EUCOM Humanitarian Assistance Program

Design and Build Renovation of University Clinic of Neurology Skopje - Macedonia

Skopje, Macedonia

OHASIS MK-HA-2015-00026301

Nov 2015

Version 01

1. TAXATION

This construction contract is exempt from VAT. The contractor is required to coordinate with the US Embassy and with competent Macedonian authorities in order to obtain the VAT TAX EXEMPTION that applies to this contract. Contractor is required to make all necessary coordination and to allow for time for approval of the VAT Tax Exception.

This VAT exemption applies to donations from U.S. Government to Macedonian Governmental entities/facilities. It was established by the Ministry of Finance. The contractor is responsible to coordinate with Macedonian Government the VAT exemption. However, for general information, below is a simplified explanation of the process followed for different Humanitarian Assistance project in Macedonia.

- The US Embassy and the beneficiary need to sign a “Donation Agreement”. This document needs to be written in Macedonian, and it needs to be signed and stamped by the Embassy, as donor, and the representative of the beneficiary. The contractor shall coordinate directly with the US Embassy representative for the preparation of this document. However, it is not the contractor’s responsibility to prepare such document.

- The US Embassy representative would submit the donation project application to the Government of Macedonia properly signed and stamped by the US Embassy. Afterwards the Project Registration Office would issue a stamped project certificate. As in the previous step, the contractor shall coordinate with the US Embassy representative the submission of this document. However, it is not the contractor’s responsibility to prepare such document.

- The contractor shall provide all invoices that are exempt from VAT on the form specified by the Ministry of Finance. Application letter needs to accompany the form. Original invoices must be submitted with the VAT exemption form. Copies of all these documents can be obtained from the Ministry of Finance, from the US Embassy representative or from NAVFAC Project Manager. Each time the contractor submits an invoice for payment, they can submit it to the Ministry of Finance for VAT refund. In order for the contractor to get the VAT money from the Government of Macedonia they need to get paid by the U.S. Government for that invoice.

All prices submitted by the bidders, schedule of prices and invoices provided by the successful contractor shall be provided without VAT.

2. PROJECT DESCRIPTION

THIS PROJECT INCLUDES THE NECESSARY DESIGN AND CONSTRUCTION FOR THE OUTLINED AREAS OF THE UNIVERSITY CLINIC OF NEUROLOGY IN SKOPJE AND AS REQUIRED AND OUTLINED IN THE CONCEPTUAL DESIGN PROVIDED AS PART OF THIS CONTRACT WITH THE ADDITIONAL SPECIFIC REQUIREMENTS INCLUDED IN THIS DOCUMENT.

THE CONTRACTOR SHALL PROVIDE A COPY OF CONSTRUCTION PERMITS TO BE PROVIDED BY THE COMPETENT LOCAL AUTHORITIES BEFORE WORK IS AUTHORIZED TO START.

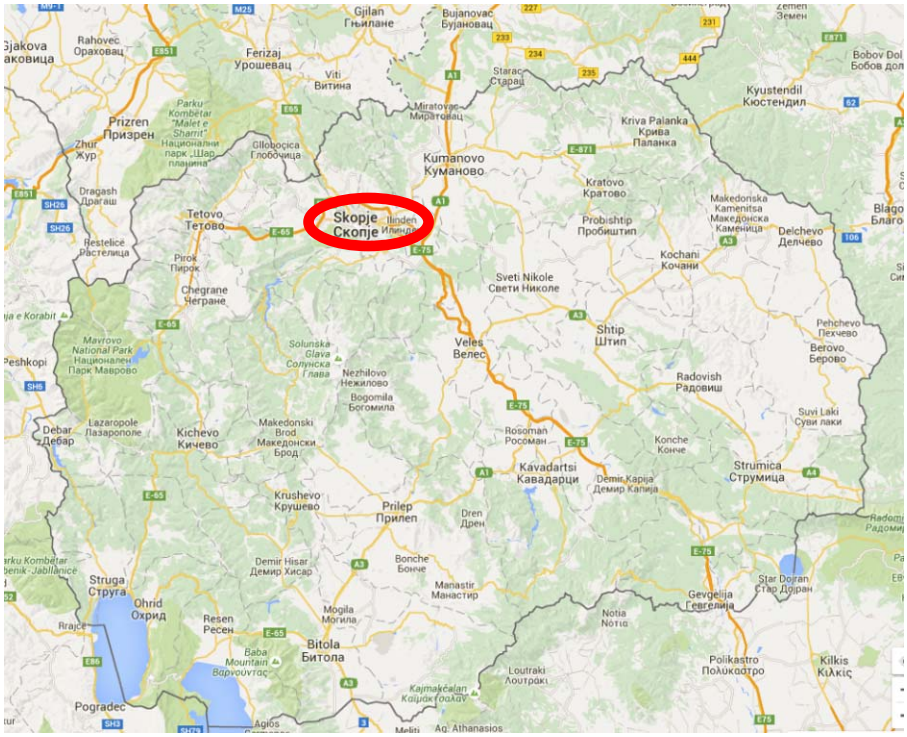
CONTRACTOR WILL COORDINATE WITH LOCAL AUTHORITIES AND WILL PROVIDE ALL REQUIRED DOCUMENTATION IN ORDER TO OBTAIN THE CONSTRUCTION PERMIT OR AUTHORIZATION THAT MAY BE REQUIRED FOR THE SCOPE OF WORK INCLUDED IN THIS PROJECT. CONTRACTOR SHALL COORDINATE THE PROCEDURES TO SUBMIT THE DOCUMENTATION TO COMPETENT LOCAL AUTHORITIES.

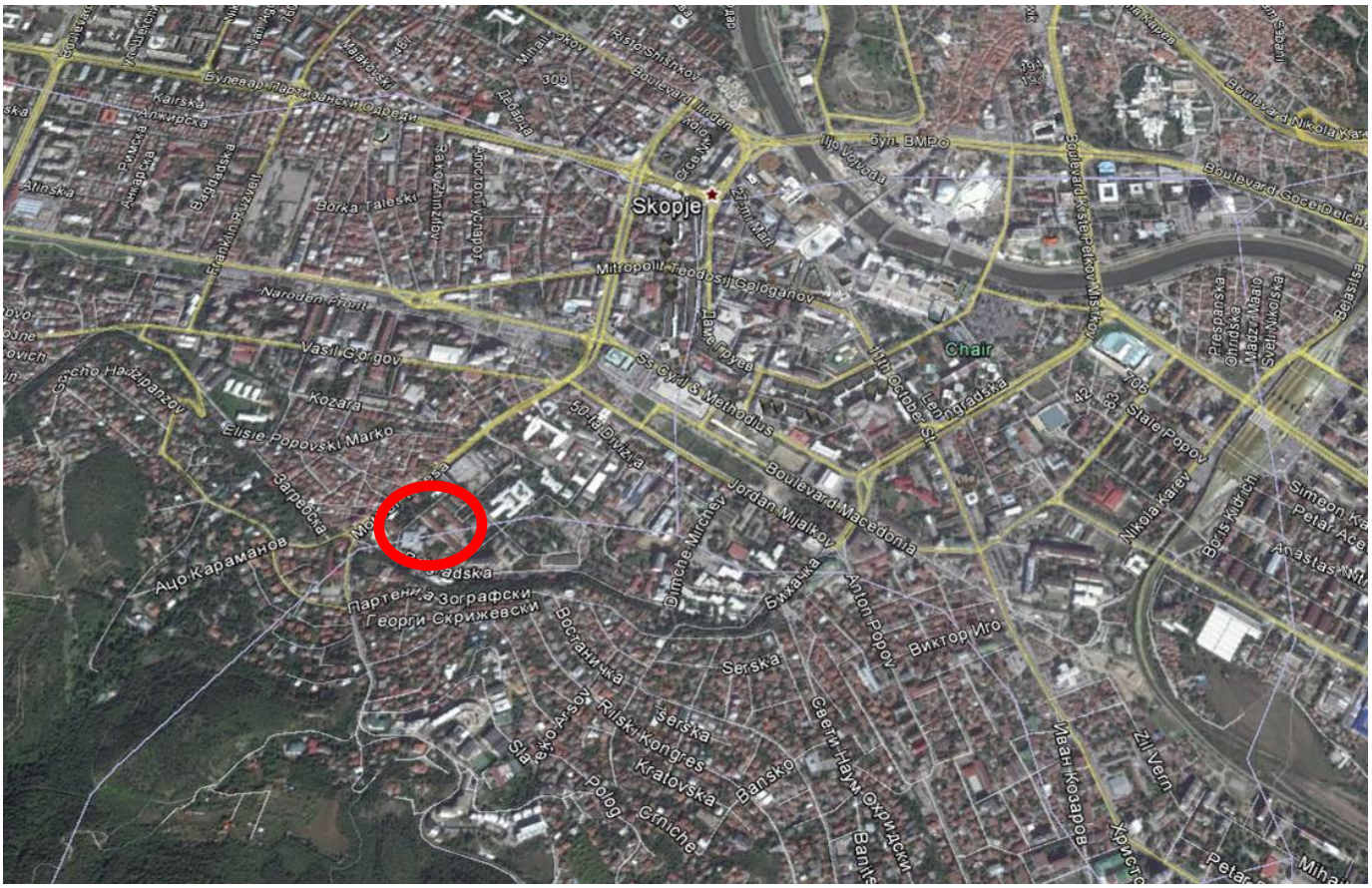
2.1. Legal and Technical Requirements

The project execution is based on the following principles:

- Strict compliance with American Contracting Regulations, including the requirements of the Department of Defense, the US Navy and Naval Facilities Engineering Command (NAVFAC).
- Strict compliance with Macedonian Technical, Legal and Administrative requirements, which are applicable for a renovation project, as described in these PTS.
- Compliance with Macedonian safety regulations, unless the US Safety regulations included in Manual EM385-1-1 are more strict and not in conflict with Macedonian regulations. In this last case, the US Safety regulations shall apply.
- Compliance with technical requirements described in this document

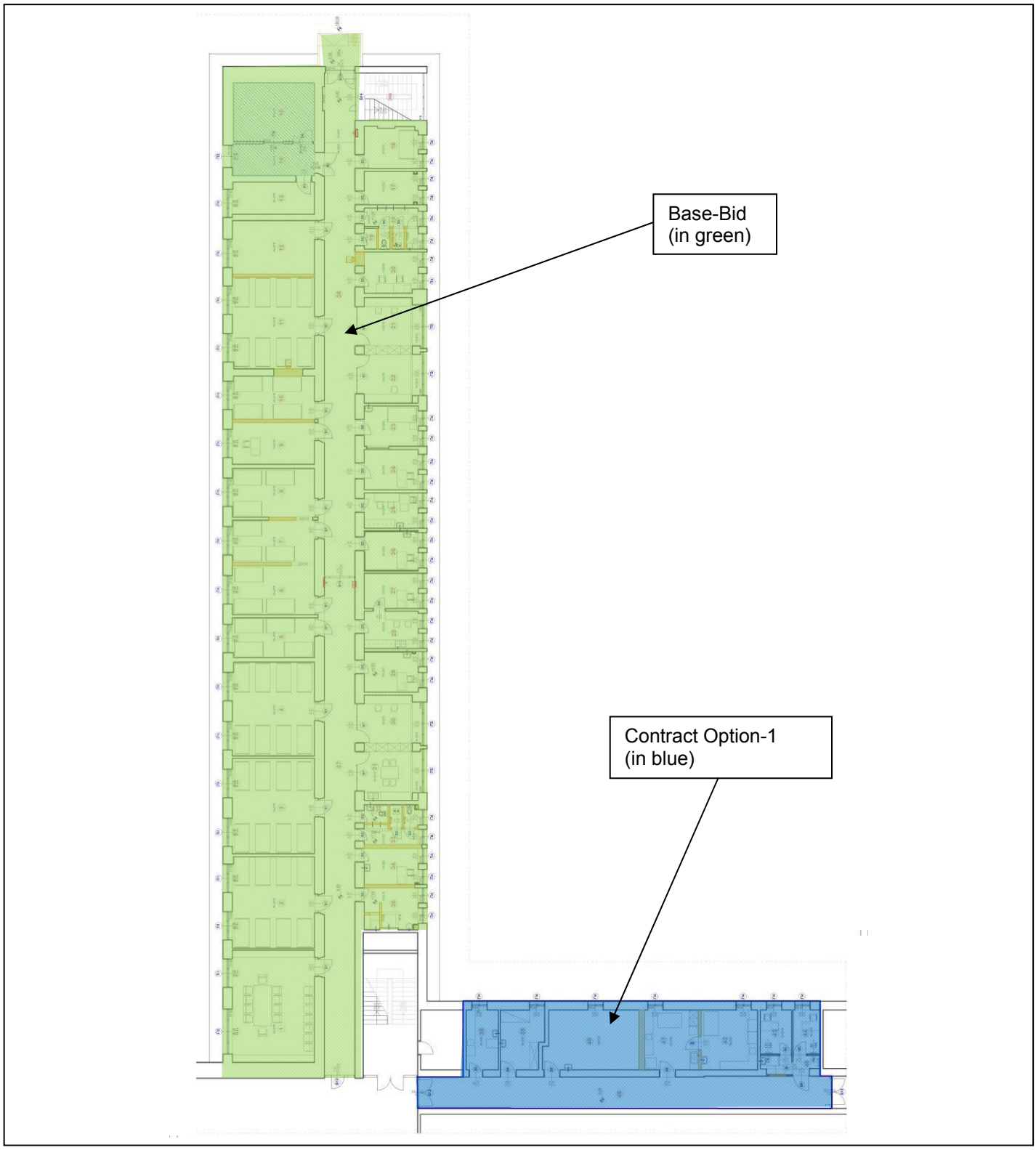
2.2. **Location of project:** The project is located in the city of Skopje





2.3. AREAS UNDER THE SCOPE OF WORK

The areas under the scope of work include a section of the ground floor of the large hospital complex, as highlighted in the drawing below:



2.4. GENERAL SCOPE OF WORK

The work included under this contract includes the necessary designs, permits, construction and approvals to renovate the areas under the scope of work of this contract, in order to bring them to latest European and Macedonian medical standards, as much as technically possible (given the existing structural conditions and layout). It is absolutely necessary that the bidders visit the construction site before they submit their bids in order to verify existing conditions.

The US Government is providing a conceptual design, which shall be used by the contractor as the basis of their design.

In summary, the contractor's work includes the following items of work:

- Prepare the necessary designs or technical projects which are necessary in order to perform the works included in the conceptual design (included as part of these contract specifications) and the additional requirements included in this document.

- Obtain the Construction Permit or Authorization from the competent Macedonian Authority, as required by Macedonian regulations.

- Move everything within the areas to be renovated to a location within the hospital complex (plot of land). Contractor shall not be responsible for security of this stored equipment.

- Separate the areas under construction (phases) from the operational areas of the hospital, by means of adequate double dust curtains. Contractor to provide negative pressure if necessary to avoid dust from entering into operational areas of the hospital.

- Performing the renovation works.

- Obtain all necessary approvals from competent Macedonian authorities certifying the renovated areas as safe for occupancy

- Moving all previously moved equipment to their new location within the renovated areas.

Note: The contractor is responsible to visit the site in order to verify the existing conditions and utility connection points, prior to the submission of their proposal.

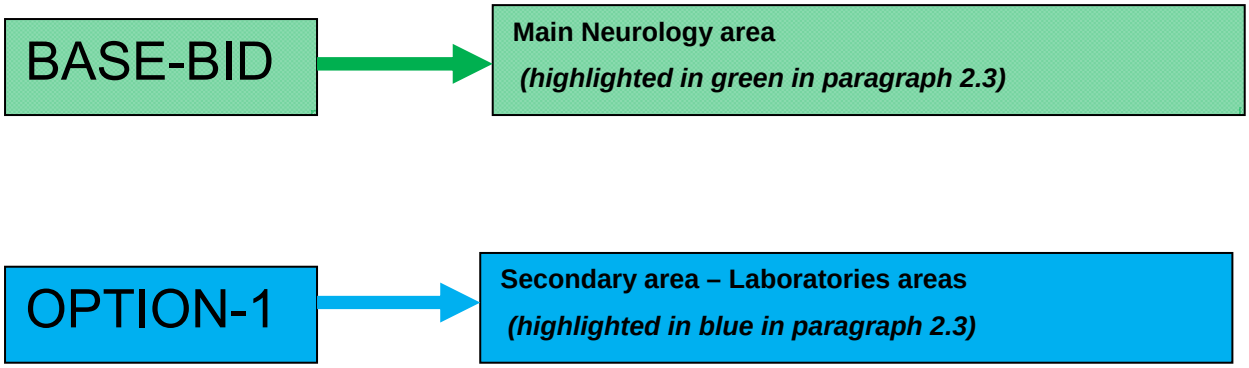
2.5. Construction Permit or Authorization

Prior to start any field works, the contractor shall obtain the permits or authorizations that may be required by Macedonian regulations.

The contractor is required, as part of this contract, to prepare all documentation, designs, projects, reports, studies, information, drawings, and everything that may be necessary as required by Macedonian regulations, in order to obtain this Construction Permit or Authorization.

2.6. Structure of the Contract

The contract includes the design and construction of the renovations described in this document. The work areas are divided into two separate areas, which correspond to the Base-Bid and a Contract Option-1 areas. These areas are clearly marked in paragraph 2.3. The Base-Bid is the minimum part of the project that will be awarded to a construction firm. The contract option will be awarded (or not) depending upon availability of funds, as well as other factors. The contractor shall provide a separate price for the Base-Bid and for the contract option, as required by the solicitation documents.



This document includes the description of work for all areas of the contract, including the Base-Bid and the Contract Option-1, without making any separation or differences between the requirements. The contractor shall analyze where the different items of work are located in order to put their cost in the Base-Bid or Contract Option-1 section.

2.7 Design-Build Concept

THIS IS A DESIGN-BUILD PROJECT

This is a design-build contract. This means that this document describes the scope of work and the requirements for the facility to be renovated as part of this contract. The contractor shall prepare all necessary design projects and documents as required per Macedonian regulations and obtain the necessary acceptance by the Contracting Officer and formal approval by the competent Macedonian authorities before they can start work. This includes obtaining the formal Construction Permit or Authorization by the competent Macedonian authorities. Once all approvals are obtained, the contractor shall execute those works included in this document, and any other that may be necessary as required by the pertinent regulations, in order to provide a perfectly finished and operational neurology department. Once the work is completed, the contractor shall obtain the necessary acceptances of the completed work by the competent Macedonian authorities.

Design-Build with a Performance Technical Specifications means that the US Government provides a general scope of work for a specific area, including some of the required finishes. This information, which included in this document, shall be used as the basis of design by the contractor. The contractor shall hire the design services of licensed professionals in Macedonia to perform the necessary designs and technical projects. The contractor should then send their completed designs:

- to the Contracting Officer for contractual acceptance
- to the beneficiary for operational/technical approval
- to the competent Macedonian authorities for technical/legal approval

All work shall be designed and built in accordance with this Request for Proposal (RFP) and in compliance with Macedonian Codes, and it shall include every item of construction necessary to provide a fully usable facility to be used as a neurology department, including the Intensive Care Unit. Design and construction shall strictly comply with applicable Macedonian construction and medical codes.

These contract Performance Technical Specifications include the minimum requirements of area to be renovated, but it shall be the licensed design professionals to perfectly describe all the necessary work for each space, as required by the pertinent applicable construction and medical regulations, and as coordinated with the beneficiary (Hospital Director). This document only includes the minimum requirements, which shall be used as the basis of design. The licensed professional shall design an energy efficient facility, as detailed throughout this document

THE CONTRACTOR SHALL PROVIDE A COPY OF CONSTRUCTION PERMITS OR AUTHORIZATION TO BE PROVIDED BY THE CORRESPONDING LOCAL AUTHORITIES BEFORE WORK CAN START. CONTRACTOR WILL COORDINATE WITH LOCAL AUTHORITIES AND WILL PROVIDE AND PROCESS ALL REQUIRED DOCUMENTATION IN ORDER TO OBTAIN THE CONSTRUCTION PERMIT OR AUTHORIZATION THAT MAY BE REQUIRED FOR THE SCOPE OF WORK INCLUDED IN THIS PROJECT. THE FORMAT IN WHICH TO SUBMIT THE DESIGN PACKAGES, COORDINATION WITH UTILITY COMPANIES, DEFINITION OF THE ASSIGNER OF THE PROJECT, DETAILS OF DRAWINGS, CERTIFICATES FOR THE DESIGNERS, SIGNATURES, AND OTHER BUREAUCRATIC PROCESSES SHALL BE AS REQUIRED BY THE MACEDONIAN AUTHORITIES WITH JURISDICTION OVER MAJOR RENOVATIONS OF MEDICAL FACILITIES IN MACEDONIA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE FAMILIAR WITH THE PROCEDURES WHICH ARE NECESSARY IN ORDER TO OBTAIN THE CONSTRUCTION PERMITS OR AUTHORIZATIONS.

2.8 DESIGN PHASE – GENERAL - LICENSES

Immediately after award, the contractor shall initiate the design phase, as outlined in this document, and as required by Macedonian regulations.

The design shall be prepared in compliance with applicable Macedonian construction codes, with Macedonian Sanitation requirements, with Macedonian Ministry of Health requirements, with standard construction practices in Macedonia, and with latest European standards for neurology medical facilities.

The contractor shall hire the architectural services of licensed professionals in Macedonian to completely renovate the areas under the scope of work of this contract.

According to Macedonian regulations, several design packages will be necessary. The contractor shall be familiar with the Administrative procedures which are necessary in order for the Municipality and/or Ministry of Health to be able to receive and accept the different documents to obtain the necessary and required Construction Permit or Authorization. The contractor's final designs shall be signed, stamped and certified by the corresponding licensed architects or engineers in Macedonia, as required by Macedonian regulations. Contractor to show proof that they have all required licenses for the works included in this contract. All design documents shall be approved by the competent authorities before construction is authorized to start. The level of detail of the design (extent of specifications, number and size of drawings, number of separate designs, calculations, …) shall be sufficient to verify the compliance with the requirements of this contract and as required by the pertinent and applicable regulations.

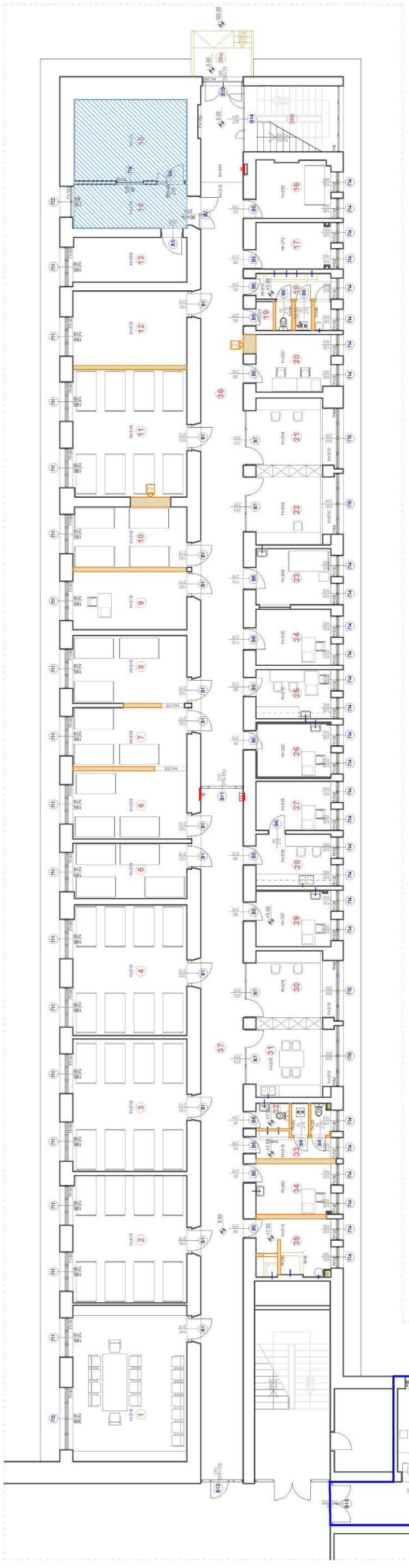
2.9 General Technical Requirements (Base-Bid and Contract Option-1)

The contract is divided into two parts: Base-Bid and Contract Option-1. Any technical requirement for the Base-Bid will be applicable for the Contract Option-1. This means that if for example the technical characteristics of the ceramic tiles are specified for the Base-Bid, these requirements shall also be applicable for any ceramic tiles to be used in the Contract Option-1 which would have the same use.

2.10 Conceptual Design

The beneficiary has prepared a conceptual design which includes the basis of design for the areas to be renovated. This conceptual design includes two drawings which represent the existing and required conditions. The contractor is required to verify their measurements and to provide the described finishes for each area. The US Government does not guarantee the accuracy of the drawings included in the conceptual design.

However, this conceptual design does not include all items of work which are necessary to provide a fully operational and usable facility, but which are part of this contract. This contract includes the complete renovation of the areas under the scope of work which are necessary to provide a fully operational facility, as required by latest Macedonian and European standards for a neurology department.



Areas not included in the renovation

Demolition of walls

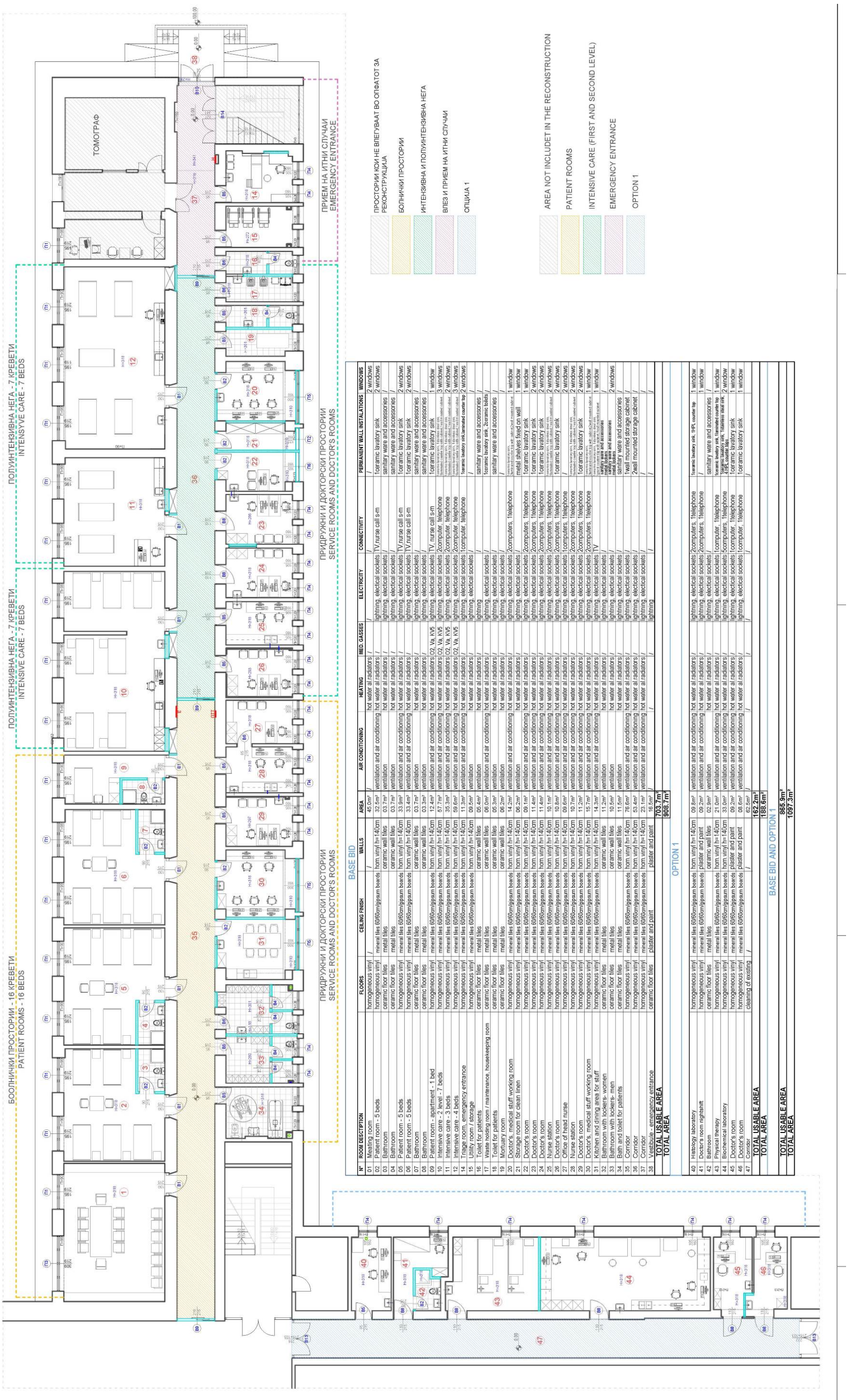
Простории кои не влегуваат во опфатот за реконструкција

РУШЕЊЕ на преграден ѕид од тула

РУШЕЊЕ на ѕид од тула за отвор од врата и прозор

N°	ROOM DESCTIPTION	AREA / m²
01	Meating room	45.0
02	Patient room - 8 beds	36.6
03	Patient room - 8 beds	38.0
04	Patient room - 8 beds	37.4
05	Patient room - 4 beds	16.1
06	Patient room - 4 beds	19.7
07	Patient room - 4 beds	17.5
08	Patient room - 4 beds	19.6
09	Doctor's room	16.8
10	Patient room - 4 beds	17.4
11	Patient room - 8 beds	36.8
12	Plasmaferesa	21.7
13	Physical therapy	13.0
14	Tomography	13.4
15	Tomography	22.4
16	Emergency room	11.4
17	Utility room / storage	09.5
18	Toilet for patients	09.4
19	Utility room / storage	01.7
20	Doctor's room	11.5
21	Doctor's, medical stuff working room	14.2
22	Doctor's room	14.3
23	Patient room - 1 beds	11.5
24	Doctor's room	11.5
25	Nurse station	10.0
26	Doctor's room	10.8
27	Office of head nurse	09.5
28	Nurse station	10.7
29	Doctor's room	11.2
30	Doctor's, medical stuff working room	14.1
31	Kitchen and dining area for stuff	14.3
32	Toilet for stuff	02.6
33	Toilet for patients	08.3
34	Doctor's room	10.3
35	Bathroom for patients	11.5
36	Corridor	76.8
36a	Vestibule - emergency entrance	07.4
36b	Stairs for evacuation	15.3
37	Corridor	76.1
	TOTAL AREA BASE BID (widouth room. n° 14 and15)	**719м2**
38	Histology laboratory	09.8
39	Doctor room (night shift room)	12.5
40	Locker room for stuff	27.0
41	Biochemical laboratory	16.0
42	Biochemical laboratory	16.4
43	Doctor's room	06.9
44	Doctor's room	06.0
45	Hall	04.9
45	Corridor	62.5
	TOTAL AREA OPTION 1	**162.5м2**
	TOTAL AREA BASE BID AND OPTION 1	**881.5м2**

Бр.	Опис на просторија	Површина / m²
01	Библиотека / Просторија за состаноци	45.0
02	Болничка просторија 8 кревети	36.6
03	Болничка просторија 8 кревети	38.0
04	Болничка просторија 8 кревети	37.4
05	Болничка просторија 4 кревети	16.1
06	Интензивна нега 3 кревети	19.7
07	Интензивна нега 3кревети	17.5
08	Интензивна нега 3 кревети	19.6
09	Докторски кабинет - Др. Арсовска	16.8
10	Болничка просторија 4 кревети	17.4
11	Болничка просторија 8 кревети	36.8
12	Просторија за плазмафереза	21.7
13	Просторија за физикална терапија	13.0
14	Контролна соба за компјутерски томограф	13.4
15	Просторија за компјутерски томограф	22.4
16	Просторија за итни инстеренции	11.4
17	Помошна простор/ остава	09.5
18	Тоалет за пациенти	09.4
19	Помошна простор/ остава	01.7
20	Докторски кабинет - Др. Бојковски, Др. Колевски	11.5
21	Лекарска - работна просторија	14.2
22	Докторски кабинет - Др. Тановски	14.3
23	Болничка просторија 1 кревет - Апартман	11.5
24	Докторски кабинет - Др. Ѓорѓиева	11.5
25	Лекарска - работна просторија	10.0
26	Докторска просторија - Др. Никодијевиќ	10.8
27	Просторија за главна сестра	09.5
28	Лекарска - работна просторија	10.7
29	Докторски кабинет - Др. Бошковска, Др. Бејаровска	11.2
30	Докторска работна просторија	14.1
31	Кујна и трпезарија	14.3
32	Тоалет за персонал	02.6
33	Тоалет за пациенти	08.3
34	Докторски кабинет Др. Банева	10.3
35	Бања	11.5
36	Ходник	76.8
36а	Трем	07.4
36б	Скалишен простор	15.3
37	Ходник	76.1
	ВКУПНА ПОВРШИНА (без пр.бр.14 и 15) ОСНОВЕН ДЕЛ	**719м2**
38	Хистолошка лабораторија	09.8
39	Просторија за дежурен доктор	12.5
40	Гардероба	27.0
41	Биохемиска лабораторија	16.0
42	Биохемиска лабораторија	16.4
43	Докторски кабинет	06.9
44	Докторски кабинет	06.0
45	Предпростор	04.9
45	Ходник	62.5
	ВКУПНА ПОВРШИНА опција 1	**162.5м2**
	ВКУПНА ПОВРШИНА основен дел и опција 1	**881.5м2**



BASE BID

N°	ROOM DESCIPTION	FLOORS	CEILING FINISH	WALLS	AREA	AIR CONDITIONING	HEATING	MED. GASSES	ELECTRICITY	CONNECTIVITY	PERMANENT WALL INSTALATIONS	WINDOWS
01	Meating room	homogeneous vinyl	/	/	45.0m²	/	hot water ai radiators	/	/	/	/	2 windows
02	Patient room - 5 beds	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	32.5m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	TV,nurse call s-m	1ceramic lavatory sink	2 windows
03	Bathroom	ceramic floor tiles	metal tiles	ceramic wall tiles	03.7m²	ventilation	hot water ai radiators	/	lightning, electical sockets	/	sanitary ware and accessories	/
04	Bathroom	ceramic floor tiles	metal tiles	ceramic wall tiles	03.7m²	ventilation	hot water ai radiators	/	lightning, electical sockets	/	sanitary ware and accessories	/
05	Patient room - 5 beds	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	33.9m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	TV,nurse call s-m	1ceramic lavatory sink	2 windows
06	Patient room - 5 beds	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	33.4m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	TV,nurse call s-m	1ceramic lavatory sink	2 windows
07	Bathroom	ceramic floor tiles	metal tiles	ceramic wall tiles	03.7m²	ventilation	hot water ai radiators	/	lightning, electical sockets	/	sanitary ware and accessories	/
08	Bathroom	ceramic floor tiles	metal tiles	ceramic wall tiles	03.3m²	ventilation	hot water ai radiators	/	lightning, electical sockets	/	sanitary ware and accessories	/
09	Patient room - apartment - 1 bed	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	12.4m²	ventilation and air conditioning	hot water ai radiators	O2, Va, KV5	lightning, electical sockets	TV, nurse call s-m	1ceramic lavatory sink	1 window
10	Intensive care - 2 level - 7 beds	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	67.7m²	ventilation and air conditioning	hot water ai radiators	O2, Va, KV5	lightning, electical sockets	2computer, telephone	1ceramic lavatory sink, 2ceramic toilets	3 windows
11	Intensive care - 3 beds	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	35.3m²	ventilation and air conditioning	hot water ai radiators	O2, Va, KV5	lightning, electical sockets	2computer, telephone	1ceramic lavatory sink	2 windows
12	Intensive care - 4 beds	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	59.6m²	ventilation and air conditioning	hot water ai radiators	O2, Va, KV5	lightning, electical sockets	2computer, telephone	1ceramic lavatory sink	3 windows
14	Triage room, emergency entrance	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	11.3m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	1computer, telephone	1ceramic lavatory sink,laminated counter top	2 windows
15	Utility room / storage	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	09.5m²	ventilation	hot water ai radiators	/	lightning, electical sockets	/	/	/
16	Toilet for patients	ceramic floor tiles	metal tiles	ceramic wall tiles	05.4m²	ventilation	hot water ai radiators	/	lightning	/	sanitary ware and accessories	/
17	Waste holding room / maintenance, housekeeping room	ceramic floor tiles	metal tiles	ceramic wall tiles	06.0m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	/	1ceramic lavatory sink, 2ceramic toilets	/
18	Toilet for patients	ceramic floor tiles	metal tiles	ceramic wall tiles	05.3m²	ventilation	hot water ai radiators	/	lightning, electical sockets	/	sanitary ware and accessories	/
19	Mortuary room	ceramic floor tiles	metal tiles	ceramic wall tiles	06.2m²	ventilation	hot water ai radiators	/	lightning, electical sockets	/	/	/
20	Doctor's, medical stuff working room	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	14.2m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	2computers, 1telephone	metal shelves fixed on wall	1 window
21	Storage room for clean linen	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	06.2m²	ventilation	hot water ai radiators	/	lightning, electical sockets	/	/	1 window
22	Doctor's room	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	09.1m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	2computers, 1telephone	1ceramic lavatory sink	1 window
23	Doctor's room	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	11.4m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	2computers, 1telephone	1ceramic lavatory sink	2 windows
24	Doctor's room	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	11.4m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	2computers, 1telephone	1ceramic lavatory sink	2 windows
25	Nurse station	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	10.1m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	2computers, 1telephone	1ceramic lavatory sink	2 windows
26	Doctor's room	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	10.8m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	2computers, 1telephone	1ceramic lavatory sink	2 windows
27	Office of head nurse	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	09.6m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	1computers, 1telephone	/	2 windows
28	Nurse station	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	10.7m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	2computers, 1telephone	1wall mounted storage cabinet	2 windows
29	Doctor's room	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	11.2m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	2computers, 1telephone	1ceramic lavatory sink	2 windows
30	Doctor's, medical stuff working room	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	15.7m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	2computers, 1telephone	/	1 window
31	Kitchen and dining area for stuff	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	14.3m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	TV	1ceramic lavatory sink	1 window
32	Bathroom with lockers- women	ceramic floor tiles	metal tiles	ceramic wall tiles	11.2m²	ventilation	hot water ai radiators	/	lightning, electical sockets	/	/	/
33	Bathroom with lockers- men	ceramic floor tiles	metal tiles	ceramic wall tiles	10.5m²	ventilation	hot water ai radiators	/	lightning, electical sockets	/	/	2 windows
34	Bath and toilet for patients	ceramic floor tiles	metal tiles	ceramic wall tiles	11.5m²	ventilation	hot water ai radiators	/	lightning, electical sockets	/	sanitary ware and accessories	/
35	Corridor	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	76.6m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	/	1wall mounted storage cabinet	/
36	Corridor	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	53.4m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	/	2wall mounted storage cabinet	/
37	Corridor	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	23.1m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	/	/	/
38	Vestibule - emergency entrance	ceramic floor tiles	plaster and paint	plaster and paint	16.5m²	/	/	/	lightning	/	/	/
	TOTAL USABLE AREA				**703.7m²**							
	TOTAL AREA				**908.7m²**							

OPTION 1

N°	ROOM DESCIPTION	FLOORS	CEILING FINISH	WALLS	AREA	AIR CONDITIONING	HEATING	MED. GASSES	ELECTRICITY	CONNECTIVITY	PERMANENT WALL INSTALATIONS	WINDOWS
40	Histology laboratory	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	09.8m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	2computers, 1telephone	1ceramic lavatory sink, 1HPL counter top	1 window
41	Doctor's room nightshift	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	plaster and paint	09.2m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	2computers, 1telephone	/	1 window
42	Bathroom	ceramic floor tiles	metal tiles	ceramic wall tiles	02.9m²	ventilation	hot water ai radiators	/	lightning, electical sockets	/	sanitary ware and accessories	/
43	Physical therapy	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	21.0m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	1computer, 1telephone	1ceramic lavatory sink, 1laminated counter top	1 window
44	Biochemical laboratory	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	horn vinyl h=140cm	33.0m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	5computers, 1telephone	1ceramic lavatory sink, 1laminated counter top, 4 HPL counter tops	2 windows
45	Doctor's room	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	plaster and paint	09.2m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	1computer, 1telephone	1ceramic lavatory sink	1 window
46	Doctor's room	homogeneous vinyl	mineral tiles 60/60cm/gipsam boards	plaster and paint	08.6m²	ventilation and air conditioning	hot water ai radiators	/	lightning, electical sockets	1computer, 1telephone	1ceramic lavatory sink	1 window
47	Corridor	cleaning of existing	/	/	62.5m²	/	/	/	/	/	/	
	TOTAL USABLE AREA				**162.2m²**							
	TOTAL AREA				**188.6m²**							

BASE BID AND OPTION 1

TOTAL USABLE AREA	**865.9m²**
TOTAL AREA	**1097.3m²**

3 TECHNICAL INFORMATION

The conceptual design includes some general technical information. This paragraph includes some of the required technical features of the required work, for both the Base-Bid and the Contract Option-1.

The information contained in this paragraph takes precedence over the information contained in the conceptual design. In case of conflict between the requirements of the Macedonian regulations and the requirements of this paragraph and the conceptual design, the requirements of the Macedonian regulations shall take precedence over any other requirement.

3.1 FLOOR FINISHES

All floor surfaces shall be provided with the same surface elevation and without any obstructions for the free movement of wheelchairs, stretchers and other medical equipment with small wheels, such as the movable IV stands. This will require removing the existing floor surfaces prior to the installation of the new required floor surfaces.

There are two different types of floor finishes, depending on the use of each room. The required finish for each area is described in the conceptual design.

Movable IV stand

3.1.1 HOMOGENEOUS VINYL (2 mm)

Provide 2 mm thickness heavy traffic homogeneous linoleum/vinyl where indicated that floor shall be homogeneous vinyl, provided with combination of two colors in each room. Flooring material to be installed by specialized experienced workers, over self-leveling grout to be perfectly leveled, and to be accepted by manufacturer representative.

All colors and models of flooring to be selected by the Hospital Director among ample selection provided by the contractor.

The surfaces to which apply the homogeneous linoleum shall be perfectly leveled, and provided with high quality solid homogeneous linoleum (2 mm thickness of wear thickness). Linoleum material shall have the minimum technical characteristics listed below:

- Officially rated in manufacturer’s catalog as certified for use in medical and laboratory facilities.
- Description (EN 649): Homogeneous single layered vinyl flooring
- Reaction to fire: Bfl-s1
- Electrical behavior - body voltage (EN 1815) – kV: < 2
- Thermal resistance (EN 12667) - m² K/W: Approx. 0.01
- Thermal conductivity: Approx. 0.01

- Bacteria resistance (EN ISO 846 Part C): Does not favor growth
- Total thickness (EN 428): 2 mm
- Wear layer thickness (EN 429): 2 mm
- Total weight (EN 430): >2.95
- Abrasion group - volume loss (EN 660 – 2) – Group: T
- Abrasion group - volume loss (EN 660 – 2) – mm3: ≤ 2.0
- Classification - industrial (EN 685) – Class: 43

Install following manufacturer's instructions for a perfectly leveled finished surface. Installed over self leveling layer, using welded joints, and installed over the lower portion of the walls, as indicated in the model shown in picture#11. The material used for the floor shall be extended up to 10 cm along the walls, without any joints separating the floor and the wall portions. Linoleum shall be provided in rolls and not in tiles.

Definition of homogeneous linoleum: The linoleum or single layered vinyl flooring shall have a minimum thickness of the wear layer of 2 millimeters and a total thickness of 2 millimeters. This means that all the material of the linoleum flooring is wear layer. A linoleum flooring with less than 2 millimeters of wear surface and made up of several layers is not acceptable.

Typical required floor from hospital in Russia

Only homogeneous vinyl flooring is authorized. Heterogeneous surfaces are not authorized.

Typical surface of the required homogeneous linoleum

Typical required floor with combination of colors, from hospital in Romania

3.1.2 CERAMIC FLOOR TILES (Grès Porcelain – min 40x40cm)

Provide homogeneous grès porcelain stoneware tiles where indicated in the conceptual design as “ceramic floor tiles”. Include matching wall base board from the same model as the tiles.

Grès Porcelain stoneware is a ceramic with a compact, hard, colored and non-porous body. The word “grès” means that the ceramic body of the tile is extremely vitrified, that is to say compact, hence the exceptional great resistance. The result is a lean clay body, little refractory, fired in a kiln (at 1200-1400 C°) until it reaches a non-porous vitrification and a complete water-proofing.

Porcelain floor tiles are made by materials featuring the lowest water absorption levels. This feature (that is also one of the two parameters on which the EN ISO standards classification is based) also results in the highest level of bending strength, that is to say, the maximum tension that the material, subject to an increasing bending action, can bear before breaking.

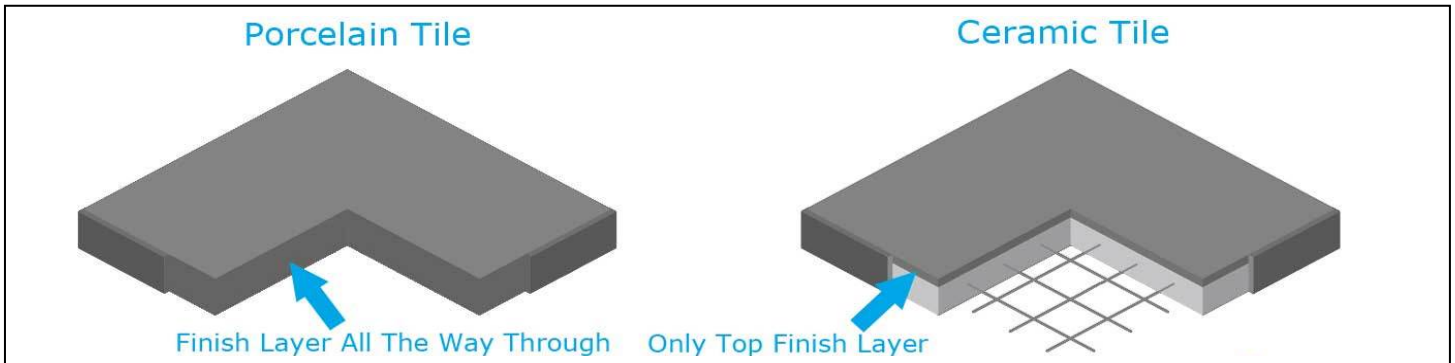
Amongst the most significant features of grès porcelain stoneware there is also the high abrasion resistance, which means the resistance of the surface against the action related to the movement of bodies, surface or materials in contact with it.

- Impact strength and stress resistance
- Wear resistance
- Scratching resistance
- Resistance to frost
- Resistance to chemicals
- Stain resistance

The new porcelain grès tiles shall be high quality, provided with the following technical features:

- Water Absorption: Tested by ISO 10545 - 3 ≤ 0,5%
- Deep abrasion resistance: Tested by ISO 10545 – 6: Max 175 mm3
- Frost resistance: Tested by ISO 10545 – 12: Tiles must not produce noticeable alteration to surface
- Chemical resistance: Tested by ISO 10545 – 13: Tiles must not produce noticeable signs of chemical attack
- Friction coefficient (slipperiness): Tested by ASTM C 1028 ≥ 0,60
- Size: Minimum 40x40 cm

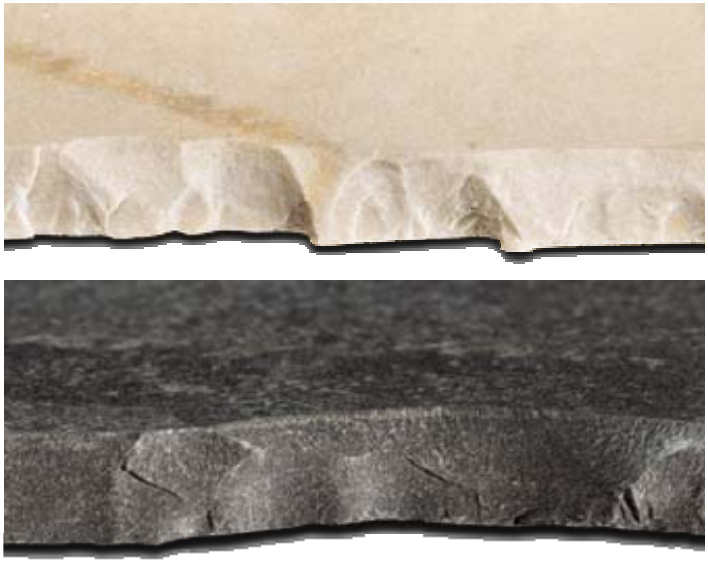
All floors shall be perfectly leveled at the same elevation. In rooms with floor drains, all floors shall be sloped towards the new floor drain to be provided as part of this contract. Tile installation shall be done following manufacturer’s instructions and recommendations.



Homogeneous characteristic of the porcelain stoneware in comparison with standard ceramic tile (not acceptable in this project)

Typical large format porcelain grès tiles in large format.

Typical porcelain grès flooring



Cutting homogeneous porcelain stoneware tiles

Typical porcelain grès tiles in combination of two colors

Typical grès base boards. Use same model as for the floor tiles

3.2 CEILING/PIPING REPAIRS

Prior to the beginning of the ceiling works (and one of the first activities to be performed), the contractor shall repair all sewer/drainage piping coming from the floors above. This will imply repairing bathrooms and other plumbing fixtures on the floor above the areas to be renovated.

It is imperative that the contractor inspects the areas to be renovated in the floor above the neurology clinic in order to be able to quantify the amount of work that will be required in order to provide the necessary warranty to cover any water infiltration into the renovated areas.

Before installing the new suspended ceiling, all existing ceiling surfaces shall be properly repaired and painted with antifungal and antibacterial paint.

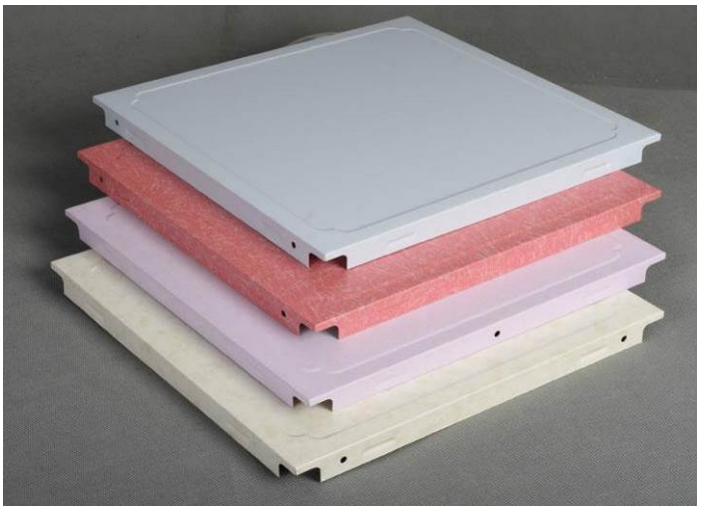
All surfaces covered by the new suspended ceiling described in the next paragraph shall be properly cleaned, repaired, leveled, and covered with special paint.

Typical pipes to be replaced (described in a separate paragraph). But all ceiling surfaces to be properly repaired prior to covering them with new suspended ceiling.

3.3 CEILING FINISHES

The conceptual design includes two different types of ceiling surfaces: suspended ceiling with metal tiles or with mineral tiles. Both ceiling finishes shall be provided with surfaces rated for medical use.

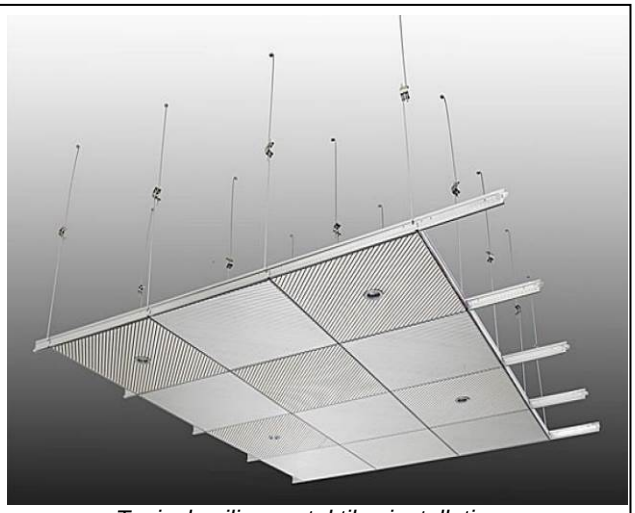
The ceiling tiles shall be provided as high as technically possible, but allowing all utilities including the ventilation and air conditioning ducts to be installed above the suspended ceiling.



Typical ceiling metal tiles

Typical ceiling metal tiles

Typical ceiling finishes



Typical ceiling metal tiles installation

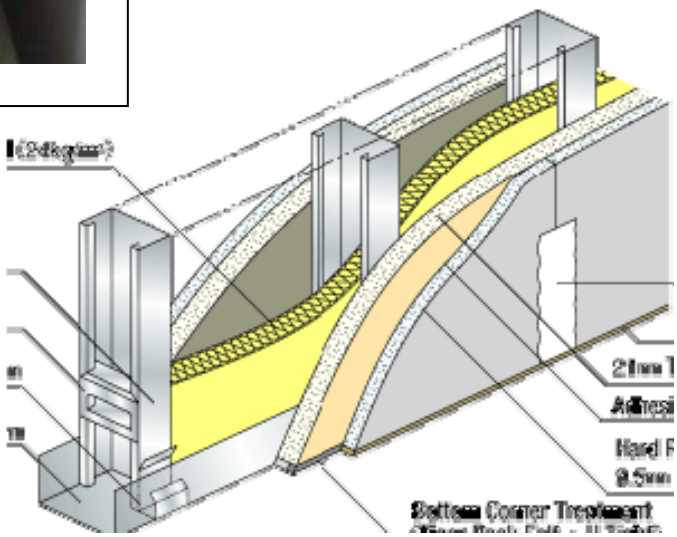
3.4 NEW PARTITIONS

The new layout of the areas to be renovated requires providing new partitions. This also applies to the wooden and metal partitions, which shall all be removed and substituted as part of this contract by proper partition walls.

New partition walls required by new layout shall be made of thin masonry wall or double-double gypsum, not wider than 20 cm. Cover all surfaces with the corresponding finishes as required by the conceptual design. Once completed, there shall be no difference between the existing walls and the new partitions.

In case the contractor chooses to use gypsum board walls (recommended), the contractor shall use double-double gypsum as shown in one of the pictures in the following pages, filled with noise insulation. The use of simple gypsum board wall is not authorized.

Potential double double gypsum board wall construction



Definition of double double gypsum board wall construction

3.5 WALL FINISHES

The conceptual design includes three different types of wall finishes: vinyl up to 1.4 meters and plaster and paint up to the new ceiling surface, complete ceramic tiles or plaster and paint.

Prior to providing the new wall finished surfaces, the contractor shall completely remove everything from the walls, including the existing ceramic tiles, in order to provide a perfectly leveled surface. The contractor shall completely remove all wooden and metal partitions within the areas to be renovated, and replace them with new masonry partitions in order to provide the new required layout required by the conceptual design. Covering the existing walls with gypsum boards is not authorized. The contractor shall level the walls using approved mortar covering.

Colors shall be selected by the Hospital Director. All corners shall be protected against impacts with stainless steel corner guards or other approved material.

Hallways: Along the hallways, provide standard PVC or stainless steel protection and railing as the ones shown in the pictures included in this paragraph.

All finished walls shall be perfectly leveled. It is estimated that existing walls shall be provided with new plaster in order to provide a perfectly leveled surface.

3.5.1 HOMOGENEOUS VINYL (min 1.3 mm)

Provide homogeneous wall covering up to 1.4 meters form the floor surface where indicated in the conceptual design.

Provide homogeneous vinyl product specifically rated for use in medical facilities. Material shall be impervious surface with PU-Shield, hygienic and watertight, manufactured from watertight and extremely hardwearing high-quality vinyl. The homogeneous construction makes it durable against mechanical damage and allows easy repair. Rated by manufacturer for use in healthcare environments.

Product shallhave the following minimum characteristics:

- Light fastness (EN ISO 105-B02) – Level ≥ 6
- Reaction to fire: Bs2-d0
- Reaction to fire: 1
- Clean room test: A
- Bacteria resistance (EN ISO 846 Part C): Does not favour growth
- Thickness: 1.3 mm to 2 mm

Install the vinyl material from 10 cm where the floor material finishes in the bottom of the walls, up to 1.40 m, and the rest of the wall surface shall be finished with plaster and paint. Paint shall be rated for medical facilities and shall be antibacterial and antifungal.

3.5.2 CERAMIC WALL TILES (floor to ceiling – large format)

Provide large format ceramic wall tiles. Minimum size authorized shall be 30x60, 45x90 or other standard size with as a minimum 0.18 m² per tile.

Provide non-glazed ceramic wall tiles with water resistant joints, glued onto the surface of the wall. Provide with metal corner guards embedded in the wall tiles. Provide combination of 3 colors and patterns, to be selected by beneficiary among ample selection to be provided by the contractor.

Provide class I (best quality) tiles, suitable for use in hospitals, thickness according to ISO10545-2

Typical wall tile installation with metal corner protection

Typical installation of homogeneous vinyl layer on lowest portion of the walls. In our project this layer shall be extended up to 1.4 meters from the finished floor surface. The use of transition plastic piece from floor to wall is not authorized.

Typical ceramic tiles for hospitals

Typical metal corner protection for all tiled corners.

Typical required handrail for hallways.

Typical required handrail for hallways.

Typical required handrail for all hallways.

3.6 ELECTRICAL

The electrical installation of the areas to be renovated shall be 100% new. The complete existing electrical installation shall be removed. The contractor shall hire the services of an electrical engineer license in Macedonia to prepare the full technical project required to perform the works included in this contract.

The new electrical installation shall comply with Macedonian and European standards. In addition to all other applicable electrical requirements, all electrical equipment incorporated to the project shall be CE certified (provided with the European Community stamp).

3.6.1 Power Supply

The works include providing new feeders/circuits from the main electrical panel of the hospital building. The number of electrical circuits shall be determined by the electrical engineer to be hired by the contractor to prepare the full electrical project of the areas to be renovated.

The point (or points) of connection shall be determined by the contractor's designer with the requirement that 100% of the electrical installation shall comply with European standards. This means that if the hospital installation does not comply with the electrical standards, the contractor shall connect immediately after the electric meter. It is necessary that the contractor visits the job site prior to submission of their offers to see the exact location of the point (or points) of connection, which may need to be connected in the main electric panel of the hospital, at a great distance from the areas under renovation. For estimating purposes, the contractor shall estimate that all electrical loads shall be connected from the electric meter.

All feeders/circuits to connect the renovated areas with the point (or points) of connection shall be installed above the existing suspended ceilings or along the walls, covering the cables with certified PVC cable channels.

At the point (or points) of connection, the contractor shall provide adequate electrical protection to protect the feeder/circuit cable.

The size of the feeder/circuit or feeders shall be determined by the contractor's designer in compliance with the maximum allowable voltage drop and current capacity of the conductor, as a function of the estimated loads of the renovated areas, and other areas connected from this renovated areas.

3.6.2 Areas electrically connected from areas to be renovated

Some areas not currently under the scope of work are electrically connected with the areas to be renovated. Once this project is completed, all areas of the hospital currently with electric power shall remain with electric power. For that reason, if one room or area outside the areas to be renovated under this project, is electrically connected with an electric panel to be replaced as part of this project, the contractor shall connect it to the new electric panel, to be provided with the new required electrical protection for that particular circuit providing power supply to an area outside the areas to be renovated as part of this contract.

3.6.3 Electric Installations within areas to be renovated – General requirements

All electrical installations within the areas to be renovated shall be recessed within the walls or installed over the suspended ceiling in approved cable trays, so that the electrical installation is not visible. Direct burial of the cables on the plaster without conduits is not authorized.

All electric installations shall be recessed. This includes the electric panels, cables (under conduit), junction boxes or any other electric installation. No cables shall be visible. This includes the power supply to the hand driers or to the electric water heaters, and to all other equipment to be provided as part of this contract.

Some additional general requirements would include:

- Electrical protection: All circuits shall be protected against short circuits and against indirect contacts with differential protection of maximum allowed current 30 mA.

- Wide body electrical mechanisms (switches, wall receptacles,…)

- Provide the necessary special appliances as required by Macedonian regulations, such as emergency lights, exit signs with batteries, percentage of ceiling lighting fixtures with batteries, etc.

- Receptacles: The number of receptacles shall be determined by the contractor's designer, but as a minimum it shall include an average of 4 receptacles for each room which in the conceptual design requires "Electrical sockets". In the 3 rooms for the Intensive Care, a minimum of a total of 35 wall receptacles are required, connected with the new UPS.

3.6.4 Lighting

All lighting shall be provided with the use of LED Technology lighting fixtures, providing the minimum illumination levels required by the European or Macedonian regulations, depending on the use of each particular room.

The contractor shall prepare a full illumination design for the areas to be renovated. The design shall include the illumination calculations to determine the number, size and location of each lighting fixture.

The contractor shall provide ceiling mounted recessed LED technology lighting fixtures.

LED technology lighting. This system is more expensive than other lighting technologies. The contractor shall include LED lighting in their project. LED lighting is required in all locations. Minimum power for each individual lighting fixture shall be 10 watts. Lighting fixtures shall be recessed. All lighting fixtures shall be rated and certified to be used in medical facilities. The contractor shall use the services of a manufacturer or authorized supplier of LED lighting fixtures to design the type, quantity and location of the lighting fixtures in order to provide the lighting levels required by the strictest of Macedonian and European regulations.

Lighting fixtures to be rated for the atmosphere in which they will be installed. For example, the lighting fixtures in the shower compartments shall be rated against water blasting with its corresponding IP protection.

3.6.5 UV Lighting Fixtures

Provide a total of 15 large format UV lighting fixtures, at the location to be indicated by the Hospital Director. UV lighting fixtures to be similar (but not the same) as the one described in the picture included in this paragraph. UV lighting fixture to be hard wired (with cable not visible).

3.6.6 Emergency Power (UPS – Medical Grade)

Despite the electrical power supply that the hospital has, the Intensive Care Unit (rooms 10, 11 and 12) shall be provided with Uninterrupted Power Supply for lighting and the electrical receptacles, using medical grade UPS equipment.

The contractor's designer shall size the UPS to maintain the maximum estimated electric load for a minimum of 12 hours.

The contractor's designer shall coordinate with the Hospital Director the typical estimated electric loads of a typical neurology Intensive Care Unit with the capacity of the ICU in this project.

Typical medical grade UPS with different capacities

3.6.7 Hand driers (Low Noise)

Each bathroom shall be provided with a silent or quite type electric hand drier, to be hard wired to the wall (cables not visible). Total estimated of 10 electric hand driers.

Provide silent or quite or Low Noise automatic hand driers. Maximum authorized 56 dB(A) certified by the manufacturer. Hand dryer manufacturer's measure sound levels in terms of decibels dB(A) @ a 1 meter distance in a sound proof chamber. This does not take into account the increase in noise when hands are positioned under/in the dryer or when the sound bounces off walls.

3.6.8 Electric Water Heaters

Provide the necessary, but not more than 5 units, to provide hot water to all bathrooms. The use of an individual electric water heater per bathroom is not authorized.

3.6.9 Other electrical installations and equipment

The contractor's designer shall include all required electrical connections for all electrical equipment to be incorporated by this contract, as well as for other electrical equipment to be installed by the beneficiary after completion of our contract.

Other electrical loads and equipment included in this contract, but include, but would not be limited to electric loads such as:

- Exterior LED lighting floodlight of minimum 20 Watts with photocell and manual control.
- Electrical doors
- Exit signs
- Fire panel
- Nurse annunciator system
- Air conditioning equipment (interior and exterior), ceiling clocks, automatic doors, …

Typical required electrical panel to be recessed on the walls

Potential LED lighting fixture in the suspended ceiling

All electrical mechanisms to be recessed in the new walls. Provide wide switches as shown.

Required LED lighting fixtures in the acoustical suspended ceiling.

Typical lighting fixtures recessed on suspended ceiling

Typical internal distribution electric panel

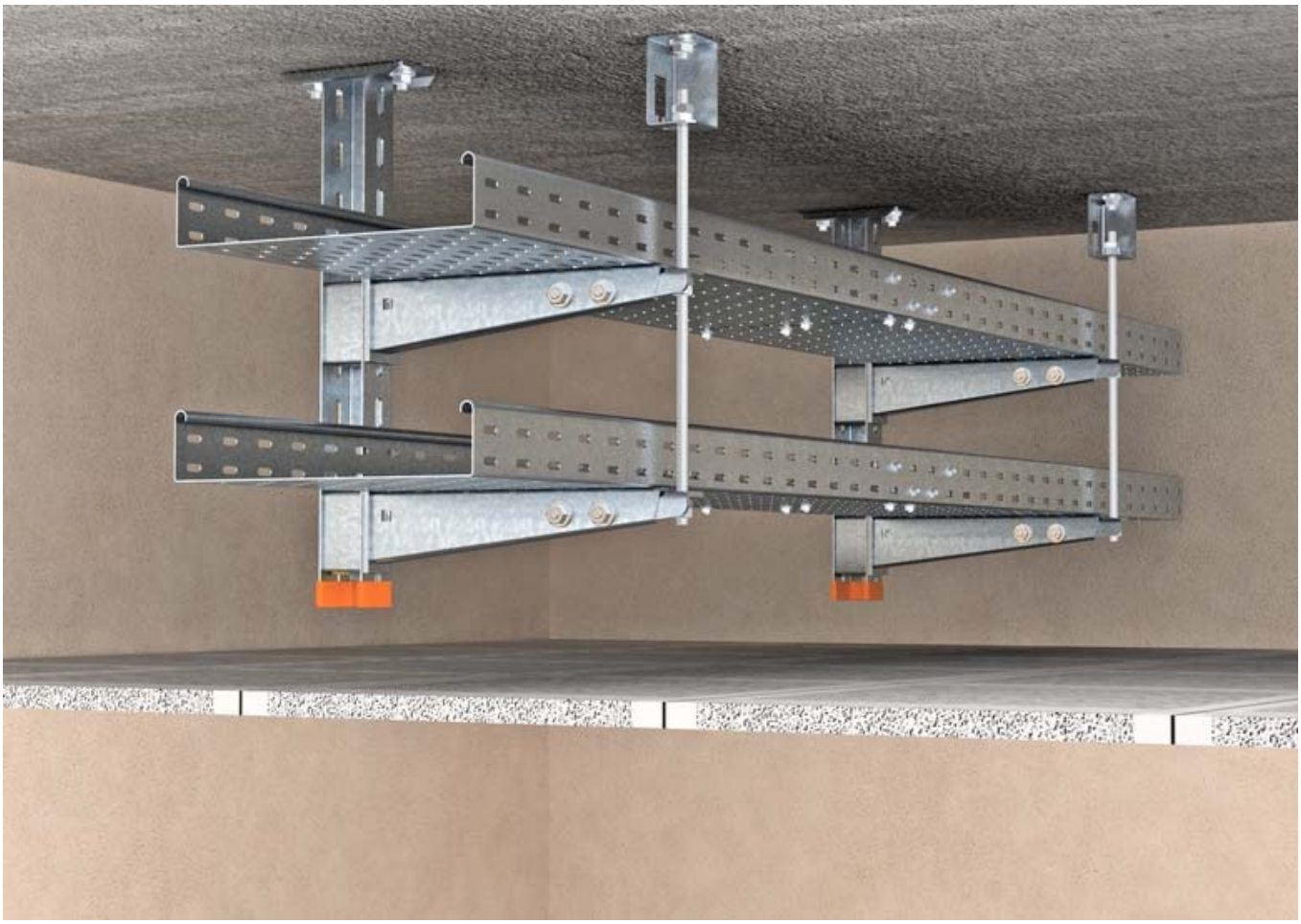
Typical hallway.

Table 1: General lighting schedule; internal lighting

Area unit or department	Service illuminance Em/lux	Max. point illuminance/ lux (not to be exceeded)
Common areas (see section 3):		
changing room	100-150	N/A
chapel	100-150	N/A
classroom	300	520
consulting room (general)	300	520
core room	300	520
day room	200	350
disposal (clinical, domestic waste)	200	350
doctor's office	500	850
domestic services room	100	170
drug store (ITU/HDO)	500	850
general office	300	520
seminar room	100-150	N/A
seminar room	300	520
staff change	100	170
staff rest room	50/200	N/A
utility room (clean)	150	260
utility room (dirty)	200	350

Typical illumination levels

Typical hospital rated UV lighting fixture



Typical cable tray in case the contractor wants to use the space above the suspended ceiling for the internal electrical distribution

Typical Cable channel to bring power from main electric panels/meter

Typical Cable channel to bring power from main electric panels/meter

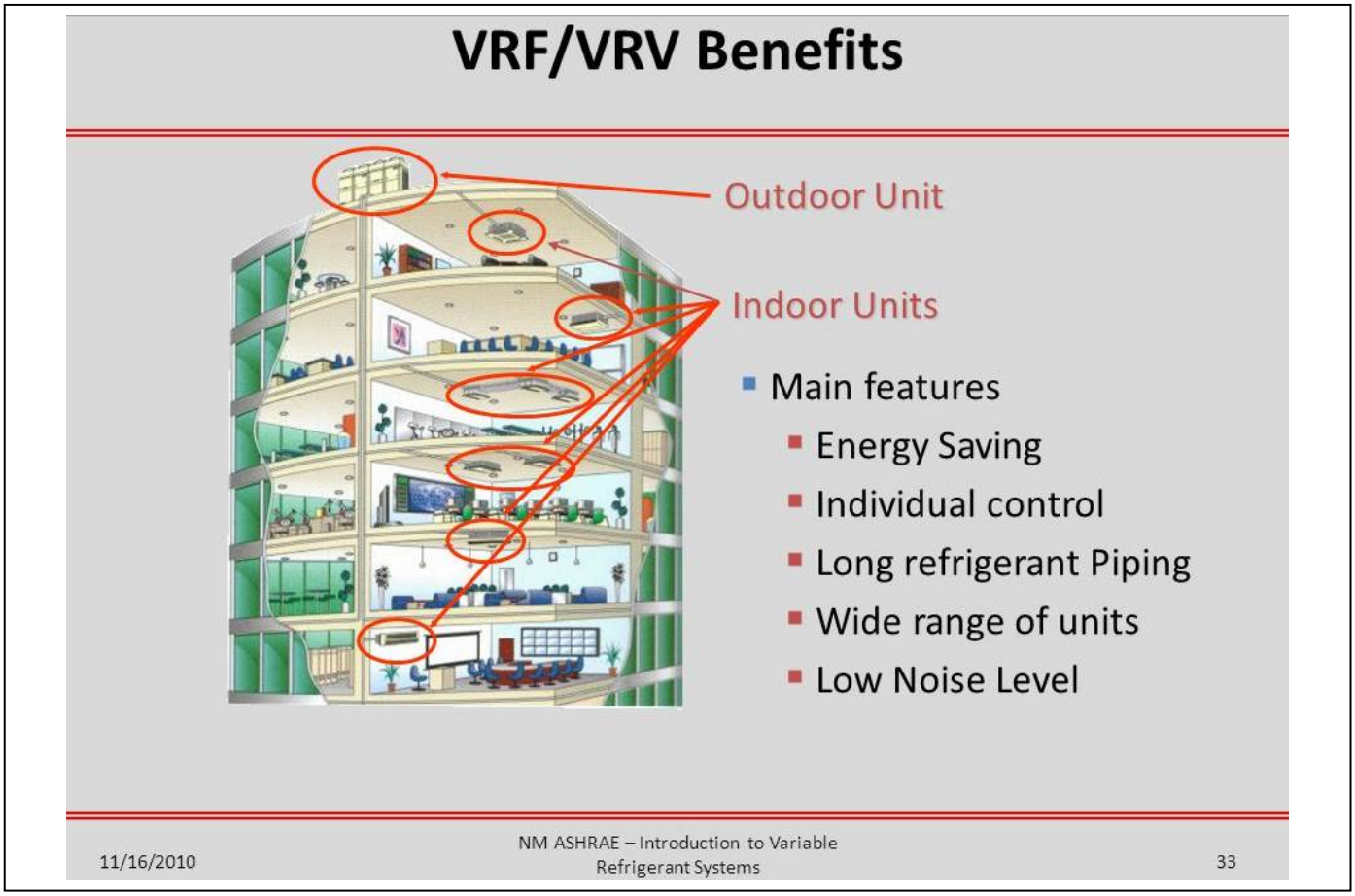
3.7 AIR CONDITIONING

The contractor shall provide air conditioning to the rooms indicated in the conceptual design. In order to design the new air conditioning system, the contractor shall use this simple basis of design:

- Maximum of 3 exterior units as follows:
  - One for the Intensive Care Unit rooms 10, 11 and 12
  - One for the rest of the areas requiring air conditioning in the Base Bid areas
  - One for the Contract Option-1 areas requiring air conditioning
- Technology: **Variable Refrigerant Volume (VRV) Heat Pump**
- Ducted internal air distribution as needed

Specifically and exclusively for the air conditioning design for the Intensive Care Unit:

- With Humidity Control
- With adjustable exterior air control, but capable of functioning with 100% exterior air input.



3.8 VENTILATION

The contractor shall provide adequate ventilation for all areas under the scope of work of the contract, as required by Macedonian and European regulations for neurology departments within hospitals.

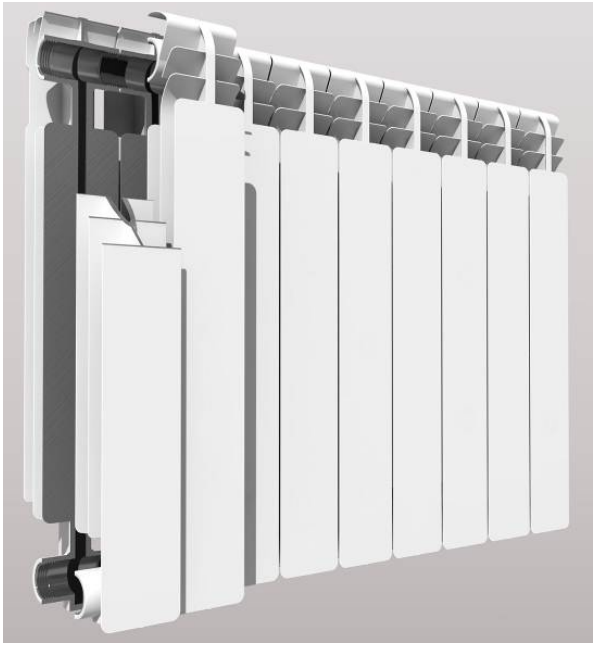
The contractor shall hire the services of a professional licensed in Macedonia to design a complete ventilation system, in coordination with the radiator heating (to be described in the next paragraph) and with the heating and cooling to be provided by the VRV system (described in the previous paragraph).

All rooms shall have adequate ventilation, with the number of air exchanges per hour required by Macedonian and/or European regulations. This is a general requirement, which shall be very strict for those bathrooms without exterior windows.

The bathrooms without exterior windows shall be provided with forced air exhaust to the exterior of the building, without possibility of spreading the extracted air to other internal areas of the hospital. The forced ventilation system shall allow for a minimum of one air exchange every 2 minutes. The doors shall be provide with louvers or other mean of allowing the air flow.

3.9 HEATING

The contractor shall replace all radiators and heating piping from the areas to be renovated as part of this project. Once completed, all heating piping within the renovated areas shall be properly insulated and recessed within the new wall surfaces or above the suspended ceiling. Once the project is completed, the heating pipes shall not be visible, but the point of connection between the existing and the new pipes shall be perfectly accessible or visible, to allow for continuous inspection and repairs.



Definition of bimetal type radiator

The hospital possesses a central heating unit as their main source of heating during the winter. This contract includes replacing all heating radiators with new aluminum bimetal type radiators to be wall mounted (without any contact with the floor).

Provide each individual radiator with its own regulating valve. Recess all heating piping within the walls to the maximum extent technically possible, but any point of connection between new and old pipe shall remain visible.

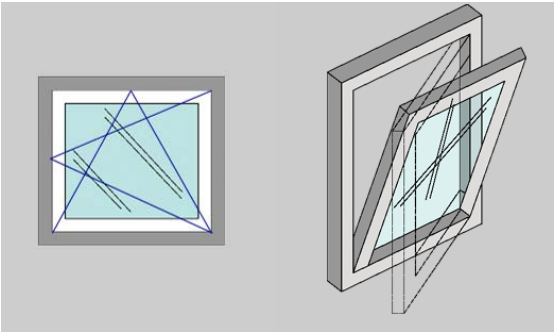
All new heating pipes shall be provided with high thermal insulation using cellular neoprene material. Heating is to be provided through the radiators, and minimum thermal loss through the heating pipes.

The contract includes connecting the new radiators to the existing central heating system. The contractor is therefore responsible to remove the air in the heating pipes and performing any required commissioning to the central heating system which could have been affected by the contractor's work.

Definition of bimetal type radiator, without exposed heating pipes and with individual regulating valve, as required by our contract

Neoprene heating pipe insulation to be provided in all heating pipes in the areas to be renovated.

3.10 WINDOWS



Window leaf opening horizontally and vertically

The contract includes the complete replacement of all exterior windows with new triple glazing aluminum windows.

The windows shall comply with Macedonian and European regulations for medical facilities such as the neurology department under the scope of work.

Minimum requirement for the windows is aluminum profiles of 8 cm width, with thermal bridge, and triple glazing using 6-?-4-?-6 mm, unless the latest Macedonian regulations for medical facilities require heavier or wider profiles.

The contractor shall make the required adjustments and repairs to the window opening on the walls before installing the new windows. The contractor is responsible to visit the site, to take note of the existing conditions of the window openings and adjacent walls and to make all required measurements to quantify the amount of work required by this contract.

Exterior Windows - General

The contractor shall completely remove all the windows in the area under the scope of work of this contract, including all framing, trims, anchors and supports. This includes windows of several sizes that the contractor will have to quantify and measure prior to submitting their bid. The contractor shall replace these windows with new heavy duty aluminum framed windows with triple glazing as previously specified.

The new windows shall operate similar as the existing ones. In other words: if a window has 2 operational panels, the new windows shall have two operational panels of approximately similar dimensions, but the opening panels/leaves of the windows shall open vertically and horizontally. For estimating purposes, the contractor shall estimate that 50% of the window surfaces shall be operational.

The new aluminum windows shall be perfectly finished inside and outside. The joints between the building and the windows shall be perfectly sealed as seen in pictures below for a typical installation (typical yellow foam cannot be seen). Contractor to provide PVC sill inside as seen in the pictures below and outside sills made of aluminum or other approved material (i.e. natural marble or exterior rated special ceramic tiles).

Contractor is responsible to restore the adjacent exterior wall surfaces to their original condition. The contractor shall repair, patch and paint as necessary in order to restore everything to the original conditions.

The operation of the new windows shall be similar to the existing windows, but the operational panels/leaves of the new windows shall open both horizontally and vertically.

Provide aluminum insect screens in the exterior of all operational panels of 50% of the new windows. Window to receive an inspect screen is to be determined by the Hopsital Director. The insect screens shall be removable and shall be provided by the manufacturer providing the new windows required by this project.

The glazing of 8 windows shall be non-transparent. Actual windows to be provided with a non-transparent glazing shall be determined by the Hospital Director.

Typical required external sill for all windows

Typical internal sill required for all windows to be replaced. This includes the removal of the existing sills.

Installation

The contractor shall completely remove the existing wood and/or metal materials from the window openings on the walls. Some of the existing windows may be double windows, therefore in this case the contractor shall repair and prepare the openings in the walls to install one single window with double glazing.

It is anticipated that during removal of the existing windows, the contractor will damage the adjacent walls, especially during the removal of the internal window sills. The contractor shall properly install the new internal PVC window sills and repair the wall surfaces so that there is no difference between the existing and the repaired walls.

The new required exterior window sills shall be properly sloped away from the building in order to drain the rain water away from the building. Minimum 5% slope. The lower window frames/profiles shall be properly provided with water drains.

Typical exterior PVC window installation

Typical PVC window installation. Seal all areas around the new windows. Foam not exposed.

Typical PVC window installation with new PVC sill inside and aluminum outside.

Typical PVC window installation. PVC sill inside and aluminum outside.

THESE PICTURES ARE NOT FROM STARYCHI SCHOOL

Window Blinds

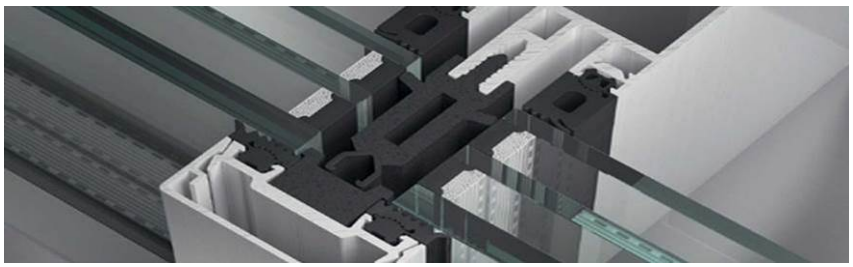
Provide internal window blinds for 50% of the exterior window. Window blinds shall be vertical panel type, manually adjustable, as the ones shown in the pictures below. Window blinds to be rated to be used in medical facilities.

Coordinate color, model and where to install with Director of Hospital.

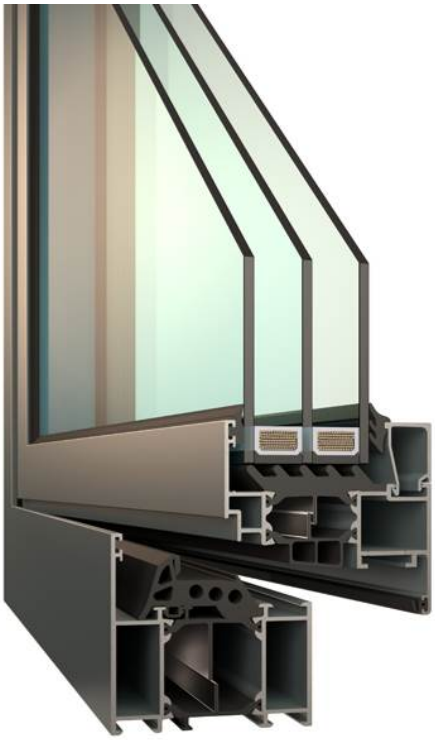
Typical window blind

Typical window blind

Definition and description of break in thermal bridge (note that our contract requires triple glazing and not double as in the picture above)



Definition of triple glazing



Typical window profile with triple glazing, as required by this contract.

3.11 EXTERIOR DOOR

The contract includes the replaced of the main entrance door. This door shall be:

- Heavy duty,
- Thermally insulated,
- With triple glazing (similar to the ones in the windows but provided with 8-?-4-?-8 mm glazing.
- Protected against impacts
- With the required fire barrier required by the regulations
- With the required anti-panic hardware.
- With required locks, including hydraulic closer.

Example of acceptable design for the double required main entrance door

The exterior doors shall be thermally insulated heavy-duty aluminum doors with glazing in the upper half. The doors shall be double leaves, so that it can open for the entire width of the door opening.

Additionally provide the doors with:

- European standard aluminum profiles with break in the thermal bridge, and must have three rubber dust protection seals.

- Exposed glazing in the upper half to be minimum thickness of 8 millimeters thick for safety reasons. This is the thickness of each external glazing panel. The internal can be thinner.

- With required locks and anti-panic hardware, all made of stainless steel.

- Provided with door closers and door stops to avoid damages by users.

- Heavy duty construction. Aluminum profiles shall be minimum 8 cm wide and minimum of 1.4 kg/m

Typical Anti-panic hardware

3.12 INTERNAL DOORS (Medical certified)

The contract includes the replacement of all doors within the renovated areas. This includes the doors of the rooms which are currently not under the scope of work, but connected with the hallways under the scope of work. It is the intent to provide the hallways (one under the Base-Bid and one under the Contract Option-1) with all doors with the same exterior appearance.

All doors shall be rated and certified as standard doors to be installed in healthcare facilities or hospitals.

Doors shall be reliable and durable and certified for health care providers operating in hospitals, medical centers and other high-use health care facilities. Door systems shall be abuse resistant, and certified for over five million use cycles, which means that they shall be designed for the typical daily punishment of gurneys, wheelchairs, carts and emergency personnel in stride. Prior to purchase of the doors, the contractor shall send the catalog to the Contracting Officer for approval of the door product. Doors shall have the minimum features specified herein:

- Material: Glass reinforced polyester (GRP).
- Fire resistant of up to a minimum of 4 hours (tested to BS476 Part 22 and latest EU Standard EN1634-1)
- Seamless door leaves
- Door frames made of GPR, stainless steel or aluminum

Glass reinforced polyester (plastic) is commonly known as GRP or sometimes as FRP (fibre reinforced polyester). It is a composite laminate of glass fibres in a polyester resin matrix. GPR is a very tough, durable, clean and water resistant material that is used in demanding environments where the performance and hygiene are critical.

GRP is a highly versatile material used in buildings for exterior cladding panels and also as fully structural load-bearing elements including complete buildings or roofs. It can be used to make roofing infill panels, drainage components, interior and exterior decorative features. It can be made translucent or opaque and can be used for door and window frames, for waterproof membranes and as form work for concrete structures.

Practically any size, shape and surface texture can be produced in a hand-laminated GRP molding. Any limitations are likely to be economic rather than physical ones. All GRP resins can be pigmented to any color including metallic finishes. Specially formulated resins for translucent GRP give light transmittance and appearance similar to translucent glass. Typical colour ranges used for polyester pigmentations are the BS 4800 range, RAL and Munsell, but all paint manufacturers' ranges of colors can be reproduced with accuracy.

All hinges, locks, handles and accessories shall be made of stainless steel and installed by the door manufacturer in the assembly plant. Provide also door stops.

In rooms to be used by patients, the doors shall be provided with additional stainless steel kick plate to protect the door from the impact caused by stretchers and wheelchairs.

All doors to be provided with all required accessories, such as door stops, locks or handles.

50% of the doors shall be provided with factory assembled see-through window of minimum size of 20x20 cm with glazing of 8 mm thickness.

The use of standard doors without the official certificate for medical facilities is not authorized, even if they are provided with similar finishes.

All doors shall be provided with the required locks and keying system, in coordination with the keying system of the hospital. The contractor to provide 4 copies of each key. Additionally, the contractor shall provide 4 master keys to activate all doors to be provided under this contract.

Special requirements for some specific doors:

- 3 automatic doors: The two new doors in the hallway, separating the ICU areas from the other areas under the scope of work and the one to access the main hallway from the hospital common areas (B9 doors in the conceptual design) shall be automatic (motorized). The use of automatic swing or automatic sliding door will depend on the contractor's design, but the doors shall open with the required width to allow for movement of all medical equipment and instruments. The access shall be provided with a card system in coordination with the card-key system of the hospital. The operation of these doors to be closely coordinated with the Hospital Director.

- The 3 access doors to the ICU rooms (rooms 10, 11, 12) shall be officially certified as hermetic doors. Doors shall be provide with certificate from manufacturer as "hermetic doors", controlling air leakage to 99%. Doors shall be space-saving, smooth, quiet operation. Manual operation, with no dirt-gathering ledges or seams and closed cell construction resistant to bacteria and water. Provide sliding doors, similar to the ones shown in the picture included in this paragraph.

- 2 manual hallway doors in Contract Option-1 (doors B13 - conceptual design) with similar finishes as the B9 doors, and with the same card access system, but swing type and with manual control.

- Bathroom interior doors: These doors (B2 and B4 in the conceptual design) are to access bathroom areas and are not visible from the hallway. These doors shall be antibacterial and suitable to be used in medical facilities, but can be provided without the official certificate. The contractor can use standard PVC or aluminum doors, provided with stainless steel hardware and locks.

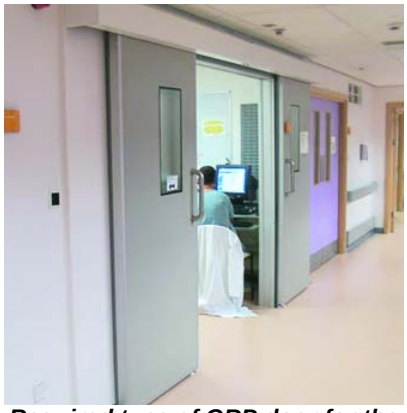
- Doors from rooms not under the scope of work of the contract. In rooms with minimum or no work under this contract, but with direct access to the hallways to be renovated under this contract, the contractor shall replace the door connecting with such hallway. These doors shall be GRP doors like the special medical doors specified in this contract. This includes:

    - Entrance Door to Room No. 1
    - Entrance Door to the Tomography areas not under the scope of work of this contract, connected with hallway 37 as described in the conceptual design
    - Entrance Door to the stairway, which includes the complete removal of the 2 doors and the partition that holds them in place (described as doors B14 in the conceptual design)
    - Contract Option-1 Hallway Doors: There are several doors on both sides of the hallway under the scope of work of the Contract Option-1. The conceptual design only includes the doors for the rooms to be renovated, but it does not include the doors on the opposite side of the hallway. This contract includes replacing ALL doors connecting with the hallway under the scope of work of Contract Option-1

- Door not connected with hallways but with similar requirements as the hallway doors (GRP). The other internal doors, not for the bathrooms in the renovated areas shall be provided with same finishes as the hallway doors. In the conceptual design there is only one door under this category, between rooms 27 and 28.

All doors connecting with the hallways in the renovated areas shall be provided with a professional room sign, similar to any of the ones shown in the pictures included in this paragraph.

- 30 units in the Base-Bid
- 6 units in the Contract Option-1



Required type of GRP door for the ICU rooms (3 units)

Typical hermetic sliding door

Typical hospital rated doors with protection for impacts, as the ones required by our contract.

Typical hospital GRP door with see through window as the ones required in our contract.

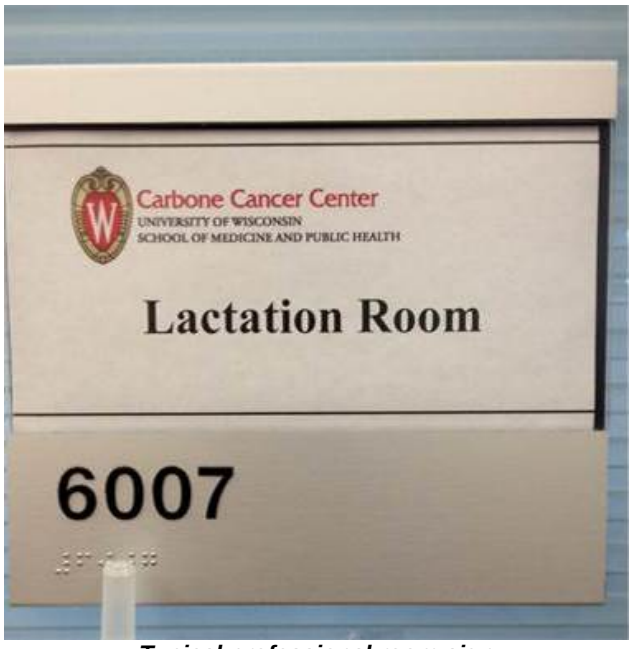
Typical hospital GRP door with see through window as the ones required in our contract.

Typical hospital GRP door with see through window and physical protection as the ones required in our contract.

Required tubular stainless steel door handle required for doors

Typical hospital rated door for patient wards

Typical professional room sign



Typical professional room sign

Typical professional room sign

3.13 WATER PIPING

All water piping in the renovated areas shall be replaced with new. The contractor shall completely remove the existing water piping installation. Leaving abandoned water pipes in the areas to be renovated is not acceptable.

All water piping shall be suitable and certified to be used in domestic potable water systems and provided with thermal insulation.

- For cold water: to avoid condensation
- For hot water: to minimize heat loss

All water piping shall be recessed within the wall or above the drop ceiling.

The contractor shall provide one isolation valve for each room with water supply.

The contractor shall connect to the nearest water pipe outside of the areas to be renovated with sufficient capacity (pressure and flow) to provide adequate water supply to each one of the plumbing appliances to be provided under this contract.

3.14 WATER HEATERS

The contract includes providing cold and hot water to each of the sinks and shower. The contractor shall provide electric hot water heaters, but it is not authorized to provide a single water heater per appliance. The maximum number of hot water heaters is 6 units.

The contractor shall design the capacity of each electric water heater based on the estimated use, but they shall select the unit with the highest thermal insulation provided by the proposed manaufacturer.

3.15 SEWER AND DRAINAGE PIPING (Starting in floor above and finishing outside areas to be renovated)

The contract includes replacing all sewer and drainage piping from the renovated areas. This includes the piping from the new plumbing appliances and floor drains provided under this contract, but also the sewer and drainage piping coming from the floor above.

In order to replace the sewer and drainage piping from the floor above, the contractor shall have to perform significant works in the floor above. It is absolutely necessary that the offerors visit the site prior to submission of their offers to quantify the amount of work that will be necessary in order to replace all sewer and drainage piping.

The contractor shall provide a warranty against any water infiltration in the ceilings caused by the drainage piping. In order to provide this warranty, it shall be necessary to replace the sewer/drainage piping in the point of origin, and not under the ceiling deck. Contractor to start replacement of all sewer/drainage piping in the floor above the areas to be renovated and to connect to existing sewer lines in the basement (if there is one) or in the nearest manhole outside the building.

3.16 PLUMBING APPLIANCES (and other toilet accessories)

The contractor shall provide the plumbing appliances shown in the conceptual design. Each plumbing appliance shall be provided with its individual shut off valve.

- Sinks for handicapped: Provide ceramic hinged sink, designed, certified and installed to be used by people on wheelchairs. Provide with p-trap.

- Toilet for handicapped: Wall mounted (without any contact with the floor) with wall recessed water tank with water saving flush valve. Provide with required stainless steel bars.

- Shower for handicapped: Design and provide a shower to be used by people on wheelchair

- Mirror for handicapped: To be installed above the sink and hinged, to be used by people on wheelchairs.

- Sinks: Provide all remaining standard sinks shown in the conceptual design to be wall mounted, without any contact with the floor. All exposed drainage piping, including the p-trap, shall be stainless steel. The use of plastic drainage piping is only authorized if this piping is not visible. Provide single lever control for cold/hot water. All water faucets to be made of stainless steel

- Showers: Provide all remaining showers with design to avoid any water from spreading into other areas. Provide all stainless steel accessories, including water faucets, hose and shower head. Provide 2 stainless steel wall hangers in each shower compartment.

- Toilets: Provide all toilets wall mounted, like the ones descried for people with disabilities. There shall be no contact between the toilets and the floor, to allow for easy cleaning.

- Floor drains: Provide floor drains in all bathrooms

- Metal lockers: Provide metal lockers where indicated in the conceptual design (rooms 32 and 33). Metal lockers shall be hard-bolted to the walls or floor.

- Mirror: Provide mirror recessed on the wall (substituting the ceramic tiles) and surrounded by aluminum or stainless steel profile.

- Mop-sink: Provide 2 mop sinks with hot and cold water in room 17

- Special hospital sinks: The sinks in the ICU rooms, as indicated in the conceptual design, shall be medical rated and made of stainless steel. These sinks shall have these minimum technical features:

    - Wall mounted (without any contact with the floor)
    - With automatic (infrared control) faucets with water temperature control
    - Without any exposed piping

- Hand driers: Silent type, as specified in the electrical section of this document

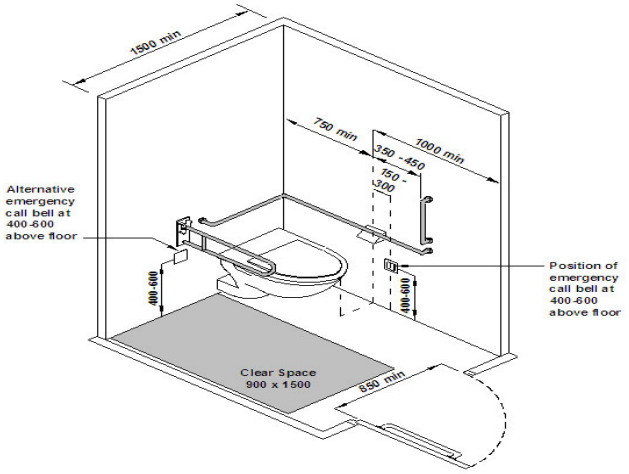
Typical required wall mounted toilet for handicapped people

Typical acceptable wall mounted sink for the ICU rooms. Note that the faucets in these rooms shall be automatic, in order to open and close without touching them.

Typical acceptable wall mounted sink for the ICU rooms. See comment in picture above-right

Typical required metal lockers to be bolted to the walls

Typical required metal lockers to be bolted to the walls



Typical requirements for handicapped WC design.

Typical hinged mirror for handicapped rated bathroom

Typical required wall mounted toilet with water saving flush valve

Typical required recessed mirror with metal profile around

Typical acceptable wall mounted sink (automatic faucet only required in the ICU rooms)

Typical mop sink required in the janitor's storage room

Typical acceptable wall mounted sink for most rooms

3.17 BATHROOM DESIGN

The contract includes providing fully operational bathroom facilities. This includes all required elements, which are not explicitly described in this document, such as stainless steel wall hangers, toilet paper holders, soap dispensers, etc.

3.18 COUNTERTOPS AND CABINETS (All with certificated to be used in hospitals)

The contract includes providing countertops and cabinets in certain room, as specified in the conceptual design. All countertops and cabinets shall be bolted to the floors and/or walls, so that they cannot be moved without the use of adequate tools. These elements shall be an integral part of the construction, and not movable pieces of furniture.

All elements shall be certified to be used in healthcare institutions. They shall be certified as antibacterial.

The contractor shall provide copy of the catalog information for the pieces of medical furniture proposed to be provided under this contract, which shall be closely coordinated with the Hospital Director based on the regulations and the specific use of each room. All units shall be officially certified and designed to be used in medical installations. The price for different furniture varies significantly. For estimating purposes, the contractor shall estimate that they shall provide similar units as the ones included in the pictures included in this paragraph. They shall provide different units for each room, some with glass cover, some stainless steel, and some with synthetic material. The use of wood for any unit is not authorized.

Room#10: Provide cabinets where indicated in green and countertop where indicated in red in the drawing included in this paragraph. Provide wall mounted cabinets above the countertop. The countertop to be provided with:

- Openings and connection for a computer
- One stainless steel sink
- One automatic (infrared control) faucet with hot and cold water

Room#11: Provide countertop where indicated in red in the drawing included in this paragraph. Provide wall mounted cabinets above the countertop. The countertop to be provided with:

- One stainless steel sink
- One automatic (infrared control) faucet with hot and cold water

Room#12: Provide countertop where indicated in red in the drawing included in this paragraph. Provide wall mounted cabinets above the countertop. The countertop to be provided with:

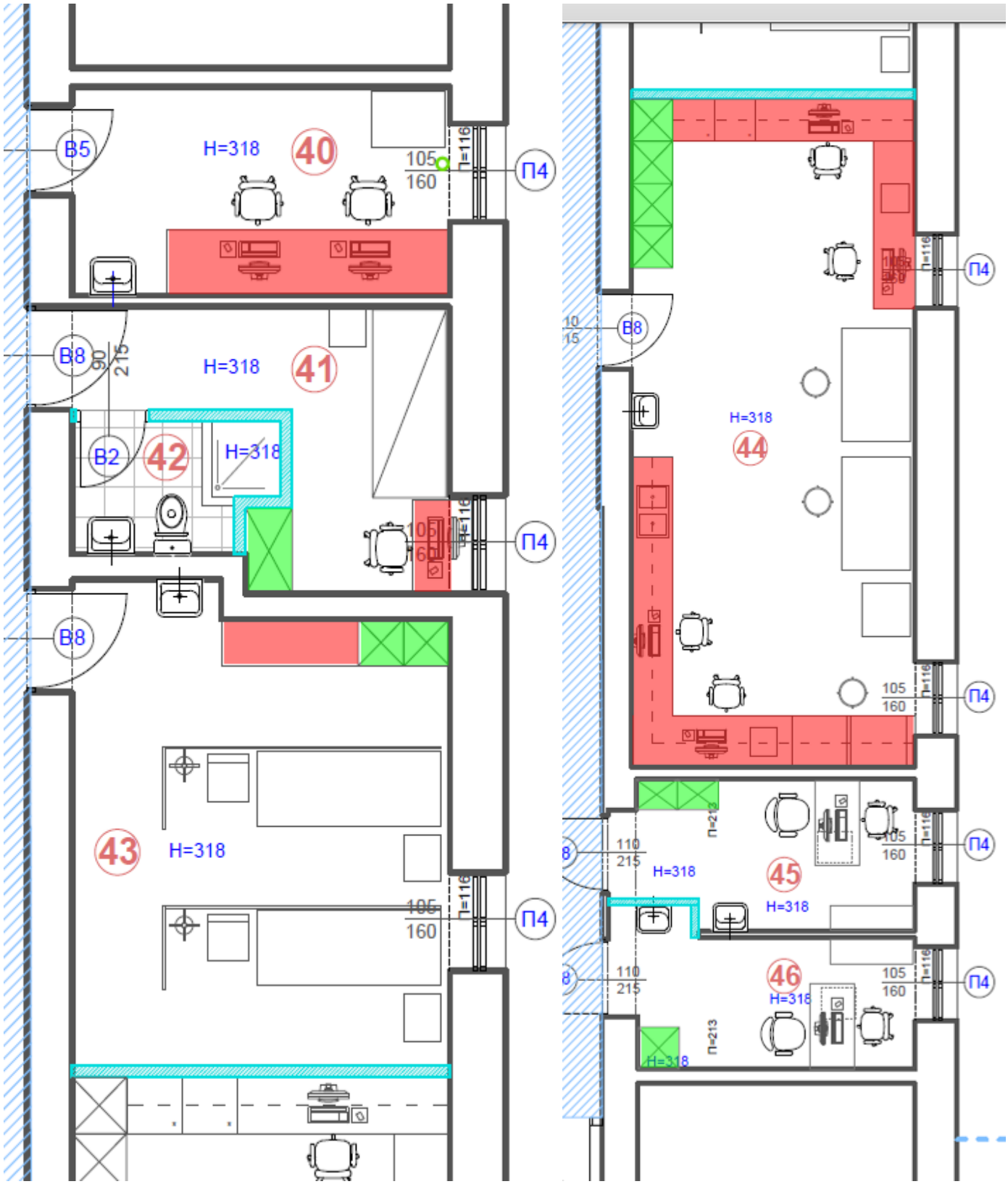
- Openings and connection for a computer
- One stainless steel sink
- One automatic (infrared control) faucet with hot and cold water

Rooms#14, #20, #23, #24, #25, #26, #27, #28, #29, #30: Same technical requirements described above and as specified in the conceptual design. Where a computer is shown in the conceptual design, the contractor shall provide the computer openings and connections. Where a sink is shown the contractor shall estimate a stainless steel sink with automatic control faucet.

Room#31: Same technical requirements as before but the countertop shall be substituted by standard kitchen furniture and sink and faucet. This room shall be provided with kitchen furniture under the countertop and on the wall above the countertop.

Rooms#40, #41, #42, #43, #44, #45, and #46 (areas under Contract Option-1): Same technical requirements as previously described with countertops officially certified to be used in medical laboratories. Provide copy of the certificate prior to purchase of any countertop material for the laboratories.

In red: New required countertop/furniture. In green: New cabinets. In some occasions there shall also be wall mounted cabinets above the countertops.



In red: New required countertop/furniture. In green: New cabinets. In some occasions there shall also be wall mounted cabinets above the countertops.

Typical cabinets as the ones to be required by our contract

Typical cabinets as the ones to be required by our contract

Typical cabinets as the ones to be required by our contract

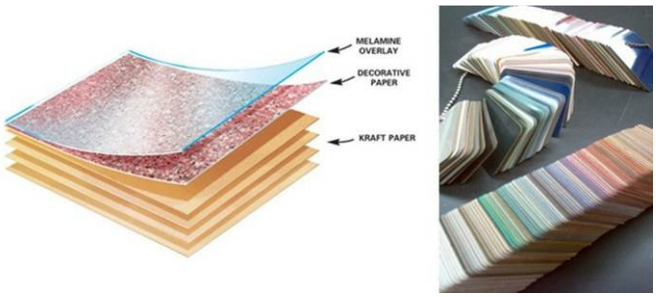
Typical cabinets as the ones to be required by our contract

Typical acceptable countertop

Typical acceptable countertop

Typical acceptable countertop

Typical acceptable countertop



Typical acceptable countertop Which shall be certified to be used in medical laboratories.

3.19 KITCHEN (Room #31)

The contract includes providing one room to be used as a kitchen.

As described in the previous paragraph, room#32 shall be designed to be a kitchen. The contractor shall provide the necessary kitchen furniture over the entire length of countertop. In this particular case, the countertop shall be made of artificial stone material with double width and rounded edges. Use bright color for the countertop. The countertops shall be made of artificial stone with rounded edges made or quartz. Use of wooden material or any Formica is not authorized. Countertop to be provided with the typical base of 10 to 12 cm along the walls to avoid humidity getting into the walls. Electrical receptacles to be installed immediately above this wall base along the countertop.

Typical artificial stone countertop with stainless steel sink with drying area as required by our contract.

Typical countertop of artificial stone with rounded edges. Typical kitchen furniture.

Typical sink for kitchen

Typical live colors required for the new countertop

3.20 METAL SHELVES (Medical certified)

Where indicated in the conceptual design to provide shelves, the contractor shall provide heavy duty metal shelves, bolted to the walls and from the floor to the ceiling height.

Typical shelves

Typical shelves for bed lining

3.21 COMMUNICATIONS NETWORK (TV, computer, telephone)

The contract includes providing TV, computer and telephone service, connected with the hospital infrastructure, at the rooms indicated in the conceptual design. Exact location of the new wall recessed socket to be determined by the Hospital Director.

The contract includes everything necessary in order to have perfectly operational communication lines.

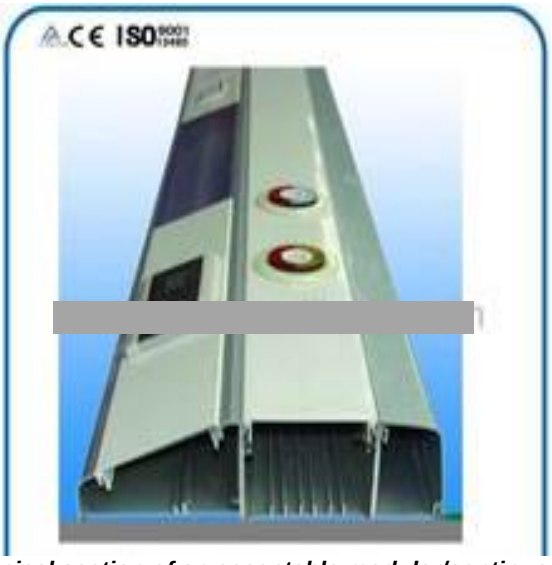
3.22 BED CONSOLES (16 units)

The contract includes providing medical rated bed consoles (also called bed head units) in rooms #9, #10, #11 and #12. Depending on the location the contractor may install continuous (or modular) or individual bed consoles or bed head units, each to be provided with 2 electrical receptacles, LED lights and nurse alarm system and medical gases.

The contractor shall coordinate directly with the Hospital Director the height and exact location of these bed consoles.

Typical continuous/modular bed console unit for 3 beds

Typical continuous/modular bed console unit for 3 beds



Typical section of an acceptable modular/continuous ben console unit

Typical bed console units

The bed console units shall be made of aluminum and shall be specifically designed and fabricated to be used as hospital bed consoles. Shop manufacturing of the bed console units is not authorized.

The contractor shall send for acceptance by the Contracting Officer the standard catalog of the manufacturer where the bed consoles are included as a standard product, rated and certified for medical use.

3.23 MEDICAL GASES (Medical certified)

The contract includes providing medical gases from the nearest hospital central medical gases pipelines to the 16 bed consoles in the rooms listed in the previous paragraph, plus one additional gas socket or nozzle for each of the gases in a location within the ICU areas to be determined by the Hospital Director.

The medical gas installation shall use the central medical gas supply system of the hospital. The gases will be distributed through special copper tubes with lower phosphorus content (Cu-DLP) under EN13348 DIN and EN 737-3, rated to be used for medical gasses.

The tubes are intended for the distribution of gases listed on the conceptual design.

The input of gases will be controlled by a new control panel, and shall be delivered to the places indicated in the existing design, in a ceiling or canal system, respectively of the purpose, to be designed by the contractor.

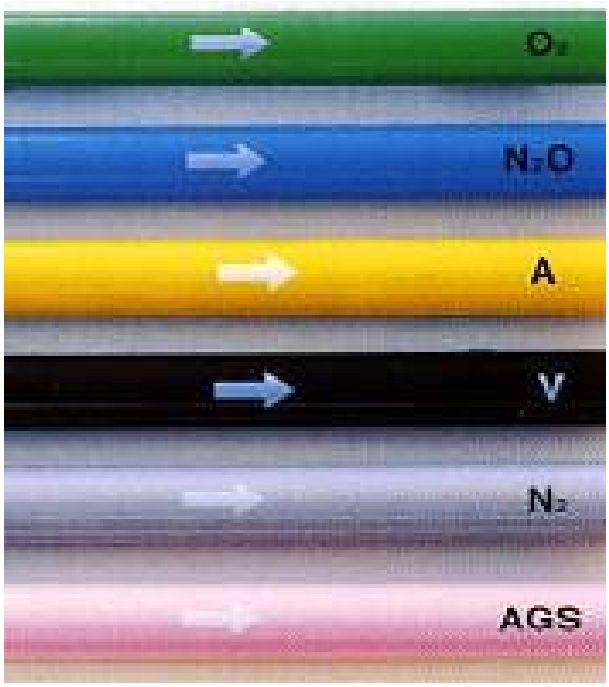
The work includes everything necessary to have perfectly operational medical gas installation, from the connection point with the main medical gas lines of the hospital to the supply nozzles in the indicated locations. All gas lines to be recessed within the walls/ceilings or installed as required by the contractor's design and pertinent regulations and using required color coding.

It must be noted that the design and installation of medical gasses is a very specialized item of work, requiring very specialized and certified personnel, for the design, installation and commissioning.

The contract includes every item of work which shall be necessary in order to provide a perfectly certified and operational medical gasses system.

Coordinate with the Hospital Director the type of special gas sockets to be used, in order to be compatible with the hospital equipment.

Typical gas nozzles



Color coding for medical gasses

Typical analogic gas panel

Typical medical gas control panel

Typical medical gas nozzles

Typical medical gas nozzle

Typical medical gas nozzle on bed console

3.24 NURSE ANNUNCIATOR SYSTEM

The contractor shall design a nurse annunciator system for the rooms specified in the conceptual design. The renovated areas shall be a new nurse annunciator system from each bathroom and patient room to the Nurse Room. This system shall be specifically designed and manufactured as a nurse annunciator system.

The standard procedure is the following:

- When pressed/pushed in any location an alarm goes off in the Nurse Room with light signal over the door of the room where the alarm was activated.

- In the Nurse Room the console has audio and light indicator of the alarm activation

- In the Nurse Room the main console indicates in which room and in which position was the alarm activated. It could differentiate between the alarm in the bathroom of the patient room and the alarm in the bed console.

- The Alarm cannot be silenced in the Nurse Room, but it can only be silenced in the patient room where the alarm was activated.

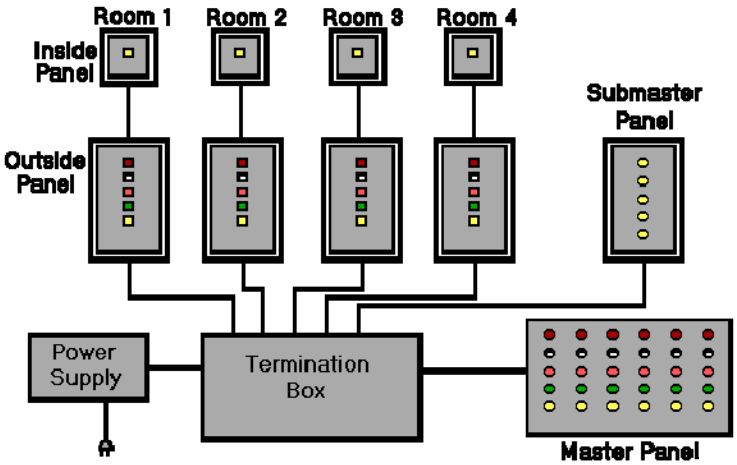
- After the alarm is activated, the nurse in the patient room can either silence the alarm or active another louder alarm, indicating to the rest of the nurses that there is a real emergency.

This sequence above was the one used for a hospital in Romania that was recently renovated by NAVFAC. Other difference sequence can be submitted for approval to the hospital director. The number of nurse call in switches shall be determined by the designer, but for estimating purposes the contractor shall estimate one per bed shown in the conceptual design, plus one for each bathroom in the room where “nurse call s-m” system is indicated.

Typical required nurse call system in the patient rooms (extension cord included in the contract)

Nurse Annunciator Console from project in Romania

Nurse Annunciator Console from project in Romania



Typical nurse Annunciator Diagram

3.25 FIRE ALARM

The contract includes the design and installation of a fire alarm system for the renovated areas.

Provide Fire Alarm system as required by Macedonian Regulations for this type of public facility. Provide with required smoke detectors, pull stations, horns and strobe lights. Provide automatic telephone communication with fire station only if required by Macedonian regulations for this type of public facility.

All cables shall be installed under conduits recessed on the walls, or as required by Macedonian regulations.

Provide control panel recessed on a wall where required by the design to be provided by the contractor.

Final installation to be officially accepted by the competent Macedonian Fire Fighting office.

3.26 HALLWAY CLOCK

The contractor shall provide 2 ceiling mounted large digital clocks to indicate the time on the hallway under the scope of work of the Base-Bid. The exact location of the units shall be determined by the Hospital Director.

Minimum size shall be 50x20 cm.

Typical required wall or ceiling mounted clock for the hallway of the Base-Bid.

3.27 PICTURES SHOWING EXISTING CONDITIONS

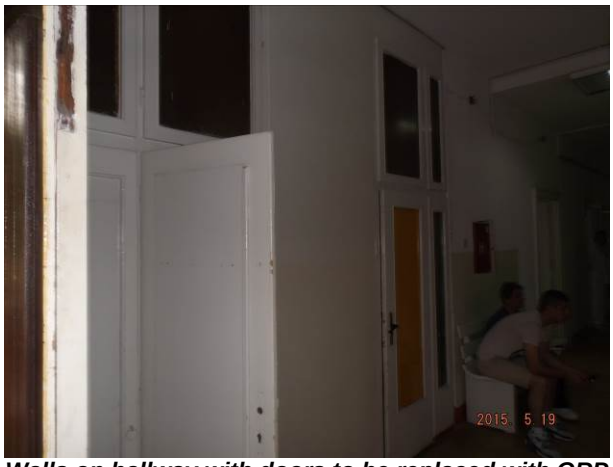
Some pictures are included in this document to explain some of the elements included in the scope of work of this contract. Note that the pictures were taken in March 2014 and in May and July 2015 and that current conditions may have changed. It is the contractor's responsibility to visit the job site in order to verify site conditions.

Typical sewer piping to be replaced with new and to be covered under new partition wall. No sewer piping shall be visible in the renovated areas.

Typical sewer lines to be replaced from the point of connection in the floor above to guarantee that there will be no water infiltration in the near future.

Typical wall damages. Cause of the damage to be repaired, prior to repair the effects of those damages

Typical room to be completely renovated



Walls on hallway with doors to be replaced with GRP medical rated doors.

Partition wall to be replaced with new partition and new doors (B14 doors), similar to the rest of the GRP doors along the hallways

General view of the hallway of the Base-Bid. All surfaces to be repaired. All doors to be replaced with new GRP doors and provided with professional signs.

Room#1. Furniture to be dismantled, modified and repaired as necessary in order to perform the required scope of work and reinstalled.

Typical wall tiles and plumbing appliances to be removed.

Entrance door to Base-Bid areas. Door to be replaced with automatic door. Existing cable tray and cables to be rerouted and modified as necessary for the installation of the new door.

Walls tiles to be removed in all rooms

Wall tiles to be removed from all doors. False ceiling surface to be removed in order to install the new suspended ceiling after repair of the existing ceiling.

All tiles and plumbing appliances to be removed.

Typical room with wall tiles to be removed.

Typical ceiling damages to be repaired after repairing the cause of the problems by replacing all sewer lines from the floor above.

Existing bathroom to be completely demolished.

Hallway wall tiles to be removed. Railing to be replaced with new ones as described in this document.

Entrance to Base-Bid area from the street. Replace everything.

Causes of wall damages to be corrected as part of this contract.

All electrical and medical gasses installation to be replaced in the areas under the scope of work.

Hallway ceiling tiles to be removed and railing to be replaced with new one rated for medical facilities.

Bathroom to be completely renovated.

Window covers to be substituted by professional medical rated window blinds

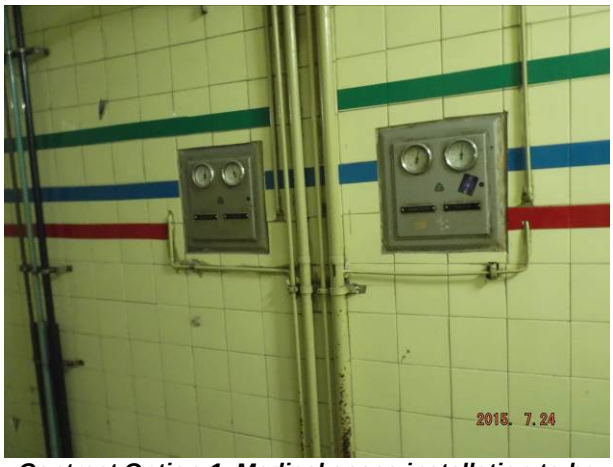
Hallway under Base-Bid complete renovation

All wall tiles to be completely removed.

Typical ceiling damages from water infiltration from rooms above. All sewer/drainage to be replaced and connected in the rooms above, and to the basement or to the nearest exterior manhole.

Typical room in Contract Option-1 to be completely renovated.

Sewer piping to be rerouted so that it is not in the middle of the window.



Contract Option-1. Medical gases installation to be reinstalled on the new hallway surfaces. Modifications to existing medical gasses installations shall be necessary in order to provide all hallway surfaces with the same finishes as the hallway in the Base-Bid.

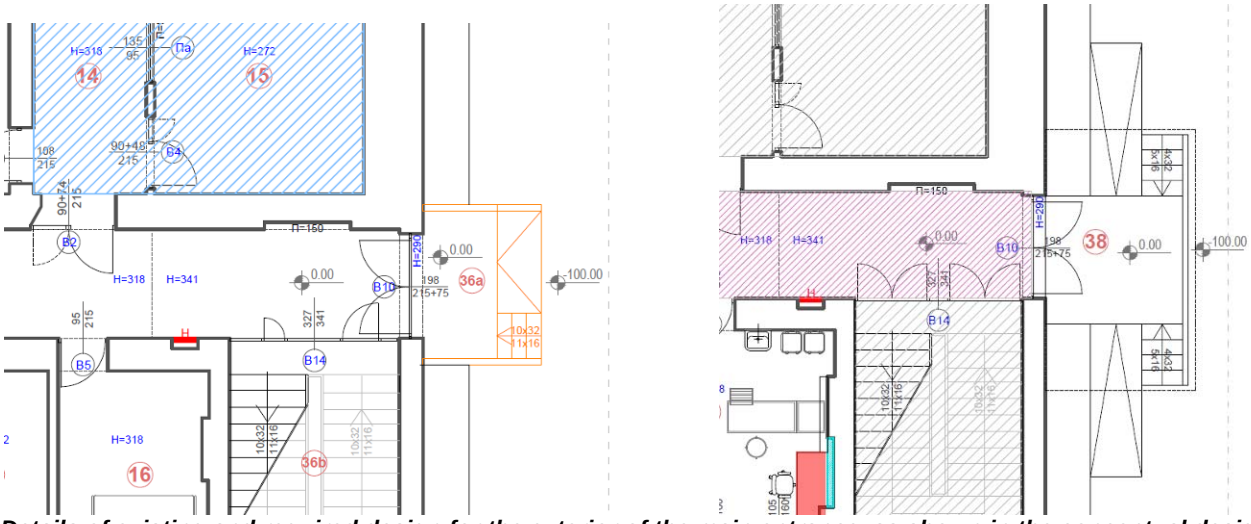
Contract Option-1 hallway. Note that there are doors on both sides to be replaced as part of this contract. Remove ALL wall tiles. Note the difficulty of performing this work due to existing surface mounted installations.

3.28 EXTERIOR WORK

The work previously described includes complete and complex internal renovations. However, there are several items of work that shall be performed in the exterior of the building, as well as other exterior works as a consequence of the internal required works.

Main Entrance:

The conceptual design includes a new design for the main entrance from the street. The contractor shall completely remove the existing exterior entrance and provide a new one as shown in the conceptual design.



Details of existing and required design for the exterior of the main entrance, as shown in the conceptual design

All new reinforced concrete structures shall be placed over new compacted select materials with the following minimum requirements:

- Remove existing structure (steps, ramp and landing platform).
- Excavate and remove minimum 40 cm of materials under the existing removed structures
- Provide 30 cm of compacted select fill (98% compaction)
- Provide 10 cm of lean concrete
- Provide the new reinforced concrete over the lean concrete.

The new landing platforms and their steps shall be covered with special grès tiles, non-slippery and rated for exterior use by the manufacturer. For the steps, the contractor shall use grès tiles specifically designed to be used in stairways, with non-slippery patterns and rounded edges. Use different pattern for vertical and horizontal pieces for esthetic reasons. The use of regular floor tiles for the steps is not authorized. See pictures below for requirements of typical tiles designed to be used in stairways. The finished elevation of the landing platform shall be the same as the elevation of the entrance lobby so that there is no tripping hazard and it can be used by people on wheelchairs.

Non glazed (homogeneous) grès tiles: Exterior tiles shall be rustic non glazed grès tiles. This means that the floor tiles shall be homogeneous, made of the same material on the surface, the bottom and the center. Exterior grès tiles are typically produced by a minimum of 44 hours single firing at a maximum temperature of 1.360ºC, giving it a one-off look and a natural blend of shades as well as excellent technical performance.

Typical tiles to be used for the new steps.

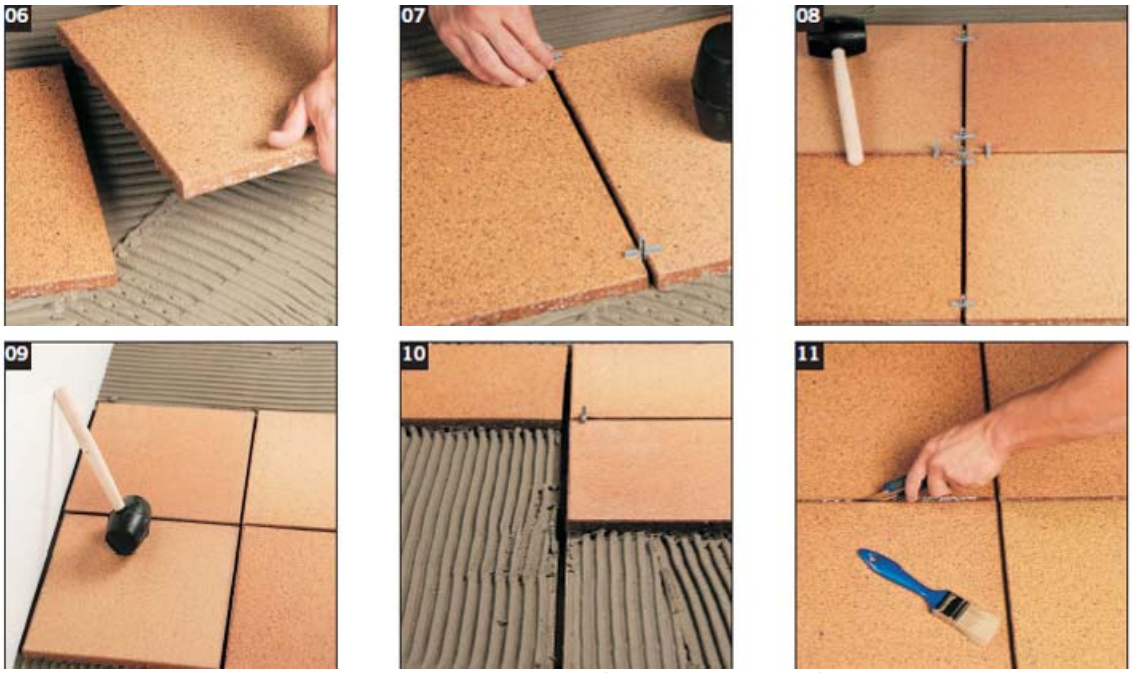
Typical tiles to be used for new steps.

Typical tile for landing platform

Typical tile for corner of steps

Typical tile for steps and edges of the landing platform

Typical installed tile as required for the landing platform

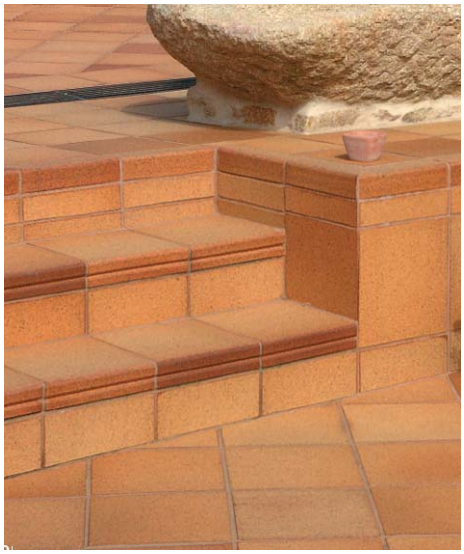


Required installation for exterior grès homogeneous grès tiles

Typical steps with special grès tiles

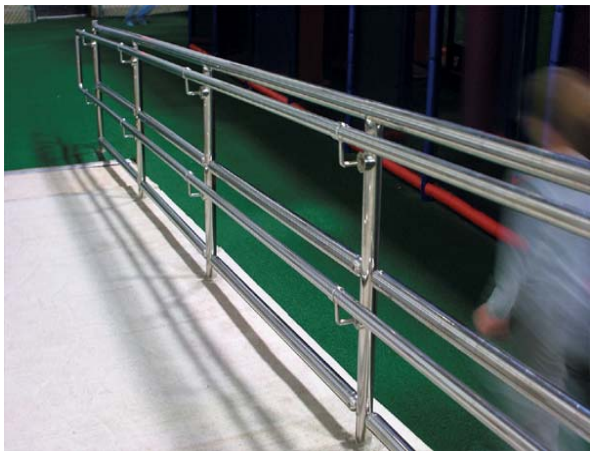
Typical steps with snow

Exterior Pavement: The exterior pavement is in very bad condition. The contract includes repairing a minimum surface of 100 m² in order to adjust the new entrance with nice and expensive tiles to a similar high quality pavement surface. The contractor's architect shall propose the repair method, in order to provide an esthetically pleasant connection between existing pavement and the new exterior landing platform, stairs and ramps.



Typical acceptable use of special tiles

Required look for landing platforms



Typical Stainless steel railings

Typical Stainless steel railings

The works include the design and construction of two entrance ramps, where indicated in the conceptual design. This ramp shall be provided with the same tiles previously described. The ramp shall start in the landing platform and finish at sound pavement.

Construction shall be similar to the steps and landing platform, using reinforced concrete structure over compacted grade and lean concrete.

Provide stainless steel railing along both sides of the new ramp.

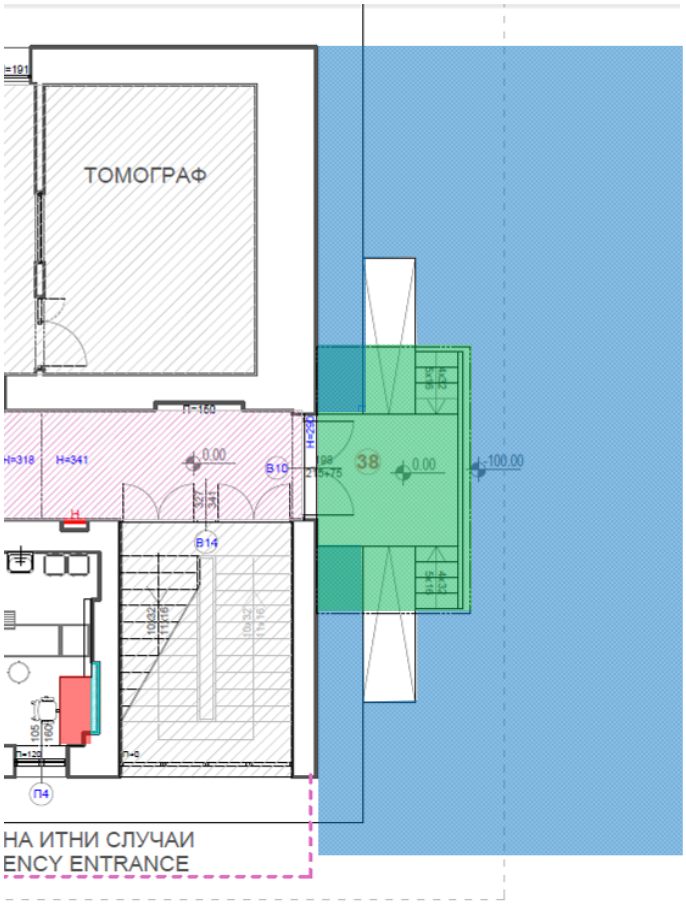
Entrance Canopy

The works include the design and construction of a light metal entrance canopy to cover the entire new landing platform, stairs and a section of the ramps. (indicated in green in picture below).

Entrance canopy to be designed to avoid rain water over the users of the facility, meaning that the contractor shall provide the necessary gutters and downspouts. Canopy to be design for heaviest snow loads.

Provide two new exterior lighting fixtures using exterior rated LED technology lighting using luminaires of minimum of 25 Watts of electrical consumption and provided with photocell and manual control inside of the building.

Typical required 25 Watt exterior LED floodlight with photocell



In green: Minimum required size for exterior canopy. In blue: Approximate extent of exterior pavement repair (method of repair to be proposed by the architect hired by the contractor)

Existing entrance to be completely redesigned. Door to be replaced with new. Canopy to be replaced with new.

Definition of hospital entrance canopy

Definition of hospital entrance canopy

Other Exterior Works: In order to perform the works in the scope of work, it shall or may be necessary to perform other exterior works not explicitly described in this document. This includes repairing exterior façade after installation of the new windows, installing water or sewer lines, painting a section of the front façade after installation of the new canopy, repairing exterior pavement,…

3.29 COMMEMORATIVE PLAQUE

The contractor shall provide and install at the location indicated by the Hospital Director an anodized aluminum commemorative plaque with the following information engraved on it:

- Colored Flag of Macedonia
- Colored Flag of the United States of America
- This text: "The renovation of this Neurology Department was made possible through a donation from the people of the United States of America to the People of Macedonia with the support of the Office of Defense Cooperation and US Embassy in Skopje– Date"
- Same text as above in Macedonian.

Relative required size for the plaque

- Minimum thickness 8 millimeters

- Minimum dimensions 60 centimeters wide by 45 centimeters high.

- Resistant to outdoor weather and UV radiation.

- Plaque to be manufactured by specialized company.

- Before purchasing the plaque, the contractor shall submit the design to the Contracting Officer for approval.

Typical similar plaque provided in a recently completed project in Bulgaria

3.30 SCAFFOLDING AND WORKING PLATFORMS

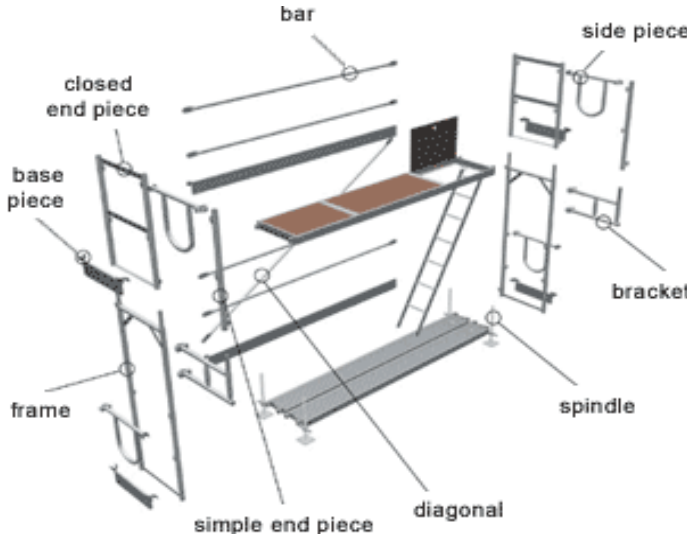
In order to perform some of the works included in the scope of work of these PTS, the contractor shall be required to install scaffolding.

Despite the scaffolds that may be authorized by Macedonian regulations, the contractor is only authorized to utilize European Standard scaffolds similar to the ones shown in pictures below. These scaffolds shall be installed and used in accordance with manufacturer's recommendations. In case the contractor needs to access the façade at any particular point without the need to install scaffolds, the contractor shall use a CE certified self-propelled man-lift, similar to the one shown in picture below. The use of other type of scaffolds, other non CE certified man-lifts, or any type of ladders for façade or roof work, IS NOT AUTHORIZED.

Required type of scaffold

Required type of scaffold

Acceptable man-lift



Required type of scaffold

4. PROCEDURE:

4.1 Principles

This construction contract is based on 3 principles:

- Strict compliance with US contracting regulations
- Strict compliance with Macedonian technical and legal regulations
- Strict compliance with Macedonian Safety regulations unless the US regulations is more strict and not in conflict with the local safety regulations, in which case, the US Safety regulations shall be applied.

Construction shall be in accordance with sound construction practices, and shall conform to the latest revision/edition of the codes, criteria, and standards in effect at the time of submission of the bids, except as otherwise indicated by this Request for Proposal. Construction shall also comply with applicable codes, ordinances and regulations of Macedonia governing life/safety, fire protection, building construction, medical facilities, conveying and electrical systems in effect during this contract, except where specifically stated herein. Any material installed that does not meet the requirements of this Technical Specification and/or applicable Macedonian codes, ordinances and regulations will be removed and reinstalled at Contractor's expense.

4.2 Start of Construction

The Project Manager (PM) or Contracting Officer Representative shall authorize the start of construction. This authorization to start will not be given until the contractor:

- Provide a written evidence that they comply with all legal requirements in Macedonia in order to perform the works described in these PTS.

- Provides copy of the required permits or authorizations from the competent Macedonian authority authorizing the execution of the works

- Provides technical information and technical projects for the designs, including proposed materials and equipment to be used for the project. Only materials and equipment previously accepted by the Contracting Officer Representative shall be brought to the job site.

- The Contracting Officer Representative accepts their Accident Prevention Plan. See Annex 1 for the requirements of this Plan

- The Contracting Officer Representative accepts their Quality Control Plan. See Annex 2.

- The Contracting Officer Representative accept their Construction Schedule

- Construction Sign is placed on site (see pertinent paragraph for the Construction Sign)

4.3 General Technical Requirements

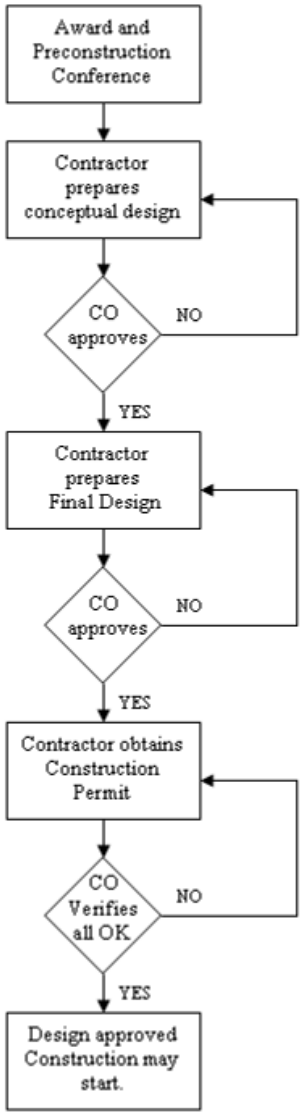
The work shall meet all requirements of this Request For Proposal (RFP) package. Drawings to be as required in this RFP and with sufficient detail to communicate the design to the US Government, final users, contractor's staff and sub-contractors. Material selection, specifications and installation to be as described in these Performance Technical Specification (PTS) included in this RFP. The Performance Technical Specification (PTS) are a guideline for the design package.

- If an item in the project design is included in the PTS, the requirements of the PTS and applicable local Macedonian and international codes shall govern.

- If an item in the project design is NOT included in the PTS, the requirements of applicable local Macedonian and international codes shall govern.

Provide the Final work as a complete and usable facility including. Technical details, items of work, permits or fees that are not explicitly described in this RFP, but which are necessary to provide a fully operational and finished facility shall be considered part of this contract. The contractor is responsible to verify all dimensions and existing conditions. The contractor shall hire the necessary architects/engineers to prepare the necessary design documents to design a new Male Pavilion for a Psychiatric Institution in accordance with the scope of work of this contract, and with the technical and quality requirements described in this document.

The contractor shall perform the work in strict compliance with the construction codes and regulations of Macedonia. The contractor is responsible to provide a copy of a Construction Permit issued by the corresponding local authority. The contractor is responsible to prepare any required documentation and/or designs that will be required in order to obtain these permits. No work shall be executed until the corresponding construction permit is issued by the competent Municipal authority, and a copy provided to the Contracting Officer.



Simplified flow diagram for design approval process. (CO = Contracting Officer)

<u>For those items required by the Scope of Work, which are not specified herein, the contractor shall follow the applicable Macedonian Codes and Regulations</u>

4.4 Design-Build Standard Procedure

A design-build contract means that the contractor is responsible not only to perform the works described in this document, but to prepare all necessary designs and technical projects.

The contractor shall be responsible, and it shall be part of their contract, to perform all works included in their designs. All designs shall include the items of work included in this document, as well as those items of work not included in this document, but required by Macedonian regulations.

This contract is a design-build contract, and therefore it requires that the contractor prepares the designs and technical projects which are necessary to perform the works included in this contract.

This document includes a conceptual design, but it is the contractor's responsibility as part of this contract to prepare the final design and technical projects which shall be necessary.

This contract includes the preparation of the required designs, technical projects, surveys, permits, certifications as well as any required coordination with local authorities. The contract also includes processing and paying for any potential fees that may be required in order to obtain the required Construction Permits.

The contractor is responsible to verify site conditions and to prepare all necessary inspections and reports before preparing the design and technical projects. The contractor shall visit the work site prior to submission of their offer to the US Government.

For any required design, the contractor shall start with the preparation of a conceptual design, and only after it is approved by the Contracting Officer, they shall proceed to the final design phase.

The conceptual design shall include sufficient information for the Contracting Officer to understand in detail what the contractor proposes to do, before the contractor moves to the next design stage.

Once the final design is prepared, it shall be approved by the Contracting Officer before the contractor sends it to the local authorities to obtain the corresponding Construction Permit.

4.5 Scheduling Requirements / Phasing

This paragraph is very relevant, as it directly affects the duration and cost of the project.

All work shall be completed within 400 calendar days after project award.

The hospital in general, and the neurology department in particular shall remain fully operational during the execution of the works. The contractor shall closely coordinate the construction activities with the Hospital Director on a daily basis. The phasing and coordination for the neurology department to remain operational shall be based on the following criteria:

- 4 Phases: The internal areas under the scope of work of the contract shall be divided in 4 sections or phases, where Contract Option-1 shall be one phase. This means that if the Contract Option-1 is awarded, there shall be 4 phases. If Contract Option-1 is not awarded, there shall be 3 phases.

- Work shall be performed exclusively in one section at the same time.

- Work in one phase or section shall not start until the previous section where the contractor has performed renovation works are completed and the section or phase is perfectly operational, including the necessary official acceptances that shall be required.

- Prior to start work in any particular phase or section, the contractor shall be responsible to move furniture and equipment and installations that are in the areas to be renovated to a location within the hospital complex to be determined by the Hospital Director and to move them back to the renovated areas once construction works are completed.

- The contractor shall allow for 15 calendar days after completion of one phase, before they can start work (moving the furniture and equipment) in the next phase. This is for the hospital to make the necessary arrangements to operate the Neurology department with a significant reduction of the spaces.

- The contractor shall separate the areas under renovation from the operational areas of the hospital by means of double dust curtains or solid gypsum board temporary partitions. The contractor may need to access the construction areas through the windows or openings in the walls. If the seal between the areas under construction and the operational areas of the hospital is not air tight, the contractor shall install negative pressure system in order to guarantee that no dust shall contaminate the operational areas of the hospital.

- The contractor shall guarantee that the operational areas of the hospital are not affected by their renovation works. However, it is understood that some temporary outages could be necessary. For example, if the tomography equipment needs to be connected to the new electrical panel, a power outage shall be necessary. Or if the water piping to areas not under the scope of work is affected, there will need to be a water outage. All the necessary outages to the operational areas of the hospital shall be performed during weekends and a week advance notice to the Hospital Director shall be the minimum necessary. Maximum duration for any outage shall be 1 hour. The contractor shall be responsible to provide temporary utility supply in case this time limit needs to be exceeded for technical reasons.

4.6 Construction Schedule (bar chart is authorized).

Perform all work within 400 calendar days after contract award. Within 45 days after contract award, the contractor shall provide a construction schedule including a minimum of 30 activities, and clearly defining the different phases.

4.7 Accident Prevention Plan

SAFETY SHALL BE THE FIRST PRIORITY OF THE CONTRACTOR. SAFETY OF THE PATIENTS, WORKERS, STAFF OF THE FACILITIES, AND GENERAL PUBLIC SHALL TAKE PRECEDENCE OVER ANY OTHER FACTOR.

Within the timeframe allowed for the final design submission, the Contractor will prepare and submit an Accident Prevention Plan as required and outlined by the US Army Corps of Engineers Safety Manual (EM-385-1-1), describing procedures they plan to perform to ensure the safety of the workers, the staff of the facilities, the general public, the patients and the equipment on the job site. The Plan shall clearly define the measurement that the contractor will implement to guarantee that this personnel will not be exposed to any hazards as a result of this construction contract.

Additionally, the safety plan must address types of personnel protective equipment to be used by personnel, types and frequencies of safety inspections, hazard analysis plan to prevent safety incidents, and training utilized to familiarize employees with safety policies and practices. The contractor shall comply with the US Army Corps of Engineers Safety Manual EM385-1-1 wherever the requirements of this manual are more stringent and not in conflict with the requirements of the Macedonian Safety Law.

No work shall start at the job site until the Accident Prevention Plan is received and accepted by the US Government representative. In Annex 1 of this document, it is included the requirements and checklist to prepare this Plan.

4.8 Submittals – Technical Information

The contractor shall provide technical information on all materials and equipment to be incorporated to the job site. This information must be sent to and accepted by the Project Manager before they are purchased by the contractor. Any material or equipment utilized at the job site that is not approved by the representative of the Contracting Officer and that if found not to comply with the requirements of this contract (or Macedonian Legislation) shall be removed at no cost to the US Government.

4.9 Language

All communication and correspondence between the contractor and the Government personnel shall be in English. It shall be the responsibility of the Contractor to prepare proposals, invoices, shop drawings and submittals, quality control reports, computations, and all correspondence pertaining to this contract, in the English language; but the Contractor may, for his own record purposes, prepare them in the local language. All correspondence to and from the Contracting Officer shall be in the English language. In case of dispute or claim, the English version will govern.

Immediately after award, the contractor shall appoint an English speaking representative, with cellular phone and e-mail address. The Contracting Officer Representative reserves the unilateral right to disapprove this person if it is found that his English language capacity is not sufficient to perform the duties required for such position.

For the visits of the Contracting Officer, the PM or their authorized representative to the job site, the contractor shall provide somebody capable of representing the construction company who can communicate in English language or the contractor shall provide a translator to translate from English to local languages.

4.10 Pictures

The contractor shall send weekly and representative digital pictures of their construction by e-mail once construction starts, showing construction progress. These pictures shall be used to monitor the contractor's performance and to validate the progress monthly invoices. The US Government cannot process payments unless the contractor provides complete and verifiable evidence of the work performed.

4.11 Quality Control Plan

Within the timeframe allowed for the final design submission, the Contractor will prepare and submit a Quality Control Plan describing personnel, procedures, tests and installation techniques that he plans to perform to ensure the quality required by these Technical Requirements and his design is obtained.

In Annex 2, it is included a guideline to prepare this Plan.

4.12 Construction Sign

Immediately after award the contractor shall prepare and install on site a construction sign with the following characteristics and information on it:

- Wood / plasticized sign with minimum dimensions 2 meters wide by 1 meter high
- Letters and logos prepared by an specialized company and designed for outdoor installation
- Flags of Madeconia and the United States of America
- The following text: THE RENOVATION OF THIS NEUROLOGY DEPARTENT IS FUNDED BY THE UNITED STATES EUROPEAN COMMAND AND PROVIDED TO THE CIVILIAN COMMUNITY OF MACEDONIA IN COOPERATION WITH THE SKOPJE CITY ADMINISTRATION. EXECUTIVE AGENT: US EMBASSY IN MACEDONIA. CUSTOMER: US NAVAL FACILITIES ENGINEERING COMMAND. PRIME CONTRACTOR:?
- Start and completion dates.
- Same text in Macedonian.

Example of typical construction sign

4.13 Payment

Payment shall be performed as required by US Administrative Requirements. See Contract Clauses pertinent to Payment procedures.

**** NO ADVANCE PAYMENT IS AUTHORIZED ****

Payment shall be performed following the principle of payment for completed work. Payment shall be phased as detailed herein:

- Partial monthly payments as agreed with the US Representative, as work is being completed and accepted

- Maximum of 80% (cumulative) is authorized until the final inspection is completed and all potential deficiencies are corrected. No payment over 80% is authorized until all work included in the contract is completed.

- Final invoice (100%) shall be paid once final inspection is completed and all potential defects identified in the final inspection are properly corrected.

Together with each invoice, the contractor shall provide:

- Official invoice

- Cost breakdown to justify the amounts for which the contractor is requesting payment

- Filled Contractor's Safety Self Evaluation Form

- Invoice Statement: With this text signed by a responsible person from the company (ideally the one that signed the contract):

  I hereby certify, to the best of my knowledge and belief, that:

  (1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;

  (2) All payments due to subcontractors and suppliers from previous payments received under the contract have been made, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements and legal requirements of the Republic of Macedonia;

  (3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract; and

  (4) This certification is not to be construed as final acceptance of a subcontractor's performance.

Progress payment shall only be authorized if NAVFAC representative verifies on site the amount of work performed, or if the contractor proves with sufficient pictures and documentation that the work was actually performed as required by the contract. NAVFAC representative will disallow from the requested amount those portions of the invoice that the contractor does not prove that they were performed as required by the contract.

4.14 Schedule of Prices

In order to process the invoices, the contractor shall send for the acceptance of the Contracting Officer Representative a Schedule of Prices. This document shall include the main elements of the construction contract, and in the invoices the Contracting Officer Representative and PM of the contractor shall agree on the percentages executed for each of the line items.

Only elements that are tangible and incorporated into the job site shall be authorized. Items such as preparation of documents, mobilization, safety, travel costs, overhead and other similar items are not authorized. The value of all items shall be properly distributed. Front-in loading the Schedule of Prices is not authorized.

No invoice shall be processed until the Schedule of Prices is accepted by the Contracting Officer Representative.

Item		Description	Quantity	Units	Unit Price in USD	Value in USD
		BASE PROJECT				
1		DESIGN	1	EA	$12,000.00	$12,000.00
2		ROOF	1150	m2	$30.00	$34,500.00
3		THERMAL FAÇADE	555	m2	$50.00	$27,750.00
4		NEW WINDOWS	135	m2	$150.00	$20,250.00
5		NEW EXTERIOR DOORS	7	piece	$500.00	$3,500.00
6		ENTRANCE CANOPY	1	piece	$654.00	$654.00
7		SIDEWALK	180	m	$10.24	$1,843.20
8		EXTERIOR GRADING	1	m2	$10.24	$10.24
9		ADITIONAL ENTRANCE	4	piece	$10.24	$40.96
10		BASEMENT ENTRANCE	1	piece	$10.24	$10.24
11		NEW INTERNAL LAYOUT	1	piece	$10.24	$10.24
12		INTERNAL FLOORING	560	m2	$10.24	$5,734.40
13		INTERNAL WALLS	1,200	m2	$10.24	$12,288.00
14		INTERNAL WINDOWS	1	piece	$10.24	$10.24
15		INTERNAL DOORS	96	m2	$10.24	$983.04
16		CEILINGS	560	m2	$10.24	$5,734.40
17		ELECTRICAL	1	piece	$10.24	$10.24
18		FIRE ALARM	1	piece	$5,200.00	$5,200.00
19		COMMUNICATION	1	piece	$2,352.00	$2,352.00
20		WATER DISTRIBUTION	1	piece	$1,565.00	$1,565.00
21		SEWAGE	1	piece	$3,650.00	$3,650.00
22		PATHOGEN DISCHARGE	1	piece	$5,568.00	$5,568.00
23		HEATING	1	piece	$5,688.00	$5,688.00
24		VENATILATION FOR LABS.	1	piece	$455.00	$455.00
25		COMMEMORATIVE PLAQUE	1	piece	$500.00	$500.00
		CONTRACT OPTION-1				
26		Exterior Pavement	125	m2	$56.00	$7,000.00
27		Generator,Water Tank,Split AC	1	piece	$6,500.00	$6,500.00
28		Additional Filters	1	piece	$1,000.00	$1,000.00
29		Rooms 28, 30, 32, 34 and HOL	1	m2	$4,655.00	$4,655.00
30		Stairway	1	piece	$8,542.00	$8,542.00
		TOTAL CONTRACT				**$178,004.20**

Example of typical Schedule of Prices for a contract with one option

4.15 Occupancy of the building

The Neurology Department will remain operational during the performance of works. Daily coordination with the Hospital Director (or his appointed representative for this project) will be absolutely necessary and required as part of this contract.

The facility will be occupied by staff and users of the facility. The safety of the users of the facility, as well as the general safety of the job site, shall be the first priority of the construction contractor. **Operational areas of the hospital shall be properly separated from the construction areas**. Strict compliance with Macedonian occupational safety and health regulations and with EM385-1-1 is required by this contract.

No garbage or scrap materials or construction materials shall be left in operational areas of the hospital complex. The contractor shall be required to install their own storage trailers in the exterior grounds of the Hospital Complex.

4.16 Payment for Utilities

The contractor is responsible to pay for any additional consumption of heat or electricity, which may be required for the execution of these works.

For electricity: They shall pay directly to the utility company

For heating: They shall pay to the agency, entity or company providing heating. Calculation shall be done proportionally and interpolating in relation with the energy consumption of the facility.

4.17 Damages/Impact to Existing Facilities

The contractor is responsible to repair any damage or impact caused by their construction activities to any premises of the hospital complex. This includes potential damages such as:

- Dust on operational areas of the hospital
- Water infiltration to areas not under the scope of work for humid concrete/plaster
- Scratches on walls, ceilings or flooring surfaces
- Damages to the hospital complex exterior grounds

5 GENERAL TECHNICAL SPECIFICATION

5.1 CONSTRUCTION GUIDANCE

Construction shall be in accordance with sound construction practices, and shall conform to the latest revision/edition of the codes, criteria, and standards referenced below except as otherwise indicated by this Request for Proposal. Construction shall also comply with applicable codes, ordinances and regulations of Macedonia governing life/safety, fire protection, building construction, medical facilities, HVAC (heating ventilation and air conditioning) systems, plumbing systems, electrical systems, or sanitation systems in effect during this contract, except where specifically stated herein. Any material installed that does not meet the requirements of this Technical Specification (TS) and/or applicable codes, ordinances and regulations will be removed and reinstalled at Contractor's expense.

The contractor shall prepare, process and pay for all designs and technical documents and their corresponding fees that may be required by Macedonian regulations for the works included in the scope of work of this project.

5.2 PROHIBITED ITEMS

Use of the following items in this construction project is prohibited:

- Use of aluminum for electrical conductors.
- Embedding aluminum conduit in concrete.
- Use of fluorescent light ballasts and other products containing PCB's.
- Use of urea-formaldehyde foam insulation products.
- Use of any paint/coatings having a lead content of over 0.06 percent by weight of non-volatile content. The use of ozone depleting chemicals is prohibited. The use of zinc-chromate is prohibited.
- The use of materials containing asbestos is prohibited.

5.3 RESPONSIBILITY OF NEW MATERIALS

All materials delivered to the construction site shall remain in the ownership and responsibility of Contractor. Contractor will be responsible to safeguard the procession and condition of the material until US Government takes procession of the finalized project. Any materials or equipment stolen or disappeared from the job site before final acceptance is the responsibility of the contractor.

Material that is not intended to become part of the project shall not be delivered, placed, retained nor stored on the project site.

5.4 RESPONSIBILITY ANDF OWNERSHIP OF REMOVED MATERIALS

All refuse or salvaged materials are the property of the Hospital, and therefore they shall be moved to a location within the hospital complex. Prior to moving them to the location to be indicated by the Hospital Director, they shall be properly cleaned. The contractor shall not be held responsible in case something is damaged or broken during its removal or transportation. This applies to items such as the old doors, the wooden windows or toilet appliances.

Those elements that are not requested by the Hospital Director (including any of the items described in the previous paragraph that the Hospital Director may not want) shall become the property of the Contractor and shall be disposed of, off-site, in accordance with applicable Macedonian regulations. The Contracting Officer may ask for receipts of proper disposal of debris, or excess materials.

5.5 CERTIFICATIONS, LICENSES, PERMITS, FEES, ETC.

The contractor shall be legally capable of performing construction and design works in Macedonian, as required by Macedonian regulations. The contractor shall possess the necessary licenses and authorizations in order to be able to perform the design and construction activities described in this document in strict compliance with Macedonian legislation.

All workers employed or performing any works for this construction project shall be legally capable of performing such works in Macedonia. This includes work permits for any worker not legal resident in Macedonia.

The Contractor shall be responsible for determining, processing, requesting and paying all fees associated with, and obtaining any required permits for this project including, but not necessarily limited to permits for on-site and off-site hauling, demolition/disposal, construction activity, utilities, communications, etc. The contractor is responsible for acquiring any required certifications (licensing). Coordinate all permit requirements with the Contracting Officer. Submit all completed permit application material, and associated back-up material, required to operate facilities, to the Contracting Officer for approval prior to agency submission. Contractor shall be responsible for complying with environmental laws, regulations and requirements. The Contracting Officer Representative may require at any time evidence of proper construction licensing of the contractor.

Coordinate all permit requirements with the competent local authorities or with the Contracting Officer as required. Submit all completed permit application material, and associated back-up material, required to operate facilities, to the Contracting Officer for approval prior to agency submission. Contractor shall be responsible for complying with environmental laws, regulations and requirements.

5.6 SAFETY AND PROTECTION

Execution of this construction contract requires compliance with Macedonian and USACE Safety regulations. In addition to the Accident Prevention Plan which needs to be prepared as outlined in EM385-1-1 (see Annex 1), the contractor is responsible to prepare all necessary safety documentation, studies, reports, books, design or logs, which may be required by Macedonian regulations/legislation.

5.6.1 Safety of the patients in the facility, safety of the workers, visitors, and general public shall be the highest priority of the contractor.

5.6.2 The contractor shall comply with the Safety Manual of the US Army Corps of Engineers (EM-385-1-1), wherever this US manual has more stringent safety requirements than those required by Macedonian Code and these requirements are not in conflict with local safety regulations. A digital copy of this manual can be found here: http://140.194.76.129/publications/eng-manuals/em385-1-1/2008_English/toc.html.

5.6.3 In accordance with previous safety paragraphs, the contractor shall provide an accepted copy of their Accident Prevention Plan before any work is authorized to start.

5.6.4 The contractor is responsible for the safety of the patients in the facility, the contractor's employees, subcontractors, visitors and the general public, as they could be affected by this construction project. Contractor shall provide proper fences or barricades to separate the construction areas from the patients and general public.

5.6.5 The contractor is responsible to comply with Macedonian Safety Code. All costs of compliance with safety and with Macedonian safety regulations are the responsibility of the contractor. Any costs related with safety inspections, safety monitoring, or anything else required to comply with the Safety regulations shall be the responsibility of the contractor.

5.6.6 The construction areas shall be securely separated from those areas of free access to the general public, especially to the access of the patients.

5.6.7 Within the context of his responsibilities, the contractor shall take the necessary actions to protect the safety and health of the employees, including the prevention of occupational risks, information and training measures, and measures for the organization of the health and safety at work and its necessary means as required by Macedonian Code. The following general prevention principles shall be taken into account for the adoption and implementation of the measures provided above:

a. avoiding risks;

b. evaluating the risks which cannot be avoided;

c. combating the risks at the source;

d. adapting the work to the individual, in particular as regards the design of the workplace and the choice of work and production equipment and methods, with a view, in particular, to alleviating monotonous and repetitive work, and its effects on health;

e. adapting to technical progress;

f. replacing the dangerous by the non-dangerous;

g. prevention planning;

h. giving collective protective measures priority over individual protective measures;

i. giving appropriate instructions to the employees.

An employer shall insure all employees against occupational accident and disease risks, under the terms of Ukrainian law. The contractor shall verify that all employees of the prime contractor or any subcontractor employed in this project meet the legal requirements of Macedonian Law.

The contractor shall organize the employee training in the field of health and safety at work. This training must be provided to new employees, those changing the workplace or type of work and those resuming their activity after a break longer than 6 months. In all such cases, the training shall take place before the actual beginning of the activity. The contractor shall be responsible for the facilities related to the provision of first aid in case of occupational accidents, for fire prevention and the evacuation of the employees in special situations and imminent danger.

The contractor shall be responsible for a safe and hygienic work environment both on the project site and at off-site locations where work is done in conjunction with this project.

5.6.8 The contractor shall be responsible for the protection of all grounds, vegetation and improvements that exist and are to remain after the project is complete; with-in the project work areas, adjacent to the project work areas and along the common route of access to the site, outside of the work areas. The Contractor shall be responsible to have any damage caused by Contractor's employees, equipment or sub-contractors repaired and restored to pre-damage condition, as approved by the PM or Contracting Officer Representative (COR), at no cost to the Government.

5.6.9 The Contractor shall comply with all applicable safety regulations of Macedonia, including all required record keeping.

5.6.10 The Contractor shall provide and maintain in working order during the entire construction period, such fire protective equipment and devices as required by applicable safety standards and as deemed necessary and suitable for any possible class or type of fires. Extinguishers shall be non-freeze type of not less than ten pound (5KG) capacity each.

5.6.11 Provide protection against rain, wind, or heat so as to maintain all work, materials, apparatus, and fixtures, incorporated in the work or stored on the site, free from injury or damage. At the end of the day's work, cover all new work and existing installations likely to be damaged as a result of the construction activities (i.e. roofing work).

5.6.12 Contractor shall acquaint themselves with the location of utilities, which may be encountered or be affected by work, and shall be responsible for damage caused by neglect to provide proper precautions or protection. If needed, the contractor shall contact any local authorities or utility companies to locate any utility service, (and pay for their services if needed).

5.6.13 Provide, erect and maintain all required barricades, of sufficient size and strength necessary for protection of material storage, as well as to prevent accidents to the public and the workmen at the job site.

5.6.14 Special precautions shall be taken to maintain the area around the facility clean for its intended service to the Community. The contractor must take into consideration that there are patients in the compound, and that the compound will remain in use at all times during the renovation project.

5.6.15 Injuries to any person and damage to any property not belonging to the Contractor shall be reported immediately to the PM or COR (Contracting Officer Representative). Compensation to any third party affected by the construction activities (such as damage to private property) shall be the exclusive responsibility of the contractor.

5.7 COORDINATION.

All coordination with the municipal, regional and national authorities shall be the responsibility of the contractor. The Contracting Officer shall be notified of any disputes between agencies or approvals that will affect Contract duration or Contract Price.

Coordination between the contractor and the Hospital Director (or his representatives) is required on a daily basis.

5.8 SPECIAL SITE CONDITIONS

Confine all operations, equipment, apparatus and storage of materials, to the immediate area of work to the greatest possible extent. Contractor shall ascertain, observe and comply with all rules and regulations in effect on the project site, including, but not limited to parking and traffic regulations, use of walks, security restrictions or hours of allowable ingress and egress.

5.9 CLEANING

Contractor shall keep premises free of accumulations of surplus materials and rubbish caused by their operations. Combustible rubbish shall be removed from the premises each day. Burning of rubbish on premises is not permitted. In addition, the Contractor shall perform final cleaning to remove all foreign matter, spots, soil and construction dust, so as to put the project in a complete and finished condition ready for acceptance and use intended.

All waste areas and storage areas will be cleaned up to the PM’s satisfaction. All excess materials will be removed from the site and the Contractor will leave the premises free of debris and excess waste materials. Any garbage of debris to stay at the job site for more than one day will be stored in proper approved containers, properly separated from general public. Stockpiling debris and garbage directly on the ground is not acceptable, but the contractor shall provide adequate metal containers.

5.10 SPARE PARTS

The contractor will provide spare parts for all new materials to be incorporated to the job site. They shall provide a total of:

- 1 lamp of each type utilized for this project,
- 5 m² or 5% of each type of flooring or ceramic tile utilized
- 20 liters of each type of paint to be used,
- and other typical materials that were used in this construction project that may be used for the user of the facility for maintenance purposes.

5.11 WARRANTY AND ACCEPTANCE

The completed works shall have the warranty periods required by Macedonian regulations, which under no circumstance shall be less than one year general warranty. The contractor shall provide the warranty letter to the Hospital Director with a copy to the Contracting Officer. The start date for the warranty is the day when all works are accepted by the US Government (for each one of the phases), not when the different tasks are completed.

The contractor shall notify the US Government representative at least two months in advance of the proposed final inspection date.

For final acceptance of the facility and in order to authorize Final Payment, the contractor shall provide to the Contracting Officer representative:

- Warranty letters
- 2 books, packages or boxes containing all technical, maintenance and administrative documentation of the contract. One box to remain in the municipality and the other to be sent to the US Embassy in Skopje.
- A list of spare parts provided to the facility signed by the Hospital Director.
- Certificate of occupancy by the Hospital Director or other competent Macedonian authority, or if applicable, letter by Hospital Director or competent Macedonian authority certifying that the contractor has completed the works included in this contract.

<<<END OF PERFORMANCE TECHNICAL SPECIFICATIONS>>>

Annex 1

Annex 1: Guideline to Prepare the Safety Plan / Accident Prevention Plan

Immediately after award, the contractor shall prepare a Safety Plan / Accident Prevention Plan following the guideline and format provided in this Annex. This is in addition to any safety plan of safety documentation that may be required by Macedonian regulations for this type of construction activity. The Plan shall be accepted by the Contracting Officer before works are authorized to start at the job site.

NAVFAC EURAFSWA Contingency Engineering

ACCIDENT PREVENTION PLAN [APP]

Minimum Basic Outline

This first page is NOT to be included in the APP you're going to submit.

This document shall be customized in agreement to the instructions below, pages not applicable shall be removed, and the signed final document shall be submitted in pdf format.

Instructions

A. The contractor is required, at a minimum, to type-in information called for in areas denoted with a RED arrow and put a checkmark in the appropriate box or boxes corresponding to that section *(to check a box, double click on it, then select checked in the pop up window).* By signing this plan, the contractor is agreeing to all checked information herein and the checkmark will signify:

a) Contractor selected one or more items from a list of items
b) Contractor agrees with the corresponding information,
c) Contractor agrees to follow the requirement(s) listed herein and those contained in EM 385-1-1 dated 15 September 2008
d) Contractor agrees to develop written plans based on the requirements listed herein when required by this accident prevention plan.

B. The plan must consist of the following 10 sections:

1. Signature Sheet	6. Training
2. Background Information	7. Safety and Health Inspections
3. Statement of Safety and Health Policy	8. Accident Reporting
4. Responsibilities and Lines of Authority	9. Plans (Programs, Procedures)
5. Subcontractors and Suppliers	10. Risk Management Processes (AHA – Activity Hazard Analysis)

C. In addition to completing each section listed above several sections require certain supporting documents (resumes, certificates of training, organization chart, specific plans (crane lift plan medical support plan, etc.)). The supporting documents and plans must be attached / inserted in the appendices listed below.

Appendix	Title	Required Contents
I	Signature Sheet	As required per Section 1
II	Background Information	Area map
III	Statement of Health Policy.	Copy of signed company Safety Policy if not using generic one
IV	Responsibilities and Lines of Authority	Resume' and NAVFAC online Construction Safety Course certificate for SSHO (http://cst.wbdg.org/start.html); Proof of competency / qualification (Resumes and certificates) for persons listed in Section 4; Organization Chart (with names) for Key Corporate and Project personnel.
V	Subcontractors and Suppliers	As required per Section 5
VI	Training	As required per Section 6
VII	Safety and Health Inspection	As required per Section 7
VIII	Accident Reporting	As required per Section 8
IX	Plans	Area map showing site location; Site layout map; Acknowledgement of applicable plan key elements or NA.
X	Risk Management Processes (AHA – Activity Hazard Analysis)	AHA form for each feature of work

The reviewer of the Accident Prevention Plan shall use this checklist. The preparer of the APP shall use it to verify that all necessary information was included in the APP.

CONTRACTOR:	DATE:
CONTRACT:	SIGNATURE:

	A qualified reviewer shall check to assure submitted copies of the following items applicable from EM 385-1-1 Appendix A are included in the APP.	**YES**	**NO**	**REMARKS**
1	SIGNATURE SHEET: Plan Preparer, Approval, Concurrence.			
2	BACKGROUND INFO: Contractor, Contract #, Project Name, Brief Project Description, Contractor Accident Experience (EMR, OSHA) Corp. Trend Analysis, list of activities requiring AHA.			
3	STATEMENT OF SAFETY & HEALTH POLICY.			
4	RESPONSIBILITIES & LINES OF AUTHORITY: Identification of personnel responsible for safety (Corp. & Project Level).			
5	SUBCONTRACTOR & SUPPLIERS: Identification of Subs and Suppliers; means for controlling & coordinating; safety responsibilities.			
6	TRAINING: List subjects in safety indoctrination; mandatory training & certification, emergency response, outline requirements for supv and employee safety meetings.			
7	SAFETY & HEALTH INSPECTIONS: Identify who will conduct inspections, when & how it will be conducted & recorded, deficiency tracking sys and follow-up procedures. Any external inspections/certifications (e.g., Coast Guard etc).			
8	SAFETY & HEALTH EXPECTATIONS, INCENTIVE PROGRAMS AND COMPLIANCE: Company's written safety program goals, objectives, and accident experience goals; description of company's safety incentive program; policy/procedures for non-compliance with safety requirements; written company procedures for holding mgr. /supvs accountable for safety.			
9	ACCIDENT REPORTING: Identify person who completes the following, how, and when; exposure data (m/hrs worked); accident investigations, reports & logs; immediate notification of major accidents.			
10	MEDICAL SUPPORT: Outline on-site medical support and off-site medical arrangements.			
11	PERSONAL PROTECTIVE EQUIPMENT: Outline procedures (who, when, how) for conducting hazard assessments & written certifications for use of personal protective equipment.			
12	PLANS (PROGRAMS, PROCEDURES) REQUIRED BY THE SAFETY MANUAL: a) Hazard Communication; b) emergency response plans; c) layout plans; d) respiratory protection plan; e) health hazard control program; f) lead/asbestos abatement plan; g) abrasive blasting; h) confined space; i.e.) hazardous energy control plan; j) critical lift procedures; k) contingency plan for severe weather; l) access/haul road plan; m) demolition plan (engineering and asbestos surveys); n) compressed air plan; o) formwork and shoring erection and removal plans; p) lift slab plans; q) SHP/SSHP (for HTRW work); r) diving plan; s) alcohol drug abuse prevention plan; t) fall protection plan.			a) k) b) l) c) m) d) n) e) o) f) p) g) q) h) r) l) s) j) t)
13	Information on how the contractor will meet the requirements of the major sections of EM 385-1-1 in the accident prevention plan. Particular attention shall be paid to a) excavations; b) scaffolding; c) medical/first aid requirements; d) sanitation; e) PPE; f) fire prevention; g) machinery and mechanized equipment; h) electrical safety; l) chemical, physical agent, and biological occupational exposure prevention requirements. Detailed site specific hazards and controls shall be provided in the activity hazard analysis for each phase of the operation. A list of anticipated AHAs should be submitted with the APP.			a) b) c) d) e) f) g) h) i.e.)
14	Plans for maintaining job cleanup and safe access			
15	Public safety requirements (e.g., fencing, signs)			

LANT Form 385-APP

ACCIDENT PREVENTION PLAN [APP]

Contract No.:
Project Name:
Location:

1. SIGNATURE SHEET

a. Plan preparer (Safety manager, site safety and health officer (SSHO), or quality control representative will fill this role)**.**

Name:	**Title:**
Phone no.:	**Date:**
Signature:	

b. Plan approval (Company owner or Company / corporate officer authorized to obligate the company)**.**

Name:	**Title:**
Phone no.:	**Date:**
Signature:	

c. Plan concurrence (e.g., Chief of Operations, Corporate Chief of Safety, Corporate Industrial Hygienist, project manager or superintendent, project safety professional, project QC).

Name:	**Title:**
Phone no.:	**Date:**
Signature:	

2. BACKGROUND INFORMATION

Prime Contractor:
Project name:
Contract no.:

a. Project description and location. Prime contractor will provide a brief description of the project to include its location.

b. ☒ A map of the project site general location and site plan – Insert in Appendix IX.

c. Prime contractor accident experience. Prime contractor will provide accident experience information, if available, on how many accidents he or she has experienced in the last two years and what type of accidents have occurred.

d. Phases of work / Definable Features of Work. (**Examples:** Grading, excavation, formwork & shoring, steel erection, etc). NOTE: Section 10 requires an AHA for each of these phases

G1 - Mobilization / General Construction
G2 - Demolition
G3 - Scaffolding / Fall Protection
G4 - Excavation / Trenching
G5 - Electrical
G6 – Cement Work
G7 – Masonry Work
G8 – Confined Spaces & Hazardous Atmosphere
G9 – Plumbing
G10 – Painting
G11 – Steel Structure Erection
G12 – Abrasive Blasting

3. STATEMENT OF SAFETY AND HEALTH POLICY

3. ☒ **STATEMENT OF SAFETY AND HEALTH POLICY.** Prime contractor will provide a safe and healthful project site which is free from recognized and anticipated hazards that could cause injury or death. The prime contractor and his subcontractor(s) and supplier(s), and visitor(s), will comply with the policies set forth in EM 385-1-1 'Safety and Health Requirements Manual' dated 15 September 2008. Include a copy of Company's Safety Policy at Appendix III.

4. RESPONSIBILITIES AND LINES OF AUTHORITY

a. ☒ Resumes. Prime contractor will provide resumes for safety and industrial hygiene personnel if the contract requires these positions. Competent person qualifications for the Site Safety and Health Officer (SSHO) will also be provided. At a minimum, the SSHO will have completed the OSHA 30 hour training and have one year experience. Provide training certificates for all designated competent personnel at Appendix IV.

b. ☒ Accountability for personnel responsible for safety.

Company owner will:
- Accept responsibility and accountability for the safety program.
- Provide leadership and guidance to supervisory personnel for the acceptance, maintenance, and enforcement of the safety program.
- Provide the necessary resources to maintain a safe and healthful project site.
- Conduct or attend monthly supervisory safety meetings.

Company owner name/phone no.

Project manager (superintendent) will:
- Implement the safety and health program at the project site.
- Conduct periodic project site inspections to verify accident prevention plan (APP) and EM 385-1-1 compliance.
- Review and act upon site safety and health inspection reports.
- Prepare man-hour reports, if applicable.
- Have authority to make spot corrections or stop work for safety purposes.
- Conduct or attend monthly supervisory safety meetings.
- Generate and/or sign ENG Form 3394 when required.

Project manager name/phone no.

Safety manager will:
- Accept administrative and oversight responsibility for the project site safety program.
- Provide technical guidance and support to the project manager, SSHO, supervisors, and foremen on safety and health issues.
- Conduct periodic worksite visits to verify APP and EM 385-1-1 compliance.
- Report observations and findings to the company owner.
- Purchase personal protective equipment (PPE) and safety supplies as necessary.
- Have authority to make spot corrections or stop work for safety purposes.
- Conduct or attend monthly supervisory safety meetings.
- Generate and/or sign ENG Form 3394 when required.

Safety manager name/phone no.

Site safety and health officer will:
- Be on site at all times when work is performed.
- Conduct frequent worksite inspections to verify APP and EM 385-1-1 compliance.
- Conduct or supervise on-site safety training.
- Investigate accidents and incidents as necessary.
- Purchase PPE and safety supplies as necessary.
- Have authority to make spot corrections or stop work for safety purposes.
- Conduct weekly employee safety meetings and attend monthly supervisory safety meetings.
- Generate and/or sign ENG Form 3394 when required.

Site safety and health officer name/phone no.

Supervisors (foremen) will:
- Cover appropriate activity hazard analysis before work begins.
- Conduct periodic project site inspections to verify APP and EM 385-1-1 compliance.
- Assist SSHO with accident and incident investigations.
- Have authority to make spot corrections or stop work for safety purposes.
- Conduct daily safety meetings with specific work crews.
- Conduct weekly employee safety meetings and attend monthly supervisory safety meetings.
- Generate and/or sign ENG Form 3394.

Workers will:
- Wear required PPE for each task.
- Inspect electrical cords daily before use.
- Inspect in-use hand and power tools daily before work begins. Guards will NOT be removed from tools equipped with guards.
- Inspect in-use machinery and mechanized equipment daily before work begins.
- Maintain good housekeeping at the worksite.
- Report accidents and incidents immediately to supervisor.
- Have authority to make spot corrections or stop work for safety purposes.
- Attend employee safety meetings.

c. ☒ **Lines of authority.** Prime contractor lines of authority will be as follows: Company owner, project manager, safety manager, SSHO, supervisors, and workers.

i. ☒ **Company goal.** Prime contractor will provide a safe and healthful worksite that is free from recognized or anticipated hazards that could cause serious injury or death. We will strive for a zero accident rate and demand zero tolerance for unsafe acts, the workers who perpetrate them, and persons in positions of leadership who condone such actions.

ii. ☒ **Incentive program.** Prime contractor will provide their incentive program, if any.

iii. ☐ **Check the box if prime contractor will provide his own non-compliance program. If not, prime will put a check mark in paragraph's d and e.**

iv. ☒ **Worker non-compliance with safety requirements.** The commission of unsafe acts will not be tolerated at the project site. In the event this type behavior occurs the following disciplinary actions will be taken:
   - **First offense.** The offending party will be verbally warned and asked to correct the unsafe act (mentoring will take place if necessary - action will be noted in the daily report).
   - **Second offense.** The offending party will be issued a written reprimand (action will be noted in the daily report).
   - **Third offense.** The offending party will be removed from the worksite (action will be noted in the daily report).

v. ☒ **Supervisor non-compliance with safety requirements.** The condoning of unsafe acts at the worksite will not be tolerated. In the event this type behavior occurs the prime contractor will ensure disciplinary actions commensurate with the violation are taken.

5. SUBCONTRACTORS AND SUPPLIERS

a. ☐Check the box if there aren't any subcontractors or suppliers working the site. If subcontractors will be onsite please identify them below, if not, continue to Section 6.

b. Identification of subcontractors and suppliers. Prime contractor will list subcontractors and suppliers, if known, and their phone numbers.

Co:	**Ph:**
Co:	**Ph:**
Co:	**Ph:**
Co:	**Ph:**

c. ☐ Means for controlling subcontractors and suppliers. Prime contractor will meet with subcontractors and suppliers before work begins, and periodically thereafter, to coordinate activities and schedules, and to resolve any safety issues that may arise.

d. ☐ Subcontractor and supplier safety responsibilities. Subcontractors and suppliers will adhere to the requirements of the prime contractor's APP. Prime contractor will have subcontractors and suppliers sign the accident prevention plan signifying their understanding of, and compliance with, its provisions.

SUBCONTRACTOR AND SUPPLIER ACCEPTANCE
OF ACCIDENT PREVENTION PLAN

Name:	**Date:**
Signature:	

Name:	**Date:**
Signature:	

Name:	**Date:**
Signature:	

Name:	**Date:**
Signature:	

Name:	**Date:**
Signature:	

6. TRAINING

a. ☒ Safety indoctrination subjects.

- Personal protective equipment requirements for project site.
- Review of accident prevention plan and activity hazard analyses.
- Weekly (employees) and monthly (supervisors) safety meetings.
- Location of portable fire extinguishers.
- Location of first-aid kits.
- Identification of first-aid/CPR qualified personnel (if applicable).
- Location of emergency phone numbers.
- Location of the nearest on-site/off-site medical facility.
- Emergency plans for fires/spills (if applicable).
- Accident notification and reporting procedures.
- Current project site safety issues.

Other safety indoctrination subjects.

b. Training or certifications applicable to the project. (Note: If the activity selected is in **bold** the prime contractor will provide employee names working the job along with their years of 'on-the-job' experience in **Appendix VI**. If workers have attended a specific training class or hold a certification in the job the prime will also annotate this information – **See Appendix VI.**)

☐ **Abrasive blasting.**	☒ Fall protection.
☐ **Blasting.**	☒ First-aid/CPR.
☐ Compressed gas cylinders.	☒Formwork/shoring.
☒ Concrete/masonry.	☒Hand/power tools.
☐ **Confined space.**	☐Hazard communication.
☐ **Cranes/derricks.**	☐ Hazardous waste.
☐ Crane hand signals.	☐ **Lockout/tagout.**
☒ **Electrical.**	☒ **Machinery/mechanized equipment.**
☐ Elevating work platforms.	☐ Motor/all-terrain vehicles.
☐ Emergency response (fires/spills).	☐ Pneumatic tools.
☒ Excavation.	☒ Portable fire extinguishers.
☐ **Explosive-actuated tools.**	☐ Powered industrial trucks.
☐ Pressurized equipment/systems.	☒ Scaffold systems.

☐ Respiratory protection.

☐ Rigging.

☐ Rotating work platform.

☐ Safe lifting techniques.

☐ Steel erection.

☐ Vehicle-mounted elevating platforms.

☐ Wearing/maintaining PPE.

☐ **Welding/cutting.**

Other training and certifications.

c. Weekly employee safety meetings.

☒ Project manager, safety manager, site safety and health officer, or supervisor will conduct employee safety meetings.

☒ Prime contractor and subcontractor workers will attend employee safety meetings.

Day and time of employee safety meetings is listed below:

Day:	**Time:**
Day:	**Time:**

☒ Meetings will be documented with facilitator/attendee names, date, and subjects discussed.

d. Monthly supervisory safety meetings.

☒ Company owner, safety manager; or project manager will conduct supervisory safety meetings.

☒ Prime contractor and subcontractor supervisors will attend supervisory safety meetings.

Day and time of supervisory safety meeting is listed below:

Day:	**Time:**
Day:	**Time:**

☒ Meetings will be documented with facilitator/attendee names, date, and subjects discussed.

7. SAFETY AND HEALTH INSPECTION

a. ☒ Project site safety inspections.

- Company safety manager (periodically).
- Project manager (periodically).
- Supervisors and foremen (periodically).
- Site safety and health officer (SSHO) (frequently).
- Quality control representative (daily).
- Employees will conduct project site inspections of electrical cords, in-use hand and power tools, and in-use machinery/mechanized equipment (daily).

b. ☒ Inspector qualifications. Prime contractor will provide inspector qualifications for safety manager, SSHO, and quality control representative.

c. ☒ Deficiency log. A deficiency log will be generated after inspections using the criteria listed below. Follow-up inspections will be performed to ensure identified deficiencies have been corrected.

- Date deficiency identified.
- Description of deficiency.
- Name of person responsible for correcting deficiency.
- Projected resolution date.
- Date actually resolved.

d. External inspections. Are external inspections or certifications required? ☐ Yes ☒ No

If yes please explain.

8. ACCIDENT REPORTING

a. ☒ **Exposure data.** Man-hours worked will be reported to NAVFAC EURAFSWA Project Manager by the 25th of every month using the "Contractor Monthly Safety Self- Evaluation Form"(must insert in **Appendix VIII**).

b. ☒ **Accident notification.** Prime contractor will report accidents and incidents as soon as they happen to the contracting officer's representative (COR). The COR, in turn, will notify the Safety Office according to the notification information below. For accidents and incidents that require immediate notification, the prime contractor will seal-off the site and wait for the NAVFAC Safety investigation team.

Immediate notification (telephonically):

- Fatality.
- Permanent total disability.
- Permanent partial disability.
- Three or more persons admitted to a hospital.
- Property damage of $200,000 damage or more.

24-hour notification (telephonically and/or email):

- Lost time (**Note:** Lost time is defined as any loss of time away from work beyond the day or shift on which it occurred).
- Property damage not less than $2,000 but no greater than $200,000.
- Treatment of medical injuries not resulting in lost time.

c. ☒ **Accident recording.** Prime contractor will coordinate with the COR on forwarding the appropriate documents to the NAVFAC Safety Office.

Reportable accident and incident requirements: All accidents and incidents to include occupational injuries and illnesses that result in medical treatment with no lost time, and property damage of less than $2,000, will be documented in an email and sent to the NAVFAC Safety Office within 24 hours.

Recordable accident and incident requirements: All accidents and incidents to include occupational injuries and illnesses that result in lost time (measured in days) or property damage of $2,000 or more will be documented on ENG Form 3394 'U.S. Army Corps of Engineers Accident Investigation Report' dated March 1999 and submitted to the NAVFAC Safety Office within five (5) days of the occurrence.

9. PLANS (PROGRAMS, PROCEDURES)

A. LAYOUT PLANS – MUST INSERT IN APPENDIX IX.

B. EMERGENCY RESPONSE PLANS – SEE APPENDIX IX.

C. MEDICAL SUPPORT.

a. General requirements.

☒ An effective means of communication (hard-wired, cellular, or two-way radio and tested in the area of use for functionality) with emergency response source access will be provided along with transportation for injured workers.

☒ Telephone numbers of medical facilities, physicians, and ambulances will be conspicuously posted (at a minimum these numbers will be posted near project-office telephones).

☒ A map showing the best route to the nearest medical facility will be conspicuously posted.

Medical Facility Name:
Address:
Phone Number(s):

b. Type of medical support:

☒ **Less than 100 persons employed on any one shift.** On sites with less than 100 workers, and where neither a first-aid station nor infirmary is available, prime contractor will provided a first-aid kit for every 25 persons. These kits will have latex gloves and a CPR shield.

Location of first-aid kits:

☒ **Trained first-aid/CPR employees.** Prime contractor will have at least two employees on each shift trained to administer first-aid/CPR when a medical facility or physician is not accessible within five minutes of an injury to a group of two or more employees. Provide training certificates or copy of certification card.

Employee Name:	Certification expiration date:
Employee Name:	Certification expiration date:

☐ **More than 99 but less than 300 persons employed on any one shift.** On sites with more than 99 but less than 300 workers the prime contractor will establish and equip, as directed by a licensed physician, a first-aid station. Identification signs and directional markers will be used to denote the station's location. Emergency lighting will be provided and a first-aid attendant will be on duty at all hours when work is in progress.

☐ **300 or more persons employed on any one shift.** On sites with 300 or more workers the prime contractor will establish and equip, as directed by a licensed physician, an infirmary. Identification signs and directional markers will be used to denote the infirmary's location and emergency lighting will be provided.

Infirmaries will provide reasonably quiet conditions with some privacy, lighting, climate control, adequate toilet facilities, hot and cold water, drainage, and electrical outlets. Walls and ceilings will be finished with two coasts of white paint, windows and doors screened, and the floors made of impervious construction.

A properly-equipped emergency vehicle, helicopter, or mobile first-aid unit will be provided during work hours (the emergency vehicle will not be used for any other purpose). A registered nurse, licensed physician's assistant, certified emergency medical technician, or a licensed practical nurse (approval by a licensed physician) will be assigned on a full-time basis to each work site.

D. PERSONAL PROTECTIVE EQUIPMENT (PPE).

a. General Requirements.

☒ Prime contractor will conduct hazard assessments to find out the type(s) of PPE required.

☒ Prime contractor will ensure workers know how to put on, adjust, wear, remove, and use PPE. PPE will be inspected before each use, maintained in a serviceable and sanitary condition, and stored so the integrity of the equipment is protected. This training will be documented with the name of the facilitator/attendees, date, and subjects taught.

☒ Damaged and defective equipment will not be used but rather marked 'out-of-service' and removed from the project site.

b. PPE used on the project site.

☒ Minimum required clothing.
☒ Hard hat.
☒ Safety glasses/goggles.
☐ Face shield.
☒ Ear plugs/muffs.
☒ Work gloves.
☐ Welding gloves.
☒ Steel-toed/hard-soled shoes.
☐ Welding helmet.
☐ Welding goggles.
☐ Welding hand-held shields.
☐ Full-body harness w/lanyard(s).
☒ Reflective vest.
☒ Dust mask.
☐ Half-face/full-face respirator.
☐ Personal floatation device.
☐ Life ring.
☐

Other PPE used on the project site.

<u>E. OTHER PLANS:</u> Must check if "YES" or NA (not applicable) for all listed plans. If you check "YES" then you must complete Appendix IX boxes for that plan or insert your company plan. Sections in parenthesis refer to plan coverage in the 2008 EM 385-1-1.

PLAN NAME	YES	NA	PLAN NAME	YES	NA
Plan for prevention of alcohol and drug abuse (01.C.02)	×		Contingency plan for severe weather (19.A.03);	×	
Site sanitation plan (Section 02)	×		Float Plan (19.F.04);		×
Access and haul road plan (4.B)		×	Site-Specific Fall Protection & Prevention Plan (21.C);	×	
Respiratory protection plan (05.G)		×	Demolition plan (to include engineering survey) (23.A.01);	×	
Health hazard control program (06.A)		×	Excavation/trenching plan (25.A.01);	×	
Hazard communication program (06.B.01)		×	Emergency rescue (tunneling) (26.A.);		×
Lead abatement plan (06.B.05 & specifications);		×	Underground construction fire prevention and protection plan (26.D.01);		×
Asbestos abatement plan (06.B.05 & specifications);		×	Compressed air plan (26.I.01);		×
Safety Program (06.E.03.a);	×		Formwork and shoring erection and removal plans (27.C);	×	
Abrasive blasting (06.H.01);		×	Precast Concrete Plan (27.D);		×
Heat/Cold Stress Monitoring Plan (06.I.02)		×	Lift slab plans (27.E);		×
Crystalline Silica Monitoring Plan (Assessment) (06.M) ;		×	Steel erection plan (27.F.01);		×
Night operations lighting plan (07.A.08);		×	Site Safety and Health Plan for HTRW work (28.B);		×
Fire Prevention Plan (09.A);	×		Blasting Safety Plan (29.A.01);		×
Wild Land Fire Management Plan (09.K);		×	Diving plan (30.A.13);		×
Hazardous energy control plan (12.A.01);		×	Confined space Program (34.A).		×
Critical lift Plan (16.H);		×			

☒ **Temporary facilities/layout plan (Section 4.A).** ☐ **NA.**
*****Written Company plan required**

- Trailers and other temporary structures used as field offices, personnel housing, or storage areas will be anchored with rods and cables or by steel straps attached to ground anchors.
- Temporary facility spacing requirements will be in accordance with (IAW) paragraph 09.A.19.
- Temporary power distribution requirements will be IAW paragraph 11.D.01.
- Temporary project fencing will be provided on projects located in areas used by the public.
- Signs warning of construction hazards will be posted on fencing every 300'.
- Temporary structures with an electrical capability will be grounded.
- Temporary work camps will be adequately drained (graded and ditched) and rendered free from depressions where water may settle.
- The area surrounding the structures will be free of debris, garbage, and rubbish.
- Temporary sleeping quarters will be heated, ventilated, lighted, and maintained in a clean and safe condition.

☐ **Emergency response plans for fires/spills (Section 01.E.01).** ☒ **NA.**
*****Written Company plan required.**

- Discuss escape procedures and routes.
- Designate critical project site operations and discuss how the operations will be protected.
- Discuss employee accountability procedures following an evacuation.
- Discuss employee roles in emergencies to include responsibilities and equipment used.
- Discuss the location of emergency contact information to include reporting procedures.

☐ **Hazard communication plan (Section 06.B.01).** ☒ **NA.**
*****Written Company plan required.**

- A current inventory of project site hazardous chemicals will be prepared.
- Material safety data sheets for hazardous substances will be kept at the project site.
- Containers will be labeled with the type of hazardous substance they contain.
- Workers will be notified about new substances that are brought onto the worksite to include the hazards associated with them.

☐ **Respiratory protection plan (Section 05.G.03).** ☒ **NA.**
*****Written Company plan required.**

- Discuss the use of dust masks to protect workers from large particulate matter.
- Discuss the use of half-faced respirators to protect workers from small particulate matter to include fumes, mists, and aerosols.
- Discuss sealing a half-face respirator properly.
- Discuss cleaning a half-faced respirator properly
- Discuss inspecting and storing a half-face respirator properly.

☒ **Health hazard and control plan (Section 06.A.02(b)).** ☐ **NA.**
An activity hazard analysis (AHA) will be completed for each applicable area.

- Discuss hazardous substances.
- Discuss hot substances (heating devices and melting kettles).
- Discuss harmful plants, animals, and insects.
- Discuss ionizing radiation.
- Discuss the use of lasers.
- Discuss ventilation and exhaust systems.

☐ **Abrasive blasting plan (Section 06.H.01(b)).** ☒ **NA.**
*****Written Company plan required.**

- Use Regulator to control Air supply.
- Change Filters at the advised frequency.
- Monitor the air supply and ensure adequate supply of air.
- Ensure the Dead Man's switch is in good operating condition.
- Make sure blasting is only done by trained personnel with the proper PPE.
- Barricade the area to prevent unauthorized entry.
    - Turn machine 'Off' prior to moving equipment. Follow 'Lock Out / Tag Out' procedures.
    - Ensure the Dead Man's switch is in good operating condition.
    - Maintain and ensure good housekeeping.
- Wear proper Respiratory PPE.
- Wear proper PPE (Gloves and Tyvek suit). Take breaks and hydrate when high temperatures are encountered while wearing PPE.
- Dispose of blasting residue according to all Environmental regulations.

☐ **Confined space plan (Section 34.A.06).** ☒ **NA.**
*****Written Company plan required.**

- Discuss responsibilities of attendants, entrants, and entry supervisors.
- Train workers how testing and monitoring equipment is used.
- Discuss the type of ventilating equipment needed to obtain acceptable entry conditions.
- Discuss the type of communication equipment to be used.
- Discuss the PPE to be used when engineering and/or administrative controls fail to protect workers adequately.
- Discuss the lighting equipment to be used.
- Discuss the equipment to be used for entrant ingress and egress.
- Discuss rescue procedures to include required equipment and emergency phone numbers.

☐ **Hazardous energy control plan (Section 12.A.12).** ☒ **NA.**
*****Written Company plan required.**

- Discuss why the lock out/tag out procedure is being used.
- Communicate and coordinate the lockout/tagout procedure with the workers being affected by the procedure and the government's designated authority.
- Discuss the procedural steps in place for shutting down, isolating, blocking, and securing systems to control the release of hazardous energy to include the person(s) responsible for performing this task.
- Discuss the procedural steps in place for placing, removing, and transferring lockout/tagout devices to include the person(s) responsible for performing this task.

- Discuss the procedural steps in place for placing and removing locks and/or tags to include the person(s) responsible for performing this task.
- Discuss the procedures for testing the effectiveness of isolating hazardous energy to include lockout/tagout.
- Discuss emergency scenarios that could arise during the lockout/tagout procedure to include the actions to be taken for safely responding to an emergency.
- Discuss the procedure for transferring removal authority from one person to another.

☐ **Critical lift plan (Section 16.H.02).** ☒ **NA.**
*****Written Company plan required.**

- Designate a crane operator, lift supervisor, and rigger (and state their qualifications).
- Describe ground conditions and outrigger and crawler track requirements.
- Discuss crane position, height of the lift, load radius, and boom angle and length for the entire range of the lift.
- Discuss the size and weight of the load to include any crane and rigging components that add to the weight.
- Discuss the rigging plan to include lift points, hardware requirements, and procedures.
- Discuss coordination of the lift and how individual players will communicate with each other.
- Discuss tandem and tailing-crane lift procedures, if applicable.
- Describe environmental conditions which, when in effect, will stop the lift.

☐ **Access and haul roads plan (Section 04.B).** ☒ **NA.**
*****Written Company plan required.**

- Discuss equipment to be used on the road, traffic density, and the hours of operation.
- Discuss road layout and widths, horizontal and vertical curve data, and sight distances.
- Discuss sign and signalperson requirements, road markings, and traffic-control devices.
- Discuss how drainage will be controlled.
- Outline contact between vehicles and the public to include implementing safety controls at each one of these places.
- Discuss the maintenance needed to keep the roads hard, smooth, and as dust-free as possible.

☒ **Demolition plan (Section 23.A.01).** ☐ **NA.**
*****Written Company plan required.**

- A demolition plan based on engineering, lead, and asbestos surveys will be prepared.
- Utilities and other service lines will be shut-off, capped, or otherwise controlled outside the building line.
- Service lines will be temporarily relocated and protected if utilities are maintained.
- If hazardous building materials and chemicals, flammable materials, explosives, gases, or other dangerous substances have been used in building construction, pipes, tanks, or other equipment on the property they will be controlled or eliminated before demolition begins.
- Glass fragmentation will be controlled.
- Mechanical equipment will not be used on floors or other working surfaces unless the floors and surfaces are of sufficient strength to support the loads.
- Chute openings will be protected by a guardrail 42” in height. When debris is dropped through floor openings without chutes, the openings and the area onto which the material is dropped will be enclosed with barricades not less than 42” in height and not less than 6’ back from the protected edge of the opening above. Signs warning of the fall-material hazard will be posted at each side of the debris opening at each floor.
- No wall section more than 6’ in height will stand without lateral bracing unless the wall was designed and constructed to stand without this support and its condition is determined safe enough to be self-supporting.

- Workers will not be allowed in the area directly underneath floor arches when they're being removed. The area will be barricaded to prevent access and signed to warn of the hazard.
- Steel construction will be dismantled column-by-column and tier-by-tier (columns may be in two-story lengths).

☐ **Compressed air and gas systems plan (Section 20.B).** ☒ **NA.**
No written plan required.

- Compressors and related equipment will be located so safe access is provided to all parts of the equipment for operation, maintenance, and repairs.
- Air hose, pipes, valves, filters, and other fittings will be pressure-rated by the manufacturer and not exceeded. Defective hose will be removed from service.
- Hose will not be laid over walkways, steps, ladders, and scaffolds to create a tripping hazard.
- Compressed air will not be used to blow dirt from the hands, face, or clothing.
- A speed governor independent of the unloaders will be installed on air compressors except those driven electrical induction or electrical synchronized motors.
- Piping will be equipped with traps or other means for removing liquid from the lines.
- Air receivers will be installed so that all drains, hand holes, and manholes are accessible.

☒ **Formwork/shoring (Section 27.C).** ☐ **NA.**
*****Written Company plan required.**

- Formwork, shoring, and bracing will be erected and maintained to safety support all vertical and lateral loads that might be applied until such loads can be supported by the structure.
- Sills will be sound, rigid, and capable of carrying the maximum intended load.
- Base plates, shore heads, extension devices, or adjustment screws will be in firm contact with the sill and form material and, as applicable, will be snug against the posts.
- Diagonal bracing will be provided in vertical and horizontal planes to provide stiffness and to prevent buckling of the individual members.
- Forms and shores (except those on slab or grade and slip forms) will not be removed until the concrete has gained sufficient strength to support its weight and all superimposed loads.

☐ **Lift-Slab Operations (Jacking plan) (Section 27.E).** ☒ **NA.**
*****Written Company plan required.**

- Manufacturer's rated capacity will be legibly marked on all jacks and not exceeded.
- Jacks will be designed and installed so they won't continue to lift when overloaded.
- Jacks will have a positive stop to prevent over-travel.
- Base of the jack will be blocked or cribbed. If there's a possibility of slippage a wood block will be placed between the jack's metal cap and the load.
- Maximum number of manually-controlled jacks on one slab will be limited to 14.
- During lifting all point of the slab support will be kept within ½" of that needed to maintain the slab in a level position.
- No one will be permitted under the slab during jacking operations.

☒ **Personal Fall Protection Program (Section 21.C.01).** ☐ **NA.**

*****Written plan required.**

- Workers will be protected by guardrail, personal fall protection, safety nets, catch platforms, or temporary floors in the following situations: Worker can fall 6' or more; on access ways or work platforms over water, machinery, or dangerous operations; on runways where workers can fall 4' or more; and on all exposed sides of stairways and ladder-floor openings.
- Top rails, mid rails, and toe boards will be able to withstand outward and downward forces of 200, 150, and 50 lbs., respectively.
- Wire rope can be used as a top or mid rail under the following conditions: When the posts are spaced no farther than 8"; deflection of the rope under 200 lbs. of force is less than 3"; and the rope if flagged for visibility. Synthetic and natural-fiber rope will not be used.
- Paneling and screening will be in place from the mid rail to the toe board when material is piled higher than the toe board.
- Personal fall protection will consist of a full-body harness (not chest-wait units or body belts), lifeline, and anchorage point.
- Two lanyards will be used when vertical movement is required and when a horizontal lifeline is inappropriate.
- Anchorages capable of supporting 5,000 lbs. per worker will be independent of anchorages used to support or suspend platforms. Lifelines will not be attached to guardrails or hoists but rather to the structure.
- Floor holes will be covered completely and securely. If the cover to an open hole is missing the hole will be barricaded with a guardrail. Workers laboring by wall openings 6' or more above a lower level will be protected by a guardrail or personal fall protection.
- Roofers will be protected by the following forms of fall protection: Guardrails; personal fall protection; a warning line 6' from the roof's edge, or a safety-monitoring system.
- Excavations will be guarded when they are 6' or more in depth and not readily seen because of plant growth or other visual barriers.

☐ **Steel Erection Plan (Section 27.F).** ☒ **NA.**
*****Written Company plan required.**

- Verify the Weight of the Objects to be picked.
- Inspect slings before each pick. Remove all cut or frayed slings.
- Check winch lines regularly.
- Make sure workers have proper skills and experience.
- Know hand signals; Use Tag Ropes and Pay Attention.
- Use Spud Wrench & Pull Pins.
- Know where steel is supposed to be landed.
- No lifting near energized wires and maintain proper clearances.
- If welding steel, wear Proper Eye Protection for High Energy Light Source as well as to protect from impact.
- Wear proper PPE (Gloves and Eye Protection). Take breaks and hydrate when high temperatures are encountered while wearing PPE.
- Follow erection plan and drawings. Ensure a sequential erection procedure is prepared, which has been approved by the erection engineer.
- Make provisions for positive connections between members of the structure that have been specified to resist imposed lateral and vertical force.
- Reinforcement required for in-service loads and temporary conditions. Ensure temporary guys or bracing are securely anchored
- Steel Members should be clearly marked and labeled.
- Verify the stability of the structure in accordance with the erection engineer's specifications:
  - at the end of each work day

- when fastenings may be incomplete
- during strong winds or when strong winds are forecast.

☐ **Night operations lighting plan (Section 7.A.08).** ☒ **NA.**
*****Written Company plan required.**

☒ **Site sanitation plan (Section 02.A).** ☐ **NA.**
No written plan required.

- An adequate supply of drinking water (cool water during hot weather) will be provided.
- Portable drinking-water dispensers will have a tap – water will not be dipped. Dispensers will be clearly marked as "Drinking Water" and will be capable of being closed. Use of a common cup will be prohibited unless sanitized between uses.
- When sanitary sewers are not available porta-johns will be provided.
- Washing facilities will have running water, soap, and an individual means of drying (hand sanitizer will be used when running water is not practical).
- No food or beverage will be stored or consumed in a toilet room or in any area that is exposed to a toxic material.
- An adequate number of waste receptacles will be provided. Receptacles will have covers that fit tightly, be emptied at least daily, and be maintained in a sanitary condition.

☒ **Fire Prevention Plan (Section 09.A).** ☐ **NA.**
*****Written Company plan required.**

- Discuss the major worksite fire hazards to include potential ignition sources.
- Describe the types of fire-suppression systems to be used (portable fire extinguishers, etc.).
- Discuss employee responsibilities for maintaining the fire-prevention equipment and systems.
- Discuss employee responsibilities for controlling fuel-source hazards.
- Discuss housekeeping procedures to include the removal of waste materials.

☒ **Excavations (Section 25.A).** ☐ **NA.**

*****Written Company plan and AHA required for excavations or trenches greater than 5 ft (1.5 m) in depth. For excavations or trenches less than 5 ft (1.5 m) in depth, An AHA is required but plan is optional.**

- Workers will not labor in excavations in which there is accumulated water or where water is accumulating until the water hazard is controlled.
- Shoring will be used for unstable soil or depths greater than 5' unless benching, lay-back, or another acceptable plan can be implemented.
- In excavations less than 20' in depth the maximum slope will be 34 degrees measured from horizontal (1 1/2' horizontal to 1' vertical).
- Excavations will not go below adjacent structures unless they are underpinned or determined safe by a registered professional engineer.
- Excavated material will be placed a minimum of 2' from the excavation's edge.
- Stairs, ramps, or ladders will be provided to workers who are required to enter excavations greater than 4' in depth. This equipment will be located so no more than 25' of lateral travel is required to escape the excavation.
- Ladders will extend 3' past the excavation's edge.
- Personal access ramps will be 4' wide with guardrails while equipment ramps will be 12' wide with curbs of 8" X 8" timbers or equivalent.

- Protection for excavations exposed to the public will meet guardrail requirements while protection against vehicles will be able to withstand the impact forces with traffic.
- Excavations 6' or more in depth, or where workers are routinely exposed to a hazard (impalement or hazardous material), will have a barricade no closer to the edge than 6' with a warning (tape, flags, act.) located 3-4' above the ground.
- Excavations less than 6' in depth will have a barricade no closer than 6"/no farther than 6'.

☒ **Scaffolds (Section 21.J.01, 21.J.02 on page 509 and 22.A and 22.B).** ☐ **NA.**
No written plan required (included as part of the Fall Protection Plan).

- Scaffolds will be level and plumb and erected with base plates upon mudsills or other adequate foundation. Rolling scaffolds will have wheels locked and/or outriggers secured in place.
- Work near overhead power lines will not commence until a survey is made to ascertain a safe clearance distance from the lines. Scaffolds will not be erected or used near power lines until the lines are insulated, de-energized, or rendered safe.
- Scaffolds and their components will be capable of supporting four times the maximum anticipated load. If a scaffold's height is more than four times the minimum base dimension (to include the width added by outriggers) it will be secured to the wall or structure.
- Guardrails will be installed on open sides and ends.
- Platforms will be a minimum of 18" in width and extend over their end supports by at least 6" but no more than 12", unless cleated or restrained by hooks or equivalent means. Platforms will overlap over supports by a minimum of 12" unless nailed together or restrained from movement.
- Platform area will be fully-planked with no greater than 1" gaps between adjacent platforms, and platforms and uprights.
- Scaffold access will be from ladders (bottom rung no greater than 24" in height), stair towers, ramps, and walkways but not from cross-braces.
- If a worker can fall 6' or more to a lower level they will be protected by a guardrail or a full-body harness with lifeline and anchorage point.

☒ **Machinery/mechanized equipment (Section 18.G).** ☐ **NA.**
No written plan required.

- Before machinery and mechanized equipment is placed into service it will be inspected and certified as safe by a competent person.
- Front-end loaders, bulldozers, backhoes, cranes, and similar equipment will have at least one dry chemical or CO2 portable fire extinguisher on-board with a minimum rating of 5-B:C.
- Self-propelled construction equipment will have a reverse signal alarm.
- Belts, gears, chains, shafts, pulleys, drums, and other rotating and moving equipment parts will be guarded when exposed to contact by persons or when they otherwise create a hazard.
- Crane will operate at least 10' away from overhead power lines.
- An operating manual, log book, load chart, and document detailing operating limits in windy or cold weather conditions will be in the cab when the crane is operating.
- Crane will be within one degree of level and outriggers fully-extended when in use. Wheels will be off the ground at every setting.
- Crane outrigger floats will be securely attached. Float blocking will be of sufficient size and stability to support the total area. Blocking will not be performed under the outrigger beams.
- Crane's rear swing radius will be barricaded.
- Riding on or standing under loads is prohibited.

☒ **Electrical (Section 11).** ☐ **NA.**
No written plan required.

- Electrical work shall be performed by Qualified Personnel with verifiable credentials.
- An AHA and written work procedures must be prepared for unusual or complicated work activities or any activity identified by the Qualified Person.
- Work activity adjacent to energized overhead power lines will not be initiated until a survey has been made to ascertain the safe clearance distance from the lines.
- Whenever possible, all circuits and equipment will be de-energized before work is started and personnel protected by lockout/tagout and clearance procedures, and grounding.
- Live parts of wiring or equipment will be guarded.
- Transformer banks and high-voltage equipment will be protected against unauthorized access and those entrances not under constant observation will be kept locked. Metallic enclosures will be grounded and signs warning of high voltage and prohibiting unauthorized entrance posted.
- Flexible cords will be inspected by the user daily. Cord sets used on construction sites or in damp locations will contain an equipment ground wire and have a plug attached.
- Flexible cords will be protected from damage caused by vehicles, foot traffic, sharp corners, and pinching. Cords passing through holes will be protected by suitable means.
- Flexible cords will only be used in continuous lengths. Cords No. 12 or larger may be used with a splice if the splice is made by a qualified electrician, the insulation is equal to the cord being spliced, and the wire connections are soldered. No wire nuts will be used.
- Flexible cords and cables will not be secured by staples or hung from nails or bare wire.
- Enclosures containing over-current protective devices will be provided with lockable, close-fitting doors. Circuit-breakers, switches, fuse panels, and motor controllers located out-of-doors or in wet locations will be contained in weatherproof enclosures or cabinets. When receptacles are used in wet locations they will be contained in a weatherproof enclosure the integrity of which is not affected when a plug is inserted.
- All electrical circuits will be grounded.
- Portable and semi-portable electrical tools and equipment will be grounded by a multi-conductor cord having a polarized plug with a grounding conductor. Double-insulated tools do not have to be grounded.
- Grounding rods with pipe electrodes will be used in 8’ lengths and driven to full depth.
- Temporary lights will not be suspended by their electric wire unless designed for suspension.
- Bulbs attached to temporary lighting strings and extension cords will be protected by guards. Empty light sockets (broken bulbs, etc.) will be immediately filled.
- All receptacle outlets that provide temporary electrical power during construction or demolition shall have GFCI protection.

10. RISK MANAGEMENT PROCESSES (AHA – ACTIVITY HAZARD ANALYSIS)

Instructions

1. List each definable feature of work / phase of work in the table below. NOTE: Definable feature of work / phase of work should be same as listed in Section 2.d. of this APP)

2. For each listed phase/feature complete an Activity Hazard Analysis form (See Figure 1-2 page 10 of EM 385-1-1) and insert into Appendix X.

ID No.	Feature of work / phase of work
1	G1 - Mobilization / General Construction
2	G2 - Demolition
3	G3 - Scaffolding / Fall Protection
4	G4 - Excavation / Trenching
5	G5 - Electrical
6	G6 – Cement Work
7	G7 – Masonry Work
8	G8 – Confined Spaces & Hazardous Atmosphere
9	G9 – Plumbing
10	G10 – Painting
11	G11 – Steel Structure Erection
12	G12 – Abrasive Blasting

APPENDIX I.

SIGNATURE SHEET

(Reserved if more space is needed other than Section 1)

APPENDIX II.

BACKGROUND INFORMATION

Required Enclosures:

Optional:

Copy of project description from SOW, etc.

APPENDIX III.

STATEMENT OF SAFETY AND HEALTH POLICY

Required Enclosures:

1. Copy of signed company statement of Safety and Health Policy (if not using generic option in Section 3).

2. The Contractor's written safety program goals, objectives, and accident experience goals for this contract (if not using generic option in Sections 2 and 3).

Optional:

APPENDIX IV.

RESPONSIBILITIES AND LINES OF AUTHORITY

Required Enclosures:

1. Contractor's Resume and "USACE 30 hour Construction Safety Course certificate for SSHO" or equivalent certificate issued and acknowledged by local authorities.

2. Proof of competency / qualification (Resumes and certificates) for the other persons listed in Section 4.

3. Organization Chart (with names) for Key Corporate and Project personnel.

4. Corporate/Company accountability policies and procedures (if not using generic option).

Optional:

APPENDIX V.

SUBCONTRACTORS AND SUPPLIERS

Required Enclosures:

Optional:

Copies of Subcontractor Safety policies and procedures

APPENDIX VI.

TRAINING

Required Enclosures:

Company Safety and Occupational Health (SOH) Training policies, procedures, and plans (if not using generic option in Section 6).

Optional:

Company SOH training documents – such as training logs, certificates, etc.

SPECIFIC WORKER TRAINING

Abrasive blasting.

Name:	**Training:**
Name:	**Training:**
Name:	**Training:**

Blasting.

Name:	**Training:**
Name:	**Training:**
Name:	**Training:**

Confined space.

Name:	**Training:**
Name:	**Training:**
Name:	**Training:**

Cranes/derricks.

Name:	**Training:**
Name:	**Training:**
Name:	**Training:**

Electrical.

Name:	**Training:**
Name:	**Training:**
Name:	**Training:**

Explosive-actuated tools.

Name:	**Training:**
Name:	**Training:**
Name:	**Training:**

First-aid/CPR.

Name:	**Training:**
Name:	**Training:**
Name:	**Training:**

Lockout/tagout.

Name:	**Training:**
Name:	**Training:**
Name:	**Training:**

Machinery/mechanized equipment.

Name:	**Training:**
Name:	**Training:**
Name:	**Training:**

Scaffolding.

Name:	**Training:**
Name:	**Training:**
Name:	**Training:**

Welding/cutting.

Name:	**Training:**
Name:	**Training:**
Name:	**Training:**

APPENDIX VII.

SAFETY AND HEALTH INSPECTION

Required Enclosures:

1. Company safety and health inspection policies, procedures, and forms. (if not using generic option Section 7).

2. Documents supporting Section 7 requirements.

Optional:

APPENDIX VIII.

ACCIDENT REPORTING

Required Enclosures:

1. Company accident reporting policies, procedures, and forms. (if not using generic option in Section 8).

2. Documents supporting Section 8 requirements.

Optional:

APPENDIX IX.

PLANS

Required Enclosures:

1. Area map showing site location.

2. Site layout map also showing site lay down areas, sanitation facilities, on-site medical support location (e.g. 1st Aid Kit), emergency telephone location and numbers.

3. Acknowledgement of key provisions of all required plans – or copies of company SOH policies, procedures, or plans related to requirements.

Optional:

APPENDIX X.

RISK MANAGEMENT PROCESSES (AHA – ACTIVITY HAZARD ANALYSIS)

Required Enclosures:

1. One completed AHA form for each phase of work / feature of work. Refer to AHA template and include the completed forms in Appendix X.

Optional:

Activity Hazard Analysis Template

How to use this document

This first page is NOT to be included in the APP you're going to submit.
PLEASE DELETE IT BEFORE PRINTING THE FILLED DOCUMENT

Directions:
Activity Hazard Analysis [AHA] is required for each definable feature of work (DFOW).
However, many if not all projects involve one or more of the following activities as part of one or more DFOWs.

Work Activities:
a. Mobilization / General Construction
b. Demolition
c. Scaffolding / Fall Protection
d. Excavation / Trenching
e. Electrical
f. Cement Work
g. Masonry Work
h. Confined Spaces
i. Plumbing
j. Painting
k. Steel Structure Erection
l. Abrasive Blasting

Contractors are authorized to utilize the attached **Generic AHAs** *relevant to each of the above said activities in their submittal and then incorporate them into their Accident Prevention Plan (APP). The Contractor is responsible for reviewing this document in its entirety and to make any changes to adapt the document to their construction practices. The Contractor may substitute their own AHAs for submittal review if they have their own APP and AHAs.*

NOTE: To use the Generic AHA you MUST complete the tables on the following pages (to be part of your submittal) and fill ***all*** *blanks and areas denoted by the RED arrows in each generic AHA including checking the "Accepted as part of the APP" box at the bottom of the Generic AHA and completing the APP preparer signature box at the bottom right of each form. If any step or hazard reported in the AHA does not apply to your case it shall be deleted and or modified to meet the needs of the Contractor's operations.*

In addition to the changes mentioned above, update the required information pertaining to Contractor Identity, Contract #, Project Name, Date, ID of Qualified Safety Official, and Signatures.

The AHA shall be submitted in pdf format and incorporated as Appendix X of the ACCIDENT PREVENTION PLAN [APP].

The Generic AHAs are not a substitute for full compliance with EM 385-1-1 requirement but are intended only to highlight selection items.

Activity Hazard Analysis

Contract No.:

Project Name:

Location:

Date:

Contractor's competent / qualified person:

The following Generic AHAs are incorporated into the site specific AHAs.

Generic AHA used in this APP	Yes	No/NA
G1 - Mobilization / General Construction		
G2 - Demolition		
G3 - Scaffolding / Fall Protection		
G4 - Excavation / Trenching		
G5 - Electrical		
G6 – Cement Work		
G7 – Masonry Work		
G8 – Confined Spaces & Hazardous Atmosphere		
G9 – Plumbing		
G10 – Painting		
G11 – Steel Structure Erection		
G12 – Abrasive Blasting		

ACTIVITY HAZARD ANALYSIS		
ID No. G-1	FEATURE OF WORK: GENERIC AHA – Mobilization / General Construction Hazards	
Contract No.	Project:	Location:
Date:	Activity:	Estimated Start Date:
PRINCIPAL STEPS	POTENTIAL SAFETY / HEALTH HAZARDS	RECOMMENDED CONTROLS
General Safety Requirements during mobilization and in general construction projects.	1. Exposure to Cold or Hot Weather 2. Dehydration 3. Illnesses from improper sanitation 4. Injury from use of hand and power tools 5. Slip, Trip, Fall hazards 6. Back, shoulder, and other ergonomic injuries 7. Struck by / Caught between hazards from heavy equipment operations. 8. Injury from mines and unexploded ordnance.	1a. Minimum Personal Protective Equipment Dress: Long Pants Shirts with Sleeves Hardhat Covered Shoes (Steel Toe Preferred) Safety Glasses (Potential Eye Hazard Areas) Reflective Safety Vest if working around heavy equipment or on/near roadways. 1b. Weather: Wear appropriate clothing for hot or cold weather. Sun block Lip balm 2. Dehydration: Drink at least ½ liter of water an hour. Refer to Company quick sheet, SOPs, plan, etc. for specific details on heat stress signs and symptoms. 3. Provide approved potable water, toilet and hand washing facilities; food service, and waste disposal per EM 385-1-1 Section 2. 4a. Use hand and power tools only if in good working condition and only for intended use. Inspect prior to each use. 4b. Do not use any power tool that does not have the proper electrical grounding plug unless it is double insulated. 4c. Provide proper guarding on all power tools – especially abrasive and grinding wheels. 4d. Do not carry electrical power tools by the cord. 4e. Provide all personal protective equipment necessary to control eye, face, head, body, and foot protection for the task. 4f. Comply with other specific requirements of EM 385-1-1 Section 13. 5a. Maintain housekeeping – maintain the work are free from debris such as board, blocks, rocks, etc. that might create a tripping hazard. (EM 385-1-1 Sec 14.C.) 5b. Store all materials in a neat orderly manner. Do not stack beyond stable levels. (EM 385-1-1 Sec 14) 5b. Provide adequate lighting for the work area – especially at night or during the day in areas without adequate natural light. (EM 385-1-1 Sec 7.A.) 6a. Use proper lifting techniques for manual material handling. 6b. Limit one man lifts to no more than 25 kg. 7a. All vehicles and heavy equipment must be operated by qualified personnel and in accordance with manufacturer's instructions. 7b. Inspect all heavy equipment prior to use (EM 385-1-1 Sec 18.A.03) 7c. Passengers must be seated and wearing seat belts during movement. 7d. Backup alarms or ground guides must be used whenever backing where worker are present In the area. 7e. Other provisions of EM 385-1-1 Section 18 must be followed.

		8a. Verify UXO clearance certificate in on file and to anticipated depth of construction for entire site area including lay-down yard. 8b. Train all workers on 3Rs – Recognize, Retreat, Report for anticipated UXO. Use the clearance report to anticipate likely items to be found. 8c. Train all workers in standard marking color code: White – safe, Blue – unexploded ordnance, Red – mines. All hazards – Post accident prevention signs, tags, labels, and signals at key points around project site in proximity to the hazard and at project entry of general site hazards. Conduct entry brief for all visitors to the site and provide all required PPE for safe entry.
Ladders	• Defective ladders • Falling	1. Only OSHA approved ladders are to be used. 2. Defective and/or damaged ladders shall be removed from jobsite immediately. 3. Standing on top step of ladder is forbidden. Use of metal ladders around exposed energized electrical wiring is forbidden. 4. Always move the ladder to avoid overreaching. 5. Extension ladders are to be properly tied off at the top and rigidly secure at the bottom: The base of the ladder must be set back a safe distance from vertical approximately ¼ of the working length of the ladder. 6. Face the ladder at all times when ascending or descending. 7. Do not carry any material in your hand while using any ladder. Use Hand line.
EQUIPMENT	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Hand and power tools Heavy Equipment	Hand and power tools inspected prior to use and per manufacturer's specifications. Heavy equipment when brought on site and per EM 385-1-1 Sec 18.	Proper use of hand and power tools Heavy equipment operator training for specific type, make, model of equipment. Specialized training for equipment as required by manufacturer. UXO hazard recognition, retreat, and report for probable site munitions.

Prepared by: *(Contractor's competent/qualified person signature)*	
☒ - AHA Accepted as part of project Accident Prevention Plan	Signature: Date:

ACTIVITY HAZARD ANALYSIS		
ID No. G-2	FEATURE OF WORK: GENERIC AHA – Demolition	
Contract No.	Project:	Location:
Date:	Activity:	Estimated Start Date:
PRINCIPAL STEPS	POTENTIAL SAFETY / HEALTH HAZARDS	RECOMMENDED CONTROLS
1. Planning	1. Lead or asbestos exposure 2. Unplanned structural failure 3. Unplanned hazards from existing utilities	1. Conduct a lead and asbestos survey of the facility to be demolished prior to the start of work. 2. Evaluate the structural integrity of the building and prepare a demolition plan (See EM 385-1-1 Sec 23.A.01). 3. Identify all electric, gas, water, steam, sewer, and other service lines.
2. Demolition	1. General construction hazards. 2. Lead or asbestos exposure . 3. Unplanned structural failure. 4. Hazards from existing utilities. 5. Hazards from debris removal.	1. Follow mobilization and general construction generic AHA requirements. 2. Conduct lead and asbestos abatement per approved plan. 3a. Follow approved demolition plan for sequencing demolition. 3b. Unless specified otherwise in the demolition plan demolition of floors and exterior walls begin at the top of the structure and proceed downward. 3c. Control hazards from fragmentation of glass. 3d. Do not use mechanical equipment on floors that have not been structurally evaluated to support the imposed load. 3e. Competent person will make continuing inspections to detect hazards from weakened or deteriorating floors, wall, or loosened material. If detected do not work in area until hazard abated by shoring, bracing, or other means. 4. Shutoff, cap, or otherwise control outside the building line all utilities identified in Step 1 – planning. 5a. Manage debris removal IAW EM 385-1-1 Sec 23.B with regards to chutes, 5b. Never allow a vertical wall section more than 6 ft in height to stand without lateral bracing. 5c. Control dust exposure by wetting or other means. If this is not practical then provide respiratory protection to workers. 5d. Mark and manage area around demolition site to control falling debris hazard. 5e. Comply with other provisions of EM 385-1-1 Section 23 relevant to site specific demolition hazards.
EQUIPMENT	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Hand and Power tools. Sledge hammers, wrecking bars, and other demolition specific tools. Mechanical demolition equipment.	Inspect hand and power tools daily and per manufacturer's directions. Daily inspection of mechanical equipment per Sec 18 of EM 385-1-1.	Competent person training for demolition. Qualified operator training for all mechanical equipment.

Prepared by: *(Contractor's competent/qualified person signature)*	
☒ - AHA Accepted as part of project Accident Prevention Plan	Signature: Date:

ACTIVITY HAZARD ANALYSIS		
ID No. G-3	FEATURE OF WORK: GENERIC AHA – Scaffolding / Fall Protection	
Contract No.	Project:	Location:
Date: 9/11/13	Activity:	Estimated Start Date:
PRINCIPAL STEPS	POTENTIAL SAFETY / HEALTH HAZARDS	RECOMMENDED CONTROLS
1. Set-Up	1. Back Strain from uploading or moving scaffold components. 2. Lacerations on hands 3. Scaffold failure due to damaged scaffolding components. 4. Struck by mechanized equipment. 5. Loss of load. 6. Stuck by suspended loads or material. 7. Electrical Shock 8. Scaffold failure due to improper set-up	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety apply to this activity. 1a. Utilize proper lifting techniques. 1b. Size up load before lifting. 1c. Ask for help when lifting heavy items more than 50 lbs. 2. Wear leather gloves. 3a. INSPECT all scaffolding components defects or damage such as cracks, excessive rust, metal fatigue, unauthorized repairs, bent tubing or frame, etc. Frames Tubing Base Plates Locking Pins Access Ladder Planking (Wood or Metal) Cross Braces 3b. REMOVE damaged or defective scaffold components immediately. 3c. Attach tag or label "DO NOT USE" on scaffold component. 4a. ALWAYS maintain eye contact with operator of equipment. 4b. NEVER stand behind (Blind Spots) equipment. 4c. NEVER stand near unloading or moving of scaffold components. 4d. ONLY qualified operators shall operate equipment. 5a. Secure loads from displacement with ropes, cables, chains, etc. before movement. 5b. Ensure load to be lifted is secured, balanced, etc. 5c. Keep hands, fingers, or other body parts away from pinch points. 6a. NEVER stand underneath suspended loads. 6b. Use taglines to control loads when elevated. 7a. Check above for overhead power lines. 7b. NEVER erect scaffolding within 10 ft (3 m) of overhead power lines. Refer to EM 385-1-1, Table 11-1 for Minimum Clearance from Energized Overhead Electrical Lines 7c. NEVER string or hang temporary power cords, wires, etc. on metal scaffolding. Consult with Safety Officer. 8a. Inspect ground conditions (level and firm). 8b. Stable base is necessary for proper scaffold assembly. 8c. Scaffold shall be tied into structure when the scaffold height exceeds four times the minimum scaffold base dimension per EM 385-1-1, para 22.B.09 *Develop specific controls to eliminate or reduce each hazard to an acceptable level of risk.*
2. Assembly of Scaffolding	1 Fall from Elevated Heights 2. Scaffold Failure	1a. 100 percent fall protection required during assembly. 1b. Personnel shall not be exposed to unprotected sides or falls greater than 6

	3. Back Strain 4. Lacerations on hands	ft (1.8 m). 1c. Scaffolding shall not exceed 14 inches (35.5 cm) from the planking to the face of the building or structure. 1d. Scaffolding more than 14 inches (35.5 cm) from the planking to the face of the building or structure shall be guardrails and/or the use of personal fall protection. 1e. Personnel shall be tied off to a vertical lifeline with a rope grab during assembly of scaffolding. 1f. Vertical lifeline shall be secured to an anchor point of at least 5,000 lbs (2,267.9 kg) per individual. 1g. Contact Safety Officer for additional guidance on fall protection requirements. 2a. See diagram below and refer EM 385-1-1, Section 22 for specific requirements (i.e., toe boards, guard rails, safe access, etc.) 2b. Scaffolding shall be assembled on mud sills and base plates. 2c. Mud sills shall be at least 2 times the size of the base plates to disperse total weight of scaffolding. 2d. Scaffolding shall be plumb and level. 2e. Working levels shall be fully decked and/or planked. 2f. Planking shall extend over the end supports not less than 6 in (30.4 cm), 2g. Planking shall be secured, supported, or braced to prevent excessive spring or deflection and secured to prevent loosening, tipping, or displacement. Use of tie wire, cleats, etc. are options. 2h. Planking shall overlapped at least 12 inches (30.4 cm) or secured from movement. 2i. Scaffold shall be capable of supporting without failure at least 4 times the maximum anticipated loads. 2j. Scaffolding shall be all required cross, horizontal, or diagonal braces to secure vertical members laterally. 2k. Scaffolding shall be rigid. 3a. Utilize proper lifting techniques. 3b. Size up load before lifting. 3c. Ask for help when lifting heavy items more than 50 lbs. 4. Wear leather gloves.
3. Use of Scaffolding	Scaffold Failure Falls from Heights Slips, Trips, or Fall	1a. DO NOT overload more than 4 times the maximum load rating. 1b. DO NOT attached hoists or other material lifting devices without Safety Officer approval. 1c. Scaffolding shall be tied into building whenever height of the scaffold exceeds 4 times the minimal base. Refer to EM 385-1-1, para 22.B.09 for additional guidance. 1d. Scaffold usage shall cease during high winds or severe inclement weather conditions. 2a. Guardrails shall be used as primary fall protection. Guard rails shall installed IAW EM 385-1-1, para 21.B.02. 2b. Securing of personal fall protection devices to scaffolding is prohibited. 2c. Personnel shall have fall protection whenever above 6 ft (1.8 m). 2d. Climbing of braces or cross bracing is prohibited. 2e. Safe access (ladder) shall be provided. 2f. Personnel shall not stand on mid rails. 2g. Ladders shall extend at least 3 ft (0.9 m) past the work area. 3. Walking surfaces on and around scaffolding shall be clear of debris.
4. Disassembling of Scaffolding	1 Fall from Elevated Heights 2. Back Strain 3. Lacerations on hands	1a. 100 percent fall protection required during disassembly. 1b. Personnel shall not be exposed to unprotected sides or falls greater than 6 ft (1.8 m). 1c. Personnel shall be tied off to a vertical lifeline with a rope grab during

		assembly of scaffolding. 1d. Vertical lifeline shall be secured to an anchor point of at least 5,000 lbs (2,267.9 kg) per individual. 1e. Contact Safety Officer for additional guidance on fall protection requirements. 2a. Utilize proper lifting techniques. 2b. Size up load before lifting. 2c. Ask for help when lifting heavy items more than 50 lbs. 3. Wear leather gloves.
EQUIPMENT	INSPECTION	TRAINING REQUIREMENTS
Scaffold components Hammers Mud sills Full body harness Lanyard Lifeline Fall protection anchor points Float	Inspect scaffold components prior to use Inspect scaffold daily (Use Checklist) Inspect level and plumb of scaffoldings during erection and daily when in use. Daily Housekeeping of work areas and scaffolding	Competent Person qualification Scaffold Assembly Fall Protection Inspection of Work Platforms

Prepared by: *(Contractor's competent/qualified person signature)*	
☒ - AHA Accepted as part of project Accident Prevention Plan	Signature: Date: 9/11/13

ACTIVITY HAZARD ANALYSIS		
ID No. G-4	FEATURE OF WORK: GENERIC AHA – Excavation / Trenching	
Contract No.	Project:	Location:
Date:	Activity:	Estimated Start Date:
PRINCIPAL STEPS	POTENTIAL SAFETY / HEALTH HAZARDS	RECOMMENDED CONTROLS
1. Prepare excavation / trench work area.	1. Struck by traffic in area. 2. Struck by / caught between heavy equipment. 3. UXO hazard.	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety apply to this activity. 1a. Develop a traffic control plan for the work areas to keep traffic back from the planned excavation edge and work area. 1b. Wear proper reflective vest type for traffic. 1c. Use proper class perimeter protection (EM 385-1-1 pgs Q55-56 / Sec 25.B.) 2a. Plan for equipment laydown and operating area in traffic control plan. 2b. Perform initial and routine equipment inspections. 2c. Use ground guides in close proximity areas – no exceptions. 3. Verify UXO clearance certificate against work area location.
2. Open excavation / trench.	1. Struck by/ caught between traffic and heavy equipment. 2. UXO hazard. 3. Contact with buried utility lines (electrical, gas, etc.) 4. Cave in / Collapse.	1. Same as step 1 and 2 above controls. 2. Same as 3 above – plus regularly inspect dig for signs of buried UXO. 3a. Pre-locate all buried utilities. 3b. Observe for marking / signs of buried utilities during dig – barriers, warning tape, etc. 4a. Prepare excavation plan for all excavations over 5 ft (1.5m) in depth. Optional for excavations less than 5 ft – AHA is acceptable. (EM 385-1-1 Sec 25.A.01) 4b. Identify a Competent person for the planning and work. 4c. Evaluate soil type at all planned excavation depths. 4d. Design a protective system (e.g. Bench, slope, or shore) for the excavation per the soil type and other site conditions. 4e. Remove all overburden from edge of trench at least 2 ft. 4f. Protect the stability of adjacent structures including buildings, roadways, etc. 4g. Protect the excavation from water entry 4h. Do not work in excavations where there is standing water. 4i. Provide safe access to and from the excavation – ramps, stairs, ladders. 4j. When persons will be in or around an excavation, a Competent Person shall inspect the excavation, the adjacent areas, and protective systems daily: before each work shift; throughout the work shifts as dictated by the work being done; after every rainstorm; after other events that could increase hazards, e.g., snowstorm, windstorm, thaw, earthquake, etc.; when fissures, tension cracks, sloughing, undercutting, water seepage, bulging at the bottom or other similar conditions occur; when there is a change in size, location or placement of the spoil pile; and where there is any indication or change in adjacent structures. (EM 385-1-1 Sec 25.A.02)
3. Work in/around excavation/ trench.	1. Cave in / Collapse. 2. Fall from excavation / trench edge. 3. Inability to egress especially in an emergency. 4. Changes in soil conditions / atmospheric conditions in trench (confined space hazards). 5. Traffic hazards.	1, 2, 3, and 4 – same controls as Step 2 above.

4. Close excavation / trench.	1. Struck by/ caught between heavy equipment. 2. Cave in / Collapse. 3. Traffic hazard.	All controls outlined in steps 1, 2, and 3 above. All excavation hazards exist and must be controlled until the excavation is properly closed..
EQUIPMENT	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Hand shovels and tools Excavation equipment	Tool inspections Equipment Inspections Daily plus excavation inspection	Competent person qualification training (EM 385-1-1 Sec 25.A.02.b) Equipment operator training.

Prepared by: *(Contractor's competent/qualified person signature)*	
☒ - AHA Accepted as part of project Accident Prevention Plan	Signature: Date:

ACTIVITY HAZARD ANALYSIS		
ID No. G-5	FEATURE OF WORK: GENERIC AHA – Electrical	
Contract No.	Project:	Location:
Date:	Activity:	Estimated Start Date:
PRINCIPAL STEPS	POTENTIAL SAFETY / HEALTH HAZARDS	RECOMMENDED CONTROLS
1. Provide temporary power to the construction project and potentially the building occupants.	1. Falls 2. Electrocution	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety apply to this activity. 1a. Provide safe work platform and access to all work areas (see generic AHA G3 – scaffolding/fall protection). 1b. Protect all openings in work surfaces from falls. 1c. Do not use drums or other unstable objects as work platforms. 2a. Use only qualified person, electrical (EM 385-1-1, App Q) to perform all electrical work. 2b. Use only CE or UL approved wiring and equipment. 2c. All work must comply with NEC or CE code requirements. 2d. Insure that before work is begun the circuit is de-energized and free from stored energy. Comply with the specific requirements in EM 385-1-1 (e.g. Lockout/Tagout – Control of Hazardous Energy – Sec 12 and 11.A.02 – Isolation) 2e. Provide temporary power from a properly grounded source through a 10mA GFCI protected weatherproof panel. 2f. Protect all circuits from overload by circuit breakers or other approved overload protection methods. 2g. Maintain ground throughout the temporary power circuit to portable hand tools, and other equipment unless the tool is double insulated and marked as such. 2h. Comply with all other provisions of EM 385-1-1 Section 11 (e.g. 11.E temporary wiring and lighting – sketch of plan, testing, clearance, wet locations, etc.)
2. Remove / de-commission existing wiring and electrical equipment.	1. Falls 2. Electrocution	All controls listed in Step 1 apply to this step also. 1a. Provide safe work platform and access to all work areas (see generic AHA G3 – scaffolding/fall protection). 1b. Protect all openings in work surfaces from falls. 1c. Do not use drums or other unstable objects as work platforms. 2a. All controls identified above – plus: 2b. Control of Hazardous energy – Lock Out / Tag Out. Due to potential for poor understanding of existing wiring service special care must be used to test all circuits prior to removal / de-commissioning. 2c. Warning: stored energy in capacitors and other electrical equipment can present an electrocution hazard even after it is disconnect from a power supply. Stored energy must be dissipated prior to handling.
3. Install new wiring and electrical equipment	1. Falls 2. Electrocution	All controls listed in Step 1 apply to this step also. 1a. Provide safe work platform and access to all work areas (see generic AHA G3 – scaffolding/fall protection). 1b. Protect all openings in work surfaces from falls. 1c. Do not use drums or other unstable objects as work platforms. 2a. All controls identified above – plus: 2b. Exercise special care to identify energized temporary electrical wiring from non-energized new wiring. 2c. Do not use permanent wiring to provide temporary power without specific plan for identifying energized circuits.

4. Remove temporary power and energize permanent system.	1. Falls 2. Electrocution	All controls listed in Step 1 apply to this step also. 1a. Provide safe work platform and access to all work areas (see generic AHA G3 – scaffolding/fall protection). 1b. Protect all openings in work surfaces from falls. 1c. Do not use drums or other unstable objects as work platforms. 2a. All controls identified above – plus: 2b. De-energize all temporary power
EQUIPMENT	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Hand and power tools Specialized electrical tools and equipment	Tool and equipment inspections Lock-Out / Tag-Out inspections for stored energy	Competent person training and qualification

Prepared by: *(Contractor's competent/qualified person signature)*	
☒ - AHA Accepted as part of project Accident Prevention Plan	Signature: Date:

ACTIVITY HAZARD ANALYSIS		
ID No. G-6	FEATURE OF WORK: GENERIC AHA – Concrete	
Contract No.	Project:	Location:
Date:	Activity:	Estimated Start Date:
PRINCIPAL STEPS	POTENTIAL SAFETY / HEALTH HAZARDS	RECOMMENDED CONTROLS
1. Cut Lumber; Set & Secure Lumber; Drive & Secure; Formwork	• Excessive Noise • Cuts/Lacerations • Electrical Shock • Flying Debris • Crush Hazard	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety, AHA G3: Scaffolding and Fall Protection, and AGA G4: Excavation and Trenching apply to this activity. 1. Hearing and eye protection will be worn while operating saws. 2. Inspect and test equipment and cords prior to use. 3. All guards must in place and operational, prior to use. 4. Ensure that no overhead hazards in the work area. 5. Tools that are not in use will be unplugged from their power source. 6. Worker using sledge hammer will ensure that his work area is clear of other workers prior to swinging the hammer. 7. Steel toed boots will be worn. 8. Visually inspect formwork for defects before use 9. Stage formwork as close to the work area as possible to minimize the material handling exposure. 10. Wear gloves, hardhats and proper PPE. 11. Use proper lifting methods when handling forms. 12. Use team lifting when handling awkward, bulky or heavy loads. 13. Make sure to shore forms properly and they are inspected by qualified individual.
2. Rebar Installation	• Struck By (Hot Metal) • Cuts/Lacerations • Mill scale • Sharp/Sheared Tire Wire Ends • Trips/Falls • Impalement Hazard • Overhead Power Lines	All controls listed in Step 1 apply to this step also. 1. Workers cutting rebar will wear face shields, gloves, hearing protection, and hard hats. 2. Grinder guards must be in place and fully operational prior to use. 3. Lathers will wear safety glasses, gloves, and hard hats. 4. Construction debris will be removed on a daily basis. 5. All rebar ends shall be capped to protect workers from impalement/laceration hazards. 6. If possible, stack rebar in a location that is free from overhead power lines. If this is not possible, rebar will be moved forward and away from the power lines before being lifted. 7. No workers will be working under suspended rebar cages at any time.
3. Placing Concrete	• Mix Truck Placement • Struck By/Caught Between • Catch in Cement Mixer • Hand Injuries • Eye Injuries • Concrete Burns	All controls listed in Steps 1 & 2 apply to this step also. 1. Use qualified flagmen to ensure a clear path to the work zone. 2. The mix truck will have an operational back-up alarm. 3. Only the truck's operator will place the chute and run the mixer. 4. Train mixer operator; Keep hands and loose clothing away from moving parts; Use of kill-switch on mixer 5. Wear safety glasses when working with wet concrete. 6. Wear impervious gloves, boots and pants when working with wet concrete. 7. Wash off any excess concrete from your skin as soon as possible.
4. Removing concrete forms.	• Slips/Trips/Falls same level • Fall from Elevation	All controls listed in Steps 1, 2 & 3 apply to this step also. 1. Visually inspect any tools or equipment to be used in the formwork

	• Manual Material Handling • Struck by falling/flying materials	removal operation for defects or damage before each use. 2. Stage formwork transportation cages as close to the work area as possible to minimize the material handling exposure. 3. Be sure the walking/working areas around the forms and the form cages are free from ruts, holes and accumulation of water. 4. Be sure that the formwork is in the firm grasp of the worker(s) before removing any of the form supports. 5. Safety glasses to be worn at all times when removing the forms due to the flying object exposure. 6. Use proper lifting methods when handling forms. 7. Personal fall arrest systems, PFAS, will be utilized to control fall hazards. 8. PFAS will be utilized whenever the workers are exposed to a fall greater than six feet. 9. Gloves will be worn when handling forms to prevent cuts and scrapes 10. Hardhats and safety glasses will be worn at all times to protect the workers from flying/falling objects. 11. All form removal work is to be performed at the direction of the competent person.
EQUIPMENT	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Power and hand tools; Rebar	Tool and equipment inspections Lock-Out / Tag-Out inspections for stored energy; Inspect hand tools for defects; Inspect PPE for wear or defects; Inspect rebar for sharp edges and impale hazards.	Competent person training and qualification

Prepared by: *(Contractor's competent/qualified person signature)*	
☒ - AHA Accepted as part of project Accident Prevention Plan	Signature: Date:

ACTIVITY HAZARD ANALYSIS		
ID No. G-7	FEATURE OF WORK: GENERIC AHA – Masonry	
Contract No.	Project:	Location:
Date:	Activity:	Estimated Start Date:
PRINCIPAL STEPS	POTENTIAL SAFETY / HEALTH HAZARDS	RECOMMENDED CONTROLS
1. Material Handling	• Back Injuries • Crush Injuries • Cuts, Bruises and Contusions • Eye Injuries	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety, AHA G3: Scaffolding and Fall Protection, AGA G4: Excavation and Trenching and AHA G6: Concrete apply to this activity. 1. Train employees in proper lifting techniques with bent knees and back erect. 2. Use equipment such as cable or jacks to lift heavy objects. 3. Ask for help from others. Think before lifting. 4. Proper hand protection shall be worn when handling sheet metal raw goods. 5. Hard hats shall be worn at all times. Eye protection shall be worn.
2. Material Installation and Rebar Installation	• Crush Injuries / Cuts / Lacerations • Mill Scale • Sharp/Sheared Tire Wire Ends • Trips/Falls • Impalement Hazard • Overhead Power Lines	All controls listed in previous steps apply to this step also. 1. Workers cutting rebar will wear face shields, gloves, hearing protection, and hard hats. 2. Grinder guards must be in place and fully operational prior to use. 3. Lathers will wear safety glasses, gloves, and hard hats. 4. Construction debris will be removed on a daily basis. 5. All rebar ends shall be capped to protect workers from impalement/laceration hazards. 6. If possible, stack rebar in a location that is free from overhead power lines. If this is not possible, rebar will be moved forward and away from the power lines before being lifted. 7. No workers will be working under suspended materials at any time.
3. Placing Mortar	• Mix Truck Placement • Struck By/Caught Between • Catch in Mixer • Hand Injuries • Eye Injuries • Skin Irritation	All controls listed in previous steps apply to this step also. 1. Use qualified flagmen to ensure a clear path to the work zone. 2. The mix truck will have an operational back-up alarm. 3. Only the truck's operator will place the chute and run the mixer. 4. Train mixer operator; Keep hands and loose clothing away from moving parts; Use of kill-switch on mixer 5. Wear safety glasses when working with wet concrete. 6. Wear impervious gloves, boots and pants when working with wet concrete. 7. Wash off any excess mortar from your skin as soon as possible.
EQUIPMENT	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Power and hand tools; Rebar;	Tool and equipment inspections Lock-Out / Tag-Out inspections for stored energy; Inspect hand tools for defects; Inspect PPE for wear or defects; Inspect rebar for sharp edges and impale hazards.	Competent person training and qualification
Prepared by: *(Contractor's competent/qualified person signature)*		
☒ - AHA Accepted as part of project Accident Prevention Plan		Signature: Date:

ACTIVITY HAZARD ANALYSIS		
ID No. G-8	FEATURE OF WORK: GENERIC AHA – Confined Spaces and Hazardous Atmosphere	
Contract No.	Project:	Location:
Date:	Activity:	Estimated Start Date:
PRINCIPAL STEPS	POTENTIAL SAFETY / HEALTH HAZARDS	RECOMMENDED CONTROLS
Confined Spaces (Examples) 1. Intake Structure 2. Outlet Works structures 3. Structural drainage galleries 4. Interior drainage structures 5. Steam Gage house 6. Septic Tanks	• Lack of Oxygen • Flammable or toxic atmosphere • Animals • Insects • Heights and Ladders • Slipping and Tripping potential • Temperature extremes	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety, AHA G3: Scaffolding and Fall Protection, AGA G4: Excavation and Trenching and AHA G6: Concrete apply to this activity. 1. Personnel entering confined spaces will be required to have the 4 hour confined space training class prior to entry. 2. Contact the appropriate project office to determine structures classified as confined spaces and the appropriate procedures prior to entry. This includes contacting the confined space coordinator and coordinating the confined space entry with him. 3. Where appropriate follow confined space procedures to test the atmosphere for lack of oxygen, flammable or toxic atmosphere. 4. 4. Personnel should be wary of animals and pests lurking in the confined space – particularly outlet works and interior drainage structures. Inspect entrances for signs of animal habitation prior to entry. 5. Personnel should note all areas where the potential for falls may occur and ensure the fall protection appears sound before approaching the area. 6. Personnel should inspect ladders prior to t heir use and use safety equipment when needed. 7. Personnel should inspect areas where debris or slick surfaces are present to prevent tripping and slipping accidents. Appropriate footwear is needed to provide adequate traction. 8. Safety shoes are required for all personnel entering confined spaces to provide both adequate foot wear with traction and to protect the feet 9. Temperatures in confined spaces may vary dramatically from the outside atmosphere, personnel must dress accordingly for these extremes including both cold. 10. Equipment (combustion engine) shall not be allowed to idle near confined spaces. The contractor shall monitor equipment emissions utilizing appropriate data logging capable instruments. The instrument(s) shall be utilized by a qualified person who has been trained to utilize such instrument(s).
EQUIPMENT	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Power and hand tools; Rebar;	Tool and equipment inspections Lock-Out / Tag-Out inspections for stored energy; Inspect hand tools for defects; Inspect PPE for wear or defects; Inspect rebar for sharp edges and impale hazards.	Competent person training and qualification
Prepared by: *(Contractor's competent/qualified person signature)*		
☒ - AHA Accepted as part of project Accident Prevention Plan		Signature: Date:

ACTIVITY HAZARD ANALYSIS		
ID No. G-9	FEATURE OF WORK: GENERIC AHA – Plumbing	
Contract No.	Project:	Location:
Date:	Activity:	Estimated Start Date:
PRINCIPAL STEPS	POTENTIAL SAFETY / HEALTH HAZARDS	RECOMMENDED CONTROLS
Preparing area for plumbing pipes and plumbing fixtures. Installation of plumbing pipes and plumbing fixtures.	• Injury from use of hand and power tools • Slip, Trip, Fall hazards • Eye Injuries	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety, AHA G3: Scaffolding and Fall Protection, AGA G4: Excavation and Trenching apply to this activity. 1. Employees shall be directed to ensure that there is proper lighting in the work area. 2. Housekeeping in the area will need to be kept clean so that there are no tripping hazards created by the debris. 3. All tools and equipment will be inspected for damage and defects before use. 4. Materials to be utilized for this task are to be staged as close as possible to the work area. Carts and other mechanical devices will be used to minimize the manual handling of the materials, tools and equipment 5. Hard hats, safety glasses and hard-soled work boots are required for this and all operations. If power tools are used for the grinding operation, then a face shield will also be provided and it's use will be mandated. 6. Materials will be moved to and from the work area on carts and other mechanical devices to minimize the amount of manual material handling. 7. Workers using ladders, scaffolding or scissor lifts will follow all of the safe use requirements spelled out by the manufacturers and the guidelines from AHA G1: Mobilization and General Construction Safety, AHA G3: Scaffolding and Fall Protection, AGA G4: Excavation and Trenching. 8. Cords and hoses will be moved out of the walking and working areas. When possible, the cords and hoses will be suspended.
Soldering Piping	• Burns • Eye Injuries • Fires • Inhalation of Hazardous Vapors	1. All smelting pots will be set up in well ventilated areas. 2. Respirators will be supplied and used (with training) if required. 3. Contractor will provide a fire extinguisher in the immediate area around the pot. A Fire Watch will be posted. 4. Pots will be located away from water or areas likely to have water present. 5. All tools and equipment use in this operation will be free from water to prevent a boil-over accident. 6. Heavy leather gloves will be required on all workers handling the molten lead. 7. Hard hats, safety glasses and hard-soled work boots are required for this and all operations. If power tools are used for the grinding operation, then a face shield will also be provided and it's use will be mandated 8. Cords and hoses will be moved out of the walking and working areas. When possible, the cords and hoses will be suspended.
EQUIPMENT	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Power and hand tools; Rebar;	Tool and equipment inspections Lock-Out / Tag-Out inspections for stored energy; Inspect hand tools for defects; Inspect PPE for wear or	Competent person training and qualification

	defects; Inspect rebar for sharp edges and impale hazards.	

Prepared by: *(Contractor's competent/qualified person signature)*	
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ACTIVITY HAZARD ANALYSIS		
ID No. G-10	FEATURE OF WORK: GENERIC AHA – Painting	
Contract No.	Project:	Location:
Date:	Activity:	Estimated Start Date:
PRINCIPAL STEPS	POTENTIAL SAFETY / HEALTH HAZARDS	RECOMMENDED CONTROLS
Compressor and Sprayer Use	• High Pressure Hazards • Inhalation of Fumes and Particles Hazards • Eye Injury	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety, AHA G3: Scaffolding and Fall Protection, AGA G4: Excavation and Trenching apply to this activity. 1. Lock-Out / Tag-Out Procedures in place prior to using compressor. 2. Proper Spray nozzles used for compressor pressure. 3. Ventilate work area. 4. Inspect compressor lines for any damage. Replace any damaged lines. 5. Wear Respirator with proper filter for paints being used. 6. Wear gloves and Tyvek suit. Take breaks and hydrate when high temperatures are encountered while wearing PPE.
Paint Storage	• Volatile Organic Fumes Hazard • Explosion Hazard	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety, AHA G3: Scaffolding and Fall Protection, AGA G4: Excavation and Trenching apply to this activity. 1. Store paints in a properly designed (explosion proof) and well ventilated cabinet. 2. Wear respirator. 3. Wear proper PPE (Gloves and Tyvek suit). Take breaks and hydrate when high temperatures are encountered while wearing PPE. 4. Adequate numbers of the extinguishers must be kept by exits in the storage building and in addition extinguishers kept outside of building. 5. Exits clearly marked and kept free of obstructions. 6. Signs posted to mark 'Flammable Material' and 'No Smoking'.
Paint Mixing and Use	• Volatile Organic Fumes Hazard • Respiratory Hazard • Skin Exposure Hazard	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety, AHA G3: Scaffolding and Fall Protection, AGA G4: Excavation and Trenching apply to this activity. 1. Wear respirator. 2. Work in well ventilated work area. 3. Wear proper PPE (Gloves and Tyvek suit). Take breaks and hydrate when high temperatures are encountered while wearing PPE. 4. Adequate numbers of the extinguishers must be kept by exits in the storage building and in addition extinguishers kept outside of building. 5. Exits clearly marked and kept free of obstructions. 6. Signs posted to mark 'Flammable Material' and 'No Smoking'.
EQUIPMENT	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Power and hand tools; Rebar;	Tool and equipment inspections Lock-Out / Tag-Out inspections for stored energy; Inspect hand tools for defects; Inspect PPE for wear or defects; Inspect rebar for sharp edges and impale hazards.	Competent person training and qualification
Prepared by: *(Contractor's competent/qualified person signature)*		
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ACTIVITY HAZARD ANALYSIS		
ID No. G-11	FEATURE OF WORK: GENERIC AHA – Steel Structure Erection	
Contract No.	Project:	Location:
Date:	Activity:	Estimated Start Date:
PRINCIPAL STEPS	POTENTIAL SAFETY / HEALTH HAZARDS	RECOMMENDED CONTROLS
Rigging Steel for Picking	• Under Rated Slings • Cut Slings • Damaged Winch Line • Unqualified Personnel	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety, AHA G3: Scaffolding and Fall Protection apply to this activity. 1. Verify the Weight of the Objects to be picked. 2. Inspect slings before each pick. Remove all cut or frayed slings. 3. Check winch lines regularly. 4. Make sure workers have proper skills and experience.
Picking, Swinging and Guiding Steel Members Drifting and Bolting Steel Members	• Under sized Crane or Winch • Pinch or Crush Injuries • Contact with Energized Bus or Wires	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety, AHA G3: Scaffolding and Fall Protection apply to this activity. 1. Verify the Weight if the Objects to be lifted. 2. Know hand signals; Use Tag Ropes and Pay Attention. 3. Use Spud Wrench & Pull Pins. 4. Know where steel is supposed to be landed. 5. No lifting near energized wires and maintain proper clearances.
Drilling, Cutting and Welding Galvanized Steel	• Metal in Eyes or Hand • Burns to Eyes	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety, AHA G3: Scaffolding and Fall Protection apply to this activity. 1. Wear Proper Eye Protection for High Energy Light Source as well as to protect from impact. 2. Work in well ventilated work area. 3. Wear proper PPE (Gloves and Eye Protection). Take breaks and hydrate when high temperatures are encountered while wearing PPE.
Collapse of Structure due to Member Failure from Temporary Loading during Erection	• Crush Injuries • Impalement Injuries • Death	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety, AHA G3: Scaffolding and Fall Protection apply to this activity. 1. Follow erection plan and drawings. Ensure a sequential erection procedure is prepared, which has been approved by the erection engineer. 2. Make provisions for positive connections between members of the structure that have been specified to resist imposed lateral and vertical force. 3. Reinforcement required for in-service loads and temporary conditions. Ensure temporary guys or bracing are securely anchored 4. Members should be clearly marked and labeled. 5. Verify the stability of the structure in accordance with the erection engineer's specifications: a. – at the end of each work day b. – when fastenings may be incomplete c. – during strong winds or when strong winds are forecast
EQUIPMENT	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Power and hand tools; Rebar;	Tool and equipment inspections Lock-Out / Tag-Out inspections for stored energy; Inspect hand tools for	Competent person training and qualification

	defects; Inspect PPE for wear or defects; Inspect rebar for sharp edges and impale hazards.	
Prepared by: *(Contractor's competent/qualified person signature)*		
☒ - AHA Accepted as part of project Accident Prevention Plan		Signature: Date:

ACTIVITY HAZARD ANALYSIS		
ID No. G-12	FEATURE OF WORK: GENERIC AHA – Abrasive Blasting	
Contract No.	Project:	Location:
Date:	Activity:	Estimated Start Date:
PRINCIPAL STEPS	POTENTIAL SAFETY / HEALTH HAZARDS	RECOMMENDED CONTROLS
Blasting Operation	• Insufficient air for breathing • Air contaminated. (Breathing problem) • Improper supply of air. • Ineffective filters • Sand blasting on body part / Body injury • Locking of dead man's device for intermediate inspection	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety apply to this activity. 1. Use Regulator to control supply. 2. Change Filter at the advised frequency. 3. Monitor the air supply and ensure adequate supply of air. 4. Ensure the Dead Man's switch is in good operating condition. 5. Make sure blasting is only done by trained personnel with the proper PPE. 6. Barricade the area to prevent unauthorized entry.
Changing Positions to Blast in New Area	• Sand blasting on body part (body injury) • Trip/fall Machine remain 'ON' • Locking of dead man's device. • Poor housekeeping	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety apply to this activity. 1. Turn machine 'Off' prior to moving equipment. Follow 'Lock Out / Tag Out' procedures. 2. Ensure the Dead Man's switch is in good operating condition. 3. Maintain and ensure good housekeeping.
Hazardous Waste	• Inhalation of blasted residue • Ingestion of blasted residue	NOTE: All items hazards and controls in generic AHA G1: Mobilization and General Construction Safety apply to this activity. 1. Wear proper Respiratory PPE. 2. Wear proper PPE (Gloves and Tyvek suit). Take breaks and hydrate when high temperatures are encountered while wearing PPE. 3. Dispose of blasting residue according to all Environmental regulations.
EQUIPMENT	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Power and hand tools; Rebar;	Tool and equipment inspections Lock-Out / Tag-Out inspections for stored energy; Inspect hand tools for defects; Inspect PPE for wear or defects; Inspect rebar for sharp edges and impale hazards.	Competent training and qualification
Prepared by: *(Contractor's competent/qualified person signature)*		
☒ - AHA Accepted as part of project Accident Prevention Plan		Signature: Date:

ANNEX 2

Annex 2: Guideline to Prepare the Quality Control Plan

Immediately after award, the contractor shall prepare a Quality Control Plan following the guideline and format provided in this Annex 2. This is in addition to any quality control plan or documentation that may be required by Macedonian regulations for this type of construction activity. The Plan shall be accepted by the Contracting Officer before works are authorized to start at the job site.

[Project Title]
[Contract Number]

QUALITY CONTROL PLAN

The purpose of this paper is to illustrate how our site organization, our staff and our procedures will help ensure the quality required by the technical requirements.

SITE ADMINISTRATION
[Describe how to carry out all formalities required by local law to open and run the worksite]

SITE FACILITIES
[Describe how the specific worksite is going to be delimited and organized]

STAFF SITE
[List the roles and relevant names of the staff to be employed on the worksite; provide a short description if necessary]

CONTROL ORGANIZATION
[Detail how it will work; who does what]

TESTING
[Describe how tests of soil and concrete will be conducted]

CHECKING THE QUALITY OF THE WORKS
[Describe]

CONTROL OF MATERIALS
[Describe]

GENERAL CONSTRUCTION CONTROL ACTIVITIES
[Describe]

SAFETY ON SITE
[Describe]

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