdoor boilers

**C/ Mechanical Phase**

1. Technical description
2. Technical conditions
3. Creating of schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size.

NOTE: In case of any other consumers of hot water connected to the heating system that is subject of this design, ex. tanks for sanitary hot water (SHW), air handling units or other, to be considered when calculating the total heat demand

1. Selection of thermostatic valves for public buildings with integrated automatic flow limitation to replace existing manual valves. Replacement of existing lock shields. Selected elements by quantity determined by record made on site, to be expressed in the BoQ
2. Selection of balancing valves on the raisers by quantity determined by record made on site, to be expressed in the BoQ
3. Sizing the elements in the newly designed boiler room taking into consideration notes described in pt. 4.1 and demands as follows:

* dismantling of the entire heating equipment from the existing boiler room up to the transition of the heating pipes to the building (pumps, valves, fittings, measuring and regulating equipment, pipe installation including manifolds for supply and return water, expansion vessels, water softening system for preparation of water...) with removal and transport to the nearest licensed recycling company. Existing boilers completed with the fuel supply installation, remain in the boiler room as a redundancy (back-up).
* selection of modular gas boiler station in certified housing for outdoor installation consisting of built-in gas boilers with their own pumps and other elements, hydraulic switch as a separate primary circuit and the possibility of automation temperature control of three independent heating circuits depending on outdoor conditions
* new optimised functional diagram with the implementation of: frequency-regulated pumps, new valves, measuring instruments, balancing and control valves and other fittings, expansion vessels for an installed capacity up to 250kW i.e. systems for maintaining pressure in the system by pumps for larger capacities

1. Graphical enclosures - drawings: layout showing equipment position in the boiler room, complete view in the transverse and longitudinal section of the boiler room, detail on the facade wall / outdoor position where installation of the newly designed boiler is foreseen, raiser diagram (strang sema), and all other drawings necessary for works performance
2. Technical specification on selected equipment and elements
3. Bill of Quantity (BOQ)

**REMARKS 1**: The following positions should be envisaged within the project as well:

* Dismantling/cleaning/installation of heating elements - radiators
* Insulations of pipe segments passing through rooms/areas where heating is not envisaged
* Servicing of existing boilers and burners (together with existing automation control) to enable their future usage solely as back-up equipment (in cases of defects of the newly installed boilers or interruptions in gas supply, etc.)
* Appliance for water softening
* Pipe insulation in the boiler room and outdoor segments with aluminium sheet protection
* Examination of installations, regulation and balancing of the heating system with commissioning and preparation of technical documentation for newly designed conditions
* In case of existing system for SHW production, technical solution to be foreseen for its temporary function while works for improvement of the heating system are ongoing (out of heating season)

NOTE: Neither SHW equipment nor installation is subject to this design.

* Provision of permits and approvals for works described in the BoQ of basic design that is subject to this ToR (if any required)

*\* Energy supply - CNG plant and gas distribution lines to newly installed gas boilers are not part of this project. This part will be done separately by the end beneficiary*

**D/ Electrical Phase**

1. Technical description
2. Technical conditions
3. Electrical calculations based on the defined consumers within the boiler room and newly designed gas boiler
4. Graphical enclosures - drawings presenting equipment power supply
5. Bill of Quantity (BOQ)

**E/ Fire Protection Elaborate**

**F/ Elaborate for Health and Safety at Work**

**REMARKS 2**: The following positions should be envisaged within the project as well:

* The scope of electrical design covers installation and elements for purpose of proper functioning of newly designed boiler room: selection of new electrical distribution box for the boiler room, replacement of existing cables including electrical supply cable from main distribution box to the boiler room, electrical supply to the new gas boiler station and replacement of existing lights, switches and sockets in the boiler room.
* Analogue addressable central unit for automatic fire protection alarm system of the boiler room including sensors, fire protection horn and other necessary elements
* Fire Protection Elaborate refers to spaces that are subject to the demands of this basic design within the building - boiler room and modular gas boiler station installed outdoors. The Elaborate ensures that all legal and technical aspects required by national law, bylaws and regulations for this type of the buildings are respected

1. **INPUTS PROVIDED BY UNOPS**

Upon conclusion of the contract UNOPS will give following inputs to the chosen service provider:

* Technical Assessment Report on the current state of the heating system with all relevant data for the facility
* Contact information for the final beneficiary

1. **DELIVERABLES**

The following will be considered as final documentation to be submitted by the design company, based on prior positive assessments received from the review conducted by UNOPS and the local review company:

1. design documentation based on which works could be executed
2. detailed BOQ necessary for launching a procurement procedure for selection of works contractor

The design documentation should be submitted in 4 (four) paper copies and 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD format. The entire documentation should be prepared in Macedonian. Only front page, technical specifications and BoQ are to be submitted in Macedonian/English language versions.

1. **DESIGN REVIEW**

The submitted design documentation will be subject to the following review:

a) Review of the project documentation by UNOPS - The documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files.

b) Review of the project documentation by a local licensed company, according to local regulations. Design review process will take place throughout basic design development in a staged approach where design teams progressively submit design documentation for review at 60% and 90% development.

Stage 60%: finalised architectural phase, finalised schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size, functional diagram of the heating system, preliminary selection of the capacity and location of newly designed gas boiler, preliminary selection of other accompanying heating equipment and basic calculation in electrical design

Stage 90%: finalised mechanical and electrical design, finalised elaborates: fire protection and health and safety

Final documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files. The documentation should be prepared in Macedonian.

1. **TIMETABLE**

Completed design documentation should be finalised within 90 (ninety) calendar days from the contract commencement date and submitted for design review to a licenced company selected by the Project Team of the project implementer. All eventual remarks submitted by the design reviewer to the designers must be addressed within 10 (ten) calendar days of reception, thus obtaining a positive design review within this period of time.

The services performance shall result at Designs for the execution of works respecting all requirements defined by this ToR. The design must comprise clearly defined solutions, without any variations, to ensure that a public call for contractors and the construction can proceed without difficulty.

The Design Company shall guarantee professional and technical competence of its staff/specialist and shall provide qualified design experts to complete the works in accordance with specifications as contained in this TOR. The Design Company shall ensure that the designs conform to the most recent national/or internationally adopted Standards and UNOPS’ technical framework for minimum requirements for heating system design. The Outputs shall be delivered in the timeframe accordingly to the timing indicated in this ToR and must be presented to the client and user representatives. Comments and notes from the representatives must be considered in the final version of the documentations. The Designs shall remain the intellectual property of UNOPS.

—----------------------------------------------------------------- LOT 2.4 - END --------------------------------------------------------------------

**LOT 3**

Gerontology “13 Noemvri” (Sue Ryder)

**TERMS OF REFERENCE**

**FOR PROVISION OF SERVICES FOR DEVELOPMENT OF BASIC DESIGN FOR IMPROVING THE HEATING SYSTEM IN GERONTOLOGY “13 NOEMVRI” - SKOPJE**

1. **BACKGROUND**

The EU for Clean Air Project, funded by the European Union (EU) through the Instrument for Pre-accession Assistance (IPA), is designed to contribute to improvement of air quality in North Macedonia and consequently decrease risks to human health. With the objective to contribute to the reduction of emissions of pollutants in four large urban centres in North Macedonia, the Project has an implementation period of 36 months, followed by the defects notification period (DNP) of up to 12 months. The United Nations Office for Project Services (UNOPS) is the implementing partner.

The Project is aligned with all national strategic and regulatory frameworks and will contribute to progress made towards meeting EU accession criteria, primarily under Chapter 27 (Environment) and to the achievement of the relevant United Nations (UN) Sustainable Development Goals.

A Project result pertinent to this particular intervention relates to improving heating systems through replacement of obsolete and inefficient boilers in public buildings in the cities of Skopje, Bitola, Kumanovo, and Tetovo. Under this specific ToR, UNOPS solicits provision of services for development of basic design for heating system improvement, to be performed under the applicable provisions of the Law on Construction.

1. **INTRODUCTION**

Gerontology “13 November” (Sue Ryder) is located in Skopje. The building is supplied with thermal energy from the boiler room which is located within the complex in a separate building by means of two boilers with a nominal capacity of 930kW each powered on EL fuel. The boilers are outdated but generally in functional condition. Within the boiler room other accompanying equipment is located as well: manifolds for supply and return water, circulating pumps, valves etc.

A standard two-pipe hot water distribution system is installed in the building. Cast iron radiators with radiator valves and return lock shields are installed in all heated rooms. The facility consumes a lot of domestic hot water for kitchen, laundry and bathroom needs.

The windows in the building have been partly replaced with PVC ones, except in administrative department. Building has no thermal insulation.

For the purpose of energy supply to the newly designed boilers an ongoing project takes place for CNG plant and installation. This energy project financed by the user is being simultaneously developed and will be in coordination with the basic design for improving the heating system that is subject to this ToR.

1. **OBJECTIVE OF THE ASSIGNMENT**

The objective of the assignment is preparation of a Basic Design for improving the heating system and replacement of existing inefficient heating equipment in Gerontology “13 Noemvri” (Sue Ryder) - Skopje in order to reduce air pollution and decrease risks to human health.

1. **SCOPE OF THE ASSIGNMENT**

The scope of the assignment is to engage the design company under the direct supervision of UNOPS EU for Clean Air for preparation of the design documentation for Gerontology “13 Noemvri” (Sue Ryder) - Skopje. For the purpose of this assignment, UNOPS provides a Technical Assessment Report on the current state of the heating system with all relevant data for the facility in Annex L3.

The company selected to develop the design should ensure it is done based on the:

* existing state and situation following valid design standards in the country
* ensuring that all legal and technical aspects required by national law, bylaws and regulations for this type of the building are respected
* applying best practices
* preventive measures in line with current international norms and standards are respected

The final designs for the execution of works should contain all details and calculations necessary for the execution of works, shop drawings, detailed BoQs and technical specifications for all groups of works as per national and UNOPS’ norms.

All designs must comply with the national legislation, the Law on Construction (“Закон за градење”) and Rulebook “Rulebook on the content of the project, information on the project designation, the method of certification of the project by the persons in charge and information on the use of electronic records” („Правилник за содржината на проектите, означувањето на проектот, начинот на заверка на проектот од страна на одговорните лица и начинот на користење на електронските записи”).

**4.1 Design company main responsibilities**

Design company’s main responsibilities:

1. Confirmation of preparation activities completed by the UNOPS Project Team in an Technical Assessment Report by visiting the facility and recording the actual state by determining relevant data for design development: current condition of the building, heating capacity based on the number of installed heating units - radiators in the facility, number and capacity of existing boilers, heating equipment installed in the boiler room, etc.
2. Provision of Basic Design Documentation for all necessary phases, complemented with necessary analyses, calculations, drawings and a bill of quantity (BOQ) with assessed cost calculation for improvement of the heating systems.
3. Provision of permits and approvals that are required for works described in the BoQ in basic design that is subject to this ToR (if any required)

**4.2 Contents of the Basic Design**

**А/ Legal documents**

1. Registration act issued by Central Registry
2. Business Registration Certificate (Тековна состојба)
3. Valid Authorization B for design of technical documentation as per national regulations for the company
4. Assignment of Chief Designer, Project phase Designers and associates for development of design documentation
5. Design scope of works-project task (Проектна задача)

**B/ Architectural Phase**

1. Technical description
2. Layouts of the facility with designated height synchronised with the current state of upgraded facade and windows. Notes: Architectural drawings are solely intended for the purpose of heat loss calculation and must contain data for partitions (walls, floors, roof, etc.) and windows. No details needed.
3. Layout of the boiler room including transversal and longitudinal sections
4. Site plan of the building based on updated geodetic survey

**C/ Mechanical Phase**

1. Technical description
2. Technical conditions
3. Heat loss calculation based on new design
4. Temperature regime calculation for existing heating units and installation based on new design

NOTE: In case of any other consumers of hot water connected to the heating system that is subject of this design, ex. tanks for sanitary hot water (SHW), air handling units or other, to be considered when calculating the total heat demand

1. Selection of thermostatic valves for public buildings with integrated automatic flow limitation to replace existing manual valves. Replacement of existing lock shields.
2. Selection of balancing valves on the raisers
3. Sizing the elements in the newly designed boiler room taking into consideration heat loss calculation, newly selected temperature regime and possible heat consumers mentioned on.pt.C/4:

* dismantling of the entire heating equipment from the existing boiler room up to the transition of the heating pipes out to the buildings (pumps, valves, fittings, measuring and regulating equipment, pipe installation including manifolds for supply and return water, expansion vessels, water softening system for preparation of water...) with removal and transport to the nearest licensed recycling company.
* control if existing boiler room fulfills technical and law norms to be used as gas boiler room in future
* if yes - replacement of existing boilers by new adequately selected ones, equipped with dual burners (gas/EL fuel) and connection to gas supply pipe from newly designed CNG plant/ existing EL fuel pipe
* if not - optimized technical solution by selection of adequate boilers for outdoor installation a) container type or b) modular gas boiler station in certified housing consisting of built-in gas boilers with their own pumps and other elements, hydraulic switch as a separate primary circuit and the possibility of automation temperature control of sufficient number of independent heating circuits depending on outdoor conditions. Existing boilers completed with the fuel supply installation, remain in the boiler room as a redundancy - back-up. NOTE: In case of need of independent automation temperature control system depending on outdoor conditions, the same should be foreseen in electrical phase design.
* new optimised functional diagram with the implementation of: frequency-regulated pumps, new valves, measuring instruments, balancing and control valves and other fittings, expansion vessels for an installed capacity up to 250kW i.e. systems for maintaining pressure in the system by pumps for larger capacities

1. Graphical enclosures - drawings: layout showing equipment position in the boiler room, complete view in the transverse and longitudinal section of the boiler room, detail on the facade wall / outdoor position where installation of the newly designed boiler is foreseen, raiser diagram (strang sema), and all other drawings necessary for works performance
2. Technical specification on selected equipment and elements
3. Bill of Quantity (BOQ)

**REMARKS 1**: The following positions should be envisaged within the project as well:

* Dismantling/cleaning/installation of heating elements - radiators
* Insulations of pipe segments passing through rooms/areas where heating is not envisaged
* Servicing of existing boilers and burners (together with existing automation control) to enable their future usage solely as back-up equipment (in cases of defects of the newly installed boilers or interruptions in gas supply, etc.)
* Appliance for water softening
* Pipe insulation in the boiler room and outdoor segments with aluminium sheet protection
* Examination of installations, regulation and balancing of the heating system with commissioning and preparation of technical documentation for newly designed conditions
* In case of existing system for SHW production, technical solution to be foreseen for its temporary function while works for improvement of the heating system are ongoing (out of heating season)

NOTE: Neither SHW equipment nor installation is subject to this design.

* Provision of permits and approvals for works described in the BoQ of basic design that is subject to this ToR (if any required)

*\* Energy supply - CNG plant and gas distribution lines to newly installed gas boilers are not part of this project. This part will be done separately by the end beneficiary*

**D/ Electrical Phase**

1. Technical description
2. Technical conditions
3. Electrical calculations based on the defined consumers within the boiler room and newly designed gas boiler
4. Graphical enclosures - drawings presenting equipment power supply
5. Bill of Quantity (BOQ)

**E/ Fire Protection Elaborate**

**F/ Elaborate for Health and Safety at Work**

**REMARKS 2**: The following positions should be envisaged within the project as well:

* The scope of electrical design covers installation and elements for purpose of proper functioning of newly designed boiler room: selection of new electrical distribution box for the boiler room, replacement of existing cables including electrical supply cable from main distribution box to the boiler room, electrical supply to the new gas boiler station and replacement of existing lights, switches and sockets in the boiler room.

NOTE: In case of need of independent automation temperature control system depending on outdoor conditions, the same should be foreseen in electrical phase design.

* Analogue addressable central unit for automatic fire protection alarm system of the boiler room including sensors, fire protection horn and other necessary elements
* Fire Protection Elaborate refers to spaces that are subject to the demands of this basic design - boiler room or boiler room / alternative boiler solution installed outdoors. The Elaborate ensures that all legal and technical aspects required by national law, bylaws and regulations for this type of the buildings are respected

1. **INPUTS PROVIDED BY UNOPS**

Upon conclusion of the contract UNOPS will give following inputs to the chosen service provider:

* Technical Assessment Report on the current state of the heating system with all relevant data for the facility
* Contact information for the final beneficiary

1. **DELIVERABLES**

The following will be considered as final documentation to be submitted by the design company, based on prior positive assessments received from the review conducted by UNOPS and the local review company:

1. design documentation based on which works could be executed
2. detailed BOQ necessary for launching a procurement procedure for selection of works contractor

The design documentation should be submitted in 4 (four) paper copies and 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD format. The entire documentation should be prepared in Macedonian. Only front page, technical specifications and BoQ are to be submitted in Macedonian/English language versions.

1. **DESIGN REVIEW**

The submitted design documentation will be subject to the following review:

a) Review of the project documentation by UNOPS - The documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files.

b) Review of the project documentation by a local licensed company, according to local regulations. Design review process will take place throughout basic design development in a staged approach where design teams progressively submit design documentation for review at 60% and 90% development.

Stage 60%: finalised architectural phase, finalised schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size, functional diagram of the heating system, preliminary selection of the capacity and location of newly designed gas boiler, preliminary selection of other accompanying heating equipment and basic calculation in electrical design

Stage 90%: finalised mechanical and electrical design, finalised elaborates: fire protection and health and safety

Final documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files. The documentation should be prepared in Macedonian.

1. **TIMETABLE**

Completed design documentation should be finalised within 90 (ninety) calendar days from the contract commencement date and submitted for design review to a licenced company selected by the Project Team of the project implementer. All eventual remarks submitted by the design reviewer to the designers must be addressed within 10 (ten) calendar days of reception, thus obtaining a positive design review within this period of time.

The services performance shall result at Designs for the execution of works respecting all requirements defined by this ToR. The design must comprise clearly defined solutions, without any variations, to ensure that a public call for contractors and the construction can proceed without difficulty.

The Design Company shall guarantee professional and technical competence of its staff/specialist and shall provide qualified design experts to complete the works in accordance with specifications as contained in this TOR. The Design Company shall ensure that the designs conform to the most recent national/or internationally adopted Standards and UNOPS’ technical framework for minimum requirements for heating system design. The Outputs shall be delivered in the timeframe accordingly to the timing indicated in this ToR and must be presented to the client and user representatives. Comments and notes from the representatives must be considered in the final version of the documentations. The Designs shall remain the intellectual property of UNOPS.

—----------------------------------------------------------------- LOT 3 - END --------------------------------------------------------------------

**LOT 4**

Psychiatric hospital “Skopje” (Bardovci)

**TERMS OF REFERENCE**

**FOR PROVISION OF SERVICES FOR DEVELOPMENT OF BASIC DESIGN FOR IMPROVING THE HEATING SYSTEM IN PSYCHRIATRIC HOSPITAL “SKOPJE”**

1. **BACKGROUND**

The EU for Clean Air Project, funded by the European Union (EU) through the Instrument for Pre-accession Assistance (IPA), is designed to contribute to improvement of air quality in North Macedonia and consequently decrease risks to human health. With the objective to contribute to the reduction of emissions of pollutants in four large urban centres in North Macedonia, the Project has an implementation period of 36 months, followed by the defects notification period (DNP) of up to 12 months. The United Nations Office for Project Services (UNOPS) is the implementing partner.

The Project is aligned with all national strategic and regulatory frameworks and will contribute to progress made towards meeting EU accession criteria, primarily under Chapter 27 (Environment) and to the achievement of the relevant United Nations (UN) Sustainable Development Goals.

A Project result pertinent to this particular intervention relates to improving heating systems through replacement of obsolete and inefficient boilers in public buildings in the cities of Skopje, Bitola, Kumanovo, and Tetovo. Under this specific ToR, UNOPS solicits provision of services for development of basic design for heating system improvement, to be performed under the applicable provisions of the Law on Construction.

1. **INTRODUCTION**

Psychiatric Hospital “Skopje” (Bardovci) is a complex of buildings laid on several hectares nearby Skopje. There are 20 buildings of different purposes distributed throughout the complex of which 14 of them are subject of this ToR.

Within the complex there is a boiler room equipped with two hot water boilers and one steam boiler. The steam one has a capacity of 2.360kW, while two hot water boilers have capacity of 700kW and 1000kW, all of them powered on EL fuel. The boilers are generally in good functional condition although the steam one is outdated and in very poor condition. Within the boiler room other accompanying equipment is located as well: manifolds for supply and return water, main circulating pumps, valves etc.

Distribution of heating media, hot water or steam, is by means of underground pipelines to the buildings. In each building, except for those that use steam, mini direct heating substations with a set of valves and a circulation pump were installed, which enabled balanced operation of the system on the primary side.

A standard two-pipe hot water distribution system is installed in the buildings. Cast iron radiators with radiator valves and return lock shields are installed in all heated rooms.

Buildings are more than 5 decades old, in poor condition without facade insulation and new windows. The hospital administration is implementing a gradual revitalization of the facilities in steps. Up to the moment of site visit four of the buildings were finished with insulated facade and new windows.

For the purpose of energy supply to the newly designed boilers an ongoing project takes place for CNG plant and installation. This energy project financed by the user is being simultaneously developed and will be in coordination with the basic design for improving the heating system that is subject to this ToR.

1. **OBJECTIVE OF THE ASSIGNMENT**

The objective of the assignment is preparation of a Basic Design for improving the heating system and replacement of existing inefficient heating equipment in Psychiatric hospital “Skopje” (Bardovci) - Skopje in order to reduce air pollution and decrease risks to human health.

1. **SCOPE OF THE ASSIGNMENT**

The scope of the assignment is to engage the design company under the direct supervision of UNOPS EU for Clean Air for preparation of the design documentation for Psychiatric hospital “Skopje” (Bardovci) - Skopje. For the purpose of this assignment, UNOPS provides a Technical Assessment Report on the current state of the heating system with all relevant data for the facility in Annex L4.

The company selected to develop the design should ensure it is done based on the:

* existing state and situation following valid design standards in the country
* ensuring that all legal and technical aspects required by national law, bylaws and regulations for this type of the building are respected
* applying best practices
* preventive measures in line with current international norms and standards are respected

The final designs for the execution of works should contain all details and calculations necessary for the execution of works, shop drawings, detailed BoQs and technical specifications for all groups of works as per national and UNOPS’ norms.

All designs must comply with the national legislation, the Law on Construction (“Закон за градење”) and Rulebook “Rulebook on the content of the project, information on the project designation, the method of certification of the project by the persons in charge and information on the use of electronic records” („Правилник за содржината на проектите, означувањето на проектот, начинот на заверка на проектот од страна на одговорните лица и начинот на користење на електронските записи”).

**4.1 Design company main responsibilities**

Design company’s main responsibilities:

1. Confirmation of preparation activities completed by the UNOPS Project Team in an Technical Assessment Report by visiting the facility and recording the actual state by determining relevant data for design development: current condition of the building, heating capacity based on the number of installed heating units - radiators in the facility, number and capacity of existing boilers, heating equipment installed in the boiler room, etc.
2. Provision of Basic Design Documentation for all necessary phases, complemented with necessary analyses, calculations, drawings and a bill of quantity (BOQ) with assessed cost calculation for improvement of the heating systems.
3. Provision of permits and approvals that are required for works described in the BoQ in basic design that is subject to this ToR (if any required)

**4.2 Contents of the Basic Design**

**А/ Legal documents**

1. Registration act issued by Central Registry
2. Business Registration Certificate (Тековна состојба)
3. Valid Authorization B for design of technical documentation as per national regulations for the company
4. Assignment of Chief Designer, Project phase Designers and associates for development of design documentation
5. Design scope of works-project task (Проектна задача)

**B/ Architectural Phase**

1. Technical description
2. Layouts of the buildings that have meanwhile been upgraded with energy efficient facades and new windows. Notes: Architectural drawings are solely intended for the purpose of heat loss calculation and must contain designated height of the rooms, data for partitions (walls, floors, roof, etc.) and windows. No details needed.
3. Layout of the boiler room including transversal and longitudinal sections
4. Site plan of the building based on updated geodetic survey

**C/ Mechanical Phase**

1. Technical description
2. Technical conditions
3. Heat loss calculation based on new design (for the buildings that have meanwhile been upgraded with energy efficient facades and new windows)
4. Creating schematic diagram-raiser diagram (STRANG sema) for non-energy efficient buildings with record on existing installed radiators with their capacity and pipes size.

NOTE: In case of any other consumers of hot water connected to the heating system that is subject of this design, ex. tanks for sanitary hot water (SHW), air handling units or other, to be considered when calculating the total heat demand

1. Selection of thermostatic valves for public buildings with integrated automatic flow limitation to replace existing manual valves. Replacement of existing lock shields.
2. Selection of balancing valves on the raisers
3. Sizing the elements in the newly designed boiler room taking into consideration heat loss calculation and possible heat consumers mentioned on.pt.C/4:

* dismantling of the entire heating equipment from the existing boiler room up to the transition of the heating pipes out to the buildings (pumps, valves, fittings, measuring and regulating equipment, pipe installation including manifolds for supply and return water, expansion vessels, water softening system for preparation of water...) with removal and transport to the nearest licensed recycling company
* control if existing boiler room fulfills technical and law norms to be used as gas boiler room in future
* if yes - replacement of existing boilers by new adequately selected ones, equipped with dual burners (gas/EL fuel) and connection to gas supply pipe from newly designed CNG plant/ existing EL fuel pipe
* if not or if enormous construction intervention needed - optimized technical solution by selection of adequate boilers for outdoor installation ex. container type of boiler station or similar. Existing boilers completed with the EL fuel supply installation, would remain in the boiler room as a redundancy - back-up
* selection of steam boiler considering the demands of steam for different purposes
* independent automation temperature control system depending on outdoor conditions should be foreseen in electrical phase design
* new optimised functional diagram with the implementation of: frequency-regulated pumps, new valves, measuring instruments, balancing and control valves and other fittings, expansion vessels for an installed capacity up to 250kW i.e. systems for maintaining pressure in the system by pumps for larger capacities

1. Graphical enclosures - drawings: layout showing equipment position in the boiler room, complete view in the transverse and longitudinal section of the boiler room, detail on the facade wall / outdoor position where installation of the newly designed boiler is foreseen, raiser diagram (strang sema), and all other drawings necessary for works performance
2. Technical specification on selected equipment and elements
3. Bill of Quantity (BOQ)

**REMARKS 1**: The following positions should be envisaged within the project as well:

* Dismantling/cleaning/installation of heating elements - radiators
* Insulations of pipe segments passing through rooms/areas where heating is not envisaged
* Servicing of existing boilers and burners (together with existing automation control) to enable their future usage solely as back-up equipment (in cases of defects of the newly installed boilers or interruptions in gas supply, etc.)
* Appliance for water softening
* Pipe insulation in the boiler room and outdoor segments with aluminium sheet protection
* Examination of installations, regulation and balancing of the heating system with commissioning and preparation of technical documentation for newly designed conditions
* Steam equipment and installation are not subject to this design. Temporary function for steam supply to be foreseen while works for improvement of the heating system are ongoing (out of heating season)
* In case of existing system for SHW production, technical solution to be foreseen for its temporary function while works for improvement of the heating system are ongoing (out of heating season)

NOTE: Neither SHW equipment nor installation is subject to this design.

* Provision of permits and approvals for works described in the BoQ of basic design that is subject to this ToR (if any required)

*\* Energy supply - CNG plant and gas distribution lines to newly installed gas boilers are not part of this project. This part will be done separately by the end beneficiary*

**D/ Electrical Phase**

1. Technical description
2. Technical conditions
3. Electrical calculations based on the defined consumers within the boiler room and newly designed gas boiler
4. Automation control system depending on outdoor conditions for best performance of the heating system both in regular (powered by gas) and emergency (powered by EL oil) mode
5. Graphical enclosures - drawings presenting electrical equipment and installation, and automation control system
6. Bill of Quantity (BOQ)

**E/ Fire Protection Elaborate**

**F/ Elaborate for Health and Safety at Work**

**REMARKS 2**: The following positions should be envisaged within the project as well:

* The scope of electrical design covers installation and elements for purpose of proper functioning of newly designed boiler room: selection of new electrical distribution box for the boiler room, replacement of existing cables including electrical supply cable from main distribution box to the boiler room, electrical supply to the new gas boiler station and replacement of existing lights, switches and sockets in the boiler room.

NOTE: In case of need of independent automation temperature control system depending on outdoor conditions, the same should be foreseen in electrical phase design.

* Analogue addressable central unit for automatic fire protection alarm system of the boiler room including sensors, fire protection horn and other necessary elements
* Fire Protection Elaborate refers to spaces that are subject to the demands of this basic design - boiler room or boiler room / alternative boiler solution installed outdoors. The Elaborate ensures that all legal and technical aspects required by national law, bylaws and regulations for this type of the buildings are respected

1. **INPUTS PROVIDED BY UNOPS**

Upon conclusion of the contract UNOPS will give following inputs to the chosen service provider:

* Technical Assessment Report on the current state of the heating system with all relevant data for the facility
* Contact information for the final beneficiary

1. **DELIVERABLES**

The following will be considered as final documentation to be submitted by the design company, based on prior positive assessments received from the review conducted by UNOPS and the local review company:

1. design documentation based on which works could be executed
2. detailed BOQ necessary for launching a procurement procedure for selection of works contractor

The design documentation should be submitted in 4 (four) paper copies and 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD format. The entire documentation should be prepared in Macedonian. Only front page, technical specifications and BoQ are to be submitted in Macedonian/English language versions.

1. **DESIGN REVIEW**

The submitted design documentation will be subject to the following review:

a) Review of the project documentation by UNOPS - The documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files.

b) Review of the project documentation by a local licensed company, according to local regulations. Design review process will take place throughout basic design development in a staged approach where design teams progressively submit design documentation for review at 60% and 90% development.

Stage 60%: finalised architectural phase, finalised schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size, functional diagram of the heating system, preliminary selection of the capacity and location of newly designed gas boiler, preliminary selection of other accompanying heating equipment and basic calculation in electrical design

Stage 90%: finalised mechanical and electrical design, finalised elaborates: fire protection and health and safety

Final documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files. The documentation should be prepared in Macedonian.

1. **TIMETABLE**

Completed design documentation should be finalised within 90 (ninety) calendar days from the contract commencement date and submitted for design review to a licenced company selected by the Project Team of the project implementer. All eventual remarks submitted by the design reviewer to the designers must be addressed within 10 (ten) calendar days of reception, thus obtaining a positive design review within this period of time.

The services performance shall result at Designs for the execution of works respecting all requirements defined by this ToR. The design must comprise clearly defined solutions, without any variations, to ensure that a public call for contractors and the construction can proceed without difficulty.

The Design Company shall guarantee professional and technical competence of its staff/specialist and shall provide qualified design experts to complete the works in accordance with specifications as contained in this TOR. The Design Company shall ensure that the designs conform to the most recent national/or internationally adopted Standards and UNOPS’ technical framework for minimum requirements for heating system design. The Outputs shall be delivered in the timeframe accordingly to the timing indicated in this ToR and must be presented to the client and user representatives. Comments and notes from the representatives must be considered in the final version of the documentations. The Designs shall remain the intellectual property of UNOPS.

—----------------------------------------------------------------- LOT 4 - END --------------------------------------------------------------------

**LOT 5**

1. Clinical Hospital Tetovo - Surgery Block

**TERMS OF REFERENCE**

**FOR PROVISION OF SERVICES FOR DEVELOPMENT OF BASIC DESIGN FOR IMPROVING THE HEATING SYSTEM IN CLINICAL HOSPITAL TETOVO**

**- SURGERY BLOCK -**

1. **BACKGROUND**

The EU for Clean Air Project, funded by the European Union (EU) through the Instrument for Pre-accession Assistance (IPA), is designed to contribute to improvement of air quality in North Macedonia and consequently decrease risks to human health. With the objective to contribute to the reduction of emissions of pollutants in four large urban centres in North Macedonia, the Project has an implementation period of 36 months, followed by the defects notification period (DNP) of up to 12 months. The United Nations Office for Project Services (UNOPS) is the implementing partner.

The Project is aligned with all national strategic and regulatory frameworks and will contribute to progress made towards meeting EU accession criteria, primarily under Chapter 27 (Environment) and to the achievement of the relevant United Nations (UN) Sustainable Development Goals.

A Project result pertinent to this particular intervention relates to improving heating systems through replacement of obsolete and inefficient boilers in public buildings in the cities of Skopje, Bitola, Kumanovo, and Tetovo. Under this specific ToR, UNOPS solicits provision of services for development of basic design for heating system improvement, to be performed under the applicable provisions of the Law on Construction.

1. **INTRODUCTION**

Surgery Block is located in Clinical Hospital Tetovo. The building is supplied with thermal energy from the boiler room which is located in the basement of the building by means of two boilers with a nominal capacity of 1050kW each powered on EL fuel. The boilers are outdated and generally in very poor condition. Within the boiler room other accompanying equipment is located as well: manifolds for supply and return water, circulating pumps, valves etc.

Domestic hot water boilers (3 x 2000 lit.) are placed in substation nearby to the boiler room connected to hot water network.

A standard two-pipe hot water distribution system is installed in the building. Cast iron radiators with radiator valves and return lock shields are installed in all heated rooms.

The windows in the building are old type, they are in bad condition, therefore significant infiltration occurs. Building has no thermal insulation.

For the purpose of energy supply to the newly designed boilers an ongoing project takes place for CNG plant and installation. It is integral at the level of the Tetovo Clinical Hospital and takes into account the energy needs for heating of all affected facilities that have been mapped by the EU for clean air project. This energy project financed by the user is being simultaneously developed and will be in coordination with the basic design for improving the heating system that is subject to this ToR.

1. **OBJECTIVE OF THE ASSIGNMENT**

The objective of the assignment is preparation of a Basic Design for improving the heating system and replacement of existing inefficient heating equipment in Clinical Hospital Tetovo - Surgery Block in order to reduce air pollution and decrease risks to human health.

1. **SCOPE OF THE ASSIGNMENT**

The scope of the assignment is to engage the design company under the direct supervision of UNOPS EU for Clean Air for preparation of the design documentation for Clinical Hospital Tetovo - Surgery Block. For the purpose of this assignment, UNOPS provides a Technical Assessment Report on the current state of the heating system with all relevant data for the facility in Annex L5.1.

The company selected to develop the design should ensure it is done based on the:

* existing state and situation following valid design standards in the country
* ensuring that all legal and technical aspects required by national law, bylaws and regulations for this type of the building are respected
* applying best practices
* preventive measures in line with current international norms and standards are respected

The final designs for the execution of works should contain all details and calculations necessary for the execution of works, shop drawings, detailed BoQs and technical specifications for all groups of works as per national and UNOPS’ norms.

All designs must comply with the national legislation, the Law on Construction (“Закон за градење”) and Rulebook “Rulebook on the content of the project, information on the project designation, the method of certification of the project by the persons in charge and information on the use of electronic records” („Правилник за содржината на проектите, означувањето на проектот, начинот на заверка на проектот од страна на одговорните лица и начинот на користење на електронските записи”).

**4.1 Design company main responsibilities**

Design company’s main responsibilities:

1. Confirmation of preparation activities completed by the UNOPS Project Team in an Technical Assessment Report by visiting the facility and recording the actual state by determining relevant data for design development: current condition of the building, heating capacity based on the number of installed heating units - radiators in the facility, number and capacity of existing boilers, heating equipment installed in the boiler room, etc.
2. Provision of Basic Design Documentation for all necessary phases, complemented with necessary analyses, calculations, drawings and a bill of quantity (BOQ) with assessed cost calculation for improvement of the heating systems.
3. Provision of permits and approvals that are required for works described in the BoQ in basic design that is subject to this ToR (if any required)

**4.2 Contents of the Basic Design**

**А/ Legal documents**

1. Registration act issued by Central Registry
2. Business Registration Certificate (Тековна состојба)
3. Valid Authorization B for design of technical documentation as per national regulations for the company
4. Assignment of Chief Designer, Project phase Designers and associates for development of design documentation
5. Design scope of works-project task (Проектна задача)

**B/ Architectural Phase**

1. Technical description
2. Layout of the boiler room including transversal and longitudinal sections. Detail on the facade wall / outdoor location foreseen for the new boiler(s) installation
3. Site plan of the building showing the location of newly designed outdoor boilers

**C/ Mechanical Phase**

1. Technical description
2. Technical conditions
3. Creating of schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size.

NOTE: In case of any other consumers of hot water connected to the heating system that is subject of this design, ex. tanks for sanitary hot water (SHW), air handling units or other, to be considered when calculating the total heat demand

1. Selection of thermostatic valves for public buildings with integrated automatic flow limitation to replace existing manual valves. Replacement of existing lock shields. Selected elements by quantity determined by record made on site to be expressed in the BoQ
2. Selection of balancing valves on the raisers by quantity determined by record made on site to be expressed in the BoQ
3. Sizing the elements in the newly designed boiler room taking into consideration notes described in pt. 4.1 and demands as follows:

* dismantling of the entire heating equipment from the existing boiler room up to the transition of the heating pipes to the building (pumps, valves, fittings, measuring and regulating equipment, pipe installation including manifolds for supply and return water, expansion vessels, water softening system for preparation of water...) with removal and transport to the nearest licensed recycling company. Existing boilers completed with the fuel supply installation, remain in the boiler room as a redundancy (back-up).
* optimized technical solution by selection of adequate boilers for outdoor installation a) container type or b) modular gas boiler station in certified housing consisting of built-in gas boilers with their own pumps and other elements, hydraulic switch as a separate primary circuit and the possibility of automation temperature control of sufficient number of independent heating circuits depending on outdoor conditions. Existing boilers completed with the fuel supply installation, remain in the boiler room as a redundancy - back-up. NOTE: In case of need of independent automation temperature control system depending on outdoor conditions, the same should be foreseen in electrical phase design.
* new optimised functional diagram with the implementation of: frequency-regulated pumps, new valves, measuring instruments, balancing and control valves and other fittings, expansion vessels for an installed capacity up to 250kW i.e. systems for maintaining pressure in the system by pumps for larger capacities

1. Graphical enclosures - drawings: layout showing equipment position in the boiler room, complete view in the transverse and longitudinal section of the boiler room, detail on the facade wall / outdoor position where installation of the newly designed boiler is foreseen, raiser diagram (strang sema), and all other drawings necessary for works performance
2. Technical specification on selected equipment and elements
3. Bill of Quantity (BOQ)

**REMARKS 1**: The following positions should be envisaged within the project as well:

* Dismantling/cleaning/installation of heating elements - radiators
* Insulations of pipe segments passing through rooms/areas where heating is not envisaged
* Servicing of existing boilers and burners (together with existing automation control) to enable their future usage solely as back-up equipment (in cases of defects of the newly installed boilers or interruptions in gas supply, etc.)
* Appliance for water softening
* Pipe insulation in the boiler room and outdoor segments with aluminium sheet protection
* Examination of installations, regulation and balancing of the heating system with commissioning and preparation of technical documentation for newly designed conditions
* In case of existing system for SHW production, technical solution to be foreseen for its temporary function while works for improvement of the heating system are ongoing (out of heating season)

NOTE: Neither SHW equipment nor installation is subject to this design

* Provision of permits and approvals for works described in the BoQ of basic design that is subject to this ToR (if any required)

*\* Energy supply - CNG plant and gas distribution lines to newly installed gas boilers are not part of this project. This part will be done separately by the end beneficiary*

**D/ Electrical Phase**

1. Technical description
2. Technical conditions
3. Electrical calculations based on the defined consumers within the boiler room and newly designed gas boiler
4. Graphical enclosures - drawings presenting equipment power supply
5. Bill of Quantity (BOQ)

**E/ Fire Protection Elaborate**

**F/ Elaborate for Health and Safety at Work**

**REMARKS 2**: The following positions should be envisaged within the project as well:

* The scope of electrical design covers installation and elements for purpose of proper functioning of newly designed boiler room: selection of new electrical distribution box for the boiler room, replacement of existing cables including electrical supply cable from main distribution box to the boiler room, electrical supply to the new gas boiler station and replacement of existing lights, switches and sockets in the boiler room.
* Analogue addressable central unit for automatic fire protection alarm system of the boiler room including sensors, fire protection horn and other necessary elements
* Fire Protection Elaborate refers to spaces that are subject to the demands of this basic design - boiler room or boiler room / alternative boiler solution installed outdoors. The Elaborate ensures that all legal and technical aspects required by national law, bylaws and regulations for this type of the buildings are respected

1. **INPUTS PROVIDED BY UNOPS**

Upon conclusion of the contract UNOPS will give following inputs to the chosen service provider:

* Technical Assessment Report on the current state of the heating system with all relevant data for the facility
* Contact information for the final beneficiary

1. **DELIVERABLES**

The following will be considered as final documentation to be submitted by the design company, based on prior positive assessments received from the review conducted by UNOPS and the local review company:

1. design documentation based on which works could be executed
2. detailed BOQ necessary for launching a procurement procedure for selection of works contractor

The design documentation should be submitted in 4 (four) paper copies and 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD format. The entire documentation should be prepared in Macedonian. Only front page, technical specifications and BoQ are to be submitted in Macedonian/English language versions.

1. **DESIGN REVIEW**

The submitted design documentation will be subject to the following review:

a) Review of the project documentation by UNOPS - The documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files.

b) Review of the project documentation by a local licensed company, according to local regulations. Design review process will take place throughout basic design development in a staged approach where design teams progressively submit design documentation for review at 60% and 90% development.

Stage 60%: finalised architectural phase, finalised schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size, functional diagram of the heating system, preliminary selection of the capacity and location of newly designed gas boiler, preliminary selection of other accompanying heating equipment and basic calculation in electrical design

Stage 90%: finalised mechanical and electrical design, finalised elaborates: fire protection and health and safety

Final documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files. The documentation should be prepared in Macedonian.

1. **TIMETABLE**

Completed design documentation should be finalised within 90 (ninety) calendar days from the contract commencement date and submitted for design review to a licenced company selected by the Project Team of the project implementer. All eventual remarks submitted by the design reviewer to the designers must be addressed within 10 (ten) calendar days of reception, thus obtaining a positive design review within this period of time.

The services performance shall result at Designs for the execution of works respecting all requirements defined by this ToR. The design must comprise clearly defined solutions, without any variations, to ensure that a public call for contractors and the construction can proceed without difficulty.

The Design Company shall guarantee professional and technical competence of its staff/specialist and shall provide qualified design experts to complete the works in accordance with specifications as contained in this TOR. The Design Company shall ensure that the designs conform to the most recent national/or internationally adopted Standards and UNOPS’ technical framework for minimum requirements for heating system design. The Outputs shall be delivered in the timeframe accordingly to the timing indicated in this ToR and must be presented to the client and user representatives. Comments and notes from the representatives must be considered in the final version of the documentations. The Designs shall remain the intellectual property of UNOPS.

—----------------------------------------------------------------- LOT 5.1 - END --------------------------------------------------------------------

**LOT 5**

2. Clinical Hospital Tetovo - Internal-Infectious Block

**TERMS OF REFERENCE**

**FOR PROVISION OF SERVICES FOR DEVELOPMENT OF BASIC DESIGN FOR IMPROVING THE HEATING SYSTEM IN CLINICAL HOSPITAL TETOVO**

**- INTERNAL-INFECTIOUS BLOCK -**

1. **BACKGROUND**

The EU for Clean Air Project, funded by the European Union (EU) through the Instrument for Pre-accession Assistance (IPA), is designed to contribute to improvement of air quality in North Macedonia and consequently decrease risks to human health. With the objective to contribute to the reduction of emissions of pollutants in four large urban centres in North Macedonia, the Project has an implementation period of 36 months, followed by the defects notification period (DNP) of up to 12 months. The United Nations Office for Project Services (UNOPS) is the implementing partner.

The Project is aligned with all national strategic and regulatory frameworks and will contribute to progress made towards meeting EU accession criteria, primarily under Chapter 27 (Environment) and to the achievement of the relevant United Nations (UN) Sustainable Development Goals.

A Project result pertinent to this particular intervention relates to improving heating systems through replacement of obsolete and inefficient boilers in public buildings in the cities of Skopje, Bitola, Kumanovo, and Tetovo. Under this specific ToR, UNOPS solicits provision of services for development of basic design for heating system improvement, to be performed under the applicable provisions of the Law on Construction.

1. **INTRODUCTION**

Internal-Infectious Block is located in Clinical Hospital Tetovo. The building is supplied with thermal energy from the boiler room which is located in the basement of the building by means of two boilers with a nominal capacity of 582kW and 814kW powered on EL fuel. The boilers are outdated and generally in very poor condition. Within the boiler room other accompanying equipment is located as well: manifolds for supply and return water, circulating pumps, valves etc. Domestic hot water boiler (1 x 2500 lit.) is placed in the boiler room, connected to hot water network.

From this boiler room two more buildings are supplied with hot water, Ambulance (Brza pomos) and Infectious clinic. Within the Ambulance (Brza pomos) there is a heat substation in very poor condition and yet in the Infectious clinic building direct system without a substation has been provided.

A standard two-pipe hot water distribution system is installed in the building. Cast iron radiators with radiator valves and return lock shields are installed in all heated rooms.

The windows in the building are old type, they are in bad condition, therefore significant infiltration occurs. Building has no thermal insulation.

For the purpose of energy supply to the newly designed boilers an ongoing project takes place for CNG plant and installation. It is integral at the level of the Tetovo Clinical Hospital and takes into account the energy needs for heating of all affected facilities that have been mapped by the EU for clean air project. This energy project financed by the user is being simultaneously developed and will be in coordination with the basic design for improving the heating system that is subject to this ToR.

1. **OBJECTIVE OF THE ASSIGNMENT**

The objective of the assignment is preparation of a Basic Design for improving the heating system and replacement of existing inefficient heating equipment in Clinical Hospital Tetovo - Internal-Infectious Block in order to reduce air pollution and decrease risks to human health.

1. **SCOPE OF THE ASSIGNMENT**

The scope of the assignment is to engage the design company under the direct supervision of UNOPS EU for Clean Air for preparation of the design documentation for Clinical Hospital Tetovo - Internal-Infectious Block. For the purpose of this assignment, UNOPS provides a Technical Assessment Report on the current state of the heating system with all relevant data for the facility in Annex L5.2.

The company selected to develop the design should ensure it is done based on the:

* existing state and situation following valid design standards in the country
* ensuring that all legal and technical aspects required by national law, bylaws and regulations for this type of the building are respected
* applying best practices
* preventive measures in line with current international norms and standards are respected

The final designs for the execution of works should contain all details and calculations necessary for the execution of works, shop drawings, detailed BoQs and technical specifications for all groups of works as per national and UNOPS’ norms.

All designs must comply with the national legislation, the Law on Construction (“Закон за градење”) and Rulebook “Rulebook on the content of the project, information on the project designation, the method of certification of the project by the persons in charge and information on the use of electronic records” („Правилник за содржината на проектите, означувањето на проектот, начинот на заверка на проектот од страна на одговорните лица и начинот на користење на електронските записи”).

**4.1 Design company main responsibilities**

Design company’s main responsibilities:

1. Confirmation of preparation activities completed by the UNOPS Project Team in an Technical Assessment Report by visiting the facility and recording the actual state by determining relevant data for design development: current condition of the building, heating capacity based on the number of installed heating units - radiators in the facility, number and capacity of existing boilers, heating equipment installed in the boiler room, etc.
2. Provision of Basic Design Documentation for all necessary phases, complemented with necessary analyses, calculations, drawings and a bill of quantity (BOQ) with assessed cost calculation for improvement of the heating systems.
3. Provision of permits and approvals that are required for works described in the BoQ in basic design that is subject to this ToR (if any required)

**4.2 Contents of the Basic Design**

**А/ Legal documents**

1. Registration act issued by Central Registry
2. Business Registration Certificate (Тековна состојба)
3. Valid Authorization B for design of technical documentation as per national regulations for the company
4. Assignment of Chief Designer, Project phase Designers and associates for development of design documentation
5. Design scope of works-project task (Проектна задача)

**B/ Architectural Phase**

1. Technical description
2. Layout of the boiler room including transversal and longitudinal sections. Detail on the facade wall / outdoor location foreseen for the new boiler(s) installation
3. Site plan of the building showing the location of newly designed outdoor boilers

**C/ Mechanical Phase**

1. Technical description
2. Technical conditions
3. Creating of schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size.

NOTE: In case of any other consumers of hot water connected to the heating system that is subject of this design, ex. tanks for sanitary hot water (SHW), air handling units or other, to be considered when calculating the total heat demand

1. Selection of thermostatic valves for public buildings with integrated automatic flow limitation to replace existing manual valves. Replacement of existing lock shields. Selected elements by quantity determined by record made on site to be expressed in the BoQ
2. Selection of balancing valves on the raisers by quantity determined by record made on site to be expressed in the BoQ
3. Sizing the elements in the newly designed boiler room taking into consideration notes described in pt. 4.1 and demands as follows:

* dismantling of the entire heating equipment from the existing boiler room up to the transition of the heating pipes to the building (pumps, valves, fittings, measuring and regulating equipment, pipe installation including manifolds for supply and return water, expansion vessels, water softening system for preparation of water...) with removal and transport to the nearest licensed recycling company. Existing boilers completed with the fuel supply installation, remain in the boiler room as a redundancy (back-up).
* optimized technical solution by selection of adequate boilers for outdoor installation a) container type or b) modular gas boiler station in certified housing consisting of built-in gas boilers with their own pumps and other elements, hydraulic switch as a separate primary circuit and the possibility of automation temperature control of sufficient number of independent heating circuits depending on outdoor conditions. Existing boilers completed with the fuel supply installation, remain in the boiler room as a redundancy - back-up. NOTE: In case of need of independent automation temperature control system depending on outdoor conditions, the same should be foreseen in electrical phase design.
* new optimised functional diagram with the implementation of: frequency-regulated pumps, new valves, measuring instruments, balancing and control valves and other fittings, expansion vessels for an installed capacity up to 250kW i.e. systems for maintaining pressure in the system by pumps for larger capacities

1. Graphical enclosures - drawings: layout showing equipment position in the boiler room, complete view in the transverse and longitudinal section of the boiler room, detail on the facade wall / outdoor position where installation of the newly designed boiler is foreseen, raiser diagram (strang sema), and all other drawings necessary for works performance
2. Technical specification on selected equipment and elements
3. Bill of Quantity (BOQ)

**REMARKS 1**: The following positions should be envisaged within the project as well:

* Dismantling/cleaning/installation of heating elements - radiators
* Insulations of pipe segments passing through rooms/areas where heating is not envisaged
* Servicing of existing boilers and burners (together with existing automation control) to enable their future usage solely as back-up equipment (in cases of defects of the newly installed boilers or interruptions in gas supply, etc.)
* Appliance for water softening
* Pipe insulation in the boiler room and outdoor segments with aluminium sheet protection
* Examination of installations, regulation and balancing of the heating system with commissioning and preparation of technical documentation for newly designed conditions
* In case of existing system for SHW production, technical solution to be foreseen for its temporary function while works for improvement of the heating system are ongoing (out of heating season)

NOTE: Neither SHW equipment nor installation is subject to this design

* Provision of permits and approvals for works described in the BoQ of basic design that is subject to this ToR (if any required)

*\* Energy supply - CNG plant and gas distribution lines to newly installed gas boilers are not part of this project. This part will be done separately by the end beneficiary*

**D/ Electrical Phase**

1. Technical description
2. Technical conditions
3. Electrical calculations based on the defined consumers within the boiler room and newly designed gas boiler
4. Graphical enclosures - drawings presenting equipment power supply
5. Bill of Quantity (BOQ)

**E/ Fire Protection Elaborate**

**F/ Elaborate for Health and Safety at Work**

**REMARKS 2**: The following positions should be envisaged within the project as well:

* The scope of electrical design covers installation and elements for purpose of proper functioning of newly designed boiler room: selection of new electrical distribution box for the boiler room, replacement of existing cables including electrical supply cable from main distribution box to the boiler room, electrical supply to the new gas boiler station and replacement of existing lights, switches and sockets in the boiler room.
* Analogue addressable central unit for automatic fire protection alarm system of the boiler room including sensors, fire protection horn and other necessary elements
* Fire Protection Elaborate refers to spaces that are subject to the demands of this basic design - boiler room or boiler room / alternative boiler solution installed outdoors. The Elaborate ensures that all legal and technical aspects required by national law, bylaws and regulations for this type of the buildings are respected

1. **INPUTS PROVIDED BY UNOPS**

Upon conclusion of the contract UNOPS will give following inputs to the chosen service provider:

* Technical Assessment Report on the current state of the heating system with all relevant data for the facility
* Contact information for the final beneficiary

1. **DELIVERABLES**

The following will be considered as final documentation to be submitted by the design company, based on prior positive assessments received from the review conducted by UNOPS and the local review company:

1. design documentation based on which works could be executed
2. detailed BOQ necessary for launching a procurement procedure for selection of works contractor

The design documentation should be submitted in 4 (four) paper copies and 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD format. The entire documentation should be prepared in Macedonian. Only front page, technical specifications and BoQ are to be submitted in Macedonian/English language versions.

1. **DESIGN REVIEW**

The submitted design documentation will be subject to the following review:

a) Review of the project documentation by UNOPS - The documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files.

b) Review of the project documentation by a local licensed company, according to local regulations. Design review process will take place throughout basic design development in a staged approach where design teams progressively submit design documentation for review at 60% and 90% development.

Stage 60%: finalised architectural phase, finalised schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size, functional diagram of the heating system, preliminary selection of the capacity and location of newly designed gas boiler, preliminary selection of other accompanying heating equipment and basic calculation in electrical design

Stage 90%: finalised mechanical and electrical design, finalised elaborates: fire protection and health and safety

Final documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files. The documentation should be prepared in Macedonian.

1. **TIMETABLE**

Completed design documentation should be finalised within 90 (ninety) calendar days from the contract commencement date and submitted for design review to a licenced company selected by the Project Team of the project implementer. All eventual remarks submitted by the design reviewer to the designers must be addressed within 10 (ten) calendar days of reception, thus obtaining a positive design review within this period of time.

The services performance shall result at Designs for the execution of works respecting all requirements defined by this ToR. The design must comprise clearly defined solutions, without any variations, to ensure that a public call for contractors and the construction can proceed without difficulty.

The Design Company shall guarantee professional and technical competence of its staff/specialist and shall provide qualified design experts to complete the works in accordance with specifications as contained in this TOR. The Design Company shall ensure that the designs conform to the most recent national/or internationally adopted Standards and UNOPS’ technical framework for minimum requirements for heating system design. The Outputs shall be delivered in the timeframe accordingly to the timing indicated in this ToR and must be presented to the client and user representatives. Comments and notes from the representatives must be considered in the final version of the documentations. The Designs shall remain the intellectual property of UNOPS.

—----------------------------------------------------------------- LOT 5.2 - END --------------------------------------------------------------------

**LOT 5**

3. Clinical Hospital Tetovo - Public Health (CJZ)

**TERMS OF REFERENCE**

**FOR PROVISION OF SERVICES FOR DEVELOPMENT OF BASIC DESIGN FOR IMPROVING THE HEATING SYSTEM IN CLINICAL HOSPITAL TETOVO**

**- PUBLIC HEALTH (CJZ) -**

1. **BACKGROUND**

The EU for Clean Air Project, funded by the European Union (EU) through the Instrument for Pre-accession Assistance (IPA), is designed to contribute to improvement of air quality in North Macedonia and consequently decrease risks to human health. With the objective to contribute to the reduction of emissions of pollutants in four large urban centres in North Macedonia, the Project has an implementation period of 36 months, followed by the defects notification period (DNP) of up to 12 months. The United Nations Office for Project Services (UNOPS) is the implementing partner.

The Project is aligned with all national strategic and regulatory frameworks and will contribute to progress made towards meeting EU accession criteria, primarily under Chapter 27 (Environment) and to the achievement of the relevant United Nations (UN) Sustainable Development Goals.

A Project result pertinent to this particular intervention relates to improving heating systems through replacement of obsolete and inefficient boilers in public buildings in the cities of Skopje, Bitola, Kumanovo, and Tetovo. Under this specific ToR, UNOPS solicits provision of services for development of basic design for heating system improvement, to be performed under the applicable provisions of the Law on Construction.

1. **INTRODUCTION**

Public Health - Centar za javno zdravje is located just across Clinical Hospital Tetovo. The building is supplied with thermal energy from the boiler room which is located in the basement of the building by means of two boilers with a nominal capacity of 232kW and the other one with unknown capacity, both powered on EL fuel. The boilers are outdated and generally in very poor condition. Within the boiler room other accompanying equipment is located as well: manifolds for supply and return water, circulating pumps, valves etc.

A standard two-pipe hot water distribution system is installed in the building. Aluminum radiators with radiator valves and return lock shields are installed in all heated rooms.

The windows in the building are old type, they are in bad condition, therefore significant infiltration occurs. Building has no thermal insulation.

For the purpose of energy supply to the newly designed boilers an ongoing project takes place for CNG plant and installation. It is integral at the level of the Tetovo Clinical Hospital and takes into account the energy needs for heating of all affected facilities that have been mapped by the EU for clean air project. This energy project financed by the user is being simultaneously developed and will be in coordination with the basic design for improving the heating system that is subject to this ToR.

1. **OBJECTIVE OF THE ASSIGNMENT**

The objective of the assignment is preparation of a Basic Design for improving the heating system and replacement of existing inefficient heating equipment in Clinical Hospital Tetovo - Public Health (CJZ) in order to reduce air pollution and decrease risks to human health.

1. **SCOPE OF THE ASSIGNMENT**

The scope of the assignment is to engage the design company under the direct supervision of UNOPS EU for Clean Air for preparation of the design documentation for Clinical Hospital Tetovo - Public Health (CJZ). For the purpose of this assignment, UNOPS provides a Technical Assessment Report on the current state of the heating system with all relevant data for the facility in Annex L5.3.

The company selected to develop the design should ensure it is done based on the:

* existing state and situation following valid design standards in the country
* ensuring that all legal and technical aspects required by national law, bylaws and regulations for this type of the building are respected
* applying best practices
* preventive measures in line with current international norms and standards are respected

The final designs for the execution of works should contain all details and calculations necessary for the execution of works, shop drawings, detailed BoQs and technical specifications for all groups of works as per national and UNOPS’ norms.

All designs must comply with the national legislation, the Law on Construction (“Закон за градење”) and Rulebook “Rulebook on the content of the project, information on the project designation, the method of certification of the project by the persons in charge and information on the use of electronic records” („Правилник за содржината на проектите, означувањето на проектот, начинот на заверка на проектот од страна на одговорните лица и начинот на користење на електронските записи”).

**4.1 Design company main responsibilities**

Design company’s main responsibilities:

1. Confirmation of preparation activities completed by the UNOPS Project Team in an Technical Assessment Report by visiting the facility and recording the actual state by determining relevant data for design development: current condition of the building, heating capacity based on the number of installed heating units - radiators in the facility, number and capacity of existing boilers, heating equipment installed in the boiler room, etc.
2. Provision of Basic Design Documentation for all necessary phases, complemented with necessary analyses, calculations, drawings and a bill of quantity (BOQ) with assessed cost calculation for improvement of the heating systems.
3. Provision of permits and approvals that are required for works described in the BoQ in basic design that is subject to this ToR (if any required)

**4.2 Contents of the Basic Design**

**А/ Legal documents**

1. Registration act issued by Central Registry
2. Business Registration Certificate (Тековна состојба)
3. Valid Authorization B for design of technical documentation as per national regulations for the company
4. Assignment of Chief Designer, Project phase Designers and associates for development of design documentation
5. Design scope of works-project task (Проектна задача)

**B/ Architectural Phase**

1. Technical description
2. Layout of the boiler room including transversal and longitudinal sections. Detail on the facade wall / outdoor location foreseen for the new boiler(s) installation
3. Site plan of the building showing the location of newly designed outdoor boilers

**C/ Mechanical Phase**

1. Technical description
2. Technical conditions
3. Creating of schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size.

NOTE: In case of any other consumers of hot water connected to the heating system that is subject of this design, ex. tanks for sanitary hot water (SHW), air handling units or other, to be considered when calculating the total heat demand

1. Selection of thermostatic valves for public buildings with integrated automatic flow limitation to replace existing manual valves. Replacement of existing lock shields. Selected elements by quantity determined by record made on site, to be expressed in the BoQ
2. Selection of balancing valves on the raisers by quantity determined by record made on site, to be expressed in the BoQ
3. Sizing the elements in the newly designed boiler room taking into consideration notes described in pt. 4.1 and demands as follows:

* dismantling of the entire heating equipment from the existing boiler room up to the transition of the heating pipes to the building (pumps, valves, fittings, measuring and regulating equipment, pipe installation including manifolds for supply and return water, expansion vessels, water softening system for preparation of water...) with removal and transport to the nearest licensed recycling company. Existing boilers completed with the fuel supply installation, remain in the boiler room as a redundancy (back-up).
* selection of modular gas boiler station in certified housing for outdoor installation consisting of built-in gas boilers with their own pumps and other elements, hydraulic switch as a separate primary circuit and the possibility of automation temperature control of sufficient number of independent heating circuits depending on outdoor conditions
* new optimised functional diagram with the implementation of: frequency-regulated pumps, new valves, measuring instruments, balancing and control valves and other fittings, expansion vessels for an installed capacity up to 250kW i.e. systems for maintaining pressure in the system by pumps for larger capacities

1. Graphical enclosures - drawings: layout showing equipment position in the boiler room, complete view in the transverse and longitudinal section of the boiler room, detail on the facade wall / outdoor position where installation of the newly designed boiler is foreseen, raiser diagram (strang sema), and all other drawings necessary for works performance
2. Technical specification on selected equipment and elements
3. Bill of Quantity (BOQ)

**REMARKS 1**: The following positions should be envisaged within the project as well:

* Dismantling/cleaning/installation of heating elements - radiators
* Insulations of pipe segments passing through rooms/areas where heating is not envisaged
* Servicing of existing boilers and burners (together with existing automation control) to enable their future usage solely as back-up equipment (in cases of defects of the newly installed boilers or interruptions in gas supply, etc.)
* Appliance for water softening
* Pipe insulation in the boiler room and outdoor segments with aluminium sheet protection
* Examination of installations, regulation and balancing of the heating system with commissioning and preparation of technical documentation for newly designed conditions
* In case of existing system for SHW production, technical solution to be foreseen for its temporary function while works for improvement of the heating system are ongoing (out of heating season)

NOTE: Neither SHW equipment nor installation is subject to this design.

* Provision of permits and approvals for works described in the BoQ of basic design that is subject to this ToR (if any required)

*\* Energy supply - CNG plant and gas distribution lines to newly installed gas boilers are not part of this project. This part will be done separately by the end beneficiary*

**D/ Electrical Phase**

1. Technical description
2. Technical conditions
3. Electrical calculations based on the defined consumers within the boiler room and newly designed gas boiler
4. Graphical enclosures - drawings presenting equipment power supply
5. Bill of Quantity (BOQ)

**E/ Fire Protection Elaborate**

**F/ Elaborate for Health and Safety at Work**

**REMARKS 2**: The following positions should be envisaged within the project as well:

* The scope of electrical design covers installation and elements for purpose of proper functioning of newly designed boiler room: selection of new electrical distribution box for the boiler room, replacement of existing cables including electrical supply cable from main distribution box to the boiler room, electrical supply to the new gas boiler station and replacement of existing lights, switches and sockets in the boiler room.
* Analogue addressable central unit for automatic fire protection alarm system of the boiler room including sensors, fire protection horn and other necessary elements
* Fire Protection Elaborate refers to spaces that are subject to the demands of this basic design within the building - boiler room and modular gas boiler station installed outdoors. The Elaborate ensures that all legal and technical aspects required by national law, bylaws and regulations for this type of the buildings are respected

1. **INPUTS PROVIDED BY UNOPS**

Upon conclusion of the contract UNOPS will give following inputs to the chosen service provider:

* Technical Assessment Report on the current state of the heating system with all relevant data for the facility
* Contact information for the final beneficiary

1. **DELIVERABLES**

The following will be considered as final documentation to be submitted by the design company, based on prior positive assessments received from the review conducted by UNOPS and the local review company:

1. design documentation based on which works could be executed
2. detailed BOQ necessary for launching a procurement procedure for selection of works contractor

The design documentation should be submitted in 4 (four) paper copies and 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD format. The entire documentation should be prepared in Macedonian. Only front page, technical specifications and BoQ are to be submitted in Macedonian/English language versions.

1. **DESIGN REVIEW**

The submitted design documentation will be subject to the following review:

a) Review of the project documentation by UNOPS - The documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files.

b) Review of the project documentation by a local licensed company, according to local regulations. Design review process will take place throughout basic design development in a staged approach where design teams progressively submit design documentation for review at 60% and 90% development.

Stage 60%: finalised architectural phase, finalised schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size, functional diagram of the heating system, preliminary selection of the capacity and location of newly designed gas boiler, preliminary selection of other accompanying heating equipment and basic calculation in electrical design

Stage 90%: finalised mechanical and electrical design, finalised elaborates: fire protection and health and safety

Final documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files. The documentation should be prepared in Macedonian.

1. **TIMETABLE**

Completed design documentation should be finalised within 90 (ninety) calendar days from the contract commencement date and submitted for design review to a licenced company selected by the Project Team of the project implementer. All eventual remarks submitted by the design reviewer to the designers must be addressed within 10 (ten) calendar days of reception, thus obtaining a positive design review within this period of time.

The services performance shall result at Designs for the execution of works respecting all requirements defined by this ToR. The design must comprise clearly defined solutions, without any variations, to ensure that a public call for contractors and the construction can proceed without difficulty.

The Design Company shall guarantee professional and technical competence of its staff/specialist and shall provide qualified design experts to complete the works in accordance with specifications as contained in this TOR. The Design Company shall ensure that the designs conform to the most recent national/or internationally adopted Standards and UNOPS’ technical framework for minimum requirements for heating system design. The Outputs shall be delivered in the timeframe accordingly to the timing indicated in this ToR and must be presented to the client and user representatives. Comments and notes from the representatives must be considered in the final version of the documentations. The Designs shall remain the intellectual property of UNOPS.

—----------------------------------------------------------------- LOT 5.3 - END --------------------------------------------------------------------

**LOT 5**

4. Clinical Hospital Tetovo - Emergency Block (URGENT)

**TERMS OF REFERENCE**

**FOR PROVISION OF SERVICES FOR DEVELOPMENT OF BASIC DESIGN FOR IMPROVING THE HEATING SYSTEM IN CLINICAL HOSPITAL TETOVO**

**- EMERGENCY BLOCK (URGENT) -**

1. **BACKGROUND**

The EU for Clean Air Project, funded by the European Union (EU) through the Instrument for Pre-accession Assistance (IPA), is designed to contribute to improvement of air quality in North Macedonia and consequently decrease risks to human health. With the objective to contribute to the reduction of emissions of pollutants in four large urban centres in North Macedonia, the Project has an implementation period of 36 months, followed by the defects notification period (DNP) of up to 12 months. The United Nations Office for Project Services (UNOPS) is the implementing partner.

The Project is aligned with all national strategic and regulatory frameworks and will contribute to progress made towards meeting EU accession criteria, primarily under Chapter 27 (Environment) and to the achievement of the relevant United Nations (UN) Sustainable Development Goals.

A Project result pertinent to this particular intervention relates to improving heating systems through replacement of obsolete and inefficient boilers in public buildings in the cities of Skopje, Bitola, Kumanovo, and Tetovo. Under this specific ToR, UNOPS solicits provision of services for development of basic design for heating system improvement, to be performed under the applicable provisions of the Law on Construction.

1. **INTRODUCTION**

Emergency Block is located in Clinical Hospital Tetovo. This block is relatively new, opened in 2014 with contemporary heating and cooling system. The building is supplied with thermal energy from the boiler room which is located in the basement of the building by means of two boilers with a nominal capacity of 930kW each powered on EL fuel. The boilers are pretty new and generally in good functional condition. Within the boiler room other accompanying equipment is located as well: manifolds for supply and return water, circulating pumps, valves etc.

Domestic hot water boilers (2 x 2000 lit.) are placed in the boiler room, connected to hot water network.

A standard two-pipe hot water distribution system is installed in the building. Cast iron radiators with radiator valves and return lock shields are installed in all heated rooms.

The windows at the hospital are made of PVC and building is thermally insulated.

For the purpose of energy supply to the newly designed boilers an ongoing project takes place for CNG plant and installation. It is integral at the level of the Tetovo Clinical Hospital and takes into account the energy needs for heating of all affected facilities that have been mapped by the EU for clean air project. This energy project financed by the user is being simultaneously developed and will be in coordination with the basic design for improving the heating system that is subject to this ToR.

1. **OBJECTIVE OF THE ASSIGNMENT**

The objective of the assignment is preparation of a Basic Design for improving the heating system and replacement of existing inefficient heating equipment in Clinical Hospital Tetovo - Emergency Block (Urgent) in order to reduce air pollution and decrease risks to human health.

1. **SCOPE OF THE ASSIGNMENT**

The scope of the assignment is to engage the design company under the direct supervision of UNOPS EU for Clean Air for preparation of the design documentation for Clinical Hospital Tetovo - Emergency Block (Urgent). For the purpose of this assignment, UNOPS provides a Technical Assessment Report on the current state of the heating system with all relevant data for the facility in Annex L5.4.

The company selected to develop the design should ensure it is done based on the:

* existing state and situation following valid design standards in the country
* ensuring that all legal and technical aspects required by national law, bylaws and regulations for this type of the building are respected
* applying best practices
* preventive measures in line with current international norms and standards are respected

The final designs for the execution of works should contain all details and calculations necessary for the execution of works, shop drawings, detailed BoQs and technical specifications for all groups of works as per national and UNOPS’ norms.

All designs must comply with the national legislation, the Law on Construction (“Закон за градење”) and Rulebook “Rulebook on the content of the project, information on the project designation, the method of certification of the project by the persons in charge and information on the use of electronic records” („Правилник за содржината на проектите, означувањето на проектот, начинот на заверка на проектот од страна на одговорните лица и начинот на користење на електронските записи”).

**4.1 Design company main responsibilities**

Design company’s main responsibilities:

1. Confirmation of preparation activities completed by the UNOPS Project Team in an Technical Assessment Report by visiting the facility and recording the actual state by determining relevant data for design development: current condition of the building, heating capacity based on the number of installed heating units - radiators in the facility, number and capacity of existing boilers, heating equipment installed in the boiler room, etc.
2. Provision of Basic Design Documentation for all necessary phases, complemented with necessary analyses, calculations, drawings and a bill of quantity (BOQ) with assessed cost calculation for improvement of the heating systems.
3. Provision of permits and approvals that are required for works described in the BoQ in basic design that is subject to this ToR (if any required)

**4.2 Contents of the Basic Design**

**А/ Legal documents**

1. Registration act issued by Central Registry
2. Business Registration Certificate (Тековна состојба)
3. Valid Authorization B for design of technical documentation as per national regulations for the company
4. Assignment of Chief Designer, Project phase Designers and associates for development of design documentation
5. Design scope of works-project task (Проектна задача)

**B/ Architectural Phase**

1. Technical description
2. Layout of the boiler room including transversal and longitudinal sections. Detail on the facade wall / outdoor location foreseen for the new boiler(s) installation
3. Site plan of the building showing the location of newly designed outdoor boilers

**C/ Mechanical Phase**

1. Technical description
2. Technical conditions
3. Creating of schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size.

NOTE: In case of any other consumers of hot water connected to the heating system that is subject of this design, ex. tanks for sanitary hot water (SHW), air handling units or other, to be considered when calculating the total heat demand

1. Selection of thermostatic valves for public buildings with integrated automatic flow limitation to replace existing manual valves. Replacement of existing lock shields. Selected elements by quantity determined by record made on site to be expressed in the BoQ
2. Selection of balancing valves on the raisers by quantity determined by record made on site to be expressed in the BoQ
3. Sizing the elements in the newly designed boiler room taking into consideration notes described in pt. 4.1 and demands as follows:

* dismantling of the entire heating equipment from the existing boiler room up to the transition of the heating pipes to the building (pumps, valves, fittings, measuring and regulating equipment, pipe installation including manifolds for supply and return water, expansion vessels, water softening system for preparation of water...) with removal and transport to the nearest licensed recycling company. Existing boilers completed with the fuel supply installation, remain in the boiler room as a redundancy (back-up).
* optimized technical solution by selection of adequate boilers for outdoor installation a) container type or b) modular gas boiler station in certified housing consisting of built-in gas boilers with their own pumps and other elements, hydraulic switch as a separate primary circuit and the possibility of automation temperature control of sufficient number of independent heating circuits depending on outdoor conditions. Existing boilers completed with the fuel supply installation, remain in the boiler room as a redundancy - back-up. NOTE: In case of need of independent automation temperature control system depending on outdoor conditions, the same should be foreseen in electrical phase design.
* new optimised functional diagram with the implementation of: frequency-regulated pumps, new valves, measuring instruments, balancing and control valves and other fittings, expansion vessels for an installed capacity up to 250kW i.e. systems for maintaining pressure in the system by pumps for larger capacities. Designer should pay attention that newly designed heating system not to be in collision to existing cooling system

1. Graphical enclosures - drawings: layout showing equipment position in the boiler room, complete view in the transverse and longitudinal section of the boiler room, detail on the facade wall / outdoor position where installation of the newly designed boiler is foreseen, raiser diagram (strang sema), and all other drawings necessary for works performance
2. Technical specification on selected equipment and elements
3. Bill of Quantity (BOQ)

**REMARKS 1**: The following positions should be envisaged within the project as well:

* Dismantling/cleaning/installation of heating elements - radiators
* Insulations of pipe segments passing through rooms/areas where heating is not envisaged
* Servicing of existing boilers and burners (together with existing automation control) to enable their future usage solely as back-up equipment (in cases of defects of the newly installed boilers or interruptions in gas supply, etc.)
* Appliance for water softening
* Pipe insulation in the boiler room and outdoor segments with aluminium sheet protection
* Examination of installations, regulation and balancing of the heating system with commissioning and preparation of technical documentation for newly designed conditions
* In case of existing system for SHW production, technical solution to be foreseen for its temporary function while works for improvement of the heating system are ongoing (out of heating season)

NOTE: Neither SHW equipment nor installation is subject to this design

* Provision of permits and approvals for works described in the BoQ of basic design that is subject to this ToR (if any required)

*\* Energy supply - CNG plant and gas distribution lines to newly installed gas boilers are not part of this project. This part will be done separately by the end beneficiary*

**D/ Electrical Phase**

1. Technical description
2. Technical conditions
3. Electrical calculations based on the defined consumers within the boiler room and newly designed gas boiler
4. Graphical enclosures - drawings presenting equipment power supply
5. Bill of Quantity (BOQ)

**E/ Fire Protection Elaborate**

**F/ Elaborate for Health and Safety at Work**

**REMARKS 2**: The following positions should be envisaged within the project as well:

* The scope of electrical design covers installation and elements for purpose of proper functioning of newly designed boiler room: selection of new electrical distribution box for the boiler room, replacement of existing cables including electrical supply cable from main distribution box to the boiler room, electrical supply to the new gas boiler station and replacement of existing lights, switches and sockets in the boiler room.
* Analogue addressable central unit for automatic fire protection alarm system of the boiler room including sensors, fire protection horn and other necessary elements
* Fire Protection Elaborate refers to spaces that are subject to the demands of this basic design - boiler room or boiler room / alternative boiler solution installed outdoors. The Elaborate ensures that all legal and technical aspects required by national law, bylaws and regulations for this type of the buildings are respected

1. **INPUTS PROVIDED BY UNOPS**

Upon conclusion of the contract UNOPS will give following inputs to the chosen service provider:

* Technical Assessment Report on the current state of the heating system with all relevant data for the facility
* Contact information for the final beneficiary

1. **DELIVERABLES**

The following will be considered as final documentation to be submitted by the design company, based on prior positive assessments received from the review conducted by UNOPS and the local review company:

1. design documentation based on which works could be executed
2. detailed BOQ necessary for launching a procurement procedure for selection of works contractor

The design documentation should be submitted in 4 (four) paper copies and 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD format. The entire documentation should be prepared in Macedonian. Only front page, technical specifications and BoQ are to be submitted in Macedonian/English language versions.

1. **DESIGN REVIEW**

The submitted design documentation will be subject to the following review:

a) Review of the project documentation by UNOPS - The documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files.

b) Review of the project documentation by a local licensed company, according to local regulations. Design review process will take place throughout basic design development in a staged approach where design teams progressively submit design documentation for review at 60% and 90% development.

Stage 60%: finalised architectural phase, finalised schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size, functional diagram of the heating system, preliminary selection of the capacity and location of newly designed gas boiler, preliminary selection of other accompanying heating equipment and basic calculation in electrical design

Stage 90%: finalised mechanical and electrical design, finalised elaborates: fire protection and health and safety

Final documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files. The documentation should be prepared in Macedonian.

1. **TIMETABLE**

Completed design documentation should be finalised within 90 (ninety) calendar days from the contract commencement date and submitted for design review to a licenced company selected by the Project Team of the project implementer. All eventual remarks submitted by the design reviewer to the designers must be addressed within 10 (ten) calendar days of reception, thus obtaining a positive design review within this period of time.

The services performance shall result at Designs for the execution of works respecting all requirements defined by this ToR. The design must comprise clearly defined solutions, without any variations, to ensure that a public call for contractors and the construction can proceed without difficulty.

The Design Company shall guarantee professional and technical competence of its staff/specialist and shall provide qualified design experts to complete the works in accordance with specifications as contained in this TOR. The Design Company shall ensure that the designs conform to the most recent national/or internationally adopted Standards and UNOPS’ technical framework for minimum requirements for heating system design. The Outputs shall be delivered in the timeframe accordingly to the timing indicated in this ToR and must be presented to the client and user representatives. Comments and notes from the representatives must be considered in the final version of the documentations. The Designs shall remain the intellectual property of UNOPS.

—----------------------------------------------------------------- LOT 5.4 - END --------------------------------------------------------------------

**LOT 5**

5. Ambulance (within Clinical Hospital Tetovo area)

**TERMS OF REFERENCE**

**FOR PROVISION OF SERVICES FOR DEVELOPMENT OF BASIC DESIGN FOR IMPROVING THE HEATING SYSTEM IN AMBULANCE**

**(WITHIN CLINICAL HOSPITAL TETOVO AREA)**

1. **BACKGROUND**

The EU for Clean Air Project, funded by the European Union (EU) through the Instrument for Pre-accession Assistance (IPA), is designed to contribute to improvement of air quality in North Macedonia and consequently decrease risks to human health. With the objective to contribute to the reduction of emissions of pollutants in four large urban centres in North Macedonia, the Project has an implementation period of 36 months, followed by the defects notification period (DNP) of up to 12 months. The United Nations Office for Project Services (UNOPS) is the implementing partner.

The Project is aligned with all national strategic and regulatory frameworks and will contribute to progress made towards meeting EU accession criteria, primarily under Chapter 27 (Environment) and to the achievement of the relevant United Nations (UN) Sustainable Development Goals.

A Project result pertinent to this particular intervention relates to improving heating systems through replacement of obsolete and inefficient boilers in public buildings in the cities of Skopje, Bitola, Kumanovo, and Tetovo. Under this specific ToR, UNOPS solicits provision of services for development of basic design for heating system improvement, to be performed under the applicable provisions of the Law on Construction.

1. **INTRODUCTION**

Ambulance is located in Clinical Hospital Tetovo. The building is supplied with thermal energy from the boiler room which is located on the ground floor of the building by means of one boiler with a nominal capacity of 383kW powered on EL fuel. The boiler is outdated and generally in very poor condition. Within the boiler room other accompanying equipment is located as well: manifolds for supply and return water, circulating pumps, valves etc.

A standard two-pipe hot water distribution system is installed in the building. Steel radiators with radiator valves and return lock shields are installed in all heated rooms.

The windows are partly replaced with PVC ones and in the rest of building are old type and in bad condition. Building has no thermal insulation.

For the purpose of energy supply to the newly designed boilers an ongoing project takes place for CNG plant and installation. It is integral at the level of the Tetovo Clinical Hospital and takes into account the energy needs for heating of all affected facilities that have been mapped by the EU for clean air project. This energy project financed by the user is being simultaneously developed and will be in coordination with the basic design for improving the heating system that is subject to this ToR.

1. **OBJECTIVE OF THE ASSIGNMENT**

The objective of the assignment is preparation of a Basic Design for improving the heating system and replacement of existing inefficient heating equipment in Ambulance (within the Clinical Hospital Tetovo area) in order to reduce air pollution and decrease risks to human health.

1. **SCOPE OF THE ASSIGNMENT**

The scope of the assignment is to engage the design company under the direct supervision of UNOPS EU for Clean Air for preparation of the design documentation for Ambulance (within the Clinical Hospital Tetovo area). For the purpose of this assignment, UNOPS provides a Technical Assessment Report on the current state of the heating system with all relevant data for the facility in Annex L5.5.

The company selected to develop the design should ensure it is done based on the:

* existing state and situation following valid design standards in the country
* ensuring that all legal and technical aspects required by national law, bylaws and regulations for this type of the building are respected
* applying best practices
* preventive measures in line with current international norms and standards are respected

The final designs for the execution of works should contain all details and calculations necessary for the execution of works, shop drawings, detailed BoQs and technical specifications for all groups of works as per national and UNOPS’ norms.

All designs must comply with the national legislation, the Law on Construction (“Закон за градење”) and Rulebook “Rulebook on the content of the project, information on the project designation, the method of certification of the project by the persons in charge and information on the use of electronic records” („Правилник за содржината на проектите, означувањето на проектот, начинот на заверка на проектот од страна на одговорните лица и начинот на користење на електронските записи”).

**4.1 Design company main responsibilities**

Design company’s main responsibilities:

1. Confirmation of preparation activities completed by the UNOPS Project Team in an Technical Assessment Report by visiting the facility and recording the actual state by determining relevant data for design development: current condition of the building, heating capacity based on the number of installed heating units - radiators in the facility, number and capacity of existing boilers, heating equipment installed in the boiler room, etc.
2. Provision of Basic Design Documentation for all necessary phases, complemented with necessary analyses, calculations, drawings and a bill of quantity (BOQ) with assessed cost calculation for improvement of the heating systems.
3. Provision of permits and approvals that are required for works described in the BoQ in basic design that is subject to this ToR (if any required)

**4.2 Contents of the Basic Design**

**А/ Legal documents**

1. Registration act issued by Central Registry
2. Business Registration Certificate (Тековна состојба)
3. Valid Authorization B for design of technical documentation as per national regulations for the company
4. Assignment of Chief Designer, Project phase Designers and associates for development of design documentation
5. Design scope of works-project task (Проектна задача)

**B/ Architectural Phase**

1. Technical description
2. Layout of the boiler room including transversal and longitudinal sections. Detail on the facade wall / outdoor location foreseen for the new boiler(s) installation
3. Site plan of the building showing the location of newly designed outdoor boilers

**C/ Mechanical Phase**

1. Technical description
2. Technical conditions
3. Creating of schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size.

NOTE: In case of any other consumers of hot water connected to the heating system that is subject of this design, ex. tanks for sanitary hot water (SHW), air handling units or other, to be considered when calculating the total heat demand

1. Selection of thermostatic valves for public buildings with integrated automatic flow limitation to replace existing manual valves. Replacement of existing lock shields. Selected elements by quantity determined by record made on site, to be expressed in the BoQ
2. Selection of balancing valves on the raisers by quantity determined by record made on site, to be expressed in the BoQ
3. Sizing the elements in the newly designed boiler room taking into consideration notes described in pt. 4.1 and demands as follows:

* dismantling of the entire heating equipment from the existing boiler room up to the transition of the heating pipes to the building (pumps, valves, fittings, measuring and regulating equipment, pipe installation including manifolds for supply and return water, expansion vessels, water softening system for preparation of water...) with removal and transport to the nearest licensed recycling company. Existing boilers completed with the fuel supply installation, remain in the boiler room as a redundancy (back-up).
* selection of modular gas boiler station in certified housing for outdoor installation consisting of built-in gas boilers with their own pumps and other elements, hydraulic switch as a separate primary circuit and the possibility of automation temperature control of sufficient number of independent heating circuits depending on outdoor conditions
* new optimised functional diagram with the implementation of: frequency-regulated pumps, new valves, measuring instruments, balancing and control valves and other fittings, expansion vessels for an installed capacity up to 250kW i.e. systems for maintaining pressure in the system by pumps for larger capacities

1. Graphical enclosures - drawings: layout showing equipment position in the boiler room, complete view in the transverse and longitudinal section of the boiler room, detail on the facade wall / outdoor position where installation of the newly designed boiler is foreseen, raiser diagram (strang sema), and all other drawings necessary for works performance
2. Technical specification on selected equipment and elements
3. Bill of Quantity (BOQ)

**REMARKS 1**: The following positions should be envisaged within the project as well:

* Dismantling/cleaning/installation of heating elements - radiators
* Insulations of pipe segments passing through rooms/areas where heating is not envisaged
* Servicing of existing boilers and burners (together with existing automation control) to enable their future usage solely as back-up equipment (in cases of defects of the newly installed boilers or interruptions in gas supply, etc.)
* Appliance for water softening
* Pipe insulation in the boiler room and outdoor segments with aluminium sheet protection
* Examination of installations, regulation and balancing of the heating system with commissioning and preparation of technical documentation for newly designed conditions
* In case of existing system for SHW production, technical solution to be foreseen for its temporary function while works for improvement of the heating system are ongoing (out of heating season)

NOTE: Neither SHW equipment nor installation is subject to this design.

* Provision of permits and approvals for works described in the BoQ of basic design that is subject to this ToR (if any required)

*\* Energy supply - CNG plant and gas distribution lines to newly installed gas boilers are not part of this project. This part will be done separately by the end beneficiary*

**D/ Electrical Phase**

1. Technical description
2. Technical conditions
3. Electrical calculations based on the defined consumers within the boiler room and newly designed gas boiler
4. Graphical enclosures - drawings presenting equipment power supply
5. Bill of Quantity (BOQ)

**E/ Fire Protection Elaborate**

**F/ Elaborate for Health and Safety at Work**

**REMARKS 2**: The following positions should be envisaged within the project as well:

* The scope of electrical design covers installation and elements for purpose of proper functioning of newly designed boiler room: selection of new electrical distribution box for the boiler room, replacement of existing cables including electrical supply cable from main distribution box to the boiler room, electrical supply to the new gas boiler station and replacement of existing lights, switches and sockets in the boiler room.
* Analogue addressable central unit for automatic fire protection alarm system of the boiler room including sensors, fire protection horn and other necessary elements
* Fire Protection Elaborate refers to spaces that are subject to the demands of this basic design within the building - boiler room and modular gas boiler station installed outdoors. The Elaborate ensures that all legal and technical aspects required by national law, bylaws and regulations for this type of the buildings are respected

1. **INPUTS PROVIDED BY UNOPS**

Upon conclusion of the contract UNOPS will give following inputs to the chosen service provider:

* Technical Assessment Report on the current state of the heating system with all relevant data for the facility
* Contact information for the final beneficiary

1. **DELIVERABLES**

The following will be considered as final documentation to be submitted by the design company, based on prior positive assessments received from the review conducted by UNOPS and the local review company:

1. design documentation based on which works could be executed
2. detailed BOQ necessary for launching a procurement procedure for selection of works contractor

The design documentation should be submitted in 4 (four) paper copies and 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD format. The entire documentation should be prepared in Macedonian. Only front page, technical specifications and BoQ are to be submitted in Macedonian/English language versions.

1. **DESIGN REVIEW**

The submitted design documentation will be subject to the following review:

a) Review of the project documentation by UNOPS - The documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files.

b) Review of the project documentation by a local licensed company, according to local regulations. Design review process will take place throughout basic design development in a staged approach where design teams progressively submit design documentation for review at 60% and 90% development.

Stage 60%: finalised architectural phase, finalised schematic diagram-raiser diagram (STRANG sema) with record on existing installed radiators with their capacity and pipes size, functional diagram of the heating system, preliminary selection of the capacity and location of newly designed gas boiler, preliminary selection of other accompanying heating equipment and basic calculation in electrical design

Stage 90%: finalised mechanical and electrical design, finalised elaborates: fire protection and health and safety

Final documentation has to be submitted in 1 (one) electronic copy along with the integral project in PDF format. The BOQ should be submitted in Excel, while the graphic documentation - drawings in CAD files. The documentation should be prepared in Macedonian.

1. **TIMETABLE**

Completed design documentation should be finalised within 90 (ninety) calendar days from the contract commencement date and submitted for design review to a licenced company selected by the Project Team of the project implementer. All eventual remarks submitted by the design reviewer to the designers must be addressed within 10 (ten) calendar days of reception, thus obtaining a positive design review within this period of time.

The services performance shall result at Designs for the execution of works respecting all requirements defined by this ToR. The design must comprise clearly defined solutions, without any variations, to ensure that a public call for contractors and the construction can proceed without difficulty.

The Design Company shall guarantee professional and technical competence of its staff/specialist and shall provide qualified design experts to complete the works in accordance with specifications as contained in this TOR. The Design Company shall ensure that the designs conform to the most recent national/or internationally adopted Standards and UNOPS’ technical framework for minimum requirements for heating system design. The Outputs shall be delivered in the timeframe accordingly to the timing indicated in this ToR and must be presented to the client and user representatives. Comments and notes from the representatives must be considered in the final version of the documentations. The Designs shall remain the intellectual property of UNOPS.

—----------------------------------------------------------------- LOT 5.5 - END --------------------------------------------------------------------

**CRITERIA APPLICABLE FOR ALL LOTS**

**Eligibility and formal criteria**

1.1. The bidder is eligible as defined in Section I: Instructions to Bidders, Article 4 [Bidder Eligibility].

1.2. The quotation is complete, i.e. all documents and technical documentation requested in Section I: Instructions to Bidders have been provided and are complete.

1.3. The bidder accepts conditions of the Contract as specified in Section III: Conditions of Contract.

**Qualification criteria**

2.1. Overall value of the design of technical documentation provided by the Bidder to the Clients in the previous 5 years must be minimally USD 20.000 per lot, proven by relevant contracts (if submitting bids for 2 lots, the minimal value is USD 40.000 / if submitting bids for 3 lots, the minimal value is USD 60.000 / if submitting bids for 4 lots, the minimal value is USD 80.000 / if submitting bids for 5 lots, the minimal value is USD 100.000)

2.2. Company should be well established and experienced, actively operating in the design services field for at least 5 (five) years (valid B licence)

2.3. The bidder must have a relevant experience - a minimum of 3 (three) relevant projects successfully concluded with a B Licence for the construction and/or reconstruction of Second Category buildings - public buildings in the last 5 years (one list with 3 relevant projects is sufficient, regardless of the number of lots the bidder is submitting)

2.4. Equal opportunity, diversity, and inclusion is ensured within the bidder organisation (documentation that details the approach to equal opportunity, diversity, and inclusion)

**Technical criteria**

1.1 The bidder has the general organisational capability that can support effective implementation: management structure, financial stability and project financing capacity, project management controls, and the extent to which any service/activity would be subcontracted

1.2. The bidder has relevant specialized knowledge and experience in design of technical documentation done in the region or country (list of projects, which includes all structures which were designed by the bidder).

1.3. The company has at least three permanently employed technical staff members.

1.4. Each team proposed shall be composed of one architect, one mechanical and one electrical engineer (core team). Responsibilities relating to HSSE and FP can be covered by one of the engineers of the core team, provided they have the necessary authorizations. **If submitting bids for more than one lot, members of the core team cannot be the same individuals.**

2.1. The quotation (in particular, the detail of the Services) is substantially compliant and does not contain any material deviation(s) from the minimum requirements as stipulated in Section V: Requirements, which indicates the bidder’s understanding of these requirements.

2.2. The quotation satisfactorily demonstrates that the Health, Safety, Social and Environmental (HSSE) requirements in relation to the Services will be met.

2.3. The bidder’s proposed sub-consultants and suppliers, if identified, are proposed to undertake appropriate activities related to the Services and have demonstrated the capacity to undertake the services

3.1. The composition and structure of the team proposed (architect, mechanical, electrical, HS and FP engineer) is appropriate and the proposed roles of Key Personnel is suitable for the provision of the necessary Services.

3.2. The qualifications and experience of Key Personnel proposed meet the established requirements.

3.3. The qualifications and experience of Key Personnel Phase Designers proposed meet the established requirements - must have min 5 years of relevant experience in design in their respective areas of responsibility.

**ELEMENTS OF OFFER / REQUIRED DOCUMENTATION**

| **Document (set)** | **Contents** | **copies per Lot** |
| --- | --- | --- |
| **Price Form** | (specified prices per phases/elaborates as listed in 4.2. A-F above, and Total price for all services)   * Price form for LOT 1 * Price form for LOT 2 * Price form for LOT 3 * Price form for LOT 4 * Price form for LOT 5 | Price form  for the lot(s) bidder is participating in |
| **Documentation for the company** | * Criteria: * - Company should be well established and experienced, actively operating in the design services field for at least 5 (five) years with B licence valid in Republic of North Macedonia * Required documents: * - Business Registration Certificate (Тековна состојба) * - Copy of a valid Licence B for design of technical documentation for Second Category Buildings issued by the Ministry of Transport and Communications * Criteria: * - Confirmation of employment / engagement of the required designers, as specified for each phase in the *ANNEX HTH* on Basic Design Contents of each Lot (*L1, L2.1, L2.2, L2.3, L2.4, L3, L4, L5.1, L5.2, L5.3, L5.4, L5.5*). * Designers could be permanently or temporarily employed. * Required documents: * Proof of permanent or temporary employment, temporary employment contract, service contract or other form of proof defined by the relevant Law (staff list from the Employment Service Agency, letter of intent to enter into contracts/work contract, etc.)     Criteria:   * - At least 3 (three) relevant projects successfully concluded with a B Licence for the construction and/or reconstruction of Second Category buildings - public buildings (primary education schools, secondary education schools or kindergartens, health centres, polyclinics, hospitals or other public buildings) in the last 10 years * Required documents: * Reference list accompanied with reference confirmation letters for at least three relevant projects successfully concluded with a B Licence for the construction and/or reconstruction of Second Category buildings - public buildings (primary education schools, secondary education schools or kindergartens, health centres, polyclinics, hospitals, etc.) in the last 5 years; | one set of documents per bidder    (no need to submit the same documentation for each lot) |
| **Documentation for the Phase Designers** | * Criteria: * - Phase Designers must have a university degree in the relevant field as specified for each phase in *ANNEX HTH* on Basic Design Contents of each Lot (*L1, L2.1, L2.2, L2.3, L2.4, L3, L4, L5.1, L5.2, L5.3, L5.4, L5.5*). * Required documents: * Copy of a university degree diploma for each Phase Designer. * Criteria: * - Designers must have Valid B authorization for each phase of the design process - architecture, mechanical engineering, electrical engineering, fire protection, health and safety at work, for the preparation of design documentation issued by the Macedonian Chamber of Chartered Architects and Engineers * Required documents: * Copy of Valid B authorization of designers issued by the Macedonian Chamber of Chartered Architects and Engineers * Criteria: * - Reference list for each proposed Phase Designer for at least three completed construction and/or reconstruction projects of Second Category public buildings (primary and secondary education schools or kindergartens, health centres, polyclinics, hospitals, or other public buildings), completed in the last 5 years. * Required documents: * The bidder should submit the reference list for each Phase Designer - architecture, mechanical engineering, electrical engineering, fire protection, health and safety at work | one set of documents per bidder    (no need to submit the same documentation for each lot) |