

Section VI
TECHNICAL SPECIFICATIONS

REFURBISHMENT WORKS OF THE SECONDARY
VOCATIONAL EDUCATION "VUKADIN VUKADINOVIĆ"

Section 1: Project description

Section 2: General Requirements

Section 3: General Works Specifications

Section 4: Civil and Architectural Works

Section 5: Hydrotechnical installations

Section 6: Electrical Installations

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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

INTRODUCTION

The Main design for the refurbishment of the School for secondary and higher vocational education "Vukadin Vukadinović" in Berane, Law on Spatial Planning and Construction (Official Gazette of Montenegro, No. 064/17, 44/18, 63/18, 11/19 - corr. and 82/20), Rulebook on the method of preparation and content of technical documentation for the construction of buildings ("Official Gazette of Montenegro", No. 044/18, 043/19), special regulations and rules of the profession.

EXISTING CONDITION

The School for Secondary and Higher Vocational Education "Vukadin Vukadinović" is located in Novo Naselje (cadastral parcel 2385/1) in Berane. The number of floors is BS + GF + 1 (Basement + Ground floor + 1). Basement rooms will not be the subject of this design.

The function of the building is clear with clearly expressed rectangular units:

- sports block (windbreak, sports hall, physical education teacher's office, locker rooms, hallways, anterooms, storage and toilets). These rooms can be reached through main entrance (Entry 1 in the design) and the courtyard entrance (Entry 8) in the design. In addition to these rooms, this segment also consists of: buffet, archive, library, and book storage;
- Main entrance with canopy and staircase area in front, windbreak, janitor area, hall, space leading to the basement, administration, classrooms and carpentry workshop with ancillary rooms. Carpentry workshops have two entrances (Entry 4 in the design and Entry 7 in the design). The main entrance leads to the main hall of the school, however there is a side courtyard entrance that can also lead to the main hall of the school.
- Third rectangular unit contains classrooms, hallway and toilets. The hallway from this section can be accessed through the courtyard entrance (Entry 3 in the design).
- On the first floor there is a group of classrooms, toilets and storage.

Vertical communications are positioned in the middle of the building. The main entrance is accentuated with pillars and a canopy. The roofs are pitched (single-pitched and double-pitched). On the facade of the building, a clear difference in heights is noticeable throughout the entire building, so that the visual separation of the mentioned units is obtained. The building has a mixed bearing structural system.

The entrance to the building is located on the front side of the building, through a covered staircase, which is not adapted for people with reduced mobility. Also, the front door itself is not adapted to the needs of people with reduced mobility. Within the hall, at the very entrance to the school, on the right side, there is a partitioned area for the janitor. The hall of the school building has a small area, within the hall there are stairs and a ramp with a large slope that does not meet the needs of people with reduced mobility.

The toilets in the hallway have been renovated in the previous period. The existing sanitary facility does not provide a toilet for people with reduced mobility.

The flooring in the hall and in the hallways is mostly made of terrazzo and partially damaged, and it shows visible various materials during the previous time.

Wall and ceiling surfaces are visibly damaged in the form of dirt and cracks on the joints of walls and ceilings.

The external and interior doors and windows within the entire building is in poor condition and is being treated in this design. The interior doors in the classrooms and gym are quite old and partially damaged and need to be replaced.

The sanitary facilities are adapted in the previous period with new doors, however the floor and wall finish need to be replaced because they are in poor condition.

The staircase leading from the ground floor to the first floor is in relatively good condition except in the part of the flooring - terrazzo. The hall on the first floor and the hallway also have terrazzo flooring. The floor covering of the classrooms on the ground floor and the first floor is mostly made of ceramics, while a small part of the flooring are made of laminate.

The roof covering is in good condition and is not treated in the adaptation work design. The layers of the roof covering are concrete slab, wooden structure, battens, laths, thermal insulation $d = 5\text{cm}$ and sheet metal.

Photographs









PLANNED STATE

The staircase in front of the building has been partially reconstructed, the existing ramp with a fence has been removed because it does not meet the needs of people with disabilities. Instead the space of the staircase, the execution of concrete is designed so that it forms a whole from one entrance pillar to the next entrance pillar. Therefore, the adaptation work design added a ramp for access of persons with reduced mobility of 5.4% to the side of the school entrance. Both the staircase and the ramp are covered with non-slip ceramics. The entrance glass wall was replaced in the part of the entrance door (door leaf 100 cm precisely because of the person with reduced mobility).

A new organization of the inner hall is planned, by demolishing the existing equipment under the stairs and installing new ones (benches, planters, board stands). This will create a clean and larger space for students and employees, which can be used as an exhibition gallery space with board stands. The floor surfaces of the hall and hallways are covered with granite ceramic tiles. On the staircase and part of the corridor, which leads from the ground floor to the first floor, it is planned to cover all floor surfaces with granite ceramic tiles over the terrazzo flooring.

It is planned to demolish the internal ramp and execution of vertical wheelchair platform stair lift for people with disabilities as the best solution considering the position of the stairs and the area of the hall.

In the adaptation design, a small reorganization of the space within the main sanitary facilities on the ground floor of the building is planned. Since one part of the space of the sanitary facility is mostly separated and there are only washbasin, it occupies a large area that is unused, it is planned to install a sanitary facility for people with special needs, and within the existing cabin (where a squat is installed) space with two sinks is organized. The toilet for teachers was renovated in the previous period, so there are no changes there. In the rest of the toilets toilet squats are replaced with toilet seats.

The planned sanitary facility is connected to the existing sewerage network in the next sanitary facility. In the newly planned sanitary facility, ceramic tiles are provided on the floor and walls.

In all rooms, except for the sanitary facility, which is not being reconstructed, the replacement of interior doors is planned.

In the rooms on the ground floor and first floor that belong to classrooms and cabinets and whose floor finish is laminate, demolition to the concrete slab is planned and also installation of new pvc flooring. In the hallways where is the terrazzo flooring in the existing condition, it is planned to install granite ceramic tiles on the glue over the terrazzo flooring. In the classrooms in unit 3, the flooring is ceramic tiles, in that segment it is planned to demolish the ceramic tiles and terrazzo flooring and to install thermo insulation, cement screed and pvc flooring. In this way, a leveled space would be obtained.

In the sports hall, it is planned to replace the worn parquet with a multisport system rubber flooring approved by the International Handball Organization (IHF) and the International Basketball Organization (FIBA), for sports halls, gymnasiums and school sports halls. This surface is easy to maintain and provides players with good bounce and friction, quality and longevity. A rubber mat is glued to the prepared substrate, the pores are closed, an intermediate layer, a final layer are applied and lines are marked. It is planned to install thermal insulation, cement screed and ceramic tiles as flooring in the locker rooms.

The office for physical education teachers has been expanded and a interior glass door and windows is being installed for better lighting.

INTERNAL SURFACES

Walls

Inside the building, it is planned that certain walls will be repaired and finished with a dispersion finish, and that the sanitary facilities will be covered with ceramic tiles. In some segments, it is necessary to plaster the damaged parts of the interior walls with 1: 2: 6 extension plaster in two layers, with prior cleaning and installed mesh.

Ceilings

Painting of the ceiling is planned with dispersion fasting white color paint. Execution of the smooth coat on some walls should be done in two working procedures. Final painting twice. Before smooth cover, remove the smooth coat that is damaged and loose. Place a mesh on the cracks in the existing mortar before smooth coat execution.

Flooring

The staircase and ramp in front of the entrance to the building are covered with anti-slip ceramic tiles for outdoor use, in color of the designer choice. In the hall and hallway on the ground floor and on the staircase from the ground floor to the first floor, granite ceramics are installed in the color chosen by the designer. Ceramic tiles are provided in the sanitary facilities. It is planned to install a pvc floor in the classrooms and classrooms. The library, archive and book storage were redesigned into one larger library, and also covered with a PVC floor.

EXTERNAL AND INTERNAL DOORS AND WINDOWS

It is planned to replace the interior doors and windows marked through the drawings in the design (intervention plan) and make several doors from:

The doors are made of aluminum without thermal break, the filling is aluminum panel 20 mm, thermopane glass 3.3.1., single glass or chipboard 1.8 cm. The color of the aluminum profiles and filling is RAL 7035 matt. The doors are supplied with the necessary hardware, a lock with three keys.

When it comes to the external locks, the adaptation project envisages replacing the external locks and making them from highly resistant hard PVC with visible fittings of the Rehau ED 70 type, the filling is double-layered glass 26 mm (6mm+16Ar+4mm) or 26mm (4.4.2 mm + 12Ar + 4mm) and sealed with EPDM rubber, with thermal conductivity coefficient $U_g=1.0 \text{ W/m}^2\text{K}$.

Installation

The replacement of the installation of plumbing and sewerage and sanitary elements in all toilets which are planned for refurbishment. Also, it is planned to replace complete electrical lighting installations as well as the necessary interventions in rooms which are reorganized.

A detailed description of the designed installations is given in the Main design of installation.

Technical Specifications

br. prostorije room no.	namjena prostorije / room purpose	površina / area (m ²)	visina / room height (m)	obrada podova, zidova, plafona / floor, wall and ceiling finish			obim prostora / rooms scope
Osnova prizemlja / Ground floor plan				pod / floor	zid / wall	plafon / ceiling	
1	VJETROBRAN / WINDBREAK ROOM	8.69	2.68	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	12.34
2	HOL / HALL	64.14	3.60	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	38.08
3	DOMAR / JANITOR	9.21	2.68	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	12.60
4	KANCELARIJA / OFFICE	13.85	2.65	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	14.92
5	HODNIK / HALLWAY	70.92	2.68	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	74.70
6	ZBORNICA / TEACHERS LOUNGE	50.71	2.65	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	33.70
7	KANCELARIJA / OFFICE	11.92	2.65	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	13.98
8	TOALET / TOILET	4.77	2.65	keramika / tiles	keramika / tiles	disperzija/water dispersion-based paint	12.93
9	TOALET / TOILET	5.25	2.65	keramika / tiles	keramika / tiles	disperzija/water dispersion-based paint	13.23
10	BIFE / BUFFET	20.83	2.65	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	14.64
11	BIBLIOTEKA / LIBRARY	41.16	2.65	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	24.11
12	PREDPROSTOR / ANTEROOM	10.88	2.65	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	20.04
13	ARHIVA / ARCHIVE	12.16	2.65	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	11.56
14	SVLAČIONICA / DRESSING ROOM	16.92	2.68	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	16.74
15	TOALET / TOILET	2.71	2.68	keramika / tiles	keramika / tiles	disperzija/water dispersion-based paint	7.06
16	FISKULTURNA SALA / SPORTS HALL	612.42	7.85 - 9.30	gumirana podloga	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	100.58
17	PREDPROSTOR / ANTEROOM	5.77	2.68	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	9.7
18	TOALET / TOILET	4.06	2.68	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	9.98
19	SVLAČIONICA / DRESSING ROOM	19.01	2.68	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	17.72
20	OSTAVA / STORAGE	10.93	2.68	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	16.11
21	KANCELARIJA ZA / TEACHER'S NASTAVNIKA / OFFICE	11.21	2.68	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	10.73
22	VJETROBRAN / WINDSHIELD	6.29	2.68	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	10.74
23	OSTAVA / STORAGE	41.45	2.65	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	26.59
24	KANCELARIJA / OFFICE	9.56	3.20	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	12.78
25	POMOĆNIK / DEPUTY DIREKTORA / DIRECTOR	12.09	3.20	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	14.69
26	DIREKTOR / DIRECTOR	24.74	3.20	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	20.36

Technical Specifications

27	HODNIK / HALLWAY	50.36	2.77 - 3.20	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	49.04
28	RAČUNOVODSTVO / ACCOUNTING	36.67	3.20	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	32.53
29	UČIONICA / CLASSROOM	37.30	3.20	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	26.51
30	UČIONICA / CLASSROOM	37.21	3.20	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	26.49
31	UČIONICA / CLASSROOM	37.14	3.20	pvc / pvc	keramika / tiles	disperzija/water dispersion-based paint	27.04
32	HODNIK / HALLWAY	22.74	3.20	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	23.79
33	UČIONICA / CLASSROOM	37.07	3.20	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	26.46
34	UČIONICA / CLASSROOM	39.70	3.20	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	27.03
35	OSTAVA / STORAGE	4.72	3.20	beton / concrete	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	11.68
36	STOLARSKA CARPENTER'S RADIONICA / WORKSHOP	98.68	3.45	beton / concrete	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	56.30
37	STOLARSKA CARPENTER'S RADIONICA / WORKSHOP	73.63	3.45	beton / concrete	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	49.76
37a	OSTAVA / STORAGE	19.51	3.20	beton / concrete	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	19.59
38	TOALET / TOILET	2.37	3.20	keramika / tiles	keramika / tiles	disperzija/water dispersion-based paint	7.68
39	PREDPROSTOR / ANTEROOM FOR ZA PODRUM THE BASEMENT	5.93	2.40	beton / concrete	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	10.37
40	STEPENIŠTE / STAIRCASE	3.01	3.00	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	7.04
41	HODNIK / HALLWAY	73.30	3.00	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	83.63
42	UČIONICA / CLASSROOM	48.83	3.00	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	28.50
43	UČIONICA / CLASSROOM	48.85	3.00	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	28.50
44	UČIONICA / CLASSROOM	48.11	3.00	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	28.30
45	TOALET / TOILET	19.28	2.82	keramika / tiles	keramika / tiles	disperzija/water dispersion-based paint	39.45
46a	TOALET ZA LICA SMANJENE POKRETLJIVOSTI / ACCESSIBLE TOILET	4.36	2.82	keramika / tiles	keramika / tiles	disperzija/water dispersion-based paint	8.66
46b	TOALET / TOILET	12.84	2.82	keramika / tiles	keramika / tiles	disperzija/water dispersion-based paint	27.66
46c	OSTAVA / STORAGE	1.94	2.82	keramika / tiles	keramika / tiles	disperzija/water dispersion-based paint	5.80
47	HODNIK / HALLWAY	96.24	3.75	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	112.32
48	UČIONICA / CLASSROOM	22.46	3.50	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	20.63
49	UČIONICA / CLASSROOM	26.48	3.50	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	21.76
50	UČIONICA / CLASSROOM	52.26	3.50	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	29.59
51	UČIONICA / CLASSROOM	59.68	3.50	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	31.60

52	UČIONICA / CLASSROOM	59.80	3.50	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	31.64
53	UČIONICA / CLASSROOM	59.95	3.50	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	31.68
54	UČIONICA / CLASSROOM	28.44	3.50	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	22.16
55	UČIONICA / CLASSROOM	29.40	3.50	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	22.93
56	UČIONICA / CLASSROOM	28.52	3.50	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	22.18
57	UČIONICA / CLASSROOM	29.02	3.50	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	22.83

UKUPNA NETO POVRŠINA PRIZEMLJA JE 2352.03 m² / TOTAL NET GROUND FLOOR AREA IS 2352.03 m²
 UKUPNA BRUTO POVRŠINA PRIZEMLJA JE 2717.88 m² / TOTAL GROSS GROUND FLOOR AREA IS 2717.88 m²

Technical Specifications

br. prostorije room no.	namjena prostorije / room purpose	površina / area (m ²)	visina / room height (m)	obrada podova, zidova, plafona / floor, wall and ceiling finish			obim prostora room scope
Osnova prizemlja / Ground floor plan				pod / floor	zid / wall	plafon / ceiling	
1	STEPENIŠTE / STAIRCASE	12.18	4.60	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	15.16
2	HODNIK / HALLWAY	75.59	3.00	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	78.09
3	UČIONICA / CLASSROOM	44.14	3.00	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	28.96
4	UČIONICA / CLASSROOM	48.85	3.00	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	28.52
5	UČIONICA / CLASSROOM	48.89	3.00	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	28.51
6	UČIONICA / CLASSROOM	48.12	3.00	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	28.31
7	TOALET / TOILET	16.60	2.95	keramika / tiles	keramika / tiles	disperzija/water dispersion-based paint	35.43
7a	TOALET / TOILET	10.69	2.95	keramika / tiles	keramika / tiles	disperzija/water dispersion-based paint	24.75
8	UČIONICA / CLASSROOM	66.66	3.00	pvc / pvc	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	34.60
9	OSTAVA / STORAGE	11.18	3.00	keramika / tiles	disperzija/water dispersion-based paint	disperzija/water dispersion-based paint	15.18
<p>UKUPNA NETO POVRŠINA SPRATA JE 384.94 m² / TOTAL NET FIRST FLOOR AREA IS 384.94 m²</p> <p>UKUPNA BRUTO POVRŠINA SPRATA JE 458.17 m² / TOTAL GROSS FIRST FLOOR AREA IS 458.17 m²</p>							

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 Secondary School for Vocational Education "Vukadin Vukadinović" Berane, 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-built 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. Quality Assurance

A comprehensive Quality Assurance System (QAS), covering all aspects of the Contract and the Works must be implemented, documented and maintained by the Contractor during the entire implementation period of the Contract.

The QAS shall as a minimum consist of:

- A Quality Assurance plan (QAP)
- A Control Plan (CP)

The Contractor shall make sure that the quality control complies with international standards. Guidance from the following international standards shall be taken from:

- ISO 9000 Standards for the quality control and assurance – Guideline for selection and utilization.
- ISO 9001 Quality system - Model for the quality assurance in conception development, production, installation, and after-sales support.
- ISO 9002 Quality system - Model for the quality assurance in production and installation.
- ISO 9003 Quality system - Model for the quality assurance in controlling and final tests.
- ISO 9004 Quality control and element of the quality system – Guidelines.
- ISO 45001: Occupational health and safety (OH&S) management system.

2.5.6. Quality Assurance Plan (QAP)

The QAP shall, as a minimum, cover the following issues:

- The Contractor's staff and management organization for the project, management plan and the quality assurance organization;
- The person responsible for the Contractor's QAS shall be authorized and qualified to take decisions on quality assurance issues, and his reference and communication lines to the Company's overall quality assurance organization and its responsible management shall be clearly shown;
- Persons performing quality control and testing shall be independent of those executing or supervising the:
 - Works;
 - Management of documents;
 - Management of procurement;
 - Management of sub-Contractors and suppliers, and Specifications to their QAS's;
 - Control of materials and workmanship, defects and material reconciliation, procedures for corrective actions, etc.
 - Handling of the deviations, additions or variations to the Contract Documents.
- The Contractor's system of management of current documentation for the execution of the Works shall include his sub-Contractors and suppliers, and shall detail:
 - How it is ensured that only valid and approved documents are used for the execution of the Works;

- The method of recording variations and amendments to the documentation.
- The Contractor's initial proposed Control Plan describing important and critical control activities based on the Tender Document and the Contractor's own consideration in respect of execution.

2.5.7. Control Plan (CP)

The Contractor shall present for approval of the Supervisor and the Contracting Authorities Representative his detailed CP for all quality assurance efforts or measures for the works or sections thereof. Such CP shall be presented to the Supervisor not later than one week after the commencement of the works.

The CP shall include controls as specified in the Contract as well as any other normal and special controls that the Contractor finds necessary in order to ensure the quality of his work. The CP shall for each control activity describe type, method, range, time/ frequency, criteria for approval and documentation and state who is responsible for performing the activity.

If the Supervisor does not approve the CP as submitted by the Contractor, then the CP shall be amended for further approval. Subsequent changes in the range and contents of the quality assurance work will not be allowed as a reason to extend agreed deadlines or to increase contract sums.

3.18. 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.

3.19. 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 for execution of works

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 be 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.		MEST EN 13670:2011	Execution of concrete structures
25.	91.080.40	MESTN EN 1504	Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity

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 elasticizers 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.		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.	91.060.50	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.	91.190	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

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=50mm/80mm, with following characteristic:

- Thermal conductivity λ_D : 0,038 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 4x4 mm or 5x5 mm;
Mesh reinforcement joint overlap ≥ 100 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 °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 ≥ 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	<p>Removal of existing furniture and equipment from the rooms which are intended for refurbishment. 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.</p> <p>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.</p> <p>Calculation per m2 of room area.</p>		

BoQ Item	B1.2.	Unit	LS
Unit price definition	Dismantling and reinstallation of sports equipment		
Description	<p>Dismantling of sports equipment fixed to the walls inside the sports hall and installment after competition of the works in same positions at the premises after finishing of the works</p> <p>Equipment that is retained, the Contractor shall carefully disassemble and store until re-installation.</p> <p>Equipment which is intended for replacement the Contractor shall collect, take out, load on the truck and take to the landfilled located at ADH not exceeding 20 km.</p> <p>The unit price includes all necessary materials, tools, work, scaffolding including reassembly of equipment which is intended for reuse.</p> <p>Calculation per lump sum as described above.</p>		

BoQ Item	B1.3.1./B1.3.2.	Unit	m2
Unit price definition	Demolition and removal of the existing floors		
Description	<p>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, laminate or concrete. 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.</p> <p>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.</p>		

BoQ Item	B1.4.1.	Unit	m2
Unit price definition	Demolition of Partition Walls-d=7-15cm		
Description	<p>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 7 cm to 15 cm.</p> <p>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.</p>		

Calculation per m2 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	B1.4.2.	Unit	m3
Unit price definition	Demolition of Partition Walls-d=20-30cm		
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 20 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	B1.5.	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	B1.6.	Unit	m2
Unit price definition	Demolition of concrete slabs, d=15cm		
Description			
Demolition of concrete slabs in front of the main entrance for new ramp and damaged sidewalks around building, thickness d=15cm. The Contractor shall execute demolition carefully, collect the rubble, take it out, load it on a truck and take it to the landfill.			
Calculation per m2 of demolished slabs, 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	m3
Unit price definition	Demolition of the existing reinforced concrete ramp at the main entrance		
Description Demolition of the existing reinforced concrete ramp at the main entrance. The Contractor shall execute demolition carefully, collect the rubble, take it out, load it on a truck and take it to the landfill. Calculation per m3 of demolished slabs, 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	m
Unit price definition	Demolition of the fence on the ramp		
Description	<p>Demolition of the fence on the ramp at the entrance. The fence is made of vertical diameter steel profiles 50mm. Demolished elements load on a truck and transport them to a landfill.</p> <p>Calculation per m1 of dismantled fence, 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	B1.9.	Unit	m3
Unit price definition	Demolition of existing concrete stairs in the main hole		
Description	<p>Demolition of existing concrete stairs in the main hole, for new platform. The Contractor shall execute demolition carefully, collect the rubble, take it out, load it on a truck and take it to the landfill.</p> <p>Calculation per m2 of demolished slabs, 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	B1.10.	Unit	LS
Unit price definition	Demolition of the existing planter in the building's hall		
Description	<p>Demolition of the existing planter in the building's hall. The planter is surrounded by a concrete wall on one side, width d=20 and height 80 cm, which is being demolished. The other three sides of the planter are fenced with landing boards of the hall and staircase, which are not demolished, but the surfaces are treated. The position implies the removal of all layers inside the planter, the dimensions of the planter are 200.0x240.0 cm. The Contractor shall execute demolition carefully, collect the rubble, take it out, load it on a truck and take it to the landfill.</p> <p>Calculation per LS, 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	B1.11.	Unit	pcs
Unit price definition	Dismantling of Interior/Exterior Glass Walls/Doors/Windows		
Description	<p>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.</p> <p>Unit price includes dismantling of window sills, burglar bars, associated frames and other elements.</p> <p>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.</p>		

BoQ Item	B1.12.	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</p>		

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. Calculation per m' channel made.

BoQ Item	B1.13.	Unit	m
Unit price definition	Dismantling of vertical gutters/downspouts		
Description			
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. 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.			
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.			

BoQ Item	B1.14.	Unit	m
Unit price definition	Dismantling of the sheet metal covers		
Description			
Dismantling of the existing sheet metal covers made of galvanized steel sheet – for facade works. 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.			
Calculation per m1 of dismantled metal sheet cover.			

BoQ Item	B1.15.	Unit	LS
Unit price definition	Careful dismantling of cameras, lights and other elements from the building facade		
Description			
Careful dismantling of cameras, ligths 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 façade 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.			
Calculation per lump sum.			

BoQ Item	B1.16.	Unit	LS
Unit price definition	Careful dismantling of tables on the facade and installation after finishing works on the facade		
Description			
Careful dismantling of tables on the facade and installation after finishing works on the facade. The unit price includes dismantling and storage of the dismantled elements on the location determined by the Contracting Authority. After competition of all façade works all dismantled installations and equipment should be carefully assembled. All equipment damaged by the Contractor will be replaced at its own expense.			
The unit price includes all the work, material, scaffolding and installation.			
Calculation per lump sum.			

BoQ Item	B1.17.	Unit	pcs
Unit price definition	Disassembly and reassembly of radiators with testing, rinsing, cleaning and painting		
Description Disassembly and reassembly of radiators with testing, rinsing, cleaning and painting. Radiators must be carefully dismantled, stored and reassembled after finishing the walls. The Contractor is obliged to remove all damage caused during disassembly and reassembly at his own expense. Calculation per piece.			

BoQ Item	B1.18.	Unit	LS
Unit price definition	Dismantling of the ramp on the stairs		
Description			
Dismantling of the ramp on the staircase of the hall, dimensions 208.0 x 117.0 x 60.0 cm.			
Dismantling must be carried out carefully and disposed of in a facility designated by the Investor.			
The Contractor is obliged to remove all damage caused during disassembly and reassembly at his own expense.			
Calculation per lump sum.			

BoQ Item	B1.19.	Unit	m2
Unit price definition	Manual cutting and removal of bushes, plants and grass on the west side of the building		
Description			
Manual cutting and removal of bushes, plants and grass on the west side of the building to the main road. Collect all the waste, remove it, load it on a truck and take it to the landfill.			
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. Calculation per lump sum.			

BoQ Item	B1.20.	Unit	m
Unit price definition	Disassembly and reassembly of the dust exhaust pipe of the carpentry workshop		
Description Disassembly and reassembly of the dust exhaust pipe of the carpentry workshop. Dismantle carefully on the appropriate segment with accompanying fittings, postpone and reassemble after installing the facade hardware. The Contractor is obliged to remove all damage caused during disassembly and reassembly at his own expense. The position includes all labor, material and use of scaffolding. Calculation per m'.			

BoQ Item	B2.1.	Unit	m3
Unit price definition	Supply and cast in situ of reinforced concrete ramp; C25/30, including formwork and reinforcement		
<p>Description</p> <p>Supply and cast in situ of reinforced concrete ramp; C25/30, including formwork and reinforcement. The ramp consists of two sides with one resting platform. The ramp is 140 cm wide, the platform dimensions are 280.0x150.0 cm at the base. One side is 370.0 cm, while the other is 550.0 cm, measured in the horizontal projection of the base. The ramp has a slope of 8.3%. Reinforce the construction ramp with structural 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.</p>			

BoQ Item	B2.2.	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 in two zones. 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	M3
Unit price definition	Supply and cast in situ of new concrete steps on the place of the demolished ramp		
Description Supply and cast in situ of new concrete steps on the place of the demolished ramp. The dimensions of the tread and the front of the stairs are 16.67/32 cm. Reinforce the stairs with structural reinforcement Q188, which is connected to the existing staircase reinforcement. 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.			

BoQ Item	B2.4.	Unit	m3
Unit price definition	Supply and cast in situ a sidewalk around the building with a width of 100 cm, on the necessary gravel buffer, which is included in the price of the position together with the necessary excavation		
Description	Supply and cast in situ a sidewalk around the building with a width of 100 cm, on the necessary gravel buffer, which is included in the price of the position together with the necessary excavation. Sidewalk 10 cm thick, lined with Q188. The unit price includes all tools, materials together with fittings, transport, work, care and more, in accordance with the general description for this type of work. Calculation per m2 sidewalk.		

BoQ Item	B2.5.	Unit	m3
Unit price definition	Supply and cast in reinforced concrete element around new openings in the walls; C25/30, including formwork and reinforcement		
Description	Supply and cast in situ RC element around new opening in the walls. Dimensions of columns are 20,0x30,0 , 20x20cm, reinforcement in columns is $\pm 2R\varnothing 14$, U $\varnothing 8$ / 20cm. The position includes anchoring to the existing concrete structure. 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, 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 30 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 30,0 x 30,0 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 12 cm thickness AAC wall blocks, including girders		
<p>Description</p> <p>Supply and construction of walls with 12 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 $\pm 2\varnothing 12$ 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 12 cm thick walls is 12,0 x 20,0 cm.</p> <p>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.</p> <p>Calculation per m2 of executed wall with opening deduction.</p>			

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 4cm,5cm and 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	m2
Unit price definition	Supply and covering/plastering chases (channels), up to 10 cm wide.		
Description			
Supply and covering/plastering chases (channels), up to 10 cm wide.			
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 hydro insulation made from hydro-isolation membrane coated from both sides with a high-quality bitumen mass		
<p>Description</p> <p>Supply and installation of hydro insulation on ground floor made from hydro-isolation 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, in two layers each minimum 4 mm of thicknesses. The HI should be raised along the walls min. 10 cm, around the perimeter of the room.</p> <p>The installation of horizontal waterproofing on the ground floor plate with these layers: -one layer of hot coating of bitumen or bituminous masses with a consumption of 1.5kg/m2 on a cleaned and flat surface,</p> <p>-first layer of bitumen waterproofing strips d=4mm, laid on hot bitumen with welded overlaps, 10 cm wide</p> <p>- second layer of bitumen waterproofing strips d=4mm, over first layer with overlaps 10 cm wide, 100% welded to the first layer</p> <p>Welding of bitumen strips is performed by heating the flame strip with an open flame, softening the bituminous mass of the surface to be glued and gluing with its own mass to the substrate.</p> <p>Calculation per m2 of horizontal projection of installed hydro insulation, lifting along walls included in the unit price.</p>			

BoQ Item	B4.3	Unit	m2
Unit price definition	Supply and installation of extruded polystyrene thermal insulation on floors, d=20 mm		
Description Supply and installation on all floor slabs (where the new cement screeds are planned) 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	B4.4.	Unit	m2
Unit price definition	Supply and installation of expanded polystyrene thermal insulation on façade walls and columns d=80mm		
<p>Description</p> <p>Supply and installation on all façade walls and columns of thermal insulation boards made of expanded polystyrene with a smooth surface structure, thickness 50mm.</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> <p>The contractor is solely responsible for inspecting the condition of the substrate and the on-site conditions.</p> <p>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.</p> <p>Unfavorable weather influences such as high temperatures, wind or direct sunlight can change the application conditions.</p> <p>The surface of the wall must be flat, dry and free of grease and dust.</p> <p>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.</p> <p>Edge ribbon and dab bonding is performed by hand. The adhesive bonding surface with the substrate is ≥ 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.</p> <p>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.</p> <p>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.</p> <p>Calculation per m2 of installed thermal insulation.</p>			

BoQ Item	B5.1.	Unit	m1
Unit price definition	Supply and installation of flat 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, flashing and counterflashing, edge metal sheets and cladding of façade beams and par of roof slab. Developed width vary and are: up to 50cm, up to 100 cm, up to 80 cm, up to 60 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	m1
Unit price definition	Supply and installation of vertical rainwater downpipes, made of galvanized steel sheet with polymer coating		
Description			
Production and installation of vertical rainwater downpipes made of galvanized metal sheet with polymer coating, cross sections: 80/80, 120/120mm 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	m1
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 45 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	m2
Unit price definition	Supply and installing of roof covering made of galvanized trapezoidal metal sheet with polymer coating, 0,55mm thickness		
Description Supply and installing of roof covering at roof of elevator, made of galvanized trapezoidal metal sheet, TR35/165 with polymer coating, 0,55mm thickness. The covering is installed over the steel construction. The position also includes the flat metal sheets at the joint of the roof covering and the facade wall, as well as the required side metal sheets. Sheet color in accordance with the			

existing roof covering. Unit price include all work, material, binding, sealing materials and use of scaffold. Calculation per m2 of covered surface.

BoQ Item	B6.1-B6.28	Unit	pcs
Unit price definition	External doors, windows and glass walls of 5-chamber PVC profiles		
Description			
<p>The installation of doors, windows and curtain walls of 5-chamber PVC profiles, color RAL 9010 (Pure White) 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 as $U = 1,30 \text{ W/m}^2\text{K}$. The detailed requirements for each item (glazing, opening, etc.) are given in the schemes in Main Design and Volume 5 of this Tender documentation.</p> <p>The glazing should be FLOT glass, $U = 1,0 \text{ W/m}^2\text{K}$, solar $g_{max} = 0,42$ with these layers: 4.4.2 mm laminated +12 mm Argon gas+ 4 mm, or 6 mm+16 mm Argon gas+ 4 mm</p> <p>The technical properties of the 5-chamber PVC profile, which shall be used are as follows:</p> <ul style="list-style-type: none">- Construction depth: 70 mm;- Number of chambers: 5;- Thermal insulation: $U_{fmax} = 1,4 \text{ W/m}^2\text{K}$;- Air permeability: Class 4 to EN 12207;- Water-tightness against heavy rain up to class 9A to EN 1027, EN 12208;- Resistance to wind load: Class B5, according to EN 12210, EN 12211- Burglar resistance: up to RC2, according to EN 1267-1630- Sealing method: Perimetrical at 3 levels with EPDM gaskets- Glazing type: Double <p>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 unit prize of window and curtain walls is included PVC window sill under window/wall curtain, developed width up 30 cm - RAL 9010, as described in schemes. In unit prize of door is included threshold profile, thickness up to 10 mm.</p> <p>The unit price includes all work, material, hardware, profiles, glazing, PVC window sill, threshold profile and the use of scaffolding.</p> <p>Calculation per piece of installed item.</p>			

BoQ Item	B6.29-B6.64	Unit	pcs
Unit price definition	Internal doors, windows and glass walls		
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):			
- 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:

- 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 load: 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	B6.65	Unit	m1
Unit price definition	Fence on the ramp		
Description	<p>The fence be executed of aluminum profiles all in accordance with the detail given in the design. Fence is made of Al profiles: Ø50x2 mm for handrails and posts. Handrails are at two heights 60cm and 90 cm. The connection of fence with concrete is made with anchors and anchor plates. The unit price includes all works and material.</p> <p>Calculation per m1 of installed fence.</p>		

BoQ Item	B6.66	Unit	m1
Unit price definition	Fence at the entrance 3		
Description	<p>Workshop production, transportation and installation of the fence at the entrance 3.</p> <ul style="list-style-type: none"> • Fence around the plot of total length L= 14m'. • The construction is made of steel vertical box profiles: column 60x60mm, vertical profiles 20x20mm at equal distances and horizontal profile 30x30mm. • Coat steel profiles with appropriate anti-corrosion protection. • The complete fence was made using the standard procedure (by closing all hollow profiles - boxes). The entire gate is protected by a standard procedure: coating with an anti-corrosive agent, application of the base paint and application of the final paint, color anthracite gray (RAL 7016). • Hang the fence for the concrete construction over the anchor plate - • The height of the fence is h=110cm. <p>Calculation per m.</p>		

BoQ Item	B7.1.	Unit	m2
Unit price definition	Supply and installation of adhesive and porcelain tiles (first class) on the floors in the rooms according to main design		
<p>Description</p> <p>Floor:</p> <p>- Unglazed porcelain tile: first class, abrasion resistant to PEI IV, slippery class (R) 10 etc.</p> <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. Around of perimeter of room install edge tile, height d=8,0 cm, of same material as floor.</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	B7.2.	Unit	m2
Unit price definition	Supply and installation of adhesive and porcelain tiles (first class) on the floors in toilets		
Description Floor: - Unglazed porcelain tile: first class, abrasion resistant to PEI IV, slippery class (R) 10 etc. 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. Unit price includes all works, material, preparatory work, preparation and cleaning of the substrate and edge PVC moldings in color of tiles. Calculation per m2 of installed ceramic tiles.			

BoQ Item	B7.3.	Unit	m2
Unit price definition	Supply and installation of adhesive and porcelain tiles (first class) on the walls in toilets		
Description Wall: - Porcelain glazed wall tiles: first class, finish with strait edges- abrasion resistant to PEI IV, slippery class, etc. - laying height: up to ceiling - Provided in the following areas: toilets, storage etc. as indicated in the main design 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.

Unit price includes all works, material, preparatory work, preparation and cleaning of the substrate and edge PVC moldings in color of tiles.

Calculation per m2 of installed ceramic tiles.

BoQ Item	B7.4.	Unit	m2
Unit price definition	Supply and installation of adhesive and granite tiles (first class) on the floors (hall and staircase)		
Description			
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.			
First class granite tiles abrasion resistant to PEI IV, slippery class (R) 10 etc.			
Granit tiles for staircase with factory built-in anti-slip tape.			
Provided in the following areas: windbreak, hallway, hall, staircase, buffet, shop, equipment storage. as indicated in the main design			
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 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.			

BoQ Item	B7.5.	Unit	m2
Unit price definition	Supply and installation of adhesive and granite tiles (first class) on the ramp, exterior stairs and entrance plato		
Description			
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.			
First class granite tiles abrasion resistant to PEI IV, slippery class (R) 11 etc.			
Granit tiles for staircase with factory built-in anti-slip tape.			
Provided in the following areas: windbreak, hallway, hall, staircase, buffet, shop, equipment storage. as indicated in the main design			
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 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.

BoQ Item	B8.1.	Unit	m2
Unit price definition	Vinyl flooring Type A, in classrooms		
<p>Description</p> <p>Supply and installation of vinyl flooring for commercial use, in accordance with main design. Prior the installation of the vinyl flooring preparation of underlayer must be executed. The limit values of the unevenness of the finished substrate measured at a distance of 2m - 7 mm, 0,20m - 2 mm, and the allowable humidity of the screed is 2%.</p> <p>Technical characteristics of vinyl flooring:</p> <ul style="list-style-type: none">- total thickness: 2,00 mm according to EN ISO 24346- thickness of the wear layer: ≥ 1,00 mm according to EN ISO 24340- European classification: class 34-43 according to EN ISO 10874- fire rating: class Bfl-s1 according to EN 13501-1- slip resistance wet: class R10 according to DIN 51130- electrical propensity: <2kV according to EN ISO 1815- wear resistance: ≤2,0 mm3 according to EN 660.2- Wear group: T according to EN 651- residential indentation: ≤0,10 mm according to EN ISO 24343-1- color fastnesses: ≥6 degree according to EN 20105-B02- resistant to chemical product according to EN ISO 26987- total emissions of harmful substances (TVOC) after 28 days < 10 µg/m3 according to ISO 16000-6 <p>The vinyl flooring is installed by using by welding and adhesive on previously prepared surface. Color of welding electrode in color of floor.</p> <p>Design type and color of flooring and MDF boards shall be chosen by Supervisor.</p> <p>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.</p> <p>Unite price include all works, material, preparation of sublayer.</p> <p>Calculation per m2 of installed floor.</p>			

BoQ Item	B8.2.	Unit	m2
Unit price definition	Vinyl flooring Type B, in offices		
Description			
Supply and installation of vinyl flooring for commercial use, in accordance with main design. Prior the installation of the vinyl flooring preparation of underlayer must be executed. The limit values of the unevenness of the finished substrate measured at a distance of 2m - 5 mm, 0.20 m - 2 mm, and the allowable humidity of the screed is 2%.			
Technical characteristics of vinyl flooring:			
<ul style="list-style-type: none">- total thickness: 4,60 mm according to EN ISO 24346- thickness of the wear layer: 0,70 mm according to EN ISO 24340- European classification: class 34-42 according to EN ISO 10874- tile size: 500x500 mm according to EN 427- fire rating: class Bfl-s1 according to EN 13501-1			

- slip resistance wet: class R10 according to DIN 51130
- wear resistance: $\leq 2,0$ mm³ according to EN 660.2
- impact sound insulation: 15 dB according to EN ISO 717-2
- walking noise reduction ≤ 65 dB
- residential indentation: $\leq 0,13$ mm according to EN ISO 24343-1
- castor chair test (type W) according to EN 425
- color fastnesses: ≥ 6 degree according to EN 20105-B02
- resistant to chemical product according to EN ISO 26987
- total emissions of harmful substances (TVOC) after 28 days < 10 $\mu\text{g}/\text{m}^3$ according to ISO 16000-6

The vinyl flooring is installed with adhesive.

On perimeter of the room install the MDF skirting boards.

Design type and color of flooring and MDF boards shall be chosen by Supervisor.

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.

Unit price include all works, material, preparation of sublayer.

Calculation per m² of installed floor with skirting boards.

BoQ Item	B8.3.	Unit	m2
Unit price definition	Vinyl flooring Type C, in sports hall		
<p>Description</p> <p>Supply and installation of vinyl flooring for sports hall, in accordance with main design. Prior the installation of the vinyl flooring preparation of underlayer must be executed. Making a leveling layer with leveling compound up to 2 mm, on a dry, firm and flat surface. Limit unevenness of the finished substrate measured at a distance of 0.1 m to 2 mm, 1 m to 4 mm, 5 m to 10 mm, 10 m to 12 mm, 15 m to 15 mm is allowed, the permissible moisture content of the screed is 2% .</p> <p>Technical characteristics of vinyl flooring:</p> <ul style="list-style-type: none">- total thickness: 7,5 mm according to EN ISO 24346- weight: 4,7kg/m2 according to EN ISO 23997- Shock absorption: category P1 according to EN 14808- Vertical deformation: ≤3,5mm according to EN 14809- Sliding coefficient: 80-110 according to EN 13036-4- Ball bounce: ≥90% according to EN 12235- Abrasion resistance: ≤ 350 mg according to EN ISO 5470-1- Impact resistance: ≥ 8 N/m according to EN 1517- Indentation resistance: ≤ 0,5 mm according to EN 1516- Impact sound insulation: 18db according to EN ISO 717-2- Fire rating: Cfl-s1 according to EN 13501-1- Anti-bacterial activity: > 99% inhibits growth according to ISO22196- total emission of harmful substances (TVOC) after 28 days ISO 16000-6: < 100 µg/m3 <p>Impact Protection Index (IPI) according to AC-P90-205 73% energy return according to NF P 90 203 ≥ 0.31 m/s</p> <p>The vinyl flooring is installed with adhesive. The vinyl flooring is glued to the entire surface, adhesive according to the manufacturer's recommendation, standard approx. 350-400 gr/m2</p>			

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.

The floor shall have following certificates: IFF, EHF, IHF, FIBA, IBF, FIVB.

Unit price include all works, material, preparation of sublayer.

Calculation per m2 of installed floor. Calculation per m2 of installed floor with skirting boards.

BoQ Item	B8.4.	Unit	m
Unit price definition	Supply and installation of PVC-type flexible wall skirting		
Description			
Supply and installation of flexible wall skirting, made of PVC, height 60 mm, width 13.5 mm, color according to the supervisor's choice. The skirting is glued adhesive according to the manufacturer's recommendation.			
Unite price include all works and materials.			
Calculation per m1 of installed skirting.			

BoQ Item	B8.5.	Unit	m
Unit price definition	Supply and installation of aluminum T moldings between diferent floor finishes		
Description Supply and installation of the aluminum floor molding at the junction of different types of floorings. Installation with adequate adhesive. Color shall be chosen by Supervisor. Calculation per m1 of installed floor molding.			

BoQ Item	B9.1.	Unit	m2
Unit price definition	Supply and installation of thermal insulation of exterior walls with 8cm thickness EPS thermal insulation boards		
Description			
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:			
<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			
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 $d=80\text{mm}$, 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 $\geq 100\text{ mm}$ (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 of thermal insulation of exterior walls with 5cm thickness EPS thermal insulation boards		
Description			
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 $d=50\text{mm}$, 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.

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	B9.3.	Unit	m2
Unit price definition	Supply and installation-plastering exterior columns of the canopy		
<p>Description</p> <p>Façade elements shall be plastered with silicone plaster as defined in Main Design. Fixing shall be done in according to design details and manufacturer’s specification. 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 coatings and old plasters) and compatibility with adhesive, and remove unstable coatings completely if necessary. Ensure that all openings (interface gaps) are sealed.</p> <p>The contractor is solely responsible for inspecting the condition of the substrate and the on-site conditions.</p> <p>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.</p> <p>Unfavorable weather influences such as high temperatures, wind or direct sunlight can change the application conditions.</p> <p>The surface of the wall must be flat, dry and free of grease and dust.</p> <p>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.</p> <p>Embed reinforcement mesh on the entire surface with at least a joint overlap of 100mm.</p> <p>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.</p> <p>Avoid excessive smoothing of the reinforcement layer to prevent a</p>			

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	B9.4.	Unit	m2
Unit price definition	Supply and installation of the finish layer on the concrete plinth with high-quality acrylic plaster		
Description	Supply and plastering of wall plinth, with decorative smoothed mortar mad of multicolored marble granulate. Prior of application the surface shall be prepared as per manufacturer's instructions. Color per choose of the Supervisor.		

BoQ Item	B10.1.	Unit	m2
Unit price definition	Preparation of all existing walls for paintworks.		
Description	Preparation of all existing walls and ceilings for painting. Cleaning should be done by washing and scraping the walls and ceiling. Removing grease paint from walls. Inspect and seal minor damage and cracks. When cleaning, take care not to damage the substrate. The position includes all work and material for the execution of the position. Sand all surfaces, clean, all with the use of the necessary scaffolding. Calculation per m2		

BoQ Item	B10.2.	Unit	m2
Unit price definition	Painting internal walls with water dispersion based paint		
Description	Appropriate interior paint based on water dispersion shall be applied in two layers on internal walls 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.

BoQ Item	B10.3.	Unit	m2
Unit price definition	Painting internal ceilings with water dispersion based paint		
Description			
<p>Appropriate interior paint based on water dispersion shall be applied in two layers on internal ceilings area.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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%.</p> <p>Leveling compounds shall be completely dried before starting painting.</p>			

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 ceilings.

BoQ Item	B10.4.	Unit	m2
Unit price definition	Painting internal ceilings with water dispersion based paint		
Description			
Appropriate interior paint based on water dispersion shall be applied in two layers on internal ceilings 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.			
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 ceilings.			

BoQ Item	B10.5.	Unit	m2
Unit price definition	Painting internal walls with water dispersion based paint		
<p>Description</p> <p>Appropriate interior paint based on water dispersion shall be applied in two layers on internal ceilings area.</p> <p>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.</p> <p>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.</p> <p>Paint individual wall surfaces without interruption from one end edge to the other.</p> <p>Unit price includes all work, material, scaffolding as well as all correction of the painting after the completion of all works.</p> <p>Calculation per m2 of painted walls.</p>			

BoQ Item	B10.6.	Unit	m2
Unit price definition	Painting of the internal walls with washable acrylic-based resin wall paints.		
Description			
Appropriate acrylic-based resin wall paints shall be applied in three layers on the internal walls area. The surface initially shall be treated with appropriate primer coat to reduce absorption and to improve the adhesion of subsequent coats of paint. It will be consulted to the Engineer regarding the further details for the appropriate acrylic-based resin wall paints.			
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			
Painting of interior should be done in three layers of Matt, Low sheen semi-matte antibacterial paint; colors shall be as per request of the beneficiary and supervisor.			
Unit price includes all work, material, preparation of the substrate, scaffolding as well as all correction of the painting after the completion of all works.			
Calculation per m2 of painted walls.			

BoQ Item	B11.1.	Unit	pcs
Unit price definition	Supply and installation of a vertical lifting platform		
Description			
Supply and installation of a vertical lifting platform. Platform dimensions 1400/1100mm; load capacity 225 kg, side closed, automatic closing and opening.			
The sides of the platform are closed up to a height of 120 cm. Entrance door with a width of useful space of at least 90 cm, which opens outwards. Calculation per piece.			

BoQ Item	B11.2.	Unit	pcs
Unit price definition	Supply and installation of billboard in the hall		
Description			
Supply and installation of billboard in the hall. The billboard consists of steel profiles and OSB boards covered with canvas. The construction of the panels are square steel profiles 50x50mm. The legs of the panel are square steel profiles 50x50mm, forming the frame and strengthening the construction of the panel.			
OSB boards are located in the central part of the panel, covered with canvas, creating a space where works can be exhibited or hung. Dimensions: (WxH): 120x200cm. All materials and colors at the designer's choice and approval. Calculation per piece.			

BoQ Item	B11.3.	Unit	pcs
Unit price definition	Workshop production and installation of a bench without a backrest		
Description			
Workshop production and installation of a bench without a backrest. The construction of the bench is made of square steel profiles. The legs of the bench are connected to each other and thus form a frame, creating a sufficiently strong construction of the bench. The bench top is made of plywood in the color of oak dim 3.6 cm rounded edges. The bench is L-shaped at the base, dimensions: (LxWxH): (237+90)x45x45cm. All materials and colors at the designer's choice and			

approval. The position includes all work and materials, such as the finishing of the bench elements (protective coatings). Calculation per piece

BoQ Item	B11.4.	Unit	LS
Unit price definition	Painting of existing radiator heating pipelines		
Description	Painting of existing radiator heating pipelines. The position includes preliminary preparation of pipe surfaces (sanding), base coating and final paint. Position includes all labor and materials. Lump sum calculation.		

BoQ Item	B11.5.	Unit	LS
Unit price definition	Marking lines on sports floor		
Description	Drawing of the lines on sports floor for basketball, volleyball and futsal, in three different colors on supervisor's choice. The lines shall be in line with applicable FIBA, FIVB and UEFA Futsal, rules for ground lines on playgrounds. The paint used to draw the lines shall be chemically compatible with the installed sports floor. Calculation per lump sum.		

BoQ Item	B11.6.	Unit	kg
Unit price definition	Supply of materials, transport and installation of steel construction of the canopy above entrance 3		
Description	Supply of materials, transport and installation of steel construction of the canopy above entrance 3. For production use quality steel ČO361. The structure is composed of HOP box profiles 60x60x4, 140x80x4, 180x80x4. Anchor the steel structure to the concrete beam with appropriate M10x80 concrete anchors, 4 pieces at each foot, in accordance with the manufacturer's instructions. Prepare the steel structure by sandblasting and anti-corrosion protection with two basic topcoats, as well as topcoats. The price per unit of measure includes all the necessary tools, work, transport, material and procurement of materials and production. Calculation per kg of assembled structure with all elements, connections, anti-corrosion protected and finally painted.		

BoQ Item	B11.7.	Unit	m
Unit price definition	Production, transport and installation of the fence around the plant for expelling air from the workshop		
Description	<p>Production, transport and installation of the fence around the plant for expelling air from the workshop.</p> <ul style="list-style-type: none"> • Fence made of steel box profiles 100x100 mm and 60x60 mm, which are attached to the concrete slab via metal plates (d=15 mm, anchored). • Between the columns are frames made of box profiles 50x50 mm, which have a filling of ribbed netting in an orthogonal grid measuring 40x40 mm. • The fence contains one single-wing gate (marked K1) of the same construction, size 100x180cm, with a cylindrical lock and all necessary locks. • The complete gate was made using the standard procedure (by closing all hollow profiles - boxes). • The entire gate is protected by a standard procedure: coating with an anti-corrosive agent, application of the base paint and application of the final paint, color anthracite gray (RAL 7016). • The height of the fence from the finished floor is h=180cm. 		

The price of the position includes the excavation for the foundation plinth of the fence -2.5 m3, the creation of a buffer layer under the plinth -1.5 m3 and the concrete plinth measuring 20x40 cm -1.2 m3. Calculation per meter of a completed fence set with all necessary materials and works.

BoQ Item	B11.8.	Unit	m2
Unit price definition	Supply, transport and installation of window protective netting in the sports hall		
Description Supply, transport and installation of window protective netting in the sports hall. Fixed net for protecting the glass on a steel cable, with the required distance from the plane of the glass, made of a UV-reflective light net with a minimum thickness of 4 mm, a maximum window of 100x100 mm. Complete with support brackets, steel rope and fixing material. The position includes the procurement and installation of scaffolding for the installation of the position. Calculation per m2			

BoQ Item	B11.9.	Unit	m
Unit price definition	Rehabilitation of the existing fence on the internal staircase		
Description Rehabilitation of the existing fence on the internal staircase. The fence should be cleaned, sanded and coated twice with the base color and once with the final color. Calculation per m.			

BoQ Item	B11.10.	Unit	m2
Unit price definition	Wall cladding with metal frame using moisture resistant gypsum boards (with 12,5 mm single- layer gypsum wall board)		
<p>Description</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Calculation per m2 of finished cladding.</p>			

BoQ Item	B11.11.	Unit	m2
Unit price definition	Final cleaning of the building.		
Description	<p>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.</p> <p>The unit price includes all works and materials.</p> <p>Calculation per m2 of horizontal area of building.</p>		

Section 5. Hydrotechnical installations

5.1. General requirements for all positions of works

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. 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.

All sanitary equipment and accessories shall be robust and suitable for public use. The Contractor shall provide stainless steel: toilet role holders, hand drying paper towel holders, handrails. Mirrors shall be set on the tiling.

Toilet bowls shall be robust units that are wall hung with correct fittings and gasket to avoid noise transmission when flushing. The cistern shall be high wall mounted.

These requirements apply to each position.

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

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.

5.2. Unite price description

BoQ Item	C1.1.	Unit	Lump sum
Unit price definition	Dismantling of the plumbing and sewage pipes and sanitary elements and accessories		
Description			
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.			
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.			

BoQ Item	C2.1.	Unit	m1
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: 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	m1
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	m1
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	m1
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 pipeline.		

BoQ Item	C3.1	Unit	M³
Unit price definition	Manual excavation of trench, 80 cm wide		
Description	<p>Manual excavation of a trench 80 cm wide, for pipeline laying in any category of soil. The contractor shall make geodetic survey of the designed route of the pipeline. 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</p>		

BoQ Item	C3.2	Unit	M³
Unit price definition	Making a sand layer for a pipeline.		
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>alculation per m3.</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. Calculation per m3.</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. 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	m1
Unit price definition	Sewage pipes and fittings, type PP-C		
Description	Sewage pipes and fittings, type PP-C		

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.

Pipes are of different diameters: DN 50, DN 75 DN 110.

The unite 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	C3.5.4	Unit	pcs
Unit price definition	Bathroom drain, for Ø50 mm connection		
Description	Bathroom drain, for Ø50 mm connection 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	C3.5.5	Unit	pcs
Unit price definition	Tube ventilator		
Description	Procurement and installation of tube ventilator HL 905 or equivalent at the position defined in the main design. Calculation per piece.		

BoQ Item	C3.5.6	Unit	m1
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	pcs
Unit price definition	Porcelain washbasin		
Description			

The wash basin shall be made of porcelain I class in accordance with ISO 9001 international quality standards. Dimensions cca 60x50 cm.

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.

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.

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.

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.

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.

Unit price includes all work and material as specified above.

Calculation per piece of mounted washbasin with accessories.

BoQ Item	C4.2.	Unit	pcs
Unit price definition	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.</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. 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. Supervisor may require an additional test for the mechanical and physical data.</p>			

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	C4.3.	Unit	pcs
Unit price definition	Ceramic urinal		
Description Supply and installation of the set of ceramic urinals with the following elements: ceramic urinal shell for wall mounting, drain valve, siphon, rosette, fittings, sensor for activating flushing, required connecting and sealing material, as well as mounting element for urinal installation. Height 112-130cm. Unit price include all works and material. Calculation per piece completely assembled.			

BoQ Item	C4.4.	Unit	pcs
Unit price definition	Toilet set for persons with disabilities		
Description The WC sets is 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 mounted on the floor. The toilet bowl shall be strongly fixed on the floor by screw and plugs and screws. The toilet flush tank system shall be on the wall, mounted on height cca 70 cm. The height of toilet bowl set shall be 45-50 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. 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 (flush 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. 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. 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. Porcelain wall hung toilet: Color: white, Dimensions: 367x 525x320 mm On-wall flush toilet tank system: flush volume 5.0 l/3.0 l by EN Flushing device shall be mounted at high of 70 cm.			

In the toilet two had holder appx. 90 cm long shall be mounted at height 80-90 cm from floor surface. At least one shall be folding with toilet paper holder and other can be fixed to the wall. Also supply toilet brush.
Unit price includes all work and material as specified above.
Calculation per installed set.

BoQ Item	C4.5.	Unit	pcs
Unit price definition	Washbasins for persons with disabilities, 64x55cm		
<p>Description</p> <p>The wash basin is made of porcelain I class in accordance with ISO 9001 international quality standards. Dimensions 64x55 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 install appropriate faucet for water, as well as accessories: holder installed on wall at a height of 75cm, 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, tilted mirror with bottom edge at height of 100cm, dimensions 40x60 cm.</p> <p>Sample of the washbasin accompanied with quality certificate, 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.</p>			

BoQ Item	C4.6.	Unit	pcs
Unit price definition	Liquid soap dispenser		
Description			
Supply and installation of dispenser with a full set of easy to install product, mounted on the wall. The liquid soap dispenser, capacity up to 500ml, manufactured from toughened ABS plastic and suitable for all commercial environments. Suitable for most bulk fill liquid soaps, this dispenser passes approximately 2ml of liquid soap in each action. Color of the dispenser on coos of supervisor.			
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 protection
- 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.

6.1.2. Unit description

BoQ Item	D1.1.	Unit	pcs
Unit price definition	Dismantling of the existing and installation of new equipment in the "MRO" measuring distribution cabinet located on the ground floor of the building		
Description			
Dismantling of the existing and installation of new equipment in the "MRO" measuring distribution cabinet located on the ground floor of the building. It is a workshop-made cabinet of suitable dimensions with a lockable door. The item also includes all "small" elements necessary for the installation of the necessary equipment, switches and cable routing. The item includes the dismantling of existing equipment. The unit price includes all elements necessary for the installation of switches and cable shunting (cable glands, busbars, terminal blocks, POK ducts, plastic labels, pertinax, nameplates, terminal block, copper braids, single-pole scheme, pocket for single-pole scheme and other necessary material). Install the following equipment in the cabinet according to the single-pole scheme: INS 1-0, 100A , 3P - 1 pcs circuit breaker iC60N-C/50A, 1p; 6 kA - 3pcs circuit breaker iC60N-C/40A, 1p; 6 kA- 12pcs circuit breaker iC60N-C/25A, 1p; 6 kA- 6pcs rail residual current circuit breakers iID 40/0,03A, 4P – 1 pcs circuit breaker iC60N-C/16A, 1p; 6 kA – 11pcs circuit breaker iC60N-C/10A, 1p; 6 kA – 6 pcs contactor iCT 2NO, 16A, 230V – 5 pcs iSSW 1-0-2, 20A - 1 pcs time relay (astronomical clock) - 1pcs surge arresters 3xV25-B+C + N-PE -1 pcs Calculation per installed set.			

BoQ Item	D1.2.	Unit	pcs
Unit price definition	Supply and installation of metal cabinet “RT-1”		
Description			
Supply and installation of metal cabinet “RT-1”.			
The board is a workshop-made panel of suitable dimensions, intended for built-in installation with a door and a locking lock. The item also includes all "small" elements necessary for the installation of the necessary equipment, switches and cable routing. The unit price includes all elements necessary for the installation of switches and cable shunting (cable glands, busbars, terminal blocks, POK ducts, plastic labels, pertinax, nameplates, terminal block, copper braids, single-pole scheme, pocket for single-pole scheme and other necessary material). The item includes the dismantling of the existing switchboard. Install the following equipment in the panel according to the single-pole scheme:			
switch disconnector iSW 1-0, 50A, 3P - 1 pcs			
rail residual current circuit breakers iID 40/0,03A, 4P – 1 pcs			
circuit breaker iK60N-C/16A, 3p; 6 kA– 2 pcs			
circuit breaker iK60N-C/16A, 1p; 6 kA- 7pcs			
circuit breaker iK60N-C/10A, 1p; 6 kA- 5pcs			
circuit breaker iK60N-C/6A, 1p; 6 kA- 1pcs			

contactor iCT 2NO, 16A, 230V – 1pcs
Calculation per installed set.

BoQ Item	D1.3.	Unit	pcs
Unit price definition	Supply and installation of metal cabinet “RT-2”		
Description			
Supply and installation of metal cabinet “RT-2”			
The board is a workshop-made panel of suitable dimensions, intended for built-in installation with a door and a locking lock. The item also includes all "small" elements necessary for the installation of the necessary equipment, switches and cable routing. The unit price includes all elements necessary for the installation of switches and cable shunting (cable glands, busbars, terminal blocks, POK ducts, plastic labels, pertinax, nameplates, terminal block, copper braids, single-pole scheme, pocket for single-pole scheme and other necessary material). The item includes the dismantling of the existing switchboard. Install the following equipment in the panel according to the single-pole scheme:			
switch disconnector iSW 1-0, 32A, 3P- 1 pcs			
rail residual current circuit breakers iID 40/0,03A, 4p – 1 pcs			
circuit breaker iK60N-C/16A, 1p; 6 kA– 8 pcs			
circuit breaker iK60N-C/10A, 1p; 6 kA- 2pcs			
Calculation per installed set.			

BoQ Item	D1.4.	Unit	pcs
Unit price definition	Supply and installation of metal cabinet “RT-3”		
Description			
Supply and installation of metal cabinet “RT-3”			
The board is a workshop-made panel of suitable dimensions, intended for built-in installation with a door and a locking lock. The item also includes all "small" elements necessary for the installation of the necessary equipment, switches and cable routing. The unit price includes all elements necessary for the installation of switches and cable shunting (cable glands, busbars, terminal blocks, POK ducts, plastic labels, pertinax, nameplates, terminal block, copper braids, single-pole scheme, pocket for single-pole scheme and other necessary material). The item includes the dismantling of the existing switchboard. Install the following equipment in the panel according to the single-pole scheme:			
switch disconnector iSW 1-0, 50A, 3P- 1 pcs			
rail residual current circuit breakers iID 40/0,03A, 4p – 1 pcs			
circuit breaker iK60N-C/16A, 1p; 6 kA– 6 pcs			
circuit breaker iK60N-C/10A, 1p; 6 kA- 1pcs			
Calculation per installed set.			

BoQ Item	D1.5.	Unit	pcs
Unit price definition	Supply and installation of metal cabinet “RT-4”		
Description			
Supply and installation of metal cabinet “RT-4”			
The board is a workshop-made panel of suitable dimensions, intended for built-in installation with a door and a locking lock. The item also includes all "small" elements necessary for the			

installation of the necessary equipment, switches and cable routing. The unit price includes all elements necessary for the installation of switches and cable shunting (cable glands, busbars, terminal blocks, POK ducts, plastic labels, pertinax, nameplates, terminal block, copper braids, single-pole scheme, pocket for single-pole scheme and other necessary material). The item includes the dismantling of the existing switchboard. Install the following equipment in the panel according to the single-pole scheme:

switch disconnecter iSW 1-0, 32A, 3P- 1 pcs

rail residual current circuit breakers iID 40/0,03A, 4p- 1 pcs

circuit breaker iK60N-C/16A, 1p; 6 kA-5pcs

circuit breaker iK60N-C/10A, 1p; 6 kA- 5pcs

circuit breaker iK60N-C/6A, 1p; 6 kA- 1pcs

contactor iCT 2NO, 16A, 230V- 1pcs

Calculation per installed set.

BoQ Item	D1.6.	Unit	pcs
Unit price definition	Supply and installation of metal cabinet “RT-5”		
Description			
Supply and installation of metal cabinet “RT-5”			
The board is a workshop-made panel of suitable dimensions, intended for built-in installation with a door and a locking lock. The item also includes all "small" elements necessary for the installation of the necessary equipment, switches and cable routing. The unit price includes all elements necessary for the installation of switches and cable shunting (cable glands, busbars, terminal blocks, POK ducts, plastic labels, pertinax, nameplates, terminal block, copper braids, single-pole scheme, pocket for single-pole scheme and other necessary material). The item includes the dismantling of the existing switchboard. Install the following equipment in the panel according to the single-pole scheme:			
switch disconnector iSW 1-0, 50A, 3P- 1 pcs			
rail residual current circuit breakers iID 40/0,03A, 4p – 1 pcs			
circuit breaker iK60N-C/16A, 1p; 6 kA-7pcs			
circuit breaker iK60N-C/10A, 1p; 6 kA- 6pcs			
circuit breaker iK60N-C/6A, 1p; 6 kA- 1pcs			
contactor iCT 2NO, 16A, 230V- 1pcs			
Calculation per installed set.			

BoQ Item	D1.7.	Unit	pcs
Unit price definition	Supply and installation of metal cabinet “RT-S”		
Description			
Supply and installation of metal cabinet “RT-S”			
The board is a workshop-made panel of suitable dimensions, intended for built-in installation with a door and a locking lock. The item also includes all "small" elements necessary for the installation of the necessary equipment, switches and cable routing. The unit price includes all elements necessary for the installation of switches and cable shunting (cable glands, busbars, terminal blocks, POK ducts, plastic labels, pertinax, nameplates, terminal block, copper braids, single-pole scheme, pocket for single-pole scheme and other necessary material). The item includes the dismantling of the existing switchboard. Install the following equipment in the panel according to the single-pole scheme:			
switch disconnector iSW 1-0, 50A, 3P- 1 pcs			

rail residual current circuit breakers iID 40/0,03A, 4p – 1 pcs
 circuit breaker iK60N-C/16A, 1p; 6 kA-10pcs
 circuit breaker iK60N-C/10A, 1p; 6 kA- 6pcs
 circuit breaker iK60N-C/6A, 1p; 6 kA- 1pcs
 contactor iCT 2NO, 16A, 230V- 1pcs
 Calculation per installed set.

BoQ Item	D1.8.1.	Unit	m
Unit price definition	Delivery and installation of power lines		
Description			
Delivery and installation of power lines from main distribution cabinet “GRT” to distribution boards. The conductors are laid partly on cable trays, partly in the suspended ceiling and partly on the walls under the plaster, along the routes as given in the main design. The position includes trimming the ceiling and wall, electrical connection on both sides, as well as restoring damaged surfaces to their original condition.			
The unit price includes delivery with installation, connection and testing of the following types of conductors/power lines: N2XH-j 4x25 mm ² + N2XH-j 1x16 mm ² . Calculation per m1.			

BoQ Item	D1.8.2.	Unit	m
Unit price definition	Delivery and installation of power lines		
Description			
Delivery and installation of power lines from main distribution cabinet “GRT” to distribution boards. The conductors are laid partly on cable trays, partly in the suspended ceiling and partly on the walls under the plaster, along the routes as given in the main design. The position includes trimming the ceiling and wall, electrical connection on both sides, as well as restoring damaged surfaces to their original condition.			
The unit price includes delivery with installation, connection and testing of the following types of conductors/power lines: N2XH-i 5x10 mm². Calculation per m1.			

BoQ Item	D1.8.3.	Unit	m
Unit price definition	Delivery and installation of power lines		
Description			
Delivery and installation of power lines from main distribution cabinet “GRT” to distribution boards. The conductors are laid partly on cable trays, partly in the suspended ceiling and partly on the walls under the plaster, along the routes as given in the main design. The position includes trimming the ceiling and wall, electrical connection on both sides, as well as restoring damaged surfaces to their original condition.			
The unit price includes delivery with installation, connection and testing of the following types of conductors/power lines: N2XH-j 5x6 mm². Calculation per m1.			

BoQ Item	D2.1.	Unit	m
Unit price definition	Electrical conductor, type N2XH-J 5x2,5mm ²		
Description			
Delivery of materials and installation of three-phase connection points, with conductor N2XH-J 5x2.5mm ² . The conductors are laid partly on the wall and partly on the ceiling through halogen-			

free ducts of appropriate dimensions. Carry out the installation in all respects according to the technical description. The item includes the procurement of halogen-free ducts of suitable dimensions, electrical connection on both sides, as well as bringing the damaged surfaces to their original condition. Calculation per m1 of installed conductor.

BoQ Item	D2.2.	Unit	pcs
Unit price definition	Electrical conductor, type N2XH-J 3x2,5mm ²		
Description			
Delivery of materials and execution of single-phase connection points, with conductor N2XH-J 3x2.5mm ² . The conductors are laid partly on the wall and partly on the ceiling through halogen-free ducts of appropriate dimensions. Carry out the installation in all respects according to the technical description. The item includes the procurement of halogen-free ducts of suitable dimensions, electrical connection on both sides, as well as bringing the damaged surfaces to their original condition. On average, 19 m is laid per connection point. Calculation per piece.			

BoQ Item	D3.1.1.	Unit	pcs
Unit price definition	Electrical conductors of lighting N2XH-J 3x1,5 mm ²		
Description			
Delivery of materials and execution of lighting circuits, without installation of lamps and switches, with electrical conductors N2XH-J 3x1,5 mm ² ,. The conductors are laid partly through a halogen-free ducts of appropriate dimensions in the ceiling and partly in the wall under the plaster. The Contractor shall perform the installation according to the main design and technical description. The unit price includes making grooves in ceiling and walls, corrugated pipes, electrical connection on both sides, as well as plastering/restoration of damaged surfaces, total for material and work. The average length per connection point is 9m			
Calculation per piece of installed electrical circuit.			

BoQ Item	D3.1.2.	Unit	m
Unit price definition	Electrical conductors of lighting PP00-y 3x1,5 mm ²		
Description			
Delivery of materials and execution of lighting circuits, without installation of lamps and switches, with electrical conductors N2XH-J 3x1,5 mm ² ,. The conductors are laid partly through a halogen-free ducts of appropriate dimensions in the ceiling and partly in the wall under the plaster. The Contractor shall perform the installation according to the main design and technical description. The unit price includes making grooves in ceiling and walls, corrugated pipes, electrical connection on both sides, as well as plastering/restoration of damaged surfaces, total for material and work.			
Calculation per m of installed conductor.			

BoQ Item	D3.2.	Unit	pcs
Unit price definition	Electrical conductors of antipanic lighting N2XH-J 3x1,5 mm²		
Description			
Delivery of materials and execution of antipanic lighting circuits, without installation of lamps and switches, with electrical conductors N2XH-J 3x1,5 mm²,. The conductors are laid partly			

through a halogen-free ducts of appropriate dimensions in the ceiling and partly in the wall under the plaster. The Contractor shall perform the installation according to the main design and technical description.

The unit price includes making grooves in ceiling and walls, corrugated pipes, electrical connection on both sides, as well as plastering/restoration of damaged surfaces, total for material and work. The average length per connection point is 18m

Calculation per piece of installed electrical circuit.

BoQ Item	D3.3.	Unit	m
Unit price definition	Electrical conductors from MRO to RT- N2XH-J 3x1,5 mm ²		
Description	Delivery of materials and execution of signal cables from MRO to floor boards for the needs of lighting control in corridors. The conductors are laid partly on the wall and partly on the ceiling through halogen-free ducts of appropriate dimensions. Carry out the installation in all respects according to the technical description. The item includes the procurement of halogen-free ducts of suitable dimensions, electrical connection on both sides, as well as bringing the damaged surfaces to their original condition. Calculation per m of installed conductor.		

BoQ Item	D3.4.	Unit	pcs
Unit price definition	Dismantling of existing lights		
Description	Dismantling of existing lights. Dismantled lamps must be stored at a location determined by the Investor. Calculation per piece of the dismantled lamp.		

BoQ Item	D3.5.	Unit	pcs
Unit price definition	Dismantling of the existing reflector lamps located on the roof and in the gymnasium		
Description	Dismantling of the existing reflector lamps located on the roof and in the gymnasium. Dismantled lamps must be stored at a location determined by the Investor. Calculation per piece of the dismantled lamp.		

BoQ Item	D3.6.1./D3.6.2	Unit	pcs
Unit price definition	Surface mounted LED 596x596 lamp with frame, labeled (S1)		
Description	Procurement, delivery and installation of recessed LED 596x596 lamp and frame for installation of lamp. (S1) Surface LED panel, luminous flux of the lamp 3754lm, efficiency of the lamp 110 lm/V, total input power of the lamp 34W, external connection box allows wiring from the loop, without flickering, CRI 80, 4000K, degree of mechanical protection IP20/ , mass 2, 58 kg, dimensions 596 x 596 x 26 mm. The lamp is delivered complete with a light source, necessary equipment for work and frame. Calculation per piece		

BoQ Item	D3.7.	Unit	pcs
Unit price definition	Sourface mounted LED lamp, labeled (S3)		
Description			
Procurement, delivery and installation of (S3) Surface mounted LED lamp, total input power 33.3 W, output luminous flux of the lamp 3900lm, grade, light color temperature 4000K, lamp efficiency 117lm/W, 50,000 working hours before the luminous flux declines to 90% of the initial value at 25°C, el . ballast integrated inside the lamp, intended for operation at an ambient temperature of -20°C to +25°C, made of plastic, diffuser made of polymethyl meacrylate, degree of protection IP50, white color, dimensions 1220x120x91mm, weight 2.5 kg. The light is delivered complete with a light source and all necessary equipment for work. Calculation per piece			

BoQ Item	D3.8.	Unit	pcs
Unit price definition	Sourface mounted LED lamp, labeled (S4)		
Description			
Procurement, delivery and installation of (S4) Surface mounted LED lamp, total input power 41W, lamp output luminous flux 4870lm, degree, light color temperature 4000K, lamp efficiency 119lm/W, 50,000 working hours before the luminous flux drops to 90% of the initial value at 25°C, el. ballast integrated inside the lamp, intended for operation at an ambient temperature of -20°C to +25°C, made of plastic, diffuser made of polymethyl meacrylate, degree of protection IP50, white color, dimensions 1220x120x91mm, weight 2.5 kg. The lamp is delivered complete with a light source and all necessary equipment for work. Calculation per piece			

BoQ Item	D3.9.	Unit	pcs
Unit price definition	Sourface mounted LED lamp, labeled (S5)		
Description			
Procurement, delivery and installation of (S5) Surface mounted LED lamp, total input power 41W, lamp output luminous flux 4870lm, degree, light color temperature 4000K, lamp efficiency 119lm/W, 50,000 working hours before the luminous flux drops to 90% of the initial value at 25°C, el. ballast integrated inside the lamp, intended for operation at an ambient temperature of -20°C to +25°C, made of plastic, diffuser made of polymethyl meacrylate, degree of protection IP50, white color, dimensions 1220x120x91mm, weight 2.5 kg. The lamp is delivered complete with a light source and all necessary equipment for work. Calculation per piece			

BoQ Item	D3.10.	Unit	pcs
Unit price definition	Sourface mounted LED lamp, labeled (S6)		
Description			
Procurement, delivery and installation of (S6) surface mounted LED lamp with an integrated presence sensor, radius of action 4m, total input power 16.3W, output luminous flux of the lamp 1950lm, light color temperature 4000K, lamp efficiency 120lm/W, characteristics of the light source MacAdam 3, 50,000 working hours before the decline of the luminous flux at 80% of the initial value at 25°C, el. ballast integrated inside the lamp, made of polycarbonate, gray color, degree of protection IP65, mechanical protection IK10, has ENEC and CE certificate, dimensions Ø307 x 58 mm, weight 0.98 kg. The lamp is delivered complete with a light source and all necessary equipment for work. Calculation per piece			

BoQ Item	D3.11.	Unit	pcs
Unit price definition	Sourface mounted LED lamp, labeled (S7)		
Description			
Procurement, delivery and installation of (S7) Surface mounted LED lamp, total input power 62.6W, output luminous flux of the lamp 8060lm, light color temperature 4000K, lamp efficiency 129 lm/W, degree of protection IP66, mechanical protection IK08, dimensions 1600x92x90 mm, weight 2.1kg.The lamp is delivered complete with a light source and all necessary equipment for work. Calculation per piece			

BoQ Item	D3.12.	Unit	pcs
Unit price definition	Sourface mounted LED lamp, labeled (S8)		
Description			
Procurement, delivery and installation of (S8) LED surface-mounted luminaire with high base, input power: 175.9 W, includes DALI- and intervention LED-compatible power source, housing made of cast aluminum in matt white color. Cooling fins with powder coating for optimal thermal management and minimal dust accumulation. Clear polymethyl methacrylate (PM) cover and additional glass cover (ESG) for challenging industrial applications. The lifetime of the LED is 50000 h before the luminous flux decreases to 85% of the initial value over the entire ambient temperature range. Chromaticity tolerance (initial MacAdam): 3. Luminaire luminous flux: 25400 lm, lamp efficiency: 144 lm / W. Color rendering Ra> 80, color temperature 4000 K. Dimming level for unidirectional mode set to 15%. Sealed, highly efficient optical lens system, luminaire with symmetrical wide light distribution (wide beam), UGR <22. Pre-assembled connection cable 5 x 1 mm ² , 2m long, with free ends, included in the scope of delivery (suspension from a distance of at least 100 mm to the ceiling); Wire for lamps with halogen- and silicone-free conductors. Protection class: SC1; degree of protection: IP65; ambient temperature: -40 ° C to + 55 ° C; Dimensions: 680 x 330 x 114 mm. Weight: 10 kgThe lamp is delivered complete with a light source and all necessary equipment for work. Calculation per piece			

BoQ Item	D3.13.	Unit	pcs
Unit price definition	(R1) Reflector with LED light source		
Description			
Procurement, delivery and installation of (R1) Reflector with LED light source, total input power 90W, output luminous flux of the lamp 9000 lm, light color temperature 4000K, lamp efficiency 100lm/W, asymmetrical optics, made of light gray cast aluminum (RAL9006), 50,000 working hours before deterioration light flux at 85%, el. ballast integrated inside the lamp, degree of protection IP66, IK07, dimensions 368x236x48mm, weight 3.0 kg, the lamp has CE and ENEC certification.			
The lamp is delivered complete with a light source and all necessary equipment for work.			
Calculation per piece			

BoQ Item	D3.14.	Unit	pcs
Unit price definition	Sourface mounted LED lamp for evacuation routes (P1)		
Description			
Procurement, delivery and installation of (P1) sourface mounted LED lamp for evacuation routes, total input power 4 W, lamp output luminous flux 130lm, lamp efficiency 32lm/W, autonomy 3h,			

source characteristics, expected life of the lamp 50,000 at 25°C, el. ballast integrated inside the lamp, intended for operation at an ambient temperature of +5°C to +30°C, made of cast aluminum, degree of protection IP40, white color approximately RAL9016, dimensions 146x146x34mm, weight 1 kg. The lamp is delivered complete with a light source and all necessary equipment for work. Calculation per piece

BoQ Item	D3.15.	Unit	pcs
Unit price definition	Sourface mounted LED lamp for evacuation routes (P2)		
Description	Procurement, delivery and installation of (P2) Superstructure LED lamp for evacuation routes, total input power 4 W, lamp output luminous flux 130lm, lamp efficiency 32lm/W, autonomy 3h, source characteristics, expected life of the lamp 50,000 at 25°C, el. ballast integrated inside the lamp, intended for operation at an ambient temperature of +5°C to +30°C, made of cast aluminum, degree of protection IP40, white color approximately RAL9016, dimensions 146x146x34mm, weight 1 kg. The lamp is delivered complete with a light source and all necessary equipment for work. Calculation per piece		

BoQ Item	D4.1.	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	D4.2.	Unit	set
Unit price definition	Procurement, delivery and installation of a three-phase socket		
Description	Procurement, delivery and installation of a three-phase socket 16A/400V, JUS N.EO.350. Calculation per installed set.		

BoQ Item	D4.3.	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+E 16A, 1M – 1pcs – white Calculation per installed set.		

BoQ Item	D4.4.	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	D4.5.	Unit	set
Unit price definition	Modular accessories white color, 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	D4.6.	Unit	set
Unit price definition	Modular accessories white color, built-in PVC Ø60mm, 2way switch		
Description	Supply and installation of modular accessories, white color, built-in PVC box Ø60mm armature 2M, mask 2M, 2way switch, 2M –1pcs -white Calculation per installed set.		

BoQ Item	D4.7.	Unit	set
Unit price definition	Modular accessories white color, built-in PVC 3M box, ordinary switch		
Description	Supply and installation of modular accessories, white color, built-in PVC box 3M armature 3M, mask 3M, ordinary switch, 1M –3pcs -white Calculation per installed set		

BoQ Item	D4.8.	Unit	set
Unit price definition	Modular accessories white color, built-in PVC 12M box, ordinary switch		
Description	Supply and installation of modular accessories, white color, built-in PVC box 12M armature 12M, mask 12M, ordinary switch, 1M –10pcs, blind module 1M - 2 pcs -white Calculation per installed set		

BoQ Item	D4.9	Unit	set
Unit price definition	Modular accessories white color, floor steel 12M box		
Description	Supply and installation of modular accessories, white color, built-in floor steel box 12M socket 2P+E 16A, 2M - 4 pcs, free modules for low current needs, 1M - 4 pcs Calculation per installed set		

BoQ Item	D5.1.	Unit	m
Unit price definition	Galvanic connection of all metal masses - conductor with halogen-free insulation 1x6mm ²		
Description	Make a galvanic connection of all metal masses in the building that do not belong to the electrical installation with a fine-wire conductor, a conductor with halogen-free insulation 1x6mm ² (metal handrails, gratings, metal doors,...). Calculation per m.		

BoQ Item	D6.1.	Unit	m
Unit price definition	Excavation of trenches		
Description			
Marking of the routes and mechanical and manual excavation of the trench, dim. 0,4x0,8m, in the soil of III and IV category, for the purpose of construction of the grounding installation. Calculation per m1 of excavated trench.			

BoQ Item	D6.2.	Unit	m
Unit price definition	Backfilling the trenches		
Description			
Backfilling the trench with soil from excavation with flattening of the surface and bringing to its original state.			
Calculation per m1 of filled trench.			

BoQ Item	D6.3.	Unit	m
Unit price definition	Galvanized steel flat conductor Fe/Zn 25x4 mm		
Description			
Supply and installation of the lowering system made of the plate conductor made of galvanized steel Fe/Zn 25x4 mm, according to the plan of the lightning installation, from the position of the existing grounding outlet to the new position defined by the design. The item also includes the installation of the tape from the grounder to the position of the metal gutters. Lay the tape according to the technical description and standards for this type of work. Calculation per m1 of installed conductor			

BoQ Item	D6.4.	Unit	m
Unit price definition	Galvanized steel round conductor Fe/Zn Ø8 mm		
Description			
Supply and installation of the lowering system made of the Galvanized steel round conductor Fe/Zn Ø8 mm, according to the plan of the lightning installation, with the connections to the grounding device and the receiving system, and in everything according to the technical description and plans attached to the project. Calculation per m1 of installed conductor			

BoQ Item	D6.5.	Unit	m
Unit price definition	Aluminium conductor AH2 Ø10 mm		
Description			
Supply and installation of the receiving system with a round conductor made of aluminum AH2 Ø10 mm, according to the lightning protection installation plan, and in everything according to the technical description and plans attached to the project. Calculation per m1 of installed conductor.			

BoQ Item	D6.6.	Unit	LS
Unit price definition	Connection of all metal masses on roofs		
Description	Connection of all metal masses on the roof with the receiving line of the lightning protection installation.		
Calculation per lump sum			

BoQ Item	D6.7.1/D6.7.2./D.6.7.3.	Unit	pcs
Unit price definition	Connecting elements		
Description	Delivery and installation of materials and couplings: strip – strip connection, LOV- light. protection point of impact, wire-wire connection, strip-wire connection.		
Calculation per installed piece.			

BoQ Item	D6.8.1/D6.8.2./D.6.8.3.	Unit	pcs
Unit price definition	Holders of the lightening conductors		
Description	Delivery and installation of wall and roof holders for lightening conductors.		
<u>Wall</u>	The facade holders are installed every 80-100 cm. The unit price includes bracket with dowel and screws 160 mm long.		
<u>Roof</u>	The tape must be attached according to the instructions of the roof covering producer.		
	Unit price include all work, material, scaffolder and similar for installation. Sheet metal plate roof covering.		
Calculation per piece of installed holder.			

BoQ Item	D6.9	Unit	pcs
Unit price definition	Supply and installation of clamp for grounding metal gutters		
Description	Supply and installation of clamp for grounding metal gutters . Calculation per installed piece.		

BoQ Item	D6.10	Unit	pcs
Unit price definition	Supply and installation of contact elements		
Description	Supply and installation of contact elements for connecting the lightning rod to the tin roof as well as to the horizontal gutter. Calculation per installed piece.		

BoQ Item	D6.11	Unit	pcs
Unit price definition	Brackets for wall, T shape		
Description	Supply and installation of wall, T brackets for the installation of Fe/Zn strip.		
Calculation per installed piece.			

BoQ Item	D6.12	Unit	pcs
Unit price definition	Steel “L” profile		
Description	Supply and installation of mechanical lightning protection made of steel "L" profile. Steel profile is 1,6 m long. Calculation per installed piece.		

BoQ Item	D7.1	Unit	LS
Unit price definition	Testing of the all electrical installations		
Description			
Testing of the all electrical installations (grounding and lightning 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.			