

### **REQUEST FOR QUOTATION (RFQ)**

NAME & ADDRESS OF FIRM	DATE: November 11, 2020
	<b>REFERENCE: UNDP Georgia Project:</b> Improving Rural Development in Georgia (ENPARD III) (000101419);

Dear Sir / Madam:

UNDP wishes to enter into a long term agreement with the qualified company for the period of one (1) year for provision of insulation works for the househlds in eight Municipalities throughout Georgia.

We kindly request you to submit your quotation for **Provision of Envelope Insultation of outer walls, attic and the ceiling of the basement of the households in eight Municipalities,** as detailed in Technical Specification (Annex 1) and Bill of Quantity (Annex 2) of this RFQ. When preparing your quotation, please submit filled in Form for Submission of Quotations/ Bill of Quantities (Annex2).

Signed and sealed quotations may be submitted on or before **17:00** (Local Time - Tbilisi, Georgia, GMT+4) Tuesday, 24<u>November 2020</u>, via courier mail or hand delivered to the address below:

### United Nations Development Programme

UN House 9 Eristavi street, 0179 Tbilisi, Georgia

The sealed envelopes must be clearly marked with the title of the Tender and respective project name (Improving Rural Development in Georgia). Contact person: Ms. Natia Gobejishvili, E-mail address: natia.gobejishvili@undp.org

#### Pre- bid Conference will take place on 16 November 2020 – starting time 2:00PM. Via Zoom Meeting ID: https://undp.zoom.us/j/83435695431

Meeting ID: <u>https://undp.zoom.us/j/83435695431</u>

It shall remain your responsibility to ensure that your quotation will reach the address above on or before the deadline in sealed envelopes. Quotations that are received by UNDP after the deadline indicated above, for whatever reason, shall not be considered for evaluation.

Please take note of the following requirements and conditions pertaining to the provision of the abovementioned works:

Delivery Terms	Georgia
Customs clearance, if	N/A
needed, shall be done by:	

Exact Address/es of Delivery Location/s (identify all, if multiple)	Dedoplistskaro, Lagodekhi, Tetritskaro, Akhalkalaki, Borjomi, Kazbegi, Keda and Khulo
UNDP Preferred Freight Forwarder, if any	N/A
Distribution of shipping	N/A
documents (if using freight forwarder)	
Minimum Qualifying Criteria	<ul> <li>Minimum no. of years of experience in construction works (at least 2 years);</li> <li>Minimum Annual turnover of 300,000.00 USD (per year) for the past two years (2018-2019);</li> <li>Full compliance of Bid to the Technical requirements, Annex 1;</li> <li>Minimum no. of staff with the required qualification and experience; (19 personnel, o/w 2 civil engineers, 1 Safety assurance specialist, 16 specialist (4 mounters, 4 plasterers, 4 painters and 4 semi -skilled workers)</li> <li>Civil Engieneers: University degree in civil engineering, architecture of relevant field (Diplomas and CVs) with at least 5 years of professional experience in construction Works.</li> <li>Safety assurance specialist: at least 2 years of relevant work experience (CV).</li> <li>Minimum number of Machinery and Equipment - 2 Pcs, Rented or own for the following equipement: Diesel generator, Mortarmixer Hand Mixer, Sanding machine, Rotaru hammer two-speed, Slow-speed drill, Electric screwdriver</li> <li>Quality Certificate for construction materials as required, Annex 1:</li> </ul>
Latest Expected Delivery Date and Time (if delivery time exceeds this, quote may be rejected by UNDP)	N/A
Delivery Schedule	Required as per Annex 6
Packing Requirements	N/A
Mode of Transport	N/A
Preferred Currency of	US Dollars (USD), Payable in GEL as per UN EXrate at the date of navment
Value Added Tax on Price	Must be exclusive of VAT and other applicable indirect taxes
Quotation	must be exclusive of writiand other applicable mullect taxes
Warranty/Guarantee	Warranty for facade thermal insulation works at least 3 years.
Deadling for the Submission	5:00 PM 24 November 2020
of Quotation	
All documentations shall be	English
presented in this language	
Documents to be submitted	<ul> <li>Duly Accomplished Form as provided in Annex 2, and in accordance with the Technical specifications given in Annex 1;</li> <li>Company profile, which should not exceed ten (10)pages;</li> <li>Latest Business Registration Certificate ;</li> <li>Tax Registration Certificate issued by the Internal Revenue</li> </ul>
	Authority

	<ul> <li>Certificate of quality envelope insultation (wall insulation, floor of attic insulation, ceiling of basement insulation);</li> <li>Certificates for the main materials to be used: cement, mineral based dry mortar, stone wool board, fibre glass reinforcement mesh, angle profile with drip edge, adhesion promoting, primer, mineral based decorative plaster, silicate-based, weather-resistant facade paints, mineral wool roll with foil, diffusion membrane.</li> </ul>
Period of Validity of Quotes starting the Submission Date	90 days In exceptional circumstances, UNDP may request the Bidder to extend the validity of the Quotation beyond what has been initially indicated in this RFQ. The Proposal shall then confirm the extension in writing, without any modification whatsoever on the Quotation.
Partial Quotes	Not Permitted
Payment Terms	Payment will be linked to every stage of works envisaged in the contract and schedule of the works. UNDP shall effect payment of the invoices after receipt of the certificate of payment issued by the Engineer, approving the amount contained in the invoice. The Engineer may make corrections to that amount, in which case UNDP may effect payment for the amount so corrected. Payment will be made in GEL according to existing UN Official Rate of Exchange at the date of payment.
Liquidated Damages	The liquidated damages for delay shall be 1% of the contract for every week of delay up to a maximum duration of 4 weeks, after the contract may be terminated.
Evaluation Criteria [check as many as applicable]	<ul> <li>Technical responsiveness/Full compliance to requirements and lowest price.</li> <li>Full acceptance of the PO/Contract General Terms and Conditions</li> </ul>
UNDP will award to:	☑ One and only one supplier
Type of Contract to be Signed	Contract for Civil Works.
Special conditions of Contract	Cancellation of Contract if the delivery/completion is delayed or is not satisfactory
Annexes to this RFQ	<ol> <li>Technical Specifications Required (Annex 1);</li> <li>Form for Submission of Quotation/Bill of Quantity (Annex 2);</li> <li>General Terms and Conditions / Special Conditions (Annex 3). Non-acceptance of the terms of the General Terms and Conditions (GTC) shall be grounds for disqualification from this procurement process;</li> <li>Company qualification record (at least 2 years of similar work experience (Annex 4), list of Key personnel and required machinery;</li> <li>Non-acceptance of the terms of the General Terms and Conditions (GTC) shall be grounds for disqualification from this procurement process.</li> </ol>

Contact Person for Inquiries (Written inquiries only)	Natia Gobejishvili Coordinator for Environment Natia.gobejishvili@undp.org Any delay in UNDP's response shall be not used as a reason for extending the deadline for submission, unless UNDP determines that such an extension is necessary and communicates a new deadline to the Proposers.
Pre-bid conference and Site Visit	Pre-bid Conference will be conducted on <b>Monday, 16 November</b> 2020 - starting time 2:00 pm. Via Zoom, Meeting link: <u>https://undp.zoom.us/j/83435695431</u>
	All Bidders are strongly recommended to attend
	Minutes of Zoom meetings will be disseminated on the procurement website www.ge.undp.org.

The quotation that complies with all of the specifications, requirements and offers the lowest price, as well as all other evaluation criteria indicated, shall be selected. Any offer that does not meet the requirements shall be rejected.

Any discrepancy between the unit price and the total price (obtained by multiplying the unit price and quantity) shall be re-computed by UNDP. The unit price shall prevail and the total price shall be corrected. If the supplier does not accept the final price based on UNDP's re-computation and correction of errors, its quotation will be rejected.

At any time during the validity of the quotation, no price variation due to escalation, inflation, fluctuation in exchange rates, or any other market factors shall be accepted by UNDP after it has received the quotation. At the time of award of Contract, UNDP reserves the right to vary (increase or decrease) the quantity of services and/or goods, by up to a maximum twenty five per cent (25%) of the total offer, without any change in the unit price or other terms and conditions.

Any Purchase Order that will be issued as a result of this RFQ shall be subject to the General Terms and Conditions attached hereto. The mere act of submission of a quotation implies that the vendor accepts without question the General Terms and Conditions of UNDP herein attached as Annex 3.

UNDP is not bound to accept any quotation, nor award a contract/Purchase Order, nor be responsible for any costs associated with a Supplier's preparation and submission of a quotation, regardless of the outcome or the manner of conducting the selection process.

Please be advised that UNDP's vendor protest procedure is intended to afford an opportunity to appeal for persons or firms not awarded a purchase order or contract in a competitive procurement process. In the event that you believe you have not been fairly treated, you can find detailed information about vendor protest procedures in the following link:

http://www.undp.org/content/undp/en/home/operations/procurement/protestandsanctions/

**UNDP encourages every prospective Vendor to** avoid and prevent conflicts of interest, by disclosing to UNDP if you, or any of your affiliates or personnel, were involved in the preparation of the requirements, design, specifications, cost estimates, and other information used in this RFQ.

UNDP implements a zero tolerance on fraud and other proscribed practices, and is committed to identifying and addressing all such acts and practices against UNDP, as well as third parties involved in UNDP activities. UNDP expects its suppliers to adhere to the UN Supplier Code of Conduct found in this link :<u>http://www.un.org/depts/ptd/pdf/conduct\_english.pdf</u>

#### Thank you and we look forward to receiving your quotation.

Sincerely yours,

ill Nodar Kereselidze

Nodar Kereselidze National Project Manager

11 November 2020

#### **Statement of works**

### **Provision of Envelope Insultation,**

### **Background**

Within the framework of the third phase of EU-funded European Neighborhood Programme for Agriculture and Rural Development (ENPARD III), UNDP Georgia is implementing the project "Improving Rural Development in Georgia" (IRDG). The project contributes to improved governance in rural development, rural economic diversification and sustainable environmental management. The project set the target to provide at least 500 households within its target municipalities with insulation of the building envelope, to improve their energy efficiency and the well-being of the occupants. In so doing, it wants to support Georgian companies to discover and develop the rural market for thermal insulation.

Households in rural Georgia cover over 84% of their heating needs with wood and other conventional sources.<sup>1</sup> As a consequence, the extensive use of fuelwood and other inefficient biomass for cooking, heating and warm water in rural Georgia has direct negative consequences on the environment and the climate, as chopping down trees for fuelwood is causing forest and land degradation and generate sizeable carbon emissions. It also represents a high burden for rural households in terms of health due to indoor air pollution (Georgia has the world's highest mortality rate due to outdoor and indoor air pollution)<sup>2</sup> and generates negative social and economic impacts due to illegal logging and trading of timber.

But the negative effects of those traditional heating systems go beyond health, mortality and environment. Rural households suffer from widespread energy poverty, spending in average, depending upon the source used, between GEL 850 and GEL 1,900 annually for energy needs. Though 58.6% of rural dwellings have a total area above 100sqm, 50.5% heat less than 20sqm and 38.1% between 21 and 49sqm. Thus, those high cost arise despite the low usage, low quality of life and strong negative health and environmental effects. The housing stock in most of the 8 target municipalities appears to be above average in sizes, as about 80% have a floor area of about 2x125sqm and outer walls of about 190sqm.

A large survey conducted by the project revealed that for 68% of the population it is important or very important to care for the environment and 71% believe environmental protection is more important than economic growth, hence providing a sound base for energy efficiency investments based on environmental considerations. More importantly, 41.6% believe that better insulation will improve their living standards or reduce cost, and of those, 99.9% believe it will have a strong or very strong positive effect. This makes it the by far preferred option of all renewable energy and energy efficiency measures.

The potential market size is big: Within the 8 IRDG target municipalities, about 6% had (before COVID-19) a monthly household income of GEL 1,500 to GEL 3,000, and 5% of more than GEL 5,000 (vs. an average overall rural income of GEL 1,014.3)<sup>3</sup>. Together, these 8 municipalities comprise about 65,000 households. If only these top 11% income earners are considered as market it yields a potential market size of 7,150 households or over 1.3 mln sqm for outer wall plus almost 900,000 sqm for each, floor of attic and ceiling of basement insulation – at total of over 3mln sqm insulation. Developing the market for insulation in these 8 municipalities shall only be the starting point. In the whole of Georgia, rural households spend annually between GEL 500 million and GEL 1,000 million only for room-heating, cooking and warm water, mostly based on traditional sources of fuel. Wall insulation usually saves around 30%-35% and roof insulation additional 25%-30% of the heating cost, i.e., together they could cut the annual rural energy bill by up to 65% to GEL 225 million to GEL 350 million. Depending upon the targeted return on investment, the market potential is therefore staggering.

The bottleneck is the financing of the required upfront investment. To develop that market, providers might therefore want to apply a combination of streamlined, standardized approaches to insulation to cut cost and

<sup>&</sup>lt;sup>1</sup> Table 3.5

<sup>&</sup>lt;sup>2</sup> World Bank Group. (2018). Georgia – From Reformer to Performer. p51

<sup>&</sup>lt;sup>3</sup> <u>https://www.geostat.ge/en/modules/categories/50/households-income</u>

therefore the sales price, find solutions to the financing bottleneck, and start with those households and businesses that are ready to invest a multiple of the annual savings upfront. Financing will further be facilitated in cooperation with banks, providing credit line.

#### Provision of envelope insultation for Climate Zone 2 & 3

The goal of the contract is to enter into and sustainably develop the rural market for envelope insulation (wall insulation, floor of attic insulation, ceiling of basement insulation), reaching as many as possible rural households.

### Scope of Works:

UNDP wishes to obtain quotations from qualified contractors with experience on provision of envelope insultation. The works required is the provision of wall insulation, floor of attic insulation, ceiling of basement insulation. Activities will be carried out at local level on 8 target municipalities (Lagodekhi, Dedoplistskaro, Tetritskaro, Borjomi, Akhalkalaki, Kazbegi, Keda and Khulo).

- 1) Municipality Keda climate Zone 2
- 2) Municipality Khulo climate Zone 2
- 3) Municipality of Lagodekhi climate zone 2
- 4) Municipality of Dedoplistskaro climate Zone 2
- 5) Municipality of Tetritskaro climate Zone 3
- 6) Municipality of Borjomi climate Zone 3
- 7) Municipality of Akhalkalaki climate Zone 3
- 8) Municipality of Kazbegi climate Zone 3

For climatic characteristics of the municipalities see Annex 1a.

Within each municipality/municipal region selected by the company, the company is obliged to accept requests for insulation services from anywhere within the municipal boundaries at the standard offered price per sqm.

### **General Standards and Codes:**

- 1) While performing construction/installation works all safety requirements and fire prevention measures must be strictly adhered to.
- 2) All danger zones during construction must be clearly outlined and warning signs placed at the limits of these zones.
- 3) All workers must be instructed about occupational safety and health, including fire prevention activities.
- 4) All means for fire prevention must be provided at the work site.
- 5) The storage of materials must be performed according to technological requirements.
- 6) All workers must be transported in line with occupational health and safety standards.
- 7) All materials must be transported safely and in line with environmental standards to avoid any risk of pollution.
- 8) All material must be obtained through legal and officially licensed channels (especially sandpits).
- 9) When performing any kind of construction, installation and transportation, the technical safety requirements must be adhered to: SNIP III –4-80 "Safety Technic in Construction".
- 10) All materials supplied for insulation and the quality of the work performed must comply with the standard ETICS EAE European Association for External Thermal Insulation Composite Systems, European Guideline for the application of ETICS (External Thermal Insulation Composite Systems).
- 11) All workers must be registered, treated with dignity and respect, and punctually paid according to contractual agreements and in line with Georgian law.

#### The Bidder shall furnish the following warranties and certificates:

- Certificate of quality envelope insulation (wall insulation, floor of attic insulation, ceiling of basement insulation). Quality certificates for the main materials to be used: cement, mineral based dry mortar, stone wool board, fibre glass reinforcement mesh, angle profile with drip edge, adhesion promoting, primer, mineral based decorative plaster, silicate-based, weather-resistant facade paints, mineral wool roll with foil, diffusion membrane;
- ✓ Warranty letter for facade thermal insulation works at least 3 years.

### <u>Annex 1a</u>

### **Description of the climatic conditions in the target municipalities**

### Akhalkalaki, Climate Zone 3

Latitude 41°25′, longitude 43°29′; Elevation above sea level 1717 m; Climatic I b subregion; Average total solar radiation on the horizontal surface at 4.48 kWh / day / m<sup>2</sup>; Average total solar radiation on the vertical surface at 3.49 kWh / day / m<sup>2</sup>; According to European standard of heating: baseline heating temperatureof 18 °C; threshold temperature15,5 °C; HDD 15.5 =4570 degrees / day; Duration of heating season 334 days; Calculated heating temperature -16 °C, average temperature of the heating season -1.2 °C. Absolute minimum air temperature -38 C; Absolute maximum air temperature +37 C; Average annual air temperature +4.9 C; Highest wind speed of to 10 year period 26 m / s; Annual air relativity average humidity 73%; Snow cover weight 60 kg/m<sup>2</sup>; Annual rainfall amount 542 mm.

Will be used U value for zone 3. Normalized energy specific losses during heating season (kWh / m<sup>2</sup>): 36.6 from walls; 222.6 from windows; 24.5 from the roof; 27.7 from the overlap and 171.2 from the vertical window.

#### Borjomi, Climate Zone 2

Latitude 41°25′, longitude 43°29′; Elevation above sea level 789 m; Climatic II b subregion; Average total solar radiation on the horizontal surface at 4.03 kWh / day / m<sup>2</sup>; Average total solar radiation on the vertical surface at 2,98 kWh / day / m<sup>2</sup>; According to European standard of heating: baseline heating temperatureof 18 °C; threshold temperature15,5 °C; HDD 15.5 =3230 degrees / day; Duration of heating season 243 days; Calculated heating temperature -11 °C, average temperature of the heating season 1.1 °C. Absolute minimum air temperature -28 C; Absolute maximum air temperature +37 C; Average annual air temperature +9,1 C; Highest wind speed of to 10 year period 19 m / s; Annual air relativity average humidity 77%; Snow cover weight 50 kg/m<sup>2</sup>; Annual rainfall amount 653 mm

Will be used U value for zone 3. Normalized energy specific losses during heating season (kWh / m<sup>2</sup>): 36.6 from walls; 197,6 from windows; 20.3 from the roof; 23,1 from the overlap and 166,8 from the vertical window.

#### Dedoplistskaro, Climate Zone 2

Latitude 41°50′, longitude 43°24′; Elevation above sea level 800 m; Climatic II b subregion; Average total solar radiation on the horizontal surface at 4.08 kWh / day / m<sup>2</sup>; Average total solar radiation on the vertical surface at 3,03 kWh / day / m<sup>2</sup>; According to European standard of heating: baseline heating temperatureof 18 °C; threshold temperature15,5 °C; HDD 15.5 =3230 degrees / day; Duration of heating season 243 days; Calculated heating temperature -11 °C, average temperature of the heating season 1.1 °C. Absolute minimum air temperature +35 C; Average annual air temperature +10,1 C; Highest wind speed of to 10 year period 30 m / s; Annual air relativity average humidity 76%; Snow cover weight 50 kg/m<sup>2</sup>; Annual rainfall amount 648 mm.

Will be used U value for zone 2. Normalized energy specific losses during heating season (kWh / m<sup>2</sup>): 36.6 from walls; 197,6 from windows; 20.3 from the roof; 23,1 from the overlap and 166,8 from the vertical window.

#### Kazbegi, Climate Zone 3

Latitude 42°40′, longitude 44°39′; Elevation above sea level 1747 m; Climatic I g subregion; Average total solar radiation on the horizontal surface at 4.65 kWh / day / m<sup>2</sup>; Average total solar radiation on the vertical surface at 3,78 kWh / day / m<sup>2</sup>; According to European standard of heating: baseline heating temperatureof 18 °C; threshold temperature15,5 °C; HDD 15.5 =4777 degrees / day; Duration of heating season 365 days; Calculated heating temperature -14 °C, average temperature of the heating season – 0,2 °C. Absolute minimum air temperature +32 C; Average annual air temperature +4.9 C; Highest wind speed of to 10 year period 21 m / s; Annual air relativity average humidity 68%; Snow cover weight 84 kg/m<sup>2</sup>; Annual rainfall amount 786 mm.

Will be used U value for zone 2. Normalized energy specific losses during heating season (kWh / m<sup>2</sup>): 37,3 from

walls; 225,6 from windows; 25,0 from the roof; 28,3 from the overlap and 171,4 from the vertical window.

### Keda, Climate Zone 3

Latitude 41°36', longitude 44°57'; Elevation above sea level 257 m; Climatic III b subregion; Average total solar radiation on the horizontal surface at 3,87 kWh / day / m<sup>2</sup>; Average total solar radiation on the vertical surface at 2,67 kWh / day / m<sup>2</sup>; According to European standard of heating: baseline heating temperatureof 18 °C; threshold temperature15,5 °C; HDD 15.5 = 2117 degrees / day; Duration of heating season 212 days; Calculated heating temperature -5 °C, average temperature of the heating season 4,6 °C. Absolute minimum air temperature -15 C; Absolute maximum air temperature +42 C; Average annual air temperature +12.7 C; Highest wind speed of to 10 year period 22 m / s; Annual air relativity average humidity 77%; Snow cover weight 130 kg/m<sup>2</sup>; Annual rainfall amount 1652 mm.

Will be used U value for zone 2. Normalized energy specific losses during heating season (kWh / m<sup>2</sup>): 23,7 from walls; 164,5 from windows; 15,6 from the roof; 17,8 from the overlap and 154.1 from the vertical window.

### Khulo, Climate Zone 3

Latitude 41°39′, longitude 44°19′; Elevation above sea level 914 m; Climatic II b subregion; Average total solar radiation on the horizontal surface at 4,11 kWh / day / m<sup>2</sup>; Average total solar radiation on the vertical surface at 3,06 kWh / day / m<sup>2</sup>; According to European standard of heating: baseline heating temperatureof 18 °C; threshold temperature15,5 °C; HDD 15.5 = 2676 degrees / day; Duration of heating season 243 days; Calculated heating temperature -5 °C, average temperature of the heating season 3,3 °C. Absolute minimum air temperature -18 C; Absolute maximum air temperature +39 C; Average annual air temperature +10.4 C; Highest wind speed of to 10 year period 19 m / s; Annual air relativity average humidity 70%; Snow cover weight 169 kg/m<sup>2</sup>; Annual rainfall amount 1228 mm.

Will be used U value for zone 2. Normalized energy specific losses during heating season (kWh / m<sup>2</sup>): 27,5 from walls; 183,1 from windows; 18,2 from the roof; 20,7 from the overlap and 162,1 from the vertical window.

### Lagodekhi, Climate Zone 2

Latitude 41°49′, longitude 46°18′; Elevation above sea level 435 m; Climatic II b subregion; Average total solar radiation on the horizontal surface at 3,91 kWh / day / m<sup>2</sup>; Average total solar radiation on the vertical surface at 2,86 kWh / day / m<sup>2</sup>; According to European standard of heating: baseline heating temperatureof 18 °C; threshold temperature15,5 °C; HDD 15.5 = 2421 degrees / day; Duration of heating season 212 days; Calculated heating temperature -8 °C, average temperature of the heating season 3,3 °C. Absolute minimum air temperature -23 C; Absolute maximum air temperature +38 C; Average annual air temperature +12.6 C; Highest wind speed of to 10 year period 24 m / s; Annual air relativity average humidity 72%; Snow cover weight 50 kg/m<sup>2</sup>; Annual rainfall amount 1076 mm.

Will be used U value for zone 2. Normalized energy specific losses during heating season (kWh / m<sup>2</sup>): 25,9 from walls; 175,2 from windows; 17 from the roof; 19,4 from the overlap and 159 from the vertical window.

### Tetritskaro, Climate Zone 2

Latitude 41°33', longitude 44°28'; Elevation above sea level 1143 m; Climatic II b subregion; Average total solar radiation on the horizontal surface at 4,2 kWh / day / m<sup>2</sup>; Average total solar radiation on the vertical surface at 3,1 kWh / day / m<sup>2</sup>; According to European standard of heating: baseline heating temperatureof 18 °C; threshold temperature15,5 °C; HDD 15.5 = 3434 degrees / day; Duration of heating season 212 days; Calculated heating temperature -11 °C, average temperature of the heating season 1,7 °C. Absolute minimum air temperature -26 C; Absolute maximum air temperature +34 C; Average annual air temperature +8.6 C; Highest wind speed of to 10 year period 31 m / s; Annual air relativity average humidity 71%; Snow cover weight 50 kg/m<sup>2</sup>; Annual rainfall amount 742 mm.

Will be used U value for zone 2. Normalized energy specific losses during heating season (kWh / m<sup>2</sup>): 31,7 from walls; 202,2 from windows; 21 from the roof; 23,9 from the overlap and 168 from the vertical window.

#### Annex 1b

## Key Technical Specifications for typical/standard households

A typical house that needs to be insulated is of the following type: 2-storey, concrete foundation, inter-floor roofing, concrete slab 25-30 cm. Exterior walls of concrete or pumice block 30 cm, roof of metal roofing tile, windows with double glazing of metal-plastic. The area of the walls is 190 m2, the area of the windows is 80 m2, (dimensions 1.85m \* 1.4 m.) The area of the door is 4.8 m2, (dimensions 2.4 \* 1.2 m.) The area of the house is 125 m2. In the plan 10 \* 12.5 m. Height 6 m. The houses were mainly built betweenin the 60s and 80s of the last century.

### Work description-Insulation of the external walls

Main guidelines for installation works, for thermal insulation of facades are "EAE European Association for External thermal insulation composite systems. European Guideline for the application of ETICS (External Thermal Insulation Composite Systems)".

Before installing the insulation, it is first necessary to check the surfaces of the insulation walls in detail, clean them from substances that interfere with adhesion. In the case of highly absorbent surfaces, it can also be ground. The next stage, after assembling the scaffolding, must definitely be the highest access from the point

200

of view (from top to bottom, horizontally and diagonally as well) in order to determine the correctness of the wall over the entire plane. If the wall is not straight, it should be plastered with a solution of sandcement.

## Stage #1: Montage of support profile

After inspecting, cleaning and tidying the surface, assembling the thermal insulation starts from the bottom of the building. The first step is to install the aluminum stainless steel bearing profile horizontally. (fig.1) The profile board should be fixed level and at least 30 cm above the ground. It must be attached horizontally around the entire building. One meter profile requires at least three dowels.

### Stage # 2: Applying glue to thermal insulation boards

Once the support profile is straightened in the horizontaly, start making laying the tiles on the wall. tile glue (25 kg package) is dissolved in 5-6 liters of water. With special iron tools, glue is applied to the insolation tile, closing the perimeter and in the middle area depending on the size of the tile 3, 4, dabs. (fig.2) . Remember to remove any surplus adhesive that may emerge from the previously attached slabs. The flatness of external insulation surface should be carefully checked, since the facade flatness is indirectly determined in the phase of attaching slabs on the wall. Possible irregularities and minimum deviations can be removed with rough sand paper.

### Stage # 3: Montage of Insulation Boards



1. montage of support profile

საყრდენი პროფილის მონტაჟი

After placing the adhesive mass on the warming tile it is fastened to the wall, so that the glue spreads well on the tile and wall surfaces and fills in the gaps and prevents air from penetrating. The thickness of the glue should be about 5 millimeters. In the worst case, 1 cm. is allowed.

Eventually the insulation slab setup should also look like a construction block setup. (fig.3) Be sure to pay attention to the correctness of the surface when laying the tiles, so as not to create bumps and waves due to the unevenness of the wall or the thickness of the glue. Around the window it is necessary to installation one whole tile at the corners and cut a corner at the same tile. (The



incision should be at least 15 cm.) (fig.4) The load around the openings is enhanced and therefore requires special protection.

4. Installation of insulation plates at the window opening தூல கல்கில் தாணுக்ஸ் சொடுத்தா தல் இல்லு மான்கிலை



#### Stage #4: Installation of dowels

After laying the insulation tiles, dowels are installed on the facade. The dowels vary in length, nail type, and other characteristics. Stamping dowels are used, which smooth the surface of the insolation slab and do not require any additional processing. 5-6 dowels per square meter are used as standard. There is no dowel function, attach the tile to the wall. They provide neutralization of vibration generated by wind blows. At a distance of at least 10 cm from the corner (fig.3) The minimum fixing depth that must be in the basic wall is: 5 cm in concrete, 8 to 9 cm in perforated brick and aerated concrete.





### Stage # 5: Installation of fibre glass mesh

The next stage is the reinforcement of the stone wool boards surface with fibre glass mesh.Reinforcement starts at the corners. In this case we use fiberglass mesh grid is angular. First of all, the reinforcement filling is placed on the corners with teeth With an iron tool and place an angle on the straightened corner.

With the installation of the angles, tear angles must be installed on the foreheads of all openings or balconies. In order to cut off the drops coming from the facade and not to damage the foreheads of the openings or the ceilings of the balcony with water. After processing the corners and openings of the building, we move on to the complete facade reinforcement. To prevent facade cracks, stick the strips of reinforcing mesh of at least 30 x 20 cm above the corners of the window and door heads and openings at an angle of  $45^{\circ}$ .(fig.5)

In this case, too, a 25-kilogram dry mortar is dissolved in 5-6 liters of water. With metal-toothed tools, the material is applied to the wall to a thickness of about 3-5 millimeters. The reinforced mesh will be used on the plasterd surface, which should sink into the reinforcing filler already placed on the facade. It is not allowed to hang and fix the reinforcement mesh on the wall

and transfer the reinforcement filling from the top.

When arranging the reinforcement layer it is necessary to postpone the grids by 10 cm, on the grid mesh, otherwise cracks will inevitably appear over time at the gluing point of the grids.

### Stage # 6: Priming of surface

24 hours after applying the reinforcement mesh, it is recommended to use quartz sand-based paint. It takes care to neutralize the water absorption ability of the reinforcing filler and also to create an additional adhesive bridge for the arrangement of the decorative coating.

### Stage # 7: decorative plastering

The next day after applying the soil, the decorative plaster should be applied. After applying the decorative plaster, it is desirable to leave the material on the facade for about 2 weeks before painting.

### Stage # 8: Painting of the facade

The final stage is the painting of the facade surface in 2 layers. All paints have different types of consumption per square meter, which also depends on the surface texture. Figure 6 shows all the layers of wall insulation technology.

The arrangement of the wall Insulation system should be done in conditions of air temperature not less than +5 ° C. The following technological breaks must be observed:

- from the installation of thermal insulation tiles to the installation of fasteners - at least 48 hours;

- after the device of the reinforcing layer and its required hardening before applying a primer under polymer and silicone plasters or applying a decorative protective layer of mineral and silicate plasters -not less than 48 hours;-After arranging the primer before applying the decorative-protective layer with polymer or silicone plaster - at least 12 hours (until completely dry);

In conditions of increased humidity the break time should be increased.

#### Inslulation of the attics

The surface of the attic should be inspected before starting work; there should be no unnecessary objects and dust on the site. Insulation should start at the farthest point from the exit. The roll should be cut to size between the roof beams and secured with foil downwards. In the case of small gaps, they should be filled with pieces of thermal insulation. A vapor-permeable diffusion membrane must be installed on top of the thermal insulation layer, which must be attached to the timber structures using staplers. For climatic zone-2, the insulation thickness must be at least 10 cm. At least 12 cm for climatic zone-3. The attic insulation scheme is shown in Fig. 7

6. Location of layers in the insulation system შრეების განლაგება დათბუნების სისტემაში



Dowel. თეფშა დუბელი



(1) Existing ceiling. solid grave finder in the interval of the i

### Inslulation of the floors

In case of heating one floor of a 2-storey house, it is necessary to insulation the floor (first floor ceiling). The insulation covering consists of the following layers: vapor insulation membrane on the side of the heating area. Mineral wool roll for climate zone-2 thickness should be at least 10 cm. At least 12 cm for climate zone-3. Frame made of C and D profiles attached to the anchors, on which the gypsum board tile is attached. At the last stage, the surface is processed and painted. The floor insulation scheme is given in fig. 8.

### Quality control of wall insulation works (monitoring)

- Working conditions: temperature, humidity, wind strength;
- The presence of irregularities on the surface of the walls of buildings;
- Completeness of filling with mortar on the insulation board;
- Adherence to the solution preparation technology, its strength;
- The presence of grease and bitumen stains, rust, efflorescence and other types of pollution on the surface of the walls
- Location of thermal insulation boards on the facade of the building (brick work);
- Correspondence of the thickness of stone wool insulation board and mineral wool rolls with the design data according to the climatic zones;
- The width of the joints between the insulation boards, the adhesion of the heat-insulating boards to the insulated surface, Laying of thermal insulation board should start from the bottom up;
- The glue should not get into the seams between the tiles;
- The correctness of additional fastening of heat-insulating plates with dowels to the walls;
- The strength of adhesion of the reinforcing layer to the surface of the plates;
- The quality of the reinforcing layer, the surface must first be covered with the solution and then the reinforcement mesh must be immersed;
- Diagonal installation of additional fiberglass mesh pieces in the corners of window openings.
- The presence, correctness of installation and sealing of awnings and aprons in the places of window openings;
- The correctness of the device of the canopy at the joints of the roof and the insulated facade of the building;
- The width of the joints between the slabs must not exceed 2 mm;
- The overlap of the rolls of the reinforcing mesh at the junctions should be at least 100 mm;
- Deviation of the system from the plane must not exceed 5 mm;
- The permissible deviation of the thickness of the heat-insulating layer from the design must not exceed ± 5%;
- There should be no cracks in the thermal insulation and finishing layers;
- Differences in colors and shades in different parts of the facade are not allowed;
- Great attention is paid to compliance with the technological sequence of work;
- After the completion of all technological processes, the works must be controlled and accepted;
- The duration of the technological break after each operation must be observed;
- The quality of work performed at each stage must comply with the requirements of ETICS.



- 1 Existing floor. ടരിട്ടുർത്തുന്ന നെറ്റാപ്പന
- 2 Vapor membrane. പത്തച്ചയാ പായാദാവി മുമാർകാം
- 3 Insulation roll with foil. തർന്നര മന്ത്രം പ്രത്യാനം സ്വാനം സ്വാനം സ്വാനം പ്രത്യാനം പ
- (4) Metal frame. ლითონის პროფილი
- 5 Gypsum cardboard. தலதிலதல் முறைக்கு குறைக
- 6 Anchor. ანკური
- 7 Paint layer. Igggðgob gybs

### **Technical specifications for materials**

All materials supplied for wall insulation and the quality of the work performed must comply with the standard ETICS - EAE European Association for External thermal insulation composite systems. European Guideline for the application of **ETICS** (External Thermal Insulation Composite Systems)

### 1. Mineral based dry mortar mix for fixing thermal insulation boards

Reaction to fire (for the product): non-combustible, Highly water vapor permeable Long workability. Compression strength no less  $\beta d \approx 24$  N/mm2, Apparent density of hardened mortar: no more 1700 kg/m<sup>3</sup>, Adhesive tensile strength no less 5–6 N/mm2, Adhesion to concrete  $\geq 0.5$  MPa, adhesion to stone wool  $\geq 0.05$  MPa, pot life: approx. 2 hours, depending on weather conditions.

### 2.Stone wool board

Thermal conductivity,  $\lambda 10$  - no more 0,036 W / m° C; Compressive strength at 10% deformation - no less 30 kPa; Tensile strength perpendicular to facial surfaces - no less 15 kPa; Organic matter content – no less 4.5%; Short term water absorption at partial immersion – no less 1 kg / m<sup>2</sup>; Water absorption during partial immersion of samples for a given long time - no less 3 kg / m<sup>2</sup>; Flammability – non-combustible degree; Density – 100(+20) kg / m<sup>3</sup>. Climate Zone 2: no less 10cm thickness; Climate Zone 3: no less 12cm thickness

### 3. Mineral dry mortar premix for bonding and reinforcing thermal insulation boards

Reaction to fire (for the product): non-combustible, High water vapor diffusion permeable Long workability / open time, Heat conductivity: no more 0.7 W/(m · K), Bulk density:. no more 1.5 kg/dm3, Resistance-count for diffusion  $\mu$  (H2 O):  $\mu$  < 25, Coefficient of water absorption: w < 0.2 kg/(m2 · h0,5) adhesion to stone wool  $\geq$  0.05 MPa.

### 4.fibre glass reinforcement mesh

Non-sliding, high tensile strength, unplasticized, alkali-resistant, mesh size  $4 \times 4 \text{ mm}$ , edges are cut. Dressing: 20 - 30 %, organic, Initial tear strength: (in warps and woofs): 1750 N / 5 cm, Area-related mass: 165 g/m<sup>2</sup> ± 5 %, Loss of tensile strength after storage in alkali: < 50% (28 d NaOH 5% sol. or 24 hours in alkaline sol.

#### 5. Mineral based dry mortar premix for exterior use.

Reaction to fire non-combustible or flame retardant, Water vapour permeable.

Diffusion-equivalent air layer thickness sd H 2 O: 0.07–0.30 m. Apparent density of hardened mortar: <1300 kg/m<sup>3</sup>, Consistency: Powder form. Capillary water absorption: w < 0.5 kg/m2 after 24 h, Compression hardness: >  $6 \text{ N} / \text{mm}^2$ .

#### 6.Silicate-based, weather-resistant facade paints

Weather-resistant, Allows sorption.CO2-permeable. Colour Resistance according to BFS. Binder / Class: B, Pigmentation / Group: 1, Maximum particle (grit) size: < 100  $\mu$ m, S1, Density: Approx. no more 1.5 g/cm3, Dry film thickness: 100 - 200  $\mu$ m, E3, Water permeability (w-value):  $\leq$  0.1 (0.08) [kg/(m2  $\cdot$  h0,5)] (low), W3, Water vapour permeability (sd-value): < 0.14 (0.02) m (high), V1.

#### 7. Mineral wool roll with foil

One side of mat is covered with aluminum foil, which acts as a vapor barrier. Flammability – non-combustible degree, Thermal conductivity,  $\lambda 10$ -no more 0,036 W / m°C; Thickness min. 10cm, 12cm.

#### 8. Vapor barrier membrane

Weight,  $g / m^2$ : 50 + 10%, - 5%, Water vapor permeability,  $g / m^2$  (24 hours)  $\ge$  40, Water resistance, mm of water. pillar  $\ge$  1000, Breaking load: Along: no less 100 N / 5cm, Breaking load: Across : no less 80 N / 5cm.

#### 9. Diffusion membrane

Weight, g / m<sup>2</sup>: 90 ± 10%, Water vapor permeability, g / m<sup>2</sup> (24 hours)  $\ge$  3300, Water resistance, mm of water. pillar  $\ge$  230, Breaking load: Along  $\ge$ 100 N / 5cm, Breaking load:  $\ge$  Across 80 N / 5cm.

#### 10. Cement

Portland cement, grade M-400 EN 197-1 Cement shall be ordinary Portland cement type and sulphate resistant in accordance with state standards FOCT (GOST) 22266-76 (ASTM C150 or B.S 12) unless otherwise instructed.

## **Quality Control:**

The Contractor shall be responsible for the quality of the works for the entire construction work within the Contract. The Company shall, therefore, have its own independent and adequate set-up for ensuring the same. Together with the proposal, the Contractor shall submit to UNDP a detailed proposal for providing Quality Assurance and Control of the Work for all works to be conducted. The proposal shall give details of the following:

- Quality Assurance organizational arrangement with Names, Qualifications and Work Experiences for all staff proposed for Quality Assurance and Control;
- Procedures to be followed in the task of Quality Assurance and Control;
- All equipment used on the construction sites shall go through test and quality control;
- Construction materials, items and equipment should meet international standards and ecological requirements and must have appropriate certificate(s);
- Construction norms and regulations (SNiP-III-18-75 and SNiP-III-4-80) requirements must be followed;
- Safety rules must be strictly observed;
- If electrical equipment or wiring is required, it has to correspond to International Electrotechnical Commission standards.
- All installations and equipment, supplied for insulation works must ensure maximal protection against electrical stroke. This requirement has to be the first and the most important argument when decisions are taken by the Contractor regarding the choice of materials and working methods as well as the equipping with details.
- All materials, fixtures, fittings and supplies furnished under the Contract shall be new and unused, of standard first-grade quality and of the best workmanship and design. No inferior or low-grade materials, supplies or articles will be approved or accepted, and all work of assembly and construction shall be done in a first-class and workmanlike manner
- The work shall be performed in accordance with applicable local and national laws, codes, requirements and regulations including safety, health, welfare of persons and others. The Contractor shall in general be fully conversant and comply with the relevant sections of all construction regulations enforceable by the law.

### სამუშაოთა აღწერილობა

გარე კედლების დათბუნების სამუშაოებისას, ძირითადი დოკუმენტი, რომლის გათვალისწინებით უნდა ჩატარდეს ყველა სამუშაო, არის ევროპული სტანდარტი: EAE European Association for External thermal insulation composite systems. European Guideline for the application of **ETICS** (External Thermal Insulation Composite Systems)

სისტემის აწყობამდე, პირველ რიგში აუცილებლად უნდა შემოწმდეს დასათბუნებელი კედლების ზედაპირები დეტალურად, მოხდეს მათი გაწმენდა ისეთი ნივთიერებებისგან, რომელიც ადჰეზიას უშლის ხელს. ძლიერად შეწოვადი ზედაპირების შემთხვევაში შესაძლებალია მისი დაგრუნტვაც. შემდეგი ეტაპი, ხარაჩოების აწყობის შემდეგ აუცილებლად უნდა მოხდეს ყველაზე მაღალი წერტილიდან შვეულის დაშვება (ზემოდან ქვემოთ, ჰორიზონტში და დიაგონალზეც), იმ მიზნით, რომ განისაზღვროს კედლის სისწორე მთელს სიბრტყეზე. თუ კედელი არ არის სწორი, იგი უნდა შეილესოს ქვიშა-ცემენტის ხსნარით.

## ეტაპი #1: საყრდენი პროფილის მონტაჟი.

ზედაპირის დათვალიერების, გასუფთავების და მოწესრიგების შემდეგ, თერმოიზოლაციის აწყობა იწყება შენობის ქვემოდან ზემოთ. პირველ რიგში ხდება ჰორიზონტალურად, ალუმინის უჟანგავი საყრდენი პროფილის დამონტაჟება. (ნახ. 1) პროფილის უნდა იყოს ფიქსირებული მინიმუმ 30 სმ. სიმაღლეზე მიწიდან. იგი უნდა დამონტაჟდეს შენობის მთელ პერიმეტრზე. ერთ მეტრ პროფილზე საჭიროა სულ მცირე სამი დუბელი.

# ეტაპი #2: თბოსაიზოლაციო ფილებზე წებოს დატანა

მას შემდეგ რაც თარაზოში და შვეულში გასწორებული იქნება საყრდენი პროფილი იწყება დამათბუნებელი ფილის წებოს მომზადება და ფილების გაკვრა კედელზე. დამათბუნებელი ფილის წებო (25 კგ-იანი შეფუთვა) იხსნება 5-6 ლიტრ წყალში. რკინის სპეციალური სამუშაო ინსტრუმენტებით ხდება წებოს დატანა დამათბუნებელ ფილაზე, პერიმეტრის დახურვით და შუაში გუნდებით ფილის ზომიდან გამომდინარე 3, 4, (ნახ. 2) გუნდა შესამლოა მეტიც თუ დიდი ფილებია.რაც შეეხება ქვაბამბის ფილას, ჯერ აუცილებლად ხდება იმ ადგილების დამუშავება წებოთი სადაც უნდა მოთავსდეს ეს მასალა, უკეთესი ადჰეზიისათვის და შემდეგ ანალოგიური პრინციპით. თუ შეიმჩნევა ადრე მიწებებულ ფილებზე წებოს ნარჩენი, ისინი აკურატულად უნდა მოშორდეს. ფასადის სიბრტყე ფილების გაკვრის შემდეგ უნდა იყოს შემლებისდაგვრად სწორი. ფენით. საიზოლაციო ფილები უნდა დაწებდეს ერთმანეთზე მიბჯენით შახმატურად და აღმავალი მიმართულებით. კარგად დააჭირეთ თითოულ ფილას, რომ წებოვანი მასა განაწილდეს. არ დაიტანოთ წებო ფილებს შორის ტიხრებში. ყურადღება მიაქციეთ ღერძულა და ვერტიკალური

## ეტაპი #3: თბოსაიზოლაციო ფილების მონტაჟი

მისაწებებელი მასის დამათბუნებელ ფილაზე დატანის შემდგომ ხდება მისი კედელზე მიკვრა, გვერდებზე მიწევ-მოწევით, რათა წებო კარგად გაიშალოს ფილის და კედლის ზედაპირებზე და მოხდეს ცარიელი ადგილების ამოვსება და გამოირიცხოს ჰაერის შეღწევა. ქვაბამბის ფილას ასევე ყურადღება უნდა მიექცეს თუ აქვს რომელიმე მხარე დაცული თხელი მემბრანით, რომელიც გარეთა მხარეს უნდა მოხვდეს. წებოს სისქე უნდა შეადგენდეს დაახლოებით 5 მილიმეტრს. ყველაზე ცუდ შემთხვევაში 1 სმ-ც დასაშვებია.

საბოლოო ჯამში დამათბუნებელი ფილის წყობაც უნდა გამოიყურებოდეს სამშენებლო ბლოკის წყობასავით. (ნახ .3) აუცილებლად ყურადღება არის მისაქცევი ფილების გაკვრისას ზედაპირის სისწორეს, რომ არ წარმოიქმნას კედლის უსწორმასწორობის ან წებოს სისქის გამო მუცლები და ტალღები. ამისსაკონტროლებლად გამოიყენება გრმელი თარაზოები და ე.წ. შიმშები, რკინის პროფილები,რომლითაც შემსრულებელი ნახულობს ვერტიკალში, ჰორიზონტალურად და დიაგონალურადფილების სისწორეს. ფანჯრის გარშემო აუცილებელია, რომ კუთხეებზე მოხვდეს ერთი მთლიანი ფილა და მოხდეს ამ ფილაზევე კუთხის გამოჭრა. ჭრილი უნდა იყოს მინიმუმ 15 სმ. (ნახ .4) ღიობების გარშემო დატვირთვა გამლიერებულია და შესაბამისად საჭიროებს განსაკუთრებულ დაცვას.

# ეტაპი #**4:** დუბელების მონტაჟი

დამათბუნებელი ფილების გაკვრის შემდეგ ხდება ფასადის დუბელირება. დუბელები განსხვავდება სიგრძით, ლურსმნის ტიპით და სხვა მახასიათებლებით. საქართველოში აპრობირებულია დასაჭედებელი დუბელები, რომლებიც დამათბუნებელი ფილის ზედაპირს უსწორდება და არ საჭიროებს არანაირ დამატებით დამუშავებას. სტანდარტულად გამოიყენება ერთ კვადრატულ მეტრზე 5-6 დუბელი. კუთხეებში ხდება გარკვეულ შემთხვევებში დუბელების დამატება და შეიძლება ერთ კვადრატულ მეტრზე 8 დუბელიც კი იყოს საჭირო. დუბელის ფუნქცია არ არის, ფილის კედელზე მიმაგრება და დაჭერა. ისინი უზრუნველყოფენ ქარის დარტყმებისგან წარმოქმნილი ვიბრაციის ნეიტრალიზებას. კუთხიდან დუბელი უნდა დამონტაჟდეს მინ 10 სმ-ის მანძილზე. დამაგრების მინიმალური სიღრმე, რომელიც უნდა იყოს არსებულ კედელში, არის: ბეტონის კედელში 5 სმ, მსუბუქი ბლოკის კედელში პერფორირებულ აგურის კედელში 8 სმ. დუბელების გამაგრების სქემა ნაჩვენებია ნახ. 3-ზე.

## ეტაპი #5: მინაბოჭკოვანი ბადის მონტაჟი

დუბელირების შემდგომი ეტაპი არის დათბუნებული ზედაპირის არმირება. აუცილებლად

არმირება იწყება კუთხეებით. ამ შემთხვევაში ვიყენებთ ბადე კუთხოვანას. პირველ რიგში ხდება კუთხეებზე საარმირო ფითხის დატანა კბილებიანი რკინის ინსტრუმენტით და გასწორებულ კუთხეზე კუთხოვანის დასმა, რომელიც დამატებითად დაზღვევისთვის უნდა გასწორდეს თარაზოში. კუთხოვანების დასმასთან ერთად აუცილებლად უნდა მოხდეს ყველა ღიობის ან აივნების შუბლებზე საცრემლე კუთხოვანების დამონტაჟება. იმისათვის, რომ მოხდეს ფასადზე მომდინარე წვეთების მოწყვეტა და არ დაზიანდეს ღიობების შუბლები ან აივნის ჭერები წყლის ჩამოდინებით.

შენობის კუთხეების და ღიობების დამუშავების შემდეგ, საჭიროა სრული ფასადის არმირება. ამ შემთხვევაშიც 25 კილოგრამიანი საარმირო ფითხი იხსნება 5-6 ლიტრ წყალში.

რკინის კბილებიანი ინსტრუმენტებით ხდება მასალის დატანა კედელზე დაახლოებით 3-5

მილიმეტრამდე სისქეზე. დაზოლილ ზედაპირზე მოხდება საარმირო მინაბოჭკოვანი ბადის გამოყენება, რომელიც უნდა ჩაიძიროს ფასადზე უკვე დატანილ საარმირო

ფითხში. დაუშვებელია ჯერ საარმირო ბადის ჩამოკიდება და დაფიქსირება კედელზე და ზემოდან საარმირო ფითხის გადატარება.საარმირო ფენის მოწყობისას აუცილებელია, რომ ყველა ბადის რულონის კიდეების გადადება მოხდეს 10 სანტიმეტრიანი მანმილით, (ბადის ბადეზე), წინააღმდეგ შემთხვევაში ბადეების გადაბმის ადგილში აუცილებლად გაჩნდება დროთა განმავლობაში ბზარები. კუთხოვანების და საცრემლეების დაყენებასთან ერთად აუცილებლად უნდა მოხდეს ღიობების კუთხეების დაცვა დიაგონალური არმირებით. ფასადის ბზარების თავიდან ასაცილებლად, ფანჯრისა და კარის თავების და ღიობების კუთხეებში უნდა დამონტაჟდეს დიაგონალურად 45°იანი კუთხით მინაბოჭკოვანი ბადე ზომებით, მინიმუმ 30 x 20 სმ. (სურ. 5)

## ეტაპი #**6:** ზედაპირის დაგრუნტვა

საარმირო ფითხის დატანიდან 24 საათის გასვლის შემდეგ, რეკომენდირებულია გამოვიყენოთ კვარცული ქვიშის შემცველი გრუნტ-საღებავი. იგი ზრუნავს გაანეიტრალოს საარმირო ფითხზე წყლის შეწოვადობის უნარი და ასევე შექმნას დამატებით ადჰეზიური ეფექტი დეკორატიული დანაფარის მოწყობისათვის.

## ეტაპი #7: დეკორატიული ბათქაშის მოწყობა

გრუნტის დატანიდან, მეორე დღეს მოხდეს დეკორატიული ბათქაშის დატანა. დეკორატიული ბათქაშის დატანის შემდეგ, სასურველია ღებვამდე მოხდეს მასალის გაჩერება ფასადზე დაახლოებით 2 კვირა.

## ეტაპი # 8: ფასადის შეღებვა

დასკვნითი ეტაპია ფასადის ზედაპირის შეღებვა 2 ფენაში. საჭიროა შეიღებოს ფასადის სილიკატის საღებავით. ყველა საღებავს აქვს სხვადასხვა ტიპის მოხმარება კვადრატულ მეტრზე, რაც ასევე დამოკიდებულია ზედაპირის ტექსტურაზე.

ნახ. 6-ზე ნაჩვენებია კედლის დათბუნების სისტემის ყველა შრე

კედლების დათბუნების სისტემის მოწყობა უნდა ხდებოდეს ჰაერის ტემპერატურის არანაკლებ +5° პირობებში.

აუცილებელია დავიცვათ შემდეგი ტექნოლოგიური შესვენებები:

- თბოსაიზოლაციო ფილების გაკვრის შემდეგ სამაგრი ელემენტების დაყენებამდე - სულ მცირე 48 სთ;

- არმირების მასალის მოწყობის შემდეგ და მისთვის საჭირო გამყარებამდე გრუნტის მოწყობამდე პოლიმერის ან სილიკონის ბათქაშით ან დეკორატიულ-დამცავი ფენის მინერალური ან სილიკატური ბათქაშით - სულ მცირე 48 სთ;

- გრუნტის მოწყობის შემდეგ პოლიმერის ან სილიკონის ბათქაშით დეკორატიულ-დამცავი ფენის მოწყობამდე - სულ მცირე 12 სთ (სრულ გაშრობამდე);

გაზრდილი ტენიანობის პირობებში შესვენებების დრო უნდა გაიზარდოს.

## სხვენის დათბუნება

სამუშაოების დაწყებამდე უნდა შემოწმდეს სხვენის ზედაპირი, არეალი უნდა გათავისუფლდეს ზედმეტი ნივთებისაგან და მტვერისგან. იზოლაციის დაგება უნდა დაიწყოთ გასასვლელიდან ყველაზე შორი წერტილიდან. რულონი უნდა დაიჭრას გადახურვის კოჭებს შორის არსებულ ზომებზე და ჩალაგდეს მათ შორის ფოლგით ქვემოთ. მცირე ღრეჩოების წარმოქმნის შემთხვევაში, ისინი უნდა ამოივსოს თბოიზოლაციის ნაჭრებით. თბოიზოლაციის ფენის ზემოდან უნდა დამონტაჟდეს ორთქლგამტარი ქარდაცვის დიფუზიური მემბრანა, რომელიც უნდა დამაგრდეს ხის კონსტრუქციებზე სტეპლერებით. კლიმატური ზონა -2-ისთვის დათბუნების სისქე უნდა შეადგენდეს მინიმუმ 10 სმ. კლიმატური ზონა -3-ისთვის მინიმუმ 12 სმ. სხვენის დათბუნების სქემა

## იატაკის დათბუნება

იმ შემთხვევაში, როდესაც ხდება 2 სათულიანი სახლის ერთი სართულის დათბუნება, აუცილებელია სართულშუა გადახურვის (პირველი სართულის ჭერის) დათბუნება. სართულშუა გადახურვა შედგება შემდეგი შრეებისგან: ორთქლიზოლაციის მებრანა გასათბობი არეალის მხრიდან. მინერალური ბამბის რულონი კლიმატური ზონა -2-ისთვის დათბუნების სისქე უნდა შეადგენდეს მინიმუმ 10 სმ. კლიმატური ზონა -3-ისთვის მინიმუმ 12 სმ. ანკერებზე დამაგრებული C, D პროფილებისგან შედგენილი კარკასი, რომელზეც მაგრდება გიფსოკარდონის ფილა. ბოლო ეტაპზე ხდება ზედაპირის ფითხით დამუშავება და შეღებვა. იატაკის დათბუნების სქემა მოცემულია ნახ. 8-ზე.

## კედლების დათბუნების სამუშაოების ხარისხის კონტროლი

სამუშაოს შესრულებისას უნდა გაკონტროლდეს:

- სამუშაო პირობები: ტემპერატურა, ტენიანობა, ქარის სიძლიერე;
- შენობების კედლების ზედაპირზე უსწოროების არსებობა და მათი აღმოფხვრის ხარისხი;
- ქვა ბამბის ფილებზე ხსნარის დადების მეთოდის სისწორე.
- ხსნარის მომზადების ტექნოლოგიის დაცვა, მისი სიმტკიცე;
- კედლების ზედაპირზე ცხიმის და ბიტუმის ლაქების, ჟანგის, და სხვა სახის დაბინძურების არსებობის აღმოფხვრა;
- თბოსაიზოლაციო ფილების სწორი განლაგება (აგურის წყობა) შენობის ფასადზე;
- თბოსაიზოლაციო ფილების და მინაბამბის რულონების სისქეების შესაბამისობა საპროექტო მონაცემებთან კლიმატური ზონების მიხედვით;

- ფილებს შორის ნაკერების სიგანის კონტროლი, ზედაპირზე ფილების ადგეზიის ხარისხი, თბოიზოლაციის ფილების გაკვრა უნდა იწყებოდეს ქვემოდან ზემოთ;
- წებო არ უნდა მოხვდეს ფილებს შორის ნაკერებში;
- კედლებზე თბოსაიზოლაციო ფილების დუბელებით დამაგრების სისწორე;
- ფილების ზედაპირზე მარმირებელი ფენის სისქე და სიმტკიცე;
- მინაბოჭკოვანი ბადის სწორი მონტაჟი (ჯერ უნდა ხსნარით დაიფაროს ზედაპირი და შემდეგ უნდა ჩაიფლოს არმირების ბადე);
- ფანჯრების ღიობების კუთხეებში დამატებით მინაბოჭკოვანი ბადის ფრაგმენტების დიაგონალურად მონტაჟი.
- ღიობების ზედა ფერდოზე უნდა დამონტაჟდეს საცრემლე პროფილი, ხოლო კუთხეებში კუთხის პროფილი ბადით.
- ფანჯრების ღიობების ადგილებში წინსაფრების სწორი დაყენება და გერმეტიზაცია;
- შენობის სახურავისა და თბოიზოლირებული ფასადის შეერთების ადგილას კარნიზის სწორი მონტაჟი.
- ფილებს შორის ნაკერის სიგანე არ უნდა აღემატებოდეს 200.;
- შეერთების ადგილას არმირების ბადის გადადება უნდა იყოს 100 მმ;
- სისტემის გადახრა სიბრტყიდან არ უნდა აღემატებოდეს 5 მმ-ს
- პროექტიდან თბოიზოლაციის ფენის სისქის დასაშვები გადახრა არ უნდა აღემატებოდეს ± 5%;
- არ უნდა იყოს ბზარები თბოსაიზოლაციო და მოსაპირკეთებელ ფენებში;
- დაუშვებელია ფასადის შეღებვის დროს სხვადასხვა უბნებში განსხვავებული ფერები;
- დიდი ყურადღება ეთმობა მუშაობის ტექნოლოგიური თანმიმდევრობის დაცვას;
- ყველა ტექნოლოგიური პროცესის დასრულების შემდეგ უნდა მოხდეს სამუშაოების კონტროლი და მიღება;
- უნდა იყოს დაცული ტექნოლოგიური შესვენების ხანგრძლივობა ყოველი ოპერაციის შესრულების შემდეგ;
- თითოეული ეტაპის სამუშაოს შესრულების ხარისხი უნდა შეესაბამებოდეს ETICS-ის მოთხოვნებს.

# ტექნიკური სპეციფიკაციები

კედლების დათბუნების სისტემისთვის მოწოდებული ყველა მასალა და შესრულებული სამუშაოს ხარისხი უნდა შეესაბამებოდეს ევროპულ სტანდარტს- ETICS- EAE European Association for External thermal insulation composite systems. European Guideline for the application of **ETICS** (External Thermal Insulation Composite Systems)

## 1.მინერალური მშრალი ნარევი საიზოლაციო ფილების მისაწებებლად

**მასალის თვისებები:** ხანძარსაშიშროება: არა აალებადი, მაღალი ორთქლდიფუზიურობა (გამტარიანობა)დამუშავების გაზრდილი დრო, **ტექნიკური პარამეტრები:** სიმტკიცის ზღვარი კუმშვისას: βd ≈ 24 N/მმ2, ჰაერმშრალი პროდუქტის სიმკვრივე: ≈ 1700 კგ/მ<sup>3</sup>, სიმტკიცის ზღვარი ღუნვისას: ≈ 5–6 N/მმ2, ადგეზია ბეტონთან ≥ 0,5 MPa, ადგეზია ქვაბამბასთან ≥ 0,05 MPa ამინდის პირობების გათვალისწინებით მასალის მომზადების დრო შეადგენს დაახლოებით 2 საათს. **2.ქვა ბამბის ფილა**  **ბირითადი ფიზიკური და მექანიკური მახასიათებლები:** თბოგამტარობა λ10 - არა უმეტეს 0.036 ვტ / მ ° C; სიმტკიცე შეკუმშვაზე 10% დეფორმაციის დროს - არა ნაკლებ 30 kPa; სიმტკიცე გაჭიმვაზე წინა ზედაპირების მიმართ პერპენდიკულარული მიმართულებით - არა ნაკლებ 15 კპა; ორგანული ნივთიერებების შემცველობა - არა ნაკლებ 4.5%; მოკლევადიანი წყლის შეწოვა ნაწილობრივ ჩამირვაში - არა ნაკლებ 1 კგ / მ 2; წყლის შთანთქმა ნიმუშების ნაწილობრივი ჩამირვის დროს, ხანგრმლივი დროის განმავლობაში- არა ნაკლებ 3 კგ / მ 2; აალებადობის ხარისხი - არაწვადი; სიმკვრივე - 100 (+20) კგ / მ 3. სისქე 10სმ და 12 სმ.

## 3. მინერალური მშრალი ნარევი საიზოლაციო ფილების მისაწებებლად და არმირებისათვის.

**მასალის თვისებები:** ხანძარსაშიშროება: არა აალებადი ან ძნელადაალებადი, მაღალი ორთქლდიფუზიურობა (გამტარიანობა)დამუშავების გაზრდილი დრო, **ტექნიკური პარამეტრები:** თბოგამტარობა: 0,7 W/(∂\*K), ჰაერმშრალი პროდუქტის სიმკვრივე: ≈ 1,5 კგ/დმ³, დიფუზიის წინააღმდეგობის მაჩვენებელი μ (H2O): < 25, წყალგამტარობა: w < 0,2 კგ/(∂2 \*h0,5) ადგეზია ქვაბამბასთან ≥ 0,05 Mpa

## 4. მინაბოჭკოვანი ბადე

**თვისებები:** მოცურების მიმართ მედეგი, დეფორმაციის მიმართ მედეგი, დამარბილებლების გარეშე, ტუტეების მიმართ მედეგი, ბადის უჯრების ზომა 4 x 4 მმ. კიდეები ჩამოჭრილი

**ტექნიკური პარამეტრები:** საწყისი სიმტკიცე გაჭიმვისას (გრმივი/განივი): 1750 N / 5 სმ. ფართობზე დამოკიდებული მასა: 165 გ/მ2 ± 5 %, გაჭიმვისას საწყისი სიმტკიცის დანაკარგი ტუტე გარემოში: < 50 % (28 დღე NaOH 5%-იანი, ან. 24 საათი ტუტე ხსნარი pH 12,5/ 60° C)

## 5. დეკორატიული ბათქაშის მშრალი ნარევი მინერალურ ბაზაზე, გარე სამუშაოებისათვის.

თვისებები: არა წვადი, ან ძნელად აალებადი, ორთქლდიფუზიური, ტექნიკური პარამეტრები: ორთქლ დიფუზიურობის კოეფიციენტი: Sd H2O: 0.07 - 0.30 მ, გამყარებული ხსნარის სიმკვრივე: <1,3კგ/დმ3, წყლის კაპილარული შეწოვის უნარი: W <0.5 კგ /მ2, 24 საათის შემდეგ, კომპრესიული მალა: > 6 N/მმ<sup>2</sup>

### 6. სილიკატურ ბაზაზე დამზადებული ფასადის საღებავი

**თვისებები** კლიმატური ზემოქმედებისადმი მედეგი, სორბციული უნარის მქონე CO2-ის გამტარი, **ფერის მედეგობა საერთაშორისო სტანდარტ BFS-ის შესაბამისად :**(შემკვრელი) კლასი: B (პიგმენტაცია) ჯგუფი: 1**ტექნიკური პარამეტრები:** მაქსიმალური ნაწილაკების ზომა: 100 მიკრონი, სიმჭიდროვე: დაახლოებით . 1,5 გ/სმ3, გამყარებული ფენის სისქე: 100–200 μm, E3 წყლის შეღწევადობა: (w-ფაქტორი): ≤ 0,1 (0,08) [კგ/(მ2 · h0,5)] (დაბალი), W3, ორთქლიდიფუზიურობა (sd ფაქტორი): ≥ 0,14 (0,2)მ (მაღალი), V1.

### 7. მინერალური ბამბის რულონი ფოლგით

მასალის ერთი მხარე დაფარულია ალუმინის კილიტით, რომელიც მოქმედებს როგორც ორთქლის ბარიერი. ტექნიკური პარამეტრები: ალებადობის ხარისხი - არაწვადი; თბოგამტარობა λ10 - არა უმეტეს 0.036 ვტ / მ ° C; სისქე მინ. 10 სმ, 12 სმ.

### 8. ორთქლიზოლაციის მებრანა

**ტექნიკური პარამეტრები:** წონა, გ / მ²: 50 + 10% - 5%, ორთქლის გამტარიანობა, გ / მ² (24 საათი) ≥ 40,წყლის მიმართ მედეგობა, მმ წყლის სვეტი ≥ 1000, გარღვევის დატვირთვა: 100 N / 5cm გრძივად, გარღვევის დატვირთვა: 80 N / 5 სმ განივად

### 9. დიფუზიური მებრანა

ტექნიკური პარამეტრები: წონა, გ / მ<sup>2</sup>: 90 ± 10% ,- 5%, ორთქლის გამტარიანობა, გ / მ<sup>2</sup> (24 საათი) ≥ 3300, წყლის მიმართ მედეგობა, მმ წყლის სვეტი ≥ 230, გარღვევის დატვირთვა:≥ 160 N / 5cm გრმივად, გარღვევის დატვირთვა: ≥ 80 N / 5 სმ განივად

# 10. ცემენტი

პორტლანდცემენტი, მარკა M-400 (EN 197-1) ცემენტი უნდა იყოს სულფატების მიმართ მდგრადი, და უნდა შეესაბამებოდეს სახელმწიფო სტანდარტებს FOCT (GOST) 22266-76 (ASTM C150 ან B.S 12)

### Form For Submitting Supplier's Quotation (BILL OF QUANTITIES)

We, the undersigned, hereby accept in full the UNDP General Terms and Conditions, and hereby offer to supply the items listed below in conformity with the specification and requirements of UNDP as per RFQ

### BILL OF QUANTITIES Insulation of the floor above unheated basement BOQ for the <u>Climate Zone-2 & 3</u>

All other information that we have not provided automatically implies our full compliance with the requirements, terms and conditions of the RFQ.

		გაუმთბარი სარდ	აფის თავზე ია	<u>უაკის დათბუნება</u>	6			
		BOQ for the	e climate zone-2	and 3				
#	Works description სამუშაოს დასახელება Unit განზომილება Quantity რაოდენობა Cost of ოaterials, USD მასალების ღირებულება Total unit cost, USD მასალების ღირებულება							Brand's Name პრენდის დასახელე პა
1	2	3	4	5	6	7	8	9
	Insulation of the floor above the unheated basement გაუმთბარი სარდაფის თავზე ჭერის დათბუნება							

Annex 2

1	Installation of the diffusion membrane დიფუზიური მემპრანის მონტაჟი	m²	1.0			
2a	Installation of stone woll roll with a thickness of 10 cm. with dowels ქვა ბამბის რულონის მონტაჟი სისქით 10 სმ. დუბელებით	m²	1.0			
2b	For the climate zone-3. Installation of stone woll roll with a thickness of 12 cm. with dowels კლიმატური ზონისთვის 3. ქვა ბამბის რულონის მონტაჟი სისქით 12 სმ. ღუბელებით	m²	1.0			
3	Installation of vapor barrier membrane from the heating area side ორთქლიზოლაციის მემპრანის მონტაჟი გათბოპის არეალის მხრიდან	m²	1.0			
4	Installing gypsum cardboard (12.5 mm) on ceiling on metal frame (C, D, 0.5 mm. profile, anchor pitch 50 sm.) თაბაშირ-მუყაოს ფილებით (სისქე 12.5 მმ.) ჭერის მოწყობა ლითონის კარკასზე (ჩ, , 0.5 მმ პროფილებით, ანკერების ბიჯი 50 სმ.)	m²	1.0			

5	Applying putty on gypsum cardboard ceiling, 2 layers and sanding with sandpaper თაბაშირმუყაოს ჭერის დამუშავება ფითხით 2 ფენა და მოხვეწა ზუმფარის ქაღალდით.	m²	1.0			
6	Quality Painting on gypsum cardboard ceiling with water emulsion paint თაბაშირმუყაოს ჭერის მაღალხარისხოვანი შეღებვა წყალემულსიის საღებავით	m²	1.0			
7	Disposing construction waste on landfill at 25 km in average სამშენებლო ნაგვის გატანა ნაგავსაყრელზე საშუალოდ 25 კმ მანძილზე	ton	1.0			
	Accruals დარიცხვები					
	Transportation expenses (from aterial resources) სატრანსპორტო ხარჯები (მატერიალური რესურსიდან)	%				
	Overhead expenses ზეღნაღები ხარჯები	%				
	Planned Profit გეგმიური დაგროვება	%				
	Unforeseen expenses გაუთვალისწინებელი ხარჯები	%				

### **BILL OF QUANTITIES**

### Insulation of attics BOQ for the <u>Climate Zone-2 & 3</u>

All other information that we have not provided automatically implies our full compliance with the requirements, terms and conditions of the RFQ.

	Insulation of the attics							
		სხვ	ენის დათ <b>ბუ</b> ნ	ნება				
		BOQ for t	he climate zone	2-2 and 3				
#	Works description სამუშაოთა დასახელება Unit Quantity განზომილება რაოდენობა Cost of materials, USD მასალების ღირებულება მასალება Total unit სულ მასალების ღირებულება					Country of production მწარმოებელი ქვეყანა	Brand's Name ბრენდის დასახელება	
1	2	3	4	5	6	7	8	9
	<b>Insulation of the attic</b> სხვენის დათბუნება							
1a	Installation of stone wool roll with foil, thickness of 10 cm. ქვა ბამბის ფოლგიანი რულონის მონტაჟი სისქით 10 სმ.	m²	1.0					
1b	For the cl`imate zone-3. Installation of stone wool roll with foil, thickness of 12 cm. კლიმატური ზონისთვის 3. ქვა პამპის ფოლგიანი რულონის მონტაჟი სისქით 12 სმ.	m²	1.0					

2	Fixing of stone wool insulation with diffusion membrane ქვა ბამბის იზოლაციის დაფიქსირება ქარდაცვის დიფუზიური მემბრანით.	m²	1.0			
	Accruals დარიცხვები					
	Transportation expenses (from aterial resources) სატრანსპორტო ხარჯები (მატერიალური რესურსიდან)	%				
	Overhead expenses ზედნადები ხარჯები	%				
	Planned Profit გეგმიური დაგროვება	%				
	Unforeseen expenses გაუთვალისწინებელი ხარჯები	%				

### **BILL OF QUANTITIES**

### Insulation of the external walls BOQ for the <u>Climate Zone -2 & 3</u>

All other information that we have not provided automatically implies our full compliance with the requirements, terms and conditions of the RFQ.

	BC	Q for the clima	te zone-2 and 🛛	3				
#	Works description სამუშაოთა დასახელება	Unit განზომილება	Quantity რაოდენოპა	Cost of materials, USD მასალების ღირებულება	Wages, USD ხელფასი	Total unit cost, USD სულ ერთეულის ღირებულება	Country of production მწარმოებელი ქვეყანა	Brand's Name ბრენდის დასახელება
1	2	3	4	5	6	7	8	9
	Insulation of the external walls გარე კედლების დათბუნება							
1	Arrangement and dismantling of scaffolding up to 5 meters high ხარაჩოს მოწყობა და დემონტაჟი სიმაღლით 5 მეტრამდე	m²	1.0					
2	Removing damaged plaster from walls (5%) კედლებიდან დაზიანებული ნალესის მოხსნა (5%)	m²	1.0					
3	Dismantling of the existing outer window gutters არსებული ფანჯრების ფართუკების დემონტაჟი	lin.m.	1.0					

4	Dismantling of vertical water drainage system არსებული ვერტიკალური წყალამრიდი ჟოლობების დემონტაჟი	lin.m.	1.0			
5	Cleaning the facade walls, preparing for the installation of insulation tiles ფასადის კედლების გასუფთავება, მომზადება ფილების მონტაჟისთვის	m²	1.0			
6	Plastering walls with sand cement solution კედლების ლესვა ქვიშა ცემენტრის ხსნარით	m²	1.0			
7a	Installation of aluminum support profile (10 sm) on the wall for the first row of stone wool boards ალუმინის საყრდენი პროფილის (10 სმ) მონტაჟი კედელზე ქვა პამბის ფილის პირველი რიგისთვის	lin.m.	1.0			
7b	For the climate zone-3. Installation of aluminum support profile (12 sm) on the wall for the first row of stone wool boards კლიმატური ზონისთვის 3.ალუმინის საყრდენი პროფილის (12 სმ) მონტაჟი კედელზე ქვა ბამბის ფილის პირველი რიგისთვის	lin.m.	1.0			
8a	Laying stone wool (10 sm) boards on the wall using tile glue (see the method of applying glue in the technical asssignment) ქვა ბამბის ფილების (10 სმ) გაკვრა კედელზე ფილის წებოს გამოყენებით (წებოს წასმის მეთოდი იხილეთ ტექნიკურ დავალებაში)	m²	1.0			

8b	For the climate zone-3. Laying stone wool (12 sm) boards on the wall using tile glue (see the method of applying glue in the technical asssignment) კლიმატური ზონისთვის 3. ქვა ბამბის ფილების (12 სმ) გაკვრა კედელზე ფილის წებოს გამოყენებით (წებოს წასმის მეთოდი იხილეთ ტექნიკურ დავალებაში)	m²	1.0			
9	Laying glue filling on stone wool boards webos დატანა ქვა ბამბის ფილებზე	m²	1.0			
10a	Installation of dowels with a length of 15 cm. (See installation diagram in the technical assignment) თეფშა დუბელების მონტაჟი სიგრძით 15 სმ. (სამონტაჟო სქემა იხილეთ ტექნიკურ დავალებაში)	Pc	1.0			
10b	For the climate zone-3.Installation of dowels with a length of 20 cm. (See installation diagram in the technical assignment) კლიმატური ზონისთვის 3. თეფშა დუბელების მონტაჟი სიგრძით 20 სმ. (სამონტაჟო სქემა იხილეთ ტექნიკურ დავალებაში)	Pc	1.0			
11	Laying stone wool boards (2 cm) on the outer slope of the openings using tile glue and fixing with dowels (10 cm) ქვა ბამბის ფილების (3 სმ) გაკვრა ღიობების გარე ფერდოზე ფილის წებოს გამოყენებით და დუბელებით დამაგრება (10 სმ)	m²	1.0			

12	Laying reinforcing filling on stone wool boards საარმირო ფითხის დატანა ქვა ბამბის ფილებზე	m²	1.0			
13	Installation of angles on the outer slopes of the openings with a fiberglass mesh. ღიობების გარე ფერდოებზე კუთხოვანების მონტაჟი მინაბოჭკოვანი ბადით.	lin.m.	1.0			
14	Installation of angle profile with drip edge ღიობების ზედა ფერდოზე საცრემლე პროფილის მონტაჟი მინაბოჭკოვანი ბადით.	lin.m.	1.0			
15	Installation of fiberglass mesh in the corners of the openings diagonally, dimensions 200 * 300 mm. (See installation diagram in the technical assignment) ღიობების კუთხეებში მინაბოჭკოვანი ბადის მონტაჟი დიაგონალურად, ზომებით 200*300 მმ. (სამონტაჟო სქემა იხილეთ ტექნიკურ დავალებაში)	m²	1.0			
16	Installation of angles on the corners of the facade with fiberglass mesh. ფასადის კუთხეებზე კუთხოვანების მონტაჟი მინაბოჭკოვანი ბადით.	lin.m.	1.0			
17	Installation of fiberglass mesh on the facade walls ფასადის კედლებზე მინაბოჭკოვანი ბადის მონტაჟი.	m²	1.0			
18	Covering the walls with adhesive soil ადგეზიური გრუნტით კედლეპის დაფარვა	m²	1.0			
19	Arranging decorative plaster on the façade დეკორატიული პათქაშის მოქწყობა ფასადზე	m²	1.0			

20	Painting the walls with silicone facade paint 2 Layers silikonis fasadis საღებავით კედლების შეღებვა 2 პირი	m²	1.0			
21	Montage of the outer window gutters, with thikcness 30 sm. ფანჯრების ფართუკების მონტაჟი სიგანით 30 სმ.	lin.m.	1.0			
22	Montage of vertical water drainage system წყალამრიდი ჟოლობების მონტაჟი	lin.m.	1.0			
23	Dismantling - installation of existing technical equipment არსებული ტექნიკური დანადგარის დემონტაჟი – მონტაჟი	рс	1.0			
24	Covering the walls under the supporting profile with artificial stone, at a height of 30 cm. ალუმინის საყრდენი პროფილის ქვეშ შენობის პერიმეტრზე კედლების მოპირკეთება ხელოვნური ქვით, სიმაღლეზე 30 სმ.	lin.m.	1.0			
25	Disposing construction waste on landfill at 25 km in average სამშენებლო ნაგვის გატანა ნაგავსაყრელზე საშუალოდ 25 კმ მანძილზე	ton	1.0			
	Accruals დარიცხვები					
	Transportation expenses (from aterial resources) სატრანსპორტო ხარჯები (მატერიალური რესურსიდან)	%				
	Overhead expenses ზეღნაღები ხარჯები	%				

Planned Profit გეგმიური დაგროვება	%			
Unforeseen expenses გაუთვალისწინებელი ხარჯები	%			

### Offer to Comply with Other Conditions and Related Requirements

### Requested financial offers:

The proponent shall provide standardised financial offers based on Bills of Quantities (BoQ) for the following tasks:

- 1) Outer wall insulation for both climate zones, as outlined in <u>Technical Specifications</u>.
- 2) Insulation of the floor above unheated basement for both climate zones, as outlined in <u>Technical Specifications</u>.
- 3) Insulation of the attics for both climate zones, as outlined in <u>Technical Specifications</u>.

Other Information pertaining to our Quotation are as	Your Responses					
follows:	Yes, we will comply	No, we cannot comply	If you cannot comply, pls. indicate counter proposal			
Validity of quotation 90 days						
All provisions of the UNDP general terms and conditions						
Compliance with liquidated damages indicated above						
Compliance with indicated warranty conditions – at leaset						
3 years warranty for facade thermal insulation works						
Outer wall insulation for both climate zones, as outlined in						
Technical Specifications						
Insulation of the floor above unheated basement for both						
climate zones, as outlined in <u>Technical Specifications</u>						
Insulation of the attics for both climate zones, as outlined						
in <u>Technical Specifications.</u>						
Quality Certificates for all materials as outlined in this						
document						
Safety measures as outlined in this document						

All other information that we have not provided automatically implies our full compliance with the requirements, terms and conditions of the RFQ.

Company Name

Director

Date

### **PREAMBLE**

Unit rates inserted by the Tenderer in the Bill of Quantities shall be fixed and not subject to variation. The Tenderer shall not be able to claim for any compensation due to difficulties in the works, shortage of labor, equipment or material, bad weather or unforeseen circumstances or any other reason of whatever nature.

The Tenderer shall not alter the text of the Bill of Quantities. Any alteration to the text inserted by the Tenderer shall lead to the rejection of the Offer. When pricing the Bill of Quantities, the Tenderer must be aware of all site conditions. The Contractor shall be responsible for the provision of all power, water and other services he may require for his construction activities as well as for the testing and commissioning activities.

#### **Quantity of Items**

The quantities set forth against the items in the bill of quantities are an estimate of the quantity of each kind of the work likely to be carried out under the contract and are given to provide a common basis for bids. Only permanent works are to be measured. No allowance will be made for loss of materials or volume thereof during transport or compaction.

### **Units of Measurement**

The units of measurement used in the annexed technical documentation are those of the International System of Units (SI). No other units may be used for measurements, pricing, detail drawings etc. (Any units not mentioned in the technical documentation must also be expressed in terms of the SI.) Abbreviations used in the bill of quantities are to be interpreted as follows:

Apple viacions used in the bill of q	dantifics are to be interpreted as follo
mm	millimeter
cm	centimeter
m	meter
m'	running meter
km	Kilometer, 1000 meters
m <sup>2</sup>	square meter
m <sup>3</sup>	cubic meter
kg	Kilogram
t	tone (100Kgr)
pcs	pieces
No	number of items
h	hour
1	liter
МРа	Mega-Pascal
kW	kilo-Watts
L.S	Lump sum
set	one set
route	route

#### **Pricing**

The prices and rates inserted in the bill of quantities are to be the full inclusive values of the works described under the items, including all costs and expenses which may be required in and for the construction of the works described together with any temporary works and installations. Unless otherwise specifically stated, the following shall be deemed to be included with all items:

All labor and material including sampling and testing, transport and formwork;

The required programme of works showing the proposed order and method to execute the works, and including all revisions and updates;

The provision and use of all equipment and plant, required for carrying out of the works in their proper sequence (machinery, scaffolding etc);

Lifting, handling, storage and securing of materials;

Providing until handing over the works, clean and uncontaminated water and all necessary adequate electrical power supply required for the works;

Daily site cleaning during execution of the works and final cleaning after completion of the works including removing all waste and scrap to approved dumping areas/landfills;

Removing and disposing of hazardous materials to approved dumping areas/landfills using all safety measures or sub-contractor properly authorized;

Any other works or cost necessary for the completion in accordance with the Contract.

Maintaining in good condition for duration of the works;

On his own responsibility and at this expense, the contractor shall take the precautions required by good construction practice and by the prevailing circumstances to safeguard adjacent properties and avoid causing any abnormal disturbance therein. Ensuring all safety and health measures on site for personnel are strictly followed.

### **Completing the Bill of Quantities**

In the bill of quantities, rates and prices shall be entered in the appropriate columns in US dollars (\$).Errors will be corrected as follows: where there is a discrepancy between amounts in figures and in words, amount in words will prevail; and where there is a discrepancy between the unit rate and the total amount derived from the multiplication of the unit price and the quantity, the unit rate as quoted will prevail. No prices shall be given in items that are not quantified.



General Conditions of Contract for Civil Works

#### 1. DEFINITIONS

For the purpose of the Contract Documents the words and expressions below shall have the following meanings:

- a) "Employer" means the United Nations Development Programme (UNDP).
- b) "Contractor" means the person whose tender has been accepted and with whom the Contract has been entered into.
- c) "Engineer" means the person whose services have been engaged by UNDP to administer the Contract as provided therein, as will be notified in writing to the Contractor.
- d) "Contract" means the written agreement between the Employer and the Contractor, to which these General Conditions are annexed.
- e) "The Works" means the works to be executed and completed under the Contract.
- f) "Temporary Works" shall include items to be constructed which are not intended to be permanent and form part of the Works.
- *g)* "Drawings" and "Specifications" mean the Drawings and Specifications referred to in the Contract and any modification thereof or addition thereto furnished by the Engineer or submitted by the Contractor and approved in writing by the Engineer in accordance with the Contract.
- h) "Bill of Quantities" is the document in which the Contractor indicates the cost of the Works, on the basis of the foreseen quantities of items of work and the fixed unit prices applicable to them.
- *i)* "Contract Price" means the sum agreed in the Contract as payable to the Contractor for the execution and completion of the Works and for remedying of any defects therein in accordance with the Contract.
- *j)* "Site" means the land and other places on, under, in or through which the Works or Temporary Works are to be constructed.

### 2. SINGULAR AND PLURAL

Words importing persons or parties shall include firms or companies and words importing the singular only shall also include the plural and vice versa where the context requires.

#### 3. HEADINGS OR NOTES

The headings or notes in the Contract Documents shall not be deemed to be part thereof or be taken into consideration in their interpretation.

### 4. LEGAL RELATIONSHIPS

The Contractor and the sub-contractor(s), if any, shall have the status of an independent contractor vis-à-vis the Employer. The Contract Documents shall not be construed to create any contractual relationship of any kind between the Engineer and the Contractor, but the Engineer shall, in the exercise of his duties and powers under the Contract, be entitled to performance by the Contractor of its obligations, and to enforcement thereof. Nothing contained in the Contract Documents shall create any contractual relationship between the Employer or the Engineer and any subcontractor(s) of the Contractor.

### 5. GENERAL DUTIES/POWERS OF ENGINEER

- a) The Engineer shall provide administration of Contract as provided in the Contract Documents. In particular, he shall perform the functions hereinafter described.
- b) The Engineer shall be the Employer's representative vis-à-vis the Contractor during construction and until final payment is due. The Engineer shall advise and consult with the Employer. The Employer's instructions to the Contractor shall be forwarded through the Engineer. The Engineer shall have authority to act on behalf of the Employer only to the extent provided in the Contract Documents as they may be amended in writing in accordance with the Contract. The duties, responsibilities and limitations of authority of the Engineer as the Employer's representative during construction as set forth in the Contract shall not be modified or extended without the written consent of the Employer, the Contractor and the Engineer.
- c) The Engineer shall visit the Site at intervals appropriate to the stage of construction to familiarize himself generally with the progress and quality of the Works and to determine in general if the Works are proceeding in accordance with the Contract Documents. On the basis of his on-site observations as an Engineer, he shall keep the Employer informed of the progress of the Works.
- d) The Engineer shall not be responsible for and will not have control or charge of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Works or the Temporary Works. The Engineer shall not be responsible for or have control or charge over the acts or omissions of the Contractor (including the Contractor's failure to carry out the Works in accordance with the Contract) and of Sub-contractors or any of their agents or employees, or any other persons performing services for the Works, except if such acts or omissions are caused by the Engineer's failure to perform his functions in accordance with the contract between the Employer and the Engineer.
- e) The Engineer shall at all times have access to the Works wherever and whether in preparation or progress. The Contractor shall provide facilities for such access so that the Engineer may perform his functions under the Contract.
- f) Based on the Engineer's observations and an evaluation of the documentation submitted by the Contractor together with the invoices, the Engineer shall determine the amounts owed to the Contractor and shall issue Certificates for Payment as appropriate.
- g) The Engineer shall review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for conformity with the design concept of the Works and with the provisions of the Contract Documents. Such action shall be taken with reasonable promptness so as to cause no delay. The Engineer's approval of a specific item shall not indicate approval of an assembly of which the item is a component.
- h) The Engineer shall interpret the requirements of the Contract Documents and judge the performance thereunder by the Contractor. All interpretations and orders of the Engineer shall be consistent with the intent of and reasonably inferable from the Contract Documents and shall be in writing or in the form of drawings. Either party may make a written request to the Engineer for such interpretation. The Engineer shall render the interpretation necessary for the proper execution of the Works with reasonable promptness and in accordance with any time limit agreed upon. Any claim or dispute arising from the interpretation of the

Contract Documents by the Engineer or relating to the execution or progress of the Works shall be settled as provided in Clause 71 of these General Conditions.

- i) Except as otherwise provided in the Contract, the Engineer shall have no authority to relieve the Contractor of any of his obligations under the Contract nor to order any work involving delay in completion of the Works or any extra payment to the Contractor by the Employer, or to make any variations to the Works.
- *j)* In the event of termination of the employment of the Engineer, the Employer shall appoint another suitable professional to perform the Engineer's duties.
- k) The Engineer shall have authority to reject work which does not conform to the Contract Documents. Whenever, in his opinion, he considers it necessary or advisable for the implementation of the intent of the Contract Documents, he will have authority to require special inspection or testing of the work whether or not such work be then fabricated, installed or completed. However, neither the Engineer's authority to act nor any reasonable decision made by him in good faith either to exercise or not to exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any subcontractor, any of their agents or employees, or any other person performing services for the Works.
- I) The Engineer shall conduct inspections to determine the dates of Substantial Completion and Final Completion, shall receive and forward to the Employer for the Employer's review written warranties and related documents required by the Contract and assembled by the Contractor, and shall issue a final Certificate for Payment upon compliance with the requirements of Clause 47 hereof and in accordance with the Contract.
- m) If the Employer and Engineer so agree, the Engineer shall provide one or more Engineer's Representative(s) to assist the Engineer in carrying out his responsibilities at the site. The Engineer shall notify in writing to the Contractor and the Employer the duties, responsibilities and limitations of authority of any such Engineer's Representative(s).

#### 6. CONTRACTOR'S GENERAL OBLIGATIONS/RESPONSIBILITIES

#### 6.1.Obligation to Perform in Accordance with Contract

The Contractor shall execute and complete the Works and remedy any defects therein in strict accordance with the Contract, with due care and diligence and to the satisfaction of the Engineer, and shall provide all labor, including the supervision thereof, materials, Constructional Plant and all other things, whether of a temporary or permanent nature, required in and for such execution, completion and remedying of defects, as far as the necessity for providing the same is specified in or is reasonably to be inferred from the Contract. The Contractor shall comply with and adhere strictly to the Engineer's instructions and directions on any matter, touching or concerning the Works.

#### 6.2 Responsibility for Site Operations

The Contractor shall take full responsibility for the adequacy, stability and safety of all site operations and methods of construction, provided that the Contractor shall not be responsible, except as may be expressly provided in the Contract, for the design or specification of the Permanent Works or of any Temporary Works prepared by the Engineer.

#### 6.3. Responsibility for Employees

The Contractor shall be responsible for the professional and technical competence of his employees and will select for work under this Contract, reliable individuals who will perform effectively in the implementation of the Contract, respect local customs and conform to a high standard of moral and ethical conduct.

#### 6.4.Source of Instructions

The Contractor shall neither seek nor accept instructions from any authority external to the Employer, the Engineer or their authorized representatives in connection with the performance of his services under this Contract. The Contractor shall refrain from any action which may adversely affect the Employer and shall fulfill his commitments with fullest regard for the interest of the Employer.

### 6.5.Officials Not to Benefit

The Contractor warrants that no official of the Employer has been or shall be admitted by the Contractor to any direct or indirect benefit arising from this Contract or the award thereof. The Contractor agrees that breach of this provision is a breach of an essential term of the Contract.

#### 6.6.Use of Name, Emblem or Official Seal of UNDP or the United Nations

The Contractor shall not advertise or otherwise make public the fact that he is performing, or has performed services for the Employer or use the name, emblem or official seal of the Employer or the United Nations or any abbreviation of the name of the Employer or the United Nations for advertising purposes or any other purposes.

### 6.7.Confidential Nature of Documents

All maps, drawings, photographs, mosaics, plans, reports, recommendations, estimates, documents and all other data compiled by or received by the Contractor under the Contract shall be the property of the Employer, shall be treated as confidential and shall be delivered only to the duly authorized representative of the Employer on completion of the Works; their contents shall not be made known by the Contractor to any person other than the personnel of the Contractor performing services under this Contract without the prior written consent of the Employer.

### 7. ASSIGNMENT AND SUBCONTRACTING

### 7.1.Assignment of Contract

The Contractor shall not, except after obtaining the prior written approval of the Employer, assign, transfer, pledge or make other disposition of the Contract or any part thereof or of any of the Contractor's rights, claims or obligations under the Contract.

### 7.2.Subcontracting

In the event the Contractor requires the services of subcontractors, the Contractor shall obtain the prior written approval of the Employer for all such subcontractors. The approval of the Employer shall not relieve the Contractor of any of his obligations under the Contract, and the terms of any subcontract shall be subject to

and be in conformity with the provisions of the Contract.

### 7.3.Assignment of Subcontractor's Obligations

In the event of a subcontractor having undertaken towards the Contractor in respect of the work executed or the goods, materials, Plant or services supplied by such subcontractor for the Works, any continuing obligation extending for a period exceeding that of the Defects Liability Period under the Contract, the Contractor

shall at any time after the expiration of such Period, assign to the Employer, at the Employer's request and cost, the benefit of such obligation for the unexpired duration thereof.

### 8. DRAWINGS

### 8.1.Custody of drawings

The drawings shall remain in the sole custody of the Employer but two (2) copies thereof shall be furnished to the Contractor free of cost. The Contractor shall provide and make at his own expense any further copies required by him. At the completion of the Works, the Contractor shall return to the Employer all drawings provided under the Contract.

### 8.2.One copy of Drawings to be kept on Site

One copy of the Drawings furnished to the Contractor as aforesaid shall be kept by the Contractor on the Site and the same shall at all reasonable times be available for inspection and use by the Engineer and by any other person authorized in writing by the Engineer.

### 8.3.Disruption of Progress

The Contractor shall give written notice to the Engineer whenever planning or progress of the Works is likely to be delayed or disrupted unless any further drawing or order, including a direction, instruction or approval, is issued by the Engineer within a reasonable time. The notice shall include details of drawing or order required and of why and by when it is required and of any delay or disruption likely to be suffered if it is late.

### 9. WORK BOOK

The Contractor shall maintain a Work Book at the Site with numbered pages, in one original and two copies. The Engineer shall have full authority to issue new orders, drawings and instructions to the Contractor, from time to time and as required for the correct execution of the Works. The Contractor shall be bound to follow such orders, drawings and instructions.

Every order shall be dated and signed by the Engineer and the Contractor, in order to account for its receipt.

Should the Contractor want to refuse an order in the Work Book, he shall so inform the Employer, through the Engineer, by means of an annotation in the Work Book made within three (3) days from the date of the order that the Contractor intends to refuse. Failure by the Contractor to adhere to this procedure shall result in the order being deemed accepted with no further possibility of refusal.

The original of the Work Book shall be delivered to the Employer at the time of Final Acceptance of the Works. A copy shall be kept by the Engineer and another copy by the Contractor.

### **10. PERFORMANCE SECURITY**

- a) As guarantee for his proper and efficient performance of the Contract, the Contractor shall on signature of the Contract furnish the Employer with a Performance Security issued for the benefit of the Employer. The amount and character of such security (bond or guarantee) shall be as indicated in the Contract.
- b) The Performance Bond or Bank Guarantee must be issued by an acceptable insurance company or accredited bank, in the format included in Appendix I to these General Conditions, and must be valid up to twenty-eight days after issuance by the Engineer of the Certificate of Final Completion. The Performance Bond or Bank Guarantee shall be returned to the Contractor within twenty-eight days after the issuance by the Engineer of the Certificate of Final Completion and the Engineer of the Certificate of Final Completion. The Performance by the Engineer of the Certificate of Final Completion, provided that the Contractor shall have paid all money owed to the Employer under the Contract.
- c) If the surety of the Performance Bond or Bank Guarantee is declared bankrupt or becomes insolvent or its right to do business in the country of execution of the Works is terminated, the Contractor shall within five (5) days thereafter substitute another bond or guarantee and surety, both of which must be acceptable to the Employer.

### **11. INSPECTION OF SITE**

The Contractor shall be deemed to have inspected and examined the site and its surroundings and to have satisfied himself before submitting his Tender and signing the Contract as to all matters relative to the nature

of the land and subsoil, the form and nature of the Site, details and levels of existing pipe lines, conduits, sewers, drains, cables or other existing services, the quantities and nature of the work and materials necessary for the completion of the Works, the means of access to the Site, and the accommodation he may require, and in general to have himself obtained all necessary information as to risk contingencies, climatic, hydrological and natural conditions and other circumstances which may influence or affect his Tender, and no claims will be entertained in this connection against the Employer.

### **12. SUFFICIENCY OF TENDER**

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his Tender for the construction of the Works and of the rates and prices, which rates and prices shall, except in so far as it is otherwise provided in the Contract, cover all his obligations under the Contract and all matters and things necessary for the proper execution and completion of the Works.

### 13. PROGRAMME OF WORK TO BE FURNISHED

Within the time limit specified in the Contract, the Contractor shall submit to the Engineer for his consent a detailed Programme of Work showing the order of procedure and the method in which he proposes to carry out the Works. In preparing his Programme of Work the Contractor shall pay due regard to the priority required by certain works. Should the Engineer, during the progress of work, require further modifications to the Programme of Work, the Contractor shall review the said program. The Contractor shall also whenever required by the Engineer submit particulars in writing of the Contractor's arrangements for carrying out the Works and of the Constructional Plant and Temporary Works which the Contractor intends to supply, use or construct as the case may be. The submission of such program, or any modifications thereto, or the particulars required by the Engineer, shall not relieve the Contractor of any of his duties or obligations under the Contract nor shall the incorporation of any modification to the Programme of Work either at the commencement of the contract or during its course entitle the Contractor to any additional payments in consequence thereof.

### 14. WEEKLY SITE MEETING

A weekly site meeting shall be held between the UNDP Project Coordinator or engineer, if any, the representative of the Contractor and the Engineer or the Engineer's Representative, in order to verify that the Works are progressing normally and are executed in accordance with the Contract.

### 15. CHANGE ORDERS

- a) The Engineer may instruct the Contractor, with the approval of the Employer and by means of Change Orders, all variations in quantity or quality of the Works, in whole or in part, that are deemed necessary by the Engineer.
- b) Processing of change orders shall be governed by clause 48 of these General Conditions.

### **16. CONTRACTOR'S SUPERINTENDENCE**

The Contractor shall provide all necessary superintendence during the execution of the Works and as long thereafter as the Engineer may consider necessary for the proper fulfillment of the Contractor's obligations under the Contract. The Contractor or a competent and authorized agent or representative of the Contractor approved in writing by the Engineer, which approval may at any time be withdrawn, shall be constantly on the site and shall devote his entire time to the superintendence of the Works. Such authorized agent or representative shall receive on behalf of the Contractor directions and instructions from the Engineer. If the approval of such agent or representative shall be withdrawn by the Engineer, as provided in Clause 17(2) hereinafter, or if the removal of such agent or representative shall be requested by the Employer under Clause 17(3) hereinafter, the Contractor shall as soon as it is practicable after receiving notice of such withdrawal remove the agent or representative from the Site, and replace him by another agent or representative approved by the Engineer. Notwithstanding the provision of Clause 17(2) hereinafter, the Contractor shall not thereafter employ, in any capacity whatsoever, a removed agent or representative again on the Site.

### **17. CONTRACTOR'S EMPLOYEES**

- a) The Contractor shall provide and employ on the Site in connection with the execution and completion of the Works and the remedying of any defects therein:
- *i.* Only such technical assistants as are skilled and experienced in their respective callings and such sub-agent foremen and leading hands as are competent to give proper supervision to the work they are required to supervise, and
- *ii.* Such skilled, semi-skilled, and unskilled labour as is necessary for the proper and timely execution and completion of the Works.
- b) The Engineer shall be at liberty to object to and require the Contractor to remove forthwith from the Works any person employed by the Contractor in or about the execution or completion of the Works, who in the opinion of the Engineer is misconducting himself, or is incompetent or negligent in the proper performance of his duties, or whose employment is otherwise considered reasonably by the Engineer to be undesirable, and such person shall not be again employed on the Site without the written permission of the Engineer. Any person so removed from the Works shall be replaced as soon as reasonably possible by a competent substitute approved by the Engineer.
- c) Upon written request by the Employer, the Contractor shall withdraw or replace from the Site any agent, representative or other personnel who does not conform to the standards set forth in paragraph (1) of this Clause. Such request for withdrawal or replacement shall not be considered as termination in part or in whole of this Contract. All costs and additional expenses resulting from any withdrawal or replacement for whatever reason of any of the Contractor's personnel shall be at the Contractor's expense.

### 18. SETTING-OUT

The Contractor shall be responsible for the true and proper setting out of the Works in relation to original points, lines and levels of reference given by the Engineer in writing and for the correctness of the position, levels, dimensions and alignment of all parts of the Works and for the provision of all necessary instruments, appliances and labor in connection therewith. If, at any time during the progress of the Works, any error shall appear or arise in the position, levels, dimensions or alignment of any part of the Works, the Contractor, on being required so to do by the Engineer, shall, at his own cost, rectify such error to the satisfaction of the Engineer.

### **19. WATCHING AND LIGHTING**

The Contractor shall in connection with the Works provide and maintain at his own cost all lights, guards, fencing and watching when and where necessary or required by the Engineer or by any duly constituted authority for the protection of the Works and the materials and equipment utilized therefor or for the safety and convenience of the public or others.

### 20. CARE OF WORKS

a) From the commencement date of the Works to the date of substantial completion as stated in the Certificate of Substantial Completion, the Contractor shall take full responsibility for the care thereof and of all Temporary Works. In the event that any damage or loss should happen to the Works or to any part thereof or to any Temporary Works from any cause whatsoever (save and except as shall be due to Force Majeure as defined in Clause 66 of these General Conditions), the Contractor shall at his own cost repair and make good the same so that, at completion, the Works shall be in good order and condition and in conformity in every respect with the requirements of the Contract and the Engineer's instructions. The Contractor shall also be liable for any damage to the Works occasioned by him in the course of any operations carried out by him for the purpose of complying with his obligations Clause 47 hereof.

b) The Contractor shall be fully responsible for the review of the Engineering design and details of the Works and shall inform the Employer of any mistakes or incorrectness in such design and details which would affect the Works.

### 21. INSURANCE OF WORKS, ETC.

Without limiting his obligations and responsibilities under Clause 20 hereof, the Contractor shall insure immediately following signature of this Contract, in the joint names of the Employer and the Contractor (a) for the period stipulated in Clause 20(1) hereof, against all loss or damage from whatever cause arising, other than cause of Force majeure as defined in clause 66 of these General Conditions, and (b) against loss or damage for which the Contractor is responsible, in such manner that the Employer and the Contractor are covered for the period stipulated in Clause 20 (1) hereof and are also covered during the Defects Liability Period for loss or damage arising from a cause occurring prior to the commencement of the Defects Liability Period and for any loss or damage occasioned by the Contractor in the course of any operations carried out by him for the purpose of complying with his obligations under Clause 47 hereof:

- a) The Works, together with the materials and Plant for incorporation therein, to their full replacement cost, plus an additional sum of ten (10) per cent of such replacement cost, to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature;
- b) The Contractor's equipment and other things brought on to the Site by the Contractor to the replacement value of such equipment and other things;
- c) An insurance to cover the liabilities and warranties of Section 52(4);

Such insurance shall be effected with an insurer and in terms approved by the Employer, which approval shall not be unreasonably withheld, and the Contractor shall, whenever required, produce to the Engineer the policy or policies of insurance and the receipts for payment of the current premiums.

### 22. DAMAGE TO PERSONS AND PROPERTY

The Contractor shall (except if and so far as the Contract provides otherwise) indemnify, hold and save harmless and defend at his own expense the Employer, its officers, agents, employees and servants from and against all suits, claims, demands, proceedings, and liability of any nature or kind, including costs and expenses, for injuries or damages to any person or any property whatsoever which may arise out of or in consequence of acts or omissions of the Contractor or its agents, employees, servants or subcontractors in the execution of the Contract. The provision of this Clause shall extend to suits, claims, demands, proceedings and liability in the nature of workmen's compensation claims and arising out of the use of patented inventions and devices. Provided always that nothing herein contained shall be deemed to render the Contractor liable for or in respect of or with respect to:

- a) The permanent use or occupation of land by the Works or any part thereof;
- b) The right of the Employer to construct the Works or any part thereof on, over, under, or through any land.
- c) Interference whether temporary or permanent with any right of light, airway or water or other easement or quasi-easement which is the unavoidable result of the construction of the Works in accordance with the Contract.
- d) Death, injuries or damage to persons or property resulting from any act or neglect of the Employer, his agents, servants or other contractors, done or committed during the validity of the Contract.

### 23. LIABILITY INSURANCE

## 23.1. Obligation to take out Liability Insurance

Before commencing the execution of the Works, but without limiting his obligations and responsibility under Clause 20 hereof, the Contractor shall insure against his liability for any death, material or physical damage, loss or injury which may occur to any property, including that of the Employer or to any person, including any employee of the Employer by or arising out of the execution of the Works or in the carrying out of the Contract, other than due to the matters referred to in the proviso to Clause 22 hereof.

### 23.2. Minimum Amount of Liability Insurance

Such insurance shall be effected with an insurer and in terms approved by the Employer, which approval shall not be unreasonably withheld, and for at least the amount specified in the contract. The Contractor shall, whenever required by the Employer or the Engineer, produce to the Engineer the policy or policies of insurance and the receipts for payment of the current premiums.

### 23.3. Provision to Indemnify Employer

The insurance policy shall include a provision whereby, in the event of any claim in respect of which the Contractor would be entitled to receive indemnity under the policy, being brought or made against the Employer, the insurer shall indemnify the Employer against such claims and any costs, charges and expenses in respect thereof.

### 24. ACCIDENT OR INJURY TO WORKMEN

a) The Employer shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workman or other person in the employment of the Contractor or any sub-Contractor, save and except an accident or injury resulting from any act or default of the Employer, his agents or servants. The Contractor shall indemnify, hold and save harmless the Employer against all such damages and compensation, save and except as aforesaid, and against all claims, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

### b) Insurance Against Accident, etc., to Workmen

The Contractor shall insure against such liability with an insurer approved by the Employer, which approval shall not be unreasonably withheld, and shall continue such insurance during the whole of the time that any persons are employed by him for the Works and shall, when required, produce to the Engineer such policy of insurance and the receipt for payment of the current premium. Provided always that, in respect of any persons employed by any subcontractor, the Contractor's obligation to insure as aforesaid under this subclause shall be satisfied if the subcontractor shall have insured against the liability in respect of such persons in such manner that the Employer is indemnified under the policy but the Contractor shall require such subcontractor to produce to the Engineer when required such policy of insurance and the receipt for the current premium, and obtain the insertion of a provision to that effect in its contract with the subcontractor.

### 25. REMEDY ON CONTRACTOR'S FAILURE TO INSURE

If the Contractor shall fail to effect and keep in force any of the insurances referred to in Clauses 21, 23 and 24 hereof, or any other insurance which he may be required to effect under the terms of the Contract, the Employer may in any such case effect and keep in force any such insurance and pay such premium as may be necessary for that purpose and from time to time deduct the amount so paid by the Employer as aforesaid from any monies due or which may become due to the Contractor, or recover the same as a debt due from the Contractor.

### 26. COMPLIANCE WITH STATUTES, REGULATIONS, ETC.

a) The Contractor shall give all notices and pay all fees and charges required to be given or paid by any national or State Statutes, Ordinances, Laws, Regulations or By-laws, or any local or other duly constituted authority in relation to the execution of the Works or of any Temporary Works and by the Rules and Regulations of all public bodies and companies whose property or rights are affected or may be affected in any way by the Works or any Temporary Works.

b) The Contractor shall conform in all respects with any such Statutes, Ordinances, Laws, Regulations, By-laws or requirements of any such local or other authority which may be applicable to the Works and shall keep the Employer indemnified against all penalties and liabilities of every kind for breach of any such Statutes, Ordinances, Laws, Regulations, By-laws or requirements.

### 27. FOSSILS, ETC.

All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the Site of the Works shall as between the Employer and the Contractor be deemed to be the absolute property of the Employer and the Contractor shall take reasonable precautions to

prevent his workmen or any other persons from removing or damaging any such article or thing and shall immediately upon discovery thereof and before removal acquaint the Employer of such discovery and carry out at the expense of the Employer the Engineer's orders as to the disposal of the same.

### 28. COPYRIGHT, PATENT AND OTHER PROPRIETARY RIGHTS, AND ROYALTIES

- a) The Contractor shall hold harmless and fully indemnify the Employer from and against all claims and proceedings for or on account of infringement of any patent rights, design trademark or name or other protected rights in respect of any Plant, equipment, machine, work or material used for or in connection with the Works or Temporary Works and from and against all claims, demands proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto, except where such infringement results from compliance with the design or Specification provided by the Engineer.
- b) Except where otherwise specified, the Contractor shall pay all tonnage and other royalties, rent and other payments or compensation, if any, for getting stone, sand, gravel, clay or other materials required for the Works or Temporary Works.

### 29. INTERFERENCE WITH TRAFFIC AND ADJOINING PROPERTIES

All operations necessary for the execution of the Works and for the Construction of any Temporary Works shall, so far as compliance with the requirements of the Contract permits, be carried on so as not to interfere unnecessarily or improperly with the public convenience, or the access to, use and occupation of, public or private roads and footpaths to or of properties whether in the possession of the Employer or of any other person. The Contractor shall hold harmless and indemnify the Employer in respect of all claims, demands, proceedings, damages, costs, charges and expenses whatsoever arising out of or in relation to any such matters in so far as the Contractor is responsible therefor.

### **30. EXTRAORDINARY TRAFFIC AND SPECIAL LOADS**

- a) The Contractor shall use every reasonable means to prevent any of the roads or bridges communicating with or on the routes to the Site from being damaged by any traffic of the Contractor or any of his sub-contractors and, in particular, shall select routes, choose and use vehicles and restrict and distribute loads so that any such extraordinary traffic as will inevitably arise from the moving of plant and material from and to the Site shall be limited as far as reasonably possible and so that no unnecessary damage may be occasioned to such roads and bridges.
- b) Should it be found necessary for the Contractor to move any load of Constructional Plant, machinery, preconstructed units or parts of units of work, or other thing, over part of a road or bridge, the moving whereof is likely to damage any such road or bridge unless special protection or strengthening is carried out, then the Contractor shall before moving the load on to such road or bridge, save insofar as the Contract otherwise provide, be responsible for and shall pay for the cost of strengthening any such bridge or altering or improving any such road to avoid such damage, and the Contractor shall indemnify and keep the Employer indemnified against all claims for damage to any such road or bridge caused by such movement, including such claim as may be made directly against the Employer, and shall negotiate and pay all claims arising solely out of such damage.

### **31. OPPORTUNITIES FOR OTHER CONTRACTORS**

The Contractor shall in accordance with the requirements of the Engineer afford all reasonable opportunities for carrying out their work to any other contractors employed by the Employer and their workmen and to the workmen of the Employer and of any other duly constituted authorities who may be employed in the execution on or near the Site of any work not included in the Contract or of any contract which the Employer may enter into in connection with or ancillary to the Works. If work by other contractors of the Employer as above-mentioned involves the Contractor in any direct expenses as a result of using his Site facilities, the Employer shall consider payment to the Contractor of such sum or sums as may be recommended by the Engineer.

### **32. CONTRACTOR TO KEEP SITE CLEAN**

During the progress of the Works, the Contractor shall keep the Site reasonably free from all unnecessary obstruction and shall store or dispose of any Constructional Plant and surplus materials and clear away and remove from the Site any wreckage, rubbish or Temporary Works no longer required.

#### 33. CLEARANCE OF SITE ON SUBSTANTIAL COMPLETION

On the substantial completion of the Works, the Contractor shall clear away and remove from the Site all Constructional Plant surplus materials, rubbish and Temporary Works of every kind and leave the whole of the Site and Works clean and in a workmanlike condition to the satisfaction of the Engineer.

#### 34. LABOUR

#### 34.1 Engagement of Labour

The Contractor shall make his own arrangements for the engagement of all labour local or otherwise.

#### 34.2 Supply of Water

The Contractor shall provide on the Site to the satisfaction of the Engineer an adequate supply of drinking and other water for the use of the Contractor's staff and work people.

#### 34.3 Alcoholic Drinks or Drugs

The Contractor shall comply with Government laws and regulations and orders in force as regards the import, sale, barter or disposal of alcoholic drinks or narcotics and he shall not allow or facilitate such importation, sale, gift, barter or disposal by his sub-contractors, agents or employees.

#### 34.4 Arms and Ammunition

The restrictions specified in clause 34.3 above shall include all kinds of arms and ammunition.

#### 34.5 Holiday and Religious Customs

The Contractor shall in all dealings with labour in his employ have due regard to all holiday, recognized festivals and religious or other customs.

#### 34.6 Epidemics

In the event of any outbreak of illness of an epidemic nature the Contractor shall comply with and carry out such regulations, orders, and requirements as may be made by the Government or the local medical or sanitary authorities for the purpose of dealing with and overcoming the same.

#### 34.7 Disorderly Conduct, etc.

The Contractor shall at all times take all reasonable precautions to prevent any unlawful riotous or disorderly conduct by or amongst his employees and for the preservation of peace and the protection of persons and property in the neighborhood of the Works against the same.

### 34.8 Observance by Sub-Contractors

The Contractor shall be considered responsible for the observance of the above provisions by his Sub-Contractors.

### 34.9 Legislation applicable to Labour

The Contractor shall abide by all applicable legislation and regulation with regard to labour.

### 35 RETURNS OF LABOUR, PLANT, ETC.

The Contractor shall, if required by the Engineer, deliver to the Engineer at his office, a return in detail in the form and at such intervals as the Engineer may prescribe showing the supervisory staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such information respecting Constructional plant as the Engineer may require.

#### 36 MATERIALS, WORKMANSHIP AND TESTING

### 36.1 Materials and Workmanship

- a) All materials and workmanship shall be of the respective kinds described in the Contract and in accordance with the Engineer's instructions and shall be subjected from time to time to such tests as the Engineer may direct at the place of manufacture or fabrication, or on the Site or at all or any of such places. The Contractor shall provide such assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any materials used and shall supply samples of materials before incorporation in the Works for testing as may be selected and required by the Engineer. All testing equipment and instruments provided by the Contractor shall be used only by the Engineer or by the Contractor in accordance with the instructions of the Engineer.
- b) No material not conforming with the Specifications in the Contract may be used for the Works without prior written approval of the Employer and instruction of the Engineer, provided always that if the use of such material results or may result in increasing the Contract Price, the procedure in Clause 48 shall apply.

#### 36.2 Cost of Samples

All samples shall be supplied by the Contractor at his own cost unless the supply thereof is clearly intended in the Specifications or Bill of Quantities to be at the cost of the Employer. Payment will not be made for samples which do not comply with the Specifications.

### 36.3 Cost of Tests

The Contractor shall bear the costs of any of the following tests:

- a) Those clearly intended by or provided for in the Contract Documents.
- b) Those involving load testing or tests to ensure that the design of the whole of the Works or any part of the Works is appropriate for the purpose which it was intended to fulfill.
- **37** ACCESS TO SITE

The Employer and the Engineer and any persons authorized by either of them shall, at all times, have access to the Works and to the Site and to all workshops and places where work is being prepared or whence

materials, manufactured articles or machinery are being obtained for the Works and the Contractor shall afford every facility for and every assistance in or in obtaining the right to such access.

#### **38** EXAMINATION OF WORK BEFORE COVERING UP

No work shall be covered up or put out of view without the approval of the Engineer and the Contractor shall afford full opportunity for the Engineer to examine and measure any work which is about to be covered up or put out of view and to examine foundations before permanent work is placed thereon. The Contractor shall give due notice to the Engineer whenever any such work or foundations is or are ready or about to be ready for examination and the Engineer shall without unreasonable delay unless he considers it unnecessary and advises the Contractor accordingly attend for the purpose of examining and measuring such work or of examining such foundations.

#### 39 REMOVAL OF IMPROPER WORK AND MATERIALS

### 39.1 Engineer's power to order removal

The Engineer shall during the progress of the Works have power to order in writing from time to time, and the Contractor shall execute at his cost and expense, the following operations:

- a) The removal from the Site within such time or times as may be specified in the order of any materials which in the opinion of the Engineer are not in accordance with the Contract;
- b) The substitution of proper and suitable materials; and
- c) The removal and proper re-execution (notwithstanding any previous test thereof or interim payment therefore) of any work which in respect of materials or workmanship is not in the opinion of the Engineer in accordance with the Contract.

#### 39.2 Default of Contractor in carrying out Engineer's Instructions

In case of default on the part of the Contractor in carrying out an instruction of the Engineer, the Employer shall be entitled to employ and pay other persons to carry out the same and all expenses consequent thereon or incidental thereto shall be borne by the Contractor and shall be recoverable from him by the Employer and may be deducted by the Employer from any monies due or which may become due to the Contractor.

#### 40 SUSPENSION OF WORK

The Contractor shall on the written order of the Engineer suspend the progress of the Works or any part thereof for such time or times and in such manner as the Engineer may consider necessary and shall, during such suspension, properly protect and secure the Works so far as it is necessary in the opinion of the Engineer. The Employer should be notified and his written approval should be sought for any suspension of work in excess of three (3) days.

### **41** POSSESSION OF SITE

### 41.1 Access to Site

The Employer shall with the Engineer's written order to commence the Works, give to the Contractor possession of so much of the Site as may be required to enable the Contractor to commence and proceed with the construction of the Works in accordance with the Programme referred to in Clause 13 hereof and otherwise in accordance with such reasonable proposals of the Contractor as he shall make to the Engineer by notice in writing, and shall from time to time as the Works proceed give to the Contractor possession of such further portions of the Site as may be required to enable the Contractor to proceed with the construction of the Works with due dispatch in accordance with the said Programme or proposals, as the case may be.

### 41.2 Wayleaves, etc.

The Contractor shall bear all expenses and charges for special temporary wayleaves required by him in connection with access to the Site. The Contractor shall also provide at his own cost any additional accommodation outside the Site required by him for the purpose of the Works.

### 41.3 Limits of the Site

Except as defined below, the limits of the Site shall be as defined in the Contract. Should the Contractor require land beyond the Site, he shall provide it entirely at his own expense and before taking possession shall supply the Engineer with a copy of the necessary permits. Access to the Site is available where the Site adjoins a public road but it is not provided unless shown on the Drawings. When necessary for the safety and convenience of workmen, public or livestock or for the protection of the Works, the Contractor shall, at his own expense, provide adequate temporary fencing to the whole or part of the Site. The Contractor shall not disturb, damage or pull down any hedge, tree or building within the Site without the written consent of the Engineer.

### 42 TIME FOR COMPLETION

- a) Subject to any requirement in the Contract as to completion of any section of the Works before completion of the whole, the whole of the Works shall be completed, in accordance with the provisions of Clause 46 and 47 hereof, within the time stated in the Contract.
- b) The completion time includes weekly rest days, official holidays, and days of inclement weather.

### 43 EXTENSION OF TIME FOR COMPLETION

If, subject to the provisions of the Contract, the Engineer orders alterations or additions in the Works in accordance with Clause 48 hereof, or if circumstances constituting force majeure as defined in the Contract have occurred, the Contractor shall be entitled to apply for an extension of the time for completion of the Works specified in the Contract. The Employer shall, upon such application, determine the period of any such extension of time; provided that in the case of alterations or additions in the Works, the application for such an extension must be made before the alterations or additions in the Works are undertaken by the Contractor.

#### 44 RATE OF PROGRESS

The whole of the materials, plant and labour to be provided by the Contractor and the mode, manner and speed of execution and completion of the Works are to be of a kind and conducted in a manner to the satisfaction of the Engineer. Should the rate of progress of the Works or any part thereof be at any time in the opinion of the

Engineer too slow to ensure the completion of the Works by the prescribed time or extended time for completion, the Engineer shall so notify the Contractor in writing and the Contractor shall thereupon take such steps as the Contractor may think necessary and the Engineer may approve to expedite progress so as to complete the Works by the prescribed time or extended time for completion. If the work is not being carried on by day and by night and the Contractor shall request permission to work by night as well as by day, then, if the Engineer shall grant such permission, the Contractor shall not be entitled to any additional payment. All work at night shall be carried out without unreasonable noise and disturbance. The contractor shall indemnify the Employer from and against any claims or liability for damages on account of noise or other disturbance created while or in carrying out the work and from and against all claims, demands, proceedings, costs and expenses whatsoever in regard or in relation to such noise or other disturbance. The Contractor shall submit in triplicate to the Engineer at the end of each month signed copies of explanatory Drawings or any other material showing the progress of the Works.

#### **45** LIQUIDATED DAMAGES FOR DELAY

a) If the Contractor shall fail to complete the Works within the time for completion prescribed in the Contract, or any extended time for completion in accordance with the Contract, then the Contractor shall pay to the Employer the sum specified in the Contract as liquidated damages, for the delay between the time prescribed

in the Contract or the extended time for completion, as the case may be, and the date of substantial completion of the Works as stated in the Certificate of Substantial Completion, subject to the applicable limit stated in the Contract. The said sum shall be payable by the sole fact of the delay without the need for any previous notice or any legal proceedings, or proof of damage, which shall in all cases be considered as ascertained. The Employer may, without prejudice to any other method of recovery, deduct the amount of such liquidated damages from any monies in its hands due or which may become due to the Contractor. The payment or deduction of such damages shall not relieve the Contractor from his obligation to complete the Works or from any other of his obligations and liabilities under the Contract.

b) If, before the time for completion of the whole of the Works or of a Section of the Works, a Certificate of Substantial Completion has been issued for any part or Section of the Works, the liquidated damages for delay in completion of the remainder of the Works or of that Section may, for any period of delay after the date stated in such Certificate of Substantial Completion, and in the absence of alternative provisions in the Contract, be reduced in the proportion which the value of the part or Section so certified bears to the total value of the whole of the Works or Section, as applicable. The provisions of this Sub-Clause shall only apply to the rate of liquidated damages and shall not affect the limit thereof.

### 46 CERTIFICATE OF SUBSTANTIAL COMPLETION

### 46.1 Substantial Completion of the Works

When the whole of the Works have been substantially completed and have satisfactorily passed any test on completion prescribed by the Contract, the Contractor may give a notice to that effect to the Engineer accompanied by an undertaking to finish any outstanding work during the Defects Liability Period. Such notice and undertaking shall be in writing and shall be deemed to be a request by the Contractor, for the Engineer to issue a Certificate of Substantial Completion in respect of the Works. The Engineer shall, within twenty-one (21) days of the date of delivery of such notice either issue to the Contractor, with a copy to the Employer, a Certificate of Substantial Completion stating the date on which, in his opinion, the Works were substantially completed in accordance with the Contract or give instructions in writing to the Contractor specifying all the work which, in the Engineer's opinion, requires to be done by the Contractor before the issuance of such Certificate. The Engineer shall also notify the Contractor of any defects in the Works affecting substantial completion that may appear after such instructions and before completion of the work specified therein. The Contractor shall be entitled to receive such Certificate of Substantial Completion within twentyone (21) days of completion, to the satisfaction of the Engineer, of the work so specified and making good any defect so notified. Upon issuance of the Certificate of Substantial Completion of the Works, the Contractor shall be deemed to have undertaken to complete with due expedition any outstanding work during the Defects Liability Period.

#### 46.2 Substantial Completion of Sections or Parts of the Works

In accordance with the procedure in Sub-Clause (1) of this Clause and on the same conditions as provided therein, the Contractor may request the Engineer to issue, and the Engineer may issue, a Certificate of Substantial Completion in respect of any Section or part of the Works which has been substantially completed and has satisfactorily passed any tests on completion prescribed by the Contract, if:

- a) a separate time for completion is provided in the Contract in respect of such Section or part of the Works;
- b) such Section or part of the Works has been completed to the satisfaction of the Engineer and is required by the Employer for his occupation or use.

Upon the issuance of such Certificate, the Contractor shall be deemed to have undertaken to complete any outstanding work during the Defects Liability Period.

### 47 DEFECTS LIABILITY

### 47.1 Defects Liability Period

The expression "Defects Liability Period" shall mean the period of twelve (12) months, calculated from the date of completion of the Works stated in the Certificate of Substantial Completion issued by the Engineer or, in respect of any Section or part of the Works for which a separate Certificate of Substantial Completion has been issued, from the date of completion of that Section or part as stated in the relevant Certificate. The expression "the Works" shall, in respect of the Defects Liability Period, be construed accordingly.

### 47.2 Completion of Outstanding Work and Remedying of Defects

During the Defects Liability Period, the Contractor shall finish the work, if any, outstanding at the date of the Certificate of Substantial Completion, and shall execute all such work of repair, amendment, reconstruction, rectification and making good defects, imperfections, shrinkages or other faults as may be required of the Contractor in writing by the Engineer during the Defects Liability Period and within fourteen (14) days after its expiration, as a result of an inspection made by or on behalf of the Engineer prior to expiration of the Defects Liability Period.

### 47.3 Cost of Execution of Work of Repair, etc.

All such outstanding work shall be carried out by the Contractor at his own expense if the necessity thereof shall, in the opinion of the Engineer, be due to the use of material or workmanship not in accordance with the Contract, or to neglect or failure on the part of the Contractor to comply with any obligation expressed or implied, on the Contractor's part under the Contract.

### 47.4 Remedy on Contractor's Failure to Carry Out Work Required

If the Contractor shall fail to do any such work outstanding on the Works, the Employer shall be entitled to employ and pay other persons to carry out the same, and all expenses consequent thereon or incidental thereto shall be recoverable from the Contractor by the Employer, and may be deducted by the Employer from any monies due or which may become due to the Contractor.

### 47.5 Certificate of Final Completion

Upon satisfactory completion of the work outstanding on the Works, the Engineer shall within twenty eight (28) days of the expiration of the Defects Liability period issue a Certificate of Final Completion to the Contractor. The Contract shall be deemed to be completed upon issuance of such Certificate, provided that the provisions of the Contract which remain unperformed and the Settlement of Disputes provision in the Contract shall remain in force for as long as is necessary to dispose of any outstanding matters or issues between the Parties.

### 48 ALTERATIONS, ADDITIONS AND OMISSIONS

1 Variations

The Engineer may within his powers introduce any variations to the form, type or quality of the Works or any part thereof which he considers necessary and for that purpose or if for any other reasons it shall, in his opinion be desirable, he shall have power to order the Contractor to do and the Contractor shall do any of the following:

- (a) increase or decrease the quantity of any work under the Contract;
- (b) omit any such work;
- (c) change the character or quality or kind of any such work;
- (d) change the levels, lines, positions and dimensions of any part of the Works;

(e) execute additional work of any kind necessary for the completion of the Works, and no such variation shall in any way vitiate or invalidate the Contract.

### 2 Variations Increasing Cost of Contract or altering the Works.

The Engineer shall, however, obtain the written approval of the Employer before giving any order for any variations which may result in an increase of the Contract Price or in an essential alteration of the quantity, quality or character of the Works.

3 Orders for Variations to be in Writing

No variations shall be made by the Contractor without an order in writing from the Engineer. Variations requiring the written approval of the Employer under paragraph (2) of this Clause shall be made by the Contractor only upon written order from the Engineer accompanied by a copy of the Employer's approval. Provided that, subject to the provisions of the Contract, no order in writing shall be required for any increase or decrease in the quantity of any work where such increase or decrease is not the result of an order given under this Clause but is the result of the quantities exceeding or being less than those stated in the Bill of Quantities.

### 4 Valuation of Variations

The Engineer shall estimate to the Employer the amount to be added or deducted from the Contract Price in respect of any variation, addition or omission. In the case of any variation, addition or omission which may result in an increase of the Contract Price, the Engineer shall communicate such estimate to the Employer together with his request for the Employer's written approval of such variation, addition or omission. The value of any variation, addition or omission shall be calculated on the basis of the unit prices contained in the Bill of Quantities.

#### 49 PLANT, TEMPORARY WORKS AND MATERIALS

1 Plant, etc., Exclusive Use for the Works

All Constructional Plant, Temporary Works and Materials provided by the Contractor shall, when brought on the Site, be deemed to be exclusively intended for the construction and completion of the Works and the Contractor shall not remove the same or any part thereof (save for the purpose of moving it from one part of the Site to another) without the consent in writing of the Engineer which shall not be unreasonably withheld.

### 2 Removal of Plant, etc.

Upon completion of the Works the Contractor shall remove from the Site all the said Constructional Plant and Temporary Works remaining thereon and any unused materials provided by the Contractor.

3 Employer not liable for Damage to Plant

The Employer shall not be at any time liable for the loss of any of the said Constructional plant, Temporary Works or Materials save if such loss results from the act or neglect of the Employer, its employees or agents.

4 Ownership of paid material and work

All material and work covered by payments made by the Employer to the Contractor shall thereupon become the sole property of the Employer, but this provision shall not be construed as relieving the Contractor from the sole responsibility for all material and work upon which payments have been made

or the restoration of any damaged work or as waiving the right of the Employer to require the fulfillment of all of the terms of the Contract.

### 5 Equipment and supplies furnished by Employer

Title to any equipment and supplies which may be furnished by the Employer shall rest with the Employer and any such equipment and supplies shall be returned to the Employer at the conclusion of the Contract or when no longer needed by the Contractor. Such equipment when returned to the Employer, shall be in the same condition as when delivered to the Contractor, subject to normal wear and tear.

#### 50 APPROVAL OF MATERIALS ETC., NOT IMPLIED

The operation of Clause 49 hereof shall not be deemed to imply any approval by the Engineer of the materials or other matters referred to therein nor shall it prevent the rejection of any such materials at any time by the Engineer.

### **51** MEASUREMENT OF WORKS

The Engineer shall, when he requires any part or parts of the Works to be measured, give notice to the Contractor or the Contractor's authorized agent or representative who shall forthwith attend or send a qualified agent to assist the Engineer in making such measurement and shall furnish all particulars required by either of them. Should the Contractor not attend or neglect or omit to send such agent, then the measurement made by the Engineer or approved by him shall be taken to be the correct measurement of the work. The purpose of measuring is to ascertain the volume of work executed by the Contractor and therefore determine the amount of the monthly payments.

### **52** LIABILITY OF THE PARTIES

- 1 The Works shall not be considered as completed until a Certificate of Final Completion shall have been signed by the Engineer and delivered to the Employer stating that the Works have been completed and that the Contractor has fulfilled all his obligations under Clause 47 to his satisfaction.
- 2 The Employer shall not be liable to the Contractor for any matter arising out of or in connection with the Contract or the execution of the Works unless the Contractor shall have made a claim in writing in respect thereof before the giving of the Certificate of Final Completion and in accordance with the Contract.
- 3 Unfulfilled Obligations

Notwithstanding the issue of the Certificate of Final Completion, the Contractor shall remain liable for the fulfillment of any obligation incurred under the provisions of the Contract prior to the issuance of the Certificate of Final Completion and which remains unperformed at the time such Certificate is issued. For the purpose of determining the nature and extent of any such obligation the Contract shall be deemed to remain in force between the parties hereto.

4 Contractor Responsible

Notwithstanding any other provisions in the Contract documents, the Contractor shall be totally responsible for and shall bear any and all risks of loss or damage to or failure of the Works or any part thereof for a period of ten years after issuance of the Certificate of Final Completion, provided always that such risks, damage or failure result from acts, defaults and negligence of the Contractor, his agents, employees or workmen and such contractors.

### **53** AUTHORITIES

- 1 The Employer shall have the right to enter upon the Site and expel the Contractor therefrom without thereby voiding the Contract or releasing the Contractor from any of his obligations or liabilities under the Contract or affecting the rights and powers conferred on the Employer and the Engineer by the Contract in any of the following cases:
- (a) If the Contractor is declared bankrupt or claims bankruptcy or court protection against his creditors or if the Contractor is a company or member of a company which was dissolved by legal action;
- (b) If the Contractor makes arrangements with his creditors or agrees to carry out the Contract under an inspection committee of his creditors;
- (c) If the Contractor withdraws from the Works or assigns the Contract to others in whole or in part without the Employer's prior written approval;
- (d) If the Contractor fails to commence the Works or shows insufficient progress to the extent which in the opinion of the Engineer will not enable him to meet the target completion date of the Works;
- (e) If the Contractor suspends the progress of the Works without due cause for fifteen (15) days after receiving from the Engineer written notice to proceed;
- (f) If the Contractor fails to comply with any of the Contract conditions or fails to fulfill his obligations and does not remedy the cause of his failure within fifteen (15) days after being notified to do so in writing;
- (g) If the Contractor is not executing the work in accordance with standards of workmanship specified in the Contract;
- (h) If the Contractor gives or promises to give a present or loan or reward to any employee of the Employer or of the Engineer.

Then the Employer may himself complete the Works or may employ any other contractor to complete the Works and the Employer or such other contractor may use for such completion so much of Constructional Plant, Temporary Works and Materials, which have been deemed to be reserved exclusively for the construction and completion of the Works under the provision of the Contract as he or they may think proper and the Employer may at any time sell any of the said Constructional Plant, Temporary Works and unused materials and apply the proceeds of sale in or towards the satisfaction of any sums due or which may become due to him from the Contractor under the Contract.

2 Evaluation after Re-entry

The Engineer shall as soon as may be practicable after any such entry and expulsion by the Employer notify the Contractor to attend the necessary evaluation of the Works. In the event that for any reason the Contractor does not attend such evaluation the Engineer shall undertake the said evaluation in the absence of the Contractor and shall issue a certificate stating the sum, if any, due to the Contractor for work done in accordance with the Contract up to the time of entry and expulsion by the Employer which has been reasonably accumulated to the Contractor in respect of the Works he has executed in such case in accordance with the Contract. The Engineer shall indicate the value of the materials whether unused or partially used and the value of construction equipment and any part of the Temporary Works.

3 Payment After Re-entry

If the Employer shall enter and expel the Contractor under this Clause he shall not be liable to pay the Contractor any money on account of the Contract until the expiration of the Defects Liability Period, and

thereafter until the costs of completion and making good any defects of the Works, damages for delay in completion (if any), and all other expenses incurred by the Employer have been ascertained and their amount certified by the Engineer. The Contractor shall then be entitled to receive only such sum or sums (if any) as the Engineer may certify would have been due to him upon due completion by him after deducting the said amount. But if such amount shall exceed the sum which would have been payable to the Contractor on due completion by him, then the Contractor shall upon demand pay to the Employer the amount of such excess. The Employer in such case may recover this amount from any money due to the Contractor from the Employer without the need to resort to legal procedures.

#### 54 URGENT REPAIRS

If by reason of any accident or failure or other event occurring to, in or in connection with the Works or any part thereof either during the execution of the Works or during the Defects Liability Period any remedial or other work or repair shall in the opinion of the Engineer be urgently necessary for security and the Contractor is unable or unwilling at once to do such work or repair, the Employer may by his own or other workmen do such work or repair as the Engineer may consider necessary. If the work or repair so done by the Employer is work which in the opinion of the Engineer the Contractor was liable to do at his own expense under the Contract, all costs and charges properly incurred by the Employer in so doing shall on demand be paid by the Contractor to the Employer or may be deducted by the Employer from any monies due or which may become due to the Contractor provided always that the Engineer shall as soon after the occurrence of any such emergency as may be reasonably practicable notify the Contractor thereof in writing.

#### 55 INCREASE AND DECREASE OF COSTS

Except if otherwise provided by the Contract, no adjustment of the Contract Price shall be made in respect of fluctuations of market, prices of labour, materials, plant or equipment, neither due to fluctuation in interest rates nor devaluation or any other matters affecting the Works.

#### 56 TAXATION

The Contractor shall be responsible for the payment of all charges and taxes in respect of income including value added tax, all in accordance with and subject to the provisions of the income tax laws and regulations in force and all amendments thereto. It is the Contractor's responsibility to make all the necessary inquiries in this respect and he shall be deemed to have satisfied himself regarding the application of all relevant tax laws.

#### 57 BLASTING

The Contractor shall not use any explosives without the written permission of the Engineer who shall require that the Contractor has complied in full with the regulations in force regarding the use of explosives. However, the Contractor, before applying to obtain these explosives, has to provide well arranged storage facilities. The Engineer's approval or refusal to permit the use of explosives shall not constitute ground for claims by the Contractor.

#### 58 MACHINERY

The Contractor shall be responsible for coordinating the manufacture, delivery, erection and commissioning of plant machinery and equipment which are to form a part of the Works. He shall place all necessary orders as soon as possible after the signing of the Contract. These orders and their acceptance shall be produced to the Engineer on request. The Contractor shall also be responsible for

ensuring that all sub-contractors adhere to such programs as are agreed and are needed to ensure completion of the Works within the period for completion. Should any sub-contracted works be delayed, the Contractor shall initiate the necessary action to speed up such completion. This shall not prejudice the Employer's right to exercise his remedies for delay in accordance with the Contract.

### 59 TEMPORARY WORKS AND REINSTATEMENT

The Contractor shall provide and maintain all temporary roads and tracks necessary for movement of plant and materials and clear same away at completion and make good all works damaged or disturbed. The Contractor shall submit drawings and full particulars of all Temporary Works to the Engineer before commencing same. The Engineer may require modifications to be made if he considers them to be insufficient and the Contractor shall give effect to such modifications but shall not be relieved of his responsibilities. The Contractor shall provide and maintain weather-proof sheds for storage of material pertinent to the Works both for his own use and for the use of the Employer and clear same away at the completion of the Works. The Contractor shall divert as required, at his own cost and subject to the approval of the Engineer, all public utilities encountered during the progress of the Works, except those specially indicated on the drawings as being included in the Contract. Where diversions of services are not required in connection with the Works, the Contractor shall uphold, maintain and keep the same in working order in existing locations. The Contractor shall make good, at his own expense, all damage to telephone, telegraph and electric cable or wires, sewers, water or other pipes and other services, except where the Public Authority or Private Party owning or responsible for the same elects to make good the damage. The costs incurred in so doing shall be paid by the Contractor to the Public Authority or Private Party on demand.

### **60** PHOTOGRAPHS AND ADVERTISING

The Contractor shall not publish any photographs of the Works or allow the Works to be used in any form of advertising whatsoever without the prior approval in writing from the Employer.

#### **61** PREVENTION OF CORRUPTION

The Employer shall be entitled to cancel the Contract and to recover from the Contractor the amount of any loss resulting from such cancellation, if the Contractor has offered or given any person any gift or consideration of any kind as an inducement or reward for doing or intending to do any action in relation to the obtaining or the execution of the Contract or any other contract with the Employer or for showing or intending to show favour or disfavour to any person in relation to the Contract or any other contract with the Employer, if the like acts shall have been done by any persons employed by him or acting on his behalf whether with or without the knowledge of the Contractor in relation to this or any other Contract with the Employer.

### 62 DATE FALLING ON HOLIDAY

Where under the terms of the Contract any act is to be done or any period is to expire upon a certain day and that day or that period fall on a day of rest or recognized holiday, the Contract shall have effect as if the act were to be done or the period to expire upon the working day following such day.

### 63 NOTICES

1 Unless otherwise expressly specified, any notice, consent, approval, certificate or determination by any person for which provision is made in the Contract Documents shall be in writing. Any such notice,

consent, approval, certificate or determination to be given or made by the Employer, the Contractor or the Engineer shall not be

- **2** unreasonably withheld or delayed.
- 3 Any notice, certificate or instruction to be given to the Contractor by the Engineer or the Employer under the terms of the Contract shall be sent by post, cable, telex or facsimile at the Contractor's principal place of business specified in the Contract or such other address as the Contractor shall nominate in writing for that purpose, or by
- 4 delivering the same at the said address against an authorized signature certifying the receipt.
- 5 Any notice to be given to the Employer under the terms of the Contract shall be sent by post, cable, telex or facsimile at the Employer's address specified in the Contract, or by delivering the same at the said address against an authorized signature certifying the receipt.
- 6 Any notice to be given to the Engineer under the terms of this Contract shall be sent by post, cable, telex or facsimile at the Engineer's address specified in the Contract, or by delivering the same at the said address against an authorized signature certifying the receipt.

#### 64 LANGUAGE, WEIGHTS AND MEASURES

Except as may be otherwise specified in the Contract, English shall be used by the Contractor in all written communications to the Employer or the Engineer with respect to the services to be rendered and with respect to all documents procured or prepared by the Contractor pertaining to the Works. The metric system of weights and measures shall be used in all instances.

#### 65 RECORDS, ACCOUNTS, INFORMATION AND AUDIT

The Contractor shall maintain accurate and systematic records and accounts in respect of the work performed under this Contract.

The Contractor shall furnish, compile or make available at all times to the UNDP any records or information, oral or written, which the UNDP may reasonably request in respect of the Works or the Contractor's performance thereof.

The Contractor shall allow the UNDP or its authorized agents to inspect and audit such records or information upon reasonable notice.

#### 66 FORCE MAJEURE

Force majeure as used herein means Acts of God, war (whether declared or not), invasion, revolution, insurrection or other acts or events of a similar nature or force.

In the event of and as soon as possible after the occurrence of any cause constituting force majeure, the Contractor shall give notice and full particulars in writing to the UNDP and to the Engineer of such force majeure if the Contractor is thereby rendered unable, wholly or in part, to perform its obligations and meet its responsibilities under this Contract. Subject to acceptance by the UNDP of the existence of such force majeure, which acceptance shall not be unreasonably withheld, the following provisions shall apply:

(a) The obligations and responsibilities of the Contractor under this Contract shall be suspended to the extent of his inability to perform them and for as long as such inability continues. During such suspension and in respect of work suspended, the Contractor shall be reimbursed by the UNDP

substantiated costs of maintenance of the Contractor's equipment and of per diem of the Contractor's permanent personnel rendered idle by such suspension;

- (b) The Contractor shall within fifteen (15) days of the notice to the UNDP of the occurrence of the force majeure submit a statement to the UNDP of estimated costs referred to in sub-paragraph (a) above during the period of suspension followed by a complete statement of actual expenditures within thirty (30) days after the end of the
- (c) suspension;
- (d) The term of this Contract shall be extended for a period equal to the period of suspension taking however into account any special condition which may cause the additional time for completion of the Works to be different from the period of suspension;
- (e) If the Contractor is rendered permanently unable, wholly or in part, by reason of force majeure, to perform his obligations and meet his responsibilities under the Contract, the UNDP shall have the right to terminate the Contract on the same terms and conditions as provided for in Clause 68 of these General Conditions, except that the period of notice shall be seven (7) days instead of fourteen (14) days, and
- (f) For the purpose of the preceding sub-paragraph, the UNDP may consider the Contractor permanently unable to perform in case of any suspension period of more than ninety (90) days.

### 67 SUSPENSION BY THE UNDP

The UNDP may by written notice to the Contractor suspend for a specified period, in whole or in part, payments to the Contractor and/or the Contractor's obligation to continue to perform the Works under this Contract, if in the UNDP' sole discretion:

- (a) any conditions arise which interfere, or threaten to interfere with the successful execution of the Works or the accomplishment of the purpose thereof, or
- (b) the Contractor shall have failed, in whole or in part, to perform any of the terms and conditions of this Contract.

After suspension under sub-paragraph (a) above, the Contractor shall be entitled to reimbursement by the UNDP of such costs as shall have been duly incurred in accordance with this Contract prior to the commencement of the period of such suspension.

The term of this Contract may be extended by the UNDP for a period equal to any period of suspension, taking into account any special conditions which may cause the additional time for completion of the Works to be different from the period of suspension.

#### 68 TERMINATION BY THE UNDP

The UNDP may, notwithstanding any suspension under Clause 67 above, terminate this Contract for cause or convenience in the interest of the UNDP upon not less than fourteen (14) days written notice to the Contractor.

Upon termination of this Contract:

(a) The Contractor shall take immediate steps to terminate his performance of the Contract in a prompt and orderly manner and to reduce losses and to keep further expenditures to a minimum, and

(b) The Contractor shall be entitled (unless such termination has been occasioned by the Contractor's breach of this Contract), to be paid for the part of the Works satisfactorily completed and for the materials and equipment properly delivered to the Site as of the date of termination for incorporation to the Works, plus substantiated costs resulting from commitments entered into prior to the date of termination as well as any reasonable substantiated direct costs incurred by the Contractor as a result of the termination, but shall not be entitled to receive any other or further payment or damages.

### 69 TERMINATION BY THE CONTRACTOR

In the case of any alleged breach by the UNDP of the Contract or in any other situation which the Contractor reasonably considers to entitle him to terminate his performance of the Contract, the Contractor shall promptly give written notice to the UNDP detailing the nature and the circumstances of the breach or other situation. Upon acknowledgement in writing by the UNDP of the existence of such breach and the UNDP' inability to remedy it, or upon failure of the UNDP to respond to such notice within twenty (20) days of receipt thereof, the Contractor shall be entitled to terminate this Contract by giving 30 days written notice thereof. In the event of disagreement between the Parties as to the existence of such breach or other situation referred to above, the matter shall be resolved in accordance with Clause 71 of these General Conditions.

Upon termination of this Contract under this Clause the provisions of sub-paragraph (b) of Clause 68 hereof shall apply.

#### 70 RIGHTS AND REMEDIES OF THE UNDP

Nothing in or relating to this Contract shall be deemed to prejudice or constitute a waiver of any other rights or remedies of the UNDP.

The UNDP shall not be liable for any consequences of, or claim based upon, any act or omission on the part of the Government.

#### **71** SETTLEMENT OF DISPUTES

In the case of any claim, controversy or dispute arising out of, or in connection with this Contract or any breach thereof, the following procedure for resolution of such claim, controversy or dispute shall apply.

1 Notification

The aggrieved party shall immediately notify the other party in writing of the nature of the alleged claim, controversy or dispute, not later than seven (7) days from awareness of the existence thereof.

2 Consultation

On receipt of the notification provided above, the representatives of the Parties shall start consultations with a view to reaching an amicable resolution of the claim, controversy or dispute without causing interruption of the Works.

3 Conciliation

Where the representatives of the Parties are unable to reach such an amicable settlement, either party may request the submission of the matter to conciliation in accordance with the UNCITRAL Rules of Conciliation then obtaining.

### 4 Arbitration

Any claim, controversy or dispute which is not settled as provided under clauses 71.1 through 3 above shall be referred to arbitration in accordance with the UNCITRAL Arbitration Rules then obtaining. The Parties shall be bound by the arbitration award rendered in accordance with such arbitration as the final adjudication of any such controversy or claim.

#### 72 PRIVILEGES AND IMMUNITIES

Nothing in or relating to this Contract shall be deemed a waiver of any of the privileges and immunities of the United Nations of which the UNDP is an integral part.

### 73 SECURITY

The Contractor shall:

- (a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the services are being provided;
- (b) assume all risks and liabilities related to the Contractor's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this contract. Notwithstanding the foregoing, the Contractor shall remain solely responsible for the security of its personnel and for UNDP's property in its custody as set forth in paragraph 4.1 above.

#### 74 AUDIT AND INVESTIGATIONS

Each invoice paid by UNDP shall be subject to a post-payment audit by auditors, whether internal or external, of UNDP or the authorized agents of the UNDP at any time during the term of the Contract and for a period of three (3) years following the expiration or prior termination of the Contract. The UNDP shall be entitled to a refund from the Contractor for any amounts shown by such audits to have been paid by the UNDP other than in accordance with the terms and conditions of the Contract. Should the audit determine that any funds paid by UNDP have not been used as per contract clauses, the company shall reimburse such funds forthwith. Where the company fails to reimburse such funds, UNDP reserves the right to seek recovery and/or to take any other action as it deems necessary.

The Contractor acknowledges and agrees that, at anytime, UNDP may conduct investigations relating to any aspect of the Contract, the obligations performed under the Contract, and the operations of the Contractor generally. The right of UNDP to conduct an investigation and the Contractor's obligation to comply with such an investigation shall not lapse upon expiration or prior termination of the Contract. The Contractor shall provide its full and timely cooperation with any such inspections, post-payment audits or investigations. Such cooperation shall include, but shall not be limited to, the Contractor's obligation to UNDP access to the Contractor's premises. The Contractor shall require its agents, including, but not limited to, the Contractor's attorneys, accountants or other advisers, to reasonably cooperate with any inspections, post-payment audits or investigations carried out by UNDP hereunder.

#### 75 ANTI-TERRORISM

The Contractor agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received under this Contract are used to provide support to individuals or entities associated with

terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via <u>https://www.un.org/securitycouncil/content/un-sc-consolidated-list</u>. This provision must be included in all sub-contracts or sub-agreements entered into under this Contract.

### **COMPANY QUALIFICATION RECORD**

- At least 2 years of work experience in construction works. List of performed projects is to be split by years. Each year is to be started with total amount of the year.
- 1.1. Provide background of the company with supporting documents

#	Project Name	Name of Employer	Description of work	Contract amount (USD)	Period of completion	Contact person
	2018					
1						
2						
3						
4						
5						
	2019					
1						
2						
3						
4						
5						

### 2. List of Key Personnel Proposed for the Project

Separate CVs of Key Personnels Demonstrating relevant experience and qualification:min 19 personnel, o/w 2 Civil Engeeners, 1 safety assurance specialist, 16 Specialist (4 mounters, 4 Plasterers, 4 Painters and 4Semi -skilled workers),

Civil Engeeners: University degree in civil engineering, architecture of relevant field with at least 5 years of professional experience in construction work.

Safety assurance specialist: at least 2 years of relevant work experience (CV).

## 3. Necessary equipments

Necessary equipments	not less than KW	# of Units	
Diesel generator	3	2 pcs	
Mortarmixer	0.08 m3	2 pcs	
Hand Mixer	1.35	2 pcs	
Sanding machine	0.5	2 pcs	
Rotaru hammer two-speed	0.5	2 pcs	
Slow-speed drill	0.6	2 pcs	
Electric screwdriver	0.3	2 pcs	