



REQUEST FOR QUOTATION (RFQ)

RFQ Reference: UNDP-TUR-RFQ(KFW)-2021/012	Date: 08 April 2021
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SECTION 1: REQUEST FOR QUOTATION (RFQ)

UNDP kindly requests your quotation for “**Construction Works of Container Office Building in Hatay**” within the scope of “*Employment and Skills Development Project*” as detailed in Annex 1 of this RFQ.

This Request for Quotation comprises the following documents:

Section 1: This request letter

Section 2: RFQ Instructions and Data

Annex 1: Schedule of Requirements

Annex 2: Quotation Submission Form

Annex 3: Technical and Financial Offer

Annex 4: General Terms and Conditions

Annex 5: Site Survey and Construction Drawings

Annex 6: Bill of Quantities (BoQ)

When preparing your quotation, please be guided by the RFQ Instructions and Data. Please note that quotations must be submitted using Annex 2: Quotation Submission Form and Annex 3 Technical and Financial Offer, by the method and by the date and time indicated in Section 2. It is your responsibility to ensure that your quotation is submitted on or before the deadline. Quotations received after the submission deadline, for whatever reason, will not be considered for evaluation.

Thank you and we look forward to receiving your quotations.

Issued by:

Signature: _____

Name: Sukhrob Khojimatov

Title: Deputy Resident Representative

Date: 08 April 2021

SECTION 2: RFQ INSTRUCTIONS AND DATA

Introduction	<p>Bidders shall adhere to all the requirements of this RFQ, including any amendments made in writing by UNDP. This RFQ is conducted in accordance with the UNDP Programme and Operations Policies and Procedures (POPP) on Contracts and Procurement</p> <p>Any Bid submitted will be regarded as an offer by the Bidder and does not constitute or imply the acceptance of the Bid by UNDP. UNDP is under no obligation to award a contract to any Bidder as a result of this RFQ.</p> <p>UNDP reserves the right to cancel the procurement process at any stage without any liability of any kind for UNDP, upon notice to the bidders or publication of cancellation notice on UNDP website.</p>
Deadline for the Submission of Quotation	<p>22 April 2021, 17:00 hrs. (GMT+3, Local time-Turkey)</p> <p>If any doubt exists as to the time zone in which the quotation should be submitted, refer to http://www.timeanddate.com/worldclock/.</p>
Method of Submission	<p>Quotations must be submitted as follows:</p> <p><input checked="" type="checkbox"/> Dedicated Email Address</p> <p>Bid submission address: tr.procurement@undp.org</p> <ul style="list-style-type: none"> ▪ File Format: PDF (<u>in addition to PDF, Bill of Quantities shall also be submitted in EXCEL (XLS) format</u>) ▪ File names must be maximum 60 characters long and must not contain any letter or special character other than from Latin alphabet/keyboard. ▪ All files must be free of viruses and not corrupted. ▪ Max. File Size per transmission: 35 MB and no more than five email ▪ Mandatory subject of email: UNDP-TUR-RFQ(KFW)-2021/012– Construction Works of Container Office Building in Hatay ▪ Multiple emails must be clearly identified by indicating in the subject line “email no. X of Y”, and the final “email no. Y of Y. ▪ It is recommended that the entire Quotation be consolidated into as few attachments as possible.
Cost of preparation of quotation	<p>UNDP shall not 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.</p>
Supplier Code of Conduct, Fraud, Corruption,	<p>All prospective suppliers must read the United Nations Supplier Code of Conduct and acknowledge that it provides the minimum standards expected of suppliers to the UN. The Code of Conduct, which includes principles on labour, human rights, environment and ethical conduct may be found at: https://www.un.org/Depts/ptd/about-us/un-supplier-code-conduct</p> <p>Moreover, UNDP strictly enforces a policy of zero tolerance on proscribed practices, including fraud, corruption, collusion, unethical or unprofessional practices, and obstruction of UNDP vendors and requires all bidders/vendors to observe the highest standard of ethics during the procurement process and contract implementation. UNDP’s Anti-Fraud Policy can be found at http://www.undp.org/content/undp/en/home/operations/accountability/audit/office_of_audit_an_dinvestigation.html#anti</p>
Gifts and Hospitality	<p>Bidders/vendors shall not offer gifts or hospitality of any kind to UNDP staff members including recreational trips to sporting or cultural events, theme parks or offers of holidays, transportation, or</p>

	<p>invitations to extravagant lunches, dinners or similar. In pursuance of this policy, UNDP: (a) Shall reject a bid if it determines that the selected bidder has engaged in any corrupt or fraudulent practices in competing for the contract in question; (b) Shall declare a vendor ineligible, either indefinitely or for a stated period, to be awarded a contract if at any time it determines that the vendor has engaged in any corrupt or fraudulent practices in competing for, or in executing a UNDP contract.</p>
Conflict of Interest	<p>UNDP requires every prospective Supplier 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. Bidders shall strictly avoid conflicts with other assignments or their own interests, and act without consideration for future work. Bidders found to have a conflict of interest shall be disqualified.</p> <p>Bidders must disclose in their Bid their knowledge of the following: a) If the owners, part-owners, officers, directors, controlling shareholders, of the bidding entity or key personnel who are family members of UNDP staff involved in the procurement functions and/or the Government of the country or any Implementing Partner receiving goods and/or services under this RFQ.</p> <p>The eligibility of Bidders that are wholly or partly owned by the Government shall be subject to UNDP's further evaluation and review of various factors such as being registered, operated and managed as an independent business entity, the extent of Government ownership/share, receipt of subsidies, mandate and access to information in relation to this RFQ, among others. Conditions that may lead to undue advantage against other Bidders may result in the eventual rejection of the Bid.</p>
General Conditions of Contract	<p>Any Purchase Order or contract that will be issued as a result of this RFQ shall be subject to the General Conditions of Contract</p> <p>Select the applicable GTC:</p> <p><input checked="" type="checkbox"/> General Terms and Conditions for Works</p> <p>Applicable Terms and Conditions and other provisions are available at UNDP/How-we-buy</p>
Liquidated Damages	<p>Will be imposed as follows:</p> <p>Percentage of contract price per day of delay beyond 60 days after given access to the Site: 0,50%</p> <p>Max. number of days of delay is 20, after which UNDP reserves the right to terminate the contract</p>
Eligibility	<p>A vendor who will be engaged by UNDP may not be suspended, debarred, or otherwise identified as ineligible by any UN Organization or the World Bank Group or any other international Organization. Vendors are therefore required to disclose to UNDP whether they are subject to any sanction or temporary suspension imposed by these organizations. Failure to do so may result in termination of any contract or PO subsequently issued to the vendor by UNDP.</p> <p>It is the Bidder's responsibility to ensure that its employees, joint venture members, sub-contractors, service providers, suppliers and/or their employees meet the eligibility requirements as established by UNDP.</p> <p>Bidders must have the legal capacity to enter a binding contract with UNDP and to deliver in the country, or through an authorized representative.</p>
Currency of Quotation	<p>Quotations shall be quoted in United States Dollars (USD).</p>
Joint Venture, Consortium	<p>Not allowed.</p>

or Association	
Only one Bid	<p>The Bidder shall submit only one Bid.</p> <p>Bids submitted by two (2) or more Bidders shall all be rejected if they are found to have any of the following:</p> <p>a) they have at least one controlling partner, director or shareholder in common; or b) any one of them receive or have received any direct or indirect subsidy from the other/s; or</p> <p>b) they have the same legal representative for purposes of this RFQ; or</p> <p>c) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about, or influence on the Bid of, another Bidder regarding this RFQ process;</p> <p>d) they are subcontractors to each other's Bid, or a subcontractor to one Bid also submits another Bid under its name as lead Bidder; or</p> <p>e) some key personnel proposed to be in the team of one Bidder participates in more than one Bid received for this RFQ process. This condition relating to the personnel, does not apply to subcontractors being included in more than one Bid.</p>
Duties and taxes	<p>Article II, Section 7, of the Convention on the Privileges and Immunities provides, inter alia, that the United Nations, including UNDP as a subsidiary organ of the General Assembly of the United Nations, is exempt from all direct taxes, except charges for public utility services, and is exempt from customs restrictions, duties, and charges of a similar nature in respect of articles imported or exported for its official use. All quotations shall be submitted net of any direct taxes and any other taxes and duties, unless otherwise specified below:</p> <p>All prices must:</p> <p><input checked="" type="checkbox"/> be exclusive of VAT and other applicable indirect taxes</p> <p>It is the Proposer's responsibility to learn from relevant authorities (Ministry of Treasury and Finance) and/or to review/confirm published procedures and to consult with a certified financial consultant as needed to confirm the scope and procedures of VAT exemption application as per VAT Law, Ministry of Treasury and Finance's General Communiqués. The Contractor to be selected shall not be entitled to receive any amount over its proposal price in relation to VAT. Overall contract amount to be paid to the contractor shall not exceed the offered Total Financial Proposal Price.</p> <p>UNDP will provide the contractor a VAT exemption certificate covering the subject procurement.</p>
Language of quotation	English
Previous Experience	<p>Minimum three years of experience in the Construction Field.</p> <p>In order to be considered qualified, the Bidder must have successfully completed, as the prime contractor, minimum one civil works contract of similar nature (i.e. construction of any kind of buildings) at minimum contract amount of USD 100,000 over the last three years counting back from the bid submission deadline. Bidders shall substantiate the claimed experiences by presenting copies of Satisfactory Work Completion Certificates from Clients demonstrating nature and value of the civil work successfully completed.</p> <p>Work Completion Certificate shall include following information at minimum:</p>

	<p>–Project name & Country of Assignment</p> <p>–Client & Reference Contact Details</p> <p>–Contract Value (in USD equivalent*)</p> <p>–Period (dates) of activity and status</p> <p>–Types of activities undertaken</p> <p>*Bidder shall convert the currency quoted in the Satisfactory Work Completion Certificates into USD, in accordance with the prevailing UN operational rate of exchange on the contract signature date. UN operational rates of exchange are available at the following website: https://treasury.un.org/operationalrates/OperationalRates.php#E</p> <p>UNDP reserves the right to request submission of originals of all proof documents (such as contracts, invoices, acceptance reports etc.) as well as further information/documentation from both the bidder and its clients.</p>
Financial Standing	<p>Minimum average annual turnover of USD 100,000 for the last 3 years (2018, 2019 and 2020)*</p> <p>*Bidders whose accounts have not yet been audited for 2020, shall submit audited financial statements for 2017, 2018, and 2019.</p>
Bid security	Not required.
Performance Security	<p>The successful bidder will be asked to provide a performance security of 10% of the contract price at the signing of the contract. This security must be provided no later than 15 days after the bidder receives the award letter by the UNDP. If the selected bidder fails to provide such a security within this period, the contract will be void and a new contract may be drawn up and sent to the tenderer which has submitted the next cheapest compliant tender.</p> <p>The Performance Security must be issued by an accredited bank, in the format included in Appendix I to UNDP General Conditions of Contract for Civil Works and must be valid up to twenty-eight days after issuance of the Certificate of Final Completion. The Performance Security will only be released upon the issuance of Certificate of Final Completion in accordance with the Clause 10 of the UNDP General Conditions of Contract for Civil Works.</p>
Documents to be submitted	<p>Bidders shall include the following documents in their quotation:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Annex 2: Quotation Submission Form duly completed and signed <input checked="" type="checkbox"/> Annex 3: Technical and Financial Offer duly completed and signed and in accordance with the Schedule of Requirements in Annex 1 <input checked="" type="checkbox"/> Trade Registry Gazette showing the establishment and shareholder structure of the company; <input checked="" type="checkbox"/> Valid Chamber of Commerce Registration Certificate (Original documents may be requested by UNDP and shall be presented when requested) <input checked="" type="checkbox"/> Copy of Signature Circular/Power of Attorney (Original documents may be requested by UNDP and shall be presented when requested) <input checked="" type="checkbox"/> Work Completion certificate(s) demonstrating previous experience <input checked="" type="checkbox"/> CV and Diploma of proposed Key personnel <input checked="" type="checkbox"/> Latest audited financial statements for the last three years <input checked="" type="checkbox"/> Signed and Stamped copy of ANNEX 4- General Terms and Conditions for Contracts
Quotation validity period	Quotations shall remain valid for 90 days from the deadline for the Submission of Quotation.

Price variation	No price variation due to escalation, inflation, fluctuation in exchange rates, or any other market factors shall be accepted at any time during the validity of the quotation after the quotation has been received.
Partial Quotes	<input checked="" type="checkbox"/> Not permitted
Alternative Quotes	<input checked="" type="checkbox"/> Not permitted
Payment Terms	<p>The contract is based on unit price, and the final price of the Contract will be determined on the basis of actual quantities of work and materials utilized in the complete and satisfactory performance of the Works as certified by the Engineer and the unit prices contained in the Contractor's financial proposal. Such unit prices are fixed and are not subject to any variation whatsoever. Unless the technical specifications or the Bill of Quantities specifically and expressly state otherwise, only permanent works are to be measured and paid for by UNDP.</p> <p>The Contractor shall submit the invoice (reflecting the work performed and materials utilized as accepted by UNDP through the "Final Report"). UNDP shall effect payment of the invoices after receipt of the certificate of payment issued by the Engineer, approving the amount contained in the report and the invoice. The Engineer may make corrections to that amount, in which case UNDP may effect payment for the corrected amount. The Engineer may also withhold invoices if the work is not performed at any time in accordance with the terms of the Contract or if the necessary insurance policies or performance security are not valid and/or in order. The Engineer shall process the invoice submitted by the Contractor within 15 days of their receipt.</p> <p>Invoice will be paid within thirty (30) days of the date of their receipt and acceptance by UNDP.</p> <p>Payment shall be released after substantial completion of all works within the scope of the Contract. No advance, interim or partial payment will be made to the Contractor.</p> <p>Currency of Payment:</p> <p>If the Contractor is registered and operating in Turkey, the payment shall be realized in Turkish Liras (TRY). Contract price will be converted from United States Dollar (USD) to Turkish Liras (TRY) by the UN operational rate of exchange valid on the date of money transfer. Otherwise, the payments shall be affected in United States Dollar.</p> <p>Please refer to https://treasury.un.org/operationalrates/OperationalRates.php for UN Exchange Rate information</p>
Conditions for Release of Payment	<input checked="" type="checkbox"/> Written Acceptance of Works by the Engineer, based on full compliance with RFQ requirements
Contact Person for correspondence, notifications and clarifications	<p>E-mail address: tr.procurement@undp.org</p> <p>Att: Mr. Tunç Gürdal, Procurement Officer</p> <p>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.</p>
Clarifications	Requests for clarification from bidders will not be accepted any later than 4 days before the submission deadline.

Evaluation method	<input checked="" type="checkbox"/> The Contract or Purchase Order will be awarded to the lowest price substantially compliant offer
Evaluation criteria	<input checked="" type="checkbox"/> Full compliance with all requirements as specified in Annex 1 <input checked="" type="checkbox"/> Full acceptance of the General Conditions of Contract
Right not to accept any quotation	UNDP is not bound to accept any quotation, nor award a contract or Purchase Order
Right to vary requirement at time of award	At the time of award of Contract or Purchase Order, UNDP Turkey CO 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.
Type of Contract to be awarded	<input checked="" type="checkbox"/> Contract for Works
Maximum expected duration of contract	80 days starting from the date on which the Contractor will be given Access to the Site and receive a notice from the Engineer to commence the Works.
Expected date for contract award.	17 May 2021
Publication of Contract Award	UNDP will publish the contract awards valued at USD 100,000 and more on the websites of the CO and the corporate UNDP Web site.
Policies and procedures	This RFQ is conducted in accordance with UNDP Programme and Operations Policies and Procedures
UNGM registration	<p>Any Contract resulting from this RFQ exercise will be subject to the supplier being registered at the appropriate level on the United Nations Global Marketplace (UNGM) website at www.ungm.org.</p> <p>The Bidder may still submit a quotation even if not registered with the UNGM, however, if the Bidder is selected for Contract award, the Bidder must register on the UNGM prior to contract signature.</p>
Site Visit	<p>Bidders are encouraged to visit the site and familiarize themselves with the existing conditions of the building prior to submitting their offer. UNDP shall not make any arrangements for a site visit. For bidders who would like to be informed about the location of the site, or visit the site at their own expense, the address is given below:</p> <p>Hatay Çalışma ve İş Kurumu Müdürlüğü Maşuklu Mahallesi, Küçükdalyan, Antakya Reyhanlı Yolu, No:15, Antakya / Hatay, TURKEY</p> <p>It is the bidders' responsibility to consider Covid-19 related risks in the case they visit the locations of the sites mentioned above. UNDP is not responsible for any Covid-19 related events and health issues that may arise during and after the site visits.</p>

Covid 19 Specific Measures	The Contractors shall review all local regulations, as well as that of UN and UNDP concerning the measures they must take during performance of the contract in the context of COVID-19, before they submit their bids and factor relevant costs, if any, to their bids. The Contractor shall take all measures against COVID-19 imposed by local regulations as well as by UN and UNDP during performance of the contract to protect health and social rights of its own personnel, as well as UNDP personnel, Project Stakeholders and third parties. Pursuant to “Clause 12- Indemnification” of UNDP General Terms and Conditions for Contracts* , the Contractor shall indemnify, defend, and hold and save harmless, UNDP, and its officials, agents and employees, from and against all suits, proceedings, claims, demands, losses and liability of any kind or nature brought by any third party against UNDP, including, but not limited to, all litigation costs and expenses, attorney’s fees, settlement payments and damages, based on, arising from, or relating to COVID-19 measures that must be taken by the Contractor in the context of the contract. UNDP shall not be held accountable for any Covid-19 related health risks or events that are caused by negligence of the Contractor and/or any other third party.
Contingency and variations	<p>The contingency allowance to manage variations for the unforeseen and unknown additional components of Works within the overall general scope is maximum 15% of the contract price. However, it shall only be accessed by the Contractor upon the approval by the Engineer, who will obtain prior approval from UNDP as the Employer.</p> <p>The project engineer (employer’s representative) may use this contingency with no additional procurement process to manage variations with the approval of UNDP. Any variation that utilizes the contingency but is not covered by rates in the BOQ or schedule of rates shall be subject to a value for money analysis by the Engineer and UNDP.</p> <p>The contingency allowance shall not be used to compensate the Contractor for its fault to include required items in the Bill of Quantities as per Schedule of Requirements/Technical Specifications or unreasonably low unit prices of one or more of the items included in the submitted Bill of Quantities.</p>
Insurance of work	For all risks stipulated by Clause 21 of UNDP General Conditions of Contract for Civil Works for the 110 % of the total estimated price of the Contract.
Liability Insurance	Minimum amount of liability insurance (Clause 23 of UNDP General Conditions of Contract for Civil Works) is 15% of the total estimated price of the Contract.

ANNEX 1: SCHEDULE OF REQUIREMENTS

1. GENERAL

1.1. INTRODUCTION AND BACKGROUND

UNDP Turkey has repositioned to contribute through four areas: 1) Inclusive and Democratic Governance (IDG); 2) Inclusive and Sustainable Growth (ISG); and 3) Climate Change and Environment (CCE); and 4) Syria Crisis and Resilience Response. In addition to these areas, UNDP Turkey is emphasizing the role of Strategic Partnerships that cut across the entire country programme regionally as well as globally.

UNDP supports the Government of Turkey through its Syria Crisis Response and Resilience Programme in Turkey to strengthen the resilience of refugees, host community members, local municipalities, and relevant national institutions to cope with and recover from the impact. UNDP's resilience response strategy is to invest in existing national and local systems to ensure they can adequately serve both host and refugee communities. Under Syria Crisis Response and Resilience Portfolio, The Employment and Skills Development Programme – Component 1 has been implemented with Turkish Employment Agency (İŞKUR) to strengthen the institutional capacity of İŞKUR and the active labour market services available for the impacted communities including Syrians under temporary protection and host communities facilitate access to the formal labor market. The project was designed to strengthen İŞKUR in terms of institutionalization and digitalization as well as physical capacities. As part of the physical capacity building works, UNDP will implement the **Construction Works of Container Office Building in Hatay** İŞKUR Provincial Directorate in Hatay. **Construction Works of Container Office Building in Hatay**

1.2. DEFINITION AND SCOPE OF THE CONTRACT

1.2.1. Definition

This contract comprises; **Construction Works of Container Office Building in Hatay.**

1.2.2. Scope of Works

Scope of works basically includes construction of a steel structure container office building including all earthworks, civil and architectural works, finishes, electrical & mechanical works, plumbing, and displacement of the existing generator.

The structure shall function as a container office consisting of a main office area, meeting room, refectory, scullery, and toilets. With this respect, it must be noted that any complimentary and/or minor works associated with details necessary for the proper functioning of the building that should be foreseen by an experienced contractor are deemed to be included within the scope of works, even though they are not shown in drawings/details or explicitly noted within this Schedule of Requirements.

1.3. SPECIFICATIONS AND STANDARDS

Equivalency of Standards and Codes

Wherever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national or related to a particular country or region, other authoritative international standards that ensure substantially equal or higher quality than the specified standards and codes should be acceptable subject to the Engineer's prior review and written consent. Differences between the standards specified and the proposed alternative standards shall be fully described in writing by the Contractor and submitted to the Engineer at least 7 days prior to the date when the Contractor desires Engineer's consent. In the event the Engineer determines that such proposed deviations do not ensure substantially equal or higher quality, the Contractor shall comply with the standards specified in the documents.

During the implementation and management of all issues of the Works; the standards, specifications and principles shall be adhered to in the management, design, construction, testing and acceptance and commissioning of all works.

1.3.1. Standards

The Contractor shall comply with the last updated editions of the following standards, in the order of precedence as listed, in the design, implementation, testing, acceptance and operation of all works within the scope of the tender. In circumstances for which there is no description in the following standards, it shall be permitted to use the last updated editions of other national and international standards on condition that the Engineer accepts.

- a. Turkish Standards (TS),
- b. European Norm (EN),
- c. International Standards Organization (ISO),

1.3.2. Legislation

The Contractor shall execute and complete the Works in strict accordance with applicable legislation of **Turkey**.

1.3.3. Specifications

The Contractor shall execute and complete the Works in strict accordance with the last updated editions of;

- Republic of Turkey Ministry of Environment and Urbanization “Construction Works, Civil, Mechanical Works and Electrical Works General Technical Specifications”¹
- Republic of Turkey General Directorate of Highways “Highways Technical Specifications”
- Union of Chambers of Turkish Engineers and Architects, Chamber of Landscape Architects Publication; Technical Specifications for Landscape Works

1.4. SITE

Please refer to provisions stipulated in Clauses 11, 32, 33, 37, 39, 41 and Sub-Clauses 6.2, 34.2 of the General Conditions of Contract

Site is located within the premises of existing and currently operational Hatay Çalışma ve İş Kurumu Müdürlüğü

¹Applicable communiques:

- “Communique related to Construction Works, Civil, Mechanical Works and Electrical Works General Technical Specifications” issued by Ministry of Public Works and Settlement, published in Official Gazette of Republic of Turkey no: 29459, dated 28 August 2015(complementary version) available at <http://www.resmigazete.gov.tr/eskiler/2007/06/20070630M1-1.htm>
- “Communique related to making amendmends on communique related to Construction Works, Civil, Mechanical Works and Electrical Works General Technical Specifications” issued by Ministry of Public Works and Settlement, published in Official Gazette of Republic of Turkey no: 27853, dated 21 February 2011 available at: <http://www.resmigazete.gov.tr/main.aspx?home=http://www.resmigazete.gov.tr/eskiler/2011/02/20110221.htm&main=http://www.resmigazete.gov.tr/eskiler/2011/02/20110221.htm>
- “Communique related to making amendmends on communique related to Construction Works, Civil, Mechanical Works and Electrical Works General Technical Specifications” issued by Ministry of Environment and Urbanisation, published in Official Gazette of Republic of Turkey no: 30352, dated 06 March 2018 available at: http://sgb.csb.gov.tr/mevzuat/dosyalar/r_20180306093845756_03c559f6-993f-40e1-9009-6701e836970d.pdf

at Maşuklu Mahallesi, Küçükdalyan, Antakya Reyhanlı Road, No:15, in Antakya district of Hatay, on Island 3538, Parcel 2.

As there is currently another operational building and trees closely adjacent to the subject building to be constructed, Contractor shall take all measures and provide all means to avoid any damage to surrounding buildings and existing trees.

Contractor shall take all necessary measures to avoid any hinderance of construction works to the operationality of existing İŞKUR (Turkish Employment Agency) building which provides public service.

1.4.1. Arrangement of the Site

The ground levels of the Site shall not be changed without the permission of the Engineer and no infrastructure, structure or tree shall be removed or permanent structure shall be built without the Engineer's prior approval.

The Contractor shall construct temporary parking areas, loading and unloading areas, open storage areas, approach and internal roads, temporary facilities to facilitate its methodology and order of construction of the Works, as appropriate.

1.4.2. Site Requirements

Provision of all the necessary utility requirements on site, such as electricity, water, gas, etc. during the execution of the works shall be under the responsibility of the Contractor.

Application to the relevant authorities for subscription to provide utility connections shall also be under the responsibility of the Contractor. All costs of the consumptions on site shall be covered by the Contractor. Any temporary fencing used by the contractor to protect the works shall be appropriate for the task to keep the public from danger and protect the workers.

The Contractor shall erect such fencing as soon as he is given possession of the relevant portion of the Site. The Contractor shall regularly inspect and maintain all such fencing, any defects being made good without delay.

Access shall be provided in temporary site fencing as necessary for the use of the occupiers of adjacent properties.

Temporary site fencing shall remain in position until the Works are sufficiently completed to enable that portion of the Site to be brought into use without danger to the public.

1.4.3. Site Temporary Buildings

The Contractor shall provide offices, dining halls and accommodation places for his own personnel, Subcontractors and furnish and maintain these places, as necessary.

1.4.4. Temporary Water Supply

The Contractor shall supply and distribute water both for the personnel and for the Works. All of the piping, storage and similar main and intermediate systems shall be established in accordance with drawings and specifications. In the event that the municipal water supply is not available in sufficient amounts or pressure, additional supplies shall be provided by the Contractor.

It is the responsibility of the Contractor to provide all necessary back-up, maintenance and repair works for the uninterrupted supply of water sufficient for construction of the Works.

1.4.5. Temporary Electricity Supply

Provision of all the necessary utility requirements on site, such as electricity and gas, etc. during the execution of the works shall be under the responsibility of the Contractor.

The Contractor shall be required to make all necessary arrangements with relevant local authorities and/or owners/occupiers of the properties in order to obtain the supply of necessary utilities and cover the expenses for supplying and consuming these services, where necessary.

The Contractor shall provide connection to the site from a suitable point.

The Contractor is obliged to take all precautions for the safety of employees and third parties both in the supply and distribution of the energy. It is the responsibility of the Contractor to provide all necessary back-up, maintenance and repair works for the uninterrupted performance of the temporary electrical supply.

The Contractor shall take necessary measures related to the unexpected cuts off of these services.

1.4.5.1. Temporary Sanitary Installation, Cleaning

The Contractor shall clean the site when necessary and in such a way as to preserve it in a hygienic state and shall comply with the relevant laws and instructions of the Engineer.

The Contractor shall establish temporary sanitary facility in the site in order to meet the requirements for the working personnel. For this purpose, the Contractor shall supply flushed W.C. in suitable places on the site. Domestic water connections of facilities shall be protected against frost. Sewerage drains shall be connected to the sewerage network as much as possible. In the event that this is not possible, connection shall be made to cesspools built in accordance with national specifications. Cesspools shall be drained at suitable intervals.

1.4.5.2. Employer's Equipment and Free-issue material

There is no Employer's Equipment available for the use of the Contractor in the execution of the Works.

Free-issue materials are not available on behalf of the Employer.

1.4.5.3. Temporary Project Sign Board

The Contractor shall, at his own cost, supply, erect and maintain 1 signboard (size 1.5 m x 2 m) of which location and content must be determined by the Engineer. The design of the sign board itself also requires the prior approval of the Engineer and the Employer.

1.4.5.4. Plant and Temporary Works

The property of all structures, materials, vehicles, tools, and equipment supplied and established by the Contractor for the performance of the Work belongs to the Contractor.

Temporary facilities shall be removed within the time and method to be decided by the Engineer after Substantial Completion and their places shall be cleared and reinstated. Fences, billboards, etc. that have been removed temporarily shall be reinstated.

1.4.5.5. Protection of Existing Structures and Utilities

The Contractor shall assume full responsibility for the protection of all buildings, structures, and roads existing in the area of the construction site, public or private, whether or not they are shown on the drawings. Any damage resulting from the Contractor's operations shall be repaired at Contractor's own expense.

The Contractor shall take all necessary precautions to avoid causing any unwarranted damage to roads, lands, properties, trees, and other features and, during the Contract, shall deal promptly with any complaints by owners, occupiers, or public.

Where any portion of the Works is close to, across, or under any existing apparatus of Statutory Undertakers, the Municipality or other parties, the Contractor shall temporarily support and work round, under or adjacent to all apparatus in a manner designed to avoid damage, leakage, or danger, and to ensure uninterrupted operation.

Should any leakage's or damage be discovered, the Contractor shall at once notify the Employer and the Statutory Undertaker, Municipality or owner concerned, as appropriate and the Contractor shall afford every facility for the repair or replacement of the apparatus affected.

Building interiors shall be adequately protected during the course of the works to ensure that they remain water-tight.

The Contractor shall adequately safeguard the buildings affected by the works against damage and theft.

All electrical installations shall comply with the relevant national regulations and shall be safe for the Contractor and members of the public. All Works shall be illuminated when daylight deems to be insufficient.

Before commencement of works nearby the existing structures, preconstruction photos shall be taken and recorded.

1.5. CONTRACTOR'S KEY PERSONNEL

The Contractor shall employ following key personnel with qualifications listed below on site in line with Programme of Work.

Project Manager/Construction Manager: Minimum 5 years of experience in erection of structural steel work and university degree (B.Sc. as a minimum) in Civil Engineering. Project Manager/Construction Manager shall be present on site on a full-time basis for the period starting from the date on which the Contractor will be given Access to the Site and receive a notice from the Engineer to commence the Works and ending on the date of substantial completion of Works stated in the Certificate of Substantial Completion.

Electrical Engineer: Minimum 3 years of experience in renovation and/or construction of any kind of structure, and university degree (B.Sc. as a minimum) in Electrical Engineering.

Mechanical Engineer: Minimum 3 years of experience in renovation and/or construction of any kind of structure, and university degree (B.Sc. as a minimum) in Mechanical Engineering.

1.6. MATERIALS

1.6.1. Conditions for Materials and Equipment

Materials and equipment within the scope of the Work shall comply with the conditions stated in this Schedule of Requirement and Specific Technical Specifications provided in work item definitions. Materials and equipment proposed to be used by the Contractor and which have not been specified shall only be incorporated in the Works after their equivalence with the Technical Specifications has been verified and approved by the Engineer. Any material or equipment proposed by the Contractor for substitution from that specified shall be subject to prior approval of the Engineer.

1.6.2. Storage Facilities

The Contractor shall establish open and closed storage places in suitable and sufficient extent at his own expense for the storage of materials and equipment in the site. The Contractor is obliged to take all necessary protective precautions against damage, contamination inclement weather and theft.

1.6.3. Terms of Transportation

All of the materials and equipment shall be packaged in such a way to facilitate transporting in and out of the storage and to the Site and to be protected against damage.

Materials and equipment shall be loaded on vehicles conforming with international transportation rules. During transportation, all necessary additional precautions shall be taken, and adequate transportation insurance shall be provided at the sole responsibility and cost of the Contractor.

1.7. SETTING - OUT

All necessary application, measurement and instrumentation processes and equipment necessary for construction of the Works and for preservation of the environment in the vicinity of the Works are the responsibility of the Contractor at his own expense.

1.7.1. Application Works

The Contractor shall prepare application drawings showing the setting out of the structures on the site and based on the reference points and levels given in the Drawings and submit to the Engineer for approval. The accuracy of the setting out shall be the sole responsibility of the Contractor.

For application and measurement processes; the Contractor shall:

- Employ qualified and experienced surveyors.
- Use modern type and high-precision topography devices suitable for the works.

1.8. ACCOMODATION FOR THE ENGINEER

Before commencing the Contract, the Contractor shall supply and erect on the site an office of a minimum 10 m2 room for the exclusive use of the Engineer at a location to be agreed with the Engineer. This office shall be provided for the total construction period.

The washroom shall be provided with a washbasin, hot and cold-water supplies and a flush operated WC connected to the existing sewer. The Contractor shall be responsible for the security of the Engineer's office and all equipment therein until the office is finally closed.

The Contractor shall maintain, light, heat/cooling and clean the office for the duration of the contract. The Contractor shall be responsible for the insurance of the office for the duration of the contract. The Contractor shall insure the office and the contents provided by him, against fire, burglary and other risks ordinarily insured against during the period of the Contract. The electricity, water supply, and maintenance costs of this office shall be met by the Contractor(s) until substantial completion of the Works.

Material	Quantity
Desk	1
Chair	1
Guest Chair	2

The electricity, water supply, and maintenance costs of this office shall be met by the Contractor(s) until substantial completion of the Works.

The Contractor shall ensure that all equipment is kept in good condition and shall repair or replace, as directed by the Engineer, any equipment that becomes unserviceable.

1.9. COORDINATION

The Contractor is responsible for ensuring all coordination necessary for the execution of the works in accordance with the quality, cost and timing objectives foreseen by the Employer at the beginning of the work.

The Contractor shall prepare a Critical Path Method (CPM) work schedule, inspect the schedules according to the project timeframe, check the integrity of the schedules between infrastructure, superstructure constructions, electrical and mechanical works, combine the schedules and submit to the Engineer for approval.

The Contractor shall be responsible for ensuring administrative and technical coordination with the Employer, the Engineer and other parties who might directly affect the works along with the following parties who might have indirect effect:

- Relevant official institutions and organizations,
- Other authorized persons, institutions, and organizations

1.10. OBTAINING OF RELEVANT APPROVALS AND CERTIFICATES

The Contractor shall obtain all relevant approvals, permits, and certificates from local Authorities regarding construction and operation of the building and plants.

Permits, license and approval costs which are required by the Turkish laws/regulations as determined by the relevant authorities shall be borne by the Contractor.

1.11. AS-BUILT DRAWINGS AND OPERATION & MAINTENANCE MANUALS

This part of the Specifications covers the "As-built Drawings" to be prepared by the Contractor including Operation and Maintenance Manuals of the Plant incorporated in the Permanent Works, as applicable. Three complete draft sets of prints of Drawings showing all Works exactly as made shall be submitted to the Engineer for approval within one month following the substantial completion of the Works on site.

The Contractor shall record all information necessary for preparing as-built drawings during the execution of the Works on the Sites. Neatly marked-up drawings and other documents covering the Permanent Works as completed shall be available to the Engineer at any time during construction.

Marked-up drawings shall be kept up to date and submitted to the Engineer for approval, as the Works are completed.

The Contractor shall submit complete sets of instructions and manuals to Engineer for approval describing the installed Plant in order to facilitate operation and maintenance, together with the "As-built Drawings". The documents shall include but not be limited to:

- Layout drawings
- Schematic cabling diagrams
- Specific operation instructions
- Specific maintenance instructions
- Detailed record of all types of tests

All materials, as-built drawings, final finish schedules and plans, and all warranties, guarantees and certifications that are within Contractor's responsibility shall be submitted to the Engineer before final payments are made.

All information in these manuals shall apply specifically to the Plant and equipment being supplied, and they shall be free from irrelevant matters such as might be contained in the manufacturer's general literature.

The as-built documentation shall include all architectural and engineering disciplines including architectural/structural, electrical, and mechanical drawings, and operation and maintenance manuals. Final version of as-built drawings in two hard copies and one electronic (in Auto CAD and Microsoft Word, Excel, etc as appropriate) copy of each document shall be provided together with the notice for substantial completion incorporating Engineers' comments and all the modifications/revisions effected during construction. Operation and maintenance manuals shall be provided in Turkish.

All material except drawings shall be A4 size. Drawings shall be on international A size sheets, and drawings shall be marked as "AS-BUILT".

In addition to the above drawings, Contractor shall also prepare and submit detail/plan/section drawings as might be requested by the Engineer for measurement and verification of the completed amount of any work item.

1.12. IMPLEMENTING PARTNER AND FINAL BENEFICIARY

The Contractor shall establish coordination with implementing partner of the project, namely the **IŞKUR (Turkish Employment Agency)**. If deemed necessary by Employer, the representatives of implementing partner and final beneficiary may participate meetings, tests on completion, acceptance and inspection of materials and equipment etc. Representatives of the implementing partner and final beneficiary have right to access to site to monitor the progress of work, compliancy of the work to the requirements of the contract. The Contractor shall

ensure their access to site at any time requested by them. However, they have no legal authority in terms of contract terms and conditions.

2. PROJECT CONTROL DOCUMENTS

2.1. PROJECT MANAGEMENT

2.1.1. Project Management Obligation

The Contractor shall be responsible for effectively managing his efforts in carrying out the requirements of this Contract.

The Contractor shall be responsible for the management, performance, monitoring and coordination of the whole project in order to fulfil all requirements of the Contract and those given in this Schedule of Requirements.

The Contractor's management obligations shall include the efficient planning of work to be performed in cooperation with the Engineer and Employer along with their appointed representatives to ensure project progress visibility.

2.1.2. General Requirements

The Contractor shall establish a project organization in accordance with requirements included herein, having the necessary resources, qualification, and experience to fulfil all the Contractor's obligations.

The Contractor shall unambiguously define the tasks, responsibilities, and authorities of each individual role within the organization, at least at the management level.

The project organization shall have clear and well-defined command lines and channels for reporting, within and outside the project organization.

The Contractor shall describe which parts of the Contractor's organization are used for staffing the project, and how the project organization aligns with the Contractor's main organization.

The Contractor shall describe the support functions, which are available for the project organization in the Contractor's main organization and how such resources are put to the disposal of the project.

The Contractor shall describe the organizational interfaces towards any sub-contractor and supplier that shall be in or outside the project organization. Such interfaces shall provide a clear reference between the project management level within the Contractor's and the sub-contractor's/Supplier's organizations.

The Contractor shall appoint key staff members, and these shall to the highest possible extent remain unchanged by the Contractor for the entire project.

Any later changes in such appointments shall be informed to and approved by the Engineer and shall be agreed by the Contractor in order for the Engineer to assess the reasons and likely impact of such change.

The Contractor shall, unless this is not within the power of the Contractor, ensure that existing staff remains until suitable and acceptable replacements have been found.

2.1.3. Programme of Work

The programme of work shall comprise following as minimum:

- The proposed location of office on the site, stations (steel/concrete structures), warehouses, accommodation, etc. (sketches to be attached as required).
- A brief outline for completing the works in accordance with the required method of construction and stated time of completion.
- A critical milestone bar chart (schedule of execution) representing the construction programme and detailing relevant activities, dates, allocation of labour and plant resources, etc.
- If the Contractor plans to subcontract part of the works, he must provide the following details:
 - Details of works to be subcontracted.

2.1.4. Project Manager Responsibilities

The Contractor shall define a project management team and shall appoint a Project Manager in charge of the entire project.

The Contractor shall allocate the necessary competence and authority to the Project Manager, entitling the Project Manager to make decisions related to all aspects of the day-to-day management of the project.

Any restriction in the Project Manager's rights in this respect shall be clearly identified and described. Such restriction shall not impose management difficulties upon the project.

All official communication between the Engineer/ the Employer and the Contractor shall be conducted through the Contractor's Project Manager.

2.1.5. Engineer's Involvement

For the execution of this project, the Engineer reserves the right to be assisted by other agencies for technical, operational, and contractual matters.

The Contractor shall establish close coordination with the Engineer for the development of all planning activities related to the project, and shall forward relevant plans, procedures etc. for review and approval, prior to putting such plans or procedures into force.

Engineer's duties and responsibilities are defined within the UNDP General Conditions of Contract for Civil Works.

2.1.6. Project Plans

The Contractor shall prepare the following Project plans, which shall be reviewed and approved by the Engineer:

- a) Quality Control and Quality Assurance Plan
- b) Safety Management Plan

In coordination with the Engineer, the Contractor shall also unambiguously define which information is required from the Engineer and when during development and testing.

In addition, the Contractor shall prepare method statements for each activity. Any site activity (excavation, filling etc.) can be started after the approval of the method statements by the Engineer.

2.1.7. Reporting and Reports

The Contractor shall ensure that the Engineer and the Employer are kept informed about the status of all areas within the project, and as a whole to ensure that the Engineer can maintain a complete and detailed knowledge of the project.

The Contractor shall provide progress reports to the Engineer describing, but not limited to, achievements, problems, risks and containing updated schedules, WBS, cost/schedule control reports, status of contract variation proposals, and other data which are required for the efficient management of the project.

The Contractor shall agree with the Employer regarding dates for the submission of monthly Progress Reports. Unless agreed otherwise, these reports shall be submitted no later than 7 calendar days after the completion of each month.

Such reports shall provide information on the status of the Contract, and/or on any matters that could interfere with the timely achievement of any aspect of the Contract and the steps proposed by the Contractor to remedy such matters. The progress report will have minimum the following contents:

- Project progress
- Project management overview. Describes major results achieved, problems that have occurred, and corrective action that has been taken or is planned for solving the problems.
- Technical status: Identifies detailed status, including requirements definition status, design and development progress, problems encountered, corrective actions taken, and a summary of outstanding and approved change items during the period.
- Quality follow-up: Describes activities of the quality assurance program.

- Project Schedules: Shows activities completed (e.g., milestones and deliveries), status of ongoing activities, schedule changes (if any). This section also identifies the outlook for the next three months with an assessment of the major activity completion dates.
- Action item status: Describes outstanding action items and action items that have been closed during the reporting period.
- Risk assessment: Presents the current critical paths, critical activities, and technical risk, including assessment, impact, and containment plans.

2.1.8. Meetings

2.1.8.1. Progress Meetings

Progress meetings will be held at the times indicated on the schedule (at least monthly, unless agreed otherwise), and will take place at location, which shall be proposed by the Contractor and approved by the Engineer.

The following persons shall be present at progress meetings:

- The Contractor's representative (i.e. the project manager)
- The representatives of the Employer, the Engineer, and the Implementing Partner.
- Any other persons whom the above representatives consider should be present in an assistant/consulting capacity.

The major items to be addressed in the progress meetings are those identified for the progress reports and any other items, which are deemed necessary by the Engineer, the Implementing Partner, or the Contractor.

The Contractor shall prepare an agenda and forward it to the Engineer no later than 1 week prior to each meeting for review and approval.

The Contractor shall prepare and produce the minutes of the meetings. Draft minutes will be ready at the end of meetings and reviews. Minutes signed by the Engineer and the Contractor shall be attached to the contract file and shall become binding for both parties. All of these proceedings pertaining to progress meetings shall be conducted by the Contractor under the supervision of the Engineer.

2.1.8.2. Weekly Site Meetings

Site Meetings will be convened by the Contractor as mutually agreed between the Contractor and the Engineer, during the project to allow discussion on specific aspects of the execution, orientation, future arrangement, and coordination of the works and also for briefing. Site meetings may be held to formalize important technical discussions, generally prior to the Progress Meetings and record information and recommendations arising from these discussions.

Site meetings will be held at locations to be mutually agreed between the Contractor and the Engineer. The Contractor shall provide site meetings with the papers documenting the technical items for discussion and recommendations.

The agenda of site meetings shall be determined by the Engineer and the Contractor together. In addition to the Engineer, the Employer, and the Contractor, site meetings can also be attended by supply companies, manufacturer companies, subcontractors and other institutions and organizations related to the works as necessary.

Meeting minutes shall be recorded by the Contractor, kept carefully and these shall be distributed as minutes of site meetings to the Employer and the Engineer, participants and other persons, institutions and organizations to be found necessary by the Engineer. Minutes signed by the Engineer and the Contractor shall be attached to the contract file and shall become binding for both parties. Minutes shall be forwarded to the Employer for consideration at the next Progress Meeting. All of these proceedings pertaining to site meetings shall be conducted by the Contractor under the supervision of the Engineer.

The Contractor is also responsible for organizing additional meetings upon the instruction of the Employer or the Engineer.

2.1.9. Sub- Contractor Involvement

Except for cases where subcontracting is not allowed, it is the responsibility of the Contractor that all sub-contractors perform their part of the work in accordance with the rules laid down in the contract between the Employer and the Contractor.

This implies that the sub-contractors are subject to the same Project Management procedures and must follow the same standards as applied by the Contractor.

As part of the approval procedure for Sub-Contractors involved by the Contractor within the Project, the Contractor shall provide to the Engineer specified documents for each Sub-Contractor (means Sub-Contractor and Sub-Designer) as stated below.

- Registration for chamber of commerce
- Trade registry gazette
- Criminal records of the responsible people of the Sub-contractor
- Delivery statement of previous project accomplished by the sub-contractor.
- Authorized signatures list
- Relevant quality certificates
- No bankruptcy statement given by the commercial record authorities.
- A summary of the status of Sub-contractor with monthly progress payments needs for hand over to keep overview.

Obtaining approval of the Engineer for subcontractor(s) is a pre-condition of payment for works conducted by Sub-contractors.

The Engineer shall have the right to disapprove a proposed sub-contractor in case of objective evidence that the sub-contractor cannot comply with requirements within this contract, that be related to the delivery or the Project Management and Quality Assurance.

The Contractor shall keep a list of all sub-contractors and suppliers, which are used or are planned to be used within the project and shall forward such list to the Engineer every time it is updated.

The list shall include a precise identification of which parts or components the sub-contractor or supplier in question shall deliver to the Contractor.

The Contractor shall be fully responsible for the work performed by any sub-contractor as for the work performed by the Contractor himself.

2.2. SPECIFIC ON-SITE ACTIVITIES

2.2.1. Management and Planning

The Contractor shall have the full responsibility for the construction, installation and setting up the Works.

The planning of the construction, installation and setting up of the Works shall be developed in close cooperation with the Engineer.

The Contractor shall be responsible for the maintenance and operation of the system during its installation and setting up.

2.2.2. Installation Plan

At each site where installation is going to take place, the Contractor shall prepare an installation plan comprising:

- The Engineer`s activities
- Sub-contractors involved
- Tasks to be performed and who is responsible for each task

- Timing of the tasks
- Documentation of installation (e.g. instructions, specifications and drawings)
- and other information important for the final installation.

The installation plan shall be approved by the Engineer in due time before the final installation.

2.2.3. Installation

The Contractor shall, in due time before installation, submit instructions and specifications with detailed information concerning:

- façade
- interior
- finishes
- installation
- cabling, routing, grounding, power, communication
- other topics important for the installation of the Works.

The installation shall take into consideration local legislation, rules and procedures to (i.e.) cabling, power connection and working conditions.

The Contractor shall produce, procure, and supply all necessary equipment, tools, etc. consumable as well as non-consumable needed for the installation and setting-up.

2.2.4. Setting up

Setting up covers the activities after the physical installation to adjust and tailor system parameters, fine tuning, etc. to make the system 100% operational.

The Contractor shall specify which procedures will be used to set up the Works.

2.3. SAFETY

The Contractor is responsible for taking all necessary precautions in respect of Works, materials, machinery, equipment and current facilities, persons on site and neighbouring environment. All expenses including indemnities that might arise are the responsibility of the Contractor.

2.3.1. Safety of the Construction Site and Periphery

2.3.1.1. Safety Fence

Contractor shall determine the extent of site boundary fencing necessary to protect the site, works, materials, equipment, and facilities against unauthorized access and for safety of the public, to control entries-exits and prevent the entrance of unauthorized persons.

There shall be sufficient number of security officers provided by the Contractor at entrance-exit gates and locations where deemed necessary. There shall be adequate night lighting for ensuring supervision of security officers throughout the fence.

2.3.1.2. Fire Protection

The Contractor is responsible for taking necessary precautions for the protection of Works, Temporary Works and any kind of property and person during performance. All of the precautions, including raising the awareness of personnel, and the proceedings to be implemented in the event of a fire shall be determined working closely with the Fire Department.

During the Work, additional specific precautions that might be needed in the following cases shall be taken and implemented:

- Storage of materials that might easily inflame,

- Collection, storage and disposing of inflammable wastes,
- Operations performed with electric-arc welding and oxy-acetylene cutting machines,

In case a fire breaks out, the Contractor shall supply and get ready the following equipment:

- Dry chemical powder type fire extinguishers that can be installed to walls, carried manually with nitrogen pressurized in certain places
- Special extinguishing systems in sections where Fire Department cannot enter or access easily

2.3.1.3.Warning Marks, Lighting

All of the open excavations, material piles, structures, facilities, and equipment that might create hazard shall be surrounded by barricades with appropriate marks with the aim of protecting the employees and other people.

In the same manner, the roads and passages blocked due to Works shall be protected by barricades.

This kind of areas shall be marked with warning plates placed in appropriate distances and attract the attention of people. All of the barricades, obstacles and marks shall be illuminated from dusk to sunrise.

2.3.2. Safety at Work

It is the responsibility of the Contractor to take necessary precautions to prevent accidents that might cause damage to persons, materials, equipment and facilities during the work.

The Contractor shall assign a Safety Team under the leadership of an experienced Safety Manager for any kind of work on safety at work. The primary duties of this team shall include but not limited to:

- Training the employees in respect of actions and practices that shall cause accidents or damage, taking precautions in the site that shall at least meet the requirement of "TS 8983 General Safety Precautions that Should be Taken in Structures During Construction", Monitoring whether precautions and warning are obeyed or not,
- Taking additional precautions, warning orally, and giving punishment in the event that faults are detected.
- Stepping in and performing what should be done in the event of a harmful event.

The Contractor shall carry out the works in accordance with the Turkish Health and Safety regulations.

2.3.2.1. First Aid

Shall be arranged in accordance with the applicable Turkish Health and Safety Regulations.

2.3.2.2. Hazardous Substances

When the following are encountered, Works shall be ceased in the section where the event occurs:

- Buried known or unknown toxic substances,
- Unnaturally coloured ground water or soil,
- Asbestos,
- Volatile organic compounds measured with photo ionization detector,
- Chemical substances or oil products or other similar circumstances that are spilt and spread on the site.

Cleaning of the area in such a way not to damage employees and removal of the hazardous substance shall be performed by an expert team trained and equipped for this kind of works.

2.4. QUALITY CONTROL AND QUALITY ASSURANCE

2.4.1. Quality Responsibility

All of the Works shall be performed according to the most appropriate engineering practices and standards in respect of construction, material, equipment and workmanship.

It is the responsibility of the Contractor to control the quality of the work and to take samples and carry out necessary tests in respect of achieving conformity with specifications and approved materials at his own expense.

A Quality Control and Quality Assurance Manager to be assigned by the Contractor shall be responsible for all phases of quality control and sustain an efficient communication with the Engineer.

2.4.2. Material Quality and Equivalent Materials

All of the materials and equipment supplied to be used permanently within the scope of the works shall comply with current standards and specifications. The products of other Manufacturers instead of determined materials and equipment shall be accepted on condition that their equivalency is approved by the Engineer. In such events, the Contractor shall submit to the Engineer all of the evidence of the equivalency of the new product.

2.4.3. Quality Control and Quality Assurance Plan

After signature of the Contract, the Contractor shall submit to the Engineer a detailed Quality Control and Quality Assurance Plan within 14 days for approval. The plan shall cover quality control and assurance of all phases of works on the site.

The plan shall include at least the following items and shall be supported by additional information that might be needed by the Engineer.

The Plan shall cover the quality assurance of all aspects of the Works, and contain, as a minimum, the following items:

- Organization chart for quality control and quality assurance
- List of Contractor's staff to be engaged in quality control and materials testing together with details of their relevant experience
- List of facilities which will be inspected and tested by the Contractor at stages during implementation of the Works as part of his quality control, together with inspection procedures and test types
- Certificates of materials
- Specifications of equipment and work
- Tests
- Relevant certificates on supplied materials
- Detailed checklist for all installations. The checklist shall be for the Contractor's own use, documenting the Contractor's own quality control of the installation.

The Plan may be supplemented with additional items from time to time as requested by the Engineer.

The approved Quality Plan shall be followed throughout the performance of the Contract unless the Engineer issues specific instructions for certain works. Any approval of the Engineer shall not relieve the Contractor of his obligation to ensure that the Works comply with the requirements of the Contract.

Quality assurance records, test certificates, reports and daily records of on-site testing and inspection shall be kept on site during the works, and the results shall be certified by the responsible member of the Contractor's staff.

Quality Control and Assurance Plan shall enter into force after the approval of the Engineer.

2.4.4. Tests Samples, Materials and Equipment

The Contractor shall supply all of the samples including storage, packaging and transportation related to quality control and tests. The materials represented by these samples shall not be manufactured without the approval of the Engineer, brought to work place, or used in any work.

Approved material and equipment samples to be used on the site shall be kept carefully until they are permitted to be disposed by the Engineer.

2.4.5. Test Laboratory Services

Quality Control tests shall be done in the laboratory to be established by the Contractor as applicable. For the tests that cannot be done in such a manner, an independent laboratory that is approved by the Engineer shall be employed at the expense of the Contractor.

The Contractor shall ensure that both his own laboratory and the independent test laboratory perform the desired material inspection, sample receiving and test processes as fast as practically possible and conclude them.

Test results shall be immediately submitted to Engineer. In the event of detection of disorders or deficiencies that might affect the Work, the Contractor shall take any kind of corrective precaution that might be instructed by the Engineer immediately. In case of a safety concern, Contractor shall immediately initiate any measures he/she might consider suitable and inform the Engineer in writing of the nature and method of such measures. In case such measures are rejected by the Engineer, Contractor shall suspend any such activities and conduct reinstatement works.

2.4.6. Examinations and Manufacturer's Tests

The Contractor is responsible for ensuring that quality control and all relevant examinations and tests are carried out duly without taking into account whether they are on Site or in any other place and also for taking corrective precautions when necessary.

The Engineer can audit the work carried out in the Manufacturer Company's facilities and also the tests related to these works. The Contractor shall inform the Engineer on time so that this can be done as desired.

The manufactured items and materials that are delivered to the Site shall be examined by the Contractor on their arrival and any kind of fault shall be informed to the Engineer. The products with important faults shall be returned to the Manufacturer Company to be amended or replaced.

Examinations and tests carried out by the Engineer or on his behalf do not release the Contractor of his obligations related to quality control.

2.4.7. Construction Site Records and Tests Certificates

Quality Control records, test certificates, reports, daily construction site tests and examination records shall be kept on forms approved by the Engineer as part of Quality Control Plan.

All of the test certificates and examination records shall be subdivided into their relevant departments and kept and recorded. The processes shall be under the responsibility of qualified personnel of the Contractor and moreover the Contractor shall establish a comprehensive archive and library related to quality control.

The Contractor shall prepare details lists including tests, approvals, orders, and delivery information related to quality control and other materials and products depending on approval. These lists shall be submitted to Engineer as they are updated, save once in a month under any circumstance.

Test results shall be delivered to Engineer at the end of the test in respect of determining the necessary precautions, if any. Test certificates, on the other hand, shall be submitted to the Engineer

- When the tests of the Production Plant and Manufacturer Company are completed or not later than 7 days before the date on which products should be used in the Work under any circumstance,
- Within 7 days following the completion of the test for those conducted during or upon completion of the continuous work.

3. ENVIRONMENTAL MANAGEMENT

The Contractor shall comply with the provisions of the applicable Turkish legislation on environment protection that may affect the Project (the "Environmental Requirements"). In particular this shall include compliance with the following regulations (latest version of the below mentioned laws will be in placed):

Environment Law (no. 2872, date: 09.08.1983, published in the 11.08.1983 dated and 18132 y numbered Official Gazette, amended on 26.04.2006 no 5491),

Worker Health and Work Safety Act (published in the 11.01.1974 dated and 14765 numbered Official Gazette),
The Regulation for the Assessment and Control Air Pollution 2009

The regulation for the assessment and management of environmental noise (2008),

Water Pollution Control Regulation 2004

Solid Waste Control Regulation (published in the 14.03.1991 dated and 20814 numbered Official Gazette),

Hazardous Waste Control Regulation 2005

Cultural and Natural Assets Protection Law and relevant regulations

Waste Oil Control Regulation (21.01.2004 dated and 25353 numbered Official Gazette.)

Excavation Soil, Construction and Debris Waste Control Regulation (18.03.2004 dated and 25406 numbered Official Gazette)

Soil Pollution Control Regulation (31.05.2005 dated and 28831 numbered Official Gazette.)

The Contractor shall take all measures and precautions to avoid any nuisance or disturbance arising from the execution of Project Activities. This shall, wherever possible, be achieved by suppression of the nuisance at source rather than abatement of the nuisance once generated. The Contractor will also be required to compensate for any damage, loss, spoilage, or disturbance of the properties and health of the project affected people during construction. In conformance with the Contract Specifications of which these Environmental Provisions are a part, the Employer reserves the right to withhold payments and/or stop construction in the event of serious or repeated violations of the conditions stipulated herein.

The Contractor shall, at his own expense, obtain, retain in force and renew as necessary all Consents provided for by the Environmental Requirements of the Government of Turkey that are required to enable it to meet its obligations in designing and constructing the Project.

4. PARTICULAR TECHNICAL SPECIFICATIONS

Unless otherwise stated in particular technical specifications, the Contractor shall execute and complete the Works in strict accordance with the last updated editions of;

- Republic of Turkey Ministry of Environment and Urbanization “Construction Works, Civil, Mechanical Works and Electrical Works General Technical Specifications”
- Republic of Turkey General Directorate of Highways “Highways Technical Specifications”
- Union of Chambers of Turkish Engineers and Architects, Chamber of Landscape Architects Publication; Technical Specifications for Landscape Works

4.1. PARTICULAR TECHNICAL SPECIFICATIONS FOR CIVIL AND ARCHITECTURAL WORKS

All goods and materials used in the Works shall comply with international standards (EN, BS or ISO) or those of the appropriate national standards where no other standard is given, for both manufacturing and testing. Where no comment is made against an item, the Contractor shall assume that these standards are to be complied with.

All goods and materials to be provided by the Contractor and incorporated in the Works shall be new, unused, and of the most recent or current design and specification, and incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.

The Contractor shall submit to the Engineer a list of his proposed suppliers and sources of materials required for the execution of the Works. Samples shall also be submitted at the request of the Engineer, as practically applicable. The Contractor shall obtain written approval of the Engineer prior to use of the materials.

The materials subsequently supplied shall conform to the quality of samples which have been inspected by the Engineer.

Names of additional suppliers and sources may be submitted by the Contractor during the execution of the Contract, but no source of supply shall be changed without Engineer's approval.

Materials and components shall be stored in such a manner as to preserve their quality and condition to the standards required by the Contract.

Materials and components shall be handled in such a manner as to avoid any damage or contamination, and in accordance with all applicable recommendations of the manufacturers.

Unless otherwise described in the Contract, the use, installation, application or fixing of materials and components shall be in accordance with all applicable recommendations of the manufacturers. Where appropriate, the Contractor shall make use of any technical advisory services offered by manufacturers.

4.1.1. Earthworks

General

This specification consists of; excavation for all buildings backfill, compaction of backfill and transportation of excavated material under conditions written in this document and according to the drawings or with the directives of the Engineer.

All excavation, fill and soil bent works must comply with directions figured out in the drawings, slopes and elevations or the Engineer 's instructions shall be followed.

In case of redundant excavation, the contractor is responsible for redundant part with no payment. Addition to this the extra amount of excavation shall be filled according to the requirements with compacted soil, crushed stone, or concrete with the instructions of the Engineer, by the Contractor without any additional payment.

Contractor shall check the conformity of the levels of the land and the buildings.

Fill and Compaction

Fill material shall be laid in the form of horizontal layers and the thickness of the material laid shall not exceed 20 cm in the loose state. Then it shall be compacted. Fill material shall not be laid in muddy surfaces in any conditions. The fill shall be straight and compacted in a stabilized way to avoid the formation of eccentric loading and shear forces in the places adjacent to structures. The sloped surfaces consist of barriers and terraces shall be constructed to prevent sliding of fill materials. During the process of backfill and construction of barriers, machines that may exert additional loads to structures shall not be used for compaction.

In accordance with the Engineer's approval, compaction operation shall be done with vibrated cylinders, cylinders with steel wheels or other machines certified for that type of operation. If required, material shall be moisturized to obtain desired compaction degree and ventilated.

Removing Excavation Material

The excess of excavation material which the Engineer instructs to transport from the site area shall be carried to an adequate area arranged by the Contractor in consultation with local authorities. The permission for transporting materials from site to the selected area is under the Contractor's responsibility. After all the excavation is completed all temporary storage and stack areas must be cleaned, drainage slopes are set, and the site is remained in a good view according to the local authorities' rules; transportation and unloading procedures

shall be done without giving any disturbance to environment. The trucks shall be prepared covered to prevent rubble pouring, according to the traffic rules.

Very Hard Rock Excavation

If very hard rock is encountered during excavation, no additional payment shall be done to the Contractor with this respect. In rock excavations appropriate machines shall be used but explosives are not permitted.

Protection of Existing Service Lines and Structures

Contractor is responsible for protection of existing service lines and structures against damaging. In case of any damage occurrence its rehabilitation and repair are also under Contractor's guarantee.

Levelling

The areas outside the building shall be levelled according to project parameters and drainage shall be maintained. Finally, after the last control the area shall be kept clean.

The stored vegetable soil shall be placed into the ventilated, cleaned, and levelled layers.

All levelling costs belong to the Contractor without any additional payment.

Transportation of Earthworks

No additional or direct payment for transportation shall be made for any part of the work.

4.1.2. Concrete works

Concrete Works as specified hereunder shall include the supply of materials, mixing of concrete, formwork, reinforcement, placing, compaction and curing of concrete and site clearance after completion of works. In general, TS 1247 or DIN 1045 shall be respected when mixing, placing, and curing concrete.

Work items related to concrete works shall fully include the value of works described, shall cover the cost of all labour, subsidence, traveling, materials, admixtures, temporary works, yards and stockpiles, sampling and testing and any other expenses whatsoever together with all risks, liabilities and obligations set forth or implied in the Contract Documents.

4.1.2.1. Record of Concreting

The Contractor shall keep accurate and up to date records of concreting showing for each day when sections of the works were concreted:

- Date, time, weather, and temperature.
- Results of all concrete tests including identification for which part of works the sampled material is representative.
- Number of batches produced, weight and kind of cement used, volume of concrete placed, number of batches wasted or rejected.
- Class of concrete, volume of concrete placed, and number of batches used for each location.

The laboratory where concrete test must be carried out shall be approved by the Engineer and be accessible for him at any time.

4.1.2.2. Organization of Concrete Production at the Site

Concrete production at the site is **NOT allowed**, except for cement mortars. All the concrete used for the works shall be supplied as ready-mix concrete from certified plants as specified in this technical specification and in special technical specification for concrete works.

4.1.2.3. Materials and Testing

Type of Cement

The type of cement used in each of the various works shall be standard brand Portland cement from a single approved source conforming to the requirements of TS 19 Type I or II or approved equal, or Portland cement class PZ 25-NW or class PZ 35-L in accordance to DIN 1164.

Tests of Cement

The Contractor shall submit to the Engineer, test certificates showing conformance with TS 3114, relating to each consignment of cement. Each certificate shall show that a sample of the consignment has been tested by the manufacturer or by an approved laboratory.

When required by the Engineer, the Contractor shall supply samples of cement taken on delivery to site, or during storage on the site, for testing at a nominated laboratory free of charge. No cement from any consignment shall be used without the approval of the Engineer and the Contractor shall maintain a record of the locations of the concrete made from each consignment which record shall be available for inspection by the Engineer.

If for any reason the Contractor shall decide to vary the source of supply, country, or manufacture in respect of any type of cement already approved by the Engineer at any time during the Contract, then he shall give adequate notice of every such variation to the Engineer. The Contractor shall carry out all the tests called for by the Engineer's written approval of such variation before ordering any material from the new source or supplier.

If cement has been stored on the site for more than 40 days or in the opinion of the Engineer is of doubtful quality, new tests may be required, at the Contractor's expense, to check whether the cement is still conforming to the requirements.

Delivery and Storage of Cement:

Cement shall be delivered in quantities sufficient to ensure the proper progress of the Works and the quantities held in stock on site shall be to the approval of the Engineer. Such approval shall not in any way relieve the Contractor of his responsibilities for providing cement. Cement from abroad, shall be packed in sealed plastic bags and placed inside paper bags.

Cement when being conveyed to the site in lorries or other vehicles, shall be adequately protected from the weather and from contamination by dust, sand, or any organic materials. Any cement, which shall prove to have been exposed to damage by water, shall be rejected upon delivery. It is not permitted to store bags to a greater height than 2 meters.

After they have been approved by the Engineer, consignments shall be used in the order in which they were delivered.

Rejection of Cement

Notwithstanding the receipt of the test certificate and the approval of the Engineer, the Engineer may reject any cement as a result of further tests. The Engineer may also reject cement, which has deteriorated as a result of inadequate protection or other causes or in any other case where the cement is not to his satisfaction. The Contractor shall remove all rejected cement from the site without delay at his own expense.

Quality of Water

The water used for all purposes throughout the Works shall be potable, clean, fresh and free from objectionable quantities of silt, organic matters, alkali, salt or other impurities, and shall comply with the requirements of TS 1247 or DIN 1045 and DIN 4030.

The water used for mixing mortar, and for curing the concrete, shall be from an approved source and shall contain no deleterious matter which significantly affects the reinforcement, setting time, strength, or durability

of the concrete or which has any effect on the appearance of the hardened concrete by discoloration or efflorescence.

The Contractor shall deliver to the Engineer, free of charge, samples of the water proposed for use on the Works for the Engineer to carry out such tests he may require to confirm its suitability. Samples shall be delivered sufficiently in advance of the work for completion of the tests before the water is required for use and at such other times during the course of the Contract as the Engineer may direct. If required by the Engineer, the Contractor shall at no extra cost, treat the water taken from any other source to such a degree as may be necessary in order to render it suitable for mixing concrete and mortar.

Delivery of Samples

Samples of cement, water and fine and coarse aggregates called for in the foregoing Sections shall be delivered to the Engineer for testing by the Contractor before concreting. Specimen tests shall be completed before work is due to start.

Ready Mixed Concrete

Concrete obtained from a supplier of ready-mixed concrete shall be used in the Works after obtaining written approval of the Engineer. Such approval shall not be given until the Engineer is satisfied that the organization and control of the manufacture and delivery of all ready-mixed concrete is satisfactory. Ready mixed concrete shall comply with TS 206-1 and requirements given in special technical specifications for concrete works.

The Contractor must have taken the necessary steps, well ahead of the time of casting concrete to prove to the Engineer that the ready mixed concrete complies with these specifications, and capable of producing for each class of concrete the minimum specified strengths, by taking samples and testing. Such permission shall only be given for as long as the Engineer is satisfied that the concrete complies with the specification and the recommendations of TS 500.

The Engineer shall require a slump test, to be in conformity with TS EN 12350-2, and may require test cylinders from each truck load prior to the concrete being placed. Each load shall be accompanied by a delivery note stamped with the time of mixing and stating the consignee and quantities of each material including water and additives and class of concrete.

Concrete Mix Design

No concrete shall be placed in the Works until the relevant mix has been approved by the Engineer. Approval shall not be given to any concrete mix until it has been successfully subjected to Preliminary Mix Tests.

The Contractor shall carry out Preliminary Mix Tests as specified hereinafter in order to determine for each class of concrete the minimum practicable water/cement ratio and the required mix proportions of the fine and coarse aggregate the necessary allowance being made for the moisture content of the aggregate. After the value of the water/cement ratio and the mix proportions have been approved by the Engineer, Trial Mixes shall be carried out by the Contractor as specified hereinafter. The water/cement ratio and mix proportions which have been approved as a result of the Preliminary Mix Tests shall be used throughout the course of the Works. The Contractor shall ensure that specimen crushing strengths satisfies the compliance requirements specified hereinafter. Further tests shall be carried out if any feature of materials or mixes is changed during the course of the work.

Preliminary Mix Tests

The proportions of cement aggregate and water determined by the Contractor in his mix designs shall be used in preliminary mixes of concrete made in the presence of the Engineer and tested for strength, workability and surface finish under laboratory conditions observing the appropriate requirements of the heading herein entitled

“Concrete Testing” and to satisfy the Engineer on these qualities. Preliminary mixes shall be repeated with adjusted proportions as necessary until concrete mixes meeting the relevant requirements.

Trial Mixes of Concrete

Trial mixes of concrete shall be prepared and tested at the site by the Contractor with the presence of the Engineer after Preliminary Mix Tests have been completed and when the Engineer has approved the Contractor’s mix design for required class of concrete. Trial mixes of concrete shall be mixed for the same time and handled by means of the same type of plant as the Contractor proposes to use in the Works. Sampling and testing of trial mixes shall be in accordance with the relevant sections of the Section herein entitled “Concrete Testing”.

One separate batch of concrete shall be made for required class of concrete. Each batch shall comprise not less than 0.5 m³ of concrete, unless otherwise approved by the Engineer. Three specimens shall be made from each batch of concrete. The average strength of the specimens made for required class of concrete and tested after 28 days shall exceed the specified characteristic strength.

When a proposed mix has been approved, no variation shall be made in the mix proportions, or in the type, size, grading zone or source of any of the constituents without the consent of the Engineer, who may require further trial mixes to be made.

Where the Contractor intends to purchase factory-made pre-cast concrete units, trial mixes may be dispensed with, provided that evidence is given to satisfy the Engineer that the factory regularly produces concrete which complies with the Technical Specifications. The evidence shall include details of mix proportions, water /cement ratio, workability and strength obtained at 28 days.

Concrete Testing:

For the concrete all common site tests have to be carried out especially slump tests of the concrete must be taken. If the specimens fail to attain the required compressive strength as specified the concrete which they represent shall be cut out, removed, and replaced with concrete complying with the Technical Specifications to the satisfaction of the Engineer.

All specimens shall be marked at the time of casting, with the date, Class of concrete and other necessary markings to identify the part of the Works, from which they are taken. Specimens shall be made and cured in conformance with TS 3068 ISO 2736-2 and tested in conformance with TS 3114 ISO 4012.

The Contractor shall provide for test purposes one set of test specimens taken under the supervision of the Engineer. Each set shall consist of three test specimens and shall be made from a separate batch if applicable. Test specimens shall be evaluated by the Engineer for meeting strength level requirements for each class of concrete indicated and specified in conformance with TS 500. The standard age of test shall be 28 days, but 7 day test may be used with the permission of the Engineer provided that the relation between 7 day and 28 day strengths of the concrete is established by tests for the materials and proportions used.

Mix not Approved

Approval of a mix may be withheld or withdrawn under the following circumstances:

- The grading of the aggregate changes such that the fraction of aggregate retained on any sieve differs from the corresponding fraction of aggregate in the approved mix by more than 2% of the total quantity of fine and coarse aggregates.
- The source of supply of aggregate or cement is changed.

In the event that approval of a mix for any class of concrete is withdrawn for any reason the Contractor shall carry out such further trials and tests in order to achieve a satisfactory mix for that particular class of concrete.

Water Content

A check on the moisture content of the aggregate shall be made before concreting is commenced. For the propose of assessing the amount of free water to be added at the mixer, the Contractor shall provide himself with a chart, a copy of which shall be given to the Engineer for approval, relating moisture content in the aggregate to water to be added at the mixer for all Classes of concrete in use.

The amount of water introduced into the mix shall be strictly controlled and shall be the minimum amount consistent with complete compaction. The device for measuring water shall show accurately the quantity and be so designed that the water supply shall be automatically cut off while water is being discharged into the mix.

Transporting Concrete

Concrete shall be handled from the place of mixing to the place of final deposit as rapidly as practicable by means, which shall prevent the segregation or loss of any ingredient. Wherever practicable concrete shall be emptied from a mixer directly into a skip which shall then be transported to the place of final deposit and the concrete shall be discharged as close as possible to its final position to avoid re-handling or flowing.

Should the Contractor propose to use concrete pumps for the transporting and placing of concrete he shall submit full details of the equipment and operating techniques he proposes to use for the approval of the Engineer.

Where concrete is conveyed by chuting or pumping the plant used shall be designed to ensure continuous and unimpeded flow in the chute or pipe. The delivery end of the chute or pump shall be thoroughly flushed with water before and after each working period and shall be kept clean. Water used for this purpose shall be discharged away from any permanent works.

4.1.2.4. Placing and Compaction of Concrete**Preparatory Work**

The Engineer's approval in writing shall always be obtained before any concrete is placed in the Works. All constructional plant and materials required, or which may be required during the concreting work and for curing shall be on site and the Contractor shall be fully prepared for the work. The Engineer's approval to place concrete shall only be given after such preparations and other relevant requirements of the Technical Specifications have been carried out and complied with.

If necessary and/or directed by the Engineer, the Contractor shall cool any formwork that has become overheated or exceptionally dry through prolonged exposure to the sun. The Contractor shall ensure that all formwork retains a sufficient amount of humidity and has not become shrunk or warped. All soaking or spraying of formwork shall be done with potable water.

When concreting in hot weather the requirements set out under the heading "Concreting in Hot Weather" shall be complied with. The Engineer may completely forbid the placing of concrete in any formwork, which he believes has become too substance that may be harmful to fresh concrete.

Depositing in Work:

The methods of conveying and depositing concrete shall be such as to prevent segregation of the materials and shall be approved by the Engineer before concreting begins. The placing and compaction of concrete shall be carried out under the direct supervision of a competent member of the Contractor's staff.

Concrete shall be placed directly in the Works as soon as possible without the need for re-handling and not more than 45 minutes after mixing and in any case, before the initial setting has taken place. If any delay has occurred after mixing and the concrete has begun to set, it shall not be used in the Works and shall be removed from the

site. Unless otherwise agreed by the Engineer on the basis of satisfactory site trials concrete shall not be dropped into place from a height exceeding 1,5 meters.

Concreting of any section or unit shall be carried out in one continuous operation up to the construction joints. No interruption of the concreting shall be allowed without the approval of the Engineer. Where deposition of concrete has to be interrupted, precautions shall be taken to ensure satisfactory adhesion of later batches of concrete to that previously placed.

Where delays of more than one hour has occurred between concreting operations in one section or unit of work, concreting shall only be resumed when, in the opinion of the Engineer, the previously placed concrete has had ample time to harden and the resulting joint shall be treated as a Construction Joint. At all times when concrete is being placed, a competent steel fixer shall be in continuous attendance to adjust and correct the position of any reinforcement, which may become displaced.

Transportation of concrete directly over fixed reinforcement steel during concreting shall not be allowed unless proper provisions are made to avoid displacing or damage to the reinforcement.

Depositing in Layers

Concrete shall be deposited in approved quantities and horizontal layers of such depth as to permit thorough incorporation with the layers below by vibration, spading, ramming, and working. If, for unforeseen reasons, it is necessary to stop concreting before completion of a section, then construction joints as specified shall be formed and further concreting shall be suspended for at least 24 hours.

Concrete Placed in Water

Concrete shall NOT be placed under water without the written approval of the Engineer. The Contractor shall submit his detailed proposals of the plant and method for underwater concreting.

Concreting in Hot Weather:

The Contractor's attention is drawn to TS 1248 or ACI 305 entitled "Hot Weather Concreting". The Contractor's methods shall comply with the recommendations in that document as modified and supplemented below.

The Contractor shall take great care during hot weather to prevent the cracking or crazing of concrete. The Contractor shall arrange for concrete to be placed in the early morning or late evening as directed by the Engineer.

The Contractor shall pay particular attention to the requirements specified herein for curing. Formwork shall be shaded from direct exposure to the sun both prior to placing of the concrete and during its settings. The Contractor shall take appropriate measures to ensure that reinforcement in the section to be concreted is maintained at the lowest temperature practicable.

Concrete at placing shall have a temperature of not more than 32°C. If necessary, the Contractor shall cool the aggregates and mixing water by methods approved by the Engineer.

Where necessary the Contractor shall design, install, and operate a cooling system by which cooling water is pumped through a piping system in order to decrease the heat of hydration during concreting. The proposal for such a cooling system shall be submitted to the Engineer for his approval well in advance of the concreting operations.

The temperatures of ambient air, concrete at various levels and intervals not exceeding 5 meters and cooling water where applicable shall be measured by means of thermocouples and recorded.

Concreting in Cold Weather:

Cold weather is defined as the situation existing at the Works, where either or both of the following conditions existing:

- The air temperature at the time considered is below 2°C;
- The mean daily air temperature over three or more successive days has dropped below 5°C.

Under no circumstances may concrete be placed in contact with frozen ground or formwork, or in contact with ice, snow, or frost on the ground or on formwork or reinforcement. Concrete shall not be made with frozen materials.

Concreting may proceed in cold weather provided special precautions are taken to ensure that the surface temperature of the concrete at the time of placing is not less than 5°C for a succeeding period of at least:

4 days when the cement used in the concrete is ordinary Portland cement;

2 days when the cement used in the concrete is rapid hardening Portland cement.

Such precautions may include the following:

- Warming the aggregates and heating the water, provided that the temperature of either does not exceed 60°C. Water and aggregates shall be mixed for a period sufficiently long for them to acquire a uniform temperature before cement is added.
- Completely surrounding the freshly placed concrete with a cover and heating the enclosed air, which shall be kept moist. Draughts of hot or dry air shall not be directed at surfaces.
- Insulating the formwork and finished concrete surfaces.
- Providing screens to protect the concrete from air currents.

The Contractor shall provide the Engineer with details of the precautions he proposes to take to protect the concrete from the effects of low temperatures and with details of the methods he proposes to use assess the correct timing at which such protection may be removed. No concreting shall be done in cold weather prior to the approval the Engineer for the proposed measures.

Concreting in Unfavourable Weather:

Concreting shall not be permitted during heavy rain or snowfall, or when the air temperature falls below 2°C, or when the concrete temperature rises above 32°C. When the air temperature exceeds 25°C, concreting shall only be permitted after special precautions, approved by the Engineer, have been taken to prevent early setting of the concrete, such as lowering the temperature of the water to be used in the mix or by means of a cooling-system, keeping the aggregates and formworks continuously sprayed with water and erection of temporary sun shades over the working area. During concreting operations, the temperature of the placed concrete shall be recorded.

Compaction of Concrete

The Contractor shall regard the compacting of the concrete to be of fundamental importance for the objects which he shall produce. A watertight concrete of maximum density and strength must be obtained.

Concrete shall be thoroughly compacted during the operation of placing and shall be thoroughly worked around the reinforcement and embedded fixtures and into corners of the formwork and moulds.

Mechanical vibrators shall be of the immersion type with a frequency of not less than 8000 vibrations per minute and as approved by the Engineer. A sufficient number of vibrators shall be used to handle the maximum rate of

concrete production with a 50% allowance for stand-by units during any period of concreting. All operators handling vibrators shall be trained in their operation.

Vibrators shall be inserted into the not compacted concrete vertically and at regular intervals. Where the not compacted concrete is in a layer above freshly compacted concrete the vibrator shall be allowed to penetrate vertically for about 100 mm into the previous layer. Vibrators shall be withdrawn slowly from the mass of concrete so as to leave no voids. Internal type vibrators shall not be placed in the concrete in a random or haphazard manner nor shall concrete be moved from one part of the work to another by means of the vibrators. Vibration shall not be applied directly or through the reinforcement to sections or layers of concrete which have hardened to the degree that the concrete flow in the formwork over distances so great as to cause segregation.

Every care shall be taken to see that reinforcement and fittings attached to the formwork are not disturbed, and that no damage is caused to concrete that has already set or to the internal face of the formwork by using immersion type vibrators. In areas of congested reinforcement, it may be necessary to use small diameter pokers and the Contractor shall supply suitable sizes of pokers for each part of the work. Vibration of concrete by hammering the formwork with hand tools is NOT permitted.

The duration of vibration shall be limited to that required to produce satisfactory compaction without causing segregation. Vibration shall not be continued after water or excess grout has appeared on the surface.

Concrete shall not be disturbed after compaction and placing in its final position. Concrete that has partially set before final placing shall not be used and shall be removed from the site.

Placing Concrete on Previously Executed Work:

Where concrete is to be poured against or on top of previously executed work, the surface of the old concrete shall be thoroughly wire brushed, hacked, and cleaned with water and air under pressure to expose the surface of the aggregate and to remove all laitance. Special care shall be taken to ensure that the new concrete is thoroughly compacted and rammed against the old.

Protection and Curing of Concrete:

Water used for curing shall comply with TS 1247 and TS 1248. Concrete shall be protected from damage by climatic conditions (direct sunlight, rain, snow or frost), running water or mechanical damage during curing. All methods to be used for curing and protection of freshly placed concrete shall be subject to the prior approval of the Engineer.

The maximum and minimum ambient temperatures and humidity shall be measured and recorded each day by the Contractor. The records shall be made available for the Engineer's inspection.

All exposed surfaces shall, as finishing proceed, be covered with a wet hessian sheet followed by a reflective polythene sheet. These shall be securely fastened around the edges and supported in order not to damage the finished concrete surface. As soon as practicable the hessian and polythene shall be lowered into close contact with the concrete and securely weighted or fastened down to prevent wind blowing underneath. The hessian sheet shall be maintained in a moist condition at all times and shall be inspected at intervals not exceeding 6 hours. Concrete shall be kept moist on exposed surfaces for a period of not less than 72 hours or as approved by the Engineer.

Alternative methods of protecting and curing concrete, such as ponding in which the water is to be maintained at least 50mm deep, may be approved by the Engineer. In any case liquid curing membranes shall not be used on exposed surfaces or where laitance is to be removed and aggregate exposed to provide satisfactory bond for placing further concrete or mortar screeds. Liquid curing membranes shall not be used where mortar, resin mortar, or joint sealant is to be applied.

Sufficient methods to afford full protection to a concrete pour shall be available at the place of work prior to the commencement of concreting.

During very hot weather conditions, the Contractor may be required to cool formwork containing concrete by spraying with water. This shall be carried out where directed notwithstanding and whatever other measures the Contractor may have employed for the curing of the concrete. All materials spray equipment and an ample supply of water for curing shall be ready on site before any concreting starts.

Faulty Work

Any portion of the work which is honeycombed or otherwise inferior shall on the written instruction of the Engineer, be immediately cut out and reconstructed in an approved manner without extra charge. Plastering of defective work shall NOT be permitted.

Loading of Concrete Structures:

No external load of any kind shall be applied to any part of a concrete structure until the concrete has matured for at least 7 days and then only with the approval of the Engineer and after confirmation those 7 days specimen strengths as agreed by the Engineer have been met.

4.1.3. Formwork and Concrete Finishes

General

Formwork shall include all temporary moulds for forming the concrete together with all temporary constructions required to support such moulds.

Drawings and Calculations

The Contractor shall submit Drawings showing details of the formwork he intends to use for the approval of the Engineer. The Drawings shall show the materials proposed and indicate details of construction such as size of members, spacing and position of walling, girders, struts, bolts, and wedges. Formwork shall not be constructed until the Drawings and calculations, (if applicable) have been approved by the Engineer. But such approval shall not relieve the Contractor of his responsibility for the adequacy and performance of the formwork. Any changes or modifications to the formwork required by any the Engineer shall be carried out at no extra cost.

Formwork shall be of suitable design and adequate construction to carry the loads without excessive bulging, distortion, or deflection. Formwork shall be constructed so as to prevent loss of water or grout from the concrete. Special attention shall be measured to formwork where poker or formwork vibrators are used to compact the concrete.

Materials for Formwork

Formwork shall be made from good quality timber, free from loose knots, shakes and warped surfaces. Timber for formwork shall not be less than 30 mm in thickness, and the board faces in contact with concrete and the board edges shall be planed smooth. Formworks used to have fair faced concrete shall be appropriate for this purpose.

Alternatively, with the approval of the Engineer, formwork may be made from with no additional cost:

- plywood or hardboard 5 mm in thickness supported by close boarded timber
- plywood not less than 17.5 mm in thickness. The plywood or hardboard shall be resistant to deterioration by water and shall be fixed and jointed in such a manner as to give a perfectly smooth and even finish to the concrete.

Fixing of Formwork

Formwork shall be fixed to perfect line and level and be truly plane with no crevices at joints, and shall be securely braced, supported, and wedged so as to retain its position without displacement or deflection during the placing and compaction of the concrete. All joints shall be either horizontal or vertical.

Coating to Prevent Adhesion

All formwork in contact with concrete shall be treated with an approved mould oil or solution before usage to prevent the adhesion of the concrete. Such oil or solution shall be carefully applied in such a manner that there is no contamination of the reinforcement or previously placed concrete by the oil or solution. Any materials which shall adhere to or discolour the concrete shall not be used.

Access Holes

Adequate access holes shall be left for the purpose of cleaning the formworks and for placing and compaction of the concrete.

Cleaning and Re-Using of Formwork

Before any concrete is placed, the formworks shall be properly cleaned and washed out with water and air under pressure to remove sawdust, shavings, and all other foreign matter. All water shall then be drained and mopped out from the formwork.

In no case shall concrete be placed in formwork before the formwork has been approved by the Engineer. If formworks or moulds are to be re-used, all surfaces shall be cleaned and shall be completely free from remnants of concrete or mortar. If in the opinion of the Engineer, formworks or moulds are not acceptable for reuse, they shall be either properly repaired or substituted with new formworks or moulds that comply with this specification.

Removal of Formworks

Formwork shall be designed as to permit easy removal without resorting hammering or levering against the surface.

The period of time elapsing between the placing of the concrete and the striking of the formwork shall be as approved by the Engineer and shall be in any case not less than the period stated in TS 500 or DIN 1045. If not otherwise directed, the striking times for side formwork for slabs shall be 3 days.

At all times the Contractor shall delay the removal of the formwork if in the opinion of the Engineer the concrete contained therein has not attained sufficient hardness.

In cases of average temperatures being below 4°C, the period of removal shall be extended by the number of days the temperature has been lower than 4°C. The periods given in days are days of 24 hours duration.

Finish to Concrete Surfaces

All surfaces shall be free from cracks, sand runs, honeycombing, porosity and grout/matrix loss.

Dimension and Surfaces of In-Site Concrete

Workmanship in formwork and concreting shall be such that concrete shall normally require no making good, surfaces being perfectly compacted, smooth and with no irregularities. Concrete surfaces for the various finishes shall in any event never exceed the maximum permitted tolerances stated below:

- Line and level: ± 12 mm
- Dimension: ± 12

Remedial Treatment of Concrete Surfaces

Any remedial treatment to concrete surfaces shall be agreed with the Engineer following inspection immediately after the stripping of formwork and shall be carried out without delay.

Any concrete surface which is found to have been treated before inspection by the Engineer shall be rejected.

Any minor surface blemishes shall be repaired to the satisfaction of the Engineer immediately after completion of curing. Remedial measures may include, but shall not be limited to, the following:

- Holes left for formwork supports shall be thoroughly cleaned out to remove all loose material and the sides shall be roughened, if necessary, to ensure a satisfactory bond. They shall then be filled with dry-pack mortar.
- Fins, pinhole bubbles, surface discoloration and minor defects may be rubbed down with sacking and cement immediately the formwork is removed.
- Abrupt and gradual irregularities may be rubbed down with carborundum and water after the concrete has been fully cured, where curing shall be applied in accordance with principles stipulated in the "Protection and Curing of Concrete" section
- Small defects and minor honeycombing shall be chipped out perpendicular to the face of the concrete to a depth of at least 25 mm and filled with dry-pack mortar.
- Fissures shall be repaired by using epoxy based materials or by using materials approved by the Engineer.

All other defects shall be regarded as too extensive to permit satisfactory repair and the concrete containing the defect shall be broken out and replaced.

4.1.4. Steel Reinforcement

4.1.4.1. Types, Quality and Storage

Steel reinforcement for concrete shall consist of steel bars or steel wire fabric. Steel bars shall consist of deformed bars of type ST III (S420a (with a characteristic tensile strength of 420 MPa)) as specified in TS 500 and TS 706 EN 12620 or DIN 488 T1 and DIN 488 T2. Steel wire fabric reinforcement shall be in accordance with TS 4559 or DIN 488 T4.

The Contractor shall submit reinforcement detail Drawings and calculations to the Engineer for his approval.

The Contractor shall prepare test specimens of steel reinforcement to be used in the Works. Test specimens shall be taken in the presence of the Engineer and shall be of a size sufficient to carry out the tests as described below. They shall be tested in an approved laboratory and the certified copies of the results of the tests shall be submitted to the Engineer. The specimens shall be tested for bending and tensile properties and the wire fabric also for weld shear strength. The methods and requirements for testing shall be carried out in accordance with TS 4559 and TS 802 or DIN 488 T3, 488 T5 and 488 T6. No steel reinforcement shall be used in the Works until the testing results have been approved by the Engineer. If ordered by the Engineer, test procedures shall be repeated at the Contractor's expense for any new supply of reinforcement during the course of the Works.

Storage of reinforcement shall be on racks or supports clear of the ground. Different types and sizes of reinforcement shall be kept separate.

4.1.4.2. Bending and Cutting Schedules

The Contractor shall prepare for his own use bar bending schedules and bar lists, cutting schedules and sheet lists for wire fabrics for each individual structure from the information given in the approved working Drawings, and shall be responsible for ensuring that correct information is given when ordering reinforcement. Copies of

these schedules lists, and orders shall be submitted to the Engineer for his approval. Steel bar supports shall be included in the bending schedules.

The approval of the bar bending and cutting schedules, list, and orders shall not relieve the Contractor of his responsibility to execute the reinforcement fixing in accordance with the Drawings and/or according to the requirements specified in TS 500 and DIN 1045.

4.1.4.3. Protection and Cleaning

Reinforcement shall be protected at all times from damage, and when placed in the structure shall be free from dirt, loose mill scale, rust scale, paint, oil, or other foreign substance. All reinforcing steel shall be carefully cleaned of all set or partially set concrete, formwork oil or paint which may have been deposited during the construction of adjacent works.

4.1.4.4. Bending of Bars

Steel reinforcement shall be cut from straight bars free from kinks and bends or other damage and shall be bent cold by experienced competent workmen. Bars of diameter greater than 12 mm shall be bent in a bending machine designed for the purpose and approved by the Engineer. Any reinforcing bar that has already been bent shall not be re-bent at the place of the previous bend.

4.1.4.5. Cutting of Wire Fabrics

Wire fabric reinforcement shall be cut straight from the sheets. The use of off-cuts shall not be permitted.

4.1.4.6. Lapping of Bars and Wire Fabrics

Lapping bars and wire fabrics is permitted when necessary and approved by the Engineer. No welding of reinforcement shall be carried out unless authorized by the Engineer, welding and testing for reinforcement shall comply with the requirements specified in TS 500 or DIN 4099 T1.

Unless otherwise specified, lap length of bars shall be at least forty (40) times the diameter of the larger bar, and laps shall be positioned in a staggered pattern.

Laps on adjacent section of wire fabrics shall generally be carried out as follows:

- End to end by lapping the two pcs one full mesh (measured from the ends of the longitudinal wires in the other piece) and securing the two pcs together with wire ties placed at intervals of about 450 mm.
- Side by side by placing the two selva wires (the longitudinal wires at the edges of the fabric) one alongside and lapping the other, and by securing the two pcs together with wire ties placed at intervals of about 900 mm.

Contractor shall also comply with the requirements given in special technical specification for wire meshes (wire fabric).

4.1.4.7. Fixing of Reinforcement

All reinforcement steel shall be accurately placed and fixed in position and retained in that position during the placing of the concrete.

Spacer blocks for holding the reinforcement from contact with the forms or adjacent reinforcement, shall be of dense pre-cast concrete blocks of approved shapes and dimensions. The blocks shall be fitted with a semi-circular hollowing and double bent poured-in binding wires. The water tightness of these blocks must be at least similar to the concrete into which they are concreted. The use of pebbles, pcs of broken stone or brick or other materials shall not be permitted. Steel shall be bound and tied in its correct position using steel wire. Apart from any other requirement, the reinforcement, the reinforcing steel shall be fixed in such a manner that it shall support its own

weight and any loads which may be imposed upon it during construction without displacement, deflection, or movement of any kind.

In slabs provided with two or more layers of reinforcement the parallel layers of steel bars or wire meshes shall be supported in position by the use of steel chairs. Spacer blocks shall be placed at each chair to support the layers of reinforcement from the blinding concrete or formwork.

The distance between any two parallel bars except at laps shall not be less than 5 mm greater than the nominal aggregate size.

All reinforcement exposed to the weather for long periods before concreting is commenced shall be covered with polythene blinding tape, cement grout or other materials to the surrounding concrete. Should in spite of these precautions rust staining occurs on any permanently visible surfaces, it shall be removed at once to the satisfaction of the Engineer.

4.1.4.8.Thickness of Cover

The thickness of cover for the reinforced concrete ground slab and columns shall be 50 mm. For the beams shall be 30mm. For the shell and floor shall be 25mm. For external works, reinforced concrete covers shall be 60 mm.

4.1.4.9.Tolerances

Tolerances in placing reinforcement shall be +/- 10 mm.

4.1.5. Structural Steelwork

4.1.5.1.General

Basis of Design

(If required) The structural steelwork shall be designed according to TS 648 and relevant local codes.

The following design parameters shall be used:

7.5 KN/m² Plant room - Live load

5.0 KN/m² Offices - Live load

1.0 KN/m² Service Load - Factory Areas

0.5 KN/m² Service Load - Utility Areas

0.5 KN/m² Ceiling and Service Load - Office Area

0.25 KN/m² Service Load - Leaf Stores

Seismic to TDY 2007 requirements.

Wind loading TS 498.

Design Constraints:

Unless required or permitted otherwise, following shall be complied with when completing the design and detailing of the work:

End craters shall be excluded when calculating lengths of welds.

Bolts shall be not less than 20 mm diameter for purlin elements.

Not less than two bolts shall be used in any connection.

Minimum weld according to design results and TS 648.

Drawings:

Contractor shall prepare all shop drawings prior to manufacturing and shall submit for Engineer's approval.

Proposals for Erection:

At least 14 days before starting erection of steelwork, following details shall be submitted:

- Method and sequence of erection.
- Temporary guys and bracing proposed for use during erection.
- Working areas for cranes (if required), and storage.
- Any special hardstanding requirement.

4.1.5.2.Fabrication

Materials and Workmanship:

Shall comply with BS 5950 unless specified otherwise.

Shall be in accordance with The National Structural Steelwork Specification for Building Construction latest edition (NSSS).

Accuracy of fabrication shall be controlled to ensure compliance with levels of accuracy specified for the erected structure.

Engineer shall be informed when fabrication is due to start. Steelwork for which the drawings have not been checked by Engineer shall not be fabricated.

Before fabricating, it shall be ensured that surface condition of steel which is to be coated complies with requirements specified for cleaning.

It shall be ensured that fabrication processes do not cause changes in properties of materials resulting in noncompliance with specified requirements.

Connections shall be of the same grade as the parent section.

Steelwork, Steel grade to: EN 10025, S235 S275 and S355

Storage and Handling:

Fabricated steelwork shall be stored clear of the ground and keep clean.

Storage and handling shall be done carefully to avoid damage to steelwork and any protective coatings.

Identification marks shall be visible when members are stacked.

Marking:

Details of proposed methods of identifying and recording materials and components shall be submitted to the Engineer to ensure correct use and location in the structure.

Marks shall be placed in positions which can be checked after erection.

Straightening and Flattening:

Hammering is not permissible. Heating to maximum 650 °C may be used applied after receiving Engineer's approval.

Accelerated cooling shall not be used without the approval of the Engineer.

Faying Surfaces for Hsfg Joints:

Faying surfaces in steel shall be checked, where 25 mm thick or more for deformities such as bowing, twist or rippling which may reduce slip factor below the design limit occurs, remedial measures shall be proposed for Engineer's approval.

Untreated surfaces which are in accordance with BS 4604 may be considered as having a slip factor of 0.45. Surfaces which have been machined or given any form of treatment shall have a slip factor determined by tests to BS 4604.

Compression Joints:

Abutting surfaces dependent on contact for transmission of load shall be milled, sawn or otherwise suitably prepared to ensure full and even distribution of load.

End Connections:

Angle cleats, if used, project beyond ends of simply supported members shall be ensured.

Hollow Sections:

Insides of sections shall be dry and clear of debris, before sealing ends and openings.

Base Plates:

25 mm diameter holes in all base plates more than 1 sqm in area shall be made to allow the escape of air when grouting after erection of columns.

Finishing:

Burrs and sharp edges shall be removed by grinding.

Welds shall be carefully dressed to remove slag by light hammering, wire brushing or other methods that do not deform the surface of the weld.

Shop Assembly:

Fit, profile and camber shall be checked before making connections in lattice girders and trusses which are to be assembled before delivery to site.

Shop Inspection:

7 working day notice shall be given to the Engineer before starting fabrication.

4.1.5.3. Welding**General**

Welding tests should cover the frame & truss welding, the columns & base plate welding and should be reported during the fabrication at the work shop.

Welding on Site

Welding on site shall not be permitted unless shown on drawings or otherwise approved. When permitted, ensure suitable, safe conditions shall be ensured by the Contractor. Welding when the ambient temperature is below 0°C or surfaces are wet is not permissible.

Additional Welds

Any welds (including tack welds) that are not shown on drawings shall not be placed, without approval, even for temporary attachment or repair of faulty plates.

Butt Welds

Run on and run off plates shall be used to ensure full throat thickness at ends of butt welds as follows:

Material for plates shall be of the same grade as material being welded.

Plates shall be prepared in same manner as parts being joined.

After completion of welding, plates shall be removed by cutting and grind smooth the surfaces where they were attached.

Plates shall be retained and identified for inspection.

4.1.5.4. Bolt Assemblies

General

All bolts shall be Grade to DIN ISO898 and relevant DIN 6914, DIN 7990, DIN 7968.

Bolt length shall be such that one thread plus the thread runout will be clear between the unit and the unthreaded shank of the bolt after tightening and at least one clear thread shall show above the nut. All bolts shall be grade 4.6, 5.6, 8.8 and 10.9 to BS 4190 with anchorage bolt unless noted otherwise.

Sherardized Finish to Bolts

All bolts shall be compliant to BS 4921, Class 1 applied by fastening manufacturer and passivated.

Spring Washers

Shall conform with BS 4464.

Using Drifts

Holes shall be aligned carefully to prevent distortion or enlargement when using drifts.

Report any misalignment of holes to shall be reported to the Engineer. If faulty member is not rejected, ream hole to correct position.

Tapered Washers

In addition to the requirements of BS 5950: Part 2, suitably tapered washers shall be used prevented from turning when tightening.

Load Indicating Washers:

Manufacturer and reference: By the Contractor for Engineer's approval.

When placed under bolt head, bolt turning shall be prevented when tightening.

When placed under nut, nibs shall be protected with a hardened washer and both washers shall be prevented from turning when tightening.

Sealed Hollow Sections:

Bolt holes shall be sealed to prevent access of moisture. If method of sealing is not specified, proposals shall be submitted for Engineer's approval.

4.1.5.5. Erection

Before Commencing Erection

Not less than 10 days before proposed start date, foundations and other structures to which steelwork will be attached shall be checked for accuracy of setting out, and holding down bolts for position, protruding length, condition, and slackness.

Any inaccuracies and defects shall be reported to Engineer without delay.

Permission of Engineer shall be obtained to commence erection.

Erecting Steelwork

Steel work shall be set out and erected to Section 8 of NSSS.

All temporary erection bracing necessary to ensure stability of the building during erection shall be provided. They shall be removed only when it is safe to do so, timing shall be agreed with the Engineer.

Steelwork shall not be distorted, and stress limits shall not be exceeded during erection unless otherwise approved.

Setting Out

Shall comply with the requirements of BS 5950: Part 2.

Modifications

Engineer shall be informed of any defects due to detailing or fabrication errors.

Approval of methods of rectification shall be obtained before starting modification or remedial work.

Bolt Boxes

Mild steel 100 mm diameter 20 S.W.G.

Column Bases

Level shall be corrected raising or lowering using sawn steel packs or folding wedges not larger than necessary for the purpose.

Position packs symmetrically around perimeter of base plate; a single central pack shall not be used.

Engineer shall be notified when the space beneath any column base is less than 15 mm or more than 80 mm.

Accuracy of erection shall be checked, and all errors shall be corrected before grouting/casting in bases and carrying out any other adjacent work.

Bolt pockets and space beneath column base plates shall be completely filled with grout as follows:

Non-shrink grout mixed and poured that shall be according to manufacturer's instructions.

Movement Joints

Sliding surfaces shall be coated with molybdenum disulphide grease before connecting.

Bolts shall be in the centre of slotted holes after erection of structure and that the joint is free to move.

4.1.5.6. Inspection / Testing of Steelwork

Inspection

The Engineer and/or an independent inspection agency appointed by him, shall be allowed inspect the work at all reasonable times and at all places where it is being carried out. All facilities, hand tools, lighting, etc. as necessary shall be provided to ensure adequate inspection.

Testing

Testing capacity of bolts (torque values), which are used during the erection of steel assemblies shall be recorded. The contractor should submit torque values regularly to the engineer. Torching tests should be completed according to the instructions directed by the Engineer.

Manufacturing Plant

The Workshops should be approved by the engineer before the manufacture starts.

Testing Authority

All tests shall be carried out by a NATLAS (National Testing Laboratory Accreditation Scheme) Accredited Laboratory or locally approved laboratory.

Products:

Two copies of the test certificates for steel shall be submitted to Engineer.

Defective Work:

As soon as possible after any part of the work or any materials are known or suspected to be defective, proposals for further testing, inspection or replacement shall be submitted and instructions shall be obtained.

4.1.5.7. Protective Coating Work**Operators**

Operators shall be appropriately skilled and experienced in the use of specified materials and methods of application.

Coating Materials

Wherever possible, shall be from one manufacturing batch. Where more than one batch are to be used, shall be kept separate, shall be allocated to distinct parts or areas of the work, and the Engineer shall be informed accordingly.

It shall be checked whether all coating materials to be used are recommended by their manufacturers for the particular surface and conditions of exposure, and that they are compatible with each other.

Coating materials shall be obtained from one only of the following manufacturers unless specified otherwise. Engineer shall be informed of the selected manufacturer at an early date.

Preparation Materials and Ancillaries

They shall be the types recommended by their manufacturers and the protective coating manufacturer for the surfaces being prepared.

Galvanizing

All cutting, welding, and drilling shall be completed beforehand. Provide all necessary vent and drain holes shall be provided in approved locations and shall be sealed to approval after galvanizing.

Inspection

Coating manufacturers shall be allowed to inspect the work in progress and take samples of their products if required. Any directions or requests given by the coating manufacturer's representative shall not be complied with unless and until confirmed by the Engineer.

Engineer shall be notified of projected dates for start of surface preparation and coating.

At least 7 days notice shall be given to the Engineer before coated members or components leave the works.

Handling and Storing Coated Steelwork:

Methods and equipment which will minimise chafing, chipping, and other damage to coated components shall be used.

An adequate drying/curing period shall be ensured for each coat before handling.

Suitable packings, lashings, lifting harnesses, nylon slings, rubber protected chains and chocks, etc. shall be used

Coated components shall be stacked clear of the ground, separated by timber chocks, and so that ponding does not occur.

Protection

Freshly applied surface coatings shall be adequately protected from damage.

'Wet paint' signs shall be exhibited, and protective barriers shall be provided where necessary.

Surfaces adjacent to those being covered shall be adequately protected.

Remedial Work

Early degradation of coatings by blistering, peeling, flaking, cracking, lack of adhesion, etc. shall be made good by complete removal, preparation, and reapplication of all coats, as instructed.

Inadequate dry film thickness or surface defects due to inclement weather may, depending on the type of paint, shall be remedied by rubbing down and applying further coat(s), as instructed.

Mechanical damage to coatings shall be made good by local cutting back of coatings, preparation, and reapplication of all coats to leave a neat, continuous, and flat finish.

Where damage to coatings or subsequent surface preparation has exposed bare metal, it shall be thoroughly cleaned and primed within two hours.

4.1.5.8. Protective Coating System(s)**Galvanizing**

According to plant facilities and functions for steel parts if galvanizing needed.

Use/location: Any externally exposed steelwork and all steel in contact with external brick wall.

Preparation: Blast cleaning to BS 4232, second quality (for roughness) using chilled iron grit grade G24, followed by acid pickling.

Galvanizing: TS EN ISO 1461 and relevant TSE end EN codes.

2 coats of RIW liquid asphaltic composition 200 microns.

Zinc Phosphate 2 Pack Epoxy Primer

Use/location: All Internal Steelwork.

Paint manufacturer: International Paint Coatings or similar approved.

Shop preparation: Blast clean to BS 7079: Part A1 preparation grade SA 2 1/2

Shop primer: Intergard 251 zinc phosphate epoxy primer or similar approved

Dry film thickness: 50 microns (before fabrication).

Shop intermediate coat: Intergard 475HS MIO 2-pack epoxy primer, or similar approved.

Dry film thickness: 125 microns.

Shop top coat: Interthane 870 acrylic polyurethane, or similar approved.

Dry film thickness: 75 microns.

External Steelwork

Use/location: All external steelwork

Paint manufacturer: International Protective Coatings, or similar approved.

Shop preparation: Blast clean to BS 7079: Part A1, preparation grade 21/2.

Shop primer: Intergard 251 zinc phosphate epoxy primer, or similar approved

Dry film thickness: 50 microns (before fabrication)

Shop intermediate coat: Intergard 475HS MIO 2-pack epoxy, or similar approved.

Dry film thickness: 200 microns

Shop top coat: Interthane 870 acrylic polyurethane, or similar approved.

Dry film thickness: 100 microns

4.1.5.9.Preparation for Painting

Offsite Preparation and Painting

Offsite preparation and painting shall be carried out under cover in properly lit, heated, and ventilated conditions.

Sequence of working shall be selected from one of the following and the Engineer shall be informed before starting work:

- Fabricate - blast clean - prime as specified
- Blast clean - fabricate - prime as specified (Immediately before priming remove flash rust with a light overall sweep blast), or
- Blast clean - prime with a weldable prefabrication primer recommended by the manufacturer of the specified primer - fabricate - prime as specified (Thickness of post-fabrication priming coat may be reduced as recommended by manufacturer).

Inaccessible Surfaces

The sequence of working shall be such as to ensure that surfaces inaccessible after assembly receive the full specified treatment and coating system including, if necessary, local shop application of site coatings.

Blast Cleaning for Painting

Steel shall comply with BS7079: Part A1 at time of blasting as follows:

- Dry blasting: Initial rust grade A or B.
- Wet blasting: Initial rust grade A, B or C.

Thoroughly degrease shall be made. Mill scale shall be removed by chipping, grinding and/or heat treatment.

Blast clean shall be to the specified BS 7079 preparation grades, and quality of preparation shall be controlled in accordance with BS 5493, Appendix F. Abrasives of suitable type and size, free from contamination by dust, water and oil shall be used.

All surface defects likely to be detrimental to the protective painting system, including the following shall be removed:

- Defects in the steel, including cracks, surface laminations, shelling and deep pitting as required by BS EN 10029, 10113 and 10210.
- Defects resulting from fabrication, including fins at cuts, burrs, sharp edges and weld spatter.

- Rogue peaks remaining after blasting. Where extensive grinding is necessary to remedy defects, re-blast the dressed areas.

All dust shall be thoroughly cleaned off in a clean area of the works using a vacuum head fitted with edge brushes.

Primer shall be applied as soon as practicable and within four hours of blasting.

Manual Cleaning of New Steelwork

Steel shall comply with BS 7079 Part A1 grade St 2.

Surfaces shall be chipped, scraped, disc sand and grinded to remove all fins, burrs, sharp edges, weld spatter, loose rust, and loose scale. All crevices shall be cleaned out.

Thoroughly degreasing shall be made using emulsion cleaners followed by thorough rinsing with water.

Primer shall be applied when surface is dry and on the same day as cleaning.

Preparation for Site Welding of Shop Painted Steelwork:

Weld areas shall be blast clean and mask before coating the surrounding areas. If more than one coat will be applied to surrounding areas, each coat shall be stepped 30 mm back from edge of preceding coat. Masking shall be removed immediately before welding.

Weld areas shall be alternatively prepared and shop paint as specified, then shall be grinded off to bare steel immediately before welding.

Treatment of Site Welded Joints in Painted Steelwork

After welding, and without delay, all scale and weld spatter shall be removed from the weld areas by grinding or chipping, abrading shall be made to remove all traces of rust, washing with clean water shall be made and shall be allowed to dry.

Priming shall be made without delay and further coatings to the weld areas shall be applied to match the surrounding painted areas.

Bolted Joints (Non-Friction Grip)

Where steelwork will be shop painted, full shop specification shall be applied to joint faces.

Where steelwork will be erected with a mill finish then site painted, joint faces shall be prepared and primed before erection and shall be allowed to dry. Immediately before assembling bolted joints in externally exposed steelwork, a further coat of primer shall be applied, and the surfaces shall be brought together while still wet.

Before applying site coatings to externally exposed steelwork, all crevices to bolts and joint perimeters with shall be sealed with a compatible mastic.

Faying Surfaces of Friction Grip Joints

Blast clean and mask shall be made before coating surrounding areas. The masking shall adequately protect the faying surface from deterioration and contamination.

If more than one coat will be applied to surrounding areas, each coat shall be stepped 30 mm back from edge of preceding coat.

Masking shall be removed immediately before bolting; faying surfaces shall be free from adhesive and shall be cleaned with solvent if necessary.

Friction Grip Joints in Shop Painted Steelwork

After final tightening of bolts, and without delay, bare steel at joint edges shall be thoroughly degreased and cleaned and primed as specified.

All crevices to bolts and joint perimeters shall be sealed with a compatible mastic.

Further coatings to surrounding areas shall be applied to match adjacent shop painted areas before applying specified site coatings.

Uncoated Fastenings

After erection, thoroughly degrease and clean and, without delay, coating(s) shall be applied to match surrounding shop painted areas before applying specified site coating(s).

Galvanized Fastenings

After erection, thoroughly degreasing and cleaning shall be made and a suitable etch primer shall be applied before applying specified site coating(s).

Site Preparation of Shop Painted Steelwork

All necessary remedial work shall be carried out as specified. All surfaces shall be prepared by abrading and/or washing down as recommended by manufacturer before applying coats.

Site Preparation of Galvanized Surfaces for Painting

Thoroughly degreasing shall be made. If metal coating is defective instructions from the Engineer shall be obtained before proceeding. Any white corrosion products shall be removed with a stiff brush. Shall be washed off and allowed to dry before applying specified etching wash or primer.

4.1.5.10.Painting**Suitability of Conditions**

Coatings shall not be applied:

- To the surfaces affected by moisture or frost.
- When ambient temperature is below 5°C or the relative humidity is more than 80%.
- When heat is likely to cause blistering or wrinkling.

All necessary precautions shall be taken including restrictions on working hours, providing temporary protection, and allowing extra drying time, to ensure that coatings are not adversely affected by climatic conditions before, during and after application.

Applying Coatings

Adjacent coats of the same material (including any stripe coats) shall be of a different tint to ensure that each coat provides complete coverage.

Coatings shall be applied to clean, dust free, suitably dry surfaces in dry atmospheric conditions and after any previous coats have hardened. Coatings shall be applied evenly to give a smooth finish of uniform thickness and colour, free from brush marks, nibs, sags, runs and other defects.

All surfaces shall be kept clean and free from dust during coating and drying. Completed work shall be adequately protected from damage.

Film Thickness

Wet film thickness of each coat shall be not less than that required to give the specified dry film thickness. Before starting work, test samples shall be prepared and measured to verify the relationship between wet and dry film thicknesses and the results shall be submitted to Engineer.

Thickness of each coat shall be checked during application using a wet film thickness wheel or comb in accordance with BS 3900: Part C5.

After each coat has dried the total accumulated dry film thickness shall be measured using a magnetic or electromagnetic meter, checked against standard shims, and recalibrated regularly as recommended by the manufacturer, the number and position of measurements shall be as directed by the Engineer. All measurements shall be carried out in the presence of the Engineer unless otherwise directed.

Over any square metre of coating the average accumulated dry film thickness shall be equal or exceed the specified thickness, with no reading less than 90% of the specified thickness.

If at any stage the accumulated dry film thickness is deficient, the Engineer may require application of additional coat(s) at no extra cost. The full top coat thickness shall be maintained, notwithstanding any greater than specified undercoat thickness.

Stripe Coats

An additional narrow stripe coat of the same nominal thickness as the relevant full coat to all external angles shall be brush applied. Stripe coats of primer or undercoat shall be applied after the general coat. Stripe coats of top coat shall be applied before the general coat.

Colour of Top Coat

Colour shall be selected by the Beneficiary and informed by the Engineer (unless already specified in drawings). Colour of preceding coat shall be as recommended by the paint manufacturer to suit the top coat colour.

Junctions with Concrete

Where exposed steelwork is partially embedded or encased in concrete, two coats of an approved rubber/bituminous coating shall be applied locally to the steel/concrete junction as instructed by the Engineer.

4.2. WORK ITEM DESCRIPTIONS FOR CIVIL AND ARCHITECTURAL WORKS

Please be informed that whenever Turkish version of the specifications is given, it is for reference purpose only. In case of an inconsistency between Turkish and English versions, English version shall prevail.

Item no	Item	Unit
DRW.01	Demolition and removal of existing concrete slab and wall	m ³
Description/ Specifications	<p>This item covers demolition, removal, (as necessary) disposal of existing concrete pavement slab (having an approximate thickness of 20cm) and the wall, by machinery including loading to vehicles, drainage of the excavation area in order to allow construction works, transport of excavated materials to the deposit site to be arranged by the Contractor in consultation with related local authorities, unloading and laying at the depot field, filling the remaining gaps after the construction, correction of the excavated floor and side walls, all kinds of material, labour, tools, and equipment.</p> <p><u>Measurement</u> Volume of the demolished slab and the wall shall be measured in m3 through drawings.</p>	

Related official pose/item number, book	KGM/18.183 Patlayıcı madde kullanmadan çimento harçlı kagir veya horasan inşaatın yıkılması. (General Directorate of Roads and Highways)	
Item no	Item	Unit
DRW.02	Removal of existing canopy	L.s.
Description/ Specifications	<p>This item covers removal and stacking of existing canopy made of steel posts, wire mesh and panel roofing, having an area of approximately 7x4m. Posts are fixed to the ground via bolts and other parts are welded. Although cutting of the elements are necessary for the removal, care must be taken to avoid unnecessary damage to the profiles. Contractor shall take all necessary health and safety measurements during removal of the canopy and shall stack all the elements within construction site at a location to be decided by the Engineer.</p> <p><u>Measurement</u> Removal and stacking of the canopy shall be measured as Lump Sum (L.s.), and no measurements with respect to the actual area or weight of the canopy shall be made for payment purposes.</p>	
Related official pose/item number, book	Special unit price	
Item no	Item	Unit
CAW.01	Excavation works	m ³
Description/ Specifications	<p>This item covers excavation of soft/hard soil, rock or any other type of material indicated in “soil investigation report” by machinery including loading to vehicles, drainage of the excavation area in order to allow construction works, transport of excavated materials to the deposit site to be arranged by the Contractor in consultation with related local authorities, unloading and laying at the depot field, filling the remaining gaps after the construction, correction of the excavated floor and side walls, all kinds of material, labour, tools, and equipment. Contractor to provide an excavation plan that includes as minimum the plans, sections, and stages of the excavation together with necessary precautions to be taken in terms of health and safety, for the approval of the Engineer prior to starting excavation works on site.</p> <p><u>Measurement</u> Volume of the excavation shall be measured through approved excavation plan and section drawings.</p>	
Related official pose/item number, book	15.120.1102 Makine ile her derinlik ve her genişlikte yumuşak ve sert küskülük kazılması (Derin kazı) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
CAW.02	Filling with light aggregate (sieved coal clinker)	m ³
Description/ Specifications	<p>This item covers provision of sieved coal clinker, laying the clinker in layers, levelling and watering of the layers, compaction of the layers through ramming in accordance with the project drawings and details including all kinds of workmanship, material, wastes, loading/unloading, horizontal/vertical transports on site.</p> <p><u>Measurement</u> Volume of the fill shall be measured through approved excavation/fill plan and section drawings.</p>	
Related official pose/item number, book	15.125.1011 Hafif agrega (elenmiş kömür curufu) ile dolgu yapılması (Ministry of Environment and Urbanization)	
Item no	Item	Unit
CAW.03	Ready-mixed concrete (C8/10)	m ³
Description/ Specifications	<p>Item covers provision and placing of Class 8/10 concrete including controlling the quality, loading to transmixers, transportation till the site, pumping to the pouring point with concrete pump, placing, compacting with vibrator, irrigating, protection from weather and other conditions, maintenance of the concrete produced in a complete concrete facility (minimum 60m³/h capacity, computer controlled with 4 compartment aggregate bin, compressor and control box, conveyor belt system with minimum 50 tons capacity cement silo, recycle unit, laboratory suitable for aggregate and concrete experiments, generator, enough quantity of transmixer with mobile concrete pump and at least one loader, additive tank, additive weight bunker, hygrometer and all similar crew and equipment) suitable to produce concrete, conforming with standards and project drawings, washed, sifted granulometric sand-gravel and/or ballast, cement, water and additives when needed, in C 8/10 concrete class standards or bought from a facility with the same qualities; taking samples in enough amounts and carrying out necessary compressive and tensile tests as appropriate. Item includes all workmanship, equipment and tools, material and wastes, concrete tests, all kind of loading/unloading, all transportations necessary for the provision of the concrete from the concrete plant and pouring the concrete as described here and in related Particular Technical Specifications.</p> <p>Contractor shall obtain all documents which Turkish Standard Institute (TSE) require from the facility where the concrete is produced and submit them to the Engineer prior to production.</p> <p>Price of any additive material is included.</p> <p><u>Measurement:</u> Volume of the poured concrete shall be measured in cubic meters (m³) as per related structural drawings.</p>	

Related official pose/item number, book	15.150.1001 Beton santralinde üretilen veya satın alınan ve beton pompasıyla basılan, C 8/10 basınç dayanım sınıfında, gri renkte, normal hazır beton dökülmesi (beton nakli dahil) (Ministry of Environment and Urbanization)																									
Item no	Item	Unit																								
CAW.04	Ready-mixed concrete (C25/30)	m ³																								
Description/ Specifications	<i>Please refer to item CAW.03 above except the class of concrete shall be C25/30 for this item.</i>																									
Related official pose/item number, book	15.150.1005 Beton santralinde üretilen veya satın alınan ve beton pompasıyla basılan, C 25/30 basınç dayanım sınıfında, gri renkte, normal hazır beton dökülmesi (beton nakli dahil) (Ministry of Environment and Urbanization)																									
Item no	Item	Unit																								
CAW.05	Rebars Ø8-12mm	ton																								
Description/ Specifications	<p>Provision of structural steel bars on site with diameter of 8-12mm having a tensile strength of at least 420 MPa (B 420C), cutting and bending works on site according to the reinforcement drawings and bar cutting/bending schedules, placement in formworks, fastening them properly with steel wires, providing cover by placing props on formworks. Steel bars shall conform with TS 708. Item includes all workmanship, equipment and tools, material and wastes, necessary tests, all kind of loading/unloading, and all transportations necessary for the provision of the reinforcement bars and placing them in their final locations in formworks as described here and in related General Technical Specifications.</p> <p><u>Measurement:</u> Weight of the installed bars is measured in tons as per bar cutting/bending schedules on related structural drawings. Following table shall be used for weight calculation.</p> <table border="1"> <thead> <tr> <th>Diameter (mm)</th> <th>Unit Weight (kg/m)</th> </tr> </thead> <tbody> <tr><td>8</td><td>0.395</td></tr> <tr><td>10</td><td>0.617</td></tr> <tr><td>12</td><td>0.888</td></tr> <tr><td>14</td><td>1.208</td></tr> <tr><td>16</td><td>1.578</td></tr> <tr><td>18</td><td>1.998</td></tr> <tr><td>20</td><td>2.466</td></tr> <tr><td>22</td><td>2.984</td></tr> <tr><td>24</td><td>3.551</td></tr> <tr><td>26</td><td>4.168</td></tr> <tr><td>28</td><td>4.834</td></tr> </tbody> </table>		Diameter (mm)	Unit Weight (kg/m)	8	0.395	10	0.617	12	0.888	14	1.208	16	1.578	18	1.998	20	2.466	22	2.984	24	3.551	26	4.168	28	4.834
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Related official pose/item number, book	15.160.1003 Ø 8- Ø 12 mm nervürlü beton çelik çubuğu, çubukların kesilmesi, bükülmesi ve yerine konulması (Ministry of Environment and Urbanization)																									

Item no	Item	Unit
CAW.06	Rebars Ø14-28mm	ton
Description/ Specifications	<i>Please refer to item CAW.05 above except the diameter of rebars.</i>	
Related official pose/item number, book	15.160.1004 Ø14- Ø28 mm nervürlü beton çelik çubuğu, çubukların kesilmesi, bükülmesi ve yerine konulması (Ministry of Environment and Urbanization)	
Item no	Item	Unit
CAW.07	Timber formwork	m ²
Description/ Specifications	<p>Item includes making plain surface concrete formwork using Grade II pine wood where internal surfaces are planed and oiled. Formworks shall be supported to resist against the vibration and other forces during construction. Item also covers removal of formwork after setting of the concrete.</p> <p>All kinds of material and wastes (including those required to properly support the formwork), workmanship, horizontal/vertical transportations on site, loading/unloading are included in this unit price.</p> <p><u>Measurement:</u> Formed concrete surface area shall be measured in square meters (m²) on related structural drawings.</p>	
Related official pose/item number, book	15.180.1002 Ahşaptan düz yüzeyli beton ve betonarme kalıbı yapılması (Ministry of Environment and Urbanization)	
Item no	Item	Unit
CAW.08	Structural steelwork	ton
Description/ Specifications	<p>Item covers provision, preparation, erection, and protection of structural steelwork in all heights and span with all types of profile, steel beam, sheet according to the drawings, fixing all parts with rives, bolts or welds, installing all accessories, all types of material and wastes, loading at the construction site, horizontal and vertical transportation, and all other measures necessary for complete erection of the steel structure.</p> <p>All material and workmanship shall comply with provisions of section 4.1.5 Structural Steelwork.</p> <p><u>Measurement:</u> Weight of the installed elements shall be measured in tons as per approved shop drawings with the consideration of standard weights given in the weighing tables. Welds shall not be considered in measurements.</p>	

Related official pose/item number, book	15.165.1003 Her çeşit profil, çelik çubuk ve çelik saclarla karkas, (çerçeve) inşaat yapılması, yerine tespiti (yapı karkası, köprülerde profil demirlerinden kirişler, başlıklar, bağlantılar ve benzeri imalatlar) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
CAW.09	Perlite and satin plaster	m ²
Description/ Specifications	<p>Item covers applying the first layer of plaster with 15 mm thick perlite plaster on surfaces such as concrete and brick walls, the second layer of 5 mm thick with 1/2 perlite plaster + 1/2 satin plaster mixture, placing the plaster mesh in the corner profile, different material, beam and column and wall joints/transitions, and 1 mm thick satin plaster coating.</p> <p>Satin plaster shall be C6/20/12 type and shall conform with TS EN 13279-1, TS EN 13279-2, and EU Construction Materials Directive 305/2011/EU. Application area shall be cleaned prior to application of the layers and shall be accurately luted during application. Plaster shall be applied with steel trowels until a smooth and even surface is attained. Surfaces shall be sandpapered as required. Plaster layers shall be protected and watered, as necessary. All sludge and other materials that might remain within the plaster must be cleaned immediately after application and the surface must be corrected.</p> <p><u>Measurement:</u> Plastered area shall be measured in square meters (m²) on drawings.</p>	
Related official pose/item number, book	15.280.1009 Perlitli siva alçısı ve saten alçı ile kaplama yapılması (Ministry of Environment and Urbanization)	
Item no	Item	Unit
CAW.10	Satin plaster coating (average thickness of 1 mm)	m ²
Description/ Specifications	<p>This work item is for satin plaster applied on previously executed plaster work on walls. Satin plaster shall be C6/20/12 type and shall conform with TS EN 13279-1, TS EN 13279-2, and EU Construction Materials Directive 305/2011/EU. Application area shall be cleaned prior to application of the layers and shall be accurately luted during application. Plaster shall be applied with steel trowels until a smooth and even surface is attained. Surfaces shall be sandpapered as required. Plaster layers shall be protected and watered, as necessary. All sludge and other materials that might remain within the plaster must be cleaned immediately after application and the surface must be corrected.</p> <p><u>Measurement:</u> Plastered area shall be measured in square meters (m²) on drawings.</p>	
Related official pose/item number, book	15.280.1011 Saten alçı kaplaması yapılması (ortalama 1 mm kalınlık) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
CAW.11	12.5mm thick drywall	m ²

Description/ Specifications	<p>Drywall shall be built through, preparation of T exterior profiles with a wall thickness of 0.9 mm, galvanized 275 gr/m² and the appropriate length L bracket, removing the loose plaster on the surface where the L brackets will be fixed and reaching the solid ground, fixing with an appropriate dowel screw from two points, horizontally at maximum 60 cm and vertically with maximum 70 cm intervals, fixing of the plumbed and levelled T profiles to the T profiles from at least two points with self-drilling screws through the holes on the L brackets, and fixing of 12.5 mm thick gypsum board covered with glass fibre mattress on the T profiles with corrosion-resistant tipped screws with a maximum spacing of 20 cm vertically.</p> <p>12.5mm thick gypsum boards to comply with TS EN 520 +A1.</p> <p><u>Measurement:</u> Wall area shall be measured in square meters (m²) on drawings on one side only.</p>
Related official pose/item number, book	15.530.1151 12,5 mm kalınlıkta, giydirmeye duvar yapımı (Ministry of Environment and Urbanization)

Item no	Item	Unit
CAW.12	Roofing with 0.70 mm thick trapezoidal aluminium plates	m ²
Description/ Specifications	<p>Trapezoidal aluminium sheets (EN AW 3003 Al-Mn1Cu) of 0.70 mm thickness will be overlapped on each other in accordance with the drawings, fixed to the purlins, riveted with pop rivets, accessories (ridge, under eaves, wall bottom, edge cover, etc.) will be replaced, the bottom of the triphone washer and rivet holes will be siliconized with transverse longitudinal overlaps.</p> <p><u>Measurement:</u> Inclined roof area shall be measured in square meters (m²) on drawings.</p>	
Related official pose/item number, book	15.325.1005 Mevcut ahşap, çelik, betonarme kiriş veya aşıklı çatı üzerinde 0.70 mm kalınlığında trapezoidal alüminyum levhalar (EN AW 3003 Al-Mn1 Cu) ile çatı örtüsü yapımı (Ministry of Environment and Urbanization)	

Item no	Item	Unit
CAW.13	Aluminium lay-on suspended ceiling (60x60cm, 0.5mm thickness)	m ²
Description/ Specifications	<p>This item covers construction of aluminium lay-in suspended ceiling with 60x60cm plates. 24 mm wide T main and intermediate carrier profiles together with 40cm long 4mm diameter specially adjusted galvanized steel suspension sets will be suspended at 60cm spacing and at the desired level. 0.50 mm thick L profiles will be placed on the ceiling edges and 0.50 mm thick aluminium plates in desired colour (20 micron thick polyester-based electrostatic powder coated on both sides, EN AW 3000 series, perforated) shall be placed on T main and intermediate carrier profiles. Required gaps shall be opened according to the electrical fixtures or installation features. Suspended ceiling panels shall conform with TS EN 13964.</p> <p><u>Measurement:</u></p>	

	Area of the suspended ceiling shall be measured in square meters (m2). Openings less than 0.5m ² shall not be deducted from measurements.	
Related official pose/item number, book	15.535.1011 60x60 cm ebadında 0,50 mm kalınlığında minimum 20 mikron elektrostatik toz boyalı(polyester esaslı) delikli sıcak daldırma galvanize sac plakadan oturmalı sistem asma tavan yapılması (Ministry of Environment and Urbanization)	
Item no	Item	Unit
CAW.14	Mortise lock with cylinder (for interior doors, narrow type)	NOs
Description/ Specifications	This work item covers supply and installation of narrow type mortise lock with cylinder for interior doors as specified below. Case: Steel Galvanized. Standards: TS EN 12209 Forend and Striking Plates: Steel Deadbolt: MS 58 Brass. Two throws. Latch :MS 58 Brass <u>Measurement:</u> Number of locks shall be measured in pcs (pcs).	
Related official pose/item number, book	15.465.1002 Gömme iç kapı kilidinin yerine takılması (dar tip) (Ahşap, Metal. Plastik) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
CAW.15	Door handles and panels (chrome plated)	NOs
Description/ Specifications	This work item covers supply and installation door handles and their panels (or washers) including their fixing and connection parts. Door handles shall conform with TS EN 1906 and shall be chrome plated. Contractor shall provide at least three different complete samples for the Engineer to select and approve in agreement with the Beneficiary. Unit price includes all material and wastes, workmanship, tools, and equipment necessary to carry out the works, all transportations, loading, and unloading, including overhead and profit of the Contractor. <u>Measurement:</u> Number of door handles (separate for each side) shall be measured in pcs (pcs).	
Related official pose/item number, book	15.465.1008 Kapı kolu ve aynalarının yerine takılması (kromajlı) (Ahşap, Metal. Plastik) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
CAW.16	Facade cladding with mineral-filled composite aluminium sheets (with 5cm thick rockwool thermal insulation sheets)	m²
Description/	The bearing box profiles (posts) shall be provided and be anchored to the wall after levelling.	

Specifications	<p>The box profiles shall be aluminium of galvanised steel. The rock (mineral) wool roll shall be cross-layered between the bearing profiles.</p> <p>The thermal performance of the rock wool to achieve a thermal conductivity index (U) of 0.16W/m²K and minimise heat loss through the profiles. The first layer of 100 mm thickness will be rolled between steel box profiles. Material must be handled with care for tears and punctures. Cuts around pipes and fixtures that goes through roof space must be neat and accurate.</p> <p>Covers to loft hatches should be insulated with a minimum 100 mm thickness of rock (mineral) wool roll mat. Care shall be given to avoid damage to adjacent building materials. The aluminium composite panel shall be installed on the façade. The aluminium composite panel shall consist of 3 layers. The top and bottom layer of the aluminium composite panel shall be 0.5 mm thickness. The 3 mm thick mineral filling shall be filled between aluminium layers.</p> <p>The surface of the aluminium composite panels shall be covered by min. 28-micron thick PVDF paint.</p> <p>Rock (mineral) wool roll mats with thermal conductivity (k) value of 0.040 W/mK and thickness of 100 mm to comply with TS EN 13162:2012+ A2 to fire classification of A2, as in BS EN 13501-1</p> <p>Measurement: Area of aluminium composite panels shall be measured in m² over the drawings</p>
Related official pose/item number, book	77.105.1002 Mineral dolgulu kompozit alüminyum levhalar ile cephe kaplaması Yapılması (5 cm kalınlıkta Taş yünü ısı yalıtım levhaları ile) (Ministry of Environment and Urbanization)

Item no	Item	Unit
CAW.17	Gutter and down pipe made from 0.5 mm thick shop-painted galvanized sheet	m
Description/ Specifications	<p>Parapet gutter shall be made according to Drawings. Allow for timber bearers in durable softwood, screwed and fixed to the rafters and wall tops with new galvanised steel nails. Decking will be made of new 18 mm water resistant plywood. Plywood shall be secured firmly to the bearers by galvanised nails. Decking shall be %2 sloped to the outlet points. Breathable roofing shall be laid on the boards and fixed with galvanised steel extra-large head nails. The gutter will be relined in No 12-zinc sheeting. If width of gutter is ≥ 28 cm No 14 zinc sheets will be used. The edge of the sheet shall be laid under the roof tiles and other edges shall be chased into the parapet wall, the sheet rising 15 cm above the level of tiles on the edge of roof.</p> <p>The chase on the insertion edge shall be tucked with waterproof putty along the length of the gutter. Max. 200 cm sheets will be overlapped at least 5 cm and soldered watertight in 1.5 mm thickness. Form chutes in zinc at the outlet points, directly connected to the down pipes, via suitably sized fabricated zinc spigots with galvanised steel mesh or zinc filters. Provide hopper heads fabricated of No14 zinc sheet, at outlets. Allow for cutting and reforming cornice in the proposed areas.</p> <p>Valley gutters shall be made of zinc sheets. 100 cm wide breathable roofing underlay shall be laid on the boards. The gutter will be relined in No 14-zinc sheeting in min. 66 cm width. The edge of the sheet shall be inserted under the roof tiles. The edges of zinc sheets will be</p>	

	<p>fixed to the substructure by with galvanised steel extra-large head nails. Max. 200 cm length of sheets will be overlapped at least 5 cm and soldered watertight in 1.5 mm thickness.</p> <p>An adequate width and length of the roof covering along the lengths of the gutter will be lifted to insert the sheets.</p> <p>Downpipes shall be made of No14 zinc sheets in circular section of 80 mm inner diameter. The edges of sheets shall be overlapped 1.5 cm and soldered. Both ends of the pipes shall be double beaded 10 cm away from the edges. Pipes will be inserted into one another up to the beads and to the spigots on the eaves. Where there is an overhanging eaves downpipe shall have %20 sloped sections up to the wall surface. Downpipes shall be fixed on to the wall surface with galvanized steel clips of 3x20 mm cross section and galvanized steel nuts and bolts of suitable size.</p> <p>The last section of the downpipes 100 cm length up from ground level will be in cast-iron of 92mm inner diameter to receive the zinc pipes. There will be outlets at the end of cast-iron section of the downpipes bent 10 cm above the ground level with an extension of at least 10 cm. The outlet positioning should be arranged for suitable free flow to the nearby drains. The outlet positioning, and the cast-iron section shall be selected with the approval of the Engineer.</p> <p><u>Materials:</u> No 12 and No 14 zinc sheets will be used. 18 mm water resistant plywood. Breathable roofing underlay. All nails shall be flat head galvanised roofing nails. Galvanised steel mesh Approved preservative for timbers. Breathable roofing underlay. Cast-iron 100 cm length pipe sections as approved by the Engineer samples presented by the Contractor. All fixings should be galvanized steel.</p> <p><u>Measurement:</u> Gutter will be measured by length of the gutter. The new downpipes will be measured by length. Cast-iron end sections and other accessories and fixings included.</p>
Related official pose/item number, book	V.1865 0,5 mm kalınlıkta fabrikasyon boyalı galvanizli sac ile yakalı monoblok yağmur oluğu (eksiz), yağmur deresi veya düşey yağmur iniş borusu yapılması ve yerine tespiti (Directorate General of Foundations)

Item no	Item	Unit
CAW.18	Wall construction with 190mm thick horizontally perforated bricks (190x190x135mm)	m ²
Description/ Specifications	Item covers construction of walls/ with 190mm-thick horizontally-perforated bricks with dimensions of 190x190x135mm, using cement mortar. Bricks shall be Class W with density	

	<p>of 700kg/m³. Bricks shall conform with TS EN 771-1 and shall be A1 fireproof as per TS EN 13820:2004-01. Unit price includes all material and wastes (including mortar), workmanship, tools, and equipment necessary to carry out the works, all transportations, loading, and unloading.</p> <p><u>Measurement:</u> Wall area shall be measured in square meters (m²) on drawings. Openings under 0.1m² shall NOT be deducted.</p>
Related official pose/item number, book	15.220.1005 190 mm kalınlığında yatay delikli tuğla (190x190x135 mm) ile duvar yapılması (Ministry of Environment and Urbanization)

Item no	Item	Unit
CAW.19	Wall or floor covering with natural stone mosaics (split surface)	m ²
Description/ Specifications	<p>The smooth surface will be cleaned of dirt, dust, burr, and similar residues that prevent adhesion and will be moistened. Cement-based, standard performance, reduced slip tile adhesive will be applied on the surface and grooved with a special comb, and natural stone mosaics (with split face) will be laid in accordance with the gauge. The coated surface will be cleaned after the application.</p> <p><u>Measurement:</u> Covered area shall be measured in square meters (m²) on drawings.</p>	
Related official pose/item number, book	1301 Doğal taş mozaikler (patlatma yüzeyli) ile duvar veya yer kaplaması yapılması (Ministry of Culture and Tourism)	

Item no	Item	Unit
CAW.20	External thermal insulation	m ²
Description/ Specifications	<p>On the exterior walls that are ready for sheathing, 4 cm thick carbon black - graphite based expanded polystyrene foam thermal insulation boards with a density of 16 kg/m³ will be fixed to the surface with a plastic nailed thermal insulation dowel after being attached to the wall with a thermal insulation board adhesive at a cost of 4 kg per m². The first layer of thermal insulation plaster will be made on the board with a consumption of 3 kg per m², plaster mesh will be placed on top of each other at least 10 cm, and a second layer of thermal insulation plaster will be made with a consumption of 2 kg per m².</p> <p>The dowel to be used will be determined according to the material properties on the facade to be sheathed.</p> <p>External thermal insulation systems must comply with the criteria specified in TS EN 13499 system standard or ETAG 004.</p> <p><u>Measurement:</u> Sheathing area shall be measured in square meters (m²) on drawings.</p>	

Related official pose/item number, book	15.335.1202 4 cm kalınlıkta karbon siyahı - grafit esaslı ekspande polistren levhalar (EPS - 16 kg/m ³ yoğunlukta) ile dış duvarlarda dıştan ısı yalıtımı ve üzerine ısı yalıtım sıvası yapılması (Mantolama) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
CAW.21	Interior door frame and moldings with solid wood panel	m ²
Description/ Specifications	<p>According to the project drawings, solid casing with a minimum clear thickness of 45mm, and two-sided moldings with a minimum thickness of 22mm made of first quality white pine (fir) shall be prepared and installed for the interior doors. The casing and moldings shall be fixed to the three wedges that will be placed on the wall, and if necessary, laths shall be placed on the edge of the moldings or the frame.</p> <p><u>Measurement:</u> Area of the frame and moldings shall be measured in square meters (m2) on shop drawings.</p>	
Related official pose/item number, book	15.510.1001 Ahşaptan masif tablalı iç kapı kasa ve pervazı yapılması yerine konulması (Mantolama) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
CAW.22	Exterior door frame and moldings with solid wood panel	m ²
Description/ Specifications	<p>According to the project drawings, solid casing with a minimum clear thickness of 50mm, and two-sided moldings with a minimum thickness of 25mm made of first quality white pine (fir) shall be prepared and installed for the interior doors. The casing and moldings shall be fixed to the three wedges that will be placed on the wall, and if necessary, laths shall be placed on the edge of the moldings or the frame.</p> <p><u>Measurement:</u> Area of the frame and moldings shall be measured in square meters (m2) on shop drawings.</p>	
Related official pose/item number, book	15.510.1002 Ahşaptan masif tablalı dış kapı kasa ve pervazı yapılması yerine konulması (Mantolama) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
CAW.23	Interior wooden door leaf with a solid top	m ²
Description/ Specifications	<p>Doors shall be made of 1st quality pine wood. Doorpost, door rail, and sash shall have a minimum clean thickness of 45 mm. Panels will have 30x80mm clean thickness, and the specified number of rabbeted parts will be joined together to build to door. All screws, nails and other joinery is included.</p> <p><u>Measurement:</u> Area of the door leaf shall be measured in square meters (m2) on shop drawings.</p>	

Related official pose/item number, book	15.510.1101 Ahşaptan masif tablalı iç kapı kanadı yapılması ve yerine konulması (Ministry of Environment and Urbanization)	
Item no	Item	Unit
CAW.24	Exterior wooden door leaf with a solid top	m ²
Description/ Specifications	Please see item CAW.23	
Related official pose/item number, book	15.510.1102 Ahşaptan masif tablalı dış kapı kanadı yapılması ve yerine konulması (Ministry of Environment and Urbanization)	
Item no	Item	Unit
CAW.25	Colour-matte and anodized heat insulated aluminium joinery	kg
Description/ Specifications	<p>The joinery will be formed by extrusion in accordance with current standards and technical specifications in terms of classification, chemical composition, mechanical properties, design, size, and thickness tolerances. Load-bearing aluminium joinery profiles (frame, sash, panel profiles) with coloured-matte and anodized aluminium profiles; any kind of single or biaxial, normal opening or sliding etc. will be manufactured at a shop. All kinds of assembly materials (Epdm seal, PVC sheeting (bituminous foil tape), mounting anchors etc.) will be provided to ensure heat, water, air tightness/insulation between the joinery and the place it will be assembled.</p> <p>All metal profiles must conform with TS 5358 EN 12608 and must be Class A.</p> <p>Load-bearing aluminium profiles will have a wall thickness of 2mm (± 10%) provided that they provide the required strength according to the static calculation. (This requirement is not required for complementary profiles such as glass laths without bearing feature, T-lap profiles, adapter profiles, angle brackets, etc.).</p> <p>Corner joints made of aluminium profile (if it is heat insulated, both corners of the heat insulated profile) will be used in the corner joints of the joineries and the corners will be press-fitted.</p> <p>Heat insulated aluminium profiles shall have at least three chambers.</p> <p><u>Measurement:</u></p> <p>Weight of the joinery shall be measured in kg. Aluminium shall be weighed together with the components (including screw, rivet, protective packaging). If weighed together; weight of the locks and any additions, window handles, door handles, hinges, transom scissors and bumps, bolts, under door brushes, hydraulic mechanisms, pivot mechanisms, sliding and biaxial mechanisms, shall be deducted provided they are paid separately.</p>	
Related official pose/item number, book	15.460.1008 Renkli-mat ve eloksallı ısı yalıtımlı alüminyum doğrama imalatı yapılması ve yerine konulması (Ministry of Environment and Urbanization)	
Item no	Item	Unit

CAW.26	Window sill with white marble plates (3cm thickness)	m²
Description/ Specifications	Existing surface will be cleaned and wetted. A base will be made with 400kg cement dose mortar and the white marble plates (honed or polished) will be laid according to the shape in the project drawings. Thickness of the marble shall be 3cm and plates shall be supplied as monolithic with slope and dropper. Width of the plates shall be 30, 40 or 50cm etc. with varying lengths as per drawings. All surfaces shall be cleaned and wiped upon completion. <u>Measurement:</u> Area covered with plates shall be measured in square meters (m2) on drawings.	
Related official pose/item number, book	15.410.1401 3cm kalınlığında beyaz mermer levha ile dış denizlik yapılması (3cmx30-40-50 cmxserbest boy) (honlu veya cilalı) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
CAW.27	Double glazed window unit (4+4 mm thickness, 12 mm space)	m²
Description/ Specifications	4+4 mm thickness, 12 mm spacing, double glazed window unit shall be prepared according to the sizes in related detail drawings. Wedges shall be placed in the glass housing and the glass shall be placed in the housing and the profile and wick shall be seated in place. The unit will be balanced with glazing wedges. Neutral (acid-free) silicone shall be drawn in the form of punctures at the joints of the profiles. All glazed window units shall meet the required thermal conductivity values as per TS 825. <u>Measurement:</u> Area of the glazed window unit shall be measured in square meters (m2) on shop drawings.	
Related official pose/item number, book	15.470.1010 PVC ve alüminyum doğramaya profil ile 4+4 mm kalınlıkta 12 mm ara boşluklu çift camlı pencere ünitesi takılması (Ministry of Environment and Urbanization)	
Item no	Item	Unit
CAW.28	Water-based silk matt paint on interior surfaces	m²
Description/ Specifications	After sanding, grinding, and cleaning of the surface to be painted, 0.150 kg of water based priming, 0.100 kg of 1st coat, and 0.100 kg of 2nd coat of water based silk matt paint shall be applied. Water-based paint shall conform with TS 5808. <u>Measurement:</u> Area of the surface shall be measured in square meters (m2). All openings shall be deducted.	
Related official pose/item number, book	15.540.1218 Yeni sıva yüzeylere astar uygulanarak iki kat su bazlı ipekmat boya yapılması (iç cephe) (Ministry of Environment and Urbanization)	
Item no	Item	Unit

CAW.29	2 cm thick plaster on interior or exterior surfaces (ready rough/ fine plaster)	m²
Description/ Specifications	The mortar will be prepared by adding an appropriate amount of water to the ready-mixed plaster prepared and bagged by the factory as dry and mixed according to the technical application conditions of the product. After the first layer of plaster is applied on the wall surface with the prepared mortar and levelled, the second layer of plaster will be applied after the time in accordance with the technical application guides of the product and the surface will be levelled and a total of 2cm thick plaster will be obtained. Wall surfaces will be cleaned and watered when necessary. <u>Measurement:</u> All plastered area shall be measured in square meters (m2). All openings shall be deducted.	
Related official pose/item number, book	15.285.1001 Hazır (fabrikasyon) kaba/ince sıva harcı (TI, WI, CSI) ile iç veya dış yüzeylere 2 cm kalınlıkta sıva yapılması (Ministry of Environment and Urbanization)	

Item no	Item	Unit
CAW.30	Glazed porcelain floor tiling (60x60cm)	m²
Description/ Specifications	Application surface shall be free of dirt, dust, burrs, and similar residues that prevents adhesion, and the surface shall be moistened. Cement-based, high performance, reduced slip adhesive having extended open waiting time will be applied on the surface and will be grooved with special comb. 60x60cm nominal dimensions, 1 st quality, glazed porcelain tiles (with any kinds of pattern and surface characteristics) shall be laid in accordance with the gauge, leaving 3 mm joint gaps. Joints shall be filled with cement-based, high performance joint filler material having high abrasion resistance and reduced water absorption of the desired colour. Upon completion, surface of the coating shall be cleaned. Glazed porcelain floor tiles shall conform with TS EN 14411. Skirtings/baseboards are also included in this item and shall NOT be measured or paid separately. Colour shall be decided by the Engineer in agreement with the Beneficiary. <u>Measurement:</u> Area covered with tiles shall be measured in square meters (m2).	
Related official pose/item number, book	15.385.1028 60x60 cm anma ebatlarında, her türlü desen ve yüzey özelliğinde, I.kalite, renkli, sırlı porselen karo ile 3 mm derz aralıklı döşeme kaplaması yapılması (karo yapıştırıcısı ile) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
CAW.31	Glazed porcelain floor tiling (30x60cm)	m²
Description/ Specifications	<i>Please see item CAW.30 above, except for the dimension of the tiles.</i>	
Related official pose/item number, book	15.385.1030 30x60 cm anma ebatlarında, her türlü desen ve yüzey özelliğinde, I.kalite, renkli, sırlı porselen karo ile 3 mm derz aralıklı döşeme kaplaması yapılması (karo yapıştırıcısı ile) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
CAW.32	Unglazed rectified porcelain floor tiling (60x60cm)	m ²
Description/ Specifications	<i>Please see item CAW.30 above, except the tiles in this item shall be unglazed and rectified.</i>	
Related official pose/item number, book	15.390.1028 60x60 cm anma ebatlarında, rektifiyeli, her türlü renk, desen ve yüzey özelliğinde, I.kalite, parlak, sırsız porselen karo ile 3 mm derz aralıklı döşeme kaplaması yapılması (karo yapıştırıcısı ile) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
CAW.33	Wooden kitchen cupboard	m ²
Description/ Specifications	In accordance with the drawings and details, a wooden kitchen countertop cabinet will be made with 19 mm chipboard covered with 0.65 mm laminated board. <u>Measurement:</u> Front area of the cupboard shall be measured in square meters (m2).	
Related official pose/item number, book	15.520.1003 Tip ahşap mutfak tezgah üstü dolabı (3.04x0.80)=2.46 m2 (Ministry of Environment and Urbanization)	

4.3. PARTICULAR TECHNICAL SPECIFICATIONS FOR MECHANICAL AND ELECTRICAL WORKS

The contractor shall be responsible from the materials and the installations until the substantial completion of the work. The contractor is also responsible from installing all the systems present at the building and other structures in an operative condition free of any deficiency and immediately repairing any failures free of cost for defect liability period, except for the usage faults. If the required repair works cannot be completed within one month, the parts that have not been repaired within this period shall be repaired by the Employer on behalf of the contractor and shall be deducted from the Performance Guarantee of the Contractor.

Prior to commencement of any electrical or mechanical works on site, Contractor shall prepare and submit to Engineer shop drawings showing all related applications and installations which might be in the form of riser diagrams, plans, sections, and similar.

Eye examination

All materials to be used for mechanical installations shall be subject to eye examination by the Engineer to verify that the materials are not broken, rusted, cracked, old, or defective in any regard.

Functioning examination

All materials to be used for mechanical installations shall be subject to functioning examination through tests without any cost impact to the Employer.

Warranty period

All materials to be used for mechanical installations shall have two (2) years of commercial warranty from the manufacturers starting from substantial completion of works.

4.4. ITEM DESCRIPTIONS FOR MECHANICAL WORKS

Item no	Item	Unit
MWH.01	Heating boiler	pcs
Description/ Specifications	Item covers supply and installation of heating boiler working on solid fuel, made of steel material (welded), having a working pressure of 3 atmosphere, and having a capacity of (150.000 kcal / h) 175 kW. Boiler shall conform with TS EN 12953-1, TS EN 12953-3. <u>Measurement:</u> Complete heating boiler (as operating) shall be considered as one complete piece.	
Related official pose/item number, book	25.202.1106 (150.000 kcal/h) 175 kW, Sıcak Su Üretici, Çelik Malzemeden (Kaynaklı) Kalorifer Kazanları (3 atmosfer konstrüksiyon basıncında) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
MWH.02	Panel radiator (Type 22, 600)	m
Description/ Specifications	The structural construction of the radiator will be in accordance with TS EN 442-1 standard. The thermal powers of the radiator will be proven by an accredited institution with a laboratory report. Radiators shall be made of Fe P01 quality and minimum 1.11 mm thick cold drawn sheet according to TS EN 10130 standard on water-passing surfaces. According to TS EN 442/1 standard, it will be tested at a pressure of at least 1.3 times the maximum working pressure (at least 520 kPa), and their thermal power will be determined by testing according to the TS EN 442/2 standard. Radiators will be supplied and mounted with primer painted on zinc or iron phosphate and with electrostatic powder painted on top coat, as packaged, including radiator mounting elements and purger. (Type XY, number of X panels, Y convectors.) <u>Measurement:</u> Length of radiators shall be measured in meters (m).	
Related official pose/item number, book	25.225.3025 Panel radyatör, (Tip 22) 600 (Ministry of Environment and Urbanization)	

Item no	Item	Unit
MWH.03	Corner type thermostatic radiator taps 1/2"	pcs
Description/ Specifications	Item covers supply and installation of corner type radiator taps (15mm dia.) in accordance with TS EN 215 or TS 579 including connection fittings, thermostat head, and adapter. <u>Measurement:</u> Number of taps shall be measured in pieces (pcs).	
Related official pose/item number, book	25.230.1401 15 Ø mm (1/2"), Köşe tipi termostatlı radyatör muslukları (TS EN 215-1) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
MWH.04	Corner type thermostatic radiator return valve 1/2"	pcs
Description/ Specifications	Item covers supply and installation of corner type radiator return valve (15mm dia.) in accordance with TS EN 215 or TS 579 including connection fittings, thermostat head, and adapter. <u>Measurement:</u> Number of valves shall be measured in pieces (pcs).	
Related official pose/item number, book	25.230.1601 15 Ø mm (1/2"), Köşe tipi radyatör geri dönüş valfı (TS 579) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWH.05	Collector pipe ø83 / 3.25 mm	m
Description/ Specifications	The two ends of the welded pipe will be closed by welding with the plate having wall thickness of the pipe used. The elliptical holes smaller than the mouth diameters to be made and these holes are inflated hot outward will make a smooth-necked collector suitable for the welding of pipes with flanges of appropriate size. The sleeve shall be welded for devices such as manometers, hydrometers, thermometers, drain tap. <u>Measurement:</u> Length of collector pipe shall be measured in meters (m).	
Related official pose/item number, book	25.245.1102 83/3,25 Ø mm dikişli borulu, Kollektör borusu (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWH.06	Collector outlet (diameter: 40 mm)	pcs
Description/ Specifications	Item covers welding of flanged outlets properly prepared to the project and related Turkish Standards to the collector pipe, painting by two coats of red lead and two coats of oil paint. <u>Measurement:</u> Number of collector outlets shall be measured in pieces (pcs).	
Related official pose/item number, book	25.245.2005 Ağız çapı 40 Ø mm, Kollektör ağızlıkları (Ministry of Environment and Urbanization)	
Item no	Item	Unit

MWH.07	1" collector with 6 outlet and mini ball valves	pcs
Description/ Specifications	Supply and installation of brass collector (1 piece) used for the distribution or collection of the fluid in the heating systems. The collector will be supplied with its outlet connection Ø16x2mm and its valves. <u>Measurement:</u> Number of collectors shall be measured in pieces (pcs).	
Related official pose/item number, book	25.245.3105 6 çıkışlı, Mini küresel vanalı 1" kollektör (Ministry of Environment and Urbanization)	

Item no	Item	Unit
MWH.08	1" collector with 8 outlet and mini ball valves	pcs
Description/ Specifications	Supply and installation of brass collector (1 piece) used for the distribution or collection of the fluid in the heating systems. The collector will be supplied with its outlet connection Ø16x2mm and its valves. <u>Measurement:</u> Number of collectors shall be measured in pieces (pcs).	
Related official pose/item number, book	25.245.3107 8 çıkışlı, Mini küresel vanalı 1" kollektör (Ministry of Environment and Urbanization)	

Item no	Item	Unit
MWH.09	Thermometer 100mm dia.	pcs
Description/ Specifications	Item covers supply and installation of 100mm dia. thermometer in accordance with the following: Conformity : EN 13190 Accuracy Class : CL 2.0 Protection Rate : IP 51 Storage Temperature: -40 +70 °C Mounting Type : Bottom Connection Scale Unit : °C Scale Range (T) : 0/+120°C Case : Steel Bezel : Steel Window : Glass Connection : G 1/2" B Dial : Aluminium Temperature Element: Bi-metal Bi-Metal Stem : Brass Thermowell : Stainless Steel AISI-316 <u>Measurement:</u>	

	Number of thermometers shall be measured in pieces (pcs).	
Related official pose/item number, book	25.250.2101 Ø=100 mm 120 °C bölüntülü, TERMOMETRE (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWH.10	Manometer (diameter: 100mm, graduated up to 5 Atm)	pcs
Description/ Specifications	Supply and installation of Ø100mm manometer; manufactured appropriate to TS EN 837-1/3, TS EN 542 standards and 97/23/EC Pressurized Equipment Regulation, presented to the market with CE conformity sign, with easy-reading scale, and with 3-outlet tap. <u>Measurement:</u> Number of manometers shall be measured in pieces (pcs).	
Related official pose/item number, book	25.250.2303 Ø=100 mm 5 Atmosfer kadar bölüntülü, MANOMETRE (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWH.11	Cylindrical aeration tank 5.0L	pcs
Description/ Specifications	The ratio of the length of the aeration tank to its diameter shall be between 2 and 3. Tank will be manufactured of 3 mm. thick sheet and the ends shall be slightly curved. The tank shall be fixed to the consoles and shall be connected to the equipment line with flange or sleeve and shall be insulated after being painted with two layers of lead paint. <u>Measurement:</u> Number of complete tanks shall be measured in pieces (pcs)	
Related official pose/item number, book	25.255.1301 5 Litre, Silindirik Havalandırma deposu (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWH.12	Filling and draining tap 3/4"	pcs
Description/ Specifications	Item covers supply and installation of 20mm dia. filling and draining tap in accordance with TS 481, where the opening/closing switch shall have diamond shape. <u>Measurement:</u> Number of taps shall be measured in pieces (pcs).	

Related official pose/item number, book	25.264.1001 20 Ø mm (3/4"), DOLDURMA VE BOŞALTMA MUSLUĞU (TS 481'e uygun) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWH.13	Double-stage burner (150-250 kW)	pcs
Description/ Specifications	<p>Burners shall comply with TS EN 267: 2009+A1 standard, 2006/42 / AT Machinery Safety Regulation and 97/23/EC Pressurized Equipment Regulation and will be marketed with the CE conformity mark, with a heater pump or air compressor type, fully automatic.</p> <p>The burners will have a special body made of steel sheet, aluminium or cast iron, which is firmly attached to the boiler cover or on a special metal base. On the body, there will be an electric motor of proper quality and power, air fan connected to the motor shaft and a fuel pump or compressor with a paddle, air adjustment damper, air turbulator, high voltage transformer ignition electrodes and electrode cables to ensure the initial ignition.</p> <p>Pump types shall have the following: Air adjustment device, burner nozzle suitable for the required consumption, magnetic or pressurized fuel shut-off valves (Solenoid), which take the control from the photocell relay according to the burner type when necessary, to reduce the viscosity of the fuel and to ensure a very good atomization and maximum fuel capacity at least 50°C per hour. The thermostat to control the atomization temperature on the electric preheater and the preheater with a power to give a temperature difference and to switch the heater off and on, the device to prevent the flow of expanding fuel from the nozzle when the burner is not operating or when the heater is on, internal piping between the heater pump and the nozzle for fuel connection, and flexible hoses.</p> <p>Compressor types shall have the following: Filtered fresh air valve, air and water intake taps, knife filter, thermostat controlled electric heater and heater vessel; fuel adjusting hand valve; solenoid valve on the filter circuit with hand valve and a flexible hose for fuel connection.</p> <p>Both types shall have the following: Electric board protected against moisture, yellow, green and red colours on the table, built-in signal lamps for malfunction and heater, fuses, thermal and magnetic protection switch with suitable amperage for three-phase motors, cable connections for the table, between burner and burner table making connection with electrical cables inside the gas pipe in accordance with the approved project, single-phase and three-phase, motor starting circuit and contactor, delay circuits, rectifiers, and other parts mounted on the burner table and all kinds of materials are included in the relay so as to regulate the photocell control time and pre-purge time required according to the technical specification according to the control.</p> <p><u>Measurement:</u> Number of burners as complete shall be measured in pieces (pcs).</p>	

Related official pose/item number, book	25.280.2201 150-250 kW'a kadar, Normal çekişli kazanlarda kullanılan ısıtıcı, çift kademeli brülör (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWH.14	PE-Xb Pipe (with oxygen barrier, 16x2,0 mm)	m
Description/ Specifications	This item covers supply and installation of ISO A Series 5; application class 4; polyethylene (PE-Xb) pipes with a minimum 65% cross-link ratio, which can operate at 95 ° C temperature, 6 bar operating pressure, and which are silane-added, produced by cross-linking method. All fasteners, fixing materials, all flange and gasket counterparts, seals required for assembly are included. <u>Measurement:</u> Length of pipes shall be measured in meters (m).	
Related official pose/item number, book	25.305.8401/A PE-Xb Oksijen Bariyerli Boru 16x2,0 mm, (Bina içinde %25) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWH.15	Spiral protective sheathing	m
Description/ Specifications	Item covers supply and installation spiral protective sheathing that are used for Ø16-17mm PE-Xa, PE-Xb and PE-RT pipes. <u>Measurement:</u> Length of sheathing shall be measured in meters (m).	
Related official pose/item number, book	25.264.1001 Ø16- Ø17 çaplarında PE-Xa, PE-Xb ve PE-RT borularda kullanılan spiral koruyucu kılıfın iş yerinde temini ve montajı (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWH.16	Ball valve 1/2" - PN 16	pcs
Description/ Specifications	Supply and installation of hand operated for on/off, pig iron or stainless steel ball valves operated by a ball in water with brass sharp element, with screws or flanges, in water, ventilation and steam installations appropriate to 97/23/AT Pressure Equipment Regulation. Valves shall be PN16 pressure class and shall conform with TS EN 3148. <u>Measurement:</u> Number of installed valves shall be measured in pieces (pcs).	

Related official pose/item number, book	25.320.2101 15 Ø mm (1/2"), Piring, preste imal edilmiş teflon (PTFE), contalı, tam geçişli, vidalı, KÜRESEL VANALAR (TS 3148) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWH.17	Ball valve 40Ø mm (1 1/2") PN 10-16	pcs
Description/ Specifications	Valve shall conform with the 2014/68 / EU Pressure Equipment Directive and shall be full-bore. Valves shall have brass cutting element, cast body, stainless steel ball, stainless steel or teflon plated spring reinforced gasket. It shall be three-piece, screw type, wafer, lug or flanged and can be manually opened and closed. Valves shall be PN10-16 pressure class and shall conform with TS EN 3148. <u>Measurement:</u> Number of installed valves shall be measured in pieces (pcs).	
Related official pose/item number, book	25.320.2405 40 Ø mm (1 1/2"), PN 10-16 Gövdesi pik küresi dolu paslanmaz çelikten, tam geçişli, paslanmaz çelikten veya teflon tabak yay takviyeli contalı, üç parçalı, vidalı, KÜRESEL VANALAR (TS 3148) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWH.18	Silt Trap, die casting, with screw (dimeter:40 mm)	pcs
Description/ Specifications	Supply and installation of silt trap; to be mounted on water, steam and gas system, brass, bronze, cast iron or steel body depending on the pressure and temperature of the fluid, brass or stainless steel interior filter, easily removable and washable filter, flanged or screwed. Its product catalogue shall be approved by the Engineer. Traps shall have related TSE certificate. Filter sensitivity shall be as follows: 500 µm (0,5 mm) and higher up to DN20 700 µm (0,7 mm) and higher up to DN50 1200 µm (1,2 mm) and higher up to DN150 <u>Measurement:</u> Number of traps shall be measured in pieces (pcs).	
Related official pose/item number, book	25.325.1105 40 Ø mm (1 1/2"), Pislik tutucu, PN-16, buhar için, pres döküm vidalı (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWH.19	Check valve, brass casting, dia 40 mm	pcs
Description/ Specifications	To be used in cold or hot water system, in-situ supply, and installation of holding valve; certified appropriate to TS EN 1074-3, at a small diameter with screw and produced by brass or bronze, at a bigger diameter with screw, produced by brass or bronze, at the biggest	

	diameter flanged or cast iron, hinged or with fixing flap or ball, can working in horizontal or upright position, leakproof. <u>Measurement:</u> Number of valves shall be measured in pieces (pcs).
Related official pose/item number, book	25.325.2105 40 Ø mm (1 1/2"), Pirinç pres döküm vidalı, GERİ TEPME VENTİLLERİ (Sıcak ve soğuk su için) (TS EN 1074-3) (Ministry of Environment and Urbanization)

Item no	Item	Unit
MWH.20	Automatic air release valve (for water) 1/2"	pcs
Description/ Specifications	Item covers supply and installation of automatic air release valves to be mounted to discharge air and gases accumulated in liquid-filled containers or pipes, in appropriate capacity as per working pressure and temperature. Valves shall have flanges and shall be made of bronze, cast iron brass or steel with stainless steel float or thermostat. <u>Measurement:</u> Number of installed valves shall be measured in pieces (pcs).	
Related official pose/item number, book	25.340.1201 15 Ø mm (1/2"), Otomatik hava atma cihazı, su için (Ministry of Environment and Urbanization)	

Item no	Item	Unit
MWH.21	Circulation pump with frequency converter (0.5-3.5 m³/h – 1-3 mSS)	pcs
Description/ Specifications	Circulation pump with wet rotor, which can be attached to a straight pipe, will be in PN10 pressure class with EEI 0.23 energy efficiency index according to the "Environmentally friendly design communiqué on independent and products-integrated circulation pumps" of the Ministry of Science, Industry and Technology. The motor of the pump will be self-protected against blockage, excessive strain and heating, and will have a frequency converter. The head and instantaneous power consumption, operating and fault signal information will be viewable on the pump without requiring any extra equipment. The head of the pump can be adjusted with the internal screen at intervals of at most 0.5m and the pump can be used in the system that can operate in automatic regulation. The body material of the pumps will be in accordance with the TS 552 EN1561 / ENGJL 200 (GG20) standards, the bearings will be made of metal-impregnated carbon, the impeller will be made of stainless steel or glass fibre reinforced polypropylene, and the pump shaft will be made of a material conforming to TS EN 10088-3 standard. The pump insulation class will be at least IP43, the motor protection class will be at least F class, and the operating temperature will be in the range of -10°C / + 120°C according to the hot water circulation pumps class TF95. <u>Measurement:</u>	

	Number of installed pumps as complete shall be measured in pieces (pcs).	
Related official pose/item number, book	25.350.3001 Debi m ³ /h (0,5-3,5) basınç mSS (1-3), Değişken Devirli (Frekans Konvertörlü) Sirkülasyon Pompası: Islak rotorlu düz boruya takılabilen sirkülasyon pompaları (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWD.01	Semi Pedestal Glazed Faience Washbasin unit (extra class) 45x55 cm	pcs
Description/ Specifications	Item covers supply, installation of white half leg glazed faience washbasin set 45X55 cm, extra class with or without soap dispenser, with its mounting elements in the following types and measures: Washbasins shall be appropriate to 305/2011/AB Construction Materials Regulation, presented to the market with CE appropriateness sign. <u>Measurement:</u> Number of complete washbasin sets shall be measured in pieces (pcs).	
Related official pose/item number, book	25.100.1012 45x55 cm Yarım Ayaklı Tk lavabo (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWD.02	Approximately 50x60 cm Handicapped Glazed Faience Washbasin (extra class washbasins)	pcs
Description/ Specifications	Item covers supply, installation of white half leg glazed faience washbasin set approximately 45X55 cm, extra class with or without soap dispenser, with its mounting elements in the following types and measures: Washbasin shall be manufactured as handicapped washbasin and shall conform with 305/2011/AB Construction Materials Regulation, presented to the market with CE appropriateness sign. <u>Measurement:</u> Number of complete washbasin sets shall be measured in pieces (pcs).	
Related official pose/item number, book	25.100.1019 50x60 cm Bedensel Engelli Lavabo. (Lavabonun derinliği en az 43 cm, en fazla 49 cm olmalıdır.) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWD.03	Washbasin fittings	set
Description/ Specifications	Item covers provision, delivery, assembly and commissioning of 15 mm tap and badge or battery with chrome plated or plastic based (acetyl copolymer) quality certificate for TS-EN	

	<p>274-1-2-3 certified battery, detachable and cleanable type, 6 cm odour fermeture with at least 16 cm extension piece and rosette, brass chrome plated or hard plastic based, and can be removed and cleaned, according to TS-EN 274-1-2-3, resistant to at least 80° C temperature and acids, 32 mm compression lavatory siphon and connection adapter for sewage piping.</p> <p>Battery (faucet) shall be first class as and shall conform with TS EN200, TS EN 817, accordingly.</p> <p>Measurement: Complete fittings (per washbasin) shall be measured as one set.</p>
Related official pose/item number, book	25.102.1601 Birinci sınıf: (Batarya TS EN 200 veya TS EN 817'ye uygun , sifon TS-EN 274-1-2-3) (Ministry of Environment and Urbanization)

Item no	Item	Unit
MWD.04	Mirror (Crystal glass) 40x50 cm	pcs
Description/ Specifications	<p>Mirror glass shall have 5mm glass thickness, roughed mirror edge, if there are strips on the mirror, there will be bevelled. Wall connection screws will be produced by brass material and minimum 5 micron nickel-plated or stainless steel. Installation on the wall with screws and pegs for wall hanging. Mirror glass shall conform with TS 5229 EN 1036)</p> <p>Mirrors should be appropriate to 89/106/EEC Construction Materials Regulation, presented to the market with CE appropriateness sign.</p> <p>Measurement: Number of mirrors shall be measured in pieces (pcs).</p>	
Related official pose/item number, book	25.104.1001 Takriben 40x50 cm ayna (Ministry of Environment and Urbanization)	

Item no	Item	Unit
MWD.05	Mirror for handicapped 50x70cm	pcs
Description/ Specifications	<p>Mirror shall have 5mm glass thickness, roughed mirror edge, and if there are strips on the mirror, these will be bevelled. Wall fixing screws will be made of brass material and they will be minimum 5 micron nickel-plated or stainless steel. Installation on the wall will be with screws and pegs for wall hanging.</p> <p>Mirror glass shall conform with TS 5229 EN 1036, 305/2011/EU Construction Materials Regulation, and shall have CE sign. Mirrors shall be suitable for the use of the handicapped. Angle of mirrors shall be adjustable, and its frame shall be made of Class 304 stainless steel.</p> <p>Measurement: Number of mirrors shall be measured in pieces (pcs).</p>	

Related official pose/item number, book	25.104.1003 Engelli kullanımına uygun takriben 50x70 cm. ayna (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWD.06	Shelf; ceramic,50x10 cm	pcs
Description/ Specifications	Item covers supply and installation of self-levelling, white ceramic shelf including special wedges or wall anchor and brass fastening screws. <u>Measurement:</u> Number of shelves shall be measured in pieces (pcs).	
Related official pose/item number, book	25.106.1101 Takriben 50x10 cm Ekstra sınıf, Fayans camlaşmış çini (dubelle monte edilecek) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWD.07	Closet with reservoir (suitable for handicapped)	pcs
Description/ Specifications	Item covers supply and installation of closet with reservoir that is suitable for handicapped with measures of approximately 35x70cm; and a seating height between 43-48cm, capable of full washing with at least 4 litres and can be connected to the glazed ceramic reservoir; white or coloured glazed ceramic as per TS EN 997+A1 standard and quality certified toilet bowl; hard plastic seat cover; brass chrome plated reservoir and bidet taps; the reservoir inner assembly with the stepped discharge group and the fill group assembled from the bottom of the water inlet; supply of bidet pipes and badges made of plastic and toilet seat assembly set. Toilets shall be placed on the market with CE marking in accordance with 305/2011/EU Building Materials Regulation <u>Measurement:</u> Number of complete closets shall be measured in pieces (pcs)	
Related official pose/item number, book	25.112.1203 Bedensel engelli için, takriben 35x70 cm Ekstra kalite. (Klozetin oturma yerinin yerden yüksekliği 43 cm ile 48 cm arasında olmalıdır), KENDİNDEN REZERVUARLI AZ SU TÜKETEN ALAFRANGA HELA VE TESİSATI (TS 800 EN 997) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWD.08	Sink (with drainboard on one side) stainless steel, 50x100 cm	pcs
Description/ Specifications	Supply and installation of stainless steel sink with dimensions of 50x100cm having drainboard on one side. Sink shall conform with TS EN 13310and 305/2011/EU Building Materials Regulation and shall have CE marking.	

	Contractor shall carry out all sealing works around the sink to the satisfaction of the Engineer. Measurement: Number of sinks shall be measured in pieces (pcs).	
Related official pose/item number, book	25.118.1201 Paslanmaz çelik takriben 50x100 cm, Bir gözlü damlalıklı eviye (TSEK), EVİYELER (TS EN 13310) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWD.09	Sink fitting including basin mixer	pcs
Description/ Specifications	Item covers supply and installation sink fittings including basin mixer conforming with TS EN 200 or TS EN 817, with 15mm brass chromed rotary or fixed tube or plastic based (acetal copolymer), removable 6cm sink siphon with odour fermeture (with wall extension and rosette), 32mm sieve, sink siphon which shall be brass-chromed or hard plastic as per dimensions given in TS-EN 274-1-2-3 and can resist temperatures up to 80°C, and bakelite stopper. Basin mixer and the sink siphon shall have TS conformity certificate. <u>Measurement:</u> Number of complete sink fitting sets shall be measured in pieces (pcs).	
Related official pose/item number, book	25.120.1101 Bataryalı TS EN 200 veya TSEN 817 ye uygun piriç sifonlu, TS-EN 274-1-2-3 (Birinci sınıf), Bir gözü eviye tesisatı, EVİYE TESİSATI (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWD.10	Laundry tap - 1/2"	pcs
Description/ Specifications	Item covers supply and installation of 1/2" chrome-plated laundry with ceramic seal, including tap rosette. Brass parts including the body are cast, hot forged or rolled products, which are made by removing chips from the bar, will be produced from raw materials in accordance with TS EN 12164-1, -2-, 3, TS EN 12165 standards. Tap will be manufactured in accordance with TS EN 248 surface standard requirements, functional and dimensionally in accordance with TS EN 200, TS EN 274, TS EN 817, TS 3143 product standards. Single-controlled armatures shall be manufactured in accordance with TS EN 1759-1, TS EN 1092-1, double-controlled batteries shall be manufactured in accordance with TS 200, the shaft, body etc. of the standard seal group with rubber flap used in double-controlled products parts will be processed by removing sawdust from the raw material in accordance with TS EN 12164 standard. Gaskets, o-rings, etc. parts used in all products will be made of EPDM, NBR material, components such as oil, gasket, o-ring used in the products KTW (Kalt Trinken Wasser, drinking water standard), WRC (Water Bye Laws Scheme, drinking water contact measure of the amount of toxicity passing into the water from non-metal parts), DVGW (Deutsche Vereinigung des Gas-und Wasserfaches) documents.	

	<p>The aerators must comply with TS EN 246 and have one of the KIWA (Mechanical tests, acoustic tests, measure of colour and taste changes in water) or DVGW and marked on it, the aerator cores will be plastic, the outer surfaces of the flexible connection hoses will be stainless steel braided, the inner hose will be EPDM.</p> <p>The handles and flywheels used in all products should be metal, and the cartridges used in acrylic or non-plastic single-remote batteries will be NSF (The Public Health and Safety Company) or WRAS (Water Regulations Advisory Scheme) certified. Photocell products must be CE certified. The manufacturer must have the Certificate of Competence for Manufacturing, Certificate of Service Qualification, Certificate of After-Sales Service, ISO 9000, ISO 14000 Certificate, and TSE Certificate of Conformity and the documents must be up to date.</p> <p><u>Measurement:</u> Number of complete taps sets shall be measured in pieces (pcs).</p>	
Related official pose/item number, book	25.130.1303 1/2" Kromajlı çamaşır musluğu, seramik salmastralı, musluk rozeti dahil. (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWD.11	Soap holder 16x31cm	pcs
Description/ Specifications	<p>Item covers supply and installation of soap holder (with handle) made of extra quality white coloured tiles, with a dropper, half recessed into the wall or mounted on tiles, including all materials necessary for the installation.</p> <p><u>Measurement:</u> Number of complete taps sets shall be measured in pieces (pcs).</p>	
Related official pose/item number, book	25.135.1203 Süngerlik fayans (Kollu) 16x31 cm (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWD.12	Toilet-paper holder for WC (stainless steel) (Physically Handicapped)	pcs
Description/ Specifications	<p>Supply, installation of toilet paper holder for WC made of stainless steel plate, including all fixing and anchoring.</p> <p><u>Measurement:</u> Number of toilet paper holders installed shall be measured in pieces (pcs).</p>	
Related official pose/item number, book	25.135.2003 Engelliler için kağıtlık (Ministry of Environment and Urbanization)	

Item no	Item	Unit
MWD.13	Clothes hanger (stainless steel)	pcs
Description/ Specifications	Supply, installation of extra quality stainless steel clothes hanger with installation elements. <u>Measurement:</u> Number of hangers shall be measured in pieces (pcs)	
Related official pose/item number, book	25.135.3001 Elbise askısı (paslanmaz çelik) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
MWD.14	Hold Bar for Physically Handicapped	pcs
Description/ Specifications	Supply, installation of fixed hold bar for physically handicapped, chrome plated on stainless steel, with approximately 600mm length, made of profiles with min Ø30mm, including all fixing and anchoring. <u>Measurement:</u> Number of hold bars shall be measured in pieces (pcs).	
Related official pose/item number, book	25.135.4001 Engelliler için tutunma barı (Ministry of Environment and Urbanization)	

Item no	Item	Unit
MWD.15	Toilet Hold Bar for Physically Handicapped	pcs
Description/ Specifications	Supply, installation of toilet hold bar for physically handicapped, chrome plated on stainless steel, with dimensions of 700x740mm approximately, made of profiles with min Ø30mm, including all fixing and anchoring. <u>Measurement:</u> Number of toilet hold bars shall be measured in pieces (pcs).	
Related official pose/item number, book	25.135.4003 Engelliler için klozet tutunma barı (Ministry of Environment and Urbanization)	

Item no	Item	Unit
MWD.16	Cast iron floor drain 15x15cm, Ø70mm outlet	pcs
Description/ Specifications	Supply, installation of cast iron 15x15 cm Ø 70 outlet floor drain which is self-odor fermented, and having grate, and cleaning plug.	

	<u>Measurement:</u> Number of toilet hold bars shall be measured in pieces (pcs).	
Related official pose/item number, book	25.138.1012 Pik döküm 15x15 cm. Ø 70 çıkışlı yer süzgeçi (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWD.17	Polypropylene clean water pipes (PPR-C) PN20 - 25 mm dia.	m
Description/ Specifications	Item covers supply and installation of Polypropylene (PPR-C) Type-3 pipes according to TS EN ISO 15874-2. Pipes shall be documented as suitable for use as drinking water pipe by Ministry of Health. Item includes cutting, welding of the pipe ends at 260 °C using physiothermal welding machine, all workmanship, connections, and fittings necessary for the installation. <u>Measurement:</u> Length of installed pipes shall be measured in meters (m) through shop drawings.	
Related official pose/item number, book	25.305.2102 Pn 20 polipropilen temiz su boru 3/4" 25/4,2 mm Polipropilen temiz su boruları (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWD.18	Polypropylene clean water pipes (PPR-C) PN20 - 32 mm dia.	m
Description/ Specifications	Item covers supply and installation of Polypropylene (PPR-C) Type-3 pipes according to TS EN ISO 15874-2. Pipes shall be documented as suitable for use as drinking water pipe by Ministry of Health. Item includes cutting, welding of the pipe ends at 260 °C using physiothermal welding machine, all workmanship, connections, and fittings necessary for the installation. <u>Measurement:</u> Length of installed pipes shall be measured in meters (m) through shop drawings.	
Related official pose/item number, book	25.305.2103 Pn 20 polipropilen temiz su boru 1" 32/5,4 mm Polipropilen temiz su boruları (Bina içinde fizyoterm kaynak ve vidalı, %45) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWD.19	Hard PVC waste water pipe 70-75 mm dia	m
Description/ Specifications	Item covers supply and installation of hard PVC bellmouth plastic waste water pipes with a wall thickness of 3mm. Pipes shall be manufactured in accordance with TS EN 1329-1. Item includes cutting, all workmanship, connections, and fittings necessary for the installation.	

	<u>Measurement:</u> Length of installed pipes shall be measured in meters (m) through shop drawings.	
Related official pose/item number, book	25.305.6102 Sert PVC plastik pis su borusu (geçme muflu, çap: 75-70 mm, et kalınlığı 3 mm) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWD.20	Hard PVC waste water pipe 100-100 mm dia	m
Description/ Specifications	Item covers supply and installation of hard PVC bellmouth plastic waste water pipes with a wall thickness of 3mm. Pipes shall be manufactured in accordance with TS EN 1329-1. Item includes cutting, all workmanship, connections, and fittings necessary for the installation. <u>Measurement:</u> Length of installed pipes shall be measured in meters (m) through shop drawings.	
Related official pose/item number, book	25.305.6103 Sert PVC plastik pis su borusu (geçme muflu, çap: 100-110 mm, et kalınlığı 3 mm) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWD.21	Ball valve 3/4" - PN 16	pcs
Description/ Specifications	Supply and installation of hand operated for on/off, pig iron or stainless steel ball valves operated by a ball in water with brass sharp element, with screws or flanges, in water, ventilation and steam installations appropriate to 97/23/AT Pressure Equipment Regulation. Valves shall be PN16 pressure class and shall conform with TS EN 3148. <u>Measurement:</u> Number of installed valves shall be measured in pieces (pcs).	
Related official pose/item number, book	25.320.2102 20 Ø mm (3/4"), Piriç, preste imal edilmiş teflon (PTFE), contalı, tam geçişli, vidalı, KÜRESEL VANALAR (TS 3148) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWC.01	Hard PVC Domestic Water Pipe (bonding bellmouth, 25mm dia, 10 atü)	m
Description/ Specifications	Supply and installation rigid PVC plastic drinking water pipe in accordance with TS EN ISO 1452-1,2, as a bonding bellmouth. All fittings and bonding materials and gaskets used in the assembly of rigid PVC bonding and plug-in bellmouth plastic drinking water pipes are included. <u>Measurement:</u> Length of installed pipes shall be measured in meters (m) through shop drawings.	

Related official pose/item number, book	25.305.1102/A Sert PVC içme su borusu (yapıştırma muflu, çap: 25 mm, 10 atü) (Bina içi, %25) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWC.02	Hard PVC Domestic Water Pipe (bonding bellmouth, 32mm dia, 10 atü)	m
Description/ Specifications	Supply and installation rigid PVC plastic drinking water pipe in accordance with TS EN ISO 1452-1,2, as a bonding bellmouth. All fittings and bonding materials and gaskets used in the assembly of rigid PVC bonding and plug-in bellmouth plastic drinking water pipes are included. <u>Measurement:</u> Length of installed pipes shall be measured in meters (m) through shop drawings.	
Related official pose/item number, book	25.305.1103/A Sert PVC içme su borusu (yapıştırma muflu, çap: 32 mm, 10 atü) (Bina içi, %25) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWC.03	Outdoor Unit - Cooling capacity (nom):44 kW, heating capacity (nom):49 kW	pcs
Description/ Specifications	This item covers provision and installation of outdoor VRV unit or group of units with cooling and heating capacities shown in the item title, with air-cooled condenser, DC inverter compressor, connectable to internal units with branch parts and various capacity and type, on single line, including one liquid and gas line from external unit or external unit group. Unit shall have an EER (Cooling Efficiency Coefficient) value at least 3,2 and a COP value of at least 3,4. After on-site delivery and installation, and after all pipe and electrical connections have been made, entire system shall be pressurized with refrigerant gas. Nominal capacity and efficiency values in cooling Indoor: 27 CKT / 19 CW Outer Environment: 35 CKT / 24 CWT; Ambient: 20 C KT/15 CW Outdoor: 7 CKT/6 CYT and pipe length of 7.5 m and level difference at 0 m. After installation of the external units, the installation shall be tested with N2 (Nitrogen) gas gradually increasing to 25 bar and tested under this pressure for at least 24 hours., Unit shall be delivered in fully operational condition. Contractor shall follow manufacturer's instructions for installation and testing. <u>Measurement:</u> Number of units or combined unit sets providing the specified heating and cooling capacity shall be measured in pieces (pcs).	
Related official pose/item number, book	25.490.1105 Soğutma kapasitesi (nom): 44 kW, ısıtma kapasitesi (nom): 49 kW, Tümü frekans kontrollü kompresörlü dış ünite veya dış ünite grubu (Ministry of Environment and Urbanization)	
Item no	Item	Unit

MWC.04	Cassette type indoor unit - Cooling capacity (nom):7 kW, heating capacity (nom):7,5 kW	pcs
Description/ Specifications	<p>Installation and handover in operating status of cassette type indoor unit with the heating and cooling capacities specified in item title above; used by hanging in suspended ceiling clearances, carrying out up/down, left/right routing with air directing flaps, appropriate to the type in project, with two or four blowing directions. There shall be a standard drainage pump in the unit, able to pump at least 50cm head (from the lower level of the device). Indoor units shall have an energy label of minimum A+ both for heating and cooling and shall be supplied from the same manufacturer as the outdoor unit.</p> <p>Contractor shall follow manufacturer's instructions for the installation and testing.</p> <p><u>Measurement:</u> Number of indoor units shall be measured in pieces (pcs).</p>	
Related official pose/item number, book	25.490.2206 Soğutma kapasitesi (nom):7 -7,5 kW, ısıtma kapasitesi (nom):7,5-8,5 kW. Kaset tipi iç ünite (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWC.05	Cassette type indoor unit - Cooling capacity (nom):9-11 kW, heating capacity (nom):9.9-12 kW	pcs
Description/ Specifications	<i>Please see item MWC.04 above.</i>	
Related official pose/item number, book	25.490.2208 Soğutma kapasitesi (nom):9,0 -11 kW, ısıtma kapasitesi (nom) 9,9-12 kW. Kaset tipi iç ünite (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWC.06	Cassette type indoor unit - Cooling capacity (nom):11-12 kW, heating capacity (nom):12-13 kW	pcs
Description/ Specifications	<i>Please see item MWC.04 above.</i>	
Related official pose/item number, book	25.490.2209 Soğutma kapasitesi (nom):11-12 kW, ısıtma kapasitesi (nom):12 -13 kW. Kaset tipi iç ünite (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWC.07	Remote control for indoor units and its sensor	pcs
Description/ Specifications	Supply, installation, and handover in operating status of wireless remote controller and sensor that is able to control all the functions of the indoor unit without any cable connection with the indoor unit, including controller and sensor. Contractor shall ensure	

	<p>that the remote controllers are of the same manufacturer with the indoor units and compatible with the supplied product model.</p> <p><u>Measurement:</u> Number of wireless remote controllers shall be measured in pieces (pcs). Sensors are already included in the numbers of remote controllers and they will not be considered for the measurement.</p>
Related official pose/item number, book	25.490.5102 Kablosuz Uzaktan Kumanda Cihazı ve Algılayıcı (Ministry of Environment and Urbanization)

Item no	Item	Unit
MWC.08	Copper Pipe Group 3/8" 0,8 mm (13mm isolation)	m
Description/ Specifications	<p>Item covers supply and installation and set into operation and tests of copper pipe group with its fittings.</p> <p>Copper piper group shall be isolated and covered with rubber or elastomeric rubber foam and with at least the mentioned thickness and copper pipes shall be manufactured according to TS EN 12449 to be used in multi indoor unit air conditioning system with variable refrigerant flow. The pipe outlets shall be checked against humidity and dust. Welding operation will be made with silver-copper alloy, under N2(Nitrogen) to prevent oxidation. A carrying clamp will be used at least in every 1 meter in copper pipe plumbing. Inside of the pipes will be swept out with N2(Nitrogen) gas before the copper pipe plumbing is completed and the system is operated. After the copper pipe plumbing works are done the pipe system will be pressurized with N2(Nitrogen) gas gradually up to 41,5 bar pressure and will be tested under this pressure for at least 24 hours.</p> <p><u>Measurement:</u> Length of pipes shall be measured in meters (m) from Contractor's approved shop drawings.</p>	
Related official pose/item number, book	25.490.8102 Bakır Boru Grubu 3/8" 0,8 mm (13 mm İzo) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
MWC.09	Copper Pipe Group 1/2" 0,8 mm (13mm isolation)	m
Description/ Specifications	<i>Please see item MWC.08 above.</i>	
Related official pose/item number, book	25.490.8103 Bakır Boru Grubu 1/2" 0,8 mm (13 mm İzo) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
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MWC.10	Copper Pipe Group 5/8" 1.0 mm (13mm isolation)	m
Description/ Specifications	<i>Please see item MWC.08 above.</i>	
Related official pose/item number, book	25.490.8104 Bakır Boru Grubu 5/8" 1.0 mm (13 mm İzo) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWC.11	Copper Pipe Group 3/4" 1.0 mm (13mm isolation)	m
Description/ Specifications	<i>Please see item MWC.08 above.</i>	
Related official pose/item number, book	25.490.8105 Bakır Boru Grubu 3/4" 1.0 mm (13 mm İzo) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWC.12	Copper Pipe Group 1" 1.2 mm (13mm isolation)	m
Description/ Specifications	<i>Please see item MWC.08 above.</i>	
Related official pose/item number, book	25.490.8107 Bakır Boru Grubu 1" 1.2 mm (13 mm İzo) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWC.13	Copper Pipe Group 1 1/8" 1.2 mm (19mm isolation)	m
Description/ Specifications	<i>Please see item MWC.08 above.</i>	
Related official pose/item number, book	25.490.8108 Bakır Boru Grubu 1 1/8" 1.2 mm (19 mm İzo) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
MWC.14	Connection (joint) elements (dual) up to 25 kW	pcs
Description/ Specifications	This item covers provision and installation of joint elements for use in liquid and gas (dual) lines, based on line load. Joint elements shall conform with TS EN 10670, 15266, 14800, TS 6356, accordingly. Manufacturer company shall have TS EN ISO 10380 certificate.	

	Contractor shall provide sample(s) and material certificates showing conformance to the related standard(s) for Engineer's approval. <u>Measurement:</u> Number of complete connection (joint) element sets shall be measured in pieces (pcs).
Related official pose/item number, book	25.490.8201 25 kW'a kadar, Bağlantı (joint) elemanları (Ministry of Environment and Urbanization)

4.5. ITEM DESCRIPTIONS FOR ELECTRICAL WORKS

Item no	Item	Unit
ELW.01	Special sheet board- with front cover	pcs
Description/ Specifications	Item covers supply, installation with material and workmanship of special sheet board, 2mm DKP sheet covered on approximately 1.800 mm height, 350 mm depth and 500 mm width brace or profile iron skeleton, totally closed, front, back or both sides with lockable cover, drilling of necessary holes on the board according to its project for the placement of the devices, painting of boards interior and exterior skeleton with oven-dried or cellulosic paint in required colour to protect against rust and external effects, with all kinds of small material, electric terminals for device connections. Sheet boards shall be manufactured in accordance with TS 3367 EN 60439-1, and the type tests shall be submitted to the Engineer. <u>Measurement:</u> Number of special sheet boards shall be measured in pieces (pcs).	
Related official pose/item number, book	35.100.6201 Önden kapaklı pano, Özel sac panolar (TS 3367 EN 60439-1) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.02	Flush switch box (for 12 switches)	pcs
Description/ Specifications	Item covers supply, installation of flush, halogen-free and flame-retardant switch boxes (panels) that can accommodate 12 switches. Switch boxes shall conform with TS EN 60670-24, TS IEC 60331, TS 61034, TS 50200, TS EN 50266, TS EN 60754-1, and type tests shall be submitted to the Engineer. <u>Measurement:</u> Number of switch boxes (panels) shall be measured in pieces (pcs).	
Related official pose/item number, book	35.100.7204 12 Otomatik sigortalık, Halojensiz alev geciktirici tip siva altı tablolar (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.03	Thermal Magnetic Switch-board back- (3x10A to 3x63A, Icu: 35 kA)	pcs
Description/ Specifications	<p>Supplying and installation of compact circuit breaker which is compact type made of fibre glass polyester casing with high electrical and mechanical strength, with Vo inflammability class of UL-94 standard, made of material which can resist up to 150°C, able to break in airy environment, having trip mechanism which is independent from manual movement, having thermal overcurrent and magnetic circuit breaker protector relay (there are three protector relay in tri-phase models), having current limiting property, where operational short circuit capacity is minimum 50% Icu. Switches shall conform with TS EN 60947-2.</p> <p><u>Measurement:</u> Number of switches shall be measured in pieces (pcs.)</p>	
Related official pose/item number, book	35.110.1101 12 3x10A'den 3x63A'e kadar, Icu: 35 kA, I1 (0,8-1) In, 3 kutuplu, 400 V AC'de en az Icu: 35 kA, Termik Koruma ayarlı, Manyetik Koruma Sabit, Kompakt tip termik ve manyetik koruyuculu şalterler (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.04	Leakage current protection switches up to 4x40 A (30 mA)	pcs
Description/ Specifications	<p>Supplying, installation of leakage current circuit breakers which are made accordingly with electrical Interior Installation regulations, specifications, standards which will detect fault (leakage) current which will occur in phases and neutral lines when there is any leakage in electrical installations and then will break circuit in 10-30ms period and maintain life and property security which will be operated with 220 V in monophasic circuits and 380V in three-phase circuits, having differential coil, having test button for controlling whether system is operating, which can be mounted over support rails inside panel, which have protection against external effects which can operate in neutral line disconnections for 30 mA for life protection and 300 mA for property protection.</p> <p>Switches shall conform with TS EN 61008-1, TS EN 61008-2-1, CEE 27 standards and shall have CE marking.</p> <p><u>Measurement:</u> Number of switches shall be measured in pieces (pcs.)</p>	
Related official pose/item number, book	35.115.1021 4x40 A'e kadar (30 mA), Kaçak akım koruma şalterleri (TS EN 61008-1/TS EN 61008-2-1) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.05	Residual Current Circuit Breakers – Up to 4x63 A (300 mA)	pcs
Description/ Specifications	Supply, installation and handing over in operating status of residual current circuit breakers produced appropriate to Electrical Installation Regulations and standards, ensuring the safety of life and property through detecting the fault current on the phases and the neutral	

	line and switching off in 10-30ms, if there is any residual current in the electrical installations. Circuit breakers must be working in 220V in single-phase circuits, and in 380V in three-phase circuits, and they shall have differential coil with test button on it to check whether the system is working, protected against external influences, shall be mountable on rails in panel board, complying with TS EN 61008-1 TS EN 61008-2-1, CEE27 and other related international standards. Circuit breakers must operate in values of 30 mA for life protection, 300 mA for fire protection, and can function even when neutral line is cut off. Measurement: Number of circuit breakers shall be measured in pieces (pcs)
Related official pose/item number, book	35.115.1062 4x63 A'e kadar (300 mA), Kaçak akım koruma şalterleri (TS EN 61008-1/TS EN 61008-2-1) (Ministry of Environment and Urbanization)

Item no	Item	Unit
ELW.06	Panel-type surge protector, B class, 230VAC, 100 kA (I imp, 10/350µs) three phase	pcs
Description/ Specifications	Item covers supply and installation of Type1 surge protectors to protect the power supplies against atmospheric discharges (lightning) and transient overvoltage peaks with one, two, three phases, and on neutral. Protector shall have additional contact outlet for the signalling, if desired. Protectors shall be easily installed in the panel boards, without damaging the board and other materials in the board, without the need to leave a safety distance with other materials and panel. Protectors shall conform with TS EN 61643-11 standard and shall have CE conformity mark. Surge protectors shall be fully hermetically completely sealed. There shall be no spark gap on protector. Protector should extinguish arc by itself, and not by air letting arc flowing across the spark gap and so protector can be mounted securely in the cabinet on anywhere without the need to keep any safety distance. <u>Measurement:</u> Number of protectors shall be measured in pieces (pcs).	
Related official pose/item number, book	35.115.2101 B sınıfı, 230 V AC, 100 kA (I imp, 10/350µs), üç faz, nötr-toprak, Pano tipi aşırı gerilim koruyucuları (Alçak Gerilim Parafudrları) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.07	Automatic circuit breaker with switch (6 kA) – up to 16 A	pcs
Description/ Specifications	Item covers supply and installation of automatic circuit breaker with 6kA short circuit capacity which also acts as switch, where 2 and 4 poled ones have neutral and phase breaking property, Where B and C curve are generated accordingly with TS 5018-1 EN 60898-1 standards and have CE compatibility marking. <u>Measurement:</u> Number of circuit breakers shall be measured in pieces (pcs).	

Related official pose/item number, book	35.105.1210 16 A'e kadar (6 kA), Anahtarlı Otomatik Sigortalar (6 kA kesme kapasiteli) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
ELW.08	Copper busbar for cast boxes and panel boards	kg
Description/ Specifications	<p>When the equipment needs to be protected against humidity, dust and mechanical impacts, the boards will be made of waterproof boxes including cast iron or aluminium gusset covers that can be pieced together. When connections with higher cross sections than 16mm² are to be used, distribution will be made with copper rods in different boxes. Entrance and exits to the board will be made by gasketed and stainless material made outlets. It should be possible to command switches when the cover is closed, and the circuit breakers mounted on after the cover is opened. There should be earthing busbars for safety line connections and insulated busbars for neutral lines. All current carrying parts will be galvanized or made of stainless metal.</p> <p>Busbars shall be appropriate to be used in cast boxes and panel boards, shall conform with TS EN 13601, and shall be painted as per TS EN 60445.</p> <p><u>Measurement:</u> Weight of the busbar only shall be measured in kilograms (kg) through shop drawings.</p>	
Related official pose/item number, book	35.100.7000 Döküm kutu içine ve panolara konulacak TSE şartlarına uygun bakır bara temin ve montajı ve TS EN 60445'deki renklere boyanması (Ministry of Environment and Urbanization)	
Item no	Item	Unit
ELW.09	Cable Trays	kg
Description/ Specifications	<p>Item covers supply and installation cable tray systems for supporting electrical cables safely, according to TS EN 61537 standard, dimensions accordingly with approved electrical project of which electrical installation is accordingly with general technical specification, accordingly with TS EN 10130/10131 standard. Cable trays shall have adequate width and height to support cable load, having perforating holes over it. Grooves shall be opened on trays by chording longitudinally and latitudinally to increase load bearing capacity of the trays and to avoid any bending. Trays shall be kept at chemical bath for eliminating oil and grease and shall have flux coating. Trays shall be hot dip galvanized as per TS EN ISO 1461 standard after being subjected to preliminary drying. Joints to be used vertically and horizontally and for changing direction, reductions, brackets which will serve as support, suspension rods, suspension elements, fixation crochets, nut, washer, and similar elements are also included in this item and they will be hot dip galvanized. Conformity certificate indicating that TS EN ISO 1461 standard requirements are followed for galvanizing will be submitted to the Engineer.</p> <p>Unit price includes all materials and wastes, workmanship, tools and equipment necessary for provision and installation of cable tray systems.</p>	

	<p><u>Measurement:</u> Weight of the cable tray shall be measured in kilograms (kg). Only weight of the tray itself shall be considered in measurements and all other parts such as joints to be used vertically and horizontally and for changing direction, reductions, brackets which will serve as support, suspension rods, suspension elements, fixation crochets, nut, washer, and similar elements shall NOT be considered in measurement.</p>
Related official pose/item number, book	35.190.1100 Kablo Tava Sistemleri (Ministry of Environment and Urbanization)

Item no	Item	Unit
ELW.10	Building surrounding conductor 30x3.5mm galvanized flat steel	m
Description/ Specifications	<p>Item covers supply and installation of building surrounding conductor (30x3.5mm galvanized steel), opening any kind of canal in any kind of ground with 60-80 cm depth around building, furnishing conductor and closing canal, connecting to electrodes by rivets or welding included in accordance with TS EN 62305-1/2/3/4. Unit price includes all materials and wastes, workmanship, tools, and equipment necessary for provision and installation of building surrounding conductors.</p> <p><u>Measurement:</u> Length of installed conductor shall be measured in meters (m).</p>	
Related official pose/item number, book	35.750.3002 30x3,5 mm ebadında şartnamesine uygun galvanizli çelik lama, Bina ihata iletkeni tesisatı (TS EN 62305-1/2/3/4) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.11	Earthing electrode (rod), electrolytic copper	pcs
Description/ Specifications	<p>Item covers supply and installation of electrolytic copper rod with minimum 3,5 m length and 20 mm diameter in accordance with TS 435/T1 standard, screwing cone shaped head for driving into ground, if rod consists of two parts opening thread with 4 cm length for connection and burying at least 60 cm depth below ground, connection to landing building surrounding conductor by silver welding and special fixation clamp made of brass. including any kind of minor material. All applications shall comply with TS EN 62305-1/2/3/4.</p> <p><u>Measurement:</u> Number of electrodes shall be measured in pieces (pcs).</p>	
Related official pose/item number, book	35.750.4002 Toprak elektrodu (çubuk) elektrolitik bakır (Ministry of Environment and Urbanization)	

Item no	Item	Unit
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ELW.12	1kV Underground cable (NYY)-4x10 mm²	m
Description/ Specifications	Supply and installation of underground cable, passage and protection pipes, (all kinds of material and workmanship included) to be mounted on surface, on the walls by consoles and straps, on ceiling or in the ducts inside the building, in the channels outside the building. Each of the multiple cables installed in the same duct should be protected in pipe culverts or pipes with necessary diameter and length in crossings. Item covers provision and installation of all types of pipes, cable straps, junction boxes, electrical terminals, iron console, paint, and all other materials necessary for the installation and protection of the cable. Cable shall conform with TS IEC 60502-1+A1 <u>Measurement:</u> Length of the installed cable shall be measured in meters (m).	
Related official pose/item number, book	35.140.3224 4x10 mm ² , 1 kV yeraltı kabloları ile kolon ve besleme hattı tesisi YVV (NYY) (TS IEC 60502-1+A1) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
ELW.13	Socket outlet with safety line	pcs
Description/ Specifications	Linear and sortie lines will be phase, neutral with a cross section of at least 2.5 mm ² , and phase and neutral conductors (coloured according to TS EN 60445) in the socket with safety line. The outlet will be a plastic insulated type inside a PVC pipe. Junction box, terminal, socket, all kinds of material supply and assembly are included. <u>Measurement:</u> Number of socket outlets as complete shall be measured in pieces (pcs).	
Related official pose/item number, book	35.160.1500 Güvenlik hattı priz sortisi, Priz sortisi (Ministry of Environment and Urbanization)	
Item no	Item	Unit
ELW.14	Weatherproofing outlet in galvanized pipe (normal)	pcs
Description/ Specifications	Linear and outlet lines will be phase, neutral with a cross section of at least 2.5 mm ² for distribution and 1.5mm ² for outlet, where conductors shall be coloured according to TS EN 60445. Outlet shall be installed through galvanized pipe. All materials (junction box, terminal, switch etc.) are included and they all shall be weatherproof. <u>Measurement:</u> Number of outlets as complete shall be measured in pieces (pcs).	

Related official pose/item number, book	35.160.1211 Galvanizli boru içinde etanş aydınlatma sortisi (normal) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
ELW.15	Weatherproof outlet in galvanized pipe (commutator)	pcs
Description/ Specifications	<p>Linear and outlet lines will be phase, neutral with a cross section of at least 2.5 mm² for distribution and 1.5mm² for outlet, where conductors shall be coloured according to TS EN 60445. Outlet shall be installed through galvanized pipe.</p> <p>All materials (junction box, terminal, switch etc.) are included and they all shall be weatherproof. Lighting fixture is not included.</p> <p><u>Measurement:</u> Number of outlets as complete shall be measured in pieces (pcs).</p>	
Related official pose/item number, book	35.160.1212 Galvanizli boru içinde etanş aydınlatma sortisi (komütatör) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.16	Weatherproof socket outlet	pcs
Description/ Specifications	<p>Linear and outlet lines will be phase, neutral with a cross section of at least 2.5 mm² for distribution and 1.5mm² for outlet, where conductors shall be lead-free antigron and shall be coloured according to TS EN 60445. Outlet shall be installed through bergman or PVC pipes.</p> <p>All materials (junction box, terminal, switch etc.) are included and they all shall be weatherproof. Lighting fixture is not included.</p> <p><u>Measurement:</u> Number of outlets as complete shall be measured in pieces (pcs).</p>	
Related official pose/item number, book	35.160.1602 Linye hattı peşel, bergman veya PVC boru içerisinde plastik izoleli iletkenler sorti hatları kurşunsun antigron (NVV) (NYM) cinsinden malzeme ile normal priz sortisi, ETANJ PRİZ SORTİSİ (Güvenlik hatlı) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.17	Supply Line Establishment with lead-free PVC insulated cables (NHXMH, at least 300/500 V), 3x2.5 mm²	m
Description/ Specifications	<p>Item covers column or supply line establishment by supply and installation of flame-retardant, halogen-free cables for main line and supply lines. All halogen-free material shall be manufactured appropriate to TS EN 50525-3-31, TS EN 50267-2-1,2,3 standards and</p>	

	<p>2014/35/ AB Electrical Equipment designed to be used in determined voltage limits regulation, presented to the market with CE appropriateness sign, plastic insulated (HO7Z, O7Z1, at least 300/500 V). Phase and neutral conductors shall comply with IEC 60332 Part3.1-C, IEC 60754 norms. Item also includes, pipe, strap, junction box, muff, bracket, electric terminal, iron console, paint all kinds of other materials necessary for the establishment of the supply line.</p> <p><u>Measurement:</u> Length of supply line shall be measured in meters (m).</p>
Related official pose/item number, book	<p>35.150.1531 3x2.5 mm², Kurşunsuz PVC izoleli kablolar ile besleme hattı tesisi (NHXMH, en az 300/500 V) (Ministry of Environment and Urbanization)</p>

Item no	Item	Unit
ELW.18	1kV Underground cable (N2XH, 1 kV) 5x6 mm2	m
Description/ Specifications	<p>Item covers supply and installation of underground cable to be installed surface-mounted inside the buildings through crochets or brackets onto walls or roofs, or into ducts/conduits; and into channels/conduits outside the building including crossing and safety pipes, any kind of material, and crochets; including all materials and wastes, workmanship, tools, and equipment necessary for provision and installation of cables, all transportations, loading, unloading.</p> <p>Materials shall be manufactured according to TS EN 50525-3-31 standards and its phase and neutral conductors shall conform with IEC 60332 Part3.1-C in line with Electrical Internal Facilities Regulation.</p> <p>Conductors shall be isolated with plastic (HO7Z, O7Z1, minimum 300/500V). Supply and installation of all necessary pipes, crochet, junction boxes, muffs, elbows, terminal blocks, iron consoles, and necessary painting is also included in this item.</p> <p><u>Measurement:</u> Length of installed cables shall be measured in meters (m).</p>	
Related official pose/item number, book	<p>35.150.2213 5x6 mm², 1 kV yer altı kabloları ile kolon ve besleme hattı tesisi (N2XH, 0,6/1 kV) (Ministry of Environment and Urbanization)</p>	

Item no	Item	Unit
ELW.19	Television outlet	pcs
Description/ Specifications	<p>Item covers supply and installation of coaxial cable in PVC pipe, (shielded microphone cable shall NOT be used) antenna downlink, special socket distributor electric terminal, and hand over in operating status with all kinds of material and workmanship included.</p> <p><u>Measurement:</u> Number of outlets as complete shall be measured in pieces (pcs).</p>	

Related official pose/item number, book	35.480.1000 Televizyon sortisi, ANTEN TESİSATI (Ministry of Environment and Urbanization)	
Item no	Item	Unit
ELW.20	2x2x0,8+0,8 mm ² Je-H(St)H Fe 180 PH 120 fire resistant halogen-free alarm cable	m
Description/ Specifications	<p>The operating temperature of these halogen-free screened control and internal connection cables will be in the range of -30 ° C to + 70 ° C. It will be able to protect against external signals, comply with TS EN 60228, thin multi-stranded electrolytic copper will be in accordance with TS EN 50290-2-26, HFFR compound will be insulated in colours complying with the standard DIN 47100. The cores (strands) of the cables will be formed by twisting them together in double twisted layers. The outer sheath shall be HFFR compound (component) in accordance with EN 50290-2-27, sheathed with AL-PES winding tape together with the ground wire. Cables will be in RAL 7001 grey colour.</p> <p>Cables shall be in accordance with TS EN 60332-1-2, TS EN 60754-1, TS EN 61034-2, and VDE 0815 standards with IEC-332-1, IEC-332-3, IEC-60754, IEC-60332 flame test certificate. HFFR pipe is included in the internal installation.</p> <p><u>Measurement:</u> Length of installed cables shall be measured in meters (m).</p>	
Related official pose/item number, book	35.520.5002 2x2x0,8+0,8 mm ² , JE-H(St) H FE180 PH120 YANGINA DAYANIKLI HALOJENSİZ YANGIN ALARM KABLOLARI (VDE 0815) (Ministry of Environment and Urbanization)	
Item no	Item	Unit
ELW.21	RG 6AU, 75 Impedance Coaxial Cables	m
Description/ Specifications	<p>Item covers supply and installation of coaxial cables which shall be used in TV, fire control and in many transmitter equipment, satellite antenna, CCTV antenna and measurement systems, in applications where signal loss should be kept at minimum or external interferences should be avoided.</p> <p>Cables shall conform with TS EN 50117-1 standard, shall be manufactured accordingly with Electrical Equipment Regulation 2014/35/EU, 2006/95 / AT Low Voltage Directive, and shall have CE marking. All necessary conduit and piping are included in this item.</p> <p><u>Measurement:</u> Length of installed cables shall be measured in meters (m).</p>	
Related official pose/item number, book	35.505.1001 RG 6AU 75, Koaksiyal Kablolar, TSEK Belgeli (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.22	RG 11 A/U 75 Impedance Coaxial Cables	m
Description/ Specifications	<i>Please see item ELW.21 above.</i>	
Related official pose/item number, book	35.505.1002 RG 11 A/U 75, Koaksiyal Kablolar, TSEK Belgeli (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.23	UTP Cat 6 Halogen free 4x2x23 AWG cable	m
Description/ Specifications	<p>The cables will be of the type used for data communication at 250 Mhz bandwidth and 250 Mbps between computers for horizontal installations in local area networks, will be 4 pairs of 4 color-coded unshielded twisted pairs (unshielded twisted pair) and HFFR outer sheet shall cover them all. Due to this sheathing, cables shall delay inflammation and shall be self-extinguishing.</p> <p>Cables will not emit toxic gas and smoke during inflammation, shall have IEC 60332-1 IEC 60754 test compliance certificates, 4 pairs of cables will be 23 AWG 0.57mm bare copper coating criteria in ISO class D - CAT6e standard.</p> <p><u>Measurement:</u> Length of installed cables shall be measured in meters (m).</p>	
Related official pose/item number, book	35.515.7030 Utp Cat6H HALOJEN FREE 4x2x23 AWG, BAKIR DATA KABLOLARI (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.24	36W LED Luminaires - suspended ceiling	pcs
Description/ Specifications	<p>All led luminaires shall be ENEC certified, and the drive PFC shall be at least 0,95. The leds used shall be IESNA LM-80 certified. The lifetime of the luminaires shall be at least 50000 (L70) hours and luminaire colour rendering index (CRI) shall be at least 80 according to TM-21 calculation table and shall have homogeneous light distribution. Luminaires shall comply with TS EN 60598-1, TS 8698 EN 60598-2-1, TS EN 60598-2-2 standards, and luminaire drivers shall comply with TS EN 61347-1 and TS EN 61347-2-13 standards (2014/35 / EU). It shall be placed on the market with the CE mark of conformity in accordance with the regulations on Electrical Equipment Designed for Voltage Limits.</p> <p>The luminaires shall have photometric measurement report in accordance with IESNA LM-79 standards taken from an accredited laboratory, IP protection degree tests shall be performed according to TS 3033 EN 60529 standard and IK protection degree tests shall be performed according to TS EN 62262 standard. In addition, the luminaires shall be manufactured in accordance with the Regulation on Control of Waste Electrical and Electronic Equipment. The dimensions of the lighting fixture will be 30x30cm.</p>	

	<p>The light flux shall be at least 3300 lumens and the power consumption shall be at most 12W. Lighting fixture shall be flush-mounted.</p> <p>The body of the luminaire shall be manufactured from at least 0.5 mm and frame of at least 0.7 mm DKP sheet, with at least 1 mm thickness opal PMMA diffuser and at least IP 40 protection degree.</p> <p>Contractor shall provide at least three different complete samples for Engineer's approval and decision in agreement with the Beneficiary.</p> <p><u>Measurement:</u> Number of complete luminaires shall be measured in pieces (pcs).</p>
Related official pose/item number, book	35.170.1106 Sıva altı, min. 60x60 ebatlarında LED'li tavan armatürü (ışık akısı en az 3300 lm, tüketim değeri en fazla 36 W olan) (Ministry of Environment and Urbanization)

Item no	Item	Unit
ELW.25	24W LED Luminaires with sensor - ceiling (downlight)	pcs
Description/ Specifications	<p><i>Please refer to item ELW.24 above, except for the following:</i></p> <p>Lighting fixtures shall be circular (downlight) and shall have sensor that detects movements to turn the light on automatically. Run time and sensitivity must be easily adjustable. The light flux shall be at least 1700 lumens and the power consumption shall be at most 24W.</p>	
Related official pose/item number, book	35.170.1502 Sıva altı, LED'li dairesel (downlight) armatür (ışık akısı en az 1700 lm, tüketim değeri en fazla 24 W olan) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.26	Emergency lighting set for LED luminaires	pcs
Description/ Specifications	<p>Item covers the supply and installation of the emergency lighting set to be installed for the luminaires in order to ensure the operation of the luminaires in emergency situations, which can provide the emergency light intensity value specified in the related project drawings and specifications up to 3 hours. Emergency lighting set will consist of high temperature type Ni-cd battery, charging unit and status led and will be compatible with led luminaire drivers. The set will be produced in accordance with TS EN 61347-2-7, TS EN 60598-2-22 standards and will be offered to the market with CE mark.</p> <p><u>Measurement:</u> Number of complete emergency lighting sets shall be measured in pieces (pcs).</p>	
Related official pose/item number, book	35.170.3050 Led aydınlatma armatürleri için acil durum aydınlatma kiti fiyat farkı (Ministry of Environment and Urbanization)	

Item no	Item	Unit
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ELW.27	Double Sided Emergency Routing Armature with LED (1 hour lighting duration)	pcs
Description/ Specifications	Item covers supply and installation of emergency routing armature having emergency exit sign with at least 12x30 cm dimensions, white on green coloured, pasted or screen-printed on plexiglass, appropriate to TS 8710 EN 60598-2-22 standard and 2014/35/AB Electrical Equipment designed to be used in determined voltage limits regulation, presented to the market with CE appropriateness sign. <u>Measurement:</u> Number of installed armatures shall be measured in pieces (pcs).	
Related official pose/item number, book	35.440.2103 1 saat süreli çift yüzü, kesintide yanan acil durum yönlendirme armatürü (Ledli) (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.28	UPS, single phase input and output 6 kVA	pcs
Description/ Specifications	Item covers supply and installation of uninterruptable power supply unit with 6kVA having single phase input and output. Ups unit shall be manufactured in accordance with Electrical Equipment Regulation 2014/35/EU, 2004/108/EC Electromagnetic compatibility, and regulation regarding making change in Energy market customer relations which is published in official gazette no 26558 dated 20 June 2007. Unit shall also comply with TS EN 62040-1/2/3 standard, which can provide desired power at all times with uninterrupted manner during power cut-offs, for a duration of at least 10 minutes. Unit shall have sufficient dry type maintenance free battery group which will be sufficient in full load when there is power failure. On the unit, there shall be LCD or graph display which have illuminated mimic diagram that can be understood easily and indicating system status. Display shall be able to show voltage, current/frequency, load status, battery status in front panel. Batteries to be used will be maintenance-free dry type and will have TSE certificate. <u>Measurement:</u> Number of power supply unit (complete unit) shall be measured as one piece (pcs).	
Related official pose/item number, book	35.180.1101 6 kVA, en az 10 dakika akü besleme süreli, Bir faz giriş bir faz çıkışlı Kesintisiz Güç Kaynağı (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.29	Conventional fire alarm button	pcs
Description/ Specifications	Conventional fire call buttons should be activated by breaking the plastic film coated glass on them. When the glass breaks, a microswitch that normally rests on the glass should become free and change position and remain in this position until a new glass is installed. The button should be able to be tested without breaking the windows by means of a test key. The button will be manufactured in accordance with TS EN 54-11 standard,	

	305/2011/EU Building Materials Regulation, submitted to the market with the CE conformity mark, the manufacturer's performance statement and the Performance Invariance Certificate obtained from organizations accredited by the European Union. <u>Measurement:</u> Number of fire alarm buttons shall be measured in pieces (pcs).
Related official pose/item number, book	35.415.1400 Konvansiyonel yangın ihbar butonu ve montajı (Ministry of Environment and Urbanization)

Item no	Item	Unit
ELW.30	Conventional optical smoke detector	pcs
Description/ Specifications	The detector will detect smoke by optical method. The detector will have a photoelectric smoke cell that works on the principle of light scattering. The detector will be suitable for the parallel warning lamp connection and will have a socket that allows it to be attached and disconnected. The detector will have TS EN 54-7 standard, 305/2011 / EU Building Materials Regulation, put on the market with CE conformity mark, manufacturer's performance statement and Performance Invariance Certificate obtained from organizations accredited by the European Union. The supply of the detector, including any and all small materials, is included in the delivery in working condition after testing. <u>Measurement:</u> Number of smoke detectors shall be measured in pieces (pcs).	
Related official pose/item number, book	35.415.1450 Konvansiyonel optik duman dedektörü ve montajı (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.31	Parallel warning light	pcs
Description/ Specifications	With the detection of the fire alarm detectors, it will work with the signal coming from the parallel warning lamp output. It will be used in places where it is difficult or impossible to see and monitor the indicator (light (led)) on the detector. The indicator (light (led)) on the parallel warning lamp should be red and not smaller than 10 mm for easy monitoring. The parallel warning lamp will be the product of the manufacturer company that has ISO 9001 Quality Management System certificates. Item includes parallel warning lamp supply, installation, connection and delivery in working condition. <u>Measurement:</u> Number of warning lights shall be measured in pieces (pcs).	
Related official pose/item number, book	35.415.1460 Paralel ihbar lambası (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.32	Conventional type fire alarm station up to (including) 4 zones	pcs
Description/ Specifications	<p>Conventional fire alarm control panel will be suitable for the connection of conventional optical smoke, constant temperature, temperature rise rate, optical smoke and temperature, natural gas, LPG and carbon monoxide detectors, conventional internal and external fire alarm buttons, audible and illuminated alarm devices. The fire alarm control panel should have at least 1 audible alarm output as standard and alarm and fault outputs for signalling to the fire brigade or to a remote firefighting centre or an observation station. The fire alarm control panel should be able to work on its own as well as with the repeater panel by using a driver card. The conventional fire alarm control panel must constantly monitor all lines leading to detection and alarm devices against faults such as disconnection, short circuit and dismantling of devices on the line. The fire alarm control panel must have a general fire alarm and fault lamp, separate alarm and fault lamps for each fire zone, and a local audible warning device. There will be a lock system on the alarm switchboard that prevents unauthorized persons from interfering with the switchboard. In case the main supply is interrupted, the fire alarm system should be equipped with fully sealed, sealed type, maintenance-free accumulators that will be able to fulfil its detection functions for at least 24 hours and at the end of this period to perform all alarm, control, and communication functions for at least 30 minutes. The grounding of the switchboard must be done independently, and with not greater than 5 ohms. The switchboard will have TS EN 54-2 and TS EN 54-4 standard, 305/2011 / EU Construction Materials Regulation, put on the market with CE conformity mark, the manufacturer's performance statement and the Performance Invariance Certificate obtained from organizations accredited by the European Union. Conventional fire alarm station supply, installation, delivery in working condition, including any and all materials and labour are covered by this item.</p> <p><u>Measurement:</u> Number of complete fire alarm stations (switchboards) shall be measured in pieces (pcs).</p>	
Related official pose/item number, book	35.415.1110 4 Bölgeye kadar (dahil), Konvansiyonel tip yangın ihbar santrali (Ministry of Environment and Urbanization)	
Item no	Item	Unit
ELW.33	External type electronic fire alarm siren with strobe lights	pcs
Description/ Specifications	<p>The body of the built-in siren beacon must be strong and heat resistant. The sounder flasher should have a minimum sound intensity of 100 db / 1mt. The minimum flashing energy of the sounder beacon should be 2.5 Joules, and the flash frequency should be 1 Hz. The siren flasher must be visible even at a remote location and must be protected against time and painted against. The protection class of the sounder beacon should be at least IP 65. Manufactured in accordance with TS EN 54-3 and TS EN 54-23 standards, 305/2011 / EU Construction Materials Regulation, supplied to the market with a CE conformity mark, and with the performance declaration of the manufacturer and the Performance Stability</p>	

	Certificate obtained from the organizations accredited by the European Union. will be the product of the company. Item covers supply and installation of the siren flsher including all materials necessary for complete installation and delivery in working condition. <u>Measurement:</u> Number of fire alarm sirens shall be measured in pieces (pcs).
Related official pose/item number, book	35.415.1600 Harici tip flaşörlü elektronik yangın ihbar sireni (Ministry of Environment and Urbanization)

Item no	Item	Unit
ELW.34	Internal dome camera (min 4MP)	pcs
Description/ Specifications	<p>Item covers supply and installation of high resolution, Colour, B/W, Night/Day Function Dome type IP Camera. Camera must have at least 1/3 " CMOS sensor, 2MP resolution value at least 25 fps (picture/sec) / 30 fps (picture/sec) must support 4 MP resolution at least 20 fps (pictures / sec). The camera must have a mechanical IR-cut filter and have true Day / Night feature. The camera field of view should have a motorized lens that can be adjusted between 3.2mm and 9mm. The camera must have automatic back focus (auto focus, remote focus) feature. The camera must support H.265, H.264 and MJPEG image compression formats. The camera must support at least 120 dB WDR (Wide Dynamic Light Range), ROI, 3D-DNR, BLC. The camera must have at least IP66 protection according to TS EN 60529 standard and at least IK10 mechanical resistance degrees according to TS EN 62262 standard. It should have a 12 Volt DC external power input. The camera must be placed on the market in accordance with the Electromagnetic Compatibility Regulation and TS EN55032, TS EN55024, TS EN 50130-4 standards and with the CE mark.</p> <p><u>Measurement:</u> Number of cameras shall be measured in pieces (pcs).</p>	
Related official pose/item number, book	35.445.1302 En az 4 MP İç Ortam Dome Kamera (Ministry of Environment and Urbanization)	

Item no	Item	Unit
ELW.35	8 Port Managed Poe Switch	pcs
Description/ Specifications	<p>There must be at least 8 10/100/1000 Ethernet PoE ports and at least 2 1000 Base-X SFP ports on the switch. The device will feature at least IEEE 802.3af and IEEE 802.3at (PoE, PoE +). The device will be able to provide 30 Watts of power per port and the total PoE Budget will be at least 120Watt. The device must have 220V AC operating voltage and must be placed on the market with CE conformity mark in accordance with the regulation on Electrical Equipment Designed for Certain Voltage Limits of 2014/35 / EU.</p> <p><u>Measurement:</u> Number of switches shall be measured in pieces (pcs).</p>	

Related official pose/item number, book	35.445.1601 8 Port Yönetilebilir Poe Ağ Anahtarı (Ministry of Environment and Urbanization)	
Item no	Item	Unit
ELW.36	Television collective antenna station-yield 21-40 db	pcs
Description/ Specifications	<p>Supply and installation of television collective antenna station-yield 21-40 db including all kinds of material and workmanship. Antenna station shall be A Class and shall support Full HD (1080p), 4K, DVB S2-T2-S-T-C and shall have port-lock feature. Station shall have CE marking and shall be compatible with the antennas. 220 Volts supply line, downlink between the antenna and the station, and the distribution box is also included in this item.</p> <p><u>Measurement:</u> Number of complete antenna stations shall be measured in pieces (pcs).</p>	
Related official pose/item number, book	35.480.1202 Anten kazancı 21-40 db. olan santral, Televizyon kollektif anten santrali (Ministry of Environment and Urbanization)	
Item no	Item	Unit
ELW.37	16 U 600mmx600mm 19" Vertical type cabinet	pcs
Description/ Specifications	<p>Item covers supply and installation of 19" cabinets (7U, 9U, 16U, 45U) of which type tests shall be implemented, and test results shall be submitted to the Engineer.</p> <p>Certificates: In 19" Wall Mounting Rack cabinet production, ISO 9001:2008 quality management system and certificates showing compliance with TS EN 61439-1, EN 61587-1, IEC 60917, IEC60297 standards.</p> <p>Dimensions: Compliance with IEC 60297 standards. The U capacity of cabinet internal use should be (9U). Overall net width should be 600 mm., net depth should be 600 mm.</p> <p>Main frame and profile structures shall be manufactured and tested to provide axial (x, y and z) resistance that meets EN 61587-1 / 5.2.1 and 5.2.2, and external impact resistance that meets EN 61587-1 / 5.3.3. dynamic load, vibration, and mechanical impact (IEC 60068-2-6, IEC 60068-2- 27) test results must be certified by TSE.</p> <p>Top and bottom cases should increase cabinet robustness and durability; have multi folded bending technology; minimum load capacity of 80 kgs.</p> <p>Front door shall be glass structure, which is tempered, anti-static, secure, smoked, grinded at 4mm.+/- %5 in line with EN 12150-1:2008 standard. The front door should be able to be deployed to left and right sides at vertical axis, have resistant aluminium frames at left side and right side of glass, sealed with polyurethane gasket.</p> <p>Front door and side panels should have a lockable, openable, removable structure, "0" locks on front door should have the keys with same password.</p> <p>Rear panel should be interlocked with the main frame for ease of assembly and have a resistant structure which can be screwed inside for security.</p> <p>Paint: Cabinets should be painted with electrostatic Ral7035 White powder coating to provide high resistance against impacts. (ISO 9227 and ASTM B 117-85). It should be</p>	

	<p>resistant to minimum 500 hours of salt testing and the test result reports should be documented. On metal surfaces, coating thickness of 0+/- 5 micron should be provided. The powder coating to be used should be non-flammable, flame retardant according to IEC 60707 standard.</p> <p>Ventilation: The top case should have a fan group connection and a plastic ventilation panel for air outlet.</p> <p>19inch mounting rails: There shall be 2 units in the front, with minimum 1.5 mm thickness with "U" Marking serigraphy and moving throughout the entire depth of cabinet. The wall mounting cabinets shall be able to be used as floor standing racks by mounting castors or levelling feet, when requested.</p> <p>Cable paths: Bottom and top cases of the cabinet should have sliding cable entry section, there should be a thick gasket enabling the cables to be fixed and to enter into cabinet due to sliding structure, without any damage.</p> <p>The materials used in manufacturing the cabinet: all the main and auxiliary materials used in each stage of manufacturing processes must comply with the following standards.</p> <ul style="list-style-type: none"> -Sheet metal: DKP "DIN EN 10130 – 99 Eregli DC- 01 6112, 7122, RoHS" -Powder coating: "ISO 9001, ISO 2178, ISO 2813, ISO 6272, ISO 8130-5, ISO 8130-3, RoHS, RAL 9005 Texture Black or RAL 7035 Wrinkle White" -Glass: "ISO 9001, EN 12150 – 1: 2000 tempered, secure". -Fasteners (screw, nut, washer etc....): "DIN 7985, DIN 965, DIN 7981, DIN 934, DIN 985, DIN 933, RoHS" - Lock "DIN 1743, DIN 53571, RoHS" <p>Fan Unit: In wall-mounting cabinets; ball-bearing dual fan unit should be used. It should have a thermostatic unit controlling the temperature in the cabinet. The fan units should have CE marking. Each fan should have air flow of 2. 3m³/min. and noise level of 47dBA. And shall conform with "ISO 9001, CE (89/336/EEC EMC, 73/23/EEC LVD), RoHS".</p> <p>Socket group shall have an aluminium shaped security housing, 1x16 A fuse protection 6 outlets (1U) and CE certification.</p> <p><u>Measurement:</u> Number of cabinets shall be measured in pieces (pcs).</p>									
Related official pose/item number, book	35.550.2002 16U 600 mmx600 mm 19" Dikili tip cabinet (Ministry of Environment and Urbanization)									
<table border="1"> <thead> <tr> <th data-bbox="145 1644 368 1765">Item no</th> <th data-bbox="368 1644 1337 1765">Item</th> <th data-bbox="1337 1644 1469 1765">Unit</th> </tr> </thead> <tbody> <tr> <td data-bbox="145 1765 368 1827">ELW.38</td> <td data-bbox="368 1765 1337 1827">Fixed shelf for 500 mm depth</td> <td data-bbox="1337 1765 1469 1827">pcs</td> </tr> <tr> <td data-bbox="145 1827 368 2018"> Description/ Specifications </td> <td colspan="2" data-bbox="368 1827 1469 2018"> Item covers supply and installation of fixed shelves suitable the cabinets specified above. Shelves shall conform with TS EN 61439-1. <u>Measurement:</u> Number of shelves shall be measured in pieces (pcs). </td> </tr> </tbody> </table>	Item no	Item	Unit	ELW.38	Fixed shelf for 500 mm depth	pcs	Description/ Specifications	Item covers supply and installation of fixed shelves suitable the cabinets specified above. Shelves shall conform with TS EN 61439-1. <u>Measurement:</u> Number of shelves shall be measured in pieces (pcs).		
Item no	Item	Unit								
ELW.38	Fixed shelf for 500 mm depth	pcs								
Description/ Specifications	Item covers supply and installation of fixed shelves suitable the cabinets specified above. Shelves shall conform with TS EN 61439-1. <u>Measurement:</u> Number of shelves shall be measured in pieces (pcs).									

Related official pose/item number, book	35.550.4001 Sabit raf 500 mm derinlik için, Ürüne ait Aksesuarlar (Ministry of Environment and Urbanization)	
Item no	Item	Unit
ELW.39	Fan module with thermostat (with 2 fans)	pcs
Description/ Specifications	<p>In line with item ELW.37 above, cabinets shall be equipped with cooling fan module composed of 2/4 fans as specified below.</p> <p>Dimension: 540 x 520 x 65 mm (W x D x H) (or approved equivalent)</p> <p>Electronically Commutated (EC) fan x 4</p> <p>Individual fan ON/OFF switch (3 level CFM selection)</p> <p>Bundle with temp. sensor x 2</p> <p>Unit CFM 1800</p> <p>Input voltage: 200 ~ 230V</p> <p>Fan group shall have FCC, CE, and LVD certifications.</p> <p><u>Measurement:</u> Fan modules shall be measured in pieces (pcs).</p>	
Related official pose/item number, book	35.550.4010 Termostatlı fan modülü (2 fanlı), Ürüne ait Aksesuarlar (Ministry of Environment and Urbanization)	
Item no	Item	Unit
ELW.40	19" rack type 8 group socket with circuit breaker	pcs
Description/ Specifications	<p>Socket group composed of 8 outlets shall be supplied and installed in 19" cabinets. Outlets with on/off switches shall have sockets conforming with DIN49440, 19" 1U aluminium body, 1x16A fuse protection, 4000 Watt, 250V AC, DIN 49441 plugs and shall have CE certification.</p> <p><u>Measurement:</u> Number of socket groups shall be measured in pieces (pcs).</p>	
Related official pose/item number, book	35.550.4018 Ürüne ait aksesuar 19" rack tipi 8 li grup priz sigortalı (Ministry of Environment and Urbanization)	
Item no	Item	Unit
ELW.41	19" 2U horizontal cable organizer	pcs
Description/ Specifications	<p>19" cabinets shall be equipped with 2U horizontal cable organizers. Organizers shall be made of cold rolled steel and shall have rounded edges to avoid any cutting or damage to cables. Organizer shall be easy to mount and dismount.</p>	

	<u>Measurement:</u> Number of organizers shall be measured in pieces (pcs).	
Related official pose/item number, book	35.550.4020 19" 2U yatay kablo düzenleyici, Ürüne ait Aksesuarlar (Ministry of Environment and Urbanization)	
Item no	Item	Unit
ELW.42	Utp Cat6 patch panel, 24 ports	pcs
Description/ Specifications	Item covers supply and installation of Utp Cat6 patch panel, 24 ports to be used for data transmissions with 250 MHz band width and 250 Mbps speed at cable terminations in equipment termination and connection points in horizontal distribution in local area networks or in telecommunication rooms. Panel shall be CAT6 Standard, RJ-45 8 with contact female connector 19 inch wide, unscreened, jack contact point will be coated by high conductive quality material. Material shall be steel, aluminium, aluminium alloy or anode aluminium material made, appropriate to ISO/IEC -11801 standards, Labelling and all tests are included in this item.	
	<u>Measurement:</u> Number of panels shall be measured in pieces (pcs)	
Related official pose/item number, book	35.505.7301 24 Portlu, Utp Cat6 Patch Panel (Ministry of Environment and Urbanization)	
Item no	Item	Unit
ELW.43	SM SC-SC Patchcord, 3mt	pcs
Description/ Specifications	Supply and installation of the fibre optic cable with connectors at both ends, used to provide transmission between fibre optic termination sets and active devices or transmission of active devices with each other.	
	External case diameter of the cables shall be 3 mm. Patchcord length shall be 3 meters. SM and MM fibres shall have same diameter external case. There are types having ST, SC, FC, LC, MTRJ connectors. Entrance loss values shall be 0,3 dB or lower. Test reports will be submitted to the Engineer.	
	<u>Measurement:</u> Number of patchcords shall be measured in pieces (pcs).	
Related official pose/item number, book	35.545.2108 SM SC-SC patchcord, 3MT SM PATCHCORDLAR (Ministry of Environment and Urbanization)	
Item no	Item	Unit

ELW.44	Electronic type full automatic telephone switchboard-4/32	pcs
Description/ Specifications	<p>Supply, installation, and hand over in operating status of telephone switchboard manufactured appropriate to (1999/5/AT) Radio and Telecommunication Terminal Equipment Regulation, presented to the market with CE appropriateness sign. Switchboard shall be composed of completely solid-state semi conductive circuit elements, and shall be microprocessor-controlled, modular type electronic automatic.</p> <p>Switchboard shall have internal and external subscriber distribution board, making connections of cables from switchboard and subscribers, special battery for switchboard (TS 1352-1 EN 60896-11, TS 1352-2 EN 60896-21, TS 1352-3 EN 60896-22), rectifier. There shall also be automatic operator and voice mail ports.</p> <p><u>Measurement:</u> Number of switchboards shall be measured in pieces (pcs)</p>	
Related official pose/item number, book	35.700.1106 4/32 Elektronik Tip Tam Otomatik Telefon Santrali (Ministry of Environment and Urbanization)	
Item no	Item	Unit
ELW.45	Displacement of existing generator	L.s.
Description/ Specifications	<p>Item covers dismantling, demolish and removal of existing concrete pedestal, relocation and reinstalling of the existing generator as shown in project layout drawings. Contractor shall conduct all levelling, concreting (for pedestal), protective fencing, and preparatory work for the new location of the generator and reinstate all connections and deliver the generator in operating condition. Care shall be taken to avoid any damage to the generator or its parts during relocation (lifting, manoeuvring, locating).</p> <p><u>Measurement:</u> Number of displaced generators shall be measured as one piece.</p>	
Related official pose/item number, book	35.740.1108/Mntj Montaj, 100 kVA (Tam yükte sürekli çalışma gücü), Diesel motoru su veya hava ile soğuyan cinsten, 1.500 devir/dakika (Ministry of Environment and Urbanization)	

ANNEX 2: QUOTATION SUBMISSION FORM

Bidders are requested to complete this form, including the Company Profile and Bidder's Declaration, sign it and return it as part of their quotation along with Annex 3: Technical and Financial Offer. The Bidder shall fill in this form in accordance with the instructions indicated. No alterations to its format shall be permitted and no substitutions shall be accepted.

Name of Bidder:	Click or tap here to enter text.	
RFQ reference:	UNDP-TUR-RFQ(KFW)-2021/012	Date: Click or tap to enter a date.

Company Profile

Item Description	Detail
Legal name of bidder or Lead entity for JVs	Click or tap here to enter text.
Legal Address, City, Country	Click or tap here to enter text.
Website	Click or tap here to enter text.
Year of Registration	Click or tap here to enter text.
Legal structure	Choose an item.
Are you a UNGM registered vendor?	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, insert UNGM Vendor Number
Quality Assurance Certification (e.g. ISO 9000 or Equivalent) (If yes, provide a Copy of the valid Certificate):	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does your Company hold any accreditation such as ISO 14001 or ISO 14064 or equivalent related to the environment? (If yes, provide a Copy of the valid Certificate):	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does your Company have a written Statement of its Environmental Policy? (If yes, provide a Copy)	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does your organization demonstrate significant commitment to sustainability through some other means, for example internal company policy documents on women empowerment, renewable energies or membership of trade institutions promoting such issues (If yes, provide a Copy)	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is your company a member of the UN Global Compact	<input type="checkbox"/> Yes <input type="checkbox"/> No
Bank Information	Bank Name: Click or tap here to enter text. Bank Address: Click or tap here to enter text. IBAN: Click or tap here to enter text. SWIFT/BIC: Click or tap here to enter text. Account Currency: Click or tap here to enter text. Bank Account Number: Click or tap here to enter text.

Bidder's Declaration

Yes	No	
<input type="checkbox"/>	<input type="checkbox"/>	Requirements and Terms and Conditions: I/We have read and fully understand the RFQ, including the RFQ Information and Data, Schedule of Requirements, the General Conditions of Contract, and any Special Conditions of Contract. I/we confirm that the Bidder agrees to be bound by them.
<input type="checkbox"/>	<input type="checkbox"/>	I/We confirm that the Bidder has the necessary capacity, capability, and necessary licenses to fully meet or exceed the Requirements and will be available to deliver throughout the relevant Contract period.
<input type="checkbox"/>	<input type="checkbox"/>	Ethics: In submitting this Quote I/we warrant that the bidder: has not entered into any improper, illegal, collusive or anti-competitive arrangements with any Competitor; has not directly or indirectly approached any representative of the Buyer (other than the Point of Contact) to lobby or solicit information in relation to the RFQ ;has not attempted to influence, or provide any form of personal inducement, reward or benefit to any representative of the Buyer.
<input type="checkbox"/>	<input type="checkbox"/>	I/We confirm to undertake not to engage in proscribed practices, , or any other unethical practice, with the UN or any other party, and to conduct business in a manner that averts any financial, operational, reputational or other undue risk to the UN and we have read the United Nations Supplier Code of Conduct : https://www.un.org/Depts/ptd/about-us/un-supplier-code-conduct and acknowledge that it provides the minimum standards expected of suppliers to the UN.
<input type="checkbox"/>	<input type="checkbox"/>	Conflict of interest: I/We warrant that the bidder has no actual, potential, or perceived Conflict of Interest in submitting this Quote or entering a Contract to deliver the Requirements. Where a Conflict of Interest arises during the RFQ process the bidder will report it immediately to the Procuring Organisation's Point of Contact.
<input type="checkbox"/>	<input type="checkbox"/>	Prohibitions, Sanctions: I/We hereby declare that our firm, its affiliates or subsidiaries or employees, including any JV/Consortium members or subcontractors or suppliers for any part of the contract is not under procurement prohibition by the United Nations, including but not limited to prohibitions derived from the Compendium of United Nations Security Council Sanctions Lists and have not been suspended, debarred, sanctioned or otherwise identified as ineligible by any UN Organization or the World Bank Group or any other international Organization.
<input type="checkbox"/>	<input type="checkbox"/>	Bankruptcy: I/We have not declared bankruptcy, are not involved in bankruptcy or receivership proceedings, and there is no judgment or pending legal action against them that could impair their operations in the foreseeable future.
<input type="checkbox"/>	<input type="checkbox"/>	Offer Validity Period: I/We confirm that this Quote, including the price, remains open for acceptance for the Offer Validity.
<input type="checkbox"/>	<input type="checkbox"/>	I/We understand and recognize that you are not bound to accept any Quotation you receive, and we certify that the goods offered in our Quotation are new and unused.
<input type="checkbox"/>	<input type="checkbox"/>	By signing this declaration, the signatory below represents, warrants and agrees that he/she has been authorised by the Organization/s to make this declaration on its/their behalf.

Signature: _____

Name: Click or tap here to enter text.

Title: Click or tap here to enter text.

Date: Click or tap to enter a date.

ANNEX 3: TECHNICAL AND FINANCIAL OFFER

Bidders are requested to complete this form, sign it and return it as part of their bid along with Annex 2: Quotation Submission Form. The Bidder shall fill in this form in accordance with the instructions indicated. No alterations to its format shall be permitted and no substitutions shall be accepted.

Name of Bidder:	Click or tap here to enter text.	
RFQ reference:	UNDP-TUR-RFQ(KFW)-2021/012	Date: Click or tap to enter a date.

TECHNICAL OFFER

Technical offer of the bidder shall comprise the following information/sections:

Section 1: A brief description of your qualification and capacity that is relevant to the Scope of Works;

1.1. General organizational capability which is likely to affect implementation: management structure, financial stability and project financing capacity, project management controls, etc.

1.2. Relevance of specialized knowledge and experience on similar engagements done in the region/country. Note: For demonstrating previous relevant experience, bidders shall use the following table and attach Work Completion Certificate which should include the information recorded in the table at minimum.

Please list only previous similar assignments (i.e. construction of any kind of buildings) successfully completed in the **last 3 years** at a minimum contract amount of **USD 100,000**.

List only those assignments for which the Bidder was legally contracted by the Client as a company or was one of the Consortium/JV partners. Assignments completed by the Bidder's individual experts working privately or through other firms cannot be claimed as the relevant experience of the Bidder, or that of the Bidder's partners or sub-consultants, but can be claimed by the Experts themselves in their CVs. **The Bidder shall provide proof documents for the claimed experience by presenting copies of relevant documents and references with the Bid.**

Project name & Country of Assignment	Client & Reference Contact Details	Contract Value (in USD equivalent*)	Period of activity and status	Types of activities undertaken

*Bidders shall convert the currency quoted in the "Certificate of Completion" into USD, in accordance with the prevailing UN operational rate of exchange on the contract date stated by "Certificate of Completion". UN operational rate of exchange are available at the following website: <https://treasury.un.org/operationalrates/OperationalRates.php#E>

Section 2: Financial Standing

Annual Turnover for the last 3 years	Year	USD
	Year	USD
	Year	USD
Latest Credit Rating (if any), indicate the source		

Financial information (in USD equivalent)	Historic information for the last 3 years		
	Year 1	Year 2	Year 3
	<i>Information from Balance Sheet</i>		
Total Assets (TA)			
Total Liabilities (TL)			
Current Assets (CA)			
Current Liabilities (CL)			
	<i>Information from Income Statement</i>		
Total / Gross Revenue (TR)			
Profits Before Taxes (PBT)			
Net Profit			
Current Ratio			

For USD Equivalent; Bidders shall convert the currency into USD by using the UN operational rate of exchange which was effective for 31st December of each corresponding year. UN operational rate of exchange are available at the following website: <https://treasury.un.org/operationalrates/OperationalRates.php#E>

Bidders shall submit copies of the audited financial statements (balance sheets, including all related notes, and income statements) for the years required above complying with the following condition:

- a) Must reflect the financial situation of the Bidder or party to a JV, and not sister or parent companies;
- b) Historic financial statements must be audited by a certified public accountant;
- c) Historic financial statements must correspond to accounting periods already completed and audited. No statements for partial periods shall be accepted.

Section 3: A brief method statement and implementation plan;

2.1. Description of how the Bidder will complete civil works, keeping in mind the appropriateness to local conditions and project environment.

2.2. Implementation plan including a Gantt Chart or Project Schedule indicating the detailed sequence of activities that will be undertaken and their corresponding timing.

Section 4: Team Composition and CVs of key personnel

3.1. Include an organization chart for the management of the project describing the relationship of key positions and designations.

3.2. Provide CVs for key personnel using the format below. Bidders should also submit the Diplomas of proposed Personnel.

Format for CV of Proposed Key Personnel

Name of Personnel	[Insert]
Position for this assignment	[Insert]
Nationality	[Insert]
Language proficiency	[Insert]
	[Summarize college/university and other specialized education of personnel member, giving names of schools, dates attended, and degrees/qualifications obtained.]

Education/ Qualifications	[Insert]
Professional certifications	[Provide details of professional certifications relevant to the scope of goods and/or services]
	Name of institution: [Insert] Date of certification: [Insert]
Employment Record/ Experience	[List all positions held by personnel (starting with present position, list in reverse order), giving dates, names of employing organization, title of position held and location of employment. For experience in last five years, detail the type of activities performed, degree of responsibilities, location of assignments and any other information or professional experience considered pertinent for this assignment.]
	[Insert]
References	[Provide names, addresses, phone and email contact information for two (2) references]
	Reference 1: [Insert] Reference 2: [Insert]

I, the undersigned, certify that to the best of my knowledge and belief, the data provided above correctly describes my qualifications, my experiences, and other relevant information about myself.

Signature of Personnel Date (Day/Month/Year)

FINANCIAL OFFER

Price Schedule Form / Bill of Quantities

This Bill of Quantities is an itemized breakdown of the works to be carried out, indicating a quantity for each item and the corresponding unit price. The quantities set out in this Bill of Quantities are estimated quantities.

The amounts due shall be determined through the measurement of the actual quantities of the works executed and by applying the unit rates to the quantities actually executed for the respective items.

The prices 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 which may be necessary, and all general risks, liabilities and obligations set forth or implied in the documents on which the tender is based. It will be assumed that establishment charges, profit and allowances for all obligations are spread evenly over all the unit rates.

No specific payment will be made against transportation of materials to the site.

Unless the technical specifications or the Bill of Quantities specifically and expressly state otherwise, only permanent works are to be measured and paid for by UNDP.

No allowance will be made for loss of materials or volume thereof during installation, transport or compaction.

UN and its subsidiary organs are exempt from all taxes. Therefore, the prices shall exclude Value Added Tax (VAT). The Contractor to be selected shall not be entitled to receive any amount over the prices in relation to VAT, Special Consumption Tax and any other applicable taxes.

In the bill of quantities, rates and prices shall be entered by the Contractor in the appropriate columns in USD. In the Unit Price column in the Bill of Quantities Unit Rates shall include the overheads. "Overheads" shall be deemed to cover:

- i. Profit
- ii. Head Office charges
- iii. Site Supervision and Site Staff costs and expenses
- iv. Transport of labour and travelling allowances
- v. Use of protective clothing or equipment
- vi. Any statutory or incidental charges levied on the employment of labour
- vii. Overtime, unless specifically ordered or subsequently sanctioned in writing by the Engineer
- viii. Time lost due to inclement weather
- ix. Insurances of whatsoever nature
- x. Holiday and sickness pay or benefits
- xi. Use, repair and sharpening of small tools
- xii. All non-mechanically operated equipment, erected scaffolding, staging and trestles, protective clothing, artificial lighting, storage facilities and the like that may be in general use on the site
- xiii. All other liabilities and obligations whatsoever

The works described in this section include all the necessary materials and losses, loading, horizontal and vertical transportation, unloading, workmanship, transportation of material to the site, contractor's profit and general expenses for the successful completion of the specified items.

Whenever item/pose is related to an item/pose number from the official books published by Turkish public institutes, the definition in this specification shall prevail for any inconsistency. In case of vagueness/absence of an issue in the item definition in this specification, the official definition shall prevail for only the vagueness/absence.

The units of measurement used in the items/pose definitions 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 are to be interpreted as follows:

m means metre
 m² means square metre
 m³ means cubic metre
 kg means kilogram
 ton means tons
 pcs means pieces
 L.s. means Lump sum

Note: Manufacturing descriptions in the bill of quantity were prepared by using the pose descriptions in Ministry of Urban and Environmental Planning, General Directorate of Foundations, Ministry of Culture and Tourism, and TEDAŞ unit price books. In case of any dispute between the contractor and UNDP during construction, the poses of any above-mentioned institutions will be based on. In addition, in the technical and financial applications of the above construction poses, the analysis of the poses in the relevant standards of institutions will be considered and implemented too.

Currency of the Quotation: US Dollars (USD)					
Section 1: CIVIL WORKS					
Item No	Description	Unit	Quantity	Unit price (USD)	Total price (USD)
Demolition and Removal Works					
DRW.01	Demolition and removal of existing concrete slab and wall	m ³	120.00		
DRW.02	Removal of existing canopy	L.s.	1.00		
SUBTOTAL FOR - Demolition and Removal Works					
Construction and Architectural Works					
CAW.01	Excavation works	m ³	255.25		
CAW.02	Filling with light aggregate (sieved coal clinker)	m ³	382.50		
CAW.03	Ready-mixed concrete (C8/10)	m ³	25.50		
CAW.04	Ready-mixed concrete (C25/30)	m ³	115.00		
CAW.05	Rebars Ø8-12mm	ton	3.50		
CAW.06	Rebars Ø14-28mm	ton	3.80		
CAW.07	Timber formwork	m ²	306.00		
CAW.08	Structural steelwork	ton	7.00		
CAW.09	Perlite and satin plaster	m ²	175.00		
CAW.10	Satin plaster coating (average thickness of 1 mm)	m ²	250.00		
CAW.11	12.5mm thick drywall	m ²	175.00		
CAW.12	Roofing with 0.70 mm thick trapezoidal aluminium plates	m ²	230.00		
CAW.13	Aluminium lay-on suspended ceiling (60x60cm, 0.5mm thickness)	m ²	220.00		
CAW.14	Mortise lock with cylinder (for interior doors, narrow type)	pcs	6.00		
CAW.15	Door handles and panels (chrome plated)	pcs	6.00		
CAW.16	Facade cladding with mineral-filled composite aluminium sheets (with 5cm thick rockwool thermal insulation sheets)	m ²	98.00		

CAW.17	Gutter and down pipe made from 0.5 mm thick shop-painted galvanized sheet	m	48.80		
CAW.18	Wall construction with 190mm thick horizontally perforated bricks (190x190x135mm)	m ²	75.00		
CAW.19	Wall or floor covering with natural stone mosaics (split surface)	m ²	75.00		
CAW.20	External thermal insulation	m ²	75.00		
CAW.21	Interior door frame and moldings with solid wood panel	m ²	5.00		
CAW.22	Exterior door frame and moldings with solid wood panel	m ²	5.00		
CAW.23	Interior wooden door leaf with a solid top	m ²	13.00		
CAW.24	Exterior door leaf with a solid top from wood	m ²	12.00		
CAW.25	Colour-matte and anodized heat insulated aluminium joinery	kg	1,680.00		
CAW.26	Window sill with white marble plates (3cm thickness)	m ²	20.00		
CAW.27	Double glazed window unit (4+4 mm thickness, 12 mm space)	m ²	80.00		
CAW.28	Water-based silk matt paint on interior surfaces	m ²	375.00		
CAW.29	2 cm thick plaster on interior or exterior surfaces (ready rough/ fine plaster)	m ²	150.00		
CAW.30	Glazed porcelain floor tiling (60x60cm)	m ²	27.00		
CAW.31	Glazed porcelain floor tiling (30x60cm)	m ²	116.00		
CAW.32	Unglazed rectified porcelain floor tiling (60x60cm)	m ²	266.00		
CAW.33	Wooden kitchen cupboard	m ²	3.20		
SUBTOTAL FOR - Construction and Architectural Works					
TOTAL AMOUNT FOR SECTION 1 - CIVIL WORKS					

Currency of the Quotation: US Dollars (USD)					
Section 2: MECHANICAL WORKS					
Item No	Description	Unit	Quantity	Unit price (USD)	Total price (USD)
Heating Installations					
MWH.01	Heating boiler	pcs	1.00		
MWH.02	Panel radiator (Type 22) 600	m	21.00		
MWH.03	Corner type thermostatic radiator taps 1/2"	pcs	14.00		
MWH.04	Corner type thermostatic radiator return valve 1/2"	pcs	14.00		
MWH.05	Collector pipe ø83 / 3.25 mm	m	5.00		
MWH.06	Collector outlet (diameter: 40 mm)	pcs	10.00		
MWH.07	1" collector with 6 outlet and mini ball valves	pcs	2.00		
MWH.08	1" collector with 8 outlet and mini ball valves	pcs	2.00		
MWH.09	Thermometer 100mm dia.	pcs	1.00		
MWH.10	Manometer (diameter: 100mm, graduated up to 5 Atm)	pcs	1.00		
MWH.11	Cylindrical aeration tank 5.0L	pcs	1.00		
MWH.12	Filling and draining tap 3/4"	pcs	1.00		
MWH.13	Double-stage burner (150-250 kW)	pcs	1.00		
MWH.14	PE-Xb Pipe (with oxygen barrier, 16x2,0 mm)	m	186.00		
MWH.15	Spiral protective sheathing	m	186.00		
MWH.16	Ball valve 1/2" - PN 16	pcs	4.00		
MWH.17	Ball valve 40Ø mm (1 1/2") PN 10-16	pcs	6.00		
MWH.18	Silt Trap, die casting, with screw (dimeter:40 mm)	pcs	1.00		
MWH.19	Check valve, brass casting, dia 40 mm	pcs	1.00		
MWH.20	Automatic air release valve (for water) 1/2"	pcs	2.00		
MWH.21	Circulation pump with frequency converter (0.5-3.5 m ³ /h – 1-3 mSS)	pcs	2.00		
SUBTOTAL FOR - Heating Installations					

Sanitary and Plumbing					
MWD.01	Semi Pedestal Glazed Faience Washbasin unit (extra class) 45x55 cm	pcs	4.00		
MWD.02	Approximately 50x60 cm Handicapped Glazed Faience Washbasin (extra class washbasins)	pcs	2.00		
MWD.03	Washbasin fittings	Set	4.00		
MWD.04	Mirror (Crystal glass) 40x50 cm	pcs	4.00		
MWD.05	Mirror for handicapped 50x70cm	pcs	2.00		
MWD.06	Shelf; ceramic,50x10 cm	pcs	6.00		
MWD.07	Closet with reservoir (suitable for handicapped)	Set	2.00		
MWD.08	Sink (with drainboard on one side) stainless steel, 50x100 cm	pcs	2.00		
MWD.09	Sink fitting including basin mixer	pcs	2.00		
MWD.10	Laundry tap - 1/2"	pcs	1.00		
MWD.11	Soap holder 16x31cm	pcs	2.00		
MWD.12	Toilet-paper holder for WC (stainless steel) (Physically Handicapped)	pcs	2.00		
MWD.13	Clothes hanger (stainless steel)	pcs	4.00		
MWD.14	Hold Bar for Physically Handicapped	pcs	4.00		
MWD.15	Toilet Hold Bar for Physically Handicapped	pcs	4.00		
MWD.16	Cast iron floor drain 15x15cm, Ø70mm outlet	pcs	4.00		
MWD.17	Polypropylene clean water pipes (PPR-C) PN20 - 25 mm dia.	m	38.00		
MWD.18	Polypropylene clean water pipes (PPR-C) PN20 - 32 mm dia.	m	10.00		
MWD.19	Hard PVC waste water pipe 70-75 mm dia	m	40.00		
MWD.20	Hard PVC waste water pipe 100-100 mm dia	m	28.00		
MWD.21	Ball valve 3/4" - PN 16	pcs	6.00		
SUBTOTAL FOR - Sanitary and Plumbing					
VRF Installations					
MWC.01	Hard PVC Domestic Water Pipe (bonding bellmouth, 25mm dia, 10 atü)	m	20.00		

MWC.02	Hard PVC Domestic Water Pipe (bonding bellmouth, 32mm dia, 10 atü)	m	30.00		
MWC.03	Outdoor Unit - Cooling capacity (nom):44 kW, heating capacity (nom):49 kW	pcs	1.00		
MWC.04	Cassette type indoor unit - Cooling capacity (nom):7 kW, heating capacity (nom):7,5 kW	pcs	1.00		
MWC.05	Cassette type indoor unit - Cooling capacity (nom):9-11 kW, heating capacity (nom):9.9-12 kW	pcs	2.00		
MWC.06	Cassette type indoor unit - Cooling capacity (nom):11-12 kW, heating capacity (nom):12-13 kW	pcs	2.00		
MWC.07	Remote control for indoor units and its sensor	pcs	5.00		
MWC.08	Copper Pipe Group 3/8" 0,8 mm (13mm isolation)	m	40.00		
MWC.09	Copper Pipe Group 1/2" 0,8 mm (13mm isolation)	m	5.00		
MWC.10	Copper Pipe Group 5/8" 1.0 mm (13mm isolation)	m	25.00		
MWC.11	Copper Pipe Group 3/4" 1.0 mm (13mm isolation)	m	15.00		
MWC.12	Copper Pipe Group 1" 1.2 mm (13mm isolation)	m	5.00		
MWC.13	Copper Pipe Group 1 1/8" 1.2 mm (19mm isolation)	m	10.00		
MWC.14	Connection (joint) elements (dual) up to 25 kW	Set	4.00		
SUBTOTAL FOR - VRF Installations					
TOTAL AMOUNT FOR SECTION 2 – MECHANICAL WORKS					

Currency of the Quotation: US Dollars (USD)

Section 3: ELECTRICAL WORKS

Item No	Description	Unit	Quantity	Unit price (USD)	Total price (USD)
LV Distribution Board and Tables					
ELW.01	Special sheet board- with front cover	pcs	2.00		
ELW.02	Flush switch box (for 12 switches)	pcs	1.00		
ELW.03	Thermal Magnetic Switch-board back- (3x10A to 3x63A, Icu: 35 kA)	pcs	2.00		
ELW.04	Leakage current protection switches up to 4x40 A (30 mA)	pcs	3.00		

ELW.05	Residual Current Circuit Breakers – Up to 4x63 A (300 mA)	pcs	1.00		
ELW.06	Panel-type surge protector, B class, 230VAC, 100 kA (I imp, 10/350µs) three phase	pcs	2.00		
ELW.07	Automatic circuit breaker with switch (6 kA) – up to 16 A	pcs	33.00		
SUBTOTAL FOR - LV Distribution Board and Tables					
Grounding and Cable Tray System					
ELW.08	Copper busbar for cast boxes and panel boards	kg	4.00		
ELW.09	Cable Trays	kg	125.00		
ELW.10	Building surrounding conductor 30x3.5mm galvanized flat steel	m	100.00		
ELW.11	Earthing electrode (rod), electrolytic copper	pcs	4.00		
SUBTOTAL FOR - Grounding and Cable Tray System					
Strong and Weak Current Cables					
ELW.12	1kV Underground cable (NYY)-4x10 mm ²	m	100.00		
ELW.13	Socket outlet with safety line	pcs	50.00		
ELW.14	Weatherproof outlet in galvanized pipe (normal)	pcs	4.00		
ELW.15	Galvanizli boru içinde etanş aydınlatma sortisi (komütatör)	pcs	4.00		
ELW.16	Linye hattı peşel, bergman veya PVC boru içerisinde plastik izoleli iletkenler sorti hatları kurşunsun antigron (NVV) (NYM) cinsinden malzeme ile normal priz sortisi, ETANJ PRİZ SORTİSİ (Güvenlik hatlı) (TS uygunluk belgeli malzeme ile)	pcs	50.00		
ELW.17	Supply Line Establishment with lead-free PVC insulated cables (NHXMH, at least 300/500 V), 3x2.5 mm ²	m	50.00		
ELW.18	1kV Underground cable (N2XH, 1 kV) 5x6 mm ²	m	35.00		
ELW.19	Television outlet	pcs	4.00		
ELW.20	2x2x0,8+0,8 mm ² Je-H(St)H Fe 180 PH 120 fire resistant halogen-free alarm cable	m	80.00		
ELW.21	RG 6AU, 75 Impedance Coaxial Cables	m	70.00		
ELW.22	RG 11 A/U 75 Impedance Coaxial Cables	m	45.00		

ELW.23	UTP Cat 6 Halogen free 4x2x23 AWG cable	m	350.00		
SUBTOTAL FOR - Strong and Weak Current Cables					
Lighting Fixtures					
ELW.24	36W LED Luminaires - suspended ceiling	pcs	38.00		
ELW.25	24W LED Luminaires with sensor- ceiling (downlight)	pcs	4.00		
ELW.26	Emergency lighting set for LED luminaires	pcs	12.00		
ELW.27	Double Sided Emergency Routing Armature with LED (1 hour lighting duration)	pcs	2.00		
SUBTOTAL FOR - Lighting Fixtures					
Uninterruptible Power Supply and Fire Alarm System					
ELW.28	UPS, single phase input and output 6 kVA	pcs	1.00		
ELW.29	Conventional fire alarm button	pcs	2.00		
ELW.30	Conventional optical smoke detector	pcs	12.00		
ELW.31	Parallel warning light	pcs	12.00		
ELW.32	Conventional type fire alarm station up to (including) 4 zones	pcs	1.00		
ELW.33	External type electronic fire alarm siren with strobe lights	pcs	2.00		
SUBTOTAL FOR - Uninterruptible Power Supply and Fire Alarm System					
TV-CCTV-Phone-Data systems					
ELW.34	Internal dome camera (min 4MP)	pcs	3.00		
ELW.35	8 Port Managed Poe Switch	pcs	1.00		
ELW.36	Television collective antenna station-yield 21-40 db	pcs	1.00		
ELW.37	16 U 600mmx600mm 19" Vertical type cabinet	pcs	1.00		
ELW.38	Fixed shelf for 500 mm depth	pcs	3.00		
ELW.39	Fan module with thermostat (with 2 fans)	pcs	2.00		
ELW.40	19" rack type 8 group socket with circuit breaker	pcs	1.00		
ELW.41	19" 2U horizontal cable organizer	pcs	3.00		
ELW.42	Utp Cat6 patch panel, 24 ports	pcs	2.00		

ELW.43	SM SC-SC Patchcord, 3mt	pcs	23.00		
ELW.44	Electronic type full automatic telephone switchboard-4/32	pcs	1.00		
SUBTOTAL FOR - TV-CCTV-Phone-Data systems					
Generator Displacement					
ELW.45	Displacement of existing generator	L.s.	1.00		
SUBTOTAL FOR - Generator Displacement					
TOTAL AMOUNT FOR SECTION 3 – ELECTRICAL WORKS					

SUMMARY TABLE:

Section	Description	TOTAL PRICE (USD)
1	CIVIL WORKS	
2	MECHANICAL WORKS	
3	ELECTRICAL WORKS	
TOTAL ESTIMATED PRICE (Section 1 + 2 + 3)		

Compliance with Requirements

	You Responses		
	Yes, we will comply	No, we cannot comply	If you cannot comply, pls. indicate counter - offer
Minimum Technical Specifications and requirements stipulated in the Bill of Quantities and Schedule of Requirements	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Substantial Completion of works (80 calendar days after given access to the site)	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Validity of Quotation	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Payment terms	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.

I, the undersigned, certify that I am duly authorized to sign this quotation and bind the company below in event that the quotation is accepted.

<i>Exact name and address of company</i> Company Name: Click or tap here to enter text. Address: Click or tap here to enter text. Click or tap here to enter text. Phone No.: Click or tap here to enter text. Email Address: Click or tap here to enter text.	Authorized Signature: Date: Click or tap here to enter text. Name: Click or tap here to enter text. Functional Title of Authorised Signatory: Click or tap here to enter text. Email Address: Click or tap here to enter text.
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