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INVITATION TO BID

Construction of Public Education Center in Gaziantep

ITB No.: UNDP-TUR-ITB(MC3)-2019/10

Project: Turkey Resilience Project in Response to the Syria Crisis, MADAD C-3

Country: Turkey

Issued on: 25 October 2019

Contents

SECTION 1. LETTER OF INVITATION

The United Nations Development Programme (UNDP) hereby invites you to submit a Bid to this Invitation to Bid (ITB) for the above-referenced subject.

This ITB includes the following documents and the General Terms and Conditions of Contract which is inserted in the Bid Data Sheet:

Section 1: This Letter of Invitation
Section 2: Instruction to Bidders
Section 3: Bid Data Sheet (BDS)
Section 4: Evaluation Criteria
Section 5: Schedule of Requirements and Technical Specifications
Section 6: Returnable Bidding Forms
- Form A: Bid Submission Form
- Form B: Bidder Information Form
- Form C: Joint Venture/Consortium/Association Information Form
- Form D: Qualification Form
- Form E: Format of Technical Bid
- Form F: Price Schedule/Bill of Quantities
- Form G: Form of Bid Security

Please be informed that this procurement process is being conducted through the online tendering system of UNDP. Bidders who wish to submit an offer must be registered in the system.

- Visit this page for system user guides and videos in different languages: http://www.undp.org/content/undp/en/home/operations/procurement/business/procurement-notices/resources/
- If already registered, go to https://etendering.partneragencies.org and sign in using your username and password.
- Use "Forgotten password" link if you do not remember your password. Do not create a new profile.
- If you have never registered in the system before, you can register by visiting the link below and follow the instructions in the user guide (attached): https://etendering.partneragencies.org
  - Username: event.guest
  - Password: why2change
- It is strongly recommended to create a username with two parts: your first name and last name separated by a ".", (similar to the one shown above). Once registered you will receive a valid password to the registered email address which you can use for signing in and changing your password.
- Please note that your new password should meet the following criteria:
  - Minimum 8 characters
  - At least one UPPERCASE LETTER
  - At least one lowercase letter
  - At least one number

You can view and download tender documents with the guest account as per the above username and password, However, if you are interested to participate, you must register in the system and subscribe to this tender to be notified when amendments are made.

E-Mail and Hard Copy Submissions are not accepted. Bids shall be submitted through e-tendering only. However, **Original Bid Security** shall be delivered to the below address on or before the submission deadline indicated in e-tendering system, with a PDF copy submitted as part of the electronic submission.

Focal Point: Murat OZERDEN, Procurement Administrator

Yıldız Kule, 21st Floor, Dikmen Mahallesi, Turan Güneş Bulvarı, No:106, 06550, Çankaya, Ankara, Turkey

If you are interested in submitting a Bid in response to this ITB, please prepare your Bid in accordance with the requirements and procedure as set out in this ITB and submit it by the Deadline for Submission of Bids set out in the eTendering System. Note that e-tendering system time zone is in **EST/EDT (New York)** time zone.

Please acknowledge receipt of this ITB by utilizing the "Accept Invitation" function in eTendering system. This will enable you to receive amendments or updates to the ITB. Should you require further clarifications, kindly communicate with the contact person/s identified in the attached Data Sheet as the focal point for queries on this ITB.

UNDP looks forward to receiving your Bid and thank you in advance for your interest in UNDP procurement opportunities.

Sincerely;

UNDP TURKEY Country Office

SECTION 2. INSTRUCTION TO BIDDERS

GENERAL PROVISIONS	
1. Introduction	1.1 Bidders shall adhere to all the requirements of this ITB, including any amendments made in writing by UNDP. This ITB is conducted in accordance with the UNDP Programme and Operations Policies and Procedures (POPP) on Contracts and Procurement which can be accessed at https://popp.undp.org/SitePages/POPPBSUnit.aspx?TermID=254a9f96-b883-476a-8ef8-e81f93a2b38d 1.2 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 ITB. 1.3 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. 1.4 As part of the bid, it is desired that the Bidder registers at the United Nations Global Marketplace (UNGM) website (www.ungm.org). The Bidder may still submit a bid 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.
2. Fraud & Corruption, Gifts and Hospitality	2.1 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 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_andinvestigation.html#anti 2.2 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 invitations to extravagant lunches or dinners. 2.3 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. 2.4 All Bidders must adhere to the UN Supplier Code of Conduct, which may be found at http://www.un.org/depts/ptd/pdf/conduct_english.pdf
3. Eligibility	3.1 A vendor should 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. 3.2 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.

4. Conflict of Interests	4.1	Bidders must 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. Without limitation on the generality of the above, Bidders, and any of their affiliates, shall be considered to have a conflict of interest with one or more parties in this solicitation process, if they: a) Are or have been associated in the past, with a firm or any of its affiliates which have been engaged by UNDP to provide services for the preparation of the design, specifications, Terms of Reference, cost analysis/estimation, and other documents to be used for the procurement of the goods and services in this selection process; b) Were involved in the preparation and/or design of the programme/project related to the goods and/or services requested under this ITB; or c) Are found to be in conflict for any other reason, as may be established by, or at the discretion of UNDP.
	4.2	In the event of any uncertainty in the interpretation of a potential conflict of interest, Bidders must disclose to UNDP, and seek UNDP's confirmation on whether or not such conflict exists.
	4.3	Similarly, the 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 ITB; and b) All other circumstances that could potentially lead to actual or perceived conflict of interest, collusion or unfair competition practices. Failure to disclose such information may result in the rejection of the Bid or Bids affected by the non-disclosure.
	4.4	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 ITB, among others. Conditions that may lead to undue advantage against other Bidders may result in the eventual rejection of the Bid.
B. PREPARATION OF BIDS		
5. General Considerations	5.1	In preparing the Bid, the Bidder is expected to examine the ITB in detail. Material deficiencies in providing the information requested in the ITB may result in rejection of the Bid.
	5.2	The Bidder will not be permitted to take advantage of any errors or omissions in the ITB. Should such errors or omissions be discovered, the Bidder must notify the UNDP accordingly.
6. Cost of Preparation of Bid	6.1	The Bidder shall bear all costs related to the preparation and/or submission of the Bid, regardless of whether its Bid is selected or not. UNDP shall not be responsible or liable for those costs, regardless of the conduct or outcome of the procurement process.
7. Language	7.1	The Bid, as well as any and all related correspondence exchanged by the Bidder and UNDP, shall be written in the language (s) specified in the BDS.
8. Documents Comprising the Bid	8.1	The Bid shall comprise of the following documents and related forms which details are provided in the BDS: a) Documents Establishing the Eligibility and Qualifications of the Bidder;

	b) Technical Bid; c) Price Schedule; d) Bid Security, if required by BDS; e) Any attachments and/or appendices to the Bid.
9. Documents Establishing the Eligibility and Qualifications of the Bidder	9.1 The Bidder shall furnish documentary evidence of its status as an eligible and qualified vendor, using the Forms provided under Section 6 and providing documents required in those forms. In order to award a contract to a Bidder, its qualifications must be documented to UNDP's satisfaction.
10. Technical Bid Format and Content	10.1 The Bidder is required to submit a Technical Bid using the Standard Forms and templates provided in Section 6 of the ITB. 10.2 Samples of items, when required as per Section 5, shall be provided within the time specified and unless otherwise specified by the Purchaser, at no expense to the UNDP. If not destroyed by testing, samples will be returned at Bidder's request and expense, unless otherwise specified. 10.3 When applicable and required as per Section 5, the Bidder shall describe the necessary training programme available for the maintenance and operation of the equipment offered as well as the cost to the UNDP. Unless otherwise specified, such training as well as training materials shall be provided in the language of the Bid as specified in the BDS. 10.4 When applicable and required as per Section 5, the Bidder shall certify the availability of spare parts for a period of at least five (5) years from date of delivery, or as otherwise specified in this ITB.
11. Price Schedule	11.1 The Price Schedule shall be prepared using the Form provided in Section 6 of the ITB and taking into consideration the requirements in the ITB. 11.2 Any requirement described in the Technical Bid but not priced in the Price Schedule, shall be assumed to be included in the prices of other activities or items, as well as in the final total price.
12. Bid Security	12.1 A Bid Security, if required by BDS, shall be provided in the amount and form indicated in the BDS. The Bid Security shall be valid for a minimum of thirty (30) days after the final date of validity of the Bid. 12.2 The Bid Security shall be included along with the Bid. If Bid Security is required by the ITB but is not found in the Bid, the offer shall be rejected. 12.3 If the Bid Security amount or its validity period is found to be less than what is required by UNDP, UNDP shall reject the Bid. 12.4 In the event an electronic submission is allowed in the BDS, Bidders shall include a copy of the Bid Security in their bid and the original of the Bid Security must be sent via courier or hand delivery as per the instructions in BDS. 12.5 The Bid Security may be forfeited by UNDP, and the Bid rejected, in the event of any, or combination, of the following conditions: a) If the Bidder withdraws its offer during the period of the Bid Validity specified in the BDS, or; b) In the event the successful Bidder fails: i. to sign the Contract after UNDP has issued an award; or ii. to furnish the Performance Security, insurances, or other documents that UNDP may require as a condition precedent to the effectivity of the contract that may be awarded to the Bidder.
13. Currencies	13.1 All prices shall be quoted in the currency or currencies indicated in the BDS. Where Bids are quoted in different currencies, for the purposes of comparison

	of all Bids: a) UNDP will convert the currency quoted in the Bid into the UNDP preferred currency, in accordance with the prevailing UN operational rate of exchange on the last day of submission of Bids; and b) In the event that UNDP selects a Bid for award that is quoted in a currency different from the preferred currency in the BDS, UNDP shall reserve the right to award the contract in the currency of UNDP's preference, using the conversion method specified above.
14. Joint Venture, Consortium or Association	14.1 If the Bidder is a group of legal entities that will form or have formed a Joint Venture (JV), Consortium or Association for the Bid, they shall confirm in their Bid that : (i) they have designated one party to act as a lead entity, duly vested with authority to legally bind the members of the JV, Consortium or Association jointly and severally, which shall be evidenced by a duly notarized Agreement among the legal entities, and submitted with the Bid; and (ii) if they are awarded the contract, the contract shall be entered into, by and between UNDP and the designated lead entity, who shall be acting for and on behalf of all the member entities comprising the joint venture. 14.2 After the Deadline for Submission of Bid, the lead entity identified to represent the JV, Consortium or Association shall not be altered without the prior written consent of UNDP. 14.3 The lead entity and the member entities of the JV, Consortium or Association shall abide by the provisions of Clause 9 herein in respect of submitting only one Bid. 14.4 The description of the organization of the JV, Consortium or Association must clearly define the expected role of each of the entities in the joint venture in delivering the requirements of the ITB, both in the Bid and the JV, Consortium or Association Agreement. All entities that comprise the JV, Consortium or Association shall be subject to the eligibility and qualification assessment by UNDP. 14.5 A JV, Consortium or Association in presenting its track record and experience should clearly differentiate between: a) Those that were undertaken together by the JV, Consortium or Association; and b) Those that were undertaken by the individual entities of the JV, Consortium or Association. 14.6 Previous contracts completed by individual experts working privately but who are permanently or were temporarily associated with any of the member firms cannot be claimed as the experience of the JV, Consortium or Association or those of its members, but should only be claimed by the individual experts themselves in their presentation of their individual credentials 14.7 JV, Consortium or Associations are encouraged for high value, multi-sectoral requirements when the spectrum of expertise and resources required may not be available within one firm.
15. Only One Bid	15.1 The Bidder (including the individual members of any Joint Venture) shall submit only one Bid, either in its own name or as part of a Joint Venture. 15.2 Bids submitted by two (2) or more Bidders shall all be rejected if they are found to have any of the following: 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 c) they have the same legal representative for purposes of this ITB; or

	d) 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 ITB process; e) 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 some key personnel proposed to be in the team of one Bidder participates in more than one Bid received for this ITB process. This condition relating to the personnel, does not apply to subcontractors being included in more than one Bid.
16. Bid Validity Period	16.1 Bids shall remain valid for the period specified in the BDS, commencing on the Deadline for Submission of Bids. A Bid valid for a shorter period may be rejected by UNDP and rendered non-responsive. 16.2 During the Bid validity period, the Bidder shall maintain its original Bid without any change, including the availability of the Key Personnel, the proposed rates and the total price.
17. Extension of Bid Validity Period	17.1 In exceptional circumstances, prior to the expiration of the Bid validity period, UNDP may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing and shall be considered integral to the Bid. 17.2 If the Bidder agrees to extend the validity of its Bid, it shall be done without any change to the original Bid. 17.3 The Bidder has the right to refuse to extend the validity of its Bid, in which case, the Bid shall not be further evaluated.
18. Clarification of Bid (from the Bidders)	18.1 Bidders may request clarifications on any of the ITB documents no later than the date indicated in the BDS. Any request for clarification must be sent in writing in the manner indicated in the BDS. If inquiries are sent other than specified channel, even if they are sent to a UNDP staff member, UNDP shall have no obligation to respond or confirm that the query was officially received. 18.2 UNDP will provide the responses to clarifications through the method specified in the BDS. 18.3 UNDP shall endeavour to provide responses to clarifications in an expeditious manner, but any delay in such response shall not cause an obligation on the part of UNDP to extend the submission date of the Bids, unless UNDP deems that such an extension is justified and necessary.
19. Amendment of Bids	19.1 At any time prior to the deadline of Bid submission, UNDP may for any reason, such as in response to a clarification requested by a Bidder, modify the ITB in the form of an amendment to the ITB. Amendments will be made available to all prospective bidders. 19.2 If the amendment is substantial, UNDP may extend the Deadline for submission of Bid to give the Bidders reasonable time to incorporate the amendment into their Bids.
20. Alternative Bids	20.1 Unless otherwise specified in the BDS, alternative Bids shall not be considered. If submission of alternative Bid is allowed by BDS, a Bidder may submit an alternative Bid, but only if it also submits a Bid conforming to the ITB requirements. Where the conditions for its acceptance are met, or justifications are clearly established, UNDP reserves the right to award a contract based on an alternative Bid. 20.2 If multiple/alternative bids are being submitted, they must be clearly marked as "Main Bid" and "Alternative Bid"
21. Pre-Bid Conference	21.1 When appropriate, a pre-bid conference will be conducted at the date, time

	and location specified in the BDS. All Bidders are encouraged to attend. Non-attendance, however, shall not result in disqualification of an interested Bidder. Minutes of the Bidder's conference will be disseminated on the procurement website and shared by email or on the e-Tendering platform as specified in the BDS. No verbal statement made during the conference shall modify the terms and conditions of the ITB, unless specifically incorporated in the Minutes of the Bidder's Conference or issued/posted as an amendment to ITB.
C. SUBMISSION AND OPENING OF BIDS	
22. Submission	22.1 The Bidder shall submit a duly signed and complete Bid comprising the documents and forms in accordance with requirements in the BDS. The Price Schedule shall be submitted together with the Technical Bid. Bid can be delivered either personally, by courier, or by electronic method of transmission as specified in the BDS. 22.2 The Bid shall be signed by the Bidder or person(s) duly authorized to commit the Bidder. The authorization shall be communicated through a document evidencing such authorization issued by the legal representative of the bidding entity, or a Power of Attorney, accompanying the Bid. 22.3 Bidders must be aware that the mere act of submission of a Bid, in and of itself, implies that the Bidder fully accepts the UNDP General Contract Terms and Conditions.
Hard copy (manual) submission	22.4 Hard copy (manual) submission by courier or hand delivery allowed or specified in the BDS shall be governed as follows: a) The signed Bid shall be marked "Original", and its copies marked "Copy" as appropriate. The number of copies is indicated in the BDS. All copies shall be made from the signed original only. If there are discrepancies between the original and the copies, the original shall prevail. (b) The Technical Bid and Price Schedule must be sealed and submitted together in an envelope, which shall: i. Bear the name of the Bidder; ii. Be addressed to UNDP as specified in the BDS; and iii. Bear a warning not to open before the time and date for Bid opening as specified in the BDS. If the envelope with the Bid is not sealed and marked as required, UNDP shall assume no responsibility for the misplacement, loss, or premature opening of the Bid.
Email and eTendering submissions	22.5 Electronic submission through email or eTendering, if allowed as specified in the BDS, shall be governed as follows: a) Electronic files that form part of the Bid must be in accordance with the format and requirements indicated in BDS; b) Documents which are required to be in original form (e.g. Bid Security, etc.) must be sent via courier or hand delivered as per the instructions in BDS. 22.6 Detailed instructions on how to submit, modify or cancel a bid in the eTendering system are provided in the eTendering system Bidder User Guide and Instructional videos available on this link: http://www.undp.org/content/undp/en/home/operations/procurement/business/procurement-notices/resources/
23. Deadline for Submission of Bids and Late Bids	23.1 Complete Bids must be received by UNDP in the manner, and no later than the date and time, specified in the BDS. UNDP shall only recognise the actual date and time that the bid was received by UNDP 23.2 UNDP shall not consider any Bid that is received after the deadline for the

	submission of Bids.
24. Withdrawal, Substitution, and Modification of Bids	24.1 A Bidder may withdraw, substitute or modify its Bid after it has been submitted at any time prior to the deadline for submission. 24.2 Manual and Email submissions: A bidder may withdraw, substitute or modify its Bid by sending a written notice to UNDP, duly signed by an authorized representative, and shall include a copy of the authorization (or a Power of Attorney). The corresponding substitution or modification of the Bid, if any, must accompany the respective written notice. All notices must be submitted in the same manner as specified for submission of Bids, by clearly marking them as "WITHDRAWAL" "SUBSTITUTION," or "MODIFICATION" 24.3 eTendering: A Bidder may withdraw, substitute or modify its Bid by Cancelling, Editing, and re-submitting the Bid directly in the system. It is the responsibility of the Bidder to properly follow the system instructions, duly edit and submit a substitution or modification of the Bid as needed. Detailed instructions on how to cancel or modify a Bid directly in the system are provided in the Bidder User Guide and Instructional videos. 24.4 Bids requested to be withdrawn shall be returned unopened to the Bidders (only for manual submissions), except if the bid is withdrawn after the bid has been opened.
25. Bid Opening	25.1 UNDP will open the Bid in the presence of an ad-hoc committee formed by UNDP of at least two (2) members. 25.2 The Bidders' names, modifications, withdrawals, the condition of the envelope labels/seals, the number of folders/files and all other such other details as UNDP may consider appropriate, will be announced at the opening. No Bid shall be rejected at the opening stage, except for late submissions, in which case, the Bid shall be returned unopened to the Bidders. 25.3 In the case of e-Tendering submission, bidders will receive an automatic notification once the Bid is opened.
D. EVALUATION OF BIDS	
26. Confidentiality	26.1 Information relating to the examination, evaluation, and comparison of Bids, and the recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process, even after publication of the contract award. 26.2 Any effort by a Bidder or anyone on behalf of the Bidder to influence UNDP in the examination, evaluation and comparison of the Bids or contract award decisions may, at UNDP's decision, result in the rejection of its Bid and may subsequently be subject to the application of prevailing UNDP's vendor sanctions procedures.
27. Evaluation of Bids	27.1 UNDP will conduct the evaluation solely on the basis of the Bids received. 27.2 Evaluation of Bids shall be undertaken in the following steps: a) Preliminary Examination including Eligibility b) Arithmetical check and ranking of bidders who passed preliminary examination by price. c) Qualification assessment (if pre-qualification was not done) a) Evaluation of Technical Bids b) Evaluation of prices Detailed evaluation will be focussed on the 3 - 5 lowest priced bids. Further higher priced bids shall be added for evaluation if necessary
28. Preliminary Examination	28.1 UNDP shall examine the Bids to determine whether they are complete with respect to minimum documentary requirements, whether the documents have been properly signed, and whether the Bids are generally in order, among

		other indicators that may be used at this stage. UNDP reserves the right to reject any Bid at this stage.
29. Evaluation of Eligibility and Qualification	29.1	Eligibility and Qualification of the Bidder will be evaluated against the Minimum Eligibility/Qualification requirements specified in the Section 4 (Evaluation Criteria).
	29.2	In general terms, vendors that meet the following criteria may be considered qualified: a) They are not included in the UN Security Council 1267/1989 Committee's list of terrorists and terrorist financiers, and in UNDP's ineligible vendors' list; b) They have a good financial standing and have access to adequate financial resources to perform the contract and all existing commercial commitments, c) They have the necessary similar experience, technical expertise, production capacity, quality certifications, quality assurance procedures and other resources applicable to the supply of goods and/or services required; d) They are able to comply fully with the UNDP General Terms and Conditions of Contract; e) They do not have a consistent history of court/arbitral award decisions against the Bidder; and f) They have a record of timely and satisfactory performance with their clients.
30. Evaluation of Technical Bid and prices	30.1	The evaluation team shall review and evaluate the Technical Bids on the basis of their responsiveness to the Schedule of Requirements and Technical Specifications and other documentation provided, applying the procedure indicated in the BDS and other ITB documents. When necessary, and if stated in the BDS, UNDP may invite technically responsive bidders for a presentation related to their technical Bids. The conditions for the presentation shall be provided in the bid document where required.
31. Due diligence	31.1	UNDP reserves the right to undertake a due diligence exercise, aimed at determining to its satisfaction, the validity of the information provided by the Bidder. Such exercise shall be fully documented and may include, but need not be limited to, all or any combination of the following: a) Verification of accuracy, correctness and authenticity of information provided by the Bidder; b) Validation of extent of compliance to the ITB requirements and evaluation criteria based on what has so far been found by the evaluation team; c) Inquiry and reference checking with Government entities with jurisdiction on the Bidder, or with previous clients, or any other entity that may have done business with the Bidder; d) Inquiry and reference checking with previous clients on the performance on on-going or completed contracts, including physical inspections of previous works, as deemed necessary; e) Physical inspection of the Bidder's offices, branches or other places where business transpires, with or without notice to the Bidder; f) Other means that UNDP may deem appropriate, at any stage within the selection process, prior to awarding the contract.
32. Clarification of Bids	32.1	To assist in the examination, evaluation and comparison of Bids, UNDP may, at its discretion, request any Bidder for a clarification of its Bid.
	32.2	UNDP's request for clarification and the response shall be in writing and no change in the prices or substance of the Bid shall be sought, offered, or permitted, except to provide clarification, and confirm the correction of any arithmetic errors discovered by UNDP in the evaluation of the Bids, in accordance with the ITB.

	32.3 Any unsolicited clarification submitted by a Bidder in respect to its Bid, which is not a response to a request by UNDP, shall not be considered during the review and evaluation of the Bids.
33. Responsiveness of Bid	33.1 UNDP's determination of a Bid's responsiveness will be based on the contents of the bid itself. A substantially responsive Bid is one that conforms to all the terms, conditions, specifications and other requirements of the ITB without material deviation, reservation, or omission. 33.2 If a bid is not substantially responsive, it shall be rejected by UNDP and may not subsequently be made responsive by the Bidder by correction of the material deviation, reservation, or omission.
34. Nonconformities, Reparable Errors and Omissions	34.1 Provided that a Bid is substantially responsive, UNDP may waive any non-conformities or omissions in the Bid that, in the opinion of UNDP, do not constitute a material deviation. 34.2 UNDP may request the Bidder to submit the necessary information or documentation, within a reasonable period, to rectify nonmaterial nonconformities or omissions in the Bid related to documentation requirements. Such omission shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid. 34.3 For the bids that have passed the preliminary examination, UNDP shall check and correct arithmetical errors as follows: a) if there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the unit price shall prevail and the line item total shall be corrected, unless in the opinion of UNDP there is an obvious misplacement of the decimal point in the unit price; in which case, the line item total as quoted shall govern and the unit price shall be corrected; b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail, and the total shall be corrected; and c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail. 34.4 If the Bidder does not accept the correction of errors made by UNDP, its Bid shall be rejected.
E. AWARD OF CONTRACT	
35. Right to Accept, Reject, Any or All Bids	35.1 UNDP reserves the right to accept or reject any bid, to render any or all of the bids as non-responsive, and to reject all Bids at any time prior to award of contract, without incurring any liability, or obligation to inform the affected Bidder(s) of the grounds for UNDP's action. UNDP shall not be obliged to award the contract to the lowest priced offer.
36. Award Criteria	36.1 Prior to expiration of the period of Bid validity, UNDP shall award the contract to the qualified and eligible Bidder that is found to be responsive to the requirements of the Schedule of Requirements and Technical Specification and has offered the lowest price.
37. Debriefing	37.1 In the event that a Bidder is unsuccessful, the Bidder may request for a debriefing from UNDP. The purpose of the debriefing is to discuss the strengths and weaknesses of the Bidder's submission, in order to assist the Bidder in improving its future Bids for UNDP procurement opportunities. The content of other Bids and how they compare to the Bidder's submission shall

		not be discussed.
38. Right to Vary Requirements at the Time of Award	38.1	At the time of award of Contract, UNDP reserves the right to vary the quantity of goods and/or services, 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.
39. Contract Signature	39.1	Within fifteen (15) days from the date of receipt of the award letter, the successful Bidder shall sign the Contract. Failure to do so may constitute sufficient grounds for the annulment of the award, and forfeiture of the Bid Security, if any, and on which event, UNDP may award the Contract to the Second highest rated or call for new Bids.
40. Contract Type and General Terms and Conditions	40.1	The types of Contract to be signed and the applicable UNDP Contract General Terms and Conditions, as specified in BDS, can be accessed at http://www.undp.org/content/undp/en/home/procurement/business/how-we-buy.html
41. Performance Security	41.1	A performance security, if required in the BDS, shall be provided in the amount specified in BDS and form available at https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PSU_Solicitation_Performance%20Guarantee%20Form.docx&action=default within a maximum of fifteen (15) days of the contract signature by both parties. Where a performance security is required, the receipt of the performance security by UNDP shall be a condition for rendering the contract effective.
42. Bank Guarantee for Advanced Payment	42.1	Except when the interests of UNDP so require, it is UNDP's standard practice to not make advance payment(s) (i.e., payments without having received any outputs). If an advance payment is allowed as per the BDS, and exceeds 20% of the total contract price, or USD 30,000, whichever is less, the Bidder shall submit a Bank Guarantee in the full amount of the advance payment in the form available at https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PSU_Contract%20Management%20Payment%20and%20Taxes_Advanced%20Payment%20Guarantee%20Form.docx&action=default
43. Liquidated Damages	43.1	If specified in the BDS, UNDP shall apply Liquidated Damages for the damages and/or risks caused to UNDP resulting from the Contractor's delays or breach of its obligations as per Contract.
44. Payment Provisions	44.1	Payment will be made only upon UNDP's acceptance of the goods and/or services performed. The terms of payment shall be within thirty (30) days, after receipt of invoice and certification of acceptance of goods and/or services issued by the proper authority in UNDP with direct supervision of the Contractor. Payment will be affected by bank transfer in the currency of the contract.
45. Vendor Protest	45.1	UNDP's vendor protest procedure provides an opportunity for appeal to those persons or firms not awarded a contract through a competitive procurement process. In the event that a Bidder believes that it was not treated fairly, the following link provides further details regarding UNDP vendor protest procedures: http://www.undp.org/content/undp/en/home/procurement/business/protest-and-sanctions.html
46. Other Provisions	46.1	In the event that the Bidder offers a lower price to the host Government (e.g. General Services Administration (GSA) of the federal government of the United

	States of America) for similar goods and/or services, UNDP shall be entitled to the same lower price. The UNDP General Terms and Conditions shall have precedence. 46.2 UNDP is entitled to receive the same pricing offered by the same Contractor in contracts with the United Nations and/or its Agencies. The UNDP General Terms and Conditions shall have precedence. 46.3 The United Nations has established restrictions on employment of (former) UN staff who have been involved in the procurement process as per bulletin ST/SGB/2006/15 http://www.un.org/en/ga/search/view_doc.asp?symbol=ST/SGB/2006/15&referer

SECTION 3. BID DATA SHEET

The following data for the civil works to be procured shall complement, supplement, or amend the provisions in the Invitation to Bid. In the case of a conflict between the Instructions to Bidders, the Bid Data Sheet, and other annexes or references attached to the Bid Data Sheet, the provisions in the Bid Data Sheet shall prevail**.**

BDS No.	Ref. to Section.2	Data	Specific Instructions / Requirements
1	7	Language of the Bid	English
2		Submitting Bids for Parts or sub-parts of the Schedule of Requirements (partial bids)	Shall not be considered
3	20	Alternative Bids	Shall not be considered
4	21	Pre-Bid conference, e-tendering guiding session and Site Visit	Will be Conducted Time: 11:00 am (GMT +3, Local time-Turkey) Date: 12 November 2019 Venue: UNDP Office in Gaziantep Following the pre-bid conference, site visits will also be conducted with the participants of the pre-bid conference in order to examine the Site of Work and its surroundings. Bidders are strongly advised to participate to the pre-bid conference and site visits to obtain information that may be necessary for preparing the bid. The costs of participation to pre-bid conference and site visit are at the bidder's own expense. Please be informed that E-tendering guidance session will be also be conducted following the pre-bid conference to guide bidders on how to prepare their bids through e-tendering. E-tendering session will be provided in Turkish. Prospective bidders are highly encouraged to visit following page for system user guides and videos in different languages before attending to the Guidance Session: http://www.undp.org/content/undp/en/home/operations/procurement/business/procurement-notices/resources/ The contractor to be identified through this procurement process shall not be entitled to receive any payment due to unexpected costs that are caused by its failure to participate in the Pre-bid conference and Site Visit. Prospective Bidders who wish to participate in the Pre-Bid conference, e-tendering guiding session and Site Visit, shall contact following focal point for arrangement no later than 08 November 2019. Murat OZERDEN Telephone: +90 312 4541100 E-mail: murat.ozerden@undp.org

6	16	Bid Validity Period	90 days starting from the submission deadline
7	12	Bid Security	Required in the amount of USD 35,000.00 Acceptable Forms of Bid Security: Bank Guarantee (See Section 6; Form G for template) Bid Securities will be returned to all bidders upon signature of contract with the successful Bidder. Bid Security shall be valid up to 30 days after the final date of validity of bids. PDF copy of the Bid Security shall be submitted as part of e-tendering submission. Additionally, original Bid Security shall be delivered to the below address on or before the submission deadline indicated in e-tendering system. *Focal Point: Murat OZERDEN* *Yıldız Kule, 21st Floor, Dikmen Mahallesi, Turan Güneş Bulvarı, No:106, 06550, Çankaya, Ankara, Turkey*
8	42	Advanced Payment upon signing of contract	Not allowed
9	43	Liquidated Damages	Will be imposed as follows: Percentage of contract price per week (7 calendar days) of delay: 2% Max. number of weeks (7 calendar days) of delay is 5, after which UNDP may terminate the contract.
10	41	Performance Security	Required in the amount of 10% of the total contract amount Note: Performance Security will be a condition for signing the contract. Contract will be signed after receipt of performance security from the successful bidder. Performance security must be provided no later than 15 days after the bidder receives the award letter from UNDP. If the selected bidder fails to provide the security within this period, UNDP reserves the right to sign the contract with "Second lowest priced technically compliant bidder". 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.
11	13	Currency of Bid	United States Dollar
12	18	Deadline for submitting requests for clarifications/ questions	10 days before the submission deadline

13	18	Contact Details for submitting clarifications/questions	Focal Person in UNDP: Murat OZERDEN Address: Yıldız Kule, Yukarı Dikmen Mah. Turan Güneş Blv. No:106 06550, Çankaya/Ankara Turkey E-mail address: tr.procurement@undp.org
14	18, 19 and 21	Manner of Disseminating Supplemental Information to the ITB and responses/clarifications to queries	Posted directly to e-tendering
15	23	Deadline for Submission of Bids	Deadline for submission is indicated in eTendering system. Note that system time zone is in EST/EDT (New York) time zone
16	22	Allowable Manner of Submitting Bids	E-Tendering only This procurement process is being conducted through the online tendering system of UNDP. Bidders who wish to submit an offer must be registered in the system. Visit this page for system user guides and videos in different languages: http://www.undp.org/content/undp/en/home/operations/procurement/business/procurement-notices/resources/ If already registered, go to https://etendering.partneragencies.org and sign in using your username and password. Use "Forgotten password" link if you do not remember your password. Do not create a new profile. If you have never registered in the system before, you can register by visiting the link below and follow the instructions in the user guide (attached): https://etendering.partneragencies.org •Username: event.guest •Password: why2change It is strongly recommended to create a username with two parts: your first name and last name separated by a ".", (similar to the one shown above). Once registered you will receive a valid password to the registered email address which you can use for signing in and changing your password. Please note that your new password should meet the following criteria: • Minimum 8 characters • At least one UPPERCASE LETTER • At least one lowercase letter • At least one number You can view and download tender documents with the guest account as per the above username and password, However, if you are interested to participate, you must register in the system and subscribe to this tender to be notified when amendments are made.

17	22	Bid Submission Address	Bids shall be submitted through e-tendering. However, documents which are required in original (e.g. Bid Security) shall be delivered to the below address with a PDF copy submitted as part of the electronic submission on or before the submission deadline indicated in e-tendering system: *Focal Point: Murat OZERDEN* *Yıldız Kule, 21st Floor, Dikmen Mahallesi, Turan Güneş Bulvarı, No:106, 06550, Çankaya, Ankara, Turkey*
18	22	Electronic submission (eTendering) requirements	▪ File names must be maximum 60 characters long and must not contain any letter or special/Turkish character other than from Latin alphabet/keyboard. ▪ All files must be free of viruses and not corrupted. ▪ Max. File Size per transmission: 45MB
19	25	Date, time and venue for the opening of bid	No Public Opening will be conducted. Bidders will receive notification through e-tendering when bids are opened.
20	27 - 36	Evaluation Method for the Award of Contract	Lowest priced technically responsive, eligible and qualified bid.
21		Expected date for commencement of Contract	January 2020
22		Maximum expected duration of contract	300 calendar days, starting from the date on which the Contractor is given Access to the Site and receive a notice from the UNDP Engineer to commence the Works and ending on the date of substantial completion of Works stated in the Certificate of Substantial Completion. As stated in the General Conditions of Contract for Civil Works, clause 47.1; "Defects Liability Period" is 12 months calculated from the date of completion of the Works stated in the Certificate of Substantial Completion issued by the UNDP Engineer.
23	35	UNDP will award the contract to:	One Bidder Only
24	40	Type of Contract	Contract for Civil Works http://www.undp.org/content/undp/en/home/procurement/business/how-we-buy.html
25	40	UNDP Contract Terms and Conditions that will apply	UNDP General Terms and Conditions for Works http://www.undp.org/content/undp/en/home/procurement/business/how-we-buy.html
26	44	Payment Provisions	**Pricing Structure;** 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. **Payment Terms;** The Contractor shall submit monthly invoices (reflecting the monthly work performed and materials utilized every month as accepted by UNDP through the "Monthly Progress Reports") and a final invoice within 30 days from the issuance of the Certificate of Substantial Completion by the Engineer. UNDP shall effect payment of the invoices after receipt of the certificate of payment issued by the Engineer, approving the amount contained in the invoice. The Engineer may make corrections to that amount, in which case UNDP may effect payment for the 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 invoices submitted by the Contractor within 15 days of their receipt. Invoices will be paid within thirty (30) days of the date of their receipt and acceptance by UNDP. **Currency of Payment;** If the Contractor is registered and operating in Turkey, the payment shall be realized in Turkish Liras (TRY) through conversion of United States Dollar (USD) amount into Turkish Liras (TRY) by the UN operational rate of exchange[1] valid on the date of money transfer. If the contractor is registered and operating in a country other than Turkey, payments shall be effected in United States Dollar.
27		Taxation	UN and its subsidiary organs are exempt from all taxes. Therefore, bidders shall prepare their Bids excluding Value Added Tax (VAT). It is the Bidder's responsibility to learn from relevant authorities (Ministry of 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 Finance's General Communiqués. The Contractor to be selected shall not be entitled to receive any amount over its Bid price in relation to VAT, Special Consumption Tax and any other applicable taxes.

[1] Available at the website: https://treasury.un.org/operationalrates/OperationalRates.php#E

SECTION 4. EVALUATION CRITERIA

Preliminary Examination Criteria

Bids will be examined to determine whether they are complete and submitted in accordance with ITB requirements as per below criteria on a Yes/No basis:

- Appropriate signatures
- Power of Attorney
- Minimum Bid documents provided
- Bid Validity
- Bid Security submitted as per ITB requirements with compliant validity period

Minimum Eligibility and Qualification Criteria

Eligibility and Qualification will be evaluated on a Pass/Fail basis.

If the Bid is submitted as a Joint Venture/Consortium/Association, each member should meet the minimum criteria, unless otherwise specified.

Subject	Criteria	Document Submission requirement
ELIGIBILITY		
Legal Status	Vendor is a legally registered entity	Form B: Bidder Information Form
Eligibility	Vendor is not suspended, nor debarred, nor otherwise identified as ineligible by any UN Organization or the World Bank Group or any other international Organization in accordance with ITB clause 3.	Form A: Bid Submission Form
Conflict of Interest	No conflicts of interest in accordance with ITB clause 4.	Form A: Bid Submission Form
Bankruptcy	Has not declared bankruptcy, is not involved in bankruptcy or receivership proceedings, and there is no judgment or pending legal action against the vendor that could impair its operations in the foreseeable future.	Form A: Bid Submission Form
Certificates and Licenses	▪ Power of Attorney ▪ Official appointment as local representative, if Bidder is submitting a Bid on behalf of an entity located outside the country	Form B: Bidder Information Form
QUALIFICATION		
History of Non-Performing Contracts[2]	Non-performance of a contract did not occur as a result of contractor default for the last 3 years.	Form D: Qualification Form
Litigation History	No consistent history of court/arbitral award decisions against the Bidder for the last 3 years.	Form D: Qualification Form
Previous Experience	Minimum three years of experience in the construction field.	Form D: Qualification

[2] Non-performance, as decided by UNDP, shall include all contracts where (a) non-performance was not challenged by the contractor, including through referral to the dispute resolution mechanism under the respective contract, and (b) contracts that were so challenged but fully settled against the contractor. Non-performance shall not include contracts where Employers decision was overruled by the dispute resolution mechanism. Non-performance must be based on all information on fully settled disputes or litigation, i.e. dispute or litigation that has been resolved in accordance with the dispute resolution mechanism under the respective contract and where all appeal instances available to the Bidder have been exhausted.

		Form
	The Bidder must have successfully completed, **as the prime contractor**, minimum two cotracts for construction of any kind of building, **each** at a minimum value of USD 1.200,000, over the last five years. **Note:** Renovation, rehabilitation and restoration works will not be considered as similar experience. (For JV/Consortium/Association, all Parties cumulatively should meet requirement).	Form D: Qualification Form
Financial Standing	Minimum average annual turnover of USD 2,000,000 for the last 3 years. (2016, 2017, 2018) *(For JV/Consortium/Association, all Parties cumulatively should meet requirement).*	Form D: Qualification Form
	Bidder must demonstrate the current soundness of its financial standing and indicate its prospective long-term profitability by submitting its "audited financial statement" and "decleration of its financial status" along with the bid. *(For JV/Consortium/Association, all Parties cumulatively should meet requirement).*	Form D: Qualification Form
Technical Evaluation	The technical bids shall be evaluated on a pass/fail basis for compliance or non-compliance with the technical specifications identified in the bid document.	Form E: Technical Bid Form
Financial Evaluation	Detailed analysis of the price schedule based on requirements listed in Section 5 and quoted for by the bidders in Form F. Price comparison shall be based on the total estimated price for all the quantities set out in the Bill of Quantities.	Form F: Price Schedule Form

SECTION 5A: SCHEDULE OF REQUIREMENTS AND TECHNICAL SPECIFICATIONS

Unless otherwise stipulated in the related sections of technical specifications, the following sections shall take precedence over one another in the following order in terms of technical specifications / requirements;

1) Section 5A.1 Statement of Works/Technical Specifications
2) Section 5A.3 Design Drawings
3) Section 5A.2 Specifications for Items/Pose Definitions

SECTION 5A.1 STATEMENT OF WORKS / TECHNICAL SPECIFICATIONS

1. GENERAL

1.1. INTRODUCTION AND BACKGROUND

"Turkey Resilience Project in Response to the Syria Crisis aims to support Syrians hosted in Turkey, Turkish host communities and local partners to better cope with and recover from the impact of displacement, Project promotes a resilience-based development approach and complements humanitarian assistance. The main objective of the project is to enhance self-reliance of Syrians and strengthen institutional capacities of local and national partners to be able to respond to the increase in demand for public services. The key aspect of UNDP's resilience response strategy is to invest in existing national and local systems to ensure they can adequately serve both host and Syrian communities by focusing on three major components:

Component 1- Employment Creation
Component 2 - Municipal Service Delivery
Component 3 - Adult Language Training

Within the scope of Component 3 – Adult Language Training, UNDP Turkey aims to ensure that at least 52,000 Syrian under Temporary Protection (SuTP) benefit from Turkish Language Training. Trainings are being provided in classrooms of Public Education Centers around Turkey.

Due to increase in the number of Syrian Trainees and insufficient number of classrooms in the Public Education Centers (PECs); increasing the number of classrooms has become a necessity.

In the scope of this contract, a Public Education Center will be constructed for achieving project objectives by providing Turkish Language Training to Syrian under Temporary Protection.

1.2. DEFINITION AND SCOPE OF THE CONTRACT

1.2.1. Definition

Construction of Public Education Center in Gaziantep Province as per the Scope of Works and Design Drawings.

1.2.2. Scope of Works

The works mainly consist of:

- Excavation and filling for the building according to the site excavation plan,
- Construction of the Public Education Center including structural, architectural, mechanical, electrical, infrastructure and landscape works detailed with drawings and technical specifications.
- Providing all "as-built drawings" and all summary tables of laboratory test results at the end of the Works, fully describing the finalized Permanent Works.
- Execution of any outstanding work and all such works of repair, amendment, reconstruction, rectification, and making good defects, imperfections, shrinkages or other faults required by Engineer during the Defects Liability Period for 12 months period.

The works shall be executed under this contract, as mentioned in detail, in the Technical Specifications and on Drawings, together with all related civil works. In all construction and manufacturing, the provisions of the Technical Specifications and Drawings shall be obeyed.

Before erection/installation for all materials, the contractor shall request prior approval from the Engineer.

All measurements given on the drawings shall be checked on-site by the Contractor. The Contractor shall prepare the shop drawings accordingly and get the approval of the Engineer before starting the construction.

The Contractor shall be responsible for taking all the necessary health & safety measures according to the relevant legislations until the taking over of the works by the Employer.

The Contractor shall prepare shop drawings and as-built drawings for Engineer's approval, during the execution of the relevant stages of permanent works. The Employer and/or Engineer may request variations and/or additional works to be designed by the Contractor. The variations or new design works shall be carried out in accordance with the provisions of Technical Specifications and subject to Engineer's approval.

1.2.3. Construction Site

Construction site is situated in the Province of Gaziantep, Şehitkamil District, Beylerbeyi Neighborhood in the parcel numbered 465/3. The application coordinates and setting out data is as given in drawings or as may be specified by the Engineer.

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"[3]
- 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

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.

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.

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.

1.4.2.1. Site Temporary Buildings

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

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[3] Applicable 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

1.4.2.2. 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.

1.4.2.3. 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.

1.4.2.4. 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.

1.4.2.5. 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.

1.4.2.6. Temporary Project Sign Board

The Contractor shall at his own cost supply, erect and maintain 1 signboard (size 1.5 m x 2 m) at locations to be determined by the Engineer on which the names and information asked by the Engineer. The design of the sign board requires the prior approval of the Engineer and the Employer.

1.4.2.7. 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. Fences, billboards, etc. that have been removed temporarily shall be placed again.

1.4.2.8. 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 his 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 or occupiers.

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.

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: English speaking, minimum 5 years' experience in construction of any kind of structure and degree in civil engineering or architecture. 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 UNDP Engineer to commence the Works and ending on the date of substantial completion of Works stated in the Certificate of Substantial Completion.

Architect: Minimum 3 years' experience in construction of any kind of structure, and degree in Architecture.

Civil Engineer: Minimum 3 years' experience in construction of any kind of structure, and degree in Civil engineering.

Electrical Engineer: Minimum 3 years' experience in construction of any kind of structure, and degree in electrical engineering.

Mechanical Engineer: Minimum 3 years' experience in construction of any kind of structure and degree in mechanical engineering.

Surveyor: Minimum 3 years' experience in construction of any kind of structure and degree in Survey Engineer (or equivalent) or minimum 5 years' experience in construction of any kind of structure and degree in Survey Technician.

1.6. PLANT

The contractor shall ensure availability of the followings on site in line with Programme of Work.

Equipment	Specifications (minimum)	Minimum number of Quantity
Excavator	90 hp	1
Truck	15 tons	2
Compressor	180 hp	1
Power Supply Generator	250 kVA	1
Crane	40 tons	1
Roller Compactor	n/a	1
Loader	n/a	1
Grader	n/a	1
Concrete Vibrators	n/a	4
Formwork	Plywood	1.500 m2
Scaffolding	Steel pipe	250 m3
Water Tank	10 tons	1
Panels for Power & Lighting	n/a	4

1.7. MATERIALS

1.7.1. Conditions for Materials and Equipment

Materials and equipment within the scope of the Work shall comply with the conditions stated in the Technical Specifications. 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.

1.7.2. 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.

1.7.3. 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 Workplace and to be protected against damage.

Materials and equipment shall be loaded on vehicles in conformity 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.

1.8. 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.

1.8.1. 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 land surveyors.
- Use modern type and high-quality topography devices suitable for the works.

1.9. 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.

Material	**Quantity**
Working Table	1
Director Chair	2
Guest Chairs	5
Design Review Table	1

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.

1.10. COORDINATION

The Contractor is responsible for ensuring all coordination necessary for the execution of the work 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:

a. Relevant official institutions and organizations,

b. Other authorized persons, institutions and organizations

1.11. CONTROL AND EXAMINATION OF MATERIALS AND EQUIPMENT

If the Engineer requests, s/he sends his own members to the project offices, factories of the Contractor and to factories of its subcontractors for the technical control and examination of the material and equipment, production in factories and for their participation in the project works.

As a result of the control and counting of the material, replacement of materials, which are not in compliance with the quality identified in the specifications, are malfunctioned, deficient or sent by mistake, will be realized and delivered to the buyer within 14 days (this term will be determined mutually, when special manufacturing is necessary) and all expenditures made. Otherwise, the Employer will procure these, and collect all expenditures from the receivables or performance security in the Employer.

1.12. OBTAINING OF RELEVANT APPROVALS AND CERTIFICATES

The Contractor shall obtain all relevant approvals and certificates from local Authorities regarding construction and operation of the Plants in the site.

Permits, license and approval costs which are required by the Turkish laws/regulations will be determined by the relevant local authorities.

1.13. 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. 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
- Ensuring all materials, as-built drawings, final finish schedules and plans, and all warranties, guarantees and certifications – that are contractually owed to contractor are collected from contractor's design team 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) 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".

1.14. IMPLEMENTING PARTNER AND FINAL BENEFICIARY

The Contractor shall establish coordination with implementing partner of the project, namely **Ministry of Education (MoNE)** and final beneficiary, namely **Regional Directory of National Education in Gaziantep.** If deemed necessary by the Employer, the representatives of implementing partner and final beneficiary may participate to meetings, tests on completion, acceptance and inspection of materials and equipment etc.

The 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 power 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 Technical Specifications.

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 argued 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 tenderer plans to subcontract part of the works, he must provide the following details:
    - Details of work to be subcontracted,
    - Name and details of subcontractors,
    - Value of subcontracting,
    - Experience of subcontractor in similar work.

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 passed 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 a 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 co-ordination 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 start 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 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, achievement, 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 dates for the submission of monthly Progress Reports. These reports shall normally be submitted no later than 7 working 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 progress chart (at least every 1 months, 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. 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 orientation of the Engineer.

2.1.8.2. Weekly Site Meetings

Site Meetings (SMs) 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. SMs may be held to formalize important technical discussions, generally prior to the Progress Meetings and record information's and recommendations arising from these discussions. Decision shall be normally taken at the Progress Meeting.

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

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

Meeting minutes shall be recorded by the Contractor, kept carefully and these shall be distributed as minutes of SMs 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 SMs shall be conducted by the Contractor under the orientation 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

Generally spoken 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. The Engineer has the same rights against any sub-contractor as against the Contractor, but this will not free the Contractor for his responsibility for the work performed by the sub-contractors.

To finish 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 like ISO 9001

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.

Be aware that this matter is pre-condition of payment for works done 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:

- interior
- 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, the special additional 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 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 can't 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 evidences 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 to the contrary issues specific approvals or instructions. 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 workplace or used in any work.

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

2.4.5. Test Laboratory Services

Quality Control tests shall be done in the laboratory accredited by Republic of Turkey Ministry of Environment and Urbanization shall be used at the expense of the Contractor.

The Contractor shall ensure that the laboratory perform the desired material inspection, sample receiving and test processes as fast as 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 immediately.

The laboratory is not authorized to change, expand or invalidate the terms of the Contract.

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.

All of the test certificates and examination records shall be divided into their relevant departments and kept including those in the Manufacturer Company and other test institutions. 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, however 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/STRUCTURAL WORKS

4.1.1. Earthworks

General

This specification consists of; excavation for all structures, described in the excavation plans; 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 directives shall be followed.

In case the amount of excavation exceeds the amount calculated from the Engineer approved excavation plan, the contractor is responsible fiscally. Addition to this the extra amount of excavation shall be filled according to the requirements with compacted soil, crushed stone or concrete with the directives of the Engineer, by the contractor without any additional payment.

Before starting the earthworks, contractor must study the layout plan, elevation plan, and topographic map of the area which is given by the Employer and complete all the controls. The contractor must prepare the excavation plans, sections, and calculations to be checked and investigated by the Engineer for all structures.

The contractor shall clean the area and the ground surface, trees and roots, before starting the earthworks. Cleaning includes all the organic wastes and other rubble to be removed out from the site. The brushwood and other plants to be removed from site area shall be cut at the ground level or below. This process shall be done by the Engineer's directives and the plants shall be cut carefully. The removal process includes trees having a diameter greater than 7.5 cm and the ones which have roots that tied to each other forming a wire shape. All the refuses, the organic and non-organic wastes shall be removed from the site by the Contractor.

Definitions

Appropriate materials are classified in TS 1500 as GW, GP, SW, GM, SP, SM, and SC

GW : Well graded gravels, sandy gravels with little or no fines.

GP : Poorly graded gravels, sandy gravels with little or no fines.

SW : Well graded sands, gravely sands with little or no fines.

GM : Silty gravels, silty sandy gravels

SP : Poorly graded sands, gravely sands with little or no fines.

SM : Silty sands

SC : Clayey sands

Inappropriate materials are classified in TS 1500 as PT, OH, ML and OL. If the materials listed in the above statement are encountered during excavation the Contractor has the responsibility to remove these materials.

PT : Peat and other highly soils.

OH : Organic clays of high plasticity

ML : Inorganic silts, silty or clayey fine sands with slight plasticity.

OL : Organic Silts and organic silty clays of low plasticity

Cohesionless materials are listed in TS 1500 as GW, GP, SW, and SP. Cohesive materials are listed as GC, SC, ML, and CH. The materials classified as GM and SM can only be defined as cohesionless materials in case their fine content contains no plasticity.

Compaction degree; required Modified Proctor Test compaction degree is expressed as the percentage of max dry density. (TS 1900)

Confined ground water table; is the permanent or temporary water table existing over the ground water table, isolated by an impermeable soil layer.

Accumulated water; the accumulated water exists between the foundation walls and compacted stabilized fill and can be seen in a suspended form in the relatively less permeable fine graded soil.

Materials

The selected fill material shall be used around the foundations under structures, excluding structural foundations. The above selected material must not contain roots or similar organic materials, waste, and rubble greater than 7.5 cm. It must be compactable. Contents of this material have gradation passing percentage %10 from sieve no 200 (0.075mm).

The capilar water barrier shall be constructed under the foundation slabs and shall be formed of crushed stone or natural gravel. Maximum size of the particle must not be greater than 4 cm and the total weight of passing percentage from sieve #4. shall not be greater than %2.

If there are local weak areas and voids under the foundations, with the order of the Engineer, these areas shall be filled with 200 dosage lean concrete or compacted stabilized fill material.

Excavation

The Contractor is required to expose the base of the excavation for foundations and to arrange for the Engineer to inspect it prior to covering it, with the first blinding layer of concrete. If the ground is not found to be satisfactory for the proper support of the foundation without unacceptable settlement, then the Engineer will instruct the Contractor to excavate down to a firmer strata and backfill with mass concrete or take other measures that are necessary to ensure an adequate foundation for the structure.

Areas outside of each building/structure shall be sloped to drain away from the building/structure, and shall be maintained free of trash and debris until provisional approval has been completed and the work has been accepted. In addition, the topsoil which is adversely affected and compacted due to the activities of construction equipment or which is contaminated by cement, lime, etc. shall be ploughed, cleaned and graded. The stockpiled topsoil shall be evenly spread over the ploughed, cleaned and graded surface.

If, at the bottom of the excavations, any pockets of soft material or loose stones or fissures are found, these shall be removed by hand and cavities will be filled in with suitable material.

Starting Foundation Excavation

Contractor shall make application of structures and check the correctness of the process.

Following the approval of the excavation plan by the Engineer, according to the excavation plan, first the top soil part shall be removed and stored in place within the site. Then those stored material shall be used for landscape purposes by the contractor. The foundation excavation shall be made according to the directives of the Engineer and related drawings with the earthwork and as in the specifications.

Methodology of Opening Foundations

Earthwork shall comply with the defined dimensions and elevations for the structure. The excavation area shall have the adequate distance from the walls and foundation piers that allows to establishment of the services and control, locate the establishment of forms and remove them. The only exception of this condition is the allowance of lean concrete and gravel-sand fill material casted directly, adjacent to the excavation surfaces. There shall not be any excavation under the defined levels. If the excavations made without the Engineer's instructions, the additional cost shall not be reflected to the Employer and the selected fill material shall be used for the compaction again and shall be filled. Areas outside of each building shall be sloped to drain away from the building and shall be maintained free of trash and debris until the work has been accepted. In addition, the topsoil which is adversely affected and compacted due to the activities of construction equipment or which is contaminated by cement, lime, etc. shall be ploughed, cleaned and graded.

The excavation slopes shall be protected against slope failures (i.e. with plastic sheets during the rainy periods) according to the instructions of the Engineer.

Appropriate Excavation Material

The appropriate excavated material shall be stored and used for fill or backfill purposes. If the amount of appropriate excavated material is greater than amount of backfill, the contractor shall transport this excessive amount without bringing any additional cost to the Employer. In case there is an over excavation, the excavated fill material shall be taken away from site like other inappropriate materials in a same manner.

Last Leveling of Ground and protection of Base for Concrete

It is only allowed for a large size scale of excavation for foundations up to 20-30 cm over the designated base elevations. The last 20-30 cm of natural ground elevation shall be excavated under the control of the Engineer and care shall be taken to ground soil not to be disturbed. The surface of soil must be protected from getting wet and drying. Compacted and non-compacted surfaces under the foundation piers are subject to approval before concrete is casted. When the required level of elevation for foundation of structures is reached, 15 cm of lean concrete shall coat the level under the foundation base and overflows 15 cm from both sides, immediately.

Preparation of Foundation Soil

The last leveling operation is made and if required, soft parts of soil is excavated and filled with an appropriate material and prepared.

The elevation difference between two points on the foundation soil must not exceed 1.5 cm and this shall be controlled by a gauge rod of 5m length. Addition to these restrictions, the foundation elevation changes' must be in an interval of ±2 cm tolerance according to the drawings.

The base of excavation area must be leveled in the above-mentioned statement. The locations that have an elevation difference greater than 2 cm shall be excavated and filled as mentioned in the related paragraphs. All these works shall be a part of the Contractor's responsibility without any additional cost impact.

The Engineer must be informed for checking the works done, and to approve them. If necessary, for recording data, before the final excavation elevations are reached and starting of next process. Besides, Engineer has the authority to control the works done.

Removal of Soft Parts

Although the processes are followed there may be still soft parts or cracks found in the excavation base. These shall be excavated by hand and shall be filled with appropriate material by the Contractor.

Removal of Soft Parts under The Foundations:

To remove the soft parts under the foundations, 150 kg/m3 of lean concrete or compacted stabilized fill material shall be used as an appropriate material. The Engineer must approve the selected material. The concrete fill preparation, casting, compaction, curing and testing shall be made regarding the concrete specification and Engineers instructions.

Removal of Soft Parts under Non-Structural Sections:

The selected fill material shall be used as an appropriate fill material for the excavated soft parts under non-structural sections. The arrangement, location, compaction and testing procedure shall be done as described below.

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 also ventilated. All layers shall be compacted to a degree of not less than a maximum density ratio percentage as tabulated below:

Compacted Layer	Dry density ratio % According to Modified Proctor Test	
	Cohesive Materials	Cohesionless Materials
Fills and backfills under the structures, slabs of the buildings	90	95
Fills under walkways and open areas	85	90
Under building sidewalks For top 30 cm	90	95

Rearrangement of Foundation Excavation Bases

The approved foundation bases may be damaged due to the weather conditions, because of a contractor's interference or any unexpected situation. In this case before starting the construction, soil shall be controlled without any cost impact to the Employer. Underground installation compaction shall be made by hand.

Tests

There shall be no payment for sampling, testing and reporting the test results to contractor.

The laboratory tests concerning moisture density relationships shall be made according to the procedure regarding the compaction of fills mentioned in the above statements.

Preparing samples in accordance with the laboratory tests does not include any additional payment to contractor. Field tests are also carried out in accordance with TS1900 to check whether the compaction conditions are verified the tests made by contractor must be in an Engineer certified laboratory. The copy of test results following 24 hours after the tests were made shall be given to Engineer.

The fill and backfill not compacted as defined shall be excavated to the depth that Engineer decides and the degree of density conditions shall be provided with no additional cost to administration. These re-compacted locations are going to be checked whether the conditions are satisfied by the tests. Also these tests shall be out of payment procedure. The test type and frequency intervals are listed in the below table:

TEST FREQUENCY AND TYPE OF THE TEST

Test Type	Frequency
Field Moisture	1 test for each layer of material laid
Classification Gradation and Atterberg Limits	1 density test for each fill and once for compaction test
Field Moisture and Density (sand cone and water balloon method)	Once for each layer of material laid
TS 1900 Modified Proctor Test	if the material is homogenous, for each 200 m2 once (1) (Check the used material types) Density / Moisture

Support

There shall be no additional payment to contractor for support work items.

If required, protection by supports is an obligation for; safety of workers, adjacent fills and structures, installations, etc Support walls, plates and supports shall be dismantled without causing any collapse of soil in the working area.

The contractor shall be responsible for all type of accidents and damages to workers and structures, respectively that may be happened because of a collapse near the excavation area or any other reason that may cause collapsing of the soil. These types of damages must be prevented by providing adequate slopes along the surfaces of excavation or the sides of the excavation area must be supported by the contractor. Support procedure shall be done by taking care of soil's state of nature.

The method for strengthening the sides of the excavation area must be approved by the Engineer. But this approval does not abrogate the contractor's responsibility. If Engineer desires the supports remain unchanged in their places for safety reasons at the stage of re-filling after foundation excavation or piping works, contractor shall not have any rights to request a payment for that application.

The re-arrangements or any changes in the support system made by the contractor or the Engineer's directives shall not have any cost impact to the Employer.

Dewatering

There shall be no additional payment for dewatering because these works are included in excavation item.

The excavation works shall be carried on with effective and continuous drainage. There shall not be any permission of water accumulation in the site for any reason. Until concrete and filling works are being completed water accumulated in the foundation or installation holes and surface run-offs shall be drained temporarily by pumping, drainage or other certified methods.

Drainage and dewatering in earthworks shall be carried out by the Contractor as part of the Contract. Excavations shall be performed so that the area of the site and the area immediately surrounding the site, which may affect operations at the site, will be continually and effectively drained. Water shall not be permitted to accumulate in the excavation.

Foundations for structures and utility trenches shall be kept free from standing and surface water at all times by pumping, draining or other approved methods until concreting and backfilling operations are completed. Where pumping is used, a back-up excavation, site drainage and sub grade protection plan shall be approved by the Supervisor prior to initiating construction. The plan shall include proposed measures to keep concrete curing water out of backfill and sub grade areas.

Removing Excavation Material

The excess of excavation material which the Engineer judged to transport from the site area shall be carried to an adequate area that is decided by the contractor, Engineer and local administration together. 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 administration 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.

It may be not convenient to transport some of the trees in the site. In this case these shall be stacked in a suitable place that the Engineer shows.

Exported Compacted Stabilized Fill

Compacted stabilized fill is used between foundations. Fill material shall be in the form as defined in the capillary water paragraph or in the re-arrangement of bases and loading paragraph.

Borrow materials for the use of compacted stabilized fill requirements shall be selected whether the capillary barrier exists. Borrow material shall be obtained outside from the site from a specific location chosen by contractor and shall be approved by the Engineer. Obtaining compact stabilized fill material, transportation and similar costs are included in the related items.

Sieve Analysis of compacted stabilized fill:

Grain Size	Passing the Sieve (% Percentage)
75 mm	100
35.5 mm	85-100
10 mm	40-70
5 mm	25-45
600 micron	8-22
75 micron	0-5

Backfill

Backfill process shall not begin before; the approval of construction under the final level, control of underground installation systems and their testing, removing form, cleaning the area from wastes and rubbles.

The above-mentioned construction under the final leveling includes water insulation over the faces of exterior basement walls, protection walls but not limited with these.

Fill shall not be placed over the wetted surfaces of soil. Fill material shall be placed and compacted as described in the related paragraphs.

Laying fill materials and compaction shall not be applied with the heavy work machines to foundations and retaining walls at a distance smaller than the height between the foundation system structure and fill level. The compaction work between these distances shall be made with appropriate hand compactors of layers having a compacted thickness of not greater than 20 cm. Fill material shall be placed carefully without giving any harm to covers around pipes. To place the fill material around walls, 7 days must be passed over the construction time. Backfill shall be placed around the walls at equal amounts and level shall be raised up. Also, for the drainage of water, slope shall be given to the surfaces in an applicable ratio. Care must be taken to the locations under the building entrance, slabs and sidewalks. Compaction tests shall be made according to the tests paragraph.

Rock Excavation

If rock is encountered during excavation, no additional payment shall be done. In rock excavations appropriate machines shall be used but explosives are not permitted.

Protection of Existing Service Lines and Structures

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

Levelling

The areas outside the buildings/structures shall be leveled according to project parameters and drainage shall be maintained. Finally, after the last control the area shall be kept clean.

Addition to these, the upper soil layer may be compacted and dirtied by lime or cement because of the working machines. Then it must be cleaned and ventilated.

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

Transportation of Earthworks

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

4.1.2. Concrete Works

Concrete

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.

The prices entered in the price proposal 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.

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;
- Class of concrete, volume of concrete placed, and number of batches used for each location.

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

Organization of Concrete Production at the Site

At the commencement of the Contract the Contractor shall submit for the approval of the Engineer a Method Statement detailing his proposals for the organization of concreting activities at the site. The concrete to be used for Works should be ready-mixed.

The Method Statement shall include the following items:

- Plant proposed including plant capacity and capability to continuous supply of concrete.
- Quality control procedures for concreting by the contractor.
- Transport and placing of concrete.
- Details of formwork including striking/removing times and procedure for temporary support of beams and slabs.
- Protection and curing.

Ready Mixed Concrete

Concrete obtained from a supplier of ready-mixed concrete may be used in the Works subject to the 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.

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 shuttering that has become overheated or exceptionally dry through prolonged exposure to the sun. The Contractor shall ensure that all shuttering retains a sufficient amount of humidity and has not become shrunk or warped. All soaking or spraying of shuttering 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 shuttering, which he believes has become too and/or dry and the condition of which could harm the quality and strength of concrete. No extra payment for cooling or soaking of shuttering shall be made. Pursuant to Section 2.3.6 all shuttering, area of deposition, reinforcement and exposed surfaces of adjoining concrete surface shall be thoroughly cleaned and free from dust, debris, oil any other 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 within the meaning and description of Section 2.4.9. 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.
Pouring in Layers:
Concrete shall be poured 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.
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 Unfavorable 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 shutters 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 shuttering are not disturbed, and that no damage is caused to concrete that has already set or to the internal face of the shuttering 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 shuttering with hand tools is not permitted.

When placing concrete against horizontal or inclined elements of waterstops they shall be lifted and the concrete placed and compacted to a level slightly higher than the underside of the waterstop before releasing the waterstop to ensure complete compaction of the concrete around the waterstop.

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. Any leaks or cracks shall be sealed by injection with a synthetic resin or other appropriate methods approved by the Engineer.
Blinding Concrete (Sub-base):
A blinding layer of minimum 150 mm lean concrete shall be placed under foundations where shown on the Drawings or ordered by the Engineer. The blinding layer shall be allowed to harden before the structural concrete for the ground slab is placed.
Blinding of trimmed surfaces in excavations and trenches includes placing, compaction and screening of surfaces as specified in the Technical Specifications.

Blinding shall be measured net by square meters, referring to minimum trench width as specified for earth works and to the size of structures as shown on approved Drawings.
Loads on 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.

Field Concrete

Joint Sealants and Fillers
The Contractor shall provide Class 5 or Class 8 joint-sealant materials and fillers unless otherwise shown on the plans or approved and other sealant materials of the size, shape, and type shown on the plans in accordance with DMS-6310 (or equivalent), "Joint Sealants and Fillers.
Sawing Equipment
The Contractor shall provide power-driven concrete saws to saw the joints shown on the plans. Provide standby power-driven concrete saws during concrete sawing operations. Provide adequate illumination for nighttime sawing.
Grinding Equipment
When required, provide self-propelled powered grinding equipment that is specifically designed to smooth and texture concrete pavement using circular diamond blades. Provide equipment with automatic grade control capable of grinding at least a 90 cm width longitudinally in each pass without damaging the concrete.
Joints
The Contractor shall

- install joints as shown on the plans,
- clean and seal joints,
- repair excessive spalling of the joint saw groove using an approved method before installing the sealant
- seal all joints before opening the pavement to all traffic,
- When placing of concrete is stopped, install a rigid transverse bulkhead, accurately notched for the reinforcing steel and shaped accurately to the cross-section of the pavement

Placing and Removing Forms
The Contractor shall

- Use clean and oiled forms.
- Secure forms on a base or firm subgrade that is accurately graded and that provides stable support without deflection and movement by form riding equipment.
- Pin every form at least at the middle and near each end.
- Tightly join and key form sections together to prevent relative displacement

Spreading and Finishing
The Contractor shall

- Finish all concrete pavement with approved self-propelled equipment.
- Use power-driven spreaders, power-driven vibrators, power-driven strike-off, and screed, or approved alternate equipment.
- Use the transverse finishing equipment to compact and strike off the concrete to the required section and

grade without surface voids. Use float equipment for final finishing.

- Use concrete with a consistency that allows completion of all finishing operations without addition of water to the surface.
- Use the minimal amount of water fog mist necessary to maintain a moist surface.
- Reduce fogging if float or straightedge operations result in excess slurry.

4.1.3. Shuttering and Concrete Finishes

General

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

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

Materials for Shuttering

Shuttering shall be made from good quality plywood, free from loose knots, shakes and warped surfaces. Plywood for shuttering shall not be less than 17,5 mm in thickness, and the plywood 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.Alternatively, with the approval of the Engineer, shuttering may be made from:

- metal with accurately aligned and close-fitting joints
- plywood or hardboard 5 mm in thickness supported by close boarded timber

Fixing of Shuttering

Shuttering 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 shuttering in contract 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 discolor the concrete shall not be used.

Cleaning and Re-Using of Shuttering

Before any concrete is placed, the shutters 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 shutter.

In no case shall concrete be placed in shuttering before the shuttering has been approved by the Engineer. If shutters 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, shutters or moulds are not acceptable for reuse, they shall be either properly repaired or substituted with new shutters or moulds which shall comply with the requirements of Section 2.5.3.

Removal of Shutters

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 shutter 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.

Alternatively, the removal of shutters shall be determined by the demanded compressive strength of the concrete.

Finish to Concrete Surfaces

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

Dimension and Surfaces of In-Situ 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

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 for approval of Engineer, if deemed necessary by the Engineer.

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.

The Contractor shall execute the reinforcement fixing in accordance with the Drawings and/or according to the requirements specified in TS 500 and DIN 1045.

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, shutter oil or paint which may have been deposited during the construction of adjacent works.

Bending of Bars

Steel reinforcement shall be cut from straight bars free from kinks and bends or other damage and shall be bend cold by experienced competent workmen. Bars of diameter greater than 16 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.

Cutting of Wire Fabrics

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

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

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, pieces 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 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 shuttering.
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.

Thickness of Cover

The thickness of cover for the reinforced concrete ground slab shall be 50 mm. For the beams and columns it shall be 25mm. For external works, water retaining structures and casting of concrete in/under water, it shall be 75 mm.

Tolerances

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

Approval before Concreting

All reinforcement, after having been fixed in position, shall be inspected and approved by the Engineer before any concrete is placed. Any concrete placed contrary to this requirement shall, if ordered by the Engineer, be removed together with the reinforcement and replaced by the Contractor at his own expense.

External treatment of walls towards ground

Drawings and general provisions of the Contract apply to this Section. Related sections of the relevant Turkish Standards may be applicable in place of the given codes, norms or standards after the Engineer's approval.
Product data for each type of product specified, including data substantiating that materials comply with requirements for each damp proofing material specified. Include recommended method of application, recommended primer, number of coats, coverage or thickness, and recommended protection course.
Comply with manufacturer's recommendations except where more stringent requirements are indicated and where Project conditions require extra precautions to ensure satisfactory performance of work for the materials specified in the item's definitions.

4.2. PARTICULAR TECHNICAL SPECIFICATIONS FOR 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. The Contractor shall get 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 the 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.

Granular Sub-base Material

Granular sub-base material shall be natural sands, gravels, crushed rock, crushed slag, and crushed concrete or well burnt non-plastic shale of uniform grading. The material shall be capable of being compacted to achieve a well-knit dense layer and lie within the following grading limits unless stated elsewhere in the Contract. Stones larger than 100 mm shall be removed.

Sieve size	Percentage by mass passing	
	Type 1	Type 2
50 mm	100	100
37.5 mm	85 – 100	85 – 100
10 mm	40 – 70	45 – 100
5 mm	25 – 45	25 – 85
600µm	8 – 22	8 – 40
75µm	0 – 10	0 – 10

Natural sands and gravels shall only be permitted in Type 2 material.
Sub-base material shall be spread evenly in layers not more than 200 mm compacted thickness and compacted to obtain a well-bound surface finish, any loose areas or segregated areas being made good by addition of fines or by removing and replacing with fresh material as directed by the Engineer.

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 12-month 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.

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 or old.

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.

SECTION 5A.2 SPECIFICATIONS FOR ITEMS/POSE DEFINITIONS

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[4] 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:

mm	means	millimetre
m	means	metre
da	means	decare
mm^2	means	square millimetre
m^2	means	square metre
m^3	means	cubic metre
kg	means	kilogram
ton	means	tonne (1000 kg)
pcs	means	pieces
h	means	hour
L.s.	means	Lump sum
km	means	kilometre
l	means	litre
kVAR	means	kilovolt ampere reactive
%	means	per cent

[4] Official books valid for those specifications are published by;

- Republic of Turkey Ministry of Environment and Urbanization
- Republic of Turkey General Directorate of Highways
- Iller Bank, Turkey
- Republic of Turkey General Directorate of State Hydraulic Works
- Republic of Turkey General Directorate of Railways, Harbors, Airports

Bill 1. Civil and Architectural Works

Bill 1.1. Civil Works

Item no:	Item	Unit
CIV.001	**Excavation works**	**m3**
Description/ Specifications	1 m3 of excavation (free, wide, deep excavation and narrow deep excavation and trench excavation (for infrastructure) at all depths in accordance with the project) of any type of soil and rock (soft, hard, very hard, all types of rock excavation and clay excavation) in all depths and widths, by whatever means necessary, including machine aided or hand excavation, whether above or below water table level or flood table level and the like, including soil mixed with boulders or similar hard material of any size, and any kind and type of planking and strutting in all depths and widths by whatever means necessary, and keeping the excavations in any depth and width free from underground, surface or running water in any amount, by whatever means necessary, including all the necessary materials and losses, transportation of all relevant materials to and/or from the site, loading, unloading, horizontal and vertical transportation, workmanship, contractor's profit and general expenses for the successful completion of the work measured per m3 of excavation executed, calculated according to the dimensions in the drawings. Dewatering of the excavation is included in the unit price.	
Related official pose/item number, book	N/A	

Item no:	Item	Unit
CIV.002	**Gravel or stabilized fill supply, laying and compacting**	**m3**
Description/ Specifications	Price per m^3 including any labor, material and loss, loading, horizontal and vertical carriage and unloading at the work site, and contractor's overheads and profit, for supply of the gravel, pouring on site, laying with motor grader, watering, and compacting in layers with a vibratory roller. Volume is calculated according to the units of measure in the design.	
Related official pose/item number, book	15.125.1004	

Item no:	Item	Unit
CIV.110	**Backfill with material obtained from the excavation**	**m3**
Description/ Specifications	This unit price relates to the execution of fill or backfill with material obtained from the excavation, if found suitable to be used for intended purpose in the opinion of the Engineer who may request sampling and testing of the material in concern for making his decision. Unit price includes excavation, loading, transport in site, unloading, stockpiling, any recurring laoding, transport and unloading for the reuse of the material stockpiled, laying, leveling, watering and compacting in accordance with requirements of the fill or backfill to be formed. The unit price includes all kind of material, workmanship, transport, loading, unloading once or recurring all in site boundaries, all required expenses to execute the work, Contractor's profit, overhead and general expenses for the successful execution of the work, measured per unit m3 of the excavated and used earth material calculated according to the dimensions in the drawings. No payment shall be made under item CIV.001 (Excavation) for quantities included under this item.	
Related official pose/item number, book	KGM/15.001/A	

Item no:	Item	Unit
CIV.003	**Ready Mix Concrete C12/15**	**m3**
Description/ Specifications	Price per m^3 of gray, regular, cast-in-situ, ready-mix concrete with C 12/15 compressive strength, including any labor, materials and losses, machinery, equipment, instrument and laboratory costs, any horizontal and vertical carriage, loading and unloading at the work site for performing concrete quality controls, loading on truck mixers, transportation to the work site, pumping on the cast location by a concrete pump, watering, protecting from extreme temperatures and other external effects, maintaining, and taking a sufficient amount of samples for tests and conducting the required tests on, the ready-mix concrete grout in compliance with the relevant standard and project design, washed, sieved, and manufactured in C 12/15 class with granulometric sand-gravel and/or crushed stone, cement, water and additives where necessary, in a complete concrete plant with appropriate specifications for concrete manufacture (equipped with min. 60 m^3/h capacity, four-cell aggregate bunker, compressor, control cabin for computerized control, a cement silo with min. 50-ton capacity, a recovery unit, a laboratory with sufficient capacity to conduct aggregate and concrete tests, a power generator, a sufficient amount of truck mixers and mobile concrete pumps, min. one loader, additive tank and additive weigh hopper, moisture meter and similar other equipment, and calibrated) or purchased from a concrete plant that fulfills the said specifications, loading onto vehicles at the place of supply, production or purchase, transfer to the concrete plant, unloading from vehicles, stowing and placement at the concrete plant of any granulometric sand, gravel or crushed stone and cement to be added to the concrete, supply and transportation of the water to be added to the concrete and used for watering, supply, and depreciation expenses, of the concrete plant and all other equipment, including other expenses, contractor's overheads and profit. Measured according to dimensions in the project. 1) Concrete batching plant shall have TSE and any other certificates that may be required by the legislation. The concrete with the certificate of compliance, which fulfills the condition of supply to the market in compliance with the relevant legislation, may be used in production only if such certificates are found to be appropriate and the concrete is allowed to be used.2) If the concrete is supplied by purchase, a copy of the invoices indicating the name of the work must be attached to the documents of payment.3) Cost of the additives to be added to the concrete shall be paid separately.4) Pump cost is deducted from the analysis, if pump is not used.	
Related official pose/item number, book	15.150.1002	

Item no:	Item	Unit
CIV.004	**Ready Mix Concrete C16/20**	**m3**
Description/ Specifications	Price per m^3 of gray, regular, cast-in-situ, ready-mix concrete with C 16/20 compressive strength, including any labor, materials and losses, machinery, equipment, instrument and laboratory costs, any horizontal and vertical carriage, loading and unloading at the work site for performing concrete quality controls, loading on truck mixers, transportation to the work site, pumping on the cast location by a concrete pump, watering, protecting from extreme temperatures and other external effects, maintaining, and taking a sufficient amount of samples for tests and conducting the required tests on, the ready-mix concrete grout in compliance with the relevant standard and project design, washed, sieved, and manufactured in C 12/15 class with granulometric sand-gravel and/or crushed stone, cement, water and additives where necessary, in a complete concrete plant with appropriate specifications for concrete manufacture (equipped with min. 60 m^3/h capacity, four-cell aggregate bunker, compressor, control cabin for computerized control, a cement silo with min. 50-ton capacity, a recovery unit, a laboratory with sufficient capacity to conduct aggregate and concrete tests, a power generator, a sufficient amount of truck mixers and mobile concrete pumps, min. one loader, additive tank and additive weigh hopper, moisture meter and similar other equipment, and calibrated) or purchased from a concrete plant that fulfills the said specifications, loading onto vehicles at the place of supply, production or purchase, transfer to the concrete plant, unloading from vehicles, stowing and placement at the concrete plant of any granulometric sand, gravel or crushed stone and cement to be added to the concrete, supply and transportation of the water to be added to the concrete and used for watering, supply, and depreciation expenses, of the concrete plant and all other equipment, including other expenses, contractor's overheads and profit. Measured according to dimensions in the project. 1) Concrete batching plant shall have TSE and any other certificates that may be required by the legislation. The concrete with the certificate of compliance, which fulfills the condition of supply to the market in compliance with the relevant legislation, may be used in production only if such certificates are found to be appropriate and the concrete is allowed to be used.2) If the concrete is supplied by purchase, a copy of the invoices indicating the name of the work must be attached to the documents of payment.3) Cost of the additives to be added to the concrete shall be paid separately.4) Pump cost is deducted from the analysis, if pump is not used.	
Related official pose/item number, book	15.150.1003	

Item no:	Item	Unit
CIV.005	**Ready Mix Concrete C20/25**	**m3**
Description/ Specifications	Price per m^3 of gray, regular, cast-in-situ, ready-mix concrete with C 20/25 compressive strength, including any labor, materials and losses, machinery, equipment, instrument and laboratory costs, any horizontal and vertical carriage, loading and unloading at the work site for performing concrete quality controls, loading on truck mixers, transportation to the work site, pumping on the cast location by a concrete pump, watering, protecting from extreme temperatures and other external effects, maintaining, and taking a sufficient amount of samples for tests and conducting the required tests on, the ready-mix concrete grout in compliance with the relevant standard and project design, washed, sieved, and manufactured in C 12/15 class with granulometric sand-gravel and/or crushed stone, cement, water and additives where necessary, in a complete concrete plant with appropriate specifications for concrete manufacture (equipped with min. 60 m^3/h capacity, four-cell aggregate bunker, compressor, control cabin for computerized control, a cement silo with min. 50-ton capacity, a recovery unit, a laboratory with sufficient capacity to conduct aggregate and concrete tests, a power generator, a sufficient amount of truck mixers and mobile concrete pumps, min. one loader, additive tank and additive weigh hopper, moisture meter and similar other equipment, and calibrated) or purchased from a concrete plant that fulfills the said specifications, loading onto vehicles at the place of supply, production or purchase, transfer to the concrete plant, unloading from vehicles, stowing and placement at the concrete plant of any granulometric sand, gravel or crushed stone and cement to be added to the concrete, supply and transportation of the water to be added to the concrete and used for watering, supply, and depreciation expenses, of the concrete plant and all other equipment, including other expenses, contractor's overheads and profit. Measured according to dimensions in the project. 1) Concrete batching plant shall have TSE and any other certificates that may be required by the legislation. The concrete with the certificate of compliance, which fulfills the condition of supply to the market in compliance with the relevant legislation, may be used in production only if such certificates are found to be appropriate and the concrete is allowed to be used.2) If the concrete is supplied by purchase, a copy of the invoices indicating the name of the work must be attached to the documents of payment.3) Cost of the additives to be added to the concrete shall be paid separately.4) Pump cost is deducted from the analysis, if pump is not used.	
Related official pose/item number, book	15.150.1004	

Item no:	Item	Unit
CIV.006	**Ready Mix Concrete C35/45**	**m3**
Description/ Specifications	Price per m^3 of gray, regular, cast-in-situ, ready-mix concrete with C 12/15 compressive strength, including any labor, materials and losses, machinery, equipment, instrument and laboratory costs, any horizontal and vertical carriage, loading and unloading at the work site for performing concrete quality controls, loading on truck mixers, transportation to the work site, pumping on the cast location by a concrete pump, watering, protecting from extreme temperatures and other external effects, maintaining, and taking a sufficient amount of samples for tests and conducting the required tests on, the ready-mix concrete grout in compliance with the relevant standard and project design, washed, sieved, and manufactured in C 12/15 class with granulometric sand-gravel and/or crushed stone, cement, water and additives where necessary, in a complete concrete plant with appropriate specifications for concrete manufacture (equipped with min. 60 m^3/h capacity, four-cell aggregate bunker, compressor, control cabin for computerized control, a cement silo with min. 50-ton capacity, a recovery unit, a laboratory with sufficient capacity to conduct aggregate and concrete tests, a power generator, a sufficient amount of truck mixers and mobile concrete pumps, min. one loader, additive tank and additive weigh hopper, moisture meter and similar other equipment, and calibrated) or purchased from a concrete plant that fulfills the said specifications, loading onto vehicles at the place of supply, production or purchase, transfer to the concrete plant, unloading from vehicles, stowing and placement at the concrete plant of any granulometric sand, gravel or crushed stone and cement to be added to the concrete, supply and transportation of the water to be added to the concrete and used for watering, supply, and depreciation expenses, of the concrete plant and all other equipment, including other expenses, contractor's overheads and profit. Measured according to dimensions in the project. 1) Concrete batching plant shall have TSE and any other certificates that may be required by the legislation. The concrete with the certificate of compliance, which fulfills the condition of supply to the market in compliance with the relevant legislation, may be used in production only if such certificates are found to be appropriate and the concrete is allowed to be used.2) If the concrete is supplied by purchase, a copy of the invoices indicating the name of the work must be attached to the documents of payment.3) Cost of the additives to be added to the concrete shall be paid separately.4) Pump cost is deducted from the analysis, if pump is not used.	
Related official pose/item number, book	15.150.1007	

Item no:	Item	Unit
CIV.007	**Wire mesh reinforcement 3-10 kg /m2**	**tons**
Description/ Specifications	Price per ton for steel mesh including any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage, unloading at the work site, and contractor's overheads and profit for installation of wire mesh made by spot welding St IVb bars sized min. 4.00 mm in diameter as per the relevant project design; joining by overlay as per the specifications and relevant details, making supports:1) The square meter value of the steel mesh as per the reinforced concrete project design shall be multiplied by the weights given below and measured in tons.2) The steel and attachments NOTE indicated in the project design shall not be included in the calculation.3) Since the attaching wire, kg/m weight differences (compared to the table), and support iron are included in the losses in the analysis, they shall not be included in the calculation.	
Related official pose/item number, book	15.160.1002	

Item no:	Item	Unit
CIV.008	**Reinforcement, Bent And Placed Ø 8-Ø 12 mm**	tons
Description/ Specifications	Price per ton for steel reinforcement, attachment wire, any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage, unloading at the work site, and contractor's overheads and profit for cutting and bending ribbed concrete steel bars to prepare them as per the relevant detail project design: 1) The length of the steel bars and clips shall be measured as per the reinforced concrete detail drawings. 2) Weights of the steel bars shall be taken from the table below. 3) The steel and attachments not indicated in the project design shall not be included in the calculation. 4) Weights in the table (m) shall be taken as basis for the calculation. Since the attachment wire and the steel bars to be used in the gaps between the steel bars as well as the losses shall be considered in the analysis, no additional payment shall be made.	
Related official pose/item number, book	15.160.1003	

Item no:	Item	Unit
CIV.009	**Reinforcement, Bent And Placed Ø 14-Ø 28 mm**	tons
Description/ Specifications	Price per ton for iron, attachment wire, any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage, unloading at the work site, and contractor's overheads and profit for cutting and bending ribbed concrete steel bars to prepare them as per the relevant detail project design: 1) The length of the steel bars and clips shall be measured as per the reinforced concrete detail drawings. 2) Weights of the steel bars shall be taken from the table 3) The steel and attachments not indicated in the project design shall not be included in the calculation. 4) Weights in the table (m) shall be taken as basis for the calculation. Since the attachment wire and the steel bars to be used in the gaps between the steel bars as well as the losses shall be considered in the analysis, no additional payment shall be made.	
Related official pose/item number, book	15.160.1004	

Item no:	Item	Unit
CIV.010	**Plywood Formwork**	m2
Description/ Specifications	Price per m^2 including any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage, unloading at the work site, and contractor's overheads and profit for producing concrete and reinforced concrete formwork with smooth surface made of second class pine lumber with planed and greased interior surfaces, removing the formwork, including timbers, supports, square timbers, strips, nails, wires, and similar equipment. Molded surfaces shall be measured on the project design or in situ. Peripheral formworks of manufacture holes for which clearance volumes are not excluded shall not be included in the measurement. Clearance gap shall not be excluded from the hole's side facing the formwork. 1) all kind of vertical and horizontal supports and formwork scaffolding including steel pillars to support slab formwork are included in the unit price.	
Related official pose/item number, book	15.180.1003	

Bill 1.2. Architectural Works

Item no:	Item	Unit
CIV.011	**Foundation drainage with Ø 200 mm PVC corrugated pipe**	**m**
Description/ Specifications	"Price per m including any material and losses, labor, equipment costs, loading, horizontal and vertical carriage and unloading at the work site, and contractor's overheads and profit for lowering and installing PVC-based, corrugated drainage pipes Ø200 mm in nominal diameter in the ditches prepared for drainage: UNIT: The area of insulation of drain pipes shall be calculated in meters based on the relevant project design. Excavating the ditches to install the drainage pipe, the material or the layer of concrete to be laid to the foundation floor, filling the side and top of the drainage with materials of appropriate size and compacting such materials shall be charged per their respective items."	
Related official pose/item number, book	15.205.1004	

Item no:	Item	Unit
CIV.012	**Brick wall with 19*19*8,5 cm horizontal hollow bricks**	**m2**
Description/ Specifications	The price per 1 m^2 horizontally perforated brick wall by using a mortar of cement-lime mixture according to the design, including the irrigation when necessary, loading, horizontal and vertical carriage, unloading at the construction site, all kinds of material and material losses, labor, tools and equipment expenses, contractor's overheads and profit: Calculated according to dimensions in the project. Gaps smaller than 0.10 m^2 are not deducted. The cost of all kind of access systems required to be used (stairs, ladders, platforms, scaffolding etc.) are included in the unit price. The reinforced lintels produced of aerated gas concrete (g3 class) (3,50 n/mm^2 and 500 kg/m^3) to be used over doors, windows, shafts and other openings on the wall are included in the unit price.	
Related official pose/item number, book	15.220.1001	

Item no:	Item	Unit
CIV.013	**Brick wall with 25*25*20 cm horizontal hollow bricks**	**m2**
Description/ Specifications	The price per 1 m^2 horizontally perforated brick wall by using a mortar of cement-lime mixture according to the design, including the irrigation when necessary, loading, horizontal and vertical carriage, unloading at the construction site, all kinds of material and material losses, labor, tools and equipment expenses, contractor's overheads and profit: Calculated according to dimensions in the project. Gaps smaller than 0.10 m^2 are not deducted. The cost of all kind of access systems required to be used (stairs, ladders, platforms, scaffolding etc.) are included in the unit price. The reinforced lintels produced of aerated gas concrete (g3 class) (3,50 n/mm^2 and 500 kg/m^3) to be used over doors, windows, shafts and other openings on the wall are included in the unit price.	
Related official pose/item number, book	15.220.1006	

Item no:	Item	Unit
CIV.014	**Brick wall with 24*25*19 cm horizontal hollow bricks**	**m2**
Description/ Specifications	The price per 1 m^2 horizontally perforated brick wall by using a mortar of cement-lime mixture according to the design, including the irrigation when necessary, loading, horizontal and vertical carriage, unloading at the construction site, all kinds of material and material losses, labor, tools and equipment expenses, contractor's overheads and profit: Calculated according to dimensions in the project. Gaps smaller than 0.10 m^2 are not deducted. The cost of all kind of access systems required to be used (stairs, ladders, platforms, scaffolding etc.) are included in the unit price. The reinforced lintels produced of aerated gas concrete (g3 class) (3,50 n/mm^2 and 500 kg/m^3) to be used over doors, windows, shafts and other openings on the wall are included in the unit price.	
Related official pose/item number, book	15.220.1008	

Item no:	Item	Unit
CIV.015	**Wall with pumice concrete blocks of 10 cm thick**	**m2**
Description/ Specifications	The price per m^2 non-load-carrying pumice concrete slabs by using pumice concrete adhesive according to the design, including the loading, horizontal and vertical carriage, unloading at the construction site, all kinds of material and material losses, labor, tools and equipment expenses, contractor's overheads and profit. Calculated according to dimensions in the project. Gaps smaller than 0.10 m^2 are not deducted.	
Related official pose/item number, book	15.230.1002	

Item no:	Item	Unit
CIV.016	**Wall with pumice concrete blocks of 15 cm thick**	**m2**
Description/ Specifications	The price per m^2 non-load-carrying pumice concrete slabs by using pumice concrete adhesive according to the design, including the loading, horizontal and vertical carriage, unloading at the construction site, all kinds of material and material losses, labor, tools and equipment expenses, contractor's overheads and profit. Calculated according to dimensions in the project. Gaps smaller than 0.10 m^2 are not deducted.	
Related official pose/item number, book	15.230.1004	

Item no:	Item	Unit
CIV.017	**Wall with pumice concrete blocks of 19 cm thick**	**m2**
Description/ Specifications	The price per m^2 non-load-carrying pumice concrete slabs by using pumice concrete adhesive according to the design, including the loading, horizontal and vertical carriage, unloading at the construction site, all kinds of material and material losses, labor, tools and equipment expenses, contractor's overheads and profit: Calculated according to dimensions in the project. Gaps smaller than 0.10 m^2 are not deducted.	
Related official pose/item number, book	15.230.1006	

Item no:	Item	Unit
CIV.018	**Geotextile felt 250 gr/m2**	**m2**
Description/ Specifications	Price per m^2 including any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage and unloading at the work site, installing and dismantling the working tables when necessary, and contractor's overheads and profit for laying 250 gr/m^2 of geotextile felt with min. 10-cm overlaps to protect the insulation at the foundation or on the terrace as per the relevant project design and detail approved by the administration: UNIT: All surfaces with geotextile felt are calculated based on the units of measures in the project. NOTE: Where other measurable properties than weight is sought in the project design and specifications, this item shall not apply.	
Related official pose/item number, book	15.245.1002	

Item no:	Item	Unit
CIV.019	**Geotextile felt 500 gr/m2**	**m2**
Description/ Specifications	Price per m^2 including any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage and unloading at the work site, installing and dismantling the working tables when necessary, and contractor's overheads and profit for laying 500 gr/m^2 of geotextile felt with min. 10-cm overlaps to protect the insulation at the foundation or on the terrace as per the relevant project design and detail approved by the administration: UNIT: All surfaces with geotextile felt are calculated based on the units of measures in the project. NOTE: Where other measurable properties than weight is sought in the project design and specifications, this item shall not apply.	
Related official pose/item number, book	15.245.1003	

Item no:	Item	Unit
CIV.020	**Execution of levelling layer / screed 400 kg/m3 cement dose min 7 cm thickness**	**m2**
Description/ Specifications	Price per m^2 including any material and losses, labor, loading, horizontal and vertical carriage and unloading at the construction site, contractor's overheads and profit for cleaning and washing the area where to be coated for leveling, preparing a leveling coat that is 7 cm thick on average and compacted in appropriate gauge using mortar made by adding 200 kg of cement in 1 m^3 of angular sand, watering and clearing the residues of mortar, etc. where necessary: UNIT: The levelled surfaces shall be calculated on the relevant project design.	
Related official pose/item number, book	15.250.1001	

Item no:	Item	Unit
CIV.021	**Water insulation with 2 mm thick PVC based geomembrane**	m2
Description/ Specifications	Price per m^2 including loading, horizontal and vertical carriage and unloading, installation and disassembly of working tables where necessary at the work site, any material and losses, labor, equipment and instrument costs, contractor's overheads and profit for cleaning the surface prepared for insulation as per the approved detail project and attaching 2-mm-thick, PVC-based (flat type or with a signal layer) geomembrane with 10 cm overlaps using thermal welding: UNIT: All insulated surfaces are calculated based on the units of measures in the project. NOTE: The necessary protective measures should be taken for insulation covers with their prices paid per their respective items.	
Related official pose/item number, book	15.260.1002	

Item no:	Item	Unit
CIV.022	**Water insulation with elastomeric resin based liquid in two layers**	m2
Description/ Specifications	Price per m^2 including any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage, unloading, installation and dismantling of working tables at the work site, and contractor's overheads and profit for clearing loose, broken and cracked pieces, and residues such as grease, dust, etc. which may hinder adhesion from the surfaces prepared as per the approved detail project design and washing such surfaces as per the technical application conditions of the product, diluting the resin-based liquid plastic surface coating material at a rate of max. 1/4 with water and applying the material on the surface as the first layer in the same direction using a brush, roller or sprayer once the surfaces have dried; and applying elastomeric resin-based liquid plastic surface coating material as the second layer in a direction perpendicular to the first layer of application without diluting it, using a brush, roller or sprayer after the period prescribed in the technical application conditions of the product: UNIT: All insulated surfaces are calculated based on the units of measures in the project.	
Related official pose/item number, book	15.270.1001	

Item no:	Item	Unit
CIV.023	**Ceiling plaster with 250/350 kg/m3 dose cement/lime mix mortar**	m2
Description/ Specifications	Price per m^2 for any material and losses, labor, loading, horizontal and vertical carriage and unloading at the work site, and contractor's overheads and profit for applying single layer plaster using the mortar prepared by adding 350 kg cement to 1 m^3 angular sand and applying single layer plaster with 1.2 cm thickness on average using the mortar prepared by adding 250 kg cement and 0.076 ton slaked lime in bags to 1 m^3 of mill sand on the first layer of plaster, wetting it at required intervals, cleaning the wall surface: UNIT: The plastered surfaces shall be calculated on the relevant project design.	
Related official pose/item number, book	15.275.1103	

Item no:	Item	Unit
CIV.024	**Rough plaster with 350 kg/m3 dose cement mortar**	m2
Description/ Specifications	Price per m^2 for any material and losses, labor, loading, horizontal and vertical carriage and unloading at the work site, and contractor's overheads and profit for applying single layer plaster using the mortar prepared by adding 350 kg cement to 1 m^3 angular sand and applying single layer plaster with 1.2 cm thickness on average by using the same mortar on concrete and reinforced concrete surfaces, cleaning the wall surface and wetting it at required intervals: UNIT: The plastered surfaces shall be calculated on the relevant project design.	
Related official pose/item number, book	15.275.1105	

Item no:	Item	Unit
CIV.025	**Plaster coat with perlite and satin gypsum plaster**	m2
Description/ Specifications	Price per m^2 for any material and losses, labor, loading, horizontal and vertical carriage and unloading at the work site, and contractor's overheads and profit for applying 10-mm-thick single layer of perlite plaster on such surfaces as concrete, brick wall, etc. (Item no. 19.100.2427), applying 9-mm-thick second layer with a mixture of 1/3 perlite plaster (Item no. 19.100.2427) + 2/3 satin plaster (Item no. 19.100.2424), installing corner profile at the centers of the plaster, and plaster mesh at transitions to different materials, and applying 3-mm-thick satin plaster coating (Item no.: 19.100.2424), sanding and clearing dust: UNIT: 1) All plastered surfaces (including the sides of the gaps) shall be calculated based on the measurements in the project. 2) Joinery casings and the plaster surfaces beneath the wooden baseboard, if any, shall be included in the calculation. 3) All gaps and other types of paneling surfaces shall be deducted.	
Related official pose/item number, book	15.280.1006	

Item no:	Item	Unit
CIV.026	**Finish layer of satin gypsum on concrete and plastered surfaces**	m2
Description/ Specifications	Price per m2 for any material and losses, labor, loading, horizontal and vertical carriage and unloading at the work site, and contractor's overheads and profit for applying satin plaster mortar (item nr: 19.100.2424) by using a steel trowel until obtaining a smooth surface after the surfaces are thoroughly washed and cleaned: UNIT : 1) All plastered surfaces (including the sides of the gaps) shall be calculated based on the measurements in the project. 2) Joinery casings and the plaster surfaces beneath the wooden baseboard, if any, shall be included in the calculation. 3) All gaps and other types of paneling surfaces shall be deducted.	
Related official pose/item number, book	15.280.1006	

Item no:	Item	Unit
CIV.027	**Execution of wooden roof structure including OSB 3 roof cover**	m2
Description/ Specifications	Price per m^2 for any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage, unloading at the work site, and contractor's overheads and profit for non-planed wooden free-standing roof made of second class pine lumber, veneering the roof with min. 18-mm-thick OSB/3 without gaps as per the relevant project design approved by the administration, including laths, rafters, purlins, backstays, strips, nails, iron fastening materials which may be required for the aforementioned tasks: 1) The projection of the roof in the horizontal plane from the exterior of eaves to the exterior of eaves (excluding the gutter) shall be measured in m^2 based on the approved project of the roof. 2) Roofs with concealed valley shall be measured similarly. 3) The chimney shall not be deducted from the gap. 4) The roof hatch shall be included in the price of the roof. NOTE: 5) No additional pay rise shall apply to the height difference of posts for roofs with attic walls. 6) The unit price shall be raised by 10% for the roofs with more than 1/3 inclination.	
Related official pose/item number, book	15.300.1002	

Item no:	Item	Unit
CIV.028	**Roof cover with clay tiles including roof ridges**	m2
Description/ Specifications	Price per m^2 including loading, horizontal and vertical carriage, and unloading at the construction site, any material and losses, labor and equipment costs, contractor's overheads and profit for fixing 5 x 5 cm wooden laths on the roof substructure perpendicular to the eaves at 60-cm intervals line with nails or screws on the existing veneer, OSB panels, precast ready-mix concrete slabs or incline reinforced concrete roofing; fixing wooden 3 x 5 cm wooden laths on the said laths in parallel with the eaves line and at 33 cm intervals with nails or screws; laying the tiles, of Group 1 tightness class and resistant to 150 freezing - thawing cycles according to the standard, that can be interlocked at the side and top edges, on the wooden laths in accordance with the design, fixing the first two rows of tiles on the eaves and side eaves line with nails or screws: UNIT: To be calculated on the inclined surfaces project design. Gaps smaller than 0.10 m^2 are not deducted. NOTE: 1- Not applicable to roof inclinations less than 20%. Water insulation should be applied beneath the tile roofing for inclinations between 20 and 29.99%. 2- For the areas heavily influenced by winds and/or the details with an inclination greater than 100%, the tiles shall be secured with nails by skipping a row in addition to the above description. Whether an area is considered heavily influenced by winds shall be subject to the written decision of the administration. 3- Thermal and/or water insulation for roofs shall be charged on their respective items. 4- In the case that heat insulation material is applied between the first row of lathes, the height of the lath must be determined to be 2.5 cm above the thermal insulation material thickness. 5- The first piece of the second row of laths intersecting with the eaves line should be 2 cm higher than the other laths. 6- For roofs with wooden substructure, the first row of laths applied perpendicular to the eaves line should be installed to stay on rafters. 7- Gaps of the second row of laths specified in the description of the manufacture should be adjusted to the size of the tiles to be used.	
Related official pose/item number, book	15.305.1003	

Item no:	Item	Unit
CIV.029	**Ø 100 mm PVC storm water down pipes**	**m**
Description/ Specifications	Price per m including connection parts, brackets and miscellaneous parts, any material and losses, labor, loading, horizontal and vertical carriage, and unloading at the work site, equipment costs, and contractor's overheads and profit for supply of PVC pipes Ø100 mm in diameter, installing the clamps on the walls, installing the pipes from gutters including brackets, tightening the clamps with galvanized machine screws to complete attachment of rainwater pipes to the walls: UNIT : To be measured by the length of an installed pipe's axis, and curved parts shall be charged double.	
Related official pose/item number, book	15.315.1002	

Item no:	Item	Unit
CIV.030	**Rain gutter with hot dip galvanized and painted steel**	**m**
Description/ Specifications	Price per m for loading, horizontal and vertical carriage and unloading at the construction site, any material and losses, labor and equipment costs, and contractor's overheads and profit for treating 0.50-mm-thick hot-dip galvanized and coated sheet metal by a jointless gutter machine to make it ready for installation; transportation of the gutters to the location of installation; installing gutter clamps at max. 50-cm intervals; adjusting the inclination of the gutters and nailing the clamps; installing min. 20-cm-wide roofing strips with the same specifications as the gutter as specified in the relevant detail project; drilling holes for connection to the downpipes, cutting corner joints, fully attaching the pipes to each other, and ensuring tightness at all joints: UNT : To be measured by the length of the installed gutter's axis.	
Related official pose/item number, book	15.315.1101	

Item no:	Item	Unit
CIV.031	**Roof cover with 0.50 mm hot dip galvanized corrugated trapezoidal metal sheet**	**m2**
Description/ Specifications	Price per m^2 including loading, horizontal and vertical carriage and unloading at the construction site, any material and losses, labor, equipment and instrument costs, contractor's overheads and profit for roofing with 0.50-mm-thick hot-dip galvanized, grooved metal sheets on wooden roof, including fixing 5 x 5-cm-thick square timbers made of second class pine lumber on the existing wooden roof using galvanized nails, installing on the square timbers 0.50- mm-thick hot-dip galvanized, grooved/trapezoidal metal sheets starting from the opposite of the dominant direction of wind with min. 10 cm transversal and 15 cm longitudinal overlaps as per the relevant specifications, drilling the grooved metal sheets with a drill, fixing the metal sheets with min. 6.5-cm capped lag screws using metal washers and rubber seals, insulating the chimney base and other plaster bases so as to ensure watertightness, making ridges using ridge components: UNIT : To be calculated by the amount of inclined surfaces.	
Related official pose/item number, book	15.325.1009	

Item no:	Item	Unit
CIV.032	**Supply and installation of vapour barrier water insulation under the roof cover**	**m2**
Description/ Specifications	Price per m^2 including loading, horizontal and vertical carriage and unloading at the construction site, any material and losses, labor, equipment and instrument costs, contractor's overheads and profit for cleaning the inclined roof surface, laying water vapor-permeable water insulation cover in parallel with the eaves line and with min. 10 cm overlaps, and securing with large-head galvanized nails at 10-cm intervals under the joints as per the approved detail project design. UNIT: Insulated surfaces are calculated based on the units of measures in the project.	
Related official pose/item number, book	15.330.1003	

Item no:	Item	Unit
CIV.033	**Heat insulation with 5 cm thick 300 kpa compressive strength XPS on basement walls**	**m2**
Description/ Specifications	Price per m^2 including any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage and unloading at the work site, installing and dismantling the working tables when necessary, and contractor's overheads and profit for affixing the insulation pins on the basement shear walls at the fore sides as six pins per m^2, fixing 5 cm thick XPS boards to the spiky parts of these pins in cross order without any gap, mounting the washer of the insulating pin passing through the plate as per the approved project design and relevant details: UNIT: All insulated surfaces are calculated based on the units of measures in the project. 1) Thickness of the extruded polystyrene foam shall be determined by calculation of heat. 2) For insulation of shear walls with soil contact; a) Both surfaces of thermal insulation boards should be armored. b) Compression strength should be > 30 N/mm^2 (300 Kpa) for 10% deformation. c) Diffusive water absorption rate should be less than 3% between 50°C and 1°C. 3) If drainage and protection boards are to be applied on thermal insulation boards, length of the insulation pin should allow installation of drainage boards as well.	
Related official pose/item number, book	15.335.1303	

Item no:	Item	Unit
CIV.034	**Heat insulation with 5 cm thick 300 kpa compressive strength XPS on floor or roof**	**m2**
Description/ Specifications	Price per m^2 including loading, horizontal and vertical carriage and unloading at the construction site, any material and losses, labor and equipment costs, and contractor's overheads and profit for laying 5-cm-thick XPS boards without gaps on the surface where thermal insulation boards will be laid as per the project design and details approved by the administration: UNIT: All insulated surfaces are calculated based on the units of measures in the project. NOTE: 1) Thickness of the extruded polystyrene foam shall be determined by calculation of heat. 2) For insulation of flooring with soil contact or for inverted roofs; a) Edge profiles of the thermal insulation boards should be overlapped (grooved). b) Compression strength should be > 30 N/mm^2 (300 Kpa) for 10% deformation. c) Diffusive water absorption rate should be less than 3% between 50°C and 1°C.	
Related official pose/item number, book	15.335.1503	

Item no:	Item	Unit
CIV.035	**Heat and sound insulation with 3 cm thick 110 kg/m3 density rockwool plates at horizontal plane**	**m2**
Description/ Specifications	Price per m^2 including loading, horizontal and vertical carriage and unloading at the construction site, any material and losses, labor and equipment costs, and contractor's overheads and profit for laying 3-cm-thick rock wool boards without gaps on the surface where thermal insulation boards will be laid as per the project design and details approved by the administration: UNIT: All insulated surfaces are calculated based on the units of measures in the project. NOTE: Thickness of the rock wool board shall be determined by calculation of heat.	
Related official pose/item number, book	15.340.1102	

Item no:	Item	Unit
CIV.036	**Heat insulation wtih 5 cm thick 150 kg/m3 density rockwool plates at horizontal plane**	**m2**
Description/ Specifications	Price per m^2 including loading, horizontal and vertical carriage and unloading at the construction site, any material and losses, labor and equipment costs, and contractor's overheads and profit for laying 5-cm-thick rock wool boards without gaps on the surface where thermal insulation boards will be laid as per the project design and details approved by the administration: UNIT: All insulated surfaces are calculated based on the units of measures in the project. NOTE: Thickness of the rock wool board shall be determined by calculation of heat.	
Related official pose/item number, book	15.340.1203	

Item no:	Item	Unit
CIV.037	**Heat and sound insulation with 5 cm thick 20-22 kg/m3 density glasswool at vertical plane**	**m2**
Description/ Specifications	Price per m^2 including loading, horizontal and vertical carriage and unloading at the construction site, any material and losses, labor and equipment costs, and contractor's overheads and profit for placing 5-cm-thick, glass wool boards between two walls without any gaps between the boards as per the project design and details approved by the administration: UNIT: All insulated surfaces are calculated based on the units of measures in the project. NOTE: Thickness of the glass wool board shall be determined by calculation of heat.	
Related official pose/item number, book	15.340.1303	

Item no:	Item	Unit
CIV.038	**Heat insulation with 10 cm thick 18 kg/m3 density glasswool plates at roof including vapour barrier**	**m2**
Description/ Specifications	Price per m^2 including any material and loss (except the costs of laths, wedges, timbers and nails), labor, equipment and instrument costs, loading, horizontal and vertical carriage and unloading at the work site, and contractor's overheads and profit for laying 10-cm-thick glass wool mats on garret flooring without gaps in between as per the project and details approved by the administration, securing the mats on the purlins on the edge of the roof with laths, laying with min. 10 cm overlaps the open water insulation cover permeable to water vapor, and laying timbers on wedges to provide access to any location on the garret. All insulated surfaces are calculated based on the units of measures in the project. Thickness of the glass wool matt shall be determined by calculation of heat.	
Related official pose/item number, book	15.340.1403	

Item no:	Item	Unit
CIV.039	**2 cm thick PVC flooring including cement based self levelling layer**	**m2**
Description/ Specifications	Price per m^2 including any material and losses, loading, horizontal and vertical carriage and unloading at the work site, labor, contractor's overheads and profit for eliminating the ripples that may form on the surface after the grout detailed in the item 15.190.1007 is applied and a sufficient period of drying time has passed; applying 0.350 kg of acrylic-based PVC adhesive per m^2, laying and tightly attaching 2.0-mm-thick homogeneous PVC (Group T) flooring materials, placing PVC welding cords matching the color of flooring on the joints of the material and hot welding them: 1) Surfaces coated within the project are measured. 2) If self-rotating, capped baseboards are made, the paneled surfaces including baseboard shall be measured as per the measurements given in the project design. In addition, the baseboard shall be charged per its item. 3) A certificate of compliance issued by an internationally accredited organization, indicating that the PVC flooring material was manufactured as per EN 649 shall be required. Fire class, volume loss and wear thickness loss test results must be given. 4) The PVC flooring material shall be tested in the presence of the administration. Laboratory test reports shall be required to be submitted.	
Related official pose/item number, book	15.365.1008	

Item no:	Item	Unit
CIV.040	**Ceramic wall covering with 25x33 or 25x40 cm tiles**	**m2**
Description/ Specifications	Price per m^2 including any material and losses, loading, horizontal and vertical carriage and unloading at the work site, labor, equipment costs, contractor's overheads and profit for clearing dirt, dust, burrs and similar other residues that may hinder adhesion from the uniform surfaces in compliance with the approved detail project design and wetting the said surfaces; applying cement-based, standard performance tile adhesive with reduced slip and fluting it with a special comb; laying first quality colored ceramic wall tiles with any pattern and surface characteristics and a nominal size of 25 x 33 cm or 25 x 40 cm in appropriate gauge with 3 mm joint gaps; filling the joints with cement- based, standard performance joint filling agents of desired color, and cleaning the coated surface: The paneled surfaces shall be calculated by the measurements in the relevant project design.	
Related official	15.380.1055	

pose/item number, book	

Item no:	**Item**	**Unit**
CIV.041	**Porcelain flooring with 40x40 cm tiles**	**m2**
Description/ Specifications	Price per m^2 including any material and losses, loading, horizontal and vertical carriage and unloading at the work site, labor, equipment costs, contractor's overheads and profit for clearing dirt, dust, burrs and similar other residues that may hinder adhesion from the uniform surfaces in compliance with the approved detail project design and wetting the said surfaces; applying cement-based, high performance tile adhesive with reduced slip and fluting it with a special comb; laying first quality matte, non-glazed porcelain tiles with any color, pattern and surface characteristics and a nominal size of 40 x 40 cm in appropriate gauge and level with 3 mm joint gaps; filling the joints with cement-based, high performance, high abrasion resistant joint filling agents with reduced water absorption and of desired color, and cleaning the coated surface: UNIT: The paneled surface, and the baseboard, if any, shall be calculated by the measurements in the relevant project design.	
Related official pose/item number, book	15.390.1005	

Item no:	**Item**	**Unit**
CIV.042	**Porcelain flooring 60x60 cm tiles**	**m2**
Description/ Specifications	Price per m^2 including any material and losses, loading, horizontal and vertical carriage and unloading at the work site, labor, equipment costs, contractor's overheads and profit for clearing dirt, dust, burrs and similar other residues that may hinder adhesion from the uniform surfaces in compliance with the approved detail project design and wetting the said surfaces; applying cement-based, high performance tile adhesive with reduced slip and fluting it with a special comb; laying first quality matte, rectified, non-glazed porcelain tiles with any color, pattern and surface characteristics and a nominal size of 60 x 60 cm in appropriate gauge and level with 3 mm joint gaps; filling the joints with cement-based, high performance, high abrasion resistant joint filling agents with reduced water absorption and of desired color, and cleaning the coated surface: UNIT: The paneled surface, and the baseboard, if any, shall be calculated by the measurements in the relevant project design.	
Related official pose/item number, book	15.390.1008	

Item no:	**Item**	**Unit**
CIV.043	**Interior flooring with terrazo tiles including skirting**	**m2**
Description/ Specifications	Price per m^2 for any material and losses, labor, loading, horizontal and vertical carriage and unloading at the work site, and contractor's overheads and profit (excluding the leveling concrete) for cleaning and wetting the surface of the leveling concrete in compliance with the specifications, and making a 4-cm-thick base using mortar with a cement content of 400 kg/m^3; laying terrazzo tiles with 2 mm gaps in accordance with the form and division specified in the relevant project design; applying a layer of cement-based jointing putty made of a mixture of white cement, colorant iron oxide pigments and marble powder on joints and all surfaces; clearing the putty from the flooring surface after half an hour, and cleaning the surface with soft soap: UNIT: The paneled surfaces shall be calculated on the relevant project design.	
Related official	15.400.1003	

pose/item number, book	

Item no:	**Item**	**Unit**
CIV.044	**Flooring with 3 cm thick marble tiles 30-40-50 cm width with free length including skirting**	**m2**
Description/ Specifications	Price per m^2 for any material and losses, labor, loading, horizontal and vertical carriage and unloading at the work site, and contractor's overheads and profit (excluding the leveling concrete) for cleaning and wetting the surface of the leveling concrete in compliance with the specifications, and making a 4-cm-thick base using mortar with a cement content of 400 kg/m^3; laying marble sheets (with any surface treatment excluding honed or polished ones) with 2 mm gaps in accordance with the form and division specified in the relevant project design; applying a layer of cement-based jointing putty on joints and all surfaces; clearing the putty from the flooring surface after half an hour: UNIT: The paneled surfaces shall be calculated on the relevant project design.	
Related official pose/item number, book	15.410.1004	

Item no:	**Item**	**Unit**
CIV.045	**Stair covering with colored marble tiles 3 cm thick for steps and 2 cm thick for risers**	**m**
Description/ Specifications	Price per meter for any material and losses, loading, horizontal and vertical carriage and unloading at the work site, labor, and contractor's overheads and profit for cleaning and wetting the surfaces of the existing concrete steps, making base with grout containing 400 kg/m^3 of cement, preparing steps with 3-cm-thick honed or polished marble sheets and risers with 2-cm-thick honed or polished marble sheets individually and in single piece, and cleaning and wiping the steps and risers: UNIT: Sizes of the outer edges of the steps from the baseboard to the end of the step shall be calculated using the in the relevant project. NOTE: Baseboards and notch boards shall not be included in this price.	
Related official pose/item number, book	15.410.1303	

Item no:	**Item**	**Unit**
CIV.046	**Colored marble window sills with 3 cm thick 30-40-50 cm width and free length tiles**	**m2**
Description/ Specifications	Price per m^2 for any material and losses, loading, horizontal and vertical carriage and unloading at the work site, labor, and contractor's overheads and profit for cleaning and wetting the existing surfaces, making base with grout containing 400 kg/m^3 of cement, coating, cleaning and wiping of the outer windowsill made of 3 cm thick honed or polished marble sheets prepared in single piece with inclination and drainboard: UNIT: The paneled surfaces shall be calculated on the relevant project design.	
Related official pose/item number, book	15.410.1403	

Item no:	**Item**	**Unit**

CIV.047	**Colored marble coping with 3 cm thick 30-40-50 cm width and free length tiles**	**m2**
Description/ Specifications	Price per m^2 for any material and losses, labor, loading, horizontal and vertical carriage and unloading at the work site, and contractor's overheads and profit (excluding the leveling concrete) for cleaning and wetting the surface of the leveling concrete in compliance with the specifications, and making a 4-cm-thick base using mortar with a cement content of 400 kg/m^3; laying marble sheets (with any surface treatment excluding honed or polished ones) with 2 mm gaps in accordance with the form and division specified in the relevant project design; applying a layer of cement-based jointing putty on joints and all surfaces; clearing the putty from the flooring surface after half an hour: UNIT: The paneled surfaces shall be calculated on the relevant project design.	
Related official pose/item number, book	15.410.1603	

Item no:	**Item**	**Unit**
CIV.048	**Wall covering with 2 cm thick travertine tiles 30-40-50 cm width and free length**	**m2**
Description/ Specifications	Price per m^2 for any material and losses, labor, loading, horizontal and vertical carriage and unloading at the work site, and contractor's overheads and profit (excluding the leveling concrete) for cleaning the rough plaster and similar wall surfaces made in compliance with the specifications thoroughly, making joints, wetting the wall surface, applying a 1.5 cm layer with 400 kg/m^3 of cement content on the said surfaces, fixing honed or polished light colored travertine panels to the clamp steel with 2 mm gaps which were laid previously by using mortar with a cement content of 400 kg/m^3 in accordance with the form and division specified in the relevant project design, filling the back with grout after each row is made, applying a layer of cement-based jointing putty on joints and all surfaces, clearing the putty from the flooring surface after half an hour: UNIT: The paneled surfaces shall be calculated on the relevant project design.	
Related official pose/item number, book	15.415.1201	

Item no:	**Item**	**Unit**
CIV.049	**Flooring with Ac3 class 23-31 laminated wooden floor tiles including skirting**	**m2**
Description/ Specifications	Price per m^2 for any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage, unloading at the work site, and contractor's overheads and profit for laying 2-mm-thick polyethylene mats on the surface prepared for laminate flooring, and installing self-clip (snap-in) AC3 class 23-32 laminate flooring on the mats using the appropriate technique, and installing the baseboards on walls as per the approved detail project. UNIT: All the areas covered are measured according to the dimensions given in the project design. No additional payment shall be made for baseboards.	
Related official pose/item number, book	15.490.1002	

Item no:	**Item**	**Unit**
CIV.050	**Flooring with Ac4 class 32 laminated wooden floor tiles including skirting**	**m2**

Description/ Specifications	Price per m^2 for any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage, unloading at the work site, and contractor's overheads and profit for laying 2-mm-thick polyethylene mats on the surface prepared for laminate flooring, and installing self-clip (snap-in) AC4 class 32 laminate flooring on the mats using the appropriate technique, and installing the baseboards on walls as per the approved detail project. UNIT: All the areas covered are measured according to the dimensions given in the project design. No additional payment shall be made for baseboards.
Related official pose/item number, book	15.490.1003

Item no:	**Item**	**Unit**
CIV.051	**Wooden skirting**	**m**
Description/ Specifications	Price per m for any material and loss, planing, screeding, placement of wedges, attachment, labor, equipment and instrument costs, loading, horizontal and vertical carriage, unloading at the work site, and contractor's overheads and profit for attachment attaching pieces of wood made of first class pine lumber, 10 to 12-cm wide, 25-mm thick in clean form, with one surface and two edges planed and one edge screeded on wedges placed on the wall with a frequency of two wedges per meter, as per the relevant project design: UNIT: Length shall be calculated by measuring the axis of the baseboard.	
Related official pose/item number, book	15.495.1001	

Item no:	**Item**	**Unit**
CIV.052	**Textile flooring**	**m2**
Description/ Specifications	"• Wall-to-wall mosque carpet will be used and the carpet will have the following characteristics: Fibre type: 100% Polypropylene or Poly-acrylic Total weight: 2.100 gr/m^2 (+ 50 gr) Thickness (top): 9.0 mm • To prevent the carpet from breaking folding must not be made during laying. Since there will be pot and breaks on uneven floors, the floor on which it will be installed must be free of moisture, smooth and clean. • When laying carpets in all rooms, the carpet laying direction must be towards the door and in the hallway towards the doorway. • There must be no difference in tones in the carpet in the same spaces, and materials from different balls and different parties must not be used. • Carpet glue must be applied homogeneously to the whole floor and the carpet must not be raised. • The baseboards must be made of 7 cm wood, they must be carefully assembled, they must be ensured that they do not move, and if there is any rotation, they must be removed. • Carpet must be non-flammable, anti-static, colour fastness, and must not be affected by sunlight. • Carpet covering will be of special design and colour approved by the Administration. Price of 1 m2, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses. Measure: The area is calculated according to the dimensions in the drawing."	
Related official pose/item number, book	N/A	

Item no:	Item	Unit
CIV.053	**Wooden kitchen cabinet under worktop 168x85 cm**	**m2**
Description/ Specifications	"Price per m^2 including any material and losses, labor, loading, horizontal and vertical carriage, unloading, and contractor's overheads and profit (not including the price of metal components) for making under-counter wooden cabinets with type no. 5781, made of 19 mm particle boards laminated with 0.65 mm boards as per the relevant project design and details; transportation to the work site, installation on their designated locations, preparation of the places of metal components, and installation of metal components: UNIT : The front surface of the closet shall be calculated per the relevant project."	
Related official pose/item number, book	15.520.1002	

Item no:	Item	Unit
CIV.054	**Wooden kitchen cabinet above worktop 304x80 cm**	**m2**
Description/ Specifications	"Price per m2 including any material and losses, labor, loading, horizontal and vertical carriage, unloading, and contractor's overheads and profit (not including the price of metal components) for making above-counter wooden cabinets with type no. 5781, made of 19 mm particle boards laminated with 0.65 mm boards as per the relevant project design and details; transportation to the work site, installation on their designated locations, preparation of the places of metal components, and installation of metal components: UNIT : The front surface of the closet shall be calculated per the relevant project."	
Related official pose/item number, book	15.520.1003	

Item no:	Item	Unit
CIV.055	**Marble worktop with 3 cm thick colored marble**	**m2**
Description/ Specifications	Price of 1 m2, including all labour, materials and offcuts, tools and equipment, loading at the construction site, vertical and horizontal transportation, unloading, contractor profit and general expenses for the covering of over-the-counters in locations such as kitchens etc. with 3 cm thick coloured marble sheets using maximum 2 pieces, placing of skirting on the junction points with the wall of the same marble, opening a sink hole, making drain boards, bevelling of the edges of the marble sheet.	
Related official pose/item number, book	48.410.1001	

Item no:	Item	Unit
CIV.056	**Laminated kitchen worktop**	m2
Description/ Specifications	"Kitchen Countertops are accepted as particle board in the E1 emulsion class according to DIN EN 312, Sections 1 and 3. For the bonding of laminate surfaces, PVAc white adhesive of D3 usage class according to DIN EN 204 must be used. The lower part of the benches must be covered with a waterproof liner. Size: The surface area of the counter is calculated and the sinks are not deducted."	
Related official pose/item number, book	N/A	

Item no:	Item	Unit
CIV.057	**Laminate coated cabinets in accordance with design**	m2
Description/ Specifications	"Price of 1 m2, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses for making of doorposts, according to the drawing, for the cabinet surfaces of plaster surfaces (back, side, bottom and ceiling) in 50 cm intervals out of 2nd grade timber laid in both directions at intervals spacing, making of the body (rear, bottom, side, ceiling) shelves in 18 mm thick synthetic resin based chipboard; making of cover and drawer flaps out of 0.65 mm on 19 mm thick chipboard. HPL laminate, other surfaces 0.65 mm. Covering with APL laminate, bonding polyvinyl chloride (1 mm thick) tape to all body and shelf edges, 3 mm to the other sides of the door and drawer flaps which are not laminated. ABS tape bonding, zamak or plastic coated handles in place, drawer edges 18 mm synthetic resin-based chipboard, bottom 8 mm. thick synthetic resin based chipboard, the drawers in place with steel rails to assemble the parts of each other with PVC head chrome steel screws and dowels, lock and lock handles, mirrors and latches to install, cover hinges minimum 45 kg. load-bearing double spring steel stone hinges, clothes hangers made of chromed steel pipe, shelves 18 mm. all kinds of materials, workmanship, horizontal and vertical transport, unloading, tools and other materials required for making synthetic resin based particle board, turning the edges as PVC tape or post-forming and making 5 cm thick mouldings and 7 cm thick bases. Dimension: Visible surface shall be measured without including base and mouldings"	
Related official pose/item number, book	48.520.1002	

Item no:	Item	Unit
CIV.058	**Laminate coated reception desk with drawers in accordance with desing**	m
Description/ Specifications	"Price of 1 m, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses for making, according to the approved drawing and detail body (back, side, bottom and top), panel and worktop 19mm flake board; body is made of 40*40*2 mm box profiles to be mounted on the bench and bench to carry the assembly, the visible faces of 0.65mm. HPL laminate, other surfaces covered with APL laminate, work and post-forming of the front and back foreheads of the top bench, bonding 3 mm thick PVC-based ABS tape to the laminated non-coated edges of the body, connecting 3 drawer group with carrier, 20*20*1 box profile base of the drawers of the drawers 19 mm chipboard on 0.65 mm HPL laminate, other surfaces of 18 mm synthetic resin-based chipboard to be formed, drawers, metal handles attached to the drawers, 1.2 mm painted sheet polyamide wheeled rails to install, all doors to attract sound-absorbing silicone Size: The length of the counter is measured in metres."	

Related official pose/item number, book	48.520.1302

Item no:	**Item**	**Unit**
CIV.059	**WC cubicles with 13 mm thick compact laminate including doors and accessories**	**m2**
Description/ Specifications	"Price of 1 m3, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses for preparation of 13 mm thick solid sheets in selected colours and sizes according to the drawing and the details in the workshop during the production of impregnated cellulose-based fibreboard sheets, rounding of the necessary edges, the use of silicone joints, ready to assemble compact laminate sheets made ready for installation (except accessory fees), Measure: The area is calculated over the dimensions in the drawings."	
Related official pose/item number, book	48.510.1002	

Item no:	**Item**	**Unit**
CIV.060	**Gypsum board suspended ceiling**	**m2**
Description/ Specifications	"Price per m^2 for any material and losses, labor, loading, horizontal and vertical carriage and unloading at the work site, and contractor's overheads and profit for fixing ceiling U-profiles (TU28) on the wall at 60-cm intervals with screws and plastic dowel pins, marking the first main load carrying axis on the ceiling surface at a distance 10 cm from the wall, marking the lines on which the consecutive exes shall be fixed with 110 cm intervals, fixing the steel dowel pins on the marked lines at maximum 90 cm intervals, installing the suspension bars to steel dowel pins, installing the suspender brackets to the suspension bars, cutting the ceiling C-profiles (TC60), installing the profiles to the suspender brackets using a level, leveling and forming the main load carrier, fixing the auxiliary load carrying TC60 profiles transversal to the main load carrying TC60 profiles with clips, using fittings in the joints of TC60 profiles, fixing 12.5 mm water and fire resistant gypsum wall boards on TU28 and TC60 profiles with 25-mm drywall screws, sizing gypsum wall boards by cutting where necessary, pre-filling gaps that are larger than 3 mm, covering screw heads with joint filling plaster, affixing joint tapes on the joints of gypsum wall boards, applying joint filling plaster on the tapes and thus, making the suspended ceiling as per the project design and details approved by the administration: UNIT : Calculated according to dimensions in the project per square meters. NOTE : Gaps smaller than 0.50 m^2 are not deducted."	
Related official pose/item number, book	15.530.1137	

Item no:	**Item**	**Unit**
CIV.061	**Aluminum false ceiling with 60x60 cm 0,70 mm eletrostatic powder paint coated tiles**	**m2**
Description/ Specifications	"Price per m^2 including any material and losses, workshop expenses, labor, loading, horizontal and vertical carriage, unloading, and contractor's overheads and profit for making suspended ceilings by suspending 24-mm-wide main and intermediate carrier T profiles as level at 60 cm intervals and any elevation with specially adjusted galvanized steel suspension sets that are 40 cm long and 4 mm in diameter, using a level; installing 0.50-mm-thick L profiles on the edges of	

	ceilings, placing 60 x 60-cm aluminum sheets (EN AW 3000 series) of the desired color (both sides of the 0.70-mm-thick aluminum sheet shall be applied 20-micron-thick polyester-based electrostatic powder coating) on the main and intermediate carrier T profiles; drilling holes for electric fixtures or installations as per the project design and details approved by the administration: UNIT : 1) Suspended ceiling surfaces are measured. 2) The ventilation and lighting fixture gaps and other gaps smaller than 0.25 m2 shall not be deducted."
Related official pose/item number, book	15.535.1002

Item no:	**Item**	**Unit**
CIV.062	**Aluminum false ceiling with 30x30 cm 0,50 mm eletrostatic powder paint coated tiles**	**m2**
Description/ Specifications	"Making a lay-on suspended ceiling made of (polyester-based) unperforated aluminum sheet (EN AW 3000 series). Price per m2 including any material and losses, workshop expenses, labor, loading, horizontal and vertical carriage, unloading, and contractor's overheads and profit for making suspended ceilings by suspending ... -mm-wide main and intermediate carrier T profiles as level at 30 cm intervals and any elevation with specially adjusted galvanized steel suspension sets that are ... cm long and 4 mm in diameter, using a level; installing 0.50-mm-thick L profiles on the edges of ceilings, placing ... mm thick 30 x 30-cm aluminum sheets of the desired color on the main and intermediate carrier T profiles; drilling holes for electric fixtures or installations as per the project design and details approved by the administration: 2) The area of the suspended ceiling is measured. Ventilation and lighting fixture gaps and other gaps smaller than 0.25 m^2 shall not be deducted."	
Related official pose/item number, book	15.535.1006	

Item no:	**Item**	**Unit**
CIV.063	**False ceiling with 1,5 cm thick 60x60 cm rockwool tiles**	**m2**
Description/ Specifications	"Price of 1 m, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses for the construction of the suspended ceiling by making the desired colour and material and laths in the places where the ceiling and walls meet,according to the approved projects and details, it is necessary to suspend the painted metal profiles with specially adjusted galvanized steel suspension sets at the desired range and level, fixing the Rockwool suspended ceiling plates on or under these profiles with auxiliary mounting elements, opening the places for electrical fittings and installation. Measure: Measured over the dimensions in the drawing. Ventilation and electrical armature gaps smaller than 0.25 m2 and other gaps are not deducted."	
Related official pose/item number, book	48.535.1001	
Item no:	**Item**	**Unit**

CIV.064	**Water based ceiling paint including primer on satin gypsum finished surfaces**	**m2**
Description/ Specifications	"Price per m^2 including any material and losses, labor, contractor's overheads and profit for applying the first layer of 0.150 kg water-based primer on the surface to be coated after it is cleaned and applying a second layer of 0.100 kg semi-matte paint on the first layer: UNIT: Painted surfaces within the project are measured. All gaps are deducted. NOTE : Additional scaffolding shall be provided for walls and ceilings higher than 3 m. If there is a scaffold for plastering, no additional scaffold shall be provided for coating."	
Related official pose/item number, book	15.540.1222	

Item no:	**Item**	**Unit**
CIV.065	**Water based anti-bacterial wall paint including putty and primer on plastered surfaces**	**m2**
Description/ Specifications	"Price per m^2 including any material and losses, labor, contractor's overheads and profit for applying 0.075 kg of antibacterial primer on the surface to be coated after sanding, grinding and cleaning; applying 0.350 kg of putty and grinding the surface; and applying acrylic-based water-based semi-matte paint of 0.100 kg as the first layer and 0.100 kg as the second layer on 0.075 kg of antibacterial primer: UNIT: Painted surfaces within the project are measured. All gaps are deducted. NOTE : Additional scaffolding shall be provided for walls and ceilings higher than 3 m. If there is a scaffold for plastering, no additional scaffold shall be provided for coating."	
Related official pose/item number, book	15.540.1226	

Item no:	**Item**	**Unit**
CIV.066	**Water based anti-bacterial wall paint including primer on satin gypsum finished surfaces**	**m2**
Description/ Specifications	"Price per m^2 including any material and losses, labor, contractor's overheads and profit for applying the first layer of 0.150 kg water-based antibacterial primer on the surface to be coated after it is cleaned and applying a second layer of 0.100 kg water based acrylic semi matte antibacterial paint on the first layer at the desired color: UNIT: Painted surfaces within the project are measured. All gaps are deducted. NOTE : Additional scaffolding shall be provided for walls and ceilings higher than 3 m. If there is a scaffold for plastering, no additional scaffold shall be provided for coating."	
Related official pose/item number, book	15.540.1228	

Item no:	**Item**	**Unit**
CIV.067	**Silicon based textured exterior wall paint**	**m2**
Description/ Specifications	"Price per m^2 including any material and losses, labor, contractor's overheads and profit for rectifying the surfaces to be coated using sandpaper or mosaic polishing stone, applying 0.150 kg of primer after burrs and over-grainy parts are removed, applying 0.600 kg as the first layer and 0.500 kg as the second layer of silicon-based grained/textured paint of desired color over the layer of primer: UNIT: Painted surfaces within the project are measured. All gaps are deducted.	

	NOTE : Additional scaffolding shall be provided for walls and ceilings higher than 3 m. If there is a scaffold for plastering, no additional scaffold shall be provided for coating."
Related official pose/item number, book	15.540.1305

Item no:	**Item**	**Unit**
CIV.068	**Aluminum composite façade cladding**	**m2**
Description/ Specifications	Price of 1 m2, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses for, according to the drawing, fabrication of Aluminium Composite Panels (0,50mm + 3mm + 0,50mm) 0,50 mm thick (EN AW 3000 Series) with 4 mm wall thickness between aluminium sheets 3mm thick mineral filled Aluminium sheets, visible outer face min. 28 micron thickness PVDF painted, aluminium panels and filler lining painted composite panel (Fire Class: A2 S1 d0) facade cladding, box profile formed of the main carrier system, wall surface plumbing anchoring, anticorrosion painting against corrosion, 28 micron thickness Connection of PVDF painted aluminium sheets to joint elements, sealing and silicone covering of main carrier joint gaps from aluminium sheets.	
Related official pose/item number, book	77.105.1001	

Item no:	**Item**	**Unit**
CIV.069	**Fire retardant wall paint**	**m2**
Description/ Specifications	"According to the drawing details and standards; DESCRIPTION: Water-based intumescent (fire-insulated under fire energy) will be a fire retardant coating. The ASTM E 119 test procedure shall have an international test report with a temperature threshold not exceeding 175 ° C. SURFACE PREPARATION: The surface to be applied shall be cleaned from oil, dirt and old paints. APPLICATION TEMPERATURE: Air and surface temperature must be between +10 and +30. APPLICATION: Brush, Roller or spray gun APPLICATION: WALL SURFACES: The surface will be completely cleaned of oil, dirt and old paint and a thin primer will be applied to the cleaned surface. After the establishment, the certified product with fire retardant properties shall be applied. Application floors will be determined by the administration according to the desired delay time. Wait for at least 8 hours between application. 24 hours after the last application layer, sanding with 80-100 sanders will be done and the top coat will be applied. DRYING TIME: When considering 20 degrees and 65% humidity environment, powder drying will be 4 hours, touch drying will be 12 hours, 2 layers application will be 24 hours and final drying will be 48 hours. Price of 1 m2, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses for:"	
Related official pose/item number, book	N/A	
Item no:	**Item**	**Unit**
CIV.070	**Steel works with use of all kind of bent sheet and profiles**	**kg**

Description/ Specifications	"Price per kg for iron rivets, bolts, welding, any material and loss, loading, horizontal and vertical carriage, unloading at the work site, labor, and contractor's overheads and profit (excluding the cost of paint) for any type of stair, balcony, bridge railings, window and garden guard rails, ladders for climbing to roofs or installed in cesspools and similar other places, and made of steel bars, flat bars and profile steel: UNIT: Weighed with the manufacture and fastener, if any, before coating and installation. NOTE: However, the administrations may compare the scale weight of all profiles and node plates to their weights given in the table based on the sizes in the project design if it considers necessary. After this comparison, payment shall be made for max. 7% more than the weight given in the table. Weights exceeding 7% shall not be taken into consideration. If it is found upon verification of the weight that the actual weight is less than the weight specified in the table, the scale shall be taken as basis provided that the manufacture is accepted by the administration."
Related official pose/item number, book	15.550.1202

Item no:	**Item**	**Unit**
CIV.071	**Painted carbon steel handrails and balustrades**	**kg**
Description/ Specifications	"Price per kg for any material and loss, workshop expenses, loading, horizontal and vertical carriage, unloading at the work site, labor, and contractor's overheads and profit (excluding the cost of paint) for window and garden wall guard rails and similar other artifacts with pipes in any diameter depending on the project, and joining the pieces by welding: UNIT: Weighed with the manufacture and fastener, if any, before coating and installation. NOTE: However, the administrations may compare the scale weight of all profiles and node plates to their weights given in the table based on the sizes in the project design if it considers necessary. After this comparison, payment shall be made for max. 7% more than the weight given in the table. Weights exceeding 7% shall not be taken into consideration. If it is found upon verification of the weight that the actual weight is less than the weight specified in the table, the scale shall be taken as basis provided that the manufacture is accepted by the administration."	
Related official pose/item number, book	15.550.1203	

Item no:	**Item**	**Unit**
CIV.072	**Stainless steel handrails and balustrades**	**kg**
Description/ Specifications	"Making of stair railing of polished stainless steel (304 chrome steel); 60 or 90 cm. spacers Q32*1.5, railing upper head railing Q51*1.5, interconnecting pipes will be made of 3 pieces of Q16*1.5 stainless steel diameter, the connection elements will be made of stainless joints, the intermediate records will be made of M6 screws on the stainless steel pipes. The core nut shall be mounted, M10 screws or oven-painted anchor bars shall be welded with spot in place on the step connection points of the uprights and chrome-nickel Q51 covers shall be installed on it. Mouth covers of Q51 handrail will be capped off with stainless steel cover, stair conversion places will be patented elbow, elbow and junction will be welded. All welds will be smooth. Price of 1 kg, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses for Stair railing made of polished stainless steel (304 chrome steel); Connection joint with 0.5 meter spacing will be used, no trace of welding will be apparent, distance between cup and wall is at least 5 cm. It will be. Stainless steel stair railing and railing to be manufactured in 304 quality stainless steel in accordance with the project, workshop costs required for the	

	production of the railing, welding, argon welding, rosette, joint, nut, lathe, milling, polishing, metric fasteners, small materials. Measure: Stainless steel fabrication manufactured according to the drawings is weighed before being put into place and passed to the attachment with a record. If the administration deems necessary, the weight of all components in the scale (according to TSE norms is calculated, if it is not standard, it is calculated according to German norms) over the dimensions of the project. As a result of this verification, up to 5% by weight is paid compared to the rulers. Weight of more than 5% is not taken into account. Rivet and bolt holes are considered to be full in account verification. In case the weight found as a result of this weighing is less than the scale, the weighing shall be taken as long as the manufacturing is accepted by the Administration."
Related official pose/item number, book	48.550.2001

Item no:	**Item**	**Unit**
CIV.073	**Air-tigth shaft cover**	**m2**
Description/ Specifications	Price of 1 m2, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses, according to the drawings and specification of all kinds of profiles, for, if necessary, profile iron, sheet and plate with the addition of square and rectangular profiles and windows and doors, as specified in the project and specifications smoke-tight roving, lock, sliding and similar materials, fixings or other parts for fixing iron welding, rivet, and bolts.	
Related official pose/item number, book	N/A	

Item no:	**Item**	**Unit**
CIV.074	**Atatürk memorial corner in accordance with design**	**pcs**
Description/ Specifications	"In accordance with its drawing, drawing details and standards; A 28 cm high front-view Atatürk mask wholly made of brass casting in bright gold colour, shiny, which can be easily mountable on any surface with the apparatus on its back. An Atatürk corner shall be provided and shall be assembled in place in accordance with the shape and patterns shown in the approved drawing and the details. On the corner of Atatürk; "THE ONE AND ONLY GUIDE IN LIFE IS SCIENCE. K.ATATÜRK" shall be written in 6 cm high letters and installed in its place. Technical and application information on all materials to be used in construction, test certificates, warranty certificates, TSE compliance certificates and other quality certificates to be required by the Administration shall be presented to the ADMINISTRATION. Fabrications shall be made in accordance with the details and drawings with the materials approved by the ADMINISTRATION. The CONTRACTOR, shall present the laminations they will use in the fabrications, samples for the satin coatings, MDFs, colour samples, accessories, artificial leathers and fabrics and the brands of all materials to the approval of the ADMINISTRATION. All materials and labour to be used on the products shall be of 1st grade and shall have min. 2 year warranty together with the accessories and mechanisms. Price of 1 unit, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses: MEASUREMENT: It is calculated over the drawing."	
Related official	N/A	

pose/item number, book	

Item no:	Item	Unit
CIV.075	**Covering of stage floor with OSB 3 (11 mm) plates**	**m2**
Description/ Specifications	"Price of 1 m, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses for, according to the project approved by the administration, the construction of 11 mm thick oriented fibreboard (OSB) continuous nailing. Size: Calculated over the area covered. Notes: Further analysis will be arranged for OSB sheets of other type and thickness."	
Related official pose/item number, book	N/A	

Item no:	Item	Unit
CIV.076	**P01 100/50 cm PVC window including blind casing, glazing and all accessories**	**pcs**
CIV.077	**P02 150/50 cm PVC window including blind casing, glazing and all accessories**	**pcs**
CIV.078	**P03 200/200 cm PVC window including blind casing, glazing and all accessories**	**pcs**
CIV.079	**P04 240/200 cm PVC window including blind casing, glazing and all accessories**	**pcs**
CIV.080	**P05 60/60 cm PVC window including blind casing, glazing and all accessories**	**pcs**
CIV.081	**P05A 60/60 cm PVC window including blind casing, glazing and all accessories**	**pcs**
CIV.082	**P06 150/200 cm PVC window including blind casing, glazing and all accessories**	**pcs**
CIV.083	**P07 570/200 cm PVC window including blind casing, glazing and all accessories**	**pcs**
CIV.084	**P08 400/200 cm PVC window including blind casing, glazing and all accessories**	**pcs**
Description/ Specifications	"Plastic joinery made of hard PVC profiles as per the project design and details approved by the administration, and its accessories and glazing beads shall be weather-proof and have a smooth surface. A front chamber system designed to facilitate thermal insulation, acoustic insulation and water drainage shall be available in the sections of the main profiles made of PVC (with wall thickness class ""A"" and 2.8 mm for visible surfaces and 2.5 mm for non-visible surfaces). The main profiles (frame, leaf, middle post) shall be made strong enough with metal reinforcement profiles. Metal reinforcement profiles shall be U or box profiles made by hot-dip galvanization method, protected against corrosion by galvanization. In both cases, sheet thickness shall be max. 1.5 mm for frames and leaves, and max. 2 mm for the middle rod. (However, if the moment is inertia is found higher than the aforementioned thickness of sheet metal for very large rods and leaves, metal sheets compatible with the result should be used.) Any window joinery, doors, display windows and similar other artifacts shall be manufactured by joining metal-reinforced PVC profiles by plastic corner welding, screws, leaf connection or any other means, using auxiliary joinery profiles, plates and other profiles. Leaf gaps shall be insulated with two rows of	

	EPDM rubber, neoprene or TPE gaskets in compliance with the system suggested by the manufacturer. Glass panes of any type and thickness shall be installed by glazing beads. The glass shall be fixed by a seal, mastic and by other means in accordance with the system suggested by the manufacturer. The frame (joinery) of each window sash shall be installed on the joinery frame with min. 2 (two) hinges, and the door leaf frame shall be installed with min. 3 (three) hinges. Hinges shall have the strength and design to ensure smooth operation of the leaves. Joints of frames and leaves of plastic joinery shall be cut by 45 degrees, welded by machines developed for this purpose and installed on the masonry components or steel structure (blind frame). (Installation on masonry components can be done in three ways. a) Using clamping bars: Clamping bars shall be installed on the joinery with an appropriately sized screw. Then the clamping screw shall be installed on the masonry component with another appropriately sized screw after the joinery is placed. b) Using steel dowel pins: Once the joinery is placed, a hole is drilled that extends to the masonry component through the joinery. An appropriately sized steel dowel pin shall be driven into this hole and tightened. c) Using installation screws, once the joinery is placed, a hole is drilled that extends to the masonry component through the joinery. An appropriately sized steel installation screws shall be driven into this hole and tightened. Installation on a blind frame can be done in two ways. c) Using sheet metal screws, once the joinery is placed, a hole is drilled that extends to the blind frame through the joinery. An appropriately sized steel sheet metal screws shall be driven into this hole and tightened. b) Using locking profiles: The first part of the locking profiles installed on the joinery shall be installed in every direction. Once the joinery is placed, the second part of the locking profile shall be installed to be interlocked with the first part. Price per kg for installed plastic joinery including any material and losses, loading, horizontal and vertical carriage and unloading at the work site, labor, equipment and instrument costs, and contractor's overheads and profit, for tightness against water, air and sound, and installing the gaskets to ensure insulation in the gaps of the leaves in compliance with the system: UNIT: 1) Only hard PVC plastic joinery materials, EPDM, neoprene or TPE seals, silicon-based putty, fastening screws or locking profiles, connecting pieces and reinforcements in the profile shall be weighed together. 2) However, the administrations may compare the scale weight of all profiles given in the table based on the sizes in the project design if it deems necessary. Max. 7% excess weight compared to the tables shall be paid. If the weight found by scaling is less than the weights in the table, the scale shall be taken as basis provided that the manufacture is accepted by the administration. 3) Detail projects shall indicate weights per meter of both plastic profiles and metal reinforcement profiles as well as the unit weights of connecting components. NOTE: 1) The cost for installing the metallic components shall be included in the price of the joinery. 2) Plastic joinery accessories (window bar hardware, hinges, locks and extensions, transom window folding and swinging mechanisms, pivot hinges, bolts, under-door brushes, any kind of door handles, hydraulic mechanisms, and similar other opening, closing and locking mechanisms) shall not be included in the weight. The prices shall be paid per their respective market price, if such a market price is available, or with 25% extra overhead expenses and profit of the contractor added to the invoice sum by the authorities if no such market price is available. 3) All main and additional profiles should be marked along the profile length at min. 1-meter intervals on spots that are not visible when the window is closed. Marking of the main and additional profiles should contain the following minimum information. - The name or trademark of the manufacturer, - The marking and number of this standard (in the form of TS EN 12608-1), - Wall thickness class, - Production code (e.g. date, etc.) to ensure traceability"
Related official pose/item number, book	15.455.1001

Item no:	Item	Unit
CIV.085	**DK1 100/220 cm steel door with blind casing, frame, leaf and all accessories**	**pcs**
CIV.086	**DK2 200/220 cm steel door with blind casing, frame, leaf and all accessories**	**pcs**
CIV.087	**DK3 150/220 cm steel door with blind casing, frame, leaf and all accessories**	**pcs**
Description/ Specifications	"Price per pcs for iron welding, riveting, bolts, any material and loss, workshop costs, labor, loading, horizontal and vertical carriage, unloading at the work site, carrier scaffold and hoisting equipment, and contractor's overheads and profit (excluding the cost of metallic accessories and paint) for making windows and doors using square and rectangular profiles, and adding sheet metal and flat bars where necessary as per the project design and specifications; installation of locks, bolts and similar other materials with clamp steel or other accessories: UNIT: The essential components of the manufacture, locks, bolt handles and the clamps to be installed on the walls shall be weighed before they are painted, then registered in the attachment and installed. All of the manufacture shall be charged similarly. NOTE: 1) However, if decorations made of any other metal than iron or any of the components such as locks, bolts or levers are plated with nickel, labor and material expenses shall be paid separately. 2) Hinges and roller bearings, and window bar hardware, locks, and similar other components made of any other material than iron shall be paid separately with the price report corrected accordingly. 3) The cost of installing the metallic components (hinges, roller bears, locks, window bar hardware, etc.) shall be included in the price. 4) However, the administrations may compare the scale weight of all profiles and alike to their weights given in the table based on the sizes in the project design if it considers necessary. After this comparison, payment shall be made for max. 7% more than the weight given in the table. Weights exceeding 7% shall not be taken into consideration. If it is found upon verification of the weight that the actual weight is less than the weight specified in the table, the scale shall be taken as basis provided that the manufacture is accepted by the administration."	
Related official pose/item number, book	15.550.1001	

Item no:	Item	Unit
CIV.088	**MK1 60/120 cm steel door with blind casing, frame, leaf and all accessories**	**pcs**
CIV.089	**MK2 40/120 cm steel door with blind casing, frame, leaf and all accessories**	**pcs**
Description/ Specifications	"Price per pcs for iron welding, riveting, bolts, any material and loss, workshop costs, labor, loading, horizontal and vertical carriage, unloading at the work site, carrier scaffold and hoisting equipment, and contractor's overheads and profit (excluding the cost of metallic accessories and paint) for making windows and doors using square and rectangular profiles, and adding sheet metal and flat bars where necessary as per the project design and specifications; installation of locks, bolts and similar other materials with clamp steel or other accessories: UNIT: The essential components of the manufacture, locks, bolt handles and the clamps to be installed on the walls shall be weighed before they are painted, then registered in the attachment and installed. All of the manufacture shall be charged similarly. NOTE: 1) However, if decorations made of any other metal than iron or any of the components such as locks, bolts or levers are plated with nickel, labor and material expenses shall be paid separately. 2) Hinges and roller bearings, and window bar hardware, locks, and similar other components made of any other material than iron shall be paid separately with the price report corrected accordingly. 3) The cost of installing the metallic components (hinges, roller bears, locks, window bar hardware, etc.) shall be included in the price.	

	4) However, the administrations may compare the scale weight of all profiles and alike to their weights given in the table based on the sizes in the project design if it considers necessary. After this comparison, payment shall be made for max. 7% more than the weight given in the table. Weights exceeding 7% shall not be taken into consideration. If it is found upon verification of the weight that the actual weight is less than the weight specified in the table, the scale shall be taken as basis provided that the manufacture is accepted by the administration."
Related official pose/item number, book	15.550.1001

Item no:	**Item**	**Unit**
CIV.090	**YK1 100/220 cm 120 min fire rated emergency escape door with panic bar**	**pcs**
Description/ Specifications	Price of 1 unit, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses for the production of 120-minute Fire Door With Panic Bar in accordance with the drawing and technical specifications.	
Related official pose/item number, book	77.170.1009	

Item no:	**Item**	**Unit**
CIV.091	**SK1 100/220 cm sound insulated door with blind casing, frame, leaf and all accessories**	**pcs**
CIV.092	**SK2 200/220 cm sound insulated door with blind casing, frame, leaf and all accessories**	**pcs**
Description/ Specifications	"According to the drawing details and standards; In accordance with the project approved by the administration and in detail; 20 mm 250 kg/m^3 fireproof rubber panel, 30 mm density 70 kg/m^3 stone wool slabs between wooden carcass carrier system, 3 mm, 4kg/m^2 density acoustic barrier on both sides of the carrier system, double coated with airtight soundproof foil fastening of 12 mm MDF and wood/laminate veneer on both surfaces and using acoustic mastic in this press stage, making both doors and frames double-mounted and attaching sound insulation gasket to these parts installation of the upper and lower mechanism and using at least 3 heavy door hinges of the door frame; necessary for ready-to-use production, Price of 1 m2, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses:"	
Related official pose/item number, book	N/A	

Item no:	**Item**	**Unit**
CIV.093	**LK1 90/220 cm laminated coated door with steel frame including all accessories**	**pcs**
CIV.094	**LK2 100/220 cm laminated coated door with steel frame including all accessories**	**pcs**

CIV.095	**LK2A 100/220 cm laminated coated door with steel frame including all accessories**	**pcs**
CIV.096	**LK3 110/220 cm laminated coated door with steel frame including all accessories**	**pcs**
Description/ Specifications	"Price per pcs for any material including nails, screws, glue, etc. and losses, labor, equipment and instrument costs, loading, horizontal and vertical carriage, unloading at the work site, and contractor's overheads and profit (excluding the cost of metallic accessories) for making white pine lumber interior door leaves that are 42-mm-thick in clean form, produced by pressing 4-mm medium-density fiber boards (MDF) on both surfaces of the frame of 32-mm kraft cores between frames made of min. 32-mm-thick frames in clean form and post heads, covering both surfaces with laminate and installation as per the relevant project design: UNIT : 1) The area of the door shall be calculated by multiplying the out-to-out width and length of the door leaf. Door frames shall not be included in this measurement. 2) If the number of door leaves in the gap is increased, all opening or fixed leaves shall be included in the measurement as closed. (If fixed leaves are finished in the form of battenboard frame, these shall be included in the measurement of leaves also and no additional payment shall be made for the frames.) NOTE : 1) The metallic components to be used in door joinery in general shall be made up of any kind of locks and lock levers, lock plates, bolts, stoppers with rubber buffer, hinges and spring hinges. 2) The labor for installing the metallic components shall be included in the price of the joinery."	
Related official pose/item number, book	15.510.1103	

Item no:	Item	Unit
CIV.097	**AL-CMK1 200/290 cm aluminum glazed door with blind casing, frame, leaf and all accessories**	**pcs**
CIV.098	**AL-CMK2 240/290 cm aluminum glazed door with blind casing, frame, leaf and all accessories**	**pcs**
CIV.099	**AL-CMK2A 240/290 cm aluminum glazed door with blind casing, frame, leaf and all accessories**	**pcs**
CIV.100	**AL-CMK2B 240/290 cm aluminum glazed door with blind casing, frame, leaf and all accessories**	**pcs**
CIV.101	**AL-CMK3 555/340 cm aluminum glazed door with blind casing, frame, leaf and all accessories**	**pcs**
CIV.102	**AL-CMK4 555/340 cm aluminum glazed door with blind casing, frame, leaf and all accessories**	**pcs**
CIV.103	**AL-CMK5 865/280 cm aluminum glazed door with blind casing, frame, leaf and all accessories**	**pcs**
CIV.104	**AL-D1 250/280 cm aluminum glazed door with blind casing, frame, leaf and all accessories**	**pcs**
CIV.105	**AK1 90/220 cm aluminum door with blind casing, frame, leaf and all accessories**	**pcs**
CIV.106	**AK2 100/220 cm aluminum door with blind casing, frame, leaf and all accessories**	**pcs**
CIV.107	**AK4 200/220 cm aluminum door with blind casing, frame, leaf and all accessories**	**pcs**

Description/ Specifications	"Price per pcs for any material and losses, loading, labor, horizontal and vertical carriage and unloading at the work site, equipment and instrument costs, and contractor's overheads and profit for factory manufacture, installation using any installation material (EPDM gaskets, PVC felt (bitumen foil tape) to ensure tightness against heat, water and air and insulation between the installation site (blind frame, etc.) and the joinery, installation dowel pins, etc.), delivery in working order, and transportation to the work site, of regular or sliding, etc. windows, display windows, door leaves, frames, etc. with load-bearing aluminum joinery profiles (frame, post, leaf profiles), colored-matte and anodized aluminum profiles, and single or double axes, which shall be in compliance with the current standards and technical specifications in terms of classification, chemical composition, mechanical properties, design, measure and thickness tolerances in accordance with the project design, detail drawings and samples approved by the administration: UNIT: 1) Aluminum shall be weighed with the manufactured component (including screws, rivets and protective package). If weighed together, weights of the accessories charged separately such as locks and extensions, window handles, door handles, hinges, transom window folding and swinging mechanisms, bolts, under-door brushes, hydraulic mechanisms, pivot mechanisms, sliding and double axis mechanisms, etc., if any, shall be excluded. The accessory prices shall be paid per their respective market price, if such a market price is available, or with 25% extra profit and overhead expenses of the contractor added to the invoice sum by the authorities if no such market price is available. 2) However, the administrations may compare the scale weight of all profiles given in the table based on the sizes in the project design if it deems necessary. Max. 7% excess weight compared to the tables shall be paid. If the weight found by scaling is less than the weights in the table, the scale shall be taken as basis provided that the manufacture is accepted by the administration. NOTE: 1) Carrier aluminum profiles shall have 2 mm (±10%) wall thickness to provide the resistance required as per the static calculation. (This condition is not applicable to complementary profiles such as non-load-bearing glazing beads, T overlap profiles, adapter profiles, brackets, etc.). 2) Corner connection pieces shall be used at corner joints of the joinery (if thermally insulated, in both corners of he thermally-insulated profile) and the corners shall be pressed. 3) Aluminum profiles with thermal insulation shall have min. three cells."
Related official pose/item number, book	15.460.1008

Bill 2. Mechanical Works

Item no:	**Item**	**Unit**
MEC.001	**40x50 cm Under-counter or over-counter oval washbasin**	**pcs**
Description/ Specifications	Supply to the work site and installation of white washbasins of the types and dimensions given below with or without fixed soap dishes, including fittings. Washbasins shall be in compliance with the Regulation 305/2011/EU on Construction Products and released with a CE compliance marking. Note: If colored glazed ceramic is used, installed prices shall be increased by 15% with the installation fee remaining unchanged.	
Related official pose/item number, book	25.100.1010	
Item no:	**Item**	**Unit**
MEC.002	**45x55 cm Set with Semi-pedestals**	**pcs**
Description/ Specifications	Supply to the work site and installation of white washbasins of the types and dimensions given below with or without fixed soap dishes, including fittings. Washbasins shall be in compliance with the Regulation 305/2011/EU on Construction Products and released with a CE compliance marking. Note: If colored glazed ceramic is used, installed prices shall be increased by 15% with the installation fee remaining unchanged.	

Related official pose/item number, book	25.100.1012

Item no:	**Item**	**Unit**
MEC.003	**50x60 cm Physically Handicapped Washbasin (The washbasin should be min. 43 cm, max. 49 cm deep.)**	**pcs**
Description/ Specifications	Supply to the work site and installation of white washbasins of the types and dimensions given below with or without fixed soap dishes, including fittings. Washbasins shall be in compliance with the Regulation 305/2011/EU on Construction Products and released with a CE compliance marking. Note: If colored glazed ceramic is used, installed prices shall be increased by 15% with the installation fee remaining unchanged.	
Related official pose/item number, book	25.100.1019	

Item no:	**Item**	**Unit**
MEC.004	**Mirror Approximately 40 x 60 cm**	**pcs**
Description/ Specifications	5-mm glass thickness, ground edges, and with beveled stripes,if any. Wall attachment screws shall be brass with min. 5-micron nickel plating or stainless steel. Installation on a wall with braces, screws and dowel pins. Mirrors shall be in compliance with the Regulation 305/2011/EU on Construction Products and released with a CE compliance marking.	
Related official pose/item number, book	25.104.1002	

Item no:	**Item**	**Unit**
MEC.005	**Flush Toilet & Installation; Approximately 35 x 70 cm for the physically disabled Extra-quality. (The toilet seat shall be 43 to 48 cm high from the floor)**	**pcs**
Description/ Specifications	Supply to the work site, installation and delivery in working order of white (glazed) ceramic flush toilets with sufficient spacing for installation of a cistern, with min. 13-liter ceramic bowl, fully hard plastic cistern, brass-chromized seat and cover, complete with copper pipes for utility water connection of the cistern and bidet nozzle, rosettes and chrome-plated set screws and fixing blocks. Note: If colored glazed ceramic is used, installed prices shall be increased by 15% with the installation fee remaining unchanged.	
Related official pose/item number, book	25.112.1103	

Item no:	**Item**	**Unit**
MEC.006	**Flush Toilet & Installation; Flush with the wall, Approximately 65 x 35 cm (Extra-quality)**	**pcs**
Description/ Specifications	Supply to the work site, installation and delivery in working order of white (glazed) ceramic flush toilets that can be fully washed by 4 liters and with sufficient spacing for installation of a cistern, with bowl, fully hard plastic cistern, brass-chromized seat and cover, complete with pipes for utility water connection of the cistern and plastic bidet nozzle, rosettes and chrome-plated set screws and fixing blocks. Note: If colored glazed ceramic is used, installed prices shall be increased by 15% with the installation fee remaining unchanged. The products shall be in compliance with the Regulation 305/2011/ EU on Construction Products and released with a CE compliance marking.	
Related official pose/item number, book	25.112.1204	

Item no:	**Item**	**Unit**

MEC.007	**Squat Toilet Set with Flush-mounted Cistern**	**pcs**
Description/ Specifications	Supply to the work site and installation with fittings of a white, fourcorner toilet pan; a monobloc squat toilet flush made of ø 100-mm PVC, resistant to 80°C temperature and acids, equipped with a 6-cm anti-odor part and in compliance with TS-EN 274-1-2-3; a tap complying with TS EN 200 and surface standards of TS EN 248, which was made of raw materials that comply with the standards EN12164 and TS EN 12165; and a cistern made of plastic and stainless steel components, installed within the wall and complying with TS EN 14055+A1 and TS EN 10088-1/2/3. The products shall be in compliance with the Regulation 305/2011/EU on Construction Products and released with a CE compliance marking.	
Related official pose/item number, book	25.112.1260	

Item no:	Item	Unit
MEC.008	**Flush Toilet Set with Flush-mounted Cistern**	**pcs**
Description/ Specifications	Supply to the work site and installation with fittings of a white, fourcorner toilet pan; a monobloc squat toilet flush made of ø 100-mm PVC, resistant to 80°C temperature and acids, equipped with a Supply to the work site and installation of a wall-mounted, white, glazed ceramic, extra class flush toilet (in compliance with TS EN 997+A1); Duroplast hard plastic seat and cover made of raw materials in compliance with TS EN 12164 and TS EN 12165; with classic or ceramic seal made of TS EN 248 surface standards and TS 15 EN 1213 including a built-in intermediate stop valve and rosette; and a flush-mounted cistern with plastic and stainless steel components in compliance with TS EN 14055+A1 and TS EN 10088-1. The products shall be in compliance with the Regulation 305/2011/EU on Construction Products and released with a CE compliance marking.	
Related official pose/item number, book	25.112.1270	

Item no:	Item	Unit
MEC.009	**Sink; Stainless steel, approximately 50 x 50 x 15 cm**	**pcs**
Description/ Specifications	The sinks shall be in compliance with the Regulation 305/2011/ EU on Construction Products and released with a CE compliance marking.	
Related official pose/item number, book	25.118.1101	

Item no:	Item	Unit
MEC.010	**Stainless steel, approximately 50 x 60 x 22 cm**	**pcs**
Description/ Specifications	Supply to the work site, installation and delivery in working order, for use with the single-bowl sinks specified in the items 25.118.1100 and 1200, of a 15-mm brass chromized or plastic-based (acetal copolymer) faucet with rotating or fixed pipes certified for compliance with TS EN 200 or TS EN 817; a brass chromized or hard plastic-based sink siphon with 6-cm anti-odor part, extension to the wall and rosette, an 32-mm strainer that is sized to comply with TS-EN 274-1-2-3, resistant to min. 80°C and can be removed and cleaned, complete with a bakelite plug, chromized chain and handle (drain pipe shall not be included in the price, and the faucet and its siphon shall be certified for compliance with Turkish Standards).	
Related official pose/item number, book	25.120.1102	

Item no:	Item	Unit
MEC.011	**Bath mixer complete with a shower pipe and shower head filter; (TS EN 200) First quality.**	**pcs**
Description/	Supply and installation of a flush-mounted bathing set with an aluminum shower pipe,	

Specifications	chromized pipe clamp, special dowel pins and screws, shower head, brass chromized bathroom faucet in compliance with TS EN 200 and plastic-based (acetal copolymer) complete head and hand-held shower, for use with shower trays and bathtubs
Related official pose/item number, book	25.127.1001

Item no:	**Item**	**Unit**
MEC.012	**1/2" Short tap, including filter rosette**	**pcs**
Description/ Specifications	Installation of taps in compliance with TSE EN 200 in their designated locations with their rosettes.	
Related official pose/item number, book	25.130.1101	

Item no:	**Item**	**Unit**
MEC.013	**Single-control, wall-mounted (buiL-in) bathroom faucet, flushmounted**	**pcs**
Description/ Specifications	Brass parts including the body shall be cast, hot forged or rolled by chip removal and made of materials in compliance with the standards TS EN 12164-1,-2-,3 and TS EN 12165; manufactured as per TS EN 248 for surface standard requirements, and TS EN 200, TS EN 274, TS EN 817, TS 3143 for functions and size, one-control mixers manufactured in compliance with TS EN 1759-1, TS EN 1092-1, two-control faucets manufactured in compliance with TS 200; mills, bodies, etc. of the standard seal group used with two-control units machined by chip removal from the raw material complying with TS EN 12164, parts such as seals, O-rings, etc. used in any product made of EPDM or NBR materials; such components as oil, seals, o-rings, etc. used any products certified for compliance with the KTW (KaL Trinken Wasser), WRC (Water Byelaws Scheme, a measure of toxic materials transferred to water from the non-metal parts that it contacts), and DVGW (Deutsche Vereiningung des Gasund Wasserfaches); the aerators shall be in compliance with the TS EN 246 and certified and marked for compliance with KIWA (Mechanical tests, acoustic tests, and measurement of the changes of color and taste in water) or DVGW; aerator hubs shall be plastic, flexible connection tubes shall be made of stainless steel wire mesh exterior and an EPDM internal tube, and awarded any of the certificates and markings of compliance with DVGW, KIWA or SWGW (Mechanical tests, acoustic tests, and measurement of the changes of color and taste in water). The levers and flywheels used in any product shall be metallic, and the cartridges used in non-acrylic or non-plastic one-control faucets shall be certified for compliance with NSF (The Public HeaLh and Safety Company) or WRAS (Water Regulations Advisory Scheme) and the products equipped with sensors shall be CE certified. The manufacturer shall have a current certificate of production competence, certificate of service competence, certificate of after-sales competence, ISO 9000 and ISO 14000 certificates, and certificate of TSE compliance. Note: If mixers undergo PVD (Physical Vapor Deposition), installed prices shall be raised by 25%, and the installation fees shall remain unchanged.	
Related official pose/item number, book	25.130.3303	

Item no:	**Item**	**Unit**
MEC.014	**Sensor faucet and piping for washbasin, with two water inlets**	**pcs**
Description/ Specifications	Supply to the work site, installation and delivery in working order of a sensor faucet including its piping system, with single or double water inlets, which can adjust the flow rate by a filter angle valve, can be powered by a battery or a power adapter, allows 60 to 120 seconds of water flow, complete with angle valves and a washbasin siphon with a U-pipe.	
Related official pose/item number, book	25.130.4101	

Item no:	Item	Unit
MEC.015	**Ceramic Soap Dish Approximately 16 x 16 cm**	pcs
Description/ Specifications	Supply to the work site and installation of extra-quality white ceramic soap dish with a tab and drainboard, which can be half embedded in the wall or surface mounted with ceramic installation components. Note: If colored glazed ceramic is used, installed prices shall be increased by 15% with the installation fee remaining unchanged.	
Related official pose/item number, book	25.135.1101	

Item no:	Item	Unit
MEC.018	**Handle bar for the disabled**	pcs
Description/ Specifications	Chrome-plated stainless steel, approximately 600 mm, min. Ø30 mm (prices in installed form shall be decreased by 10% with the installation fee remaining unchanged in case of spray coating instead of chrome plating.)	
Related official pose/item number, book	25.135.4001	

Item no:	Item	Unit
MEC.019	**135° handle bar for the disabled**	pcs
Description/ Specifications	Chrome-plated stainless steel, approximately 375 x 375 mm, min.Ø30 mm (prices in installed form shall be decreased by 10% with the installation fee remaining unchanged in case of spray coating instead of chrome plating.)	
Related official pose/item number, book	25.135.4002	

Item no:	Item	Unit
MEC.020	**Flush toilet handle bar for the disabled**	pcs
Description/ Specifications	Chrome-plated stainless steel, approximately 700 x 740 mm, min.Ø30 mm (prices in installed form shall be decreased by 10% with the installation fee remaining unchanged in case of spray coating instead of chrome plating.)	
Related official pose/item number, book	25.135.4003	

Item no:	Item	Unit
MEC.016	**Stainless Steel Paper Dispenser**	pcs
Description/ Specifications	Supply to the work site and installation of a stainless steel sheet paper dispenser with chromized set screws and special wedges or dowel pins.	
Related official pose/item number, book	25.135.2002	

Item no:	Item	Unit
MEC.017	**Accessible paper dispenser**	pcs
Description/ Specifications	Supply to the work site and installation of a stainless steel sheet paper dispenser with chromized set screws and special wedges or dowel pins.	
Related official pose/item number, book	25.135.2003	

Item no:	Item	Unit
MEC.021	**Floor Drain Strainer With chrome-plated brass grating and plastic housing, 15x15**	pcs

	cm. with Ø70 outlet	
Description/ Specifications	Supply to the work site and installation of a floor drain strainer with built-in odor closure, grating and cleaning plug.	
Related official pose/item number, book	25.138.1032	

Item no:	**Item**	**Unit**
MEC.022	**Water Meter Ø25 mm (1"), threaded**	**pcs**
Description/ Specifications	Supply to the work site and installation of water meters with CE marking as per the Measuring Instruments Directive (2004/22/EU).	
Related official pose/item number, book	25.142.1102	

Item no:	**Item**	**Unit**
MEC.023	**Water Meter Ø50 mm (1"), flanged**	**pcs**
Description/ Specifications	Supply to the work site and installation of water meters with CE marking as per the Measuring Instruments Directive (2004/22/EU).	
Related official pose/item number, book	25.142.1105	

Item no:	**Item**	**Unit**
MEC.024	**Stainless Steel Prismatic Modular Water Tank 20 m3**	**pcs**
Description/ Specifications	Supply to the work site, and installation to its designated location and the piping system of a fully AISI 304 stainless steel modular water tank certified for compliance with the Turkish Standards, with all internal and external material, tension bars, bolts, pedestals, manhole, air vents and connection nozzles made of noncorrosive materials, taps made of non-corrosive or brass, strength calculations and project designs approved by the administration, all parts factory manufactured by cold forming, bending or twisting, and PVC or polyethylene membrane at the bottom to prevent contact with the base material; which shall be assembled by bolts, using silicon and EPDM rubber seals, without any welding during production or at the installation site. Note: Non-corrosive or brass chromized taps on the tank, non-corrosive pedestals, level floater, ball valves of inlets and outlets, blowoff ball valves, air discharge breather device, overflow nozzle and pipe, level indicator, valves and drain tap, top and bottom manhole maintenance covers, and tank climbing ladder are included in the price. - Unit prices for other values shall be interpolated. - Sheet metal thickness table for tanks are available in the Plumbing general descriptions part.	
Related official pose/item number, book	25.150.1210	

Item no:	**Item**	**Unit**
MEC.025	**Two-pump Booster with Vertical Shaft and Frequency Converter; 0-10 m3/h, 30-60 mss**	**pcs**
Description/ Specifications	Supply to the work site and installation a frequency-converter booster pump with thermal protection, which shall be installed on a metal chassis, connected together by suction and pump collectors by means of the required check valves, valves and fittings, selected to automatically operate 1 to 6 multi-stage pumps, and made up of a power control panel with an integral frequency converter unit, and equipped with rotation feature that enables or disables the pumps	

	in a given order by means of an analog pressure sensor filters that prevent damaging voltage fluctuations in the control panel, digital regulation feature, programming function, fuses, and safety systems including a motor protection breaker, and protection against dry operation, short circuit or voltage pressure sensor malfunction, an alphanumerical liquid crystal display (LCD) and menu control panel, and electric motors in IP 54 protection class.
Related official pose/item number, book	25.160.2201

Item no:	**Item**	**Unit**
MEC.026	**Cold and Hot Water Collectors 3" 80Ø mm**	**M**
Description/ Specifications	Supply to the work site and installation on consoles or on a wall of black collector pipes for the heating system as per the item 25.245.1100 after galvanized in a galvanization bath.	
Related official pose/item number, book	25.170.1102	

Item no:	**Item**	**Unit**
MEC. 027-028-029-030-031	**Collector outlet 15 mm-20mm-25mm-40mm-50mm**	**pcs**
Description/ Specifications	Supply to the work site and installation on consoles or on a wall of black collector pipes for the heating system as per the item 25.245.1100 after galvanized in a galvanization bath.	
Related official pose/item number, book	25.170.1202/1202/1203/1205/1206	

Item no:	**Item**	**Unit**
MEC. 032	**Electric water heater 80 lt 1800 watt**	**pcs**
Description/ Specifications	Supply and Installation of Electric water heater 80 lt 1800 watt. Unit price shall include installation with all necessary accessories and fittings.	
Related official pose/item number, book	25.175.4306	

Item no:	**Item**	**Unit**
MEC. 083-084	**Vent Pipe & Cowl ø 70 mm/100 mm**	**pcs**
Description/ Specifications	Supply to the work site and installation of a plastic vent pipe and cowl that protrudes min 0.50-m from the roofing, for installation on wastewater pipes extending from the ceiling to the roofing through the garret.	
Related official pose/item number, book	25.312.2101/2102	

Item no:	**Item**	**Unit**
MEC. 173	**Mirror for the disabled**	**pcs**
Description/ Specifications	5-mm glass thickness, ground edges, and with beveled stripes, if any. Wall attachment screws shall be brass with min. 5-micron nickel plating or stainless steel. Installation on a wall with braces, screws and dowel pins. Mirrors shall be in compliance with the Regulation 305/2011/EU on Construction Products and released with a CE compliance marking.	
Related official pose/item number, book	V.1891	

Item no:	Item	Unit
MEC. 174	**Undercounter Soap Dispenser**	pcs
Description/ Specifications	1000 ml volume liquid soap dispenser with built-in, stainless steel body, vertical type, lockable. All necessary materials and offcuts, including loading, horizontal and vertical transport, unloading, labour, tool and equipment expenses, contractor profit and general expenses.	
Related official pose/item number, book	N/A	

Item no:	Item	Unit
MEC. 175	**Soap Dispenser**	pcs
Description/ Specifications	Wall mounted type, chrome plated, vertical type, locked, 1000 ml volume liquid soap dispenser. Including all necessary materials and offcuts, loading, horizontal and vertical transport, unloading, labour, tool and equipment expenses, contractor profit and general expenses.	
Related official pose/item number, book	N/A	

Item no:	Item	Unit
MEC. 048	**Thermometer Ø100 mm, graduated up to 120°C**	pcs
Description/ Specifications	Supply to the work site and installation in designated locations as per the relevant project of metallic thermometers in specified diameters and temperature increments.	
Related official pose/item number, book	25.250.2101	

Item no:	Item	Unit
MEC. 049	**Manometer Ø100 mm , graduated up to 5 ATM**	pcs
Description/ Specifications	Manometer: Supply to the work site and installation completely; manufactured in compliance with the TS EN 837-1/3 and TS EN 542 standards and the Regulation 2014/68/AB on Pressure Equipment; released with a CE compliance marking; in diameters given below; easy-to-read scale; complete with a three-way tap.	
Related official pose/item number, book	25.250.2303	

Item no:	Item	Unit
MEC. 034	**B series sectional cast iron radiators with plain surface 160/500 mm**	pcs
Description/ Specifications	The wet heating surfaces of the radiators manufactured in compliance with the TS EN 442-1 and ISO 185 and released with a CE compliance marking shall have a wall thickness of min. 2.5 mm. Supply to the work site, and grouping and installation as prescribed in the project design of cast iron radiators composed of primer-coated sections or groups of sections and installed on feet or consoles. (Seals, nipple plugs and reducers to be used for grouping the sections are included in the price. No additional charge shall apply.) NOTE: 1- Acceptable tolerances shall be ±0.3 mm for the distance between axes, and ±2 mm for the full length and width. 2- They shall be tested and fixed to comply with the thermal power values of 75°C - 65°C (DT = 50°K). 3- Cast iron radiators shall be tested for tightness at min. 10 bars in their marketed form (in groups or sections).	

Related official pose/item number, book	25.225.1104

Item no:	**Item**	**Unit**
MEC. 035	**Corner-type radiator valve Ø15 mm (1/2")**	**pcs**
Description/ Specifications	Supply to the work site and installation of radiator valves and connection bushes (with connection bushes for thermostat heads and adapters for those with a thermostat) in compliance with TS EN 215 or TS 579.	
Related official pose/item number, book	25.230.1201	

Item no:	**Item**	**Unit**
MEC. 036	**Corner-type thermostatic radiator valves Ø15 mm (1/2")**	**pcs**
Description/ Specifications	Supply to the work site, installation and delivery in working order of white (glazed) ceramic flush toilets with sufficient spacing for installation of a cistern, with min. 13-liter ceramic bowl, fully hard plastic cistern, brass-chromized seat and cover, complete with copper pipes for utility water connection of the cistern and bidet nozzle, rosettes and chrome-plated set screws and fixing blocks. Note: If colored glazed ceramic is used, installed prices shall be increased by 15% with the installation fee remaining unchanged.	
Related official pose/item number, book	25.230.1401	

Item no:	**Item**	**Unit**
MEC. 037-038	**Collector pipe welded pipe Ø65/3.00 mm/Ø108/3.71 mm**	**m**
Description/ Specifications	Plugging two ends of a welded pipe of the required length with convex sheet metal with the same wall thickness as the pipe, forming a collector with a uniform outlet fit for welding of flanged pipes sized to comply with the Turkish Standards by making elliptical holes smaller in diameter than the pipe outlets and inflating such holes outwards by heat, welding sleeves for such equipment as manometers, hydrometers, thermometers and drain valves, and installation on such locations as boilers, walls, etc. Payment shall be made for maximum 50 cm of collector pipe for each collector outlet. Extra length shall be charged per the relevant pipe.	
Related official pose/item number, book	25.245.1101/1103	

Item no:	**Item**	**Unit**
MEC. 039-040-041-042-043	**Collector mouthpiece ø 15 mm/ø 20 mm/ø 40 mm/ø 50 mm/ø 65 mm**	**pcs**
Description/ Specifications	Welding, and coating with two layers of red lead and two layers of oil paint, of flanged stubs prepared to fit the collector pipe described in the item 25.245.1100, the relevant project and Turkish Standards.	
Related official pose/item number, book	25.245.2001/2002/2005/2006/2007	

Item no:	**Item**	**Unit**
MEC. 050	**Cylindrical ventilation tank 5 lt.**	**pcs**
Description/ Specifications	Production of a cylindrical ventilation tank made of 3-mm sheet metal with the ends slightly convex and the ratio of length (L) to diameter (d) (L+d) between 2 and 3, installation on	

	consoles, connection to the system with flanges or bushes, coating with two layers of red lead and insulation (Based on the type image).
Related official pose/item number, book	25.245.2001/2002/2005/2006/2007

Item no:	**Item**	**Unit**
MEC. 051	**Steel, airtight expansion tank with replaceable diaphragm 500 lt**	**pcs**
Description/ Specifications	Airtight tank housing made of steel material (Min. TS EN 10025- 1/2/3/4/5 Fe 37-2) of the size and quality in compliance with TS EN 13831, and equipped with an expansion tank, gas filling valve, valve housing, water filling nozzle, membrane replacement flange,and a diaphragm (membrane) resistant to min. 100°C (diaphragm material: ethyl propylene, butyl, nitrile, natural and styrol-butadien rubber or their mixtures), which shall be cleaned in a cleaning bath with all surfaces applied phosphate and external surfaces coated by electrostatic method and oven-dried. Steel plate and diaphragm wall thickness shall be min. 2 mm Supply to the work site and installation of a tank with a gas chamber filled with inert gases (Nitrogen, Helium, etc.). Note: 1- Manufactured to comply with the Regulation 2014/68/AB on Pressure Equipment, and released with a CE compliance marking. 2- The tank's tightness shall be tested by pressurized water with 1.5 times the minimum operating pressure. Tanks with higher capacity than 50 Lt shall be equipped with pedestals that allow them to be installed on the floor.	
Related official pose/item number, book	25.255.2009	

Item no:	**Item**	**Unit**
MEC. 056	**Flanged Balance Tank 50 m^3/h, Ø323 , DN150**	**pcs**
Description/ Specifications	Supply to the work site and installation of a balance tank built to ensure thermal balance and hydraulic balance in heating and cooling systems, with maximum water speed of 0.2 m/sec. within the housing depending on the water flow specified in the project design, with water inlets and outlets as specified in the project design, and equipped with air discharge, sensor and drain nozzles, and a perforated sheet metal cell facing the water input nozzle inside the housing, which shall be operable at 110 °C and maximum operating pressure of 10 bars.	
Related official pose/item number, book	25.260.1210	

Item no:	**Item**	**Unit**
MEC. 033	**Floor-Type, Gas-Fueled Condensing Boiler With Premix Burner Q:125-149 kW**	**pcs**
Description/ Specifications	Manufactured as per the Directive 2016/426/EU on Appliances Burning Gaseous Fuels, released with a CE marking, equipped with the equipment complying with the standards TS EN 656 (for type b boilers with a nominal thermal load of 70 kW to 300 kW), TS EN 15502-2-1+A1 and TS EN 15502-2-2 (for type B1 flues), with the parts of the exchanger suitable to cascaded connections exposed to condensation made of corrosion-resistant material, with a premix-type (fully premixed) gas burner, a modulating fan, and a condensation water drainage outlet, which controls high and/or low temperature heating circuits and the boiler circuit, controlled by an electronic board, performs combustion by modulating the gas and air settings, equipped with safety systems compatible with the control system, and allows connection to any of the flue	

	types B23, B23p, B33, C13, C33, C43, C53, C83 compatible with the hermetically-sealed flue structure. An external neutralizer shall be added for the systems with a power rating higher than 200 kW. Supply to the work site, installation and delivery in working order of floor type boilers with the condensation fluid neutralized by a neutralization unit and drained to the sewerage network, which shall be capable of controlling the external air, internal air and boiler temperature, weekly operating schedule, etc. by means of internal or external control units. Note: The capacity for feed and return water temperatures of 50 C/30 C shall be taken as basis for the device capacity.
Related official pose/item number, book	25.214.6001

Item no:	**Item**	**Unit**
MEC. 053	**Insulated Stainless Steel Chimney Ø200**	**pcs**
Description/ Specifications	Stainless steel plating instead of aluminum sheet plating. Other specifications shall be the same as the item 25.288.5200, Diameter	
Related official pose/item number, book	25.288.5305	

Item no:	**Item**	**Unit**
MEC. 052	**Balans Tank 8 m3/h - Ø165 , DN65 flanged**	**pcs**
Description/ Specifications	Manufactured to provide thermal balancing and hydraulic balancing in heating and cooling systems, the water velocity in the body does not exceed 0,2 m / s according to the water flow specified in the project, the water inlet and outlet openings are as follows; supply and installation of the balance tank to the workplace with 110 C water and maximum 10 bar operating pressure.	
Related official pose/item number, book	25.260.1203	

Item no:	**Item**	**Unit**
MEC. 054-055-056-057-058-059-060-061-062	**Welded Pipes 1/2"/3/4"/1"/1 1/4"/1 1/2"/2"/2 1/2"/3"/4"**	**pcs**
Description/ Specifications	Supply to the work site and on-site installation of steel pipes in compliance with the 305/2011/EC Directive on Construction Materials and the 2014/68/ABDirective on Pressure Equipment, released to the market with CE compliance marking, including the pipe laying, pipe connections, labor, excluding painting and red lead in accordance with the relevant specification and project.	
Related official pose/item number, book	25.300.1101/1102/1103/1104/1105/1106/1107/1108/1109	

Item no:	**Item**	**Unit**
MEC. 071	**Steel Natural Gas Pipe 42.2/3.6**	**m**
Description/ Specifications	The supply to the work site and on-site installation of the steel natural gas pipes, manufactured in compliance with the Directive (97/23/EC) for Pressure Equipment, and released with a CE compliance marking, steel natural gas pipes in compliance with TS EN ISO 3183:2012:2013 made of Gr-A material for sizes smaller than Ø114.3 / 6.0 mm and made of Gr-B material for sizes bigger than Ø114.3 / 6.0 mm and above to be laid in accordance with the related specification and project including all the materials and labor for the fittings, the fittings materials and excluding the red lead paint, pipe installation material costs shall be paid on item numbers 201-400 and 201-500.	

Related official pose/item number, book	25.300.1604

Item no:	**Item**	**Unit**
MEC. 072	**PE Natural Gas Pipe 60.3**	**m**
Description/ Specifications	The supply to the work site and on-site installation of TS EN ISO 3183:2013-compliant natural gas pipes coated with polyethylene by using the TS 5139 and DIN 30670-compliant extrusion method, the laying of the pipes in accordance with the related specification and project including every kind of material used for making connections and the labor with fittings and fasteners. (Pipe installation material costs shall be paid on item numbers 201-400 and 201-500)	
Related official pose/item number, book	25.300.1706	

Item no:	**Item**	**Unit**
MEC. 063-064-065-066-067-068-069-070	**Welded Galvanized Pipe 1/2"/3/4"/1"/11/4"/11/2"/2"/21/2"/3"**	**m**
Description/ Specifications	Supply to the work site and on-site installation of steel pipes in compliance with the 305/2011/EC Directive on Construction Materials and the 2014/68/ABDirective on Pressure Equipment, released to the market with CE compliance marking, including the pipe laying, pipe connections, labor, excluding painting and red lead in accordance with the relevant specification and project.	
Related official pose/item number, book	25.300.1401/1402/1403/1404/1405/1406/1407/1408	

Item no:	**Item**	**Unit**
MEC. 081	**Polyethilene Pipe PE 100 Φ90**	**m**
Description/ Specifications	The supply to the work site and installation of polyethylene pipes in accordance with TS EN 12201-2: 2011 + A1.	
Related official pose/item number, book	25.305.7104	

Item no:	**Item**	**Unit**
MEC. 073-074-075-076	**PN 20 Polypropylene Pipe; 3/4"/1"/11/4"/11/2"**	**m**
Description/ Specifications	Polypropylene (PPR-C) in accordance with the TS EN ISO 15874-2, certified by the Ministry of Health for use as drinkable water pipes, their supply in work site, cutting in accordance with the project physio thermal welding with the fittings at a temperature of 260°C by squeezing. (Including all kinds of materials and labor for welding) The cost of installation materials shall be paid separately.	
Related official pose/item number, book	25.305.2102/2103/2104/2105	

Item no:	**Item**	**Unit**
MEC. 077-078-079-080	**Rigid PVC Plastic Drain Pipes ø 50/ø 75/ø 100/ø 125**	**m**

Description/ Specifications	Supply to the work site of rigid PVC plastic drain pipes in accordance with TS 1329-1, installation in its designated location as slip-on or stick-on bellmouth
Related official pose/item number, book	25.305.6101/6102/6103/6104

Item no:	**Item**	**Unit**
MEC. 082	**PE-Xa Pipe with Oxygen barrier, 16 x 2.0 mm**	**m**
Description/ Specifications	The supply to the work site and installation of the PE-Xa pipes, ISO A Series 5; for application classes 4 and 5; operating at maximum 95°C, 6 bar operating pressure, with a minimum crosslinking ratio of 70%, with peroxide additives; The necessary tests of polyethylene (PE-Xa) pipes with oxygen barrier (EVOH) in accordance with DIN 4726 and with the design. Nominal Outer Diameter (Ø mm)	
Related official pose/item number, book	25.305.8101	

Item no:	**Item**	**Unit**
MEC. 044-045-046-047	**1" Collector With Mini Ball Valve 6 outlets/10 outlets/11 outlets/12 outlets**	**pcs**
Description/ Specifications	The supply to the work site and installation of the collector (1 piece) of brass material used in the heating systems for the distribution or collection of the fluid. Note: The collector shall be provided with the outlet connection Ø16x2 mm and with valves.	
Related official pose/item number, book	25.245.3105/3109/3110/3111	

Item no:	**Item**	**Unit**
MEC. 085-086-087-088-089	**Ball valve with drain (column tap) ø 20 mm/25 mm/32 mm/40 mm/50 mm**	**pcs**
Description/ Specifications	Ball valve with drain (column tap); brass, screw, press-made, in compliance with TS 15 EN 1213, with drainage	
Related official pose/item number, book	25.320.1402/1403/1404/1405/1406	

Item no:	**Item**	**Unit**
MEC. 090-091-092-093-094-095	**Ball Valve Ø15 mm/20 mm/25 mm/32 mm/40 mm/50 mm**	**pcs**
Description/ Specifications	The supply to the work site and on-site installation in its designated location of ball valves , in compliance with the Directive 2014/68/ABon Pressure Equipment, with brass cut-off element, cast iron or stainless steel body, threaded, wafer, lug or flange, flow controlled by a ball, hand operated.	
Related official pose/item number, book	25.320.2101/2102/21032104/2105/2106	

Item no:	**Item**	**Unit**
MEC. 096-097	**Ball Valve Ø65 mm/80 mm**	**pcs**
Description/ Specifications	The supply to the work site and on-site installation in its designated location of ball valves , in compliance with the Directive 2014/68/ABon Pressure Equipment, with brass cut-off element, cast iron or stainless steel body, threaded, wafer, lug or flange, flow controlled by a ball, hand operated.	
Related official		

pose/item number, book	25.320.2507/2508

Item no:	**Item**	**Unit**
MEC. 118	**Circulating Pump with Variable Speed (Frequency Converter) and Wet Rotor (3- 6) m3/h (3 – 5) mss**	**pcs**
Description/ Specifications	The supply, on-site installation and delivery in working order of wet rotor circulation pumps mountable to straight pipes according to the "Decree for the Environmentally Sensitive Associated With the Circulation Pumps Without Glands Independent and Integrated to the Products" the circulation pumps with EEI≤0.23 energy efficiency index, below PN10 pressure class, with motors having self-protection against penning, overload and overheating, internal or external frequency converter, differential head suitable for Δp-c and Δp-V control modes, instantaneous power consumption operation and fault signal information can be displayed on it without the necessity of any extra equipment, automatic regulation scheme with an internal screen capable to adjust the differential head with a maximum of 0.5 m increments, the body material of the wet rotor circulation pumps with frequency converters to be at least TS 552 EN1561/ENGJL 200 (GG20), metal impregnated carbon bearings, impeller stainless steel or glass fiber reinforced polypropylene, pump shaft is made of a material conforming to TS EN 10088-3 standard and pump insulation class is at least IP43, motor protection class F, operating temperature range between -10°C / + 120°C according to the hot water circulation pumps class according to TF95.	
Related official pose/item number, book	25.350.3004	

Item no:	**Item**	**Unit**
MEC. 098-099-100-101-102-103	**Silt traps PN-16 for steam, die casting 1/2", ø 15 mm/20mm/25mm/32mm/40mm/50mm**	**pcs**
Description/ Specifications	The supply to the work site and installation of flanged or threaded type silt traps for use in the liquid, steam and gas systems, body made of brass, bronze, nodular cast iron, cat iron or steel, the filter element made of brass of stainless steel, filter easy to remove and clean. Note: Filter sensitivity: To be selected not to pass particles larger than 500 µm (0.5 mm) up to DN 20, larger than 700 µm (0.7 mm) up to DN 50, parts larger than 1200 µm (1.2 mm) DN 150.	
Related official pose/item number, book	25.325.1101/1102/1103/1104/1105/1106	

Item no:	**Item**	**Unit**
MEC. 104	**Silt traps PN-16 for steam, die casting 2 1/2", ø 65 mm**	**pcs**
Description/ Specifications	The supply to the work site and installation of flanged or threaded type silt traps for use in the liquid, steam and gas systems, body made of brass, bronze, nodular cast iron, cat iron or steel, the filter element made of brass of stainless steel, filter easy to remove and clean. Note: Filter sensitivity: To be selected not to pass particles larger than 500 µm (0.5 mm) up to DN 20, larger than 700 µm (0.7 mm) up to DN 50, parts larger than 1200 µm (1.2 mm) DN 150.	
Related official pose/item number, book	25.325.1307	

Item no:	**Item**	**Unit**
MEC. 113	**Rubber Vibration Absorber DN 125**	**pcs**
Description/ Specifications	The supply, on-site installation and delivery in working order of vibration absorbers with a partial angular lateral axial movement of 10 mm, made of rubber, with carbon steel flanges, to	

	be mounted between the devices and pipes in order to prevent the vibration of the pumps, compressors and similar device vibrations from passing to the pipe network and thus to prevent the sound and noise arising from the vibrations. (Working temperature + 0°C, +95°C)
Related official pose/item number, book	253321307

Item no:	**Item**	**Unit**
MEC. 114	**Flanged Air Separator Ø 65 mm**	**pcs**
Description/ Specifications	The supply to the work site and on-site installation of the air separators to discharge the air circulating in the heating system, made of brass or material in compliance with the standard TS ISO 1129, PN 16 class body, a stainless steel or equivalent air collecting screen in the air-water separator section, with a tap and automatic valve for venting the air on top of the body, operating at 120 C water temperature and maximum 10 bar operating pressure.	
Related official pose/item number, book	25.337.1302	

Item no:	**Item**	**Unit**
MEC. 116	**Flanged Sediment Separator Ø 65 mm**	**pcs**
Description/ Specifications	The supply to the work site and on-site installation of the sediment separators to discharge the sediment circulating in the heating system, made of stainless steel or material in compliance with the standard TS ISO 1129, PN 16 class body, a stainless steel or equivalent sediment collecting screen in the sediment separator section, with a ball valve for discharging the sediment on the bottom of the body, operating at 120 C water temperature and maximum 10 bar pressure.	
Related official pose/item number, book	25.337.2202	

Item no:	**Item**	**Unit**
MEC. 105-106-107-108	**Check Valve Brass die casting ø 20mm/25mm/40mm/50mm**	**pcs**
Description/ Specifications	The supply to the work site and on-site installation of check valves for use in hot and cold water installations, with brass, die cast or cast iron body, operating in horizontal or vertical position, hinged or seated flap or ball type.	
Related official pose/item number, book	25.325.2102/2103/2105/2106	

Item no:	**Item**	**Unit**
MEC. 109-110-111	**Check Valve Brass die casting ø 65mm/80mm/100mm**	**pcs**
Description/ Specifications	The supply to the work site and on-site installation of check valves for use in hot and cold water installations, with brass, die cast or cast iron body, operating in horizontal or vertical position, hinged or seated flap or ball type.	
Related official pose/item number, book	25.325.2301/2302/2303	

Item no:	**Item**	**Unit**
MEC. 112	**Safety valve; brass, spring type, threaded, PN 16 ø 40 mm**	**pcs**
Description/ Specifications	The delivery in working order of the safety devices manufactured in compliance with the Directive (97/23/EC) and released with TSE certificate of compliance, with the stainless steel stem, working	

	without jamming, with all the adjustments done.
Related official pose/item number, book	25.327.1105

Item no:	**Item**	**Unit**
MEC. 122-123-124-125-126-127-128-129	**Glass wool based prefabricated pipe insulation 3/4"/1"/11/2"/2"/21/2"/3"/5"**	**m**
Description/ Specifications	After the painting of the pipe with the red lead paint against corrosion, the insulation of the pipe with prefabricated pipe insulation material selected in conformance with the pipe outer diameter, the placing of the insulation material by widening the cut edge, binding with thin wire at every 30 cm (to be used for the piping systems with fluids at lower than 250°C temperature.) - Item 230-1200 unit price pose shall be used for cold fluid system pipes. - Red lead paint is not included in the unit price. Glass wool Pipe Outer Diameter Wall Thickness	
Related official pose/item number, book	25.400.2007/2008/2010/2020/2025/2044/2053/2070	

Item no:	**Item**	**Unit**
MEC. 119-120-121	**Pipe painting, with red lead paint Ø15 mm - Ø50 mm between (1/2" - 2")/(2"-4")/(4"-6")**	**m**
Description/ Specifications	Painting of free pipes with two coats of red lead paint	
Related official pose/item number, book	25.365.1101/1102/1103	

Item no:	**Item**	**Unit**
MEC. 130-131-132-133-134	**Cold line insulation with rubber based prefabricated pipe 3/4''/1"/11/4"/11/2"/2"**	**m**
Description/ Specifications	The products shall be in compliance with the Directive (305/2011/EC) on Construction Products and be released with CE compliance marking. prefabricated pipe insulation material produced by extrusion from pipe shaped elastomeric rubber foam based material conforming to the external diameter of pipes, to be used for the insulation of cold and lukewarm surfaces between -45°C and +105°C temperature, with a heat efficiency of (0 C)$\lambda \leq 0.040$ W/mK, water vapor diffusion resistance coefficient $\mu \geq 7000$, the fire reaction class is at least "normal flammable" according to TS EN 13501-1, with 40-75 kg/m^3 density in average, closed cell; and the cleaning of rust and dirt and painting with two coats of red lead paint of pipe surface to be insulated, after selecting according to the pipe outside diameter and fixing of two meters long prefabricated elastomeric insulation material with aluminum coating, sticking the two edges with an adhesive developed especially for polyethylene, affixing the joints of the pipe insulation material with self sticking elastomeric rubber band at every two meters, at the places where bonding can not be made (valves etc.), winding with self adhesive rubber band until the winding reach a thickness equal to the selected insulation thickness, where the prefabricated elastomeric rubber foam insulation material is used in outdoor environments, the use of specially produced paint for UV protection is mandatory in order to protect it against external effects and no extra price shall be paid for that. The supply and on-site installation of the aforesaid insulation material (excluding the price of red lead paint and UV paint). NOTE: The unit price including installation shall be raised by 7% if two layers of UV protection varnish is used. In addition, if the coating material is used, it is paid from the relevant unit price positions (4") For pipes with diameters larger than Ø114 mm, elastomeric rubber foam sheet shall be used at desired insulation thickness and payment shall be made on position 265-600.	

	The fire reaction class as well as λ and μ values shall be proven with test reports.
Related official pose/item number, book	25.400.5012/5018/5023/5028/5035

Item no:	**Item**	**Unit**
MEC. 135-136-137	**Sheet Coating on Pipe Isolation Coating diameter up to 50 mm/(50-100mm)/(100-150mm)**	**m**
Description/ Specifications	Following the installation of the pipe insulations on the heating / cooling systems in the form of smooth circular rolls, windings 3 cm snap-on (cord), at least two per piece, with 3 mm cylinder head screws, screwed at intervals of 20 cm, corner brackets (corded), (at least Ø80 up to 4 parts, Ø150 up to 6 pieces, Ø300 up to 8 pieces) and reductions are manufactured and assembled in conical shape at the work site. NOTE: 1- Prices do not include insulation materials, but only cover the sheet metal. 2- The pipe length (mt.) shall be taken as basis for dimensioning.	
Related official pose/item number, book	25.400.9201/9202/9203	

Item no:	**Item**	**Unit**
MEC. 138-139	**Roof-top radial aspirators Q: 4000 m3/h-1000 m3/h**	**pcs**
Description/ Specifications	Materials on construction site: 60%) (quality certified by TSE). Supply to the work site, installation, and delivery in working order, including electric motor, of roof-top ventilator described in the item 25.450.1000 with a metallic base for installation on the roof-top, and equipped with an esthetically pleasing hood to protect the motor from external effects. (Electrical wiring to be paid per the relevant unit prices) (Unit prices of other values shall be interpolated).	
Related official pose/item number, book	25.450.2104	

Item no:	**Item**	**Unit**
MEC. 140	**Ceiling Type Heat Recovery Vent. Device 3000 m3/h**	**pcs**
Description/ Specifications	It shall discharge the polluted air by a fan, replace it with filtered fresh air from outside by another fan, and transfer the energy of the discharged air to the fresh air by a built-in aluminum sheet heat recovery exchanger, with the fresh air and exhaust fans and filters, and heat recovery exchanger collected in the casing to constitute a compact structure. Exhaust and fresh air fans, and the device shall bear the CE compliance marking, and heat recovery exchangers shall be certified for compliance with TS EN 308. The pressure loss of the filters used in the devices at class G3 and above per TS EN ISO 16890 shall not exceed 30 Pa. Ceiling-type heat recovery devices shall fulfill min. 50% efficiency according to the measurements to be made in accordance with the TS EN 308 and as per the criteria provided in Article 10 of Section 17 of the Regulation on Energy Performance at Buildings, and the devices shall be equipped with a by-pass mechanism that operates in interior mode, exterior mode, and user-set temperature mode for economy at midseasons. The by-pass damper shall be driven by a motor to shut the damper automatically when the device is turned off to prevent undesirable air flow to the building. The devices shall be internally insulated against potential condensation, heat leakage and noise. The insulation material shall be attached to the device housing in a manner that prevents peeling of the insulation material without external intervention. The device with thermostatic protection against frost shall be installed with a control panel. (150- pa air flow rate shall be taken as basis for device capacities.)	
Related official pose/item	25.467.1105	

number, book	

Item no:	**Item**	**Unit**
MEC. 141	**Electric Heater Units for Ceiling Type Heat Recovery Device 12 kW**	**pcs**
Description/ Specifications	The wet heating surfaces of the radiators manufactured in compliance with the TS EN 442-1 and ISO 185 and released with a CE compliance marking shall have a wall thickness of min. 2.5 mm. Supply to the work site, and grouping and installation as prescribed in the project design of cast iron radiators composed of primer-coated sections or groups of sections and installed on feet or consoles. (Seals, nipple plugs and reducers to be used for grouping the sections are included in the price. No additional charge shall apply.) NOTE: 1- Acceptable tolerances shall be ±0.3 mm for the distance between axes, and ±2 mm for the full length and width. 2- They shall be tested and fixed to comply with the thermal power values of 75°C - 65°C (DT = 50°K). 3- Cast iron radiators shall be tested for tightness at min. 10 bars in their marketed form (in groups or sections).	
Related official pose/item number, book	25.467.1206	

Item no:	**Item**	**Unit**
MEC. 142	**Manufacture of rectangular ventilation ducts made of galvanized sheet metal 0.60 mm for those with the longest edge up to 600 mm (600 mm included)**	**M2**
Description/ Specifications	Rectangular ventilation ducts shall be manufactured by automatic machines designed for this purpose; the corner parts shall be equipped with built-in flanges or installed with flanges with integral mastic; the self-adhesive neoprene seal shall be placed along the lateral section of the flange; and fixed at appropriate intervals with G-clips or 140-mm metal clamping components. The Galvanized Sheet Metals to be used shall be in thicknesses specified below and plated with DX 51 D+Z 275 g/m^2 zinc as per TS-EN 10346. The ducts shall be tested for infiltration as per the pressure class specified by the designer in the project design, in order to achieve infiltration in compliance with the Regulation on Energy Performance of Buildings and TS-EN 1507 standard. Curvilinear vanes shall be installed on the inside of the brackets at tight turns; flexible fittings shall be installed on the connections to devices and apparatuses; production and assembly shall be made including any jointing and fixing material; profiles of appropriate size shall be used for suspension and fixing for the ducts that are wider than 499 mm; and anti-vibration materials shall be installed between the profile and the duct. Installation shall be made on the ceiling or on the wall with threaded suspension bars. 2- They shall be tested and fixed to comply with the thermal power values of 75°C - 65°C (DT = 50°K). 3- Cast iron radiators shall be tested for tightness at min. 10 bars in their marketed form (in groups or sections).	
Related official pose/item number, book	25.470.1101	

Item no:	**Item**	**Unit**
MEC. 143	**Ventilation ducts made of flexible pipes**	**M2**
Description/ Specifications	Supply and installation of semi-flexible ventilation ducts without thermal insulation manufactured by drawing together and coupling of min. 90-micron-thick pure aluminum strips, which has a temperature range of -30°C to +250°C, resistant to max. 2000 pa operating pressure, in compliance with TS EN 13180 with double clamp, which allows an air flow speed of max. 25 m/s.	

Related official pose/item number, book	25.470.5101

Item no:	**Item**	**Unit**
MEC. 144	**Ventilation ducts made of insulated flexible aluminum pipes**	**M2**
Description/ Specifications	Supply and installation of semi-flexible ventilation ducts with thermal insulation manufactured by drawing together and coupling of min. 90-micron-thick pure aluminum strips, which has a temperature range of -30°C to +250°C, resistant to max. 2000 operating pressure, in compliance with TS EN 13180 with double coupling, which allows an air flow speed of max. 25 m/s, is insulated with 2.5- cm glass wool mattress, and in compliance with the Building Fire Safety Directive as per TS EN 13501-1+A1.	
Related official pose/item number, book	25.470.5201	

Item no:	**Item**	**Unit**
MEC. 152	**External insulation of ducts with glass wool plate or mattresses coated with tin foil on one side**	**M2**
Description/ Specifications	Clearing the dust or impurities on the external surfaces of the ducts; sticking insulation retaining pins with self-adhesive base at 50-cm intervals depending on the duct size if the ducts are sized equivalent to two or more rows; fixing on the pins the factory-made glass wool or rock wool plates coated with tin foil on one side with the foil-coated side facing outside; placing and tightening the retaining washers on the pins and cutting off the protruding parts of the pins; covering the transverse and longitudinal joints of the plates or mats with 10-cm-wide, special, self-adhesive, reinforced tin foil, including any labor, for insulation of the ventilation ducts specified in the approved project design with glass wool with 50 kg/m³ density or rock wool plates with 70 kg/m³ density or glass wool mats with 24 kg/m³ density factory-coated with 2.5 to 5-cm-thick tin foil with craft paper and reinforced with glass yarn (No additional charges shall apply for rock wool). Insulation materials shall be in compliance with the Regulation (EU) No.305/2011 Construction Products - CPR and released with the CE compliance marking.	
Related official pose/item number, book	25.480.1402	

Item no:	**Item**	**Unit**
MEC. 145	**Collection grille 1601-2500 cm2**	**pcs**
Description/ Specifications	Installation and delivery in working order of an aluminum distribution grille coated in desired color, and with min. 22-mm frame, a single row of moving blades, an adjusting mechanism and sealing materials.	
Related official pose/item number, book	25.475.1204	

Item no:	**Item**	**Unit**
MEC. 147	**Blower Anemostat/Grille damper**	**pcs**
Description/ Specifications	Supply and installation of aluminum or sheet metal damper with opposing blades which shall be coated with electrostatic powder paint, installed in the interior of anemostats or grilles to adjust their air flow, and controlled by an external lever or screw.	
Related official		

pose/item number, book	25.475.6006

Item no:	**Item**	**Unit**
MEC. 148	**Absorption Anemostat/Grille damper**	**pcs**
Description/ Specifications	Supply and installation of aluminum or sheet metal damper with parallel blades which shall be coated with electrostatic powder paint, installed in the interior of anemostats or grilles to adjust their air flow, and controlled by an external lever or screw.	
Related official pose/item number, book	25.475.6204	

Item no:	**Item**	**Unit**
MEC. 149	**Sailor Anemostat Φ 100**	**pcs**
Description/ Specifications	Supply to the work site, installation with any installation material, and delivery in working order, of sailor type anemostats made of aluminum or DKP sheet manufactured by method of metal spinning and coated with oven-dried paint, for suction of air in bathrooms and toilets.	
Related official pose/item number, book	25.475.6501	

Item no:	**Item**	**Unit**
MEC. 150	**Louver; made of aluminum**	**M2**
Description/ Specifications	For installation on vents to be manufactured as per the approved detail drawings, complete with a frame, paint, installation, etc.	
Related official pose/item number, book	25.475.8102	

Item no:	**Item**	**Unit**
MEC. 151	**Wire net**	**M2**
Description/ Specifications	Supply and installation with frame of min. Ø1-mm galvanized wire net for installation on vents	
Related official pose/item number, book	25.475.8200	

Item no:	**Item**	**Unit**
MEC. 177	**Shelter Vantilator Q: 1600 m3/h-H: 350 pa**	**pcs**
Description/ Specifications	Duct shelter units shall be designed to be packaged, have adequate insulation and anti-condensation, have frost thermostat, and shall be designed to be mounted on the ceiling. The body of the unit shall be made of 1 mm thick galvanized sheet. Blower fan is made of galvanized sheet by using external rotor motor. The fan is also static and dynamic balanced. There are G4 or F7 cassette filters as pre-filters, activated carbon filter and radioactive hepa filter for hazardous time. System operation; It starts with the activation of the fan, normally the filter damper is in the closed position, the by-pass damper is in the open position and the fresh air sucked from the outside is pushed in through the cassette filter. In hazardous times, the by-pass damper is closed and the filter damper is open. Sucked fresh air is pushed through the cassette filter, activated carbon filter and hepa filter. Adjustable air damper is made by a single arm. By turning the lever, the by-pass damper opens, the hazard damper closes. When the lever is turned upside down the opposite of this process is performed. Supply and installation of duct type shelter. Shelter aspirator shall be duct type. Including all necessary materials and offcuts, loading, horizontal and vertical transport, unloading, labour, tool and equipment expenses, contractor profit and general expenses.	
Related official pose/item	N/A	

number, book	

Item no:	**Item**	**Unit**
MEC. 178	**Shelter Aspirator Q: 2700 m3/h-H: 300 pa**	**pcs**
Description/ Specifications	Shelter aspirator should be duct type and shall be designed to be mounted on the ceiling. The body of the unit shall be made of 1 mm thick galvanized sheet. Blower fan is made of galvanized sheet by using external rotor motor. The fan is also static and dynamic balanced. System operation; It starts with the activation of the fan, normally the filter damper is in the closed position, the by-pass damper is in the open position and the fresh air sucked from the outside is pushed in through the cassette filter. In hazardous times, the by-pass damper is closed and the filter damper is open. Sucked fresh air is pushed through the cassette filter, activated carbon filter and hepa filter. Adjustable air damper is made by a single arm. By turning the lever, the by-pass damper opens, the hazard damper closes. When the lever is turned upside down the opposite of this process is performed. Supply and installation of duct type shelter. Including all necessary materials and offcuts, loading, horizontal and vertical transport, unloading, labour, tool and equipment expenses, contractor profit and general expenses.	
Related official pose/item number, book	N/A	

Item no:	**Item**	**Unit**
MEC. 179	**Shelter Smoke Aspirator Q: 9350 m3/h-H: 350 pa**	**pcs**
Description/ Specifications	Shelter Smoke Evacuation Aspirator shall be used for smoke evacuation in case of emergency. Smoke extraction fan, axial type and according to EN 12101-3 shall be certified to withstand temperatures of 3000C for 2 hours. Fan blades shall be made of aluminum and the fan shall be in wireframe protection. All necessary materials and offcuts, including loading, horizontal and vertical transport, unloading, labour, tool and equipment expenses, contractor profit and general expenses.	
Related official pose/item number, book	N/A	

Item no:	**Item**	**Unit**
MEC. 176	**Split air conditioner, cassette type 7.1 kw cooling capacity, outdoor unit and copper piping included**	**Comp**
Description/ Specifications	1. cassette type air conditioner should consist of an outdoor unit and an indoor unit. 2. The cassette type air conditioner must be air-cooled condenser. 3. The cassette type air conditioner must be monophase, capable of working with 220-240V / 50Hz electricity. 4. The cassette type air conditioner should be capable of operating in heating, cooling, dehumidification, fan and automatic position according to the needs of the environment. 5. cassette type air conditioner should have panel option in black and white colors. The 6th cassette type air conditioner must have a weekly programmer. 7. The cassette type air conditioner should be able to be operated with a wired control with a large LCD display, where all function and temperature values are displayed. 8. cassette type air conditioner rated cooling capacity 26▪C (KT) -19▪C (YT) indoor, 43▪C (KT) outdoor conditions 6.8 kW, nominal heating capacity 20▪C (KT) indoor, 7▪ C (KT) -6▪C (YT) should be 7.5 kW in outdoor conditions. Split air conditioner should have inverter technology that reduces and increases the capacity of the environment and system according to the load it needs in cooling capacity of 3.2-8.0 kW heating and 3.5-8.9 kW capacity range. 9. cassette type air conditioner should be able to work with at least 3 different fan options. The sound pressure level of the indoor unit of the circular flow cassette air conditioner should be	

	maximum 30-32-35 dB (A) according to the fan speed (low-medium-high) in heating and cooling mode. 10. cassette type air conditioner should be able to work with at least 3 different fan options. 11. The cassette type air conditioner indoor unit must be compact. The circular flow cassette outdoor unit must be compact. 12. The cassette type air conditioner indoor unit should be able to oscillate automatically with horizontal air baffles. The 13th cassette must have air conditioning diagnostic system. The 14th cassette type air conditioner should be capable of automatically restarting after a power failure. 15. The cassette type air conditioner indoor unit must have at least 1 washable filter. 16. cassette type air conditioner outdoor unit sound pressure level shall not be higher than 48 dB (A) in cooling and 51 dB (A) in heating. The outdoor unit should have the technical means that the sound power level can be reduced to 45 dB (A). 17. The system compressor must be of high efficiency hermetically sealed swing type. 18. The system must have automatic defrosting (defrosting of the outdoor unit). 19. The system should be able to operate with the new generation of R32 refrigerant that does not harm the environment. 20. Depending on the installation location, the system should allow for a total installation of up to 55 meters (system equivalent 75 m) for the piping distance, up to 30 meters in vertical pipe distance, and up to 0.5 meters in distance between the two indoor units. 21. System efficiency should be determined according to Seasonal Productivity Regulations. Seasonal efficiency values should be minimum A ++ in cooling and minimum A + energy in heating. According to seasonal productivity values, SEER / SCOP values should be minimum 6.86 / 4.41 respectively. 22. The system should be capable of operating at -20 ° C / 52 ° C outdoor temperature zone during cooling. 23. The system should be capable of operating at -20 ° C / 18 ° C outdoor temperature zone. 24. The device shall be provided with a standard drain pump and kit with a minimum discharge head capacity of 675 mm to be used to discharge the drainage water. 25. Split air conditioner should bear CE mark. 26. The system must be under warranty for 3 years and the compressor for 5 years.
Related official pose/item number, book	N/A

Item no:	**Item**	**Unit**
MEC. 181	**Split air conditioner, cassette type 14 kw cooling capacity, outdoor unit and copper piping included**	**Comp**
Description/ Specifications	1. cassette type air conditioner should consist of an outdoor unit and an indoor unit. 2. The cassette type air conditioner must be air-cooled condenser. 3. The cassette type air conditioner must be monophase, capable of working with 220-240V / 50Hz electricity. 4. The cassette type air conditioner should be capable of operating in heating, cooling, dehumidification, fan and automatic position according to the needs of the environment. 5. cassette type air conditioner should have panel option in black and white colors. The 6th cassette type air conditioner must have a weekly programmer. 7. The cassette type air conditioner should be able to be operated with a wired control with a large LCD display, where all function and temperature values are displayed. 8. cassette type air conditioner rated cooling capacity 26‧C (KT) -19‧C (YT) indoor, 43‧C (KT) outdoor conditions 6.8 kW, nominal heating capacity 20‧C (KT) indoor, 7‧ C (KT) -6‧C (YT) should be 7.5 kW in outdoor conditions. Split air conditioner should have inverter technology that reduces and increases the capacity of the environment and system according to the load it needs in cooling capacity of 3.2-8.0 kW heating and 3.5-8.9 kW capacity range. 9. cassette type air conditioner should be able to work with at least 3 different fan options. The sound pressure level of the indoor unit of the circular flow cassette air conditioner should be maximum 30-32-35 dB (A) according to the fan speed (low-medium-high) in heating and	

	cooling mode. 10. cassette type air conditioner should be able to work with at least 3 different fan options. 11. The cassette type air conditioner indoor unit must be compact. The circular flow cassette outdoor unit must be compact. 12. The cassette type air conditioner indoor unit should be able to oscillate automatically with horizontal air baffles. The 13th cassette must have air conditioning diagnostic system. The 14th cassette type air conditioner should be capable of automatically restarting after a power failure. 15. The cassette type air conditioner indoor unit must have at least 1 washable filter. 16. cassette type air conditioner outdoor unit sound pressure level shall not be higher than 48 dB (A) in cooling and 51 dB (A) in heating. The outdoor unit should have the technical means that the sound power level can be reduced to 45 dB (A). 17. The system compressor must be of high efficiency hermetically sealed swing type. 18. The system must have automatic defrosting (defrosting of the outdoor unit). 19. The system should be able to operate with the new generation of R32 refrigerant that does not harm the environment. 20. Depending on the installation location, the system should allow for a total installation of up to 55 meters (system equivalent 75 m) for the piping distance, up to 30 meters in vertical pipe distance, and up to 0.5 meters in distance between the two indoor units. 21. System efficiency should be determined according to Seasonal Productivity Regulations. Seasonal efficiency values should be minimum A ++ in cooling and minimum A + energy in heating. According to seasonal productivity values, SEER / SCOP values should be minimum 6.86 / 4.41 respectively. 22. The system should be capable of operating at -20 ° C / 52 ° C outdoor temperature zone during cooling. 23. The system should be capable of operating at -20 ° C / 18 ° C outdoor temperature zone. 24. The device shall be provided with a standard drain pump and kit with a minimum discharge head capacity of 675 mm to be used to discharge the drainage water. 25. Split air conditioner should bear CE mark. 26. The system must be under warranty for 3 years and the compressor for 5 years.
Related official pose/item number, book	N/A

Item no:	**Item**	**Unit**
MEC. 182	**Multi split air conditioner, 5.3 kw outdoor unit, indoor units and copper piping included.**	**Comp**
Description/ Specifications	1. The outdoor unit shall be compact. 2. A maximum of 5 indoor units can be connected to the outdoor unit; all indoor units shall be individually controllable and should not be installed in the same room or at the same time. Different types of indoor units shall be connectable. 3. Outdoor unit should be able to work with 230V / 50Hz electricity. The indoor unit shall be powered from the outdoor unit. 4. Depending on the installation location, the outdoor unit shall be capable of 75 meters of copper piping in the system. It should also be able to allow 15 meters for the difference in elevation between the indoor and outdoor units. The farthest indoor unit distance to be connected to the outdoor unit is min. 25 meters. 5. The outdoor unit shall be air-cooled condenser. 6. The outdoor unit shall be equipped with a delayed start device to protect the compressor. 7. The outdoor unit should be capable of operating in heating, cooling, dehumidification, fan and automatic position according to the needs of the environment. 8. Outdoor unit operating range: dry thermometer at cooling -10 ° C / 46 ° C, wet thermometer at heating should be at -15 ° C / 18 ° C outdoor temperatures. 9. The outdoor unit shall be capable of connecting up to 12 kW total device capacity. 10. The outdoor unit shall operate with refrigerant R32, which is environmentally friendly. 13. The outdoor unit energy label shall be at maximum A +++, minimum A according to the	

	combination. 14. The sound pressure level of the outdoor unit should be no more than 55 dB (A) in cooling and no more than 55 dB (A) in heating.The outdoor unit's sound power level should be no more than 68 dB (A) in cooling and no more than 68 dB (A) in heating. 16. My outdoor unit shall have the ability to defrost the automatic outdoor unit. 17. The stand-by position of the outdoor unit shall be energy-saving. 18. The outdoor unit shall be capable of restarting the old operation function after power outages. 19. The outdoor unit shall have a diagnostic system. 20. The electronic board (PCB) of the outdoor unit shall be specially coated against external contaminants. 21. The outdoor unit compressor shall be high efficiency, hermetic sealed swing type with inverter technology. 22. The outdoor unit shall be microprocessor controlled. 23. The outdoor unit shall be guaranteed for a minimum of 3 years and the compressor for a minimum of 5 years. 24. The outdoor unit shall be tested. Manufacturer's ISO, CE certification of the device shall be done. 25. The product shall be certified by EUROVENT.
Related official pose/item number, book	N/A

Item no:	**Item**	**Unit**
MEC. 183	**Multi split air conditioner, 7 kw outdoor unit, indoor units and copper piping included.**	**Comp**
Description/ Specifications	1. The outdoor unit shall be compact. 2. A maximum of 5 indoor units can be connected to the outdoor unit; all indoor units shall be individually controllable and should not be installed in the same room or at the same time. Different types of indoor units shall be connectable. 3. Outdoor unit should be able to work with 230V / 50Hz electricity. The indoor unit shall be powered from the outdoor unit. 4. Depending on the installation location, the outdoor unit shall be capable of 75 meters of copper piping in the system. It should also be able to allow 15 meters for the difference in elevation between the indoor and outdoor units. The farthest indoor unit distance to be connected to the outdoor unit is min. 25 meters. 5. The outdoor unit shall be air-cooled condenser. 6. The outdoor unit shall be equipped with a delayed start device to protect the compressor. 7. The outdoor unit should be capable of operating in heating, cooling, dehumidification, fan and automatic position according to the needs of the environment. 8. Outdoor unit operating range: dry thermometer at cooling -10 ° C / 46 ° C, wet thermometer at heating should be at -15 ° C / 18 ° C outdoor temperatures. 9. The outdoor unit shall be capable of connecting up to 12 kW total device capacity. 10. The outdoor unit shall operate with refrigerant R32, which is environmentally friendly. 13. The outdoor unit energy label shall be at maximum A +++, minimum A according to the combination. 14. The sound pressure level of the outdoor unit should be no more than 55 dB (A) in cooling and no more than 55 dB (A) in heating.The outdoor unit's sound power level should be no more than 68 dB (A) in cooling and no more than 68 dB (A) in heating. 16. My outdoor unit shall have the ability to defrost the automatic outdoor unit. 17. The stand-by position of the outdoor unit shall be energy-saving. 18. The outdoor unit shall be capable of restarting the old operation function after power outages. 19. The outdoor unit shall have a diagnostic system. 20. The electronic board (PCB) of the outdoor unit shall be specially coated against external contaminants. 21. The outdoor unit compressor shall be high efficiency, hermetic sealed swing type with	

	inverter technology. 22. The outdoor unit shall be microprocessor controlled. 23. The outdoor unit shall be guaranteed for a minimum of 3 years and the compressor for a minimum of 5 years. 24. The outdoor unit shall be tested. Manufacturer's ISO, CE certification of the device shall be done. 25. The product shall be certified by EUROVENT.
Related official pose/item number, book	N/A

Item no:	**Item**	**Unit**
MEC. 184	**Multi split air conditioner, 9.6 kw outdoor unit, indoor units and copper piping included.**	**Comp**
Description/ Specifications	1. The outdoor unit shall be compact. 2. A maximum of 5 indoor units can be connected to the outdoor unit; all indoor units shall be individually controllable and should not be installed in the same room or at the same time. Different types of indoor units shall be connectable. 3. Outdoor unit should be able to work with 230V / 50Hz electricity. The indoor unit shall be powered from the outdoor unit. 4. Depending on the installation location, the outdoor unit shall be capable of 75 meters of copper piping in the system. It should also be able to allow 15 meters for the difference in elevation between the indoor and outdoor units. The farthest indoor unit distance to be connected to the outdoor unit is min. 25 meters. 5. The outdoor unit shall be air-cooled condenser. 6. The outdoor unit shall be equipped with a delayed start device to protect the compressor. 7. The outdoor unit should be capable of operating in heating, cooling, dehumidification, fan and automatic position according to the needs of the environment. 8. Outdoor unit operating range: dry thermometer at cooling -10 ° C / 46 ° C, wet thermometer at heating should be at -15 ° C / 18 ° C outdoor temperatures. 9. The outdoor unit shall be capable of connecting up to 12 kW total device capacity. 10. The outdoor unit shall operate with refrigerant R32, which is environmentally friendly. 13. The outdoor unit energy label shall be at maximum A +++, minimum A according to the combination. 14. The sound pressure level of the outdoor unit should be no more than 55 dB (A) in cooling and no more than 55 dB (A) in heating.The outdoor unit's sound power level should be no more than 68 dB (A) in cooling and no more than 68 dB (A) in heating. 16. My outdoor unit shall have the ability to defrost the automatic outdoor unit. 17. The stand-by position of the outdoor unit shall be energy-saving. 18. The outdoor unit shall be capable of restarting the old operation function after power outages. 19. The outdoor unit shall have a diagnostic system. 20. The electronic board (PCB) of the outdoor unit shall be specially coated against external contaminants. 21. The outdoor unit compressor shall be high efficiency, hermetic sealed swing type with inverter technology. 22. The outdoor unit shall be microprocessor controlled. 23. The outdoor unit shall be guaranteed for a minimum of 3 years and the compressor for a minimum of 5 years. 24. The outdoor unit shall be tested. Manufacturer's ISO, CE certification of the device shall be done. 25. The product shall be certified by EUROVENT.	
Related official pose/item number, book	N/A	

Item no:	**Item**	**Unit**

MEC. 153	**Air duct type temperature sensing element**	**pcs**
Description/ Specifications	Supply on site, installation to the place, making electrical connections and delivery in working condition of every type temperature sensing element together with all parts including cover, immersion tubes and bushes that are named based on area of use and installation type, with changing resistance depending on the temperature change in the location of monitoring element, without temperature adjustment button.	
Related official pose/item number, book	25.552.1102	

Item no:	**Item**	**Unit**
MEC. 154	**Immersion type electronic sensing element, up to 120°C**	**pcs**
Description/ Specifications	Supply on site, installation to the place, making electrical connections and delivery in working condition of every type temperature sensing element together with all parts including cover, immersion tubes and bushes that are named based on area of use and installation type, with changing resistance depending on the temperature change in the location of monitoring element, without temperature adjustment button.	
Related official pose/item number, book	25.552.1103	

Item no:	**Item**	**Unit**
MEC. 155	**Outside air type temperature sensing element**	**pcs**
Description/ Specifications	Supply on site, installation to the place, making electrical connections and delivery in working condition of every type temperature sensing element together with all parts including cover, immersion tubes and bushes that are named based on area of use and installation type, with changing resistance depending on the temperature change in the location of monitoring element, without temperature adjustment button.	
Related official pose/item number, book	25.552.1105	

Item no:	**Item**	**Unit**
MEC. 156	**Proportionally controlled electronic hot water control panel**	**pcs**
Description/ Specifications	Supply on site, installation to the place, making electrical connections and delivery in working condition of electronic hot water control panel together with digital indicator that receives warning from the outside air inflow water or electronic temperature sensing elements in the boiler, that controls boiler or motorized valve or pump in order to adjust inflow water or boiler water temperature depending on the outside water temperature within a predefined program, that has the necessary buttons and potentiometers in order to determine the program, that can program daily (24-hour) and weekly, that has summer-winter access function, that ensures operation without electricity cut.	
Related official pose/item number, book	25.555.1002	

Item no:	**Item**	**Unit**
MEC. 158	**Three-way, PN 10, threaded control valve body DN 25**	**pcs**
Description/ Specifications	Resistant to at least 10 atmospheric pressures up to 100°C and to 8 atmospheric pressures up to 110°C, other features are as in item 25.565.2000.	
Related official pose/item number, book	25.565.2203	

Item no:	**Item**	**Unit**

MEC. 157	**Proportional Servomotors for valves with DN 25 to DN 40 diameters**	**pcs**
Description/ Specifications	Supply on site, installation to the place, making electrical connections and delivery in working condition of the electromechanical servomotor together with all equipment pieces that locates the connected valve or damper with linear or rotary movement proportionally with the proportional warning (signal) received from the relevant control device.	
Related official pose/item number, book	25.560.1202	

Item no:	Item	Unit
MEC. 159	**Fire Cabinets With Cylinders (DN 25 - 30 m)**	**pcs**
Description/ Specifications	Reel: Manufactured in compliance with the Directive 97/23/EC) on Pressure Equipment, in compliance with the standard TS EN 671- 1. TS EN 671-2, the Regulation (EU) No.305/2011 Construction Products - CPR, released with CE compliance marking, consisting of two steel discs with a maximum diameter of 800 mm and a circular inner piece with a diameter not less than 200 mm and a drum for hoses with a diameter of 25 mm. Hose: Round, semi-rigid, conforming to the standard TS EN 694 + A1, hose diameter 25 mm and length not exceeding 30 m. Nozzle: Can be shut-off, with water jet or spray options, conforming to the standard TS EN 671-1, 671- 2. Fire water valve: Hand operated, DN50 diameter, with coupling, valve and coupling in conformance with TS 12258, 12259, cabinet in appropriate sizes as to take all the equipment, use of warning signs in conformance with the Directive (92/58/EEC) on Minimum Requirements For Safety and/or Health Signs In Work Sites. Note: For the portable extinguishers, the supply and on-site installation of the cylinder with 6 kg ABC type dry powder inside in compliance with TS 862 EN 3.	
Related official pose/item number, book	25.700.1203	

Item no:	Item	Unit
MEC. 169	**Water Flow Switch DN 80**	**pcs**
Description/ Specifications	The supply, on-site installation in accordance with the design and technical specification and delivery in working order of the flow switch, which in case of any water usage from the watered fire fighting system, provides the electrical contact output at the preset flow rate by way of a flexible flap entering into the pipe through a hole opened on the pipe, pressed into the pipe with U clamp.	
Related official pose/item number, book	25.715.4306	

Item no:	Item	Unit
MEC. 165	**Outside air type temperature sensing element**	**pcs**
Description/ Specifications	The supply and on-site installation of the butterfly valve in accordance with the design and the technical specification, suitable for inlet / outlet connection, 175 PSI pressure class, opened with geared handwheel, cast iron body, bronze disc, position indicator, TKCY monitoring key.	
Related official pose/item number, book	25.715.3104	

Item no:	Item	Unit
MEC. 166	**Addition Of PN 16 Pressure Class**	**pcs**
Description/ Specifications	Addition Of PN 16 Pressure Class	
Related official pose/item number, book	25.715.3501	

Item no:	Item	Unit
MEC. 167	**Traceable Butterfly Valve With Rising Spindle DN 80**	**pcs**
Description/ Specifications	The supply, on-site installation in accordance with the design and technical specification and delivery in working order of the check valve, inlet / outlet flanged, 175 PSI pressure class, size DN 100, TKCY monitoring key and compression screw nuts, with rising spindle.	
Related official pose/item number, book	25.715.4104	

Item no:	Item	Unit
MEC. 168	**Fire Check Valve DN 80**	**pcs**
Description/ Specifications	The supply, on-site installation in accordance with the design and technical specification and delivery in working order of the check valve with flap, inlet / outlet with threaded connection, 175 PSI pressure class, cast iron body, bronze disc, size DN 100.	
Related official pose/item number, book	25.715.4206	

Item no:	Item	Unit
MEC. 160	**Connection Port For Fire Brigade**	**pcs**
Description/ Specifications	The supply and installation in accordance with the design and technical specification of the connection port for fire brigade made of brass, fire brigade connection DN65 x DN65 Storz, system connection diameter DN100 with protective cover, wall with bronze rosette and DN15 drip valve.	
Related official pose/item number, book	25.712.1000	

Item no:	Item	Unit
MEC. 161	**Addition Of Drip Valve**	**pcs**
Description/ Specifications	Addition Of Drip Valve	
Related official pose/item number, book	25.712.1101	

Item no:	Item	Unit
MEC. 162	**Addition Of Back Plate**	**pcs**
Description/ Specifications	Addition Of Back Plate	
Related official pose/item number, book	25.712.1102	

Item no:	Item	Unit
MEC. 163	**Addition of Fire Brigade Information**	**pcs**
Description/ Specifications	Addition of Fire Brigade Information	
Related official pose/item number, book	25.712.1103	

Item no:	Item	Unit

MEC. 164	**FLOW LIMITING DIFFERENTIAL PRESSURE INSPECTION VALVE 25 mm/32mm**	**pcs**
Description/ Specifications	Addition Of PN 16 Pressure Class	
Related official pose/item number, book	25.712.1104	

Item no:	**Item**	**Unit**
MEC. 170	**Electrical Fire Pump 12 m3/h & 80 mSS**	**pcs**
Description/ Specifications	The installation of the fire pump manufactured in compliance with the Directive (2006/42/EC) on Machinery, released with CE compliance marking, with bronze impeller, stainless steel spindle, the differential head at closed outlet (zero flow) becoming 140% of the nominal differential head, the head at 150% nominal flow becoming not less than 65% of the nominal differential head, chosen to meet the system requirements at the required pressure value and with a capacity at maximum 130% of the nominal flow rate, together with the electric motor, pump body, base, automatic electrical pressurestat mounted inside the control panel enabling the automatic and manual operation depending on the pump system pressure and with the control panel, in conformance with the design and technical specifications. 1- The values specified in the approved design shall be taken into consideration in the selection and procurement of the pumps.	
Related official pose/item number, book	25.720.1202	

Item no:	**Item**	**Unit**
MEC. 171	**Jockey pump 2 m3/h & 90 mSS**	**pcs**
Description/ Specifications	The supply and installation of leak elimination pumps manufactured in compliance with the Fire Directive and the Directive (2006/42/EC) on Machinery, released with CE compliance marking, to be used to keep the pressure constant against small leaks and pressure fluctuations in the watered fire fighting systems, direct or star-delta start, hydrant fire extinguishing system, operating pressure selected 1 bar higher than the fire fighting system's pressure demand, with vertical spindle, multistage, stainless steel impellers together with the electric motor, pump body, base and the electric control panel in conformance with the design and technical specification. Nominal Flow Nominal Differential Head	
Related official pose/item number, book	25.720.4110	

Item no:	**Item**	**Unit**
MEC. 172	**Pump flowmeter DN 80**	**pcs**
Description/ Specifications	The supply, on-site installation in conformance with the design and technical specification and deliver in working order of the pump test flowmeter with Annubar, Venturi or Orifice plate measuring principle, at least PN10 pressure class, measuring connection hose, wall fixing element, gauge with analogue display.	
Related official pose/item number, book	25.720.7201	

Item no:	**Item**	**Unit**
MEC. 180	**Relief Valve DN 80**	**pcs**
Description/	Supply and installation of 80 mm diameter, GG 25 cast iron body and cover, flange connection,	

Specifications	rubber diaphragm, pressure relief valve with maximum working pressure of 16 bars and maximum working pressure of 80 C, with all kinds of fittings (flanges etc.). All necessary materials and offcuts, including loading, horizontal and vertical transport, unloading, labour, tool and equipment expenses, contractor profit and general expenses.
Related official pose/item number, book	N/A

Bill 3. Electric Works

Bill 3.1. Lighting System and Sockets

Item no:	**Item**	**Unit**
ELC.001	**Impulse current switch controlled outlet branch: (Unit: Qty., Materials on construction site: 60%) (with materials certified for compliance with TS and CE)**	**pcs**
Description/ Specifications	Supply, transportation to the work site, and delivery in working order, including any material and labor, of the installation through a PVC pipe of an outlet line including light switches, junction boxes, terminal blocks and fixture blocks, with branch lines installed with conductors that are minimum 2.5 mm^2 in section and outlet lines with conductors that are minimum 1.5 mm^2 in section, which shall be controlled by a flush-mounted or surface-mounted impulse current switch. Unit: The number of light switches shall be taken, and parallel outlet branches, fixtures and impulse current breakers shall be paid separately per the relevant items.	
Related official pose/item number, book	35.160.1180	

Item no:	**Item**	**Unit**
ELC.002	**1 NA 16 A with 1 contact - Controller voltage: 230 V.**	**pcs**
Description/ Specifications	Remote controlled impulse current switch and its installation (Unit: Qty., Materials on construction site: 60%) Supply, transportation to the work site, installation in the designated location, establishment of connections, and delivery, including any material and labor, of an impulse current switch in IP 20 degree of protection and bearing TS EN 60669-2-2 and CE compliance markings, which shall be capable of turning on and off a lamp or a group of lamps connected in parallel to each other from two or more locations (switching by a light the location of the contacts at each impulse of the current that reaches it), being equipped with an auxiliary switch block where necessary, being controlled "manually" on the unit, performing by optional modules the functions of central control, switching based on time and status monitoring in addition to local controls, operating at an operation temperature of -10 to +40ºC, which shall be equipped with an indicator indicates the status of the contacts, capable of switching on and off minimum 50,000 times on load, and available for installation on a standard 35-mm DIN rail. Unit: The number of relays shall be taken.	
Related official pose/item number, book	35.125.3001	

Item no:	**Item**	**Unit**
ELC.003	**Flush-mounted LED ceiling fixtures sized minimum 60x60 (with minimum 3300 lm light flux, and maximum 36 w consumption).**	**pcs**
Description/	LED Ceiling Fixtures	

Specifications	Supply to the work site, and delivery in working order, including any material, labor and installation, of fixtures of minimum IP 40 degree of protection, and with a body made of minimum 0.5-mm DKP sheet metal and frame made of minimum 0.7-mm-thick DKP sheet metal and an opal PMMA diffuser minimum 1-mm in thickness.
Related official pose/item number, book	35.170.1106

Item no:	**Item**	**Unit**
ELC.004	**Surface-mounted LED ceiling fixtures sized minimum 60x60 (with minimum 3300 lm light flux, and maximum 36 w consumption).**	**pcs**
Description/ Specifications	LED Ceiling Fixtures Supply to the work site, and delivery in working order, including any material, labor and installation, of fixtures of minimum IP 40 degree of protection, and with a body made of minimum 0.5-mm DKP sheet metal and frame made of minimum 0.7-mm-thick DKP sheet metal and an opal PMMA diffuser minimum 1-mm in thickness.	
Related official pose/item number, book	35.170.1105	

Item no:	**Item**	**Unit**
ELC.005	**Minimum 12,750 lm light flux, maximum 150 W consumption.**	**pcs**
Description/ Specifications	LED Projectors Supply to the work site, and delivery in working order, including any material and labor, of projectors with body and front glass frame made of injected cast aluminum, which shall be coated with oven- dried paint, equipped a tempered front glass, resistant to 250ºC temperature and impacts, certified with minimum IP 65 and IK 09 degree of protection, operable at -20ºC to +85Cº, provided with the components necessary for installation (on ceiling, wall or floor), and released with the CE compliance marking in compliance as per the standard TS EN 60598-2-5 and the 2014/35/EU Low Voltage Directive (LVD). Note: To be equipped with an ENEC-certified driver with a PFC value of 0.95. LEDs must be IESNA LM-80 certified. They shall have a life cycle of minimum 50,000 (L70) hours per the TM-21 calculation table, the color rendering index (CRI) of the fixtures shall be minimum 65. The projectors shall be awarded a photometric measurement report as per IESNA LM-79 standards by an accredited laboratory, and IP degree of protection shall be tested as per the TS 3033 EN 60529 standard and IK degree of protection shall be tested as per the TS EN 62262 standard.	
Related official pose/item number, book	35.170.4005	

Item no:	**Item**	**Unit**
ELC.006	**Single switch outlet branch**	**pcs**
Description/ Specifications	Lighting outlet line with halogen-free cable and safety line: (Unit: Qty. Materials on construction site: 60%) (Halogen-free, flame-retardant, plastic isolated (HO7Z,O7Z1) pipe outlets with security lines, complying with the standards TS EN 60332-1-2, TS EN 60754- 1/2 and TS EN 61034-2, and bearing CE marking shall be included in the price) Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union. Unit: No additional charge shall apply unless the length of the branch exceeds 35 m. The part of the branch line exceeding 35 m shall be charged as a supply line per the Unit Price No. 35.150.1000. The single switch outlet branch shall be considered the only outlet for normal and chandelier outlet	

	branches. Additional outlet branches connected to those outlet branches shall be considered parallel. Two two-way switches and an outlet branch shall be considered a two-way outlet branch, and other outlet branches connected to it shall be considered parallel outlet branches. Deviator switches shall be paid separately per the relevant unit price. The first two of the outlet branches controlled by a commutator switch, which are at the same location, shall be considered dual switch outlet branches, and the rest, parallel outlet branches. Where a breaker is used instead of a switch, the price of the switch shall be deducted, and also the price of the breaker shall be paid. A 3-phase outlet branch is similar to a single switch outlet branch where each fixture is supplied power by 3 phases and 4 or 5 conductors. Switch contactor and contactor controller lines of a 3-phase outlet shall be paid separately. Where each fixture is supplied through a different phase, the first outlet branch shall be charged as single-outlet regular, and other outlet branches connected thereto shall be charged as single-phase parallel outlet branch. Fixtures shall be paid separately per the unit price no. 35.170.0000
Related official pose/item number, book	35.160.3201

Item no:	**Item**	**Unit**
ELC.007	**Dual switch outlet branch**	**pcs**
Description/ Specifications	Lighting outlet line with halogen-free cable and safety line: (Unit: Qty. Materials on construction site: 60%) (Halogen-free, flame-retardant, plastic isolated (HO7Z,O7Z1) pipe outlets with security lines, complying with the standards TS EN 60332-1-2, TS EN 60754- 1/2 and TS EN 61034-2, and bearing CE marking shall be included in the price) Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union. Unit: No additional charge shall apply unless the length of the branch exceeds 35 m. The part of the branch line exceeding 35 m shall be charged as a supply line per the Unit Price No. 35.150.1000. The single switch outlet branch shall be considered the only outlet for normal and chandelier outlet branches. Additional outlet branches connected to those outlet branches shall be considered parallel. Two two-way switches and an outlet branch shall be considered a two-way outlet branch, and other outlet branches connected to it shall be considered parallel outlet branches. Deviator switches shall be paid separately per the relevant unit price. The first two of the outlet branches controlled by a commutator switch, which are at the same location, shall be considered dual switch outlet branches, and the rest, parallel outlet branches. Where a breaker is used instead of a switch, the price of the switch shall be deducted, and also the price of the breaker shall be paid. A 3-phase outlet branch is similar to a single switch outlet branch where each fixture is supplied power by 3 phases and 4 or 5 conductors. Switch contactor and contactor controller lines of a 3-phase outlet shall be paid separately. Where each fixture is supplied through a different phase, the first outlet branch shall be charged as single-outlet regular, and other outlet branches connected thereto shall be charged as single-phase parallel outlet branch. Fixtures shall be paid separately per the unit price no. 35.170.0000	
Related official pose/item number, book	35.160.3202	

Item no:	**Item**	**Unit**

ELC.008	Two-way Outlet Branch	pcs
Description/ Specifications	Lighting outlet line with halogen-free cable and safety line: (Unit: Qty. Materials on construction site: 60%) (Halogen-free, flame-retardant, plastic isolated (HO7Z,O7Z1) pipe outlets with security lines, complying with the standards TS EN 60332-1-2, TS EN 60754- 1/2 and TS EN 61034-2, and bearing CE marking shall be included in the price) Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union. Unit: No additional charge shall apply unless the length of the branch exceeds 35 m. The part of the branch line exceeding 35 m shall be charged as a supply line per the Unit Price No. 35.150.1000. The single switch outlet branch shall be considered the only outlet for normal and chandelier outlet branches. Additional outlet branches connected to those outlet branches shall be considered parallel. Two two-way switches and an outlet branch shall be considered a two-way outlet branch, and other outlet branches connected to it shall be considered parallel outlet branches. Deviator switches shall be paid separately per the relevant unit price. The first two of the outlet branches controlled by a commutator switch, which are at the same location, shall be considered dual switch outlet branches, and the rest, parallel outlet branches. Where a breaker is used instead of a switch, the price of the switch shall be deducted, and also the price of the breaker shall be paid. A 3-phase outlet branch is similar to a single switch outlet branch where each fixture is supplied power by 3 phases and 4 or 5 conductors. Switch contactor and contactor controller lines of a 3-phase outlet shall be paid separately. Where each fixture is supplied through a different phase, the first outlet branch shall be charged as single-outlet regular, and other outlet branches connected thereto shall be charged as single-phase parallel outlet branch. Fixtures shall be paid separately per the unit price no. 35.170.0000	
Related official pose/item number, book	35.160.3203	

Item no:	Item	Unit
ELC.009	Parallel Outlet Branch	pcs
Description/ Specifications	Lighting outlet line with halogen-free cable and safety line: (Unit: Qty. Materials on construction site: 60%) (Halogen-free, flame-retardant, plastic isolated (HO7Z,O7Z1) pipe outlets with security lines, complying with the standards TS EN 60332-1-2, TS EN 60754- 1/2 and TS EN 61034-2, and bearing CE marking shall be included in the price) Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union. Unit: No additional charge shall apply unless the length of the branch exceeds 35 m. The part of the branch line exceeding 35 m shall be charged as a supply line per the Unit Price No. 35.150.1000. The single switch outlet branch shall be considered the only outlet for normal and chandelier outlet branches. Additional outlet branches connected to those outlet branches shall be considered parallel. Two two-way switches and an outlet branch shall be considered a two-way outlet branch, and other outlet branches connected to it shall be considered parallel outlet branches. Deviator switches shall be paid separately per the relevant unit price. The first two of the outlet branches controlled by a commutator switch, which are at the same location, shall be considered dual switch outlet branches, and the rest, parallel outlet branches. Where a breaker is used instead of a switch, the price of the switch shall be deducted, and also the	

	price of the breaker shall be paid. A 3-phase outlet branch is similar to a single switch outlet branch where each fixture is supplied power by 3 phases and 4 or 5 conductors. Switch contactor and contactor controller lines of a 3-phase outlet shall be paid separately. Where each fixture is supplied through a different phase, the first outlet branch shall be charged as single-outlet regular, and other outlet branches connected thereto shall be charged as single-phase parallel outlet branch. Fixtures shall be paid separately per the unit price no. 35.170.0000
Related official pose/item number, book	35.160.3204

Item no:	**Item**	**Unit**
ELC.010	**Power socket outlet branch for the security line.**	**pcs**
Description/ Specifications	Power socket outlet line with halogen-free cables: (Unit: Qty. Materials on construction site: 60%) Supply, transportation to the work site, and installation of complete power socket outlet lines, including any material and labor, of junction boxes, terminal blocks, power sockets within halogen-free, flame-retardant pipes with branch and outlet lines minimum 2.5 mm^2 in section, phase, neutral and safety conductors for the sockets with phase, neutral and safety line colored per TS EN 60445 and plastic insulated (HO7Z, O7Z1). (Halogen-free, flame-retardant pipe outlets complying with the standards TS EN 60332-1-2, TS EN 60754-1/2 and TS EN 61034-2, and bearing CE marking shall be included in the price) Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union. Unit: The part of the branch line exceeding 35 m shall be charged as a supply line per the Unit Price No. 35.150.1000.	
Related official pose/item number, book	35.160.3401	

Item no:	**Item**	**Unit**
ELC.011	**Price difference of emergency lighting kits for LED lighting fixtures**	**pcs**
Description/ Specifications	Supply to the work site, and delivery in working order, including any material and labor, of emergency light kits installed on the fixtures to ensure that they remain in operation in emergency, which shall provide the emergency light intensity value specified in the relevant project design up to three hours, comprise an extreme temperature type Ni-cd battery, a charging unit and a status LED, comply with the standards TS EN 61347-2-7, TS EN 60598-2-22, and which shall be released with a CE compliance marking.	
Related official pose/item number, book	35.170.3050	

Item no:	**Item**	**Unit**
ELC.012	**4500 ANSI lumens, 1024 x 768 resolution**	**pcs**
Description/ Specifications	PROJECTOR:Delivery, including any small material and labor, of a Projector with ANSI lumen power, compatible with video systems and computers, complete with a suspension apparatus and a distance lens for use of the device from the operator room.	
Related official pose/item number, book	35.470.1006	

Item no:	**Item**	**Unit**

ELC.013	**300 x 225 motorized screen**	**pcs**
Description/ Specifications	ELECTRIC PROJECTOR SCREEN:Delivery, including any small material and labor, of an electric projector screen in 4:3 format and of front projection type, with a screen video gain of min. 1.2 and viewing angle of min. 150°, with aluminum guards for the screen and motor, which shall be motorized and remote controllable, and awarded the M1 7201-96 certificate for fire protection.	
Related official pose/item number, book	35.470.3003	

Item no:	**Item**	**Unit**
ELC.014	**Minimum 3600 lm light flux, maximum 40 W consumption.**	**pcs**
Description/ Specifications	LED Surface-Mounted Waterproof Fixtures (with polycarbonate body): Supply to the work site, and delivery in working order, including any material, labor and installation, of fixtures of minimum IP 65 degree of protection, and with polycarbonate body and opal polycarbonate cover.	
Related official pose/item number, book	35.170.1603	

Item no:	**Item**	**Unit**
ELC.015	**Surface-mounted LED ceiling fixtures sized minimum 30x60 (with minimum 1,500 lm light flux, and maximum 18 w consumption).**	**pcs**
Description/ Specifications	LED Ceiling Fixtures Supply to the work site, and delivery in working order, including any material, labor and installation, of fixtures of minimum IP 40 degree of protection, and with a body made of minimum 0.5-mm DKP sheet metal and frame made of minimum 0.7-mm-thick DKP sheet metal and an opal PMMA diffuser minimum 1-mm in thickness.	
Related official pose/item number, book	35.170.1103	

Item no:	**Item**	**Unit**
ELC.016	**Flush-mounted, circular LED (downlight) fixtures (with minimum 1,700 lm light flux, maximum 24 W consumption).**	**pcs**
Description/ Specifications	LED Circular (Downlight) Fixtures: Supply to the work site, and delivery in working order, including any material, labor and installation, of fixtures of minimum IP 40 degree of protection, and with cast aluminum body and cooler and opal PMMA diffuser.	
Related official pose/item number, book	35.170.1502	

Item no:	**Item**	**Unit**
ELC.017	**650/1000w Frensel Spotlight Barn Door, 1000 W light bulb**	**pcs**
Description/ Specifications	FRESNEL SPOTLIGHT, BARN DOOR:Delivery, including any small material and labor, of Fresnel spotlights with barndoors and tungsten lamp, with a smoother light beam compared to PC spots and adjustable to different angles offered by the number of Fresnel optical systems supplied with spotlight lamps equal to the number of spotlights; with an illuminance value of 250 to 1900 lux and IP 55 certificate, equipped with a color filter, holder, safety guard, 4-wing shutter, and epoxy powder coating.	
Related official pose/item number, book	35.460.1420	

Item no:	Item	Unit
ELC.018	**650/1000 W PC SpoT, Barn Door, 1000 W light bulb**	pcs
Description/ Specifications	PC SPOT, BARN DOOR:Delivery, including any small material and labor, of an IP-55-certified barn-door PC spot operating with a tungsten lamp, which shall be equipped with the desired number of spotlight lamps, a PC optical system to provide a sharp and smooth light beam, an adjustable light source, and a light beam of 200 to 2800 lux or more at various distances, complete with a color filter holder, safety guard, 4-wing shutter epoxy powder coating.	
Related official pose/item number, book	35.460.1320	

Item no:	Item	Unit
ELC.019	**1000-W Profile Spot**	pcs
Description/ Specifications	PROFILE SPOT: Delivery with any small material and labor of a profile spot 14°/32° with a security chain and suspension apparatus, iris diaphragm and gobo holder, equipped with an adjustable light source, a protection system that cuts off power when it is necessary to replace the lamp, which shall operate with a tungsten lamp of desired power, provide a uniform focus and light beam control by 50% more lamps than the number of spots required, and provide a light level of 200 to 2800 lux in various distances, and IP 55-certified.	
Related official pose/item number, book	35.460.1220	

Item no:	Item	Unit
ELC.020	**Minimum 1800 lm light flux, maximum 20 W consumption (minimum IP 65 degree of protection).**	pcs
Description/ Specifications	LED Globe Fixtures: Supply to the work site, and delivery in working order, including any material, labor and installation, of fixtures with aluminum or sheet metal body and opal polycarbonate cover.	
Related official pose/item number, book	35.170.1802	

Item no:	Item	Unit
ELC.021	**Price difference of LED lighting fixtures with sensors**	pcs
Description/ Specifications	Price difference of the LED lighting fixture with motion sensor.	
Related official pose/item number, book	35.170.3100	

Item no:	Item	Unit
ELC.166	**Exproof Luminous flux at least 3600 lm, consumption value up to 40 W. LED Surface Mounted Waterproof Luminaire (Polycarbonate body)**	pcs
Description/ Specifications	Installation of fluorescent luminaires that are explosion-proof to be used in explosion-proof electrical systems installation are within the scope of this specification. Manufacturing shall be according to Directive 94/9/EC (ATEX 100a) and/or EN 50014, suitable for use in hazardous areas with Zone 1 (Class 1, Division 2 according to ANSI/NFPA (NEC) terminology , explosion protection class II 2 G Ex d IIC T6 and the level of physical protection shall be at least IP67. The luminaire must have a test certificate in accordance with ATEX. The luminaire shall be made of aluminium cast and glass (borosilicate) body material and the luminaires shall be delivered together with all accessories including supply, transportation to the workplace and installation of the luminaires.	
Related official pose/item	E.Ö.AYD.1	

number, book	

Item no:	**Item**	**Unit**
ELC.167	**Type E -23W. Lighting fixture with protective wire mesh guard**	**pcs**
Description/ Specifications	Supplied with waterproof luminaire for ceiling or wall, with steel cage, glass, rubber seal, special aluminium base, not easily opened, transport to the workplace, 23 W Compact fluorescent bulb, porcelain socket, including all kinds of materials and workmanship, with installation in place.	
Related official pose/item number, book	E.Ö.AYD.2	

Item no:	**Item**	**Unit**
ELC.168	**Combination socket box (1 Triphase, 2 monophase)**	**pcs**
Description/ Specifications	The product is made of halogen-free hard plastic body, white painted, with 1 380V three phase and 2 220V single phase output, 1 6kA 3x16A switch auto fuse and 2 6kA 1x16A switch auto fuse, IP54 protection class, halogen-free-connection wired, combined socket box. The product must be able to protect itself against "ripple " and sudden splashes on the network. Electronic components used in the product shall have the quality approvals such as TS, TSE, EN, CE, VDE, ENEC, URL, KAB, EMS KAB and EPC. Under appropriate conditions of use, the company's warranty for the material shall be 2 years. All Products shall comply with the "regulations for the electric devices designed to be used within certain limits of voltage (73/23/EC)" numbered 24637, dated 11.02.2002 published in the Official Gazette. The failures that may occur due to manufacturing and assembly errors shall be intervened by the technical team within 48 hours at the latest. The product shall be manufactured by a company which possesses TS EN ISO 9001: 2000 TUV CERT Quality Certificate.	
Related official pose/item number, book	E.Ö.AYD.3	

Bill 3.2. Power System

Item no:	**Item**	**Unit**
ELC.022	**Steel enclosures (1st enclosure): (Unit: Qty.: Materials on construction site: 60%) (TS EN 61439-1/2). 800 mm width**	**pcs**
Description/ Specifications	Steel enclosures (1st enclosure): (Unit: Qty.: Materials on construction site: 60%) (TS EN 61439-1/2). Note: "Type tests" shall be run, and the results of such tests shall be submitted to the Administration. Enclosures that are 2100 mm in height, at least 500 mm in depth, and 800 to 900 mm in width as may be needed, and made from 40 x 40 x 4 mm bracket or a similar profile iron in free-standing system with a frame that is made of DKP steel sheet minimum in 2 mm thickness and covered with the same type of steel sheet shall be installed. A concrete base 10-cm in height shall be built on the floor for the enclosure which shall be installed by its four corners with anchors and galvanized bolts. A wire mesh housing shall be built with steel sheet up to 1 meter from the ground and the upper part made of Ø3 mm steel wire with 30-mm openings including doors on both sides of the tunnel 75-cm in width at the back of the tray with one of such doors being foldable. The interior, exterior and the frame of the enclosure shall be coated with a layer of red lead, two layers of matte gun-sprayed paint and oven-dried, the service tunnel behind the tray shall be made of wood and coated with PVC or linoleum. Where additional steel enclosures are used, the fixed wire mesh housing and the steel sheet part at the	

	joint surface of the additional enclosure and the enclosure shall be installed to the end of the steel enclosures, and service tunnel furnishings shall be extended along the additional enclosures. Where required by the inspection authority, wooden railings that are 80 to 100 cm in height, painted in the same color as the enclosure, and with a section size of 5 x 10 cm shall be built, and the tunnel behind the panel shall be covered with a wire mesh housing that is made from Ø3 mm steel wires with 30 mm openings. Perforated frames, supports, etc. shall be available on the enclosure based on the devices to be installed on enclosures as per the project design, and phases shall be painted in gray, black, and brown, busbars and insulators in neutral light blue as per TS EN 60445, and where necessary, the panels shall be equipped with a L.V. surge arresters and green/yellow earthing lines. Production, transportation to the site and installation of paint, insulator connection conductors, any kind of small material including labor and installation (excluding the cost of copper busbar, lockable wire mesh door and wire mesh housing and surge arrester) of a 1st steel enclosure, and delivery of labels required for each device, any kind of material, and electric terminal blocks in working order including labor.
Related official pose/item number, book	35.100.6101

Item no:	**Item**	**Unit**
ELC.023	**Surface-mounted steel electric panels: (Unit: Qty., Materials on construction site: 60%) (TS EN 61439-1/2) Note: "Type tests" shall be run, and the results of such tests shall be submitted to the Administration. From 0.10 to 0.20 m^2 (including 0.20 m^2)**	**pcs**
Description/ Specifications	Surface-mounted steel electric panels: (Unit: Qty., Materials on construction site: 60%) (TS EN 61439-1/2) Note: "Type tests" shall be run, and the results of such tests shall be submitted to the Administration. A surface-mounted platform made from DKP steel sheet minimum 1-mm in thickness shall be installed. The panel shall consist of three parts. A lockable door, a steel box with bracket or profile frame and a key lock, an internal door with holes on the chassis supporting the devices for controlling the devices, and means of attachment welded on the steel box, which shall facilitate attachment and removal of the chassis. Depending on the project design, the box shall have an opening on the side through which various conductors are to enter the box, and the said opening shall be covered with a steel sheet cap mounted on the box with screws. The holes required for cable entry shall be drilled on the cover, and bakelite or plastic bushings shall be installed in the holes to keep the insulation of the conductors intact. The chassis shall be placed on brackets or a panel made of bent DKP. It shall be possible to mount all devices, terminal blocks and similar equipment on the chassis. The internal door with holes shall be easily mountable on the chassis for controlling the devices on the panel. Once the internal door is removed, all connections and devices in the panel shall be exposed, and this door shall be decorated with tags for each device. The aforementioned three parts shall be detachable without removing the panel. The projects concerning placement of devices in the panel shall be prepared in compliance with the type projects, submitted to the administration for approval, and manufactured only thereafter. A sufficient number of gray, black and brown, fireproof terminal blocks or busbars, and light blue neutral and green/yellow earthing busbars shall be available for the phase lines on the panel in compliance with TS EN 60445, and all iron parts shall be coated in a layer of red lead and two layers of gun-sprayed paint, and the panel's door shall be attached to the main body with a flexible conductor and earthed. Supply, transportation to the work site and installation of the panel. Delivery in working order, including any material and electric terminal blocks and labor. Unit: The internal door area shall be compared to the values given in the approved project, and the payment shall be made accordingly. This amount includes any small material, paint, connection and installation. The fuse switches, etc. and earthing installation on the panel shall be paid separately.	

Related official pose/item number, book	35.100.6402

Item no:	**Item**	**Unit**
ELC.024	**Surface-mounted steel electric panels: (Unit: Qty., Materials on construction site: 60%) (TS EN 61439-1/2) Note: "Type tests" shall be run, and the results of such tests shall be submitted to the Administration. From 0.20 to 0.30 m^2 (including 0.30 m^2)**	**pcs**
Description/ Specifications	Surface-mounted steel electric panels: (Unit: Qty., Materials on construction site: 60%) (TS EN 61439-1/2) Note: "Type tests" shall be run, and the results of such tests shall be submitted to the Administration. A surface-mounted platform made from DKP steel sheet minimum 1-mm in thickness shall be installed. The panel shall consist of three parts. A lockable door, a steel box with bracket or profile frame and a key lock, an internal door with holes on the chassis supporting the devices for controlling the devices, and means of attachment welded on the steel box, which shall facilitate attachment and removal of the chassis. Depending on the project design, the box shall have an opening on the side through which various conductors are to enter the box, and the said opening shall be covered with a steel sheet cap mounted on the box with screws. The holes required for cable entry shall be drilled on the cover, and bakelite or plastic bushings shall be installed in the holes to keep the insulation of the conductors intact. The chassis shall be placed on brackets or a panel made of bent DKP. It shall be possible to mount all devices, terminal blocks and similar equipment on the chassis. The internal door with holes shall be easily mountable on the chassis for controlling the devices on the panel. Once the internal door is removed, all connections and devices in the panel shall be exposed, and this door shall be decorated with tags for each device. The aforementioned three parts shall be detachable without removing the panel. The projects concerning placement of devices in the panel shall be prepared in compliance with the type projects, submitted to the administration for approval, and manufactured only thereafter. A sufficient number of gray, black and brown, fireproof terminal blocks or busbars, and light blue neutral and green/yellow earthing busbars shall be available for the phase lines on the panel in compliance with TS EN 60445, and all iron parts shall be coated in a layer of red lead and two layers of gun-sprayed paint, and the panel's door shall be attached to the main body with a flexible conductor and earthed. Supply, transportation to the work site and installation of the panel. Delivery in working order, including any material and electric terminal blocks and labor. Unit: The internal door area shall be compared to the values given in the approved project, and the payment shall be made accordingly. This amount includes any small material, paint, connection and installation. The fuse switches, etc. and earthing installation on the panel shall be paid separately.	
Related official pose/item number, book	35.100.6403	

Item no:	**Item**	**Unit**
ELC.025	**Surface-mounted steel electric panels: (Unit: Qty., Materials on construction site: 60%) (TS EN 61439-1/2) Note: "Type tests" shall be run, and the results of such tests shall be submitted to the Administration. From 0.30 to 0.40 m^2 (including 0.40 m^2)**	**pcs**
Description/ Specifications	Surface-mounted steel electric panels: (Unit: Qty., Materials on construction site: 60%) (TS EN 61439-1/2) Note: "Type tests" shall be run, and the results of such tests shall be submitted to the Administration. A surface-mounted platform made from DKP steel sheet minimum 1-mm in thickness shall be installed. The panel shall consist of three parts. A lockable door, a steel box with bracket or profile frame and a key lock, an internal door with holes on the chassis	

	supporting the devices for controlling the devices, and means of attachment welded on the steel box, which shall facilitate attachment and removal of the chassis. Depending on the project design, the box shall have an opening on the side through which various conductors are to enter the box, and the said opening shall be covered with a steel sheet cap mounted on the box with screws. The holes required for cable entry shall be drilled on the cover, and bakelite or plastic bushings shall be installed in the holes to keep the insulation of the conductors intact. The chassis shall be placed on brackets or a panel made of bent DKP. It shall be possible to mount all devices, terminal blocks and similar equipment on the chassis. The internal door with holes shall be easily mountable on the chassis for controlling the devices on the panel. Once the internal door is removed, all connections and devices in the panel shall be exposed, and this door shall be decorated with tags for each device. The aforementioned three parts shall be detachable without removing the panel. The projects concerning placement of devices in the panel shall be prepared in compliance with the type projects, submitted to the administration for approval, and manufactured only thereafter. A sufficient number of gray, black and brown, fireproof terminal blocks or busbars, and light blue neutral and green/yellow earthing busbars shall be available for the phase lines on the panel in compliance with TS EN 60445, and all iron parts shall be coated in a layer of red lead and two layers of gun-sprayed paint, and the panel's door shall be attached to the main body with a flexible conductor and earthed. Supply, transportation to the work site and installation of the panel. Delivery in working order, including any material and electric terminal blocks and labor. Unit: The internal door area shall be compared to the values given in the approved project, and the payment shall be made accordingly. This amount includes any small material, paint, connection and installation. The fuse switches, etc. and earthing installation on the panel shall be paid separately.
Related official pose/item number, book	35.100.6404

Item no:	**Item**	**Unit**
ELC.026	**Surface-mounted steel electric panels: (Unit: Qty., Materials on construction site: 60%) (TS EN 61439-1/2) Note: "Type tests" shall be run, and the results of such tests shall be submitted to the Administration. From 0.40 to 0.50 m^2 (including 0.50 m^2)**	**pcs**
Description/ Specifications	Surface-mounted steel electric panels: (Unit: Qty., Materials on construction site: 60%) (TS EN 61439-1/2) Note: "Type tests" shall be run, and the results of such tests shall be submitted to the Administration. A surface-mounted platform made from DKP steel sheet minimum 1-mm in thickness shall be installed. The panel shall consist of three parts. A lockable door, a steel box with bracket or profile frame and a key lock, an internal door with holes on the chassis supporting the devices for controlling the devices, and means of attachment welded on the steel box, which shall facilitate attachment and removal of the chassis. Depending on the project design, the box shall have an opening on the side through which various conductors are to enter the box, and the said opening shall be covered with a steel sheet cap mounted on the box with screws. The holes required for cable entry shall be drilled on the cover, and bakelite or plastic bushings shall be installed in the holes to keep the insulation of the conductors intact. The chassis shall be placed on brackets or a panel made of bent DKP. It shall be possible to mount all devices, terminal blocks and similar equipment on the chassis. The internal door with holes shall be easily mountable on the chassis for controlling the devices on the panel. Once the internal door is removed, all connections and devices in the panel shall be exposed, and this door shall be decorated with tags for each device. The aforementioned three parts shall be detachable without removing the panel. The projects concerning placement of devices in the panel shall be prepared in compliance with	

	the type projects, submitted to the administration for approval, and manufactured only thereafter. A sufficient number of gray, black and brown, fireproof terminal blocks or busbars, and light blue neutral and green/yellow earthing busbars shall be available for the phase lines on the panel in compliance with TS EN 60445, and all iron parts shall be coated in a layer of red lead and two layers of gun-sprayed paint, and the panel's door shall be attached to the main body with a flexible conductor and earthed. Supply, transportation to the work site and installation of the panel. Delivery in working order, including any material and electric terminal blocks and labor. Unit: The internal door area shall be compared to the values given in the approved project, and the payment shall be made accordingly. This amount includes any small material, paint, connection and installation. The fuse switches, etc. and earthing installation on the panel shall be paid separately.
Related official pose/item number, book	35.100.6405

Item no:	**Item**	**Unit**
ELC.027	**Supply and installation, and coloring in compliance with TS EN 60445 of TSE-compliant copper busbars to be placed in cast metal boxes and enclosures: (Unit: kg; Materials on construction site: 60%)**	**kg**
Description/ Specifications	Supply and installation, and coloring in compliance with TS EN 60445 of TSE-compliant copper busbars to be placed in cast metal boxes and enclosures: (Unit: kg; Materials on construction site: 60%)	
Related official pose/item number, book	35.100.7000	

Item no:	**Item**	**Unit**
ELC.028	**On-off type cam switches: (Unit: Qty.) Up to 3 x 25 A**	**pcs**
Description/ Specifications	On-off type cam switches: Supply and installation, including any material and labor, of cam switches with only two positions.	
Related official pose/item number, book	35.120.1154	

Item no:	**Item**	**Unit**
ELC.029	**3-pole, minimum Icu at 400 V AC: 35 kA, adjustable thermal protection, fixed magnetic protection 3 x 10 A to 3 x 63 A, Icu: 35 kA, I1: (0.8-1)In**	**pcs**
Description/ Specifications	Molded-case circuit breakers: Supply and installation, including any material and labor, of compact latching switches capable of breaking in air environment, equipped with an activation mechanism independent of hand movements, and with thermal overload and magnetic short-circuit protection and with an Ics equivalent to minimum 50% of the Icu value, and which bear a CE compliance marking and comply with the TS EN 60947- 2 standard. (I1: Adjustable thermal protection activation current, I3: Fixed or adjustable magnetic protection activation current, In: Nominal current, Icu: Short-circuit breaking capacity, Ics: Operating short-circuit breaking capacity). Note: The items shall have undergone type tests.	
Related official pose/item number, book	35.110.1101	

Item no:	**Item**	**Unit**
ELC.030	**3-pole, minimum Icu at 400 V AC: 35 kA, adjustable thermal protection, fixed magnetic protection Up to 3 x 100 A, Icu: 35 kA, I1: (0.8-1)In**	**pcs**

Description/ Specifications	Molded-case circuit breakers: Supply and installation, including any material and labor, of compact latching switches capable of breaking in air environment, equipped with an activation mechanism independent of hand movements, and with thermal overload and magnetic short-circuit protection and with an Ics equivalent to minimum 50% of the Icu value, and which bear a CE compliance marking and comply with the TS EN 60947- 2 standard. (I1: Adjustable thermal protection activation current, I3: Fixed or adjustable magnetic protection activation current, In: Nominal current, Icu: Short-circuit breaking capacity, Ics: Operating short-circuit breaking capacity). Note: The items shall have undergone type tests.
Related official pose/item number, book	35.110.1102

Item no:	**Item**	**Unit**
ELC.031	**3-pole, minimum Icu at 400 V AC: 35 kA, adjustable thermal protection, magnetic protection setting** **Up to 3 x 400 A, Icu: 35 kA, I1: (0.8-1)In, I3: (6-10)In**	**pcs**
Description/ Specifications	Molded-case circuit breakers: Supply and installation, including any material and labor, of compact latching switches capable of breaking in air environment, equipped with an activation mechanism independent of hand movements, and with thermal overload and magnetic short-circuit protection and with an Ics equivalent to minimum 50% of the Icu value, and which bear a CE compliance marking and comply with the TS EN 60947- 2 standard. (I1: Adjustable thermal protection activation current, I3: Fixed or adjustable magnetic protection activation current, In: Nominal current, Icu: Short-circuit breaking capacity, Ics: Operating short-circuit breaking capacity). Note: The items shall have undergone type tests.	
Related official pose/item number, book	35.110.1151	

Item no:	**Item**	**Unit**
ELC.032	**3-pole, minimum Icu at 400 V AC: 50 kA, adjustable thermal protection, magnetic protection setting** **Up to 3 x 500 A, Icu: 50 kA, I1: (0.8-1)In, I3: (6-10)In**	**pcs**
Description/ Specifications	Molded-case circuit breakers: Supply and installation, including any material and labor, of compact latching switches capable of breaking in air environment, equipped with an activation mechanism independent of hand movements, and with thermal overload and magnetic short-circuit protection and with an Ics equivalent to minimum 50% of the Icu value, and which bear a CE compliance marking and comply with the TS EN 60947- 2 standard. (I1: Adjustable thermal protection activation current, I3: Fixed or adjustable magnetic protection activation current, In: Nominal current, Icu: Short-circuit breaking capacity, Ics: Operating short-circuit breaking capacity). Note: The items shall have undergone type tests.	
Related official pose/item number, book	35.110.1252	

Item no:	**Item**	**Unit**
ELC.033	**3-pole, minimum Icu at 400 V AC: 50 kA, adjustable thermal protection, magnetic protection setting** **Up to 3 x 630 A, Icu: 50 kA, I1: (0.8-1)In, I3: (6-10)In**	**pcs**
Description/ Specifications	Molded-case circuit breakers: Supply and installation, including any material and labor, of compact latching switches capable of breaking in air environment, equipped with an activation mechanism independent of hand movements, and with thermal overload and magnetic short-circuit protection and with an Ics equivalent to minimum 50% of the Icu value, and which bear a CE compliance marking and	

	comply with the TS EN 60947- 2 standard. (I1: Adjustable thermal protection activation current, I3: Fixed or adjustable magnetic protection activation current, In: Nominal current, Icu: Short-circuit breaking capacity, Ics: Operating short-circuit breaking capacity). Note: The items shall have undergone type tests.
Related official pose/item number, book	35.110.1253

Item no:	**Item**	**Unit**
ELC.034	**3-pole, minimum Icu at 400 V AC: 35 kA, adjustable thermal protection, fixed magnetic protection Up to 3 x 125 A, Icu: 35 kA, I1: (0.8-1)In**	**pcs**
Description/ Specifications	Molded-case circuit breakers: Supply and installation, including any material and labor, of compact latching switches capable of breaking in air environment, equipped with an activation mechanism independent of hand movements, and with thermal overload and magnetic short-circuit protection and with an Ics equivalent to minimum 50% of the Icu value, and which bear a CE compliance marking and comply with the TS EN 60947- 2 standard. (I1: Adjustable thermal protection activation current, I3: Fixed or adjustable magnetic protection activation current, In: Nominal current, Icu: Short-circuit breaking capacity, Ics: Operating short-circuit breaking capacity). Note: The items shall have undergone type tests.	
Related official pose/item number, book	35.110.1103	

Item no:	**Item**	**Unit**
ELC.035	**Dry-type contactors with thermal protectors: (Unit: Qty.) Up to 3 x 10 A**	**pcs**
Description/ Specifications	Dry-type contactors with thermal protectors: Supply and installation of a contactor that is the same as the Unit Price No. 35.125.1100 with only an extra thermal protector relay.	
Related official pose/item number, book	35.125.1301	

Item no:	**Item**	**Unit**
ELC.036	**Dry-type contactors with thermal protectors: (Unit: Qty.) Up to 3 x 16 A**	**pcs**
Description/ Specifications	Dry-type contactors with thermal protectors: (Unit: Qty.) Supply and installation of a contactor that is the same as the Unit Price No. 35.125.1100 with only an extra thermal protector relay.	
Related official pose/item number, book	35.125.1302	

Item no:	**Item**	**Unit**
ELC.037	**Time relay that is used for lighting control. (Unit: Qty: Materials on construction site 60%)**	**pcs**
Description/ Specifications	Time relay that is used for lighting control. (Unit: Qty: Materials on construction site 60%) Supply, transportation to the work site, testing and delivery in working order, of a digital time relay designed for use within a certain range of voltages, which has type test reports as per 2014/35/EU Low Voltage Directive (LVD), the regulation on electromagnetic compatibility (2004/108/EC), and the standards and directives of TS EN 60730-2-7 as well as a CE compliance marking, controls lighting at the hours set using its program based on the adjusted time periods, and which is equipped with output contacts, battery-powered, and accompanied by a user's manual.	
Related official pose/item number, book	35.125.1760	

Item no:	Item	Unit
ELC.038	**Residual current circuit breakers: (Unit: Qty.) Up to 4 x 25 A (30 mA)**	**pcs**
Description/ Specifications	Residual current circuit breakers: Supply, installation, and delivery in working order, including any material and labor, of a residual current circuit breaker designed in compliance with the Regulations, specifications, and standards on Internal Electrical Installation and released in compliance with the TS EN 61008-1, TS EN 61008-2-1 standards and with a CE compliance marking, which, in case of any residual current in electrical installation, detects the faulty current on the phases and neutral line and breaks the circuit in 10-30 seconds to ensure safety of life and property, features a differential coil that steps in at 220 V for single-phase circuits, and at 380 V for 3-phase circuits, and a test button for testing whether the system is functioning, which is available for installation on the carriage rails, protected against external effects, can continue on working at 30 mA for life protection and 300 mA for fire protection even if neutral line breaks down.	
Related official pose/item number, book	35.115.1020	

Item no:	Item	Unit
ELC.039	**Residual current circuit breakers: (Unit: Qty.) Up to 4 x 40 A (30 mA)**	**pcs**
Description/ Specifications	Residual current circuit breakers: Supply, installation, and delivery in working order, including any material and labor, of a residual current circuit breaker designed in compliance with the Regulations, specifications, and standards on Internal Electrical Installation and released in compliance with the TS EN 61008-1, TS EN 61008-2-1 standards and with a CE compliance marking, which, in case of any residual current in electrical installation, detects the faulty current on the phases and neutral line and breaks the circuit in 10-30 seconds to ensure safety of life and property, features a differential coil that steps in at 220 V for single-phase circuits, and at 380 V for 3-phase circuits, and a test button for testing whether the system is functioning, which is available for installation on the carriage rails, protected against external effects, can continue on working at 30 mA for life protection and 300 mA for fire protection even if neutral line breaks down.	
Related official pose/item number, book	35.115.1021	

Item no:	Item	Unit
ELC.040	**Residual Current Protection Relay with Toroidal Current Transformer (Unit: Qty.): 3 x 80 A to 3 x 250 A (3-phase): 30-500 Ma**	**pcs**
Description/ Specifications	Residual current circuit breakers: Supply, installation, and delivery in working order, including any material and labor, of a residual current circuit breaker designed in compliance with the Regulations, specifications, and standards on Internal Electrical Installation and released in compliance with the TS EN 61008-1, TS EN 61008-2-1 standards and with a CE compliance marking, which, in case of any residual current in electrical installation, detects the faulty current on the phases and neutral line and breaks the circuit in 10-30 seconds to ensure safety of life and property, features a differential coil that steps in at 220 V for single-phase circuits, and at 380 V for 3-phase circuits, and a test button for testing whether the system is functioning, which is available for installation on the carriage rails, protected against external effects, can continue on working at 30 mA for life protection and 300 mA for fire protection even if neutral line breaks down.	
Related official pose/item number, book	35.115.1201	

Item no:	Item	Unit
ELC.041	**Residual Current Protection Relay with Toroidal Current Transformer (Unit: Qty.): 3 x 300 A to 3 x 1250 A (3-phase): 30-500 Ma**	pcs
Description/ Specifications	Residual current circuit breakers: Supply, installation, and delivery in working order, including any material and labor, of a residual current circuit breaker designed in compliance with the Regulations, specifications, and standards on Internal Electrical Installation and released in compliance with the TS EN 61008-1, TS EN 61008-2-1 standards and with a CE compliance marking, which, in case of any residual current in electrical installation, detects the faulty current on the phases and neutral line and breaks the circuit in 10-30 seconds to ensure safety of life and property, features a differential coil that steps in at 220 V for single-phase circuits, and at 380 V for 3-phase circuits, and a test button for testing whether the system is functioning, which is available for installation on the carriage rails, protected against external effects, can continue on working at 30 mA for life protection and 300 mA for fire protection even if neutral line breaks down.	
Related official pose/item number, book	35.115.1202	

Item no:	Item	Unit
ELC.042	**Additions for remote-controlled, molded-case, thermally and magnetically protected and air circuit breakers: (Unit: Qty.) (in compliance with TS EN 60947-2) 3- or 4-pole, Up to 630 A**	pcs
Description/ Specifications	Additions for remote-controlled, molded-case, thermally and magnetically protected and air circuit breakers: (Unit: Qty.) (in compliance with TS EN 60947-2) Supply and installation, including any material and labor, of the additional equipment that is separately installed to molded-case circuit breakers, performs remote turning on and off by a motor mechanism, and has the necessary control buttons, an trip coil (and also a closing coil for open-type switches) and auxiliary contacts	
Related official pose/item number, book	35.110.5502	

Item no:	Item	Unit
ELC.043	**Additions for remote-controlled, molded-case, thermally and magnetically protected and air circuit breakers: (Unit: Qty.) (in compliance with TS EN 60947-2) 3- or 4-pole, Up to 1000 A**	pcs
Description/ Specifications	Additions for remote-controlled, molded-case, thermally and magnetically protected and air circuit breakers: (Unit: Qty.) (in compliance with TS EN 60947-2) Supply and installation, including any material and labor, of the additional equipment that is separately installed to molded-case circuit breakers, performs remote turning on and off by a motor mechanism, and has the necessary control buttons, an trip coil (and also a closing coil for open-type switches) and auxiliary contacts	
Related official pose/item number, book	35.110.5503	

Item no:	Item	Unit
ELC.044	**Class B, 230 V AC, 100 kA (I imp; 10/350 µs), 3-phase, neutral/ earth**	pcs
Description/ Specifications	Enclosure-type overvoltage protectors (Low-Voltage Surge Arresters) (Unit: Qty.) Overvoltage protectors of Type 1 (class B), Type 2 (class C), Type 3 (class D) protecting energy supplies against atmospheric discharges (lightning strikes) temporary overvoltage peaks, and providing single-phase, 2-phase, 3-phase and neutral protection against over-voltage, which	

	are equipped with an extra contact output for signalization, fully hermetically enclosed, installed on the rails of the enclosure without damaging it or other equipment in it or requiring a safety distance with the enclosure, and were released in compliance with the TS EN 61643-11 standard and with a CE compliance marking. 1- Overvoltage protectors shall be completely hermetically sealed. The protector should not have an arc discharge gap. The protector shall suppress arcs in itself rather than drawing it through the arc discharge gap and suppressing it with air. Thus, it shall be possible to install the protector anywhere within the enclosure without the requirement of a safety distance. 2- Type 2 (Class C) and Type 3 (Class D) protectors shall be equipped with an indicator that indicates whether the device runs smoothly or not. (I imp: Maximum impulse current for Type 1 surge arresters, I max: Maximum discharge current for type 2 and Type 3 surge arresters)
Related official pose/item number, book	35.115.2101

Item no:	**Item**	**Unit**
ELC.045	**Central compensation batteries with automatic control: (Unit: kVAR) (Up to 30 kVAR) Up to 450 V**	**kVAR**
Description/ Specifications	Central compensation batteries with automatic control: (Up to 30 kVAR) Supply, installation, and delivery in working order, of capacitors, the contactors that they will enable and disable as well as the circuit breakers of the circuits, control circuit circuit breakers, cam switches that control contactors, and the 3-phase compensation battery including the current transformer required for the relay (not including the price of the reactive power control relay, molded-case circuit breaker, and panel.) The power value in kVAR of the capacitor on the selected voltage value shall be considered as the unit.)	
Related official pose/item number, book	35.130.1102	

Item no:	**Item**	**Unit**
ELC.046	**Extra central compensation batteries with automatic control (in compliance with TS EN 60255-1) (Unit: kVAR) Up to 450 V**	**kVAR**
Description/ Specifications	Extra central compensation batteries with automatic control (in compliance with TS EN 60255-1) (Unit: kVAR) Where compensation batteries are rated higher than 30 kVAR, for each kVAR exceeding 30 kVAR in addition to the item 35.130.1100	
Related official pose/item number, book	35.130.1152	

Item no:	**Item**	**Unit**
ELC.047	**Shunt Reactor (Unit: Qty.) Up to 400 V, 10 kVAR**	**pcs**
Description/ Specifications	Shunt Reactor Supply to the work site, installation per the relevant project design, and delivery, including any material and labor, of a shunt reactor with 3-kV insulation and minimum 120°C thermal protection, and operating at 50 Hz frequency, which complies with TS EN 61558- 2-20 and TS EN 60076-6 standards and has a nominal voltage of 230V AC - 1000V AC.	
Related official pose/item number, book	35.130.2755	

Item no:	**Item**	**Unit**
ELC.048	**SVC THREE-PHASE REACTIVE POWER CONTROL RELAYS:**	**pcs**

	(Unit: Qty.)Min. 18 steps The number of steps shall be 18, and other specifications shall be the same as the item 35.130.2301.	
Description/ Specifications	SVC THREE-PHASE REACTIVE POWER CONTROL RELAYS: Supply to the work site, installation per the relevant project, and delivery in working order, including any material and labor, of the devices sized for installation in the enclosure, which are capable of activating the power of each single-phase shunt reactor at an adjustable value, automatically measuring the values of the capacitors in the compensation system that they are connected to, issuing alerts for troubleshooting for the current and voltage connections and disabling the system to protect it, selecting to enable or disable the capacitor steps required depending on the load, detecting failed capacitors, issuing overcompensation, undercompensation, failed capacitor and exceeded ratio alerts, and of measuring the values of phase voltage (V) of its connected system, RMS value of the phase current that the current transformer is connected to, power coefficient (cosØ) of the system, the Active Power (W), Reactive Power (VAr), Apparent Power (VA), total Harmonics, Active Energy (kWh), Inductive - Reactive - Capacitive Energy (kVARh) drawn by the system, in case of compensation failures by means of a reactive power control relay with three Current Transformers, 3x380 V AC Supply and 12 step, and a semiconductor driver connected in addition to the steps.	
Related official pose/item number, book	35.130.2302	

Item no:	**Item**	**Unit**
ELC.049	**Miniature Circuit Breakers (with 6-kA breaking capacity): (Unit: Qty.) Up to 16 A (6 kA)**	**pcs**
Description/ Specifications	Miniature Circuit Breakers (with 6-kA breaking capacity): Supply and installation, including any material and labor, of an automatic circuit breaker with 6-kA short-circuit breaking capacity, which has the same specifications as the item 35.105.1100. (35.105.1100 - Miniature Circuit Breakers (with 3-kA breaking capacity): (Unit: Qty.) Supply and installation, including any material and labor, of an automatic circuit breaker with 3-kA short-circuit breaking capacity, 2 and 4 pole versions of which are capable of breaking neutral and phase lines, B or C curve, which was manufactured in compliance with the TS 5018-1 EN 60898-1 standards and released with CE compliance marking, and which also functions as a switch.)	
Related official pose/item number, book	35.105.1210	

Item no:	**Item**	**Unit**
ELC.050	**Miniature Circuit Breakers (with 6-kA breaking capacity): (Unit: Qty.) 3-phase, Up to 16 A (6 kA)**	**pcs**
Description/ Specifications	Miniature Circuit Breakers (with 6-kA breaking capacity): Supply and installation, including any material and labor, of an automatic circuit breaker with 6-kA short-circuit breaking capacity, which has the same specifications as the item 35.105.1100. (35.105.1100 - Miniature Circuit Breakers (with 3-kA breaking capacity): (Unit: Qty.) Supply and installation, including any material and labor, of an automatic circuit breaker with 3-kA short-circuit breaking capacity, 2 and 4 pole versions of which are capable of breaking neutral and phase lines, B or C curve, which was manufactured in compliance with the TS 5018-1 EN 60898-1 standards and released with CE compliance marking, and which also functions as a switch.)	
Related official pose/item number, book	35.105.1230	

Item no:	Item	Unit
ELC.051	**Miniature Circuit Breakers (with 6-kA breaking capacity): (Unit: Qty.) 3-phase, Up to 25 A (6 kA)**	**pcs**
Description/ Specifications	Miniature Circuit Breakers (with 6-kA breaking capacity):Supply and installation, including any material and labor, of an automatic circuit breaker with 6-kA short-circuit breaking capacity, which has the same specifications as the item 35.105.1100. (35.105.1100 - Miniature Circuit Breakers (with 3-kA breaking capacity): (Unit: Qty.) Supply and installation, including any material and labor, of an automatic circuit breaker with 3-kA short-circuit breaking capacity, 2 and 4 pole versions of which are capable of breaking neutral and phase lines, B or C curve, which was manufactured in compliance with the TS 5018-1 EN 60898-1 standards and released with CE compliance marking, and which also functions as a switch.)	
Related official pose/item number, book	35.105.1231	

Item no:	Item	Unit
ELC.052	**Miniature Circuit Breakers (with 6-kA breaking capacity): (Unit: Qty.)3-phase, Up to 40 A (6 kA)**	**pcs**
Description/ Specifications	Miniature Circuit Breakers (with 6-kA breaking capacity): Supply and installation, including any material and labor, of an automatic circuit breaker with 6-kA short-circuit breaking capacity, which has the same specifications as the item 35.105.1100. (35.105.1100 - Miniature Circuit Breakers (with 3-kA breaking capacity): (Unit: Qty.) Supply and installation, including any material and labor, of an automatic circuit breaker with 3-kA short-circuit breaking capacity, 2 and 4 pole versions of which are capable of breaking neutral and phase lines, B or C curve, which was manufactured in compliance with the TS 5018-1 EN 60898-1 standards and released with CE compliance marking, and which also functions as a switch.)	
Related official pose/item number, book	35.105.1232	

Item no:	Item	Unit
ELC.053	**Miniature Circuit Breakers (with 10-kA breaking capacity): (Unit: Qty.) 3-phase, Up to 25 A (10 kA)**	**pcs**
Description/ Specifications	Miniature Circuit Breakers (with 10-kA breaking capacity): Supply and installation, including any material and labor, of an automatic circuit breaker with 10-kA short-circuit breaking capacity, which has the same specifications as the item35.105.1100. (35.105.1100 - Miniature Circuit Breakers (with 3-kA breaking capacity): Supply and installation, including any material and labor, of an automatic circuit breaker with 3-kA short-circuit breaking capacity, 2 and 4 pole versions of which are capable of breaking neutral and phase lines, B or C curve, which was manufactured in compliance with the TS 5018-1 EN 60898-1 standards and released with CE compliance marking, and which also functions as a switch.)	
Related official pose/item number, book	35.105.1331	

Item no:	Item	Unit
ELC.054	**Miniature Circuit Breakers (with 10-kA breaking capacity): (Unit: Qty.)3-phase, Up to 40 A (10 kA)**	**pcs**
Description/ Specifications	Miniature Circuit Breakers (with 10-kA breaking capacity): Supply and installation, including any material and labor, of an automatic circuit breaker with 10-kA short-circuit breaking capacity, which has the same specifications as the item35.105.1100. (35.105.1100 - Miniature Circuit Breakers (with 3-kA breaking capacity): Supply and installation, including any material and labor, of an automatic circuit breaker with 3-	

	kA short-circuit breaking capacity, 2 and 4 pole versions of which are capable of breaking neutral and phase lines, B or C curve, which was manufactured in compliance with the TS 5018-1 EN 60898-1 standards and released with CE compliance marking, and which also functions as a switch.)
Related official pose/item number, book	35.105.1332

Item no:	**Item**	**Unit**
ELC.055	**Metering Current Transformer: (1kV 5-10 VA, Sn: 0.5 -1) (Unit: Qty.) (TS- 620 EN 60044-1) 100 - 500/5 A.**	**pcs**
Description/ Specifications	Metering Current Transformer: (1kV 5-10 VA, Sn: 0.5 -1) (Unit: Qty.) (TS- 620 EN 60044-1) Supply and installation of a class 0.5 - 1 metering current transformer with 5-10-VA power, of busbar or non-busbar type, and of the same quality as the metering instruments to be used.	
Related official pose/item number, book	35.135.1901	

Item no:	**Item**	**Unit**
ELC.057	**Energy analyzer**	**pcs**
Description/ Specifications	Energy analyzers and circuit components (in compliance with TS 4417) Delivery, including any material and labor, of the devices that can be used in 3-phase (3P, 3PN), 2-phase and single-phase AC systems with a communication module, alarm module, and optional input and output modules, and in compliance with IEC 61010, which shall be in modular structure that is capable of displaying on its backlit LCD the instantaneous, average and maximum current and power values, voltage, frequency in the range of 45 to 65 Hz, power factor and the total harmonic distortion, and RMS values up to the 21st harmonic which should be monitored in an electrical system, and which is capable of displaying five readings simultaneously.	
Related official pose/item number, book	35.135.2501	

Item no:	**Item**	**Unit**
ELC.058	**3-Phase, Hour-Tariff Electronic Energy Meters: (Unit: Qty.; Materials on construction site: 60%) 3 x 230 / 400V..3 x 10 (60) A**	**pcs**
Description/ Specifications	3-Phase, Hour-Tariff Electronic Energy Meters: (Unit: Qty.; Materials on construction site: 60%) Supply, transportation to the work site, installation and connection, and delivery in working order, of a TEDAŞ-approved, 3-phase, four-wire electronic active meter with backlit digital display with six integer and two decimal places, a real-time clock of 100 years on the circuit of the meter, and time tariff and its base, which shall be in compliance with the standards TS EN 62053-21 and TS 62052- 11 as well as Directive (76/891/EEC) on Metering Instruments and Electric Energy Meters, awarded a brand registration certificate by the Ministry of Science, Industry and Technology, capable of metering in maximum two accuracy classes in its designated current and voltage ranges, rated for an operating frequency of 50 Hz, capable of exchanging information with the meter as per the TS EN 62056-21 standard and of dividing a day into eight different time spans in minute-level precision based on the program of the meter, and manufactured as dustproof and waterproof in IP 51 degree of protection (TS EN 60529).	
Related official pose/item number, book	35.135.3201	

Item no:	**Item**	**Unit**
ELC.059	**Three-Phase, Hour-Tariff Electronic (Active-Reactive) Meters: (Unit: Qty.; Materials on construction site: 60%) 3 x 58 / 100 V ..3 x 5 (7.5) A**	**pcs**

Description/ Specifications	3-Phase, Hour-Tariff Electronic Energy Meters: (Unit: Qty.; Materials on construction site: 60%) Supply, transportation to the work site, installation and connection, and delivery in working order, of a TEDAŞ-approved, 3-phase, four-wire electronic active meter with backlit digital display with six integer and two decimal places, a real-time clock of 100 years on the circuit of the meter, and time tariff and its base, which shall be in compliance with the standards TS EN 62053-21 and TS 62052- 11 as well as Directive (76/891/EEC) on Metering Instruments and Electric Energy Meters, awarded a brand registration certificate by the Ministry of Science, Industry and Technology, capable of metering in maximum two accuracy classes in its designated current and voltage ranges, rated for an operating frequency of 50 Hz, capable of exchanging information with the meter as per the TS EN 62056-21 standard and of dividing a day into eight different time spans in minute-level precision based on the program of the meter, and manufactured as dustproof and waterproof in IP 51 degree of protection (TS EN 60529).
Related official pose/item number, book	35.135.3302

Item no:	**Item**	**Unit**
ELC.060	**SIGNAL LIGHTS: (Unit: Qty.) Up to 250 V**	**pcs**
Description/ Specifications	SIGNAL LIGHTS: Supply, transportation to the work site, installation and connection, delivery in working order of flush-mounted signal lights of specified colors depending on the location, which shall comply with the TS 2575 EN 60073 standards (socket and light bulb are included in the price.)	
Related official pose/item number, book	35.120.1454	

Item no:	**Item**	**Unit**
ELC.061	**Uninterruptible Power Supply with 3-phase input and 3-phase output (Unit: Qty., Materials on construction site: 60%) 60 kVA, and minimum 10 minutes of battery supply time**	**pcs**
Description/ Specifications	UNINTERRUPTIBLE POWER SUPPLY (UPS): (Unit: Qty., Materials on construction site: 60%) Compliance is required with the Regulation 2014/35/AB on Electrical Equipment Designed for Use Within Certain Voltage Limit, the Regulation 2004/108/AT on Electromagnetic Compatibility, and the Regulation on Amendment of Energy Market Customer Services published in the Official Gazette No. 26558 dated June 20, 2007. Transportation to the work site, installation (not including the cables) and delivery in working order of on-line uninterruptible power supplies in compliance with the standards of TS EN 62040-1/2/3, with a power factor of 0.9, input power factor > 0.99, and EMI/RFI filtering for all devices, the specifications provided in the relevant technical specifications document, input tolerance values of 380 V AC (3-phase) or 220 V AC (single-phase) ±15% and 50 Hz ±5% and an input harmonic distortion of < 8%, equipped with a static (semiconductor) by-pass switch that switches the load to the grid or the auxiliary resource in the event of overload / short circuit / output voltage running out of limits / rectifier failure / extreme temperatures / inverter failure, a built-in mechanical by-pass switch, a dry-type, maintenance-free battery pack sufficient to run the system on full load for the required period, an LCD or graphic display panel, and a backlit mimic diagram displaying the system status on the front panel, which shall supply the required power uninterruptedly for 24 hours, have a load crest factor of 3:1, fulfill output values of 380 V AC (3-phase) or 220 V AC (single-phase) ±1% and 50 Hz ±1% as well as total harmonic distortion of < 2% on linear load and < 5% on non-linear load, supply the load while charging fully discharged batteries, keep fully charged batteries at buffer charge, display the values such as current / voltage / frequency / load status / battery on the front panel, perform the inversion by IGBT using PWM (Pulse Width Modulation) to generate an ideal sine wave, and allow connection of a remote monitoring panel as well as an SNMP module. NOTE:	

	1- Power per cell of the batteries proposed to the Administration shall be calculated as follows: (Device power (VA) x Output CosQ (0.9)) / Inverter efficiency (0.95) / Number of batteries / Number of cells (6)= …Watt/cell. Unit price per cell for calculation of batteries voltage shall be considered 1.70 V/cell. The calculation result and the batteries proposed shall be marked in the catalog and submitted to the administration. The batteries used shall be maintenance-free and TSE-certified.
Related official pose/item number, book	35.180.1311

Item no:	**Item**	**Unit**
ELC.062	**Mechanical by-pass (including the external enclosure): (Unit: Qty., Materials on construction site: 60%) For 60 kVA UPS**	**pcs**
Description/ Specifications	UNINTERRUPTIBLE POWER SUPPLY (UPS): (Unit: Qty., Materials on construction site: 60%) Compliance is required with the Regulation 2014/35/AB on Electrical Equipment Designed for Use Within Certain Voltage Limit, the Regulation 2004/108/AT on Electromagnetic Compatibility, and the Regulation on Amendment of Energy Market Customer Services published in the Official Gazette No. 26558 dated June 20, 2007. Transportation to the work site, installation (not including the cables) and delivery in working order of on-line uninterruptible power supplies in compliance with the standards of TS EN 62040-1/2/3, with a power factor of 0.9, input power factor > 0.99, and EMI/RFI filtering for all devices, the specifications provided in the relevant technical specifications document, input tolerance values of 380 V AC (3-phase) or 220 V AC (single-phase) ±15% and 50 Hz ±5% and an input harmonic distortion of < 8%, equipped with a static (semiconductor) by-pass switch that switches the load to the grid or the auxiliary resource in the event of overload / short circuit / output voltage running out of limits / rectifier failure / extreme temperatures / inverter failure, a built-in mechanical by-pass switch, a dry-type, maintenance-free battery pack sufficient to run the system on full load for the required period, an LCD or graphic display panel, and a backlit mimic diagram displaying the system status on the front panel, which shall supply the required power uninterruptedly for 24 hours, have a load crest factor of 3:1, fulfill output values of 380 V AC (3-phase) or 220 V AC (single-phase) ±1% and 50 Hz ±1% as well as total harmonic distortion of < 2% on linear load and < 5% on non-linear load, supply the load while charging fully discharged batteries, keep fully charged batteries at buffer charge, display the values such as current / voltage / frequency / load status / battery on the front panel, perform the inversion by IGBT using PWM (Pulse Width Modulation) to generate an ideal sine wave, and allow connection of a remote monitoring panel as well as an SNMP module. NOTE: 1- Power per cell of the batteries proposed to the Administration shall be calculated as follows: (Device power (VA) x Output CosQ (0.9)) / Inverter efficiency (0.95) / Number of batteries / Number of cells (6)= …Watt/cell. Unit price per cell for calculation of batteries voltage shall be considered 1.70 V/cell. The calculation result and the batteries proposed shall be marked in the catalog and submitted to the administration. The batteries used shall be maintenance-free and TSE-certified.	
Related official pose/item number, book	35.180.1407	

Item no:	**Item**	**Unit**
ELC.063	**Emergency Stop Button (Unit: Qty.) 2 poles (1 NA + 1 NK contacts), Ø60-mm mushroom head**	**pcs**
Description/ Specifications	Emergency Stop Button Supply, transportation to the work site, installation, establishment of connections and delivery in working order of plastic emergency mushroom buttons Ø40 or Ø60 mm in diameter with exposed and covered dry contacts and special adhesive that is not affected by heat and moisture, and designed for emergency stop, emergency start, emergency inactivation, and	

	emergency activation, which shall break the system's power and switch it to the safe mode, not re-activate the system unless the button is rotated, restore to the original position when the head of the button is rotated manually, in compliance with the standards TS EN 60947-5-1, TS EN 60947-5-5/ A1 and TS EN ISO 13850, manufactured with the laser inscription technique against deletion and fading, bearing a designation of "Acil Durdurma" or "Emergency Stop" in black on a yellow background, a circular warning sign 60, 75 or 90 mm in diameter and a CE compliance marking, and in compliance with the 2014/35/EU Low Voltage Directive (LVD).
Related official pose/item number, book	35.185.1702

Item no:	**Item**	**Unit**
ELC.064	**Class I elevators (The elevators designed for carrying passengers). Class II elevators (The elevators designed principally to carry passengers, and to carry other objects when necessary). Variable-speed, Rated capacity: 800 kg, Unit: Qty. 3 Stops 1.00 m/s speed**	**pcs**
Description/ Specifications	Class I elevators (The elevators designed for carrying passengers). Class II elevators (The elevators designed principally to carry passengers, and to carry other objects when necessary). Variable-speed, Rated capacity: 800 kg, Unit: Qty. Capacity (rated capacity): 800 kg, Pit (cross section) size: 2000 x 2200 mm (width x depth), Carriage cross-sectional size: 1350 x 1400 mm (width x depth) or 1200 x 1500 mm (width x depth), Where the dimensions specified in TS ISO 4190-1 cannot be fulfilled, the area of the carriage shall be 1.87 - 2.00 m^2 as per TS EN 81-20. Entrance width: 900 mm, Entrance height: min. 2000 mm as per TS EN 81-20. Note: The carriage interior shall be modified for use by the handicapped. The article 45 of the Planned Areas Type Zoning Regulation shall be taken into consideration for door width and carriage area.	
Related official pose/item number, book	35.710.1152	

Item no:	**Item**	**Unit**
ELC.065	**Diesel motor cooling with water or air, 1500 rpm: (Unit: Qty.) 350 kVA (Prime power)**	**pcs**
Description/ Specifications	DIESEL ELECTROGEN GROUP INSTALLATION: (Materials on construction site: 80%) Performing the feeder and control cables, cable and pipe ducts, supplying, installation and delivery at the work site in working condition of the 5 mm checkered plate duct covers, cable heads and attachment material, installation material, spare and other materials required on the technical specification and every kind of small materials that are manufactured in accordance with the Turkish standards as specified in the general provisions and descriptions section of the Unit Price book, Directive (2006/42/EC) Machinery, Directive (2000/14/EC) Noise Emission by Outdoor Equipment, 2014/35/EU Low Voltage Directive (LVD), released to the market with CE marking, at a power that can provide the required generator power at the specification and at the sea level as written in the Technical specifications in 24/24 hour continuous operation and full load, at a cross-section that complies with the power between two or four timed diesel engine and specification, the first movement and cooling appliance, 400/231 volt 50 Hz alternator that is coupled with this and the equipment, automatic activation appliance, board with devices as specified on the technical specification, alternator and its board. Note: 1-±10% modification is acceptable in the alternator power that is specified as kVA below. The price to be added or removed for each changed kVA will be found with the interpolation by using certain lower and upper values. The price of the powers in the residual location is determined by interpolation. 2- The prices for Electrogen group, Transfer board (surface-mounted sheet board), Dry-type protective contactor, auxiliary contactor, time delay relay, Knife-type fuse (on the transfer board) for the grid inlet and generator flow, signal lamp, cable	

	that is specified on the project based on power and distance (underground cable junction box and underground cable duct) Horn alarm honk (for exciting any transaction that is done on the control unit) and cable changing based on power and distance, cable junction box will be individually paid for the relevant items. Note: The automatic switching equipment included in the price of the diesel electrogen group will comply with the following definition. Supply, installation and delivery in working condition of the automatic activation device (control unit) comprising of electronic circuits that will give light signals in the event of power outage, voltage dropping below or rising above a certain value, and when desired that will activate and deactivate the diesel electrogen group in specific circumstances promptly or after a certain amount of time, that will give audible and light excitation in the event of a failure or malfunction, that will not be affected by the parallel operation of two groups, that will be able to operate automatically and manually depending on the needs, that can be adjusted in a way to disable the diesel automatically by giving audible and light excitation in case of a drop in the oil pressure and excessive temperature rise or decrease in the cooling water or temperature rise in the cylinder head, that can make 2 or 5 start-ups, that can determine the operation or non-operation, that will have light signal and the mechanism to lock the system in case of malfunction, that will perform emergency shutdown when required, that will stop the system and give light signal in case of an interruption in any of the generator phases, and in case of rising and decreasing engine speed, that will disconnect the load with a light signal in the event of overloading, that will give light signal in the event of feedstock failure, that will not trigger the diesel unnecessarily, that will operate every type of generators. NOTE: Other materials to be used will be paid separately from the relevant unit prices.
Related official pose/item number, book	35.740.1114

Item no:	**Item**	**Unit**
ELC.066	**SYNCHRONIZATION ASSEMBLY: (Unit: Qty.: Materials on construction site: 80%) Automatic**	**pcs**
Description/ Specifications	SYNCHRONIZATION ASSEMBLY: (Unit: Qty.: Materials on construction site: 80%) Automatic: The automatic synchronization device, two Wattmeter (with Wattmetric relay), zero voltmeter and other specifications are same as with B.F.T. 35.740.5100. (35.740.5100-Hand-Operated (Manual): Delivery of every kind of small materials including labor in working condition provided to contain plug (button) or selector cam switch, locking lever or console that will ensure parallel connection of two or more groups and that will ensure the selection of the generator to switch on dual voltmeter, dual frequency meter, synchronoscope, zero voltmeter, necessary current and voltage measurement transformers.)	
Related official pose/item number, book	35.740.5200	

Item no:	**Item**	**Unit**
ELC.067	**Sound insulation vessel: (unit: qty., materials on construction site: 60%) 400 kVA**	**pcs**
Description/ Specifications	Sound insulation vessel: (unit: qty., materials on construction site: 60%) The material will be 9-10 cm wall thickness, flat cowl outer part, and machined perforated sheet interior. The gap between these two sheets will be filled and compressed with foam and A class non- combustible glass wool fiber layer in accordance with TS EN 13501- 1 + A1. Thanks to the special wall covered with perforated sheet, the sound will pass through these holes and be absorbed. These special walls will be inserted inside hood sections transversely two or three pieces at a time, and the sound will be absorbed during the air circulation. Doors will be placed in a way to carry out the maintenance of the machinery from all directions of the cabinet. Suitable gaskets will be installed to prevent the leakage of sound, when the doors are closed. Furthermore, the doors will be made of lockable type. After shutting the sound in the engine as the noise will only remain in the exhaust, exhausts with	

	sound choke chambers will be used. The dimensions will grow based on the power of the generator, the cabinets will be scaled accordingly. Including every kind fasteners, delivery of every kind small materials including labors in working condition
Related official pose/item number, book	35.740.5413

Item no:	**Item**	**Unit**
ELC.077	**Miniature Circuit Breakers (with 6-kA breaking capacity): (Unit: Qty.) Up to 25 A (6 kA)**	**pcs**
Description/ Specifications	Miniature Circuit Breakers (with 6-kA breaking capacity): (Unit: Qty.) Supply and installation, including any material and labor, of an automatic circuit breaker with 6-kA short-circuit breaking capacity, which has the same specifications as the item 35.105.1100. (35.105.1100 - Miniature Circuit Breakers (with 3-kA breaking capacity): (Unit: Qty.) Supply and installation, including any material and labor, of an automatic circuit breaker with 3-kA short-circuit breaking capacity, 2 and 4 pole versions of which are capable of breaking neutral and phase lines, B or C curve, which was manufactured in compliance with the TS 5018-1 EN 60898-1 standards and released with CE compliance marking, and which also functions as a switch.)	
Related official pose/item number, book	35.105.1211	

Item no:	**Item**	**Unit**
ELC.078	**Residual current circuit breakers: (Unit: Qty.) Up to 4 x 63 A (30 mA)**	**pcs**
Description/ Specifications	Residual current circuit breakers: Supply, installation, and delivery in working order, including any material and labor, of a residual current circuit breaker designed in compliance with the Regulations, specifications, and standards on Internal Electrical Installation and released in compliance with the TS EN 61008-1, TS EN 61008-2-1 standards and with a CE compliance marking, which, in case of any residual current in electrical installation, detects the faulty current on the phases and neutral line and breaks the circuit in 10-30 seconds to ensure safety of life and property, features a differential coil that steps in at 220 V for single-phase circuits, and at 380 V for 3-phase circuits, and a test button for testing whether the system is functioning, which is available for installation on the carriage rails, protected against external effects, can continue on working at 30 mA for life protection and 300 mA for fire protection even if neutral line breaks down.	
Related official pose/item number, book	35.115.1022	

Bill 3.3. Cables and Cable Carrying Systems

Item no:	**Item**	**Unit**
ELC.056	**Installation of column and supply lines with 1-KV, underground N2XH cables: (Unit: m) 4 x 50 mm²**	**m**
Description/ Specifications	Installation of column and supply lines with 1-KV, underground N2XH cables: (Unit: m) Supply to the workplace, including cable bushings and escape pipes, any other material and labor, of 0.6/1kV, underground N2XH cables for installation on plaster, on walls and ceilings through consoles or clips, or through conduits inside the building, and through conduits outside the building. Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE	

	marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.
Related official pose/item number, book	35.150.2198

Item no:	**Item**	**Unit**
ELC.068	**Cable Tray Systems: (Unit: kg) Materials on construction site: 60%)**	**kg**
Description/ Specifications	Cable Tray Systems: (Unit: kg) Materials on construction site: 60%) Bending and drilling holes on the sheet metal with sufficient width and height to carry the cable load, designed in compliance with the standard TS EN 61537, dimensions specified in the approved electricity project, the general technical specifications for electricity, and the standard TS EN 10130/10131, making grooves on the tray to lay transversal and longitudinal strings on the (reinforced) tray to enhance the strength and prevent further bending of the sheet metal, subjecting the tray to a chemical bath to remove grease and rust, flux coating and pre-drying the tray, then hot dip galvanizing the tray in compliance with the standard TS EN ISO 1461, transportation to the work site, installation on the ceiling or walls with suspenders or consoles, and delivery in working order, including any material and labor, of the tray. NOTE: 1- Only the weight of the tray shall be considered for measuring. 2- The attachment parts to be used for horizontal and vertical deflection, reducers, the consoles to be used as carriers, ceiling pendants, suspension elements, fixing clips, screws, nuts, washers, pins, etc. shall also be hot dip galvanized. The prices of such items shall be included in the unit price and not charged additionally. 3- The manufacturer of hot tip galvanization shall be required to present a certificate of compliance with the conditions of TS EN ISO 1461.	
Related official pose/item number, book	35.190.1100	

Item no:	**Item**	**Unit**
ELC.069	**Under-floor (Under-screed) Cable Ducts (Unit: kg)**	**kg**
Description/ Specifications	Under-floor (Under-screed) Cable Ducts (Unit: kg) Cutting and bending minimum 1.5-mm-thick, "pre-galvanized" sheet metal in compliance with TS EN 10143 to turn it into a sealed channel in the dimensions mentioned below, creating compartments by modifying the form of the channel, transportation to the work site, installation in the flooring material by adjusting the channel and junction box heights by set screws, placement of junction boxes at necessary locations, laying guide wires in the channel (applying "Rabitz wire" on the channel in case of an insufficient thickness of screed on the channel), in compliance with the standards TS EN 50085-1 and TS EN 50085-2-2, dimensions specified in the approved electrical installation project design, and the general specifications of the electrical installation for safe installation of power cables beneath the floor, and delivery including labor and any material. NOTE: 1- The attachment parts to be used for horizontal and vertical deflection, four-point attachment parts, level adjustment unit, cable duct junctions with outlets in four directions, duct termination units, cable duct outlet boxes, anchors, screws, nuts, washers etc. shall also be hot-dip galvanized. The cable duct junction and multi-socket box shall be charged separately based on the relevant unit prices. 2- If rabitz wires are used on the cable duct, they shall be charged separately based on the relevant unit price.	
Related official pose/item number, book	35.190.1200	

Item no:	Item	Unit
ELC.070	**Underfloor Cable Duct Junction Box (Unit: Qty.)**	**pcs**
Description/ Specifications	Underfloor Cable Duct Junction Box (Unit: Qty.) Supply, transportation to the work site, and delivery in working order, including labor and installation, of cable duct junction boxes with the side surfaces on four sides available for drilling to install the cable duct; minimum 2-mm in thickness bottom, top frame and lockable top cover for use as a distribution junction; stoppers to prevent the duct from penetrating into the junction box; outlets on four sides; decorative appearance; a mechanism that allows height adjustment before and after the screed; and barriers of different types within the junction box to prevent the contact between different types of cables, which shall be used at deflection points of the floor duct or where a power outlet or any other outlet is required, made of pre-galvanized steel sheet as per TS EN 10143, and comply with the standards TS EN 50085-1 and TS EN 50085- 2-2 as well as the dimensions and general technical specifications provided in the approved electricity project design.	
Related official pose/item number, book	35.190.1201	

Item no:	Item	Unit
ELC.071	**Under-Screed or Elevated Floor Multi-Socket Box (Unit: Qty.)**	**pcs**
Description/ Specifications	Under-Screed or Elevated Floor Multi-Socket Box (Unit: Qty.) Supply, transportation to the work site, installation, and delivery in working order, including any material and labor, of flame-retardant, halogen-free socket housings with special ducts fitting the junction for installation; interfaces with the floor or junction box sized minimum 235 x 235 mm; the periphery of the housing reinforced with galvanized steel sheet minimum 3-mm thickness; iron hinge pin, a lockable cover with embedded handle, which can be installed in both directions; the top surface of the cover allowing decorative coating (designed to be flush with the floor when coated); openings covered with rubber caps to allow extension of plug cables; special inclined slots placed opposite to each other to allow installation of 8 sockets of 45 x 45 modules and 16 sockets of 22.5 x 45 modules; and a mechanism to allow adjustment to the level of the floor, which shall be in compliance with the standards TS EN 50085-1 and TS EN 50085-2-2, the dimensions given in approved electricity project design and the general specifications of the electrical installation. Note: The sockets shall be charged based on the relevant items.	
Related official pose/item number, book	35.190.1202	

Item no:	Item	Unit
ELC.072	**Installation of a supply line with halogen-free, flame-retardant, isolated, multi-core NHXMH cables: (Unit: m) 3 x 2.5 mm²**	**m**
Description/ Specifications	Installation of a supply line with halogen-free, flame-retardant, isolated, multi-core NHXMH cables: (Unit: m) Installation of column or supply lines (NHXMH, minimum 300/500 V), including the supply of any material and labor.	
Related official pose/item number, book	35.150.1531	

Item no:	Item	Unit
ELC.073	**Installation of a supply line with halogen-free, flame-retardant, isolated, multi-core NHXMH cables: (Unit: m) 4 x 2.5 mm²**	**m**
Description/ Specifications	Installation of a supply line with halogen-free, flame-retardant, isolated, multi-core NHXMH cables: (Unit: m) Installation of column or supply lines (NHXMH, minimum 300/500 V), including the supply of any material and labor.	
Related official	35.150.1561	

pose/item number, book	

Item no:	**Item**	**Unit**
ELC.074	**Installation of a supply line with halogen-free, flame-retardant, isolated, multi-core NHXMH cables: (Unit: m) 4 x4mm²**	**m**
Description/ Specifications	Installation of a supply line with halogen-free, flame-retardant, isolated, multi-core NHXMH cables: (Unit: m) Installation of column or supply lines (NHXMH, minimum 300/500 V), including the supply of any material and labor.	
Related official pose/item number, book	35.150.1562	

Item no:	**Item**	**Unit**
ELC.075	**Installation of column and supply line using (HO7Z,O7Z1) conductors within HFFR pipes: (Unit: m)** **Installation of column or supply lines with plastic insulation (HO7Z, O7Z1, minimum 300/500 V), including the supply of any material and labor. 3 x 4 mm² P.18**	**m**
Description/ Specifications	Installation of column and supply line using (HO7Z,O7Z1) conductors within HFFR pipes: (Unit: m) Installation of column or supply lines with plastic insulation (HO7Z, O7Z1, minimum 300/500 V), including the supply of any material and labor.	
Related official pose/item number, book	35.150.1132	

Item no:	**Item**	**Unit**
ELC.076	**Installation of column and supply lines with 1-KV, underground N2XH cables: (Unit: m) 4 x 150 mm²**	**m**
Description/ Specifications	Installation of column and supply lines with 1-KV, underground N2XH cables: (Unit: m) Supply to the workplace, including cable bushings and escape pipes, any other material and labor, of 0.6/1kV, underground N2XH cables for installation on plaster, on walls and ceilings through consoles or clips, or through conduits inside the building, and through conduits outside the building. Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.	
Related official pose/item number, book	35.150.2202	

Item no:	**Item**	**Unit**
ELC.079	**Installation of column and supply lines with 1-KV, underground N2XH cables: (Unit: m) 4 x 35 mm²**	**m**
Description/ Specifications	Installation of column and supply lines with 1-KV, underground N2XH cables: (Unit: m) Supply to the workplace, including cable bushings and escape pipes, any other material and labor, of 0.6/1kV, underground N2XH cables for installation on plaster, on walls and ceilings through consoles or clips, or through conduits inside the building, and through conduits outside the building. Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE	

	marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.
Related official pose/item number, book	35.150.2197

Item no:	**Item**	**Unit**
ELC.080	**Installation of column and supply lines with 1-KV, underground N2XH cables: (Unit: m) 4 x 25 mm²**	**m**
Description/ Specifications	Installation of column and supply lines with 1-KV, underground N2XH cables: (Unit: m) Supply to the workplace, including cable bushings and escape pipes, any other material and labor, of 0.6/1kV, underground N2XH cables for installation on plaster, on walls and ceilings through consoles or clips, or through conduits inside the building, and through conduits outside the building. Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.	
Related official pose/item number, book	35.150.2196	

Item no:	**Item**	**Unit**
ELC.081	**Installation of column and supply lines with 1-KV, underground N2XH cables: (Unit: m) 4 x 10 mm²**	**m**
Description/ Specifications	Installation of column and supply lines with 1-KV, underground N2XH cables: (Unit: m) Supply to the workplace, including cable bushings and escape pipes, any other material and labor, of 0.6/1kV, underground N2XH cables for installation on plaster, on walls and ceilings through consoles or clips, or through conduits inside the building, and through conduits outside the building. Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.	
Related official pose/item number, book	35.150.2194	

Item no:	**Item**	**Unit**
ELC.082	**Installation of column and supply lines with 1-KV, underground N2XH cables: (Unit: m) 4 x 6 mm²**	**m**
Description/ Specifications	Installation of column and supply lines with 1-KV, underground N2XH cables: (Unit: m) Supply to the workplace, including cable bushings and escape pipes, any other material and labor, of 0.6/1kV, underground N2XH cables for installation on plaster, on walls and ceilings through consoles or clips, or through conduits inside the building, and through conduits outside the building. Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by	

	an organization accredited by the European Union.
Related official pose/item number, book	35.150.2193

Item no:	**Item**	**Unit**
ELC.083	**HO7Z,O7Z1 cables (minimum 300/500 V): (Unit: m) 1 x 4 mm² section**	**m**
Description/ Specifications	HO7Z,O7Z1 cables (minimum 300/500 V): (Unit: m) Supply, transportation to the work site, and installation of the cables, including any small material and labor. Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.	
Related official pose/item number, book	35.150.1403	

Item no:	**Item**	**Unit**
ELC.084	**HO7Z,O7Z1 cables (minimum 300/500 V): (Unit: m) 1 x 6 mm² section**	**m**
Description/ Specifications	HO7Z,O7Z1 cables (minimum 300/500 V): (Unit: m) Supply, transportation to the work site, and installation of the cables, including any small material and labor. Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.	
Related official pose/item number, book	35.150.1404	

Item no:	**Item**	**Unit**
ELC.085	**HO7Z,O7Z1 cables (minimum 300/500 V): (Unit: m) 1 x 10 mm² section**	**m**
Description/ Specifications	HO7Z,O7Z1 cables (minimum 300/500 V): (Unit: m) Supply, transportation to the work site, and installation of the cables, including any small material and labor. Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.	
Related official pose/item number, book	35.150.1405	

Item no:	**Item**	**Unit**
ELC.086	**HO7Z,O7Z1 cables (minimum 300/500 V): (Unit: m) 1 x 16 mm² section**	**m**
Description/ Specifications	HO7Z,O7Z1 cables (minimum 300/500 V): (Unit: m) Supply, transportation to the work site, and installation of the cables, including any small material and labor. Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.	
Related official pose/item number, book	35.150.1406	

Item no:	**Item**	**Unit**
ELC.087	**HO7Z,O7Z1 cables (minimum 300/500 V): (Unit: m) 1 x 35 mm² section**	**m**

Description/ Specifications	HO7Z,O7Z1 cables (minimum 300/500 V): (Unit: m) Supply, transportation to the work site, and installation of the cables, including any small material and labor. Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.
Related official pose/item number, book	35.150.1408

Item no:	**Item**	**Unit**
ELC.088	**N2XHFE 180 0.6/1kV fireproof cables (Unit: m) 2 x 1.5re**	**m**
Description/ Specifications	N2XHFE 180 0.6/1kV fireproof cables (Unit: m) Cables (except pipes and junction boxes) with single or multiple wires, copper conductors, special synthetic insulators, special layers of fill and a special synthetic external casing, which shall retain their functionality for 180 in flames as per TS IEC 60331-11/21 and TS EN 61034-1/2, and comply with the production standard VDE 0276- 604.0266, with any material and labor included.	
Related official pose/item number, book	35.150.3120	

Item no:	**Item**	**Unit**
ELC.089	**N2XHFE 180 0.6/1kV fireproof cables (Unit: m) 4 x 10 rm**	**m**
Description/ Specifications	N2XHFE 180 0.6/1kV fireproof cables (Unit: m) Cables (except pipes and junction boxes) with single or multiple wires, copper conductors, special synthetic insulators, special layers of fill and a special synthetic external casing, which shall retain their functionality for 180 in flames as per TS IEC 60331-11/21 and TS EN 61034-1/2, and comply with the production standard VDE 0276- 604.0266, with any material and labor included.	
Related official pose/item number, book	35.150.3164	

Item no:	**Item**	**Unit**
ELC.090	**N2XHFE 180 0.6/1kV fireproof cables (Unit: m) 4 x 16 rm**	**m**
Description/ Specifications	N2XHFE 180 0.6/1kV fireproof cables (Unit: m) Cables (except pipes and junction boxes) with single or multiple wires, copper conductors, special synthetic insulators, special layers of fill and a special synthetic external casing, which shall retain their functionality for 180 in flames as per TS IEC 60331-11/21 and TS EN 61034-1/2, and comply with the production standard VDE 0276- 604.0266, with any material and labor included.	
Related official pose/item number, book	35.150.3165	

Item no:	**Item**	**Unit**
ELC.091	**Installation of column and supply lines with 1-KV, underground YVV (NYY) cables: (Unit: m) 4 x 185 mm²**	**m**
Description/ Specifications	Installation of column and supply lines with 1-KV, underground YVV (NYY) cables: (Unit: m) Installation of column and supply lines with 1-KV, underground YVV (NYY) cables in compliance with TS IEC 60502-1+A1 standards. Supply to the workplace, including cable bushings and escape pipes, any other material and labor, of underground cables for installation on plaster, on walls and ceilings through consoles or clips, or through conduits inside the building, and through conduits outside the building. Unit: The length of the cable between terminal boxes and terminal caps shall be considered. Multiple cables installed in the same conduit shall be housed in cable ducts or pipes in the diameter and length required for each cable at the locations of passage. The terminal boxes, caps, junction boxes,	

	consoles, and conduits shall be paid separately. Iron structures shall be paid per the Item No. Y.23.176. No additional charge shall apply for passage ducts and pipes up to 10 meters long. Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.
Related official pose/item number, book	35.140.3233

Bill 3.4. Lightning Protection System

Item no:	**Item**	**Unit**
ELC.092	**Active arrester tip (Unit: Qty.) Mean excitation way DL = 60 m.**	**pcs**
Description/ Specifications	Active arrester tip (Unit: Qty.) Supply, transportation, installation on a post, connection of drop wires, and delivery in working order, including any small material and labor, of an active lightning arrester head made of non-corrosive materials or materials that bear such characteristics (e.g. chrome-plated copper, chromium-nickel, stainless steel, etc.), resistant to the highest wind speed, in compliance with the TS 13709/T1, (NFC17-102) and (UNE 21.186) standards, CE-certified, and guaranteed for operation for min. 15 years under the approval of the Ministry of Science, Industry and Technology, with an early stream excitation system, high corrosive resistance, min. IP 65 protection, and min. 15 µs ΔT excitation time, which can operate smoothly at -40ºC to +120ºC, resist a 100 kA lightning test current class H as per TS EN 50164-1 /TS EN 62561-1, as described in the relevant technical specifications. NOTE: 1-Type tests of active lightning rod heads shall be conducted by a laboratory accredited by TURKAK or an international organization, and submitted to the Administration. 2-A document certifying that the IP 65 protection class test was conducted by an organization accredited by TURKAK or an International organization shall be submitted to the Administration.	
Related official pose/item number, book	35.750.1504	

Item no:	**Item**	**Unit**
ELC.093	**Roof-top post (For active arrester tip) (Unit: Qty., Materials on construction site: 60%)**	**pcs**
Description/ Specifications	Roof-top post (For active arrester tip) (Unit: Qty., Materials on construction site: 60%) Supply of a 6-meter post made of 80-mm galvanized pipe (1 size), including any accessory material related to the drop wire and securing of the post, and installation of the post without damaging the roof, including the fasteners along the post. If the length of the post exceeds 6 meters, the part exceeding 6 meters shall be charged per the relevant unit price.	
Related official pose/item number, book	35.750.1600	

Item no:	**Item**	**Unit**
ELC.094	**Roof surrounding and drop wires (Unit: m, Materials on construction site: 60%) 50-mm² electrolytic copper conductor**	**pcs**
Description/ Specifications	Roof surrounding and drop wires (Unit: m, Materials on construction site: 60%) Installation of roof and conductor wiring as described in the specifications, using bare electrolytic solid copper conductors, taking measures against corrosion at points of connection	

	to the arrester tip or earth electrode with pointed or threaded pronged wire clips made of bronze cast or similar materials, silver soldering the attachments of conductors where necessary, including test terminal, any small material and labor.
Related official pose/item number, book	35.750.2001

Item no:	**Item**	**Unit**
ELC.095	**Earth electrode (bar) electrolytic copper (Unit: Qty.)**	**pcs**
Description/ Specifications	Earth electrode (bar) electrolytic copper (Unit: Qty.) Supply to the work site of a min 3.5-meter electrolytic copper bar in compliance with the TS 435/T1 standard, Ø20 mm in diameter, screw-mounting of a tapered head on one end to facilitate driving the bar into the ground, supply of the attachment with 4 cm threads if the bar is made up of two pieces, burying the bar min. 60 cm in the ground, connection to the drop conductors and surrounding conductors of the building by silver soldering or special bronze cast retaining clamps, including any small material and labor. Note: If the ground is rocky, appropriate soil shall be sought around that area.	
Related official pose/item number, book	35.750.4002	

Item no:	**Item**	**Unit**
ELC.096	**Conductor protecting pipe (Unit: Qty.)**	**pcs**
Description/ Specifications	Conductor protecting pipe (Unit: Qty.) Laying drop wires through 3-m, 20-mm galvanized iron pipe with the 0.5-m within the earth (the part of pipe exceeding 3 m shall be paid separately); Insulation of the conductor within the pipe with PVC or a similar insulator to prevent the part of the conductor within the pipe from contacting the pipe and attachment to the pipe at a point to prevent its operation as a transformer in case of lightning strike; test terminal made of non-corrosive material; supply, installation and delivery including any small material and labor of all materials.	
Related official pose/item number, book	35.750.4003	

Item no:	**Item**	**Unit**
ELC.097	**Exothermic welding attachment (copper to copper), (copper to aluminum), (copper to iron) (Unit: Qty.) Up to 90 g welding powder**	**pcs**
Description/ Specifications	Exothermic welding attachment (copper to copper), (copper to aluminum), (copper to iron) (Unit: Qty.) Attachment of conductors of any section to each other by exothermic reaction of copper oxide powder, including pots, pot pliers, scrapers, brushes, lighters, any material and labor.	
Related official pose/item number, book	35.750.5003	

Bill 3.5. Grounding System

Item no:	**Item**	**Unit**
ELC.098	**Installation of surrounding wires around the building (Unit: m, Materials on construction site: 60%)50-mm² solid copper**	**m**
Description/ Specifications	Installation of surrounding wires around the building (Unit: m, Materials on construction site: 60%) Installing surrounding wires for the building using the conductors, making a 60 to 80-cm-deep canal around the building, laying the conductor and filling the canal back, connecting to the	

	electrodes with rivets or by welding, including any small material and labor.
Related official pose/item number, book	35.750.3001

Item no:	**Item**	**Unit**
ELC.099	**Installation of surrounding wires around the building (Unit: m, Materials on construction site: 60%) 30 x 3.5-mm galvanized steel flat bars as described in the project design,**	**m**
Description/ Specifications	Installation of surrounding wires around the building (Unit: m, Materials on construction site: 60%) Installing surrounding wires for the building using the conductors, making a 60 to 80-cm-deep canal around the building, laying the conductor and filling the canal back, connecting to the electrodes with rivets or by welding, including any small material and labor.	
Related official pose/item number, book	35.750.3002	

Item no:	**Item**	**Unit**
ELC.169	**Earthing Manhole (GROUNDING MANHOLE)**	**pcs**
Description/ Specifications	Soil Inspection Pit: The concrete inspection pit with a square cross-section must have a concrete cover and extend 150 mm down on the top floor of the busbar. An earth inspection pit shall be provided for each earth bus, to which the earthing conductor is connected. "Grounding Manhole - Do Not Disassemble" waring must be written on a brass or brass plate on the cover.	
Related official pose/item number, book	E.Ö.T.1	

Bill 3.6. Phone, Data and TV System

Item no:	**Item**	**Unit**
ELC.100	**Trunk line installation within the building: (Unit: m) Up to 50 pairs (with ground) P.37**	**m**
Description/ Specifications	Trunk line installation within the building: (Unit: m) Installing trunk line wires with PVC-insulated and PVC-sheathed telephone cables 0.5 mm in diameter with conductors color-coded as per the standards and installed to prevent through peschel, bergman or PVC pipes within the building, including any small material and labor.	
Related official pose/item number, book	35.510.1109	

Item no:	**Item**	**Unit**
ELC.101	**Telephone distribution panels: (Unit: Qty, Materials on construction site: 60%). Up to 50 pairs**	**pcs**
Description/ Specifications	Telephone distribution panels: (Unit: Qty, Materials on construction site: 60%). A flush-mounted or surface-mounted distribution panel on each floor with hinged and lockable door and made of 1-mm-thick DKP sheet metal and coated with gun-sprayed paint of the desired color, including small fixtures and fittings, special telephone terminal box, duly forming and soldering the cable tips entering the box, any small material and labor.	
Related official pose/item number, book	35.510.1603	

Item no:	**Item**	**Unit**
ELC.102	**Electronic Type Fully Automated Telephone Exchange: (Unit: Qty.: Materials on**	**pcs**

	construction site: 80%) 4/ 20	
Description/ Specifications	Electronic Type Fully Automated Telephone Exchange: (Unit: Qty.: Materials on construction site: 80%) The supply and installation on site of the telephone exchange manufactured in accordance with the Directive (1999/5/EC) Radio Equipment and Telecommunications Terminal Equipment, introduced to the market with the CE compliance marking, of which specifications are defined in the Technical Specification, comprising fully solid state semi-conductor circuit components, micro-processor controlled, of modular electronic automatic type; the installation of the internal and external subscriber distribution panel, the making of the cable connections coming from the telephone exchange and subscribers; the provision of a special battery (TS 1352-1 EN 60896-11, TS 1352-2 EN 60896-21, TS 1352-3 EN 60896-22) and a rectifier for the exchange, all kinds of small materials, workmanship and the delivery of the telephone exchange in working order. Note: There will be robot operator and voice message system port at a quantity of 15% of the number of external lines for the proposed telephone exchange.	
Related official pose/item number, book	35.700.1102	

Item no:	**Item**	**Unit**
ELC.103	**Floor-standing cabinets: 42U 800 mm x 800 mm 19" floor-standing cabinet**	**pcs**
Description/ Specifications	Floor-standing cabinets: Cabinets shall be coated with electrostatic powder paint, with lockable castors with 200 kg capacity, type tests conducted and results submitted to the administration; min. 2-mm-thick back covers and internal rails (2 in front, 2 at the back), min. 1.5-mm-thick DKP sheet metal internal surfaces, 19-inch-wide gaps between the rails, bottom chassis with a cable input section that prevents dust ingress and secures cables, key-lock, detachable front, back and side covers, front cover made of tempered, anti-static, secure, smoke gray glass with 4-mm grinding and 135 degrees of angle, which can be opened with a key and detached, with at least a 3-cm diameter screw-fixed frame with metal fittings around the glass that hold it to enhance its strength, with ventilation gratings on the top and/or side surfaces, with the edges of the holes on the rails sized 9.5 ± 0.01 mm each, and with the rails movable along the depth of the cabinet, designed to access the fan group when the top cover and/or the cap is removed.	
Related official pose/item number, book	35.550.2030	

Item no:	**Item**	**Unit**
ELC.104	**Product Accessories: Fixed shelf for 800 mm depth**	**pcs**
Description/ Specifications	Floor-standing cabinets: Cabinets shall be coated with electrostatic powder paint, with lockable castors with 200 kg capacity, type tests conducted and results submitted to the administration; min. 2-mm-thick back covers and internal rails (2 in front, 2 at the back), min. 1.5-mm-thick DKP sheet metal internal surfaces, 19-inch-wide gaps between the rails, bottom chassis with a cable input section that prevents dust ingress and secures cables, key-lock, detachable front, back and side covers, front cover made of tempered, anti-static, secure, smoke gray glass with 4-mm grinding and 135 degrees of angle, which can be opened with a key and detached, with at least a 3-cm diameter screw-fixed frame with metal fittings around the glass that hold it to enhance its strength, with ventilation gratings on the top and/or side surfaces, with the edges of the holes on the rails sized 9.5 ± 0.01 mm each, and with the rails movable along the depth of the cabinet, designed to access the fan group when the top cover and/or the cap is removed.	
Related official pose/item number, book	35.550.4003	

Item no:	**Item**	**Unit**

ELC.105	**Product Accessories: Thermostatic fan module (4 fans)**	pcs
Description/ Specifications	Floor-standing cabinets: Cabinets shall be coated with electrostatic powder paint, with lockable castors with 200 kg capacity, type tests conducted and results submitted to the administration; min. 2-mm-thick back covers and internal rails (2 in front, 2 at the back), min. 1.5-mm-thick DKP sheet metal internal surfaces, 19-inch-wide gaps between the rails, bottom chassis with a cable input section that prevents dust ingress and secures cables, key-lock, detachable front, back and side covers, front cover made of tempered, anti-static, secure, smoke gray glass with 4-mm grinding and 135 degrees of angle, which can be opened with a key and detached, with at least a 3-cm diameter screw-fixed frame with metal fittings around the glass that hold it to enhance its strength, with ventilation gratings on the top and/or side surfaces, with the edges of the holes on the rails sized 9.5 ± 0.01 mm each, and with the rails movable along the depth of the cabinet, designed to access the fan group when the top cover and/or the cap is removed.	
Related official pose/item number, book	35.550.4011	

Item no:	Item	Unit
ELC.106	**Product Accessories: Brake castor group (Front wheels with brakes)**	pcs
Description/ Specifications	Floor-standing cabinets: Cabinets shall be coated with electrostatic powder paint, with lockable castors with 200 kg capacity, type tests conducted and results submitted to the administration; min. 2-mm-thick back covers and internal rails (2 in front, 2 at the back), min. 1.5-mm-thick DKP sheet metal internal surfaces, 19-inch-wide gaps between the rails, bottom chassis with a cable input section that prevents dust ingress and secures cables, key-lock, detachable front, back and side covers, front cover made of tempered, anti-static, secure, smoke gray glass with 4-mm grinding and 135 degrees of angle, which can be opened with a key and detached, with at least a 3-cm diameter screw-fixed frame with metal fittings around the glass that hold it to enhance its strength, with ventilation gratings on the top and/or side surfaces, with the edges of the holes on the rails sized 9.5 ± 0.01 mm each, and with the rails movable along the depth of the cabinet, designed to access the fan group when the top cover and/or the cap is removed.	
Related official pose/item number, book	35.550.4008	

Item no:	Item	Unit
ELC.107	**Product Accessories: 19" rack-type 6-outlet socket with switch**	pcs
Description/ Specifications	Floor-standing cabinets: Cabinets shall be coated with electrostatic powder paint, with lockable castors with 200 kg capacity, type tests conducted and results submitted to the administration; min. 2-mm-thick back covers and internal rails (2 in front, 2 at the back), min. 1.5-mm-thick DKP sheet metal internal surfaces, 19-inch-wide gaps between the rails, bottom chassis with a cable input section that prevents dust ingress and secures cables, key-lock, detachable front, back and side covers, front cover made of tempered, anti-static, secure, smoke gray glass with 4-mm grinding and 135 degrees of angle, which can be opened with a key and detached, with at least a 3-cm diameter screw-fixed frame with metal fittings around the glass that hold it to enhance its strength, with ventilation gratings on the top and/or side surfaces, with the edges of the holes on the rails sized 9.5 ± 0.01 mm each, and with the rails movable along the depth of the cabinet, designed to access the fan group when the top cover and/or the cap is removed.	
Related official pose/item number, book	35.550.4014	

Item no:	Item	Unit
ELC.108	**Product Accessories: 42U vertical cable organizer (single side)**	pcs
Description/	Floor-standing cabinets:	

Specifications	Cabinets shall be coated with electrostatic powder paint, with lockable castors with 200 kg capacity, type tests conducted and results submitted to the administration; min. 2-mm-thick back covers and internal rails (2 in front, 2 at the back), min. 1.5-mm-thick DKP sheet metal internal surfaces, 19-inch-wide gaps between the rails, bottom chassis with a cable input section that prevents dust ingress and secures cables, key-lock, detachable front, back and side covers, front cover made of tempered, anti-static, secure, smoke gray glass with 4-mm grinding and 135 degrees of angle, which can be opened with a key and detached, with at least a 3-cm diameter screw-fixed frame with metal fittings around the glass that hold it to enhance its strength, with ventilation gratings on the top and/or side surfaces, with the edges of the holes on the rails sized 9.5 ± 0.01 mm each, and with the rails movable along the depth of the cabinet, designed to access the fan group when the top cover and/or the cap is removed.
Related official pose/item number, book	35.550.4034

Item no:	**Item**	**Unit**
ELC.109	**Product Accessories: 19" 1U horizontal cable organizer**	**pcs**
Description/ Specifications	Floor-standing cabinets: Cabinets shall be coated with electrostatic powder paint, with lockable castors with 200 kg capacity, type tests conducted and results submitted to the administration; min. 2-mm-thick back covers and internal rails (2 in front, 2 at the back), min. 1.5-mm-thick DKP sheet metal internal surfaces, 19-inch-wide gaps between the rails, bottom chassis with a cable input section that prevents dust ingress and secures cables, key-lock, detachable front, back and side covers, front cover made of tempered, anti-static, secure, smoke gray glass with 4-mm grinding and 135 degrees of angle, which can be opened with a key and detached, with at least a 3-cm diameter screw-fixed frame with metal fittings around the glass that hold it to enhance its strength, with ventilation gratings on the top and/or side surfaces, with the edges of the holes on the rails sized 9.5 ± 0.01 mm each, and with the rails movable along the depth of the cabinet, designed to access the fan group when the top cover and/or the cap is removed.	
Related official pose/item number, book	35.550.4019	

Item no:	**Item**	**Unit**
ELC.110	**Utp Cat6H HALOGEN-FREE 4 x 2 x 23 AWG**	**m**
Description/ Specifications	Utp Cat6H HALOGEN-FREE 4 x 2 x 23 AWG Unit: m Materials on construction site: 60%. Supply, transportation to the work site, installation and testing, including any small material and labor, of 4 pairs of cables at ISO class D - CAT 6e standard and complying with the 23 AWG 0.57 mm bare-stranded copper coating criteria for 250-Mbps data communication at 250 MHz bandwidth for horizontal installations of local area networks, which retard fire and usually extinguish itself, and do not release toxic gases or smoke due to 4-pair, 4-color coded, unshielded twisted pairs enclosed in HFFR outer jacket; which are certified for passing the IEC 60332-1 IEC 60754 tests. Depending on the cable installation conditions, materials of production shall be charged by the relevant items (Payment for the pipes if cables are laid through pipes, or for the trays if cables are laid through cable trays)	
Related official pose/item number, book	35.515.7030	

Item no:	**Item**	**Unit**
ELC.111	**UTP CAT 6 Flush-mounted Single Socket (Unit: Qty., Materials on construction site: 60%)**	**pcs**
Description/ Specifications	UTP CAT 6 Flush-mounted Single Socket (Unit: Qty., Materials on construction site: 60%) The product with 8 x RJ-45 contact cores with connector contact points coated with a highly conductive material for use for 250- Mbps data communication at 250 MHz bandwidth for	

	horizontal installations of local area networks (LAN), in CAT 6 standards. Unshielded, compliant with the standards ANSI/TIA/EIA-568B.2 and ISO/IEC -11801, ISO-certified, flush-mounted, single-port, PVC frame, Socket Box, spring-loaded cover, and labels, including labor, installation, testing and transportation.
Related official pose/item number, book	35.505.6200

Item no:	**Item**	**Unit**
ELC.112	**MULTI-MODE FIBER OPTIC CABLE (Unit: m.) Central Single Loose Tube with 4 fibers 1x4 62.5/125 OM1 MM** **Armored F/O Cable**	**m**
Description/ Specifications	MULTI-MODE FIBER OPTIC CABLE (Unit: m.) Multi-mode (MM) fiber optic cables are used for high-quality audio, data and video transfer at local area networks (LAN), closed circuit television (CCTV) systems, and industrial automation systems (SCADA). Fiber core/cladding diameter: 62.5 / 125 µm (OM1), 50/125 µm (OM2, OM3). It will be corrugated, grooved, with or without a steel wire armor, with an external polyethylene casing and "Thixotropic Gel" filling in buffer tubes to prevent water carryover. The maximum optical attenuation must be 3 dB/km at 850 nm and 1 dB/km at 1300 nm. It should meet TS EN 60793-1-1 and TS EN 60794-1- 23 standards. It will be put into service only after it is terminated by "fusion splice" method using a special welding machine and tested end-to-end with an OTDR tester. Each fiber optic cable will be tested with an OTDR test device after it is laid and terminated in a termination box, and the test reports will be submitted to the administration. Any material and labor will be included.	
Related official pose/item number, book	35.540.1002	

Item no:	**Item**	**Unit**
ELC.113	**Wall-mounted cabinets: 7U 600 mm x 500 mm 19" cabinet**	**pcs**
Description/ Specifications	Wall-mounted cabinets: Supply, and installation in working order, including any small material, of cabinets coated with electrostatic powder paint, with type tests conducted and results submitted to the administration; min. 2-mm-thick back covers and internal rails (2 in front, 2 at the back), min. 1.5-mm-thick DKP sheet metal internal surfaces, 19-inch-wide gaps between the rails, bottom chassis with a cable input section that prevents dust ingress and secures cables, key-lock, detachable front and side covers, front cover made of tempered, anti-static, secure, smoke gray glass with 4-mm grinding and 135 degrees of angle, which can be opened with a key and detached, with at least a 3-cm diameter screw-fixed frame with metal fittings around the glass that hold it to enhance its strength, with ventilation gratings on the top and/or side surfaces, with the edges of the holes on the rails sized min. 9.5 ± 0.01 mm each, and with the rails moveable along the depth of the cabinet.	
Related official pose/item number, book	35.550.1001	

Item no:	**Item**	**Unit**
ELC.114	**UTP CAT 6 Patch Panel (Unit: Qty., Materials on construction site: 60%) 24 Ports**	**pcs**
Description/ Specifications	UTP CAT 6 Patch Panel (Unit: Qty., Materials on construction site: 60%) The item shall be in CAT 6 standards, 19 inches wide, unshielded, with RJ-45 8-contact female connector, and the Connector Contact Point coated with a highly conductive material, which shall be used at 250-MHz bandwidth and 1000-Mbps data transfer rate for cable terminations at the points of contact in local area networks (LAN), horizontal distribution and	

	telecommunication rooms, equipment terminations. It shall be made of steel, aluminum, aluminum alloy or anodized aluminum, in compliance with the standards ANSI/TIA/ EIA-568 B.2-1 and ISO/IEC -11801, and labels, labor, installation, and testing shall be included.
Related official pose/item number, book	35.505.7301

ELC.130	**Television outlet line (Unit: Qty.)**	**pcs**
Description/ Specifications	Television outlet line (Unit: Qty.) Installation and delivery in working order, including any small material and labor, of a television outlet line with an antenna downlead and special power socket distributor terminal block, laid as a coaxial cable through an appropriate PVC pipe in compliance with the technical specifications (shielded microphone cables shall not be used). Unit: No additional charge shall apply unless the length of the outlet line exceeds 20 m. The part of the outlet line exceeding 20 m shall be charged per the item 35.505.1000. (35.505.100-Coaxial Cables (Unit: m) Supply to the work site, including gateway and security pipes, any material and labor, of coaxial cables manufactured as per TS EN 50117-1 and 2014/35/EU Low Voltage Directive and released with the CE compliance marking, for use with radio, TV, radar, fire control, several transmitter devices, security satellite aerials, CCTV aerials and measurement systems, and applications where signal loss should be minimized or external interference should be avoided. Note: The peschel, bergman or PVC pipe is included for the internal wiring. Cable Type Impedance (ohm))	
Related official pose/item number, book	35.480.1000	

Item no:	**Item**	**Unit**
ELC.131	**Coaxial Cables (Unit: m) RG 11/U-6 75**	**m**
Description/ Specifications	Coaxial Cables (Unit: m) Supply to the work site, including gateway and security pipes, any material and labor, of coaxial cables manufactured as per TS EN 50117-1 and 2014/35/EU Low Voltage Directive and released with the CE compliance marking, for use with radio, TV, radar, fire control, several transmitter devices, security satellite aerials, CCTV aerials and measurement systems, and applications where signal loss should be minimized or external interference should be avoided. Note: The peschel, bergman or PVC pipe is included for the internal wiring. Cable Type Impedance (ohm)	
Related official pose/item number, book	35.505.1026	

Item no:	**Item**	**Unit**
ELC.170	**Modem**	**pcs**
Description/ Specifications	The wireless access point provided must have at least 1 radio in the IEEE 802.11b/g standard operating in the 2.4 GHz frequency band and in the IEEE 802.11a standard operating in the 5 GHz frequency band. It must support access rates of 6, 9, 12, 18, 24, 36, 48 and 54 Mbps for the IEEE 802.11b standard, and 1, 2, 5.5 and 11 Mbps , and for the IEEE 802.11g and IEEE 802.11a standard, It must use IEEE 802.11b DSSS (Direct Sequence Spread Spectrum) and OFDM for IEEE 802.11g and IEEE 802.11a (Orthogonal) Frequency Division Multiplexing) modulation techniques. On the proposed access point, the following client access control and security methods must be supported:	

	IEEE 802.1x Authentication (WPA/WPA2-AES) Authentication with MAC Address (Local or RADIUS) Layer 2 Client Isolation IEEE 802.11i Encryption Support RADIUS (RFC 2865 and 2866) Client Support DHCP Client Support 16 different SSIDs can be defined on the wireless access point provided. A different BSSID (MAC address) must be available for at least 8 different SSIDs defined on the wireless access point proposed. The wireless access point provided must have a pair of antennas with a gain of at least 4.4 dBi , operating in the 2.4 GHz or 5 GHz frequency band (dual-band) and interchangeable as required. The wireless access points proposed must be capable of operating in narrow and/or non-ventilated areas (plenum-rated). At least 2 IEEE 802.3af PoE compatible 10/100Mbps Ethernet interfaces on the wireless access point proposed. It must be able to render the radio interfaces inoperable if the Ethernet connection is problematic or the connection to the wireless network controller is broken. If the access point is disconnected from the wireless network controller, it must be able to ensure that the wireless network traffic continues unaffected. The proposed wireless network access point must support centralized management and architecture using the wireless network controller. The system must be operated using a wireless network controller. The proposed access point must have VLAN support. Different VLAN routing must be available for each SSID. For each SSID defined, 802.1Q VLAN must have association support. There must be support for defining Quality of Service (QoS) parameters for each SSID defined. Each SSID defined must have WEP, WPA, WPA2, and 802.1x authentication support. The access point provided must have support for defining different security and authentication methods for each SSID defined. On the proposed access point, there must be support for defining the maximum number of concurrent users for each SSID defined. On the proposed access point, 802.1p and Wi- Fi Multimedia (WMM) Service quality parameters must be supported. The proposed access point must have a service identification feature depending on its location. It must be able to automatically detect wireless network controllers on the local network. It must have a Layer 2 and Layer 3 roaming support. SYSLOG support must be available and system messages must be able to be sent to a remote SYSLOG server if requested. The wireless access point proposed must be able to be managed with the integrated web interface, SSH and SNMP. A Compatible wall mounting bracket shall be provided with the wireless access point provided.
Related official pose/item number, book	E.Ö.ZA.1

Item no:	**Item**	**Unit**
ELC.178	**Main Router Switch**	**pcs**
Description/ Specifications	There shall be Backbone switches at least 3 (three) slots in a chassis or stackable (stackable) in the architecture. In the case of a stackable backbone being offered , it shall support features such as NSSU (Nonstop System Upgrade), NSB (Nonstop Bridging), and NSR (Nonstop active routing). The solution shall have 24 (twenty-four) 10/100/1000TX ports and 24 (twenty- four) 1000 Base-X SFP/GBIC module slots, which shall be provided with 10 (ten) km distance SFP with field switches. Location- based solutions can be accepted provided that uninterrupted communication is provided. The decision of the administration shall be valid.	

	1000Base SX, 1000Base LX, 100FX, 1000BaseZX or 1000BaseT SFP modules can be installed on the SFP/GBIC ports on the backbone switch solution. The 10/100/1000TX ports on the backbone switch solution shall support IEEE 802.3af or 802.3at Power over Ethernet (PoE). The backplane capacity of the backbone switch solution shall be at least 160 (sixty) Gbps. The packet transmission performance of the backbone switch solution must be at least 110 (one hundred) Mpps. The proposed backbone switch solution shall be non-blocking and structured for wire-speed. The backbone switch solution shall support the ability to back up multiple chassis (Chassis Bounding/Virtual Chassis). The backbone switch solution shall support at least 16,000 (sixteen thousand) MAC addresses. The backbone switch solution shall have at least 64 (sixty-four) Mb Flash and 512 (five hundred and twelve) Mb Ram memory. The backbone key solution shall support IEEE 802.1d Spanning Tree , IEEE 802.1w Rapid Re-convergence Spanning Tree and IEEE 802.1s Multiple Spanning Tree protocols. The backbone switch solution shall support IEEE 802.3x Flow Control to regulate traffic flow. The backbone switch solution shall support the IEEE 802.3ad Link Aggregation standard. At least 30 (thirty) groups (Trunk or LAG) can be created on the device and each group must have at least 8 (eight) ports. The ports in the trunk or LAG must be selectable from different Ethernet switches within the cluster. Failure of some of the ports that make up a Trunk or LAG connection shall not disrupt Trunk or LAG integrity. The backbone switch solution shall support the IEEE 802.1Q VLAN standards. Device at least 4000 (four thousand) pieces VLAN -ID and at least 4000 (four thousand) shall have two active VLAN support. The backbone switch solution shall support Q-in-Q (Vlan Double Tagging) and Private Vlan. The switches to be presented must be capable of IP routing and support static routing and RIPv2, OSPF, BGPv4 and policy-based routing protocols. The backbone switch solution shall support the RFC 1519 CIDR (Classless Inter Domain Routing) for advanced applications. The backbone switch solution proposed shall support VRF (Virtual Routing and Forwarding) and VRRP. The backbone switch solution must be able to perform multicast routing and switching. For this purpose, IGMP Snooping v1, v2, v3 and PIM SM, PIM-SSM protocols must be supported. The backbone switch solution must support IEEE 802.1p Priority Queue standard and advanced QoS features. The device shall be able to perform queuing by L2 level MAC Address, L3 Level IP Protocol type and L4 Level UDP/TCP port number. The backbone switch solution shall have the ability to adjust port rates (Port Rate Limiting). The backbone key solution shall support Strict Priority and Weighted Round Robin mechanisms. There shall also be at least 8 (eight) queue prioritization support on the Spine key solution proposed. There shall be IPV6 support on the backbone switch solution. It shall also support IPv6 routing , RIPng , OSPFv3 and MLD Snooping on the device. The backbone switch solution shall have Sflow or Netflow support. Statistical information, alarms, and other information must be queried through the backbone key solution RMON support, and at least 4 (four) groups shall support RMON. Access List can be created on L2, L3 and L4 basis on backbone switch solution. The backbone switch solution proposed shall include NAC (Network Access Control) support for advanced security applications. Each port shall support IEEE 802.1X User Authentication , MAC Based Authentication and WEB Based Authentication at the same time. The backbone switch solution shall support the Dynamic VLAN Assignment (RFC 3580) Protocol, which allows IEEE 802.1x users to be automatically assigned to a VLAN. The proposed backbone switch solution shall support 9K (nine thousand) jumbo frames. The backbone switch solution shall have port mirroring support to analyse the traffic passing through it. The backbone switch solution must support SNMP v1, v2, v3. The device can be managed via

	console port or Web browser. The backbone switch solution to be proposed shall support DHCP Server, DHCP Relay and DHCP Snooping. The backbone switch solution shall support neighbouring devices (Neighbour Learning) LLDP or similar feature. Radius, TACACS + and SYSLOG support shall be provided on the spine key solution. RPS (Redundant Power Supply) support shall be provided on the backbone switch solution to be proposed and shall be proposed as redundant. All required protocols on the backbone switch solution shall be able to work actively and all necessary licenses shall be included. The backbone switch solution shall support SNTP (Simple Network Time Protocol) or NTP (Network Time Protocol) protocols so that time and date information can be synchronized with all other switches on the network. Multiple configuration files and firmware can be stored on the backbone switch solution. The backbone switch solution shall support software configuration update via TFTP. The backbone of the key features shall be presented with the latest and most advanced solution on Firmware. All SFP/GBIC/SFP +/XFP modules to be proposed on the backbone switch solution shall be the original product of the switch manufacturer and OEM products. hall not be proposed. The backbone switch solution to be presented shall be given with the cabinet mounting materials.
Related official pose/item number, book	E.Ö.ZA.9

Item no:	**Item**	**Unit**
ELC.179	**CAT6 Patchcord**	**pcs**
Description/ Specifications	Patch cables from patch panels to switches , patch panels and other Cat 6A cables, termination jacks shall be the products of the same manufacturer. All cables in patch panels shall be labelled. Cat 6A cables between patch panels and other devices shall be seamless, and one piece.	
Related official pose/item number, book	E.Ö.ZA.10	

Item no:	**Item**	**Unit**
ELC.181	**24 Port Switch**	**pcs**
Description/ Specifications	ABBREVIATIONS AND DEFINITIONS ADMINISTRATION Ministry of Education IT Class "Information Technologies" class in schools Z Library Enriched Library in Schools Room Teachers' Room, Officer's Room, Library, etc. School Public schools whose numbers and locations are covered by the Project as of the date of the contract are stated in the Contract and/or its annexes Classroom MEB Schools Interactive Board LED Display + Interactive Whiteboard Computer + 2 Whiteboards Interactive Whiteboard Socket Metal shielded socket set with one grounded child-proof UPS type electrical outlet	

	Connection Socket Integrated metal shielded socket set with one grounded child-proof UPS type electrical outlet, one HDMI output and one USB output BT-Connection Socket Integrated metal shielded socket set with one grounded child-proof UPS type electrical outlet, two data sockets, one HDMI output, one USB output UTP Unshielded twisted pair copper cable IEEE Institute of Electrical and Electronics Engineers CAT6 Structural Cabling Category 6 Class E Standard HFFR/LSOH halogen Free Flame Retardant - Low Smoke Zero Halogen Halogen Free Low Smoke Density Material EN European Norm F/O Fibre optic IEC International Electro-technical Commission ISO International Organization for the Standardization PVC Polyvinylchloride Polyvinylchloride AWG American Wire Gauge TSE Turkish Standardization Institute UPS Uninterruptible power supply CGS Cabin Control System ETL Electrical Testing Labs (USA - Independent Testing Laboratory) UL Underwriters Laboratories (USA - Independent Testing Laboratory) 3P Third Party Testing (Denmark - Independent Testing Laboratory) GHMT Gesellschaft für Hochfrequenz-Messtechnik (Germany - Independent Test Laboratory) DELTA DELTA Certification Laboratory (Denmark) FCC Federal Communications Commission (USA) DIN Deutsches Institut für Normung TUV Technischer Überwachungsverein IAF International Accreditation Forum TSEK Standards Compliance Certification CE Conformité Européenne EUROBAT

	Association of European Accumulator Manufacturers TURKAK Turkish Accreditation Agency Compliant Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equip ment RAL Colour matching system TBA Terabyte GB Gigabyte NW Kilobyte MB Megabyte Prophet Hertz MHz Megahertz GHz Gigahertz Gbps Gigabit/second (gigabit per second) Mbps Megabits/second (Megabits Per Second) Mpps Million packet per seconds Active Devices SFP (Small Form Pluggable) modules with Ethernet switches , Wireless Access Devices, Uninterruptible Power Supplies, Wireless Network Management System equipment, Central Wireless Network Management System equipment, Nas Disk and so on. all other electrical devices. UPS Uninterruptible power supply WLC Wireless Network Management System PoE Power over Ethernet MKAYS Central Wireless Network Management System STANDARDS If the standards used within the scope of the technical specifications are updated, the latest version of the relevant standard shall be accepted. EIA/TIA 568C.2 Commercial Building LAN Cabling Standard (2009) ANSI the American National Standards Institute EN12150-1: 2000 Glass Of Building- Thermally Toughened Soda Lime Silicate Safety Glass EN 50173 the Principle Design Standard For Structured Cabling Systems Installed Within the Countries Of The Europe an Union. EN 61587-1

	Mechanical structures for electronic equipment - Climatic , mechanical testsand safety aspects for cabinets , racks , subracks and chassis EUROBAT The European Association of Battery Manufacturers (Association of European Accumulator Manufacturers) IEC 60297 Mechanical structures for electronic equipment - Dimensions of the mechanical structures of the 482.6 mm (19 in) series IEC 60529 Degrees of Protection Provided by Enclosures IEC 60917 Modular order for the development of mechanical structures for electronic equipment practices IEC 61008 Residual Current Circuit Breaker Standard T568A RJ45 Termination Standard for UTP Cables T568B RJ45 Termination Standard for UTP Cables GENERAL PROVISIONS Supply of all materials, equipment and tools used in the maintenance and repair works of the systems, including labour and software, shall be entirely borne by the CONTRACTOR. Any device which interferes with the service of the Administration or interrupts the service shall be replaced free of charge with the same or a higher model in case of failure of more than 3 (three) years in the same school. Any patent, proprietary trademark rights, software, document or any goods or services related to the materials and services to be provided to the Administration by the CONTRACTOR within the scope of this specification are claimed by third parties. In such cases, the Contractor is liable for penal sanctions and any material and moral damages. These damages shall be compensated by the CONTRACTOR and therefore cannot be recourse to the ADMINISTRATION in any way. All hardware units of the schools shall be original and unused. Drawings, photographs and explanations given in the annexes of these technical specifications shall be given as an example for the installations. The decision regarding the suitability of all materials to be used shall be made by the Administration. The Contractor shall start the installation of the relevant materials after the decision of conformity of each material to be shipped to the site. In case of the supply of new brand/model products by the CONTRACTOR, the compliance of these products with the specifications shall be checked by the ADMINISTRATION. These products can be used after approval by the ADMINISTRATION. No other brand and model material shall be used other than the materials for which conformity is decided. In case of problems that may arise during installation, the products approved by the ADMINISTRATION shall be referenced. Provided that he date on which the Administration confirms the adoption of active devices is the start date, the Contractor shall provide a period of 3 years to perform the supply and installation of equipment free warranty service. For the connection of the active devices to the network, at least 6 (six) PoE ports shall be left unused on the main cabinets in each of the school buildings. GENERAL PROVISIONS FOR ACTIVE DEVICES The CONTRACTOR shall provide the latest update packages, security, and so on to the hardware and software products, if any. shall install all patch versions. He shall provide this support during the warranty period. The Contractor shall install the equipment and other equipment specified in this specification at the schools listed in the annexes of the specification and make it operational after completing all integration procedures.

	For all products to be used by the CONTRACTOR; technical specifications shall not conflict with the information in the technical documents published on the manufacturer's own web pages and submitted to the ADMINISTRATION. The Contractor shall submit the brand and model of each product together with the tender document in a table. In all schools , the same brand shall be used for each product group (Ethernet switch, wireless access device, management, etc.). Different product groups can be of different brands. The documents related to the desired quality and standards for all active and passive products shall be submitted to the Administration at the stage of expertise. The CONTRACTOR shall prepare at least one school as a pilot for conformity testing in the region in which it is responsible. The conformity test shall be carried out by a Technical commission to be established by the Administration. The Contractor shall provide all necessary modules, UTP cables, fibre optic cables, apparatus, connection cables and interconnection materials, hardware and software of the Ethernet switches free of charge. The switches shall support IPv6. If this support is provided with an additional license, they shall be provided free of charge. The energy supply of the Wireless Access devices to be established in schools shall be provided through PoE (IEEE 802.3af, IEEE 802.3at) Ethernet Switches in order to provide aesthetics, easy management and ease of operation. All active devices must be IPv6 supported. If requested by the administration, the required accesses must be transferred to IPv6. All components shall be compatible with each other, can work continuously and continuously. The configuration structure of all components shall be fully defined by the CONTRACTOR according to the standards set by the ADMINISTRATION. Any configuration updates that may be requested by the ADMINISTRATION during the duration of the project shall be free of charge within the time period agreed by the ADMINISTRATION and the CONTRACTOR. All https supported devices shall have this interface open and must not receive certificate errors when accessing the interface. ETHERNET SWITCHES AND MANAGEMENT SOFTWARE COMMON FEATURES OF ETHERNET SWITCHES All Ethernet switches to be provided shall be displayed on the official web page of the manufacturer as of the date of the invitation to show the detailed technical specifications of the product. All switches to be provided shall be 100/1000 Mbps. SFP modules shall be the same brand as Ethernet switch if it shall be used in uplink connections between cabinets and Ethernet switches. The location of the Ethernet switches to be provided in the cabinet shall be made in accordance with the standards specified by the Administration (EK-5E), connections and adjustments. Service pack , patch , update , upgrade , bug , fix , hotfix, etc. shall be required during the contract. software and current versions of the proposed software of the devices shall be implemented by the CONTRACTOR. In addition, the CONTRACTOR shall keep software update , upgrade and different types of device operating systems up to date by means of remote installation of software required for security vulnerabilities. Cabinets in Ethernet in order from top to bottom by the key management arrangement shall be defined IP addresses. In the cabinet , the Ethernet switch uplink shall be done by using 1000Base-T or 1000Base-X ports in the same type for all schools. (Appendix 5) multiple cabinets used in the institution uplink connection EK-5B, 5C and EK-EK-5d shall be as in FIG. (Client ports available for uplinks) The uplinks on the Ethernet switches shall be labeled with materials that shall not be affected by the external environment, so that the cables shall come from/go. The earthing of the Ethernet switches shall be made from the busbar inside the cabinet. All switches to be placed in schools shall be from the products announced on the manufacturer's website at the date of the tender and shall not be end of sale/life/support at the date of the tender. The specified specifications are available on this site. If it is not possible

	to repair and perform all the functions of the devices which have been declared EOL (end of life) of the defective active devices , they shall be replaced free of charge with a product of the same brand or a version with the least equivalent during the contract date. These new active devices shall also be manageable with the management systems of previous devices. Ethernet switches must allow only specific MAC addresses to communicate through certain ports, be able to dynamically learn the MAC addresses to be determined, and be counted as MAC address limits. The products shall have interfaces and open standards that support standard protocols for interoperability with other suppliers' systems and provision of third party services. Ethernet switches shall not be affected by any power outages and shall ensure continuity of service after interruption. The switches shall support IPv6. This support shall be demonstrated by the IPv6 Ready logo, and all products proposed shall have at least the "IPv6 Ready Phase 2" completion certificate. If this support is provided with an additional license, they shall be provided with the device indefinitely and free of charge. For ease of administration and installation, switches shall have their own configuration and mechanism to install the operating system (firmware) from the management station or management system. Will be able to keep the configuration and firmware files on the switches separately, old and new. Each switch shall have port-based and MAC address-based VLAN support. The switches shall also have Voice VLAN support. IEEE 802.1q VLAN trunking or equivalent protocol shall be supported on all ports. Each VLAN created shall have protocol support that allows it to be automatically generated on other switches. The MTBF of each key shall be at least 200 000 (two hundred thousand) hours. Each key shall have CE or TUV or TSE certificate. The switches on the 8 ports shall be capable of operating at least 8 switches in a single stack. If any of the stacked switches fails, the stack functionality shall not be impaired. Switches; Secure SSL (https) shall be supported by web-based or graphical interface management. However, SNMP v1/v2/v3 shall support telnet, SSHv2 and console access and can be managed with these protocols. All Ethernet switches have the same CLI (Command Luna Interface). The SNMP monitoring functions of all Ethernet switches shall not be incomplete. Multi-level security monitoring on the console shall prevent unauthorized persons from changing the Ethernet switch configuration. The switches can send log and debug records to remote servers via SNMP or SYSLOG. The switches shall be able to talk to the RADIUS authorization server and support at least EAP, PEAP or EAPoL protocol during the call. AAA support via Radius, TACAS + or similar protocol shall be available. It shall be possible to determine which user changes to the switches. The switches shall be delivered with stable and up-to-date firmware. The switches shall be provided with the highest level software licenses. If you wish to activate any features on the device afterwards, you must obtain this license free of charge. All software updates during the contract shall be available free of charge. FTP and TFTP protocols, software updates and configuration backups can be performed on the switches. All switches shall also support SCP or SFTP protocol to ensure file transfer in a secure environment. Switches shall be of 1U cabinet type (19 inches) and shall be installed in cabinets. On the switches; MAC Address or web- based authentication support shall be available. The switches shall have RMON support. All security policies requested by the ADMINISTRATION, such as Harp inspection, DHCP snooping , broadcast storm , port security , ACL, IPSG and so on. must be applied to all switches. All new devices to be purchased must comply with the security policies set by the ADMINISTRATION. These policies must cover and be sufficient for all devices using IP inside. The switches shall have port mirroring support in order to analyze the passing traffic. The traffic of more than one port on the switch can be forwarded to another port. The source and

	destination ports can be on different switches (Remote Port Mirroring). The ports of Ethernet switches shall have Rate Limiting feature. The switches shall support IEEE 802.1p, IEEE 802.3x, IEEE 802.3u, IEEE 802.3z and IEEE 802.3az standards. In addition, PoE- enabled switches shall be configured to save time to provide PoE power. The switches shall support IEEE 802.1q, IEEE 802.1d, IEEE 802.3ad, IEEE 802.1s, IEEE 802.1w. It shall also have a PVST (Per-VLAN Spanning Tree) or similar protocol that can automatically use a separate STP for each VLAN created. The switches shall support the IEEE 802.1x standard. 802.1x MAC authentication bypass; Using MAC address for authorization for devices that do not support 802.1x, 802.1x VLAN assignment ; With the help of RADIUS server, user authorization on port basis and dynamic VLAN allocation, 802.1x Guest VLAN, 802.1x Web authorization, 802.1x dynamic ACL assignment shall be supported. The switch shall have jumbo frame support on the gigabit ports. Ethernet switches shall support SFlow or NetFlow or IPFIX protocols. Uni-Directional Link Detection (UDLD) or Device Link Detection Protocol (DLDP) support shall be provided to protect the health of the connections between switching devices and shall be applied to all fibre connected ports. The switches shall have a power LED and a status LED for each port. he switches shall have multicast support. The switches shall have IGMP (v1, v2, v3) Snooping support. The switches shall support LLDP and LLDP-MED protocols. The switches shall have QoS (Quality of Service) specifications. Traffic priorities can be determined and bandwidth management shall be allowed. Copper 10/100/1000 ports of the switches shall have Auto-MDIX feature. The 1000Base-X ports on the switch shall support 1000Base-SX, 1000Base-LX, or 1000Base-T SFPs. The switches shall support SM (single mode) and MM (multi-mode) fibre. The switches shall have wire-speed and non-blocking properties. The 100/1000 ports of the switches shall work as auto-negotiate. At least 48-port Ethernet Switches shall support at least 2000, at least 24 at most 47 ports at least 1000, at least 12 at most 23 ports at least 450, at least 8 at most 11 ports at least 300 dynamic ARP and DHCP snooping tables. LAYER-3 ETHERNET SWITCH The switches shall technically be used as the L3 collection switch. This Ethernet switch shall only be used in the main cabinet in the main building. InterVLAN routing performed in the school shall be carrie dout via this Ethernet switch. In schools with a bandwidth of 10 Mbps, the router device and layer 3 switch may be the same device provided that it meets the router specifications and layer-3 Ethernet switch specifications. If the router device and layer-3 Ethernet switch are the same device, at least 2 Gbps (with 64 Byte packet) shall have throughput performance. Switches shall be able to perform third layer (Layer 3) IPV4 and IPV6 static routing. The switches shall support OSPF, OSPFv3, RIPng , and RIP. If an additional license is required for this support, it shall be included with the device free of charge. IGMP v1, v2, v3, MLD and IGMP Snooping v1, v2, v3 shall be supported. It shall also support PIM-SM (PIM Sparse Mode) to route multicast traffic for IPv4 and IPv6. The switches shall have IPv4 and IPv6 DHCP Server and Relay. ETHERNET SWITCH MANAGEMENT SOFTWARE The Switch Management Software may be of a different brand than the Switches, provided that all requirements in this Technical Specification are met. Switch Management Software shall capture the alarm information of the switches connected to it and perform topology management. Switch Management Software shall be able to provide information to 3rd party software which shall be able to capture alarm information and perform topology management of the switches connected to the Sub-Switch Management Software connected to it, and the necessary hardware, software and license shall be provided free of charge.

	It must be able to monitor Ethernet switches on a 24/7 basis and be able to send alarms via e-mail or SMS. The contents of the warning must be arranged as desired. Ethernet switch management software must automatically discover switches. Ethernet switch management software must ensure that automatically discovered devices are transferred to the graphical map. Ethernet switch management software must be able to automatically collect and report serial numbers of Ethernet switches, operating system versions, and module information installed on them. Ethernet switch management software must be able to perform configuration management, error management, performance management operations. Ethernet switch management software shall support reporting. The Ethernet switch management software shall support IPv6. Ethernet switch management software shall be able to receive and warn errors and alarms that shall occur in the devices. Software versions of all Ethernet Switches can be centrally controlled, new versions can be installed automatically and/or manually on all network devices simultaneously or in groups.
Related official pose/item number, book	E.Ö.ZA.12

Item no:	**Item**	**Unit**
ELC.182	**USB Cable (4 mt.)**	**pcs**
Description/ Specifications	The cable to be used must correspond to the 1080p image.	
Related official pose/item number, book	E.Ö.ZA.13	

Item no:	**Item**	**Unit**
ELC.183	**HDMI Cable (4 mt.)**	**pcs**
Description/ Specifications	The cable to be used must correspond to the 1080p image.	
Related official pose/item number, book	E.Ö.ZA.14	

Item no:	**Item**	**Unit**
ELC.184	**USB Socket**	**pcs**
Description/ Specifications	The cable to be used must correspond to the 1080p image.	
Related official pose/item number, book	E.Ö.ZA.15	

Item no:	**Item**	**Unit**
ELC.185	**HDMI Socket**	**pcs**
Description/ Specifications	The cable to be used must correspond to the 1080p image.	
Related official pose/item number, book	E.Ö.ZA.16	

Item no:	**Item**	**Unit**
ELC.190	**120 cm Antenna**	**pcs**
Description/ Specifications	Technical Specifications Frequency : 10, 5 - 13 GHz	

	Dish diameter : 1145 x 1050 Offset angle : 230 Focal length (F/D) : 0,66 Gain (10, 75 GHz) : 40, 0 dB Gain (11, 75 GHz) : 40, 8 dB Gain (12, 75 GHz) : 41, 4 dB Efficiency (11, 75 GHz) ≈ 70% Cross polarization > 30 dB Beam opening 1,60 Mechanical Properties External dimensions 1190 x 1100 Reflector Material Sheet Weight 3, 70 kg Paint Polyester RAL 7035
Related official pose/item number, book	E.Ö.TV.1

Item no:	**Item**	**Unit**
ELC.191	**LNB**	**pcs**
Description/ Specifications	It is used in centralized systems. The building is compatible with common distribution facilities. H/LH/HV/LV/H; 4 polarization outputs are available. It is compatible with the apparatus. Water protection unit allows you to protect your receiver and equipment from contact with liquid. High gain, low noise feature minimizes signal loss in rainy and closed weathers. Input Frequency: 10.7 - 12.75 GHz output Frequency: 950 - 2150 MHz Local Frequency: 9.75/10.6GHz Noise Figure: 0.3 dB Gain: 70dB	
Related official pose/item number, book	E.Ö.TV.2	

Item no:	**Item**	**Unit**
ELC.192	**10/8 Multiswitch**	**pcs**
Description/ Specifications	8 Subscriber Independent output, Smooth deployment in the TV band with the built-in amplifier in the terrestrial broadcasting inlet. Diseqc 2.0 software Switch box ensuring a 100 meter distribution distance per subscriber, high performance even in the tallest building Interstage Amplifiers (Dec amplifier) Allows Cascade multi-switch connection with more Multi-switch interstage Amplifiers models compensate for losses in the upper frequency range through their curved characteristics	
Related official pose/item number, book	E.Ö.TV.3	

Bill 3.7. CCTV, PA, Fire, Disabled Refuge Call and Burglar Alarm System

Item no:	**Item**	**Unit**
ELC.115	**Product Accessories: Fixed shelf for 600 mm depth**	**pcs**

Description/ Specifications	Floor-standing cabinets: Cabinets shall be coated with electrostatic powder paint, with lockable castors with 200 kg capacity, type tests conducted and results submitted to the administration; min. 2-mm-thick back covers and internal rails (2 in front, 2 at the back), min. 1.5-mm-thick DKP sheet metal internal surfaces, 19-inch-wide gaps between the rails, bottom chassis with a cable input section that prevents dust ingress and secures cables, key-lock, detachable front, back and side covers, front cover made of tempered, anti-static, secure, smoke gray glass with 4-mm grinding and 135 degrees of angle, which can be opened with a key and detached, with at least a 3-cm diameter screw-fixed frame with metal fittings around the glass that hold it to enhance its strength, with ventilation gratings on the top and/or side surfaces, with the edges of the holes on the rails sized 9.5 ± 0.01 mm each, and with the rails movable along the depth of the cabinet, designed to access the fan group when the top cover and/or the cap is removed.
Related official pose/item number, book	35.550.4002

Item no:	**Item**	**Unit**
ELC.116	**Product Accessories: 25U vertical cable organizer (single side)**	**pcs**
Description/ Specifications	Floor-standing cabinets: Cabinets shall be coated with electrostatic powder paint, with lockable castors with 200 kg capacity, type tests conducted and results submitted to the administration; min. 2-mm-thick back covers and internal rails (2 in front, 2 at the back), min. 1.5-mm-thick DKP sheet metal internal surfaces, 19-inch-wide gaps between the rails, bottom chassis with a cable input section that prevents dust ingress and secures cables, key-lock, detachable front, back and side covers, front cover made of tempered, anti-static, secure, smoke gray glass with 4-mm grinding and 135 degrees of angle, which can be opened with a key and detached, with at least a 3-cm diameter screw-fixed frame with metal fittings around the glass that hold it to enhance its strength, with ventilation gratings on the top and/or side surfaces, with the edges of the holes on the rails sized 9.5 ± 0.01 mm each, and with the rails movable along the depth of the cabinet, designed to access the fan group when the top cover and/or the cap is removed.	
Related official pose/item number, book	35.550.4027	

Item no:	**Item**	**Unit**
ELC.117	**Floor-standing cabinets: 25U 600 mm x 600 mm 19" floor-standing cabinet**	**pcs**
Description/ Specifications	Floor-standing cabinets: Cabinets shall be coated with electrostatic powder paint, with lockable castors with 200 kg capacity, type tests conducted and results submitted to the administration; min. 2-mm-thick back covers and internal rails (2 in front, 2 at the back), min. 1.5-mm-thick DKP sheet metal internal surfaces, 19-inch-wide gaps between the rails, bottom chassis with a cable input section that prevents dust ingress and secures cables, key-lock, detachable front, back and side covers, front cover made of tempered, anti-static, secure, smoke gray glass with 4-mm grinding and 135 degrees of angle, which can be opened with a key and detached, with at least a 3-cm diameter screw-fixed frame with metal fittings around the glass that hold it to enhance its strength, with ventilation gratings on the top and/or side surfaces, with the edges of the holes on the rails sized 9.5 ± 0.01 mm each, and with the rails movable along the depth of the cabinet, designed to access the fan group when the top cover and/or the cap is removed.	
Related official pose/item number, book	35.550.2004	

Item no:	**Item**	**Unit**
ELC.118	**Ceiling Speaker**	**pcs**

Description/ Specifications	Ceiling Speaker The speaker should be equipped with a transformer and can be driven by 6 W, 3 W, 1.5 W and 0.75 W. A support box to be mounted on the back of the speaker should protect the speaker from dust and dripping water. The Ceiling Speaker should be in compliance with TS EN 54-24 and released with the CE compliance marking. The speaker should be equipped with a threaded terminal block, a thermal fuse and a heat-resistant high-temperature connection. Maximum power shall be min. 9 W (nominal 6/3/1.5/0.75). The sound pressure at 6 W shall be min. 90 dB which shall be expressly declared by the manufacturer in the product data sheet. Transportation to the work site, installation, testing, and delivery in working order, including any small material, of ceiling speakers manufactured in compliance with the TS EN 54-24 standard, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE compliance marking, with the manufacturer awarded a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.
Related official pose/item number, book	35.430.1310

Item no:	**Item**	**Unit**
ELC.119	**Wall Speaker**	**pcs**
Description/ Specifications	Wall Speaker The speaker should be equipped with a transformer and can be driven by 6 W, 3 W, 1.5 W and 0.75 W The speaker should be made of a metallic material. The sound pressure at 6 W shall be min. 90 dB which shall be expressly declared by the manufacturer in the product data sheet. Transportation to the work site, installation, testing, and delivery in working order, including any small material, of wall speakers manufactured in compliance with the TS EN 54-24 standard, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE compliance marking, with the manufacturer awarded a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.	
Related official pose/item number, book	35.430.1320	

Item no:	**Item**	**Unit**
ELC.120	**MONITOR SPEAKER: (Unit: Qty., Materials on construction site: 60%) 12" Monitor Speaker**	**pcs**
Description/ Specifications	MONITOR SPEAKER: (Unit: Qty., Materials on construction site: 60%) Delivery in working order, including any small material and labor, of a full-range monitor speaker with a continuous power of 500 W and AES power of 350 W/8 ohm, a frequency range of 65 Hz to 18kHz, a crossover frequency of 3.5 kHz, full-range 125 dB SPL continuous, 128 dB peak sound pressure, 12" woofer and 1" HF speaker, CD Elliptic horn, and 90° × 60° sound propagation angle. Other values shall be interpolated.	
Related official pose/item number, book	35.450.2102	

Item no:	**Item**	**Unit**
ELC.121	**POWER AMPLIFIER (Unit: Qty., Materials on construction site: 60%) 2 x 250 W Power Amplifier**	**pcs**
Description/ Specifications	POWER AMPLIFIER (Unit: Qty., Materials on construction site: 60%) It shall be a professional device compatible with the microphones in the system, and equipped with full protection (overload, short circuit, DC output protection, thermal, ultrasonic and RF protection). Delivery in working order, including any small material and labor,	

	of a power amplifier with IEC 265-8 Wrms output power; 2x280 W rms/8 ohms; 2 x 450 W rms / 4 ohms; 2 x 700 W rms / 2 ohms of output power, and Power, Signal and Clip LED indicators on the front panel. Other values shall be interpolated.
Related official pose/item number, book	35.470.4003

Item no:	**Item**	**Unit**
ELC.122	**POWER AMPLIFIER (Unit: Qty., Materials on construction site: 60%) 2 x 450 W Power Amplifier**	**pcs**
Description/ Specifications	POWER AMPLIFIER (Unit: Qty., Materials on construction site: 60%) It shall be a professional device compatible with the microphones in the system, and equipped with full protection (overload, short circuit, DC output protection, thermal, ultrasonic and RF protection). Delivery in working order, including any small material and labor, of a power amplifier with IEC 265-8 Wrms output power; 2x280 W rms/8 ohms; 2 x 450 W rms / 4 ohms; 2 x 700 W rms / 2 ohms of output power, and Power, Signal and Clip LED indicators on the front panel. Other values shall be interpolated.	
Related official pose/item number, book	35.470.4004	

Item no:	**Item**	**Unit**
ELC.123	**POWER AMPLIFIER (Unit: Qty., Materials on construction site: 60%) 2 x 100 W Power Amplifier**	**pcs**
Description/ Specifications	POWER AMPLIFIER (Unit: Qty., Materials on construction site: 60%) It shall be a professional device compatible with the microphones in the system, and equipped with full protection (overload, short circuit, DC output protection, thermal, ultrasonic and RF protection). Delivery in working order, including any small material and labor, of a power amplifier with IEC 265-8 Wrms output power; 2x280 W rms/8 ohms; 2 x 450 W rms / 4 ohms; 2 x 700 W rms / 2 ohms of output power, and Power, Signal and Clip LED indicators on the front panel. Other values shall be interpolated.	
Related official pose/item number, book	35.470.4001	

Item no:	**Item**	**Unit**
ELC.124	**16-CHANNEL UHF RADIO MICROPHONE SET: (Unit: Set, Materials on construction site: 60%) Hand type**	**pcs**
Description/ Specifications	16-CHANNEL UHF RADIO MICROPHONE SET: (Unit: Set, Materials on construction site: 60%) The radio microphone system shall operate as a transceiver on UHF. Delivery in working order with a microphone stand, transceivers, internal and external antennae, and any small material and labor.	
Related official pose/item number, book	35.450.5201	

Item no:	**Item**	**Unit**
ELC.125	**AUDIO CONTROL AND RECORDING MIXERS: (Unit: Qty., Materials on construction site: 60%) 12-channel Audio Mixer**	**pcs**
Description/ Specifications	AUDIO CONTROL AND RECORDING MIXERS: (Unit: Qty., Materials on construction site: 60%) Delivery in working order, including any small material and labor, of an operator audio control mixer used for audio broadcast and control with the number of channels with high input	

	capacity and stereo equalizer, mono and stereo inputs, aux output, recording outputs with faders, and digital effects, and a switched audio mixer with automatic voltage selecting power supply. Other values shall be interpolated.
Related official pose/item number, book	35.450.1001

Item no:	**Item**	**Unit**
ELC.126	**LIH(St)H FE180 PH120 FIRE-PROOF, HALOGEN-FREE SIGNAL AND CONTROLLER CABLE (Unit: m) (VDE 0812) 2 x 0.75 mm²**	**m**
Description/ Specifications	LIH(St)H FE180 PH120 FIRE-PROOF, HALOGEN-FREE SIGNAL AND CONTROLLER CABLE (Unit: m) (VDE 0812) Supply to the work site, including gateways and security pipes, any material and labor, of fire alarm cables used with security systems, communication, indoor and dry areas, with halogen-free and fireproof signal and communication cables with the cable core made by twisting in layers of the cladding insulated by a halogen-free jackets in compliance with TS EN 50290-2-26 in colors as per DIN 47100 over electrolytic copper wire in compliance with TS EN 60228 fixed with polyester tape, wrapped in a special flame-retardant glass fiber tape along with an aluminum-coated polyester tape, screened with a tinned earth conductor, with an outer jacket in compliance with TSE K 178, colored RAL 2003 orange as per DIN 47100, halogen-free outer jacket as per TS EN 50290-2-27, temperature in fixed conditions between -30°C to +70°C, provides circuit integrity for 180 minutes as per IEC 60331-21 and 120 minutes as per EN 50200, and certified for flame retardance as per TS EN 60332-1- 2 and TS EN 60332-3-24, and for smoke density as per TS EN 61034-2. Note: HFFR pipe is included for the internal wiring.	
Related official pose/item number, book	35.520.6001	

Item no:	**Item**	**Unit**
ELC.127	**LIH(St)H FE180 PH120 FIRE-PROOF, HALOGEN-FREE SIGNAL AND CONTROLLER CABLE (Unit: m) (VDE 0812) 4 x 0.75 mm²**	**m**
Description/ Specifications	LIH(St)H FE180 PH120 FIRE-PROOF, HALOGEN-FREE SIGNAL AND CONTROLLER CABLE (Unit: m) (VDE 0812) Supply to the work site, including gateways and security pipes, any material and labor, of fire alarm cables used with security systems, communication, indoor and dry areas, with halogen-free and fireproof signal and communication cables with the cable core made by twisting in layers of the cladding insulated by a halogen-free jackets in compliance with TS EN 50290-2-26 in colors as per DIN 47100 over electrolytic copper wire in compliance with TS EN 60228 fixed with polyester tape, wrapped in a special flame-retardant glass fiber tape along with an aluminum-coated polyester tape, screened with a tinned earth conductor, with an outer jacket in compliance with TSE K 178, colored RAL 2003 orange as per DIN 47100, halogen-free outer jacket as per TS EN 50290-2-27, temperature in fixed conditions between -30°C to +70°C, provides circuit integrity for 180 minutes as per IEC 60331-21 and 120 minutes as per EN 50200, and certified for flame retardance as per TS EN 60332-1- 2 and TS EN 60332-3-24, and for smoke density as per TS EN 61034-2. Note: HFFR pipe is included for the internal wiring.	
Related official pose/item number, book	35.520.6003	

Item no:	**Item**	**Unit**
ELC.128	**Desktop microphone.**	**pcs**
Description/ Specifications	Microphone: (Unit: Qty: Materials on construction site 60%) Installation, and delivery, including any small material and labor, of crystal or dynamic microphones complying with TS 6509 and the relevant technical specifications, with min. 10-meter-long microphone cable, microphone	

	socket and plug.
Related official pose/item number, book	35.450.5001

Item no:	**Item**	**Unit**
ELC.129	**Microphone line wiring (Unit: m., Materials on construction site: 60%)**	**m**
Description/ Specifications	Microphone line wiring (Unit: m., Materials on construction site: 60%) Installation of a microphone line by shielded conductors through peschel, bergman or PVC pipes with hinged and lockable cover, min. 1-mm-thick DKP sheet metal coated with light gray, including flush-mounted or surface-mounted terminal boxes, junction boxes, terminal blocks, iron consoles, cable clips, paint, any small material and labor.	
Related official pose/item number, book	35.450.5100	

Item no:	**Item**	**Unit**
ELC.171	**Fixed Dome IP Camera**	**pcs**
Description/ Specifications	The camera shall be progressive scan, multicast supported, box/bullet type IP based camera. The camera shall have PoE (Power - Over- Ethernet) capability in IEEE 802.3af or 802.3at standard. The sensor size of camera's image (İmage) shall be at least 1/3 (one over three) inches. The sensor type of the camera shall be CCD, CMOS or MOS. The camera resolution shall be at least 2 (two) megapixels. Camera; In addition to being fixed to support H.264 H.265 or JPEG or MJPEG format, it must take pictures in at least 1920x1080 format (OneThousandNineHundrenTwenty times OneThpusandEighty) (1080p) resolution at 25 fps (pictures/second). The camera's 1st (first) broadcast channel (1st stream) shall be multicast, at least 1920x1080 resolution in H.264 format, at least 25 pictures per second (25 fps), if capable of being adjusted, with at least standard motion or 50% active (variable), low light (low Light) from the scene/environment at high or H.265 or H.264 system, the picture quality shall be set to make a maximum of 25% compression. The camera's second (second) broadcast channel (2nd stream) shall be multicast, at least 640x352 resolution in H.264 format, at least 25 pictures per second (25 fps) if it is capable of being set to at least standard motion or% 50 active (variable), low light (low Light) from the scene/environment at high or H.265 or H.264 system, the picture quality shall be set to make a maximum of 25% compression. The camera shall have a lens (objective) to support at least 2 (two) megapixels. The lens shall be a vary-focal or motorized, infrared corrective lens with a range of at least 3.8 (three commas eight) mm-8 (eight) mm (angle adjustable-focal point adjustable). In order to get colour images, the daytime light sensitivity shall be at most 0.5 (zero comma five) Lux at f/1.2. For black and white images to be taken at night, this value shall be maximum 0.05 (zero comma zero five) Lux (when the IR Led Projector is off) at f/1.2. The camera shall have a mechanical IR cutter filter , automatically switch between day and night modes according to the light value, and there shall be no loss of image during day and night mode changes. Multiple exposure areas can be defined on the camera. With these definitions, light adjustments can be made on the device. The camera shall be able to do this manually or automatically. The camera shall support TCP/IP, HTTP, SNMP, SMTP, RTP, RTSP, DHCP, NTP, DNS protocols. The camera can be accessed through the standard HTTP web interface without the need for additional software via the IP address. Access to the camera can be limited by a password, and different users or groups of users can be defined in camera access. The camera shall automatically receive an IP address from the system when it is connected to the DHCP Server compatible system; the IP received by the camera can be assigned	

	as Static IP. The camera shall have auto focus adjustment (auto focus/auto back focus/easy focus). The camera shall be equipped with WDR (Wide Dynamic Range). The camera shall be equipped with Video Motion Detection (VMD). If required, time and date information and at least 10 (ten) characters containing letters and numbers can be added to the images coming from the camera. The camera shall have alarm inputs and outputs on its own or on an external interface. The camera shall have an alarm management function. The camera shall have an electrical supply of 12 (twelve) V DC or 24 (twenty four) V DC/50 (fifty) Hz AC. The camera shall support a memory card. The alarm images from the camera can be recorded on this memory card. The cameras shall have a privacy mask feature in at least 2 (two) areas. For outdoor cameras; The enclosure may be supplied as bullet (external) or integrated with the camera, providing the following specifications. The enclosure shall meet at least IP 66 standards. The enclosure shall be vandal proof. The housing shall allow the camera to operate between -20 (minus twenty) 0C and +50 (plus fifty) 0C. The enclosure shall allow the camera to operate within a range of 0 (zero) to 90 % (ninety percent) relative humidity. The housing shall be made of aluminium material or polycarbonate material which is resistant to factors such as corrosion - UV radiation and flame retardant. The housing shall be equipped with a heating system to prevent frosting and condensation of the windshield during the winter months and to ensure cold operation. The housing shall be equipped with a cooling fan and the necessary energy connections shall be made. All cables from the camera box mounting apparatus shall be routed through a hidden protected channel. Thus, the cables shall be 100% protected (100%) from sabotage and external effects. The fixed camera legs shall be selected from the original and adjustable angle head type. There shall be no, for any reason, mechanical deformation, corrosion, corrosion, etc. on the legs or the joints over time. The Infrared Led Projector can be supplied with the camera (bullet) or independent of the camera (external), providing the following specifications. The device shall automatically switch on in all situations where daylight and external lighting are inadequate. The LEDs of the device shall operate at 850 (eight hundred and five) nanometre wavelength. The device shall provide sufficient illumination in the area where it is installed. The device shall have at least IP66 protection standard. The LED luminaires in the infrared lighting unit shall have a life of at least 50.000 (fifty thousand) hours or at least 5 (five) years.
Related official pose/item number, book	E.Ö.ZA.2

Item no:	**Item**	**Unit**
ELC.172	**Indoor type Fixed Camera**	**pcs**
Description/ Specifications	The camera shall be progressive scan, multicast supported, box/bullet type IP based camera. The camera shall have PoE (Power - Over- Ethernet) capability in IEEE 802.3af or 802.3at standard. The sensor size of camera's image (İmage) shall be at least 1/3 (one over three) inches. The sensor type of the camera shall be CCD, CMOS or MOS. The camera resolution shall be at least 2 (two) megapixels. Camera; In addition to being fixed to support H.264 H.265 or JPEG or MJPEG format, it must	

	take pictures in at least 1920x1080 format (OneThousandNineHundrenTwenty times OneThpusandEighty) (1080p) resolution at 25 fps (pictures/second). The camera's 1st (first) broadcast channel (1st stream) shall be multicast, at least 1920x1080 resolution in H.264 format, at least 25 pictures per second (25 fps), if capable of being adjusted, with at least standard motion or 50% active (variable), low light (low Light) from the scene/environment at high or H.265 or H.264 system, the picture quality shall be set to make a maximum of 25% compression. The camera's second (second) broadcast channel (2nd stream) shall be multicast, at least 640x352 resolution in H.264 format, at least 25 pictures per second (25 fps) if it is capable of being set to at least standard motion or% 50 active (variable), low light (low Light) from the scene/environment at high or H.265 or H.264 system, the picture quality shall be set to make a maximum of 25% compression. The camera shall have a lens (objective) to support at least 2 (two) megapixels. The lens shall be a vary-focal or motorized, infrared corrective lens with a range of at least 3.8 (three commas eight) mm-8 (eight) mm (angle adjustable-focal point adjustable). In order to get colour images, the daytime light sensitivity shall be at most 0.5 (zero comma five) Lux at f/1.2. For black and white images to be taken at night, this value shall be maximum 0.05 (zero comma zero five) Lux (when the IR Led Projector is off) at f/1.2. The camera shall have a mechanical IR cutter filter , automatically switch between day and night modes according to the light value, and there shall be no loss of image during day and night mode changes. Multiple exposure areas can be defined on the camera. With these definitions, light adjustments can be made on the device. The camera shall be able to do this manually or automatically. The camera shall support TCP/IP, HTTP, SNMP, SMTP, RTP, RTSP, DHCP, NTP, DNS protocols. The camera can be accessed through the standard HTTP web interface without the need for additional software via the IP address. Access to the camera can be limited by a password, and different users or groups of users can be defined in camera access. The camera shall automatically receive an IP address from the system when it is connected to the DHCP Server compatible system; the IP received by the camera can be assigned as Static IP. The camera shall have auto focus adjustment (auto focus/auto back focus/easy focus). The camera shall be equipped with WDR (Wide Dynamic Range). The camera shall be equipped with Video Motion Detection (VMD). If required, time and date information and at least 10 (ten) characters containing letters and numbers can be added to the images coming from the camera. The camera shall have alarm inputs and outputs on its own or on an external interface. The camera shall have an alarm management function. The camera shall have an electrical supply of 12 (twelve) V DC or 24 (twenty four) V DC/50 (fifty) Hz AC. The camera shall support a memory card. The alarm images from the camera can be recorded on this memory card. The cameras shall have a privacy mask feature in at least 2 (two) areas. For outdoor cameras; The enclosure may be supplied as bullet (external) or integrated with the camera, providing the following specifications. The enclosure shall meet at least IP 66 standards. The enclosure shall be vandal proof. The housing shall allow the camera to operate between -20 (minus twenty) 0C and +50 (plus fifty) 0C. The enclosure shall allow the camera to operate within a range of 0 (zero) to 90 % (ninety percent) relative humidity. The housing shall be made of aluminium material or polycarbonate material which is resistant to factors such as corrosion - UV radiation and flame retardant. The housing shall be equipped with a heating system to prevent frosting and condensation of the windshield during the winter months and to ensure cold operation.

	The housing shall be equipped with a cooling fan and the necessary energy connections shall be made. All cables from the camera box mounting apparatus shall be routed through a hidden protected channel. Thus, the cables shall be 100% protected (100%) from sabotage and external effects. The fixed camera legs shall be selected from the original and adjustable angle head type. There shall be no, for any reason, mechanical deformation, corrosion, corrosion, etc. on the legs or the joints over time. The Infrared Led Projector can be supplied with the camera (bullet) or independent of the camera (external), providing the following specifications. The device shall automatically switch on in all situations where daylight and external lighting are inadequate. The LEDs of the device shall operate at 850 (eight hundred and five) nanometre wavelength. The device shall provide sufficient illumination in the area where it is installed. The device shall have at least IP66 protection standard. The LED luminaires in the infrared lighting unit shall have a life of at least 50.000 (fifty thousand) hours or at least 5 (five) years.
Related official pose/item number, book	E.Ö.ZA.3

Item no:	**Item**	**Unit**
ELC.173	**External IP Fixed Camera and Enclosure**	**pcs**
Description/ Specifications	The camera shall be progressive scan, multicast supported, box/bullet type IP based camera. The camera shall have PoE (Power - Over- Ethernet) capability in IEEE 802.3af or 802.3at standard. The sensor size of camera's image (İmage) shall be at least 1/3 (one over three) inches. The sensor type of the camera shall be CCD, CMOS or MOS. The camera resolution shall be at least 2 (two) megapixels. Camera; In addition to being fixed to support H.264 H.265 or JPEG or MJPEG format, it must take pictures in at least 1920x1080 format (OneThousandNineHundrenTwenty times OneThpusandEighty) (1080p) resolution at 25 fps (pictures/second). The camera's 1st (first) broadcast channel (1st stream) shall be multicast, at least 1920x1080 resolution in H.264 format, at least 25 pictures per second (25 fps), if capable of being adjusted, with at least standard motion or 50% active (variable), low light (low Light) from the scene/environment at high or H.265 or H.264 system, the picture quality shall be set to make a maximum of 25% compression. The camera's second (second) broadcast channel (2nd stream) shall be multicast, at least 640x352 resolution in H.264 format, at least 25 pictures per second (25 fps) if it is capable of being set to at least standard motion or% 50 active (variable), low light (low Light) from the scene/environment at high or H.265 or H.264 system, the picture quality shall be set to make a maximum of 25% compression. The camera shall have a lens (objective) to support at least 2 (two) megapixels. The lens shall be a vary-focal or motorized, infrared corrective lens with a range of at least 3.8 (three commas eight) mm-8 (eight) mm (angle adjustable-focal point adjustable). In order to get colour images, the daytime light sensitivity shall be at most 0.5 (zero comma five) Lux at f/1.2. For black and white images to be taken at night, this value shall be maximum 0.05 (zero comma zero five) Lux (when the IR Led Projector is off) at f/1.2. The camera shall have a mechanical IR cutter filter , automatically switch between day and night modes according to the light value, and there shall be no loss of image during day and night mode changes. Multiple exposure areas can be defined on the camera. With these definitions, light adjustments can be made on the device. The camera shall be able to do this manually or automatically. The camera shall support TCP/IP, HTTP, SNMP, SMTP, RTP, RTSP, DHCP, NTP, DNS protocols. The camera can be accessed through the standard HTTP web interface without	

	the need for additional software via the IP address. Access to the camera can be limited by a password, and different users or groups of users can be defined in camera access. The camera shall automatically receive an IP address from the system when it is connected to the DHCP Server compatible system; the IP received by the camera can be assigned as Static IP. The camera shall have auto focus adjustment (auto focus/auto back focus/easy focus). The camera shall be equipped with WDR (Wide Dynamic Range). The camera shall be equipped with Video Motion Detection (VMD). If required, time and date information and at least 10 (ten) characters containing letters and numbers can be added to the images coming from the camera. The camera shall have alarm inputs and outputs on its own or on an external interface. The camera shall have an alarm management function. The camera shall have an electrical supply of 12 (twelve) V DC or 24 (twenty four) V DC/50 (fifty) Hz AC. The camera shall support a memory card. The alarm images from the camera can be recorded on this memory card. The cameras shall have a privacy mask feature in at least 2 (two) areas. For outdoor cameras; The enclosure may be supplied as bullet (external) or integrated with the camera, providing the following specifications. The enclosure shall meet at least IP 66 standards. The enclosure shall be vandal proof. The housing shall allow the camera to operate between -20 (minus twenty) 0C and +50 (plus fifty) 0C. The enclosure shall allow the camera to operate within a range of 0 (zero) to 90 % (ninety percent) relative humidity. The housing shall be made of aluminium material or polycarbonate material which is resistant to factors such as corrosion - UV radiation and flame retardant. The housing shall be equipped with a heating system to prevent frosting and condensation of the windshield during the winter months and to ensure cold operation. The housing shall be equipped with a cooling fan and the necessary energy connections shall be made. All cables from the camera box mounting apparatus shall be routed through a hidden protected channel. Thus, the cables shall be 100% protected (100%) from sabotage and external effects. The fixed camera legs shall be selected from the original and adjustable angle head type. There shall be no, for any reason, mechanical deformation, corrosion, corrosion, etc. on the legs or the joints over time. The Infrared Led Projector can be supplied with the camera (bullet) or independent of the camera (external), providing the following specifications. The device shall automatically switch on in all situations where daylight and external lighting are inadequate. The LEDs of the device shall operate at 850 (eight hundred and five) nanometre wavelength. The device shall provide sufficient illumination in the area where it is installed. The device shall have at least IP66 protection standard. The LED luminaires in the infrared lighting unit shall have a life of at least 50.000 (fifty thousand) hours or at least 5 (five) years.
Related official pose/item number, book	E.Ö.ZA.4

Item no:	**Item**	**Unit**
ELC.174	**48 Channel NVR Recording Equipment**	**pcs**
Description/ Specifications	A network image recorder is a device for storing and storing images from cameras and for replaying images recorded as needed. TheNVR shall be able to record video in H264 and MJPEG or H265 video formats.	

	The NVR shall support at least 32 (thirty- two) IP camera connections over the network. Licenses required for 32 (thirty-two) cameras shall come on. NVR devices simultaneously for at least 32 (thirty-two) pieces 1920x1080 (One Thousand Nine Hundred and Twenty times One Thousand and Eighty) (Full HD 1080p) resolutions in each of the IP cameras at least 25 (twenty five) fps can be saved in speed. The image processing bandwidth of the NVR shall be at least 200 (two hundred) Megabits. The NVR shall be able to zoom in at least up to 4x digital on playback or live view. Images shall be recorded on at least 7200 (Seven Thousand Two Hundred) RPM SATA II or at least 10,000 (ten thousand) RPM SCSI Hard Drive. Hard discs to be used in the recording unit shall be resistant to vibration and propagation vibration. The hard drives to be used in the recording unit shall have high-speed data writing and random access time drives. Hard discs to be used in the recording unit shall be suitable for 24 (twenty four) hours continuous operation, professional product series, specially produced discs for image recording and this situation can be confirmed on the official website of the manufacturer. The storage units (hard drives) of the NVR shall be configured as RAID 5 (five) or RAID 6 (six). The devices shall record continuously until the discs are full, and after the discs are full, they shall continue to record on the same discs by deleting from the oldest recording. The devices shall be able to record simultaneously and send recording images to the monitored computers. Different authorization levels can be defined on the NVR. These levels of authority may be restricted and increased. Date and time information can be added to the image frames recorded by the NVR. The recording quality of the cameras registered to the devices can be adjusted by the operator at different resolution and recording speeds. Images recorded on NVRs ; can be copied to DVD/CD or USB media in its own commercial format and uncompressed AVI or standard windows media format. If the NVR images are able to be saved to external media uncompressed AVI or standard windows media format, the codecs of these compressions shall be provided to the administration. Also; In case there is no DVD burner on the NVR, the video recordings of the NVR can be recorded to DVDs via Network Monitoring Software via Computer. Network Monitoring Software shall be delivered to the administration with its license on CD/DVD media. The NVR shall be able to operate with time information from any NTP server. The NVR shall support multicast broadcast. In case the NVR transmits images to the Operator Computer for monitoring, there shall be no slowdown, pause or interruption on the Computer monitoring screen with the recording and streaming features of the device. The log record of each transaction performed on the NVR shall be kept or managed by a central software and it shall be able to send the log record. NVR shall be rack mountable. The NVR rack mount kits shall be original. In the event that the NVR shuts down due to a power failure or similar reason, when the conditions return to normal, the NVR shall automatically turn on and start working so that the most recent settings remain constant. It shall initiate alarm in case of system problem in NVR for any reason. Faults of any of the system components shall be signalled. This fault shall not affect the operation of the entire system and the system shall be protected against any data loss. If necessary, additional measures shall be taken by the contractor. The NVR can operate at least between + 10 0C (pluson) and + 35 0C (plus thirty-five). The NVR shall be the standard model of the manufacturer with ISO 9001: 2000 certification.
Related official pose/item number, book	E.Ö.ZA.5

Item no:	**Item**	**Unit**
ELC.175	**40 "Monitor**	**pcs**
Description/	The monitor shall be LCD/LED/WLED.	

Specifications	The monitor shall be at least 40 ”length from corner to corner. The response time of the monitor is up to 8 (eight) ms. The monitor shall support 16.7 million (sixteen million seven hundred thousand) colours. The monitor shall support a resolution of 1920x1080 (thousand ninety-twenty-twenty times thousand and eighty) at 60 (sixty) Hz. The brightness of the monitor shall be at least 250 (two hundred and fifty) Cd/m2. The monitor shall support TCO 99 or MPR-II or equivalent international radiation emission and ergonomics standards. The brand of the monitor shall be the same as the desktop computer to be provided. In the absence of the same brand, specially manufactured monitors (7/24 (seven twenty - four) professional display solutions) can be proposed for CCTV systems.
Related official pose/item number, book	E.Ö.ZA.6

Item no:	**Item**	**Unit**
ELC.176	**Control Keyboard**	**pcs**
Description/ Specifications	The Camera Control Unit (Switchboard) shall be of the 3 (three) axis joystick type. Pan/tilt/zoom/focus etc. for moving camera control. Description of settings and pre-set points to moving camera can be made on this unit. Camera images can be selected on the unit and image modes can be changed. The Camera Control Unit shall be connected to the Operator Computer where the software is installed.	
Related official pose/item number, book	E.Ö.ZA.7	

Item no:	**Item**	**Unit**
ELC.177	**Patchcord 1 meter**	**pcs**
Description/ Specifications	Patch cables from patch panels to switches , patch panels and other Cat 6A cables, termination jacks shall be the products of the same manufacturer. All cables in patch panels shall be labelled. Cat 6A cables between patch panels and other devices shall be seamless, and one piece.	
Related official pose/item number, book	E.Ö.ZA.8	

Item no:	**Item**	**Unit**
ELC.180	**24 Port POE Switch**	**pcs**
Description/ Specifications	ABBREVIATIONS AND DEFINITIONS ADMINISTRATION Ministry of Education IT Class ”Information Technologies” class in schools Z Library Enriched Library in Schools Room Teachers' Room, Officer's Room, Library, etc. School Public schools whose numbers and locations are covered by the Project as of the date of the contract are stated in the Contract and/or its annexes Classroom MEB Schools Interactive Board LED Display + Interactive Whiteboard Computer + 2 Whiteboards	

	Interactive Whiteboard Socket Metal shielded socket set with one grounded child-proof UPS type electrical outlet Connection Socket Integrated metal shielded socket set with one grounded child-proof UPS type electrical outlet, one HDMI output and one USB output BT-Connection Socket Integrated metal shielded socket set with one grounded child-proof UPS type electrical outlet, two data sockets, one HDMI output, one USB output UTP Unshielded twisted pair copper cable IEEE Institute of Electrical and Electronics Engineers CAT6 Structural Cabling Category 6 Class E Standard HFFR/LSOH halogen Free Flame Retardant - Low Smoke Zero Halogen Halogen Free Low Smoke Density Material EN European Norm F/O Fibre optic IEC International Electro-technical Commission ISO International Organization for the Standardization PVC Polyvinylchloride Polyvinylchloride AWG American Wire Gauge TSE Turkish Standardization Institute UPS Uninterruptible power supply CGS Cabin Control System ETL Electrical Testing Labs (USA - Independent Testing Laboratory) UL Underwriters Laboratories (USA - Independent Testing Laboratory) 3P Third Party Testing (Denmark - Independent Testing Laboratory) GHMT Gesellschaft für Hochfrequenz-Messtechnik (Germany - Independent Test Laboratory) DELTA DELTA Certification Laboratory (Denmark) FCC Federal Communications Commission (USA) DIN Deutsches Institut für Normung TUV Technischer Überwachungsverein IAF International Accreditation Forum TSEK Standards Compliance Certification CE

	Conformité Européenne EUROBAT Association of European Accumulator Manufacturers TURKAK Turkish Accreditation Agency Compliant Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equip ment RAL Colour matching system TBA Terabyte GB Gigabyte NW Kilobyte MB Megabyte Prophet Hertz MHz Megahertz GHz Gigahertz Gbps Gigabit/second (gigabit per second) Mbps Megabits/second (Megabits Per Second) Mpps Million packet per seconds Active Devices SFP (Small Form Pluggable) modules with Ethernet switches , Wireless Access Devices, Uninterruptible Power Supplies, Wireless Network Management System equipment, Central Wireless Network Management System equipment, Nas Disk and so on. all other electrical devices. UPS Uninterruptible power supply WLC Wireless Network Management System PoE Power over Ethernet MKAYS Central Wireless Network Management System STANDARDS If the standards used within the scope of the technical specifications are updated, the latest version of the relevant standard shall be accepted. EIA/TIA 568C.2 Commercial Building LAN Cabling Standard (2009) ANSI the American National Standards Institute EN12150-1: 2000 Glass Of Building- Thermally Toughened Soda Lime Silicate Safety Glass EN 50173 the Principle Design Standard For Structured Cabling Systems Installed Within the Countries Of The Europe

	an Union. EN 61587-1 Mechanical structures for electronic equipment - Climatic , mechanical testsand safety aspects for cabinets , racks , subracks and chassis EUROBAT The European Association of Battery Manufacturers (Association of European Accumulator Manufacturers) IEC 60297 Mechanical structures for electronic equipment - Dimensions of the mechanical structures of the 482.6 mm (19 in) series IEC 60529 Degrees of Protection Provided by Enclosures IEC 60917 Modular order for the development of mechanical structures for electronic equipment practices IEC 61008 Residual Current Circuit Breaker Standard T568A RJ45 Termination Standard for UTP Cables T568B RJ45 Termination Standard for UTP Cables GENERAL PROVISIONS Supply of all materials, equipment and tools used in the maintenance and repair works of the systems, including labour and software, shall be entirely borne by the CONTRACTOR. Any device which interferes with the service of the Administration or interrupts the service shall be replaced free of charge with the same or a higher model in case of failure of more than 3 (three) years in the same school. Any patent, proprietary trademark rights, software, document or any goods or services related to the materials and services to be provided to the Administration by the CONTRACTOR within the scope of this specification are claimed by third parties. In such cases, the Contractor is liable for penal sanctions and any material and moral damages. These damages shall be compensated by the CONTRACTOR and therefore cannot be recourse to the ADMINISTRATION in any way. All hardware units of the schools shall be original and unused. Drawings, photographs and explanations given in the annexes of these technical specifications shall be given as an example for the installations. The decision regarding the suitability of all materials to be used shall be made by the Administration. The Contractor shall start the installation of the relevant materials after the decision of conformity of each material to be shipped to the site. In case of the supply of new brand/model products by the CONTRACTOR, the compliance of these products with the specifications shall be checked by the ADMINISTRATION. These products can be used after approval by the ADMINISTRATION. No other brand and model material shall be used other than the materials for which conformity is decided. In case of problems that may arise during installation, the products approved by the ADMINISTRATION shall be referenced. Provided that he date on which the Administration confirms the adoption of active devices is the start date, the Contractor shall provide a period of 3 years to perform the supply and installation of equipment free warranty service. For the connection of the active devices to the network, at least 6 (six) PoE ports shall be left unused on the main cabinets in each of the school buildings. GENERAL PROVISIONS FOR ACTIVE DEVICES The CONTRACTOR shall provide the latest update packages, security, and so on to the hardware and software products, if any. shall install all patch versions. He shall provide this support during the warranty period. The Contractor shall install the equipment and other equipment specified in this specification at

	the schools listed in the annexes of the specification and make it operational after completing all integration procedures. For all products to be used by the CONTRACTOR; technical specifications shall not conflict with the information in the technical documents published on the manufacturer's own web pages and submitted to the ADMINISTRATION. The Contractor shall submit the brand and model of each product together with the tender document in a table. In all schools , the same brand shall be used for each product group (Ethernet switch, wireless access device, management, etc.). Different product groups can be of different brands. The documents related to the desired quality and standards for all active and passive products shall be submitted to the Administration at the stage of expertise. The CONTRACTOR shall prepare at least one school as a pilot for conformity testing in the region in which it is responsible. The conformity test shall be carried out by a Technical commission to be established by the Administration. The Contractor shall provide all necessary modules, UTP cables, fibre optic cables, apparatus, connection cables and interconnection materials, hardware and software of the Ethernet switches free of charge. The switches shall support IPv6. If this support is provided with an additional license, they shall be provided free of charge. The energy supply of the Wireless Access devices to be established in schools shall be provided through PoE (IEEE 802.3af, IEEE 802.3at) Ethernet Switches in order to provide aesthetics, easy management and ease of operation. All active devices must be IPv6 supported. If requested by the administration, the required accesses must be transferred to IPv6. All components shall be compatible with each other, can work continuously and continuously. The configuration structure of all components shall be fully defined by the CONTRACTOR according to the standards set by the ADMINISTRATION. Any configuration updates that may be requested by the ADMINISTRATION during the duration of the project shall be free of charge within the time period agreed by the ADMINISTRATION and the CONTRACTOR. All https supported devices shall have this interface open and must not receive certificate errors when accessing the interface. ETHERNET SWITCHES AND MANAGEMENT SOFTWARE COMMON FEATURES OF ETHERNET SWITCHES All Ethernet switches to be provided shall be displayed on the official web page of the manufacturer as of the date of the invitation to show the detailed technical specifications of the product. All switches to be provided shall be 100/1000 Mbps. SFP modules shall be the same brand as Ethernet switch if it shall be used in uplink connections between cabinets and Ethernet switches. The location of the Ethernet switches to be provided in the cabinet shall be made in accordance with the standards specified by the Administration (EK-5E), connections and adjustments. Service pack , patch , update , upgrade , bug , fix , hotfix, etc. shall be required during the contract. software and current versions of the proposed software of the devices shall be implemented by the CONTRACTOR. In addition, the CONTRACTOR shall keep software update , upgrade and different types of device operating systems up to date by means of remote installation of software required for security vulnerabilities. Cabinets in Ethernet in order from top to bottom by the key management arrangement shall be defined IP addresses. In the cabinet , the Ethernet switch uplink shall be done by using 1000Base-T or 1000Base-X ports in the same type for all schools. (Appendix 5) multiple cabinets used in the institution uplink connection EK-5B, 5C and EK-EK-5d shall be as in FIG. (Client ports available for uplinks) The uplinks on the Ethernet switches shall be labeled with materials that shall not be affected by the external environment, so that the cables shall come from/go. The earthing of the Ethernet switches shall be made from the busbar inside the cabinet. All switches to be placed in schools shall be from the products announced on the

	manufacturer's website at the date of the tender and shall not be end of sale/life/support at the date of the tender. The specified specifications are available on this site. If it is not possible to repair and perform all the functions of the devices which have been declared EOL (end of life) of the defective active devices , they shall be replaced free of charge with a product of the same brand or a version with the least equivalent during the contract date. These new active devices shall also be manageable with the management systems of previous devices. Ethernet switches must allow only specific MAC addresses to communicate through certain ports, be able to dynamically learn the MAC addresses to be determined, and be counted as MAC address limits. The products shall have interfaces and open standards that support standard protocols for interoperability with other suppliers' systems and provision of third party services. Ethernet switches shall not be affected by any power outages and shall ensure continuity of service after interruption. The switches shall support IPv6. This support shall be demonstrated by the IPv6 Ready logo, and all products proposed shall have at least the "IPv6 Ready Phase 2" completion certificate. If this support is provided with an additional license, they shall be provided with the device indefinitely and free of charge. For ease of administration and installation, switches shall have their own configuration and mechanism to install the operating system (firmware) from the management station or management system. Will be able to keep the configuration and firmware files on the switches separately, old and new. Each switch shall have port-based and MAC address-based VLAN support. The switches shall also have Voice VLAN support. IEEE 802.1q VLAN trunking or equivalent protocol shall be supported on all ports. Each VLAN created shall have protocol support that allows it to be automatically generated on other switches. The MTBF of each key shall be at least 200 000 (two hundred thousand) hours. Each key shall have CE or TUV or TSE certificate. The switches on the 8 ports shall be capable of operating at least 8 switches in a single stack. If any of the stacked switches fails, the stack functionality shall not be impaired. Switches; Secure SSL (https) shall be supported by web-based or graphical interface management. However, SNMP v1/v2/v3 shall support telnet, SSHv2 and console access and can be managed with these protocols. All Ethernet switches have the same CLI (Command Luna Interface). The SNMP monitoring functions of all Ethernet switches shall not be incomplete. Multi-level security monitoring on the console shall prevent unauthorized persons from changing the Ethernet switch configuration. The switches can send log and debug records to remote servers via SNMP or SYSLOG. The switches shall be able to talk to the RADIUS authorization server and support at least EAP, PEAP or EAPoL protocol during the call. AAA support via Radius, TACAS + or similar protocol shall be available. It shall be possible to determine which user changes to the switches. The switches shall be delivered with stable and up-to-date firmware. The switches shall be provided with the highest level software licenses. If you wish to activate any features on the device afterwards, you must obtain this license free of charge. All software updates during the contract shall be available free of charge. FTP and TFTP protocols, software updates and configuration backups can be performed on the switches. All switches shall also support SCP or SFTP protocol to ensure file transfer in a secure environment. Switches shall be of 1U cabinet type (19 inches) and shall be installed in cabinets. On the switches; MAC Address or web- based authentication support shall be available. The switches shall have RMON support. All security policies requested by the ADMINISTRATION, such as Harp inspection, DHCP snooping , broadcast storm , port security , ACL, IPSG and so on. must be applied to all switches. All new devices to be purchased must comply with the security policies set by the ADMINISTRATION. These policies must cover and be sufficient for all devices using IP inside.

	The switches shall have port mirroring support in order to analyze the passing traffic. The traffic of more than one port on the switch can be forwarded to another port. The source and destination ports can be on different switches (Remote Port Mirroring). The ports of Ethernet switches shall have Rate Limiting feature. The switches shall support IEEE 802.1p, IEEE 802.3x, IEEE 802.3u, IEEE 802.3z and IEEE 802.3az standards. In addition, PoE- enabled switches shall be configured to save time to provide PoE power. The switches shall support IEEE 802.1q, IEEE 802.1d, IEEE 802.3ad, IEEE 802.1s, IEEE 802.1w. It shall also have a PVST (Per-VLAN Spanning Tree) or similar protocol that can automatically use a separate STP for each VLAN created. The switches shall support the IEEE 802.1x standard. 802.1x MAC authentication bypass; Using MAC address for authorization for devices that do not support 802.1x, 802.1x VLAN assignment ; With the help of RADIUS server, user authorization on port basis and dynamic VLAN allocation, 802.1x Guest VLAN, 802.1x Web authorization, 802.1x dynamic ACL assignment shall be supported. The switch shall have jumbo frame support on the gigabit ports. Ethernet switches shall support SFlow or NetFlow or IPFIX protocols. Uni-Directional Link Detection (UDLD) or Device Link Detection Protocol (DLDP) support shall be provided to protect the health of the connections between switching devices and shall be applied to all fibre connected ports. The switches shall have a power LED and a status LED for each port. he switches shall have multicast support. The switches shall have IGMP (v1, v2, v3) Snooping support. The switches shall support LLDP and LLDP-MED protocols. The switches shall have QoS (Quality of Service) specifications. Traffic priorities can be determined and bandwidth management shall be allowed. Copper 10/100/1000 ports of the switches shall have Auto-MDIX feature. The 1000Base-X ports on the switch shall support 1000Base-SX, 1000Base-LX, or 1000Base-T SFPs. The switches shall support SM (single mode) and MM (multi-mode) fibre. The switches shall have wire-speed and non-blocking properties. The 100/1000 ports of the switches shall work as auto-negotiate. At least 48-port Ethernet Switches shall support at least 2000, at least 24 at most 47 ports at least 1000, at least 12 at most 23 ports at least 450, at least 8 at most 11 ports at least 300 dynamic ARP and DHCP snooping tables. LAYER-3 ETHERNET SWITCH The switches shall technically be used as the L3 collection switch. This Ethernet switch shall only be used in the main cabinet in the main building. InterVLAN routing performed in the school shall be carrie dout via this Ethernet switch. In schools with a bandwidth of 10 Mbps, the router device and layer 3 switch may be the same device provided that it meets the router specifications and layer-3 Ethernet switch specifications. If the router device and layer-3 Ethernet switch are the same device, at least 2 Gbps (with 64 Byte packet) shall have throughput performance. Switches shall be able to perform third layer (Layer 3) IPV4 and IPV6 static routing. The switches shall support OSPF, OSPFv3, RIPng , and RIP. If an additional license is required for this support, it shall be included with the device free of charge. IGMP v1, v2, v3, MLD and IGMP Snooping v1, v2, v3 shall be supported. It shall also support PIM-SM (PIM Sparse Mode) to route multicast traffic for IPv4 and IPv6. The switches shall have IPv4 and IPv6 DHCP Server and Relay. ETHERNET SWITCH MANAGEMENT SOFTWARE The Switch Management Software may be of a different brand than the Switches, provided that all requirements in this Technical Specification are met. Switch Management Software shall capture the alarm information of the switches connected to it and perform topology management. Switch Management Software shall be able to provide information to 3rd party software which shall be able to capture alarm information and perform topology management of the switches connected to the Sub-Switch Management

	Software connected to it, and the necessary hardware, software and license shall be provided free of charge. It must be able to monitor Ethernet switches on a 24/7 basis and be able to send alarms via e-mail or SMS. The contents of the warning must be arranged as desired. Ethernet switch management software must automatically discover switches. Ethernet switch management software must ensure that automatically discovered devices are transferred to the graphical map. Ethernet switch management software must be able to automatically collect and report serial numbers of Ethernet switches, operating system versions, and module information installed on them. Ethernet switch management software must be able to perform configuration management, error management, performance management operations. Ethernet switch management software shall support reporting. The Ethernet switch management software shall support IPv6. Ethernet switch management software shall be able to receive and warn errors and alarms that shall occur in the devices. Software versions of all Ethernet Switches can be centrally controlled, new versions can be installed automatically and/or manually on all network devices simultaneously or in groups.
Related official pose/item number, book	E.Ö.ZA.11

Item no:	**Item**	**Unit**
ELC.186	**Preamplifier**	**pcs**
Description/ Specifications	It shall be equipped with 6 inputs, general purpose announcement and music quality and each channel shall have volume adjustment potentiometer , On/Off switch and lamp. Pre - amplifier's reputation (treble and bass control potentiometer); Inputs 1 and 2: For microphone input, Introduction 3, 4, 5, 6: CD, Cassette Player, Radio, Programmed Rings etc. Frequency range: 50 - 20,000 Hz.	
Related official pose/item number, book	E.Ö.SES.1	

Item no:	**Item**	**Unit**
ELC.187	**Bell and time clock**	**pcs**
Description/ Specifications	GENERAL This specification defines the bell system and features of the training structures to be constructed. Materials appropriate to the project and technical specifications shall be submitted to the approval of the Project Manager. The material to be used shall not be used without approval. All materials shall be delivered undamaged to the site and necessary measures shall be taken to protect them. MATERIALS It is an installation consisting of a weekly programmable selective type time clock and amplifier. With this installation, Music - Broadcasting installations shall work integrated and the amplifiers shall be detached. Programmed bell (breathing time interval is set) shall operate without error during the breathing time interval and it shall be established to be able to broadcast music between the breaks. In the programmed ring installation, the loudspeakers for the building and the external loudspeakers shall be installed in two separate circuits. The programmed ring clock shall be adjustable - with a reserve of at least 1 minute and 10 hours between 2 switching.	
Related official pose/item number, book	E.Ö.SES.2	

Item no:	Item	Unit
ELC.188	**Digital AM / FM Tuner**	pcs
Description/ Specifications	FM Portion: Frequency range: 87.5 - 108MHZ Signal/Noise Ratio: Minimum 50 dB AM Part: Frequency range: 522-1611 KHz Signal/Noise Ratio: Minimum 35 dB	
Related official pose/item number, book	E.Ö.SES.3	

Item no:	Item	Unit
ELC.189	**4 Channel volume control and recording mixer**	pcs
Description/ Specifications	Suitable for the number of channels with high input capacity stereo equalizer of the device used for audio broadcasting and control , mono stereo input, Aux output, auxiliary recording outputs, Digital effect operator audio control mixer feeding automatic voltage selection switch audio mixer including all kinds of small materials and labour Intermediate values shall be found by interpolation.	
Related official pose/item number, book	E.Ö.SES.4	

Item no:	Item	Unit
ELC.132	**Parallel remote indicator (Unit: Qty., Materials on construction site: 60%)**	pcs
Description/ Specifications	Parallel remote indicator (Unit: Qty., Materials on construction site: 60%) It shall be operated by the signal from the parallel remote indicator output when fire alarm detectors detect an event. It shall be used where it is difficult or impossible to see and monitor the indicator (light (LED)) on the detector. The indicator (light (LED)) on the parallel remote indicator shall be red and min. 10 mm for ease of monitoring. The parallel remote indicator shall be manufactured by a manufacturer that is awarded ISO 9001 Quality Management System certificates. Supply, installation, and delivery in working order, including any small material and labor, of a parallel remote indicator.	
Related official pose/item number, book	35.415.1460	

Item no:	Item	Unit
ELC.133	**Address fire alarm control panel (Unit: Qty., Materials on construction site: 80%) Two-loop, addressable fire alarm control panel, with min. 240 address capacity.**	pcs
Description/ Specifications	Address fire alarm control panel (Unit: Qty., Materials on construction site: 80%) Addressable smoke, heat, gas, flame and temperature detectors shall be modular, equipped with a microprocessor, and compatible with the connectors of addressable internal and external fire alarm buttons, input and output interface units, short circuit insulators and addressable audible and visual alarm devices, which can be connected to each other by a fire alarm control panel network system with minimum 16 addresses in a large distributed system, support Modbus, Bacnet or another accepted communication module for communication with other control and automation systems of the building, allow different event types (fire, error, security, alarm, information, etc.) to be defined on all addressable devices by the user, ensure full compatibility among the locations and fire scenarios for which the system is installed, allow additional devices to be installed on the system in a manner that does not upset the existing local addressing order, and provided with Turkish and English control panel firmware and Turkish front-end firmware. The control panel with minimum 2 programmable audible alarm outputs as well as controlled alarm and failure outputs dedicated	

	to signalization to the fire department or a remote firefighting center; a pre-alarm function for early response (before the alarm activates) from the control panel in case of low smoke density; an overall fire alarm and failure lamp and individual alarm and failure lamps for each fire zone; an alphanumerical indicator and local audible warning device; zone numbers next to the fire lamps indicating the zone which each fire lamp is assigned to; and with a fully enclosed, sealed, maintenance-free accumulator that will ensure that the fire alarm system performs the detection functions for min. 24 hours and keep all alarm, control and communication functions up and running for min. 30 minutes at the end of the said period, which shall support RS communication module for remote access, and TCP/IP (compatible with IPv4 and IPv6) for remote access over LAN, WAN and the Internet; send the event details including the "date, time, event type, location, etc." to a predetermined mobile phone number (SMS) during the event by means of a GPRS communication module that can be installed on the control panel or integrated in the control panel by means of an external GPRS communication module; integrated in the existing audio system and allow monitoring of errors and failures in the connection by the control panel; provide a programmable alarm relay output to the camera, hence allow automatic switching to the location of fire as part of its integration with the closed circuit television (CCTV) system; continuously check the detectors for contamination and issue a "Service Required" alert if it detects contamination; allow connection of repeater and mimic panels to the control panel; allow continuous inspection of all cables and connections for broken wires, short circuit and earth leakage; store min. last 1000 events on its fail-proof memory; and allow connection of a mini thermal printer. The control panel shall be manufactured in compliance with the standards TS EN 54-2 and TS EN 54-4, the Regulation (EU) No.305/2011 Construction Products - CPR, released with the CE compliance marking, and awarded the manufacturer's declaration of performance, and Certificate of Constancy of Performance by an organization accredited by the European Union. Supply, transportation to the work site, installation, connection to alarm outlet lines, adjustment, and delivery in working order, including any material and labor, of the control panel. Note: Specifications of the module given in the description shall be in compliance with the relevant descriptions in the unit price descriptions. The said module prices are not included in the unit price of the control panel.
Related official pose/item number, book	35.410.1102

Item no:	**Item**	**Unit**
ELC.134	**Addressable relay module with short circuit insulator (Unit: Qty.)**	**pcs**
Description/ Specifications	Addressable relay module with short circuit insulator (Unit: Qty.): The addressable relay module with short circuit insulator shall be equipped with a short circuit insulator to ensure that the system keeps operating in case of short circuits that may occur in the loop line. Supply, transportation to the work site, testing, and delivery in working order, including any small material, of modules manufactured in compliance with the TS EN 54-17 and TS EN 54-18 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE compliance marking, with the manufacturer awarded a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union, and the same as the item 35.410.2620 in other respects.	
Related official pose/item number, book	35.410.2630	

Item no:	**Item**	**Unit**

ELC.135	**Addressable optical smoke detector with short circuit insulator (Unit: Qty.)**	**pcs**
Description/ Specifications	Addressable optical smoke detector with short circuit insulator (Unit: Qty.): The detector shall be equipped with a short circuit insulator to ensure that the system keeps operating in case of short circuits that may occur in the loop line. The detector shall be manufactured in compliance with the TS EN 54-7 and TS EN 54-17 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE compliance marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union. The rest of the specifications shall be the same as the item 35.410.2020, and it shall be transported to the work site, installed at the location specified in the project design, tested and delivered with any small material.	
Related official pose/item number, book	35.410.2030	

Item no:	**Item**	**Unit**
ELC.136	**Addressable combined optical smoke and temperature detector with short circuit insulator (Unit: Qty.)**	**pcs**
Description/ Specifications	Addressable combined optical smoke and temperature detector with short circuit insulator (Unit: Qty.): The detector shall be equipped with a short circuit insulator to ensure that the system keeps operating in case of short circuits that may occur in the loop line. The detector shall be manufactured in compliance with the TS EN 54-5, TS EN 54-7 and TS EN 54-17 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE compliance marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union. The rest of the specifications shall be the same as the item 35.410.2060, and it shall be supplied, transported to the work site, installed at the location specified in the project design, tested and delivered with any small material.	
Related official pose/item number, book	35.410.2070	

Item no:	**Item**	**Unit**
ELC.137	**Addressable water leak detector (Unit: Qty., Materials on construction site: 60%)**	**pcs**
Description/ Specifications	Addressable water leak detector (Unit: Qty., Materials on construction site: 60%) Transportation to the work site, and delivery in working order, including any small material, of an address water leak detector that consists of a cable and detection probe, performs data communication with the addressable fire alarm control panel by a loop cable, directly connects to the loop line, and which was manufactured by a manufacturer that is certified for compliance with the ISO 9001 Quality Management System.	
Related official pose/item number, book	35.410.2520	

Item no:	**Item**	**Unit**
ELC.138	**Automatic gas and power cutoff device that detects earthquakes (Unit: Qty, Materials on construction site: 60%)**	**pcs**
Description/ Specifications	Automatic gas and power cutoff device that detects earthquakes (Unit: Qty, Materials on construction site: 60%) Supply, transportation to the work site, connection, and delivery in working order, including any material and labor, of a device in compliance with TS 12884 and bearing the CE compliance marking, with microprocessor control and overload protection relay outputs, sensors that monitor momentum in two axes, and a rechargeable battery and charging circuit that gives audible and visible warnings and	

	supplies power to the system during a power outage of min. 24 hours, which detects the seismic motions with the momentum specified in TS standards during an earthquake and generate control signals to automatically cut off the building's power supply as well as the gas supply lines of the devices that burn combustible and flammable gases such as natural gas / LPG, disables power generators and prevents them from automatically stepping in during a power outage, switches elevators to the emergency mode, makes them stop on the nearest floor and open their doors to ensure quick evacuation, automatically disables other electric devices that may be hazardous during an earthquake, minimizes post-earthquake damages, tests itself when powered or reset, is not affected by small shocks that are not caused by earthquakes, allows monitoring of operation and failure on the device (by means of LEDs/displays/LCD screens, etc.), and operates in coordination with the existing security systems and sensors installed in the building. NOTE: The electric solenoid valve to be used for cutting off gas shall be paid separately per the relevant items.
Related official pose/item number, book	35.420.2150

Item no:	**Item**	**Unit**
ELC.139	**Addressable natural gas detectors (Unit: Qty.)**	**pcs**
Description/ Specifications	Addressable natural gas detectors (Unit: Qty.) It shall detect natural gas and once the gas level has reached 20% of LEL (lower explosion limit), it shall sound an 85-dB alarm. The addressable natural gas detector shall be controlled by a microprocessor. Minimum three LEDs shall be available on the detector for visibility from a distance. It shall indicate whether the system is online, or in alarm or error state. Function tests of the LEDs and the internal siren shall be run by the test button on the detector. The detector shall operate by external 24 V DC supply voltage. The module shall be powered by a 24 V DC switching-mode power supply (SMPS) described in the item 35.410.6000 (The battery and SMPS are not included in the unit price). Supply, transportation to the work site, testing and delivery, including any small material, of the detector manufactured per TS EN 50194-1, released with the CE compliance marking, and certified with the manufacturer's declaration of performance.	
Related official pose/item number, book	35.420.1300	

Item no:	**Item**	**Unit**
ELC.140	**Resettable, addressable fire alarm button with short circuit insulator (Unit: Qty., Materials on construction site: 60%)**	**pcs**
Description/ Specifications	Resettable, addressable fire alarm button with short circuit insulator (Unit: Qty., Materials on construction site: 60%) The fire alarm button with addressable short circuit insulator shall operate as a manual alarm component and short circuit insulator on the system. The button shall be compatible with flush mounting and surface mounting, and controlled by a microprocessor. The button should activate once the flexible non-breakable glass on the button is pressed, and remain in that state until it is reset. The fire alarm button shall have a LED. The red LED on the button shall turn on when the button is queried by the control panel through the loop line or activated manually and switches to the alarm state. In case of a short circuit in the loop line, the short circuit insulator in the button shall activate automatically and the yellow LED on the button shall turn on. Once the short circuit is eliminated, the insulator shall be disabled automatically and the yellow LED shall turn off. Supply, transportation to the work site, testing, and delivery in working order, including any small material, of buttons manufactured in compliance with the TS EN 54-11 and TS EN 54-17 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE compliance marking, with the manufacturer awarded a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.	

Related official pose/item number, book	35.410.2550

Item no:	**Item**	**Unit**
ELC.141	**Addressable contact monitoring module with short circuit insulator (Unit: Qty.)**	**pcs**
Description/ Specifications	Addressable contact monitoring module with short circuit insulator (Unit: Qty.): The addressable contact monitoring module with short circuit insulator shall be equipped with a short circuit insulator to ensure that the system keeps operating in case of short circuits that may occur in the loop line. Supply, transportation to the work site, testing, and delivery in working order, including any small material, of modules manufactured in compliance with the TS EN 54-17 and TS EN 54-18 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE compliance marking, with the manufacturer awarded a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union, and the same as the item 35.410.2650 in other respects.	
Related official pose/item number, book	35.410.2660	

Item no:	**Item**	**Unit**
ELC.142	**Addressable loop-powered fire siren with short-circuit insulator (Unit: Qty.)**	**pcs**
Description/ Specifications	Addressable loop-powered fire siren with short-circuit insulator (Unit: Qty.): The addressable, loop-powered fire alarm siren shall be equipped with a short circuit insulator to ensure that the system keeps operating in case of short circuits that may occur in the loop line. Supply, transportation to the work site, testing, and delivery in working order, including any small material, of modules manufactured in compliance with the TS EN 54-3 and TS EN 54-17 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE compliance marking, with the manufacturer awarded a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union, and the same as the item 35.410.3000 in other respects.	
Related official pose/item number, book	35.410.3010	

Item no:	**Item**	**Unit**
ELC.143	**Fire alarm detector kit for installation on suspended ceiling (Unit: Qty., Materials on construction site: 60%)**	**pcs**
Description/ Specifications	Fire alarm detector kit for installation on suspended ceiling (Unit: Qty., Materials on construction site: 60%) It shall be used for installation of conventional detectors or fire alarm detectors such as optical smoke, temperature, combined temperature and smoke detectors on any suspended ceiling types including rock wool, plasterboard, metal, etc. in order to prevent sagging or deformations and to ensure architectural integrity. The suspended ceiling unit where the detector sockets are to be installed shall be ABS and of the same color and material as the detectors. The unit shall be installed on the suspended ceiling material by fastening with min. two metal tabs. The metal tabs shall be made of stainless steel material and operate in screwing principle. No spring-loaded mechanisms shall be used. The suspended ceiling unit shall be manufactured by a manufacturer that is awarded ISO 9001 Quality Management System certificates.	
Related official pose/item number, book	35.415.1620	

Item no:	Item	Unit
ELC.144	**Emergency directional lights (with fluorescent lamp) (Unit: Qty., Materials on construction site: 60%) Emergency directional light fixture (with fluorescent lamp) with a single side and a 3-hour timer, which operates continuously.**	**pcs**
Description/ Specifications	Emergency directional lights (with fluorescent lamp) (Unit: Qty., Materials on construction site: 60%) Supply, transportation to the work site and installation of single- side or two-side emergency directional lighting fixtures with special profile made of iron sheet or aluminum and 1 x 8 W fluorescent bulb, with the ones that activate in case of power outage automatically stepping in during mains voltage outage, and the continuously active ones being active when the mains voltage is available and connected by a special, slip-in socket that automatically steps in and provides light as long as the determined emergency operating time in case of mains voltage outage, including a dry-type, high-temperature-resistant, maintenance- free nickel cadmium battery that can run continuously at 70ºC, an electronic lamp supply, battery charge and transfer circuit, battery low voltage and over-discharge protection circuits, battery charge lamps and matte or transparent plexiglass; which shall be manufactured to comply with the standards related to the color and sign formats, the Restriction of the Use of Certain Hazardous Substances Directive, the Regulation on Fire Protection of Buildings, the standards TS ISO 3864-1/2, TS ISO 7010, TS EN 60598-1, TS EN 60598-2-22, TS EN 1838 and TS EN 50172, 2014/35/AB Low Voltage Directive, and released with the CE compliance marking.	
Related official pose/item number, book	35.440.1109	

Item no:	Item	Unit
ELC.145	**Emergency directional lights (with fluorescent lamp) (Unit: Qty., Materials on construction site: 60%) Emergency directional light fixture (with fluorescent lamp) with a two sides and a 3-hour timer, which operates continuously.**	**pcs**
Description/ Specifications	Emergency directional lights (with fluorescent lamp) (Unit: Qty., Materials on construction site: 60%) Supply, transportation to the work site and installation of single- side or two-side emergency directional lighting fixtures with special profile made of iron sheet or aluminum and 1 x 8 W fluorescent bulb, with the ones that activate in case of power outage automatically stepping in during mains voltage outage, and the continuously active ones being active when the mains voltage is available and connected by a special, slip-in socket that automatically steps in and provides light as long as the determined emergency operating time in case of mains voltage outage, including a dry-type, high-temperature-resistant, maintenance- free nickel cadmium battery that can run continuously at 70ºC, an electronic lamp supply, battery charge and transfer circuit, battery low voltage and over-discharge protection circuits, battery charge lamps and matte or transparent plexiglass; which shall be manufactured to comply with the standards related to the color and sign formats, the Restriction of the Use of Certain Hazardous Substances Directive, the Regulation on Fire Protection of Buildings, the standards TS ISO 3864-1/2, TS ISO 7010, TS EN 60598-1, TS EN 60598-2-22, TS EN 1838 and TS EN 50172, 2014/35/AB Low Voltage Directive, and released with the CE compliance marking.	
Related official pose/item number, book	35.440.1112	

Item no:	Item	Unit
ELC.146	**JE-H(St)H FE180 PH120 FIRE-PF, HALOGEN-FREE FIRE ALARM CABLES (Unit: m.) (VDE 0815)2 x 2 x 0.8 + 0.8 mm²**	**m**
Description/ Specifications	JE-H(St)H FE180 PH120 FIRE-PF, HALOGEN-FREE FIRE ALARM CABLES (Unit: m.) (VDE 0815) Supply to the work site, including gateways and security pipes, any material and labor, of fire	

	alarm cables used with security systems, communication, indoor and dry areas, with halogen-free and fireproof signal and communication cables with the cable core made by twisting in layers of the cladding insulated by a halogen- free jackets in compliance with TS EN 50290-2-26 in colors as per VDE 0815 over mono-annealed copper wire in compliance with TS EN 60228 fixed with polyester tape, wrapped in a special flame- retardant glass fiber tape along with an aluminum-coated polyester tape, screened with a tinned earth conductor, with an outer jacket in compliance with TSE K 178, colored RAL 3000 red or RAL 2003 orange, halogen-free outer jacket as per TS EN 50290-2-27, temperature in fixed conditions between -30°C to +70°C, provides circuit integrity for 180 minutes as per IEC 60331-21 and 120 minutes as per EN 50200, and certified for flame retardance as per TS EN 60332-1-2 and TS EN 60332-3-24, and for smoke density as per TS EN 61034-2. Note: HFFR pipe is included for the internal wiring.
Related official pose/item number, book	35.520.5002

Item no:	**Item**	**Unit**
ELC.147	**Door-top warning light (Unit: Qty., Materials on construction site: 60%)**	**pcs**
Description/ Specifications	Door-top warning light (Unit: Qty., Materials on construction site: 60%) Supply to the work site and delivery in working order, including any material and labor, of a lamp with plexiglass casing, red and green in color, which shall be used above patient doors, highly diffusive of light, and shall operate with 12V or 24V voltage.	
Related official pose/item number, book	35.400.2009	

Item no:	**Item**	**Unit**
ELC.148	**WC / Bathroom emergency call button with a cord (Unit: Qty., Materials on construction site: 60%)**	**pcs**
Description/ Specifications	WC / Bathroom emergency call button with a cord (Unit: Qty., Materials on construction site: 60%) Supply to the work site and delivery in working order, including any material and labor, of a unit made up of a module containing call and reset buttons, a warning light and a braided nylon cord with a pull ring at the tip. The unit shall be protected against moisture and dust.	
Related official pose/item number, book	35.400.2008	

Item no:	**Item**	**Unit**
ELC.149	**Room / bed address control module (Unit: Qty., Materials on construction site: 60%)**	**pcs**
Description/ Specifications	Room / bed address control module (Unit: Qty., Materials on construction site: 60%) Supply to the work site and delivery in working order, including any material and labor, of a device enclosed in special casings with IP54 protection, and inputs and outputs with optical insulation, which shall allow monitoring and control of patient rooms, operate automatically, have a microprocessor, and transfers signals to the panel by means of a call input, door warning light and bathroom button connections.	
Related official pose/item number, book	35.400.2005	

Item no:	**Item**	**Unit**
ELC.150	**Nurse Call Console: (Unit: Qty., Materials on construction site: 60%) 24 address capacity,**	**pcs**
Description/ Specifications	Nurse Call Console: (Unit: Qty., Materials on construction site: 60%) Supply to the work site, installation and delivery in working order, including any material and	

	labor, of a console (including the nurse call main unit with solid-state relays with output protection for all connections and controls including the power unit, indicator lamps, controls and communication, short circuit, open circuit and thermal protection, and EMI filter) with ABS housing, membrane front panel, LCD indicator panel with necessary buttons depending on the number of rooms, LED indicators, and a sufficient number of inputs and outputs for data, printer, PC and room connections, which shall be capable of data and audio communication with the central unit, printing and transferring to PC all details with all nurse call functions with timestamps and operating with other consoles in a network, and which shall allow nurses to carry out all monitoring and inspection tasks.
Related official pose/item number, book	35.400.2002

Item no:	**Item**	**Unit**
ELC.151	**Installation of column and supply lines with 1-KV, underground N2XH cables: (Unit: m) 2 x 1.5 mm²**	**m**
Description/ Specifications	Installation of column and supply lines with 1-KV, underground N2XH cables: (Unit: m) Supply to the workplace, including cable bushings and escape pipes, any other material and labor, of 0.6/1kV, underground N2XH cables for installation on plaster, on walls and ceilings through consoles or clips, or through conduits inside the building, and through conduits outside the building. Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.	
Related official pose/item number, book	35.150.2120	

Item no:	**Item**	**Unit**
ELC.152	**Installation of column and supply lines with 1-KV, underground N2XH cables: (Unit: m) 6 x 0.25 mm²**	**m**
Description/ Specifications	Installation of column and supply lines with 1-KV, underground N2XH cables: (Unit: m) Supply to the workplace, including cable bushings and escape pipes, any other material and labor, of 0.6/1kV, underground N2XH cables for installation on plaster, on walls and ceilings through consoles or clips, or through conduits inside the building, and through conduits outside the building. Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.	
Related official pose/item number, book	35.515.2020	

Item no:	**Item**	**Unit**
ELC.193	**Disabled Alarm Panel**	**pcs**
Description/ Specifications	Panel to monitor where alarm is triggered when disabled alarm system is activated	
Related official pose/item	E.Ö.ENG.1	

number, book	

Item no:	**Item**	**Unit**
ELC.194	**Pır Detector**	**pcs**
Description/ Specifications	The detectors to be used in the system must be at least 104'. There must be a LED indicating that motion is detected and this light must be able to be disabled when necessary. Each detector must have its own detector legs. The current consumed by the detectors must be between 9mA - 10.5mA. The operating voltage of the detectors must be 9-16 v dc. The detectors must comply with European EU, EMC, EEC, BS EN 55022 standards.	
Related official pose/item number, book	E.Ö.HIR.1	

Item no:	**Item**	**Unit**
ELC.195	**External Siren**	**pcs**
Description/ Specifications	The sound output of the siren must be at least 110 db. There must be at least two LEDs indicating that the siren is working. Triggering of the siren in the alarm state must be negative. The sounder current of the siren must be 60mA. The current drawn by the siren in case of alarm must be 420mA. The siren must be equipped with a flasher operating in case of an alarm. There must be a minimum of 12 v 1.2 ah battery in the siren. When metal housing on siren is required, also the metal on ABS plastic must be must be protected against all kinds of weather conditions.	
Related official pose/item number, book	E.Ö.HIR.2	

Item no:	**Item**	**Unit**
ELC.196	**Password Panel**	**pcs**
Description/ Specifications	Alarm panel Box must be abs plastic or metal case. Local sirens must be connected to the panel when necessary. LED Panel key-pad , LCDs key-pad , proximity key-pad must be able to be connected. There must be an AC 16-18 v transformer inside the panel. The alarm panel must be able to operate at 160 - 220 AC mains voltage. There must be at least 2 partitions on the alarm panel. The alarm panel must be able to provide at least 16 users with separate passwords. The alarm system must be able to restrict the authorities of the authorised people with password for shutting down the system. Alarm panel must allow to make Hybrid systems. The alarm panel must be communicator- capable and can be linked to an alarm centre. There must be at least four communication protocols. The alarm panel must support PSTN lines as standard for communication. Alarm panel must be able to use gsm network or network (internet) system or it must be provided with additional modules. The alarm panel must meet European standards (EU, LVD, EEC, EMC) The alarm panel must have CE certification. Alarm panel must be programmable via the keyfob programmer. It must have remote access to the alarm panel (remote control). The lines on the alarm zones must be controlled by the end-of-line resistance. The alarm panel must have at least 8 independent zones. 8 zones in the alarm panel program must be established separately from each other. (delay, sudden zone, fire, silent panic, audible panic, health, 24-hour tamper, 24-hour gas, 24-hour water, 24-hour low heat, 24-hour high heat,)	
Related official pose/item number, book	E.Ö.HIR.3	

Item no:	**Item**	**Unit**
ELC.197	**Intruder Alarm Panel**	**pcs**
Description/ Specifications	Alarm panel Box must be abs plastic or metal case. Local sirens must be connected to the panel when necessary. LED Panel key-pad , LCDs key-pad , proximity key-pad must be able to be connected. There must be an AC 16-18 v transformer inside the panel. The	

	alarm panel must be able to operate at 160 - 220 AC mains voltage. There must be at least 2 partitions on the alarm panel. The alarm panel must be able to provide at least 16 users with separate passwords. The alarm system must be able to restrict the authorities of the authorised people with password for shutting down the system. Alarm panel must allow to make Hybrid systems. The alarm panel must be communicator- capable and can be linked to an alarm centre. There must be at least four communication protocols. The alarm panel must support PSTN lines as standard for communication. Alarm panel must be able to use gsm network or network (internet) system or it must be provided with additional modules. The alarm panel must meet European standards (EU, LVD, EEC, EMC) The alarm panel must have CE certification. Alarm panel must be programmable via the keyfob programmer. It must have remote access to the alarm panel (remote control). The lines on the alarm zones must be controlled by the end-of-line resistance. The alarm panel must have at least 8 independent zones. 8 zones in the alarm panel program must be established separately from each other. (delay, sudden zone, fire, silent panic, audible panic, health, 24-hour tamper, 24-hour gas, 24-hour water, 24-hour low heat, 24-hour high heat,)
Related official pose/item number, book	E.Ö.HIR.4

Bill 3.8. Exterior Lighting

Item no:	**Item**	**Unit**
ELC.153	**Flush-mounted steel electric panels (Unit: Qty. Materials on construction site: 60%) (TS EN 61439-1/2) Note: "Type tests" shall be run, and the results of such tests shall be submitted to the Administration. From 0.05 to 0.10 m^2 (including 0.10 m^2)**	**pcs**
Description/ Specifications	Flush-mounted steel electric panels (Unit: Qty. Materials on construction site: 60%) (TS EN 61439-1/2) Note: "Type tests" shall be run, and the results of such tests shall be submitted to the Administration. The Unit Price No. 35.100.6400 shall apply. In addition, an iron profile mounting frame shall be available for flush mounting the box in the wall. The steel sheet box shall be easily mountable on this mounting frame. Unit: Same as the Unit Price No. 35.100.6400.	
Related official pose/item number, book	35.100.6501	

Item no:	**Item**	**Unit**
ELC.154	**Ad1-60 / 15 type, 70 kg. galvanized steel polygon lighting pole with single cantilever**	**pcs**
Description/ Specifications	a) Material: Sheet pole made of sheet metal of at least 3 mm thickness, polygonal conical shape and galvanized with hot single-dip zinc in accordance with its specifications, standards and certified static project, for example: 5.5.3.1. The same. Used in assembly; galvanized sheet metal table bolts, nuts, washers, anchor bolts are included in the material price. b) Installation: Galvanized Steel Lighting Poles shall be installed on the foundation prepared in the basic shape and dimensions specified in the basic selection table. These poles will be assembled on an anchorage basis. Payment will be based on the weight of the pole in the unit price book. Transportation and transportation insurance, preparation of concrete foundation, disposal of the soil to be shown by the administration, sand, cement etc. used. The price of the materials is included in the assembly unit price of all kinds of pavement and pit excavation on the ground, deterioration of deteriorated pavements and pavements.	
Related official pose/item number, book	5.5.3.2/006	

Item no:	Item	Unit
ELC.155	**Installation of column and supply lines with 1-KV, underground YVV (NYY) cables: (Unit: m) 4 x 4 mm²**	m
Description/ Specifications	Installation of column and supply lines with 1-KV, underground YVV (NYY) cables: (Unit: m) Installation of column and supply lines with 1-KV, underground YVV (NYY) cables in compliance with TS IEC 60502-1+A1 standards. Supply to the workplace, including cable bushings and escape pipes, any other material and labor, of underground cables for installation on plaster, on walls and ceilings through consoles or clips, or through conduits inside the building, and through conduits outside the building. Unit: The length of the cable between terminal boxes and terminal caps shall be considered. Multiple cables installed in the same conduit shall be housed in cable ducts or pipes in the diameter and length required for each cable at the locations of passage. The terminal boxes, caps, junction boxes, consoles, and conduits shall be paid separately. Iron structures shall be paid per the Item No. Y.23.176. No additional charge shall apply for passage ducts and pipes up to 10 meters long. Note: The item shall be manufactured in compliance with the TS EN 50575 and TS EN 50575/A1 standards, the Regulation (EU) No.305/2011 Construction Products - CPR, released with a CE marking, and the manufacturer shall have a declaration of performance and Certificate of Constancy of Performance issued by an organization accredited by the European Union.	
Related official pose/item number, book	35.140.3222	

Bill 3.9. MV System

Item no:	Item	Unit
ELC.156	**36 kv., 630 a., 16 ka Incoming cubicle with load disconnector**	pcs
Description/ Specifications	a) Material: The cell shall be equipped with the following equipment in accordance with its specifications and standards: - busbars, - load disconnector which opens and closes in a section filled with SF6 gas, - grounding disconnector which grounds and short-circuit the cable terminals, - cable connection device, light-type voltage indicator that provides control from outside the cell, and voltage control sockets that enable the control of the phase sequence from outside the cell, -view windows, -ventilation holes and gas outlet locations, -mindic diagram, -the locking devices specified in the specification b) Installation: Load disconnector input transport of the output cell in the packaged place to the place to be assembled, insurance costs required for transportation, installation to the desired place according to the project and specification, any materials required for the assembly are included in the assembly unit price.	
Related official pose/item number, book	(MİNHA)'22.4.1/008	
Item no:	Item	Unit
ELC.157	**36 kv., 630 a., 16 ka Current voltage measurement cubicle**	pcs
Description/ Specifications	a) Material: The cell to be in conformity with its specification and standard shall be equipped with the following equipment. - Busbar - Load breaker - Load breaker that short-circuit and ground the welding side - 3 HV fuses - 3 Current transformers (to comply with the thermal current values and characteristics project) - Phase-ground or phase-neutral up to 24 kV 3 LV fuses, 3 LV fuses, voltmeter commutators and voltmeters on the secondary side of the voltage transformer, - ammeter and counters, - ventilation holes and gas outlet locations, - mimic diagram, - locking devices specified in the specification. - thermostat controlled heater. Packaged with other equipment specified in current and voltage measurement cell specifications. b) Installation: with the conditions in item 22.4.1.b.	
Related official pose/item number, book	22.4.8/007	

Item no:	Item	Unit
ELC.158	**400 kva substation (including transformer) 36 kv concrete cubicle 2 load disconnector + 1 fused load isolator + transformer + ag board (type 1c)**	pcs
Description/ Specifications	a) Material: All materials (including battery-rectifier and fault indicator) included in the building specification are manufactured in accordance with the specifications approved by the administration. b) Mounting: Conveying the concrete kiosk to the place to be assembled, insurance costs required for transportation, embedding the foundation letter in order to be buried in the dimensions appropriate to the project and specifications, throwing the stone and soil to the place indicated by the administration, making the foundation molds, making concrete foundation using 250 dose concrete construction of cable entry, exit and oil drain channels, installation of the kiosk on the foundation. (Material and assembly price of molded timber, sand, gravel, bolt, hook, nut, washer etc. required for assembly are included in the assembly unit price.)	
Related official pose/item number, book	22.5.1.3.B/001	

Item no:	Item	Unit
ELC.159	**50 mm^2 nyy cable and installation into the ground**	m
Description/ Specifications	b) Installation: Transportation of the insulated grounding cable used, insurance costs required for transportation, installation and contact from the grounding point to the contact point, necessary excavation for fixing 70cm deep into the ground, pole or building according to the specifications, fixing hooks, galvanized gate pipes, bolts , nuts, etc. The material and assembly price of any required material is included in the assembly unit price. Direct contact of the top of the operational ground; It shall be made of solid copper or equivalent (galvanized strip) in cross section in accordance with the grounding regulations. All material and workmanship unit price a) Material: 2mt hot-dip galvanized earthing electrode (pile) and 5mt hot-dip galvanized earthing strip or 70mm2 galvanized braided steel rope with the specifications specified in item 30 NOTE: Included.	
Related official pose/item number, book	30.2/002	

Item no:	Item	Unit
ELC.160	**95 mm^2 (865.20 kg / km) of copper conductor and installation into the ground**	m
Description/ Specifications	Installation of surrounding wires around the building (Unit: m, Materials on construction site: 60%) Installing surrounding wires for the building using the conductors, making a 60 to 80-cm-deep canal around the building, laying the conductor and filling the canal back, connecting to the electrodes with rivets or by welding, including any small material and labor.	
Related official pose/item number, book	30.2/004	
Item no:	**Item**	**Unit**
ELC.161	**1 × 95s / 16 mm^2, 20.3 / 35 kv ye3sv (2xsy); ye3ssv (2xseyfgby) cable (xlpe insulated, pvc outer sheath)**	m
Description/ Specifications	a) Material: LV and MV cables manufactured in accordance with the specification and standard, LV Cables: Related T.S.E. Y cables and the corresponding T.S.E. N cables (0.6 / 1 kV) according to the standard. In single veins; Copper conductor, PVC insulator and PVC outer sheath. In multi-veined; They are manufactured as copper conductor, PVC insulator, common sheath and PVC outer sheath. In addition, multi-core cables with concentric conductor; Concentric conductor and protection tape (these cables are used as the concentric conductor neutral conductor), armored multi-core cables with armor and galvanized steel wire armor and galvanized steel retaining tape shall be provided. LV cable conductors with a cross section of 16mm2 and above shall be manufactured as multi-stranded and compressed. The insulating material of these cables may be PVC or XLPE (cross-linked polyethylene). MV Cables: Related T.S.E. standards and IEC 502, 3.5 / 6 - 5.8 / 10 - 8.7 / 15 - 20.3 / 35 kV. XLPE (crosslinked	

	polyethylene) insulated single core and three core cables used in voltage stages. In single core cables; copper conductor, inner semiconductor layer, XLPE (crosslinked polyethylene) insulator, outer semiconductor layer, semiconductor tape, copper shield, protection tape and outer sheath. In three core cables; copper conductor inner semiconductor layer, XLPE (cross-linked polyethylene) insulator, outer semiconductor layer, semiconductor tape, copper shield, common sheath, PVC separating sheath, galvanized flat steel wire armor, galvanized steel retaining tape and outer sheath shall be provided. The conductors of the MV cables shall be multi-core and compacted. For cables without Q tape, they will be made of red PVC based material. XLPE (crosslinked polyethylene) insulated cable. b. Installation: All UNDERGROUND CABLE CHANNEL INSTALLATION Unit Prices given in Poses 32.1-32.11 included; cable laying to the channel (40x60x80cm) with the size of Standard Earth Cable Trunking has been made by considering together. Namely; - Wiring Installation to Standard Ground Channel: According to the project, the insurance costs required for the transportation, the transportation, the project, the Electrical Power Plants High Current Installation Regulation, the General Technical Specifications of the Electrical Distribution Facilities and the TEDAŞ specifications; Preparation of 40x60x80cm standard cable tray, laying sand at the bottom of the channel, laying the cable in accordance with the specification, laying sand on the cable, sand (12 pieces per meter) or 20x50x6cm concrete blocks (2 pieces per meter) etc. of the protective element, 20 cm on the concrete block or brick (protective element), along the cable channel, 12cm wide, at least 0.1 mm thick and 6cm black point letters "OG / AG ENERGY CABLE" written on the inscription made of colored, flexible plastic laying the warning band, soil, etc. from the channel excavation. to be filled up to the road level. For these operations, all kinds of material (excluding cable material cost), excavation, transportation and labor costs, and the increase in the disposal of stones and soil to the place indicated by the administration, is included in the assembly unit price. Cable length shall be taken as the basis for channel length. In this case, it is known that the length of the excavated duct will be less than the length of the cable. Expansion and additional manhole construction costs due to "S". - Cable Installation to Standard Tuvenan Cable Trunking: According to the project, Electrical Installation Strong Current Installation Regulation, General Technical Specifications of Electrical Distribution Facilities and TEDAŞ specifications; Preparation of 40x60x80cm standard cable tray, laying sand at the bottom of the channel, laying the cable in accordance with the specification, laying sand on the cable, sand (12 pieces per meter) or 20x50x6cm concrete blocks (2 pieces per meter) etc. insertion of the protective element from the means, 20cm above the concrete block or brick ('protective element), along the cable channel, 12cm wide, at least 0.1mm thick and 6cm above. of colored, flexible plastic warning tape with the letter "OG / LV ENERGY CABLE" written in black point font. Transportation of all soil and debris from the channel to the location indicated by the administration, supply of the material to be deemed appropriate by the relevant administration (Municipality or Highways etc.), unit price descriptions of Ministry of Public Works and Settlement according to Pos No: 15.140 / 2 and transportation to the work place, filling, leveling , ramming, presentation and compression of all necessary labor, materials and casualties, workplace loading, horizontal and vertical transport costs are included in the assembly unit price.
Related official pose/item number, book	32.11/004

Item no:	**Item**	**Unit**
ELC.162	**1 × 95s / 16 mm², 20.3 / 35 kv ye3sv (2xsy); ye3ssv (2xseyfgby) cable (xlpe insulated, pvc outer sheath)**	**m**
Description/ Specifications	a) Material: LV and MV cables manufactured in accordance with the specification and standard, LV Cables: Related T.S.E. Y cables and the corresponding T.S.E. N cables (0.6 / 1 kV) according to the standard. In single veins; Copper conductor, PVC insulator and PVC outer sheath. In multi-veined; They are manufactured as copper conductor, PVC insulator, common sheath and PVC outer sheath. In addition, multi-core cables with concentric conductor; Concentric conductor and protection tape (these cables are used as the concentric conductor neutral conductor), armored multi-core cables with armor and galvanized steel wire armor and	

	galvanized steel retaining tape shall be provided. LV cable conductors with a cross section of 16mm2 and above shall be manufactured as multi-stranded and compressed. The insulating material of these cables may be PVC or XLPE (cross-linked polyethylene). MV Cables: Related T.S.E. standards and IEC 502, 3.5 / 6 - 5.8 / 10 - 8.7 / 15 - 20.3 / 35 kV. XLPE (crosslinked polyethylene) insulated single core and three core cables used in voltage stages. In single core cables; copper conductor, inner semiconductor layer, XLPE (crosslinked polyethylene) insulator, outer semiconductor layer, semiconductor tape, copper shield, protection tape and outer sheath. In three core cables; copper conductor inner semiconductor layer, XLPE (cross-linked polyethylene) insulator, outer semiconductor layer, semiconductor tape, copper shield, common sheath, PVC separating sheath, galvanized flat steel wire armor, galvanized steel retaining tape and outer sheath shall be provided. The conductors of the MV cables shall be multi-core and compacted. For cables without Q tape, they will be made of red PVC based material. XLPE (crosslinked polyethylene) insulated cable. b. Installation: All UNDERGROUND CABLE CHANNEL INSTALLATION Unit Prices given in Poses 32.1-32.11 included; cable laying to the channel (40x60x80cm) with the size of Standard Earth Cable Trunking has been made by considering together. Namely; - Wiring Installation to Standard Ground Channel: According to the project, the insurance costs required for the transportation, the transportation, the project, the Electrical Power Plants High Current Installation Regulation, the General Technical Specifications of the Electrical Distribution Facilities and the TEDAŞ specifications; Preparation of 40x60x80cm standard cable tray, laying sand at the bottom of the channel, laying the cable in accordance with the specification, laying sand on the cable, sand (12 pieces per meter) or 20x50x6cm concrete blocks (2 pieces per meter) etc. of the protective element, 20 cm on the concrete block or brick (protective element), along the cable channel, 12cm wide, at least 0.1 mm thick and 6cm black point letters "OG / AG ENERGY CABLE" written on the inscription made of colored, flexible plastic laying the warning band, soil, etc. from the channel excavation. to be filled up to the road level. For these operations, all kinds of material (excluding cable material cost), excavation, transportation and labor costs, and the increase in the disposal of stones and soil to the place indicated by the administration, is included in the assembly unit price. Cable length shall be taken as the basis for channel length. In this case, it is known that the length of the excavated duct will be less than the length of the cable. Expansion and additional manhole construction costs due to "S". - Cable Installation to Standard Tuvenan Cable Trunking: According to the project, Electrical Installation Strong Current Installation Regulation, General Technical Specifications of Electrical Distribution Facilities and TEDAŞ specifications; Preparation of 40x60x80cm standard cable tray, laying sand at the bottom of the channel, laying the cable in accordance with the specification, laying sand on the cable, sand (12 pieces per meter) or 20x50x6cm concrete blocks (2 pieces per meter) etc. insertion of the protective element from the means, 20cm above the concrete block or brick ('protective element), along the cable channel, 12cm wide, at least 0.1mm thick and 6cm above. of colored, flexible plastic warning tape with the letter "OG / LV ENERGY CABLE" written in black point font. Transportation of all soil and debris from the channel to the location indicated by the administration, supply of the material to be deemed appropriate by the relevant administration (Municipality or Highways etc.), unit price descriptions of Ministry of Public Works and Settlement according to Pos No: 15.140 / 2 and transportation to the work place, filling, leveling , ramming, presentation and compression of all necessary labor, materials and casualties, workplace loading, horizontal and vertical transport costs are included in the assembly unit price.
Related official pose/item number, book	32.15/004

Item no:	**Item**	**Unit**
ELC.163	**1 × 95s / 16 mm², 20.3 / 35 kv ye3sv (2xsy); ye3ssv (2xseyfgby) cable (xlpe insulated, pvc outer sheath)**	**m**
Description/ Specifications	a) Material: LV and MV cables manufactured in accordance with the specification and standard, LV Cables: Related T.S.E. Y cables and the corresponding T.S.E. N cables (0.6 / 1 kV) according to the standard. In single veins; Copper conductor, PVC insulator and PVC outer sheath. In	

	multi-veined; They are manufactured as copper conductor, PVC insulator, common sheath and PVC outer sheath. In addition, multi-core cables with concentric conductor; Concentric conductor and protection tape (these cables are used as the concentric conductor neutral conductor), armored multi-core cables with armor and galvanized steel wire armor and galvanized steel retaining tape shall be provided. LV cable conductors with a cross section of 16mm2 and above shall be manufactured as multi-stranded and compressed. The insulating material of these cables may be PVC or XLPE (cross-linked polyethylene). MV Cables: Related T.S.E. standards and IEC 502, 3.5 / 6 - 5.8 / 10 - 8.7 / 15 - 20.3 / 35 kV. XLPE (crosslinked polyethylene) insulated single core and three core cables used in voltage stages. In single core cables; copper conductor, inner semiconductor layer, XLPE (crosslinked polyethylene) insulator, outer semiconductor layer, semiconductor tape, copper shield, protection tape and outer sheath. In three core cables; copper conductor inner semiconductor layer, XLPE (cross-linked polyethylene) insulator, outer semiconductor layer, semiconductor tape, copper shield, common sheath, PVC separating sheath, galvanized flat steel wire armor, galvanized steel retaining tape and outer sheath shall be provided. The conductors of the MV cables shall be multi-core and compacted. For cables without Q tape, they will be made of red PVC based material. XLPE (crosslinked polyethylene) insulated cable. b. Installation: All UNDERGROUND CABLE CHANNEL INSTALLATION Unit Prices given in Poses 32.1-32.11 included; cable laying to the channel (40x60x80cm) with the size of Standard Earth Cable Trunking has been made by considering together. Namely; - Wiring Installation to Standard Ground Channel: According to the project, the insurance costs required for the transportation, the transportation, the project, the Electrical Power Plants High Current Installation Regulation, the General Technical Specifications of the Electrical Distribution Facilities and the TEDAŞ specifications; Preparation of 40x60x80cm standard cable tray, laying sand at the bottom of the channel, laying the cable in accordance with the specification, laying sand on the cable, sand (12 pieces per meter) or 20x50x6cm concrete blocks (2 pieces per meter) etc. of the protective element, 20 cm on the concrete block or brick (protective element), along the cable channel, 12cm wide, at least 0.1 mm thick and 6cm black point letters "OG / AG ENERGY CABLE" written on the inscription made of colored, flexible plastic laying the warning band, soil, etc. from the channel excavation. to be filled up to the road level. For these operations, all kinds of material (excluding cable material cost), excavation, transportation and labor costs, and the increase in the disposal of stones and soil to the place indicated by the administration, is included in the assembly unit price. Cable length shall be taken as the basis for channel length. In this case, it is known that the length of the excavated duct will be less than the length of the cable. Expansion and additional manhole construction costs due to "S". - Cable Installation to Standard Tuvenan Cable Trunking: According to the project, Electrical Installation Strong Current Installation Regulation, General Technical Specifications of Electrical Distribution Facilities and TEDAŞ specifications; Preparation of 40x60x80cm standard cable tray, laying sand at the bottom of the channel, laying the cable in accordance with the specification, laying sand on the cable, sand (12 pieces per meter) or 20x50x6cm concrete blocks (2 pieces per meter) etc. insertion of the protective element from the means, 20cm above the concrete block or brick ('protective element), along the cable channel, 12cm wide, at least 0.1mm thick and 6cm above. of colored, flexible plastic warning tape with the letter "OG / LV ENERGY CABLE" written in black point font. Transportation of all soil and debris from the channel to the location indicated by the administration, supply of the material to be deemed appropriate by the relevant administration (Municipality or Highways etc.), unit price descriptions of Ministry of Public Works and Settlement according to Pos No: 15.140 / 2 and transportation to the work place, filling, leveling , ramming, presentation and compression of all necessary labor, materials and casualties, workplace loading, horizontal and vertical transport costs are included in the assembly unit price.
Related official pose/item number, book	32.19/004

Item no:	**Item**	**Unit**
ELC.164	**1 × 95s / 16 mm^2, 20.3 / 35 kv indoor type heat shrinkable cable header ye3sv**	**m**

	(2xsy), ye3ssv (2xseyfgby)	
Description/ Specifications	a) Material: It shall be manufactured in accordance with its specification and standard. MV Cable headers shall be designed to protect the cable against external influences such as rainfall, humidity and dust, as well as to control the electric field and to withstand thermal and dynamic stresses that may occur in short circuits. Cable lug, and necessary materials for installation included. b) Installation: Installation shall be carried out in accordance with the general rules and technical specifications of the installation.	
Related official pose/item number, book	32.34.11/004	

Item no:	**Item**	**Unit**
ELC.165	**2 meters long galvanized 65x65x7 galvanized earth electrode and installation into the ground**	**pcs**
Description/ Specifications	Installation of surrounding wires around the building (Unit: m, Materials on construction site: 60%) Installing surrounding wires for the building using the conductors, making a 60 to 80-cm-deep canal around the building, laying the conductor and filling the canal back, connecting to the electrodes with rivets or by welding, including any small material and labor.	
Related official pose/item number, book	30.4.2	

Bill 4. External Works, Infrastructure and Landscaping

Bill 4.1 Infrastructure Works

Item no:	**Item**	**Unit**
CIV.108	**CONSTRUCTION OF PARCEL MANHOLE WITH PREFABRICATED MANHOLE BASE ELEMENTS (Steam Cured, 500-dose, Rubber Seal, Pipe inlets with integrated gasket) (H: 0,50 m Internal Size: 0,80 x 0,80 m Wall Thickness: 0,10 m)**	**pcs**
Description/ Specifications	N/A	
Related official pose/item number, book	43.560.1101	

Item no:	**Item**	**Unit**
CIV.109	**CONSTRUCTION OF PARCEL MANHOLE WITH PREFABRICATED MANHOLE BODY ELEMENTS (Steam Cured, 500 doses, rubber seal) (H: 0,50 m Internal Size: 0,80 x 0,80 m Wall Thickness: 0,10 m)**	**pcs**
Description/ Specifications	N/A	
Related official pose/item number, book	43.560.1102	

Item no:	**Item**	**Unit**

CIV.110	**PARCEL CONSTRUCTION OF PARCEL MANHOLE WITH PREFABRICATED MANHOLE BODY ELEMENTS (Steam Cured, 500 doses, rubber seal) (H: 0.25 m Internal Size: 0,80 x 0,80 m Wall Thickness: 0,10 m)**	**pcs**
Description/ Specifications	N/A	
Related official pose/item number, book	43.560.1103	

Item no:	**Item**	**Unit**
CIV.111	**CONSTRUCTION OF PARCEL MANHOLE WITH PREFABRICATED MANHOLE BODY HEIGHT ADJUSTMENT ELEMENTS (Steam Cured, 500 dose, rubber seal) (H: Variable high. Internal Size: 0,80 x 0,80 m Wall Thickness: 0,10 m)**	**pcs**
Description/ Specifications	N/A	
Related official pose/item number, book	43.560.1104	

Item no:	**Item**	**Unit**
CIV.112	**CONSTRUCTION OF PARCEL MANHOLE WITH PREFABRICATED REINFORCED MANHOLE COVER FRAMED IN PROFILE STEEL FOR MANHOLE (using C35/45 Concrete, for parcel manholes on roads and streets) (0.50 x 1.00 x 0.10 m)**	**pcs**
Description/ Specifications	N/A	
Related official pose/item number, book	43.560.1106	

Item no:	**Item**	**Unit**
CIV.113	**CONSTRUCTION OF INSPECTION MANHOLE WITH PREFABRICATED MANHOLE CONIC ELEMENT (500 dose, steam cured, with integrated gasket connection, gasket price included) (H: 0.65 m Inner Diameter: 1.00 m Wall Thickness: 0.15 m)**	**pcs**
Description/ Specifications	N/A	
Related official pose/item number, book	43.560.1457	

Item no:	**Item**	**Unit**

CIV.114	**CONSTRUCTION OF INSPECTION MANHOLE WITH PREFABRICATED MANHOLE BUSHING ELEMENT (500 dose, steam cured, with integrated gasket connection, gasket price included) (H: 0,15 m Inner Diameter: 0,62 m Wall Thickness: 0,15 m)**	**pcs**
Description/ Specifications	N/A	
Related official pose/item number, book	43.560.1459	

Item no:	**Item**	**Unit**
CIV.115	**CONSTRUCTION OF INSPECTION MANHOLE WITH PREFABRICATED MANHOLE FRAME INSTALLATION ELEMENT (500 dose, Steam Cured, Integrated Gasket Connection, Gasket Price Included) (H: 0,29 m Inner Diameter: 0,62 m Wall Thickness: 0,15 m)**	**pcs**
Description/ Specifications	N/A	
Related official pose/item number, book	43.560.1460	

Item no:	**Item**	**Unit**
CIV.116	**CONSTRUCTION OF INSPECTION MANHOLE WITH PREFABRICATED MANHOLE BASE ELEMENTS WITH ø 300 MM EXIT DIA. (1 Inlet, 1 Outlet) (500 Dose, Steam Cured, Integrated Seal, Gasket Price Included)**	**pcs**
Description/ Specifications	N/A	
Related official pose/item number, book	43.560.1404	

Item no:	**Item**	**Unit**
CIV.117	**CONSTRUCTION OF INSPECTION MANHOLE WITH PREFABRICATED MANHOLE BASE ELEMENTS WITH ø 300 MM EXIT DIA. (2 Inlet, 1 Outlet) (500 Dose, Steam Cured, Integrated Seal, Gasket Price Included)**	**pcs**
Description/ Specifications	N/A	
Related official pose/item number, book	43.560.1405	

Item no:	**Item**	**Unit**
CIV.118	**ø 200 mm Concrete Sewer Pipe (500 Dose, Steam Cured, Integrated Seal, Head Binding and Sealing Price)**	**m**
Description/ Specifications	N/A	

Related official pose/item number, book	43.526.1102

Item no:	**Item**	**Unit**
CIV.119	**LAYING OF ø 300 MM MUFFLE CONCRETE SEWERING PIPES (500 Dose, Steam Cured, Integrated Seal, Head Binding and Sealing Price)**	**m**
Description/ Specifications	N/A	
Related official pose/item number, book	43.526.1103	

Item no:	**Item**	**Unit**
CIV.120	**HAND COMPRESSION OF GRANULOMETRIC SAND-GRAVELS BEDDING OF PIPE BASE**	**m3**
Description/ Specifications	Price of 1 m3, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses for, after the levelling of the pipe trench or foundation base and drying of the water at the bottom, the granulometric sand-gravel prepared by the principles and conditions in the unit price description no. 08.009/IB-2 or purchased from the market in the same condition and brought to the edge of the trench, and laying on the base of the trench, laying by hands in 20 cm layers, and compacting with a rammer, machinery, tools and equipment with 1.000 m3 granulometric sand - gravel under the conditions and principles specified in the implementation project: MEASURE: 1) Soil improvement: The type of cross section of the project is the width and fill height of the ditch and the quantity in cubic meters obtained by multiplying the length of the ditch. 2) In pipe jacketing and bedding: It is the quantity in cubic meters obtained by minimizing the outer volumes of pipes and concrete within the filling section, multiplied by the ditch width and fill height specified in the type section of the project and the length of the ditch made by bedding. NOTE : 1) The density of 1,000 m3 soil rehabilitation material compacted by hand is equal to the density of uncompressed granulometric sand-gravel (1,600 tons/m3). 2) This unit price; a- shall be applied to the production of pipe trench floor improvement, pipe bed and pipe jacking on the lines approved by the General Directorate or its authorized units and whose project has been approved. b- is not applicable in case the manufacturing is not made in accordance with the unit price description. 3) In case of purchase of granulometric material; The transportation cost of the granulometric material specified in the unit price description (from the material quarries specified in the contract or determined by the administration) and, if necessary, the cost of the figure shall be paid separately. 4) If it is deemed necessary by the Administration for the material to be figured, the cost of the figure shall be paid separately from Item No: 15.150/K in the Iller Bank Unit Price Table.	
Related official	43.610.1024	

pose/item number, book	

Item no:	**Item**	**Unit**
CIV.121	**Production of concrete or reinforced concrete form made of wood**	**m2**
Description/ Specifications	Price per m^2 including any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage, unloading at the work site, and contractor's overheads and profit for producing concrete and reinforced concrete formwork with smooth surface made of second class pine lumber with planed and greased interior surfaces, removing the formwork, including timbers, supports, square timbers, strips, nails, wires, and similar equipment: UNIT : Molded surfaces shall be measured on the project design or in situ. Peripheral formworks of manufacture holes for which clearance volumes are not excluded shall not be included in the measurement. Clearance gap shall not be excluded from the hole's side facing the formwork. NOTE : 1) The falsework shall be paid separately. 2) The materials extracted from formwork shall belong to the contractor.	
Related official pose/item number, book	15.180.1002	

Item no:	**Item**	**Unit**
CIV.122	**Production and installation of pig iron grating, cover and drainage ditch**	**kg**
Description/ Specifications	Price per kg including any material and losses, labor, loading, horizontal and vertical carriage, and unloading at the work site, equipment costs, and contractor's overheads and profit for preparing by treatment as per the project design approved by the administration, transportation to the work site, and installation of pig iron grating, cover and drainage ditch: UNIT : Pig iron covers, gratings and drainage ditches manufactured and installed as per the relevant project design shall be weighed.	
Related official pose/item number, book	15.560.1001	

Item no:	**Item**	**Unit**
CIV.123	**Replacement of ductile cast iron manhole cover used in sewage works**	**pcs**
Description/ Specifications	N/A	
Related official pose/item number, book	43.665.1054	

Item no:	**Item**	**Unit**
CIV.124	**Supply, and machine laying, watering and compacting of crushed stonse up to 32 mm**	**m3**
Description/ Specifications	Price per m^3 including any labor, material and loss, loading, horizontal and vertical carriage and unloading at the work site, and contractor's overheads and profit, for supply of the crushed stone up to 32 mm, pouring on site, laying with motor grader, watering, and compacting in layers with a vibratory roller: UNIT : Volume is calculated according to the units of measure in the design.	
Related official	15.125.1008	

pose/item number, book	

Item no:	**Item**	**Unit**
CIV.001	**Excavation with machinery at every class of soil**	**m3**
Description/ Specifications	Price per 1 m^3 including any material and losses, labor, instruments and equipment costs, contractor's overhead expenses and profit, excavation with machine in the soft and hard soil, loading onto vehicles, transport and discharge at any distance, laying fill or barrier, filling the gaps on the excavation site after construction, and leveling.	
Related official pose/item number, book	15.120.1001	

Item no:	**Item**	**Unit**
CIV.005	**Ready Mix Concrete C20/25**	**m3**
Description/ Specifications	Price per m^3 of gray, regular, cast-in-situ, ready-mix concrete with C 20/25 compressive strength, including any labor, materials and losses, machinery, equipment, instrument and laboratory costs, any horizontal and vertical carriage, loading and unloading at the work site for performing concrete quality controls, loading on truck mixers, transportation to the work site, pumping on the cast location by a concrete pump, watering, protecting from extreme temperatures and other external effects, maintaining, and taking a sufficient amount of samples for tests and conducting the required tests on, the ready-mix concrete grout in compliance with the relevant standard and project design, washed, sieved, and manufactured in C 12/15 class with granulometric sand-gravel and/or crushed stone, cement, water and additives where necessary, in a complete concrete plant with appropriate specifications for concrete manufacture (equipped with min. 60 m^3/h capacity, four-cell aggregate bunker, compressor, control cabin for computerized control, a cement silo with min. 50-ton capacity, a recovery unit, a laboratory with sufficient capacity to conduct aggregate and concrete tests, a power generator, a sufficient amount of truck mixers and mobile concrete pumps, min. one loader, additive tank and additive weigh hopper, moisture meter and similar other equipment, and calibrated) or purchased from a concrete plant that fulfills the said specifications, loading onto vehicles at the place of supply, production or purchase, transfer to the concrete plant, unloading from vehicles, stowing and placement at the concrete plant of any granulometric sand, gravel or crushed stone and cement to be added to the concrete, supply and transportation of the water to be added to the concrete and used for watering, supply, and depreciation expenses, of the concrete plant and all other equipment, including other expenses, contractor's overheads and profit. Measured according to dimensions in the project. 1) Concrete batching plant shall have TSE and any other certificates that may be required by the legislation. The concrete with the certificate of compliance, which fulfills the condition of supply to the market in compliance with the relevant legislation, may be used in production only if such certificates are found to be appropriate and the concrete is allowed to be used.2) If the concrete is supplied by purchase, a copy of the invoices indicating the name of the work must be attached to the documents of payment.3) Cost of the additives to be added to the concrete shall be paid separately.4) Pump cost is deducted from the analysis, if pump is not used.	
Related official pose/item number, book	15.150.1004	

Item no:	**Item**	**Unit**
CIV.008	**Reinforcement, Bent And Placed Ø 8-Ø 12 mm**	**tons**
Description/ Specifications	Price per ton for steel reinforcement, attachment wire, any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage, unloading at the work site, and	

	contractor's overheads and profit for cutting and bending ribbed concrete steel bars to prepare them as per the relevant detail project design: 1) The length of the steel bars and clips shall be measured as per the reinforced concrete detail drawings. 2) Weights of the steel bars shall be taken from the table below. 3) The steel and attachments not indicated in the project design shall not be included in the calculation. 4) Weights in the table (m) shall be taken as basis for the calculation. Since the attachment wire and the steel bars to be used in the gaps between the steel bars as well as the losses shall be considered in the analysis, no additional payment shall be made.
Related official pose/item number, book	15.160.1003

Item no:	**Item**	**Unit**
CIV.011	**Foundation drainage with Ø 200 mm PVC corrugated pipe**	**m**
Description/ Specifications	"Price per m including any material and losses, labor, equipment costs, loading, horizontal and vertical carriage and unloading at the work site, and contractor's overheads and profit for lowering and installing PVC-based, corrugated drainage pipes Ø200 mm in nominal diameter in the ditches prepared for drainage: UNIT: The area of insulation of drain pipes shall be calculated in meters based on the relevant project design. NOTE: Excavating the ditches to install the drainage pipe, the material or the layer of concrete to be laid to the foundation floor, filling the side and top of the drainage with materials of appropriate size and compacting such materials shall be charged per their respective items."	
Related official pose/item number, book	15.205.1004	

Item no:	**Item**	**Unit**
CIV.018	**Geotextile felt 250 gr/m2**	**m2**
Description/ Specifications	Price per m^2 including any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage and unloading at the work site, installing and dismantling the working tables when necessary, and contractor's overheads and profit for laying 250 gr/m^2 of geotextile felt with min. 10-cm overlaps to protect the insulation at the foundation or on the terrace as per the relevant project design and detail approved by the administration: UNIT: All surfaces with geotextile felt are calculated based on the units of measures in the project. NOTE: Where other measurable properties than weight is sought in the project design and specifications, this item shall not apply.	
Related official pose/item number, book	15.245.1002	

Item no:	**Item**	**Unit**
MEC.09	**Ball Valve 80 mm**	**pcs**
Description/ Specifications	The supply to the work site and on-site installation in its designated location of ball valves , in compliance with the Directive 2014/68/ ABon Pressure Equipment, with brass cut-off element, cast iron or stainless steel body, threaded, wafer, lug or flange, flow controlled by a ball, hand operated.	
Related official pose/item	25.320.2507/2508	

number, book	

Item no:	**Item**	**Unit**
MEC.184	**Above ground fire hydrant DN 80**	**pcs**
Description/ Specifications	The supply to the work site and installation of submersible type drain pump with shredder blades according to the standard TS12599	
Related official pose/item number, book	25.360.1304	

Item no:	**Item**	**Unit**
MEC.185	**Polyethilene pipe Ø 90 mm PE100 SDR 17**	**m**
Description/ Specifications	The supply to the work site and installation of polyethilene pipes in accordance with TS EN 12201-2:2011+A1	
Related official pose/item number, book	25.305.7106	

Item no:	**Item**	**Unit**
MEC.186	**Submersible type drain pump with shredder blades 10-15 m3/h & 5-10 mSS**	**pcs**
Description/ Specifications	The supply to the work site and installation of submersible type drain pump with shredder blades according to the standard TS12599	
Related official pose/item number, book	25.360.1304	

Bill 4.2 Retaining Walls and Fencing

Item no:	**Item**	**Unit**
CIV.001	**Excavation with machinery at every class of soil**	**m3**
Description/ Specifications	Price per 1 m^3 including any material and losses, labor, instruments and equipment costs, contractor's overhead expenses and profit, excavation with machine in the soft and hard soil, loading onto vehicles, transport and discharge at any distance, laying fill or barrier, filling the gaps on the excavation site after construction, and leveling.	
Related official pose/item number, book	15.120.1001	

Item no:	**Item**	**Unit**
CIV.006	**Ready Mix Concrete C35/45**	**m3**
Description/ Specifications	Price per m^3 of gray, regular, cast-in-situ, ready-mix concrete with C 12/15 compressive strength, including any labor, materials and losses, machinery, equipment, instrument and laboratory costs, any horizontal and vertical carriage, loading and unloading at the work site for performing concrete quality controls, loading on truck mixers, transportation to the work site, pumping on the cast location by a concrete pump, watering, protecting from extreme temperatures and other external effects, maintaining, and taking a sufficient amount of samples for tests and conducting the required tests on, the ready-mix concrete grout in compliance with the relevant standard and project design, washed, sieved, and manufactured in C 12/15 class with granulometric sand-gravel and/or crushed stone, cement, water and additives where necessary, in a complete concrete plant with appropriate specifications for concrete manufacture (equipped with min. 60 m^3/h capacity, four-cell aggregate bunker, compressor, control cabin for computerized control, a cement silo with min. 50-ton capacity, a recovery unit, a laboratory with sufficient capacity to conduct aggregate and concrete tests, a power generator, a sufficient amount of truck mixers	

	and mobile concrete pumps, min. one loader, additive tank and additive weigh hopper, moisture meter and similar other equipment, and calibrated) or purchased from a concrete plant that fulfills the said specifications, loading onto vehicles at the place of supply, production or purchase, transfer to the concrete plant, unloading from vehicles, stowing and placement at the concrete plant of any granulometric sand, gravel or crushed stone and cement to be added to the concrete, supply and transportation of the water to be added to the concrete and used for watering, supply, and depreciation expenses, of the concrete plant and all other equipment, including other expenses, contractor's overheads and profit. Measured according to dimensions in the project. 1) Concrete batching plant shall have TSE and any other certificates that may be required by the legislation. The concrete with the certificate of compliance, which fulfills the condition of supply to the market in compliance with the relevant legislation, may be used in production only if such certificates are found to be appropriate and the concrete is allowed to be used.2) If the concrete is supplied by purchase, a copy of the invoices indicating the name of the work must be attached to the documents of payment.3) Cost of the additives to be added to the concrete shall be paid separately.4) Pump cost is deducted from the analysis, if pump is not used.
Related official pose/item number, book	15.150.1007

Item no:	**Item**	**Unit**
CIV.008	**Reinforcement, Bent And Placed Ø 8-Ø 12 mm**	**tons**
Description/ Specifications	Price per ton for steel reinforcement, attachment wire, any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage, unloading at the work site, and contractor's overheads and profit for cutting and bending ribbed concrete steel bars to prepare them as per the relevant detail project design: 1) The length of the steel bars and clips shall be measured as per the reinforced concrete detail drawings. 2) Weights of the steel bars shall be taken from the table below. 3) The steel and attachments not indicated in the project design shall not be included in the calculation. 4) Weights in the table (m) shall be taken as basis for the calculation. Since the attachment wire and the steel bars to be used in the gaps between the steel bars as well as the losses shall be considered in the analysis, no additional payment shall be made.	
Related official pose/item number, book	15.160.1003	

Item no:	**Item**	**Unit**
CIV.009	**Reinforcement, Bent And Placed Ø 14-Ø 28 mm**	**tons**
Description/ Specifications	Price per ton for iron, attachment wire, any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage, unloading at the work site, and contractor's overheads and profit for cutting and bending ribbed concrete steel bars to prepare them as per the relevant detail project design: 1) The length of the steel bars and clips shall be measured as per the reinforced concrete detail drawings. 2) Weights of the steel bars shall be taken from the table below. 3) The steel and attachments not indicated in the project design shall not be included in the calculation. 4) Weights in the table (m) shall be taken as basis for the calculation. Since the attachment wire and the steel bars to be used in the gaps between the steel bars as well as the losses shall be considered in the analysis, no additional payment shall be made.	

Related official pose/item number, book	15.160.1004

Item no:	**Item**	**Unit**
CIV.010	**Plywood Formwork**	**m2**
Description/ Specifications	Price per m^2 including any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage, unloading at the work site, and contractor's overheads and profit for producing concrete and reinforced concrete formwork with smooth surface made of second class pine lumber with planed and greased interior surfaces, removing the formwork, including timbers, supports, square timbers, strips, nails, wires, and similar equipment. Molded surfaces shall be measured on the project design or in situ. Peripheral formworks of manufacture holes for which clearance volumes are not excluded shall not be included in the measurement. Clearance gap shall not be excluded from the hole's side facing the formwork. 1) all kind of vertical and horizontal supports and formwork scaffolding including steel pillars to support slab formwork are included in the unit price. 2) The materials extracted from formwork shall belong to the contractor.	
Related official pose/item number, book	15.180.1003	

Bill 4.3 External Arrangement Works

Item no:	**Item**	**Unit**
CIV.001	**Excavation with machinery at every class of soil**	**m3**
Description/ Specifications	Price per 1 m^3 including any material and losses, labor, instruments and equipment costs, contractor's overhead expenses and profit, excavation with machine in the soft and hard soil, loading onto vehicles, transport and discharge at any distance, laying fill or barrier, filling the gaps on the excavation site after construction, and leveling.	
Related official pose/item number, book	15.120.1001	

Item no:	**Item**	**Unit**
CIV.002	**Gravel or stabilized fill supply, laying and compacting**	**m3**
Description/ Specifications	Price per m^3 including any labor, material and loss, loading, horizontal and vertical carriage and unloading at the work site, and contractor's overheads and profit, for supply of the gravel, pouring on site, laying with motor grader, watering, and compacting in layers with a vibratory roller. Volume is calculated according to the units of measure in the design.	
Related official pose/item number, book	15.125.1004	

Item no:	**Item**	**Unit**
CIV.004	**Ready Mix Concrete C16/20**	**m3**
Description/ Specifications	Price per m^3 of gray, regular, cast-in-situ, ready-mix concrete with C 16/20 compressive strength, including any labor, materials and losses, machinery, equipment, instrument and laboratory costs, any horizontal and vertical carriage, loading and unloading at the work site for performing	

	concrete quality controls, loading on truck mixers, transportation to the work site, pumping on the cast location by a concrete pump, watering, protecting from extreme temperatures and other external effects, maintaining, and taking a sufficient amount of samples for tests and conducting the required tests on, the ready-mix concrete grout in compliance with the relevant standard and project design, washed, sieved, and manufactured in C 12/15 class with granulometric sand-gravel and/or crushed stone, cement, water and additives where necessary, in a complete concrete plant with appropriate specifications for concrete manufacture (equipped with min. 60 m^3/h capacity, four-cell aggregate bunker, compressor, control cabin for computerized control, a cement silo with min. 50-ton capacity, a recovery unit, a laboratory with sufficient capacity to conduct aggregate and concrete tests, a power generator, a sufficient amount of truck mixers and mobile concrete pumps, min. one loader, additive tank and additive weigh hopper, moisture meter and similar other equipment, and calibrated) or purchased from a concrete plant that fulfills the said specifications, loading onto vehicles at the place of supply, production or purchase, transfer to the concrete plant, unloading from vehicles, stowing and placement at the concrete plant of any granulometric sand, gravel or crushed stone and cement to be added to the concrete, supply and transportation of the water to be added to the concrete and used for watering, supply, and depreciation expenses, of the concrete plant and all other equipment, including other expenses, contractor's overheads and profit. Measured according to dimensions in the project. 1) Concrete batching plant shall have TSE and any other certificates that may be required by the legislation. The concrete with the certificate of compliance, which fulfills the condition of supply to the market in compliance with the relevant legislation, may be used in production only if such certificates are found to be appropriate and the concrete is allowed to be used.2) If the concrete is supplied by purchase, a copy of the invoices indicating the name of the work must be attached to the documents of payment.3) Cost of the additives to be added to the concrete shall be paid separately.4) Pump cost is deducted from the analysis, if pump is not used.
Related official pose/item number, book	15.150.1003

Item no:	**Item**	**Unit**
CIV.005	**Ready Mix Concrete C20/25**	**m3**
Description/ Specifications	Price per m^3 of gray, regular, cast-in-situ, ready-mix concrete with C 20/25 compressive strength, including any labor, materials and losses, machinery, equipment, instrument and laboratory costs, any horizontal and vertical carriage, loading and unloading at the work site for performing concrete quality controls, loading on truck mixers, transportation to the work site, pumping on the cast location by a concrete pump, watering, protecting from extreme temperatures and other external effects, maintaining, and taking a sufficient amount of samples for tests and conducting the required tests on, the ready-mix concrete grout in compliance with the relevant standard and project design, washed, sieved, and manufactured in C 12/15 class with granulometric sand-gravel and/or crushed stone, cement, water and additives where necessary, in a complete concrete plant with appropriate specifications for concrete manufacture (equipped with min. 60 m^3/h capacity, four-cell aggregate bunker, compressor, control cabin for computerized control, a cement silo with min. 50-ton capacity, a recovery unit, a laboratory with sufficient capacity to conduct aggregate and concrete tests, a power generator, a sufficient amount of truck mixers and mobile concrete pumps, min. one loader, additive tank and additive weigh hopper, moisture meter and similar other equipment, and calibrated) or purchased from a concrete plant that fulfills the said specifications, loading onto vehicles at the place of supply, production or purchase, transfer to the concrete plant, unloading from vehicles, stowing and placement at the concrete plant of any granulometric sand, gravel or crushed stone and cement to be added to the concrete, supply and transportation of the water to be added to the concrete and used for watering, supply, and depreciation expenses, of the concrete plant and all other equipment, including other expenses, contractor's overheads and profit. Measured according to dimensions	

	in the project. 1) Concrete batching plant shall have TSE and any other certificates that may be required by the legislation. The concrete with the certificate of compliance, which fulfills the condition of supply to the market in compliance with the relevant legislation, may be used in production only if such certificates are found to be appropriate and the concrete is allowed to be used.2) If the concrete is supplied by purchase, a copy of the invoices indicating the name of the work must be attached to the documents of payment.3) Cost of the additives to be added to the concrete shall be paid separately.4) Pump cost is deducted from the analysis, if pump is not used.
Related official pose/item number, book	15.150.1004

Item no:	**Item**	**Unit**
CIV.007	**Wire mesh reinforcement 3-10 kg /m2**	**tons**
Description/ Specifications	Price per ton for steel mesh including any material and loss, labor, equipment and instrument costs, loading, horizontal and vertical carriage, unloading at the work site, and contractor's overheads and profit for installation of wire mesh made by spot welding St IVb bars sized min. 4.00 mm in diameter as per the relevant project design; joining by overlay as per the specifications and relevant details, making supports:1) The square meter value of the steel mesh as per the reinforced concrete project design shall be multiplied by the weights given below and measured in tons.2) The steel and attachments NOTE indicated in the project design shall not be included in the calculation.3) Since the attaching wire, kg/m weight differences (compared to the table), and support iron are included in the losses in the analysis, they shall not be included in the calculation.	
Related official pose/item number, book	15.160.1002	

Item no:	**Item**	**Unit**
CIV.124	**Supply, and machine laying, watering and compacting of crushed stonse up to 32 mm**	**m3**
Description/ Specifications	Price per m^3 including any labor, material and loss, loading, horizontal and vertical carriage and unloading at the work site, and contractor's overheads and profit, for supply of the crushed stone up to 32 mm, pouring on site, laying with motor grader, watering, and compacting in layers with a vibratory roller: UNIT : Volume is calculated according to the units of measure in the design.	
Related official pose/item number, book	15.125.1008	

Item no:	**Item**	**Unit**
CIV.125	**Flooring with 10-cm-high steam-cured concrete paving stones with regular cement**	**m2**
Description/ Specifications	"Price per m^2 for loading, horizontal and vertical carriage and unloading at the work site, any material and losses, labor, and contractor's overheads and profit for preparing the base to be floored and laying sand with 10 cm thickness, laying steam-cured concrete paving stones in any size, color and pattern with 10 cm height, straight edges and prismatic normal cement in desired inclination and with desired joint gaps on the layer of sand, tamping the stones, filling the joints with sand, sweeping the surface of the stones:	

	UNIT: The paneled surfaces shall be calculated on the relevant project design."
Related official pose/item number, book	15.435.1006

Item no:	**Item**	**Unit**
CIV.126	**Steam cured concrete curbing with 50 x 20 x 10 cm chamfered curbstones**	**m**
Description/ Specifications	"Price per m for any material and losses, loading, horizontal and vertical carriage and unloading at the work site, labor, and contractor's overheads and profit for installing 50 x 20 x 10 cm steam-cured concrete kerbs with normal cement in designated locations as per the relevant project design and technique, and covering the joints between kerbs with 400 kg/m^3 cement mortar: UNIT : Calculated according to kerb length project."	
Related official pose/item number, book	15.435.1203	

Item no:	**Item**	**Unit**
CIV.127	**Steam cured concrete curbing with 75 x 30 x 15 cm chamfered curbstones**	**m**
Description/ Specifications	"Price per m for any material and losses, loading, horizontal and vertical carriage and unloading at the work site, labor, and contractor's overheads and profit for installing 75 x 30 x 15 cm steam-cured concrete kerbs with normal cement in designated locations as per the relevant project design and technique, and covering the joints between kerbs with 400 kg/m^3 cement mortar: UNIT : Calculated according to kerb length project."	
Related official pose/item number, book	15.435.1204	

Item no:	**Item**	**Unit**
CIV.128	**Steam cured concrete gutters 30 x 10 x free dimension cm**	**m**
Description/ Specifications	"Price per m for any material and losses, loading, horizontal and vertical carriage and unloading at the work site, labor, and contractor's overheads and profit for installing 30 x 10 x free length cm steam-cured concrete gutter stones with normal cement in designated locations as per the relevant project design and technique, and covering the joints between gutter stones with 400 kg/m^3 cement mortar: UNIT : Calculated according to gutter stone length project."	
Related official pose/item number, book	15.435.1302	

Item no:	**Item**	**Unit**
CIV.129	**Production and installation of railings made by welding iron pipes**	**kg**
Description/ Specifications	"Price per kg for any material and loss, workshop expenses, loading, horizontal and vertical carriage, unloading at the work site, labor, and contractor's overheads and profit (excluding the cost of paint) for window and garden wall guard rails and similar other artifacts with pipes in any diameter depending on the project, and joining the pieces by welding: UNIT:	

	Weighed with the manufacture and fastener, if any, before coating and installation. NOTE: However, the administrations may compare the scale weight of all profiles and node plates to their weights given in the table based on the sizes in the project design if it considers necessary. After this comparison, payment shall be made for max. 7% more than the weight given in the table. Weights exceeding 7% shall not be taken into consideration. If it is found upon verification of the weight that the actual weight is less than the weight specified in the table, the scale shall be taken as basis provided that the manufacture is accepted by the administration."
Related official pose/item number, book	15.550.1203

Item no:	**Item**	**Unit**
CIV.130	**Building fences using hot-dip galvanized panel wires with 50 x 150 mm mesh size, which are 1.50 m high, Ø4.5 mm in diameter, twisted min. three times and coated with electrostatic polyester powder paint (To be applied on a wall with 2.5 m distance between the posts)**	**m**
Description/ Specifications	"The price for 1.50 m of fence, average 2.5-m distance, including the drilling of holes for the fence posts on reinforced concrete wall, concrete coping tiles etc. that does not integrate when drilled, mounting of hot dip galvanized and polyester based electrostatic powder coated fence posts of 1.50 m height and of 50 x 50 x 1.5 mm size, with 120 x 120 x 5 mm flanges at four points in upright position and in alignment, mounting of the fence in the form of hot dip galvanized and polyester based electrostatic powder coated panel with a height of 1.20 m, Ø4.5 mm diameter and 50 x 150 mm mesh, three times twisted, on the fence posts at min. 3 points with mounting clips, all kinds of material and material losses, horizontal and vertical carriage, unloading, labor, tools and equipment expenses, contractor's overheads and profit: UNIT: Measured according to dimensions in the project."	
Related official pose/item number, book	15.555.1003	

Item no:	**Item**	**Unit**
CIV.131	**Flag poles 6 m heigh stainless steel round sectioned including foundation**	**pcs**
Description/ Specifications	Price of 1 unit, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses for, according to the drawing and details, fabrication of the steel wire rope and endless rotating (the endless rotating mechanism shall be manufactured and polished as aluminium) and shall have a swivelling mechanism for winding the steel rope. Nuts M 16 and anchor irons According to DIN 975 standard, one-sided threading or chip removal method will be used for M 16 threading and the non-threading portion will be bent as J. The threaded part shall be hot-dip galvanized in accordance with TS 914 standards. 10 mm. thick black sheet (FE 37) mounted on a flange, 1.5 mm above. Thick stainless steel badge with cover, 2 mm. wall thickness, tip Ø 60 mm., base Ø 130 mm. size, 304 quality polished stainless steel (Circular Cross Taper) flagpole (with masonry foundation productions),	
Related official pose/item number, book	77.135.1008	

Item no:	**Item**	**Unit**
CIV.132	**Pathline with cold applied road line paint**	**m2**

Description/ Specifications	"According to the Traffic Signs Handbook and in accordance with the principles and conditions in the relevant section of the TPR, cold road marking and road marking (by machine). Costs Included in Unit Price: Line and broom machine, cold road marking paint, glass bead, surveying and supplying the line team at work, making the necessary traffic marking at the beginning of the work and preserving this marking during the continuation of the work, performing all kinds of survey and pre-application and technical service works, cleaning, drawing road lines, automatically sprinkling glass beads on the drawn lines, taking measures to prevent vehicles from passing over until the lines dry; all kinds of labour, material, machinery, tool and vehicle expenses and contractor profit and general expenses required for loading, unloading horizontally and vertically, unloading, all kinds of material loss and all other works other than ""Costs Not Included in Unit Price"" below. Costs Included in Unit Price: There are no charges not included in the unit price. Measure: It is the total area in square meters of lines drawn with cold road marking paint. Payment: Unit Price Quotation Item No: ""KGM/60.200"" Drawing of Road Lines with Cold Road Marking Paint (Machine)"" is carried out over the unit price of m2. Note: This unit price applies to lines of any width up to 0.40 meters."
Related official pose/item number, book	KGM/60.200

Item no:	**Item**	**Unit**
CIV.133	**Tactile paving for the blind**	**m**
Description/ Specifications	"A-) PRODUCT TYPES AND SIZES: 1. The tactile paving surface stones shall be 400 mm wide, 400 mm long and 4cm thick in yellow colour. 2. After the manufacturing of products is finished, they shall be stacked on pallets, fastened with plastic strips and labelled. B-) PRODUCT SPECIFICATIONS: 1. Concrete tactile paving surface stones shall comply with the standards of TS 2824 EN 1338 "Concrete paving blocks for floor covering - Required conditions and test methods" of Turkish Standards Institute. 2. Tactile paving surface stones shall be manufactured in concrete. 3. Tactile paving surface stones shall comply with the most current regulations of the Directorate of Disabled People and the Directorate of Disabled and Elderly Services affiliated to the Ministry of Family and Social Policies of the Republic of Turkey and the dimensions in the local administrations' accessibility guide published in this way. 4. Tactile paving surface stones shall be manufactured with linear relief. There must be at least 6 parallel bars on the stone. Each edge of the bars must be bevelled . The axis spacing of the bars must be 65-75 mm. The top end width of the bars must be 20-25 mm (a), and the bottom end width must be 10 mm (a + 10mm) wider than the top end width. The top end length of the bars must be 360-370 mm. The drainage gaps of the bars must be 20-30 mm. Joints are included in	

	this measure. 5. Tactile paving surface warning stones shall be manufactured as a dome-shaped exciter relief texture. All exciter surface domes must be arranged in parallel . The distance between the two dome centres must be 55-65 mm. Joints are included in this measure. The top diameter of the domes must be 15-18 mm (a) and the bottom diameter must be 10 mm (a + 10 mm) larger than the upper diameter. The height of the bars and domes must be 5-5.5 mm. 6. The colour of the products shall be Yellow. The colour pigments shall be homogeneously distributed in the mortar. The inside and outside of the product shall be the same colour. 7. The dome centres and the bar axes must not be aligned when laid side by side. 8. The cement to be used in the manufacture of the tactile paving surface stones shall be 52.5 Portland cement. 9. The concretes to be used in tactile paving surface stones shall have at least C50 grade strength. 10. Products shall have minimum 50kg/cm2 bending and minimum 500kg/cm2 strength values. 11. The surface wear value of the tactile paving surface stones shall be 10 cm3/50cm2. 12. No segregation shall be allowed on the surfaces of the tactile paving surface stones. 13. There shall be no air bubbles on the visible surfaces of the tactile paving surface stones. 14. They shall be resistant to the adverse effects of the weather conditions. 15. They shall be resistant to freeze-thaw effects, wetting-drying effects, and destructive effects of rain and snow waters. 16. The concrete to be used in the products shall be resistant to the harmful effects of chlorine and sulphate in sea water. 17. The concretes shall be resistant to abrasion. 18. The products shall be produced in one layer. 19. The products shall be non-slip. 20. Water Treatment Depth of the concretes used in the tactile paving surface stones shall be maximum 1.5 %. 21. Products shall be produced by pouring into plastic moulds in wet casting technology. 22. Regarding matters not included in this technical specification, first of all, administrative specifications and the contract shall be consulted and the relevant laws and regulations shall be consulted for the provisions not included in them. 23. The Administration may take samples if it deems appropriate during the procurement of the goods and send them to the relevant institutions for testing (all costs belong to the contractor). Defective, faulty and broken materials that are stacked and received shall not be accepted and the contractor must provide the materials in accordance with the technical specifications."
Related official pose/item number, book	N/A

Item no:	**Item**	**Unit**
CIV.134	**Outdoor waste bin**	**pcs**
Description/ Specifications	"In accordance with its drawing, drawing details and standards; It shall be manufactured in dimensions in accordance with the detailed drawing with 304 quality stainless steel bucket, with legs out of stainless steel pipe profiles and painted with electrostatic powder paint. Trash cans shall be fixed or portable. All wood productions shall be subjected to vacuum impregnation process. Tanalith- E which does not contain chromium, copper and arsenate and which does not affect human health shall be used as impregnation material. After completion of the work on the steel parts, sandblasting shall be carried out in order to remove the tension in the welding zones and to ensure good adhesion of the paint on the surface. To remove rust, dirt and oil, which would prevent the painting on all steel parts, the surface shall be made ready for painting by opening pore holes on the material through sandblasting method, which is the most effective method. Very small metal shot material, filled into a pressure resistant cabinet shall be sprayed with compressed air on the surface to open pores for the paint and to remove oil, rust and dirt on the metal material. After all metal parts are	

	fabricated and coated with polyester based electrostatic paint, the paint process shall be completed by baking in oven at 200-220 degrees for 20 minutes. Price of 1 unit, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses:"
Related official pose/item number, book	N/A

Item no:	**Item**	**Unit**
CIV.135	**Seating bench with wooden back**	**pcs**
Description/ Specifications	"It shall be made of aluminium or iron casted legs with back rest and arm rests using wood in dimensions specified in detailed drawings. The edges of the wood shall be bevelled. Benches shall be fixed to the floor with dowels or fixed seating units shall be constructed on reinforced concrete in accordance with the details. All wooden materials to be used in manufacturing shall be vacuum impregnated and water based varnish application shall be made. If deemed appropriate by the ADMINISTRATION, a metal bench shall be used. All materials to be used in Wood Manufacturing shall be Vacuum Impregnated 1st Class Pine Timber and Water Based Varnish shall be applied. Wood dimensions shall be made in the dimensions specified in the detailed drawing. The warranty certificate for the durability period of the wood material to be used shall be submitted to the Administration . Damaged and cracked materials shall not be used. Price of 1 unit, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses:"	
Related official pose/item number, book	N/A	

Item no:	**Item**	**Unit**
CIV.136	**PVC security booth**	**pcs**
Description/ Specifications	"In accordance with its drawing and the details; 1. BASE- It consists of painted profile frame and internal and external glazing bars shall be produced from 20*40*1.2 mm thick painted profiles. 2. FLOOR COVERINGS – it is covered with 16 mm thick, fire, decay, moulding and impact resistant, sound and odour-free precast concrete panels and it is covered with PVC and provides heat insulation and a hygienic appearance that is cleanable. 3. INTERIOR AND EXTERIOR WALL CLADINGS - inner and outer wall cladding is made of 0.45 mm, RAL 9002 painted special shaped sheets and contains 16 density, 40 mm thick Styrofoam in between layers. 4. DOOR JOINERY - It is made of 65x182 cm PVC frames, installed from outside and opens outward. 5. ROOF SECTION – it is a 1 mm galvanised, PVC wainscoting with 16 density Styrofoam in between and the top section is 0.45 mm trapezium (Not 0.45 mm flat sheet or ABS plastic). "	
Related official pose/item number, book	N/A	

Item no:	Item	Unit
CIV.137	**Outdoor Atatürk Memorial Arrangement as shown in design**	pcs
Description/ Specifications	"In accordance with its drawing, drawing details and standards; A 70 cm high Atatürk bust made of brass casting shall be provided and shall be assembled in place. A base for the Atatürk bust shall be made in shapes and patterns shown in the approved drawing and the details. Address to the Youth of Atatürk shall be provided on a 50x90 brass plate on Atatürk bust base and assembled in place. On the base of Atatürk bust; "THE ONE AND ONLY GUIDE IN LIFE IS SCIENCE. K.ATATÜRK" shall be written in 7cm high letters and installed in its place. Price of 1 unit, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses:"	
Related official pose/item number, book	N/A	

Item no:	Item	Unit
CIV.138	**Gazebos**	pcs
Description/ Specifications	"In accordance with its drawing, drawing details and standards; In accordance with the detailed drawings, the gazebos shall be made of double-roofed, fringed, hexagonal plan and made of completely wooden material. The roof of the gazebos shall be insulated with membrane and covered with shingles. The support legs shall be fixed to the floor by means of U-shaped steel bars with a wall thickness of 5 mm at least 5 cm above the ground. There shall be fixed seating units under gazebos. All materials to be used in Wood Manufacturing shall be Vacuum Impregnated 1st Class Pine Timber and Water Based Varnish shall be applied. Wood dimensions shall be made in the dimensions specified in the detailed drawing. The warranty certificate for the durability period of the wood material to be used shall be submitted to the Administration . Damaged and cracked materials shall not be used."	
Related official pose/item number, book	N/A	

Item no:	Item	Unit
CIV.139	**Galvanized steel sheet separator**	m
Description/ Specifications	"Price of 1 linear metre, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, cleaning works and removal of all wastes from the site and contractor profit and general expenses for fabrication of galvanised sheet border (fixing elements are made of stainless steel material) in accordance with the drawing and the specifications. Measurement: It shall be calculated in linear metre over the length on which application is made • Dimensions: shall be d:2,5mm, h:20 cm. • Installation: It shall be ensured that the underground lines as well as water and natural gas lines shall not be affected. In order for the properly forming of the border lines and curves designed, the designative border lines shall be marked with a string or lime dust etc. Excavations in necessary depths shall be made on the boundary lines determined and the product shall be placed on the lines dug by adding the products together and putting them into required shapes.	

	"
Related official pose/item number, book	N/A

Item no:	**Item**	**Unit**
CIV.140	**White tumbled podima stone (15 cm)**	**m2**
Description/ Specifications	"In accordance with its drawing, drawing details and standards; White coloured Podima (Rhodes) stones shall be in 5*7 cm dimensions, in 15 cm thickness, and shall be laid freely. Price of 1 m2, including all kinds of connection and miscellaneous parts, materials and offcuts, tools and equipment, labour, transportation of all kinds of materials to the work place, loading at the construction site, horizontal and vertical transport, unloading, contractor profit and general expenses:"	
Related official pose/item number, book	N/A	

Bill 4.4 Landscaping Works

Item no:	Item	Unit
CIV.141	**Landscaping Arrangement to form green areas and flower fields**	da
Description/ Specifications	This unit price relates to landscaping arrangements for the forming of the green fields containing all kind of grass and flower fields as shown in the landscape design drawings. Following tasks are included in the unit price: - Ploughing of soil at around 20-25 cm depth with hand tractor without damaging the already planted trees and their roots in the execution area, - Arrangement of the grass and flower fields by earth shaping of the execution area as shown in the landscape design drawings, crumbling of the rough dung, fine leveling with a rake, hand sowing of grass seed, planting flower seedlings, sieving manure,, laying on the field, pressing and watering with hose and grass seed or flower seedling and watering. - Removal and cleaning of all kind of weeds with their roots from the lawn and flower fields including collection and disposal. - Moving grass fields by machine, collecting mown grass and stockpiling at an appropriate area to be shown within the parcel. - Supply and spreading of the natural or artificial fertilizer, sprinkling to the full field to dispose the required amount per area as per the specifications of the fertilizer. - Supply of the vegetal soil cleaned from any foreign matter, suitable for seed cultivation, transport to any distance within the site and laying at an approximate height of 10-15 cm including all required shaping and figuring in accordance with landscape design drawings. The unit price includes all kind of material, mobilization and use of any necessary equipment fit for the pupose of executing the tasks described above, any kind of workmanship with use of competent, skilled, semi-skilled or unskilled labour, superintendence of carrying of the tasks by adequately educated / trained staff, any kind of transportation, loading, unloading, vertical and horizontal transportation in site and execution area, Contractor's profit, overhead and general expenses for the execution and successful completion of the work measured by the surface area in da on actual survey of the execution area.	
Related official pose/item number, book	N/A	

Item no:	Item	Unit
CIV.148	**Cedrus atlantica Glauca - Blue Atlas Cedar**	**pcs**
CIV.149	**Cedrus libani - Lebanese cedar**	**pcs**
CIV.150	**Cupressus arizonica Glauca - Blue Arizona Shuttle**	**pcs**
CIV.151	**Cupressocyparis leylandii – Leyland Cypress**	**pcs**
CIV.152	**Cupressus macrocarpa Goldcrest - Lemon Cypress**	**pcs**
CIV.153	**Juniperus virginiana skyrocket - Steep juniper**	**pcs**
CIV.154	**Picea pungens Glauca - Blue Spruce**	**pcs**
CIV.155	**Acer platanoides Atropurpureum - Red Sycamore Leaf Maple**	**pcs**
CIV.156	**Albizia julibrissin – Silk Tree**	**pcs**
CIV.157	**Cercis siliquastrum - Redbud**	**pcs**
CIV.158	**Platanus orientalis - Plane Tree**	**pcs**
CIV.159	**Prunus cerasifera Pissardi - Red Leaf Ornamental Plum**	**pcs**
CIV.160	**Tillia Tomentosa - Linden**	**pcs**
CIV.161	**Canna indica - Canna**	**pcs**
CIV.162	**Forsythia intermedia - Golden Dish**	**pcs**
CIV.163	**Juniperus horizontalis - Spreading Juniper**	**pcs**
CIV.164	**Juniperus horizontalis Lime Glow - Spreading Lemon Juniper**	**pcs**
CIV.165	**Mahonia aquafolium - Yellow Paint Bush**	**pcs**
CIV.166	**Prunus cistena - Shrub Ornamental Plum**	**pcs**
CIV.167	**Rosa spp. - Rose**	**pcs**
CIV.168	**Siringa vulgaris - Lilac**	**pcs**
CIV.169	**Rosa rampicanti - Creeper rose**	**pcs**
Description/ Specifications	Unit price relates to the supply, planting and sustenance of trees, shrubs and plants as described in landscape design drawings, at minimum sizes specified, all obtained from an approved source preferably grown in the same region and climatic conditions of the project site, properly certified, selected so as not to have any defects, disease or fade, including all kind of relevant labor and use of machinery and / or hand tools, transportation and discharge of all relevant materials to and/or from the site, loading in place, horizontal and vertical transportation, unloading, workmanship, contractor's profit and general expenses for the complete work, measured per each unit of plant. The Contractor shall be responsible for all necessary maintenance and healthy grow of the plant throughout the Defects Liability Period.	
Related official pose/item number, book	N/A	

Item no:	Item	Unit
CIV.170	**Landscaping Irrigation Works**	LS
Description/ Specifications	This lump sum price relates to the supply of all required material and labour for the execution of the landscape irrigation system as described in landscape design drawings, the components of which are described below. Items not described below shown in landscape design drawings or as may be required for the complete delivery of the system are included in the lump sum price. **1" SOLENOID VALVE** It has a structure that is high strength, PVC globe type body and has a rigid diaphragm structure which increases the usage efficiency. Both the flow control model and the non-flow control model operate in a sound manner with the diaphragm support and durable solenoid which prevents the tension which may occur during operation, keeping the valve box dry. • Height : 13cm • Length : 11cm • Width : 6 cm • Inlet and outlet sections are 1 inch NPT, BSP with internal threads • Flow rate : 0.23-6.81 m3/h • Operating pressure : 1,4-10,3 Atu • A pressure regulator can be installed in the coil slot by request. • Thanks to flow control mechanism, flow rate the system in each section can be easily adjustable. • Solenoid 24VAC 50/60 Hz, 400 mA demounting current, 270 mA nominal current • Must have 3 year warranty. **CONTROL UNIT** The technical features of the easy-to-read digital display control unit, which is used for irrigation of medium and large areas, with versatile modular design, are as follows. • The device must be a 4-station type. • It must be expandable up to 16 stations through 3 and 9 station types. • It must have 3 independent program memories (A, B, C,), with 4 different start times that can be assigned to each program and a total of 12 different start times must be programmable. • A third program that can be entered must be able to run simultaneously with the other two programs. • Watering time must be entered for each station in 1 minute increments from 1 minute to 99 minutes • The max. working time of the stations must be 6 hours. • It must have the option of daily programming independently. The odd/even days of the week must be programmed as 7-day calendar and 31-day calendar. • The operating system must be automatic, semi-automatic and manual. • The control unit must be equipped with a sensor and a sensor deactivation button. • It must be adjustable for seasonal irrigation from 0% to 150 % in 10 % increments. • A pump start relay that is compatible with the control unit must be pluggable. • It must have the possibility of delay between stations in irrigation programs. • Height : 21.1 cm • Width : 24.4 cm • Depth : 9,4 cm • It must have a power source with 230 VAC, 50 Hz transformer input, 24VAC 1 A transformer output. • It must a MOV type with voltage fluctuation prevention. • Easy understandable LCD display. • It must be compatible with remote controlled devices. • It must hold the programs in memory without needing for a battery. • It must have a plastic cabinet with plastic cover with locks. • There must be 2 years material warranty. **PSU SPRAY TYPE SPRINKLER** The features of the easy-to-use Spray Sprinkler, which can give the desired angle to the nozzles (1º-360º) on uniformly shaped, narrow and small parcels of land, designed to prevent the flow of water particles to prevent the flow of large particles, dirt and out of use due to the small size. • Throw Range (radius) : 1.5 - 5.2 meters	

• Operating pressure : 1,4-2,8 Bar
• Flow rate : 0.05 m3/h to 1.20 m3/h
• Angle adjustment : 1º- 360º.
• Connection type : Connection inlet Diameter of ½" internally Threaded NPT
• Body Height : 15 cm
• Pop- up Height : 10 cm
• Angle adjustment must be possible by hand without any tools.
• The sprinkler has a pressure-operated, multi-functional, UV- resistant sealing gasket that will remove deposits from the pop- up body as it retracts. This seal prevents sprinklers from being trapped in the up position and can seal the sprinkler riser body and sprinkler cover under normal operating pressures. The seal is removable from the cover for easy service and can be replaced.
• A durable seal must be provided.
• Nozzles for irrigation of different radii, rectangular and star shapes must be installed if required
• It must have double filters, one on the body and the nozzle. The filter under the nozzle must be easily cleanable
• Optionally, a check-valve must be installed.
• A 2 year warranty must be available.

½ " ROTOR TYPE SPRINKLER

The features of the Rotor Sprinkler, which is used in the field of medium size, large and is used in common with larger rotors in small plots, having 8 different types nozzles from 0.15 to 1.20 m 3/h with irrigation facilities in the flow, which may yield the angle we want (40º-360º); which has a durable rubber cover that keeps dirt out with its assembled filter designed to prevent the flow of large particles to water, and is compatible with all kinds of terrain and is very easy to use, are as flows:
• Throw Range (radius) : 4.6 - 11.3 meters
• Operating pressure : 2.0 - 3.5 Bar
• Flow rate : 0,15 m3/h - 1,20 m3/h
• Angle Adjustment : 40º- 360º.
• Connection type : Connection inlet Diameter of ½" internally Threaded NPT
• Body Height : 18 cm
• Pop- up Height : 10 cm
• Angle adjustment must be possible by a special key to be provide with the product.
• It must have a reliable/variable stator.
• There must be a filter under the nozzles and must be easily cleaned.
• Replacement of the nozzles must be possible with the screw without removing the top of the sprinkler.
• Each rotor must have a set of 8 nozzles with different throw radii.
• It must have a rubber cap.
• There must be an improved, time-tested gear mechanism provided with water.
• Once the rotor is fixed to the ground, it must be able to turn without damaging the upper head gears, so that the right and left stops can be easily adjusted.
• It must be compatible with the check valves which can be used for the 2.1m height differences offered as an option.
• It must have a 2 year warranty.

¾ "ROTOR TYPE SPRINKLER

The features of the Rotor Sprinkler, which is used in the broad fields and is used in common with larger rotors in small plots, which may yield the angle we want (40º-360º); which has a durable rubber cover that keeps dirt out with its assembled filter designed to prevent the flow of large particles to water, and is compatible with all kinds of terrain and is very easy to use, are as flows:
• Throw Range (radius) : 6.7 - 15.9 meters
• Operating pressure : 2,1 - 4,8 Bar
• Flow rate : 0.11 m3/h to 3.27 m3/h
• Angle Adjustment : 40º- 360º.
• Connection style : Connection inlet diameter 3/4 " internal thread NPT
• Connection type : Connection inlet Diameter of ¾" internally Threaded NPT
• Body Height : 19 cm

• Pop- up Height : 10 cm
• Angle adjustment must be possible by a special key to be provide with the product.
• It must have a memory for angles to increase the life of usage and to minimise the pressure loss.
• A durable seal must be provided.
• There must be a filter under the nozzles and must be easily cleaned.
• Optionally, A check-valve must be installed.
• Each rotor must have 12 standard nozzle sets with different throw radii.
• 7 low angle nozzle sets can be installed as an option.
• It must have a rubber cap.
• Shooting trajectory must be 25° on standard nozzles and 13° at low angles.
• There must be a gear mechanism provided with the water.
• Once the rotor is fixed to the ground, it must be able to turn without damaging the upper head gears, so that the right and left stops can be easily adjusted.
• It must have a 3-year warranty.

5 m3/h 40-60 Mss Package Water-Booster

Water booster package with electrical panel in specified capacity and features; on strainers, check valves, ball opening and closing valves, the lower and upper limits of the automatic pressure switch can be set to the required pressure (equal to the number of pumps), the pressure gauge which indicates the water pressure against overload thermal protection float against dry running water level switch or electrode level control with switches and indicators. Centrifugal Pump: with a TSE document, the number of stages according to the capacity of different vertical or horizontal shaft connecting flange with the pumps directly or waterproofing coupled motor with a special coupling provided with a mechanical shaft seal, into a single or joint circuit of water demand of 3000/min single-phase or three-phase motor with a pump, pressure tanks: EN ISO 11124- 1,2,3,4 vary closed to the atmosphere from a suitable steel membrane St. 37-2 material pressure tank with sufficient volume and number of balance tanks, pump-motor fixed on the same chassis, or connected with the connection hose, the necessary precautions against rust, all pipes, collectors, cable connections made TSE quality certified vertical or horizontal shaft Fully automatic package booster supply and installation in complete working condition. NOTE: 1- Maximum number of pump switches: Pump power 180 times/h 1.1. kWa and 40 times/h over 1.1 kWa.

POLYETHYLENE PIPES

They are the PE100 pipes used on the main lines and lateral lines of the irrigation system.
1. Polyethylene pipes must comply with the TS 418 standards and must be resistant against sun rays due to carbon black they contain in their body.
2. It must be original dark blue or black coloured which is the international colour for the drinking water pipes.
3. Production standard of the pipe, nominal diameter, wall thickness, norm numbers, manufacturer company must be written on the pipes.
4. As it is not affected by the abrasive substances in the soil, no measures need to be taken during the installation, such as cathodic protection.
5. Internal surface must be hydraulically smooth.
6. Pipe material's chemical resistance must be high must, must not corrode and must not rotten.
7. It must have a 50 year life-span at 20 ºC temperature and nominal internal pressure.
8. No foreign materials must be added into the original raw material during manufacturing and the raw material must be original.
9. Density of raw material must not be less than 950 kg/m3 according to TS 1310.
10. Polyethylene pipes must provide the strength stated at -40 ºC temperatures.

COUPLING PIPE FITTINGS

PE100 used in the main and lateral lines of the irrigation system will be used in the connection of pipes.
● Conical clamping couplings must be used in the main line, lateral line and valve connections.
● Coupling elbows must be used in spring connections and collar connections.
● Materials shall be TSE certified.
● They must have high resistance against chemicals.
● Polythene material with environmental stress strength below 8N/mm2 must not be used.

	● All additional parts dimensions, sizes and tolerances must comply with standards. **SAP WATER** It runs on automatically records. A special hose adapter is attached to the main part of the coupling and the irrigation water from the system shall be received. It has a HDPE material that would cut off the water when taken off. • Name: SAP WATER TAP • Inlet Diameter: 3/4 ” • Body: High- density Polyethylene (HDPE) material VALVE BOXES HDPE Valve Box which is used for concrete or stone made manholes and adapt to the terrain thanks to the green cover which protects against external effects., • Name: HDPE Valve Box • Wall thickness: At least 2 cm. • Body: High- density Polyethylene (HDPE) material DIMENSIONS: PRODUCT HEIGHT (cm) LENGTH (cm) WIDTH (cm) JUMBO VALVE BOX 31 66 50 STANDARD 32 53 40 10 ”ROUND 23 - 33 6 ”ROUND 23 - 17
Related official pose/item number, book	N/A

SECTION 5A.3 DESIGN DRAWINGS

Please be informed that designed drawings can be accessed through the link given in a seperate attachment to the ITB.

Construction of Public Education Center in Gaziantep Design Drawing List			
1.ARCHITECTURAL DRAWINGS			
No	**Drawing Code**	**Drawing No**	**Drawing Name**
1	MU	1211_MU_001	Architectural Site and Application Plan - Mimari Vaziyet ve Aplikasyon Planı
2	MU	1211_MU_002	Architectural Construction Project - Mimari Uygulama Projesi
3	MU	1211_MU_003	Architectural Suspended Ceiling Project - Mimari Asma Tavan Projesi
4	MU	1211_MU_004	Architectural Fire Escape Project - Mimari Yangın Tahliye Projesi
5	MD	1211_MD_001	System Detail - Sistem Detayı
6	MD	1211_MD_002	Stair System Details - Merdiven Sistem Detayları
7	MD	1211_MD_003	Wet Area System Details - Islak Hacim Sistem Detayları
8	MD	1211_MD_004	Class System Detail - Derslik Sistem Detayı
9	MD	1211_MD_005	Door and Window Details - Kapı Pencere Detayları
10	MD	1211_MD_006	Furniture System Details - Mobilya Detayları
11	MD	1211_MD_007	Typological Details - Nokta Detayları
12	MD	1211_MD_008	AC Unit Panel – AC Dis Unite Panel
2.STRUCTURAL DRAWINGS			
No		**Drawing No**	**Drawing Name**
13	S	1211-RAB-001	FOUNDATION FORMWORK PLAN - TEMEL KALIP PLANI
14	S	1211-RAB-002	FOUNDATION FEINFORCEMENT PLAN - TEMEL DONATI PLANI
15	S	1211-RAE-003	-5.00 & ±0.00 Elevations The COLUMN APPLICATION PLAN (100) / -5.00 & ±0.00 KOTLARI ARASI KOLON APL. PLANI (100)
16	S	1211-RAE-004	SHEAR WALLS APPEARANCE DETAILS / PERDE GÖRÜNÜŞ DETAYLARI
17	S	1211-RAB-005	±0.00 Elevations The FORMWORK PLAN - ±0.00 KOTU KALIP PLANI
18	S	1211-RAB-006	±0.00 Elevations The REINFORCEMENT PLAN - ±0.00 KOTU DONATI PLANI
19	S	1211-RAE-007	+1.00 & +4.00 Elevations The COLUMN APPLICATION PLAN (200) / +1.00 & +4.00 KOTLARI ARASI KOLON APL. PLANI (200)
20	S	1211-RAB-008	+4.00 Elevations The FORMWORK PLAN - +4.00 KOTU KALIP PLANI
21	S	1211-RAB-009	+4.00 Elevations The REINFORCEMENT PLAN - +4.00 KOTU DONATI PLANI
22	S	1211-RAE-010	+4.00 & +8.00 Elevations The COLUMN APPLICATION PLAN (300) / +4.00 & +8.00 KOTLARI ARASI KOLON APL. PLANI (300)
23	S	1211-RAB-011	+8.00 Elevations The FORMWORK PLAN - +8.00 KOTU KALIP PLANI
24	S	1211-RAB-012	+8.00 Elevations The REINFORCEMENT PLAN - +8.00 KOTU DONATI PLANI
25	S	1211-RAE-013	+8.00 & +12.00 Elevations The COLUMN APPLICATION PLAN (400) / +8.00 & +12.00 KOTLARI ARASI KOLON APL. PLANI (400)
26	S	1211-RAB-014	+12.00 Elevations The FORMWORK PLAN - +12.00 KOTU KALIP PLANI
27	S	1211-RAB-015	+12.00 Elevations The REINFORCEMENT PLAN - +12.00 KOTU DONATI PLANI
28	S	1211-RAE-016	± 0.00 LEVEL BEAM DETAIL - ±0.00 KOTU KİRİŞ DETAYI
29	S	1211-RAE-017	± 0.00 LEVEL BEAM DETAIL - ±0.00 KOTU KİRİŞ DETAYI
30	S	1211-RAE-018	+ 4.00 LEVEL BEAM DETAIL - +4.00 KOTU KİRİŞ DETAYI
31	S	1211-RAE-019	+ 4.00 LEVEL BEAM DETAIL - +4.00 KOTU KİRİŞ DETAYI
32	S	1211-RAE-020	+ 8.00 LEVEL BEAM DETAIL - +8.00 KOTU KİRİŞ DETAYI
33	S	1211-RAE-021	+ 8.00 LEVEL BEAM DETAIL - +8.00 KOTU KİRİŞ DETAYI
34	S	1211-RAE-022	+ 12.00 LEVEL BEAM DETAIL - +12.00 KOTU KİRİŞ DETAYI
35	S	1211-RAE-023	STAIR DETAILS - MERDİVEN DETAYLARI
36			Soil Investigation Report
3.MECHANICAL DRAWINGS			
No		**Drawing No**	**Drawing Name**
37	TU	1211_HAN_01	Sanitary Installation Project - Sıhhi Tesisat Projesi

38	TU	1211_HAN_02	Heating Installation Project - Isıtma Tesisatı Projesi
39	TU	1211_HAN_03	Natural Gas Preliminary Project - Doğalgaz Avan Projesi
40	TU	1211_HAN_04	HVAC Project - Hvac Projesi
41	TU	1211_HAN_05	Air Condition Project - Split Klima Tesisatı
42	TU	1211_HAG_01	Architectural Construction Project - Vaziyet Planı
43	TU	1211_HAF_01	Automatic Control Project - Otomasyon Projesi
4.ELECTRICAL DRAWINGS			
No		**Drawing No**	**Drawing Name**
44	EU	1211_PFB_001	AYDINLATMA TESİSATI PLANI / LIGHTING INSTALLATION PLAN
45	EU	1211_PFB_002	PRİZ TESİSATI PLANI/SOCKET INSTALLATION PLAN
46	EU	1211_PFB_003	UPS TESİSATI PLANI/UPS INSTALLATION PLAN
47	EU	1211_PFH_004	KUVVET PLANI/POWER AND MECHANICAL EQUIPMENT INSTALLATION PLAN
48	EU	1211_PFF_005	TEK HAT ŞEMALARI VE YÜKLEME CETVELLERİ/SINGLE LINE DIAGRAMS AND PANELBOARD SCHEDULES
49	EU	1211_PFH_006	ALÇAK GERİLİM KOLON ŞEMASI/LOW VOLTAGE RISER DIAGRAM
50	EU	1211_PFH_007	KABLO KANALI TESİSATI PLANI/CABLE TRAY INSTALLATION PLAN
51	EU	1211_PFE_008	TEMEL TOPRAKLAMA TESİSATI PLANI/EARTHING INSTALLATION PLAN
52	EU	1211_PFU_009	TELEFON, DATA VE TV TESİSATI PLANI/TELEPHONE, DATA AND TV INSTALLATION PLAN
53	EU	1211_PFU_010	SESLENDİRME TESİSATI PLANI/ANNOUNCEMENT INSTALLATION PLAN
54	EU	1211_PFU_011	CCTV TESİSATI PLANI/CCTV INSTALLATION PLAN
55	EU	1211_PFU_012	ENGELLİ ACİL ÇAĞRI TESİSATI PLANI/DISABLED WC EMERGENCY ALARM SYSTEM INSTALLATION PLAN
56	EU	1211_PFU_013	HIRSIZ ALARM TESİSATI PLANI/INTRUDER ALARM SYSTEM INSTALLATION PLAN
57	EU	1211_PFY_014	YANGIN ALGILAMA VE ACİL YÖN TESİSATI PLANI/FIRE ALARM AND EMERGENCY EXIT INSTALLATION PLAN
58	EU	1211_PFU_015	ZAYIF AKIM KOLON ŞEMASI/WEAK CURRENT RISER DIAGRAM
59	EU	1211_PFB_016	DIŞ SAHA AYDINLATMA TESİSATI PLANI/OUTSIDE LIGHTING INSTALLATION PLAN
60	EU	1211_PFU_017	DIŞ SAHA CCTV TESİSATI PLANI/OUTSIDE AREA CCTV INSTALLATION PLAN
61	EU	1211_PFV_018	YILDIRIMDAN KORUNMA TESİSATI PLANI/LIGHTNING PROTECTION INSTALLATION PLAN
62	EU	1211_PFA_019	ASANSÖR AVAN PROJESİ/LIFT AVAN PROJECT
63	EU	1211_PFH_020	BEKÇİ KLÜBESİ K.A VE Z.A TESİSATI PLANI / GUARD FORCE CURRENT AND LOW CURRENT INSTALLATION PLAN
5.INFRASTRUCTURAL DRAWINGS			
No		**Drawing No**	**Drawing Name**
64	AU	1211_AU_001	Infrastructure Explanatory Report - Altyapı Açıklama Raporu
65	AU	1211_AU_002	Wastewater Construction Project - Atıksu Uygulama Projesi
66	AU	1211_AU_003	Rainwater Construction Project - Yağmursuyu Uygulama Projesi
67	AU	1211_AU_004	Domestıc Water Construction Project - İçmesuyu Uygulama Projesi
68	AU	1211_AU_005	Infrastructure Type Details - Altyapı Tip Detaylar
6.LANDSCAPE DRAWINGS			
No		**Drawing No**	**Drawing Name**
69	PU	1211_PU_001	Structural Landscape Application Project - Yapısal Peyzaj Uygulama Projesi
70	PU	1211_PU_002	Plant Landscape Application Project - Bitkisel Peyzaj Uygulama Projesi
71	PU	1211_PU_003	Automatic Irrigation Application Project - Otomatik Sulama Uygulama Projesi
72	PU	1211_PU_004	Landscape Application Project Sections - Peyzaj Uygulama Projesi Kesitleri
73	PU	1211_PU_005	Landscape Detail Project - Peyzaj Detay Projesi

SECTION 5B: OTHER RELATED REQUIREMENTS

Further to the SECTION 5A: SCHEDULE OF REQUIREMENTS AND TECHNICAL SPECIFICATIONS/BILL OF QUANTITIES, Bidders are requested to take note of the following additional requirements, conditions, and related services pertaining to the fulfilment of the requirements:

Commencement of work	The Contractor shall commence work within 7 days from the date on which it is given access to the Site and it receives the notice to commence from the Engineer
Time limit for submission of Programme of Work (Clause 13 of UNDP General Conditions of Contract for Civil Works)	The Contractor shall submit to the Engineer the Programme of Work in 7 days from the contract signature date.
Price and Payment Terms	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.
Currency of Bid	Currency of Bid is United States Dollars (USD)
Currency of Payment	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[5] valid on the date of money transfer. Otherwise, the payments shall be affected in United States Dollar.
Interim Payment	The Contractor shall submit an invoice for the work performed and materials utilized **every month**.
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.
Minimum amount of liability insurance (Clause 23 of UNDP General Conditions of Contract for Civil Works)	15% of the total estimated price of the Contract

[5] Available at the website: https://treasury.un.org/operationalrates/OperationalRates.php#E

SECTION 6: RETURNABLE BIDDING FORMS / CHECKLIST

This form serves as a checklist for preparation of your Bid. Please complete the Returnable Bidding Forms in accordance with the instructions in the forms and return them as part of your Bid submission. No alteration to format of forms shall be permitted and no substitution shall be accepted.

Before submitting your Bid, please ensure compliance with the Bid Submission instructions of the BDS 22.

Technical Bid:

Have you duly completed all the Returnable Bidding Forms?	
▪ Form A: Bid Submission Form	☐
▪ Form B: Bidder Information Form	☐
▪ Form C: Joint Venture/Consortium/ Association Information Form	☐
▪ Form D: Qualification Form	☐
▪ Form E: Format of Technical Bid/Bill of Quantities	☐
▪ From G: Form of Bid Security	
Have you provided the required documents to establish compliance with the evaluation criteria in Section 4?	☐

Price Schedule:

▪ Form E: Price Schedule Form	☐

Form A: Bid Submission Form

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	[Insert ITB Reference Number]		

We, the undersigned, offer to complete Construction of the Public Education Center in Gaziantep in accordance with your Invitation to Bid No. UNDP-TUR-ITB(MC3)-2019/10 and our Bid. We hereby submit our Bid, which includes this Technical Bid and Price Schedule.

Our attached Price Schedule is for the sum of [Insert amount in words and figures and indicate currency] [for Construction of the Public Education Center in Gaziantep]

We hereby declare that our firm, its affiliates or subsidiaries or employees, including any JV/Consortium /Association members or subcontractors or suppliers for any part of the contract:

a) 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;

b) 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;

c) have no conflict of interest in accordance with Instruction to Bidders Clause 4;

d) do not employ, or anticipate employing, any person(s) who is, or has been a UN staff member within the last year, if said UN staff member has or had prior professional dealings with our firm in his/her capacity as UN staff member within the last three years of service with the UN (in accordance with UN post-employment restrictions published in ST/SGB/2006/15);

e) 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;

f) undertake not to engage in proscribed practices, including but not limited to corruption, fraud, coercion, collusion, obstruction, 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 embrace the principles of the United Nations Supplier Code of Conduct and adhere to the principles of the United Nations Global Compact.

We declare that all the information and statements made in this Bid are true and we accept that any misinterpretation or misrepresentation contained in this Bid may lead to our disqualification and/or sanctioning by the UNDP.

We offer to complete works in conformity with the Bidding documents, including the UNDP General Conditions of Contract and in accordance with the Schedule of Requirements and Technical Specifications.

Our Bid shall be valid and remain binding upon us for the period specified in the Bid Data Sheet.

We understand and recognize that you are not bound to accept any Bid you receive.

I, the undersigned, certify that I am duly authorized by [Insert Name of Bidder] to sign this Bid and bind it should UNDP accept this Bid.

Name: _____

Title: _____

Date: _____

Signature: _____

[*Stamp with official stamp of the Bidder*]

Form B: Bidder Information Form

Legal name of Bidder	[Complete]
Legal address	[Complete]
Year of registration	[Complete]
Bidder's Authorized Representative Information	Name and Title: [Complete] Telephone numbers: [Complete] Email: [Complete]
Are you a UNGM registered vendor?	☐ Yes ☐ No If yes, [insert UGNM vendor number]
Are you a UNDP vendor?	☐ Yes ☐ No If yes, [insert UNDP vendor number]
Countries of operation	[Complete]
No. of full-time employees	[Complete]
Quality Assurance Certification (e.g. ISO 9000 or Equivalent) *(If yes, provide a Copy of the valid Certificate):*	[Complete]
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):*	[Complete]
Does your Company have a written Statement of its Environmental Policy? *(If yes, provide a Copy)*	[Complete]
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	[Complete]
Is your company a member of the UN Global Compact	[Complete]
Contact person that UNDP may contact for requests for clarifications during Bid evaluation	Name and Title: [Complete] Telephone numbers: [Complete] Email: [Complete]
Please attach the following documents:	▪ Company Profile, which should not exceed fifteen (15) pages, ▪ Certificate of Incorporation/ Business Registration ▪ Tax Registration/Payment Certificate issued by the Internal Revenue Authority evidencing that the Bidder is updated

	with its tax payment obligations, or Certificate of Tax exemption, if any such privilege is enjoyed by the Bidder ▪ Trade name registration papers, if applicable ▪ Power of Attorney. ▪ Official Letter of Appointment as local representative, if Bidder is submitting a Bid on behalf of an entity located outside the country

Form C: Joint Venture/Consortium/Association Information Form

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	[Insert ITB Reference Number]		

To be completed and returned with your Bid if the Bid is submitted as a Joint Venture / Consortium / Association.

No	**Name of Partner and contact information** *(address, telephone numbers, fax numbers, e-mail address)*	**Proposed proportion of responsibilities (in %) and type of goods and/or services to be performed**
1	[Complete]	[Complete]
2	[Complete]	[Complete]
3	[Complete]	[Complete]

Name of leading partner (with authority to bind the JV, Consortium, Association during the ITB process and, in the event a Contract is awarded, during contract execution)	[Complete]

We have attached a copy of the below the duly notarized JV/Consortium/Association agreement, which details the likely legal structure of and the confirmation of joint and severable liability of the members of the said joint venture:

We hereby confirm that if the contract is awarded, all parties of the Joint Venture/Consortium/Association shall be jointly and severally liable to UNDP for the fulfillment of the provisions of the Contract.

Name of partner: _____ Name of partner: _____

Signature: _____ Signature: _____

Date: _____ Date: _____

Name of partner: _____ Name of partner: _____

Signature: _____ Signature: _____

Date: _____ Date: _____

Form D: Eligibility and Qualification Form

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	[Insert ITB Reference Number]		

History of Non- Performing Contracts

☐ Non-performing contracts did not occur during the last 3 years.
☐ Contract(s) not performed in the last 3 years.

Year	**Non- performed portion of contract**	**Contract Identification**	**Total Contract Amount** (current value in US$)
		Name of Client: Address of Client: Reason(s) for non-performance:	

Litigation History (including pending litigation)

☐ No litigation history for the last 3 years.			
☐ Litigation History as indicated below			
Year of dispute	**Amount in dispute** (in US$)	**Contract Identification**	**Total Contract Amount** (current value in US$)
		Name of Client: Address of Client: Matter in dispute: Party who initiated the dispute: Status of dispute: Party awarded if resolved:	

Previous Relevant Experience

The Bidder must have successfully completed, **as the prime contractor**, minimum two cotracts for construction of any kind of building, **each** at a minimum value of USD 1.200,000, over the last five years. Renovation, rehabilitation and restoration works will not be considered as similar experience.

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.

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

Bidders may also attach their own Project Data Sheets with more details for assignments above.

Bidders shall attach Statements of Satisfactory Performance / Work Completion Certificates from the Top 2 (two) Clients or more.

Financial Standing

Annual Turnover for the last 3 years (in US$ equivalent[6])	Year 2016	USD
	Year 2017	USD
	Year 2018	USD
Latest Credit Rating (if any), indicate the source		

Financial information (in US$ equivalent[7])	**Historic information for the last 3 years**		
	2016	2017	2018
	Information from Balance Sheet		
Total Assets (TA)			
Total Liabilities (TL)			
Current Assets (CA)			
Current Liabilities (CL)			
	Information from Income Statement		
Total / Gross Revenue (TR)			
Profits Before Taxes (PBT)			
Net Profit			
Current Ratio			

☐ Attached are 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.
d) Declaration of Financial Status, which is certified by the bidders' banks, shall be submitted along with the bids in the below format.

[6] Bidders shall convert the currency into USD by using the UN operational rate of exchange which was effective for December of each corresponding year. UN operational rate of exchange are available at the following website: https://treasury.un.org/operationalrates/OperationalRates.php#E

[7] Bidders shall convert the currency into USD by using the UN operational rate of exchange which was effective for December of each corresponding year. UN operational rate of exchange are available at the following website: https://treasury.un.org/operationalrates/OperationalRates.php#E

NOTE: If JV/Consortium, this form shall be completed and submitted for each member of Joint Venture/Consortium

DECLARATION OF FINANCIAL STATUS

Cash and Credit position as of submission date				
THE NAME OF BANK	Available Cash (US$)	Unused		
		Cash Credit (US$)	Credit Letter (US$)	
				GRAND TOTAL
	TOTAL (US$)			
		A	B	A+B

Name
Title
Date
Signature

Form E: Format of Technical Bid

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	[Insert ITB Reference Number]		

The Bidder's Bid should be organized to follow this format of the Technical Bid. Where the bidder is presented with a requirement or asked to use a specific approach, the bidder must not only state its acceptance, but also describe how it intends to comply with the requirements. Where a descriptive response is requested, failure to provide the same will be viewed as non-responsive.

SECTION 1: Bidder's qualification, capacity and expertise

1.1 General organizational capability which is likely to affect implementation: management structure, financial stability and project financing capacity, project management controls, extent to which any work would be subcontracted (if so, provide details).

1.2 Relevance of specialized knowledge and experience on similar engagements done in the region/country.

1.3 Quality assurance procedures and risk mitigation measures.

1.4 Organization's commitment to sustainability.

SECTION 2: Method Statement

This section should demonstrate the Bidder's responsiveness to the specification by identifying the specific components proposed, addressing the requirements, as specified, point by point; providing a detailed description of the essential performance characteristics proposed; and demonstrating how the proposed bid meets or exceeds the requirements/specifications. All important aspects should be addressed in sufficient detail.

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

2.2 Mobilization plan for the equipment and personnel demonstrating how the bidders will meet the requirements of the Statement of Works.

2.3 Explain whether any work would be subcontracted, to whom, how much percentage of the requirements, the rationale for such, and the roles of the proposed sub-contractors and how everyone will function as a team.

2.4 The bid shall also include details of the Bidder's internal technical and quality assurance review mechanisms.

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

2.6 Demonstrate how you plan to integrate sustainability measures in the execution of the contract. (e.g. Environmental Management)

SECTION 3: Management Structure and Key Personnel

3.1 Describe the overall management approach toward planning and implementing the project. 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. CVs should demonstrate qualifications requested in the following areas.

Project Manager/Construction Manager: English speaking, minimum 5 years' experience in construction of any kind of structure and degree in civil engineering or architecture. 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 UNDP Engineer to commence the Works and ending on the date of substantial completion of Works stated in the Certificate of Substantial Completion.

Architect: Minimum 3 years' experience in construction of any kind of structure, and degree in Architecture.

Civil Engineer: Minimum 3 years' experience in construction of any kind of structure, and degree in Civil engineering.

Electrical Engineer: Minimum 3 years' experience in construction of any kind of structure, and degree in electrical engineering.

Mechanical Engineer: Minimum 3 years' experience in construction of any kind of structure and degree in mechanical engineering.

Surveyor: Minimum 3 years' experience in construction of any kind of structure and degree in Survey Engineer (or equivalent) or minimum 5 years' experience in construction of any kind of structure and degree in Survey Technician.

Format for CV of Proposed Key Personnel

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

FORM F: Price Schedule Form/Bill of Quantities

Name of Bidder:	[Insert Name of Bidder]	Date:	Select date
ITB reference:	[Insert ITB Reference Number]		

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

Price Schedule

Summary Table

Currency of the Bid: United States Dollar (USD)

Item #	Description	Total Price (USD)
1	Civil and Architectural Works	
2	Mechanical Works	
3	Electrical Works	
4	External Works, Infrastructure and Landscaping	
	Total estimated price (item 1 +item 2 +item 3+item 4) (USD)	

Important Note: Bill of Quantities has been attached as a separate excel document. Bidders shall complete and submit Bill of Quantities along with their Bids. In case of any discrepancy between Bill of Quantities and above pricing table, the prices given in the Bill of Quantities shall prevail.

Name of Bidder: _____

Authorised signature: _____

Name of authorised signatory: _____

Functional Title: _____

FORM G: Form of Bid Security

Bid Security must be issued using the official letterhead of the Issuing Bank.
Except for indicated fields, no changes may be made on this template.

To: UNDP
[Insert contact information as provided in Data Sheet]

WHEREAS [Name and address of Bidder] (hereinafter called "the Bidder") has submitted a Bid to UNDP dated Click here to enter a date. to complete the works stipulated in the ITB with reference UNDP-TUR-ITB(MC3)-2019/10 with the title "Construction of Public Education Center in Gaziantep;" (hereinafter called "the Bid"):

AND WHEREAS it has been stipulated by you that the Bidder shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security if the Bidder:

a) Fails to sign the Contract after UNDP has awarded it;
b) Withdraws its Bid after the date of the opening of the Bids;
c) Fails to comply with UNDP's variation of requirement, as per ITB instructions; or
d) Fails to furnish Performance Security, insurances, or other documents that UNDP may require as a condition to rendering the contract effective.

AND WHEREAS we have agreed to give the Bidder such Bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Bidder, up to a total of [*amount of guarantee*] [*in words and numbers*], such sum being payable in the types and proportions of currencies in which the Price Bid is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of *[amount of guarantee as aforesaid*] without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

This guarantee shall be valid up to 30 days after the final date of validity of bids,

SIGNATURE AND SEAL OF THE GUARANTOR BANK

Signature: _____

Name: _____

Title: _____

Date: _____

Name of Bank _____

Address _____

[Stamp with official stamp of the Bank]