ALBANIA

Invitation to Bid

Date: September 27, 2011

Dear Sir/Madam,

Subject: Procurement of Works for Construction of Kukes Regional Tourist Information Center (TIC).

We hereby solicit your bid for the supply of Works for Construction of Kukes Regional Tourist Information Center (TIC).

1. To enable you to submit a bid, please find enclosed:

Annex I.	Instructions to Bidders
Annex II.	Bid Data Sheet
Annex III.	General Terms and Conditions of Contract for Works
Annex IV.	Special Conditions
Annex V.	Technical Specifications
Annex VI.	Bid Submission Form
Annex VII.	Price Schedule and Bill of Quantities
Annex VIII.	Bid Security Form

2. Interested Bidders may obtain further information at the following address:

Name of Office: United Nations Development Programme
Rr. "Papa Gjon Pali II",
ABA Business Center, 6th Floor
Tirana, Albania
Contact e-mail address: procurement.al@undp.org or registry.al@undp.org

The whole set of documents including the ITB and the technical designs can be downloaded from our website at the following link: www.undp.org.al and www.undp.org.al/download/TIC KUKES.zip

Submission of application:

3. Bids should be received at the above mentioned address no later than 20 October, 2011, at 15:00 hrs local (Albania) time[1]. Late bids shall be rejected.

4. Bids will be opened in the presence of Bidders' Representatives, who chose to attend at the address mentioned above, on 20 October 2011 at 16:00 hrs at UNDP Albania Conference Room.

5. This letter is not to be construed in any way as an offer to contract with your firm.

Yours sincerely,

Norimasa Shimomura
Country Director

[1] In case of discrepancy between internet deadline time and the time indicated in this document, the latter prevails.

Annex I

INSTRUCTIONS TO BIDDERS

A. Introduction

1. **General**: The Purchaser invites **Sealed Bids** for the **Construction of Kukes Regional Tourist Information Center (TIC).**

2. **Eligible Bidders**: Bidders should not be associated, or have been associated in the past, directly or indirectly, with a firm or any of its affiliates which have been engaged by the Purchaser to provide consulting services for the preparation of the design specifications, and other documents to be used for the procurement of goods to be purchased under this Invitation to Bids.

3. **Cost of Bid**: The Bidder shall bear all costs associated with the preparation and submission of the Bid, and the procuring UN entity will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the solicitation.

B. Solicitation Documents

4. **Examination of Solicitation Documents**: The Bidder is expected to examine all corresponding instructions, forms, terms and specifications contained in the Solicitation Documents. Failure to comply with these documents will be at the Bidder's risk and may affect the evaluation of the Bid.

5. **Clarification of Solicitation Documents**: A prospective Bidder requiring any clarification of the Solicitation Documents may notify the procuring entity in writing to the following e-mail address: procurement.al@undp.org. The response will be made in writing to any request for clarification of the Solicitation Documents that is received earlier than two weeks prior to the Deadline for the Submission of Bids. Written copies of the response (including an explanation of the query but without identifying the source of inquiry) will be posted to the UNDP Albania website at www.undp.org.al; www.ungm.org; www.undp.org.ks and sent to all prospective Bidders that received the Solicitation Documents.

6. **Amendments of Solicitation Documents**: No later than two weeks prior to the Deadline for Submission of Bids, the procuring entity may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, amend the Solicitation Documents. All prospective Bidders that have received the Solicitation Documents will be notified in writing of any amendments. In order to afford prospective Bidders reasonable time in which to take the amendments into account in preparing their offers, the procuring entity may, at its discretion, extend the Deadline for the Submission of Bids.

C. Preparation of Bids

7. **Language of the Bid: The Bid prepared by the Bidder and all correspondence and documents relating to the** Bid exchanged by the Bidder and the procuring entity shall be written in the language indicated on the Bid Data Sheet.

8. **Documents Comprising the Bid:**

The Bid must comprise the following documents:

(a) a Bid Submission form;
(b) a Price Schedule completed in accordance with the Annexure V, VII and clause 11 of Instructions to Bidders;
(c) documentary evidence established in accordance with clause 9 of Instructions to Bidders that the Bidder is eligible to and is qualified to perform the contract if its Bid is accepted,
(d) documentary evidence established in accordance with clause 10 of Instructions to Bidders that the goods and ancillary services to be supplied by the Bidder are eligible goods and services and conform to the Bidding Documents;

9. **Documents Establishing Bidder's Eligibility and Qualifications:**

The Bidder shall furnish evidence of its status as qualified Supplier. The documentary evidence of the Bidder's qualifications to perform the contract if its Bid is accepted shall be established to the Purchaser's satisfaction:

(a) that, the Bidder possesses a valid license for construction works as indicated on the Bid Data Sheet and ToR/Technical Specification.
(b) that the Bidder has the financial, technical and production capability necessary to perform the contract as indicated on the Bid Data Sheet (The tables below show the minimum requirements for company's financial strength during the three last years; staff and equipment to be provided by the contractor. Information on the proposed personnel and list of equipment shall be presented as per the table format below).

No.	Position	Name	Qualifications	General Experience	Specific Experience
1.	General Manager		Degree in Civil or other relevant engineering degree. Knowledge of English is an advantage	Minimum 10 years experience in a civil engineering field	5 years experience in civil engineering field as General Manager.
2.	Site Manger (full time on site)		Degree in Civil engineering or architect.	Minimum of 5 years experience in engineering or architecture.	Minimum of 3 years experience as site manager.

Equipment type and year of production	Basic specification	Number of available equipment	Ownership status
1.			
2.			
3.			

10. **Documents Establishing Goods' Conformity to Bidding Documents:**

The Bidder shall also furnish as part of its Bid, documents establishing the conformity to the Bidding Documents of all works and related services which the Bidder proposes to supply under the contract.

The documentary evidence of conformity to the Bidding Documents may be in the form of literature, drawings, and data, and shall consist of:

(a) A detailed description of the essential technical and performance characteristics of the goods;
(b) A list giving full particulars, including available sources and current prices of spare parts, special tools, etc, necessary for the proper and continuing functioning of the goods for a period to be specified in the Bid Data Sheet, following commencement of the use of the goods.

11. Bid Currencies/Bid Prices: All prices shall be quoted in ALL (Albanian Lek) or any other convertible currency. The Bidder shall indicate on the appropriate Price Schedule the unit prices (where applicable) and total Bid Price of the goods it proposes to supply under the contract.

12. Period of Validity of Bids: Bids shall remain valid for 120 days after the date of Bid Submission prescribed by the procuring UNDP entity pursuant to clause 16 of Instructions to Bidders. A Bid valid for a shorter period may be rejected as non-responsive pursuant to clause 20 of Instructions to Bidders. In exceptional circumstances, the procuring UNDP entity may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. Bidders granting the request will not be required nor permitted to modify their Bids.

13 Bid Security:

(a) The Bidder shall furnish as part of its Bid a Bid Security to the Purchaser in the amount of 5 % of the Offer Value.

(b) The Bid Security is to protect the Purchaser against the risk of the Bidder's conduct which would warrant the security's forfeiture, pursuant to Clause 13(g) below.

(c) The Bid Security shall be denominated in the currency of the Contract or in a freely convertible currency and shall be in one of the following forms:

i. bank guarantee or irrevocable letter of credit, issued by a reputable bank located in the purchaser's country or abroad, and in the form provided in these Solicitation Documents, or,
ii. cashier's cheque, or certified cheque.

(d) Any Bid not secured in accordance with Clauses 13 a) and 13 c) above will be rejected by the Purchaser as non-responsive pursuant to clause 20 of Instructions to Bidders.

(e) Unsuccessful Bidder Bid Security will be discharged or returned as promptly as possible but not later than thirty (30) days after the expiration of the period of Bid Validity prescribed by the Purchaser pursuant to clause 12 of instructions to Bidders.

(f) The successful Bidder's Bid Security will be discharged or returned upon the Bidder signing the Contract, pursuant to clause 26 of Instructions to Bidders, and furnishing the Performance Security, pursuant to clause 27 of Instructions to Bidders.

(g) The Bid Security may be forfeited:

1) If a Bidder withdraws its offer during the period of the Bid Validity specified by the Bidder on the Bid Submission Form, or,
2) In the case of a successful Bidder, if the Bidder fails:

   i. to sign the Contract in accordance with Clause 26 of Instructions to Bidders, or,
   ii. to furnish Performance Security in accordance with Clause 27 of Instructions to Bidders.

D. Submission of Bids

14. Format and Signing of Bid: The Bidder shall prepare two copies of the Bid, clearly marking each "Original Bid" and "Copy of Bid" as appropriate. In the event of any discrepancy between them, the original shall govern. The two copies of the Bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to bind the Bidder to the contract. A Bid shall contain no interlineations, erasures, or overwriting except, as necessary to correct errors made by the Bidder, in which case such corrections shall be initialed by the person or persons signing the bid.

15. Sealing and Marking of Bids:

15.1 The Bidder shall seal the original and each copy of the Bid in separate envelopes, duly marking the envelopes as "ORIGINAL" and "COPY". The envelopes shall then be sealed in an outer envelope.

15.2 The inner and outer envelopes shall:

(a) be addressed to the Purchaser at the following address:

United Nations Development Programme
Rr. "Papa Gjon Pali II",
ABA Business Center, 6th Floor
Tirana, Albania

And,

(b) make reference to the "subject" indicated in section I of these Solicitation Documents, and a statement: "DO NOT OPEN BEFORE", to be completed with the time and the date specified in section I of these Solicitation Documents for Bid Opening pursuant to clause 16 of Instructions to Bidders.

15.3 The inner and outer envelopes shall also indicate the name and address of the Bidder to enable the Bid to be returned unopened in case it is declared "late".

15.4 If the outer envelope is not sealed and marked as required by clause 15.2 of Instructions to Bidders, the Purchaser will assume no responsibility for the Bid's misplacement or premature opening.

16. Deadline for Submission of Bids/Late Bids:

16.1 Bids must be delivered to the office on or before the date and time specified in section I of these Solicitation Documents.

16.2 The Purchaser may, at its discretion, extend this deadline for the submission of the bids by amending the Bidding Documents in accordance with clause 6 of Instructions to

Bidders, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

16 3 Any Bid received by the Purchaser after the Deadline for Submission of Bids will be rejected and returned unopened to the Bidder.

17. Modification and Withdrawal of Bids: The Bidder may withdraw its Bid after submission, provided that written notice of the withdrawal is received by the procuring UNDP entity prior to the deadline for submission. No Bid may be modified after passing of the Deadline for Submission of Bids. No Bid may be withdrawn in the interval between the Deadline for Submission of Bids and the expiration of the Period of Bid Validity.

E. Opening and Evaluation of Bids

18. Opening of Bids:

18.1 The Purchaser will open all Bids in the presence of Bidders' Representatives who choose to attend, at the time, on the date, and at the place specified in section I of this Solicitation Document. The Bidders' Representatives who are present shall sign a register evidencing their attendance.

18.2 The bidders' names, Bid Modifications or withdrawals, bid Prices, discounts, and the presence or absence of requisite Bid Security and such other details as the purchaser, at its discretion, may consider appropriate, will be announced at the opening. No Bid shall be rejected at Bid Opening, except for Late Bids, which shall be returned unopened to the Bidder pursuant to clause 20 of Instructions to Bidders.

18.3 Bids (and modifications sent pursuant to clause 17 of Instructions to Bidders) that are not opened and read out at Bid Opening shall not be considered further for evaluation, irrespective of the circumstances. Withdrawn Bids will be returned unopened to the Bidders.

18.4 The Purchaser will prepare minutes of the Bid Opening.

19. Clarification of Bids: To assist in the examination, evaluation and comparison of Bids the procuring UNDP entity may at its discretion ask the Bidder for clarification of its Bid. The request for clarification and the response shall be in writing and no change in price or substance of the Bid shall be sought, offered or permitted.

20. Preliminary Examination:

20.1 Prior to the detailed evaluation, the Purchaser will determine the substantial responsiveness of each Bid to the Invitation to Bid (ITB). A substantially responsive Bid is one which conforms to all the terms and conditions of the ITB without material deviations.

20.2 The Purchaser will examine the bids to determine whether they are complete, whether any computational errors have been made, whether the documents have been properly signed, and whether the bids are generally in order.

20.3 Arithmetical errors will be rectified on the following basis: If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If the Bidder does not accept the correction of errors, its Bid will be rejected. If there is a discrepancy between words and figures the amount in words will prevail.

20.4 A Bid determined as not substantially responsive will be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the non-conformity.

21. Evaluation of Bids: Determination of compliance with the Solicitation Documents is based on the content of the Bid itself without recourse to extrinsic evidence.

Evaluation Criteria	
1.1	Compliance with pricing conditions set in the ITB.
1.2	Compliance with requirements relating to technical design features or the product's ability to satisfy functional requirements.
1.3	Compliance with Special and General Conditions specified by these Solicitation Documents.
1.4	Compliance with start-up, delivery or installation deadlines set by the procuring entity.
1.5	Demonstrated ability to comply with critical provisions such as execution of the Contract by honoring the tax-free status of the UN.
1.6	Demonstrated ability to honor important responsibilities and liabilities allocated to Supplier in this ITB (e.g. performance guarantees, warranties, or insurance coverage, etc).
1.7	Warranty period for materials and works granted for 6 months after completion of tasks as per Contract.

F. Award of Contract

22. Award Criteria: The procuring UNDP entity will Issue the Contract for Works/Purchase Order to the lowest priced technically qualified Bidder. The Purchaser reserves the right to accept or reject any Bid, to annul the solicitation process and reject all Bids at any time prior to award of contract, without thereby incurring any liability to the affected Bidder(s) or any obligation to provide information on the grounds for the purchaser's action.

23. Purchaser's Right to Vary Requirements at Time of Award: The Purchaser reserves the right at the time of making the award of contract to increase or decrease by up to 15 % the quantity of goods specified in the Schedule of Requirements without any change in unit price or other terms and conditions.

24. Notification of Award: Prior to the expiration of the period of Bid Validity, the Purchaser will send the successful Bidder the Contract. The Contract may only be accepted by the Supplier's signing and returning an acknowledgement copy of it or by timely delivery of the goods in accordance with the terms of this contract, as herein specified. Acceptance of this contract shall effect a contract between the parties under which the rights and obligations of the parties shall be governed solely by the terms and conditions of this contract.

25. Signing of the Contract for Works/Purchase Order: Within 30 days of receipt of the Contract the successful Bidder shall sign, date and return it to the purchaser.

26. Performance Security: The successful Bidder shall provide the Performance Security on the Performance Security Form provided for in these Solicitation Documents, within 30 days of receipt of the Contract from the purchaser.

Failure of the successful Bidder to comply with the requirement of clause 26 or clause 27 of Instructions to Bidders shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security, in which event the Purchaser may make the award to the next lowest evaluated Bidder or call for new Bids.

27. **Vendor Protest**: Our vendor protest procedure is intended to afford an opportunity to appeal to persons or firms not awarded a contract in a competitive procurement process. **It is not available to non-responsive or non-timely proposers/bidders or when all proposals/bids are rejected. In the event that** you believe you have not been fairly treated, you can find detailed information about vendor protest procedures in the following link: http://www.undp.org/procurement/protest.shtml

Annex II

BID DATA SHEET

The following specific data for the goods to be procured shall complement, supplement, or amend the provisions in the Instruction to Bidders. Whenever there is a conflict, the provisions herein shall prevail over those in the Instructions to Bidders.

Relevant clause(s) of Instruction to Bidders	Specific data complementing, supplementing, or amending instructions to Bidders
Language of the Bid	× **English** □ French □ Spanish □ If others, specify……
Bid Price	The prices quoted shall be as per following and place: □ FOB □ FCA □ CPT □ DDU X Other……. Place: Kukes
Documents Establishing Bidder's Eligibility & Qualifications	× Required. □ Not required. • Certified copy of Company's registration and professional license to perform required works. • List of key staff (names, education, skills, years of experience). • Official statement issued by Ministry of Labour only, on registered employees for the past three months, not older than one month. • List of equipments owned by the Bidder including supporting documentation (ownership certificates and/or rental agreements). • Companies audited financial statements for the last three years: Minimum annual turnover of **200, 000.00 USD**. • Reference list of all other projects/contracts executed in the last three years similar to this assignment and size, expressed in USD. Minimum two references and other supporting documentation must be provided. • Qualification and experience of the key personnel proposed for this assignment (names CVs of the Project Manager and Site Manger). • Certification* that the company has fulfilled all their past and current obligations concerning the payment of taxes and social insurances. *copy of the original document; Documents in language other than Albanian/English require English translation. ***All required documents must be original or certified copies.***
Bid Validity Period.	× **120 days** □ If different, please specify……
Bid Security	× **Required.** □ Not required.

Preliminary Examination – completeness of bid.	□ Partial bids permitted. × **Partial bids not permitted.**		
Purchaser's Right to Vary Requirements at Time of Award	× **15 percent, increase or decrease. remain unchanged.**	□ Condition waived	□ Condition applies but change limit to …… percent.
Compliance with any other clause required?	□ No. × If yes, specify:		
	• A description of the technical approach and methodology proposed for the execution of works, including a detailed work programme. • List of potential sub-contractors for the proposed works if any. All the eligibility and qualification requirements apply to the sub-contractors as well. • Graphic of the proposed schedule of works; • Compliance with relevant DIN and/or national standards and requirements		

Annex III

General Conditions of Contract for Civil Works

1. Definitions
2. Singular and Plural
3. Headings or Notes
4. Legal Relationships
5. General Duties/Powers of Engineer
6. Contractor's General Obligations/Responsibilities
7. Assignment and Subcontracting
8. Drawings
9. Work Book
10. Performance Security
11. Inspection of Site
12. Sufficiency of Tender
13. Programme of Work to be furnished
14. Weekly Site Meeting
15. Change Orders
16. Contractor's Superintendence
17. Contractor's Employees
18. Setting-Out
19. Watching and Lighting
20. Care of Works
21. Insurance of Works, Etc.
22. Damage to Persons and Property
23. Liability Insurance
24. Accident or Injury to Workmen
25. Remedy on Contractor's Failure to Insure
26. Compliance with Statutes, Regulations, Etc.
27. Fossils, Etc.
28. Copyright, Patents and Other Proprietary Rights, and Royalties
29. Interference with Traffic and Adjoining Properties
30. Extraordinary Traffic and Special Loads
31. Opportunities for Other Contractors
32. Contractor to Keep Site Clean
33. Clearance of Site on Substantial Completion
34. Labor
35. Returns of Labor, Plant, Etc.
36. Materials, Workmanship and Testing
37. Access to Site
38. Examination of Work Before Covering Up
39. Removal of Improper Work and Materials
40. Suspension of Work
41. Possession of Site
42. Time for Completion
43. Extension of Time for Completion
44. Rate of Progress
45. Liquidated Damages for Delay
46. Certificate of Substantial Completion
47. Defects Liability
48. Alterations, Additions and Omissions
49. Plant, Temporary Works and Materials
50. Approval of Materials, Etc., Not Implied

1. DEFINITIONS

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

a) "Employer" means the United Nations Development Programme (UNDP).

b) "Contractor" means the person whose tender has been accepted and with whom the Contract has been entered into.

c) "Engineer" means the person whose services have been engaged by UNDP to administer the Contract as provided therein, as will be notified in writing to the Contractor.

d) "Contract" means the written agreement between the Employer and the Contractor, to which these General Conditions are annexed.

e) "The Works" means the works to be executed and completed under the Contract.

f) "Temporary Works" shall include items to be constructed which are not intended to be permanent and form part of the Works.

g) "Drawings" and "Specifications" mean the Drawings and Specifications referred to in the Contract and any modification thereof or addition thereto furnished by the Engineer or submitted by the Contractor and approved in writing by the Engineer in accordance with the Contract.

h) "Bill of Quantities" is the document in which the Contractor indicates the cost of the Works, on the basis of the foreseen quantities of items of work and the fixed unit prices applicable to them.

i) "Contract Price" means the sum agreed in the Contract as payable to the Contractor for the execution and completion of the Works and for remedying of any defects therein in accordance with the Contract.

j) "Site" means the land and other places on, under, in or through which the Works or Temporary Works are to be constructed.

2. SINGULAR AND PLURAL

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

3. HEADINGS OR NOTES

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

4. LEGAL RELATIONSHIPS

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

5. GENERAL DUTIES/POWERS OF ENGINEER

a) The Engineer shall provide administration of Contract as provided in the Contract Documents. In particular, he shall perform the functions hereinafter described.

b) The Engineer shall be the Employer's representative vis-à-vis the Contractor during construction and until final payment is due. The Engineer shall advise and consult with the Employer. The Employer's instructions to the Contractor shall be forwarded through the Engineer. The Engineer shall have authority to act on behalf of the Employer only to the extent provided in the Contract Documents as they may be amended in writing in accordance with the Contract. The duties, responsibilities and limitations of authority of the Engineer as the Employer's representative during construction as set forth in the Contract shall not be modified or extended without the written consent of the Employer, the Contractor and the Engineer.

c) The Engineer shall visit the Site at intervals appropriate to the stage of construction to familiarize himself generally with the progress and quality of the Works and to determine in general if the Works are proceeding in accordance with the Contract Documents. On the basis of his on-site observations as an Engineer, he shall keep the Employer informed of the progress of the Works.

d) The Engineer shall not be responsible for and will not have control or charge of construction means, methods, techniques, sequences or procedures, or for safety

precautions and programs in connection with the Works or the Temporary Works. The Engineer shall not be responsible for or have control or charge over the acts or omissions of the Contractor (including the Contractor's failure to carry out the Works in accordance with the Contract) and of Sub-contractors or any of their agents or employees, or any other persons performing services for the Works, except if such acts or omissions are caused by the Engineer's failure to perform his functions in accordance with the contract between the Employer and the Engineer.

e) The Engineer shall at all times have access to the Works wherever and whether in preparation or progress. The Contractor shall provide facilities for such access so that the Engineer may perform his functions under the Contract.

f) Based on the Engineer's observations and an evaluation of the documentation submitted by the Contractor together with the invoices, the Engineer shall determine the amounts owed to the Contractor and shall issue Certificates for Payment as appropriate.

g) The Engineer shall review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for conformity with the design concept of the Works and with the provisions of the Contract Documents. Such action shall be taken with reasonable promptness so as to cause no delay. The Engineer's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

h) The Engineer shall interpret the requirements of the Contract Documents and judge the performance there under by the Contractor. All interpretations and orders of the Engineer shall be consistent with the intent of and reasonably inferable from the Contract Documents and shall be in writing or in the form of drawings. Either party may make a written request to the Engineer for such interpretation. The Engineer shall render the interpretation necessary for the proper execution of the Works with reasonable promptness and in accordance with any time limit agreed upon. Any claim or dispute arising from the interpretation of the Contract Documents by the Engineer or relating to the execution or progress of the Works shall be settled as provided in Clause 71 of these General Conditions.

i) Except as otherwise provided in the Contract, the Engineer shall have no authority to relieve the Contractor of any of his obligations under the Contract nor to order any work involving delay in completion of the Works or any extra payment to the Contractor by the Employer, or to make any variations to the Works.

j) In the event of termination of the employment of the Engineer, the Employer shall appoint another suitable professional to perform the Engineer's duties.

k) The Engineer shall have authority to reject work which does not conform to the Contract Documents. Whenever, in his opinion, he considers it necessary or advisable for the implementation of the intent of the Contract Documents, he will have authority to require special inspection or testing of the work whether or not such work be then fabricated, installed or completed. However, neither the Engineer's authority to act nor any reasonable decision made by him in good faith either to exercise or not to exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any subcontractor, any of their agents or employees, or any other person performing services for the Works.

l) The Engineer shall conduct inspections to determine the dates of Substantial Completion and Final Completion, shall receive and forward to the Employer for the Employer's review written warranties and related documents required by the Contract and assembled by the

Contractor, and shall issue a final Certificate for Payment upon compliance with the requirements of Clause 47 hereof and in accordance with the Contract.

m) If the Employer and Engineer so agree, the Engineer shall provide one or more Engineer's Representative(s) to assist the Engineer in carrying out his responsibilities at the site. The Engineer shall notify in writing to the Contractor and the Employer the duties, responsibilities and limitations of authority of any such Engineer's Representative(s).

6. CONTRACTOR'S GENERAL OBLIGATIONS/RESPONSIBILITIES

a) Obligation to Perform in Accordance with Contract

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

b) Responsibility for Site Operations

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

c) Responsibility for Employees

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

d) Source of Instructions

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

e) Officials Not to Benefit

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

f) Use of Name, Emblem or Official Seal of UNDP or the United Nations

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

g) Confidential Nature of Documents

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

7. ASSIGNMENT AND SUBCONTRACTING

a) Assignment of Contract

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

b) Subcontracting

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

c) Assignment of Subcontractor's Obligations

In the event of a subcontractor having undertaken towards the Contractor in respect of the work executed or the works, materials, Plant or services supplied by such subcontractor for the Works, any continuing obligation extending for a period exceeding that of the Defects Liability Period under the Contract, the Contractor shall at any time after the expiration of such Period, assign to the Employer, at the Employer's request and cost, the benefit of such obligation for the unexpired duration thereof.

8. DRAWINGS

a) Custody of drawings

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

b) One copy of Drawings to be kept on Site

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

c) Disruption of Progress

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

9. WORK BOOK

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

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

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

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

10. PERFORMANCE SECURITY

i. As guarantee for his proper and efficient performance of the Contract, the Contractor shall on signature of the Contract furnish the Employer with a Performance Security issued for the benefit of the Employer. The amount and character of such security (bond or guarantee) shall be as indicated in the Contract.

ii. The Performance Bond or Bank Guarantee must be issued by an acceptable insurance company or accredited bank, in the format included in Appendix I to these General Conditions, and must be valid up to twenty-eight days after issuance by the Engineer of the Certificate of Final Completion. The Performance Bond or Bank Guarantee shall be returned to the Contractor within twenty-eight days after the issuance by the Engineer of the Certificate of Final Completion, provided that the Contractor shall have paid all money owed to the Employer under the Contract.

iii. If the surety of the Performance Bond or Bank Guarantee is declared bankrupt or becomes insolvent or its right to do business in the country of execution of the Works is terminated, the Contractor shall within five (5) days thereafter substitute another bond or guarantee and surety, both of which must be acceptable to the Employer.

11. INSPECTION OF SITE

a) The Contractor shall be deemed to have inspected and examined the site and its surroundings and to have satisfied himself before submitting his Tender and signing the Contract as to all matters relative to the nature of the land and subsoil, the form and nature of the Site, details and levels of existing pipe lines, conduits, sewers, drains, cables or other existing services, the quantities and nature of the work and materials necessary for the completion of the Works, the means of access to the Site, and the accommodation he may require, and in general to have himself obtained all necessary information as to risk contingencies, climatic, hydrological and natural conditions and other circumstances which may influence or affect his Tender, and no claims will be entertained in this connection against the Employer.

12. SUFFICIENCY OF TENDER

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

13. PROGRAMME OF WORK TO BE FURNISHED

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

14. WEEKLY SITE MEETING

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

15. CHANGE ORDERS

a) The Engineer may instruct the Contractor, with the approval of the Employer and by means of Change Orders, all variations in quantity or quality of the Works, in whole or in part, that are deemed necessary by the Engineer.

b) Processing of change orders shall be governed by clause 48 of these General Conditions.

16. CONTRACTOR'S SUPERINTENDENCE

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

17. CONTRACTOR'S EMPLOYEES

a) The Contractor shall provide and employ on the Site in connection with the execution and completion of the Works and the remedying of any defects therein:
b) Only such technical assistants as are skilled and experienced in their respective callings and such sub-agent foremen and leading hands as are competent to give proper supervision to the work they are required to supervise, and
c) Such skilled, semi-skilled, and unskilled labor as is necessary for the proper and timely execution and completion of the Works.

d) The Engineer shall be at liberty to object to and require the Contractor to remove forthwith from the Works any person employed by the Contractor in or about the execution or completion of the Works, who in the opinion of the Engineer is misconducting himself, or is incompetent or negligent in the proper performance of his duties, or whose employment is otherwise considered reasonably by the Engineer to be undesirable, and such person shall not be again employed on the Site without the written permission of the Engineer. Any person so removed from the Works shall be replaced as soon as reasonably possible by a competent substitute approved by the Engineer.

e) Upon written request by the Employer, the Contractor shall withdraw or replace from the Site any agent, representative or other personnel who does not conform to the standards set forth in paragraph (1) of this Clause. Such request for withdrawal or replacement shall not be considered as termination in part or in whole of this Contract. All costs and additional expenses resulting from any withdrawal or replacement for whatever reason of any of the Contractor's personnel shall be at the Contractor's expense.

18. SETTING-OUT

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

19. WATCHING AND LIGHTING

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

20. CARE OF WORKS

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

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

21. INSURANCE OF WORKS, ETC.

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

b) The Works, together with the materials and Plant for incorporation therein, to their full replacement cost, plus an additional sum of ten (10) per cent of such replacement cost, to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature;

c) The Contractor's equipment and other things brought on to the Site by the Contractor to the replacement value of such equipment and other things;

d) An insurance to cover the liabilities and warranties of Section 52(4);

e) Such insurance shall be effected with an insurer and in terms approved by the Employer, which approval shall not be unreasonably withheld, and the Contractor shall, whenever

required, produce to the Engineer the policy or policies of insurance and the receipts for payment of the current premiums.

22. DAMAGE TO PERSONS AND PROPERTY

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

b) The permanent use or occupation of land by the Works or any part thereof;

c) The right of the Employer to construct the Works or any part thereof on, over, under, or through any land.

d) Interference whether temporary or permanent with any right of light, airway or water or other easement or quasi-easement which is the unavoidable result of the construction of the Works in accordance with the Contract.

e) Death, injuries or damage to persons or property resulting from any act or neglect of the Employer, his agents, servants or other contractors, done or committed during the validity of the Contract.

23. LIABILITY INSURANCE

a) Obligation to take out Liability Insurance

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

b) Minimum Amount of Liability Insurance

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

c) Provision to Indemnify Employer

The insurance policy shall include a provision whereby, in the event of any claim in respect of which the Contractor would be entitled to receive indemnity under the policy, being

brought or made against the Employer, the insurer shall indemnify the Employer against such claims and any costs, charges and expenses in respect thereof.

24. ACCIDENT OR INJURY TO WORKMEN

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

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

25. REMEDY ON CONTRACTOR'S FAILURE TO INSURE

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

26. COMPLIANCE WITH STATUTES, REGULATIONS, ETC.

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

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

27. FOSSILS, ETC.

a) All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the Site of the Works shall as between the Employer and the Contractor be deemed to be the absolute property of the Employer and the Contractor shall take reasonable precautions to prevent his workmen or any other persons from removing or damaging any such article or thing and shall immediately upon discovery thereof and before removal acquaint the Employer of such discovery and carry out at the expense of the Employer the Engineer's orders as to the disposal of the same.

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

a) The Contractor shall hold harmless and fully indemnify the Employer from and against all claims and proceedings for or on account of infringement of any patent rights, design trademark or name or other protected rights in respect of any Plant, equipment, machine, work or material used for or in connection with the Works or Temporary Works and from and against all claims, demands proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto, except where such infringement results from compliance with the design or Specification provided by the Engineer.

b) Except where otherwise specified, the Contractor shall pay all tonnage and other royalties, rent and other payments or compensation, if any, for getting stone, sand, gravel, clay or other materials required for the Works or Temporary Works.

29. INTERFERENCE WITH TRAFFIC AND ADJOINING PROPERTIES

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

30. EXTRAORDINARY TRAFFIC AND SPECIAL LOADS

a) The Contractor shall use every reasonable means to prevent any of the roads or bridges communicating with or on the routes to the Site from being damaged by any traffic of the Contractor or any of his sub-contractors and, in particular, shall select routes, choose and use vehicles and restrict and distribute loads so that any such extraordinary traffic as will inevitably arise from the moving of plant and material from and to the Site shall be limited as far as reasonably possible and so that no unnecessary damage may be occasioned to such roads and bridges.

b) Should it be found necessary for the Contractor to move any load of Constructional Plant, machinery, pre-constructed units or parts of units of work, or other thing, over part of a road or bridge, the moving whereof is likely to damage any such road or bridge unless special protection or strengthening is carried out, then the Contractor shall before moving the load on to such road or bridge, save insofar as the Contract otherwise provide, be responsible for and shall pay for the cost of strengthening any such bridge or altering or improving any such road to avoid such damage, and the Contractor shall indemnify and keep the Employer indemnified against all claims for damage to any such road or bridge caused by such movement, including such claim as may be made directly against the Employer, and shall negotiate and pay all claims arising solely out of such damage.

31. OPPORTUNITIES FOR OTHER CONTRACTORS

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

32. CONTRACTOR TO KEEP SITE CLEAN

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

33. CLEARANCE OF SITE ON SUBSTANTIAL COMPLETION

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

34. LABOUR

a) Engagement of Labor

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

b) Supply of Water

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

c) Alcoholic Drinks or Drugs

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

d) Arms and Ammunition

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

e) Holiday and Religious Customs

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

f) Epidemics

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

g) Disorderly Conduct, etc.

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

h) Observance by Sub-Contractors

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

i) Legislation applicable to Labor

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

35. RETURNS OF LABOUR, PLANT, ETC.

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

36. MATERIALS, WORKMANSHIP AND TESTING

a) Materials and Workmanship

All materials and workmanship shall be of the respective kinds described in the Contract and in accordance with the Engineer's instructions and shall be subjected from time to time to such tests as the Engineer may direct at the place of manufacture or fabrication, or on the Site or at all or any of such places. The Contractor shall provide such assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any materials used and shall supply samples of materials before incorporation in the Works for testing as may be selected and required by the Engineer. All testing equipment and instruments provided by the Contractor shall be used only by the Engineer or by the Contractor in accordance with the instructions of the Engineer.

No material not conforming with the Specifications in the Contract may be used for the Works without prior written approval of the Employer and instruction of the Engineer,

provided always that if the use of such material results or may result in increasing the Contract Price, the procedure in Clause 48 shall apply.

b) Cost of Samples

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

c) Cost of Tests

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

- ✓ Those clearly intended by or provided for in the Contract Documents.
- ✓ Those involving load testing or tests to ensure that the design of the whole of the Works or any part of the Works is appropriate for the purpose which it was intended to fulfill.

37. ACCESS TO SITE

a) The Employer and the Engineer and any persons authorized by either of them shall, at all times, have access to the Works and to the Site and to all workshops and places where work is being prepared or whence materials, manufactured articles or machinery are being obtained for the Works and the Contractor shall afford every facility for and every assistance in or in obtaining the right to such access.

38. EXAMINATION OF WORK BEFORE COVERING UP

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

39. REMOVAL OF IMPROPER WORK AND MATERIALS

a) Engineer's power to order removal

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

The removal from the Site within such time or times as may be specified in the order of any materials which in the opinion of the Engineer are not in accordance with the Contract;

The substitution of proper and suitable materials; and

The removal and proper re-execution (notwithstanding any previous test thereof or interim payment therefore) of any work which in respect of materials or workmanship is not in the opinion of the Engineer in accordance with the Contract.

b) Default of Contractor in carrying out Engineer's Instructions

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

40. SUSPENSION OF WORK

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

41. POSSESSION OF SITE

a) Access to Site

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

b) Way leaves, etc.

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

c) Limits of the Site

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

42. TIME FOR COMPLETION

a) Subject to any requirement in the Contract as to completion of any section of the Works before completion of the whole, the whole of the Works shall be completed, in accordance with the provisions of Clause 46 and 47 hereof, within the time stated in the Contract.

b) The completion time includes weekly rest days, official holidays, and days of inclement weather.

43. EXTENSION OF TIME FOR COMPLETION

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

44. RATE OF PROGRESS

a) The whole of the materials, plant and labour to be provided by the Contractor and the mode, manner and speed of execution and completion of the Works are to be of a kind and conducted in a manner to the satisfaction of the Engineer. Should the rate of progress of the Works or any part thereof be at any time in the opinion of the Engineer too slow to ensure the completion of the Works by the prescribed time or extended time for completion, the Engineer shall so notify the Contractor in writing and the Contractor shall thereupon take such steps as the Contractor may think necessary and the Engineer may approve to expedite progress so as to complete the Works by the prescribed time or extended time for completion.

b) If the work is not being carried on by day and by night and the Contractor shall request permission to work by night as well as by day, then, if the Engineer shall grant such permission, the Contractor shall not be entitled to any additional payment. All work at night shall be carried out without unreasonable noise and disturbance.

c) The contractor shall indemnify the Employer from and against any claims or liability for damages on account of noise or other disturbance created while or in carrying out the work and from and against all claims, demands, proceedings, costs and expenses whatsoever in regard or in relation to such noise or other disturbance. The Contractor shall submit in triplicate to the Engineer at the end of each month signed copies of explanatory Drawings or any other material showing the progress of the Works.

45. LIQUIDATED DAMAGES FOR DELAY

a) If the Contractor shall fail to complete the Works within the time for completion prescribed in the Contract, or any extended time for completion in accordance with the Contract, then the Contractor shall pay to the Employer the sum specified in the Contract as liquidated damages, for the delay between the time prescribed in the Contract or the extended time for completion, as the case may be, and the date of substantial completion of the Works as stated in the Certificate of Substantial Completion, subject to the applicable limit stated in the Contract. The said sum shall be payable by the sole fact of the delay without the need

for any previous notice or any legal proceedings, or proof of damage, which shall in all cases be considered as ascertained. The Employer may, without prejudice to any other method of recovery, deduct the amount of such liquidated damages from any monies in its hands due or which may become due to the Contractor. The payment or deduction of such damages shall not relieve the Contractor from his obligation to complete the Works or from any other of his obligations and liabilities under the Contract.

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

46. CERTIFICATE OF SUBSTANTIAL COMPLETION

a) Substantial Completion of the Works

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

b) Substantial Completion of Sections or Parts of the Works

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

1 a separate time for completion is provided in the Contract in respect of such Section or part of the Works;

2 such Section or part of the Works has been completed to the satisfaction of the Engineer and is required by the Employer for his occupation or use.

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

47. DEFECTS LIABILITY

a) Defects Liability Period

The expression "Defects Liability Period" shall mean the period of six (6) months, calculated from the date of completion of the Works stated in the Certificate of Substantial Completion issued by the Engineer or, in respect of any Section or part of the Works for which a separate Certificate of Substantial Completion has been issued, from the date of completion of that Section or part as stated in the relevant Certificate. The expression "the Works" shall, in respect of the Defects Liability Period, be construed accordingly.

b) Completion of Outstanding Work and Remedying of Defects

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

c) Cost of Execution of Work of Repair, etc.

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

d) Remedy on Contractor's Failure to Carry Out Work Required

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

e) Certificate of Final Completion

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

48. ALTERATIONS, ADDITIONS AND OMISSIONS

a) Variations

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

1 increase or decrease the quantity of any work under the Contract;
2 omit any such work;
3 change the character or quality or kind of any such work;
4 change the levels, lines, positions and dimensions of any part of the Works;
5 execute additional work of any kind necessary for the completion of the Works, and no such variation shall in any way vitiate or invalidate the Contract.

b) Variations Increasing **Cost of Contract or altering the Works.**

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

c) Orders for Variations to be in Writing

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

d) Valuation of Variations

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

49. PLANT, TEMPORARY WORKS AND MATERIALS

a) Plant, etc., Exclusive Use for the Works

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

b) Removal of Plant, etc.

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

c) Employer not liable for Damage to Plant

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

d) Ownership of paid material and work

All material and work covered by payments made by the Employer to the Contractor shall thereupon become the sole property of the Employer, but this provision shall not be construed as relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work or as waiving the right of the Employer to require the fulfillment of all of the terms of the Contract.

e) Equipment and supplies furnished by Employer

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

50. APPROVAL OF MATERIALS ETC., NOT IMPLIED

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

51. MEASUREMENT OF WORKS

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

52. LIABILITY OF THE PARTIES

a) The Works shall not be considered as completed until a Certificate of Final Completion shall have been signed by the Engineer and delivered to the Employer stating that the Works have been completed and that the Contractor has fulfilled all his obligations under Clause 47 to his satisfaction.

b) The Employer shall not be liable to the Contractor for any matter arising out of or in connection with the Contract or the execution of the Works unless the Contractor shall have

made a claim in writing in respect thereof before the giving of the Certificate of Final Completion and in accordance with the Contract.

c) Unfulfilled Obligations

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

d) Contractor Responsible

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

53. AUTHORITIES

(a) The Employer shall have the right to enter upon the Site and expel the Contractor therefrom without thereby voiding the Contract or releasing the Contractor from any of his obligations or liabilities under the Contract or affecting the rights and powers conferred on the Employer and the Engineer by the Contract in any of the following cases:

(b) If the Contractor is declared bankrupt or claims bankruptcy or court protection against his creditors or if the Contractor is a company or member of a company which was dissolved by legal action;

(c) If the Contractor makes arrangements with his creditors or agrees to carry out the Contract under an inspection committee of his creditors;

(d) If the Contractor withdraws from the Works or assigns the Contract to others in whole or in part without the Employer's prior written approval;

(e) If the Contractor fails to commence the Works or shows insufficient progress to the extent which in the opinion of the Engineer will not enable him to meet the target completion date of the Works;

(f) If the Contractor suspends the progress of the Works without due cause for fifteen (15) days after receiving from the Engineer written notice to proceed;

(g) If the Contractor fails to comply with any of the Contract conditions or fails to fulfill his obligations and does not remedy the cause of his failure within fifteen (15) days after being notified to do so in writing;

(h) If the Contractor is not executing the work in accordance with standards of workmanship specified in the Contract;

(i) If the Contractor gives or promises to give a present or loan or reward to any employee of the Employer or of the Engineer.

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

(j) **Evaluation after Re-entry**

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

(k) **Payment after Re-entry**

If the Employer shall enter and expel the Contractor under this Clause he shall not be liable to pay the Contractor any money on account of the Contract until the expiration of the Defects Liability Period, and thereafter until the costs of completion and making good any defects of the Works, damages for delay in completion (if any), and all other expenses incurred by the Employer have been ascertained and their amount certified by the Engineer. The Contractor shall then be entitled to receive only such sum or sums (if any) as the Engineer may certify would have been due to him upon due completion by him after deducting the said amount. But if such amount shall exceed the sum which would have been payable to the Contractor on due completion by him,, then the Contractor shall upon demand pay to the Employer the amount of such excess. The Employer in such case may recover this amount from any money due to the Contractor from the Employer without the need to resort to legal procedures.

54. URGENT REPAIRS

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

55. INCREASE AND DECREASE OF COSTS

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

56. TAXATION

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

57. BLASTING

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

58. MACHINERY

a) The Contractor shall be responsible for coordinating the manufacture, delivery, erection and commissioning of plant machinery and equipment which are to form a part of the Works. He shall place all necessary orders as soon as possible after the signing of the Contract. These orders and their acceptance shall be produced to the Engineer on request. The Contractor shall also be responsible for ensuring that all sub-contractors adhere to such programs as are agreed and are needed to ensure completion of the Works within the period for completion. Should any sub-contracted works be delayed, the Contractor shall initiate the necessary action to speed up such completion. This shall not prejudice the Employer's right to exercise his remedies for delay in accordance with the Contract.

59. TEMPORARY WORKS AND REINSTATEMENT

a) The Contractor shall provide and maintain all temporary roads and tracks necessary for movement of plant and materials and clear same away at completion and make good all works damaged or disturbed. The Contractor shall submit drawings and full particulars of all Temporary Works to the Engineer before commencing same.

b) The Engineer may require modifications to be made if he considers them to be insufficient and the Contractor shall give effect to such modifications but shall not be relieved of his responsibilities. The Contractor shall provide and maintain weather-proof sheds for storage of material pertinent to the Works both for his own use and for the use of the Employer and clear same away at the completion of the Works.

c) The Contractor shall divert as required, at his own cost and subject to the approval of the Engineer, all public utilities encountered during the progress of the Works, except those specially indicated on the drawings as being included in the Contract. Where diversions of services are not required in connection with the Works, the Contractor shall uphold, maintain and keep the same in working order in existing locations.

d) The Contractor shall make good, at his own expense, all damage to telephone, telegraph and electric cable or wires, sewers, water or other pipes and other services, except where the Public Authority or Private Party owning or responsible for the same elects to make good the damage. The costs incurred in so doing shall be paid by the Contractor to the Public Authority or Private Party on demand.

60. PHOTOGRAPHS AND ADVERTISING

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

61. PREVENTION OF CORRUPTION

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

62. DATE FALLING ON HOLIDAY

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

63. NOTICES

a) Unless otherwise expressly specified, any notice, consent, approval, certificate or determination by any person for which provision is made in the Contract Documents shall be in writing. Any such notice, consent, approval, certificate or determination to be given or made by the Employer, the Contractor or the Engineer shall not be unreasonably withheld or delayed.

b) Any notice, certificate or instruction to be given to the Contractor by the Engineer or the Employer under the terms of the Contract shall be sent by post, cable, telex or facsimile at the Contractor's principal place of business specified in the Contract or such other address as the Contractor shall nominate in writing for that purpose, or by delivering the same at the said address against an authorized signature certifying the receipt.

c) Any notice to be given to the Employer under the terms of the Contract shall be sent by post, cable, telex or facsimile at the Employer's address specified in the Contract, or by delivering the same at the said address against an authorized signature certifying the receipt.

d) Any notice to be given to the Engineer under the terms of this Contract shall be sent by post, cable, telex or facsimile at the Engineer's address specified in the Contract, or by delivering the same at the said address against an authorized signature certifying the receipt.

64. LANGUAGE, WEIGHTS AND MEASURES

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

65. RECORDS, ACCOUNTS, INFORMATION AND AUDIT

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

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

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

66. FORCE MAJEURE

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

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

1 The obligations and responsibilities of the Contractor under this Contract shall be suspended to the extent of his inability to perform them and for as long as such inability continues. During such suspension and in respect of work suspended, the Contractor shall be reimbursed by the UNDP substantiated costs of maintenance of the Contractor's equipment and of per diem of the Contractor's permanent personnel rendered idle by such suspension;

2 The Contractor shall within fifteen (15) days of the notice to the UNDP of the occurrence of the force majeure submit a statement to the UNDP of estimated costs referred to in sub-paragraph (a) above during the period of suspension followed by a complete statement of actual expenditures within thirty (30) days after the end of the suspension;

3 The term of this Contract shall be extended for a period equal to the period of suspension taking however into account any special condition which may cause the additional time for completion of the Works to be different from the period of suspension;

4 If the Contractor is rendered permanently unable, wholly or in part, by reason of force majeure, to perform his obligations and meet his responsibilities under the Contract, the UNDP shall have the right to terminate the Contract on the same

terms and conditions as provided for in Clause 68 of these General Conditions, except that the period of notice shall be seven (7) days instead of fourteen (14) days, and

5 For the purpose of the preceding sub-paragraph, the UNDP may consider the Contractor permanently unable to perform in case of any suspension period of more than ninety (90) days.

67. SUSPENSION BY THE UNDP

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

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

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

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

68. TERMINATION BY THE UNDP

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

b) Upon termination of this Contract:

- The Contractor shall take immediate steps to terminate his performance of the Contract in a prompt and orderly manner and to reduce losses and to keep further expenditures to a minimum, and
- The Contractor shall be entitled (unless such termination has been occasioned by the Contractor's breach of this Contract), to be paid for the part of the Works satisfactorily completed and for the materials and equipment properly delivered to the Site as of the date of termination for incorporation to the Works, plus substantiated costs resulting from commitments entered into prior to the date of termination as well as any reasonable substantiated direct costs incurred by the Contractor as a result of the termination, but shall not be entitled to receive any other or further payment or damages.

69. TERMINATION BY THE CONTRACTOR

a) In the case of any alleged breach by the UNDP of the Contract or in any other situation which the Contractor reasonably considers to entitle him to terminate his performance of the Contract, the Contractor shall promptly give written notice to the UNDP detailing the

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

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

70. RIGHTS AND REMEDIES OF THE UNDP

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

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

71. SETTLEMENT OF DISPUTES

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

b) Notification

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

c) Consultation

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

d) Conciliation

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

e) Arbitration

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

72. PRIVILEGES AND IMMUNITIES

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

Annex IV

Special Conditions

The following Special Conditions shall complement, supplement, or amend the General Conditions. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions.

Warranty/Guarantee	
× **Applies** ☐ Does not apply	If, within 6 months after the completion of works, any defects are discovered or arise in the normal course of usage, the Supplier shall remedy the defect either by replacement or by repair.
Liquidated damages	
× **Applies** ☐ Does not apply	If the Contractor fails to complete the Works within the time period(s) stipulated by the Contract, the Purchaser shall, without prejudice to its other remedies under the contract, deduct from the Contract for Works amount/Contract price, as liquidated damages, a sum equivalent to 0.05 percent for each day that the Completion Date is later than the Intended Completion Date The total amount of liquidated damages shall not exceed the 10 percent of the Contract price. Payment of liquidated damages shall not affect the Contractor's liabilities.
Performance security	
× Applies ☐ Does not apply	a) Within 30 days of receipt of the Contract for Works from the purchaser, the successful Bidder shall furnish a Performance Security to the Purchaser in the amount of 10% of the Contract Value. b) The Performance Security shall be valid until a date 30 days from the date of Issue of a Satisfactory Certificate of Inspection and Testing by the procuring UN entity. c) The proceeds of the Performance Security shall be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the contract. d) The Performance Security shall be denominated in the currency of the Contract and shall be in one of the following form of a bank guarantee or irrevocable letter of credit, issued by a reputable bank located in the purchaser's country or abroad in the form provided in these

	Solicitation Documents. e) The Security will be returned to the Supplier within 30 days of completion of the Contract for works, including any warranty obligation.
Compliance with any other condition (s) required?	
☐ Applies × Does not apply	

(This space is also used to enter a modified version of any of the above Special Conditions)

Annex V

Technical Specifications
For
Construction of Kukes Regional Tourist Information Center (TIC)

Table of Contents

1. BACKGROUND

1.1 Project Context

Kukes Region Tourism and Environment Promotion (KRTEP) is a project co-funded by EU and UNDP and by Kukes local government units for the infrastructure component as direct beneficiaries of such interventions. The KRTEP project supports Kukes Region to develop a strategic vision, build local capacities and institutions, and promote cooperation and awareness among stakeholders about local economic potentials of the Region's eco-nature and cultural tourism values.

The main aims and results of the project include: (i) a Regional Tourism Strategy and Action Plan for Tourism and Environment Promotion, (ii) assistance in establishing and consolidating regional dedicated structures for tourism development and management, (iii) building local capacities, (iv) devising a set of tourism promotional materials, and (v) improving some of the identified regional priority infrastructures having tourism or environmental impact. In the frame of the KRTEP Project, nine infrastructure projects are identified for implementation, including the tourism signage throughout the region.

1.2 Current Situation

Site visits were conducted during the design phase in order to identify and address any issue that relates to location such as connection with the utilities, accessibility, site clearance etc. The site results to be clear from any existing construction and vegetation as well as accessible from the Highway Durres - Morine.

The utility lines such as water supply, sewer and telephone for the Kukes Regional TIC are located in the vicinity of the construction site. The site can be accessed from the Highway Durres – Morine actually from both lanes. It also has sufficient space to temporarily construct site settings including storage and temprary site offices.

1.3 Proposed Solution

After thorough analysis, site visits and discussions with the Kukes Region Authorities and specialized staff, the best options for the campsite have been selected and finalized into detailed design including technical drawings and specifications.

- A new facility building, located at the Kukes entrance before the existing Bridge. The Area is proposed by the Kukes Region Council and falls under the administration of Kolsh Commune
- The building has a total surface of apprx. 90 m2 developed in two floors. The ground floor involves information desk, souvenirs shop and washroom unit, while the first floor involves, conference room and two offices.
- The building architecture suits with its functionality and area tradition.
- The brick outside walls are structuraly designed to carry the building's load.
- The roof is desgned with ceramic tiles.
- Windows and doors are designed of wooden structure. In addition, wooden blinds will be installed on the external windows.
- Electrical, water supply and drain components are designed in accordance with the up to date standards and materials.

- The connection with the utilities will be made as detailed in the drawings and in close cooperation with the local authorities.

Photo 1. Proposed Kukes Regional TIC

From the investigations through the region, the area results to be very poor regarding TIC.

2. STATEMENT OF WORK

2.1 Location

The site proposed by Kukes Regional Council for construction of Tourist Information Center (TIC) is located at the entrance of Kukes town before the main existing bridge, on the area under administration of Kolsh Commune. The proposed building with a footprint of 90 m2 is properly harmonized with the area and surrounding buildings.

2.2 Scope of Contract

The goal of the present Contract is to build a Regional Tourist Information Center (TIC), which will be owned and run by Kukes Region. All works stipulated in the Contract shall be done in accordance with the Design. The final user's agreement to the works to be constructed is included in the design. Minor modifications to the design are allowable keeping the original intent of the design fully maintained, in compliance with the established Bill of Quantities, and expressly signed from the UNDP Engineer and approved by the UNDP.

3. REQUIREMENTS AND SPECIFICATIONS

3.1 Requirements to Bidders

- ✓ The bidder will furnish bid prices separated into quantities for each activity in this project.
- ✓ Included with this scope of work is the detailed design that includes standard drawings, bills of quantities, and specifications.
- ✓ The bidder will verify all quantities and on site conditions.
- ✓ The bidder warrants that he possesses the required capacities and resources, including capital, labour force and equipment within the aim to carry out the Works as specified under this Contract.
- ✓ A site visit is required, during which UNDP will display all locations on the ground.
- ✓ The Contractor warrants that he has carefully surveyed the project works site and that he has confirmed the actual site conditions and quantities required to complete the Works.
- ✓ The Contractor warrants that the Lump Sum project price submitted includes all labors, tools, equipment, materials, supervision and necessary technical and professional services to complete the work, and that the Contractor will not claim additional payment for differences in the actual quantities required and those quantities listed in the Bill of Quantities, unless a discrepancy is noted in his bid.
- ✓ The type and quality of any materials that will be purchased by Contractor shall be subject to the approval by UNDP. UNDP reserves the right, without additional costs incurred by UNDP, to reject materials purchased by the Contractor if the material does not satisfy the requirements of the design or quality criteria.
- ✓ The Contractor shall submit to UNDP for approval all certificates for installed material quality, for performed works and, after completion of work, the as-built drawings.
- ✓ The Contractor shall, at no expense to UNDP, be responsible for coordination and liaison with the appropriate authorities.
- ✓ All required licenses and permits shall be obtained by the Contractor.
- ✓ The Contractor shall be responsible for removal and transportation to a legal dumpsite all wastes generated during the construction of the works.
- ✓ The Contractor shall erect such project signs as are detailed in the bidding document.
- ✓ The Contractor shall provide for all ancillary items, whether specifically or not specifically mentioned, needed to ensure a functional system.
- ✓ The Contractor shall prevent the noise to the maximum especially during overtime hours and on the weekends.

- ✓ The Contractor shall describe in the bid the method intended to adopt to prepare and manage the site. This shall include the following:

3.1.1 Working methodology

7. Temporary storage areas, transportation, physical works, temporary and final disposal sites and quarries (i.e. for provision of fill) excavation sites

3.1.2 Management Plans

8. Transport Plan
9. Occupational Health and Safety Plan
10. Protection of Environment and Heritage
11. Emergency Preparedness and Response Planning

3.1.3 Time Schedule

12. Overall Time Schedule; i.e. the workplan and sequence of activities

3.1.4 Required Machinery

In order to complete the project as per the design the necessary minimum equipment which are needed are listed below:

Transporting trucks	2 pcs
Concrete mixer 1 m3	2 pcs
Generator	1 pcs

As per the approved working schedule. The Contractor will submit additional machinery, as required.

3.1.5 Manpower

Minimum required manpower for this project should be as below:

Engineer	1
Skilled labourers	5
Unskilled labourers	8

Additional manpower will be included as required during the construction.

3.2 Requirements to the Contractor (for additional requirements refer to General Conditions for Work Contracts)

The Contractor shall submit to the engineer a fully detailed programme showing the order, the procedure and method by which proposes to carry out the construction and completion of the Works.

- ✓ All works shall be done in accordance with the Design. The final user's agreement to the works to be constructed is included in the design.

- ✓ Minor modifications to the design are permitted where the original intent of the design is fully maintained, where this is in keeping with the established Bill of Quantities and is expressly signed of the UNDP Engineer and approved by the UNDP
- ✓ The Contractor warrants that he has carefully surveyed the project works site and that he has confirmed the actual site conditions and quantities required to complete the Works.
- ✓ The type and quality of any materials that will be purchased by Contractor shall be subject to the approval of UNDP. UNDP reserves the right, without additional costs being incurred by UNDP, to reject materials purchased by the Contractor if the material does not satisfy the requirements of the design or quality criteria.
- ✓ The Contractor shall submit to UNDP for approval all certificates for installed material quality, for performed works and, after completion of work, the as-built drawings.
- ✓ The Contractor shall, at no expense to UNDP, be responsible for coordination and liaison with the appropriate authorities.
- ✓ All required licenses and permits shall be obtained by the Contractor.
- ✓ The Contractor shall be responsible for removal and transportation to a legal dumpsite of all waste generated during the construction of the works.
- ✓ The Contractor shall erect such project signs as are detailed in the bidding document.
- ✓ The Contractor shall provide for all ancillary items, whether mentioned specifically or not, but which will be needed to ensure a functional system.
- ✓ The Contractor shall prevent the noise to the maximum especially overtime hours and during the weekends.

4. NOTES ON EARTHWORKS, EXCAVATIONS AND FOUNDATIONS

4.1 Earthworks

4.1.1 Formations prepare

Formations prepare includes these works:

- ✓ Introduction and precision of installed net underground as i.e.: water supply pipes, outlet pipes, electric and telephony cable etc.
- ✓ Terrain measurement
- ✓ Deforestation and roots removal from terrain
- ✓ Soil removal by humus and its transport or re-using
- ✓ Whole foundation digging up to the necessary deepness

4.1.2 Sloping elaboration

In cases of sloping terrene, the three following methods are used:

- ✓ Slope levelling according the lowest terrene point
- ✓ Terrene backfilling by surplus material, up to highest terrene point
- ✓ Digging and backfilling according the average point.

Each of these cases will be used depending on soil type, on support ability terrene and of building loading will be construct in that terrain.

4.1.3 Soil works drenaging

Drainage can be a drainiging net or only a drain. As drainiging net materials might be used plastic pipes, concrete pipes or clay pipes. The pipes should be placed through

open drains, leveled and presses as required. The pipes should be placed after drain opening and gravel backfilling of a layer at least 7 cm. After the pipes are set gravel or sand 4/32 of a layer 10 cm should be thrown in order to protect the pipe. After that the drain will be backfilled by the soil left from digging.

The drainage by drains is realized by opening first the drains and then filled by gravel. The drains according the request should have one of the following surfaces: 20x30, 30x40 ose 30x60 cm. The distance between drains should be determined according to ground filter coefficent.

4.1.4 Soil work protection

The people that are not included in project construction should be well protected by soil works, and the staff working in project realization should be as well protected. Caution should be taken on the groundwork diggings.

Protection of the pedestrians can be realized throughout building an encirclement (fence, wire net etc), which does not allow them (especially children) to be at risk. Warning Signs boards should be placed in order to forbid the pedestrians to cross inside the encirclement.

The holes and the workers working in them should be protected from downfall. Moat stair per each hole depends on soil quality by min. 45^{o} up to max. 60^{o}.

If the soil contains minerals, which by water contact loose stability, then the soil and particularly moat should be well protected by rain, equipped by supporting reinforcement according KTZ.

4.1.5 Soil works during frost periods

Soil works can be executed during the winter period as well when temperatures are under 0^{o} C.

4.2 Excavations for foundations and basis

4.2.1 Excavations

Excavations for foundations or underneath works of 1,5 m thickness from earth basis, in whatever kind of ground and consistence, dried or moistened (of argil and if it is compacted, sand, gravel, stones etc,) including cutting and extraction of the roots, stumps, stones, and parts of a volume till 0.30 m^3, regarding underground constructions as waste drainages, drainages in general etc.

4.2.2 Fillings

Stone layer and selected brick masonry peaces, in well-compacted layers, without dust, render and organic materials, that result by described demolitions in the above-mentioned articles. The Supervisor will first ensure all materials that result from demolitions, and will authorize their utilization.

4.2.3 Utilization of Excavated material

Suitable material and the material recovered from temporary work shall be utilized for backfill. Any surplus material shall be disposed of any shortfalls composed by suitable fill.

4.2.4 Backfilling around structures

The material shall be placed simultaneously on both sides of an abutment, wall or pier. The backfilling shall be carried out with approved material in horizontal layers not exceeding 150mm in depth after compaction.

4.3 Standards foundations

4.3.1 Concrete foundations

Foundations executed in concrete type – 100 in dosage per m3 and poured in thick layers well vibrated, with dimensions and shape as indicated in the relevant drawings, including the scaffolding, formwork, propping and all requirements to complete the works in a first-class manner.

4.3.2 Foundations in stone masonry and concrete

Buildings foundations and basis of butoconcrete, limestones in the following proportions not exceeding 20 cm per m^3: concrete M 100, 0.77 m^3 and stone with concrete in dosage of 0.37 m3, including formworks, propping and all requirements to complete the work in a first-class manner.

4.3.4 Column Foundations & Pile Caps

Pile caps realized and suitably reinforced according to the instructions of the project, in concrete M 200, realized in thin layers and well vibrated, in dosage of concrete M 20 filling materials, including reinforcement, formworks, proppings, and any other obligation and skill for work accomplishment.

4.4 Foundations ancillaries

4.4.1 Waterproofing of footings

The vertical waterproofing of footings in hot fixed bitumen, formed from a layer of bitumen emulsion and two layers of bitumen M3 with 3.8 kg per sqm, including all requirements to complete the work in a competent manner.

4.4.2 Waterproofing of foundations

4.4.2.1 Foundation waterproofing in buildings without basement

In buildings without basement waterproofing of the upper horizontal level in foundations will be in plinth altitude by mortar, concrete, sand 1:2. Mortar will be added as needed to the cerezit. This waterproofing layer should be connected

to floor waterproofing and to external vertical side of foundations, which is in the middle of plinth level.

4.4.2.2 Foundation waterproofing in buildings with basement
Buildings with basements:

a. Waterproofing of horizontal foundation in basement floor waterproofing altitude will be as paragraph 5.4.2.1.

b. Waterproofing of external foundation masonry side. This is connected to horizontal level waterproofing and is no less than 10 cm over pavement altitude.

4.4.2.3 Waterproofing manner

Before waterproofing foundation works and other sub-terrenean structures, the place should be cleaned from scaffoldings, which creates obstacles in waterproofing layers.
During waterproofing of foundation horizontal sides to be followed these conditions:

a) Leveling of foundation surface;

b) Before putting polished cement layer, will be its moisturizing;

c) Mortar should be prepared by 1 part cement and 2 part cleaned and rough sand (taken in volume) and polish to be built in thickness 20 – 30 mm and leveled. In places by dense humidity to be added to cement quantity, 8 up to 10 % waterproofing solution.

Vertical sides of basement masonry will be waterproofed by bitumen (primer), bitumen-waterproofing membrane etc. Due to project forecast, in accordance to the level of sub-terrenean waters and terrene conditions.
Waterproofing will be from downside to upside. Waterproofing layer by bitumen-waterproofing membrane or bitumen (primer), should be protected due to project notes usually by brick masonry of thickness 12 cm. Outside protection masonry will be placed clay in wideness 30 – 50 cm, well pressed. Waterproofing-bitumen membrane layers are placed horizontally, considering overlapping and non-accordance of layers.

5. NOTES ON CONCRETE, FORMWORKS AND REINFORCEMENT

5.1 In situ-concrete

5.1.1 General requirements for concrete

Concrete aggregate shall consist of sharp sand or crusher dust, crusher gravel and other solutions for propping, water penetration and to enable the work in low temperatures according technical requirements of the project.

5.1.2 Materials

- Concrete elements

Concrete elements shall consist of sharp sand or crusher dust, or mixture of these, and hard durable crushed locally occurring stone. All aggregates shall be free from clay and all other impurities. The coarse part of the aggregate shall be roughly cubical in shape

and not spherical. The grading of the aggregate shall have the certificate of the place where they are taken from.

- Cement

The contractor shall supply with each consignment of cement a copy of the invoice stating the quantity delivered, the producer's name as well as the producer's certificate showing that each consignment has been tested and analyzed and conforms to the Standard. The cement shall be subject to such Standard test as the Engineer may deem necessary and he may reject any cement, which proves unsatisfactory notwithstanding the maker's certificate. For more details regarding the cement type that shall be utilized for concrete production, see 6.1.4, for the reason that for different concrete types shall be utilized different cement types.

- Water for concrete

The water that shall be used for the concrete production should be free of substances that damage it, such as: acids, alkalis, clays, lubrificants and other organic substances. In general, the water of population supplying system (potable water) is recommended for utilization in concrete production.

5.1.3 Storage of Materials

The storage of materials that shall be used in concrete production should fulfill the following conditions:

- The cement and its ingredients should be stored in order to be divided from the other materials, which are not suitable for concrete production and damage its quality.

- The cement should be stored in dried spaces which keep it away from water rain moistening.

5.1.4 Classification of concrete

- Concrete type 100, with aggregates all-in: 240-kg cement (concrete type 300); 1,05 m^3 gravel; 0,19-m^3 water.

- Concrete type 100 slump 3 – 5 cm. aggregates max. size 20 mm, clean sharp sand (2,6 mod.): 240 kg cement (concrete type 300); 0,45 m^3 sand; 0,70 m^3 aggregate; 0,19 m^3 water.

- Concrete type 150 slumps 3 – 5 cm. aggregates max. size 20 mm, clean sharp sand (2,6 mod.): 260 kg cement (concrete type 400), 0,44 m^3 sand, 0,70 m^3 aggregate, 0,18 m^3 water.

- Concrete type 200 slump 3 – 5 cm. aggregates max. size 20 mm, clean sharp sand (2,6 mod.): 300 kg cement (concrete type 400), 0,43 m^3 sand, 0,69 m^3 aggregate, 0,18 m^3 water.

- Concrete type 250 slump 3 – 5 cm. aggregates max. size 20 mm, clean sharp sand (2,6 mod.): 370 kg cement (concrete type 400), 0,43 m^3 sand, 0,69 m^3 aggregate, 0,18 m^3 water.

- Concrete type 300 slump 3 – 5 cm. aggregates max. size 20 mm, clean sharp sand (2,6 mod.): 465 kg cement (concrete type 400), 0,38 m³ sand, 0,64 m³ aggregate, 0,195 m³ water.

5.1.5 Concrete production

The concrete of a defined type should be prepared by the designer and according to the mixture recapture of materials in support of the rules given in KTZ 37 – 75 "Concrete design".

During the concrete preparation should be followed the rules given in chapter 6 "Concrete preparation" of KTZ 10/1-78, paragraphs 6.2, 6.3 and 6.4.

5.1.6 Placing of concrete

The placing of concrete produced during work shall be realised according to possibilities and conditions when it shall be placed. Generally, for this purpose shall be used fixed cranes placed in the object and truck mounted concrete pump.

Very important during the concrete layer is the duration from producing to laying, which shall be as short as possible.

Also, during the concrete laying is very important a best possibly vibration, during the process.

5.1.7 Construction joints

Construction joints shall be used without interruptions, if it is possible. In cases when this is not necessary or obligatory, then shall be taken all precautions to realise the combining of both construction joints in different periods.

The interruption of construction joints works is to be determined due to the possibilities, realising:

- Iron sheet in a width of 10 cm and thickness of 4 mm, from which 5-cm in the fresh concrete and concreted, while other 5-cm serve for the next concrete casting.

- Eaves line, which should be laid according to producer specifications.

5.1.8 Protection

Fresh concrete should be protected against these influences:

- Rainfall and humidity, covering the concreted surface with plastics and other waterproof materials.

- Frost (during the producing process, augmenting solutions against low temperatures, which enable the concrete casting till zero temperature.

- High temperatures. The concrete shall be protected against high temperatures, sprinkling it with water, in order to avoid possibly cracklings.

5.1.9 Adverse weather conditions

The concrete producing and placing is not recommended in adverse weather conditions.

The concrete producing and placing is prohibited in cases of torrential rainfall, because a large volume of water in the concrete layer removes the cement thus the concrete looses the requested concrete characteristics.

In cases of low temperatures - 4º C, it is recommended to avoid concrete casting, but if this is necessary, then precautions shall be taken that during the process of concrete producing, the mixture shall be augmented against frost in appropriate quantities,, as recommended by the producer of this mixture.

Concrete production and elaboration in high temperatures can influence negatively the chemical reaction of the cement to other concrete elements. For that reason, it shall be protected against high temperatures. Protection against high temperatures can be done in a way that fresh concrete is protected against sunshine, by covering it with plastics, sawdust, sprinkling with water. Another contribution for concrete elaboration in high temperatures is coloration in white of the water reservoir and continuously sprinkling with water.

Pipes and Conduits
Pipes and various drainage that make possible building supply (water, wastewater, electricity, etc.) if possible should not be concreted, to enable the homogeneity of the concrete parts, which are designed as scaffolding, concrete elements. In cases when, this condition cannot be fulfilled, then the constructive engineer shall be consulted.
In cases when it is needed to pass through masonry or other concrete slabs, then during the designing phase, it is necessary considering these exits and planning/accounting by the constructive engineer of their insulation.

5.1.10 Testing of concrete

When concrete is produced, it shall be tested if it fulfils the criteria in compliance with the project requirements.

After producing and placing, it shall be taken a concrete sample to make the labour testing and the results shall be delivered to the Supervisor.

5.2 Concrete elements and sub-elements

5.2.1 In – situ Lintels

Lintels for the width of the wall allowing for a seating of 25 cm both sides, of thickness according to the width of opening, appropriately reinforced, within a height of 4 m, cast in concrete type 200 with dosage per m^3, including scaffolding, formwork, propping, steel reinforcing and all requirements to complete the work in a first class manner.

5.2.2 Pre –cast Lintels

Supply and placing of pre-cast lintels, within a width of 40 cm and variable sessions, with concrete type 200, regularly reinforced and according to the instructions in the project, mixed with cement mortar 1:2, including steel reinforcement, reinforcement works and all requirements to complete the work in a workmanlike manner.

5.2.3 In –situ Beams

Concrete beams appropriately reinforced, within a length of 4 m, formed from concrete type 200 with dosage per m3, including scaffolding, formwork, propping, steel reinforcement and all requirement to complete the work in a first class manner.

5.2.4 Ring Beams

Ring beams to the full width of the wall with a height of 15 cm and 20 cm, suitably reinforced according to KTZ and STASH, realised with concrete (type 150 of 200) poured in thin layers well vibrated, including scaffolding, formwork, propping, steel reinforcing and all requirement to complete the work in a first class manner.

5.2.5 Columns

Concrete columns, suitably reinforced according to the indications of the drawings, within a height of 4 m, formed from concrete (type 200) poured in thin layers well vibrated, with dosage per m^3 as indicated in 4.2.4, including scaffolding, formwork, propping, steel reinforcing and all requirement to complete the work in a first-class manner.

5.3 Formwork and concrete finish

5.3.1 Preparation of formwork

Formworks shall be prepared of wood or steel and be ready or shall be prepared in the object.

Surfaces of formwork that are to be in contact with fresh (wet) concrete shall be treated to ensure the easy release and non-adhesion of concrete to formwork during stripping.

Before reuse, all formwork shall be reconditioned and all form surfaces that are to be in contact with the concrete shall be thoroughly cleaned without causing damage to the surface of the formwork.

5.3.2 Removal of formwork

Formwork shall not be removed before the concrete has attained sufficient strength to support its own mass and any loads that may be imposed on it.

This condition shall be assumed to require formwork to remain in place, after placing of the concrete, or the appropriate minimum period of time given in Table 4.4.1, unless the contractor can prove to the satisfaction of the Engineer that shorter periods are sufficient to fulfil this condition.

Minimum period before striking formwork using ordinary Portland cement.

Minimum period before striking Type of formwork		
Surface temperature of concrete	16°C	7°C
Vertical formwork to column,	3 days	5 days

Walls and large beams (Lateral formwork)	2 days	3 days
Soft formwork to slabs	4 days	7 days
Props to slabs	11 days	14 days
Soft formwork to beams	8 days	14 days
Props to beams	15 days	21 days

Note:

The Engineer may allow a shorter period, when using Rapid Hardening Cement.

For cold weather periods should be increased by ½ day for each day the temperature falls between 7°C and 2°C, and one day for each day on which the temperature drops below 2°C.

Formwork shall be removed carefully so that chock and damage to the concrete are avoided.

5.3.3 Surface classification of concrete elements

Classes of finishes are divided in two groups:

- Leaving the concrete surface after formwork removal in the same condition as after the concrete casting process

- Concrete surface elaboration with plastering or coating

Regarding the first group it might be considered that during the formwork placing, they should be polished and levelled and oiled with special oil for the formwork, in order that after the formwork removal, the concrete surface is polished. In addition, during the concrete laying it should be uniform vibrated. Regarding the second group, the process is similar with masonry surfaces.

5.4 Reinforcement

5.4.1 Materials

Steel works for all reinforced concrete structures and metal components, are to be produced in site, by using steel, in compliance with all the requirements and without any rust presence, in sizes and shapes according to the indications of drawings and technical legal standards for bending, joints and taking into consideration the provision of certificates from labs to verify that the steel fulfils the conditions to be used for the work including all other requirements not specified.

5.4.2 Storage

Steel storage in site shall be made in a way, to avoid its damage (shall be distorted, because this would extend the duration of the pre-stressed reinforcement) impediment of the works or of other construction materials.

5.4.3 Bending of reinforcement

a) Reinforcement shall be bent in the dimensions shown on the bending schedules.

b) Except as specified below, all bars shall be bent cold and the bending shall be done slowly and steady. Hot bending is not allowed.

c) No flame cutting of high tensile bars shall be permitted except with the approval of the Engineer. Bars already bent may not be straightened and re-used.

5.4.4 Placing and fixing

Reinforcement shall be positioned as shown on the Drawings and maintained in this position throughout concrete casting operations. It shall be secured by tying at intersections with 1,25 mm or greater diameter annealed wire or by the use of clips.

5.4.5 Cover

The term cover in this context shall mean the minimum clear thickness of concrete between the surface of the reinforcement and the face of the concrete.
The minimum cover shall be done according to the KTZ norms.

5.4.6 Splicing

Splicing or joining of reinforcing bars shall be made only as and where shown on the Drawings or as shown in the drawings approved by the Investor.

The length of the overlap in a splice shall not be less than that shown on the working Drawings.

Vertical pipe's dimensions according to the roof's space are shown as follows.

A piece of iron (with diameter smaller than 8 mm) shall be transported in round shape. For this, it should be broght in the construction site. Its bearing can be made through practical methods as for example: the fixing of one side in a certain point and extraction of the other side through different mechanisms. Also in polygons shall be realised the pre-tentioning of different elements, due to project requirements. This working process shall be executed very carefully and under observation of the head of workings.

6. NOTES ON CONSTRUCTION STRUCTURE

6.1 MASONRY AND WALL PARTITIONS

6.1.1 .Mortar for masonry in dosage per 1 m³ shall be realised of:

- Lime mortar type 15 with river sand (which porosity of 40% and water content with relevant increasing of volume by 20%) mixed in proportion of cement: lime: sand = 1: 0, 8: 8. 110 lt hydrated lime, 150 kg cement (type 300), 1.29 m^3 sand.

- Lime mortar type 25 with river sand (which porosity of 40% and water connect with relevant increasing of volume by 20%) mixed in proportion of cement: lime: sand = 1: 0,5: 5,5. 92 lt hydrated lime, 212 kg cement (type 300), 1,22 m^3 sand.

- Lime mortar type 15 with clean sharp sand (to have a porosity of 35%) mixed in proportion of cement: lime: sand = 1: 0,8: 8. 105 lt hydrated lime, 144 kg cement (type 300), 1,03 m^3 sand.

- Lime mortar type 25 with river sand (to have a porosity of 35%) mixed in proportion of cement: lime: sand = 1: 0,5:5,5. 87 lt hydrated lime, 206 kg cement (type 300), 1,01 m^3 sand.

- Lime mortar type 1:2 with clean sharp sand (to have a porosity of 35%) mixed in proportion of cement: sand = 1:2. 527 kg cement (type 400), 0,89 m^3 sand.

6.1.2 Clay brick specifications

The brick as construction element shall satisfy the following conditions for anti-seismic constructions:

- Resistance during pressing, which shall be for bricks 75 kg/cm²; for hollow bricks 80 kg/cm²; for red bricks for ceiling 150 kg/cm²

- Resistance during cutting, which shall be: for all hollows brick 20 kg/cm².

- Inter spaces percentage, which shall be: for brick 0-25 %; and for all the hollow bricks 25-45 %

- The thickness of perimeter and internal parapet for bricks shall not be lower than 20 mm and for all the hollow bricks; the thickness of perimeter parapet shall not be lower than 15 mm and of the internal meat, not lower than 9 mm.

- The surface of a hole shall be max. 4.5 cm².

- Hygrophility in percentage shall be from 15 – 20 %.

6.1.3 External brick masonry (type 25 cm)

Brick masonry of uniform or variable thickness to a height of 3m for external work, in full brick and lime mortar (type 25) with the following dosage per m^3: n. 400 bricks, 0.25 m3 lime mortar, 38 kg cement (type 400), to any thickness including material for toothing, vertical openings, edges, off-sets, scaffolding and all requirements to complete the work in a workmanlike manner. On ground floor bedding shall be laid on a layer of cement mortar (type 1:2), 2 cm thick minimum.

6.1.4 Brick masonry (12 cm)

Masonry in brick with a thickness of 12 cm and lime mortar (type 25) according to 5.1.1 with the following dosage per m³ n. 424 bricks, 0.19 m³ lime mortar, 29 kg cement (type 400) and water.

6.1.5 Rings beam masonry

General:

Materials and production of rings beam:

- Cement, water, sand and aggregates for concrete production, note point 4.1
- Hollow brick rings beams are pre-prepared or can be prepared in the site. Rings beam made by approved labs shall be supported with certificate, which shall be presented to the Supervisor.
- Rings beam placing shall be made in formwork as the requested measures well poured and pressed with the help of the vibrator.

Composition and mixture:

- Concrete beam usually composed of Portland and other fine and rough approved aggregates, with grain max. 10 mm; beams mixture that shall be used on masonry construction should be 1: 2: 4, cement quantity shall not be less than 225 kg per m^3 of the concrete.

Beams resistance should be for interspaced beams 7 N/ mm^2; for solid beams 10 N/ mm^2; for hollow beams 5 N/ mm^2.

After the rings beams are installed, they should be moistened with water for a 10 days period and it shall be used only after 30 days from manufacturing date.

The lime mortar for rings beam masonry should be composed of 1: 4 (1 part of common cement Portland and 4 pieces sand, which shall be previously cleaned. If the lime mortar is not mixed with mechanical mixers, shall be completely mixed 2 times dried and 2 times after water augmentation in a clean, waterproof platform. The lime mortar, which begins to freeze or has been mixed more than 30 minutes before, shall not be used or re-mixed.

Placing of ring beams

a) All the ring beams dimensions should be as in the Drawings indicated dimensions

b) The walls should be built suitably, no one side should be 1 meter lower than the other side, only with Supervisor approval. The works realised in differently levels shall not be accepted. In cases of cavity walls, both thicknesses should be max. approximately 400 mm.

c) Ring beams rows should be suitably levelled. The vertical eaves should be clearly realised, as well as door-, window- and edge angels should be suitably locked.

d) All the walls should be placed in conformity with the technical conditions KTZ.

e) All ring beams should be moistened before being used in the masonry. The upper row of the ring beams placed in the masonry should be moistened, before the installing

of the new masonry on it. Wall sides should be cleaned and without mortar sprinkles on it.

f) All the ring beams should be previously with lime mortar well laid before the other row laying and all the eaves should be closed and constant in the whole masonry thickness of a row.

g) In the previously plastered walls, horizontal eaves should not be filled in a depth of 15 mm.

h) The ring beam should be connected to the reinforced concrete column every 2 rows through galvanised iron rails: 3 mm thick; 10 cm should be inserted in the column and 15 cm should be extended along the row.

Rings beams masonry with dimensions 0.4 x 0.25 x 0.19 m and lime mortar m-25 according to point 6.1.1 with dosage per m³: rings beams 52 peace, 0,103 m³ mortar, 400 cement and water, including all requirements for toothing, edges, vertical openings, scaffolding and anything else necessary to complete the bedding in a workmanlike manner. Regarding the first row of the ground masonry, the socket surface should be levelled with a cement mortar layer 1:2 in a thickness of min. 2 cm.

6.1.6 External stone masonry

Stone masonry of uniform or variable thickness to a height of 3 m for external work in good quality limestone, of a suitable dimension and lime mortar (type 25), according to 5.1.1 with the following dosage per m³: 1,05 m³ stone, 0,33 m³ lime mortar, 48 kg cement (type 400) to any thickness, including material for toothing, vertical openings, edges, off-sets, scaffoldings, and all requirements to complete the work in a workmanlike manner. On ground floor bedding, shall be levelled a cement mortar layer 1:2, 2 cm thick minimum.
Every one meter height of the stone masonry, shall be realised a concrete rings beam in concrete type 100 in a height of 10 - 15 cm.

6.2 ROOFING

6.2.1 New traditional clay tile roof

The main support construction of aged pine wood roof, naturally or artificially, pressed with burned oil suitable for wood material, furnished and in site placed on woody support anchored in the tie beam, divided in quasi uniform sessions, including the fixing to connect the roof to the walls and the necessary iron of binding elements, other support elements of aged pine wood roof, naturally or artificially, pressed with burned oil (bedding works, beats or wooden floor) with upper coverage made of new or reconditioned “Marsigliese” tiles, nailed or tied including the grouting of horizontal guttering of the roof and the its gabble, using lime mortar m- 25 or galvanised wire, scaffolding and all other requirements to complete the work in a workmanlike manner.

6.2.2 Vertical and horizontal roof guttering

Horizontal roof guttering shall be realised giving a slope of 1% towards a gutters. Horizontal roof gutters are made of PVC or of galvanised sheet iron. Roof gutters in galvanised sheet with a minimum thickness of 0,8 mm, formed from pressed elements with a minimum overlap of 5 cm and suitably soldered, with the outside edge formed 2 cm lower than the internal edge, complete with appropriate accessories.

The type of roof guttering shall be in accordance to indications in the drawings and shall be fixed using galvanised wire and gutter fixings positioned at a maximum of 70-cm. In the objects with terrace can be used also concrete gutters. All the concrete gutters shall be insulated with guano in their internal edge. Where the guttering is positioned between a parapet and the roof will be of galvanised iron sheet, according to indications in the drawings.

Vertical Gutters serve for the unloading of roof and terrace waters, and in cases of bad functioning they should be dismantled and replaced with new ones.

Vertical gutters for unloading of roof and terrace waters shaped in galvanized steel by a minimum thickness of 0.6 mm and diameter of 10 cm, meanwhile vertical gutters of PVC with dimensions from 8 till 12 cm will serve a roof area from 30 up to 60 m².

Each gutter will collect the waters of roof or terrace in no greater than 60 m².

The gutters will be positioned at the external face of the building using galvanized steel pipe, covered by hot-fixed bituminous membrane 3 mm thick, placed within the sections of the wall parapet, giving a slope of 1%, towards a galvanized rain-head, in accordance to indications in the drawings.

The lower part of the gutter to a height of 2 m will be realized by PVC heavy pipes with his final part by bending at $90^{O,}$ well fixed to the wall by appropriate accessories in galvanized steel.

7. NOTES ON FINISHES WORKS

7.1 Wall finishes

7.1.1 Internal plastering in new constructions

Preparations of walls and ceilings with a first rough-cast of render, using a fluid cement mortar for improving the adherence of the render and to reinforce the surface, including scaffolding and all requirements not specified for the satisfactory completion of the work.

Plastering composed of one layer of lime mortar (type 25) 2 cm thick with the following dosage per sqm: 0,005 m³ clean sharp sand; 0.03 m³ lime mortar, (type 1:2), 6.6 kg cement (type 400), water, with the appropriate profiles and guides (mortar beam of 15 cm thickness every1 till 1,5 m) applied to walls and ceilings and trowel finished to a smooth surface, including scaffolding, and all requirements to complete the work in a first class-manner.

7.1.2 External plastering in new construction

Preparation of walls and ceilings with a first rough- cast of render, using a fluid cement mortar for improving the adherence of the render and to reinforce the surface, including scaffolding and all requirements not specified for the satisfactory completion of the work. Plastering composed of one layer of lime mortar (type 25) 2 cm thick with the following dosage per sqm: 0,005 m³ clean sharp sand; 0.03 m³ lime mortar, 7.7 kg cement (type 400), water, with the appropriate profiles and guides (mortar beam of 15 cm thickness every 1 till 1,5 m) applied to walls and ceilings and trowel finished to a smooth surface, including scaffolding, and all requirements to complete the work in a first class-manner.

7.1.3 Fine lime plaster on walls

Fine lime plaster on walls, with appropriate lime on wall surfaces previously plastered and leveled, with dosage: fine lime 3 kg per sqm. The height of lime plaster for corridors and offices is to be decided by the engineer including all other necessary requirements to consider the fine lime plastering completed in a first class manner and ready for painting with synthetic enamel.

7.1.4 Color wash painting in New Constructions

The contractor shall submit to the engineer for approval the brand and quality of the paints be proposes to use. All paints shall be products that have satisfactory field service. The mixing of different brands before or during application will not be permitted. Mixing and applications of paint shall be in accordance with the manufacturers specifications concerned and to the approval of the engineer. Ironmongery and accessories, machine surface, plates lighting fixtures and similar items in place prior to cleaning and painting, which are not intended to be painted, shall be removed or protected prior to painting operations and repositioned upon completion of painting work as directed

Cleaning solvents shell be of low toxity. Cleaning and painting shall be so programmed in a way that dust and other contaminates from the cleaning process will not fall on wet or newly painted surface. Brushes, pails, kettles etc used in carrying out the work shall be clean and free from foreign matter. They should be thoroughly cleaned before being used for different types or classes of material.

The staff hired for painting, should be experienced in this field and should follow all technical conditions of painting due to KTZ and STASH.

New constructions

Before painting process, their finishes should be all concluded (gaps filling, bolts places, edges etc).

Painting shall show easy brushing, good flowing, spreading and leveling properties by synthetic material and the preparation before painting. Paint shall dry upto a uniform smooth, flat or semi-gloss finish under ordinary conditions of illumination and wearing.

The surfaces not intended to be paint (doors, windows etc) throughout protective papers should be protected before painting process.

The pre-painting of cleaned surfaces by hollow adhesive will be done at the beginning of painting process. A mixture of 1 kg adhesive with 1-liter water is needed for the pre-painting. Then only single coat pre-painting can be done.

The norm of 1-liter mixture of adhesive and water for a surface of 2 sqm is need.

At the beginning the mixture of acrylic color with water will be done. Color liquid will be hollowed with water in 20-30 %. The pigment then will be mixed till the right color is reached. The painting is two handed. The norm of 1-liter hollow plastic color hollowed in 2.7-3 sqm is need. This norm depends on the rigidity of the painted surface.

7.1.5 Painting of the dry wall partitions

Before dry wall partitions painting process, their finishes should be all concluded (gaps filling, bolts places, corners etc).

Wall painting process by color wash painting is as point 7.1.8.

7.1.6 Enamel Painting in New Constructions

Filling and fine-coating timber or metal surfaces with appropriate filer to prepare the surface for enamel painting.Timber, metal surfaces or the walls will be painted with synthetic enamel with dosage 0.2 kg per sqm for each coat giving a perfect finish and all requirements to complete the work in workmanlike manner.

7.1.7 Painting of wood surfaces

The wood surface painting has two intentions:

- Decor intention.
- Resistance increase (of humidity, intensive light-protection, infection wood protection and the protection of poisonous fungus infection)

The materials used in painting of wood surfaces as usual should fulfill two criterias. All the colors appropriate for wood painting, equipped as well by the certificate should be used.

The works will be executed due to the architect/Supervisor's requirements, but wood surface should be paint at least twice (in same cases of even more times as per the architect/ Supervisor's requirements).

7.1.8 Wall covering with slabs of granulated stone, of marble, of stone, etc.

Regarding wall cobering with different tile material should be considered the wall type. Walls are external and internal.

It should be considered as well the wall material (rigips, concrete, masonry wall, etc.). According to the constructive wall materials and its surface, wall-tiling methods are classified into two groups:

- Slab splicing by mortar (for unleveled surfaces)
- Slab splicing by compo (for leveled surfaces)

Regarding splicing of different types of slabs by mortar, the work should follow these conditions:

The basis, in which different slabs type will be spliced, should be cleaned from dust and static.

Mortar composition is equal as described above in point 8.2.1. Mortar thickness should be no less than 15 mm. When mortar is used in external wallpapering it should be frost resistant and water-drawing coefficient in percentage should be les then 3 %. The mortar should fulfill, heating isolation and resistance criteria notice.

Slabs splicing by compo, is realized when basis surface is leveled. Compo can be used as needed in thickness of 3 mm up to 15 mm. All the above-mentioned mortar criterias are valid for compo as well.

After mortar or compo is dried, the planned gaps should be fulfilled by a special material (soil cement).

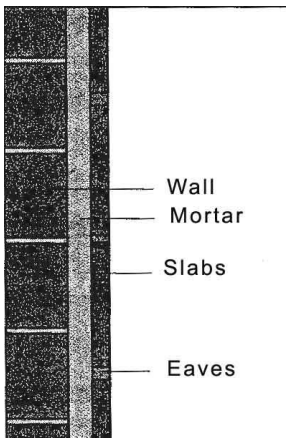
Edge gaps and wall link should be filled by an elastic solution (as silicon).

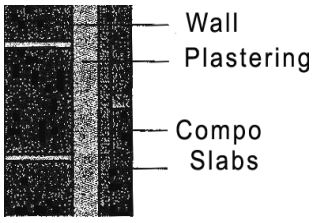
Per each surface of 30 m² papered by different slabs, it is necessary mobile gaps placing.

Work criterias in gress slabs should follow the criterias mentioned in point 8.2.4 and 8.2.5.

All the slabs should be frost resistant and be of a high resistance as well.

Slabs' covering is explained in the following drawing.





7.2 Floor finishes

7.2.1 Ceramic tile flooring

The location and extent of ceramic tile floor shall be under these conditions:

- ✓ The tiles should not be spliced at the temperatures under 5 °C or in humidity cases. There should not be used freezing materials, when the temperature is under 5 °C or the spliced tiles on frozen surface. Fabricator's instructors, regarding material requirements in high or low temperatures should be observerd.
- ✓ The construction joints tiles should be parallel to building walls. The cutting of tiles should be done near the wall, and the cutting tiles should be as big as possible.
- ✓ Layer tiles should be of bastard mortar of 2 cm thickness. After tiles are placed onto mortar layer, and after being dried up for no less then 24 hours, the gap should be filled with a special material (soil cement). After construction joints are filled between the tiles they should be cleaned from dust and construction joints material.
- ✓ Layer tolerances should meat these conditions. It is allowed a divergence of max height +/- 3 mm in a distance of 2 m.

7.2.2 Flooring in Gres Tiles

Tile classification will be done due to these criterias:

- The manner of tile shaping
- Water drawing
- Tile dimensions
- Surface qualities
- Chemical features
- Physical features
- Safety against frost
- Weight/surface load
- Sliding coefficient

The following tables describe some of these criterias.

Water taking in % of tile dimension	
Class	Water-drawing (E)
I	E < 3 %
II a	3 % < E < 6 %
II b	6 % < E < 10 %
III	E > 10 %

Loadings classes/ load		
Class	Load	Using area, i.e.
I	Very light	Bedrooms, bathrooms
II	Light	Sitting-rooms, except kitchens and halls
III	Medium	Sitting-rooms, balcony, hotels, bathrooms
IV	Heavy	Offices, halls, shops
V	Very heavy	Gastronomy, public buildings

Considering the needs and criterias to be met, tile should be chosen for each space. The above-mentioned criterias and tables might be useful for their choice.

For schools and kindergartens, the tiles should be of V Classes, by rough surface, in order to provide a safe walking without sliding.

By humidity surroundings (WC, bathrooms and showers) tiles of 1 class should be placed to provide a water-drawing coefficient <3 %.

For this reason before theb work begins, the contractor should represent to Supervisor some tile samples, with their production certificate and only after his approval it is allowed the lay them due to, the technical conditions and producer recommendations.

7.2.3 Skirting and floor junctions accessories

Vertical skirting due to the floor laying are:

- ✓ Ceramic, for the floor by ceramic tiles. They are of dark color or the same to the tiles laid on the floor, of height 8 cm and thickness 1.5 cm, spliced by mortar or compo. The mortar for skirting should be in a dosage per sqm: cleaned sand 0.005 m^3; cement 400, 4 kg and water including plastering, cleaning and any other obligation for the completion of the work in a first class manner.
- ✓ By wooden float for parquetry floor. Wooden floats are of the same material with parquet, fixing should be done carefully after placement, leveling; plastering and wood polish using special transparent color.
- ✓ With PVC float road for PVC or linoleum floor. The placing manner should be done due to the producer's recommendations and by an experienced staff

7.2.4 Waterproofing for flooring

The waterproofing is to be laid on a dry surface, previously leveled, and including the vertical surfaces, treated with a first layer by bituminous primer coat and layer composed of two membranes bitumen reinforced with mineral fibbers, each with the thickness of 3 mm, fixed by torch, with the membranes placed at right angles to each other on plane, sloping or vertical surfaces, ensuring that the cover of joints has a minimum of 10cm and also to be raised vertically in the sidely walls of min 10 cm.

7.3 Stair Finishes

7.3.1 Concrete steps in marble or local stone

For concrete steps in marble should be foreseen these works:

First the concrete steps should be well cleaned and the place should be leveled. Then the concrete steps should be painted by cement milk, which enable the splice of marble steps.

Marble tiles can be spliced by mortar or compo in cases of leveled concrete tiles. Marble steps splicing does not change from tiles splicing in wall, which is thoroughly described in point 7.1.14.

7.3.2 Skirting and other accessories

Skirting according to the type of stairs coating will be as follows:

- ✓ Ceramic tile skirting for stairs with ceramic tiles. With 8cm high and 1.5cm thick dark colour tiles or with tiles of the same colour as those of the stairs, installed with cement mortar 1:2 or with grout, including grouting, cleaning/washing and all requirements to comlete the work in a first-class manner.
- ✓ Skirting strips for the stuck timber floors will be of the same material as that of the floors. The wooden skirting strips must be polished and coated with a varnish layer, after being properly fixed.

7.4 Windows and Doors

7.4.1 General information

The window is part of the building and houses. They will provide the light for the internal surface of them. Their sizes vary; depend by architectural composition, size of the internal surface and other requirements of the Designer.

They should be 80 - 90 cm on the floor, depending of the requirement of the Designer.

The windows panels can made in wooden, aluminium,

The windows main parts are:

- ✓ the sub-frame to be fixed to the wall by mean of proper steel clamps before plastering;
- ✓ the frame to be screwed to the sub-frame after plastering and painting. Following the window design shown in Technical Drawing, the frame will be provided by hinges and lock anchors;
- ✓ opening glassed panels complete with hinges and handles fixed by mean of solid strips and transparent sylicon mastic.

7.4.2 Components

The wooden windows in seasoned Pine, treated with a coat preservative, will be composed by:

- ✓ A wooden sub-frame (width 3 cm, large as the window subframe) to be fixed to the wall by mean a proper steel before plastering
- ✓ A wooden frame (section 7 x 4 cm min.) to be screwed to the sub-frame after plastering and painting. Following the window design shown in Technical Drawing, the frame will be provided by hinges and lock anchors for sash-windows, casement-windows, garret- windows, highlight, etc
- ✓ Opening glassed panels complete with: hinges, handles, glass panels (4cm thick when transparent and 6 cm thick when wirenet reinforced), fixed by mean of solid wooden strips and transparent silicon mastic, windows-stays by chain or hook.

- ✓ Finishing with solid wooden strips all around the window perimether, internal when supplied by "pature", internal and external when lacking in "pature".

7.4.3 Windows – Installation

The installation of wooden windows in seasoned Pine will be as follows:

The wooden sub-frame will be fixed to the wall by mean of proper steel clamps before plastering. The wooden frame will be screwed to the sub-frame after plastering and painting. Hinges will provide the frame and lock anchors for sash-windows, casement-windows, garret-windows and highlight.
Opening glassed panels complete with hinges and handle will be fixed by mean of solid wooden strips and transparent silicon mastic, window-stays by chain or hook. Finishing with solid wooden strips all around the window perimether

The **installation of aluminium windows** will be in accordance with requests of Supervisor and technical description as follows:

A solid aluminium sub-frame in light galvanised metal tubular will be carefully fixed with steel clamps to the walls by means of cement mortar (no screw sockets). The fixing must preferably have a distance from the frame corners of no more than 150 mm and between them of no more than 800 mm. The fixed window frame will be screwed to the sub-frame when all plastering and painting works finished. Opening glassed panels will be hinged to the window frame and will be supplied by a three point anchored lock and handle.

Using plastoelastic materials, after having filled any gap with insulating materials, will carry out the sealing between the cases and the building context. Between the inside of the steel frame support and the outside of the aluminium fix frame it is preferable to keep an installation tolerance of 6 mm, considering a protrusion of the fixing spacers of about 2 mm.

7.4.4 Windows – Sills

The sills in white concrete, with water drip, suitable reinforced and cast "in situ". Smooth finished and dimensioned as in Technical Drawings. They will be realised in concrete (Type 200) with dosage per m3 as follows: 300 kg cement (type 400), 0,43m3 sand, 0,69 m3 aggregate and 0,18 m3 water

As above **but precast** and installed using white cement mortar type 1:2 with clean sharp sand (to have a porosity of 35 %), mixed in proportion of cement: sand =1:2, 527 kg cement (type 400), 0,89 m3 sand

The sills in marble, 3 cm thick min., with colour and long according to the request of Supervisor and Technical Drawings. Smooth finished and dimensioned as in Technical Drawings. They will install using white cement mortar type 1:2 with clean sharp sand (to have a porosity of 35 %), mixed in proportion of cement: sand =1:2, 527 kg cement (type 400), 0,89 m3 sand

The internal wooden sills in solid seasoned Pine wood, 3 cm thick with and long as in in Technical drawings, fixed to the internal wall thickness by mean of plastic plugs and screws. Sills will be painted before fixing with transparent enamel paint, will not stick out the internal wall and will have upper angle carefully sharpened.

7.4.5 Timber Windows

The supply and installation of windows, for which the dimensions will be taken by the builder, in seasoned pine, treated with a coat of wood preservative, composed by:

- ✓ a wooden sub-frame (width: 3cm large as the window sub-frame) to be fixed to the wall by mean a proper steel clamps before plastering
- ✓ a wooden frame (sections 7x4 cm minimum) to be screwed to the sub-frame after plastering and painting. Following the window design shown in Technical Drawing, the frame will be provided by hinges and lock anchors for sash-windows, casement-windows, garret-windows, highlight etc.
- ✓ opening glassed panels complete with: hinges, handles, glass panels (4 mm thick when transparent, 6 mm thick when wire net reinforced), fixed by mean of solid wooden strips and transparent silicon mastic, window-stays by chain or hook.
- ✓ Finishing with solid wooden strips all around the window perimeter, internal and external when lacking in "pature".
- ✓ Including work of bricklayer and all requirements to complete the works in perfect way

7.4.6 Doors-General Information

The doors are part of the building and houses. They will provide the communication for the internal and external surface of them. Their sizes vary, depending on the architectural composition, size of the requirements of the designer. The doors can be made in wooden, metal, aluminium, and etc.
The doors main parts are:
1. the sub-frame to be fixed to the wall by mean of proper steel clamps before plastering;(the sub-frame can be in wooden, metal or aluminum)
2. the frame to be screwed to the sub-frame after plastering and painting
3. the door can be in wooden, metal and aluminum or PVC supporting by mean of solid strips or steel and other accessories including steel clamps, hinges, lock anchors, screws, handles.

7.4.7 Doors - components

The parts of door are depending by the kind and material of doors. The parts of doors will be for each type of doors as follows:

Internal seasoned Pine wooden Door, treated with a coat of wood preservative, composed by:

- ✓ A wooden sub-frame with seasoned Pine wooden (width 3 cm), treated with a coat preservative to be fixed to the wall by mean of proper steel clamps before plastering

- ✓ A wooden frame to be screwed to the sub-frame after plastering and painting. Following the doors design shown in Technical Drawing, the frame will be provided by hinges and lock anchors for all kinds of doors.
- ✓ Opening wooden panels that are made up in wooden case (minimum size 10 x 4 cm) and horizontal and vertical parts every 40 cm. In under part of doors, the panels will be minimum 20 cm over the under part of doors. The seasoned Pine wooden panels (thickness 3cm) and treated with a coat of wood preservative should be provided by three hinges with minimal length l= 16 cm
- ✓ A metallic lockset with three copies of keys type Yale or similar, door handles and push handle

7.4.8 Doors - INSTALLATION

The installation of door should be made in accordance with technical condition of installation. The installation is depending by the kind and material of doors. The installation way of doors will be for each type of doors as follows:

Internal seasoned Pine wooden Door, treated with a coat of wood preservative, will be installed as follows:

- ✓ A wooden sub-frame with seasoned Pine wooden (width 4 cm), treated with a coat preservative to be fixed to the wall by mean of proper steel clamps before plastering
- ✓ A wooden frame to be screwed to the sub-frame after plastering and painting. Following the doors design shown in Technical Drawing, the frame will be provided by hinges and lock anchors for all kinds of doors. There will be fixed all wooden cover and safety band and lockset. The total thickness of doors will be minimum 4,5 cm.
- ✓ A metallic lockset with three copies of keys type Yale or similar, door handles and push handle

7.4.9 The doors frames

The doors frames depend on the door type and materials that used for their production. They could be metallic, wood or aluminum. For each doors types, the frames are as follows:

The internal doors by pinewood, treated with wood protective cover, placed in case by pine wood beam 7 x 5 cm and pressed board (with thickness 4 cm) dimensioned according the wall width (considering the increase by wall cover). The frames are well fixed in the wall with screws, iron cramp and covered with lime cement mortar.

7.4.10 Internal Doors

a. Internal Doors in solid wood

Supplying and fixing of doors, which dimensions will be taken by the Contractor, in seasoned Pine, treated with a coat of wood preservative, composed by:

- ✓ A sub-frame in seasoned pine wood (thickness 3 cm) treated with a coat of wood preservative, dimensioned according to the width of the wall

(increased of the various wall coating) strongly anchored to the wall by mean of steel clamps (every meter) and cement mortar

- ✓ A wooden frame to be screwed to the sub-frame after plastering and painting
- ✓ Following the door design shown in Technical Drawings, the frame will be provided by hinges and lock anchors for sash- doors, casement-doors, garret-doors, highlight, and etc
- ✓ Timber door opening made up by a solid wood frame (10 x 4 cm min. section) with horizontal and vertical members of the same section every 40 cm. In the bottom part, the lowest horizontal member will be 20 cm height. Panels of seasoned Pine (3cm thick) treated with a coat of wood preservative and inserted between the wooden members complete the door panel structure which will be provide by 3 hinges 16 cm long minimum
- ✓ A metal lock and Yale type key in 3 copies, brass door handle and push-plate.
- ✓ All works of bricklayer and all requirements to complete the work in a first class manner are included.

As mentioned above but with glass panels as described in the Technical Drawings. The glass panels could be transparent (4mm thick min) or wire-net reinforced (6mm thick min.)

As above but for air conditions spaces: In the bottom part of the door panel, a small opening, supplied by a proper grating, aluminium made, is required for the air conditioned system working.

As above but with highlight. The upper part of some of the internal doors to the corridors where indicated in Technical Drawings will have highlight openings, supplied by glass panels reinforced by wire-net.

Sample of the proposed items will be submitted to the Supervisor for a previous approval.

7.4.11 External Doors

a) External Wooden Doors

Supplying and installation of entry doors in seasoned Pine, treated with a coat of wood preservative, composed by:

- ✓ A wooden sub-frame (width 4 cm, large as the door sub-frame) to be fixed to the wall by mean of proper steel clamps before plastering.
- ✓ Opening panels with 10 x 5 cm min. timber frame, horizontal and vertical members of the same section and a bottom height 25 cm, divided into panels of seasoned wood treated with a coat of wood preservative complete with: hinges (3 min. for each opening panel), three point anchored lock, three copies of keys and brass handles.
- ✓ Finishing with solid wooden strips all around the door perimeter, work of bricklayer and all requirements to complete the works in a first class manner are included.

Sub-frame, where in sight and opening door panels will be duly transparent enamel painted before fixing. Sample of the proposed items will be submitted to the Supervisor for a previous approval.

b) External Wooden Doors with glass panels

As above but with glass panels (instead of wooden panels) where required (4 mm thick when transparent, 6 mm thick when wire-net reinforced), fixed by mean of solid wooden strips and transparent silicon mastic. Glass panels will be installed after the door enamel painting and its fixing.

In both cases the glassed panels transparent and wire a solid steel grating will protect net reinforced. Sample of the proposed items will be submitted to the Supervisor for a previous approval.

7.4.12 Doors – Locksets

Supplying and fixing of lockset type Wally or Yale, as described in the Technical Drawings, made up in steel will be in accordance with quality standards ISO 9001.

They are composed by:

- ✓ Strike
- ✓ Latch with their bolts
- ✓ Solid steel chassis
- ✓ Keys
- ✓ Handleset.

The locksets can be:

1) Tubular Locksets,
2) Tubular leversets,
3) Cylindrical locksets
4) Cylindrical leversets.

1- If the Contractor will install **Tubular locksets**, their technical data should be as follows:

- ✓ Solid steel chassis and latch case, zinc plated for corrosion
- ✓ Guaranteed for over 150 000 life cycles
- ✓ Exposed trim should be made of either wrought stainless steel or brass. 2-pieces reinforced knob as standard, esthetic 1 piece knob available upon request,
- ✓ Locksets should be keyed alike with deadbolt to improve security,
- ✓ Locksets should be master keyed in a simple combination and facility use,
- ✓ Locksets should be easy to install.
- ✓ The thickness of strike should be 1 mm and the size of strike should be 45mm x 57 mm,
- ✓ The depth of latch should be 60 - 70 mm,
- ✓ Handing should be fully reversible for left or right hand doors,
- ✓ Door thickness adjustable 35 mm to 50 mm as standards or 50 mm up to 70 mm in special cases,

- ✓ Yale type keyway is applied as standard but other keyway options are available upon request.

The tubular locksets can be used for Entrance, Privacy or Passage.

For Entrance doors will have:

- ✓ Deadlocking latch bolt
- ✓ The key or thumb-turn locks and unlocks both knobs
- ✓ Turning the inside thumb-turn counter-clockwise or the key will lock both knobs. Turning in opposite direction will unlock knobs

For Lavatory or other Privacy doors will have:

- ✓ Either knob operates latch bolt unless knobs are locked by inside thumb turn
- ✓ A coin inserted and turned in emergency slot will unlock door from outside.

For doors that do not require locking will have:

- ✓ Either knob operates latch bolt at all times
- ✓ Suitable for use on storeroom, kitchen and children bedroom

2- If the Contractor will install **Tubular leversets (They are especially convenient for children and handicapped)**, their technical data should be as follows:

- ✓ Solid steel chassis and latch case, zinc plated for corrosion
- ✓ Guaranteed for over 150 000 life cycles
- ✓ Exposed trim should be made of zinc die-casting electro-plated or solid brass,
- ✓ Locksets should be keyed alike to deadbolt to maximize security,
- ✓ Locksets should be easy to install.
- ✓ The thickness of strike should be 1 mm and the Diameter of strike should be 67mm. The distance between two strikes should be 35 – 45 mm.
- ✓ The depth of latch should be 60 - 70 mm,
- ✓ Handing should be right hand as standard,
- ✓ Door thickness adjustable 35 mm to 50 mm as standards,
- ✓ Yale type keyway is applied as standard but other keyway options are available upon request.
- ✓ Backset should be adjustable to either 60 – 70 mm.

The tubular leversets can be used for Entrance, Privacy or Passage.

For Entrance doors will have:

- ✓ Deadlocking latch bolt
- ✓ The key or thumb-turn locks and unlocks both inside and outside trims
- ✓ Turning the inside thumb-turn counter-clockwise or the key will lock both trims. Turning in opposite direction will unlock trims

For Lavatory or other Privacy doors will have:

- ✓ Inside or outside trims operates latch bolt unless both trims are locked by inside thumb turn,
- ✓ A coin or a pin inserted and turned in emergency slot will unlock door from outside.

For doors that do not require locking will have:

- ✓ Inside or outside trims operates latch bolt at all times
- ✓ Suitable for use on storeroom, kitchen and children bedroom

3- If the Contractor will install **Cylindrical locksets**, their technical data should be as follows:

- ✓ Solid steel chassis and latch case, zinc plated for corrosion resistance
- ✓ Guaranteed for over 150 000 life cycles
- ✓ Exposed trim should be made of either wrought stainless steel or brass.
- ✓ 5-pin tumbler cylinder, brass plug with three nickel-plated brass keys
- ✓ Locksets should be keyed alike in a group to enhance convenience,
- ✓ Locksets should be master keyed in a simple combination for family and facility use,
- ✓ Locksets should be easy to install.
- ✓ The thickness of strike should be 2 mm and the size of strike should be 28mm x 70 mm,
- ✓ The depth of latch should be 12,5 mm,
- ✓ Handing should be fully reversible for either right or left hand door,
- ✓ Door thickness adjustable 35 mm to 50 mm as standards or 50 mm up to 70 mm in special cases,
- ✓ Yale type keyway is applied as standard but other keyway options are available upon request.

The cylindrical locksets can be used for Entrance, Privacy, Passage or storeroom.

For Entrance doors will have:

- ✓ Deadlocking latch bolt
- ✓ Pushing button in inside knob locks outside knob.
- ✓ Inside knob always active
- ✓ Turning inside knob or key from outside will unlock latch
- ✓ Either knob operates latch bolt except when outside knob is locked from inside

For Lavatory or other Privacy doors will have:

- ✓ Either knobs operates latch bolt unless outside knob is locked by push-button inside,
- ✓ A coin inserted and turned in emergency slot will unlock door from outside.
- ✓ Inside knob always active
- ✓ Pushing inside button locks the outside knob

For doors that do not require locking will have:

- ✓ Either knobs operates latch bolt at all times

- ✓ Suitable for use on storeroom, kitchen and children bedroom

For use on storeroom, hotel and exit doors will have:

- ✓ Latch bolt operated by inside knob and key from outside
- ✓ Inside knob always active
- ✓ Outside knob is always rigid

4- If the Contractor will install **Cylindrical leversets**, their technical data should be as follows:

- ✓ Solid steel chassis and latch case, zinc plated for corrosion resistance
- ✓ Guaranteed for over 150 000 life cycles
- ✓ Exposed trim should be made of zinc die- casting lector-plated or solid brass.
- ✓ 5-pin tumbler cylinder, brass plug with three nickel-plated brass keys
- ✓ Locksets should be keyed alike to deadbolt to maximize security,
- ✓ Locksets should be easy to install.
- ✓ The thickness of strike should be 2 mm and the size of strike should be 28mm x 70 mm,
- ✓ The depth of latch should be 12,5 mm,
- ✓ Handing should be fully reversible for right or left hand door,
- ✓ Door thickness adjustable 35 mm to 50 mm as standards,
- ✓ Yale type keyway is applied as standard but other keyway options are available upon request.

The cylindrical leversets can be used for Entrance, Privacy, Passage or storeroom.

All works of installation and all requirements to complete the work in a first class manner should be included.

Sample of the automatic locksets will be submitted to the Supervisor for a previous approval before the fixing.

7.4.13 Hinges

Supplying and fixing of hinges, as described in the technical drawings, made up in steel and covering with brass layer will be in accordance with quality standards OTLAV's. The steel material should provide high resistant of hinges against mechanical shooting, elasticity, long working life (180 000 life cycle).

The hinges should be composed by:

- ✓ Matchstick made up in steel and covered with brass layer, type male with filet;
- ✓ Matchstick made up in steel and covered with brass layer, type female;
- ✓ Four steel screw. They will be used for installation of hinges in object.

The size and Form of parts should be given in Technical drawings.

Two above matchstick will be moved in their part in a way that the doors to move in a easy way at their case. The matchstick will be painted with oil to eliminate the sound during their works.

The hinges that will be used for doors should be composed by two above matchstick and four steel screw. The diameter of matchstick with filet, type male should be 14-16 mm. The length of matchstick is L1 = 60 mm and length of filet will be minimum L2=40 mm. This matchstick will be fileted with door case in accordance with technical drawings. The head form of matchstick will be in same with chess piece. Metallic matchstick, type female will be installed to other part of door by 4 metallic screw

The hinges that are installed in under part of door should be minimum 25 cm over the under part of door case.

The hinges that will be used for windows should be composed by two above matchstick and four steel screw. The diameter of matchstick with filet, type male should be 12-13 mm. The length of matchstick is L1 = 50 mm and length of filet will be minimum L2=30 mm. This matchstick will be fileted with door case in accordance with technical drawings. The head form of matchstick will be in same with circular form. Metallic matchstick, type female will be installed to other part of window by 4 metallic screw. The hinges that are installed in under part of window should be minimum 15 cm over the under part of window case.

Three hinges will be installed in three anchor points of door and window in minimum distance between them as follows:

Lmin = 50 cm for door
L'min=30 cm for window.

The quantity of hinges will be in accordance with project requirement. They will be depending by kind and size of door or windows.

All works of installation and fixing of them in the object should be perfect and in accordance with the project and Supervisor’s technical requirements.

A sample of hinge with their quality certificate, origins certificate and warranty certificate must be previously submitted to the Supervisor for initial approval before installation on the object.

7.4.14 Door handle

General

All door/window handles should be of a similar type all over the school area. In order to meet this requirement all door handles should be of such a design that can be used both in dried and humid environments.

The criteria that should be met

All door/window handles should be:

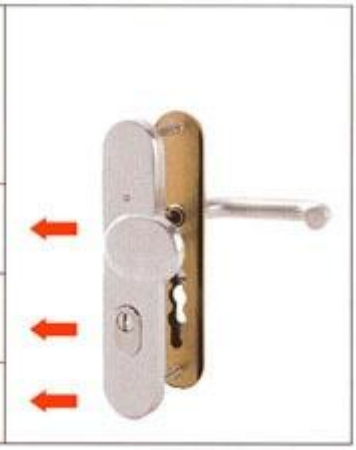
a) With a high level of usage security (longevity while being frequently used)
Handle's durability depends mainly on the materials, that they are made of and also on the way of the handle's connection with the other elements (cylinder, lock) etc.
For this reason a handle produced from a strong and resident material (for example, stainless steel) has to be chosen.

b) With guarantee period for resistance against all charges (it should guarantee durability in all mistreatment cases: hanging, hits, crashes etc)
Considering users of those handles, they should have high resistance coefficients in charges; handles should also resist a child hanging on it.

Due to the European Norms (DIN) there are two resistance levels.

The following table presents the charges for these two levels. We would suggest the level ES2.

Properties	Requirements	
	ES1	ES2
Concentric Tensile Loading	25 kN	40 kN
Tensile Loading of the Barrel	15 kN	17 kN
One Side Tensile Loading	15 kN	20 kN



c) It should not cause any physical damage during the usage.

Regarding this item it could be said that, since these handles will be fixed in doors and windows of kindergartens, elementary schools, secondary schools and high schools, and therefore will be partially used by children; these handles should be chosen appropriately in order not to cause any physical damage to the child. The handle model presented in the following figure meets all the requirements by its part from inside of the classroom, since this part frequently used, especially in emergency cases, for the door is opening from inside of the classroom to outside.

Fixing

All handles before being fixed should be checked by the engineer (supervisor) and only after his approval to be fixed.

The handle fixing should be done in such a manner in order to meet the above-mentioned criteria.

The instructions given by the handle producers must be correctly applied while handle fixing.

7.5 Ceiling Finishes

7.5.1 Drop ceillings

Specifying ceilings

Ceilings are customarily set out so that the cut panels at the perimeter are equal or greater in width than ½ full tile module. They should be cut to a good fit.

On 600mmx1200mm items and plank items the direction of installation should be indicated on the ceilings plans. It is recommended practice to install products with directional face patterns in squire modules, with the direction of the pattern alternating from tile to tile.

The grid is primarily intended to support the distributed load of 4 to 6.5 kg/m^2 from ceiling tiles or panels. This will ensure a deflection of the grid, between points of support, which is visually undetectable. On no account should point loads be placed on reduced height or lightweight cross tees and only very lightweight fittings, of 3 kg or less should be supported on the grid flanges. Main runners or cross tees which bear on a perimeter trim should be suspended within 600mm so that excessive loads are not transferred into it. However, this dimension may need to be reduced to 450 mm or less if additional loads overlays or service fittings are installed.

Installation conditions

The required stability of site conditions is only likely to be achieved if the building is weatherproff, dried out, fully glazed, and during the winter months some form of dry heating is provided. Increased ventilation should be used to reduce excess heat build up during the day caused by solar heat gain.

Controlled ventilation should be used to disperse moisture-laden air. Mechanical de-humidifiers are designed to reduce the moisture content in the air within the building. The direct burning of fossil fuels such as butane or propane gas is not recommended as these liberate approximately 2.2 liters of water for every 500 g of fuel burnt. It is better to use dry heat such as electricity or indirect hot air and to use de-humidifiers only to reduce the % RH created by moisture emitting from structure.

Maintenance and cleaning

Maintenance on suspended ceilings should only take place after the effect of such work upon the technical functions of the installation (in particular the fire and acoustic performance), has been fully considered. If in doubt, please consult the internal technical sales.

However, when maintenance is necessary, certain procedures should be followed to ensure continued high performance and attractive appearance.

Cleaning

First remove surface dust from the ceiling using a soft brush. Pencil marks, smudges etc. may be removed with an ordinary art gum eraser. An alternative method of cleaning is with a moist cloth or sponge dampened in water containing mild soap or diluted detergent. The sponge should contain as little water as possible. The ceiling must not be made wet. After washing, the soapy film should be wiped off with a cloth or sponge lightly dampened in clear water.

- ✓ Abrasive cleaners must not be used.
- ✓ Ceramaguard ceilings are unaffected by moisture and can be made damp with no adverse results.
- ✓ Parafon Hygien and ML Bio Board can be repeatedly washed and will withstand mild detergent and germicidal cleaners.
- ✓ Specialist contractors offer cleaning services using chemical solutions. Where these methods are employed, it is recommended that a trial operation is first carried out so that the result and overall effect can be assessed. It is best in this case to conduct such a test in a non-critical area of building.

7.6 Ceiling Finishes

7.6.1 The Glass moulds (glass surface)

The supply and fixing of glass surfaces are described in technical specifications that are given by Contractor. They will be made up of aluminium material with profile in accordance with European standards EN 573-3. The profile will be painted before their installation on the wall. Their colour will be according to the requirement of Investor (usually, can be used the white colour).

The fixed case of them will have the dimensions that are given in the Technical drawings. They will have the elements that will be used for the fixing and anchoring of glass surfaces on the walls. The forms of profiles are tubular. The dimensions of glass surface profile will be 25 mm biggest that main profile.

The dimensions of moving case profiles are 32 mm x 75 mm (depth is 32mm and height is
75 mm)

Both part of door (fixed and moved) should be with two aluminium profiles that will be jointed with another aluminium part by two-water insulation plastic band with width 15 mm.

A solid sub-frame will be carefully fixed with steel clamps to the walls by means of cement mortar (by me tapa me filete). The fixing must preferably have a distance from the frame corners of no more than 150 mm and between them of no more than 800 mm. The fixed doorframe will be screwed to the sub-frame when all plastering and painting works finished. Opening glass shutters shall be fixed by hinges to the glass frame and shall be furnished with handle and lock anchor. The sealing between the cases and the building context will be carried out, using elastic-plastic materials, after having filled any gap with insulating materials. Between the inside of the steel frame support and the outside of the aluminium fix frame it is preferable to keep an installation tolerance of 6 mm, considering a protrusion of the fixing spacers of about 2 mm. Dimensional tolerance and the thickness shall be according to the European standards.

Glass panels shall be fixed in the metallical frame by aluminium beat in the metallical profiles of the glass and supported by gums. All the works related to the masonry and all the requirements to complete the work should be realised in workmanlike manner.

The Glass moulds are the pieces of glass, either compact or hollow, designated to the construction and obtained by pressing in moulds, from which it takes its definitive shape, a mass of melted glass. Their application are recommended for country houses, apartments, industrial buildings, schools, hospitals etc

They can be in two kinds as follow:

1- Double glass moulds

They are formed by two independent units that are welded together during the manufacturing process, resulting in a single piece which holds inside a dehydrated air chamber at low pressure (0,3 atm). That provides them with very interesting characteristic as thermo and acoustic insulation material.

Their physical properties are:

- Acoustic insulation: *around 45 dB*
- Coefficient of thermo transmission in outside facing: *3 Kcal/h.m2*
- Coefficient of thermo transmission in inside facing: 2 *Kcal/h.m2*
- Fire resistance against fire ¼ hour
- Fire resistant against flames 2 hour

2- Single Moulds

They are the ones constituted by a single compact glass piece

- Acoustic insulation: a*round 40 dB*
- Coefficient of thermo transmission in exterior facing: 4 *Kcal/h.m2*
- Coefficient of thermo transmission in internal facing: 3 *Kcal/h.m2*
- Fire resistance against fire ¼ hour
- Fire resistant against flames: 2 hour

The thin-walls made out of glass moulds, due to its strong thickness, should provide:

- ✓ Security against assaults
- ✓ High index of acoustic attenuation
- ✓ Tightness and incombustibility
- ✓ Stability against chemical agents
- ✓ Thermo insulation

The coefficient of luminous transmission should be 0,8 – 0,9. The maximum sizes of utilization for vertical thin walls fixed in their four sides, are 5 m for double glass moulds and 3 m for the single glass moulds. Regarding the tradable glass moulds, the utilization sizes will depend on type of glass moulds, overweight in kg/m2, dimensions of the hole to be covered and number of supporting points of the plaque.

Usually, the sizes of glass moulds should be 240x240x80 mm or 240x115x80mm.

There are two different systems for the construction with glass moulds nowadays:

1- Traditional system

It is made using iron rods and concrete joints. For its assembly is necessary to observe the following rules:

- ✓ Every contact between the iron rounds and the glass pieces should be avoided.
- ✓ The panels of translucent concrete will be completely independent, never supporting the mechanical contention efforts of the rest of the work. The dilatation joints should never be placed at a distance of more than 4 m from each other.

2- Tables System

It is based in the placement piece by piece of glass moulds with intercalated PVC joints that avoid the contact between them, being the whole pattern strongly wedged within a frame of PVC, reaching a definitive tightness and firmness by the application of a special glue.

It can be applied both exterior and interior walls, permitting the construction of big panels in short time, with great easiness and cleanliness and with no need of skilled labour. The TABILUZ panels, as any other glass closing, shouldn't bear any burdens of the structures in which they are integrated. The elements integrated the tables system is made of rigid PVC in grey colour.

The installation of glass moulds should be as follows:

- ✓ Preparation of the panel perimeter in the works to the size of the panel so as to receive the PVC frame (this frame has to be perfectly adjusted within the works)
- ✓ Cut the frame according to the planned size with an angle of 45 degree, dismembering a piece of the profile wings that form one of the upper angles, in such a manner that allows the introduction of the last line of moulds. These wings should be kept in order to fix them once the building of the thin-wall is ended.
- ✓ Bind the frame on the ground fixing its four angles with metallic angle ties
- ✓ Place the frame in the hole to mark the fixing point to the work
- ✓ Drill and place the plastic stoppers that may receive the screws
- ✓ Fixing of the frame to the work (plumbed and levelled)
- ✓ Place the first line of glass moulds with its corresponding vertical profiles of joint
- ✓ Once finished the first line, the wedged might be done at the end of each line, coinciding with the column trough which the introduction of the last mould has been foreseen
- ✓ Placing of the horizontal profile of joint
- ✓ The procedure for the following lines will be the same

For placing the last line, the glass moulds might be introduced through the frames angle, which wings have been already, dismembered. Each glass mould of this line will be wedged in the upper part

- ✓ The last glass mould will be wedged in the upper part and in the vertical as well
- ✓ Fix the dismembered wings with the same sealer used for the joints
- ✓ Application of the sealer- stiffener
- ✓ For the restoration of the joints, if it is necessary, use silicon oil

8. NOTES ON GROUND WORKS

8.1 Roads

8.1.1 Subbase and base

Subbase implies the ground over which the base and the layer of the road will be poured. The base will meet the demends and conditions of the ground works as described in the item(8.3.1). The underbase will be leveled and pressed in a maximal tolerance of +/- 3 cm. The slope (gradient) will be taken into consideration while working with the subbase.

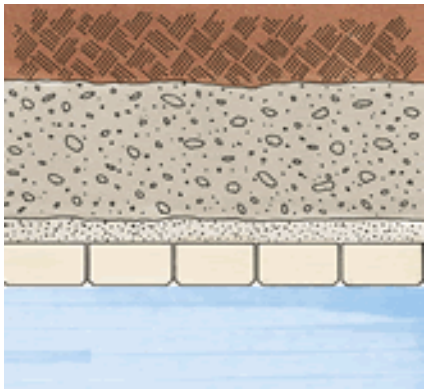
The base is the supprting layer of the road. After the excavation of the ground to a depth of approximately 30 cm (to the level of subbase) it will be filled with 0/32 mm up to 0/56 mm gravel material. This material will be placed into well pressed layers. The gradient of at least 1% will be retained even during the laying of the base.

8.1.2 Laying (flooring)

It is prefered that the flooring of passage ways within the courtyard of the school be made of stone tiles and concrete or solid concrete. This will be done in the following manner:

A maximal 5 cm thick sand layer, of a granularity of 2/5 mm to 0/4 mm to be poured on the base over which the stone or concrete tiles are to be placed. A special vibrating machine to be used afterwords to acquire a perfect leveling. Finally the space between the tiles to be filled with 0/1 mm fine sand so as the tiles be best linked with each other and reinforced /stabilise the layer of htese stone or concrete tiles.

Layers of a passageway of this type are shown in the following picture.



8.1.3 Sewage and drainage

In the case of the application of the above system of passageway (stone and concrete tiles) the needs for planning of sewage abnd drainage are minimal. The stone and concrete tiles with the system of gutters are not in nned of any sewage or drainage because the rain will infiltrate into the gutters.In case of very heavy rain the passageways will be placed at a gradient of 1%. The gradient is performed from one side to the other side if the passage.

8.1.4 Road Signs and Tables (Sign Plates)

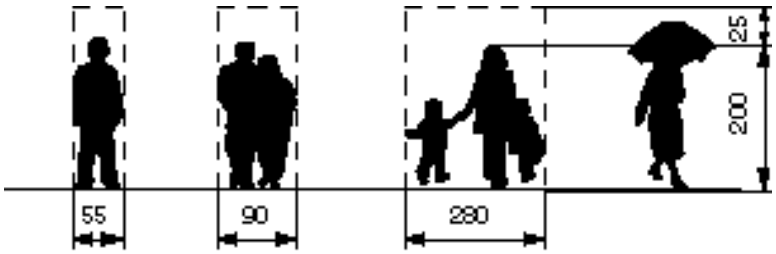
All the structures of the Road signs and necessary directional panels (Sign Plates) should be installed ina way that they be resistant against the stress caused by the wind or other stress. (i.e. against the weight of the children hanging over them)

They must be installed on metal posts placed on foundation holes with minimal dimensions of 30 x30 x40 cm and properly filled with concrete.

Signs or directional panels installed ob the metal post must be at a minimal height of 2,25 m from the surface.

Road/ Signs plates to be installed will depend upon the need and traffic regulations and the architect will have to decide accordingly.

Route dimensions in cm to be foreseen are shown in the following picture.



8.2 Parkings

General
The number of parking places must be foreseen in accordance with the existing needs of the object/project. That will be deceded by the architect/supervisor during the designing phase. The number of parking places at schools depends mainly on the number of teachers and their motorizing degree. If there is no sufficient space for parking places, they should not be projected in spaces of other infrastructure. (i.e. roads, parks, landscapes etc.).

8.2.1 Subbase and base

The subbase implies the ground over which the base and the paving (flooring) of the road will be laid. The base shall meet the requirements of ground works as described in item 8(3.1).The subbase must be leveled and pressed at a minimal tolerance of +/- 3 cm. The gradient should be taken into account while working on the subbase.

The base is the supporting base of the road. It must be processed in the following manner:

After the excavation of the ground to a depth of approximately 30 cm (to the level of subbase) it will be filled with 0/32 mm up to 0/56 mm gravel material. This material will be placed into properly pressed layers. The gradient of at least 1% will be kept even during the laying of the base.

8.2.2 Paving (flooring)

Paving of the parking sites is made of with the same material as the paving of roads (as described in point 8.1.2) of monolithe concrete or paving asphalt. The necessary technical demands as recommended by the projector/supervisor must be observed and fulfilled in cases of other applications in parking pavings.

8.2.3 Road Signs and tables

The same as in 8.1.4

8.2.4 Sidewalk paving

Sidewalk paving can be peformed in various manners. In spite of the paving manner, the base and subbase must always meet the necessary technical terms related to the presing and good material

8.2.5 Concrete bordures for sidewalks

Sidewalks, roads as well as other asphalt, cement tiles or other material, paved parts are to be protected by side supports. The supporting bordures shall be in accord with the above requirements to support the paved surface from the horizontal forces caused by the motion of vertical forces, cars, people etc.

They have the additional function on conveying the roads waters.

The bordure blocks may be installed at the same height of the paved surface or 10cm to 30 cm higher than the surface of the road as might be required.

The bordures' material is to be of cement or stone. Its selection has to be made by the architect/ supervisor together with the client, bearing in consideration that the selected material plys a special role in the surface's decoration.

Materials offered by the marked are of the following type:

- Cement bordure blocks of different dimensions. Those are pre-cast cement pieces (blocks) and should be installed according to the following table:

No.	Bordures in cm (length/thickness/height)	Weight kg/Stk	Need for 1 m
1	dimensions 100/8/20	36	1
	dimensions 1/3 of stone 33/8/ 20	12	3

2	dimensions 100/10/20	46	1
	dimensions 1/3 e gurit 33/10/ 20	15	3
3	dimensions 100/12/20	50	1
	dimensions 1/3 e gurit 33/12/20	17	3
4	dimensions 100/18/20	80	1
	dimensions 1/3 e gurit 33/18/20	26	3
5	dimensions 100/18/25	95	1
	dimensions 1/3 e gurit 33/18/25	31	3
6	dimensions 100/20/15	64	1
	dimensions 1/3 e gurit 33/20/15	21	3

Another type of stone that can be used in the same way as the above mentioned skirtings is that of „cement skirting stone“. Turnings and archs can be realized with them. Two samples of such type are shown in the following table. They can be installed in the same way as the above mentioned cement skirting blocks.

. **Stone bordure**
Format 120 x 180 mm
Hight 600 mm, 800 mm, 1000 mm 1300 mm

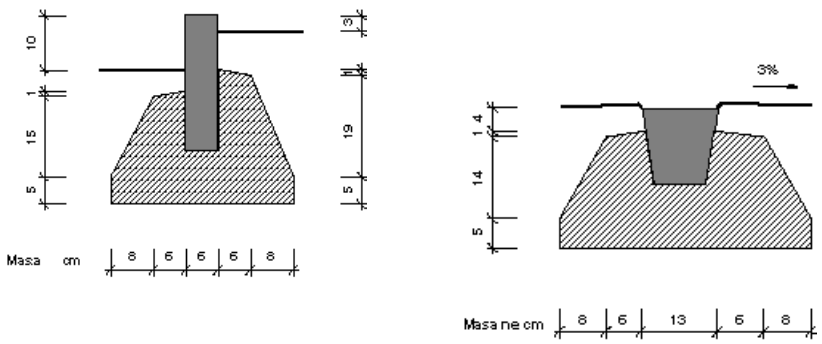
Stone bordure
Format 120 x 120 mm
Hight 400 mm

The same bordures mentioned above can be found in stone according to the granite material. They meet the same functions as the cement bordure blocks. Their dimensions depend on the market offer which is to be inquired for. Usually they have the same dimensions as those of cement.

The installation of bordure blocks is made in the following manner:

The bordure blocks are to be installed before the surface flooring. A channel is to be opened on the ground with the required dimensions. The channel shall be at least 10 cm wider than the blocks, on both sides. The blocks are laid on the half dried cement mortar poured along the channel. Needed concrete is approximatly 0,05 m³. Cement mortar is poured on both sides so as to properly fix the skirting blocks.

A bourdure blocks installtion scheme together with an example of a road with a granite stone bordure, are shown in the following picture:



8.3 Landscape (systemizing of terrain)

8.3.1 Levelling and preparation of terrain (ground)

A special expert, who will make thedrawings and give instruction for the works, has to be contacted for the landscape works. It is necessary however that we have under consideration some requiremens.

The levelling and preparation of the ground according to need form and budget. If only for decorative purpose it may be left in its existing form. Whatever the levelling of the ground it should be prepared in such a manner as to garantee the protection of the landscape. In case of lack of good soil (humus), such humnus is to be brought from another place and to be laid in a minimal 20 cm thick layer or according to the drawing.

In case of an abundant stone terrain a thicker layer of humus might be needed.

8.3.2 Planting and fertilizing

An agriculture expert should be consulted for planting and maintaining the landscape. Due space for the normal raising of planted trees and grass, in accordance with their type, should be left. While planting trees it has to be envisaged that they should not obscure or harm the view of the building during the breeding process. Special attention should be shown to the places under the shadow of the trees.

The ground grass shall be selected in accordance with its use and step on. It must satisfy the requirements of the environment.

Landscape maintenance and care is of major importance. It should be regularly watered, trimmed etc.

A landscape classification, falling under 4 categories in accordance with its use, as well as the watering and fertilizing criteria are shown in the following table.

Use/type	**Ground and maintenance requirements**			
	Place /location	Watering/trimming	Physical interference	Fertilization
exhaustion/ step-on few human step-on	Exiting land	No irrigation Trimming to 3-8 cm, 2-6 seasonal trimmings	Not needed	Not needed or light fertilization
exhaustion/ step-on medium ball games	Fertilised or existing land with sufficient features	Necessary irrigation, Trimming to 3-5 cm, Grass grow height 6cm –8cm..	Sand leveling whenever necessary	2-3 times in season. Total 15-20 g N per m2.

exhaustion/ step-on medium-strong(heavy) sporting places etc.	Natural lighting from the sun, fertilized land, drainage in accordance with the existing land infiltration .	Necessary irrigation, trimming to 4 cm grass height/grow up to 8cm.	Sand leveling whenever necessary ventilation.	3-4 times in season Total 18-25g N per m2.
exhaustion/ step on very strong(heavy) stadiums (etc).	Natural lighting from the sun. Supporting grass layer must have 40-50% pores (holes), 1.45-1.55 kg/dm^3	Necessary irrigation, trimming to 4 cm grass height/grow up to 8cm.	Verticilation occasional sand throwing, according to (need).	3-5 times in season, Total 22-32 g N per m2.

Leveling shall include the following process: the grass to be cut with a special machinery with revolving knifes, to a 1-3 cm thick layer, at short intervals of 2-3 cm. Verticulation is recommended at the start of grass grow(March/April) following the cutting of the grass. This process removes the grown grass lump and prevents water infiltration.

Ventilation: the introduction of oxygen by means to the roots of the grass.

9. NOTES ON ELECTRICAL WORKS

9.1. Particular electric specifications

9.1.1 Accessories (general)

Accessories of electric installation shall be specified in detailed manner in the following points of this section. General requirements and technical conditions of applicationneeded are given to fulfil those accessories and electric installation in general.

Electric installation in general needed to be complete (mounting and materials) as is it shown in sketches and projects, described with specifications or project Instruction.

Mounting must include supplying of electrical energy for all quoted and offered electrical equipment's, installed by others.

Supplying point of equipment must be supply to the terminate box in pack or near closing apparatus (isolating)/ opening.

Position of all points through sketch is approximate and needs to be confirmed from contractor referring to the latter sketch of the project, for all regulations of particular settings.

Specification constitutes a completion of the project sketches. In case of any discrepancy between the sketches and specifications, the person recommending (offering) must give same explanations (in writing) or interpretation from projector before giving his offer (his tender) if this explanation is not required, interpretation of the engineer in the site (work place) will be definitive. Contractor must outline (control) working place before appreciating his aim (scope).

9.1.2 Wire and cables

All wires and cables must have the relevant local authorities approval certificate and the factory test certificate.

Wires must be plain annealed copper conductors, insulated with PVC single core for drawing inside conduits and trunking.

Insulated wires and sheath need to be with colored isolating to identify phase and neuter.

All the cases when PVC cables terminate in a fuse distribution board, electrical equipment etc must be left a freely quantity cable to permit in the future stripping of reconnection wire terminals without causing their withdrawal.

Cables for every section of installation shall be socked closed through tubes and in summary inserting boxes system for that particular separate cable. Cables need to be installed using "loop" system.

Stripping of cable insulation with PVC must be done using a proper tool for stripping and not a knife.

Wires must be colored to be identified. BLACK must be used for neutral conductors; GREEN/YELLOW must be used for earth conductors and RED, BLUE and Yellow for phase conductors. The same colors must be used for connection of the same phase conductors. The same colors shall be used for connection on the same phase of supply throughout the installations.

All single core cables must be delivered in such a way to show the labels of producen, seals or other proof of origin and the contractor, must obtain certificates of routine tests against a given order, when requested by the Engineer.

The number of cables to be installed in conduits or trunking must be such as to permit easy drawing in without damaging the cables and must never be more than 40%. Installation shall comply with the Local Electricity Authority's regulations

9.1.3 Flexible cables (with some multiple core wires for every wire)

All the cables must have approval certificate from relevant local authority and fabric certificate.

PVC insulation of the cable multiple wire or with single wire easy conductor from temper conductor isolating with PVC upper final sheath must resist 600/1000V.

All the cables put within tubes shall be isolated with high conduction PVC.

Flexible cable consists of multi-striped wire and depending on what we have:

- ✓ Three wire cable, 1 neuter, 1 earth (for mono phase system)
- ✓ Four wire cable, 3 phase and 1 neuter (for three phase system, without earthing)

- ✓ Five wire cable,3 phase and 1 neuter and 1earthing(for three phase system, with earthing)

Flexible cable must have colored wire for identification. BLACK shall be used for neuter conductor, GREEN/YELLOW shall be used for earth conductor and RED/BLUE and YELLOW for phase conductors. Same colors shall be used for connections on the same phase conductors. Same colors shall be used for connections on the same phase of supply throughout the installation.

Any cable smaller than 2.5mm^2 must not be used in the installation, unless it is specifically mentioned. The earth continuity conductor must have a minimum size required by regulations.

9.1.4 Channels and accessories

Electric installation can be done in two ways:

- ✓ Under plaster inserted in flexible PVC tube
- ✓ Above plaster in PVC channels (is introduced in point 10.1.7)

Accessories of installation under plaster are:

- ✓ Flexible tube PVC different dimensions in dependence of dimension and number of wires that shall be put in it.
- ✓ Distribution boxes (introduced in point 9.1.5)
- ✓ Boxes for fixing plugs or breakers (introduced in 101.13 and 10.1.14)

All those must be set before plastering is done.

Electrical installation under plaster must be done according to the following steps:

- ✓ Opening of channels in the wall with such a dimension that flexible tube will be freely inserted and such a depth that must draw above final plaster level.
- ✓ Put flexible cable and PVC tube which will be temporary fixed with plaster (later close channels with mortar plaster)
- ✓ After plastering is done, insert wire or cable with their guide which will be entered freely and leave an adequate amount on both sides to continue the connections and mounting

Flexible tube shall be of type DL 44 Range (NF Range) for corridors and/or of the type DL 50 Range (BR PVC Range) according to the appropriate standards as following:

- ✓ Compliance with standards: CEI 23-32
- ✓ (Resistance) Firmness of isolation: 100MΩ
- ✓ IP rating IP:IP40
- ✓ Impact resistance: IK08
- ✓ Installation temperature:-5/60C

Channels and putting of PVC flexible tube shall be fixed in distance of 0.4 m suspend ceiling on horizontal runs and lowering for switches and plugs shall be made right vertical and no with angle and arc form

9.1.5 Distribution boxes

Distribution boxes, depending on the system to be used, are under plaster and above plaster so that the way of fixing them is with plaster or screw.

Materials and their technical characteristic are the same as for flexible tube described in the point 10.1.4

Dimensions of distribution boxes vary according to the circumstances and need. They are in circle form, square, rectangle and their shutter covers are with different colors

It is important that connections of wires/cables inside draw boxes shall be realize with joined clamp (point).

9.1.6 Flexible connection

Flexible connections are used usually in laboratories and consist of the electric line runs near device with ending draw box and from here into device that will be connected one flexible connection is used outside wall. For this outlet cable from the draw box must be well insulated within technical condition. Cable is to be with two insulation layers and inside flexible tube. Its connection with the device shall be made in its holder.

9.1.7 Lamps and Luminaries

The location of luminaries must be as indicated in drawing of electrical engineer. The lighting installation have be carried out using PVC insulate cables type NUM run within PVC conduit concealed inside building plaster or in canals when is system of canals is being used.

The cables must be 1.5mm2 (minimum) section to suit the circuit loaded, the needed tolerance, being made to ensure that the limit of volt drop for the final sub-circuits. In all instances a separate earth continuity conductor must be installed. No more than three lighting circuits shall be bunched in the same conduit. Luminaries shall be securely fixed on the environment ceiling, suspended or direct on surface of ceiling according to the kind of luminaries and recommendation given from manufacturer (neon together with lamps shall be supplied by the contractor)

Throughout suspended ceiling area where fluorescent luminaries are to be installed, final connections of each luminaries shall be made by means of a three core flexible cable of suitable heat resisting qualities via a plug in ceiling rose connected to the conduit box or cable trunking.

The appearance and light distribution characteristics of all luminaries must comply the detailed information given in this specification. The design and the construction of the luminaries shall be such that lamp cap are not subject to temperature in excess of the continuous running temperatures for which they are designed

9.1.8 Fluorescent Luminaries

Lamps

All fluorescent lamps must be of the hot cathode type except for the area where voltage is not provided.

For general use the lamp characteristics required are as follows, and all lamps must have outputs at least equal to those in the table. All lamps must have identical color rendering and shall be enclosed in envelopes of volumes not less than required by the table below

Characteristics

Nominal Length mm	Watt Power (Watt)	Flux of lightening after 2000 hours	Color temp	Diameter of lamp in mm
1500	58	4500	White	26
1200	36	2800	3600	26
600	18	1100	Degrees	26
300	8	420	K	26

Control gear

Control gear for fluorescent lamps must be electronic ignition inductive choke circuitry engineered to minimize losses, which shall not exceed 8 watts for a 1200 lamp length and 10 watts for a 1500 mm lamp length. The electronic ignition must be asymmetric in application avoiding any possibility of saturation choke resulting in high starting currents. The appearance and light distribution characteristics must comply with information given in the drawings. All fluorescent luminaries shall be provided with power factor correction, which must be correct overall Power factor of fitting to no less than 0.9 lagging. The harmonic content of live current within the lamp shall not exceed 17%. Lamp-holders and other auxiliaries shall be in accordance with C:E:E 12 and each fitting shall be provided with a cartridge type fuse in the gear compartment rated at not less than 5 amps.

Luminaries and other auxiliary equipment must be approved similar as follows:

- ✓ Type 884 EL Compact, FLC 2-18 D/E, glassed diffuser, electronic initation, white color
- ✓ Type 784 EL Compact, FLC 2-18 D/E, glassed diffuser, electronic initatin white color
- ✓ Type 891 Attiva 60, FLC 2-18 L, lamelar diffusion, dark 1,white color
- ✓ Type 891 Attiva 60, FLC 2-18 L, lamelar diffusion, dark1, white color
- ✓ Type 791 Attiva 60,FLC 2-18L, lamelar diffuser, dark 1, white color
- ✓ Type 874 EL Comfort 60,FL4-18, lamelar diffuser, dark 1, white color
- ✓ Type 814 Comfort, FL 2-36,prismatic diffuser, white color

- ✓ Type 971 EL Hydro, FL 1-36 or FL 2-36,fabricated in resistant polycarbonate, prismatic transparent diffuser, grey color
- ✓ Type 1544 Globo, FlC 2-13D, polycarbonate diffuser, white colour.

They must be fabricated from zinc-coated plate or similarly protected steel sheets and must be formed and braced to form a rigid unit. The paint finish must be of high quality to prevent the formation of rust particularly during the period of construction of building.

Any drilling of the metalwork of the luminaries must be followed immediately by treating the raw edges with zinchromate and finished with white synthetic enamel.

Unless otherwise detailed, they must be fixed directly to conduit boxes or lighting trunking and care must be taken to ensure that these are adequately secured to accept the weight of the luminaries.

Luminaries may not be erected until the building is enclosed and waterproof. Damage to luminaries and in particular to their paint finish resulting from premature erection. In such occasions supervisor may require their removal and replacement without any cost to the employer. Control gear and other auxiliary equipment shall be accommodated within each unit so as to permit the dissipation of heat to ensure that the components may operate within their temperature limits.

Each luminary must be provided with a fixed connector block clearly marked for phase, neutral and earth, sized 2.5 mm2 cables in each connector. A suitably rated cartridge fuse shall be provided in the phase line of each luminary to which easy access shall be provided.

9.1.9 Halide Lamps

All lamps must be suitable for 220 volts operation and be complete with control gear. The characteristics of metal halide lamps shall be such that they will start with a 10% reduction in rated voltage.

Luminaries and other auxiliary equipment must be manufactured according to the European standards, or approved similar as follow:

Type 1131 Punto, JM-IS glass diffuser, IP55, beige color.

9.1.10 Emergency Lighting and Exit Signs

The emergency lighting package should be mounted at those places, where it is foreseen by electrical projector engineer.

The emergency package should comprise of battery pack complete with a battery charger capable of supplying power for 1 hour and 18 watts light tube.

The emergency luminaries must follow the below technical requirements:

- ✓ Type 884 EM, compact, FLC 2-182, electric initation ,glassed diffuser, white color

- ✓ Type 891 EM 60 active grade, dark 1,FLC 2-182,lamellar diffuser, white color, electric initation.
- ✓ Type 874 EM 60 comfort grade, dark 1,FLC 4-182, lamellar diffuser, electric initation, white color
- ✓ Type 2660 EM,evoluzione,FL3-36,lamellar diffuser,dark1,white color.

The location and extent of the exit devises must be as indicated in the project.

Escape or exit lightening should be of the relevant BS standard complete with battery pack,18 wats,1 hours duration.

Cover package must be green color and with respective signs:

- ✓ A man running
- ✓ Arrow that indicates removal direction.
- ✓ Word exit written in white color.

9.1.11 Light switches

The location of light switches indicated according to the project done by the electrical project engineer. Generally, light switches throughout the building must be suitable for flush mounting (under plaster). Flush switch within the building must be as follow:

Play bus range GW 30 011, IP-16, color by architect. The switches must be of the "quick-make slow break" type designed to control AC circuits. They must be rated at a minimum of 10 amps.

Switches must be of the "broad rocker" type gauge to give multiple switch units, until the specifications are produced. Switches must be mounted in an electric network to provide required spreading, when boxes with metallic cable shall be fit flatly on the wall plaster. Switches can be of such a form to be mounted on the layer of plaster. Those kinds of switches are frequently usable in these cases when trunking electrical distribution system is used.

It is also recommended to use it in wood and metal rooms, in transformer rooms of generator.

Switches, according to the position where they are being used and the on-off way of switch are divided:

- ✓ One pole switches
- ✓ Two poles switches
- ✓ Deviat switches
- ✓ Switches with signal lamp and time switch

One pole switches must be used usually in a small area where the number of luminaries is small (1 or 2)

Two poles switches must be used usually in those area where the number of switches is big and can be switch on -off in partial way for example in classes. Where are two rows

with luminaries, they can be switch on in alternative way only one raw or both at the same time.

Deviation switches are used in those area where there are two in/out. After they switch on in one in/out coming side and they can be switched off the other in/out coming, or may be used in corridors

Switches with signal lamp and time switches are used in staircases, or corridors.

9.1.12 Socket outlets and plugs

A complete system of socket outlet units must be provided in the position indicated on the drawings done by the electrical project engineer.

All sockets to be mounted in schools/kindergarten shall be of the earthed type and be protected for children.

Sockets like switches can be the type mounted under or on the plaster.

Sockets are devided according to their functions:

- ✓ Voltage socket one, two or three phase
- ✓ Phone socket and LAN system
- ✓ TV sockets

One phase voltage sockets have one pin per phase. One for neutral and one for earth or earth contact.

All sockets unless otherwise specified, must be of 16 amps 2 pin and be out of surface. They must be flush mounted and have a color to match the plates for lighting switches.

All sockets must be of similar type and specified as follows:

- ✓ Playbus Range, with safety shutters 250 v, 2P 16A
- ✓ Playbus Range, with safety shutters 250 v, 2P 16A

Other electrical accessories such as push-buttons, flush mounting box etc must be according to the European standards.

9.1.13 Earthing system

All apparatus or their parts not solidly connected to the earth continuity system must be connected to a single earthing point system in an approved manner by solid conductors secured by means of substantial bonding clamps. Where any piece of equipment is connected to water, gas or fuel line, the apparatus shall be bonded to the line using 20mm x 1.5mm tinned copper type or equivalent PVC insulated earth cable.

Throughout all conduits and trunking installations a separate protective conductor shall be installed, connected to an earth terminal in each conduit box, and installed within each length of flexible conduit.

Nevertheless the provision of a separate protection conductor, the continuity of the conduit and trunking installation shall be the same standard as though they were the sole protective conductors.

Earth electrodes shall be profile L of galvanized steel 50X 50X5(or galvanized earth electrodes), which must be put at least 2 m deep in the ground. The number of earth electrodes depends on the sort of the site and on Re (earth resistance), which shall be smaller than 4Ω. For this after terminating and fixing electrodes measurements with Re apparatus shall be made and a report shall be held, which shall be introduced to supervisor. In case that Re is more than 4Ω, then the number of electrodes shall be increased to get the required one.

Electrodes shall be placed in rectangle, square and triangle form according to their number but always in a length of 1.50 m from each other. Electrodes shall be connected with each other by means of zinc bond 40x4mm, by means of welding or screw and nut. Connection point of electrodes shall be made with final connection against the rust.

From the final point shall be come out with a continuity zinc bond 40mmx4mm and entered in the transformer room and the potential busbar and from there in all equipment's of the transformer room laying a earthing cable with the diameter min.25 mm^2.

From the main Tu distribution panel the earthing shall be spread together with cable and/trunking of neutral and phase, in all off voltage and shall be of dimension min $2.5mm^2$.

Metallic parts of installation and other pieces connected with installation shall be eathed in dependent manner from distribution neuter and neuter of the distribution transformer. Continuity of earthing conductor shall be installed in all circuits and to stick in metallic part of fixed luminaries, with clutches of earthing all the sockets and metallic parts of the wall.

All metallic parts of equipment and motors shall be connected with earth system.

9.2 Power Distribution

9.2.1 Low voltage distribution

The network projected from by the electrical Engineer and shall comply with all the conditions with the local electricity authorities regulations.

Low voltage distribution starts from the transformer side of low voltage to every socket, switch and luminar. Distribution of low voltage shall be made with trunking or cables, which are described in the point 9.1.2.

An instance of the main panel of the low voltage may be of the type as specified below:

- ✓ Mounting on the surface(manufactured in the fabric from sheets)
- ✓ Fabric manufactured with steel sheets baked in the oven

- ✓ Frontal control with MCB SACE ISOMAX;S3N-250
- ✓ Ampermeter 0-250/s and kwh gauge
- ✓ Dimensions :600x400x1800mm

9.2.2 Distributions panel on floors

Distributions panels on floors are distribution points of low voltage, which except distribution of the voltage for floor make possible selection of the protection.

Those panels are the type that shall be mounted under or above the plaster.

Panels depending on the load may be up to 12 elements for one floor and more than elements for 2 floors, and so on.

Because those panels are installed in public area (schools/kindergartens), they shall be locked up for security.

Important elements of these panels are:

- ✓ Main disconnecter automation 3 phase magneto-thermo with differential protection, amperes depending on the load;
- ✓ Signals of the phases(3 pieces)
- ✓ Magneto-thermo one phase automation's of the power (sockets), their amperes depending on the sockets that shall be supplied,
- ✓ Magneto-thermo automations of the luminaries their amperes depending on the luminaries shall be supplied,

It is recommended that system of luminaries to be separateed from the power system.

A plaster-mounted panel with transparent cover shall have the following specifications:

Min.installing temperatures	-25 °C
Max. installing temperatures	60 °C
IK Code	07
Test of wire warming	750 °C

9 .2.3 Fuses (automations)

Fuses (automation) are separators of the circuit, which operate in automatic manner in the case of overload and open circuit shortcut. For this the selection of amperes of automation shall consider the protection load.

Automations used in public area are magneto-thermos and with differential protection.

Automations are protective units from overload. They are to be put in the boxes of the automation

Type,SD,class,AS,(selective) **Differential circuit breaker 2P-4P**

Technical specification				
		• Nominal tension:		230 - 400 V
		• Frequence:		50 - 60 Hz
		• Isolating tension:		500 V

switches, in the panels of the floors and in the main panel of the low voltage.

According to the number of the phase they protect one phase and three phase automations.

According to the amperes they are divided :6A:10A; 20A;25A;32A

According to the number of the poles automations divided: one pole, two poles three poles and four poles.

TypeMTC45,4500C **Tension,magneto-thermic,compact,separaoer** **1P - 1P+N - 2P - 3P - 4P** Technical specification				
		• Breaking capacity:		4,5 kA
		• On – of characteristics:		C
		• Nominal Tension:		230 - 400 V
		• Frequence:		50 - 60 Hz
		• Isolating tension:		500 V

9.2.4 Telephonic system

Telephonic network system and data communication.

The contractor shall install the telephonic network system with wires and draw boxes in a way to create telephonic communication by wires from source of line to the central apparatus in all building. Wires shall be installed generally in high level of free space of the ceiling. A particular separation with wires shall be used to keep telephonic system completely separate from other servings. Every wire with three separate parts, mounted in boxes on the wall with telephonic sockets shall be minimum 20mm diameter in all building. No more than 5 exits shall be permitted to be connected in one wire. For every telephonic exit indicated in drawings, the contractor shall provide a socket connected telephonic type with outlet to keep their power.

The Contractor shall be consulted with the receptive authority before the system installation about their requirements to be accepted by the project Engineer.

In terms of the work zone of line exit, eight-positions modeling with nest shall be set, for outlets of three particular categories, in 5UTP cable. Two pairs of four cables shall be used to cover 2 data application and a pair of four cables shall be separated to keep two

telephonic lines.(two pair of cables four every outlet). To identify each of four telephonic cables (2 numbers and 2 phones), colors of the nets shall be red four two numbers that shall be applied of data , and black for 2 telephone lines.

Recommended for the installation of the Horizontal network shall be (3) four pairs 100 Ω in twisted form and not isolated (UTP) 24 AWG, category 5 for every phone combined and socket of data communication. The site installation of station shall be indicated in drawings of the electrical engineer. The Contractor shall leave a considerable piece of cable at the exit to carry out easier mountings (at least one meter in the side of work station and three meters in the site of NCR) until complete installation to the cables.

Boxes of sub-distributions.

Boxes of sub-distributions in 6 groups, shall be mounted and shall be of the type DL 50 Range,DL50303,52mm depth, including socket.

Telephone and dates of the sockets.

Telephone and dates of the sockets shall be type Playbus Range,RJ45 category 5, GW30267, white color.

9.3 LAN System(Local Area Network)

9.3.1 Network Distribution

Since Information Technology is a subject taught in High Schools as part of the Education Curriculum there is a need for a laboratory that has a LAN network suitable for a school area.

LAN network consists of a server (with Windows2000(win NT) hub, for a fixed number of computers, depending on the class and hub. All the computers shall be supplied with standard network card and cable with connector RJ 45. Computers will have a network access determined from a central computer (server). Additional necessary devices are network printers' and network scanners, that offer additional opportunities to pupils.

9.3.2 Sockets

The terminal sockets are part of the network distribution. They can consist of one or two parts. Sockets of the LAN network are to be set at the same high as the voltage sockets recommended at a hight of 0.9 m. They may be of the type below plaster or over it (to be included in the channel system).

Sockets of the network LAN are the same with the telephonic system of the type Playbus Range,RJ45 category 5,GW30267,white color, (or similar with the color of the voltage and phone sockets)

10. NOTES ON HYDRAULIC AND SANITATION INSTALLATION

10.1.1 Pipes and other element

A system of gutters and pipes is necessary for the drainage of the building elements. The drainage system components shall be water resistant and other extreme natural conditions resistant material. The pipes shall be hermetical and capable of enduring without any damage a pressure of at least 0.5 bars. The welding of pipes shall be perfectly executed under the supervision of the architect (designer).

The metal-sheet drainage pipes shall be allowed only for outside the building. If indoor installation is necessary then plastic tubes or some other material shall be used.
The gutters as system's elements may me be of various material but they shall be of the same material with the pipes linked with. The later shall be of U form, rectangular form or some other form.

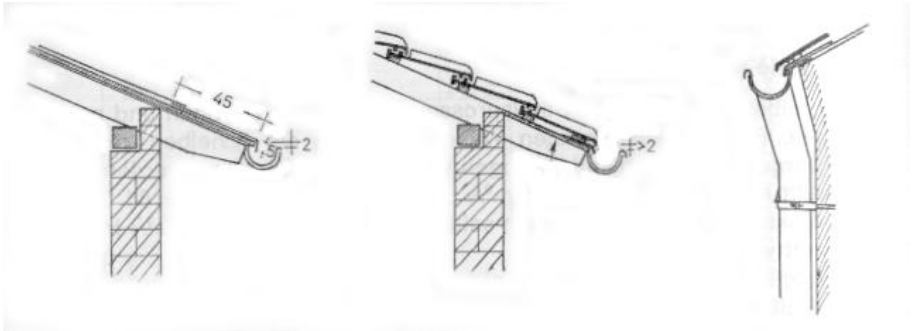
10.1.2 Roofs drainage

The roofs drainage shall be in accordance with the norms/standards. Generally, the water drains towards the lower point of the roof slope. If the roof has a terrace form it shall be drained according to need and to the geometrical form. Inside (the building) drainage pipes installation For this purpose it is not excluded.

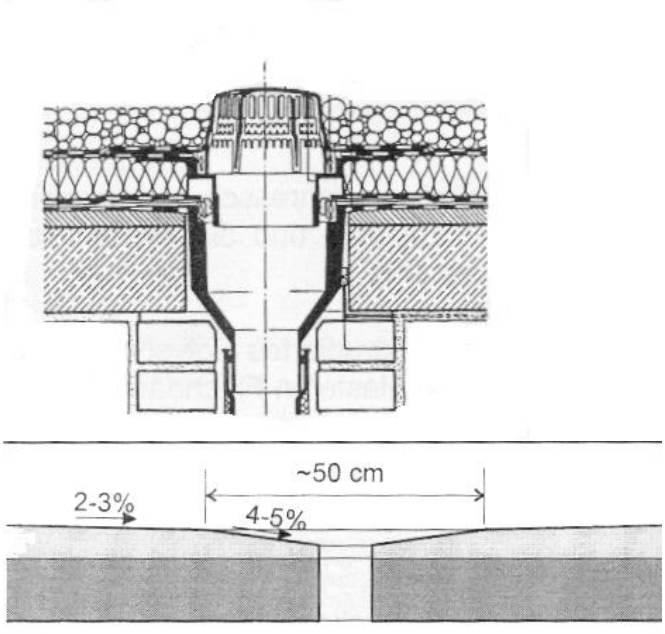
The roofs shall be equipped with gutters, which collect the water and send it to the vertical pipes for discharge. The gutters shall have a slope gradient of 1 – 2 % up to the connection point with the vertical pipes.

In cases of terrace-like roofing it shall have a slope gradient of 1 – 2 % up to the point of the vertical pipes in order to withdraw the rainwater.

Some rainwater draining gutters and pipes installation models are presented in the following picture.



The vertical pipe installation manner in the case of a terrace like cover as well as the gradient (near it) is presented in the following picture.



Vertical pipe's dimensions according to the roof's space are shown in the following table.

Roof space [m²)	85	240	350	435	710	1275	1460
Pipe's diameter [mm]	70	100	115	125	150	185	200

10.1.3 Pits

For the gathering of rainwaters, vertical pipe's dimensions according to the roof's space are shown in the abve table.

In some cases the rainwater is gathered in the same pit with wastewater.

The pits construction for the rainwater, it's the same as the waste water pits. This is described in the Chapter of Waste Water System 10.3.6.

The dimensions of these pits depends on their placing in object and chance by the minimal 50x50x50 cm till 100x100x100 cm.

The covers of these pits are by cast iron pit material and have splitting with width 2-3 cm in order to impede the trash and also to enable the water drainage.

10.1.4 Water Closet (WC) set and flash box

In the Toilet rooms and the washing areas Water Closet (WC) sets should be foreseen. The WC sets are porcelain sanitary toilets made of in Porcelain materials in accordance with international quality standards ISO 9001, as described in the Technical Drawings from designer. The Type of WC set can be Oriental (Turkish) Type or Modern (French) type. Oriental Type will be installed directly on the floor with cement mortar. They will be putt in accordance with the Supervisor's requirements.

The WC sets, Modern (French) Type will be strongly fixed on the floor or to the wall by brass clamps and screw plugs and screws, without creating gaps in the wall tiling. WC set will be connected with water discharge pipes before the installation on the wall by brass clamps. The outlet of the WC set can be under the body of the set or on the backside of the WC set. The WC set with side outlet should be 19 cm high from floor level.

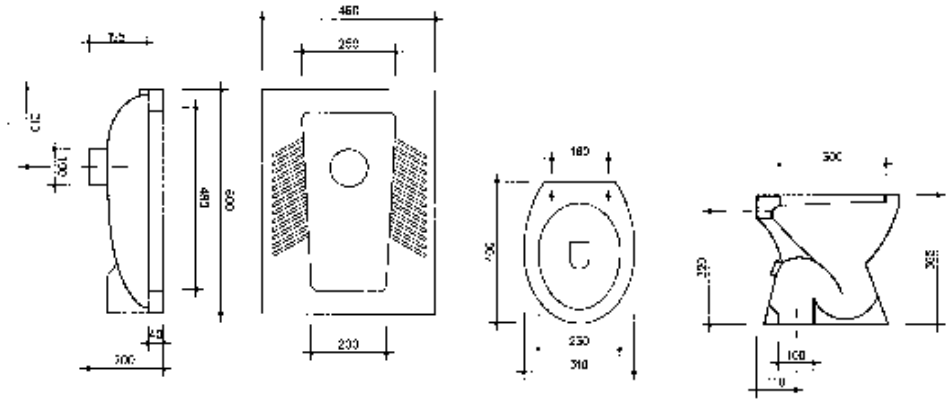
In the lowest part of the collector basin will be a hole with minimal diameter of D= 90 mm. The upper part of WC set can be oval or circular in accordance with the project requirements and WC set type. The height of WC set, Modern type, is 38-40 cm. They will be installed in accordance with the project and Supervisor's requirement. Horizontal Distance between WC Sets and other sanitation equipment (Wash basin, bidet, etc) should be minimum 30 cm.

WC sets should provide a fast and big water flow. They should be resistant against mechanical shutting, corrosion and chemical agents. They should provide water insulation, good condition during the work and easy access for the repair.

The WC set should be connected with sewerage pipes (The connection will be realized with a siphon type tube). The connection pipes of WC sets should be PVC pipes (of the same technical characteristic with other sewerage pipes). Their Diameters should match the outlet of the WC set (Usually their diameter is 100-110 mm).

The WC set will be connected with drinking water system. The connection will be realized to a flash box that can be installed directly on the WC set or on the wall (separately from the WC set). This depends on the type of WC set. The flash box will be installed in the height of 1,5 m high from floor level. The flash box made of metal; plastic or porcelain materials will be in accordance the project and quality standards ISO with requirements. The sewerage pipe will be fixed on the wall every 50 cm.

All the supervisor technical requirements to complete the work in a first class should be included. The connection of the WC set with the sewerage pipes should be done by special materials for PVC pipes in accordance with the recommendation of the pipe manufacturer. Sample of the WC set together with quality certificate, certificate of origin, test certificate and warranty certificate will be submitted to the supervisor for the initial approval before WC installation at the site. The WC set technical data (including WC type, working pressure, name of the manufacturer, standards and year of production) should be given in the catalogue. The supervisor can conduct on additional test for the mechanical and physical data.



10.1.5 Wash Basin sets

In the Toilet rooms and washing areas Wash Basin sets should be foreseen. The Wash Basin sets are sanitary equipment for washing hands, face, etc. Wash Basin set can be made of metallic materials, Porcelain materials or in site. Material type for Wash Basin set will be in accordance with the international quality standards ISO 9001, as described in the Technical Drawings from designer.

The Washbasin sets should provide a fast and big water flow. They should be resistant against mechanical shutting, corrosion and chemical agents. They should provide water insulation, sound insulation, and good condition during the work and easy access for the repair.

The Wash Basin and their support will be strongly fixed to the wall by brass clamps and screw plugs and screws, without any gaps of the wall tiling. Washbasin set will be connected with water discharge pipes before the installation to the wall by brass clamps. The outlet of the WC set can placed be under the body of the set or in the backside of the WC set. The WC set with side outlet should be 19 cm high from floor level.

In the lowest part of the collector basin will be a metallic hole with minimal diameter of D= 40 mm. The size of collector basin is 40/60 cm x 36/ 45 cm (depending the type and model). The collector basin can be oval or circular in accordance with the project and type requirements. The height of the Washbasin set is 75 - 85 cm. They will be installed in accordance with the project and Supervisor's requirements. Horizontal distance between the Wash Basin Set and other sanitation equipment (Water Closet, bidet) should be minimum 30 cm.

Wash basin in site, according to the indications in the drawings and of the Supervisor of works formed from**:**

- ✓ N. 2 brick supporting walls in full brick and lime mortar with the following dosage per m3 according to the technical conditions of mortar preparation (n. 434 bricks, 0,17 kg of mortar, 27 kg of cement and necessary water).
- ✓ Base lightly reinforced slab, realized in concrete (type 200) with dosage per m3 as technical conditions including formwork, propping.
- ✓ Supply and installation of mixer set for basin with plug and chain, taps and spout, siphon tube, etc.

- ✓ Tiling of vertical and flat surfaces in the ceramic tile of first quality.

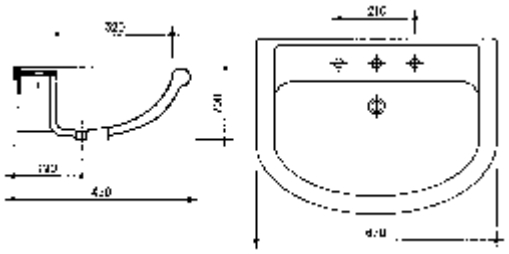
The Washbasin set should be connected with sewerage pipes (The connection will be realized with a siphon type tube). The above connection will be made by fittings, type Tee, with 45 degree or 60 degree. The connection pipes of Washbasin sets should be PVC pipes (in same technical characteristic with other sewerage pipes). Their length should be 20 - 40 cm and their Diameters should match the outlet of the Washbasin set.

The Washbasin set will be connected with drinking water system. The connection will be realized with two flexible pipes with the length of 30 - 50 cm and diameter OD= 1/2 ". The pipes will realize connection of valves with pipes of hot and cold water system.

The Water Stop will be installed in the place of connection of valves with the washbasin set, because the water leakage should be stopped during the working time.

All the supervisor technical requirements to complete the work in a first class should be included. The connection of the Washbasin set with the sewerage pipes should be with special materials for PVC pipes in accordance with the pipe manufacturers recommendations.

Sample of the Wash basin set together with the quality certificate, certificate of origin, test certificate and warranty certificate will be submitted to the supervisor for the initial approval before the fixing at the site. The technical data of the Washbasin set (including the Wash basin type, working pressure, name of the manufacture, standards and year of production) should be given in the catalogue. The supervisor can conduct on additional test for their mechanical and physical data.



10.1.6 Sink sets

In the kitchens and cooking rooms sink sets should be foreseen. The sink sets are sanitary equipment for plates, knifes, spoons washing of and discharge of dirty water. Sink sets can be made up in metallic, plastic or porcelain materials. The material type for sink set will be in accordance with international quality standards ISO 9001, as described in the Technical Drawings from designer.

The Sink sets should provide the fast and big flow of the water. They should be resistant against mechanical shutting, corrosion and chemical agents. They should provide water insulation, sound insulation, and good condition during the work and easy access for the repair.

The sink sets and their support will be strongly fixed to the wall or suitable support that are constructed for them. Their fixing will be made to the wall by brass clamps and

screw plugs and screws, without any gaps in the wall tiling. After their fixing to the wall, will be made the installation of the stopcocks and the connection of sink set with discharge pipes. The sink set will be connected with water discharge pipes before the installation to the wall by brass clamps. The outlet of the sink set will be under the body of the set. In the lowest part of the collector basin a metallic drain with the minimum diameter of D= 40 mm will be installed.

The sink set will have one or two collector basins with the dimension of 45x 36 cm per each. The dimension of sink set is 100/150 cm x 50 cm (depends on the type and model of the sink set). The width of the sink set is 50 cm.

There is a special part in the sink set that can be used for putting plates after washing.

There can be used two water discharge plate types (**rhd** or **lhd)**.

The sink set should be connected with sewerage pipes by drain (The connection will be realised with a siphon type tube and metallic drain). Fittings, type Tee with 45 or 60 degree, will provide the above connection. The connection pipes of sink sets should be PVC pipes (in same technical characteristic with other sewerage pipes). Their length will be 20 - 40 cm and diameters should match the outlet of the sink set (the diameter of the metallic drain).

The sink set will be connected with drinking water system. The connection will be realized with two flexible pipes with a length of 30 - 50 cm and diameter of OD= 1/2 ". The pipes will realize connection of stopcock with pipes of hot and cold water system. The water Stop will be installed in the place of connection of stopcock with the sink set, because the water leakage should be stopped during the working time.

All the supervisor technical requirements to complete the work in a first class should be included. The connection of the Sink set with the sewerage pipes should be done with special materials for PVC pipes in accordance with the pipe manufacturer's recommendations.

Sample of the sink set together with the quality certificate, certificate of origin, test certificate and warranty certificate will be submitted to the supervisor for the initial approval before the fixing at the site. The technical data of the sink set should be given in the catalogue. The supervisor can make on additional test for their mechanical and physical data.

TRAFFIC SIGNS

Supply and installation of traffic signs shall be done according to the rules for traffic signalization and according to the basic law for traffic safety.

Traffic signs shall be elastic coated and reflecting, with foil or colour or made of aluminium alloy and shall be fastened to columns with clamps and two screws. Screws shall be assured from unscrewing.

11. NOTES ON COMMUNICATIONS AND REPORTING

11.1 Communication system on site

The best way of communication at the site will be with handset radios. The site supervisor will define which will be the best way of communication on the site.

11.2 Reporting

11.2.1 Weekly Reporting

The Contractor shall prepare weekly reports for the site meetings to be handed over to the Project Manager together with the final report. The weekly reports shall furthermore include a plan for the coming week's activities and an updated time schedule.

The bi-weekly reports shall be submitted to the Project Manager every second Monday before 12.00am.

11.2.2 Final Report

The Contractor shall provide a final report fully describing the completed work. The final report shall fully substantiate the handover of the Site and the official completion of the contracted works.

The final report should contain the following sections describing:

- ✓ Preparatory works on the site including the construction of temporary roads, offices, storage etc;
- ✓ Site survey of terrain, including marking of major points on the site and fixing of level boards etc.
- ✓ c. Detailed description of works for Construction of Kukes Regional Tourist Information Center (TIC) as per BOQ.

Project: **“**Construction of Kukes regional Tourist Information Center (TIC)

Drawings

www.undp.org.al/download/TIC KUKES.zip

Annex VI

BID/PROPOSAL SUBMISSION FORM

To: The procuring entity

Dear Sir / Madam,

Having examined the Bidding Documents, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and deliver [*description of goods]* in conformity with the said bidding documents for the sum of [*total bid amount in words and figures]* as may be ascertained in accordance with the Price Schedule attached herewith and made part of this Bid.

We undertake, if our Bid is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements.

We agree to abide by this Bid for a period of [number] days from the date fixed for opening of Bids in the Invitation to Bid, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

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

Dated this . . . . .day of . . . . .[*year*].

. . . .	. . . .
Signature	[*in the capacity of*]

Duly authorized to sign the Bid for and on behalf of . . . .

Annex VII

BILL OF QUANTITIES

Object: REGIONAL TOURIST INFORMATION CENTER IN KUKES (QENDRA RAJONALE E INFORMACIONIT PER TURISTET NE KUKES)

Nr	Emertimi	Njesi	Sasia	Cmimi	Vlera leke
No	*Description*	*Unit*	*Q-ty*	*Unit Price*	*Cost, leke*
A.	**PUNIME NDERTIMORE**				
A	***CIVIL WORKS***				
A.1.	**Punime dheu**				
	Earth works				
A.1.1	Germim dheu themel dhe mbushje	m3	88		
	Soil exavation for foundation h-2.5 hand excavation				
A.1.2	Transport dheu	m3	50		
	Soil transportation by vehicle				
	Subtotal A1:				
A.2	**Punime betoni dhe b/a**				
	Concrete and Reinforced concrete works				
A.2.1	Nenshtrese zhavorri per plinta, 10 cm	m3	4		
	Gravel stratum under the plinths, 10 cm				
A.2.2	Shtrese betoni M.100 poshte plintave, 10 cm	m3	4		
	Concrete stratum M.100 under the plinths, 10 cm				
A.2.3	Plinta b/a M.200	m3	13.5		
	RC Plinths M.200				
A.2.4	Trare themeli b/a M.200	m3	4		
	RC foundation beam M.200				
A.2.6	Mur betoni M.100 mbi traun e themelit deri ne kuoten 0.00	m3	2		
	Concrete wall M.100, on foundation beam till 0.00 level				
A.2.7	Brez beton arme M.200 ne kuoten 0.00	m3	2		
	RC belt, M.200 at 0.00 level				
A.2.8	Kollona b/a M.250	m3	8.5		
	RC Columns, M.200				
A.2.9	Trare b/a M.250	m3	11		

Nr	Emertimi	Njesi	Sasia	Cmimi	Vlera leke
No	*Description*	*Unit*	*Q-ty*	*Unit Price*	*Cost, leke*
	RC Beams, M.200				
A.2.10	Solete monolite b/a	m3	10		
	RC roof slab, monolith				
A.2.11	Solete monolite me tulla qeramike dhe traveta betoni	m2	75		
	RC slab and ceramik slabs				
A.2.12	Arkitrare B/arme M.200	m3	1.8		
	RC Lintel, M.200				
A.2.13	Shkalle monolite	*m3*	*1.5*		
	Stairs				
A.2.14	Hekur betoni	Ton	6.99		
	Purchase and installation of steel				
	Subtotal A2:				
A.3	**Punime murature**				
	Masonry works				
A.3.1	Mur me tulla me bira ll.b. M.30 t=2*10 cm	m3	40		
	*Brick wall with hole, mix mortar, M30, t=2*10 cm*				
A.3.2	Mur me tulla me bira llb M.30 t =10cm	m3	5		
	Brick wall with hole, mix mortar, M30, t=10 cm				
A.3.4	Polisterol per mur sandwich t=3 cm	m3	6		
	Polysterine for sandwich walls, t=3 cm				
	Subtotal A3:				
A.4	**Punime Tarrace**				
	Terrace Works				
A.4.1	Cati me tjegulla marsejeze, komplet me flugezat	m2	100		
	Roof with marsejese tile, complet				
A.4.2	Termoizolim me polisterol 5 cm dhe rrjete teli	m3	5		
	Insulate with polysterine 5 cm and wire grid				
A.4.3	Hidroizolim dy duar bitum per dyshemene	m2	120		
	H/insulation with two plastic layers 2x4 mm				
A.4.4	Fv Ulluke shiu horizontale bakri	M	25		
	Vertical cuprum Gutter				
A.4.5	Fv Ulluke shiu vertikale bakri	M	25		
	Subtotal A4:				
A.5	**Punime hidroizolimi dhe shtresa**				
	Hydro-isolation and layers works				

Nr	Emertimi	Njesi	Sasia	Cmimi	Vlera leke
No	*Description*	*Unit*	*Q-ty*	*Unit Price*	*Cost, leke*
A.5.1	Shtrese zhavorri 20cm (brenda teritorit te godines)	m3	24		
	Gravel layer 20 cm				
A.5.2	Beton M.100 10 cm	m3	12		
	Concrete M.100, 10 cm				
A.5.3	Hidroizolim dy duar bitum per dyshemene	m2	110		
	Hydroisolation, two bitumen coats for floor				
A.5.4	Hidroizolim WC dysheme dhe 70 cm mur	m2	17		
	Hydroisolation of toilets				
A.5.5	Shtrese pllaka gres porcelan	m2	177		
	Flooring in grease porcelain tile				
A.5.6	Shtrese pllaka graniti per verandat dhe shkallet e jashtme	m2	18		
	Flooring in granule tile for external stairs				
A.5.7	Shtrese pllaka qeramike (WC) dhe veshje muri	m2	32		
	Flooring in ceramice tiles (toilets)and wall tiles				
A.5.8	Veshje bazamake shkalle me granit 2 cm dhe sheshpushim	m2	15		
	Coated stairs with granite				
A.5.9	FV plintusa gres porcelan	M	91		
	Skirting				
A.5.10	Suvatim muri nga brenda	m2	350		
	Plastering of internal walls				
A.5.11	Suvatim tavani	m2	177		
	Plastering of ceiling				
A.5.12	Suvatim muri nga jashte me suva plastike	m2	145		
	Plastering of external walls with plastic plaster				
A.5.13	Veshje fasade me gur	m2	95		
	coated of façade with stone				
A.5.14	Lyerje muri brenda boje hidroplastike	m2	350		
	Painting of internal walls				
A.5.15	Lyerje tavani boje hidroplastike	m2	177		
	Painting of ceiling				
A.5.16	Tavan i varur ne WC (kartonxhes)	m2	6		
	Suspended (hanging) ceiling (WC)				
A.5.17	Korniza guri rreth harqeve	m2	15		
	Stone frame at arcs				

Nr	Emertimi	Njesi	Sasia	Cmimi	Vlera leke
No	*Description*	*Unit*	*Q-ty*	*Unit Price*	*Cost, leke*
A.5.18	Trotuar rreth godines (komplet germimi, shtrese zhavorri dhe betoni)	m2	45		
	Pavement around building(including excavation,gravel and concrete				
	Subtotal A5:				
A.6	**Punime dyer dritare**				
	Doors and windows works				
A.6.1	Fv dyer MDF e plastifikuar	m2	4.7		
	SI plastificated doors				
A.6.2	FV Dyer MDF	m2	4		
	SI MDF doors				
A.6.3	Fv dere rreshqitese me dy kanata	m2	4		
	SI MDF sliding door with two shutters				
A.6.4	Fv Dritare fikse me skelet druri dhe me xham dopio	m2	6		
	SI wooden frame window, double glass				
A.6.5	Fv dritare me skelet druri me nje kanate te hapshme dhe me xhama dopio	m2	15		
	SI wooden frame window with one convertible shitter and double glass				
A.6.6	Fv vetrate me skelet druri me dy kanata te hapshme dhe xhama dopio	m2	7.7		
	SI glass wall with woden frame with two convertible shutters and double glass				
A.6.7	Fv davancale mermeri ne dritare	m2	8		
	SI marble silk for windows and terrace				
A.6.8	Korimano dhe kangjell metalike tek shkallet	m	5		
	Handrail with metallic frame at stairs				
	Subtotal A6:				
	SUBTOTAL A (A.1-A.6):				
B.	**INSTALIME ELEKTRIKE**				
	ELECTRICAL INSTALLATION				
B.1	**ELEKTRIK**				
B.1.1	F.V.Percjelles bakri fleksibel N07V-K 1x1.5 mm²	Ml	800		

Nr	Emertimi	Njesi	Sasia	Cmimi	Vlera leke
No	*Description*	*Unit*	*Q-ty*	*Unit Price*	*Cost, leke*
	provide and fix Flexible conductor made up of annealed copper,N07V-K 1x1.5mm²				
B.1.2	F.V.Percjelles bakri fleksibel N07V-K 1x2.5 mm²	Ml	600		
	provide and fix Flexible conductor made up of annealed copper,N07V-K 1x2.5mm²				
B.1.3	F.V.Percjelles bakri fleksibel N07V-K 1x4 mm²	Ml	5		
	provide and fix Flexible conductor made up of annealed copper,N07V-K 1x4mm²				
B.1.4	F.V.Percjelles bakri fleksibel N07V-K 1x10 mm²	Ml	110		
	provide and fix Flexible conductor made up of annealed copper,N07V-K 1x10mm²				
B.1.5	F.V.Percjelles bakri fleksibel N07V-K 1x16 mm²	Ml	35		
	provide and fix Flexible conductor made up of annealed copper,N07V-K 1x16mm²				
B.1.6	F.V.Tub fleksibel vetshuares seria e rende Ø20 mm	Ml	190		
	Provide and fix pliable protective conduit heavy duty self-extinguishing D=20 mm				
B.1.7	F.V.Tub fleksibel vetshuares seria e rende Ø25 mm	Ml	175		
	Provide and fix pliable protective conduit heavy duty self-extinguishing D=25 mm				
B.1.8	F.V.Tub fleksibel vetshuares seria e rende Ø40 mm	Ml	175		
	Provide and fix pliable protective conduit heavy duty self-extinguishing D=40 mm				
B.1.9	F.V.Kuti tre module per çelesa e priza	Cope	26		

Nr	Emertimi	Njesi	Sasia	Cmimi	Vlera leke
No	*Description*	*Unit*	*Q-ty*	*Unit Price*	*Cost, leke*
	provide and fix rectangular boxes for conventional modular ranges with metal fixing inserts,3 gang				
B.1.10	F.V.Suport e pllake per kutite tre moduleshe	Cope	26		
	provide and fix polimer cloud white plates and suport for 3 gang rectangular boxes				
B.1.11	F.V.Kuti derivacioni brenda murit PT-2	Cope	20		
	provide and fix insulated flush-mounting connection and junction boxes with screw-on-lid PT-2				
B.1.12	F.V.Kuti derivacioni brenda murit PT-3	Cope	10		
	provide and fix insulated flush-mounting connection and junction boxes with screw-on-lid PT-3				
B.1.13	F.V.Kuti derivacioni brenda murit PT-5	Cope	3		
	provide and fix insulated flush-mounting connection and junction boxes with screw-on-lid PT-5				
B.1.14	F.V.Kuti derivacioni brenda murit PT-7	Cope	1		
	provide and fix insulated flush-mounting connection and junction boxes with screw-on-lid PT-7				
B.1.15	F.V.Çeles ndriçimi brenda murit,modular, 16A,250V	Cope	11		
	provide and fix one-way switch 1P-16A,250V				
B.1.16	F.V.Çeles ndriçimi deviat brenda murit,modular, 16A,250V	Cope	2		
	Provide and fix italian/german standart socket-outlet with safety shutters 2P+T,dual amper 16A,250V				
B.1.17	F.V.Çeles buton brenda murit,modular, 16A,250V	Cope	4		
	provide and fix Two-way switch 1P-16A,250V				
B.1.18	F.V.Rele ndricimi	Cope	4		
	provide and fix Push-button 1P NO-16A,250V ,illuminable,with symbol				

Nr	Emertimi	Njesi	Sasia	Cmimi	Vlera leke
No	*Description*	*Unit*	*Q-ty*	*Unit Price*	*Cost, leke*
B.1.19	F.V.Prize nje fazore me tokezim,2P+T,10/16A,250V(shuko universale)	Cope	23		
B.1.20	F.V.Ndriçues inkaso me llampa fluor.2x18w,me kompensim,ballast elektronik,me karkase metalike, IP-40	Cope	4		
	Provide and fix recessed luminair,housing in pressed sheet steel,reflector in policarbonat,with fluorescent lamps,electronic ballast, 2x18w,230v,IP40				
B.1.21	F.V.Ndriçues inkaso me llampa fluor.2x18w,me kompensim,ballast elektronik,me karkase metalike, IP-65	Cope	3		
	Provide and fix recessed luminair,housing in pressed sheet steel,reflector in policarbonat,with fluorescent lamps,electronic ballast, 2x18w,230v,IP65				
B.1.22	F.V.Ndriçues plafonier me llampa fluor.4x18w,me kompensim,ballast elektronik,me karkase metalike, IP-40	Cope	6		
	Provide and fix recessed luminair,housing in pressed sheet steel,reflector in policarbonat,with fluorescent lamps,electronic ballast, 4x18w,230v,IP40				
B.1.23	F.V.Ndriçues plafonier me llampa fluor.2x36w,me kompensim,ballast elektronik,me karkase metalike, IP-40	Cope	8		
	Provide and fix recessed luminair,housing in pressed sheet steel,reflector in policarbonat,with fluorescent lamps,electronic ballast, 2x36w,230v,IP40				
B.1.24	F.V.Ndriçues plafonier me llampa fluoreshente,1x18w,me kompensim,me karkase metalike,me bateri per emergjence IP-40	Cope	5		
	Provide and fix recessed luminair,housing in pressed sheet steel,reflector in policarbonat,with fluorescent lamps,electronic ballast,1x18w,230v,with battery for emergence,IP40				
B.1.25	F.V.Ndriçues I varur ,me llampe ekonomike,40w,me skelet metalik, IP-40	Cope	3		

Nr	Emertimi	Njesi	Sasia	Cmimi	Vlera leke
No	*Description*	*Unit*	*Q-ty*	*Unit Price*	*Cost, leke*
	Provide and fix suspended luminair,with economic lamp 40w,IP40				
B.1.26	F.V.Ndriçues mural me llampe inkandeshente 25w,me karkase metalike, IP-65	Cope	3		
	Provide and fix wall mounted luminair,housing in pressed sheet steel,reflector in policarbonat,with incandescent lamp,1x25w,230v,IP65				
B.1.27	F.V.Kuader elektrik "K", komplet me paisje per montim te paisjeve modulare,me hyrje me celes diferencial 4P,me zbarra te nulit e te tokezimit te ndara me permbajtje sipas skemes elektrike.	Cope	1		
	Provide and fix flash-mounting modular distribution board in GW PLAST with smoked transparent door,IP 40,(K),according the single line diagram neuter and earth terminals,separated				
B.1.28	F.V.Kasete elektrike "Ke", komplet me automatmagneto termik kater polar,50x40x25cm.	Cope	1		
	provide and fix electric box completed with 4 pole circuit breaker,50x40x25cm.				
B.1.29	F.V Pusete elektrike b/a,50x50x50cm,kapak gize	Cope	1		
	Provide and fix concrete electric sump,50x50x50cm,gize cover				
B.1.30	F.V.Elektrode tokezimi zincato L50x50x5mm.L=2.5m	Cope	5		
	Galvanized grounding electrode L50x50x5mm.L=2.5m				
B.1.31	F.V. Shirit tokezimi zinkao -20x3mm	Ml	100		
	Galvanized grounding strip -20x3mm				
B.1.32	F.V. Shirit tokezimi zinkao -25x4mm	Ml	35		
	Galvanized grounding strip -25x4mm				
B.1.33	F.V. detaje fiksimi	Cope	70		
	Provide and fix fixing details				
B.1.34	F.V. shtiza rrufepritese zinkato Ø16mm,h=0.3m	Cope	13		
	Provide and fix lightning rod galvanized Ø16mm,h=0.3m				

Nr	Emertimi	Njesi	Sasia	Cmimi	Vlera leke
No	*Description*	*Unit*	*Q-ty*	*Unit Price*	*Cost, leke*
B.1.35	F.V. Kabell ushqimi per lidhjen elektrike nga pika e caktuar te lidhjes deri ne kuadrin kryesor	Ml	150		
	Provide and fix cable of electric connection from the designated point to the main breaker pannel				
	Subtotal B1:				
B.2	**TELEFONI,RRJET TE DHENASH (LAN)**				
B.2.1	F.V.kabell telefonie 1x2x0.6 mm	Ml	60		
	Provide and fix telephone cable 1x2x0.6 mm				
B.2.2	F.V.kabell UTP kater kopje, kat.5E	Ml	60		
	Provide and fix four pairs UTP cat.5E cable				
B.2.3	F.V.Router+switch 5 poste	Cope	1		
	Provide and fix router,switch 5 modules				
B.2.4	F.V.Tub fleksibel vetshuares seria e rende Ø20 mm	Ml	2		
	Provide and fix pliable protective conduit heavy duty self-extinguishing D=20 mm				
B.2.5	F.V.Tub fleksibel vetshuares seria e rende Ø25 mm	Ml	40		
	Provide and fix pliable protective conduit heavy duty self-extinguishing D=25 mm				
B.2.6	F.V.Tub fleksibel vetshuares seria e rende Ø32 mm	Ml	40		
	Provide and fix pliable protective conduit heavy duty self-extinguishing D=32 mm				
B.2.7	F.V.Kuti derivacioni brenda murit PT-2	Cope	5		
	provide and fix insulated flush-mounting connection and junction boxes with screw-on-lid PT-2				
B.2.8	F.V.Kuti tre module per çelesa e priza	Cope	4		
	provide and fix rectangular boxes for conventional modular ranges with metal fixing inserts,3 gang				
B.2.9	F.V.Suport e pllake per kutite tre moduleshe	Cope	4		
	provide and fix polimer cloud white plates and suport for 3 gang rectangular boxes				

Nr	Emertimi	Njesi	Sasia	Cmimi	Vlera leke
No	*Description*	*Unit*	*Q-ty*	*Unit Price*	*Cost, leke*
B.2.10	F.V.Prize telefonie RJ-11	Cope	4		
	Provide and fix telephone jack RJ 11				
B.2.11	F.V.Prize te dhenash,kat.5E RJ-45	Cope	4		
	Provide and fix data transmission connectors category 5e				
	Subtotal B2:				
	SUBTOTAL B (B1+B2):				
C	**WATER SUPPLY / UJESJELLESI**				
1.1	Germim dheu kanal dhe mbushje	m3	10		
	Excavation				
1.2	Tubacion DN-1/2" m 50	Kg	270		
	Pipe DN 1/2" 25m				
1.3	Rakorderi, pjese speciale	Kg	10		
	Fittings				
1.4	Mates uji DN-1/2" komplet saracineskat dhe kaseten	Cope	1		
	Water meter DN 1-2/" complet with valves and box				
1.5	Saracineska DN-1/2", 10 at.	Cope	8		
	Valve Dn 1/2", 10 at				
1.6	Fikes zjarri me shkume	cope	1		
	SUBTOTAL C:				
D.	**SEWER AND DRAINS /KANALIZIMET**				
1.1	Tubacion PVC me gote dhe gomine DN-110, t=3.0 mm vertikal	M	15		
	PVC pipe DN 110 with socket and ruber				
1.2	Tubacion PVC me gote dhe gomine DN-40, t=1.8 mm	M	10		
	PVC pipe DN 40 with socket and ruber				
1.3	Lavaman komplet, me grupin dhe sifonin	Cope	2		
	Sink complet				
1.4	WC "Allafrenga" komplet, me klozeten dhe sifonin	Cope	2		
	Closet complet				
1.5	Rakorderi	Cope	20		

Nr	Emertimi	Njesi	Sasia	Cmimi	Vlera leke
No	*Description*	*Unit*	*Q-ty*	*Unit Price*	*Cost, leke*
	Fittings				
1.6	Pilete DN-80	Cope	2		
	Gully DN 80mm				
1.7	Kapuc Ajrimi DN-110	Cope	2		
	Air Vent DN 100 mm				
1.8	Tubacion betoni DN-150 mm	M	60		
	Concrete pipe DN 150				
1.9	Germim dheu	m3	60		
	Excavation				
1.1	Mbushje dheu	m3	60		
	Filling with soil				
1.11	Pusete 70x70 cm, H=1.5 m, me kapak gize 60 cm	Cope	1		
	Manhole 70x70, h-1.5 m CI cover				
	SUBTOTAL D:				
E	**OUTSIDE SYSTEMATIZATION AND LANDSCAPING / PUNIME SISTEMIMI**				
1	Germim dheu seksion I lire	m3	100		
	Excavation free section				
2	Germim dheu kasonete	m3	300		
	Excavation for layers				
3	Germim dheu themel per bordurat	m3	18		
	Excavation for border foundations				
4	Themel zhavorri per bordurat	m3	6		
	Gravel foundation				
5	Themel Betoni per bordurat	m3	7		
	Concrete foundation for borders				
6	Bordura betoni 12x25x100	M	191		
	Concrete borders 12x25x100				
7	Shtrese zhavorri 20 cm me cilindrim	m2	700		
	Gravel layer 20 cm				
8	Shtrese cakulli 15 cm	m2	700		
	Ballast layer 15 cm				

Nr	Emertimi	Njesi	Sasia	Cmimi	Vlera leke
No	*Description*	*Unit*	*Q-ty*	*Unit Price*	*Cost, leke*
9	Stabilizant 10 cm	m2	595		
	Stabilizer 10 cm				
10	Shtrese betoni (vetem poshte pllakave) 6 cm	m3	6		
	Concrete layer (under concrete tiles)				
11	Shtrese rere 2 cm (vetem poshte pllakave)	m3	2		
	Sand layer (under concrete tiles)				
12	Shtrese pllaka betoni	m2	101		
	Concrete tiles				
13	Shtrese binderi 5 cm	m2	595		
	Binder 5 cm				
14	Shtrese asfalti 4 cm	m2	595		
	Asphalt 4 cm				
15	Transport dheu	m3	400		
	SUBTOTAL E:				
	TOTAL (A+B+C+D+E):				
	GRAND TOTAL incl. VAT 20%:				

Signature of Bidder ……..

Annex VIII

BID SECURITY FORM

To: The procuring entity,

Whereas [*name of contractor*] (hereinafter called the "Contractor") has submitted its proposal dated [*date submission of proposal*] for the provision of services *for [description of service*] (hereinafter called Proposal).

KNOW ALL PEOPLE by these presents that WE [*name of bank*], having our registered office at [*address of bank*] (hereinafter called "the Bank"), are bound unto [*name of Purchaser*] (hereinafter called "the Purchaser") in the sum of for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common seal of the said Bank this ……..day of..……2011.

THE CONDITIONS of this obligation are:

1. If the Contractor withdraws its Proposal during the period of proposal validity specified by the Contractor on the Proposal Submission Form: or

2. If the Contractor, having been notified of the acceptance of its Proposal by the Purchaser during the period of validity of the proposal:

(a) fails or refuses to execute the Contract Form, or

(b) fails or refuses to furnish the Performance Security, in accordance with the Instructions to Contractors;

we undertake to pay to the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including thirty (30) days after the period of validity of the proposal, and any demand in respect thereof should reach the Bank not later than the above date.

Signature of the Bank