# Section 7. Terms of Reference

**FOR LUMP SUM CONTRACT:**

**CONSULTING SERVICES FOR RETROFITTING DESIGN of**

**EDUCATIONAL BUILDINGS**

**(REF: CQS-01-İzmir-DRMIS-WB-DH-01/A)**

1. **INTRODUCTION AND BACKROUND**

Turkey is vulnerable to a wide variety of natural hazards, including earthquakes, landslides, and floods. Among these, earthquakes have claimed the highest number of lives and caused the greatest economic loss, with approximately 90,000 fatalities in 76 earthquakes since 1900, a total affected population of 7 million, and direct losses of US$ 25 billion. About half the casualties were due to two earthquakes on the North Anatolian Fault in 1939 and 1999. In the 1999 Marmara earthquakes, which affected 10 cities2 in the Marmara Region of Turkey where almost 35 percent of the Turkey’s GNP was produced, the death toll was over 18,000 with a direct economic impact estimated at US$ 5 billion (2.5 percent of GNP). Although less dramatic, floods and landslides are frequent events that cause localized losses. Observed and anticipated climate change impacts, such as more intense precipitation and rising sea level, are expected to lead to increasing risks to natural disasters, including more frequent and intense flooding in low-lying areas of river deltas and coastal cities and other extreme weather events.3 In earthquakes, globally and in Turkey, evidence have shown schools to be particularly vulnerable to damage or collapse which risks the lives of children and teachers as well as disrupting the provision of quality education.

Turkey’s Climate Change Action Plan (2011-2023) identified numbers of actions aimed at increasing national preparedness and capacity to avoid the adverse impacts of climate change and to adapt to its impacts. In 2015, Turkey submitted its Intended Nationally Determined Contribution to the United Nations Framework Convention on Climate Change, committing to reduce its GHG emissions up to 21 percent by 2030 compared to business as usual scenario, to be achieved through several new policies and measures, including those related to energy efficiency improvements.

Since 1993, the World Bank has played a prominent role in financing Turkey’s large reconstruction and disaster risk management programs. While the partnership between the Government of Turkey and the Bank initially focused on post-disaster reconstruction and recovery, it also provided a platform to support shifting from a reactive to a proactive approach. In each subsequent reconstruction project, a larger proportion of funds were dedicated to strengthening Turkey’s capacity for disaster risk mitigation and emergency preparedness.

As a part of continued 15 years of collaboration with the MoNE, in late 2016, the Bank assumed an administrator role for the Education Infrastructure for Resilience Project, funded by the European Commission’s Facility for Refugees in Turkey (FRiT), with a total budget of US$ 160 million and four-year implementation period. Based in part on the experience to date with the Education Infrastructure for Resilience Project and to mainstream seismic risk reduction in school infrastructure at scale in Turkey, MoNE and the Bank have developed the Disaster Risk Management in Schools Project (the Project, hereinafter).

For the financing of the Project, the International Bank for Reconstruction and Development (IBRD) and the Republic of Turkey signed a Loan Agreement in the amount of USD 300.00 million (EUR 267.6 Million equivalent) that became effective on November 2019. Ministry of National Education (MoNE) through its Construction and Real Estate Department is responsible for the implementation.

The Project, which is being implemented as the first operation designed with a series of projects approach, aims to contribute to the Government’s objective of reducing seismic risk to which education infrastructure and students are exposed and rests upon two main investment pillars: (i) retrofitting of schools where this is technically and financially feasible and; (ii) reconstruction where it is financially more cost effective due to very poor quality in the existing school. In this manner the Project aims to integrate safety into education infrastructure and promote school-based disaster management in a way that reduces the greatest amount of risk while applying principles of investment efficiency in order to maximize the number of vulnerable schools structurally intervened.

1. **PROJECT OBJECTIVES**

The objective of the Project is to increase the safety of students, teachers and staff in selected schools in high-risk seismic zones in Turkey. This will be achieved by reduced seismic risk of 350 vulnerable schools and increased safety of 280,000 students and staff having access to earthquake resilient education facilities. The Project will rely predominantly on retrofitting of schools (300) and reconstruction of schools (50) over 5 years.

The Project has the three key components: (a) improving seismic resilience of schools; (b) enhancing institutional and technical capacity for safer schools; and (c) project management including monitoring and learning.

Through the project, building up-to-standard and safer schools would result in avoiding creation of new risks against natural hazards and serve the purpose of long-term seismic risk reduction in school buildings.

Retrofitted and reconstructed seismic-resilient and furnished modern facilities will also contribute to a better learning environment that has a positive effect on the learning abilities of students. Retrofitting/reconstruction measures will be complemented with energy efficiency upgrades including practical green and zero-waste building measures, which will in turn result in savings of gas, electricity and water consumption, thereby also reducing the carbon footprint of schools. Schools subject to intervention will also satisfy all applicable national regulations and codes for shelter, fire, safety at workplace, access for people with disabilities and so on as well as all standards related with the materials to be used.

Detailed designs and roll-out of key interventions will be informed by the cross-cutting areas such as (i) climate change where energy efficiency and climate change adaptation investments complement the civil works in the scope of the Project and (ii) gender where designs of schools will pay attention to gender friendly spaces as a part of MoNE’s school design standards to be applied for reconstructed or retrofitted schools.

1. **SCOPE OF SERVICES**

The most recent major earthquake (magnitude 6.9) occurred on October 30, 2020 in the Aegean Sea and severely impacted the region of Izmir, which is the third largest urban area and economic hub in Turkey. A rapid damage assessment conducted by the World Bank estimated a preliminary economic loss exceeding US$ 900 million (or equivalent of 0.12% of the Turkish 2019 GDP), from direct damage associated with the event. The City of Izmir suffered disproportionately from this event, with 17 multi-story buildings collapsed, 500 to 1,000 buildings damaged beyond repair, and 116 fatalities. More than 5,000 buildings suffered light structural damage and damage to non-structural features, and the impact on critical infrastructure is still being assessed. Moreover, moderate to heavy damage for 36 public buildings and 32 schools is reported.

Accordingly, 60 school buildings located in İzmir have been prioritized for retrofitting and 10 for reconstruction considering conditions of the buildings and continuation of the seismic risk in Izmir. Among the prioritization list for İzmir; this contract package includes the retroffiting of 20 school buildings.

The Consultant will be required (i) to review and conduct detailed gap analysis for designs, reports, surveys, tests, calculations and assessments that have been previously prepared on the seismic vulnerability and the retrofitting feasibility of the schools listed in Annex1, (ii) conduct additional surveys, audits, engineering analysis and calculations and necessary revisions based on the gap analysis and/or conduct redesign for the alignment with the Turkish Earthquake Code (2018) and other relevant laws/legislations in Turkey covering non-structural elements and upgrades on the functions supporting better learning environment and energy efficiency performance improvements, (iii) finalize detailed studies for the schools to be retrofitted covering structural, architectural, mechanical, electrical, energy efficiency, non-structural elements and (iv) provide technical and economical feasibility of the retrofitting solutions to be supported with the designs, surveys, tests, calculations, reports, assessments, technical specifications, Bills of Quantities (BoQs), site-specific ESMPs and bidding documents for construction works.

1. **DESCRIPTION OF THE CONSULTANTS’ TASKS**
   1. **DESIGN REVIEW/DESIGN REVISION/REDESIGN SERVICES FOR THE EXISTING RETROFITTING STUDIES**

Retrofitting studies to be reviewed within the scope of these Consultancy Services had been prepared before the enactment of the recent Turkish Earthquake Code for Structures “TEC2018” on January 2019 that has also been published on March 2018 in Official Gazette.

The building surveys, designs, analysis results, relevant documents and reports of the existing retrofitting studies are available at MoNE premises. Considering the Covid-19 limitations, these documents will be made digitally available for the consultant. Consultant shall visit the schools in working hours to check these documents with respect to original state of the related buildings.

The Consultant shall with due care and diligence review existing structural retrofitting designs, reports, surveys, tests, calculations and assessments including consideration of non-structural elements, bills of quantities, specifications, bidding documents and shall make required changes, revisions, upgrades and etc. on the existing studies and take over the responsibility for the final version of these documents and obtain Client’s prior consent on the proposed changes, revisions as soon as the existing studies are made available to the Consultant. All school buildings within the same campus area will be covered under the consultant’s task.

Accordingly, the Consultant’s team that would include structural and non-structural engineers is obliged to check/review the existing retrofitting designs and construction drawings of all buildings listed in the Scope of Services to ensure that these would be ready for implementation and they would be in compliance with the applicable codes/regulations in Turkey not only on the structural aspects but also for non-structural aspects such as fire safety, accessibility for the disabled, energy performance and etc. The reviews/redesigns shall include but not be limited to the designs related to structural, architectural, mechanical, electrical, energy efficiency, non-structural elements of the buildings.

**4.1.1 Review and Revision of Existing Studies on the Assessment of the Buildings (Inception Phase)**

* Assessment on the building through surveying and material testing shall be reviewed and the Consultant shall ensure that revised study to be submitted would include (i) surveys on the structural, foundation, architectural, mechanical and electrical characteristics of the buildings including the data, measurement, testing and other techniques such as Ground Penetrating Radar (GPR), (ii) destructive and non-destructive tests, laboratory results and reports conducted to define the condition of the building with detailed information on the concrete core samples, steel exposure and soil investigation boreholes, (iii) inventory data on the equipment and devices related to architectural, mechanical and electrical features of the buildings (i.e. radiator panels, plugs, boiler, roofs, etc) and the critical non-structural components, including building utility equipment (power supply, HVAC systems), operating equipment, ceilings, building fascia panels, elevators, and fire protection systems, with proper reporting and documentation on the above. If any of them is missing and additional data is needed; the consultant should carry out these additional surveys.
* For the condition of the building, the data collection procedure, types and number of destructive and nondestructive tests should be checked, verified, and completed as needed to be in line with valid national and international codes.
* During the execution of the works in connection with inspection of the buildings, all costs incurred for the reinstatement of the areas affected by the tests shall be borne by the Consultant without any cost impact to the Client. Reinstatement of the disturbed places should be completed to the satisfaction of the Client.
* Assessment on the site-specific geo-technical conditions shall be reviewed and the Consultant shall ensure that the revised study would include (i) geotechnical investigation reports based on the site surveys, soil tests, laboratory tests, (ii) references to available general geotechnical data and if any historical data from previous/existing reports on the campus that the building is located, (iii) distance of the site to the significant faults, (iv) studies on the liquefaction potential, settlement and swelling potential of soil.
* The information on the foundation types identified for the buildings shall be checked if these were determined by means of inspection pits in both inside and outside of the buildings as per the requirement of TEC2018. In case of unsatisfactory information, inspection pits shall be opened outside and/or inside of the buildings considering the physical condition of the building if it allows opening of the pits inside the buildings. If needed, alternative solutions will be sought for the internal inspection pits. Alternatives on the foundation type shall be considered for the design process as inspection pits might not accurately reflect the type of the foundation of the structure. Reinstatement of the disturbed places should be completed to the satisfaction of the Client with no cost impact.

* Assessment on the building structure conducted through calculations, detailed engineering analysis and observations shall be reviewed and the Consultant shall ensure that the revised study would include (i) all available construction documents for the building, including original structural and architectural drawings and specifications, any significant modifications or upgrades, (ii) information on the visual structural defects, apparent detailing problems and structural irregularities, (iii) computer models on the existing condition of the building and structural analysis for the required performance levels of the building, (iv) reports on the existing condition of the mechanical and electrical systems covering the operational deficiencies and specific findings for the buildings (i.e. such as electrical system failure, nonoperational elevator).
* Previously used design criteria and data for each block of school buildings shall be checked, confirmed and verified for the above purposes. In case of missing/nonverified data, those shall be collected for the respective buildings and integrated into the design studies.
* As a part of the needs assessment, the consultant shall identify and report minor defects and faults such as leakage of water at basements, defects in plasters and roofs, deterioration in wet areas, etc. after consultation with the Directorate of National Education, school administrations for all buildings.
* Accordingly, the Consultant shall provide a fact-finding report (tespit tutanagi) to be signed between the school principal and/or provincial directorates and the Consultant's representative as an annex to the Assessment Report for (i) structural and architectural surveys, (ii) material tests for concrete core and reinforcement samples and reinstatement of the areas affected, (iii) electrical and mechanical surveys, (iv) site soil investigations and boreholes.
* The Consultant upon completion of the above studies, shall submit an Assessment Stage Report indicating the findings and assessment with respect to the services outlined above, to the satisfaction of the Client that would also include (i) all the cadastral information [deed, layouts, cadastral extract, building permits, occupation permits, plans, survey,etc -(tapu,çap,kroki,istikametrölevesi,vaziyetplani,vs)] for all the buildings in the campus area, and (ii) the fact-finding report, (iii) the detailed program for the contract’s scope of services.

**4.1.2 Review of Existing Designs (Design Review)**

Based on the above reviews on the assessment of the buildings, and upon completion of data set and revision / preparation of Assessment Reports as per the provisions of the TEC2018 and the Client’s needs, buildings shall be classified under the respective categories to reflect their existing structural performance and the level of information needed for the design phase that would follow the requirements of TEC2018.

Prior to going with design revision/redesign the following would be critical:

* Consultant is obliged to check existing design drawings and design criteria by suitable and reputable softwares, for such activity Consultant shall nominate related experts to be approved by the Client.
* The consultant shall check the crucial components of structures including, but not limited to the following:
* Beams
* Columns
* Diaphragm
* Joint connection
* Foundation
* For the assessment of the the above components, design standards and conditions used shall be reviewed. Performance-based Analysis (PBA) methods by static or dynamic nonlinear time history analyses should be employed. In addition, for the sake of considering the effects of soil on the behavior of structure, the soil structure interaction (SSI) should be considered based on the national and international code requirements.
* Two performance levels and two seismic hazard levels should be used for the seismic assessment of the structure, and for the retrofitting options.

* In addition to the structural assessment, the nonstructural assessment should be conducted within two phases consisting of analysis of the existing situation and detailed design for implementing rehabilitation/retrofit plan.
* It is strongly recommended that the seismic assessment of public schools should be complemented by employing site specific response spectrum in addition to the design spectrum provided by the earthquake code.
* The Consultant shall perform complete redesign if existing drawings do not reflect the structural, architectural, electrical, mechanical or unexpected in-situ conditions for the buildings or do not meet the requirements of TEC2018.
* For the purposes of structural design review, the Consultant shall also (i) note sensitive areas such as historical spaces, traffic corridors to be preserved against seismic upgrade measures, (ii) give attention to restrictions on the placement of retrofit elements considering building architecture and functionality, (iii) arrange meetings with the Client to discuss alternative options and to agree on recommended approach for critical cases, (iv) consider alternative technologies such as base isolation, fibre carbon elements and others that might reduce disruption and maximize economy with pros and cons, (v) confirm that added, modified structural elements to improve seismic performance are appropriate and evidenced by structural engineering calculations, (vi) perform linear and non-linear analysis for retrofitted buildings with reputable structural analysis programs in 3-D for required performance levels under TEC2018, (vii) pay special attention to masonry structures and when needed refer to ASCE41 or other methologies on in-plane, out-plane behaviours, and mathematical modeling.
* The Consultant upon completion of the above studies, shall submit a Design Review Report indicating the findings on the reviewed designs and the proposed preliminary designs with respect to the services outlined above and to the satisfaction of the Client. It will indicate the scope of the study, the findings with regard to building deficiency and performance, and the recommendations for alternative levels of upgrade, as well as any recommendations for additional investigation to be performed as part of final designs and cost estimate studies on the proposed retrofitting options, renovation needs and functional upgrades.
* The Consultant shall also review and ensure that the revised costing study would include (i) unit prices defined using the guidelines published by Ministry of Environment and Urbanization or local and international market prices, (ii) calculation of cost estimates for retrofitting, associated renovation, and functional upgrades, (iii) calculation of cost estimates for reconstruction, (iv) comparison of retrofitting cost estimates with the reconstruction cost estimates, (v) findings on the technical and economical viability of the retrofitting option(s) proposed.

**4.1.3 Revision of the Designs and Redesign for the Buildings (Final Designs)**

The final design phase studies will be applied over all the buildings for the retrofitting alternative options approved by the Client that are fulfilling the provisions of TEC2018.

*a. Preparation of Final Designs*

The Consultant shall:

* Complete the detailed structural and non-structural designs of the buildings using the innovative technologies whenever economically and technically feasible, architectural (including comparative drawings before and after retrofitting) and engineering services (all mechanical and electrical services, including but not limited to heating, hot and cold water supply systems, fire protection, electrical supply system, gas distribution, power and service sockets, telephone/television/radio, lifts, etc.) related with retrofitting and collateral works including energy efficiency measures,
* Develop construction documents, including drawings and specifications, together with supporting calculations, to implement the recommended structural and, all required collateral upgrades,
* On architectural aspects, conduct field investigations and engineering design services for the modernization of existing features of the building’s architecture by providing exterior thermal sheathing (mantolama), standard bathrooms for disabled, ramp for disabled access, fire safety and etc. including optimum energy utilization,
* On heating systems, (i) conduct engineering services for the modernization of existing system by investigating existing conditions, (ii) evaluate system performance, develop recommendations, and generate construction drawings and specifications to upgrade existing heating, ventilation systems including electrical services to support all mechanical renovations, (iii) conduct analysis to comply with the new Turkish Heating Ventilation requirements of human comfort zone, (iv) include capacity increase to existing heating system and its conversion to natural gas system (if necessary),
* On electrical systems, (i) conduct field investigations and engineering design services for the modernization of existing electrical system by evaluating system performance, developing recommendations, (ii) upgrade to relieve the load on the existing electrical distribution system and provide branch circuits for growth of building load, and (iii) upgrade existing building's fire detection, alarm and communications systems to meet current code regulations.
* On site lay-out, prepare the site plan drawings for each building within the campus, considering the given measurements and details.
* Relevant BoQ's and Technical specifications shall be prepared by the Consultant in detail and shall be submitted to the Client for approval, following the decision of the Client on which parts of these works shall be integrated to the relevant parts of the bidding documents.
* Submit final Bills of Quantities (BoQs), all related design calculations, and relevant final cost comparison analysis.
* BoQ items shall follow unit price guidelines of Ministry of Environment and Urbanization, other relevant state authorities and local and international market prices. BoQ's prepared by the Consultant should not conflict with pricing preambles, technical specifications and other relevant parts of the bidding documents to be prepared.

* The Consultants shall submit fact-finding reports signed between the principal and/or directorates of the relevant public buildings and the Consultant's representative indicating that the principal and/or directorate is informed about and agreed on the Final Architectural, Structural, Mechanical and Electrical works subject to tendering following the decision of the Client on the works approved to be integrated to the relevant parts of the bidding documents.
* Propose detailed temporary measures to be taken during the construction (retrofitting and other studies) and phasing plans in order to minimize disruption of the public services in the buildings,

*b. Preparation of Synthesis Report*

The Consultant shall submit a synthesis report together with the final designs. The report shall at least cover:

An executive summary indicating;

* Overall information regarding the scope of the services, amendments, final decisions, retrofitting-demolishing classifications and methodologies indicating seismic performance and rehabilitation of the structures.
* The classification of the buildings according to the utilization, storey numbers, construction dates and effective earthquake codes during the construction
* Distribution according to the decisions taken for masonry buildings and reinforced concrete buildings
* Distribution of campuses according to their earthquake zones
* An overall Report that brings all information used to produce the Consultant's recommendations for retrofitting or demolition of the buildings assessed in the project. The report shall only cover the methodologies, summary of processes, brief recommendations and summary of findings.
* Summary of the processes and investigations used to determine seismic loads performance requirements, soil classifications and other parameters.
* Brief information about the assessment, preliminary and final phases of the project.
* Number of beneficiaries for the school buildings (number of students, teachers and staff)
* List of school buildings to be retrofitted, demolished and evaluated as safe to be included as an appendix.
* Building executive reports for each public building under the scope of the Consultant
* Based on the school typologies under the scope of the assessment, consultants may be requested by the Client:
* to develop standards to prevent non-structural damage to improve minimum design criteria,
* to conduct damage and loss estimation and develop typical retrofitting designs based on scenarios for identified school typologies,
* to conduct structural performance analysis for identified school typologies before and after retrofitting to demonstrate the added value of planned interventions.

**4.2 ENERGY EFFICIENCY RELATED SERVICES**

The existing retrofitting designs include limited scope of renovation for the retrofitted sections. Therefore, the Consultant shall prepare required revisions supporting better learning environment and energy efficiency upgrades including practical green and zero-waste building measures. In order to define energy efficieny measures (EEMs), energy audit reports based on the template provided under “ Improving Efficiency In Energy Use and Resources” directive of Turkey, shall be prepared and energy performance certificates (EPCs) shall be issued both before and after the retrofit/renovation works in order to demonstrate the level of improvement.

**4.2.1. Energy audit report**

The consultant shall conduct detailed energy audits of public school buildings to identify and recommend energy efficiency measures (EEMs) for implementation of energy efficiency (EE) investment based on the template in “Improving Efficiency In Energy Use and Resources” directive of Turkey. The work conducted should comply with the principles and processes described in “Improving Efficiency In Energy Use and Resources” directive of Turkey or ISO 50002. For this purpose, the Consultant shall:

* Conduct preliminary reviews by performing an initial energy use evaluation by reviewing all utility data and building or system diagrams, which can include architectural plans, electrical plans and 3 cuts, electrical board schemes, thermal systems (production and distribution) plans, equipment lists and catalogues, operation and maintenance logs, and other available facility information.
* Review all available facility documentation with site representatives where possible and review up to three years of energy data and calculate the baseline consumption.
* Conduct site assessments and further investigate the major energy-consuming processes in the facility through visual inspections, field measurements and interviews
* Conduct visual inspections to verify the completeness and accuracy of available documentation such as (i) construction details of the building envelope (e.g., walls, roof, windows, doors) and related insulation values, (ii) heating and cooling production systems (e.g., chillers, boilers) and their capacities, rated efficiency, and maintenance status, (iii) Heating, Ventilation and Air Conditioning (HVAC) distribution system capacities, rated efficiency, and maintenance status, (iv) electrical motors, their end-use, efficiency data, and maintenance status, (v) type of control methods and operation schedules, (vi) interior and exterior lighting systems and related controls, (vii) service hot water systems, their storage capacity, efficiency, and maintenance status, (viii) Renewable Energy (RE) generation and integration with building systems
* Conduct field measurements to detail the energy baseline and to collect data required for identifying EEMs that would include (i) installation and operation of necessary energy monitoring and data collection equipment (i.e. data loggers, flue meters, temperature and hygrometer sensors, electric/gas meters, air and water flow meters, thermal cameras), (ii) simulation of the performance of the systems and equipment based on theoretical and inspection data in case it is is not possible to measure the actual performance of systems and equipment (e.g., due to temporary malfunction, or out of season audit), (iii) measurements on building envelope (windows, doors and insulation) by thermal imaging for energy loss/gain and surface temperature, heating/cooling production and distribution system, efficiency of boilers and other heat-generating equipment, electrical consumption of lighting systems, motors (including fans, pumps) and other plugged systems, other energy consumption systems and equipment
* Conduct field interviews with key stakeholders (e.g., building manager, O&M staff, and users) to assess O&M routines, potential changes in user patterns (e.g., number of users or changes in user behaviour), and comfort levels (e.g. indoor temperature, air quality, lighting levels) by considering data collected during the previous tasks aiming to obtain relevant information to explain seasonal and year-to-year changes in historical energy consumption, identifying current energy management practices and improvement potential, and identifying the feasibility of potential EEMs.
* Conduct a data analysis including (i) any revision to the baseline energy consumption using data collected in previous tasks, (ii) identification of EEMs including alternative methods for different school typologies and their investment costs, energy savings, and cost benefit, (iii) development of scenarios for different combinations of EEMs with consideration of cross-effects between different EEMs
* Prepare the audit report documenting the methodology, assumptions, and supporting calculations with the subtasks to (i) describe audit scope, (ii) review energy baseline and conduct EEM calculations, (iii) determine investment costs, (iv) establish different investment scenarios, (v) conduct financial analysis, (vi) determine energy performance class, (vii) conduct whole building life cycle assessment to reduce embodied carbon using state of the art international methodology and software, (viii) optimize structural systems for energy efficiency, and (ix) optimize building services
  1. **IDENTIFICATION OF ENVIRONMENTAL AND SOCIAL RISKS AND PREPARATION OF ESMPs**

The World Band (WB) Operational Policies (OP)/Bank Procedures (BP), OP 4.01 on Environmental Assessment (EA) triggered by the project require that the impacts associated with schools retrofitting and construction are identified along with appropriate mitigation and monitoring measures. To fulfil the above, an Environmental and Social Management Framework (ESMF) was prepared by MoNE and was publicly disclosed on April 1, 2019 (https://iegm.meb.gov.tr/meb\_iys\_dosyalar/2019\_04/01131358\_National\_Disaster\_Risk\_Management\_Project-ESMF-Final\_Document.pdf). This ESMF provided information on the potential environmental, occupation health and safety and social impacts as well as guidelines and procedures to manage these impacts. The ESMF also includes an Environmental and Social Management Plan (ESMP) checklist to be utilized by the consultant in the to preparation of the site-specific ESMPs for schools’ retrofitting and reconstruction actvities.

The ESMP checklist, which will be a section of the ESMPs, has 3 (three) parts:

* **Part 1** includes a descriptive part that characterizes the project and specifies it in terms of the institutional and legislative aspects, the technical content of the project, the potential need for a capacity building program and description of the public consultation process. Attachments for additional information can be supplemented when needed.
* **Part 2** includes an environmental and social screening checklist, where activities and potential environmental issues can be checked in a simple Yes/No format. If any given activity/issue is triggered by checking “yes”, a reference is made to the appropriate section in the table in Section 3, which contains clearly formulated management and mitigation measures.
* **Part 3** represents the monitoring plan for activities during project construction and implementation. It retains the same format required for ESMP proposed under normal Bank requirements for Category B projects. It is the intent of this checklist that Part 2 and Part 3 be included into the bidding documents for contractors, priced during the bidding process and diligent supervision be implemented during work.

The Consultant shall conduct the initial assessment of the project sites, and prepare and present site specific ESMPs clustered by province and by construction works package (i.e., retrofitting or reconstruction) for the mentioned school buildings in accordance with national environmental laws and regulations, with international good practice, the World Bank’s safeguard requirements as well as World Bank Group’s (WBG’s) Environmental, Health and Safety (EHS) guidelines.

The Consultant shall commence the preparation of ESMPs immediately after the design review and detailed assessment of school buildings are completed, retrofitting or reconstruction of the school buildings assessed are decided by MoNE, and the scope of construction works package is determined. The Consultant shall finalize ESMPs during the final design phase and ESMPs specific environmental, OHS and social measures shall be included among the bidding documents for works contract and become part of the successful bidder’s works contract.

The Consultant shall submit draft ESMP within 30 days after the determination of each construction works package and MoNE’s notice to proceed for the preparation of the respective ESMP. The ESMPs will be reviewed and by MoNE and the World Bank and related comments will be provided, afterwards the Consultant will revise the ESMPs accordingly within 5 working days. Furthermore, the Consultant shall update and/or revise any of these ESMPs if and when a school design review results in changes that would require additional environmental permit/approval and/or environmental and social assessment studies.

The Consultant must prepare the ESMPs in both English and Turkish languages. Each of the prepared ESMPs shall be made publicly available on the MoNE’s website. Hard copies should also be made available to the public at accessible places within the project local area, as well as at the contractor’s/ supervisor’s offices.

* 1. **THE PREPARATION OF BIDDING DOCUMENTS FOR WORKS CONTRACTS**

The Consultants shall prepare full set of bidding documents related with the construction works in accordance with World Bank’s applicable Procurement Regulations and Standard Bidding Documents in parallel to the previous stages stipulated above. Bidding documents shall include but not limited to the Conditions of Contract, Form of Bid, Technical Specifications, Bill of Quantities (BoQ’s), final designs, system/detailed drawings, specific environmental, OHS and social mitigation measures included in the ESMPs and etc,

The Consultants shall prepare the bidding documents in close cooperation with the Client and with due care and diligence. Any of the items in these documents shall not contradict with each other and all material specifications shall be in accordance with the specifications of the Turkish standards and/or international standards.

The Consultant shall prepare the designs, plans, technical specifications, BoQ’s, ESMPs, bidding documents etc. and all additional documents, detailed designs in such a way that the necessity for variation orders during the construction stage is minimized.

The Consultant shall make any reasonable modification to documents, reports, etc. as may be approved by the Client during the various stages of approval.

* 1. **SUPPORT DURING THE BID EVALUATION / CONTRACT (CONSTRUCTION CONTRACT) SIGNING STAGE**

Upon the completion and approval of the design studies, ESMP and bidding documents stated above, the prospective Contractors will be invited with an advertisement for the submission of proposals by the Client in accordance with the standard form of bidding documents applicable for the Project.

The Consultants shall be responsible for assistance to the Client for the acquisition of all required documents for contractors’ questions about the construction Works during the tendering stage.

MoNE will be responsible for tender evaluation.

During above-mentioned processes, the Consultant will be responsible for the adverse consequences that arise as a result of their slow action, delay, omission, etc.

1. **DELIVERABLES**

The Consultant shall prepare and submit to the Client various reports, drawings and document that are specified in or that are implied from these Terms of Reference in respect of various components of the Project as described in the Terms of Reference.

These reports, drawings and other documentation relate to the various stages of the Consultants' Services and include, but not necessarily limited to;

* Inception (Assessment) Studies
* Design Review and Preliminary Designs
* Energy Audit Reports
* Final Designs
* ESMPs
* Preparation of Bidding Documents, Technical specifications (including BoQs and cost estimates)

The Consultants shall prepare and submit a report satisfactory to the Client each calendar month, including progress charts and photographs in colors giving all information regarding the progress of the Services, actual extent and nature of the Services completed as well as details of any delay in the Services with the substantiating documentation if required. The Consultants shall also clearly indicate in the report whether the delay (if any) of any part of the works will cause any delay in the completion of the whole Services.

The report shall be submitted to the Client by the tenth day of following month. Any comment by the Client on the report shall be reviewed and the report shall be modified and re-submitted to the Client within 7 (seven) calendar days.

The requirements for the submission of reports, drawings and other documentation are given below. Reports shall be prepared in both Turkish and English languages. The metric system of weights and measures shall be used.

Submission shall be as follows:

* 1. **General**

Format of Reports : A4 or A3, including where appropriate drawings reduced to A3 size.

Format of Drawings: A1 and/or A0 size.

A draft copy (Turkish 2, English 2) of all reports shall be submitted to the Client in advance for discussion purposes following which the Consultants shall be required to prepare the final copy, incorporating any amendments arising from such discussions.

* 1. **Design period for works:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Number of copies of report/drawings** | **Turkish** | **English** | **Memory Stick (English and Turkish)** |
| **1** | Assessment Stage Report | 2 | 2 | 2 |
| **2** | Design Review Report with Preliminary Designs | 2 | 2 | 2 |
| **3** | Energy Audit Report | 2 | 2 | 2 |
| **4** | Final Design Report with Final Designs | 2 | 2 | 2 |
| **5** | ESMP Reports | 2 | 2 | 2 |
| **6** | Bidding Documents, BoQs, Technical Specs | 2 | 2 | 2 |

* 1. **Preparation of Bidding Documents and Bidding Procedure Stage**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **Turkish** | **English** | **Memory Stick (English and Turkish)** |
|  | Number of copies of Contract Documentation for each Contract for Works Packages (including all subsequent Amendments issued during tender stage) | 20 | 5 | 25 |

Original of the drawings that shall be submitted to the Client are not included in the above number of copies.

Those of the documents and reports not mentioned above but either specified or implied in the contract shall be submitted in 2 copies in Turkish and English languages each.

In relation to the ongoing stages of the Consultants Services, the submission requirements given above show the type of documentation that will be required by the Client during the performance of the Services. However, the Consultant shall allow in its fee for the submission of all reports, drawings, documents, etc. either specifically requested in these Terms of Reference or those which may be implied there from and the Contractors' contracts. The Client may however vary such requirements during the course of the Services to be performed.

Should additional copies be required over to those stated above or specified in these Terms of Reference, these shall be supplied by the Consultants at the cost of reproduction of such documents, reports or drawing. Additionally, after finalizing the reports and “as built” drawings, these shall be submitted to the Client on one (1) set of Memory Stick, uploaded to a cloud system only accessible by the Client and in the software format acceptable by the Client. Each copy shall be durably bound in a volume or volumes depending on bulk, and the transparent copies shall have a suitable protective cover/box. All copies shall be labeled in accordance with the needs of the Client.

Upon the completion of Works and Supply Procurement, the Consultants shall submit all the original copies of correspondences, documents, test results and drawings relating to the services and Works, to the Client together with indices in acceptable files and forms by the Client and as archived. The Consultants shall keep the copies of the documents.

1. **TIMELINE**

During the design a period it should be noted by the Consultants that prepared designs/details/calculations/reports/specifications and other documents submitted to the Client for approval will be reviewed by the Client and approved or returned for revision and/or resubmission in 15 calendar days.

The Consultants shall submit all the documents in a timely manner to complete the services on time without any delay. A tentative time schedule for the completion of the consultants’ services for the various parts of the Project is given below;



The Consultants shall submit all the documents in a timely manner to complete the services on time without any delay. Time schedule for the completion of the consultants’ services for the various parts of the Project is given below;

* **Assessment (Inception) Stage Report:** within 30 calendar days from the Contract signing,
* **Design Review Report:** within 60 calendar days from the Contract signing date,
* **Design Revisions/Preliminary Designs:** within 90 calendar days from the Contract signing date,
* **Energy Audit Reports** within 90 calendar days from the Contract signing date,
* **Final Design Report and Final Designs:** within 120 calendar days from the Contract signing date,
* **Preparation of ESMPs:** within 120 calendar days from the Contract signing date,
* **Preparation of Bidding documents:** within 120 calendar days from the Contract signing date,
* **Tender Evaluation and Contract Signing Stage:** The Consultants shall support the Client after the bid opening date.

1. **SUPPORT TO BE PROVIDED BY THE CLIENT TO THE CONSULTANTS**

The Consultants will be fully responsible for providing their central office in İzmir. Additionally, the works contractors will be providing site offices at the construction sites. The central office shall be furnished and equipped by the Consultants as per related clauses of SCC of Standard Forms of Contract, whereas the site offices shall be furnished by the Contractor

All sort of running expenses shall be under the Consultant’s responsibility. The site offices of the consultants furnished and equipped by the Contractor with enough space for consultant’s staff and meeting. The Consultant shall not be required to deliver any equipment and materials provided by the reimbursable expenses and which have been used for the Services to the Client.

All local transport for the Consultants staff including the site supervisory staff shall be provided by the consultant and shall be included in the fee proposal submitted.

Subject to availability to Client the following items shall be provided free of charge by the Client to the Consultants if available: The existing maps, topographic plans, development plans, cadastral data, layouts, existing retrofitting, renovation, mechanical, electrical designs, calculations, related data and reports.

In addition, the Client shall, where possible, assist the Consultants in obtaining approvals, permissions from the Municipalities and other State Authorities in respect of the Services to be performed.

The Consultants shall return to the Client all documents received from the Client following the completion of the Services to be performed.

1. **APPROVAL AUTHORITY AND APPROVAL OF CONSULTANTS’ REVISION STUDIES**

If and when a revision is required on the retrofitting studies, the Consultants shall carry out the revision of the structural calculations and the designs in close cooperation with the national or international universities or earthquake institutes possessing the necessary specialized qualifications.

Accordingly, the Consultants are required to nominate in their teams the identity and names of the Professors/Authority/University Experts with the appropriate and specialized qualifications in the area of seismic resilient design from METU, ITU, Bosphorus University, Karadeniz Technical University, Pamukkale University or from any other national or international universities or institutes having the necessary specialization. Should the nominated persons be unacceptable to the Client, the Consultants shall be required to nominate other persons for acceptance at any time during the Services.

The Consultants are obliged to provide the special approval of the Approval Authority before submitting any reports, calculations, designs, etc. to the Client for approval.

The Client will review the documents, reports and designs submitted by the Consultants and either approve or comment on within 15 days following the date of submission but, this depends on the Consultants keeping the Client fully briefed and informed as the Project proceeds.

1. **TEAM COMPOSITION & QUALIFICATION REQUIREMENTS FOR THE KEY EXPERTS**

The Consultant is responsible for the establishment of a design review group who are experienced in the preparation of structural, architectural, electrical, mechanical, energy efficiency related works. The Consultant shall separately indicate the staff to be assigned in the preparation of designs and documents by indicating positions planned to be assigned for each staff in their proposal. The consultant is expected to establish a design and survey team in İzmir.

* 1. **Team Composition**

The successful fulfillment of the scope of services requires professional qualification in the fields of similar civil engineering, architecture, MEP, Energy Efficiency, infrastructure/superstructure resilience, and disaster risk mitigation, construction methods engineering, environmental, social, occupational health and safety, and community safety mitigation; construction and contract management; and related fields.

It is anticipated that key professional staff of the Consultant’s team may include a combination of international and/or Turkish professionals depending on the nature of the services to be provided.

The Consultant shall assemble a team capable of implementing an integrated approach to engineering design, infrastructure/superstructure resilience, and the attainment of desired outcomes in terms of construction quality, technical, social, and environmental risk mitigation, and value-for-money.

The Consultant shall provide adequate staff in terms of expertise and time allocation, as well as needed equipment/services in order to complete the activities required under the scope of work and to achieve the objectives of the project in terms of time, cost and quality.

The team shall employ at least the following key staff (or equivalent combination of expertise):

**Overall Assignment Leadership**

* Project Team Leader - Senior Civil Engineer/Senior Architect (experience in IFI funded projects and school buildings)

**Design Review and Preparation of Bidding Documents Phase**

* Principal Structural Engineer
* Civil Engineer
* Geotechnical Engineer
* Energy Efficiency Engineer
* Environmental and Social Expert/Specialist
* OHS Specialist
* Procurement Specialist
* Architect
* Mechanical Engineer
* Electrical Engineer

This core team shall be supported by other professionals as proposed by the Consultant. These additional profiles must indicate whether they are to be regarded as long-term/short-term and senior/junior so that it would be clear which fee rate in the budget breakdown will apply to each profile.

All staff must be independent and free from conflicts of interest in the responsibilities accorded to them. The selection procedures used by the Consultant to select these other staff shall be transparent, and shall be based on pre-defined criteria, including professional qualifications, language skills and work experience. Note that civil servants and other staff of the public administration of Turkey cannot be recruited as experts, unless prior written approval has been obtained from the Client. As the final reports will be produced in both English and Turkish, the Consultant may wish to consider having translators on the team or propose a viable alternative for reliable and high-quality translation.

The list below provides further details on the required qualifications of the core team positions:

- **Project Team Leader**, will be responsible for the overall management of the project and will have (i) Bachelor’s degree in Civil Engineering or Architecture, (ii) at least 10 years of professional experience, (iii) minimum 5 years of working experience in management of projects financed by international donors/agencies such as WB/IFC/EBRD/EU/AFD and United Nations etc.

- Principal Structural Engineer will have (i) Bachelor’s degree in Civil Engineering, (ii) at least 10 years of professional experience, (iii) M.Sc. and/or PhD in Structural/Seismic Engineering with experience in seismic retrofitting design of min. 50.000 m2 in max 10 different buildings,

- Civil Engineer will have (i) Bachelor’s degree in Civil Engineering, (ii) at least 10 years of professional experience, (iii) site experience on reconstruction and/or retrofitting/renovation of school buildings,

- Geotechnical Engineer will have (i) Bachelor’s degree in Civil Engineering, (ii) at least 10 years of professional experience, (iii) site experience on reconstruction and/or retrofitting/renovation of school buildings,

- Energy-Efficiency Engineer will have (i) Bachelor’s degree in Mechanical/Electrical Engineering, (ii) at least 10 years of professional experience, (iii) related certification (iv) experience in EE design of min. 50.000 m2 in max 10 different buildings

- Architect will have (i) Bachelor’s degree in Architecture, (ii) at least 10 years of professional experience, (iii) reconstruction and/or retrofitting/renovation experience of school buildings

- Mechanical Engineer will have (i) Bachelor’s degree in Mechanical Engineering, (ii) at least 10 years of professional experience, (iii) reconstruction and/or retrofitting/renovation experience of school buildings

- Electrical Engineer will have (i) Bachelor’s degree in Electrical Engineering, (ii) at least 10 years of professional experience, (iii) reconstruction and/or retrofitting/renovation experience of school buildings

-Environmental and Social Expert/Specialist will be responsible for ensuring that ESMPs are prepared in accordance with national environmental laws and regulations, with international good practice, the World Bank’s safeguard requirements as well as World Bank Group’s Environmental, Health and Safety guidelines. The Environmental and Social Expert/Specialist is expected to have; (i) Bachelor's degree in Environmental Engineering, (ii) at least 8 years of professional experience; (iii) minimum 3 years of working experience in management/preparation of ESIA/ESMP studies in the local context and in cooperation with international donors/agencies such as WB/IFC/EBRD/EU/AFD and United Nations etc.; and (iv) at least two assignments that included similar tasks.

- OHS Specialist will have (i) an advanced degree in a relevant discipline (e.g. civil, environmental, mechanical engineering, OHS, etc), (ii) 5+ years of relevant experience in OHS assessment and management, and (iii) a good understanding of World Bank Group safeguards, General Environmental, Health, and Safety Guidelines or any other relevant internationally acceptable standards.

- Procurement Specialist will have (i) Bachelor’s degree from Engineering faculties, (ii) at least 5 years of professional experience, (iii) minimum 2 years of working experience in preparation of bidding documents for projects financed by IFIs

**Other experts, support staff & backstopping**

The Consultant shall select and hire other experts as required (GIS expert, soil expert, landscaping architecture, ecologist, etc). The CVs of these experts should also be included in the technical proposal. However, technical evaluation will be conducted based on qualifications of the key experts.

All experts should have as a minimum requirement a university degree, at least five (5) years’ work experience, be fluent in English, and proven experience in the field(s) relevant for their specific projects, and work experience in Turkey will be an asset.

Costs for backstopping and support staff should be included in the financial offer of the consultant. The Consultant should also provide adequate administrative staff (i.e. secretary, translator, interpreter, accountant, document controller etc.) and technicans/junior engineers needed to support the expert team in order to assure the quality of all its activities and outputs.

**Annex-1**

**List of Buildings covered under the Assignment**

**TERMS OF REFERENCE (TOR)**

**FOR TIME-BASED CONTRACT:**

**CONSULTING SERVICES FOR CONSTRUCTION SUPERVISION of**

**RETROFITTING WORKS for EDUCATIONAL BUILDINGS**

**(REF: CQS-01-İzmir- DRMIS-WB-DH-01/B)**

1. **INTRODUCTION AND BACKROUND**

Turkey is vulnerable to a wide variety of natural hazards, including earthquakes, landslides, and floods. Among these, earthquakes have claimed the highest number of lives and caused the greatest economic loss, with approximately 90,000 fatalities in 76 earthquakes since 1900, a total affected population of 7 million, and direct losses of US$ 25 billion1. About half the casualties were due to two earthquakes on the North Anatolian Fault in 1939 and 1999. In the 1999 Marmara earthquakes, which affected 10 cities2 in the Marmara Region of Turkey where almost 35 percent of the Turkey’s GNP was produced, the death toll was over 18,000 with a direct economic impact estimated at US$ 5 billion (2.5 percent of GNP). Although less dramatic, floods and landslides are frequent events that cause localized losses. Observed and anticipated climate change impacts, such as more intense precipitation and rising sea level, are expected to lead to increasing risks to natural disasters, including more frequent and intense flooding in low-lying areas of river deltas and coastal cities and other extreme weather events.3 In earthquakes, globally and in Turkey, evidence have shown schools to be particularly vulnerable to damage or collapse which risks the lives of children and teachers as well as disrupting the provision of quality education.

Turkey’s Climate Change Action Plan (2011-2023) identified numbers of actions aimed at increasing national preparedness and capacity to avoid the adverse impacts of climate change and to adapt to its impacts. In 2015, Turkey submitted its Intended Nationally Determined Contribution to the United Nations Framework Convention on Climate Change, committing to reduce its GHG emissions up to 21 percent by 2030 compared to business as usual scenario, to be achieved through several new policies and measures, including those related to energy efficiency improvements.

Since 1993, the World Bank has played a prominent role in financing Turkey’s large reconstruction and disaster risk management programs. While the partnership between the Government of Turkey and the Bank initially focused on post-disaster reconstruction and recovery, it also provided a platform to support shifting from a reactive to a proactive approach. In each subsequent reconstruction project, a larger proportion of funds were dedicated to strengthening Turkey’s capacity for disaster risk mitigation and emergency preparedness.

As a part of continued 15 years of collaboration with the MoNE, in late 2016, the Bank assumed an administrator role for the Education Infrastructure for Resilience Project, funded by the European Commission’s Facility for Refugees in Turkey (FRiT), with a total budget of US$ 160 million and four-year implementation period. Based in part on the experience to date with the Education Infrastructure for Resilience Project and to mainstream seismic risk reduction in school infrastructure at scale in Turkey, MoNE and the Bank have developed the Disaster Risk Management in Schools Project (the Project, hereinafter).

For the financing of the Project, the International Bank for Reconstruction and Development (IBRD) and the Republic of Turkey signed a Loan Agreement in the amount of USD 300.00 million (EUR 267.6 Million equivalent) that became effective on November 2019. Ministry of National Education (MoNE) through its Construction and Real Estate Department is responsible for the implementation.

The Project, which is being implemented as the first operation designed with a series of projects approach, aims to contribute to the Government’s objective of reducing seismic risk to which education infrastructure and students are exposed and rests upon two main investment pillars: (i) retrofitting of schools where this is technically and financially feasible and; (ii) reconstruction where it is financially more cost effective due to very poor quality in the existing school. In this manner the Project aims to integrate safety into education infrastructure and promote school-based disaster management in a way that reduces the greatest amount of risk while applying principles of investment efficiency in order to maximize the number of vulnerable schools structurally intervened.

1. **PROJECT OBJECTIVES**

The objective of the Project is to increase the safety of students, teachers and staff in selected schools in high-risk seismic zones in Turkey. This will be achieved by reduced seismic risk of 350 vulnerable schools and increased safety of 280,000 students and staff having access to earthquake resilient education facilities. The Project will rely predominantly on retrofitting of schools (300) and reconstruction of schools (50) over 5 years.

The Project has the three key components: (a) improving seismic resilience of schools; (b) enhancing institutional and technical capacity for safer schools; and (c) project management including monitoring and learning.

Through the project, building up-to-standard and safer schools would result in avoiding creation of new risks against natural hazards and serve the purpose of long-term seismic risk reduction in school buildings.

Retrofitted and reconstructed seismic-resilient and furnished modern facilities will also contribute to a better learning environment that has a positive effect on the learning abilities of students. Retrofitting/reconstruction measures will be complemented with energy efficiency upgrades including practical green and zero-waste building measures, which will in turn result in savings of gas, electricity and water consumption, thereby also reducing the carbon footprint of schools. Schools subject to intervention will also satisfy all applicable national regulations and codes for shelter, fire, safety at workplace, access for people with disabilities and so on as well as all standards related with the materials to be used.

Detailed designs and roll-out of key interventions will be informed by the cross-cutting areas such as (i) climate change where energy efficiency and climate change adaptation investments complement the civil works in the scope of the Project and (ii) gender where designs of schools will pay attention to gender friendly spaces as a part of MoNE’s school design standards to be applied for reconstructed or retrofitted schools.

1. **SCOPE OF SERVICES**

The most recent major earthquake (magnitude 6.9) occurred on October 30, 2020 in the Aegean Sea and severely impacted the region of Izmir, which is the third largest urban area and economic hub in Turkey. A rapid damage assessment conducted by the World Bank estimated a preliminary economic loss exceeding US$ 900 million (or equivalent of 0.12% of the Turkish 2019 GDP), from direct damage associated with the event. The City of Izmir suffered disproportionately from this event, with 17 multi-story buildings collapsed, 500 to 1,000 buildings damaged beyond repair, and 116 fatalities. More than 5,000 buildings suffered light structural damage and damage to non-structural features, and the impact on critical infrastructure is still being assessed. Moreover, moderate to heavy damage for 36 public buildings and 32 schools is reported.

Accordingly, 75 school buildings located in İzmir have been prioritized for retrofitting and 10 for reconstruction considering conditions of the buildings and continuation of the seismic risk in Izmir. Among the full prioritization list for İzmir; this contract package includes the retroffiting of 20 school buildings.

The Consultant will be required (i) to carry out construction supervision and building commissioning services, (ii) supervise remedial works to rectify defects that arise during the Defects Liability Period (DLP) for the buildings listed in Annex-1.

1. **DESCRIPTION OF THE CONSULTANTS’S TASKS**
   1. **SUPERVISION OF CONSTRUCTION WORKS AND ENGINEERING SERVICES**

The Consultant as "the Engineer” shall be responsible to carry out all the duties envisaged in World Bank’s Standard Bidding Documents appliacable for the Project. The Consultant shall also be responsible as the “Engineer” to amend designs, provide details and instruct the contractors whenever it necessitates, during the course of works. Significant issues shall be subject to approval of the Client.

* + 1. **Initiation of Retrofitting Supervision**
* The Consultant shall follow up evacuation of buildings respect to Contractors’ work programs closely on site and shall communicate with related authorized persons for public buildings. The Client shall be kept updated on the actual evacuation progress. In case evacuation does not take place on time, the Consultant shall take necessary actions to ensure the completion of works within the original scheduled period without delay in close cooperation with the Client and the Contractors.
* The Consultant shall prepare initial inspection reports of the blocks for each room and use digital camera for this purpose to prove that work is executed according to initial status or agreed modifications.
* Although it is a very unlikely occurrence, the retrofitting designs prepared by the Client, may not suit the existing electrical, mechanical, and architectural site conditions. In such cases, the Consultant is required to inform the Client and propose appropriate solutions prepared by the Consultant’s site supervision team. If redesign is required Consultant will collect all data for design purpose and assist the Client about the subject.
* The Consultant shall collect necessary documents required for obtaining the Modification Construction Permit from the Municipality and assist the Contractors for obtaining the Modification Construction Permit. The Consultant shall also sign the documents be submitted for construction permit.
  + 1. **Construction and Construction Supervision**
* During the supervision, if any alteration is deemed necessary in any of the contract drawings, documents based on the actual findings of the construction excavation for the foundations of buildings, the Consultant shall immediately inform Client by providing all data for redesign and amend foundation and related designs, provide details and perform redesign if existing contract drawings prepared by the Consultant are not applicable without any cost to Client.
* The Consultants shall be responsible to check all the information required for accurate setting-out of the works and obtain additional information from the related authorities before the Contractors set out the Works and supervise all the setting- out studies by the Contractors. The boundaries of the available construction site shall also be compared with the project layout.
* Consultants shall supervise and oversee all aspects of the construction and installation of the various components of the works to ensure strict compliance with the drawings and contract documents, subject to any express or implied terms contained in any Conditions of Contract entered into between the Employer (Client) and the Contractors.
* The Consultant shall provide sufficient, qualified and experienced staff to ensure proper site supervision of the works and engineering services during the construction period and during the Defects Liability / Maintenance period.
* The Consultant shall also be responsible to amend designs, provide details and instruct the contractors whenever it necessitates, during the course of works. The Consultants will be responsible from the adverse consequences arise as a result of their slow action, delay, omission, etc.
* If it is necessary to make amendments to the design during the course of the contract, the site supervisory staff must be fully qualified to carry out any such amendments.
* The Consultant shall prepare the necessary documents required for obtaining the Construction Permit from the Municipality or other relevant authority and assist the Client /the Contractor for obtaining the Construction Permit.
* The Consultants will be responsible for supervising the demolition, construction and installation of the Works as well as for the inspection and conduct of testing of all materials, plant and equipment both during the demolition and construction period and for any works that have to be completed during the Maintenance/Defects Liability Period. The Consultants shall maintain effective liaison with the Client on all aspects of the demolition/construction/installation, including the performance of the Contractor and shall submit the reports specified later in Section 6 and envisaged in the Contractors contracts in a timely manner and to the required details.
* Consultants are expected to arrange necessary shifts among their staff to supervise the works 24 hours a day, if necessary, during concrete casting. In case concrete casting is needed to be executed by the Contractor in the night hours rather than daytime because of the traffic related limitations or other reasons due to requests of related authorities, Consultant will arrange the staff workload distribution and employment terms according to this condition without any cost to the Client and the Contractor.
* The Consultants are required to arrange a proper transportation programme for the assigned staff in supervision services within TECH-8.
* The Consultants shall fully inform the Client about the cost and time impact or any other consequences of their proposals (such as revision, recommendation, etc.). The Client shall not be responsible for the consequences of the fact which the Client is not informed of in advance.
* The Consultant shall prepare the energy performance certificates (enerji kimlik belgesi) after the retrofitting and reconstructions works are completed.
* It is the duty of the Consultants to interpret the drawings and specifications and to consult with the Contractors as required to ensure compliance with the Contract Documents and the construction/installation program.
* The Consultant shall arrange weekly and monthly meetings with contractors, inform the Client about progress of the work and activities, attend any meetings reasonably convened by the Client and provide any information or evidence reasonably required by the Client at any public meetings or inquiries which might be held in connection with the Project.
* If the similar construction works are supervised by other Consultants in other sites, the Consultants shall co-operate with the other Consultants and join the meetings whenever required by the Client.
* The Consultant shall take necessary measures, continuously monitor and supervise the Contractor’s operations for environmental, social, occupational health and safety aspects.
* In this context the most recent Turkish environmental and safety regulations are required to be taken into consideration particularly during the supervision of the construction works. Within this scope Consultant shall also be responsible for the supervision of the Contractors’ onsite environmental management practices (waste management, noise, etc.) and report to the Client in his monthly progress reports.. Consultant shall have the responsibility for relevant supervision and instruction of the applications to the Contractor.
* The Consultant shall supervise the Contractor on behalf of the Client for performing and implementation of all Health and Safety activities in accordance with the enforcement of the related Turkish Laws and legislations, and measures specified in the ESMP. The consultant duties and responsibilities shall include:

1. Conduct daily visits to all construction sites to check the contractor’s OHS documents and compliance, provide on-the job tranings, ensure compliance of the works with OHS practices and regulations, and issue non-compliance notices to the contractor and report the same to the Client.
2. Ensure that the workers are provided OHS training and have complete health records and personal files in accordance with pertinent legal requirements, and avoid access of the access of workers to work site if there any non-compliance
3. Make available an OHS expert in high-risk worksites (e.g.: high elevations scaffolds, confined space, crane works, digging works, etc.).
4. Check conformity of equipment/ machines on worksites with national standard, and avoid their use in case of non-compliances
5. Report on the near-miss and accident to the Client immediately and make follow up on related investigations.
6. Participate in the contractor's regular OHS meetings and provide input for needed improvements.
7. Provide the contractor with a copy of key OHS documents (Law 6331 on OHS Code, 5510 Social Security and General Health Insurance Law, 4857 Labour Code and also IFC Environmental, Helath and Safety (EHS) Guidelines) and check the compliance.

* The Consultant shall ensure that the Contractor’s activities are following the ESMP. The Consultant shall supervise the Contractor’s implementation of environmental and social mitigation measures as identified in the ESMP. The Consultant should ensure Contractor that the Project’s Grievance Redress Mechanism set forth by MoNE is utilized and made available, accessible and visible in Project site.
* The Consultant shall ensure that the Contractor records any grievance received by local community or worker and report it in monthly ESMP monitoring reports to PIU.
* The Consultant shall be responsible for the compilation and submission of site-specific information to the Client, through monthly progress reports and by completing quarterly ESMP monitoring reports. These reports will include an update on the status of implementation of the respective ESMP, OHS compliance, and also outline any environmental, social and OHS problems being encountered, as well as any grievances received by nearby communities and/or workers, and give recommendations on how these problems may be overcome.
* The Consultant shall provide feedback and give notice to the MoNE regarding environmental and social issues at sites.
* The Consultant shall be responsible for assisting the Client with supervision of the implementation of environmental and social aspects of the project as part of its overall supervision responsibilities, in accordance with ESMP.
* If the Contractor is found to be non-compliant with the ESMP requirements, the Consultant shall file a non-conformity report and any relevant payment orders should be put on hold, until non-compliance issues are remedied satisfactorily or issue a fine in consultation with MoNE.
* The Consultant shall attend workshops to be organized by the Client that may be related to the project implementation, environmental and social safeguards, occupational health and safety, communication and public information, and grievance redress mechanism.
* The Consultant shall ensure that brochures, posters, grievance forms and other visual communication products to be provided by the Client are available and properly displayed at construction sites from beginning to end of the construction work.
* The Consultant shall include the hoarding panel design visuals in the tendering documents for the school buildings construction. Visual designs to be printed on panels will be provided by the Client.
* The Consultant shall ensure that the Contractor deliver the hoarding panels and install them around the construction site appropriately before construction work starts.
* The Consultant shall be in contact with the Client in responding to inquiries and grievances received at construction sites in timely manner, provide including but not limited to logistical and data collection support to communication activities to be carried out at such as informative meetings and trainings in schools before construction work starts and contribute to community awareness raising operations.
* .
  + - 1. ***Payment to Contractors, Variations***
* The Consultant shall check the Contractor’s valuations for payment on account and issue certificates according to the Conditions of Contract used and shall also be responsible for agreeing with the Client on each payment certificates in payable amount. The actual procedure and presentation of the certificates, supporting documents, etc. shall be discussed and agreed with the Client. If payment certificate is not prepared by Contractor, Consultant will prepare payment certificate on behalf of Contractor.
* The Consultant shall review the designs, plans, technical specifications, BoQ’s, etc. and prepare all additional documents and detailed designs during the first month of his assignment as mentioned in the above paragraphs, in such a way that the necessity for variation orders during the construction/installation stage is minimized as mentioned in Phase I. If it is considered necessary by the Consultant or the Client that any alterations in any of the Contract Documents, Plans or Specifications are advisable, the Consultant shall prepare and submit such alterations to the Client for approval, in a timely manner, supported by the necessary calculations, details and, time and cost implications. The Consultant shall state whether the alterations will cause any delay in the work programme, and therefore the contractor(s) to be entitled any time extension or not, supported by necessary documentation. On receiving written approval from the Client, the Consultant shall promptly amend the existing designs or supply any additional designs, plans, drawings and specifications where required or found necessary for the satisfactory completion of the works. Furthermore, the Consultant shall review and approve Contractor’s and manufacturer’s drawings and where appropriate incorporate these drawings into the overall design and review alterations which might be requested by the Contractors during the course of Works. The Consultant shall fully inform the Client about the cost and time impact and any other consequences of his any sort of proposals (such as revisions, recommendations, etc). The Client shall not be responsible from the consequences of the fact of which the Client is not informed in advance.
  + - 1. ***Tests, Reports***
* The Consultant shall approve an appropriate Material Testing Laboratory for all tests required that will be mentioned in Contractors’ Technical Specification and shall discuss the various testing requirements stipulated in its documents with personnel of the laboratory. The Consultant shall give at least 24 hours prior notice to the laboratory for all tests which are required to be undertaken. All samples shall be properly labeled in accordance with the requirements of the laboratory and the Consultant shall be responsible for the delivery of all samples for testing and for the collection of all test reports.
* The involvement of the approved Materials Testing Laboratory is limited to the actual performance of the tests in accordance with the Consultant’s laid down procedures and/or the specified standards stated in the Contract. The Consultant shall be responsible for interpreting the results received, instructing the repetition or the carrying out of additional tests and taking whatever action necessary to ensure compliance with the contract requirements. The Laboratory staff may from time to time offer advice to the Consultant on any matter within the scope of their competence, but it is up to the Consultant whether to accept or reject such advice or suggestion. If any advice or suggestion is accepted by the Consultants, they shall become completely responsible for it as if the advice or suggestion has been of its own initiative.
* Where necessary, tests and inspections may be carried out at the place of manufacture during fabrication and/or prior to shipment. The Consultants shall inform the Client well in advance about any such performance test foreseen to enable the Client to participate in these tests if he so wishes.
* The Consultant shall stipulate the criteria, the planning and the procedure for all tests and inspections necessary for the materials, equipment, plant and workmanship and the commissioning of the Works and shall provide supervision and inspection for these tests. The Consultant shall compile a record of all such tests and compare the results with the specifications, standards or with the performance criteria that has been guaranteed by the suppliers or contractors.
* Preparation and submission of as-built drawings, shop drawings, operating and maintenance manuals for all items of equipment and plants incorporated in or associated with the works, shall be controlled and followed by the Consultant in timely manner. As-built drawings, operating and maintenance manuals should be obtained from the Contractor during the issuing of taking-over certificate. Otherwise, the Client might ask the Consultant for the conversion of the approved shop drawings into as-built drawings if Client considers that the Consultant is not strictly following up the work. The Consultant shall also prepare and submit to the Client’s approval a report giving all information about the “as-built-conditions” including (but not limited to) calculations, drawings, specifications, test reports and final Bill of Quantities
* Prepare Energy Performance Certificate (EKB): The consultant shall prepare the energy performance certificate of the building before and after the completion of the works.
  + - 1. ***Accounts, Claims***
* In any case, all the correspondences received from the contractor shall be reviewed, evaluated and responded within one week. Any claim from the contractor(s) under the construction contracts shall be evaluated by the Consultant and necessary recommendation shall be made the latest within two weeks, as well.
* The Consultant shall review and report on any financial claims submitted by the Contractors within 2 weeks of receipt of such claims.
  + - 1. ***Disputes***
* The Consultant shall assist in the setting of all disputes or differences, which may arise between the Client and the Contractors, in a timely manner. In the case of litigation and arbitration the Consultant shall assist the Client in the preparation of the documents needed by the Client.
  + 1. **Defects Liability and Maintenance Period**

The Consultant shall continue to be responsible for the supervision and inspection of the construction and completion of the Works during the Defects Liability Period as defined in the construction contracts. The level of supervision shall be appropriate to the scale of the works being carried out. These inspections and supervision are to ensure that works, agreed to be carried out during the Defects Liability Period, are properly carried out and have been completed and that any failure of any part of the Works has been rectified. If any defect is discovered, during this period, the Consultant shall promptly investigate the reason for it, report to the Client and take required actions to rectify the defect. A report of these inspections shall be submitted to the Client, which shall include all details of any defects, faults, accidents or breakdowns, which have occurred together with the estimated costs of repair and the time scales within which they will be completed. Moreover, the Consultant shall submit quarterly reports summarizing all the activities during subject quarter of Defects Liability. A final report shall be submitted at the end of the Defects Liability Period giving full details of all works carried out during that period. This report shall be submitted by the Consultant to the Client at least 30 days prior to the Consultant’s issuing Defects Liability Certificate for the completed Works. The Consultant will provide minimum number of technical staff acceptable to the Client on each construction site during the Defects Liability Period.

1. **DELIVERABLES**

The Consultants shall prepare and submit to the Client various reports, drawings and document that are specified in or that are implied from these Terms of Reference in respect of various components of the Projects as described in the Terms of Reference.

These reports, drawings and other documentation relate to the various stages of the Consultants' Services including, but not necessarily limited to;

For Construction Works:

* Construction Supervision Stage
* Energy Performance Certification after construction works completed
* Completion and Defects Liability Stage

The Consultants shall prepare and submit a report satisfactory to the Client each calendar month, including progress charts and photographs in colors giving all information regarding the progress of the Works, actual extent and nature of the Works completed as well as details of any delay in the Works substantiating documentation if required. The Consultants shall also clearly indicate in the report whether the delay (if any) of any part of the works will cause any delay in the completion of the whole Works.

The report shall also include the percentages of the work items completed and planned, and also the actual and planned cash-flows for each work item as of the reporting period prepared in the project planning tools (such as Ms Project, Primavera, Asta, etc…) accepted by the MoNE.

The report shall also include test records of materials, equipment and plant tested with copies of the test results and statistical evaluation of the test results in table and graphical form. Action taken with regard to poor results shall be stated.

The report shall give a detailed review of the Works to be performed during the following month and a general listing of the works to be performed during the following two months.

The report shall also give information about personnel employment status of the Consultants.

The report shall also include OHS, environmental and social management practices followed for mitigation of environmental and social impacts of the works, including any grievances received from public and also from workers and the overall compliance with the ESMP.

The report shall be submitted to the Client by the tenth day of following month. Any comment by the Client on the report shall be reviewed and the report shall be modified and re-submitted to the Client within 7 (seven) calendar days.

Due to the urgent nature of the project and short construction time, the Consultants shall also prepare a report in table form showing summary of cumulative progress in main work activities on weekly basis. The report shall be submitted to the Client in an acceptable format on Monday of each week via electronic mail and as hard copy. The weekly report shall also be e-mailed to Client.

In addition, the Consultants shall record views from at least 5 different points for the construction site, on weekly base, showing the progress on the site with dates and record them with acceptable format on Memory Sticks and submit to the Client.

The requirements for the submission of reports, drawings and other documentation are given below. Reports shall be prepared in both Turkish and English languages. The metric system of weights and measures shall be used.

Submission shall be as follows:

1. **General**

Format of Reports : A4 or A3, including where appropriate drawings reduced to A3 size.

Format of Drawings: A1 and/or A0 size.

A draft copy (Turkish 2, English 2) of all reports shall be submitted to the Client in advance for discussion purposes following which the Consultants shall be required to prepare the final copy, incorporating any amendments arising from such discussions.

1. **Construction Supervision Stage**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Number of copies of report/drawings** | **Turkish** | **English** | **Memory Stick (English and Turkish)** |
| **1** | Number of copies of Weekly Report (Hard copy) | 1 | 1 | 1 |
| **2** | Number of copies of Monthly Report | 2 | 2 | 1 |
| **3** | Number of copies of Quarterly Report | 2 | 2 | 1 |

1. **Completion and Defects Liability/Warranty Stage**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Number of copies of report/drawings** | **Turkish** | **English** | **Memory Stick (English and Turkish)** |
| **1** | Operating and Maintenance Manuals | 2 | 1 | 1 |
| **2** | Quarterly Report | 2 | 2 | 1 |
| **3** | Complete sets of as-built drawings | 1 | 1 | 1 |
| **4** | Taking-Over Report(s) | 1 | 1 | 1 |
| **5** | Defects Liability Period Report(s) | 2 | 2 | 2 |
| **4** | Energy Performance Certificates | 2 | 2 | 1 |

Original of the drawings that shall be submitted to the Client are not included in the above number of copies.

Those of the documents and reports not mentioned above but either specified or implied in the contract related to the Construction Supervision Stage and Completion and Defects Liability Period shall be submitted in 3 copies in Turkish and English languages each.

In relation to the ongoing stages of the Consultants Services, the submission requirements given above show the type of documentation that will be required by the Client during the performance of the Services. However, the Consultant shall allow in its fee for the submission of all reports, drawings, documents, etc. either specifically requested in these Terms of Reference or those which may be implied there from and the Contractors' contracts. The Client may however vary such requirements during the course of the Services to be performed.

Should additional copies be required over to those stated above or specified in these Terms of Reference, these shall be supplied by the Consultants at the cost of reproduction of such documents, reports or drawing. Additionally, after finalizing the reports and “as built” drawings, these shall be submitted to the Client on one (1) set of Memory Stick and in the software format acceptable by the Client. Each copy shall be durably bound in a volume or volumes depending on bulk, and the transparent copies shall have a suitable protective cover/box. All copies shall be labeled in accordance with the needs of the Client.

Upon the completion of Works and Supply Procurement, the Consultants shall submit all the original copies of correspondences, documents, test results and drawings relating to the services and Works, to the Client together with indices in acceptable files and forms by the Client and as archived. The Consultants shall keep the copies of the documents.

1. **TIMELINE**

During the supervision period it should be noted by the Consultants that prepared designs/details/calculations/reports/specifications and other documents submitted to the Client for approval will be reviewed by the Client and approved or returned for revision and/or resubmission in 15 calendar days.



The Consultants shall submit all the documents in a timely manner to complete the services on time without any delay. Time schedule for the completion of the consultants’ services for the various parts of the Project is given below;

**For Retrofitting Construction Works**

* **Construction Supervision and Defects Liability Periods:** Under normal conditions, the scheduled construction period is 6 months in total and the defects liability period for each group of buildings is 12 months

1. **SUPPORT TO BE PROVIDED BY THE CLIENT TO THE CONSULTANTS**

The Civil Works Contractors’ bidding documents shall be arranged to incorporate clauses to provide temporary office area to the Consultants at the construction site depending on the size and location of the construction site, the size and number of rooms shall be jointly determined by the Client and the Consultant considering the needs of the Client as well. The Consultants will be fully responsible for providing their central office in İzmir until the contractors are in place to make these site offices available. The central office shall be furnished and equipped by the Consultants as per clauses of SCC of Standard Forms of Contract, whereas the site offices shall be furnished by the Contractor. All sort of running expenses of site offices shall be under the Contractors responsibility. The Consultant shall not be required to deliver any equipment and materials provided by the reimbursable expenses and which have been used for the Services to the Client.

All local transport for the Consultants staff including the site supervisory staff shall be provided by the consultant and shall be included in the fee proposal submitted.

Subject to availability to Client the following items shall be provided free of charge by the Client to the Consultants if available: The existing maps, topographic plans, development plans, cadastral data, layouts.

In addition, the Client shall, where possible, assist the Consultants in obtaining approvals, permissions from the Municipalities and other State Authorities in respect of the Services to be performed.

The Consultants shall return to the Client all documents received from the Client following the completion of the Services to be performed.

1. **TEAM COMPOSITION & QUALIFICATION REQUIREMENTS FOR THE KEY EXPERTS**

The Consultant is responsible for the establishment of a supervision group who are experienced in structural/retrofitting, architectural, electrical, mechanical, energy efficiency related works. The Consultant shall separately indicate the staff to be assigned for the supervision and documents by indicating positions planned to be assigned for each staff in their proposal. The consultant is expected to establish a supervision team in İzmir.

**8.1 Team Composition**

The successful fulfillment of the scope of services requires professional qualification in the fields of similar civil engineering works; architectural works, MEP works, Energy Efficiency, infrastructure/superstructure resilience, and disaster risk mitigation; construction methods engineering; environmental, social, occupational health and safety, and community safety mitigation; construction and contract management; and related fields.

It is anticipated that key professional staff of the Consultant’s team may include a combination of international and/or Turkish professionals depending on the nature of the services to be provided al.

The Consultant shall assemble a team capable of implementing an integrated approach to engineering design, infrastructure/superstructure resilience, and the attainment of desired outcomes in terms of construction quality; technical, social, and environmental risk mitigation; and value-for-money.

The Consultant shall provide adequate staff in terms of expertise and time allocation, as well as needed equipment/services in order to complete the activities required under the scope of work and to achieve the objectives of the project in terms of time, costs and quality.

The team shall have at least the following key positions (or equivalent combination of expertise):

**Overall Assignment Leadership**

* Project Team Leader - Senior Civil Engineer/Senior Architect (experience in IFI funded projects and school buildings)

**Construction Supervision Phase**

* Deputy Project Manager Senior Civil Engineer/Senior Architect (experience in IFI funded projects and school buildings) (if PM is Civil Eng than DPM should be Architect or vice versa)
* Senior Civil Engineer
* Geotechnical Engineer
* Cost and Planning Engineer
* Quality Control and Quality Assurance Engineer
* Senior Architect
* Senior Mechanical Engineer
* Senior Electrical Engineer
* Energy – Efficiency Engineer
* Environmental and Social Expert/Specialist
* Occupational Health and Safety Specialist

This core team shall be supported by other professionals as proposed by the Consultant. These additional profiles must indicate whether they are to be regarded as long-term/short-term and senior/junior so that it would clear which fee rate in the budget breakdown will apply to each profile.

All staff must be independent and free from conflicts of interest in the responsibilities accorded to them. The selection procedures used by the Consultant to select these other staff shall be transparent, and shall be based on pre-defined criteria, including professional qualifications, language skills and work experience. Note that civil servants and other staff of the public administration of Turkey cannot be recruited as experts, unless prior written approval has been obtained from the Client. As the final reports will be produced in both English and Turkish, the Consultant may wish to consider having translators on the team or propose a viable alternative for reliable and high-quality translation.

The list below provides further details on the required qualifications of the core team positions:

**Project Team Leader**, will be responsible for the overall management of the project and will have (i) Bachelor’s degree in Civil Engineering or Architecture (ii) at least 10 years of professional experience (iii) minimum 5 years of working experience in management of projects financed by international donors/agencies such as WB/IFC/EBRD/EU/AFD and United Nations

Deputy Project Manager will have (i) Bachelor’s degree in Civil Engineer/Architecture (ii) at least 10 years of professional experience (iii) experience in IFI funded projects and school buildings) (if PM is Civil Eng than DPM should be Architect or vice versa)

Geotechnical Engineer will have (i) Bachelor’s degree in Civil Engineering, (ii) at least 10 years of professional experience, (iii) site experience on reconstruction and/or retrofitting/renovation of school buildings,

Cost and Planning Engineer will have (i) Bachelor’s degree in Civil Engineer (ii) at least 5 years of professional experience (iii) at least two years of similar experience

QA-QC Engineer will have (i) Bachelor’s degree in Engineering (ii) at least 5 years of professional experience (iii) at least two years of similar experience

Energy-Efficiency Engineer will have (i) Bachelor’s degree in Mechanical/Electrical Engineering (ii) at least 10 years of professional experience (iii) with certificate from Ministry (iV) with experience in EE design of min. 50.000 m2 in max 10 different buildings

Senior Civil Engineer will have (i) Bachelor’s degree in Civil Engineering (ii) at least 10 years of professional experience (iii) reconstruction and/or retrofitting/renovation experience of school buildings

Senior Architect will have (i) Bachelor’s degree in Architecture (ii) at least 10 years of professional experience (iii) reconstruction and retrofitting/renovation experience of school buildings (preferable)

Senior Mechanical Engineer will have (i) Bachelor’s degree in Mechanical Engineering (ii) at least 10 years of professional experience (iii) reconstruction and retrofitting/renovation experience of school buildings (preferable)

Senior Electrical Engineer will have (i) Bachelor’s degree in Electrical Engineering (ii) at least 10 years of professional experience (iii) reconstruction and retrofitting/renovation experience of school buildings (preferable)

Architect/Civil Eng./Electrical Eng./Mechanical eng. will have (ii) at least 5 years of professional experience

The **Environmental and Social Expert/Specialist** will be responsible for ensuring that ESMPs are prepared in accordance with national environmental laws and regulations, with international good practice, the World Bank’s safeguard requirements as well as World Bank Group’s Environmental, Health and Safety guidelines. The Environmental and Social Expert/Specialist is expected to have; (i) Bachelor's degree in Environmental Engineering, (ii) at least 8 years of professional experience; (iii) minimum 3 years of working experience in management/preparation of ESIA/ESMP studies in the local context and in cooperation with international donors/agencies such as WB/IFC/EBRD/EU/AFD and United Nations; and (iv) at least two assignments that included similar tasks.

The **Environmental and Social Expert/Specialist** will be responsible for managing and monitoring the implementation of the environmental and social measures in line with national and World Bank guidelines and requirements as well as related ESMPs prepared. The Environmental and Social Expert/Specialist is expected to have; (i) Bachelor's degree in Environmental Engineering, (ii) at least 8 years of professional experience; and (iii) minimum 3 years of field experience on similar projects.

The **Occupational Health and Safety Specialist** will be responsible for managing and monitoring the occupational health and all environmental, OHS and social impacts mitigation measures included in the environmental and social management plans safety (OHS) measures and for carrying out risk assessments to identify and mitigate related OHS risks during construction. This staff will be employed as per the Law 6331 published for Health and Safety regulations and having Class B Certificate The OHS Specialist is expected to have (i) an advanced degree in a relevant discipline (e.g. civil, environmental, mechanical engineering, OHS, etc), (ii) 5+ years of relevant experience in OHS assessment and management, and (iii) a good understanding of World Bank Group safeguards, General Environmental, Health, and Safety Guidelines or any other relevant internationally acceptable standards.

**Other experts, support staff & backstopping**

The Consultant shall select and hire other experts as required (geological engineer, GIS expert, soil expert, landscaping architecture, ecologist, etc). The CVs of these experts should also be included in the technical proposal. However, technical evaluation will be conducted based on qualifications of the key experts.

All experts should have as a minimum requirement a university degree, at least five (5) years’ work experience, be good in English, and proven experience in the field(s) relevant for their specific projects, and work experience in Turkey will be an asset.

Costs for backstopping and support staff should be included in the financial offer of the consultant. The Consultant should also provide adequate administrative staff (i.e. secretary, translator, interpreter, accountant, document controller etc.) and technicans/junior engineers needed to support the expert team in order to assure the quality of all its activities and outputs.

**Annex-1**

**List of Buildings covered under the Assignment**

**GROUP-1**

| **No** | **CITY** | **DISTRICT** | **NAME OF SCHOOL** | **# OF BUILDINGS** | **TOTAL AREA (m2)** | **RESULT OF INITIAL ASSESSMENT** |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | İZMİR | BALÇOVA | O. PRIMARY AND SECONDARY SCHOOL | 1 | 3403,53 | Retrofitting |
| 2 | İZMİR | BAYINDIR | İ.İ. SECONDARY SCHOOL | 1 | 1869,89 | Retrofitting |
| 3 | İZMİR | BORNOVA | A. VOC. AND TECH. ANATOLIAN HIGH SCHOOL | 1 | 3065,65 | Retrofitting |
| 4 | İZMİR | BORNOVA | Ç. K. B. PRIMARY AND SECONDARY SCHOOL | 2 | 1972,71 | Retrofitting |
| 5 | İZMİR | BORNOVA | Ş. E. O. ANATOLIAN SECONDARY AND HIGH SCHOOL | 1 | 10474,58 | Retrofitting |
| 6 | İZMİR | BORNOVA | B. A. Ç. PRIMARY AND SECONDARY SCHOOL | 1 | 2267,37 | Retrofitting |
| 7 | İZMİR | BORNOVA | K. H. A. PRIMARY SCHOOL | 1 | 2041,23 | Retrofitting |
| 8 | İZMİR | BORNOVA | Ş.T. M. A. PRIMARY SCHOOL | 1 | 2720,33 | Retrofitting |
| 9 | İZMİR | ÇEŞME | E. M. Ç. PRIMARY SCHOOL | 1 | 2006,9 | Retrofitting |
| 10 | İZMİR | KARABAĞLAR | Ş. E. Ö. ANATOLIAN HIGH SCHOOL | 1 | 3786,84 | Retrofitting |
| 11 | İZMİR | KARABAĞLAR | A. E. PRIMARY SCHOOL | 1 | 1593,48 | Retrofitting |
| 12 | İZMİR | KARABAĞLAR | C. PRIMARY SCHOOL | 1 | 1839,25 | Retrofitting |
| 13 | İZMİR | KARABAĞLAR | K. K. SECONDARY SCHOOL | 1 | 1560,61 | Retrofitting |
| 14 | İZMİR | KARABAĞLAR | H. H. PRIMARY SCHOOL | 1 | 1921,64 | Retrofitting |
| 15 | İZMİR | KARABAĞLAR | S. M. SECONDARY SCHOOL | 1 | 1879,66 | Retrofitting |
| 16 | İZMİR | KONAK | C. N. S. İ. VOC. AND TECH. ANATOLIAN HIGH SCHOOL | 1 | 2963,64 | Retrofitting |
| 17 | İZMİR | KONAK | S. G. PRIMARY AND SECONDARY SCHOOL | 1 | 1155,85 | Retrofitting |
| 18 | İZMİR | NARLIDERE | R. Ö. VOC. AND TECH. ANATOLIAN HIGH SCHOOL | 1 | 2925,11 | Retrofitting |
| 19 | İZMİR | URLA | U. ANATOLIAN HIGH SCHOOL | 1 | 5994,63 | Retrofitting |
| 20 | İZMİR | URLA | H. Ç. CULTURE CENTER | 1 | 1892,43 | Retrofitting |

**GROUP-2**

| **No** | **CITY** | **DISTRICT** | **NAME OF SCHOOL** | **# OF BUILDINGS** | **TOTAL**  **AREA (m2)** | **RESULT OF INITIAL ASSESSMENT** |
| --- | --- | --- | --- | --- | --- | --- |
| 21 | İZMİR | BUCA | D. M. O. MULTI PROG. ANATOLIAN HIGH SCHOOL | 1 | 6972,83 | Retrofitting |
| 22 | İZMİR | BUCA | G. SECONDARY SCHOOL | 1 | 2920,06 | Retrofitting |
| 23 | İZMİR | BUCA | M. S. A. SECONDARY SCHOOL | 1 | 3764,98 | Retrofitting |
| 24 | İZMİR | BUCA | İ. B. SECONDARY SCHOOL | 1 | 6217,39 | Retrofitting |
| 25 | İZMİR | BUCA | R. E. SECONDARY SCHOOL | 1 | 3005,61 | Retrofitting |
| 26 | İZMİR | BUCA | S.K. PRIMARY SCHOOL | 2 | 2533,76 | Retrofitting |
| 27 | İZMİR | BUCA | E.İ. .B. PRIMARY SCHOOL | 1 | 2637,01 | Retrofitting |
| 28 | İZMİR | BUCA | M. Ş. SECONDARY SCHOOL | 1 | 2293,46 | Retrofitting |
| 29 | İZMİR | GAZİEMİR | E. B. A. SECONDARY SCHOOL | 1 | 4507,91 | Retrofitting |
| 30 | İZMİR | GAZİEMİR | E. B. G. PRE SCHOOL | 1 | 907,34 | Retrofitting |
| 31 | İZMİR | GAZİEMİR | A. VOC. AND TECH. ANATOLIAN HIGH SCHOOL | 1 | 2835,74 | Retrofitting |
| 32 | İZMİR | GAZİEMİR | A. PRIMARY AND SECONDARY SCHOOL | 1 | 1566,69 | Retrofitting |
| 33 | İZMİR | GAZİEMİR | E.B. G. PRIMARY SCHOOL | 1 | 2792,39 | Retrofitting |
| 34 | İZMİR | GÜZELBAHÇE | C. T.A HIGH SCHOOL | 1 | 4183,61 | Retrofitting |
| 35 | İZMİR | MENDERES | M. ANATOLIAN HIGH SCHOOL | 1 | 1831,98 | Retrofitting |
| 36 | İZMİR | ÖDEMİŞ | H. U. ANATOLIAN HIGH SCHOOL | 1 | 3906,01 | Retrofitting |
| 37 | İZMİR | ÖDEMİŞ | E..Y. SECONDARY SCHOOL | 2 | 2257,89 | Retrofitting |
| 38 | İZMİR | ÖDEMİŞ | Z. H. VOC. AND TECH. ANATOLIAN HIGH SCHOOL | 1 | 3190,17 | Retrofitting |
| 39 | İZMİR | SELÇUK | S. PRIMARY AND SECONDARY SCHOOL | 1 | 1838,19 | Retrofitting |
| 40 | İZMİR | TİRE | Ş. A. İ. K. ANATOLIAN HIGH SCHOOL | 1 | 3199,51 | Retrofitting |

**GROUP-3**

| **No** | **CITY** | **DISTRICT** | **NAME OF SCHOOL** | **# OF BUILDINGS** | **TOTAL**  **AREA (m2)** | **RESULT OF INITIAL ASSESSMENT** |
| --- | --- | --- | --- | --- | --- | --- |
| 41 | İZMİR | ALİAĞA | M. S. PRIMARY SCHOOL | 1 | 2260,58 | Retrofitting |
| 42 | İZMİR | BAYRAKLI | K. İ..İ. PRIMARY SCHOOL | 1 | 3362,51 | Retrofitting |
| 43 | İZMİR | BAYRAKLI | M. U. SECONDARY SCHOOL | 3 | 3239,94 | Retrofitting |
| 44 | İZMİR | BAYRAKLI | N. İ. K. SECONDARY SCHOOL | 1 | 3224,54 | Retrofitting |
| 45 | İZMİR | BAYRAKLI | T.B. SECONDARY SCHOOL | 1 | 1416,16 | Retrofitting |
| 46 | İZMİR | BAYRAKLI | İ. SECONDARY SCHOOL | 1 | 1869,23 | Retrofitting |
| 47 | İZMİR | ÇİĞLİ | A.A. S. VOC. AND TECH. ANATOLIAN HIGH SCHOOL | 1 | 2949,79 | Retrofitting |
| 48 | İZMİR | ÇİĞLİ | C. A.D. SECONDARY SCHOOL | 1 | 2990,98 | Retrofitting |
| 49 | İZMİR | ÇİĞLİ | İ.M.K.B VOC. AND TECH. ANATOLIAN HIGH SCHOOL | 1 | 7006,17 | Retrofitting |
| 50 | İZMİR | ÇİĞLİ | Ş. Ç. E. T. PRIMARY SCHOOL | 1 | 1680,96 | Retrofitting |
| 51 | İZMİR | ÇİĞLİ | M.Ö. PRIMARY AND SECONDARY SCHOOL | 2 | 1795,38 | Retrofitting |
| 52 | İZMİR | ÇİĞLİ | Y. E. PRIMARY SCHOOL | 1 | 1541,09 | Retrofitting |
| 53 | İZMİR | KARŞIYAKA | K. PUBLIC EDUCATION CENTER | 1 | 4776,49 | Retrofitting |
| 54 | İZMİR | KARŞIYAKA | H. Ö. HEALTH AND VOC. HIGH SCHOOL | 1 | 2897,41 | Retrofitting |
| 55 | İZMİR | KARŞIYAKA | M. A. SECONDARY SCHOOL | 2 | 1843,45 | Retrofitting |
| 56 | İZMİR | KARŞIYAKA | E. B. PRIMARY SCHOOL | 2 | 1809,12 | Retrofitting |
| 57 | İZMİR | KARŞIYAKA | S. N. EDUCATION APPLICATION CENTER | 1 | 1696,81 | Retrofitting |
| 58 | İZMİR | MENEMEN | M. ANATOLIAN HIGH SCHOOL | 1 | 2963,93 | Retrofitting |
| 59 | İZMİR | MENEMEN | Y.Y PRIMARY AND SECONDARY SCHOOL | 2 | 2064,22 | Retrofitting |
| 60 | İZMİR | MENEMEN | S. A. SPECIAL EDUCATION BUSINESS APPLICATION CENTER | 2 | 3766,8 | Retrofitting |