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Terms of References

Country: Jordan

Post Title:	Development of a training-kit for inspection and implementation of thermal Insulation systems in new licensed Building Envelope- Arabic Version
Contracting modality	Individual Contractor (IC)
Reference	<u>Output 2.2:</u> Enforcement capabilities of SBU strengthened as regards compliance with Building Energy Codes
Starting Date:	19 th May, 2020
Duration:	30 working days over a period of 4 Months
Location:	Amman
Project:	A systemic approach to Sustainable Urbanization and Resource Efficiency in Greater Amman Municipality (GAM) – [SURE]

1. Background

SURE, is a project implemented by Greater Amman Municipality (GAM) and UNDP, and funded by the Global Environment Facility (GEF) aiming to establish a systematic approach for Greater Amman Municipality (GAM) to implement benchmarked, standardized tools and methodologies for measuring and reporting climate-resilient, resource-efficient, and urban-developed city.

The project's primary objective is to assist the Greater Amman Municipality (GAM) in improving the quality of life for its citizens and comply with the National Energy Efficiency Action Plan (NEEAP) via support for more sustainable resource-efficient urban planning and targeted low-carbon interventions in the municipal buildings and street lighting sub-sectors.

The project is designed to promote low-carbon buildings in Greater Amman Municipality, and eventually in other municipalities and cities in Jordan, through the application of Building Energy Codes, in particular, the Thermal Insulation Code for new buildings and retrofit guidelines for existing buildings. The project will directly support the implementation of the National Energy Efficiency Action Plan 2016, and the National Green Growth Plan 2016. This will be achieved through four outcomes: (i) putting in place planning and monitoring frameworks to foster accelerated low-carbon development in GAM and benchmark progress against established international standards; (ii) strengthening the enabling conditions, methodologies and tools in GAM for enforcing regulatory frameworks for EE buildings and street lighting; (iii) an integrated climate monitoring and finance framework is established for the development of urban NAMAs, and appropriate financial de-risking tools are identified and supported to promote adoption of EE measures in buildings attached to MRV systems; and (iv) selected proof-of-concept mitigation interventions to operationalize the outputs under the previous outcomes.

The project will provide technical and logistical support to set up a Sustainable Buildings Unit (SBU) within the JNBC body to take the lead in the enforcement of building energy codes, and in particular the thermal insulation of building envelopes in addition to and oversee the administration of GAM incentives for promoting low-carbon buildings as mandated by the project document. The SBU will interact with the Engineering Office responsible for supervising the construction of the building to ensure that the energy-related aspects of the building design are respected according to the Building Codes. Thus, capacity building activities for the SBU in the areas most relevant to the project interventions including building energy codes, resource efficiency, and urban planning will be enabled during the setup stage of the SBU to ensure that it is up to date in all aspects of the project.

2. Objectives

The main objective of this assignment is to prepare a training-kit that include a procedure manual for carrying -out onsite inspection for thermal Insulation of Building Envelope, and training manual for contractors that aim to develop confidence, knowledge and skills for workers in implementing thermal insulation systems in compliance with the national code.

This training-kit will be a comprehensive guidance for the SBU staff both Engineers and inspectors as well as the contractors with the necessary capacity building in implementing thermal insulation systems in new construction and how to conduct the onsite inspection.

3. Scope of Work

The Assignment holder will prepare the following:

1. A procedure manual in a manner that will let the SBU staff consistently carryout tasks, limit human error, and make it easy for newer team members to complete their work to the same accuracy.
2. A training manual for contractors in area of performing thermal insulation in new buildings and according to the local Code, the manual shall provide a guidance to the contractors on how the requirements of thermal insulation can be met.

The main scope of this assignment is to work closely with the staff from JNBC and GAM from different disciplines and study in-depth the relevant capacity building needed to support the inspection and enforcement of the thermal insulation code, and to prepare the procedure manual and the training manual effectively. The Jordan National Building Council (JNBC) has the mandate to develop and oversee the implementation of Buildings Codes through the established Sustainable Building Unit (SBU), The structure shows the involvement of the Jordan Engineering Association (JEA) regarding the approval and verification of the civil, mechanical and electrical engineering aspects of buildings. Civil Defense is responsible to ensuring the application of the Safety Code and Fire Fighting Code in buildings. GAM issues a Building Permit when all building designs are according to these Codes, and it issues an Occupancy Permit building upon verification and certification from JEA and Civil Defense of the structural integrity and safety of the building, respectively.

4. Tasks and Responsibilities

In putting an effective training kit both for inspection and training of contractors, it is essential for the selected consultant to focus on the procedure itself and its linkages with the process of licensing both the building and occupancy permits, accordingly, the manual should be simple to read and use and provide the information that will be more useful to employees for accomplishing their tasks.

Thus, the selected consultant will work under the guidance of the project manager and the secretary General of JNBC and should commit to perform the following tasks and responsibilities during this assignment: -

- 1) Conduct a peer review for the proposed functional organogram for building codes enforcement via means of regular inspection and checklists for new buildings that was set by a previous Individual Consultant.
- 2) Conduct peer review for the proposed capacity building plan for SBU staff that was set by a previous Individual Consultant.
- 3) Compile the learning from the extensive research and experience of international experts on building inspection in relation to insulation.
- 4) Identify the purpose of the procedure manual (inputs, outputs, and goals)
- 5) Describe the basic terms related to performing an energy inspection.
- 6) Determine code compliance, by using a check list sheet to verify construction is executed according to approved plans.
- 7) Identify borderline scenarios as compliant or noncompliant with the thermal insulation code.
- 8) Identify and explain authorities and responsibilities of the building Inspectors, according to the judicial Control that are granted to them by National Building Law number 24/2018.
- 9) The procedure manual should be including, but not limited to:
 - all areas that were specified to be insulated (including material type and thickness and according the code).
 - a data sheet and appropriate installation instructions from the manufacturer for each material.
 - the control of non-conformity thermal insulating materials and systems.
 - identification, cause and corrective actions for specific conditions of any violation to the code, and how to report and record to different level of management.

- follow up actions to verify the implementation of corrective actions.
 - inspection timeframe according to the milestone of the construction process.
 - planned and scheduled Audits to verify compliance with all aspects of the procedure manual and to control the quality assurance of the inspectors.
 - the characteristics of building envelope to be inspected.
 - the inspection method.
 - the acceptance and rejection criteria.
 - method of recording the inspection results.
 - the use of special measuring devices.
 - Site safety tips for inspectors to ensure that the inspection process is carried out in a proper and safe manner.
- 10) The procedure manual should be standardized in a proper way that it could be digitalized in future and will enable the project team to make use of intuitive smart forms (i.e. PDA or mobile application) in order to increase the efficiency and precision of inspections, data collection, and reporting.
- 11) The Assignment holder should also prepare a training manual dedicated directly to contractors, such that all relevant concepts of implementing thermal insulation systems are covered after consulting with the project team, the IC should expect various level of expertise of contractors. The training manual must cover the following aspects: -
- a) Heat transfer and thermal insulation concepts, type of insulating materials.
 - b) Uses of thermal insulation in the building envelope including the optimal thickness and possible applications and selections.
 - c) Overcoming challenges during the implementation: Thermal bridges, and effect of Air sealing in windows and doors, Gaps between pieces of insulation materials and with structures, damages during the installation, and wet insulation.
 - d) Procurement of insulation materials, understanding the specifications, thickness and thermal conductivity as well as the quality of the products.
 - e) Guidance on delivery, storage and moving the materials around the site.
 - f) Guidance on installation procedures, i.e.: preparation of surfaces, cutting and fitting the insulation, protecting of insulation.

- g) Regular inspection of supervisors including installation checklist, regular photographs, spot checks, and good practice examples.

5. Expected Outputs & Deliverables Timeframe

	Deliverable	Documents	Duration/Deadline
5.1	Assignment Implementation Plan (including tasks to be carried out, work schedule, data collection methods, coordination, and communication)	Assessment Report	One Month from date of signing the contract
5.2	Draft of the procedure manual (with collected data sheets and other collected information/documents, training report)	Draft Report	2 months from date of signing the contract
5.3	Draft of contractors training manual	Draft Report	2 months from date of signing the contract
5.4	Final Endorsed Procedure Manual, and contractors training manual approved from JNBC.	Final Report two reports	3 months from date of signing the contract.

6. Required Qualifications

Education

- Advanced Degree (a minimum of Masters) in Energy, Mechanical, Civil, or Electrical Engineering, Architecture, Urban Planning, or any other related field.

Experience

- At least 10 years total of experience in the field of urban planning, energy efficiency, or building codes.
- At least 5 years of practical experience in energy-efficient building design projects.
- At least 5 years of experience in technical training in the field of energy efficiency, thermal insulation, or building envelope.
- Prior experience with development project funded by international donors.
- Language requirement: Proficient in both written and oral English and Arabic.
- Computer skills: Demonstrable skills in office computer use - word processing, spread sheets, etc.

7. Skills and Competencies

- Excellent technical and analytical writing skills.
- Strong training, facilitation, communication and inter-personal skills
- Excellent networking and negotiating skills.
- Ability to use information technology as a tool and resource.

8. Compensation and special conditions

All payments are subject to deliverable approval by UNDP. Payments are transferred in the following manner:

- The 1st payment (20% of total) after delivery and approval of Deliverable 5.1
- The 2nd payment (60 % of total): after delivery and approval of Deliverable 5.2, 5.3
- The 3rd payment (20% of total): after delivery and approval of Deliverable 5.4.

9. Proposal Submission Requirements

Interested individual consultants must submit the following documents in order to be considered for the assignment:

1. Technical Proposal

- (i) Explaining why they are the most suitable for the work (1-page max.)
- (ii) Providing a brief methodology on how they will approach and conduct the work. (2-3 pages)

2. Financial proposal

- (i) Indicating the daily rate inclusive of accommodation, transportation, and DSA

Or,

- (ii) Indicating the total lump sum for the assignment

3. Personal CV including past experiences in similar projects and at least 3 references

UNDP Signature	IC Signature
	

