

Section VI
TECHNICAL SPECIFICATIONS

REFURBISHMENT WORKS OF THE VOCATIONAL HIGH SCHOOL
„BEĆO BAŠIĆ“, PLAV

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List of abbreviations

Abbreviation	Full Reference
ACAD	Auto-CAD- computer aided design
AHD	Average Haul Distance
BoQ	Bill of Quantities
CA	Contracting Authority
CB	Construction Book (evidence of work performed)
Cca	Circa (approximately)
CE	Conformity European
CEDIS	Montenegrin Electricity Distribution System
CGES	Montenegrin Electricity Transmission System
CSNU	Central Supervisory and Control System
Day	Calendar Day
DD	Detailed Design
DEA	Diesel electric generator
DIN	German Standard (i.e Deutsches Institut fur Normung)
DN	Diameter Nominal
DNP	Defects Notification Period
EMP	Environmental Management Plan
EN	European Norms
ENEC	European Norms Electrical Certification
EU	European Union
FFL	Final floor level

FP	Fire Protection
GC	General Conditions
GF	Ground floor
GRO	Main distribution cabinet
GSIP	Main Bus for Potential Equalization
h	hour
H&S	Health and Safety
H&S&E	Health, Safety and Environment
HAVC	Heat, Air Ventilation, and Cooling
HDPE	High density extruded polyethylene
ICT	Information and Communications Technologies
IEC	International Electro technical Commission
ISO	International Organization for Standardization
JUS	Yugoslavian Standard
kg	kilogram
km	kilometer
KRK	Cable Connection
kW	kilowatt (1000 watts)
l	liter
LAN	Local Area Network
LED	Light-emitting Diode
L.S.	lump sum
m	meter
m ²	square meter
m ³	cubic meter
m/d	man-day
MCB	Main Circuit Board
Misc.	Miscellaneous
mm	millimeter

MS	Method Statement
MSDS	Material Safety Data Sheet
OSHA	Occupational Safety and Health Administration
PAC	Provisional Acceptance Certificate
PCT	Perforated Cable Tray
PE	Polyethylene
PM	Project Manager
PP	Polypropylene
pcs	pieces
PVC	Polyvinyl Chloride
RAL	Coloring system (Reichs-Ausschul3 fUr Lieferbedingungen und Gtitesicherung)
RC	Reinforced Concrete
MNE	Montenegro
TA	Technical Assistant
TMP	Traffic Management Plan
TS	Technical Specifications
TUV	Technischer Uberwachungsverein (Technical Inspection Association)

Section 1. - Project Description

The Secondary school for vocational education "Bećo Bašić" is located on cadastral parcel No. 2033, St. Racina, Plav.

Pedestrian access to the school is provided from the newly built square, road access is to St. Racina and parking is provided next to the building in the part of the school yard.

The building has variable stogeys: ground floor, ground and two floors, and it is divided into functional units: administration, classrooms, toilets and the sports block.

The administrative block, 6 classrooms, restaurant with kitchen, toilets for employees and students, boiler room and other technical premises are placed on the ground floor. On the first and second floor there are classrooms, library, conference room and toilets. Vertical communications are located in the central part of the building.

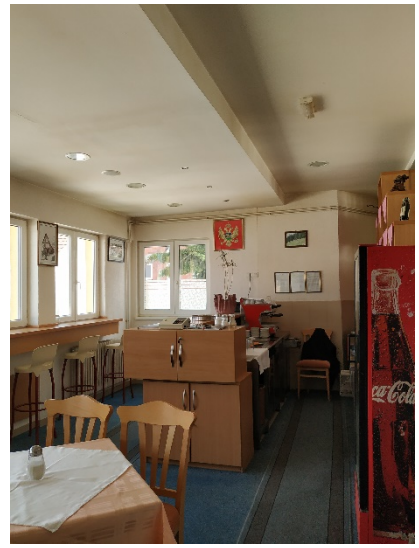
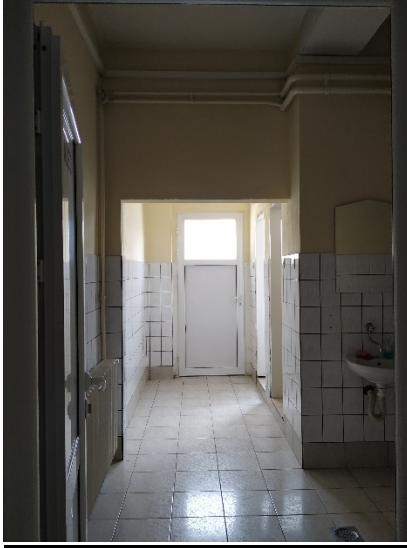
The building structure is in good condition without visible cracks. Floor slabs were made as reinforced concrete monolithic supported on reinforced concrete beams in both directions and partially on concrete tie-beam of masonry walls. The slab does not exist in the part of ground floor between axis 2-4 and axis A-C, and the ceiling is directly installed on the roof construction. In the rest of the building the ceilings are made of a layer of plater and water-based paint and in some rooms a suspended ceiling is made of plasterboards. The flooring is parquet, ceramic tiles, carpets. The walls are coated with a semi-dispersive paint, ceramics tiles and in some premises with oil-based paint up to height 170 cm.

Facade windows and doors are replaced relatively recently and are in good condition. Internal doors were changed only at toilets while and the rest of the opening are made of wood that was worn out and will be replaced.

The entire facade has been cladded with thermal insulation finally coated with decorative mortar. The existing roof is in good condition, type hip roof made of wooden construction and covered with corrugated metal sheets.

The hydrotechnical, electrical and heating installations are in good condition. Heating in the building is provided by boilers and cast-iron radiators and is fully functional.





Planned State

In accordance with the Terms of Reference and the requirements of the User, the facility premises have been reorganized.

The ground floor was reorganized in way that the area of the meeting room is increased, the buffet with a kitchenette is moved to the administrative block, while an additional classroom is planned in its place. In addition, the library is displaced in the building "2B". Toilets for students are reorganized and a new toilet for the disabled is designed. Due the difference of levels of the ground slab, in the part of the administrative block, an additional slab is designed. The shop in the hallway is dislocated to the room next to the sports hall (No. 40), what eliminates the crowding at the entrance. In the atrium No.1, the existing toilet for the disabled is demolished and the metal stairs are dismantled. In all atriums, it is planned to demolish the concrete surfaces and green the entire surface of the atrium.

The offices of the director and secretary of the school have been dislocated from the ground to the first floor. Also, one of the existing offices on the first floor has been expanded and converted into a meeting room. The existing shared toilets have been reorganized, providing separate toilets for employees and students. Due to level difference of the floor slabs in the room No. 1-hall with hallway and room No. 24-office, the new metal staircase has been design.

For all rooms separately, their purpose, as well as the finishes of floors, walls and ceilings, their volume and clear height are given in the drawings.

Inside surfaces

All new floors are planned as floating floors, with finishes made of ceramic tiles. Sanding and varnishing are planned in the rooms where the floor finishes is parquet.

New interior partition walls made of AC blocks d=10/20 cm are plastered on two sides.

Depending on the purpose, the finishings of the walls are: water dispersion-based paint, decorative paint, wall papers, wall wooden slats or ceramic tiles.

All new ceilings are suspended and made of gypsum plasterboards except in the toilets where the moisture-resistant gypsum plasterboards are planned.

Several types of internal glass walls, doors and windows are planned:

- Aluminum without thermal break, with chipboard panel coated on both sides with melamine resin impregnated decorative paper and opening 25x85cm glazed with glass type pamplex 3.3.1
- Aluminum without thermal break, glazed with glass type pamplex 3.3.1
- Aluminum without thermal break, with chipboard panel coated on both sides with melamine resin impregnated decorative paper
- Aluminum without thermal break, with aluminum sandwich filling panel d=20mm

Installations

For the newly formed premises and the restaurant part, a new installation of plumbing supply and sewerage, heating, cooling and ventilation as well as electrical installations has been designed.

Section 2. General Requirements

Introduction

Under this Contract, the Contractor shall take responsibility for supply and construction/ installation of the works, all as described hereunder and presented in other contractual documentation such as Drawings, BoQ and Price Schedule.

2.1. Scope of Works

The Contractor's scope of works shall include all required activities to ensure the correct and proper realization of the refurbishment works of the Vocational High School „Bećo Bašić“, Plav as defined in the contractual documents.

The works shall include but not limited to, the following:

- drafting a Programme of tasks showing the critical path for all the Works, receiving approval from the Supervisor and keeping it updated;
- receiving site from the Beneficiaries;
- setting up site and making the safe and secure to avoid accidents and damage to neighboring assets throughout the construction process until final completion;
- procurement and installation of construction site boards in accordance with the Montenegrin Law
- drafting a Health and Safety Plan and Environmental Protection Plan, receiving approval from the Supervisor and keeping it updated;
- providing temporary: electricity, water, etc. to the site for construction purposes;
- providing all relevant security for the entire construction period and displaying warning signs
- -placing elements of visibility
- supplying and delivering of all materials, building and installing as to the provided in detailed drawings and these Technical Specifications;
- providing shop drawings specifically for architectural, electrical, mechanical works, and any other required, for the approval of the Supervisor;
- providing samples and attests of relevant materials, for the approval of the Supervisor prior to placing orders;
- testing, commissioning of completed work
- preparing as-built drawings, maintenance manuals and any other documentation necessary for the beneficiary to be able to operate and maintain the facilities;
- complying with all instructions received during the provisional and final acceptance (e.g., remedying of defects, etc.).

2.1.1. Regulations, Standards, Testing

During the progress of the works, all required tests shall be carried out on materials and workmanship in order to ensure compliance with these Technical Specifications.

Copies of all the test results must be delivered by the Contractor to the Supervisor immediately after testing.

2.1.2. Case of conflict

In case of conflict between the Requirements of these Technical Specifications and any other requirements, the order of preference is specified in the Contact form.

2.1.3. Methods of Testing

All tests shall be made in accordance with the standard methods prescribed by the following, in order of preference as ordered by the Supervisor.

- MEST: Montenegrin standards
- EN: European Standards
- JUS: Yugoslav standards
- DIN: Deutsches Institut für Normung (Abbreviation: DIN).

In addition to the above, standard specifications or test methods of other bodies may be referred to this specification, or test methods may be described where no acceptable standard methods exist.

2.1.4. Cost of Testing

The cost of all provision of samples and testing of materials and workmanship undertaken to ensure compliance with the technical specifications shall be at the Contractor expenses.

The Contractor shall provide all necessary temporary works in connection with the test, and shall remove the same on successful completion of the test. All tests shall be done in the presence of the Supervisor' and the results of such tests shall be signed by the Contractor and handed to the Supervisor' who shall prepare the required test reports.

All equipment, labor, materials and water necessary for the carrying out of these tests to the complete satisfaction of the Supervisor' shall be provided by the Contractor at his own expense. Should any test fail, the Contractor shall carry out further tests all as described above until such tests meet with the requirements contained herein. All such tests and retests shall be at the expense of the Contractor.

2.1.5. Additional Testing

The Supervisor shall have the right to take any samples and to order any additional tests on materials or workmanship supplied by the Contractor if the Supervisor has reasonable doubt as to their quality.

2.1.6. Sampling

Where it is required that the Contractor submits samples of materials to the Supervisor for approval prior to their use in the works, the use of these materials without the Supervisor's written approval shall constitute default on the part of the Contractor for the consequences of which default he shall be liable. All samples shall be submitted in sufficient time for proper testing.

Same applies to testing of finishing materials for internal as well as external use and installations.

2.2. Performance Specifications

All materials, workmanship, and tests shall comply with Standards and Codes of the State Authorities, Contracting Authority and the Supervisor.

It shall be the responsibility of the Contractor to include all works necessary to ensure the intended performance of the works in all respects. The sole responsibility rests with the Contractor to produce work which conforms in quality and accuracy of detail, to the Contracting Authority Technical Specifications, Main design and other relevant documents.

The Contractor must establish a quality control system and provide experienced execution and quality control personnel, together with all transports, instruments and equipment, to ensure adequate supervision and positive control of the Works at all times.

2.3. Approval and Instruction by the Supervisor

All requests for instruction, approval of documents and drawings should be submitted to the Supervisor.

The Supervisor is the only actor who can give instruction, direction or approval to the Contractor.

The Supervisor will supervise the works and give instructions according to Law on Planning and Construction these TS and Contract.

Approvals, instructions or directions by the Supervisor shall not relieve the Contractor from its liabilities and responsibilities under the Contract.

2.4. Contractor drawings, As-build Design and Operation and Maintenance Manuals

Contractor shall prepare any required shop drawings and reflect the same on the as-build drawings.

The As-built Design/Drawings and Operation and Maintenance Manuals shall be prepared in English and Montenegrin languages in 3 (three) hard copies and digital format. All documents must be approved by the Supervisor on behalf of the Contracting Authority.

The Contractor shall submit to the Supervisor, all such documentation as well as all warranties and/or guarantees and operation manuals for the installed plant and equipment, all in three copies and in electronic format.

This item shall be paid as a lump sum.

2.5. *The Contractor's Control and Documentation*

2.5.1. *General*

The language of the contract is English.

The documents, which are to be presented to state authorities (for the purpose of issuing permits, an inspection, etc.) will be, in addition to English, also in Montenegrin.

When submitted as electronic files, the documents shall be compatible with following formats: Adobe Acrobat (.pdf), MS Word (.docx), MS Excel (.xlsx), Auto Cad (.dwg), MS Project (.mpp).

During the entire period of implementation (execution of works and DNP) the Contractor is obliged to act in line with the Contract and its addendums (if applicable), all Laws, and Rulebooks and Standards valid at the time of implementation of the Contract.

Laws and regulations include, but are not limited to Law on Spatial Planning and Construction of Structures, Law on Occupational Health and Safety, Fire Protection regulation, etc.

The Contractor shall be liable to provide the Supervisor with due documentation as per local Regulations. The Contractor shall prepare documentation, all according to Rulebook on the manner of preparation and content of the construction log and measurement book ("Official Gazette of Montenegro", No. 068/18 of 10 October 2018).

During the Contract period, the Contractor shall, to the level of Supervisor satisfaction, keep all necessary documents in office on site. As well the Contractor shall present regularly that the Works comply with the Technical Specifications stipulated in the Contract or approved during the Contract implementation period. Consequently, based on the approved QAS and the CPs, the Contractor shall during the execution of the works carry out and document the quality control and its compliance with the stipulated Specifications.

The Supervisor will control all documents prepared by the Contractor in order to ensure that all documentation is prepared in line with the Contract and Montenegrin legislation.

2.5.2. *Work Program*

The Work Program presented by the Contractor shall consist of a detailed schedule of all construction works and phases. Once approved by the Supervisor, the Work Program shall be binding for the Contractor.

The Contractor shall present a Work Schedule for execution of the works with distribution of resources and manpower, including volume of works, number of workers, interaction with different participants in the process, time limit for execution and sequence of the works to the Supervisor for approval according to this Contract.

Pursuant to the requirements, the Work Program to be submitted by the Contractor shall show the planned monthly rates of progress between the program dates for commencement and completion of each major item or work for the various stages of construction, in accordance with the Conditions of Contract.

The Work Program shall take into account climatic conditions and completion of critical components by the Contractor or other contractors (if any), supply services conditions and other conditions, to ensure the completion of the works in accordance with the Contract.

The Contractor shall not be permitted to commence any construction work on that part of the works until the Supervisor has no objection to the method statements, drawings and calculations. Sufficient time for approval of drawings materials and method statements must be allowed for in the Work Program for each component.

The Contractor shall allow in its Program a reasonable period for work to be carried out by Public Utility Services, Authorities and the Beneficiary where necessary. The Beneficiary will provide all necessary assistance in liaising with such Authorities.

The Contractor shall also allow in its Program sufficient time required for Provisional Acceptance as stipulated in the Contract.

2.5.3. Monthly Progress Report

During of the execution of the Contract, the Contractor shall follow the progress of activities relative to the time schedule and shall submit to the Supervisor Monthly reports for the results of its activities, conforming to the following requirements:

- The Report to be provided to the Supervisor in 3 (three) hardcopies in Montenegrin and 3 (three) in English well as digitally (on CD enclosed to the Report);
- Diagrams with detailed progress description, Contractor's documents, delivery, construction works, assembly and tests;
- Digital photos (on CD enclosed to the Report);
- Linear chart (schedules) for the current Stage, showing the actual and the planned progress;
- Report, reflecting all considerable differences from the construction program, and if necessary, explanation for the proposed steps to be undertaken for the completion of the approved program;
- Statistics on safety and environment protection;
- Financial Statement (Cash flow);

When actual work progress differs from that shown in the Construction Program, the Contractor shall submit an updated schedule to the Supervisor.

Processing of the Interim Payment Certificate (IPC) is conditioned with completed and approved Progress Report.

2.5.4. Site Acceptance and Defect Liability Period

Before Provisional Acceptance, the Contractor shall in co-operation with the Supervisor finally check all documentation which has been requested and has been presented.

The Contractor shall present Tests on Completion copies of the complete documentation.

The Contractor's remedial work after Provisional Acceptance is subject to the same control conditions as the work before Provisional Acceptance. Subsequent control documentation shall be handed over to the Contracting Authority before expiry of the Defects Liability Period.

Defects Liability Period (DLP) is 24 months following the issuance of provisional acceptance by the Supervisor. DLP can be extended by the order of the Supervisor should any works activity experiences significant failure, during DLP. The DLP can be extended for that particular work or entire works, as determined by the Supervisor.

The Original documentation in the control file shall be kept with the Contractor for at least 7 (seven) years after the Final Acceptance.

2.5.5. Right of Access and Audit

The Contracting Authority shall be guaranteed unlimited access at any time to all documents and quality assurance documentation associated with the Contract. This also includes the same unlimited access to all production and manufacturing facilities.

When the Contracting Authority wants access to suppliers, manufacturers or sub-Contractors, the Supervisor will give due notice to the Contractor, whereby the time and purpose of the visit will be specified with the agreement of all parties involved.

Section 3 - General Works Specifications

3.1. General

The Contractor must be fully acquainted with all details of the provided design documentation, as well as with all local regulations, local standards (MEST), common practice of trade and circumstances for their execution. Nevertheless, it is understood that, whenever local regulations, local standards (MEST), or any common practice of trade, are subject to any interpretation, clarification, ambiguity, or dispute, a ruling by the Supervisor will prevail, always provided that such ruling will be fully in compliance with and will be based on the subject local regulations, local standards (MEST), as well as in accordance with common practice of trade, and any such ruling by the Supervisors and subsequent instruction in that respect, will not constitute any ground for variation order and/or any additional payment.

Communication between the Contractor and the Contract Authority and/or Beneficiary, during the works will be carried out exclusively through the Supervisor. The Contract Authority is responsible for the design.

All works must be carried out precisely and professionally. Prior to application, the Supervisor must examine all material and all his comments referring to material and quality of work will be obligatory for the Contractor. The agreed prices include all fully completed works and final products ready for use.

ICS number	Standard number	Year	Title
03.120.10	MEST EN ISO 9000:2016	2016	Quality management system - Fundamentals and vocabulary
	MEST EN ISO 9001:2016	2016	Quality management systems-Requirements
	MEST EN ISO 9004:2018	2018	Quality management - Quality of an organization - Guidance to achieve sustained success
	MEST EN ISO 10002:2009	2019	Quality management systems - Guidelines for the application of ISO 9001:2015
	MEST EN ISO 10002:2009	2009	Quality management - Customer Satisfaction-Guidelines for complaints handling in organizations
	MEST EN ISO 10005:2009	2009	Quality management systems - Guidelines for quality plans

The Contractor will be responsible for any and all damages caused by the Contractor during any works, to any third party, structure, main building or adjacent buildings, and any and all repair works and compensations of any kind will be at the Contractor's expense.

Prior to the commencement of the works, and also in the course of the execution of every work item, the Contractor will ask the Supervisor for any explanations and clarifications required, therefore, the Contractor will solely bear full material responsibility for all works not completed in accordance with the concept and details of this specifications.

The Contractor will be responsible to keep records on the progress of works in the measurement book and have it controlled and verified by the Supervisor.

Upon the completion of the works the Contractor will remove from the building site and other used areas all its tools, machinery, surplus material, etc. so as to have the site nearly arranged as defined in the investment technical documentation, and all other areas restored in same condition as before the construction.

All construction works must be carried out under the conditions and in the manner prescribed by Law on Spatial Planning and Construction of Structures.

For all works, applicable MNE regulations and standards shall prevail.

3.2. Technical Standards and Regulations

In accordance to these Technical Requirements, the Contractor shall ensure that its performance incorporates the following key principles:

- For all required works and services specified in this Tender Dossier, the relevant MNE standards and codes of practice shall apply. In any case, if Montenegrin standards are more strict or dominant, they shall apply to replace other standards given or not in other parts of this document.
- For works and services where no relevant Montenegrin standards or codes of practice exist, the latest European Standards and code of practice shall be applied.
- The proposed application of other standards and code of practice for certain works and/or services shall be such as to ensure equal or higher than specified quality and safety of works, and to facilitate operation, inspection, maintenance, repairs, lubrication and similar operations.
- In any case, National standards and code of practice have to be used for each service and work, accompanied with explanations, to demonstrate to the agreement of the Supervisor that application of these standards and code of practice shall give required quality, safety, functionality and durability of the completed works.
- The applicable version of any standard shall be that valid 28 days prior to the latest date for submission of tenders.

3.3. Matters Not Covered by the Standards

Any materials and workmanship not fully specified herein or covered by the Standards, Codes or Manuals shall be of such type and quality so as to produce a required quality of work. In such circumstance, the Supervisor shall determine whether all or any of the materials offered or delivered to the site are suitable for use in the Works and the Supervisor's decision in this respect shall be final and conclusive.

3.4. Method Statements

The Contractor shall provide, in writing, a description of the arrangements and methods it intends to apply for the execution of the Works.

Method Statements (MS) shall show in detail the methods proposed by the Contractor for carrying out the principal activities of construction in full safety. In particular, the Contractor shall indicate the resources (plant, personnel, materials) to be allocated, timing and sequencing, emergency/contingency measures, and any other information required to clearly detail the proposed methods. All necessary health and safety and environmental measures required shall be clearly indicated.

This will be supported by calculations for temporary works for supporting excavated faces and shuttering of concrete. Flowcharts, sketches and drawings shall be included if necessary.

Proposed MS will be submitted to the Supervisor for approval. The Supervisor will review and provide its comments within 10 days. The Contractor shall make final corrections (if any) and submit it them to the Supervisor for final approval 15 days before the commencement of relevant work.

Written agreement shall be obtained before any work is commenced.

3.5. Facilities for Contractor's and Supervisor's personnel

3.5.1. Temporary Buildings, Contractor Office, storage and any other facility

The Contractor shall establish his construction offices, storages and temporary toilet on the site. The exact location of these facilities and the details of the same shall be approved beforehand by the Supervisor.

Prior to starting with construction works, the Contractor shall also move all constructional plant and personnel to the site. On completion of the work and after receiving approval in writing from the Supervisor, all constructional plant, buildings, fencing and other temporary structures shall be removed and the camp site shall be restored to its original condition and left neat and tidy.

The site office shall be a temporary site facility, furnished, equipped and serviced ready for occupation and use within 14 days of the Date of Commencement of the Works.

Weather resistance and thermal insulation shall be according to the specification appropriate to the local conditions with heating and cooling system that will keep the ambient temperature within the office space between min 19 and max 21 degrees. The offices shall be connected to a main electricity supply.

The Contractor shall pay all charges in connection with utilities. Where a main electricity supply is not available, and subject to the approval of the Supervisor, the Contractor shall supply a "demand" type generator capable of running 24 hours per day, if required, without causing any undue noise, interference or disturbance to surrounding residents or the Supervisor and his site staff.

3.5.2. Offices and other requirements for the Supervisor

Contractor shall provide, at a location within the site compound, office accommodation of a minimum of 12 m² for the sole use of the Supervisor and his representatives. The accommodation shall be subject to the Supervisor's approval. The offices, all fully equipped with necessary furniture, shall include, as a minimum:

- Site office, separate from Contractor's office, (minimum area 12 m²),
- Site office furniture including (minimum), one working desk with drawers, along with two chairs, one meeting table 2,50x1,20m along with four chairs,
- Site office equipment including (minimum), one electric heater/AC unit,
- Internet provision

A 220-volt electricity supply shall be connected; minimum one power point per 5 m², adequate strip lighting, electric heating, and air conditioning. Office shall be covered with heavy grade linoleum and blinds to all windows.

The office accommodation should be available to the Supervisor until 4 weeks after substantial completion of the Contract when they are to be removed from the site and the area reinstated. The Supervisor may extend this period if necessary.

All premises provided for the use of the Supervisor and his staff shall be properly cleaned and maintained daily. If any item of equipment requires servicing or repair an equivalent replacement must be provided as soon as possible by the Contractor.

The layout of all office facility for the Supervisor and Contractor shall be submitted to the Supervisor for approval.

This item shall be paid as a lump sum.

3.5.3. Sanitary Arrangements and Waste Disposal

The Contractor shall provide adequate facilities, as required to meet the applicable statutory provision, for use of his laborers on the Site.

3.5.4. Faulty Work

Any work which fails to comply with these Specifications shall be rejected and the Contractor shall, make good any defects, as directed by and to the satisfaction of the Supervisor.

3.5.5. Site Preparation

The Contractor shall confine his operations within the allocated Site, or such other areas of land as may be agreed between the Supervisor and Contractor.

The Contractor shall maintain the Site in a clean, tidy and safe condition during the period of construction and handover. The Contractor shall remove any disused materials and other debris arising in connection with the Works from the Site as it arises. The Sites shall not be taken over until such material has been removed.

Any materials so deposited shall be removed at the earliest practical opportunity.

The Contractor must establish and maintain a security fence all around the Construction Site throughout the entire work period. The Site must be guarded and signed in order to keep unauthorized persons away from the Site.

The Contractor must submit for approval a Site layout plan showing stockyard, position of protective fence, offices etc.

3.6. Existing and site use utility services

3.6.1. Existing underground cables, conduits and installations

No warranty is given as to the accuracy or completeness of the information on existing underground cables, conduits and installations included in the Contract. The Contractor shall consult all relevant authorities and owners of services (CEDIS, CGES, WSC, telecommunication companies, etc.) before commencing any excavations and shall satisfy himself as to the exact position of existing cables, conduits and installations which affect or may be affected by the Works. If any service is found to exist, but is not as indicated in the Contract, then the Contractor shall at once give written notification to the Supervisor.

The Contractor shall record the position of all located existing on drawings, a copy of which shall be made available by the Contractor to the Supervisor.

The Contractor shall execute the Works in such a manner that he does not damage or interfere with existing cables, conduits and installations on or near the Site.

It shall be the Contractor's responsibility to ensure proper back-filling, appropriate to the section of the site, of any excavation made in the work area by any utility company, necessitated by the Contractor's operations.

The Contractor will establish for himself safe clearances to cables of various different voltages from the appropriate local electricity authorities. All damage to, or interference with, existing services, caused during the progress of the works, shall be deemed to be the responsibility of the Contractor, who shall undertake to repair, any damage so caused to the existing underground services or other features.

Notwithstanding the foregoing Specifications, and without lessening the Contractor's responsibility, the Contractor shall inform the Supervisor immediately if any existing works are jeopardized.

3.6.2. Site use and utility services

The Contractor shall restrict his activities to within the Sites and shall avoid entry on to any other lands except where the Contractor has made his own arrangements for such entry or the owner has arranged for this entry. Any trespass, damage or claims arising from such entry shall be the sole responsibility of the Contractor, who shall hold the Contracting Authority indemnified against all claims arising from such trespass or damage.

The Contractor shall arrange the supply of electricity, fresh water, telephone, compressed air, and other services as are necessary to his Site establishment and shall provide, maintain and remove on completion all pipes, cables, and fittings which carry such services to his operations. The Contractor shall provide an adequate supply of safe drinking water on the Site. All electrical installations forming part of the Temporary Works shall comply with the current National Regulations.

3.7. Site access by officials

Authorized government officials shall at all times have access to the work whether it is in preparation or progress, and the Contractor shall provide such access for inspection.

3.8. Working hours and conditions

3.8.1. Site working conditions

The following general requirements shall apply:

- The Contractor shall provide adequate lighting where work is being executed at night and shall provide and install any additional lighting which the Supervisor may require in order to watch and supervise the Works and carry any testing and examination of materials;

- Materials available on the Site shall be used solely for the execution of the Works;
- The Contractor shall minimize the pollution of and disturbance to roads and other places on and around the Site;
- No trees or other vegetation shall be removed except with the express permission of the Supervisor;
- The Contractor shall ensure that access is provided to all buildings and properties adjacent to the Site for the duration of the Contract;
- All temporary buildings erected by the Contractor upon the Sites and the layout of the buildings and the site, shall comply with Laws and all local bylaws in so far as they are applicable;
- The Contractor shall be absolutely and solely responsible for the safety and security of Temporary Works and for the equipment in connection therewith which may be erected or provided for the carrying out of the Contract and for the execution of the Works. This provision shall be applicable to all temporary works and equipment whenever provided and erected by the Contractors for the purpose of or in connection with the Works.
- The Contractor shall clean all spilled dirt, gravel, or other foreign material caused by the construction operations from all streets and roads at the conclusion of each day's operation;
- Cleaning shall include washing with water, power brushing, and use of manual labor as necessary to achieve the necessary standard comparable with adjacent streets unaffected by the works

3.8.2. Working hours for construction

Site working hours shall be restricted according to the existing legislation in Montenegro, unless mentioned otherwise in the contract.

The Contractor's Programme and methods of working must be made on the assumption that the working hours will not be varied.

Any proposal by the Contractor to work outside these hours shall be submitted to the Supervisor for approval giving at least 7-day notice. A clear definition of the work to be carried out and the reasons for the request shall also be provided.

Unplanned deviation from the normal working hours will normally be limited to emergencies only and the Supervisor shall be informed of any such working, or the Contractor's intention of such working, at the earliest opportunity.

For the purposes of this clause, working shall be deemed to include for any activity whatsoever undertaken by the Contractor or any of his subcontractors in connection with the execution of the Works undertaken within the Site.

3.9. Visibility measures

In accordance with the Montenegrin legislation, the General construction work information board installation is part of the Contractor obligation.

The item shall be paid as a lump sum.

3.10. Security and Fire Fighting

The contractor shall respect all relevant local legislation and best available practice which is covering the field of Security and Fire Fighting.

The Contractor shall perform all work in a fire-safe manner. He shall supply and maintain on the site adequate fire-fighting equipment.

The Contractor shall provide and maintain adequate fire extinguishers on the Site and areas of high fire risk shall be fenced and signs posted and supplied with specialized fire extinguishers, if necessary.

Generators and their batteries and water pumps shall be adequately protected against vandalism and theft.

Unless otherwise provided by the Supervisor, the Contractor shall not by his operations obstruct any road or access to other buildings nor break down any fence nor obstruct any drains or water courses, but if such blockages occur, he shall at once remove the blockages and repair them the breakages.

3.11. Construction site documentation

Pursuant to Article 96. Law on spatial planning and construction of structures ("Official gazette of Montenegro" no. 064/17, 044/18, 063/18, 011/19 and 082/20), the Contractor shall keep the following documentation at the building site:

- 1) license of the contractor for the performance of activity set out in Article 122 of the present Law;
- 2) decision appointing the chartered engineer managing the building of the structure in its entirety;
- 3) license of the chartered engineer managing the building of the structure in its entirety;
- 4) license of the engineering supervision for the performance of activity set out in Article 124 of the present Law;
- 5) decision appointing the reviewer who is managing the engineering supervision over the building of the structure in its entirety;
- 6) license of the reviewer who is managing the engineering supervision over the building of the structure in its entirety;
- 7) evidence of liability insurance of the contractor and the engineering supervisor;
- 8) construction log book and a measurement book;
- 9) notification of building work;
- 10) stamped reviewed final design in electronic and analogue form;
- 11) site establishment study;
- 12) structure setting out/pegging out study;
- 13) written records of competent inspection authorities; and
- 14) other documents which the contractor has to collect and keep during building.

If the engineering documents envisage, for the purpose of structure building, the installation of factory produced parts, elements and equipment, the contractor shall also have at the building site, together with the documents set out in para.1 of this Article, supporting documents in compliance with law.

In the construction log book, the Contractor shall enter in it at least the following information: the weather conditions, interruptions of work owing to inclement weather, hours of work, number and type of workmen employed on the Site, materials supplied, equipment

in use, equipment not in working order, tests carried out in situ, samples dispatched, unforeseen circumstances, as well as orders given by the Supervisor.

In the measurement book, the Contractor shall enter in it at least the following information: detailed statements of all the quantitative and qualitative elements of the work done and the supplies delivered and used, for the measurement on the site by the supervisor and for the purpose of calculating of payments.

Whenever the Supervisor requires any part of the works to be measured, reasonable notice shall be given to the Contractor's Representative, who shall:

- a) Promptly either attend or send qualified representative to assist the Supervisor in making the measurement, and
- b) Supply any particulars requested by the Supervisor

If the contractor fails to attend or send the representative, the measurement made by (or on behalf of) the Supervisor shall be accepted as accurate.

The measurement book prepared by the Contractor shall be revised and signed by the Supervisor or his representative within 7 days of its receipt. The Contractor shall participate, at the place and on the date requested to him, in the examination and approval of the measurement book by the Supervisor's Representative and shall agree with him the eventual corrections to be entered into the Measurement book by the Supervisor.

The Contractor shall ascertain all conditions relevant to the Works.

All information obtained by the Contractor regarding site conditions, subsurface information, groundwater elevations, existing construction of site facilities as applicable, and similar data, are the complete responsibility of the Contractor. Neither the Supervisor nor the Contracting Authority assumes any responsibility for the completeness and faultlessness or interpretation of such supplementary information.

The construction log book and the measurement book shall be done in accordance of Rulebook on the manner of preparation and content of the construction log book and measurement book ("Official gazette of Montenegro" no. 068/18).

3.12. Health, Safety, Accidents, Security

3.12.1. General Specifications

The Contractor shall maintain arrangements whereby he can quickly call out Labour outside normal working hours to carry out any work needed for an emergency associated with the Works.

The Supervisor shall be provided at all times with a list of telephone numbers of the Contractor's staff who are currently responsible for organizing emergency work. The Contractor shall acquaint himself and his employees with any relevant local arrangements which are in existence for dealing with emergencies.

The Contractor is also obliged to observe all the stipulated measures pertaining to protection at work as well as fire protection, hygienic and technical conditions all in accordance with the local legislative and best available practice.

The Contractor shall ensure to the satisfaction of the supervisor and relevant local authorities, the health, safety and welfare at work of his and subcontractor employees, third parties and representatives of the Supervisor and Contracting Authority.

3.12.2. Labour Safety and Protection

The Contractor shall provide for conditions necessary for health and safety while working. The execution of works in order to prevent accidents with employees and passengers, working site must always be limited by protective fence.

Contractor's responsibilities shall include but not limited to:

- preparation of the Health and Safety Plan which shall be approved by the Supervisor;
- the provision and maintenance of equipment and systems of work must be safe and without risks to health;
- the execution of suitable arrangements for ensuring safety and absence of risks to health in connection with the use, handling, storage and transport of construction material;
- the provision of protective clothing and equipment, first aid stations with such personnel and equipment as are needed and such information, instruction, training and supervision as are necessary to ensure the health and safety at work of all persons employed on the Works, all in accordance with Laws and all local By-Laws;
- designation as Safety Manager/s in full compliance with Tender Requirements, as well as of additional senior staff as needed who shall have specific knowledge of safety regulations, and experience of safety precautions on similar works and who shall advise on all matters affecting the safety of workman and on measures to be taken to promote such safety;
- the provision and maintenance of access to all places on the Site in a condition that is safe and without risk of injury;
- the provision of adequate refuse collection and disposal, complying with the Laws and all local By-Laws and to the satisfaction of the Supervisor, for all site offices and workshops on the site;
- the provision of suitable latrines and other sanitary arrangements at the site where work is in progress to the satisfaction of Supervisor;
- the execution of appropriate measures in consultation with the Inspection for supervision in the field of protection and health at work to control within the site;
- reporting details of any accident to the Supervisor as soon as possible after its occurrence;
- The provision and maintenance of adequately equipped first aid station on the site of the works.

The Contractor is also obliged to observe all the stipulated measures pertaining to fire protection, protection at work as well as hygienic and technical conditions as per general requirements and specific requirements in Montenegrin legislation.

3.12.3. Accidents, Extraordinary Events

The Contractor shall give immediate written notice to the Supervisor of any accident or extraordinary event occurred on the work site giving details of the same whether or not such an accident or event affects the progress of work. The Contractor is also obliged to report on any measure taken.

3.13. Environmental Protection

3.13.1. Environmental Management Plan and other general requirements

The Contractor shall take all necessary measures and precautions and otherwise ensure that the execution of the Works and all associated operations on or off site are carried out in conformity with statutory and regulatory environmental requirements.

The Contractor shall take all measures and precautions to avoid any nuisance or disturbance arising from the execution of the Works. This shall be achieved wherever possible by suppression of the nuisance at source rather than abatement of the nuisance once generated.

The provisions of these Sub-Clauses shall only be disregarded in respect of emergency work required for the saving of life or property or the safety of the Works.

In the event of any spoil or debris or silt from the Sites being deposited on any adjacent land, the Contractor shall immediately remove all such spoil debris or silt and restore the affected area to its original state to the agreement of the Supervisor.

The offer should include appropriate cost-effective mitigation measures, which should form part of the project cost.

Environmental Management Plan (EMP) shall be prepared by the Contractor incorporating proposals concerning the implementation, management and monitoring of the environmental components of the project.

Within two (2) weeks from the commencement of the works, the Contractor shall submit an EMP with operational details of its proposals to the Supervisor for approval.

The item shall be paid as a lump sum.

3.13.2. Environmental protection during construction period

The Contractor shall use such construction methods and shall maintain all borrow/stockpile/spoil disposal area so as to assure the stability and safety of the Works and any adjacent feature, to assure free and efficient natural and artificial drainage and to prevent erosion.

The Supervisor has the power to disallow the methods of construction and/or the use of any borrow/stockpile/spoil disposal area if in their opinion the stability and safety of the Works or any adjacent features are in danger, or if they disturb natural or artificial drainage, or if the method or use of the area will promote undue erosion.

Following excavation for the works, the Contractor shall take all steps necessary to complete drainage and slope protection works in advance of each rainy season. Erosion or instability or sediment deposition arising from operations not in accordance with the Specifications shall be repaired immediately by the Contractor at its expense. The Contractor shall also take all steps necessary to complete drainage in advance of each winter rainy season in the areas excavated for borrowing materials.

Notwithstanding approval of the intended method of working, the Contractor shall at all times be responsible for constructing works in accordance with the Specifications, the Design and drawings.

3.13.3. Prevention of pollution

The Contractor shall ensure that its activities do not result in any contamination of land or water by polluting substances.

The Contractor shall implement physical and operational measures such as oil and grease traps in drainage systems from workshops, service and fuel ingress, the establishment of sanitary solid and liquid waste disposal systems, the maintenance in effective condition of the same assures, the establishment of emergency response procedures for pollution events and dust suppression, all in accordance with normal good practice and to the agreement of the Supervisor.

3.13.4. Environmental considerations

The following environmental protection measures shall be observed during the execution of the construction of the works:

Demolition material- Reuse of demolition materials as backfill for trenches and excavations or/and hard fill for construction foundations and roadways is possible, unless contaminated or hazardous materials such as asbestos are identified. The Contractor will be responsible for environmentally safe disposal of any material resulting from the demolition and other site materials with approval from the relevant local Authorities at a designated licensed disposal facility.

Excavated soil - Reuse of excavated natural soil, which is free of cohesive components, salt, sulphate and/or clay materials, may be used as backfill for trenches and excavations. The Contractor will be responsible for environmentally safe disposal of surplus materials with approval from the relevant local Authorities at a designated licensed disposal facility.

Ground water - Temporary and/or permanent groundwater lowering may be required. The Contractor shall apply appropriate dewatering measures as required and shall also ensure that adequate measures are implemented to control surface water discharge.

Air pollution - Construction may give rise to dust and construction equipment exhaust emissions. Due note shall be taken of the proximity of residential housing to the works. The normal health and safety controls will be required to safeguard the residential and passing population.

Noise pollution - Construction works may cause annoyance caused by noise. The normal health and Safety controls will be required to safeguard the residential and passing population.

Maximum noise levels - During construction works the Contractor shall comply with the local and national requirements. The Contractor shall be legally responsible and financially liable to observe Montenegrin environmental legislation.

The noise levels shall be in accordance with the relevant Montenegrin noise environmental legislative.

Noise and disturbance shall be kept to the reasonable minimum as far as required for this project. The Contractor's attention is drawn to the close proximity of some residential areas.

All plant and tools used at such sites above or near ground level shall be silenced or of a silent type.

The Contractor shall take all necessary steps to ensure that its workmen carry out their duties in a quiet manner particularly when working at night.

Pollution prevention - the Contractor shall not pollute or unnecessarily disturb lands, roads and other places on and around the Site. No trees or other vegetation shall be removed except to the extent necessary for the Works.

Dust control- Dust shall be controlled and reduced by periodically spraying demolition works with water. Site operatives and general public shall be protected from hazards associated with vibration, dangerous fumes and dust arising during the course of the Works.

3.13.5. Air quality

The Contractor shall devise and arrange methods of working to minimize dust, gaseous or other airborne emissions and carry out the Works in such a manner as to minimize adverse impacts on air quality.

The Contractor shall utilize effective water sprays during the delivery and handling of materials when dust is likely to be created, and to dampen stored materials during dry and windy weather.

Stockpiles of materials shall be sited in sheltered areas. Stockpiles of friable material shall be covered with clean tarpaulins, and sprayed with water during dry and windy weather. Stockpiles of material or debris shall be dampened prior to their movement, except where this is contrary to the Specification.

Any vehicle transporting no coherent material shall not be loaded to a level higher than the side and tail boards, and shall be covered with a clean tarpaulin in good condition. The tarpaulin shall be properly secured and extend at least 300 mm over the edges of the side and tail boards.

In periods of high wind, dust generating operations shall not be permitted within 200 m of residential areas having regard to the prevailing direction of the wind.

Construction vehicles and machinery shall be kept in good working order and engines turned off when not in use. Appropriate measures shall be taken to limit exhaust emissions from construction vehicles, machinery and plant.

An advance warning shall be given to potentially affected persons, so that some measures can be taken by them before commencement of works, especially before dismantling/demolition.

3.13.6. Noise

The Contractor shall consider noise as an environmental constraint in its planning and execution of the Works. The Contractor shall take all necessary measures to ensure that the operation of all mechanical equipment and construction processes on and off the Site shall not cause any unnecessary or excessive noise, taking into account applicable environment requirements. The Contractor shall use all necessary measures and shall maintain all plant and silencing equipment in good condition so as to minimize the noise emission during construction works.

3.13.7. Measures for decreasing the negative environmental impact

In order to mitigate negative environmental impact, the Contractor should propose necessary actions in its Environmental Management Plan (EMP), such as:

- To create adequate organization for execution of construction works which shall comply with local construction regulations;
- To provide water sprinkling of the construction site;
- To create organization for control on the facilities storing fuel and lubricants and on the technical condition of the machines in order to avoid accidental oil spills;
- Along the construction site, waste water should be treated and sedimentation tanks and oil separators should be placed if needed;
- To foresee the necessary maintaining and drainage measures for the construction site, access roads and service roads, in order limiting the erosion processes;
- To specify the quantity and type of waste and how its disposal is intended to be transported and removed from the site area;
- Measures for fast conservation of unfinished works at unfavorable conditions.

3.14. *Site Clearance*

Upon completion of each section of the Works, the Contractor shall clean up the site; remove all temporary buildings, plant and debris. He shall level off and fine grade all excavated materials which is surplus to Specifications. The whole of the site shall be left in a clean condition to the satisfaction of the Supervisor. A Final Certificate will not be issued before the Contractor has removed all his machinery, equipment, plant, waste material from the site and the site reinstated to the satisfaction of the Supervisor.

3.15. *Traffic Specifications*

The Contractor shall take all reasonable steps to prevent vehicles entering and leaving the Site depositing mud or other debris on the surface of adjacent roads or footways, and shall remove expeditiously any materials so deposited. The surfaced areas of the Sites shall also be covered by the Specifications of this clause.

The Contractor shall not make use of the public streets, roads, verges, thoroughfares or footpaths for disposing or storing equipment or materials.

3.16. *Contractor's Equipment and Materials*

Details of all Contractors' Equipment to be used by the Contractor in the execution of the Works shall be submitted to the Supervisor prior to its use.

The Supervisor's consent to use the Contractor's Equipment will not be unreasonably withheld, but if in the Supervisor's opinion circumstances arise which make it desirable that the use of the Contractor's Equipment should be suspended either temporarily or permanently, the Contractor shall change the method of performing the work affected and he shall be deemed to have no cause for claims against the Contracting Authority on account of having to carry out the work by another method, nor shall he be deemed to have cause for

claim if any order issued by the Supervisor results in the Contractor's Equipment having to stand idle for a period of any duration whatsoever or having to be removed. In particular, where it is impossible due to the proximity of, and danger to, existing roads, structures, or services, to excavate except by hand methods, then in such cases it shall be deemed reasonable for the purpose of this clause for the Supervisor to withhold consent to use the Equipment.

All materials used shall be of the best quality as specified and described in the Specification, Design, Drawings and the Bills of Quantities.

The Contractor must secure the compliance with the Specification of materials or plant to be provided under this Contract before propose them for approval to the Supervisor.

The quality of the material has to be confirmed by the attests and suppliers' certificates, all according to TS and MNE regulations.

All materials implemented during construction shall be in compliance with the requirements of:

- Requirements of the local legislation (Law on construction products ("Official Gazette of Montenegro", no. 018/14 from 11.04.2014, 051/17 from 03.08.2017), Rulebook on construction products (Official Gazette of Montenegro "no.082/16 from 29.12.2016, 041/18 from 28.06.2018, 039/20 from 28.04.2020);
- Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonized conditions for the marketing of construction products;
- The present Technical Specifications;
- Requirements from the Main design.

All materials applied shall be accompanied with quality certificates to prove their concordance with the requirements set out in the design and the Specification.

The Contractor shall make diligent efforts to procure the specified materials. Where, due to different reasons, the materials required by the Contract are not available, substitute materials may be used but with the prior approval by the Supervisor.

Also, the following general Specifications shall apply:

- The Contractor shall provide adequate lighting where work is being executed at night and shall provide and install any additional lighting which the Supervisor may require in order to watch and supervise the Works and carry any testing and examination of materials.
- Materials available on the Site shall be used solely for the execution of the Works.

3.17. Billposting and Advertisement

The Contractor shall not undertake or allow bill posting or advertising of any kind upon the works without the written consent of the Supervisor.

3.18. Procedures for Complaints and Claims for Damages

Details of all claims or warnings of intended claims which the Contractor may receive in respect of matters against which he is required by the Contract to indemnify the Contracting Authority shall be notified without delay to the Supervisor, who shall likewise pass to the Contractor any such claims or warnings which may be submitted directly to the Supervisor or Contracting Authority.

A similar exchange of information shall also be made in relation to all complaints which may be received.

The Contractor shall notify the Supervisor in writing immediately following any damage arising out of the execution of the Works.

Section 4. Civil and Architectural Works

4.1. General conditions

The Contractor shall be responsible to construct all the works in accordance with all design documentations, Montenegrin and European standards, construction best available practice and any other relevant documentation forming part of the Tender Dossier.

The Contractor is fully familiar with all details of the submitted Design, as well as with all local regulations, local standards (MEST), common practice of trade and circumstances for their execution, nevertheless, it is understood that, whenever local regulations, local standards (MEST), or any common practice of trade, are subject to any interpretation, clarification, ambiguity, or dispute, a ruling by the Supervisor will prevail, always provided that such ruling will be fully in compliance with and will be based on the subject local regulations, local standards (MEST), including, but not limited to:

ICS number	Standard number	Year	Title
91.200	MEST ISO 4463-1:2017	2017	Measurement methods for building-Setting-out and measurement -Part 1: Planning and organization, measuring procedures, acceptance criteria
	MEST ISO 7976-1:2017	2017	Tolerance for building-Methods of measurement of buildings and building products-Part 1: Methods and instruments
	MEST ISO 7976-2:2017	2017	Tolerance for building-Methods of measurement of buildings and building products-Part 2: Position of measuring points

As well as in accordance with common practice of construction works, and any such ruling by the Supervisors and subsequent instruction in that respect, will not constitute any ground for variation order and/or any additional payment.

All works must be carried out precisely and professionally. Prior to execution of the works/application of any material and/or equipment, the Supervisor must examine all material/equipment and all his comments referring to material/equipment and quality of work will be obligatory for the Contractor.

The Contractor will be responsible for all damages caused by the Contractor during any works, to any third party, structure, main building or adjacent buildings, and all repair works and compensations of any kind will be at the Contractor's expense.

The Contracting Authority will provide to the Contractor the access to building site. All other matters in this regard will be the competence of the Contractor.

It is also considered that the Contractor's will be responsible for safeguarding of the building site and maintenance of existing structure and/or building all the time during the progress of the works until completion and acceptance of the building by the Contracting Authority.

Upon the completion of the works, the Contractor will remove from the building site and other used areas all his tools, machinery, surplus material, etc. so as to have the site neatly arranged as defined in the technical documentation, and all other areas restored in same condition as before the construction.

Coding of each specific technical specification for any type of works given in this Technical Specification, and subsequently in the BoQ, is based on the International Classification for Standards - ICS, providing comprehensive correlation between the international and local standards. "The Institute for Standardization of the Montenegro" ("Institut za Standardizaciju Crne Gore") <https://www.isme.me/catalog> within its Catalogue provides numerous updated tables enabling connection between international and local standards, as well as, updated review of old MNE standards which have been either withdrawn or replaced or simply renamed.

Unforeseen works or changes to the work and/or materials and equipment the Contractor shall announce prior to execution. In this case, the Contractor is obliged to submit additional offer which must contain analyzes according to the standards. The Contractor is obliged to submit all changes to the Supervision for approval.

The agreed unit prices include all works, material, scaffolding, transportation, use of tools, equipment or machines etc., to provide fully completed and accepted position of the works.

These general conditions apply to each item of BoQ separately.

Dismantling and Demolition Works

The contractor is obliged to perform all works from this group of works carefully, taking care not to damage materials and equipment that are not predicted for dismantling or demolition, as well as the already performed position works. All damages caused by the Contractor's negligence shall be repaired by the Contractor at his own expense.

The obligation of the Contractor is to hand over all dismantled / demolished material and/or equipment to the End User or take it to the landfill determined by Authority, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.

Instruction which material shall be hand over to the End Recipient or driven away to the landfill, will be given to the Contractor by the Supervisor.

Concrete Works

All concrete work will be carried out fully in accordance with the Main Design, and applicable regulations and standards.

The Design define concrete quality, separately for each item, including crushing strength after 28 days (C) and class of concrete, as well as number of test samples for each item, provided that the Contractor will be obliged to observe the above stated fully.

For reinforced concrete foundations, beams, walls and slabs, apply concrete C25/30 made from separated aggregate and portland cement. A blinding layer of min 10,0 cm C12/15 shall be placed under new foundations and slab were shown on the drawings or ordered by the Supervisor.

Reinforcement steel shall be steel bar B500C and steel wire fabric B500C. In general, reinforcement steel shall have a yield strength of $f_{yd} = 500$ MPa and a characteristic tensile strength of $f_{tk} = 560$ MPa. Only ribbed bars shall be used for structural elements. Smooth bars may be used for stirrups and secondary elements. All reinforcement steel shall be accurately placed and fixed in position and retained in that position during the placing of the concrete.

The aggregate has to be clean, without organic impurities, or earth (acceptable up to 2% by weigh), otherwise the aggregate has to be washed. The grading of aggregates shall comply with EN 933. The maximum size of aggregates required will not normally exceed 32 mm. At least two separate size ranges of aggregate required as follows: Fine aggregate: 0 to 4 mm and Coarse aggregate: nominal size: >4 mm.

Material for formwork needs to be first class of quality in order to ensure proper quality of concrete.

Where new concrete is joined with old or existing concrete, the Contractor shall cut the old concrete to form a straight surface. The joint shall be considered as a construction joint and treated with an approved epoxy resin compound, prior to placing the new concrete.

Concreting will not commence prior to the inspection and acceptance of the reinforcement. The reinforced concrete casting will be done mechanically with vibration, provided that vibration equipment will be in accordance with the type of structure.

No external load of any kind shall be applied to any part of a concrete structure until the concrete has matured at least 7 days.

The concrete works shall be executed by qualified workers, respecting technical specifications and prevailing regulations, national and international standards for such type of works.

Adequate number of samples will be tested by an accredited testing laboratory on the Contractor expense. Additional sample testing may be required, up to the maximal number of samples foreseen under the regulation.

Fee of any additional expense, if additional sample testing is required, exceeding the maximal number of samples foreseen under the regulation, in case of unsatisfactory test results expenses will be on the Contractor, otherwise, in case of positive test results, the Contractor will bear expenses of such additional testing.

The Contractor will be under obligation to present evidence on quality of material used for concrete manufacturing (cement, aggregate, water).

For the quality requirements of reinforced concrete structures in terms of aggregates, cement, water, additives, conditions of transport, storage, installation, care, and control, apply the provisions of Law on Construction Products (Official Gazette of Montenegro 18/14) and the Rulebook on Technical Requirements for Concrete Structures ("Official Gazette of Montenegro", No. 020/18, 039/19 and 052/20).

Standards

The Contractor shall carry out the works described in accordance with the appropriate standards or equivalent local or international standards. The main standards are, but shall not be limited by the following:

No.	ICS Number	Standard Number	Title
1.	91.100.30	MEST EN 206:2018	Specification, performance, production and conformity
2.		MEST EN 12350-1:2020	Testing fresh concrete - Part 1: Sampling and common apparatus
3.		MEST EN 12350-2:2019	Testing fresh concrete - Part 2: Slump test
4.		MEST EN 12350-3:2020	Testing fresh concrete - Part 3: Vebe test
5.		MEST EN 12350-4:2020	Testing fresh concrete - Part 4: Degree of compatibility
6.		MEST EN 12350-6:2020	Testing fresh concrete - Part 6: Density
7.		MEST EN 12620:2015	Aggregates for concrete
8.		METI CE 1901:2015	Regional Specifications and Recommendations for the avoidance of damaging alkali silica reactions in concrete

9.		MEST EN 934-1:2009	Admixtures for concrete, mortar and grout - Part 1: Common requirements
10.		MEST EN 12190	Products and systems for the protection and repair of concrete structures - Test methods - Determination of compressive strength of repair mortar
11.		MEST EN 12636:2010	Products and systems for the protection and repair of concrete structures - Test methods - Determination of adhesion concrete to concrete
12.		MEST EN 1008:2010	Mixing water for concrete - Specification for sampling, testing and assessing the suitability of water, including water recovered from processes in the concrete industry, as mixing water for concrete
13.		MEST EN 933-2:2009	Tests for geometrical properties of aggregates - Part 2: Determination of particle size distribution - Test sieves, nominal size of apertures
14.		MEST EN 12390-1:2013	Testing hardened concrete - Part 1: Shape, dimensions and other requirements for specimens and moulds
15.		MEST EN 12390-2:2020	Testing hardened concrete - Part 2: Making and curing specimens for strength tests
16.		MEST EN 12390-3:2020	Testing hardened concrete - Part 3: Compressive strength of test specimens
17.		MEST EN 197-1:2012	Cement - Part 1: Composition, specifications and conformity criteria for common cements
18.	91.100.10	MEST EN 197-2:2015	Cement - Part 2: Conformity evaluation
19.		MEST EN 196-2:2015	Method of testing cement - Part 2: Chemical analysis of cement
20.		MEST EN 10080:2009	Steel for the reinforcement of concrete - weldable reinforcing steel - General
21.		MEST 1028	Steel wire and wire products
21.	77.140.15	MEST EN 10025:2008	Hot rolled products of structural steels - Part 1: General technical delivery conditions
22.		MEST EN 10079:2008	Definition of steel products
23.		MEST EN 10204:2008	Metallic products - Types of inspection documents
24.	91.080.40	MEST EN 13670:2011	Execution of concrete structures

25.		MESTN EN 1504	Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity
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Measurement and Payment

Measurement is per m3 or m2 of concrete, and kg of steel reinforcement (rebar).

Prices per item in the pricelist from this chapter cover fully completed work per unit measure.

Contractor procures the formwork and it remains in his possession upon use. During reuse, material must be cleaned from concrete, dirt, etc. Prior to concreting, plate must be wetted well. Formwork, supports and scaffolding are not paid separately, but are included in concreting unit price.

Masonry Works

General

All masonry work must be carried out by qualified manpower, using the appropriate tools and machines for this kind of works.

Brick laying shall be made by skilled and with qualified workers power, and according completely to legislation, this technical description and the Main Design.

Vertical and horizontal joints will be completely filled by mortar, without hollows. Thickness of mortar in joints will not be over 12 mm. Joints at outer surface will be left empty for about 15-20 mm, to provide better adhesion of mortar during plastering. Any mortar leaking will be removed immediately. Trimming of bricks and/or hollow clay blocks will be made by machinery equipment.

The Contractor, on his own expense, will provide for all required and necessary material

related to manufacturing shattering, formworks, scaffolding, as well as for timbering & bracing of trenches & foundation pits. The Contractor will remain owner of all said material and equipment and will be under the obligation to remove the same from the Site when required. Any instruction intended to improve safety and/or quality of shattering, formworks, scaffolding and timbering & bracing of trenches & foundation pits will not be considered as an additional work under any circumstances.

Internal walls

Internal walls shall be of porous light autoclaved concrete wall blocks AAC with standard dimensions and width of 120/150/200 mm and with dry density min 500 kg/m3 of the blocks. The construction of the internal walls shall be done with using cement-based adhesive as specified by the block manufacturer for this purpose, (prefabricated mortar: sand, cement, hydraulic lime and additives).

The masonry should be done according to the manufacturer's instructions, for connection, anchoring/mooring, etc.

Indicate all required properties, such as:

Size Length of 625 mm, Height of 200 mm, Thickness 100/120 mm

Compressive Strength 2,5 MPa

Normal Dry Density at least 400 kg/m³

Sound Absorption 33 dB (without mortar)

Thermal Conductivity $\lambda = 0.120$ W/mK

Thermal Resistance ≥ 120 mins

Girders (tie-columns and tie-beams) of masonry walls

The walls must be confined with the reinforced concrete tie-columns/beams, dimensions of 200 mm length and varying widths as per the brick width, at least in height every 2250 mm on the ground floor and 2200 mm on the other floors, at maximum distance of 5000 mm. The tie-column should be made at free end of the wall as well as at the top of every new wall. Girders shall be constructed as cast in-situ concrete C25/30. While reinforcement is 4RØ12 steel bar and Ø8 for stirrups at 15 cm distance in line with the Eurocode.

Plaster and Mortars

Type A

Gauged Mortar with river washed sand free of fines and organic materials mixed in the ratio of:
cement: lime: sand = 1: 0,8: 8

Type B (for brickwork)

Gauged Mortar with river washed sand free of fines and organic material mixed in the ratio of:
cement: lime: sand = 1: 0,5: 5,5

Type C (for toilets areas, kitchenette and external skirting)

Cement Mortar with clean sharp sand washed and free of fines and organic material mixed in the ratio of: cement: sand = 1:2.

The present chapter refers but it not limited to the coating of the internal and external surfaces of the building that shall be plastered according to the EN 998, where not otherwise indicated. Provide asbestos-free materials. Working conditions, application equipment etc., shall all be strictly in accordance with the appropriate manufacturer's instructions.

Cement screed as base for floors skirting

Levelling screed shall be applied in all areas of flooring. Final top surface of different flooring must be equalized. Final top surface shall be cleaned, and the dust removed, and it shall be levelled using cement-based levelling compound, which should be allowed to dry.

On the floors of the building, acoustic/thermal insulation and cement mortar should be in the form of a levelling layer of light aggregate porous concrete on other pipes with a thickness of 1: 3 and up to 60 mm. The cement mortar should be semi-dry (with as little water as possible). Works shall be commenced if the ambient temperature in work area is at least 10°C and rising. The ambient temperature shall be above 10°C while work is in progress and for at least 3 days after its completion. Use of adhesives in unventilated areas is forbidden.

Technical Features of Cement Screed:

Compressive Strength: C25

Flexural Strength: F4

Reaction to Fire: A1

Release of Corrosive Substances: CT

Wall and ceiling plasters

This item is covering the applications of plastering of internal walls and ceilings where applicable in accordance with the detailed design details.

Plaster of walls and ceilings of dry rooms shall be built up with a compatible primer coat and 10 mm thick mineral lime-gypsum plaster. It shall be machine or hand applied.

Preparation, application, tools and equipment etc., shall all be strictly in accordance with the reputed manufacturer's instructions.

Plaster on sanitary area walls, boiler rooms, or external surfaces shall be mortar Type C (cement mortar).

Standards

The Contractor shall carry out the works described in accordance with the appropriate standards or equivalent local or international standards. The main standards are, but shall not be limited by the following:

No.	ICS Number	Standard Number	Title
1.	91.100.10	MEST EN 998-1:2017	Specification for mortar for masonry - Part 1: Rendering and plastering mortar
2.		MEST EN 998-2:2017	Specification for mortar for masonry - Part 2: Masonry mortar
3.	91.100.15	MEST EN 13139:2009	Aggregates for mortar
4.	91.100.25	MEST EN 771-1:2016	Specification for masonry units - Part 1: Clay masonry units

Measurement and Payment

The calculation of the works is made per measurement unit, indicated for each item. The unit price will include execution of the complete item (supply of material, external, all horizontal and vertical site transport, safety measures, scaffolding, required formwork) and other activities necessary for proper execution of the works.

Insulation Works

The Contractor shall submit to the Supervisor for his approval complete details of the proposed waterproofing system specified in the drawings. The submittal shall include specifications, technical literature, safety measures and samples. - Vertical up stand details;

The water proofing system shall be applied by specialized experienced workers.

Waterproofing works shall be implemented for the waterproofing of:

- Hydro-insulation membrane coated from both sides with a high-quality bitumen mass, produced from special bitumen, enriched with elasticizes based on specially chosen rubbers and quality mineral fillers, min. 4 mm of thicknesses in rooms on ground floor
- Wet and sanitary areas hydro-insulation based on cement-polymer mortars, according to Supervisor instructions.

a) Hydro insulation on the ground floor slab

The installation of horizontal waterproofing on the ground floor plate with these layers: one layer of bitumen paint/mass, two layers of bitumen waterproofing thickness 4 mm (one with shall be welded).

All materials shall be stored and used strictly in accordance with the manufacturer's instructions. The surface must be hard, sound and free of dust, dirt and other barrier materials such as paint, lime coatings, plaster and adhesive residues, etc. In cases where there is a rough surface, it shall be levelled according manufacturer's instructions.

Elastic bituminous primer shall be applied to the blinding concrete. It shall be a cold fluid bituminous based coat applied by brush roll. It shall be compatible with the following waterproofing layer.

Working conditions, application equipment etc., shall all be strictly in accordance with the reputed manufacturer's instructions.

b) Horizontal and vertical hydro insulation based on cement-polymer mortars

Toilets floors and concrete parapets under glass walls shall be waterproofed with two coats of a two-component fiber-reinforced mortar, with very low elastic modulus, containing fine particle size selected aggregates and adequate additives for waterproofing. Waterproofing on the walls in the toilettes shall rise to 15 cm above the finished floor level, including the fiberglass meshes on angels of the toilets. Particular attention shall be paid to sealing the around the floor drains and opening for installation to prevent leakage.

Working conditions, application equipment etc., shall all be strictly in accordance with the reputed manufacturer's instructions.

Thermal insulation in floors, walls, ceilings and roofs

Thermal - acoustic insulation shall be laid in the roof and flooring applications, all in accordance with the main design drawings.

a) Thermal Insulation on floors

The thermal insulation on the floor shall be made of extruded polystyrene boards with a smooth surface structure with volume weight of 30 kg/m³, thickness 20-50 mm.

Thermal insulation will be applied on all floor slabs of the building. On the upper side of the isolation PE sheet should be applied. TI shall be produced by appropriate manufacturer and the working conditions, application equipment etc. shall all be strictly in accordance to the manufacturer's instructions.

- Thermal coefficient $\lambda = 0,033 \text{ W/mK}$ (d=30mm)
- Permissible compressive load (2% compressibility): 130 kPa
- Fire class: "E" (according to EN 13501-1)

Standards

No.	ICS Number	Standard Number	Title
1.	91.100.50	MEST EN 13969:2009	Flexible sheets for waterproofing - Bitumen damp proof sheets including bitumen basement tanking sheets - Definitions and characteristics
2.		MEST EN 13956:2014	Flexible sheets for waterproofing - Plastic and rubber sheets for roof waterproofing - Definitions and characteristics
3.	91.100.60	MEST EN 13164:2016	Thermal insulation products for buildings - Factory made extruded polystyrene foam (XPS) products - Specification

Sheet Metal Works

A) Flat metal sheets

Flat metal sheets, hot-dip galvanized (Z165) steel sheet, PVC coated steel sheet, 0,55 mm thick, up to corrosive class C4, RAL 3009 of the metal sheet.

Polymer Coated Metal Sheet:

Thickness: 0,55 mm

Weight: 4,40 kg/m²

Metal flashing shall be provided with expansion joints on long runs to prevent deformation of the metal sheets. The selected metal shall not stain or be stained by adjacent materials or react chemically with them.

B) Trapezoidal steel sheet

Trapezoidal metal sheets 35/200, hot-dip galvanized (Z165) steel sheet, PVC coated steel sheet, 0,55 mm thick, up to corrosive class C4, color RAL 3009.

Polymer Coated Metal Sheet:

Thickness: 0,55 mm

Weight: 5,70 kg/m²

The selected metal shall not stain or be stained by adjacent materials or react chemically with them.

Aluminum Doors, Windows and Glass Doors

Aluminum

The present activity mainly refers but it is not limited to supply, fixing and handing of doors, windows, glass walls and assemblies, complete and in accordance with Main Design and Supervisor instructions.

The schemes of the doors, windows, glass walls and assemblies presented in Main Design and Volume 5 of this TD shall be the guide for this item, but all the measurements shall be re-checked on site before the start of manufacturing.

Aluminum work and glazing shall be carried out in strict accordance with the requirements of the applicable Building Code requirements and applicable EU standards:

No.	ICS Number	Standard Number	Title
1.	91.060.50	MEST EN 12207:2019	Windows and doors - Air permeability - Classification
2.		MEST EN 12208:2019	Windows and doors - Watertightness - Classification

3.		MEST EN 12210:2019	Windows and doors - Resistance to wind load - Classification
4.		MEST EN 12365-1:2009	Building hardware - Gasket and weatherstripping for doors, windows, shutters and curtain walling - Part 1: Performance requirements and classification
5.		MEST EN 1121:2009	Doors - Behavior between two different climates - Test method
6.		MEST EN 12051:2009	Building hardware - Door and window bolts - Requirements and test methods
7.		MEST EN 179:2011	Building hardware - Emergency exit devices operated by a lever handle or push pad, for use on escape routes - Requirements and test methods
	91.190		
8.		MEST EN 1125:2009	Building hardware - Panic exit devices operated by a horizontal bar, for use on escape routes - Requirements and test methods
9.		MEST EN 1935:2010	Building hardware - Single-axis hinges - Requirements and test methods
10.			
	87.020	MEST EN ISO 12944-5:2021	Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 5: Protective paint systems (ISO 12944-5:2019)
11.	81.040.20	MEST EN 673:2011	Glass in building - Determination of thermal transmittance (U value) - Calculation method

Samples of all profiles and/or elements are to be submitted to the Supervisor for approval and the elements used throughout the works are to be equal in all respects to the approved sample having particular regard to consistency of grain and color where this is of visual importance to the finished works.

All necessary mortising, tendon making, grooving, matching, tonguing, housing, rebating and all other work necessary for correct jointing shall be executed in accordance with the relevant standards.

TILING WORKS

The work shall be carried out by the labor qualified for this type of works. The selection of colors and design shall be made with the consent of the Supervisor, unless otherwise indicated in a separate description. Damaged tiles and tiles of poor quality must not be set.

No.	ICS Number	Standard Number	Title
1.	91.100.23	MEST EN 14411:2018	Ceramic tiles - Definition, classification, characteristics, assessment and verification of constancy of performance and marking
2.	83.180, 91.100.10	MEST EN 12004-1:2018	Adhesives for ceramic tiles - Part 1: Requirements, assessment and verification of constancy of performance, classification and marking
3.	83.180, 91.100.10 91.100.30	MEST EN 12004-2:2018	Adhesives for ceramic tiles - Part 2: Test methods
4.	91.100.25	MEST CEN/TR 13548:2020	General rules for the design and installation of ceramic tiling
5.	91.100.23	MEST EN 17160:2020	Product category rules for ceramic tiles

Flooring works

The vinyl flooring is installed with adhesive. Prior the installation of the vinyl flooring preparation of underlayer must be executed.

The material used shall be of high quality and produced by appropriate manufacturer and the working conditions, application equipment etc. shall all be strictly in accordance to the manufacturer's instructions.

Façade Works

External walls shall be insulated with thermal insulation to match the requirements for the contact facade.

Fixing shall be done in according to design details and manufacturer's specification.

The Façade as presented in the architectural design should be composed of:

- Finish coat, paint / impregnation
- Primers
- Mat reinforcement
- Basecoat
- EPS insulation material with system dowels
- Adhesive
- Masonry / concrete with or without plaster

Adhesive and basecoat

Ready-to-use organically bonded fiber and siloxane reinforced adhesive/basecoat with mineral-based lightweight aggregates for high yields. Product shall be in compliance with EN 15824

EPS insulation material with system dowels

Thermal isolation boards made of EPS (expanded polystyrene), thickness $d=50\text{mm}/80\text{mm}$, with following characteristic:

- Thermal conductivity λ_D : $0,038 \text{ W/mK}$
- Permissible compressive load (2% compressibility): 20 kPa
- Fire class: "B" (according to EN 13501-1)

Insulation anchor nails with the option of screwing in a compound screw nail for thermal facade systems.

The insulation anchor nail/dowel consists of a combination of fiber-glass reinforced polyamide and galvanized steel, the dowel anchor sleeve is made of polypropylene and the dowel plate is also made of fibre-glass reinforced polyamide. With its integrated compression crumple zone and a dowel plate thickness of just 2.5 mm , the dowel plates are placed exactly flush in the insulation material.

Mat reinforcement

Reinforcing mesh $4 \times 4 \text{ mm}$ or $5 \times 5 \text{ mm}$;
Mesh reinforcement joint overlap $\geq 100 \text{ mm}$.

Finish coat

Ready-to-use, paste-like silicone resin plaster for non-directional textures, in compliance with EN 15824. Resistant to soiling, highly vapour permeable, highly water-repellent, Retards and prevents the formation of mould and algae. Color RAL 9010, 7046, 1019. (Color distribution is given in Main Design)

The surface of the substrate must be dry, even and free of grease and dust as well as free of any residual substances that may reduce the adhesion. Check the stability of existing coatings (paint coatings and old plasters) and compatibility with adhesive, and remove unstable coatings completely if necessary. Ensure that all openings (interface gaps) are sealed.

The contractor is solely responsible for inspecting the condition of the substrate and the on-site conditions.

The ambient temperature, substrate and material temperature must be at least $+5 \text{ }^\circ\text{C}$ and may not exceed $+30 \text{ }^\circ\text{C}$ during the entire application, drying and setting phase.

Unfavorable weather influences such as high temperatures, wind or direct sunlight can change the application conditions.

The surface of the wall must be flat, dry and free of grease and dust.

Unevenness in the substrate up to a maximum of 20 mm can be covered with the adhesive if dowelling is used in addition to adhesive bonding. Major unevenness should be equalized using a suitable plaster layer or by staggering the insulation panel thickness. The bond strength of the plaster should be tested after it has set.

Edge ribbon and dab bonding is performed by hand. The adhesive bonding surface with the substrate is $\geq 40\%$ after pressing in the insulation panels. Apply an approx. 50 mm wide ribbon of mortar around the perimeter and 3 palm-sized adhesive dabs or strips on the insulation panel.

Install the plinth connection end profile horizontally and fix using anchor nails at spacings of approx. 300 mm. Compensate for substrate tolerances with washers. Connect the joints and the plinth connection end profiles with H connectors. Apply insulation panels immediately to the fresh adhesive by pushing, floating and pressing.

Apply the insulation panels precisely and continuously starting from the bottom with the joints staggered at ≥ 100 mm (half panel length recommended for joint staggering). Cross joints, e.g., on opening corners should be avoided.

The wall must be sufficiently stable to allow the use of dowels.

The number of dowels is 6/m². Application of the dowels can commence after the adhesive has hardened sufficiently. The diameter of the drill must be ≥ 8 mm. Do not use impact or hammer drills on hollow or perforated bricks or masonry. Arrange the drill holes so that the concrete reinforcement is not damaged. Drill hole depth = dowel length + 10 mm (or +25 mm with recessed dowel installation). Clean the drill holes before the dowels are applied. Do not use worn drill bits. Resharpening of the drill bit is not permissible. Under the mesh the installation can be flush to the surface or recessed in the surface. When applying dowels through the reinforcement mesh the dowels can only be placed surface flush. The dowel must be set in the fresh basecoat layer after the application of the basecoat and the embedding of the reinforcing mesh. Then immediately (wet plaster on wet plaster) apply a second layer of basecoat. The substrate temperature must be ≥ 0 °C when placing a dowel. The exposure to UV light with direct exposure to sunlight for the dowel and insulation panel may not exceed 6 weeks.

Embed reinforcement mesh on the entire surface with at least a joint overlap of 100 mm fresh-in-fresh in the basecoat layer. Apply a full covering of basecoat to the mesh.

The mesh is arranged in the center when the basecoat thickness is up to 4 mm, for > 4 to 7 mm layer thickness it is in the upper half of the basecoat layer and for > 7 mm in the exterior third. Avoid excessive smoothing of the reinforcement layer to prevent a

concentration of fine particles or formation of a sinter layer on the surface. Rub off any burrs that have formed when drying. Plaster connections should be separated with a separating tape, separation strip, profiles or similar from the constructional components.

Before application of a further coating (primer) it is important to ensure that the basecoat is fully dry. The minimum drying time is generally approx. 1 day/mm layer thickness. With **unfavorable** weather conditions (e.g., high levels of air humidity or low temperatures) the drying time is extended.

Ready-to-use, paste-like final coat must be mixed thoroughly. When necessary, a small quantity of water may be added to set the application consistence. Apply mixture (floated render texture) with a stainless-steel trowel in grain size d=2,0 mm to the entire surface and trowel smooth with circular movements without interruption using a hard plastic trowel. Use a trial coat to ensure the color shade is correct. Always complete surfaces that can be viewed together on the same day.

The contractor is solely responsible that all components of thermo isolated façade are compatible.

PAINTING WORKS

Painting works shall be performed by professional workers, appropriate tools and material which is in accordance with technical regulations, norms and standards. All used material shall meet in accordance with applicable standards and this technical documentation.

4.2 UNIT PRICE DESCRIPTIONS

BoQ Item	B1.1.	Unit	m2
Unit price definition	Removal and installment of existing furniture and equipment		
Description			
Removal of existing furniture and equipment from the rooms. Furniture and equipment should be temporary dislocated and installment after competition of the works in same positions at the premises after finishing of the works.			
The unit price include removal and return of the furniture and equipment at previous locations.			
All damaged furniture and/or equipment caused by the Contractor shall be replaced by the expense of the Contractor.			
Calculation per m2 of room area.			

BoQ Item	B1.2.	Unit	LS
Unit price definition	Dismantling of ventilation ducts		
Description			
Dismantling of ventilation ducts in the restaurant. The duct is approximately 5.60 m long, with a box-shaped cross-section of approximately 220x400 mm. The position includes the dismantling of all elements of the duct (fixtures, equipment, internal gratings, facade gratings, etc.) Dismantle the channel with elements in a safe manner and deposit it within the building where the Investor determines. The price includes all necessary materials, tools and work and scaffolding.			
Calculation per lump sum as described above.			

BoQ Item	B1.3.	Unit	m2
Unit price definition	Demolition and removal of the existing floors		
Description			
Demolition and removal the existing flooring down to the concrete slab with all layers up to 10cm thick. Finishing floor layer are different: ceramic tiles, parquet, vinyl/linoleum. The work item includes the removal of the corresponding ceramic edge tiles and edge profiles, which will not be paid separately. Carefully demolish the floor layers, level and clean the floors surfaces, load the rubble and take it to the landfill.			
Calculation per m2 of demolished floor, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	B1.4.	Unit	m3
Unit price definition	Demolition of concrete stairs		
Description			
Demolition of reinforced concrete external stairs for access to the terrace together with the finishing coating (ceramics). The position implies the demolition of the tread and front along with the slab of the staircase. The Contractor shall execute the demolition carefully, collect the rubble, take it out, load it on a truck and take it to the landfill.			
Calculation per m3 demolished stairs, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	B1.5.	Unit	m
Unit price definition	Demolition of concrete slab and column		
Description			
Demolition of the reinforced concrete slab of the terrace with a thickness of d=12 cm together with the final covering (ceramic). The position also includes the demolition of the column under the edge of the terrace, dimensions 30.0x20.0 cm, height approx. 1.40 m. The Contractor shall execute the demolition carefully, collect the rubble, take it out, load it on a truck and take it to the landfill.			
Calculation per m3 demolished slab and column, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	B1.6.	Unit	m
Unit price definition	Dismantling of existing fence on stairs and terrace		
Description			
Dismantling of existing fence on stairs and terrace. The fence consists vertically and horizontally (handrail) of tubular steel profiles Ø40 mm. Under the handrail, horizontal bars made of tubular steel profiles Ø30 mm are arranged at five heights. The height of the fence is approx. 100.0 cm. The Contractor shall execute the demolition carefully, collect the rubble, take it out, load it on a truck and take it to the landfill.			
Calculation per m dismantled fence, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	B1.7.	Unit	m
Unit price definition	Dismantling of existing fence under the terrace		
Description			
Dismantling the mesh fence under the terrace fixed on concrete columns. The height of the fence is approx. 1.30 m. The Contractor shall execute the demolition carefully, collect the rubble, take it out, load it on a truck and take it to the landfill.			
Calculation per m dismantled fence, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	B1.8.	Unit	m3
Unit price definition	Demolition of Partition and Facade Walls		
Description			
Demolition of internal and/or external partition walls together with all layers, regardless of type of the finishes and together tie-columns/beams in the walls. Walls thickness is from 18 cm to 30 cm.			
The work item includes the removal existing installations within the partition walls. Execute the demolition carefully, collect the rubble, take it out, load it on a truck and take it to the landfill.			
Calculation per m3 of demolished wall, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	B1.9.	Unit	LS
Unit price definition	Demolition of canopy steel construction		
Description			
Demolition of the existing canopy steel construction, dimensions 11.31x4.38. The steel construction consists of 5 columns with anchor plates, cross-section 60x80 mm, height approx. 3.40m, on one side and 3 columns with anchor plates, cross-section approx. 60x100 mm, height approx. 4.20mm. On the roof of the steel structure, 4 longitudinal horizontals with a length of 11.31 m and 4 beams with a length of 4.45 m are arranged. The horizontal cross-section is. 60x60 mm. The position includes all work, equipment and scaffolding for the execution of the position. The Contractor shall execute the demolition carefully, collect the rubble, take it out, load it on a truck and take it to the landfill.			
Calculation lump sum, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials			

BoQ Item	B1.10.	Unit	m2
Unit price definition	Dismantling of the roof covering made of double sheet metal panel d=60mm		
Description Dismantling of the roof covering of canopy. The position involves the dismantling of the roof covering made of double sheet metal panel d=60mm and frames made of profiled corrugated sheet with their accompanying substructure. The Contractor shall execute the dismantling carefully, collect the rubble, take it out, load it on a truck and take it to the landfill. Calculation per m2 dismantled roof covering, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	B1.11.	Unit	m
Unit price definition	Making the channels for electrical installations		
Description	<p>Making the channels in walls and floors for installation of new electrical installations, regardless of the material from which the wall/floor is made (concrete, brick, etc.). Channels are up to 50 mm width and up to 100 mm depth. Collect all the waste, remove it, load it on a truck and take it to the landfill.</p>		

BoQ Item	B1.12.	Unit	m
Unit price definition	Dismantling of the sheet metal cover on the roof		
Description	<p>Dismantling of the complete existing sheet metal cover made of galvanized steel sheet – on the existing roof. The covers shall be removed complete with the corresponding anchors. Collect all the waste, remove it, load it on a truck and take it to the landfill located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.</p> <p>Calculation per m1 of dismantled metal sheet cover.</p>		

BoQ Item	B1.13.	Unit	m
Unit price definition	Dismantling of horizontal gutters		
Description	<p>Dismantling of the horizontal gutters. Gutters shall be removed complete with belonging anchors. The Contractor shall perform dismantling carefully in order not to damage the existing facade and the connection joint of the horizontal gutter into downspout.</p> <p>The price includes all necessary work, materials and scaffolding. Collect all the waste, remove it, load it on a truck and take it to the landfill.</p> <p>Calculation per m1 dismantled gutter with transportation to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.</p>		

BoQ Item	B1.14.	Unit	m
Unit price definition	Dismantling of downspouts- vertical gutters		
Description	<p>Dismantling of downspouts (vertical gutters). Downspouts shall be removed complete with belonging anchors. The Contractor shall perform dismantling carefully in order not to damage the existing facade and the connection joint of the horizontal gutter into downspout.</p> <p>The price includes all necessary work, materials and scaffolding. Collect all the waste, remove it, load it on a truck and take it to the landfill.</p> <p>Calculation per m1 dismantled downspout with transportation to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.</p>		

BoQ Item	B1.15.	Unit	LS
Unit price definition	Careful dismantling and installation of cameras, ligths and other elements from the building facade		
Description			
Careful dismantling of cameras, lights and other elements from the building façade. The unit price includes dismantling and storage of the dismantled elements on the location determined by the Contracting Authority. After competition of all facade works all dismantled installations and equipment should be carefully assembled and putted in function. All installations and equipment damaged by the Contractor will be replaced at its own expense.			
The unit price includes all the work, material, scaffolding and putting installations into operation.			
Lump sum calculation.			

BoQ Item	B1.16.	Unit	m2
Unit price definition	Demolition of the concrete ground floor slab		
Description			
Demolition of the concrete ground slab for sewerage system. The slab thickness is up to d= 15cm. Load the rubble on a truck and transport it to a landfill.			
Calculation per m2 of demolished slab together with all layers, with transportation to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	B1.17.	Unit	LS
Unit price definition	Demolition of the indoor planter in the restaurant		
Description			
Demolition of the indoor planter in the restaurant. The planter is located in the corner of the existing walls, semicircular in shape, with a diameter of approx. 170 cm. The outer edge of the planter is made of processed decorative stone, height 30 cm, width 30 cm. The filling between the edge and the walls is made of pyramidal decorative stone. The Contractor shall execute the demolition carefully, collect the rubble, take it out, load it on a truck and take it to the landfill. Lump sum calculation, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	B1.18.	Unit	m2
Unit price definition	Demolition of Existing Suspended Ceiling		
Description			
Demolition of existing suspended ceilings with its substructure. The demolition shall be executed carefully not to damage the existing concrete slab and roof structure. Suspended callings are made gypsum boards			
Unit price includes removal, collecting the debris, take it out, load it on a truck and take it to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			
Calculation per m2 of demolished suspended ceiling including substructure.			

BoQ Item	B1.19.	Unit	m2
Unit price definition	Dismantling of existing wooden roof construction with sheet metal covering		
Description Dismantling of existing wooden roof construction with sheet metal covering. Position includes dismantling of all roof elements with covering. The Contractor shall execute the dismantling carefully, collect the rubble, take it out, load it on a truck and take it to the landfill. Calculation per m2 dismantled roof construction with covering, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	B1.20.	Unit	m2
Unit price definition	Demolition of Wall Ceramic Tiles		
Description			
Demolition of wall ceramic tiles, up to wall structure (concrete or masonry wall), regardless of whether the ceramic tiles are glued or installed with cement mortar. Carefully remove the ceramic tiles, level and clean the wall surfaces, and load the waste and take it to the landfill.			
Calculation per m2 of demolished wall ceramic tiles, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	B1.21.1.-B.1.21.72	Unit	m2
Unit price definition	Dismantling of all doors and windows		
Description			
Dismantling of interior and exterior glass walls, doors and windows of various dimensions and materials (wood, steel, PVC or aluminum). Dismantled glass walls, doors and windows load on a truck and transport them to a landfill.			
Unit price includes dismantling of window sills, burglar bars, associated frames and other elements.			
Calculation per piece of dismantled glass wall, door or window, with transportation to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	B2.1.	Unit	m3
Unit price definition	Supply and cast in situ foundations under the wall; C25/30, including formwork and reinforcement		
Description			
Supply and cast in situ foundations under the wall; C25/30. Dimensions of foundations are 60x40 cm. The reinforcement for the foundation is $\pm 4R\varnothing 12$ and stirrups U8/20 cm.			
The unit price includes all tools, formwork, materials, reinforcements, transport, work, curing and more, in accordance with the general description for this type of work.			
Calculation per m3 of concrete, including formwork, reinforcement, scaffolding, supports, tools and all necessary material for complete execution of the work item.			

BoQ Item	B2.2.	Unit	m2
Unit price definition	Supply and cast in situ of slab d=15cm; C25/30, including formwork and reinforcement		
Description			
Supply and cast in situ of the slab of the terrace with the concrete C25/30. Slab thickness is d=15cm. Reinforcement of the slab is mesh Q335 and hidden beam in slab $\pm 2R\varnothing 8$ i U $\varnothing 8/20$ cm. The unit price includes all tools, formwork, materials, reinforcements, transport, work, curing and more, in accordance with the general description for this type of work.			
Calculation per m2 of concrete, including formwork, reinforcement, scaffolding, supports, tools and all necessary material for complete execution of the work item.			

BoQ Item	B2.3.	Unit	m2
Unit price definition	Supply and cast in situ of reinforced concrete ground slab d=15 cm; C25/30, including formwork and reinforcement		
Description			
Supply and cast in situ concrete of reinforced concrete ground slab d=15 cm, with concrete C25/30 as the part of the hallway and new canopy. Reinforcement with mesh Q188. The unit price includes all tools, formwork, materials, reinforcements, transport, work, curing and more, in accordance with the general description for this type of work.			
Calculation per m2 of concrete, including formwork, reinforcement, scaffolding, supports, tools and all necessary material for complete execution of the work item.			

BoQ Item	B2.4.	Unit	m3
Unit price definition	Supply and cast in situ reinforced concrete beams under the smithlock on the terrace; C25/30, including formwork and reinforcement		
Description			
Supply and cast in situ concrete of reinforced concrete beams under the terrace, with concrete C25/30. Reinforcement with $\pm 2R\varnothing 8$ i $U\varnothing 8/20$ cm. Dimensions b/d=15/10cm. The unit price includes all tools, formwork, materials, reinforcements, transport, work, curing and more, in accordance with the general description for this type of work.			
Calculation per m2 of concrete, including formwork, reinforcement, scaffolding, supports, tools and all necessary material for complete execution of the work item.			

BoQ Item	B3.1.	Unit	m3
Unit price definition	Supply and construction of walls with 25 cm thickness AAC wall blocks, including girders		
Description			
Supply and construction of walls with 25 cm thickness ACC-gas concrete wall block. The construction of walls and material used for join mortar must be in accordance with the instructions of the block manufacturer. Connect the walls to the RC structure with steel anchors in the third row of height, and every second block of the last row must be fastened to the floor slab structure with a steel reinforcing anchor, in all respects according to the instructions of the block manufacturer.			
In the walls, execute tie-columns and tie-beams made of reinforced C25/30 concrete, reinforcement steel rebar $\pm 2\varnothing 14$ and 8/15 cm stirrups. Execute the tie-beams in all walls at the height of the door opening and on the top of parapets. Execute tie-columns on the side of all			

door openings where the cross section is small to be the installed in brick walls, on free ends of the wall, at intersection of walls, in the middle of walls longer than 5,0 m. All tie-beams and tie-columns are interconnected, and connected to the reinforced concrete structure. The cross section of tie-columns and tie-beams for 30cm thick walls is 25,0 x 25,0 cm.

Tie-beams and tie-columns are not calculated separately but are included in the wall unit price together with reinforcement and formwork. The price per unit of measure includes all the obligatory seismic protection blocks, necessary tools, work, transport, material, scaffolding and any other item to competition of item.

Calculation per m3 of executed wall with opening deduction.

BoQ Item	B3.2.	Unit	m3
Unit price definition	Supply and construction of walls with 20 cm thickness AAC wall blocks, including girders		
Description			
Supply and construction of walls with 20 cm thickness ACC-gas concrete wall block. The construction of walls and material used for join mortar must be in accordance with the instructions of the block manufacturer. Connect the walls to the RC structure with steel anchors in the third row of height, and every second block of the last row must be fastened to the floor slab structure with a steel reinforcing anchor, in all respects according to the instructions of the block manufacturer.			
In the walls, execute tie-columns and tie-beams made of reinforced C25/30 concrete, reinforcement steel rebar $\pm 2\varnothing 14$ and 8/15 cm stirrups. Execute the tie-beams in all walls at the height of the door opening and on the top of parapets. Execute tie-columns on the side of all door openings where the cross section is small to be the installed in brick walls, on free ends of the wall, at intersection of walls, in the middle of walls longer than 5,0 m. All tie-beams and tie-columns are interconnected, and connected to the reinforced concrete structure. The cross section of tie-columns and tie-beams for 20 cm thick walls is 20,0 x 20,0 cm.			
Tie-beams and tie-columns are not calculated separately but are included in the wall unit price together with reinforcement and formwork. The price per unit of measure includes all the obligatory seismic protection blocks, necessary tools, work, transport, material, scaffolding and any other item to competition of item.			
Calculation per m3 of executed wall with opening deduction.			

BoQ Item	B3.3.	Unit	m2
Unit price definition	Supply and construction of walls with 10 cm thickness AAC wall blocks, including girders		
Description Supply and construction of walls with 10 cm thickness ACC-gas concrete wall block. The construction of walls and material used for join mortar must be in accordance with the instructions of the block manufacturer. In the walls, execute tie-columns and tie-beams made of reinforced C25/30 concrete, reinforcement steel rebar ± 2Ø14 and 8/15 cm stirrups. Execute the tie-beams in all walls at the height of the door opening. Execute tie-columns on the side of all door openings where the cross section is small to be the installed in brick walls. All tie-beams and tie-columns are interconnected, and connected to the reinforced concrete structure. The cross section of tie-columns and tie-beams for 10 cm thick walls is 10,0 x 20,0 cm.			

Tie-beams and tie-columns are not calculated separately but are included in the wall unit price together with reinforcement and formwork. The price per unit of measure includes all the obligatory seismic protection blocks, necessary tools, work, transport, material, scaffolding and any other item to completion of item.

Calculation per m2 of executed wall with opening deduction.

BoQ Item	B3.4.	Unit	m2
Unit price definition	Supply and installation-application of a reinforcement cement screed		
Description			
Execution of cement screed with 300 kg/m3 cement content, steel mesh and polypropylene fibers, evenly distributed in the cement screed in three dimensions, over the thermal insulation, as a leveling layer for application of designed floorings.			
The cement screed is planned for floor leveling between deferent room and on flat roofs for to creation of slope layers. Average thickness of cement screed is 5cm,6cm depending on existing leveling's. In the toilets, the liner should be installed at slope toward drains. Final top surface shall be cleaned, and the dust removed, and it shall be levelled using cement-based levelling compound, which should be allowed to dry.			
Calculation per m2 of finished cement screed, calculating all work and material.			

BoQ Item	B3.5.	Unit	m2
Unit price definition	Supply and covering -plastering interior walls with rough and fine mortar with 250/350 kg lime/cement mixture content		
Description			
Supply and covering -plastering interior walls with rough and fine mortar with 250/350 kg lime/cement mixture content. Prior plastering, clean and patch the surfaces and install the edge profiles. Plastering of edges around the openings is covered in unit price and will not be paid separately. Mortar covered surfaces must be flat, smooth, with sharp edges and free from lime flakes and other substances that are susceptible to swelling.			
The price includes all work and material with edge profiles, transport, scaffolding and work. The price includes the preparation of the existing walls for proper plastering (removal of damaged parts, applying the substrate and other necessary pre-work).			
Calculation per m2 of covered surface.			

BoQ Item	B3.6.	Unit	m2
Unit price definition	Supply and covering - plastering single layer rough plaster with 350 kg/m ³ cement content		
<p>Description</p> <p>Supply and covering - plastering walls and ceilings with single layer rough plaster with 350kg/m³ cement content. Prior plastering, clean and patch the surfaces and install the edge profiles. Plastering of edges around the openings is covered in unit price and will not be paid separately. Mortar covered surfaces must be flat, smooth, with sharp edges and free from substances that are susceptible to swelling.</p> <p>The price includes all work and material with edge profiles, transport, scaffolding and work. The price includes the preparation of the existing walls for proper plastering (removal of damaged parts, applying the substrate and other necessary pre-work).</p> <p>Calculation per m2 of covered surface.</p>			

BoQ Item	B3.7.	Unit	m'
Unit price definition	Supply and covering/plastering chases (channels), up to 8 cm wide		
Description			
Plastering the chases (channels), executed for installation of installations in in existing walls, up to 8cm wide, with mortar.			
Calculation per m1 plastered chases including all material, work and scaffolding			

BoQ Item	B4.1.	Unit	m2
Unit price definition	Supply and installation of hydro insulation of two-component fiber-reinforced mortar		
<p>Description</p> <p>Supply and installation of two-component fiber-reinforced mortar, in sanitary facilities, with very low elastic modulus, containing fine particle size selected aggregates and adequate additives for waterproofing. Waterproofing is applied in two layers, using a trowel, with a maximum recommended thickness of 2 mm, all according to the manufacturer instructions.</p> <p>Waterproofing on the walls in the toilettes shall rise to 15 cm above the finished floor level, including the fiberglass meshes on angels of the toilets. Particular attention shall be paid to sealing the around the floor drains and opening for installation to prevent leakage.</p> <p>Calculation per m2 installed hydro insulation, lifting along walls included in the unit price.</p>			

BoQ Item	B4.2.	Unit	m2
Unit price definition	Supply and installation of thermal insulation on floors and flat roofs, extruded polystyrene d = 20mm		
Description			
Supply and installation on all floor slabs of thermal insulation boards made of extruded polystyrene with a smooth surface structure, thickness 20mm. On the upper side of the isolation PE sheet should be applied. TI shall be produced by appropriate manufacturer and the working conditions, application equipment etc. shall all be strictly in accordance to the manufacturer's instructions.			
Calculation per m2 of installed thermal insulation including PE sheet.			

BoQ Item	B4.3.	Unit	m2
Unit price definition	Supply and installation of expanded polystyrene thermal insulation under the aluminum comoposite panels, d=50mm		
Description Supply and installation of thermal insulation boards made of expanded polystyrene with a smooth surface structure, thickness 50mm. Calculation per m2 of installed thermal insulation.			

BoQ Item	B5.1.	Unit	m'
Unit price definition	Supply and installation of metal sheets, 0,55 mm thickness		
Description			
Supply and installation of coping metal sheets made of hot-dip galvanized steel sheet with polymer coating sheets, 0,55 mm thick. Metal sheets are installed coping cover, flashing and counterflashing, edge metal sheets and cladding of upper surface of façade beams. Developed width vary and are: up to 20cm, up to 40cm, up to 50 cm, up to 400 cm.			

Unit price include all work, material, preparation of the substrate, binding and sealing and installation of tar paper as underlayer.

Calculation per m1 of installed sheet metal.

BoQ Item	B5.2.	Unit	m'
Unit price definition	Supply and installation of vertical rainwater downpipes, made of galvanized steel sheet with polymer coating, dim. 100x100mm		
Description			
Production and installation of vertical rainwater downpipes made of galvanized metal sheet with polymer coating, cross sections: 100/100mm and 1,5 cm overlap at cut, The soldering of the overlaps shall be by preparing pipes by applying single or double gaskets at both ends of the pipes. Iron removable galvanized clamps with a cross section of 3 x 20 mm shall be installed on pipes at 1-meter intervals. The pipes shall be clamped up and installed in the locations in accordance with the design, and their clamps shall be tightened with galvanized machine screws to complete the installation of rainwater pipes on the walls. Unit prize includes all works, material, curves, connection of downpipes with roof drains and horizontal gutters, installation of boiler (if needed), the fitting, connecting material and scaffolding.			
Calculation per m1 of the executed rainwater downpipes.			

BoQ Item	B5.3.	Unit	m'
Unit price definition	Supply and installation of horizontal gutter, made of galvanized metal sheets with polymer coating, d=0,55 mm		
Description			
Production and installation of horizontal gutter made of galvanized metal sheets with polymer coating sheets, developed width up to 50 cm, thickness d=0,55mm.			
The unite price includes all the work, material, scaffolding, installation of gutter and execution of expansion joints, sealing with permanently elastic putty.			
Calculation per m1 of installed horizontal gutter.			

BoQ Item	B5.4.	Unit	m'
Unit price definition	Supply and installation of attic cladding, made of aluminum composite panels d=4 mm		
Description			
Supply and installation of attic claddin with of aluminum composite panels d=4 mm, all in accordance drawings given in the design. Composite panels consisting of two aluminum cover sheets d=0,5mm and a mineral-filled core with polymer adhesives, non-combustible >90% mineral content core, total thickness d=4mm.			
Aluminum composite panel are installed on aluminum profiles fixed on the existing construction. Between panels gaps d=2,00 mm shall be leaved to allow the material to change geometric dimensions with temperature changes.			
Prior the ordering of materials and execution of this work item, the contractor must prepare shop drawings which will be subject of approval of the supervisor.			

The price includes all work and material, aluminum substructure, fastenings, scaffolding, and preparation of the existing walls/columns (removal of damaged parts and other necessary pre-work).
Calculation per m2 of covered surface.

BoQ Item	B5.5.	Unit	m'
Unit price definition	Supply and installing of roof covering made of double sheet metal panels d=100mm with insulation inside sheets		
Description Supply and installing of roof covering of double sheet metal panels d=100mm with insulation inside sheets. Unit price include all work, material, binding, sealing materials and use of scaffold. Calculation per m2 of covered surface.			

BoQ Item	B6.1.-B6.3.	Unit	pcs
Unit price definition	Supply and installation of AL with thermal barrier		
Description			
The installation of doors, windows and curtain walls of aluminum profiles with thermal breaks, RAL 7016 (Anthracite Grey) with different dimensions and openings (see schemes). Doors and windows are equipped with a suitable opening-locking mechanism, frame, and hinges of high quality.			
General thermal transition coefficient for the doors and windows shall be max U=1,3/m2K.			
The detailed requirements for each item (glazing, opening) are given in the schemes in Main Design.			
The glazing should be FLOT glass, U= 0,8 W/m2K, with these layers:			
4.4.2 mm laminated+12 mm Argon gas+4 mm+12 mm Argon gas + 6 mm or			
6 mm laminated+12 mm Argon gas+4 mm+12 mm Argon gas + 6 mm laminated glass			
4.4.2 mm laminated + 20 Ar + 6 mm			
The detailed requirements for each item (glazing, opening, etc.) are given in the schemes in Main Design.			
The technical properties of aluminum profiles with thermal beak, which shall be used are as follows:			
<ul style="list-style-type: none">- Exterior and interior visible width: 50 mm;- Thermal insulation: Ufmax = 1,2 W/m²K;- Air tightness: Class A4 (600 Pa) according to EN 12153, EN 12152;- Water-tightness: R7 (600 Pa) according to EN 12155, EN 12154;- Resistance to wind load, max test pressure: 2000 Pa, according to EN 12600, EN 13116- Resistance against impact: I3/E5 according to EN 12600, EN 14019- Burglar resistance: WK2/RC2, according to EN 1267-1630- Sealing method: Perimetrical at 3 levels with EPDM gaskets- Glazing type: Double, triple			
The glazing and opening the windows and doors according to the schemes. Opening of the upper windows should be mechanism with bar, handle mounted on height of 1,40 m from the floor.			
In the prize of door is included threshold profile, thickness up to 10 mm.			

The unit price includes all work, material, hardware, profiles, glazing, threshold profile and the use of scaffolding.

Calculation per piece of installed item.

BoQ Item	B6.4.-B6.28.	Unit	pcs
Unit price definition	Supply and installation of AL without thermal barrier		
Description			
The installation of doors, windows and glass walls shall be done with aluminum profiles without thermal barriers, RAL 7035 (Light Grey-mat), according to EN or ISO standards with different dimensions and openings (see schemes).			
Doors and windows are equipped with a suitable opening-locking mechanism, frame, and hinges of high quality.			
The glazing is different depending of the propose of the rooms (see schemes):			
<ul style="list-style-type: none">- chipboard coated on both sides with melamine foils, d=18mm- chipboard coated with melamine foils 18mm and laminated glass 3.3.1 dim. 25x85 cm- 3.3.1. laminated glass- d=4,0 mm float glass- aluminum panel d=20 mm (EPS- expanded polystyrene lined with Al metal sheet)			
The technical properties of the aluminum profile without thermal barrier protection, which shall be used are as follows:			
<ul style="list-style-type: none">-Frame width: 50 mm,-Sash width: 59 mm,-Air permeability: Class 2, according to EN 1026, EN 12207-Watertightness: Class 4A (600 Pa), according to EN 1027, 12208-Resistance to wind loan: Class A2 (800 Pa), according to EN 12210, EN 12211- Glazing type: Single, double			
Opening the windows according to the schemes while the opening of the upper windows should be done on height of 1,4 m from the floor as bar connection.			
The unit price includes all work, material, hardware, sandblasted decorative tapes.			
Calculation per piece of installed item.			

BoQ Item	B7.1.;B7.3.	Unit	m2
Unit price definition	Supply and installation - Flooring with 2 mm joint gaps using first quality, matte, non-glazed ceramic granite tiles in 60 x 60 cm nominal dimensions and with any color, pattern and surface characteristics (using tile adhesive)		
<p>Description</p> <p>Ceramic Granite shall be made from naturally occurring constituents - refined clays, quartz, feldspars and metal oxides, dry pressed at extremely high pressures, typically over 12,000 tones and then fired at 1260°C until irreversibly fused.</p> <p>First class granite tiles abrasion resistant to PEI IV, slippery class (R) 10 etc.</p> <p>Nominal Facial Dimensions: 300x300x10 and 600x600x10 mm</p> <p>Granit tiles for staircase with factory built-in anti-slip tape.</p> <p>Provided in the following areas: windbreak, hallway, hall, staircase, buffet, shop, equipment storage. as indicated in the main design</p> <p>The supply and installation of adhesive and granite tiles (first class) on the floors/stairs, according to the main design. The placement of tiles should be made without working “join” (2 mm</p>			

permissible joint), the type and color of tiles and grout of joints is determined according to the supervisor's request. Around of perimeter of room install edge tile, height d=8,0 cm, of same material as floor. The material used shall be of high quality and application equipment etc. shall all be strictly in accordance to the manufacturer's instructions.

Unit price includes all works, material, preparatory work, preparation and cleaning of the substrate.

Calculation per m2 of installed granite tiles and m1 installed edge perimeter tiles.

BoQ Item	B7.2.;B7.4.;B7.5;B7.6	Unit	m2
Unit price definition	Supply and installation - Flooring with 2 mm joint gaps using first quality, matte, non-glazed ceramic granite tiles in 60 x 60 cm nominal dimensions and with any color, pattern and surface characteristics (using tile adhesive)		
<p>Description</p> <p>Floor:</p> <ul style="list-style-type: none">- Unglazed porcelain tile: first class, abrasion resistant to PEI IV, slippery class (R) 10 etc.- Nominal Facial Dimensions: 330x330x8 and 450x450x8 mm- Provided in the following areas: kitchenette and toilets etc. as indicated in the main design <p>Wall:</p> <ul style="list-style-type: none">- Porcelain glazed wall tiles: first class, finish with straight edges- abrasion resistant to PEI IV, slippery class, etc.- Nominal Facial Dimensions: 330x330x8 and 450x450x8 mm,- laying height: up to ceiling- Provided in the following areas: toilets, storage etc. as indicated in the main design <p>The supply and installation of adhesive and porcelain tiles (first class) on the floors and walls of toilets and kitchens and other rooms, the project should be considered. The placement of tiles should be made without working “join” (2-3 mm permissible joint), the type and color of tiles and grout of joints is determined according to the supervisor’s request. The material used shall be of high quality and application equipment etc. shall all be strictly in accordance to the manufacturer’s instructions.</p> <p>Unit price includes all works, material, preparatory work, preparation and cleaning of the substrate and edge PVC moldings in color of tiles.</p> <p>Calculation per m2 of installed ceramic tiles.</p>			

BoQ Item	B8.1.	Unit	m2
Unit price definition	Supply and installation of suspended ceilings with gypsum boards d = 12.5 mm		
Description Suspended ceiling system with 12,5mm single layer gypsum board, material supply and installation of gypsum board ceiling system in dry areas. In the toilets 12,5 mm single layer moisture resistant gypsum board is designed. Metal grid suspension system shall be hot dip galvanized steel and coated with factory applied hot baked enamel paint/aluminum capping of approved color. Supporting Elements: - Galvanized steel perimeter profile or synced metal.			

- Upper support of the Suspension Grid, Primary support profile.
- Lower support of the Suspension Grid, Ceiling profile.
- Connecting Clip connects the Primary Support profile to the Ceiling Profile.
- Accessories: Provide manufacturer's standard accessories.

Ceilings complete system (substructure and filling materials included) class – REI 30 and A2 qualification.

Workmanship

- a) Working conditions, application equipment etc., shall all be strictly in accordance with the manufacturer's instructions. Upper and Lower supports, connection clips and accessories, shall be installed in accordance with the manufacturer's specifications. The ceiling aluminum strips shall be laid fastened to the runners in such a way that removal shall be allowed without using special tools.
- b) The contractor will perform the openings in the ceiling for the installation of lighting fixtures, grilles, frame openings, etc.
- c) Contractor shall install plasterboard around light fittings, air conditioning ducting, grilles, framed openings etc.
- d) A sample area of finished suspended ceiling work 3 × 2 meters shall be installed in an agreed location. Supervisor's approval for appearance and quality shall be obtained before proceeding. Materials shall be handled and stored as per manufacturers' recommendations. Materials shall be handled carefully and kept clean if they are later removed to access concealed services for the purposes of inspection or any other remedial work.
- e) Suspended ceiling shall be installed only if building is weather-tight, wet trades have finished their work and services are complete above ceiling level.
- f) The Contractor must liaise with the Supervisor and provide all necessary details of the work as needed to ensure coordination of all required installations such as; light fittings, air conditioning ducting, grills and other related building elements and services. This also includes ceiling hanger inserts in concrete to provide suitable hanger spacing.
- g) Suspended ceiling materials shall be fixed to manufacturer's recommendations, ensuring compliance with design and performance requirements.
- h) Ceilings shall be set out accurately to give level soffits free from undulations and lipping, with all lines and joints straight and parallel to walls unless otherwise, specified.
- i) Gaps around pipes, ducts etc. passing through ceiling shall be sealed with tightly packed mineral fibre. Contractor shall ensure that junctions of ceilings with cavity barriers shall also be fully sealed.

Unit price include all works and materials necessary to complete the ceiling, and the execution of joints with joint tape, puttying and applying a thin smooth coat layer on joints.

Calculation per m2 of horizontal projection of completed ceiling.

BoQ Item	B8.2.-B8.4.	Unit	m2
Unit price definition	Supply and installation of suspended ceilings with moisture resistant gypsum boards d = 12.5 mm		
Description			
The wall cladding with metal frame using moisture resistant gypsum wall boards will be applied to the plumbing where pipes are not located within the wall except mechanical reservations and/or areas reserved for mechanical equipment.			

Metal U-profiles shall be fixed to the ground and ceiling and also fixed at 60 cm intervals with screws and plastic dowel pins. Metal C-profiles shall be cut properly and 50 mm sound insulation tapes shall be affixed beneath TU28 profiles before fixing. U-nails shall be fixed on the existing wall at 60 cm intervals longitudinally, and at 125 cm intervals transversely maximum with screws and plastic dowel pins.

12.5 mm moisture resistant gypsum wallboards shall be fixed on profiles with using 25mm drywall screws. Where necessary, the gypsum wallboards shall be shaped with cutting properly. Pre-filling the gaps larger than 3 mm shall be carried out and they shall be covered with joint plaster via using screw heads. Joint tapes will be affixed in the joints of plaster wall boards and covered walls will be made by applying joint filling plaster according to the project design and approved details.

The space between the profiles is filled with mineral wool with a density of 100 kg/m³.

Gypsum boards shall be in Types H2 in accordance with EN 5202, and have weight and density: 8.8kg/m²- 704kg/m³.

Unit price include all works and materials necessary to complete the cladding, including the execution of joints with joint tape, puttying and applying a thin smooth coat layer on joints.

Calculation per m² of finished cladding.

BoQ Item	B8.5.	Unit	pcs
Unit price definition	Standard ceilings access panel 600x600m		
Description			
Supply and installation of 12.5 standard ceiling access panel - for structures with 12.5 mm plaster boards; extrusion (anodized) AL frame; built-in plaster boards up to 600 mm installation with glue, ≥700mm installed with screws.			
Dimensions: 300x300 mm, 400x400 mmx 600x600 mm			
Calculation per piece of installed ceiling access panel.			

BoQ Item	B8.6.	Unit	m2
Unit price definition	Supply and installation of drywalls using gypsum boards, total thickness 150mm		
<p>Description</p> <p>Procurement, transport and installation of double gypsum A plaster board drywalls with a total thickness of d =150mm. Wall is made of standard metal structure on both sides cladded with double fireproof gypsum plasterboards d = 2x12.5 mm. The space between the profiles is filled with mineral wool with a density of 100 kg/m3</p> <p>Joint tapes shall be affixed in the joints of plaster wall boards and covered walls will be made by applying joint filling plaster according to the project design and approved details.</p> <p>The unit price includes all work, material, installation of all reinforcements in the walls for the installation of doors, free ends of the walls, reinforcements on the parts of the wall where the equipment is installed.</p> <p>Calculation per m2 of installed wall.</p>			

BoQ Item	B9.1.	Unit	m2
Unit price definition	Supply and installation of thermal insulation of exterior walls with 5 cm thickness EPS thermal isolation boards		
<p>Description</p> <p>External walls shall be insulated with thermal insulation to match the requirements for the contact facade.</p> <p>Fixing shall be done in according to design details and manufacturer’s specification.</p> <p>The Façade as presented in the architectural design should be composed of:</p> <ul style="list-style-type: none">- Finish coat, paint / impregnation- Primers- Mat reinforcement- Basecoat- EPS insulation material with system dowels- Adhesive- Masonry / concrete with or without plaster <p>Adhesive and basecoat</p> <p>Ready-to-use organically bonded fiber and siloxane reinforced adhesive/basecoat with mineral-based lightweight aggregates for high yields. Product shall be in compliance with EN 15824</p> <p>EPS insulation material with system dowels</p> <p>Thermal isolation boards made of EPS (expanded polystyrene), thickness d=20mm/30mm/50mm/80mm, with following characteristic:</p> <ul style="list-style-type: none">- Thermal conductivity λD: 0,038 W/mK- Permissible compressive load (2% compressibility): 20 kPa- Fire class: “B” (according to EN 13501-1) <p>Insulation anchor nails with the option of screwing in a compound screw nail for thermal facade systems.</p> <p>The insulation anchor nail/dowel consists of a combination of fiber-glass reinforced polyamide and galvanized steel, the dowel anchor sleeve is made of polypropylene and the dowel plate is also made of fibre-glass reinforced polyamide. With its integrated compression crumple zone and a dowel plate thickness of just 2.5 mm, the dowel plates are placed exactly flush in the insulation material.</p> <p>Mat reinforcement</p> <p>Reinforcing mesh 4x4 mm or 5x5 mm;</p> <p>Mesh reinforcement joint overlap ≥100 mm.</p> <p>Finish coat</p> <p>Ready-to-use, paste-like silicone resin plaster for non-directional textures, in compliance with EN 15824. Resistant to soiling, highly vapour permeable, highly water-repellent, Retards and prevents the formation of mould and algae. Color RAL 9010, 7046, 1019. (Color distribution is given in Main Design)</p> <p>The surface of the substrate must be dry, even and free of grease and dust as well as free of any residual substances that may reduce the adhesion. Check the stability of existing coatings (paint coatings and old plasters) and compatibility with adhesive, and remove unstable coatings completely if necessary. Ensure that all openings (interface gaps) are sealed.</p>			

The contractor is solely responsible for inspecting the condition of the substrate and the on-site conditions.

The ambient temperature, substrate and material temperature must be at least +5 °C and may not exceed +30 °C during the entire application, drying and setting phase.

Unfavorable weather influences such as high temperatures, wind or direct sunlight can change the application conditions.

The surface of the wall must be flat, dry and free of grease and dust.

Unevenness in the substrate up to a maximum of 20 mm can be covered with the adhesive if dowelling is used in addition to adhesive bonding. Major unevenness should be equalized using a suitable plaster layer or by staggering the insulation panel thickness. The bond strength of the plaster should be tested after it has set.

Edge ribbon and dab bonding is performed by hand. The adhesive bonding surface with the substrate is $\geq 40\%$ after pressing in the insulation panels. Apply an approx. 50 mm wide ribbon of mortar around the perimeter and 3 palm-sized adhesive dabs or strips on the insulation panel. Install the plinth connection end profile horizontally and fix using anchor nails at spacings of approx. 300 mm. Compensate for substrate tolerances with washers. Connect the joints and the plinth connection end profiles with H connectors. Apply insulation panels immediately to the fresh adhesive by pushing, floating and pressing.

Apply the insulation panels precisely and continuously starting from the bottom with the joints staggered at ≥ 100 mm (half panel length recommended for joint staggering). Cross joints, e.g., on opening corners should be avoided.

The wall must be sufficiently stable to allow the use of dowels.

The number of dowels is 6/m². Application of the dowels can commence after the adhesive has hardened sufficiently. The diameter of the drill must be ≥ 8 mm. Do not use impact or hammer drills on hollow or perforated bricks or masonry. Arrange the drill holes so that the concrete reinforcement is not damaged. Drill hole depth = dowel length + 10 mm (or +25 mm with recessed dowel installation). Clean the drill holes before the dowels are applied. Do not use worn drill bits. Resharpening of the drill bit is not permissible. Under the mesh the installation can be flush to the surface or recessed in the surface. When applying dowels through the reinforcement mesh the dowels can only be placed surface flush. The dowel must be set in the fresh basecoat layer after the application of the basecoat and the embedding of the reinforcing mesh. Then immediately (wet plaster on wet plaster) apply a second layer of basecoat. The substrate temperature must be ≥ 0 °C when placing a dowel. The exposure to UV light with direct exposure to sunlight for the dowel and insulation panel may not exceed 6 weeks.

Embed reinforcement mesh on the entire surface with at least a joint overlap of 100 mm fresh-in-fresh in the basecoat layer. Apply a full covering of basecoat to the mesh.

The mesh is arranged in the center when the basecoat thickness is up to 4 mm, for > 4 to 7 mm layer thickness it is in the upper half of the basecoat layer and for > 7 mm in the exterior third. Avoid excessive smoothing of the reinforcement layer to prevent a

concentration of fine particles or formation of a sinter layer on the surface. Rub off any burrs that have formed when drying. Plaster connections should be separated with a separating tape, separation strip, profiles or similar from the constructional components.

Before application of a further coating (primer) it is important to ensure that the basecoat is fully dry. The minimum drying time is generally approx. 1 day/mm layer thickness. With unfavorable weather conditions (e.g., high levels of air humidity or low temperatures) the drying time is extended.

Ready-to-use, paste-like final coat must be mixed thoroughly. When necessary, a small quantity of water may be added to set the application consistence. Apply mixture (floated render texture) with a stainless-steel trowel in grain size d=2,0 mm to the entire surface and trowel smooth with circular movements without interruption using a hard plastic trowel. Use a trial coat to ensure the color shade is correct. Always complete surfaces that can be viewed together on the same day.

The contractor is solely responsible that all components of thermo isolated façade are compatible.

The price includes all works, material, preparatory work, preparation and cleaning of the substrate, execution of thermal facade in the described layers, usage of scaffolding, as well as a protective net on the scaffolding on which will be printed in accordance with visibility requirements. Also, in unit price is included, and will not be paid separately, execution/installation of façade around the edges of the openings.

Calculation per m2 of executed thermo insulated façade.

BoQ Item	B9.2.	Unit	m2
Unit price definition	Supply and installation -plastering exterior walls and facade elements with silicone resin plaster		
<p>Description</p> <p>Façade elements shall be plastered with silicone plaster as defined in Main Design.</p> <p>Fixing shall be done in according to design details and manufacturer’s specification.</p> <p>The plastered façade as presented in the architectural design should be composed of:</p> <ul style="list-style-type: none">- Finish coat, paint / impregnation- Primers- Mat reinforcement- Basecoat- Masonry/concrete with or without plaster <p>Basecoat</p> <p>Ready-to-use organically bonded fibre and siloxane reinforced basecoat with mineral-based lightweight aggregates for high yields. Product shall be in compliance with EN 15824</p> <p>Mat reinforcement</p> <p>Reinforcing mesh 4x4 mm or 5x5 mm;</p> <p>Mesh reinforcement joint overlap ≥100 mm.</p> <p>Finish coat</p> <p>Ready-to-use, paste-like silicone resin plaster for non-directional textures, in compliance with EN 15824. Resistant to soiling, highly vapour permeable, highly water-repellent, Retards and prevents the formation of mould and algae. Color RAL 1007, RAL 7004, RAL 9010.</p> <p>Before commencement of this work item, after the contractor and supervisor defined the producer of the finish coat, the contractor shall give color pallet to the designer color pallet so he will prepare color distribution for each façade element.</p> <p>The surface of the substrate must be dry, even and free of grease and dust as well as free of any residual substances that may reduce the adhesion. Check the stability of existing coatings (paint</p>			

coatings and old plasters) and compatibility with adhesive, and remove unstable coatings completely if necessary. Ensure that all openings (interface gaps) are sealed.

The contractor is solely responsible for inspecting the condition of the substrate and the on-site conditions.

The ambient temperature, substrate and material temperature must be at least +5 °C and may not exceed +30 °C during the entire application, drying and setting phase.

Unfavorable weather influences such as high temperatures, wind or direct sunlight can change the application conditions.

The surface of the wall must be flat, dry and free of grease and dust.

Set basecoat layer and set reinforcement mesh in the fresh basecoat layer and then immediately (wet plaster on wet plaster) apply a second layer of basecoat.

Embed reinforcement mesh on the entire surface with at least a joint overlap of 100mm.

The mesh is arranged in the center when the basecoat thickness is up to 4 mm, for > 4 to 7 mm layer thickness it is in the upper half of the basecoat layer and for > 7 mm in the exterior third.

Avoid excessive smoothing of the reinforcement layer to prevent a concentration of fine particles or formation of a sinter layer on the surface. Rub off any burrs that have formed when drying. Plaster connections should be separated with a separating tape, separation strip, profiles or similar from the constructional components.

Before application of a further coating (primer) it is important to ensure that the basecoat is fully dry. The minimum drying time is generally approx. 1 day/mm layer thickness. With unfavorable weather conditions (e.g., high levels of air humidity or low temperatures) the drying time is extended.

Ready-to-use, paste-like final coat must be mixed thoroughly. When necessary, a small quantity of water may be added to set the application consistence. Apply mixture (floated render texture) with a stainless-steel trowel in grain size d=2,0 mm to the entire surface and trowel smooth with circular movements without interruption using a hard plastic trowel. Use a trial coat to ensure the color shade is correct. Always complete surfaces that can be viewed together on the same day.

The contractor is solely responsible that all components are compatible.

The price includes all works, material, preparatory work, preparation and cleaning of the substrate, execution of plastering in the described layers, usage of scaffolding, as well as a protective net on the scaffolding on which will be printed in accordance with visibility requirements. Also, in unit price is included, and will not be paid separately, execution/installation of plastering around the edges of canopies.

Calculation per m2 of executed plastering.

BoQ Item	B9.3.	Unit	m2
Unit price definition	Supply and installation of facade cladding, made of aluminum composite panels d=4 mm		
Description			
Supply and installation of ventilated facade cladding (columns and portal) with of aluminum composite panels d=4 mm, all in accordance drawings given in the design. Composite panels consisting of two aluminum cover sheets d=0,5mm and a mineral-filled core with polymer adhesives, non-combustible >90% mineral content core, total thickness d=4mm, color RAL 7025.			

Aluminum composite panel are installed on aluminum profiles fixed on the existing construction. Between panels gaps $d=2,00$ mm shall be leaved to allow the material to change geometric dimensions with temperature changes.

Prior the ordering of materials and execution of this work item, the contractor must prepare shop drawings which will be subject of approval of the supervisor.

The price includes all work and material, aluminum substructure, fastenings, scaffolding, and preparation of the existing walls/columns (removal of damaged parts and other necessary pre-work).

Calculation per m2 of covered surface.

BoQ Item	B9.4.	Unit	m2
Unit price definition	Supply and installation -Wooden covering of façade		
<p>Description</p> <p>Supply and installation of cladding the facade with wooden slats. The wooden cladding is made of thermally treated ash at 190°C. The layers of the wooden facade from the load-bearing wall to the outside:</p> <p>Wooden substructure: 8x8cm slats are placed vertically on the supporting structure over the masonry or reinforced concrete facade wall at a range of max. 60 cm, with thermal insulation panels. Tthermal insulation panels made of stone mineral wool with a low heat transfer coefficient ($k=0.036W/mK$). Plate thickness $d=8cm$. Thermal panels are glued to the facade wall with a suitable refined mineral adhesive and doweled with suitable dowels (8 dowels/m2).</p> <p>Waterproofing-vapor barrier: Three-layer waterproofing membrane. Wooden substructure: In the horizontal direction, wooden slats with a thickness of $d=3cm$ are placed. Vertical profiled battens with a total thickness of $d=2.0cm$ are placed over the horizontal slats. They are riveted to the wooden slats on the facade, in such a way that the nails are placed on the seams, so that they are hidden. The width of the visible wooden elements is 10.0 cm.</p> <p>It is necessary to coat the entire wooden facade with pigmented oil in brown color and waterproof sandol in two coats, in order to protect the wood as best as possible. The price includes all layers of the facade. Calculation per m2. The price includes the use of the scaffolding as well as the protective netting on the scaffolding. Calculation per m2 of finished facade.</p>			

BoQ Item	B10.1.	Unit	m2
Unit price definition	Painting of internal walls and ceilings with water dispersion-based paint		
Description			
Appropriate interior paint based on water dispersion shall be applied in two layers on internal walls/ceiling area.			
The substrate must be solid, dry and clean, free of loose parts, dust, easily soluble salts, greasy stains and other dirt. Dust and other unaccepted dirt are vacuumed or removed by brushing, undecomposed formwork residues oils from concrete surfaces are washed with a jet of hot water or steam. With already painted surfaces, we remove all easily and quickly soluble deposits from the substrate, as well as treatments with oil paints, varnishes or enamels. Disinfected wall surfaces infected with mold must be disinfected before applying the leveling compound.			
At first the walls/ceiling must be prepared with leveling compound. The leveling compound is installed in two layers, where the thickness of the individual layer should not exceed 1 to 2 mm, and the total two-layer coating thickness 3 mm. The mass is applied by machine - by spraying or by hand - with a stainless-steel trowel. To spread the mass on the treated surface and remove the excess mass, we use a stainless-steel trowel to smooth the surface as well as possible.			

Sand the first layer before applying the second, as well as the second or final layer with fine sandpaper. Grinding can be executed manually or by machine.

Installation of leveling compounds is only allowed in appropriate weather conditions or appropriate microclimatic conditions: the temperature of air and wall surfaces should not be lower than +5 °C and not higher than +35 °C, relative humidity not higher than 80%.

Leveling compounds shall be completely dried before starting painting.

The paint is applied in two layers at intervals of 4 - 6 hours (T = +20 °C, rel. Humidity = 65%), with long-haired fur or with a textile paint roller, with a paint brush suitable for applying dispersion wall paints or spraying. Color is white.

Paint individual wall surfaces without interruption from one end edge to the other.

Unit price includes all work, material, scaffolding as well as all correction of the painting after the completion of all works.

Calculation per m2 of painted walls/ceilings.

BoQ Item	B10.2.	Unit	m2
Unit price definition	Painting of internal walls with decorative architectural coating, with metallic patterns		
Description			
<p>Decorative coating for interiors made of metallic charges and selected quartz aggregates that produce high end visual effects and create a unique game of light and shades.</p> <p>The substrate must be perfectly dry, dust-free, with no humidity and salt stains. Resurface or consolidate the surface with specific products if necessary. In case of mould, treat the surface with suitable specific products. Brush or remove any efflorescence and old peeling paint. Higher layers of old lime-based paint and tempera paint must be removed.</p> <p>Brush out dust, smog or other deposits before the application. In case of non-homogeneous or chalky surfaces, apply one layer of micronized wall sealer diluted, with a brush. Over dry and compact substrates, apply one layer of water-based acrylic pigmented primer, diluted, with a brush or with a roller. Over dry primer, apply one layer of white washable paint, diluted, with a brush or with a short hair roller. Once the product is dry, apply a second coat white, diluted, with a brush or with a short hair roller. Over dry substrate, apply one layer of decorative coating in silver effects, ready to use, with a “spalter” brush. Brush out the substrate still wet to remove any imperfections or amounts of product. To enhance the aesthetic look or the hiding power, it is possible to apply a second layer of decorative coating Swahili, diluted with maximum 20% of water using a “spalter” brush. Drying time: 24 hours approx. depending on the kind of substrate, absorption rate and environmental conditions.</p>			

BoQ Item	B11.1.	Unit	pcs
Unit price definition	Supply and installation of the steel metal staircases		
Description			
Procurement of supply and installation of the internal steel staircase. The staircase is made of quality Č.O361 steel. The staircases are composed from following steel elements: HOP box profiles 200x100x4 mm, L profiles 40x40x4mm and steel grid treadle. Profiles are joined by welding. Anchoring shall be done with M10x110 anchors for concrete, 4 pieces at each column above anchor plate.			

Metal profiles, previously sandblasted, shall be painted with two basic and two final coatings of paint.
The price includes all the necessary works and materials
Calculation per kg of the assembled and painted steel structure.

BoQ Item	B11.2.	Unit	kg
Unit price definition	Supply and installation of the steel construction		
Description			
Supply and installation of the steel construction. The frame is made of quality Č.O361 steel. The construction is composed from HOP box profiles 100x100x4 mm and 50x50x4mm. Profiles are joined by welding. Anchoring shall be done with M10x110 anchors for concret..			
Metal profiles, previously sandblasted, shall be painted with two basic and two final coatings of paint.			
The price includes all the necessary works and materials			
Calculation per kg of the assembled and painted steel structure.			

BoQ Item	B11.3.	Unit	m
Unit price definition	Supply and installation of fence at the entrance to the restaurant		
Description			
Supply and installation of a fence on the staircase at the entrance to the restaurant.			
The fence is made of a steel profiles, section Ø40mm, height 100cm, forming a frame with filling from a Ø20mm profile. All connections should be made with 3mm thick welds.			
Coat the fence twice with the base coat and once with the top coat. The position implies joining the fence with the steel structure of the staircase. The position includes all work and material for the creation of the given position. Calculation per m'			

BoQ Item	B11.4.	Unit	pcs
Unit price definition	Supply and installation of the 3D inscription at entrance		
Description			
Supply and installation of 3D sign " RESTORAN BB" made of 3D letters with frontal LED lighting, for exterior use. Low profile 3D letters, with total height of the letters is 20,0 cm. The color of sign shall be chosen by supervisor.			
The front of 3D letters made of acrylic plastic, while the letter sides are made of aluminum. Illumination of 3D letters is from the front (faces of letters) is done with LED modules. The work item also includes hardware for the installation of 3D letters, taking into account the aesthetics of the facade. The work item includes all work, material and use of scaffolding for proper installation of the work item.			
Calculation per piece of installed sign.			

BoQ Item	B11.5.	Unit	m3
Unit price definition	Manual Excavation of category IV soil		
Description			
Manual excavation of category IV soil/earth for the new foundations and slabs.			
Calculation per m3 of excavated material in densely condition, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	B11.6.	Unit	m2
Unit price definition	Supply and installation of wallpaper with an imitation brick motif		
Description			
Supply and installation of wallpaper with an imitation brick motif. Wallpaper made of 100% non-woven paper. The wallpapers are washable and resistant to UV radiation. The price includes all labor and materials for the correct installation of the position in accordance with the manufacturer's instructions. Calculation per m2.			

BoQ Item	B11.7.	Unit	m
Unit price definition	Supply and installation of transitional AL moldings at the joints of different floors		
Description Supply and installation of transitional AL moldings at the joints of different floors. Calculation per m.			

BoQ Item	B11.8.	Unit	m2
Unit price definition	Supply and installation of PVC decorative paneling on the walls and ceiling of the restaurant		
Description Supply and installation of PVC decorative paneling on the walls and ceiling of the restaurant dim 250x2700x8 mm. The position includes all labor and material for the correct position in accordance with the manufacturer's instructions. Calculation per m2			

BoQ Item	B11.9.	Unit	m
Unit price definition	Supply and installation of horizontal and vertical gutter heaters		
Description Supply and installation of horizontal and vertical gutter heaters. Calculation per m1 of installed heaters.			

BoQ Item	B11.10.	Unit	m2
Unit price definition	Sanding and varnishing parquet floors in classrooms and offices		
Description			
Sanding and varnishing parquet floors in classrooms and offices. Varnish with colorless varnish in two layers. Before sanding, replace damaged parquet slats (5% of the total area). Fill smaller gaps in the floor with a mixture of sawdust created by planning and parquet glue. The position also includes the dismantling and replacement of skirting boards around the perimeter of the room. Calculation per m2 of treated floor area with removal and return of furniture before and after completion of works.			

BoQ Item	B11.11.	Unit	m2
Unit price definition	Detailed cleaning of all rooms		
Description			
Detailed final cleaning after completion of the works. All washable horizontal and vertical surfaces should be cleaned with water and appropriate cleaning agents. The Contractor shall do it carefully not to cause damages on executed works.			
The unit price includes all works and materials.			
Calculation per m2 of horizontal area of building.			

Section 5. Hydrotechnical installations

5.1. Introduction

Main design Hydraulic installation is done according to the main architectural design and in compliance with the relevant international and domestic standards and applicable technical regulations and standards for installations of this type.

This Main design includes the following hydraulic installations with associated equipment, devices and accessories, as follows:

- Plumbing installation system;
- Sewerage installation system for collection and evacuation of sanitary wastewater;
- Sanitary devices and accessories;

5.1.1. PLUMBING

A) TECHNICAL SOLUTION

During development of the design information of type of existing pipes' materials has not been available. The design envisage installation of the new PPR pipes which shall be installed in the floors and walls. After commencement of the works the supervisor and the contractor shall determinate method of connecting old and new pipes.

Replacement of the entire plumbing installation in toilets is planned. The pipe diameters given as internal are determined by hydraulic calculation are given in the graphic documentation. Dismantling and plugging of installations in the existing toilet for persons with disabilities is planned.

At all internal sanitary water distribution, the required number of central and through valves is provided in order to ensure their proper functioning and maintenance and orderly supply to all consumers in regular and emergency conditions. On the branches for sanitary facilities and some plumbing connection joints, gate valves are provided, with a nickel-plated plug and a rosette, for sanitary cold water. The valves shall be mounted in visible and easily accessible places.

The internal plumbing piping will be installed partly in the wall, in special chases, with the necessary insulation, partly in the floors with thermal insulation, too. At the locations where the plumbing and sewerage pipes overlap, plumbing pipes shall be placed above the sewerage pipes.

For the fire protection, new hydrants equipped with a shutter, a coupling, a hose with a nozzle are planned. The new wall hydrant shall be connected at existing pipelines made of steel pipes Ø50mm.

The complete plumbing protection installation is provided by high-density polyethylene pipes PP-R, for pressurized fluid, PN10, manufactured in accordance with the European standard EN 10910 PE 100, with electrofusion or butt welding.

Before handing over the performed works on the water supply installations, it is necessary to obtain proof that the water samples from this network are bacteriologically correct, i.e., that the water is suitable for drinking and human use. The entire distribution pipeline should be tested at a test pressure of 10 bar.

B) EXECUTION OF THE WORKS

Work the sanitary water pipe network from plastic PP-R pipes of certified quality.

The horizontal distribution of the water supply network in the building is placed below and on the concrete slab floor with obligatory protection against sweating.

Check valves with rosettes and a nickel-plated cap are installed on all branches below each tap.

A detailed description of the works is given in this technical specification

5.1.2. SEWERAGE INSTALLATION

Primary distributions of sanitary sewerage are designed to provide subsequent connection of any standard sanitary equipment and devices. The dismantling of the existing pipes and the replacement with new ones is planned. New manholes are planned in front facility for collection of wastewaters.

Internal installations of sewerage shall be made from plastic three-layer silent PP pipes and fittings of dimensions in accordance with the provisions of EN 1451 standard, with connection to the nozzle with integrated rubber ring. Pipes shall be made as a three-layer composite pipe, made of mineral additives reinforced material, with an inner white layer, increased noise absorption (low-noise pipes), diameter DN50 - DN160 mm, length from 0.25 to 3.0 m.

Ventilation of the sanitary sewer distribution is provided through a sufficient number of ventilation verticals DN110 and DN 75 mm, with ventilation heads above the roof slab of the building.

In the sanitary facilities, in the areas of washbasins and urinals, the installation of HDPE vertical floor drains, adjustable in height, type as HL310NPr - 3000, Floor drain DN50 vertical with sealing flange, breath shutter height-adjustable 10 mm / end frame stainless steel frame Click-Click 121 x 121 mm stainless steel grating 115 x 115 mm, construction protection of frame and flange included in delivery. The connection of the drain with the floor waterproofing is provided with an insulating sleeve type which is supplied with the drains.

5.1.3 STORMWATER INSTALLATIONS

Storm water from the roof surfaces and canopies shall be accepted into the gutter verticals and they should be taken through the gutters into the absorption pit with a water-permeable bottom.

Drainage of water from the roof and canopy

Water from the roof is collected through gutter verticals and drained into the retention trench.

Drainage of water from the access road

For the reception and drainage of storm water from the road, drain shafts have been designed, with drain grates 600x600 for heavy traffic. The position of the drain gratings is shown in the drawings. Between the drains, atmospheric sewerage is made of sewer pipes with a diameter of DN200, with a carrying capacity of not less than SN4.

5.1.4. SANITARY WARES

Sanitary wares, fittings and accessories are first class, all are white color, and their design as well as the type of fittings and accessories are in accordance with the requirements of the supervisor. All wares and accessories shall be installed at the prescribed height, and special attention shall be paid to adjusting the connections to the factory conditions of the selected elements.

Definitive specification of sanitary wares with their dimensions should be made after controlling the dimensions and actual condition in the premises where their installation is planned.

The following standard should be applied, but not limited to:

EN 10240 - Internal and/or external protective coatings for steel tubes Specification for hot dip galvanized coatings

MEST EN 1074-1:2009 - Valves for water supply - Fitness for purpose requirements and appropriate verification tests - Part 1: General requirements

MEST EN 1074-2:2009 - Valves for water supply - Fitness for purpose requirements and appropriate verification tests - Part 2: Isolating valves

MEST EN 1092-2:2020 - Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 2: Cast iron flanges

MEST EN 1213:2009 - Building valves - Copper alloy stop valves for potable water supply in buildings - Tests and requirements

MEST EN 12201 - Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE)

MEST EN 13476 - Plastics piping systems for non-pressure underground drainage and sewerage - Structured-wall piping systems of unplasticized polyvinyl chloride (PVC-U), polypropylene (PP) and polyethylene (PE)

MEST EN 1610:2017 - Construction and testing of drains and sewers

MEST EN 476:2012 - General requirements for components used in drains and sewers

MEST EN 1563:2019 - Founding - Spheroidal graphite cast irons

MEST EN 545:2011 - Ductile iron pipes, fittings, accessories and their joints for water pipelines - Requirements and test methods

MEST EN 671-1:2013 - Fixed firefighting systems - Hose systems - Part 1: Hose reels with semi-rigid hose

MEST CEN/TR 12108:2018 - Plastics piping systems - Guidance for the installation inside buildings of pressure piping systems for hot and cold water intended for human consumption

MEST EN 598:2013 - Ductile iron pipes, fittings, accessories and their joints for sewerage applications - Requirements and test methods

MEST EN 14688:2019 - Sanitary appliances - Wash basins - Functional requirements and test methods

MEST EN 14055:2019 - WC and urinal flushing cisterns

MEST EN 200:2011 - Sanitary tapware - Single taps and combination taps for water supply systems of type 1 and type 2 - General technical specification

MEST EN 33:2020 - WC pans and WC suites - Connecting dimensions

5.2. General requirements for all positions of works

The entire sewerage and plumbing installation shall be executed in accordance with applicable technical regulations, based on the approved design and contract. If there is any discrepancy, the contractor is obliged to ask instructions the supervisory timely.

Prior to commencement of work, the contractor is obliged to review all designs and submit any request for clarifications to the supervisor. All materials shall comply with applicable standards and other applicable regulations for that type of material. For each material (pipes, equipment, etc.) prior of installation, the certificate proving compliance with the regulations shall be submitted. Responsibility of the contractor is to protect all installations and equipment against mechanical damage, clogging and misuse until the final submission. The contractor must arrange the works so that the materials and works do not interfere with the work of other contractors on the construction site. The Contractor is responsible for all embedded materials and works performed until the Provisional Acceptance Certificate is obtained.

The testing of the plumbing installation, piping sustainability shall be carried out in accordance with the applicable standards and regulations. All testing costs are calculated in unit price and will not be paid separately. Testing of the installation shall be done according the supervisor's instructions. Works and materials that shall not meet standards and quality defined by these technical specifications and applicable standard will not be paid. All costs of repairing and poorly executed works shall be expense of the Contractor. The Contractor is also obliged to do all works (with additional materials) not covered by the main design, if they are necessary for the normal functioning of the installations, or in order to comply with applicable regulations.

Connections to existing pipeline trenches and pipelines must be made in good quality and accurately according to the design and the obtained conditions of the water supply company.

Any change to the main design shall be only with the written approval of the supervisor. The contract authority reserves the right to increase or decrease agreed scope of work. In the case of any variation, additional/unpredicted works, the Contractor is obliged to submit a price analysis to the supervisor and obtain written consent before commencement of such works.

The calculation of executed works shall be made according to the quantities actually installed, measured on the spot, regardless of the quantities in bill of quantity. All sewer and plumbing pipes will be measured by the length of the meter measured through the center of the pipe. All sewer fittings (elbows, branches, reducers, revisions, etc.) are not calculated or paid separately, but are measured and accounted for as straight pipes. For reducing fittings, a larger diameter is calculated.

Unit price of installed pipe (water and sewage) shall include all necessary drillings of walls and slabs, as well as cutting flooring and slabs chases for laying of pipes, as well as all coating, filling, repairing and plastering upon the completed laying of pipes, and will not be paid separately.

In unit price of each item shall be included all work and materials necessary for full completion of item.

This general description is required for each position of bill of quantity (Volume 4).

The agreed unit prices include all works, material, scaffolding, transportation, use of tools, equipment or machines etc., to provide fully completed and accepted position of the works.

These general conditions apply to each item of BoQ separately.

5.3. Unite price description

BoQ Item	C1.1.	Unit	LS
Unit price definition	Dismantling of the plumbing and sewage pipes and sanitary elements and accessories		
<p>Description</p> <p>Dismantling of the existing sanitary elements toilet bowls with cisterns, sinks, "squats", etc. The position also includes the dismantling of the existing plumbing pipes in the toilets, leaving the connection for installation of the new pipes. Removing of sanitary wares and clogging the pipes in the existing toilet for people with disabilities. The position includes the dismantling of holders for soap, toilet paper and ect.</p> <p>Calculation per lump sum, with transport to the landfill at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials material.</p>			

BoQ Item	C2.1.	Unit	m'
Unit price definition	Supply and installation of pipes, type PPR		
Description			
Supply and installation of pipes with all fittings and clamps for pipeline fastening. The pipes are with a middle layer of a special mixture of PPR with glass fibers (Polypropylene Random Copolymer, type 3). Installation with welding should be done in accordance with the manufacturer's instructions. The specification of fittings should be done by the contractor.			
The pipes shall be attached every 1,5 m with the original clamps for this type of pipes. After installation, the pipes shall be tested pressure of 12,0 and 8,0 bar, with three tests. Third after installation of sanitary fittings. After the testing, disinfection of the pipelines with a chlorine solution and rinsing of the pipelines shall be performed. The Contractor shall take water samples and give them for chemical bacteriological analysis to Sanitary authority.			
Pipes for cold and hot and recirculation water are different diameters: Ø25, Ø20, Ø15			
The unit price includes all works, materials, necessary adjustments, welding, fittings, clamps and etc.			
Calculation per m1 installed pipeline.			

BoQ Item	C2.2.	Unit	pcs
Unit price definition	Supply and installation of gate valve Ø 20 mm		
Description Supply and installation of gate valve with nickel-plated cap, for pipe diameter Ø 20 mm. Calculation per installed piece.			

BoQ Item	C2.3.	Unit	m'
Unit price definition	Supply and installation of prefabricated thermal insulation		
Description			
Supply and installation of prefabricated thermal insulation which does not release toxic gases during combustion, 9 mm thick, 2000 mm long. The insulation of PP-R pipes for cold and hot water, which laid freely above suspended ceiling, through plasterboard walls or under the cement screed.			
For PP-R pipes:			
Ø 20 mm - insulation 9x22x2000 mm			
Ø 15 mm - insulation 9x19x2000 mm			
The unit price includes all works and material.			
Calculation per m1 of insulated pipe.			

BoQ Item	C2.4.	Unit	m'
Unit price definition	Testing of the plumbing installation		
Description			
Testing of the plumbing installation at a test pressure, 3 bar higher than the working pressure i.e., minimum of 15 bar. After the completing the plumbing installation, seal all drain points with plugs, install the hydraulic pump, fill the installation with water, release the air and put installation under the test pressure. The installations shall be under pressure for at least 24 hours. In case the pressure drops, find the fault location, fix it and put the installation under test pressure again for 24 h.			
The presence of the supervisor during testing of installation is obligatory.			
Calculation per m1 of tested pipeline.			

BoQ Item	C2.5.	Unit	m'
Unit price definition	Disinfection and rinsing of the plumbing installation		
Description			
Disinfection and rinsing of the plumbing installation, in accordance with technical regulations. The Contractor shall provide the Certificate from the Sanitary Authority that water from installation can be used for drinking. Failing this, the Contractor shall repeat disinfection procedure until receiving the required Certificate, regardless of the number of repetitions the procedure.			
Calculation per m1 of tested pipeline.			

BoQ Item	C3.1.	Unit	m'
Unit price definition	Manual excavation of trench, 80 cm wide		
Description	<p>Machine and manual excavation of a trench 80 cm wide, for pipeline laying in any category of soil. The contractor shall make geodetic survey of the pipeline designed route. The unit price includes all the necessary work and materials and eventually pumping water from the trench. The width of the trench is determined in accordance with EN 1610.</p> <p>Calculation per m3 of excavated material in densely condition, with disposal on site.</p>		

BoQ Item	C3.2.	Unit	m3
Unit price definition	Making the sand layer		
Description	<p>Making a sand layer for a pipeline. Supply and installation of natural mixture sand with a fraction size of 0-4 mm, or crushed stone fraction up to 2 mm, for a bed thickness 10 cm below and around the pipe the entire width of the trench. Transport is also calculated at the unit price.</p> <p>Calculation per m3 of installed sand layers.</p>		

BoQ Item	C3.3.	Unit	m3
Unit price definition	Backfilling of the trenches		
Description	<p>Backfilling of the canal trench after installation and testing of pipes. Backfilling is done in layers, 30-40 cm thickness, with proper compaction until the required compression modulus is reached. Fraction size 0-63 mm. Backfilling of the first layer of the trench is done manually, with selected material from the excavation. Further backfilling can be done with machine using remaining excess from the excavation, provided that the machines during backfilling of the trench do not cross over the installed pipeline and that the layers are not thicker than 40 cm.</p> <p>Calculation per m3 of backfill material.</p>		

BoQ Item	C3.4.	Unit	m3
Unit price definition	Transport of excess soil material		
Description	<p>Removal and transport of excess material to the landfill. Dispersing of soil is calculated with a 25% increase on the material calculated in density condition.</p> <p>Calculation per m3 of removed soil, with transport to the landfill at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials material.</p>		

BoQ Item	C3.5.	Unit	m'
Unit price definition	Sewage pipes and fittings, type PP-C		
Description	<p>Supply and installation of silent sewage pipes for internal use. The pipes shall be installed with special rubber clamps, which enables the reduction of noise and acoustic vibrations up to the level of 12 dB. The pipes are made of the highest quality polypropylene-block copolymer (PP-C) reinforced with mineral additives. This type of pipes shall be used for all horizontal and vertical pipes the internal sewerage installation. Pipes shall be placed in designed inclination. The connection of pipes and fittings will be made with a plug-in socket and a rubber sealing ring (Q ring). Impermeability test shall be made after installation of pipes.</p>		

Pipes are of different diameters: DN 50, DN 110

The unit price includes all works, materials, fittings, preparatory and finishing works, construction and closing of grooves, mounting on clamps, hooks and brackets, drilling holes in walls, floor slabs, inspection and testing for sound of each pipe or piece, pipe cutting, threading, joining, giving inclination, making pipe insulation as design or instructed by the supervisor, inspection of lines and temporary closure of the pipe opening for testing and etc. The unit price includes also the assembly and disassembly of the required scaffolding where the installation height requires it.

Calculation per m1 of installed pipes.

BoQ Item	C3.6.	Unit	pcs
Unit price definition	Bathroom drain, for Ø50 mm connection		
Description			
Supply and installation of drains with siphon for blockage of odors even when the siphon is dry, nickel-plated cover with a frame, dimensions 15x15 cm. Bathroom drain is made of PVC with horizontal drain.			
Calculation per piece installed.			

BoQ Item	C3.7.	Unit	m'
Unit price definition	Testing		
Description	Testing of the installed sewerage pipelines for water permeability according to the manufacturer's instructions and method statement approved by the supervisor. Calculation per m1 of tested pipeline.		

BoQ Item	C4.1.	Unit	m3
Unit price definition	Machine and manual excavation of trench, 80 cm wide		
Description			
Machine and manual excavation of a trench 80 cm wide, for pipeline laying in any category of soil. The contractor shall make geodetic survey of the pipeline designed route. The unit price includes all the necessary work and materials and eventually pumping water from the trench. The width of the trench is determined in accordance with EN 1610.			
Calculation per m3 of excavated material in densely condition, with disposal on site.			

BoQ Item	C4.2.	Unit	m3
Unit price definition	Making the sand layer		
Description	Making a sand layer for a pipeline. Supply and installation of natural mixture sand with a fraction size of 0-4 mm, or crushed stone fraction up to 2 mm, for a bed thickness 10 cm below and around the pipe the entire width of the trench. Transport is also calculated at the unit price. Calculation per m3 of installed sand layers.		

BoQ Item	C4.3.	Unit	m3
Unit price definition	Backfilling of the trenches		
Description			
Backfilling of the canal trench after installation and testing of pipes. Backfilling is done in layers, 30-40 cm thickness, with proper compaction until the required compression modulus is reached. Fraction size 0-63 mm. Backfilling of the first layer of the trench is done manually, with selected material from the excavation. Further backfilling can be done with machine using remaining excess from the excavation, provided that the machines during backfilling of the trench do not cross over the installed pipeline and that the layers are not thicker than 40 cm.			
Calculation per m3 of backfill material.			

BoQ Item	C4.4.	Unit	m3
Unit price definition	Transport of excess soil material		
Description			
Removal and transport of excess material to the landfill. Dispersing of soil is calculated with a 25% increase on the material calculated in density condition.			
Calculation per m3 of removed soil, with transport to the landfill at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials material.			

BoQ Item	C4.5.	Unit	m
Unit price definition	PVC three-layer pipes		
Description			
Supply and installation of PVC three-layer sewer pipes, DN160/200, class S-20 (ring strength SN4 KN/m ²), manufactured according to EN 13476-2 in accordance with designed diameters and given specification. The pipes must be carefully laid on a previously prepared sand layer. Pipes shall be laid in designed inclination without horizontal and vertical fractures. Control of Inclination should be performed with a geodetic instrument in the presence of the Supervisor. The works shall be performed in accordance with the requirements of EN 1610 and condition defined by producer and instructions of the Supervisor.			
Calculation per m1 of installed pipe.			

BoQ Item	C4.6.	Unit	m
Unit price definition	Line drainage grill		
Description			
Supply and installation of grilles for line ducts, load class A15 (pedestrian load) according to MEST EN 1433, with safety lock without screws and elements against longitudinal movement, made of stainless steel, type Ribbed. The dimensions: 123 mm wide, 50/100 cm long, with an absorption surface of 312 cm²/m.			
Calculation per m1.			

BoQ Item	C5.1.	Unit	pcs
Unit price definition	Supply and installation of porcelain washbasin		
<p>Description</p> <p>The wash basin shall be made of porcelain I class in accordance with ISO 9001 international quality standards. Dimensions cca 60x50 cm.</p> <p>The washbasin, white, glazed, with overflow, shall be resistant against mechanical impacts, corrosion and chemicals. The Wash Basin shall be fixed on wall with screws. The washbasin shall be mounted at 80 cm height. All the dimensions shall be applied according to the main design. Installation shall follow design requirements and manufacturers specifications.</p> <p>Washbasin will be connected to water system through 1/2 ", 30 - 50 cm flexible pipe and valve for water. Washbasin will be connected to the sewage system through brass, chromed siphon following the manufacturer's specifications. All the dimensions shall be applied according to the main design.</p> <p>On the wash basin the single lever basin faucet for cold water shall be mounted as well as accessories: washbasin syphon with filter, rosette, washbasin angle valve 3/8"-1/2"chrome, flexible water hose for washbasin stainless steel, hand drying paper towel holder, mirror 40x60 cm.</p> <p>Sample of the washbasin accompanied with quality certificate, certificate of origin, and warranty certificate will be submitted to the supervisor for approval before washbasin installation in the building takes place.</p> <p>Completion of work shall be in accordance with the main design and supervisor' requirements. Supervisor may require an additional test for the mechanical and physical data.</p> <p>Unit price includes all work and material as specified above.</p> <p>Calculation per piece of mounted washbasin with accessories.</p>			

BoQ Item	C5.2.	Unit	pcs
Unit price definition	Supply and installation of WC set with high level toilet tank system		
Description			
<p>The WC sets shall be made of porcelain I class in accordance with ISO 9001 international quality standards. Toilet bowl with the high-quality plastic seat and lid with antibacterial treatment shall be mounted on floor. The toilet bowl shall be strongly fixed on the floor by screws and plugs. The height of toilet bowl set shall be 38-40 cm. Toilet tank is mounted and heigh of cca 70 cm. They will be installed in accordance with the main design and Supervisor's requirement. WC sets should provide a fast and big water flow. They should be resistant against mechanical impacts, corrosion and chemicals, and provide access for easy maintenance.</p> <p>The connection to sewerage system shall be through a siphon type pipe. The diameter should match the outlet of the WC set (The diameter is 100-110 mm). The connection of the WC set to the water system shall be realized to a flush toilet tank system (flash box) installed on the wall. The connection of the WC set and flush box to water and sewerage pipeline shall be in accordance with the manufacturer's recommendation.</p> <p>Sample of the WC set and flush box accompanied with quality certificate and warranty certificate will be submitted to the supervisor for the approval before WC installation in the building takes place.</p> <p>Completion of work shall be in accordance with the main design and supervisor requirements.</p>			

Supervisor may require an additional test for the mechanical and physical data.
 Porcelain wall hung toilet: Color: white, Dimensions: cca 470x370x400 mm
 Wall mounted toilet tank system: flush volume 5.0 l/3.0 l by EN
 With WC set deliver also toilet role holders installed to the left/right of toilet bowl at height of 80 cm and brush for toilet cleaning.
 Unit price includes all work and material as specified above.
 Calculation per installed set.

BoQ Item	C5.3.	Unit	pcs
Unit price definition	Supply and installation of WC set with wall in built toilet tank system		
<p>Description</p> <p>The WC sets shall be concealed type. The WC sets shall be made of porcelain I class in accordance with ISO 9001 international quality standards. Toilet bowl with the high-quality plastic seat and lid with antibacterial treatment shall be hanged on the wall.</p> <p>The toilet bowl shall be strongly fixed on the wall by clamps, screw plugs and screws. Toilet bowl shall be connected with water discharge pipes before the installation on the wall by brass clamps. The toilet flush tank system shall be on the backside of the toilet bowl.</p> <p>The height of toilet bowl set shall be 38-40 cm. They will be installed in accordance with the main design and Supervisor’s requirement.</p> <p>WC sets should provide a fast and big water flow. They should be resistant against mechanical impacts, corrosion and chemicals, and provide access for easy maintenance.</p> <p>The connection to sewerage system shall be through a siphon type pipe. The diameter should match the outlet of the WC set (The diameter is 100-110 mm). The connection of the WC set to the water system shall be realized to a flush toilet tank system (flash box) installed on the wall.</p> <p>The connection of the WC set and flush box to water and sewerage pipeline shall be in accordance with the manufacturer’s recommendation.</p> <p>Sample of the WC set and flush box accompanied with quality certificate, certificate of origin, and warranty certificate will be submitted to the supervisor for the approval before WC installation in the building takes place.</p> <p>Completion of work shall be in accordance with the main design and supervisor requirements. Supervisor may require an additional test for the mechanical and physical data.</p> <p>Porcelain wall hung toilet: Color: white, Dimensions: 367x 525x320 mm</p> <p>In-wall flush toilet tank system: flush volume 5.0 l/3.0 l by EN</p> <p>With WC set deliver also toilet role holders installed to the left/right of toilet bowl at height of 80 cm and brush for toilet cleaning.</p> <p>Unit price includes all work and material as specified above.</p> <p>Calculation per installed set.</p>			

BoQ Item	C5.4.	Unit	pcs
Unit price definition	Water heater (boiler), 10l		
Description Supply and installation of boilers, made of metal-steel enameled sheet metal, for operating pressure of 6-8 bar and an electric heater of 2 kW and valve for reduction of pressure > 5 bar, volume 10 l and 80 l. The unit price includes all work and connecting material for plumbing and electrical installation. Calculation per piece.			

Section 6: Electrical Installations

6.1.1. General remarks

This technical specification for the execution of works is an integral part of the tender documentation and will be an integral part of the Contract for the execution of works.

The contractor is fully acquainted with all the details of the submitted project, as well as with all the local ones regulations, local standards (MEST, common practice and circumstances for their enforcement, it is understood that whenever local regulations, local standards (MEST) or any common trade, is subject to any interpretation, clarification, ambiguity or in dispute will prevail the judgment of the Supervisor, always provided that such decision is fully accepted and will be based on the relevant local regulations, local standards (MEST), including, but not limited to:

- Rulebook on technical standards for low voltage electrical installations ("Official Gazette of the SFRY" No. 53/88),
- JUS N.B2.741 / 1989 security requirements
- Rulebook on technical standards for the protection of objects against atmospheric discharge ("Official Gazette of the SFRY" No. 11/96),
- Yugoslav Standards - Lightning Installations - General Conditions JUS IEC 1024 -1/1996
- Law on Fire Protection (Official Gazette of the Republic of Montenegro 79/04),
- Law on Occupational Safety and Health (Official Gazette of the Republic of Montenegro 34/14),
- Law on Spatial Planning and Construction of "Official Gazette of Montenegro" no. 064/17 of 06.10.2017.
- Technical Recommendation - Typing of measuring points (EPCG - Podgorica 2009) TP2ED
- Technical recommendation - for low-voltage consumer connections (TP-2 amended edition-Podgorica 2008)
- General Conditions for Electricity Delivery ("Official Gazette of the Republic of Montenegro" No. 1/90)
- Ordinance on the Supply of Electricity (Official Gazette of the Republic of Montenegro 13/05)
- MEST HD 60364-4-41: 2011 - Low-voltage electrical installations - Part 4-41: Safety
- protection - Shock protectionHD 60364-4-41:2011
- MEST HD 60364-4-42:2011 - Low-voltage electrical installations - Part 4-42: Safety protection - Shock protection

- MEST HD 60364-4-43:2011 - Low-voltage electrical installations - Part 4-43: Safety protection - Overcurrent protection
- MEST HD 60364-5-51:2011 - Electrical installations of buildings - Part 5-51: Selection and installation of electrical equipment - General rules
- MEST HD 60364-5-52: 2011 - Electrical installations of buildings – Part 5-52: Selection and installation of electrical equipment - Wired systems
- MEST HD 60364-5-534:2011 - Low-voltage electrical installations - Part 5-534: Selection and erection of electrical equipment - Isolation, interruption and control - Clause 534: Surge protection devices.
- MEST HD 60364-5-54:2011 - Electrical installations of buildings - Part 5-54: Selection and erection of electrical equipment - Grounding methods, protective conductors and protective conductors
- MEST HD 60364-7-701:2011 - Low-voltage electrical installations - Part 7-701: Requirements for special installations or locations - Sites containing bathtubs or showers
- MEST EN 50274: 2010 - Low-voltage switchgear and controlgear - Protection against electric shock - Protection against accidental direct contact of dangerous active parts
- MEST EN 61543: 2009 - Differential current protective devices (RCD) for household and similar use - Electromagnetic compatibility
- MEST EN 50525-2-31:2011 - Electrical cables - Low-voltage power cables of rated voltages up to and including 450/750 V (U0/U) - Part 2-31: General purpose cables - Unshielded single core cables with thermoplastic PVC insulation
- MEST EN 61140:2010 - Shock protection - Common aspects for installation and equipment
- MEST EN 1838:2011 - Application of lighting - Emergency lighting
- MEST EN 60529:2010 - Degrees of protection provided by enclosures (IP code)
- MEST EN 50368:2008 - Cable fasteners for electrical installations
- MEST EN 50425:2009 - Household switches and similar permanent installations
- MEST EN 60269-1:2010 - Low-voltage fuses - Part 1: General requirements
- MEST EN 60269-1:2010/A1:2010 - Low-voltage fuses - Part 1: General requirements
- MEST EN 60320-1:2008 - Plug accessories for household and similar general-purpose appliances - Part 1: General requirements
- MEST EN 60320-2-2:2008 - Plug accessories for household and similar general purposes - Part 2-2: Interfacing household and similar equipment
- MEST EN 60670-1:2010 - Boxes and housings for household electrical accessories and similar fixed electrical installations - Part 1: General requirements
- MEST EN 60670-22:2010 - Boxes and housings for electrical household accessories and similar fixed electrical installations - Part 22: Particular requirements for junction boxes and housing
- MEST EN 60730-2-14:2009 – Electrical apparatus for automatic control for domestic and similar use - Part 2-14: Particular requirements for electric actuators
- MEST EN 60898-1:2010 - Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installations - Part 1: Circuit-breakers for alternating current (a.c)

All work shall be performed accurately and professionally. Prior ordering all materials the Contractor shall deliver to the Supervisor all certificates, attest and other supporting documents proving that the technical characteristic of materials and devices are in accordance with main design and these technical specifications. and installation of all materials the Contractor shall obtain written approval of the Supervisor. Regardless comments of the supervisor, the Contractor the quality of work and materials will be the solely responsibility of the Contractor.

Contracted prices include all fully completed works, the final product and ready for use. NOTE: LED strips, as well as ballasts required for their power supply are not included in this bill of quantities, and their purchase is done by the investor in the interior design.

6.1.2. Unit description

BoQ Item	D1.1.	Unit	LS
Unit price definition	Preparatory and final construction works		
Description	Preparatory and final construction works. Lump sum calculation		

BoQ Item	D1.2.	Unit	m3
Unit price definition	Marking the route and excavation of the trench		
Description	Marking the route and excavation of the trench measuring 0.4x0.8 m, for the purpose of laying cables for power supply of smart benches and outdoor lighting. Excavation is done manually, in the land of III and IV category. Total for work, calculated per m3 of excavation (103m).		

BoQ Item	D1.3.	Unit	m3
Unit price definition	Delivery and spreading of sand in the cable trench		
Description	Delivery and spreading of sand in the cable trench. Two layers of sand, 10 cm thick, are spread before and after laying the cables. The sand is laid the entire width of the trench. Total for procurement, transport and operation, calculated per m3 of sand.		

BoQ Item	D1.4.	Unit	pcs
Unit price definition	Delivery and laying of "gal" shield		
Description	Delivery and laying of "gal" shield or similar mechanical protection of freely laid cable in the trench. The shields are laid so that, in length, they overlap each other by about ten centimeters, completely covering the laid cable. The guards are laid after spreading a second layer of sand in the trench. Total for procurement, transport and operation, calculated per laid shield (l = 1.0 m). Total for material and work calculated per piece.		

BoQ Item	D1.5.	Unit	m
Unit price definition	Procurement, delivery and installation of a warning tape		
Description	Procurement, delivery and installation of a warning tape made of soft polyvinyl chloride, which is placed 20 cm from the ground. Total for work, calculated per meter of tape.		

BoQ Item	D1.6.	Unit	m3
Unit price definition	Backfilling the cable trench		
Description			
ackfilling the cable trench with excavation. Backfilling is done in layers of about twenty centimeters. When backfilling, remove larger pieces of sharp-edged material.			
Total for work, calculated per m3 of material from excavation.			

BoQ Item	D1.7.	Unit	m3
Unit price definition	Landscaping after trenching with removal of excess material to the landfill		
Description Landscaping after trenching with removal of excess material to the landfill. Total for work and transport, calculated with the distance of the landfill up to 20 km and calculation per m3.			

BoQ Item	D2.1.	Unit	pcs
Unit price definition	Relocation of the existing distribution cabinet "RO-RK"		
Description			
Relocation of the existing distribution cabinet "RO-RK", which is located in the bathroom according to the newly designed condition. The closet is moved to the opposite side of the wall. Include disassembly and reassembly with all the small material necessary for the installation of the cabinet. If it is necessary to continue certain cables.Calculation per piece.			

BoQ Item	D2.2.	Unit	set
Unit price definition	Delivery and installation of equipment to be added to the existing distribution cabinet "RO-RK"		
<p>Description</p> <p>Delivery and installation of equipment to be added to the existing distribution cabinet "RO-RK". If there is not enough empty space, provide for the installation of a new board that is installed next to the existing one. The equipment to be installed is:</p> <p>contactor 3NO, 16A, 230V – 1 pc</p> <p>time relay (astronomical clock) – 1 pc</p> <p>circuit breaker iC60N C/20A, 1P – 2pcs</p> <p>circuit breaker iC60N C/16A, 3P – 3 pcs</p> <p>circuit breaker iC60N C/16A, 1P – 23 pcs</p> <p>circuit breaker iC60N C/10A, 1P – 8 pcs</p> <p>circuit breaker iC60N C/6A, 1P – 1 pc</p> <p>the item includes busbars, terminal blocks, POK ducts, plastic labels, pertinax, nameplates, copper braids, cable glands, single-pole scheme, pocket for single-pole scheme and other necessary small material necessary for the installation of cabinets. Total for material and work per set of installed equipment.</p>			

BoQ Item	D3.1.	Unit	m
Unit price definition	Electrical conductor, type PP00-y 3x2,5mm ²		
Description			
Procurement, delivery and construction of single-phase connection points, with conductor type PP00-y 3x2,5mm ² ,for the needs of powering "smart" benches according to the plan and single-pole schemes. The conductors are laid partly in the wall under the mortar and partly in the earthen trench. The item includes all mounting material that is necessary for the installation of conductors as well as the connection of conductors at both ends. Total for material and work calculated per m1 of installed conductor.			

BoQ Item	D3.2.	Unit	m
Unit price definition	Electrical conductor, type N2XH-J 3x4mm ²		
Description			
Procurement, delivery and execution of single-phase connection points, with conductor type N2XH-J 3x4mm ² , for connection circuits as well as power supply of outdoor air conditioning units, all according to the plan and single- pole schemes. The conductors are laid in the wall under the mortar, where it is necessary to include all the necessary adjustments as well as bringing the surfaces to their original condition. The item includes all mounting material that is necessary for the installation of conductors as well as the connection of conductors at both ends. Total for material and work calculated per m1 of installed conductor.			

BoQ Item	D3.3.	Unit	pcs
Unit price definition	Electrical conductors N2XH-J 3x2,5mm ²		
Description			
Procurement, delivery and construction of single-phase connection points, with conductor type N2XH-J 3x2,5mm ² , for circuits of connectors and other connection points according to the plan and single-pole schemes. The conductors are laid in the wall under the mortar, where it is necessary to include all the necessary adjustments as well as bringing the surfaces to their original condition. The item includes all mounting material that is necessary for the installation of conductors as well as the connection of conductors at both ends. The average length per connection point is 16m. Total for material and work . Calculation per piece of installed electrical circuit.			

BoQ Item	D3.4	Unit	m
Unit price definition	Electrical conductors type N2XH-y 4x2.5mm ²		
Description			
Procurement, delivery and construction of three-phase connection points, with conductor type N2XH-y 4x2.5mm ² , for air conditioning circuits. The conductors are laid in the wall under the mortar, where it is necessary to include all the necessary adjustments as well as bringing the surfaces to their original condition. The item includes all mounting material that is necessary for the installation of conductors as well as the connection of conductors at both ends. Total for material and work. Calculation per m of installed conductor.			

BoQ Item	D3.5	Unit	m
Unit price definition	Electrical conductors type N2XH-J 5x2.5mm ²		
Description	Procurement, delivery and installation of conductor type N2XH-J 5x2.5mm ² . The conductors are laid in the wall under the mortar, where it is necessary to include all the necessary adjustments as well as bringing the surfaces to their original condition. The item includes all mounting material that is necessary for the installation of conductors as well as the connection of conductors at both ends. Total for material and work. Calculation per m of installed conductor.		

BoQ Item	D4.1.1.-D4.1.2.	Unit	pcs
Unit price definition	Electrical conductors N2XH-J 3x1,5 mm ² / PP00-y 3x1,5 mm ²		
Description	Procurement, delivery and execution of circuits for indoor and outdoor lighting, without the installation of switches, light bulbs and lamps. The conductors are laid partly above the suspended ceiling in a halogen-free pipe with an outer diameter of Ø20 mm, partly in the wall under the plaster. For external lighting, the conductors are laid partly in an already prepared earthen trench. The item includes all mounting material that is necessary for the installation of conductors as well as the connection of conductors at both ends. Perform the installation in everything according to the technical description. Calculation per m of installed conductor.		

BoQ Item	D4.2.	Unit	pcs
Unit price definition	(S1) Procurement, delivery and installation of LED reflectors for 3PH son		
Description	Procurement, delivery and installation of LED reflectors for 3PH son, total input power 24W, with high- quality optics, wide flood optics, light output flux 1194lm, light color temperature 3000K, lamp efficiency 53lm / W, light source characteristics MacAdam 3 , 50,000 operating hours before light flux drops to 70% of initial value at 25 ° C, flicker free, ballast integrated inside the lamp, CRI> 90, made of aluminum, black, degree of protection IP20 dimensions 150x65x157mm, weight 0.66 kg. The lamp is delivered complete with a light source and all the necessary equipment for work. Calculation per piece.		

BoQ Item	D4.3.1.	Unit	pcs
Unit price definition	Dismantling of existing lights		
Description	Procurement, delivery and installation of 2m long rail, wired with 5x1.5mm ² . Maximum voltage 3x3680W (11040W). With the appropriate equipment, it is possible to mount the son as a superstructure and a hanger. Total for material and work calculated per piece.		

BoQ Item	D4.3.2.	Unit	pcs
Unit price definition	Procurement, delivery and installation of 4m long rail, wired with 5x1.5mm ²		
Description	Procurement, delivery and installation of 4m long rail,		

wired with 5x1.5mm². Maximum voltage 3x3680W (11040W). With the appropriate equipment, it is possible to mount the son as a superstructure and a hanger. Total for material and work calculated per piece.

BoQ Item	D4.3.3.	Unit	pcs
Unit price definition	Procurement, delivery and installation of POWER SUPPLY element for 3PH rail		
Description	Procurement, delivery and installation of POWER SUPPLY element for 3PH rail with grounding on the right side. Total for material and work calculated per piece.		

BoQ Item	D4.3.4.	Unit	pcs
Unit price definition	Procurement, delivery and installation of connectors for connection between 3PH rail		
Description	Procurement, delivery and installation of connectors for connection between 3PH rail. Total for material and work calculated per piece.		

BoQ Item	D4.3.5.	Unit	pcs
Unit price definition	Procurement, delivery and installation of a final cap for 3PH rail.		
Description	Procurement, delivery and installation of a final cap for 3PH rail. Total for material and work calculated per piece.		

BoQ Item	D4.3.6.	Unit	pcs
Unit price definition	Procurement, delivery and installation of accessories for surface mounting for 3PH rail		
Description	Procurement, delivery and installation of accessories for surface mounting for 3PH rail. Total for material and work calculated per piece.		

BoQ Item	D4.4.	Unit	pcs
Unit price definition	(S2) Procurement, delivery and installation of decorative LED pendant		
Description	(S2) Procurement, delivery and installation of decorative LED pendant, total input power 12W, lamp light output flux 834lm, light color temperature 3000K, lamp efficiency 70lm / W, light source characteristics MacAdam 3, 50,000 operating hours before the light flux drops to 85% of the initial value at 25 ° C, el. ballast integrated inside the luminaire, made of cast aluminum, degree of protection IP20, black, dimensions Ø70 x 276 mm, weight 1.49 kg. The lamp is delivered complete with a light source and all the necessary equipment for work. Total for material and work calculated per piece.		

BoQ Item	D4.5.	Unit	pcs
Unit price definition	(S3) Procurement, delivery and installation of decorative surface-mounted LED lamp		
Description (S3) Procurement, delivery and installation of decorative surface-mounted LED lamp, total input power 12W, lamp light output flux 834lm, light color temperature 3000K, lamp efficiency 70lm / W, light source characteristics MacAdam 3, 50,000 operating hours before light flux drops to 85% of the initial value at 25 ° C, el. ballast integrated inside the luminaire, made of cast aluminum, degree of protection IP20, black, dimensions Ø70 x 276 mm, weight 1.08 kg. The lamp is delivered complete with a light source and all the necessary equipment for work.Total for material and work calculated per piece.			

BoQ Item	D4.6.1.	Unit	pcs
Unit price definition	(S4) Procurement, delivery and installation of recessed LED lamp		
Description (S4) Procurement, delivery and installation of recessed LED lamp, total input power 11W, lamp light output flux 937lm, light color temperature 3000K, lamp efficiency 84 lm / W, light source characteristics MacAdam 3, 50,000 operating hours before the light flux drops to 85% of the initial value at 25 ° C, el. ballast integrated inside the lamp, made of aluminum, white, degree of protection IP20 / IP44, mechanical protection IK04, has CE and ENEC certificate, dimensions Ø113 x 103 mm, weight 0.49 kg. The lamp is delivered complete with a light source and all the necessary equipment for work.Total for material and work calculated per piece.			

BoQ Item	D4.6.2.	Unit	pcs
Unit price definition	Procurement, delivery and installation of a protective ring that enables protection of the IP54 lamp		
Description Procurement, delivery and installation of a protective ring that enables protection of the IP54 lamp. Total for material and work calculated per piece.			

BoQ Item	D4.7.	Unit	pcs
Unit price definition	(S5) Procurement of deliveries and installation of LED reflectors		
Description (S5) Procurement of deliveries and installation of LED reflectors, total input power 10.7W, output light flux of the lamp 682lm, light color temperature 4000K, lamp efficiency 64lm / W, estimated service life of 50,000 hours at 25 ° C, ballast integrated inside the lamp, made of aluminum, gray, degree of protection IP67 dimensions Ø80 x 158mm, weight 0.9 kg. The lamp is delivered complete with a light source and all the necessary equipment for work.Total for material and work calculated per piece.			

BoQ Item	D4.8.1.	Unit	pcs
Unit price definition	(S6) Procurement, delivery and installation of surface- mounted LED panel		
Description	(S6) Procurement, delivery and installation of surface- mounted LED panel, light flux 3754lm, lamp efficiency 110 lm / W, total lamp input power 34W, external terminal box allows wiring from the loop, without flicker, CRI 80, 4000K, degree of protection IP20 / IP44, mechanical protection IK02, weight 2.58 kg, dimensions 596 x 596 x 26 mm. The lamp is delivered complete with a light source and all the necessary equipment for work.Total for material and work calculated per piece.		

BoQ Item	D4.8.2.	Unit	pcs
Unit price definition	Procurement, delivery and installation of a surface housing for the lamp		
Description	Procurement, delivery and installation of a surface housing for the lamp.Total for material and work calculated per piece.		

BoQ Item	D4.9.	Unit	pcs
Unit price definition	(S7) Procurement, delivery and installation of floor reflector LED light source, for surface installation		
Description	(S7) Procurement, delivery and installation of floor reflector LED light source, for surface installation that delivers 772lm with CRI = 80, 3000 K, LEDs with Flood optics, protection IP67, input power 9 W and efficiency 85.78 lm / W. Designed for 50,000 hours L80, black armature color 84.5x73.45x127 mm and weight 0.63 kg. The lamp is delivered complete with a light source and all the necessary equipment for work.Total for material and work calculated per piece.		

BoQ Item	D4.10.	Unit	pcs
Unit price definition	Procurement, delivery and installation of OG boxes intended for mounting ballasts		
Description	Procurement, delivery and installation of OG boxes intended for mounting ballasts. Total for material and work calculated per piece.		

BoQ Item	D4.11.	Unit	pcs
Unit price definition	(P1)Procurement, delivery and installation of surface mounted general anti-panic lamp, LED light source		
Description	(P1)Procurement, delivery and installation of built-in general anti-panic lamp, LED light source, 240lm, with Ni- Mh battery autonomy 1h, degree of mechanical protection IP20, dimensions Ø122x36mm. . Total for material and work calculated per piece.		

BoQ Item	D4.12.	Unit	pcs
Unit price definition	(P2) Procurement, delivery and installation of surface mounted pictogram anti-panic lamp for marking the evacuation route		

Description

(P2) Procurement, delivery and installation of built-in pictogram anti-panic lamp for marking the evacuation route, LED light source, 180lm, with Ni-Mh battery autonomy 1h, degree of mechanical protection IP20 . Total for material and work calculated per piece.

BoQ Item	D5.1.	Unit	set
Unit price definition	Procurement, delivery and installation of three-phase connector 16A / 400V,		
Description	Procurement, delivery and installation of three-phase connector 16A / 400V, JUS N.EO.350. Calculation per installed set.		

BoQ Item	D5.2.	Unit	set
Unit price definition	Procurement, delivery and installation of three-phase connector with IP44 protection 16A/400V		
Description	Procurement, delivery and installation of three-phase connector with IP44 protection 16A/400V, JUS N.EO.350. Calculation per installed set.		

BoQ Item	D5.3.	Unit	set
Unit price definition	Modular accessories white color 2M		
Description	Supply and installation of modular accessories, white color, built-in PVC box Ø60mm armature 2M,mask 2M, outlet 2P+E 16A, 2M – 1pcs – white Calculation per installed set.		

BoQ Item	D5.4.	Unit	set
Unit price definition	Modular accessories black color 2M		
Description	Supply and installation of modular accessories, black color, built-in PVC box Ø60mm armature 2M,mask 2M, outlet 2P+E 16A, 2M – 1pcs – white Calculation per installed set.		

BoQ Item	D5.5.	Unit	set
Unit price definition	Modular accessories white color 2M IP 44		
Description	Supply and installation of modular accessories, white color, built-in PVC box Ø60mm armature 2M,mask 2M, outlet 2P+E 16A, 2M IP44 – 1pcs – white Calculation per installed set.		

BoQ Item	D5.6.	Unit	set
Unit price definition	Modular accessories white color 3M		
Description			
Supply and installation of modular accessories, white color, built-in PVC box 3M armature 3M,mask 3M, outlet 2P+E 16A, 2M – 1pcs outlet 2P 16A, 1M– 1pcs – white			
Calculation per installed set.			

BoQ Item	D5.7.	Unit	set
Unit price definition	Modular accessories black color 3M		
Description			
Supply and installation of modular accessories, white color, built-in PVC box 3M armature 3M,mask 3M, outlet 2P+E 16A, 2M – 1pcs outlet 2P 16A, 1M– 1pcs – black			
Calculation per installed set.			

BoQ Item	D5.8.	Unit	set
Unit price definition	Modular accessories white color 4M		
Description			
Supply and installation of modular accessories, white color, built-in PVC box 4M armature 4M,mask 4M, outlet 2P+E 16A, 2M – 2pcs – white			
Calculation per installed set.			

BoQ Item	D5.9.	Unit	set
Unit price definition	Modular accessories white color 4M IP44		
Description			
Supply and installation of modular accessories, white color, built-in PVC box 4M armature 4M,mask 4M, outlet 2P+E 16A, 2M IP44– 2pcs – white			
Calculation per installed set.			

BoQ Item	D5.10.	Unit	set
Unit price definition	Modular accessories black color 6M		
Description			
Supply and installation of modular accessories, white color, built-in PVC box 6M armature 6M,mask 6M, outlet 2P+E 16A, 2M black - 1pcs, outlet 2P 16A, 1M black - 1pcs, 3 empty modules for extra low voltage			
Calculation per installed set.			

BoQ Item	D5.11.	Unit	set
Unit price definition	Modular accessories white color 6M		
Description			
Supply and installation of modular accessories, white color, built-in PVC box 6M armature 6M,mask 6M, outlet 2P+E 16A, 2M white - 3pc			
Calculation per installed set.			

BoQ Item	D5.12.	Unit	set
Unit price definition	Modular accessories white color 2M, built-in PVC Ø60mm, ordinary switch		
Description	Supply and installation of modular accessories, white color, built-in PVC box Ø60mm armature 2M, mask 2M, ordinary switch, 2M –1pcs -white Calculation per installed set		

BoQ Item	D5.12.	Unit	set
Unit price definition	Modular accessories white color 6M, built-in PVC Ø60mm, ordinary switch		
Description	Supply and installation of modular accessories, white color, built-in 6M PVC box Ø60mm armature 6M,mask 6M, ordinary switch, 1M –6pcs -white Calculation per installed set.		

BoQ Item	D6.1.	Unit	pcs
Unit price definition	Procurement, delivery and installation of equipotential bonding busbars, 7x2.5-25mm ²		
Description	Procurement, delivery and installation of equipotential bonding busbars, 7x2.5-25mm ² , for the purpose of grounding metal parts in the bar. Total for material and work calculated per piece.		

BoQ Item	D6.2.	Unit	m
Unit price definition	Procurement, delivery and installation of halogen-free fine-wire conductor H05Z-K 1x16 mm ²		
Description	Procurement, delivery and installation of halogen-free fine-wire conductor H05Z-K 1x16 mm ² , from the main bus in RO-RK to the busbars for equipotential bonding. Total for material and work calculated per meter.		

BoQ Item	D6.3.	Unit	m
Unit price definition	Make galvanic connection of all metal masses in the building that do not belong to the electrical installation with a fine-wire conductor H05Z-K 1x6 mm ²		
Description	Make galvanic connection of all metal masses in the building that do not belong to the electrical installation with a fine-wire conductor H05Z-K 1x6 mm ² . Total for material and work calculated per meter.		

BoQ Item	D7.1.	Unit	pcs
Unit price definition	Delivery and installation of heating cables for roof of the terrace canopy		
Description			
Delivery and installation of heating cables for the needs of installation on the tin roof of the terrace canopy. The cables have a power of 20W / m and are installed at a distance of 20-25 cm from each other. The cable is delivered in a ready-made installation kit and ends with a power cable (so-called cold end). The total length of the heating cable bundle is 110 m. Connect to the power cable under the roof in an accessible location. Cover the item with all the small material that is necessary for the installation of the heating cable. Total for material and work calculated per piece.			

BoQ Item	D7.2.	Unit	pcs
Unit price definition	Delivery and installation of heating cables for installation in horizontal and vertical gutters		
Description			
Delivery and installation of heating cables for installation in horizontal and vertical gutters. The cables have a power of 20W / m and are installed at a distance of 20-25 cm from each other. The cable is delivered in a ready- made installation kit and ends with a power cable (so- called cold end). The total length of the heating cable bundle is 50 m. Connect to the power cable under the roof in an accessible location. Cover the item with all the small material that is necessary for the installation of the heating cable. Total for material and work calculated per piece.			

BoQ Item	D7.3.	Unit	pcs
Unit price definition	Delivery and installation of a thermal probe and a regulator		
Description			
Delivery and installation of a thermal probe and a regulator that ensures that the maximum height of the snow cover on the roof is 2 cm, and through which the automatic operation of the heating cable is provided. Total for material and work calculated per piece.			

BoQ Item	D8.1	Unit	LS
Unit price definition	Testing of the all electrical installations		
Description			
Testing of the all electrical installations (grounding and lighting protection and installations) with obtaining a certificate from an accredited company for issuing the certificates. If the certificates are negative, the contractor will have to bring the installation to a correct condition and perform the test again.			
Calculation pre lump sum.			

Section 7: Mechanical Installations

7.0. General for all work items

This technical specifications and bill of quantities envisages equipment that meets parameters required by the main design.

The contractor shall install the equipment with same or better characteristic as one described in technical specification as well as dimensions that can fit into the designed installation.

When submitting bids, the contractor must review the entire works by inspecting the textual and graphic documentation, in order to avoid unjustified subsequent works, as well as to precisely specify the equipment (type and manufacturer) that he is able to provide.

In each position of bill of quantities (Volume 4), unless otherwise stated written, is included:

- procurement,
- transport to the installation site,
- assembly and installation,
- production of specific assemblies,
- delivery and installation of auxiliary assembly and consumables,
- all necessary tools, scaffolding and means of transport,
- field allowances for workers, accommodation and food,
- transport of workers,
- customs duties and taxes.

The agreed unit prices include all works, material, scaffolding, transportation, use of tools, equipment or machines etc., to provide fully completed and accepted position of the works.

These general conditions apply to each item of BoQ separately.

7.1. Air Ventilation

7.1.1. Introduction

The air ventilation system is designed in the culinary classrooms which are located in the ground floor of the building "A".

The interior solution of the rooms and the fact that they are not classic kitchen (with grouped kitchen appliances), but a classroom with several kitchen blocks, concentrated around spatially separated electric stoves, conditioned the solution of the technical solution of the ventilation system. The design envisages a system of 4 wall and 2 island eco-hoods, which are for each room connected into a common duct system with an exhaust fan for extracting waste air, smoke and fatty vapors with an exit to the facade of the building. In order to avoid intense overflow (draft) through the room, a system is which brings the appropriate amount of outside fresh air into each eco-hood is also designed. The amount of air supplied in this way will be slightly smaller than the amount of extracted air, so the

premises of these classrooms will be in small under negative pressure in relation to the neighboring rooms.

One of the windows on the facade under the ceiling should be opened every time the ventilation is switched on, in order to ensure the exchange of air in the parts of the room that are not covered by hoods and are needed for people's breathing. In periods when the classrooms are not working (between classes), natural ventilation of the premises should be performed by opening the windows.

7.1.2. General requirements

1. The installation shall be made all according to the main design.
2. All elements of the installation shall in all details correspond to the specified characteristics and shall have such dimensions that they can fit into the dimensions provided by the main design.
3. The installation contractor declares that he has the knowledge and capabilities required of the contractor of this type, i.e.:
 - a) to be able to procure, deliver, install, connect with other elements of the installation envisaged by the project, whether domestic or imported equipment, and to have the means to provide for this equipment the appropriate prospectuses, instructions and explanations that would be required for this purpose;
 - b) to have the knowledge and ability to solve all the details within the installation, in an appropriate technical and aesthetic way, for which no detailed drawings are given such as: hanging pipes and air ducts, making solid and sliding supports, installation of vent vessels, installation of heating bodies, placing equipment on floating, elastic or solid foundations, fitting equipment into an architectural and construction unit, etc.;
 - c) to have the possibilities necessary for the regulation of the operating parameters of the installation:
flow and flow rate, water and air temperature and humidity using all design elements provided by the project.
4. The equipment, materials and fittings that will be used to make the installations must be of the latest factory production in all respects in accordance with the applicable regulations. Fittings and measuring instruments must be of solid construction and fully fit their purpose.
5. The contractor shall install all the equipment envisaged by main design project in the manner defined by the drawings, technical description and this technical specification. The contractor is obliged to provide his professional and auxiliary workforce, his tools, machines, instruments and everything else that is needed for installation.
6. Works on the construction of the foundation for the equipment that requires funding are part of the delivery of the installation and the contractor shall perform them. All masonry work required to fasten the brackets, binders, clamps etc. for carrying the elements of the installation, are the responsibility of the contractor.
7. The contractor shall install the control circuits, as well as all other elements that make up the automatic control, according to the main design. The contractor is obliged to fully comply with the instructions of the manufacturer of measuring and control equipment during installation, as follows: detailed connection diagrams, installation instructions and instructions for regulation and operation.

8. After the completion of the entire installation, the contractor shall control and fine-tune the equipment for measuring and automatic regulation according to the designed parameters.
9. Electrical installation is the subject of the electrical installation design, however, the connection of all electrical devices as part of the designed mechanical equipment is required to be performed by the mechanical installation contractor, with his workforce, materials and tools.
10. All electrical equipment intended for installation in the designed installation must be adapted for connection to the network 3x380V, 50Hz, or 220V and 50Hz for single-phase connections.
11. Electric motors should be supplied with fuses and starters.
12. Electro-control switchboards should contain all the elements necessary for the management, control and security of the device (fuses, countersinks, control lamps, etc.). All necessary relays and other electrical instruments that fall within the scope of automation or are part of the equipment that forms the connection between the automation and the electric motor should also be mounted on the electrical control panel.
13. The contractor shall provide all the necessary material for the electrical connection of all electric motors and other electrical devices that are part of the installation, with each other, as well as with the electrical control switchboard.
14. Insulation and painting are approached after the installation is completed and after a successful test of the tightness of the installation. Prior to insulation and painting, all metal parts of the installation without factory surface protection must be thoroughly cleaned with a steel brush and primed twice. Insulation must be performed correctly and, in the manner, defined by the main design. Painting the installation is performed with a color of the supervisor choice. The paint should have good covering properties and resistance to the maximum predicted temperature.
15. After the complete installation, the trial work and regulation of the installation should be started. During the test run, perform all preparatory actions, such as releasing air from the pipeline, pre-regulation, placing the valves in the working position, etc., and then start the installation. After eliminating any deficiencies that occur in the installation of the installation, proceed to its fine regulation, using the all-project provided and installed control and measuring devices and equipment. Report the regulation of speeds, flows and temperatures accurately and well, adhering to the conditions defined by the project.

a) Specific requirements for ventilation installations

1. The pipes should be laid so that the pipes can stretch freely, without stress. The stroke of the pipe due to stretching must not lead to tearing or damage of the elements that support the pipelines, nor damage the building elements of the building. All fixed parts (solid points) must be solidly constructed so that the pipeline cannot move. Install pipe bushings in pipe penetrations through walls and mezzanine structures. Joining of pipes that are performed by welding, pre-prepare, and after welding process the weld, so that the bright opening does not change.
2. Pipe distribution should be performed so that the pipes are placed with the required slope and fastened with hangers, clamps and brackets. The distance between the brackets i.e., the hangers, unless otherwise specified in the documentation, shall be adopted according to the following table:

Pipe diameter	The distance between the supports(m)
NO10	1.5
NO15 - NO20	2.0
NO25 - NO32	2.5
NO40 - NO50	3.0
NO65 - NO80	3.0
NO100	4.5
NO125 and more	5.0

3. Galvanized sheet metal of the following thicknesses must be used for the production of flat and shaped parts of the channel, as follows:

Larger channel side (mm)	Sheet thickness(mm)
do 250	0.5
251 - 499	0.75
500 - 999	1.0
over 1000	1.25

For reducers and other fittings for determining the thickness of the sheet, the dimension of the larger edge at the end of the smaller cross section applies.

4. Rolled profiled steel must be used to make the flanges, as follows:
a) for sheet metal parts 0.5 to 0.75 mm thick L 25x25x4mm,
b) for sheet metal parts 1.0 to 1.25 mm thick L 30x30x4mm.
5. Joining of sheets of flat and shaped parts of sheet air ducts should be done with a double bent seam. Angle iron flanges should be installed at the ends of straight and shaped parts. The ends of the sheet metal of individual parts must be bent over the flange (laced). A seal made of 5-8 mm asbestos braid or 3-4 mm thick asbestos cardboard should be placed between the flanges. Use $\varnothing 1/4$ " hexagon head screws to connect the flanges.
6. Channel hangers and brackets must be made of rolled steel $\varnothing 10$ mm and L profiles measuring 25x25x3mm to 35x35x3mm, using an M10 nut and a washer.
7. The channels should be made with as few sharp turns as possible. Each elbow of the channel should be made with guide vanes, and the same applies to forking. Channels with a longer cross-sectional dimension larger than 500 mm should be "spanned" in order to avoid drumming.

8. The valves for regulating the amount of air must be of solid construction with stiffeners on the lower and upper edge, in order to avoid their vibration in any direction. The valves have shafts outside the channel or chamber and can be manually operated or motor driven.
9. All fans in the installation must be of static pressure capacity and speed as indicated in the specification, and of such dimensions that they can be installed in the space provided for them. Fans must belong to the class of "noiseless", i.e. to have the least possible noise at a given speed. The fans should be connected to the electric motors via V-belts and couplings. V-belts and pulleys must be fitted with guards.
10. Electric motors for fan drive must be designed for connection to a three-phase system of rated current 380 V, 50Hz. Electric motors should be of completely closed construction, with sliding pulleys and must be equipped with appropriate rotor starters. Electric motors are mounted on sliding rails made of cast iron or pressed steel.
11. Refrigeration plants should have the capacity and characteristics defined by the project, equipped with all necessary devices for commissioning, regulation and maintenance of operating parameters and safety-protective elements. Install the cooling system in all respects according to the conditions and requirements of the manufacturer.
12. Equipment requiring funding should be placed on appropriate foundations, the definitive measures of which are determined according to the dimensions of the delivered equipment.
13. Install the equipment in the machine rooms according to the project, taking into account the possibility of access to certain elements, the possibility of access to certain elements and devices for handling and the possibility of their disassembly. Pay special attention to the installation of safety-technical and protective equipment, such as connecting expansion vessels, safety valves, installation of fire dampers and other fire-fighting devices, silencers, etc., adhering to the project documentation and the laws and regulations used in the project.
14. The tightness test is performed on both the water and air part of the installation. The aqueous part is tested with cold water at a test pressure which is determined as the sum of the hydrostatic pressure and the pump head, increased by 2 bar. The installation is held to test pressure for two hours. During this time, there must be no leaks or leaks, ie no pressure drop at the control points.
15. The airtightness of the air part of high-pressure installations is tested by measuring the flow at the outlet connection of the air-conditioning chamber and at the current elements. The balance of the amount of air must not differ by more than 10%. On low pressure installations, only the tightness of the air part of the installation is inspected.
16. During the technical testing of the installation, it is checked whether the installed equipment, devices and automation correspond to the project. Also, the quality of installation works is determined and the projected parameters on the installation and in air- conditioner rooms are checked.

The room temperature in winter mode is checked when the outside temperature is - 5 ° C or lower, and in the summer period when the outside temperature is 29 ° C or higher and the weather is sunny. After three hours of uninterrupted operation of the installation, if the rooms on the previous day were normally air-conditioned, the temperatures envisaged by the project must be reached in all rooms. Temperature measurement is performed in the middle of the room at a height of 1.2 m from the floor. During this measurement, it is necessary to measure all other parameters on the installation necessary for their conversion to the conditions of external design

BoQ Item	E1.1.1	Unit	pcs
Unit price definition	Aluminum cast radiator joint connection 600/100 , 189 W/čl		
Description	Supply and installation of Aluminum cast radiator joint connection .This item includes radiator plugs, reductions, connectors and gaskets, radiator brackets, screws, dowels,and spacers. Calculation per piece.		

BoQ Item	E1.1.2	Unit	pcs
Unit price definition	Aluminum cast radiator joint connection 800/100 , 233 W/čl		
Description	Supply and installation of Aluminum cast radiator joint connection .This item includes radiator plugs, reductions, connectors and gaskets, radiator brackets, screws, dowels,and spacers. Calculation per piece.		

BoQ Item	E1.2.	Unit	pcs
Unit price definition	Manual radiator valve		
Description	Supply and installation of manual radiator valve for two-pipe system. Dim 1/2". Calculation per piece.		

BoQ Item	E1.3.	Unit	pcs
Unit price definition	Manual radiator valve		
Description	Supply and installation of manual radiator valve for two-pipe system. Dim 1/2". Calculation per piece.		

BoQ Item	E1.4.	Unit	pcs
Unit price definition	Manual radiator single shutoof valve		
Description	Supply and installation of Manual radiator single shutoof valve for two-pipe system. Dim 1/2". Calculation per piece.		

BoQ Item	E1.5.	Unit	%
Unit price definition	Material for joining steel pipes		
Description	Material for joining steel pipes such as arches, supports, hanging accessories, oxygen, acetylene, welding wire and small consumables. 50% of the previous item is taken into account.		

BoQ Item	E1.6.	Unit	m
Unit price definition	Cleaning, double minimization of piping and painting with radiator varnish in two coats		
Description	Cleaning, double minimization of piping and painting with radiator varnish in two coats. Calculation per meter of pipes.		

BoQ Item	E2.1.	Unit	pcs
Unit price definition	Air conditioner mono split system, in heat pump version, with inverter, Qhl = 3.5 kW, Qgr = 4.0 kW		
Description	Supply and installation of air conditioner mono split system, in heat pump version, with inverter, with cassette indoor unit, with R32 refrigerant, with wired controller. The following nominal capacities: Qhl = 3.5 kW, Qgr = 4.0 kW dimension: H x W x D = . inside unit: 265x570x570 mm . panel: 47.5x620x620 mm . outdoor unit: 596x818x378 mm Weight: 17 + 3 + 37 kg Power supply: 1.05 kW, 220-240 V, 4.7 A Calculated per piece		

BoQ Item	E2.2.	Unit	pcs
Unit price definition	Air conditioner mono split system, in heat pump version, with inverter, 5,0kW Qhl = 5.0 kW, Qgr = 5.5 kW		
Description	Air conditioner mono split system, in heat pump version, with inverter, with cassette indoor unit,, with R32 refrigerant, with wired controller. The following nominal capacities: Qhl = 5.0 kW, Qgr = 5.5 kW dimension: H x W x D = . inside unit: 265x570x570 mm . panel: 47.5x620x620 mm . outdoor unit: 596x818x378 mm Weight: 17 + 3 + 39 kg Power supply: 1.55 kW, 220-240 V, 6.9 A Calculated per piece		

BoQ Item	E2.3.	Unit	pcs
Unit price definition	Air conditioner mono split system, in heat pump version, with inverter in Hyper inverter technology Qhl = 7.1 kW, Qgr = 8.0 kW		
Description	<p>Air conditioner mono split system, in heat pump version, with inverter in Hyper inverter technology (maintains nominal heating capacity up to -15°C), indoor duct unit with R410A refrigerant, with wired controller.. The following nominal capacities: Qhl = 7.1 kW, Qgr = 8.0 kW V = 960 m3 / h, dP = 85 Pa dimension: H x W x D = . inside unit: 299x950x635 mm, . outd. unit: 750x8880 (+88) x340 mm Weight: 17 + 3 + 39 kg Power supply: 2.14 kW, 220-240 V, 5.0 A Calculated per piece</p>		

BoQ Item	E2.4.	Unit	m
Unit price definition	Copper piping for liquid and vapor phase of the cooling equipment-f 6.35 mm/f 9.52 mm/f 12.7 mm/f 15.88 mm		
Description	<p>Copper piping for liquid and vapor phase of the cooling equipment, for connecting branches, outdoor and indoor units. Before mounting the pipeline, clean and degrease it. Calculated per meter.</p>		

BoQ Item	E2.5.	Unit	m
Unit price definition	Pipe insulation with vapor barrier-f 6 x 9 mm/ f 9 x 9 mm/ f 12 x 9 mm/ f 15 x 9 mm		
Description	<p>Pipe insulation with vapor barrier. In addition to insulation, include glue and self-adhesive tape for joints. Calculated per meter.</p>		

BoQ Item	E2.6.	Unit	kg
Unit price definition	Filling the installation with freon R 32		
Description	<p>Filling the installation with freon R 32, according to the manufacturer recommendation for such an installation. Calculated per kg.</p>		

BoQ Item	E2.7.	Unit	kg
Unit price definition	Completing the filling of installation with freon R 410 A		
Description	Completing the filling of installation with freon R 410 A, according to the manufacturer recommendation for such an installation. Calculated per kilogram.		

BoQ Item	E2.8.	Unit	m
Unit price definition	Condensate drain pipes from indoor units connected by fusion process		
Description	Condensate drain pipes from indoor units connected by fusion process, Material: polyolefin polymer Pipeline diameters: DN 32 Calculated per meter.		

BoQ Item	E2.9.	Unit	%
Unit price definition	Material for joining pp pipes		
Description	Material for joining polyolefin pipes, such as elbows, couplings, T-pieces, reductions, etc., is taken 35% of the previous item.		

BoQ Item	E2.10.	Unit	m
Unit price definition	Condensate drainage pipes from indoor units connected by fittings with gaskets		
Description	Condensate drainage pipes from indoor units connected by fittings with gaskets. Material: polypropylene, Pipeline diameters: DN 32 Calculated per meter.		

BoQ Item	E2.11.	Unit	%
Unit price definition	Material for joining pp pipes		
Description	Material for joining polypropylene pipes, such as elbows, couplings, T-pieces, reductions, etc., is taken 35% of the previous item.		

BoQ Item	E2.12.	Unit	m
Unit price definition	Cables for connecting outdoor, indoor units and corresponding controllers and connecting systems- 2 x 1.0 mm2 pre-insulated/ 3 x 1.5 mm2		
Description Cables for connecting outdoor, indoor units and corresponding controllers and connecting systems. Calculated per meter.			

BoQ Item	E2.13.	Unit	LS
Unit price definition	Testing, vacuuming, commissioning, regulation and trial operation of the system, with adjustment of operating parameters		
Description Testing, vacuuming, commissioning, regulation and trial operation of the system, with adjustment of operating parameters. Calculated per lump sum.			

BoQ Item	E3.1.	Unit	pcs
Unit price definition	Heat recuperator for fresh air intake and exhaust air extraction		
Description			
Heat recuperator for fresh air intake and exhaust air extraction (for SV10 system), complete with wired controller PZ-61DR-E.			
The following characteristics:			
flow V = 600 m3 / h			
pressure drop ΔP = 100 Pa			
power supply: 165 W, 220-240 V, 1.15 A			
Calculated per piece.			

BoQ Item	E3.2.	Unit	pcs
Unit price definition	Duct axial two-speed fan of round connection		
Description			
Duct axial two-speed fan of round connection, for suction of air from sanitary rooms (for SV11, SV17 and SV18 systems), complete with rotation speed regulator REB 2.5N.			
The following characteristics:			
.flow V = 250 m3 / h			
.pressure drop ΔP = 130 Pa			
power supply: 50 W, 230 V, 0.22 A			
Calculated per piece.			

BoQ Item	E3.3.	Unit	pcs
Unit price definition	Line single-row diffuser with insulated terminal box and flow regulator		
Description	Line single-row diffuser with insulated terminal box and flow regulator, the following types and dimensions: LD-14/1/B/E/K/M/Z/P/I5 L=2500 mm Calculated per piece.		

BoQ Item	E3.4.	Unit	pcs
Unit price definition	Aluminum grid with one row of slats and flow regulator		
Description	Aluminum grid with one row of slats and flow regulator, the following types and dimensions: AR-13/V-F 625x175. Calculated per piece.		

BoQ Item	E3.5.	Unit	pcs
Unit price definition	External aluminum rain proof grid with screen mesh-600x300/ 800x300		
Description	External aluminum rain proof grid with screen mesh. Calculated per piece.		

BoQ Item	E3.6.	Unit	pcs
Unit price definition	Air valve for air suction		
Description	Air valve for air suction, the following types and dimensions: PV-1- 100. Calculated per piece.		

BoQ Item	E3.7.	Unit	pcs
Unit price definition	Overcurrent aluminum grid for installation in doors		
Description	Overcurrent aluminum grid for installation in doors, the following types and dimensions: AR-4P 425 x 125. Calculated per piece.		

BoQ Item	E3.8.	Unit	kg
Unit price definition	Ducts made of galvanized steel sheet		
Description	Ducts made of galvanized steel sheet, according to graphic documentation, complete with flanges, connecting, hanging and sealing material and small consumable material. Calculated per kilogram.		

BoQ Item	E3.9.	Unit	%
Unit price definition	Duct connection and suspension material		
Description	Duct connection and suspension material, such as MEC flanges and angles, hangers, sealing material and other small consumable material, is taken 50% of the previous item.		

BoQ Item	E3.10.	Unit	m2
Unit price definition	Panel insulation with vapor barrier, 13 mm thick		
Description	Panel insulation with vapor barrier, 13 mm thick, for insulation of air intake ducts. Calculated per m2.		

BoQ Item	E3.11.	Unit	m
Unit price definition	Flexible insulated hose Ø127 mm		
Description	Flexible insulated hose. Calculated per meter.		

BoQ Item	E3.12.	Unit	m
Unit price definition	Ducts made of polypropylene (sewage) pipes- f 125 mm/ f 110 mm		
Description	Ducts made of polypropylene (sewage) pipes, according to graphic documentation. Calculated per meter.		

BoQ Item	E3.13.	Unit	%
Unit price definition	Material for connecting plastic pipes		
Description	Material for connecting plastic pipes, such as elbows, T pieces, reductions, sealing material, etc., and hanging material, takes 50% of the previous item.		

BoQ Item	E3.14.	Unit	LS
Unit price definition	Execution of openings for ducts in the walls		
Description	Execution of openings for ducts in the walls. Calculated per lump sum.		

BoQ Item	E4.1.	Unit	LS
Unit price definition	Opening of the construction site		
Description	Opening of the construction site, harmonization of the design situation with the situation on the facility, introduction of installation works groups in the business, marking the installation. Calculated per lump sum.		

BoQ Item	E4.2.	Unit	LS
Unit price definition	Making of the the executed condition design in three copies		
Description			
Execution of the the executed condition design in three copies.			
Calculated per lump sum.			

BoQ Item	E4.3.	Unit	LS
Unit price definition	Making of the the executed condition design in three copies		
Description			
Preparatory works on transport of materials and equipment to the construction site and storage of the same.			
Calculated per lump sum.			

Section 8: landscaping

8.1 General for all work items

The Contractor shall be responsible to construct all the works in accordance with all design documentations, Montenegrin and European standards, construction best available practice and any other relevant documentation forming part of the Tender Dossier.

The Contractor is fully familiar with all details of the submitted Design, as well as with all local regulations, local standards (MEST), common practice of trade and circumstances for their execution, nevertheless, it is understood that, whenever local regulations, local standards (MEST), or any common practice of trade, are subject to any interpretation, clarification, ambiguity, or dispute, a ruling by the Supervisor will prevail, always provided that such ruling will be fully in compliance with and will be based on the subject local regulations, local standards (MEST), including, but not limited to:

ICS number	Standard number	Year	Title
91.200	MEST ISO 4463-1:2017	2017	Measurement methods for building-Setting-out and measurement -Part 1: Planning and organization, measuring procedures, acceptance criteria
	MEST ISO 7976-1:2017	2017	Tolerance for building-Methods of measurement of buildings and building products-Part 1: Methods and instruments
	MEST ISO 7976-2:2017	2017	Tolerance for building-Methods of measurement of buildings and building products-Part 2: Position of measuring points

As well as in accordance with common practice of trade, and any such ruling by the Supervisors and subsequent instruction in that respect, will not constitute any ground for variation order and/or any additional payment.

All works must be carried out precisely and professionally. Prior to execution of the works/application of any material and/or equipment, the Supervisor must examine all material/equipment and all his comments referring to material/equipment and quality of work will be obligatory for the Contractor.

The Contractor will be responsible for all damages caused by the Contractor during any works, to any third party, structure, main building or adjacent buildings, and all repair works and compensations of any kind will be at the Contractor's expense.

The Contracting Authority will provide to the Contractor the access to building site. All other matters in this regard will be the competence of the Contractor.

It is also considered that the Contractor's will be responsible for safeguarding of the building site and maintenance of existing structure and/or building all the time during the progress of the works until completion and acceptance of the building by the Contracting Authority.

Upon the completion of the works, the Contractor will remove from the building site and other used areas all his tools, machinery, surplus material, etc. so as to have the site neatly arranged as defined in the technical documentation, and all other areas restored in same condition as before the construction.

Coding of each specific technical specification for any type of works given in this Technical Specification, and subsequently in the BoQ, is based on the International Classification for Standards - ICS, providing comprehensive correlation between the international and local standards. "The Institute for Standardization of the Montenegro" ("Institut za Standardizaciju Crne Gore") <https://www.isme.me/catalog> within its Catalogue provides numerous updated tables enabling connection between international and local standards, as well as, updated review of old MNE standards which have been either withdrawn or replaced or simply renamed.

Unforeseen works or changes to the work and/or materials and equipment the Contractor shall announce prior to execution. In this case, the Contractor is obliged to submit additional offer which must contain analyzes according to the standards. The Contractor is obliged to submit all changes to the Supervision for approval.

The agreed unit prices include all works, material, scaffolding, transportation, use of tools, equipment or machines etc., to provide fully completed and accepted position of the works.

These general requirements apply to each item of BoQ separately.

Dismantling and Demolition Works

The contractor is obliged to perform all works from this group of works carefully, taking care not to damage materials and equipment that are not predicted for dismantling or demolition, as well as the already performed position works. All damages caused by the Contractor's negligence shall be repaired by the Contractor at his own expense.

The obligation of the Contractor is to hand over all dismantled / demolished material, furniture or equipment to the End User or take it to the landfill determined by Authority, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.

Instruction which material shall be hand over to the End Recipient or driven away to the landfill, will be given to the Contractor by the Supervisor.

These general requirements apply to each item of BoQ separately.

General conditions for earth, concrete and other works are the same as for the civil and architecture works.

8.2 Unite description

BoQ Item	F1.1.	Unit	m2
Unit price definition	Demolition of the existing asphalt layer		
Description	<p>Demolition of the existing asphalt layer with a thickness of 5 cm, with loading and removal of waste material to the landfill. The position includes the correct cutting of asphalt at the installation position of water drainage channels. The Contractor shall execute the demolition carefully, collect the rubble, take it out, load it on a truck and take it to the landfill.</p> <p>Calculation per m2, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.</p>		

BoQ Item	F1.2.	Unit	m2
Unit price definition	Demolition of reinforced concrete slab 10 cm thick		
Description	<p>Demolition of reinforced concrete slab 10 cm thick . Demolish the slab, level and clean the surfaces, and load the rubble and take it to the city landfill. The Contractor shall execute the demolition carefully, collect the rubble, take it out, load it on a truck and take it to the landfill.</p> <p>Calculation per m2, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.</p>		

BoQ Item	F1.3.	Unit	m2
Unit price definition	Demolition of the reinforced concrete sidewalk along with finishing (stone) for access to the building		
Description	<p>Demolition of the reinforced concrete sidewalk along with finishing (stone) for access to the building. Demolish the concrete sidewalk with stone finishing 20 cm thick, level and clean the surfaces, and load the rubble and take it to the city landfill. The Contractor shall execute the demolition carefully, collect the rubble, take it out, load it on a truck and take it to the landfill.</p> <p>Calculation per m2, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.</p>		

BoQ Item	F1.4.	Unit	m3
Unit price definition	Demolition of the reinforced concrete ramp		
Description			
Demolition of the reinforced concrete ramp with the finishing (ceramics). The ramp consists of two arms. The first arm is 1.85 m long (measured by the slope) and 1.30 m wide. The platform measures 1.60 x 1.70 m at the base. The second arm is 5.28 m long ((measured along the slope) and 1.40 m wide. The position implies the demolition of the existing ramp construction, taking care not to damage the existing facade of the building next to the ramp.			
The Contractor shall execute the demolition carefully, collect the rubble, take it out, load it on a truck and take it to the landfill.			
Calculation per m3, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	F1.5.	Unit	m
Unit price definition	Dismantling and demolition of the existing fence on the ramp		
Description			
Dismantling and demolition of the existing fence on the ramp. The fence consists vertically and horizontally of tubular steel profiles Ø40 mm. Horizontal fences are arranged at two heights. The height of the fence is approx. 90.0 cm			
The Contractor shall execute the demolition carefully, collect the rubble, take it out, load it on a truck and take it to the landfill.			
Calculation per m, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	F1.6.	Unit	m
Unit price definition	Dismantling the existing metal structure of the staircase together with the fence, for access to the service entrance of the building		
Description			
Dismantling the existing metal structure of the staircase together with the fence, for access to the service entrance of the building. The position entails the careful dismantling of the complete staircase structure (load-bearing profiles, treads, fence and anchor plates), its disposal and storage at the facility where the Investor determines until re-installation. The construction of the staircase consists of 4 steps measuring 15.0x30.0 cm (HxW), the width of the staircase is 100 cm. The construction of the staircase and railing consists of box profiles 40x40 mm and circular profiles Ø 30. The position includes all the work for the proper dismantling of the position, which will ensure that the structure is not damaged and enable its re-installation.			
The Contractor shall execute the dismantling carefully, collect the rubble, take it out, load it on a truck and take it to the landfill.			
Calculation per lump sum, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	F1.7.	Unit	m3
Unit price definition	Removal of humus material		
Description			
Clearing of the green areas around the building before the start of construction with the removal of humus material by machine in a layer with an average thickness of approx. 15 cm. When removing humus, pay attention to the distribution of existing installations around the building. The position includes the removal of vegetation on part of the green areas where the new school yard is being built. The unit price includes: removal of vegetation with the extraction of stumps and tree roots, removal of trees, removal of all waste and other unbound materials from the site, excavation of the humus layer with loading and transport to a landfill			
Calculation per m3, with loading and transport to a landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials.			

BoQ Item	F1.8.	Unit	m2
Unit price definition	Demolition of the mainhole top slab		
Description			
Demolition of the mainhole top slab. When demolishing the top plate, pay attention to the existing installations and to enable the construction of a new slab at the design height. The position includes the dismantling of manhole covers and their storage at the facility where the Investor determines until re-installation.			
Calculation per m2, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials			

BoQ Item	F1.9.	Unit	m
Unit price definition	Demolition of the existing fence between the entrance staircase of the terrace and the fence of the square on the north side		
Description			
Demolition of the existing fence between the entrance staircase of the terrace and the fence of the square on the north side. The fence is approx. 105 cm high, and consists of main verticals made of round steel profiles Ø40, while the infill consists of box steel profiles 20x20 mm, two horizontals distributed between the main verticals, while the vertical profiles are distributed evenly at 10 cm center distance. The plinth has a cross section of approx. 20.0x50.0 cm. The position entails cutting the profile of the fence in an appropriate manner and storing it on the building until re-installation. The position includes the complete demolition of the concrete plinth of the fence. The position includes all labor and material for the proper demolition of the fence			
Calculation per m, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials			

BoQ Item	F1.10.	Unit	m
Unit price definition	Careful removal of curbs around the green area on the north side of the terrace for the construction of a new staircase		
Description	<p>Careful removal of curbs around the green area on the north side of the terrace for the construction of a new staircase.</p> <p>Calculation per m, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials</p>		

BoQ Item	F1.11.	Unit	m
Unit price definition	Careful dismantling of electrical cabinets on the north side of the terrace		
Description	<p>Careful dismantling of electrical cabinets on the north side of the terrace. The position implies careful disassembly of the cabinet with interrupted installation in an appropriate manner. The position implies the demolition of the concrete structure under the electrical cabinet.</p> <p>Calculation per lump sum, with removal of rubble to the landfill, located at ADH not exceeding 20 km, including payment of the fee for disposal of waste materials</p>		

BoQ Item	F2.1.	Unit	m3
Unit price definition	Mechanical (70%) and manual excavation (30%)		
Description	<p>Mechanical (70%) and manual excavation works (30%) of III and IV soil categories on the platforms and outside of building at level of ground floor, with manual excavation (digging and arranging the sides 30%) and fine planning of the trench bottom. During excavation of soil special attention shall be paid at routes of existing installations. Any damage to existing installations caused by the contractor will be remedied at his own expense. The earth material that can be used for backfilling should be deposited at construction site.</p> <p>Calculation per m3 of excavated material in densely condition, with disposal on site</p>		

BoQ Item	F2.2.	Unit	m3
Unit price definition	Supply and installation of gravel layer d=30cm		
Description	<p>Supply, filling, spreading and compaction of gravel layer, thickness up to 30 cm, on surfaces planned for laying of concrete paved blocks, as well as under concrete slabs. Compaction of the sand layer shall be performed until a compressibility modulus of 50 MPa is reached (documented by an authorized laboratory). The gravel shall fraction be 0-31 mm.</p> <p>Calculation per m3 of embedded sand layer measured after compaction</p>		

BoQ Item	F3.1.	Unit	m3
Unit price definition	Supply and cast in situ of blinding layer; C12/15, including formwork		
Description	<p>Supply and cast in situ of blinding layer; C12/15, including formwork. Calculation per m3 of concrete</p>		

BoQ Item	F3.2.	Unit	m2
Unit price definition	Supply and cast in situ of top mainhole slab d=15cm; C25/30, including formwork and reinforcement		
Description Supply and cast in situ of top mainhole slab d=15cm; C25/30, including formwork and reinforcement ±Q335. The price per unit of measure includes preparation, installation, vibration and curing of concrete MB30, installation and assembly of reinforcement. Calculation per m2 of concrete slab.			

BoQ Item	F3.3.	Unit	m2
Unit price definition	Supply and cast in situ of reinforced concrete ground slab (in a slope) d=12 cm; C25/30, including formwork and reinforcement		
Description Supply and cast in situ reinforced floor slab with C25/30 concrete, thickness d = 12cm over a gravel layer d=15 cm and reinforced with Q188 mesh rebar. The unit price includes all work, tools, materials, formwork, concrete, rebar for execution of work item. Calculation per m2 of concrete slab.			

BoQ Item	F3.4.	Unit	m3
Unit price definition	Supply and cast in situ reinforced concrete ramp; C25/30, including formwork and reinforcement		
Description			
Supply and cast in situ reinforced concrete ramp; C25/30, including formwork and reinforcement. The ramp consists of two arms with one resting platform. The arms are 150 cm wide, the platform dimensions are 320.0x150.0 cm. One arm is 410.0 cm, while the other is 600.0 cm, measured in the horizontal projection of the base. The ramp has a slope of 8.3%. Reinforce the ramp with reinforcement Q188. The price per unit of measure includes preparation, installation, vibration and curing of concrete MB30, installation and assembly of reinforcement. The unit price includes all tools, formwork, material together with fittings, transport, work, care and more, in accordance with the general description for this type of work. Calculation per m3 of concrete.			

BoQ Item	F4.1.	Unit	m2
Unit price definition	Concrete paving blocks with a thickness of d=5.0 cm		
Description			
Supply and installation of concrete paving blocks with thickness of 50 mm in different colors, tested and certified with freeze-test, salt test, abrasion test according to MEST EN 1338:2017, and MEST 1340:2017 standards. The characteristic of concrete: C35/45, V6, M100.			
Dimensions and colours: white 40x40x5cm; grey 40x40x5cm; dark grey 10x10x5; grey 40x30x5			
The sub layer which will carry the pavement load shall be undisturbed or compacted fill. Because it may receive moisture from infiltration, it shall be sloped to drain.			
Top wear shall be flexible pavement, consist of unit pavers of concrete laid on a sand setting bed, resilient and distribute the loads to the sub grade in radiating manner. Pedestrian access (sidewalks and platforms) to the building shall be of fabricated concrete elements on compacted gravel layer. Concrete blocks of high resistance and different shapes are requested. Frost proofing and anti-slip type is requested. They shall be laid onto a fine river-sand layer, thickness			

3-5 cm, spread over a properly compacted gravel surface, according to the manufacturer recommendations, the main design and Supervisor's instructions. Calculation per m2.

BoQ Item	F4.2.	Unit	m2
Unit price definition	Supply and installation of stone covering d=3,0cm		
Description			
Supply and installation of stone covering d=3,0cm. The position implies the installation of 3cm thick stone slabs in accordance with the existing stone slabs of the square. Lay the tiles in a layer of glue in the "joint to joint" sequence, with joints grouted with grouting compound. Dimensions, slab quality, color, tone and finish in everything according to the existing stone slabs of the square. The price includes all work and materials for creating the position. Calculation per m2 of the completely executed position			

BoQ Item	F4.3./F4.4./F4.5.	Unit	m
Unit price definition	Supply and instalaltion of curbs 18/20/80cm		
<p>Description</p> <p>Supply and installation of concrete curbs, produced with two-layer vibro-pressed technology, with final layer of pure quartz sand, dimension 24/20/80 cm, 18/20/80 and 10/18/80 cm, made of C35/45 concrete with gray cement.</p> <p>The appropriate edging, concrete curbs shall be constructed to restrain the horizontal movement of the paving material of the sidewalks, railway platforms and internal road. The curbs shall be tested and approved according to MEST EN 1340 standard on freezing test, salt test, abrasion test.</p> <p>-They shall be installed to the lines and slopes indicated in the main design or as instructed by the Supervisor.</p> <p>- Concrete Curbs shall be homogeneous elements laid in straight lines. Edges shall be sharp without damages.</p> <p>- The upper surface shall be finished true and smooth.</p> <p>- They are be provided in the following areas: sidewalk and roads borders.</p> <p>Joint widths between curbs shall not exceed 3mm and joint lines shall be straight and square, and every 10 m the dilatation of 10 mm filled with permanently elastic mass shall be executed.</p> <p>Installation of curbs shall be done on layer of fresh concrete C12/15, with help of formwork on previously installed layer of compacted gravel.</p> <p>Unit price includes all work and materials for fully completion of work item.</p> <p>Calculated per m1 of installed curbs.</p>			

BoQ Item	F4.6.	Unit	m2
Unit price definition	Supply and installation of fence at the ramp		
Description			
Supply and installation of fence at the ramp .The fence is made of a black locksmith profile, 90 cm high. The supporting structure is made of Ø50mm section profile. Shape the handrails in such a way that they can be grasped in the palm of your hand and placed at two heights of 60cm and 90cm and extend them in relation to stepping surface of the ramp by 30 cm, with a rounded end. Coat the fence twice with the base coat and once with the top coat. The position includes all work and material for the creation of the given position. Calculation per m'			

BoQ Item	F4.7.	Unit	m2
Unit price definition	Supply and installation - Flooring with 2 mm joint gaps using first quality, matte, non-glazed ceramice granite tiles in 60 x 60 cm nominal dimensions and with any color, pattern and surface characteristics (using tile adhesive)		
<p>Description</p> <p>Floor:</p> <ul style="list-style-type: none">- Unglazed porcelain tile: first class, abrasion resistant to PEI IV, slippery class (R) 10 etc.- Nominal Facial Dimensions: 330x330x8 and 450x450x8 mm- Provided in the following areas: kitchenette and toilets etc. as indicated in the main design <p>Wall:</p> <ul style="list-style-type: none">- Porcelain glazed wall tiles: first class, finish with strait edges- abrasion resistant to PEI IV, slippery class, etc.- Nominal Facial Dimensions: 330x330x8 and 450x450x8 mm,- laying height: up to ceiling- Provided in the following areas: toilets, storage etc. as indicated in the main design <p>The supply and installation of adhesive and porcelain tiles (first class) on the floors and walls of toilets and kitchens and other rooms, the project should be considered. The placement of tiles should be made without working “join” (2-3 mm permissible joint), the type and color of tiles and grout of joints is determined according to the supervisor’s request. The material used shall be of high quality and application equipment etc. shall all be strictly in accordance to the manufacturer’s instructions.</p> <p>Unit price includes all works, material, preparatory work, preparation and cleaning of the substrate and edge PVC moldings in color of tiles.</p> <p>Calculation per m2 of installed ceramic tiles.</p>			

BoQ Item	F4.8./F4.9	Unit	m2
Unit price definition	Lawn/grass		
<p>Description</p> <p>Planting of the lawn /grass on the surfaces as indicated in the main design.</p> <p>Complete fine grading and all specified soil preparation before grassing. Apply starter fertilizer per supplier's recommendations. Grass type, and areas of installation shall be in accordance with Specifications. Do not operate heavy equipment over prepared sub-grade. Water area thoroughly to penetrate sub-grades at least 20cm. Repeat watering as necessary to keep grass growing. Protect grass areas against foot traffic until grass is well established. Replace damaged areas with new grass.</p> <p>Grass seed shall consist of the following mixture:</p> <p>Festuca rubra 40%, Festuca ovina 30%, Poa pratensis 20%, Trifolium repens 10%.</p> <p>Sow grass seeds straight from two cross directions in calm weather, without precipitation and wind. After sowing, press the seeds into the ground with an iron garden tool, and then roll them with a wooden roller and carry out intensive watering until the grass sprouts completely. Watering should continue daily until the works are handed over.</p> <p>Calculation per m2 of lawns area.</p>			

BoQ Item	F4.10.	Unit	pcs
Unit price definition	Supply and installation of plants - height 125-150cm		
Description	Supply and installation of plants Aesculus hippocastanum deciduous tree seedlings. Backfilling should be done in layers with trampling around the seedlings. Anchor the seedlings, connect them and water them well. Height 125-150cm. Calculation per piece		

BoQ Item	F4.11.	Unit	pcs
Unit price definition	Supply and installation of plants - height 30cm		
Description	Supply and installation of plants Lavandula angustifolia 'Hidrocoate' seedlings. Backfilling should be done in layers with trampling around the seedlings. Anchor the seedlings, connect them and water them well. Height 30cm. Calculation per piece		

BoQ Item	F4.12.	Unit	pcs
Unit price definition	Supply and installation of plants - height 40-60cm		
Description	Supply and installation of plants Lonicera nitida 'Maigrun' seedlings. Backfilling should be done in layers with trampling around the seedlings. Anchor the seedlings, connect them and water them well. Height 40-60cm. Calculation per piece		

BoQ Item	F4.13.	Unit	pcs
Unit price definition	Supply and installation of concrete bench.		
Description	Supply and installation of concrete benches. The concrete bench is made of a precast gray concrete base with a smooth finish and seat made of impregnated spruce. Fixing: The base is attached to a solid base, the foundation is 20 cm thick MB30 concrete with Q221 reinforcement (3.60 kg/m ²). The bench is without backrest, simple geometry, dimensions 210x70x45 cm. Designation in the project K1. Calculation per piece		

BoQ Item	F4.14.	Unit	pcs
Unit price definition	Supply and installation of smart bench.		
Description	Supply and installation of smart benches. "Strawberry smart bench" is a technological solution for solar energy supply, which provides a free charging service for mobile devices via built-in cables, USB ports and wireless chargers. The bench collects data on the amount of CO ₂ , noise level, air humidity, temperature and air pressure in the environment, while users can use the built-in button to call the Help Center. The bench is wooden, steel construction, finished in "granite gray" color, without backrest, simple geometry, dimensions 210x70x45 cm. On the lower side, there is the possibility of installing LED lighting according to the given specification. The position implies the construction of a bench below the level of paving 20 cm high. Designation in the K2 project. Calculation per piece		

BoQ Item	F4.15.	Unit	pcs
Unit price definition	Supply and installation of wastebaskets.		
Description Supply and installation of wastebaskets. Construction: Galvanized steel in anthracite color RAL7016. Cladding: Larch wood coated with colorless matte varnish. The method of emptying a PVC bag or an optional metal insert at the Investor's choice. Installation directly on concrete (base with screws). Designation in the K3 project. Calculation per piece			

BoQ Item	F4.16.	Unit	m2
Unit price definition	Facade of ramp walls		
Description			
Supply and installation of Facade of ramp walls in next layers.			
- 1x reinforcing compound			
- 1x reinforcing fabric (glass fiber fabric).			
- 1x reinforcing compound, (base for finishing). -finishing bavalite in the tone chosen by the Investor.			
The price includes procurement, installation of complete materials, preparatory work, preparation of the substrate, construction of the facade in the described layers. Calculation per m2 of finished facade			

BoQ Item	F4.17./F4.18./F4.19./F4.20	Unit	m2
Unit price definition	Suplly and installation of fixed brisolei		
Description			
Suplly and installation of fixed brisolei for closing the space under the existing terrace and restaurant in accordance with the design, folowng dimensions 328x95;309x95;206x95; 78x95cm. Brisolei construction made of aluminum plasticized profiles. The frame is made of profile F-0813, while the filling is made of profile F-0814. The position includes all work, material, fittings and additional aluminum boxes 40x40x2 for the installation of brisoleils in accordance with the manufacturer's instructions. Check the measures on the spot. Calculation per piece			

BoQ Item	F4.21.	Unit	pcs
Unit price definition	Supply and installation of manhole cover D400		
Description			
Supply and installation of iron cover with frame (according to EN124 standard). The cover is round, with the clear opening, diameter of 600 mm, loads of 400 kN (class D400) and a hinged connection between the frame and the cover and a rubber seal for the cover.			
The unit price includes all the necessary work and materials for quality installation of covers in accordance with the details from the project.			
Calculation per piece of built-in and corrosion-protected cover.			

BoQ Item	F4.22.	Unit	LS
Unit price definition	Installation of dismantled steel stairs		
Description			
Installation of the dismantled existing metal structure of the staircase together with the fence, for access to the service entrance of the building. The position includes the assembly of the complete dismantled structure of the stairs (bearing profiles, treads, fence and anchor plates) together with the modification of the profiles for installation in accordance with the new heights of the school yard. The position includes the installation of new profiles and fittings for fixing the staircase structure, coating the structure with a new coating to protect the staircase structure and the fence. The construction of the staircase consists of 4 steps measuring 15.0x30.0 cm (HxW), the width of the staircase is 100 cm. The staircase and railing construction consists of box profiles 40x40 mm and circular profiles Ø 30. The position includes all work and material for the correct assembly of the above construction. Lump sum calculation.			

BoQ Item	F4.23.	Unit	m
Unit price definition	Supply and installation of fence		
Description			
Supply and installation fence along with a plinth on the new approach to the square, on the north side. The fence is approx. 105 cm high, and consists of main verticals made of round steel profiles Ø40, while the infill consists of box steel profiles 20x20 mm, two horizontals distributed between the main verticals, while the vertical profiles are distributed evenly at 10 cm center distance. The plinth has a cross section of approx. 20.0x50.0 cm. The position includes the construction of a new fence, together with the joining of fence elements (new elements and the existing fence of the square) by welding and coating the fence with protective layers, colors in accordance with the existing fence. The position includes the construction of a fence plinth. The position includes all work and material for the correct construction of the fence. Calculation per m of installed fence.			

BoQ Item	F4.24.	Unit	LS
Unit price definition	Installation of dismantled electrical cabinet		
Description			
Installation of the dismantled electrical cabinet on the north side. The position entails careful assembly of cabinets, connection with existing installations and making of concrete slab under the electrical cabinets. Connect the installations in an appropriate way with the existing installations, the material of which is included in the price of the position. Lump sum calculation			

Section 9: Equipment and furniture

9.1 General for all work items

Before placement of order the Contractor shall control all measures and provide samples of equipment and furniture. If the Contractor delivers items for which he has not received prior consent, they will not be installed or paid for.

9.2 Unit description

BoQ Item	G1	Unit	set
Unit price definition	Supply and installation of mirrors in the restaurant. Mark O1		
Description	<p>Supply and installation of mirrors in the restaurant. The set consists of 3 circular mirrors of different diameters, on the largest of which there is a sticker of the restaurant's logo with an ice strip in red, in the thickness of the mirror on the outside. Dimensions:</p> <ol style="list-style-type: none"> 1. Ø30 cm 2. Ø70 cm 3. Ø100 cm <p>All materials and colors chosen and approved by the Designer. Calculation by set of derived mirrors.</p>		

BoQ Item	G2	Unit	pcs
Unit price definition	Supply and installation of the shelf at the bar. Mark P1		
Description	<p>Supply and installation of the shelf at the bar. The shelf at the bar is made of a metal structure measuring 1.5x1.5 cm in black color and a shelf made of 100% chipboard covered with melamine, 18 mm thick. The handles are ergonomically designed. The central part is a field without shelves with a ribbed grid made of metal construction in black color. Dimensions: (WxDxH): 413x40-60xh (150-280) (shelf mounted at min h=115cm). All materials and colors chosen and approved by the Designer. Check dimensions on site. The shelf consists of 6 closing compartments, while the other compartments are open. The shelf is 80 cm wide and 280 cm high, divided by two partitions. Other shelf lengths are installed from a minimum height of 115.0 cm from the finished floor and a maximum height of 150.0 cm. Calculation per piece installed position.</p>		

BoQ Item	G3	Unit	pcs
Unit price definition	Supply and installation of bar stools. Mark S1		
Description	<p>Supply and installation of bar stools.</p> <p>Materials: artificial leather, foam, metal, plywood. Color: seat and backrest in white, legs in oak wood. Upholstered with artificial leather. Note: It must not be treated with chemicals, skin softeners or cleaning detergents, but can only be wiped with a damp cloth. Dimensions: (WxDxH): 43x44x76/106 low backrest. Seat depth: 35cm. Tested up to 110kg.</p> <p>All materials and colors chosen and approved by the Designer. Calculation per piece</p>		

BoQ Item	G4	Unit	pcs
Unit price definition	Supply and installation of chair. Mark S2		
Description	Supply and installation of the chair. Chair is made of high-quality slightly steamed beech, dried at 8-10% humidity. The seat is made of mdf with a thickness of 8 mm, covered with sponge T-25 with a thickness of 10 mm and T-35 with a thickness of 30 mm and upholstered with quality fabric. The back of the chair is also covered with sponge and upholstered with fabric. The chair is made according to designs and technology that prescribes standard machining, which ensures the quality, functionality and durability of the product. All joints are glued with waterproof glue. The final sanding was performed with P180 grit sanding materials, which enables high-quality surface treatment by painting and varnishing. The chair is painted with water-based stain, and the basic and final varnishing is done with two-component polyurethane varnish. Dimensions: (WxDxH): 44x40x91. Calculation per piece		

BoQ Item	G5	Unit	pcs
Unit price definition	Supply and installation of chair. Mark S3		
Description	Supply and installation of the chairs in the restaurant. The chair is made of 2 materials - fabric seat and backrest and metal legs. Apply the method of coating with colored powder as a protective layer of metal, which protects it from wear and rust. Chair weight 11 kg, tested at 110 kg. Dimensions: (WxDxH): 45x53x47 (seat height)x 86 (total height). Calculation per piece		

BoQ Item	G6	Unit	pcs
Unit price definition	Supply and installation of chair. Mark S4		
Description	Supply and installation of the chairs. The backrest and seat are made of fabric, while the base is wooden. The handrails (armrests) are fixed. Modern chair in gray fabric with metal legs in wood texture tested for 120 kg. Dimensions: (WxDxH): 60x60x85 (total height). Calculation per piece		

BoQ Item	G7	Unit	pcs
Unit price definition	Supply and installation of couches in the restaurant lobby. Mark S5		
Description	Supply and installation of couches in the restaurant lobby. Metal construction coated with high-density molded sponge and upholstered with abrasion-resistant fabric (at least 40000 cycles ISO 12947-2; ISO 12945-2. ISO 105 X12). Metal legs 13 cm high, painted in black. Dimensions: (WxDxH): 185x65x44 (seat height)x90cm (total height). Calculation per piece		

BoQ Item	G8	Unit	pcs
Unit price definition	Supply and installation of armchairs. Mark S6		
Description	Supply and installation of armchairs. The interior of the armchair is made of metal wire construction, covered with high-density polyurethane fire-resistant foam. Fire resistance can be proven with the EN 1021:2014 certificate. Resistance, durability and product safety tested in accordance with EN16139:2013+AC2013, level no 2 and EN1728:2012+AC:2013 test procedure;		

Mechanical resistance: EN ISO 1798; EN ISO 8067 B: EN ISO 3386-1. Armchair upholstered with wear-resistant fabric (at least 40000 cycles ISO 12947-2; ISO 12945-2.ISO 105 X12). Wooden legs varnished with eco-frenly paints and varnishes.
Dimensions: (WxDxH): 75x76x42 (seat height) x 80 (total height). Calculation per piece

BoQ Item	G9	Unit	pcs
Unit price definition	Supply and installation of dining table. Mark ST1		
Description	Supply and installation of dining table. The table top is made of real oak wood, approx. 25mm thick and maximum load capacity of approx. 30 kg, with an iron construction in black color. Dimensions (WxDxH) 110 x 60 x 42cm. Calculation per piece		

BoQ Item	G10	Unit	pcs
Unit price definition	Supply and installation of club table. Mark ST2		
Description	Supply and installation of club table. A club table made entirely of metal. A round plate that is fixed to the structure. Color: as desired by the customer from the offered color palette. Dimensions: Ø48xh42 cm. Calculation per piece		

BoQ Item	G11	Unit	pcs
Unit price definition	Supply and installation of round bar table. Mark ST3		
Description	Supply and installation of round bar table. Round table made of steel and tempered glass. Color: black with transparent surface. Table weight 14 kg. Table size after assembly: diameter: 60 cm, height: 107 cm. Table size before assembly: Width: 63 cm, Length: 100 cm, Height: 24 cm. Calculation per piece		

BoQ Item	G12	Unit	pcs
Unit price definition	Supply and installation od table in restaurant. Mark ST4		
Description	Supply and installation of table in a restaurant. Steel and tempered glass table. Color: Black base with transparent top surface. Table weight 20 kg. Dimensions: (WxDxH): 70x140x70cm. Calculation per piece		

BoQ Item	G13	Unit	pcs
Unit price definition	Supply and installation of desk. Mark ST5		
Description	Supply and installation of desk. The computer table in a combination of gray oak and black wood decor, consists of a table work surface and an adjustable element that can be mounted at an angle of 90 and 180 degrees and will be ideal for sorting documents and important things because it has 3 practical drawers and an open part with shelf. Dimensions: (WxDxH): 140x60x75cm. Calculation per piece		

BoQ Item	G14	Unit	pcs
Unit price definition	Supply and installation of work chair. Mark S7		
Description	Supply and installation of work chair. Ergonomic, swivel chair with armrest and wheels. The chair has a mechanism for height adjustment as well as for changing the inclination of the backrest. Chair construction - chrome. All plastic elements are black. Seat and backrest - leather, black. Dimensions: (WxDxH): 61x45x41 (seat height)x99-113cm (total height). Calculation per piece		

BoQ Item	G15	Unit	pcs
Unit price definition	Supply and installation of chair. Mark S8.		
Description	Supply and installation of chair. Ergonomic, static chair with armrests, covered with a leather cushion. Chair construction - chrome. All plastic elements are black. Seat and backrest - leather. Dimensions: (WxDxH): 57x60x44 (seat height)x90cm (total height). Calculation per piece		

BoQ Item	G16	Unit	pcs
Unit price definition	Supply and installation of two-part office wardrobe. Mark P2		
Description	Supply and installation of two-part office wardrobe. Description: The wardrobe is made of white plywood, with oak-colored plywood frames. All chipboards are edged with ABS bucket, in the same color. Door handles ergonomically shaped, AL polished. When connecting the door to the body, the highest quality fittings and connectors are used. All edges must be rounded. Surface treatment: high-gloss polyurethane varnish. Dimensions (LxWxH): 100 x 40 x 220 cm. The closet consists of two closed partitions measuring 100.0 x 60.0 cm. The other partitions are open, evenly distributed in height, in accordance with the drawing. Calculation per piece		

BoQ Item	G17	Unit	pcs
Unit price definition	Supply and installation of the shelf above bar. Mark P3		
Description	Supply and installation of shelf above the bar. Open shelf at the bar made of metal construction with dimensions of 1.5x1.5 cm in black color. Four fields are shelves, and every other field is hollow for a pendant-lamp, and with the front side closed with a ribbed metal structure net in black color. Dimensions: (WxDxH): 296x30xh60 (shelf mounted at h=220cm. Calculation per piece		

BoQ Item	G18	Unit	pcs
Unit price definition	Supply and installation of the bar. Mark Š1		
Description	Supply and installation of restaurant bar. The front of the bar is divided in form and color into two horizontal sections. Footrest tube chrome Ø50mm, with four chrome balls Ø80mm, which make another division ("string of beads") and harden the tube. Bar top and sides - 60 mm thick plywood, finished with melamine foil, decorative colors, which is easy to clean. All edges are edged with ABS edging tape, 2mm thick. All connections are invisible. The complete fittings, accessories and spacers are from the supplier's standard catalog production, class I, with		

the appropriate certificate. Bar dimensions: (WxDxH): 320x40x115 cm All materials and colors chosen and approved by the designer. Check dimensions on site. The position implies the installation of dismantled elements of the existing bar in the new construction of the bar
Calculation per piece

BoQ Item	G19/G20	Unit	pcs
Unit price definition	Supply and installation od internal screens 137x280cm/190x280cm		
Description			
Supply and installation of internal screens for fencing planters in the restaurant. The construction of the screen consists of box-shaped aluminum plasticized profiles 20x20x3 that form the frame of the construction. The filling of the screen is a galvanized metal mesh with dimensions of approximately 19 x 19 mm. wire thickness: 1.4mm. The color of the screen is black. The position includes all work and material for the correct creation of the position. Calculation per piece			

BoQ Item	G21	Unit	pcs
Unit price definition	Supply and installation of a planter		
Description			
Supply and installation of planter in a restaurant. Planter made of PE. 4 Separate Chambers - Flower Pots. Material: PE Wicker Rattan. Dimensions: 95 x 27 x 75 cm. Impact resistant. The position includes the installation of a planter with fertile soil and flowers. The position includes all work and material for the correct installation of the position. Calculation per piece.			