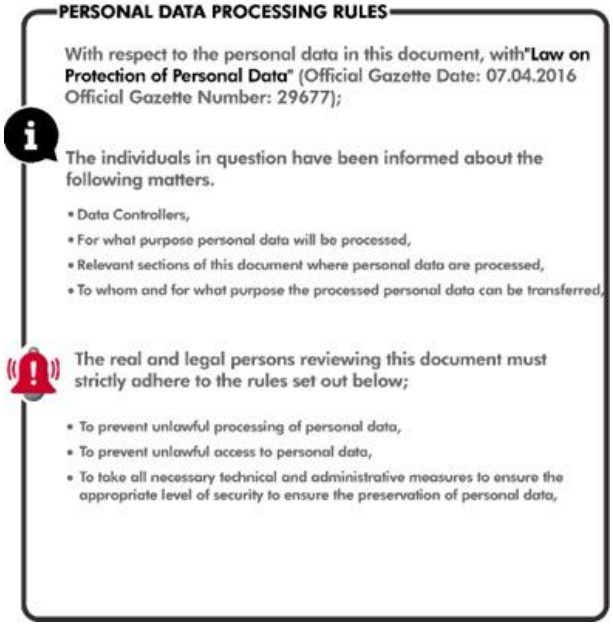
PUBLIC BUILDINGS
SEISMIC RESILIENCE & ENERGY EFFICIENCY
(SREEP) PROJECT
(Ref: WB/CS-DESSUP-04)

İstanbul University Çapa Campus
Construction of Seismic Resilience & Energy Efficient Surgery Hospital

OCCUPATIONAL HEALTH AND SAFETY PLAN

Mühendislik Müşavirlik Proje ve Yönetim Hizmetleri A.Ş.

AUGUST 2024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1. Terms & Abbreviation

Beneficiary	İ.Ü Faculty of Medicine Çapa Campus
Consultant	TİMA Mühendislik Müşavirlik Proje Hizmetleri A.Ş.
Contractor	As a result of the tender held by the Ministry of Environment, Urbanization and Climate Change, the company is responsible for implementing all renovation activities focused on structural strengthening and energy efficiency.
Corrective Action	A set of activities aimed at eliminating the root causes of identified non-conformities and unwanted conditions. *(It is mandatory to record corrective actions, including the date of identification, the identifier, responsible unit/persons, description of non-conformity and **root cause**, corrective action recommendations, deadlines, date of resolution of the non-conformity, and the method used.)*
ERT	Emergency Response Team
LOTO	Lock Out-Tag Out
Major	Big, Very Important
MoEUCC	Ministry of Environment, Urbanization, and Climate Change
MSDS	Material Safety Data Sheet (*) (*) The name of the "Material Safety Form" has been changed to Turkish Safety Form. (See the Regulation on the Registration, Evaluation, Permission and Restriction of Chemicals published in the Official Gazette No. 30105 dated 23/6/2017)
OHSP	Occupational Health & Safety Plan
OSS	Occupational Safety Specialist
PAT	Portable Appliance Test
PPE	Personal Protective Equipment
Root Cause Analysis	When defining or assessing an incident, problem, or undesired outcome, it involves going beyond immediate causes and, upon addressing, identifying the main reasons or elements to prevent the recurrence of similar incidents or problems in the future. (Corrective actions should focus on eliminating or correcting these main causes or elements.)
Subcontractor	The company assigned by the contractor company to carry out a part of the project.

2. Objective

WB/CS-DESSUP 04; Design review, energy audit and construction supervision, consultancy services regarding the structural performance of the building, including checking compliance with current legislation and technical requirements for **SEISMIC RESILIENCE and ENERGY EFFICIENT BUILDING CONSTRUCTION process**

- Statement of completion of services covering Highly Hazardous Works that must be obtained from External Agencies before the project-oriented Construction process begins.
- Determining the hazards and risks related to construction activities, as well as identifying safety measures to be taken,
- Establishing the minimum requirements for personnel involved in the construction process and preventing those who do not meet these minimum requirements from participating in the work, are the objectives.

In accordance with this objective, the following have been defined within this document;

- Construction method and risk analysis for the structural reinforcement and renovation process,
- Personnel qualification profiles,
- Control/inspection methods for before, during, and after fieldwork,
- Record forms and methods,
- Additional safety measures to be taken by beneficiary institutions
- Completion of the required operations within the External Supplier Organizations (Natural Gas Local Distribution Company, Electricity Local Distribution Company, Local Government Infrastructure and Technical Works Directorates) before the field delivery of the services in accordance with the Project and Rules in accordance with the Legislation.

It is defined within this document.

This Occupational Health and Safety Report prepared by the consultant will be notified through official channels that the Contractor company should prepare its own OHSP, Risk Assessments and Method Statements regarding the project-based operations to be carried out by taking the Occupational Health and Safety Plan (OHSP) prepared by the Consultant as reference.

If there is a risk of overlap of the specified activities, such as new building construction, demolition and relocation of old buildings, patent acceptance, visitor admissions, training activities, construction traffic, etc., the beneficiary will inform the administration and the consultant. Coordination meetings will be held to ensure that contractor activities are carried out in a way to identify the associated risks and eliminate these risks through mitigation measures.

3. Scope

WB/CS-DESSUP 04 project ISTANBUL UNIVERSITY FACULTY of MEDICINE ÇAPA CAMPUS SURGERY HOSPITAL, OCCUPATIONAL HEALTH AND SAFETY PLAN Consisting of single building, 21,350.00 m2 construction area, the building list and satellite images are given under the title "Buildings within the Scope of the Project".

The works to be carried out within this project are described below. This document is limited to the studies listed below.

- Earthquake resistant and energy efficient construction of ÇAPA Surgery Hospital
- Sustainable clean energy production (Rooftop solar power plants)

4. Legal Regulations

This OHSP has been primarily prepared in accordance with the laws and regulations related to Occupational Health and Safety in Turkey. In addition to these, it also complies with the Environmental and Social Standards of the World Bank, particularly focusing on ESS2: Labor and Working Conditions and ESS4: Community Health and Safety. The list of relevant legal regulations is provided below.

Table 1 List of Relevant Legal Regulations (Law)

	NO	DATE OF APPROVAL	OFFICIAL GAZETTE NUMBER & DATE
Labor Law	4857	22.05.2003	RG: 10.06.2003/25134
Labor Courts Law	7036	12.10.2017	RG: 25.10.2017/30221
Occupational Health and Safety Law	6331	20.06.2012	RG: 30.06.2012/28726
Misdemeanors Law	5326	30.03.2005	RG: 31.03.2005/25772 M.
Vocational Training Law	3308	05.06.1986	RG: 19.06.1986/19139
Law on Some Regulations Concerning the Vocational Qualifications Authority (Vocational Qualifications Authority Law)	5544	21.09.2006	RG: 07.10.2006/26312
Social Insurance and General Health Insurance Law	5510	31.05.2006	RG: 16.06.2006/26200
Law on the Preparation and Implementation of Technical Regulations for Products	4703	29.06.2001	RG: 11.07.2001/24459
European Convention on Human Rights (Universal Declaration of Human Rights)	207 A(III)	10.12.1948	RG: 27.05.1949/7217

Table 2 List of Relevant Legal Regulations

	OFFICIAL GAZETTE NUMBER & DATE
Subcontracting Regulation	RG: 27.09.2008/27010 Rev 25.08.2017/30165
Regulation on the Protection of Employees from Noise-Related Risks	RG: 28.07.2013/28721
Regulation on the Principles and Procedures of Occupational Health and Safety Training for Employees	RG: 15.05.2013/28648 Rev 24.05.2018/30430
Regulation on the Principles and Procedures for Health Surveillance of Employees	RG: 20.01.2022/31725
Manual Handling Operations Regulation	RG: 24.07.2013/28717
Regulation on Preparation, Completion and Cleaning Works	RG: 28.04.2004/25466
Hygiene Training Regulation	RG: 05.07.2013/28698
First Aid Regulation	RG: 29.07.2015/29429
Regulation on Health and Safety Conditions for the Use of Work Equipment	RG: 25.04.2013/28628 Rev 18.02.2022/31754
Regulation on the Duties, Authorities, Responsibilities, and Training of Occupational Safety Specialists	RG: 29.12.2012/28512 Rev 16.04.2020/31101

Regulation on Working Hours Related to the Labor Law	RG: 06.04.2004/25425 Rev 25.08.2017/30165
Regulation on Overtime Work and Work with Extra Hours Related to the Labor Law	RG: 06.04.2004/25425 Rev 25.08.2017/30165
Regulation on Occupational Health and Safety Services	RG: 29.12.2012/28512 Değ. 04.02.2024/32450
Regulation on Occupational Health and Safety Boards	RG:18.01.2013/28532
Regulation on Occupational Health and Safety Risk Assessment	RG: 29.12.2012/28512
Regulation on the Duties, Authorities, Responsibilities, and Training of Workplace Physicians and Other Health Personnel	RG: 20.07.2013/28713 Rev 16.04.2020/31101
Regulation on Emergency Situations in Workplaces	RG: 18.06.2013/28681 Rev 01.10.2021/31615
Regulation on Work Stoppages in Workplaces	RG: 30.03.2013/28603 Rev 11.02.2016/29621
Regulation on Health and Safety Measures in Working with Chemical Substances	RG:12.08.2013/28733 Rev 10.10.2023/32345
Personal Protective Equipment Regulation	RG: 01.05.2019/30761
Regulation on the Use of Personal Protective Equipment in Workplaces	RG: 02.07.2013/28695
Machinery Safety Regulation (2006/42/EC)	RG: 03.03.2009/27158 Rev 28.09.2014/29133
Regulation on Examination, Measurement, Evaluation, and Certification by the Vocational Qualifications Institution	RG: 15.10.2015/29503
Regulation on Health and Safety Signs	RG: 11.09.2013/28762
Regulation on Vocational Training for Workers Employed in Hazardous and Very Hazardous Jobs	RG: 13.07.2013/28706 Rev 11.05.2017/30063
Dust Control Regulation	RG: 05.11.2013/28812
Occupational Health and Safety Regulation in Construction Works	RG: 05.10.2013/28786 Rev 31.12.2018/30642.4.M

5. Management Commitment & OHS Objectives

5.1. Management Commitment

As the manager of the TİMA, I commit that throughout the duration of construction of seismic resilience and energy efficient surgery hospital project, covering the preparation and implementation phases until the completion of the project: The health and safety of employees and other stakeholders will be prioritized. All relevant legislation and defined requirements will be strictly adhered to. All necessary measures related to occupational health and safety will be taken promptly. Collective protection measures will be prioritized when determining and implementing precautions. Employee training and information regarding occupational health and safety will be emphasized. Adequate resources will be provided for occupational health and safety, and necessary expenses will not be spared. Employee suggestions and ideas will be taken into consideration in occupational health and safety practices. Necessary participation, idea exchange, and collaboration in the field of occupational health and safety will be ensured between management and employees. This plan has been prepared for the conditions of this construction site, its employees, and other stakeholders. It will be implemented throughout the project and updated when necessary. Adequate information about their responsibilities under this plan will be provided to all levels of employees, including the highest-level manager involved in the project, as well as visitors. I hereby commit to these principles and responsibilities.

Date : 05.07.2024
Name & Surname : Dr. Bahadır ŞADAN
Signature :

5.2. Policy

We will comply with national and international regulations, ensuring a healthy and safe working environment by;

- Promoting and fostering a culture of occupational health and safety among all stakeholders, encouraging continuous improvement.
- Taking all necessary measures within the framework of occupational health and safety regulations for all relevant parties.
- Working to prevent workplace accidents through effective risk assessment before they occur.
- Providing training for our employees in occupational health and safety that goes beyond regulatory requirements.
- Respecting the rights of our employees, including their rights related to collective bargaining and negotiations, and supporting such initiatives.
- Adopting references such as the Universal Declaration of Human Rights, International Labor Organization (ILO) conventions, United Nations Global Compact, United Nations Sustainable Development Goals, and the Organization for Economic Cooperation and Development (OECD) guidelines for multinational enterprises.
- Ensuring that visitors at all levels, our suppliers, and employees of the companies from which we purchase services comply with occupational health and safety rules.
- Creating a healthy environment where employees feel comfortable, safe, and happy to work and taking mental health issues seriously, providing support to all personnel facing such problems.

Date : 05.07.2024
Name & Surname : Dr. Bahadır ŞADAN
Signature :

5.2.1 Key Strategies Related to OHSP

- Leadership from management teams,
- Involving all employees by seeking their opinions and suggestions to contribute to OHS requirements and problem-solving,
- Identifying hazards and planning and implementing adequate control measures before workplace accidents occur,
- Ensuring that all employees have sufficient awareness and motivation regarding occupational health and safety.

5.3. Targets

To regularly measure the Occupational Health and Safety (OHS) performance of the project, "**performance criteria**" consistent with the project contract have been established, along with measurable "**targets**" corresponding to each performance criterion, which will be tracked on a monthly basis. During the first week of each month, the OHS Monthly Activity Report, approved by the consultant in the appropriate format for the previous month, will be prepared and submitted to the administration.

TARGET DEFINITION	QUANTITATIVE DATA
Number of without Lost-Time Occupational Accidents (maximum)	0
Number of Lost-Time Occupational Accidents (maximum)	0
Number of Near-Miss Incidents (maximum)	2
Accident Frequency Rate (AFR[1]) (maximum)	60
Accident Severity Rate (ASR[2]) (maximum)	0
Occupational Health and Safety (OHS) Training for this Project	20 hour/person
Fire Drill for this Project	1 pcs.
Earthquake Drill for this Project	1 pcs.
Injured Worker Rescue Drill for this Project	1 pcs.

Performance criteria are continuously monitored cumulatively throughout the project duration. The values achieved in comparison to the planned targets are analyzed on a monthly basis to identify deviations and initiate necessary corrective actions. Data and results related to the targets will be communicated to the consultant during the first week of each month, along with the Occupational Health and Safety (OHS) Monthly Activity Report.

The questions that will be addressed as part of the performance measurement are as follows:

- Are we achieving our Occupational Health and Safety (OHS) targets?
- Are we working in compliance with OHS regulations?
- Are the planned control activities resulting from risk assessments effective in reducing risks?
- Are accidents and near-miss incidents being recorded? Is accident investigation and root cause analysis conducted to prevent their recurrence?
- Are Corrective Actions planned and implemented for discrepancies/violations identified in the field (by the Contractor or Consultant)?
- Are the implemented Corrective Actions effective?
- Are necessary changes (revisions) made to the OHSP when needed?

[1] $\text{AFR} = \frac{\text{Total Number of Accidents}}{\text{Total Working Time (hours)}} \times 1.000.000$

[2] $\text{ASR} = \frac{\text{Total Number of Lost Days}}{(\text{Total Working Days} - \text{Non} - \text{Working Days})} \times 1.000$

- Do the provided training sessions effectively build OHS awareness and motivation among employees?

To enable the consultant to monitor the Contractor's OHS performance, the following records will be shared by the Contractor on a monthly basis:

- Accident and near-miss incident reports and days lost if any
- Total monthly working hours of employees in production
- Records related to mandatory training (training records, certificates, etc.)
- e-KATIP Appointment Information and Contract records for the Workplace Physician and Occupational Safety Specialist
- Machinery/equipment periodic control reports
- Status of ISG-related nonconformances recorded by the Contractor or Consultant (open/closed, description of corrective actions, etc.).

6. Project Information

6.1. General Information

Information about the consultant company is given in the table below.

Table 3 Consultant Information Table

CONSULTANT	TİMA Mühendislik Müşavirlik Proje ve Yönetim Hizmetleri A.Ş.
SSI REGISTRY NUMBER	1290027
ADDRESS	Fahrettin Kerim Gökay Cad. Ahsen Çıkmazı Sokak No. 6/5 Kadıköy - İSTANBUL
PHONE / E-MAIL	0(216) 3471395 (Pbx) / info@timaengineering.com
OCCUPATIONAL SAFETY SPECIALIST	Hakan ÖZDEMİR | İGU-69411
WORKPLACE PHYSICIAN	Dr. Samih Müşvik Bilal| İH-139962

6.1.1 Buildings within the Scope of the Project

Table 4 Surgery Hospital (IU Faculty of Medicine ÇAPA Campus) Building List

	BUILDING NAME	REGION	CONSTRUCTION YEAR	BUILDING CONSTRUCTION AREA m²
01	ÇAPA Surgery Hospital	İstanbul	----	21.330,00
				21.330,00

Figure 1 Istanbul Çapa Surgery Hospital (Istanbul University Çapa Faculty of Medicine)

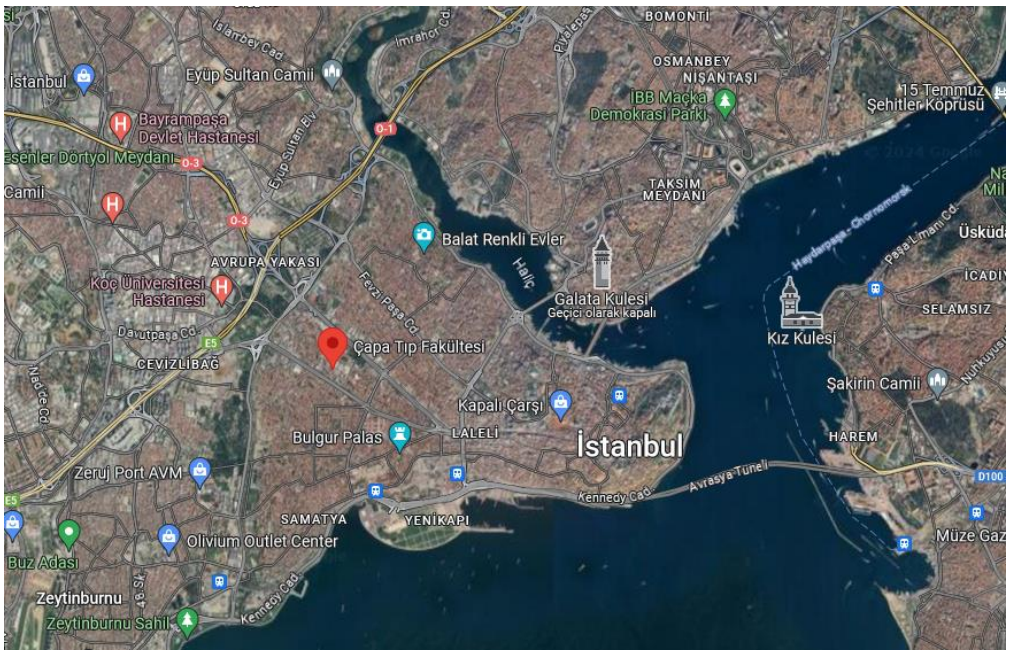


Figure 2 İstanbul ÇAPA Surgery Hospital located at İÜ Faculty of Medicine, Çapa Campus)

Figure 3 Istanbul University Faculty of Medicine, Çapa Campus Zoning Plan

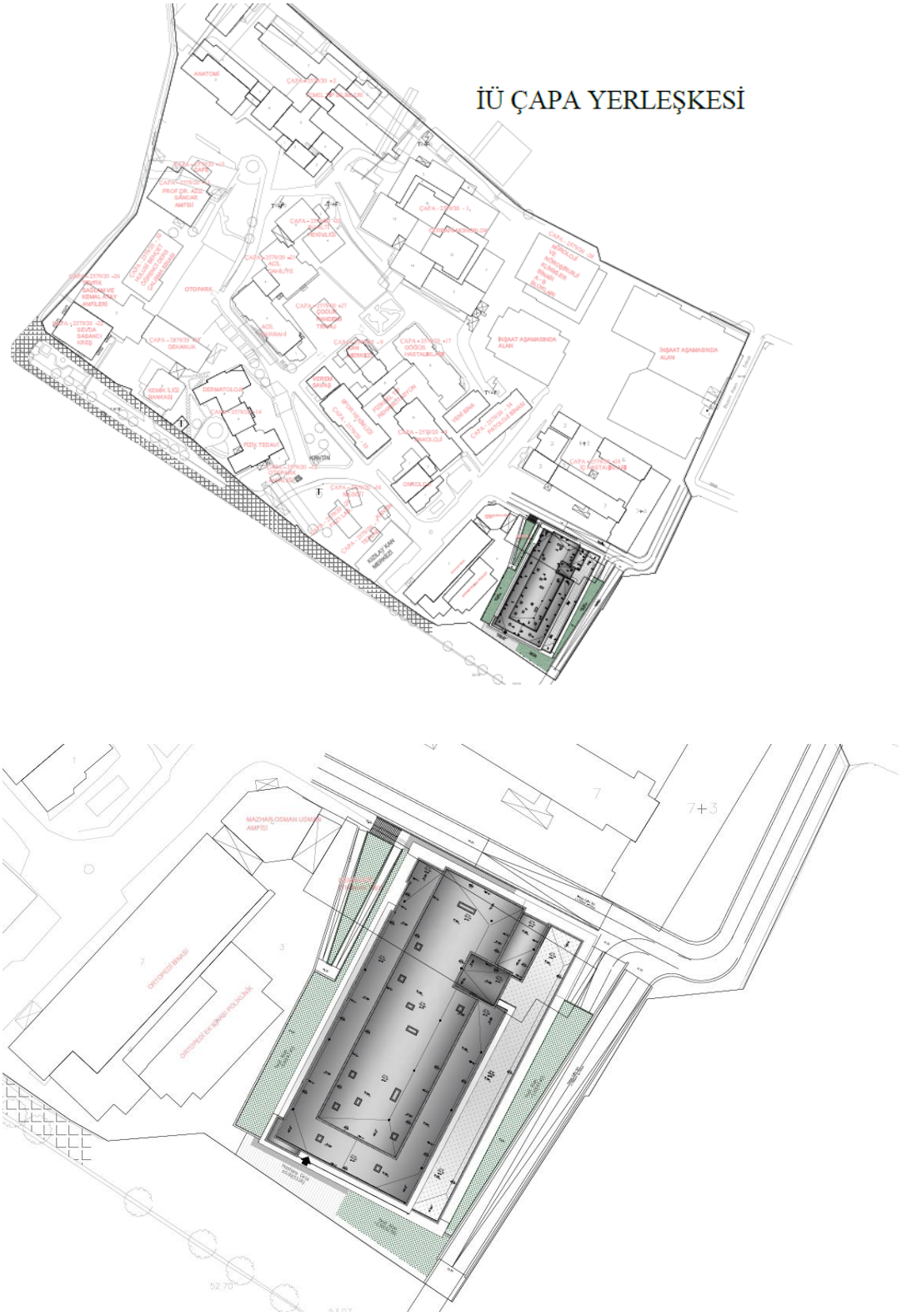


Figure 4 Surgery Hospital Layout Plan

Table 5 Faculty of Medicine ÇAPA Campus, Surgery Hospital General Info. Table

BUILDING NAME	ÇAPA SURGERY HOSPITAL			
BUILDING OWNER	ISTANBUL UNIVERSITY FACULTY OF MEDICINE ÇAPA			
ADDRESS	MILLET CAD. 2579 Island, 20 Parsels Çapa FATIH			
CITY	İSTANBUL		POSTAL CODE	34093
CONSTRUCTION YEAR	TO BE BUILT NEW		CONSTRUCTION AREA	21.330,00 m^2
PURPOSE OF USAGE	HOSPITAL		NUMBER OF BLOCKS IN THE BUILDING GROUP	1
USABLE INDOOR SPACE	~ 25.000 m^2		TOPLAM KAPALI HACİM	~ 70.000 m^3
NUMBER OF USERS	TOTAL	48.000 Person/Year		
TECHNICAL RESPONSIBLE	NAME SURNAME		NEŞE KARAÇAY	
	CONTACT INFORMATION	PHONE	0212 440 00 70/10218 0536 324 82 18	
		E-MAIL	nese.karacay@istanbul.edu.tr	
THE PLANNED WORKS TO BE CARRIED OUT IN THE BUILDING				
All of the construction works planned to be done in the building are listed in Table 6.				
DURATION AND SEASON OF THE WORKS				
With the preparation of the tender documents, it is planned that the **Contractor will complete the construction of the Çapa Surgery Hospital within 18 months following the site delivery date.** Due to the uncertainty of the site delivery time, a clear season cannot be specified and the work will be completed following the tender process planned to take place in 2024.				
NUMBER OF WORKERS EXPECTED TO WORK DURING THE CONSTRUCTION WORKS				
In order to complete the planned construction activities within the targeted timeframe, it is estimated that average of 100 workers per day will be employed.				

Building Height: ~ 25.50 m (Vertical distance from ground level to the highest point of the building)
Number of Floors : 3 basement floors + Lower Entrance + Entrance + 3 floors + Technical Floor
Coordinates: 41°00'54.6"N x 28°56'06.2"E

- On the next page, the planned construction activities, the estimated number of personnel, and completion durations are presented in a table format. This table is provided for general information purposes, and it is expected that the contracting company will revise this table according to its own work program/plans.

Table 6 Works Planned to Be Carried Out In ÇAPA Surgery Hospital

	GENERAL DESCRIPTION OF THE WORK TO BE DONE	PROJECTED NUMBER OF PERSONNEL	PROJECTED DURATION (WEEKS)
CIVIL WORKS	EARTHWORKS & SLOPE STABILIZATION	6	4
	PERIFERY RETAINING WALLS	6	12
	RAFT FOUNDATION & EARTHQUAKE ISOLATOR INSTALLATION	8	7
	BUILDING CONCRETE WORKS	9	24
	STEEL STRUCTURES & ROOF CLADDING	3	4
	ROAD & INFRASTRUCTURE WORKS	3	12
ARCHITECTURAL WORKS	MASONARY WORKS	3	16
	WINDOWS JOINERY & FACADE WORKS	8	12
	SUSPENDED CEILING & DRYWALL INSTALLATION WORK	7	10
	WALL & FLOOR COVERING	6	12
	INSULATION WORKS	2	8
	PLASTERING & PAINTING WORKS	6	18
	DOORS & FURNITURE INSTALLATION	2	15
ELECTRICAL WORKS	ELECTRICAL INSTALLATION WORKS	8	28
	EQUIPMENT INSTALLATION	3	16
MECHANICAL WORKS	MECHANICAL INSTALLATION WORKS	6	48
	EQUIPMENT INSTALLATION	3	16
LANDSCAPE	LANDSCAPING WORKS	2	15
SOLAR POWER SYSTEM	SOLAR PANEL INSTALLATION	12	1,5
COMMISSIONING	COMMISSIONING & TESTING WORKS	8	16

Some of the works related to electrical & mechanical installations mentioned in Table 6, as well as the automation, and solar panel installation are the works to be carried out to ensure the targeted energy efficiency.

6.2 Pre-construction Information & Site Plans

Regarding ÇAPA campus where the construction activities will be carried out; site data, building approach areas, traffic action plans, temporary storage areas, emergency assembly area, work vehicles and machinery parking areas, and risky areas such as elevation differences are stated in ANNEX 1.

6.3 General Construction Site Rules

The Contractor will publish the construction site plans after the approval of the Consultant Project Manager in consultation with the Beneficiary Institution during the construction site mobilization phase. The following points are shown on the site plan:

- Vehicle and pedestrian roads within the construction site,
- Warehouses and waste areas,
- In case of emergency, a sketch showing escape routes and muster point and an evacuation plan showing parts of the workplace.

In case of necessity the site plan shall be revised throughout the project period. Depending on the size and nature of the project, an appropriate scale will be selected in which what needs to be shown on the site plan will be clearly visible and will be presented to the Consultant Project Manager. The tentative site plan is shown in Figure-5 which will be reviewed during the mobilization phase.

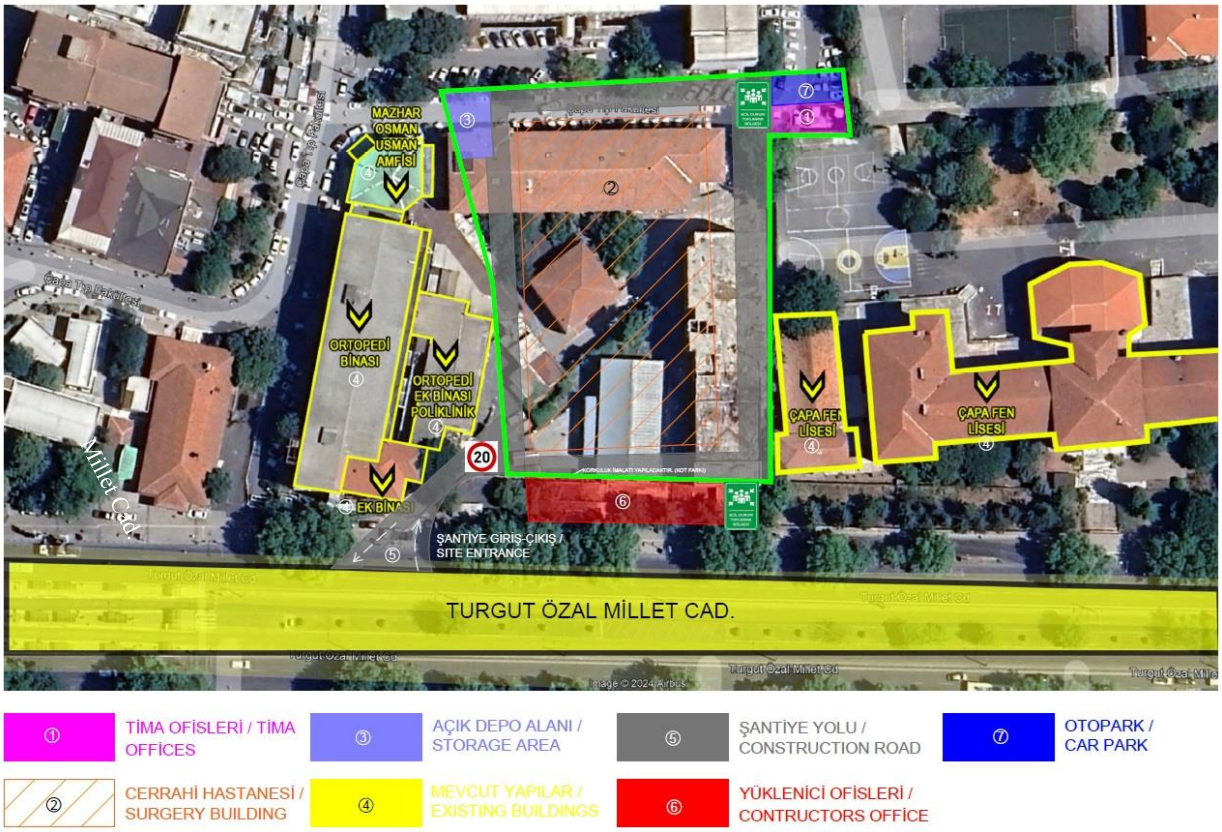


Figure 5 Surgery Hospital Draft Construction Site Plan

- Specific areas for dining and resting of workers are not allocated. The areas within the buildings where workers can use for general and humane needs (such as toilets, break/rest areas, dining rooms, etc.) will be determined by the beneficiary institution's technical and administrative units and communicated to the contractor.
- Workers will not be accommodated within the campus area. The contractor and subcontractors will arrange suitable places (hotels, motels, etc.) for the accommodation of workers.
- Temporary storage areas *(outside of the buildings*) are specified on a building basis by the technical and administrative units of the beneficiary institution, in consultation with the Consultant firm.
- No other temporary storage areas are allowed other than the designated storage areas.
- During temporary storage, the necessary precautions must be taken by the contracting company to stack materials and equipment in a way that does not create risks, protects them from environmental conditions, and prevents the leakage of hazardous chemicals into the ground. The contracting company must describe how these issues will be addressed before the use of these storage areas. Otherwise, the use of temporary storage areas will not be allowed.
- Emergency assembly areas are specified below. Warning signs will be provided in these areas, and all employees will be informed about the assembly areas by the Occupational Safety specialist.
- The specified emergency assembly areas will be used in all Occupational Health and Safety (OHS) drills. The responsible OSPs will determine the emergency assembly times for each drill.

- Emergency assembly areas will be included in the Occupational Health and Safety (OSH) training materials.
- Indoor toilets will be used for restroom needs.
- Employees' shower needs will be provided in the accommodations arranged by the contractor and subcontractors (hotels, etc.). Indoor sinks will be used for washing hands.
- Drinking water will be supplied to all employees in plastic bottles. It is not allowed to drink water from the toilets. Warning signs, as specified below, will be installed in all toilets.

- Smoking is prohibited inside the buildings and temporary storage areas. Warning signs, as specified below, will be installed at building entrances and temporary storage areas. *(An open flame prohibition sign will be installed in temporary storage areas*.).

- Outdoor smoking areas, located at least 5 meters away from building entrance doors, can be designated. These areas should be clearly marked with the warning sign specified below, and all employees should be informed about the designated smoking areas.

- All machinery and electrical equipment used during construction activities must bear the CE marking and comply with the relevant regulations. Products falling under the scope of the "CE" MARKING REGULATION and not meeting the requirements associated with this symbol are not permitted for use.

Relevant Directives;

- MACHINERY SAFETY DIRECTIVE (2006/42/EU)
- ELECTRICAL EQUIPMENT DESIGNED FOR USE WITHIN CERTAIN VOLTAGE LIMITS (2014/35/EU)
- PRESSURE EQUIPMENT DIRECTIVE (2014/68/EU)
- GAS APPLIANCES DIRECTIVE (2016/426/EU)

Relevant Standards (Should be reviewed separately for each device.)

- TS EN ISO 12100 Safety of Machinery – General Principles for Design - Risk Assessment and Risk Reduction
- TS EN 60204-1 Safety of Machinery – Electrical Equipment of Machines
- TS EN 60335-1 Household and Similar Electrical Appliances Safety Part-1 General Requirement
- TS 1203 EN 286-1 Simple Unfired Pressure Vessels
- TS 10116 Cranes – Inspection Methods

TS ISO 9927-1 Cranes Inspections Control-Part 1: General

7. Health & Safety Organization

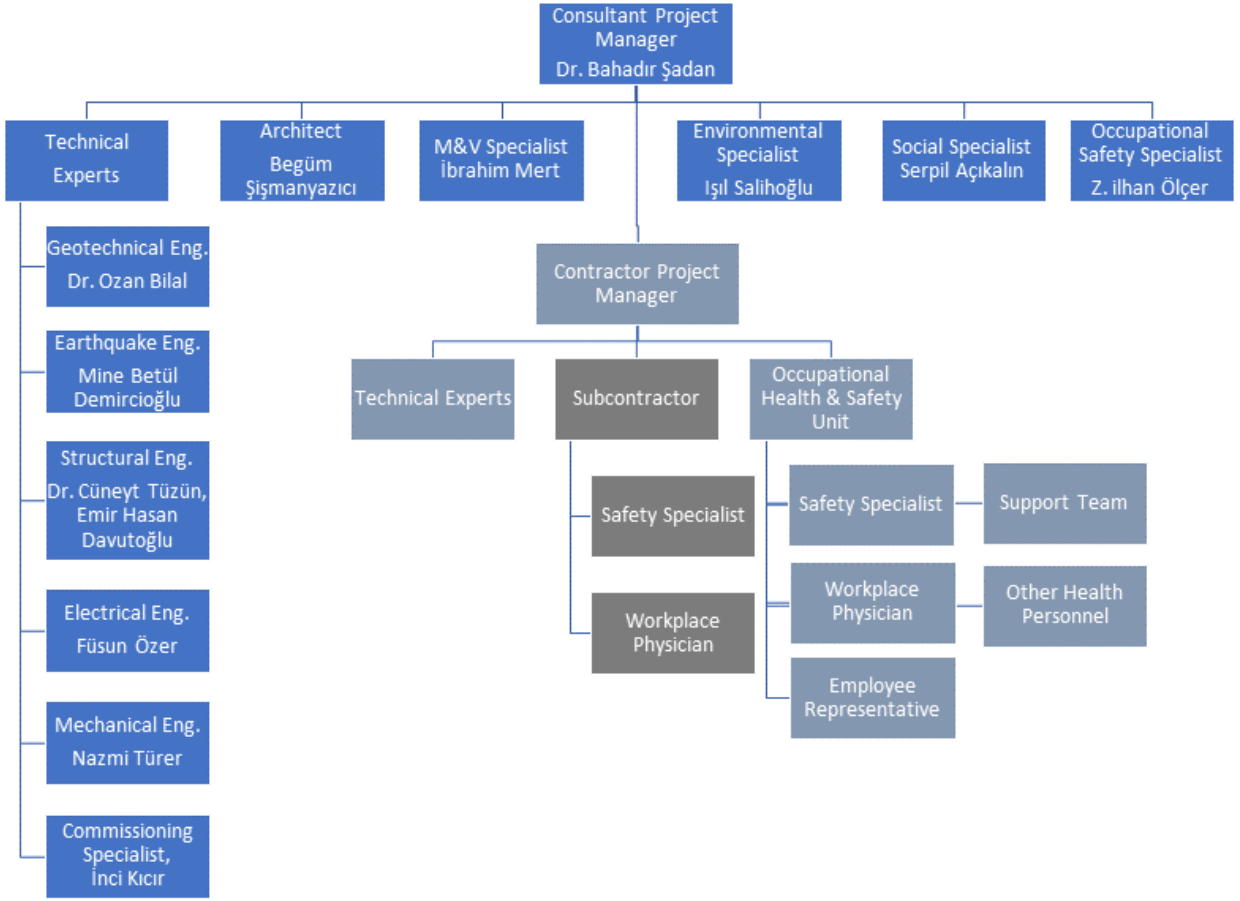


Figure 6 Surgery Hospital Occupational Health & Safety Organization Scheme

- The duties and responsibilities of the units specified in the organization chart are described under separate headings on the next page.

7.1. Consultant

7.1.1. Duties of the Project Manager

The Project Manager has been appointed as the employer's representative, limited to this project. In this context, the employer has undertaken its duties.

In this framework;

1. Ensure the implementation of the Occupational Health and Safety Plan and compliance with legal regulations and best practices within the scope of the project.
2. Ensure coordination and communication among relevant parties of the overlapping activities.
3. Review and assess the construction methods and risk analyses prepared by the contractor, focusing on technical, administrative, and occupational safety aspects. If found inadequate[3], provide reasons and monitor the revision process.
    a) The construction methods and risk analyses prepared by the contractor should cover the entire project, including subcontractor activities.
    b) Ensure that the contractor and subcontractors' control and oversee the following aspects regarding risks and precautions.
        i. Properly informing all employees.
        ii. Providing the necessary resources (equipment, materials, workforce).
        iii. Ensuring compliance with all rules by all managers and employees.
4. Ensure the suitability and sufficiency of risk assessments through field inspections.
    a) Any non-compliance identified during these inspections will be recorded as corrective actions. Ensure that identified non-compliances are rectified adequately and within the specified timeframe.
    b) Identified non-compliances or corrective actions may necessitate a revision of risk analyses. In such cases, ensure that risk analyses are reissued with the revision number, date, and justifications, following the necessary approval processes.
5. Ensure that employees obtain periodic health reports and are monitored based on the tasks they perform. Do not allow those who cannot provide reports indicating the suitability of their health for their assigned tasks to work.
6. Ensure that the educational status of employees is verified, and that they have received training in compliance with legal requirements. Do not allow those who cannot prove they have received appropriate training to work.
7. Ensure that employees' vocational qualifications are checked and do not allow those who cannot prove appropriate vocational competence within the scope of their duties to work.
8. Ensure the identification, procurement, and proper delivery of necessary Personal Protective Equipment (PPE) to employees.
9. Determine, procure, and properly install safety equipment (protective nets, guardrails, lifelines, etc.) required to be present at the work sites.

[3] It should be evaluated within the scope of Corrective Action (detection dates, justifications, corrective action suggestions, deadlines, etc.) and recorded.

10. Ensure that work accidents are reported in accordance with Article 14 of the Occupational Health and Safety Law No. 6331.
11. Fulfill the employer's defined responsibilities within the framework of Law No. 6331 on Occupational Health and Safety.
    a) In order to achieve this, the Project Manager must comply with the **up-to-date** law no. 6331 and other relevant regulations; It should be reviewed together with the OSS (Occupational Safety Specialist) and Workplace Physician.

7.1.2. Duties of the Occupational Safety Specialist

The duties of OSS specified in Article 9 of the REGULATION ON DUTIES, AUTHORITIES, RESPONSIBILITIES AND TRAINING OF OCCUPATIONAL SAFETY SPECIALIST *(Official Gazette Date: 29.12.2012 Official Gazette Number: 28512)* are given below. OSS Specialist will be on site full time. He/she will manage occupational health and safety activities in accordance with the duties given below.

1. Guidance;
    a) To ensure that work is planned, organized, and implemented in accordance with occupational health and safety legislation and general occupational safety rules, including the condition, maintenance, selection of design, machinery, and other equipment used in the workplace, as well as the selection, procurement, use, maintenance, storage, and testing of personal protective equipment, and to make recommendations to the employer regarding work carried out and changes to be made in the workplace.
    b) To inform the employer in writing about the precautions that need to be taken in terms of occupational health and safety.
    c) To inform the employer in writing about the precautions that need to be taken in terms of occupational health and safety.
    d) To conduct investigations into the causes of workplace accidents and occupational diseases and make recommendations to the employer on measures to prevent their recurrence.
2. Risk Assessment;

    Participating in the work related to occupational health and safety risk assessment and its implementation, making recommendations to the employer regarding the health and safety measures to be taken as a result of the risk assessment, and monitoring its implementation.
3. Workplace Surveillance;
    a) Supervising the workplace, planning and monitoring the periodic maintenance, inspections, and measurements required by occupational health and safety legislation, and ensuring their implementation.
    b) Participating in efforts to prevent accidents, fires, or explosions in the workplace, making recommendations to the employer in this regard, monitoring the implementation of practices; participating in the preparation of emergency plans for natural disasters, accidents, fires, or explosions, ensuring that periodic training and drills related to this issue are conducted, and monitoring and controlling compliance with the emergency plan.
4. Training, Information, and Records;
    a) Planning the occupational health and safety training of employees in accordance with the relevant legislation, presenting it to the employer for approval, and implementing or supervising the implementation.

b) Recording the results of occupational health and safety activities related to the workplace and workplace surveillance.

c) Organizing informative activities for employees, presenting them to the employer for approval, and controlling their implementation.

d) Preparing occupational health and safety instructions and work permit procedures for use in necessary locations, presenting them to the employer for approval, and controlling their implementation.

5. Collaboration with Relevant Departments;

a) Conduct assessments, along with the occupational physician, related to workplace accidents and occupational diseases, prepare necessary preventive action plans to prevent the recurrence of accidents, and monitor the implementation.

b) Prepare the annual work plan for occupational health and safety activities to be carried out in the following year in collaboration with the occupational physician.

c) Collaborate with the occupational health and safety committee of which they are a member if available,

d) Provide support to employee representatives and support staff and collaborate with these individuals.

Within this framework;

1. Examine construction methods and risk analyses, prepare a report regarding their suitability. Transmit the prepared report to the Project Manager and the Contractor's Project Manager.
2. During the project preparation phase, prepare weekly monitoring reports and present them to the Project Implementation Unit.
3. During the project implementation phase, ensure the preparation of monthly Occupational Health and Safety (İSG) reports by the Contractor and submit the reports to the administration in the specified format.
4. Obtaining and checking the periodic inspection reports of work machinery. (Maximum inspection frequency in the regulation is 1 year.).
5. Ensuring the delivery of personal protective equipment specified in the risk analysis to all employees. (Checking the PPE delivery records, questioning the adequacy and proper use of the equipment during field inspections.)
6. Verifying the authorization and appointments of the Contractor's and Subcontractor's Occupational Safety Specialist and Workplace Physician.
7. Improving this document and updating it based on on-site findings.
8. Checking employee personnel files.
9. Checking records and certificates related to employees' past OHS training (maximum period of 1 year).
10. Attending weekly and monthly OHS meetings and reporting them to the management.
11. Verifying the professional competence certificates of the employees.
12. Reviewing work reports from the perspective of occupational health and safety, assessing any work or equipment that may violate occupational health and safety rules.
13. Conducting daily field inspections, assessing any work or equipment that may violate occupational health and safety rules. Evaluating the adequacy of risk analyses and established measures on-site.
14. Reviewing reports of on-site inspections conducted by the Contractor and Subcontractor OSS. Monitoring and controlling identified non-compliances.
15. Reviewing records of current training provided by the Contractor and Subcontractor OSS (Risk Analysis, Toolbox, etc.). Examining their adequacy (duration, content).

16. Communicating with Employee Representatives, requesting feedback. Reporting issues raised by Employee Representatives to the Project Coordinator, determining necessary actions, and implementing them.
17. Obtain accident reports prepared by Contractor and Subcontractor's OSS, review them at the content and incident sequence levels, and check if notifications were made in compliance with legal requirements.
18. Checking suggestion and complaint boxes. Evaluating feedback received through printed or digital means within the framework of OHS (Occupational Health and Safety), ensuring the information of those providing feedback, assessing requests, and determining necessary actions. (Collaboration with the Social Specialist will be involved in this process).
19. Providing timely information to the Project Manager regarding field observations, feedback, information obtained from the Contractor and Subcontractor's OSS, and workplace accidents without delay.
20. Ensuring contribute to the coordination and communication among relevant parties of the overlapping activities

7.1.3. Duties of Occupational Physicians

The duties of occupational physicians are outlined below, as specified in THE REGULATION ON THE DUTIES, POWERS, RESPONSIBILITIES, AND TRAINING OF OCCUPATIONAL PHYSICIANS AND OTHER HEALTH PERSONNEL *(Official Gazette Date: 20.07.2013 Official Gazette Number: 28713)* Article 9;

1. Guidance;
    a) Provide guidance to the employer regarding the health monitoring of employees and the surveillance of the work environment within the scope of occupational health and safety services.
    b) Offer recommendations to the employer for ensuring that the design and organization of the workplace, including the use of substances, comply with occupational health and safety legislation and general workplace safety rules, particularly in relation to the planning, organization, and implementation of work and the selection of personal protective equipment.
    c) Advise the employer on activities aimed at improving the health of employees in the workplace.
    d) Participate in investigations related to occupational health and safety, as well as conduct research to ensure the harmony between work and the capabilities of employees, considering ergonomic and psychosocial risks in the workplace, and protect employees from stress factors in the work environment. Take into account the results of these investigations in guidance activities.
    e) Continuously monitor and inspect the general hygiene conditions of workplace buildings and facilities, including cafeterias, dining halls, dormitories, changing rooms, showers, and toilets, and provide recommendations for ensuring that employees receive the necessary nutrition and access to suitable drinking water based on the requirements of the work being performed.
    f) Investigate the causes of workplace accidents and occupational diseases and make recommendations to the employer on measures to prevent their recurrence.
    g) Conduct investigations on the incidents in the workplace that, while not resulting in death or injury, have the potential to cause harm to employees, equipment, or the workplace, and provide recommendations to the employer.

h) Communicate in writing to the employer the precautions and measures that need to be taken in the field of occupational health and safety.

2. Risk Assessment;

   Participate in activities related to occupational health and safety risk assessment and its implementation. Provide recommendations to the employer regarding health and safety measures that need to be taken based on the results of the risk assessment and ensure their follow-up.

3. Health Surveillance;

   a) Inform and obtain the consent of employees regarding pre-employment and periodic medical examinations and tests conducted as part of health surveillance.

   b) Conduct health surveillance for employees, including those working night shifts.

   c) Repeat periodic medical examinations annually (unless otherwise recommended by the occupational health physician).

   d) Determine if there is a correlation between health-related work absences and potential health hazards in the workplace. Plan for environmental measurements, if necessary, seek the employer's approval, and evaluate the results in terms of employee health.

   e) Conduct return-to-work medical examinations for employees who have been absent from work due to health reasons. Recommend suitable tasks for those whose previous roles may pose health risks based on their current health status and seek the employer's approval.

   f) Take measures to control infectious diseases, prevent their spread, and conduct immunization campaigns. Provide necessary hygiene training, ensure medical examinations and tests are performed, and promote a healthy work environment.

   g) Maintain records of health surveillance activities in the workplace. Collaborate with the Occupational Safety Specialist to assess workplace accidents and occupational diseases. Prepare preventive action plans to prevent the recurrence of accidents and submit an annual work plan, including these topics, to the employer for approval. Monitor the implementation of these plans and prepare an annual evaluation report.

   h) Check whether health reports demonstrating the fitness of employees sent temporarily to the workplace by another employer or subcontracted workers are still valid.

4. Training, Information, and Records;

   a) Plan and conduct employee occupational health and safety training in accordance with relevant regulations. Present these plans to the employer for approval and ensure their implementation or oversee the training programs.

   b) Organize and provide training for first aid and emergency response services at the workplace, following the requirements of the relevant regulations.

   c) Provide training to managers, occupational health and safety committee members (if applicable), and employees on general health, occupational health and safety, hygiene, the hazards of substance abuse, personal protective equipment, and collective protection methods. Ensure the continuity of these training programs.

   d) Inform employees about workplace risks, health surveillance, and pre-employment and periodic medical examinations.

   e) Collaborate with the Occupational Safety Specialist to prepare an annual evaluation report documenting the results of occupational health and safety efforts and health surveillance.

f) Report information related to occupational health and safety topics determined by the Ministry to the General Directorate through the Occupational Health and Safety Automation System (ISG CLERK).

5. Collaboration with Relevant Departments;

a) Recommend, based on the results of health surveillance, the conduct of necessary measurements within the scope of workplace monitoring in collaboration with the OSS, and evaluate the measurement results.

b) Collaborate with the occupational health and safety committee (if applicable) to work on providing information and training on occupational health and safety topics in the workplace.

c) Collaborate with relevant parties to provide information and education on workplace health and safety.

d) Participate in the development of programs aimed at improving existing practices, analyzing occupational accidents and occupational diseases, evaluating new technologies and equipment from a health perspective, and making recommendations for the prevention of accidents.

e) Collaborate with authorized hospitals for the preparation of health board reports related to occupational diseases according to the Regulation on the Rate of Incapacity to Work and Occupational Accidents and cooperate with relevant units for the rehabilitation of employees who have suffered workplace accidents or contracted occupational diseases.

f) Contribute to the preparation of occupational health and safety instructions and work permit procedures for use in necessary areas.

g) Provide support to employee representatives and support personnel in their activities and collaborate with these individuals.

Within this framework;

1. Verify the authorization and appointments of occupational health physicians for contractors and subcontractors.
2. Develop and update this document in line with field findings,
3. Support the risk analysis control process by examining construction methods and data related to work areas provided by subcontractors and other specialists.
4. Verify employee personnel files.
5. Review employees' periodic health reports.
6. Review weekly work reports from an occupational health perspective and evaluate any inappropriate work or equipment presence.
7. Review reports of field inspections conducted by occupational health physicians from contractors and subcontractors. Track and control identified non-conformities.
8. Review records of current training provided by occupational health physicians from contractors and subcontractors. Verify their appropriateness in terms of duration and content.
9. Communicate with employee representatives, request feedback, report issues to the Social Specialist and Project Manager, determine necessary actions for occupational health, and implement them.
10. Obtain and review occupational disease reports prepared by occupational health physicians from contractors and subcontractors. Ensure compliance with legal requirements for reporting.

11. Evaluate feedback obtained through the suggestion and complaint system in terms of occupational health, based on requests from the Social Specialist, and determine necessary actions.
12. Inform the Project Manager without delay about field observations, feedback, information obtained from contractors and subcontractor occupational health physicians, and workplace accidents.

7.1.4. OHS Duties of Technical Experts

The Technical Expertise Unit, composed of disciplines in Civil Engineering, Mechanical Engineering, and Electrical Engineering, will perform the following tasks in OHS processes:

1. Inform OSS about the technical details and processes of the work.
2. Ensure that the work they oversee is conducted in a way that protects the health and safety of employees.
3. Examine the construction methods prepared by the contractor and evaluate their adequacy.
4. Technically evaluate the aspects mentioned in risk analyses (hazards, risks, and measures) and make evaluate their suitability.
5. If deemed necessary by the OSS, participate in the work permit system, respond to inquiries from the OSS, and assess and query documents transmitted by the OSS within this framework.
6. Evaluate, from a technical perspective, OHS training content provided by the contractor. Make evaluate its adequacy (e.g., LOTO systems, scaffold installation and usage, etc.)

7.1.5. OHS Duties of the Social Specialist

1. Receive and compile printed suggestion and complaint forms submitted to the OSS.
2. Review feedback obtained within the framework of the suggestion and complaint system. If necessary, involve the OSS and workplace physician in the feedback evaluation process.
3. Maintain contact with Employee Representatives and support the establishment of a healthy and strong communication between the OSS, Workplace Physician, and Employee Representatives.

7.1.6. Duties of Support Staff

Carry out the tasks requested by the Occupational Safety Specialist (OSS) and Workplace Physician.

7.2 Contractor Company

7.2.1. Employer and Employer Representative Duties

The Project Manager has been designated as the employer representative for this project, and as such, they are responsible for the following tasks.

1. As the employer, ensure the fulfillment of all duties specified within the Occupational Health and Safety Law No. 6331.
2. Ensure monitoring requirements, frequencies, responsibilities for the Contractor mentioned on the OHS Monitoring Plan (refer to table 25)
3. Ensure that this document, as provided by the Consultant’s OSS, is communicated to all relevant units and understood.
4. Ensure that the OHSP, construction methods and risk analysis are prepared and presented to the Consultant before field work begins.

5. Promptly provide the Consultant's OSS and Workplace Physician with the requested information and documents.
6. Promptly provide the requested information and documents to the Consultant Social Worker.
7. Establish and ensure the effectiveness of the recommendation and complaint system provided by the Consultant Social Worker.
8. Attend meetings and discussions requested by the Consultant Project Manager.
9. Monitor and control the performance of the appointed OSS and Workplace Physician.
10. Review and fulfill requests made by the Consultant's OSS regarding the performance of the OSS and Workplace Physician (e.g., changes, warnings, etc.)
11. S/He will communicate with the consultant and other relevant parties on the coordination of the overlapping activities to prevent the risks associated with these activities.

7.2.2. Duties of the Occupational Safety Specialist

1. Fulfill all responsibilities as specified in the REGULATION ON THE DUTIES, AUTHORITIES, RESPONSIBILITIES, AND TRAINING OF OCCUPATIONAL SAFETY SPECIALISTS in full compliance with the regulation.
2. Ensure the preparation of the contractor OHSP for project works in line with this OHSP, creation of a risk analysis within the framework of the construction method and submit it to the Consultant's OSS before fieldwork begins.
3. Provide records and certificates of past OHS training for employees to the Consultant's OSS.
4. Provide current training to employees based on this document and risk analysis within the scope of the project. Keep training records and submit them to the Consultant's OSS.
5. Plan and implement additional training requested by the Consultant's OSS. Keep records of training and provide them to the Consultant's OSS.
6. Submit employees' Occupational Competency Certificates to the Consultant's OSS.
7. Inform all employees about the recommendation and complaint system implemented specifically for this project.
8. Submit machine periodic inspection reports to the Consultant's OSS.
9. Provide the lists of Personal Protective Equipment (PPE) (standard, quantity, etc.) and delivery receipts to the Consultant's OSS.
10. Participate in field inspections conducted by the Consultant's OSS and have the requested information and documents readily available.
11. Submit records of work accidents to the Consultant's OSS.
12. Implement corrective actions communicated by the Consultant and inform the Consultant's OSS and/or Workplace Physician regarding the process.
13. Plan, attend, and report on weekly and monthly OHS meetings.

7.2.3. Duties of Workplace Physicians

1. Fulfill all responsibilities as specified in the REGULATION ON THE DUTIES, AUTHORITIES, RESPONSIBILITIES, AND TRAINING OF WORKPLACE PHYSICIANS in full compliance with the regulation.
2. Ensure the creation of a risk analysis within the framework of the construction method.

3. Submit employees' periodic occupational health reports to the Consultant Workplace Physician.
4. Provide records and certificates of past occupational health training for employees to the Consultant Workplace Physician.
5. Plan and implement additional training requested by the Consultant Workplace Physician. Keep records of training and provide them to the Consultant Workplace Physician.
6. Submit records of occupational diseases to the Consultant Workplace Physician.

7.2.4. Technical Experts OHS Duties

The Technical Expertise Unit consisting of Civil Engineering, Mechanical Engineering, and Electrical Engineering disciplines will perform the following tasks within OHS Processes:

1. Inform OSSs about the technical details and processes of the work.
2. Ensure that the work being carried out is done in a way that protects the health and safety of employees.
3. Develop construction methods and communicate them to the OSS.
4. Technically evaluate the aspects specified in risk analyses (hazards, risks, and measures) and make judgments regarding their appropriateness.
5. Participate in the work permit system if deemed necessary by the OSS, answer questions posed by the OSS, and assess and query documents provided by the OSS.
6. Ensure the technical improvement of OHS training content (e.g., LOTO system, scaffold installation and usage, etc.)

7.2.5. Employee Representative Duties

1. Fulfill all responsibilities and duties as specified in the 6331 Occupational Health And Safety Law (Official Gazette Date: 30.06.2012 Official Gazette Number: 28339).
2. Participate in risk analysis studies within the framework of the construction method.
3. Support the OSS in implementing the feedback from other employees through the project-specific Suggestions & Complaints system, and provide information to employees about this.
4. Establish strong communication with the Consultant’s OSS, Workplace Physician, and Social Specialist, and provide information about the general requests and conditions of employees.
5. Report situations related to avoiding work to the Consultant’s OSS without delay.
6. Inform the Consultant Social Specialist of any situations that may negatively affect the effectiveness of the suggestion and grievance system.

7.2.6. Support Personnel Duties:

Complete tasks requested by the OSS and Workplace Physician. Two occupational health and safety workers will perform regular duties in the field.

7.2.7. Duties of Employees:

1. To work in a manner that does not endanger their own health and safety, or the health and safety of other employees affected by their actions or the work they do, in accordance with the training they have received regarding occupational health and safety and the instructions of the employer on this matter.

2. To use the machinery, equipment, tools, dangerous substances, transport equipment, and other production tools in the workplace in accordance with the rules, to correctly use their safety attachment, and to not arbitrarily remove or alter them,
3. Correctly use and protect the personal protective equipment provided to them,
4. To immediately inform the employer or the employee representative when they encounter a serious and imminent danger regarding health and safety in the machinery, equipment, tools, facilities, and buildings in the workplace, or when they observe a deficiency in protective measures
5. To cooperate with the employer and the employee representative in addressing deficiencies and legal violations identified in the workplace by the legal authority authorized to inspect,
6. To cooperate with the employer, Occupational Safety Specialist and the employee representative within their own area of responsibility to ensure occupational health and safety.

8. Management of Works

8.1. General Work Program and Cross Interaction

The general work program is presented below for your attention as 18 months which is the duration of the project. This program is not final but has been created for the purpose of identifying cross-interaction risks during the work. A detailed work program/plan should be prepared by the contractor and submitted to the consultant. *The possibility of cross interaction of demolition activities, which are the responsibility of the beneficiary, and the project activities is discussed in article 9.3.*

Table 7 General Work Schedule

MONTHS	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
CIVIL WORKS																								
EXCAVATION & SLOPE STABILIZATION																								
PERIFERY RETAINING WALLS																								
RAFT FOUND. & EARTHQUAKE ISOLATORS																								
REINFORCED CONCRETE WORKS																								
STEEL WORKS & ROOF COVERING																								
INFRASTRUCTURE WORKS																								
ARCHITECTURAL WORKS																								
MASONARY WORKS																								
WINDOW JOINERY & FACADE CLADDING																								
CEILING & DRYWALL WORKS																								
FLOOR & WALL COVERINGS																								
INSULATION WORKS																								
PLASTERING & PAINTING WORKS																								
DOORS & FURNITURE INSTALLATION																								
ELECTRICAL WORKS																								
ELECTRICAL INSTALLATION WORKS																								
ELECTRICAL EQUIPMENT INSTALLATION																								
MECHANICAL WORKS																								
MECHANICAL INSTALLATION WORKS																								
MECHANICAL EQUIPMENT INSTALLATION																								
LANDSCAPING WORKS																								
TESTING & COMMISSIONING WORKS																								

8.2 Working Methods

The following general descriptions of the construction process are provided to guide the contractor in preparing detailed construction methods and risk analysis studies. The contractor must prepare the construction method and risk analysis for each new project and submit it for approval by the consultant. Work may commence only after obtaining approval.

8.2.1 Building Construction

A new Surgery Hospital is planned to be built in ÇAPA Campus area of İstanbul University Faculty of Medicine. Demolition and transportation of existing buildings that will interact with the new building, land measurement, excavation, slope stabilization, adjustment of land elevations, road construction to provide access to the construction site, building infrastructure connections, construction of retaining walls, backfilling, site drainage and the reinforced concrete building construction are carried out using conventional methods. On the other hand, the new building is aimed to be a building in the Class A energy efficiency category.

8.2.1.1 Excavation And Slope Stabilization Works

Since the Project Excavation/Shoring boundary will be close to the existing buildings, the excavation process will proceed in a controlled manner to prevent damage to these structures, and necessary precautions will be taken against the risk of discharge and collapse in the light of the geological information at the excavation levels obtained from the research drillings conducted before the excavation. Since the excavation depth is high, it will be proceeded in layers, excavation and earth moving will be done with excavators, and rock breaker will be used in areas with rock layers.

Excavated soil is approximately 52,750 m3.

Important points to be considered in terms of Occupational Health and Safety during excavation and slope stabilization activities are listed below:

- Excavation and shoring work involve the use of excavators, loaders and dump trucks, pumps and mixers in concrete pouring, and rollers in backfilling. Before starting work, the periodic inspection reports and user qualification documents (operator certificate, class C driver's license) of these work machines must be checked and periodic maintenance must be carried out without interruption.
- During excavation work using a crusher, the noise level to which the operator in the cabin is exposed should be measured, and when it reaches or exceeds 85 dB(A), he should be provided with headband ear protection.
- Before the excavation work begins, the underground infrastructures (such as natural gas, electricity, water pipes, waterway, sewerage, and similar infrastructures) will be identified with related infrastructure projects.
- If you encounter electrical cables, gas pipes, water pipes, or water drainage, sewerage, and similar facilities during the excavation, the excavation work must be immediately stopped and the responsible and relevant persons must be informed. After the necessary precautions are taken by the responsible and relevant persons, the excavation work will continue.
- If there is any possibility of a slide or collapse from above during the excavation, the work site must be immediately evacuated. The responsible and relevant persons must be informed immediately. The excavation work will continue after the necessary precautions are taken.
- Excavations deeper than 1.5 meters will be carried out with slopes and in stages.
- During the excavation process, reverse slopes that would cause the upper part to collapse are strictly prohibited.

- Deep excavation areas should be surrounded by guardrails to prevent falling from heights, and separate access roads should be provided for pedestrian entrances and exits to the excavation area.
- Rocks, rubble, etc. on the edge of the excavation slope. Necessary precautions must be taken to prevent loose material from falling downwards (into the excavation area) and onto those working below.
- In order to prevent dust emissions when entering/exiting the excavation site of work machines and trucks and transportation within the construction site, it is mandatory to use water sprays and to take necessary precautions to prevent vehicles from skidding in rainy weather due to the slope of the excavation ramp, and also to prevent pedestrians from slipping and falling.
- Excavation trucks will act in accordance with the rules in the traffic action plan during access to the work site and movement within the site. Employees should be prevented from approaching moving work machines by using warning signs and similar methods.
- Necessary precautions should be taken to prevent workers from passing into the interior of the barrier surrounding the excavation area. In cases where passage is necessary, the seat belt and a solid anchor point for the belt should be used.
- Working methods and equipment will be selected that reduce the spread of dust generated during the drilling process using a drilling machine as much as possible. Employees will be provided with appropriate dust masks.

Figure 7 Spread of Dust Generated During the Drilling Operation

- While the drilling machine is operating, passage behind the machine will not be allowed to avoid injury due to flying stones and soil. The operator and his assistant shall wear protective glasses.
- At every point where compressed air is used, hose connections will be fixed to each other on both sides with steel rope, etc. to prevent the hose from being thrown around in case of a failure.
- Periodic maintenance of equipment providing compressed air shall be carried out, energy supply cables will be prevented from contacting wet areas, and they will be protected against any damages
- During shotcrete application, entry to the working area will be prohibited, and all employees other than the personnel doing the work will be outside the work area.
- Personnel working in shotcrete work will be equipped with adequate PPE equipment and will not be allowed to work without PPE.
- When the shoring system is completely finished, a stair tower system consisting of pre-fabricated components should be installed for workers to access the excavation pit.

Table 8 Excavation and Slope Stabilization Works Control Table

WORK TO DO:	Excavation Works, Retaining Walls and Slope Stability (Shoring) Works

WORKING METHOD

Technical Description and Requirements

Construction Technique and Technology (shoring works)

- SETTING OUT (position of the soil nail checked to see whether any existing utilities would be affected and prevention of clashing of soil nails, in particular for closely-spaced or long soil nails, or soil nails with different inclination and bearing)
- DRILLING (drillhole diameter, length, inclination and bearing are in accordance with the design requirements)
- ASSEMBLY OF SOIL-NAIL REINFORCEMENT (soil-nail components, including reinforcement, grout pipes, centralizers, reinforcement connectors, corrugated plastic sheathing, heat-shrinkable sleeve, washers, nuts, bearing plates)
- INSTALLATION (the correct assembly of the soil-nail reinforcement been inserted)
- GROUTING (grout mix injection in accordance with the contract requirement)
- SOIL NAIL HEADS & WIRE MESH INSTALLATION (Head plates are attached to each nail, wire mesh is laid on the excavation surface)
- SHOTCRETE APPLICATION (Shotcrete is applied to the excavation face to ensure continuity)
- OPENING DRAINAGE HOLE (placement of drainage pipes for groundwater on the shotcrete surface)
- PULLOUT TEST

Use of Work Equipment

- EXCAVATOR
- LOADER
- DUMP TRUCK
- ROTARY DRILLING MACHINE
- TRANSIT MIXER
- INJECTION UNIT
- AIR COMPRESSOR
- PRESTRESSING MACHINE
- SHOTCRETE MACHINE
- SUBMERSIBLE WATER PUMP
- GENERATOR (When necessary)

Use of Chemical Substances:

- CEMENT GROUT, SIGUNİT POWDER (Shotcrete Accelerator), READY-MIXED CONCRETE ADDITIVES

Access to the Work Area:

- Access road information is provided in the form of plans under the heading "Pre-construction Information & Site Plans.".
  - The maximum speed within the campus is limited to 20 km/h for trucks.
  - The maximum speed within the campus is limited to 20 km/h for excavators and loaders.

Handling & Supply of Materials

- Details regarding the removal, transportation, and unloading of consumables and related technical materials are specified and explained under the subheading "General Construction Site Rules."

PPE- GENERAL	**Need for Trained Personnel**
• HELMET TS EN 397+A1 • EARPLUG TS EN 352-2 • PROTECTIVE GLASSES TS EN ISO 16321-3 • GENERAL PURPOSE WORK GLOVES TS EN ISO 21420 • WORK SHOES TS EN ISO 20347 • HALF FACE MASK TS EN 140	• CIVIL ENGINEER • GEOTECHNICAL ENGINEER • TOPOGRAPHICAL ENGINEER • TOPOGRAPHICAL TECHNICIAN (13UY0117-4) • EXCAVATOR, LOADER OPERATOR LEVEL 3 (13UY0171-3) • TRUCK DRIVER LEVEL 3 (17UY0326-3) • CONCRETE MASTER LEVEL 3 (12UY0049-3) • REINFORCED CONCRETE BLACKSMITH LEVEL 3 (11UY0012-3) • CONSTRUCTION WORKER LEVEL 2 (16UY0253-2) • ROTARY DRILLING MACHINE OPERATOR

Table 9 Excavation and Slope Stability Works Risk Analysis

WORK TO DO	SOURCE of DANGER	RİSKS	PRECAUTIONS
Excavation Works	Moving construction equipment (dump trucks, loaders and excavators) hitting an employee or another vehicle	▪ Injury ▪ Dead ▪ Property damage	▪ Construction machinery have reverse horn which provides an audible warning ▪ Entrances and exits of construction equipment and dump trucks to the excavation pit will be separated from pedestrian entrances and exits. ▪ A flagman will be employed when necessary to direct and manage vehicle traffic, ▪ Construction machineries will be checked functionally by the operator before each work. (reverse horn warning lights, etc.)
	Uncovered Manholes	▪ Injury due to falling down to manholes	▪ Open manholes will be kept closed
	Soil collapse during trench excavation	▪ Injury or death due to being trapped underground	▪ Depending on the height of the excavation and the characteristics of the soil, slopes or shoring will be made.
	Airborne dusts due to excavation works	▪ Lung disorders	▪ In windy and dry weather, construction equipment work areas will be watered and employees will use dust masks.
	Loose material on the edges of the excavation falling into the excavation pit	▪ Injury to workers in the excavation pit	▪ Loose materials such as rock, stones at the edge of the excavation will be removed
	Falling into the excavation pit	▪ Dead or injury	▪ The excavation area will be surrounded by guardrails and entrances to the excavation area will be controlled.
Shoring Works	Damaged electrical Calbe	▪ Dead by electric shock	▪ Electrical cables carrying energy will be protected to prevent damage, and the cables will be prevented from contacting water.
	Dust generated by rotary drilling machine, flying objects like stones	▪ Lung disorders, flying and striking object-related injury	▪ Staff will use safety shoes, protective glasses, hard hats and dust masks.
	Compressed Air hoses coming out of place	▪ Injury due to compressed air hose hitting the body	▪ Hoses will be connected to each other with steel ropes to prevent them from hitting employees.
	During the shotcrete process, material splashes around	▪ Flying particles getting in the eye	▪ Entrance to the working area will be prohibited during shotcrete application, and all employees except the personnel doing the work will be away from the area at a sufficient distance.
	Falling from height during wire mesh installation	▪ Injury from falling, worker’s body contact with puddles	▪ During the mesh installation, a suitable working platform will be provided and the water in the working area, if any, will be drained.

8.2.1.2 Road Construction and Infrastructure Connection Works

In order to prevent the health centers near the construction site on the campus from being affected by traffic caused by construction activities, a connection road will be built from Millet Street to the construction site where Çapa Surgery Hospital will be built.

After the road route survey is carried out and the exact route is determined in the field, road construction will begin according to the project prepared by making a field application. After the slope bars are driven, firstly the earthworks, if any culverts, etc. is completed. Then, superstructure and pavement works are carried out. Work will be completed with installing road accessories such as guardrails, and lane lines etc.)

Towards the completion of the electrical and mechanical installation works, the construction of infrastructure connections such as the building's natural gas, wastewater, mains water, etc. will begin. Seismic protection solutions will be applied where necessary in the connections of building installations to the external line.

Important points to be considered during road construction and infrastructure activities are listed below:

- Construction Machinery passage routes must be determined and pedestrian paths must be separated, and necessary warning signs according to Traffic Plan such as speed etc. must be placed.
- Before starting work, it is necessary to check the periodic inspection reports and user qualification documents (operator certificate, class C driver's license) of this construction equipment and to carry out periodic maintenance without interruption.
- After trucks unload the material they carry, they should be prevented from moving without lowering the dumper.
- Reverse horn of machines and vehicles work and their sound levels must be sufficient.
- The use of construction equipment and other vehicles outside designated roads should be prevented.
- Danger zone restrictions should be made for work machines with moving and rotating parts in the work area,
- Flagmen will be used when necessary to ensure the safe movement of construction machineries and heavy vehicles and to control traffic.
- The duration of work carried out with equipment that creates vibration like cylinders, etc. should be reduced,
- Work areas and passageways should be appropriately illuminated,
- Adequate lighting should be provided on and around the construction machineries.
- Suitable parking areas must be provided for the construction machineries and vehicles used.
- Infrastructure connection works will be carried out by External Supplier Organizations (Natural Gas Local Distribution Company, Electricity Local Distribution Company, Local Government Infrastructure and Technical Affairs Directorates) in accordance with the current project and technical rules and in accordance with the current legislation.
- In areas where the underground natural gas pipeline facility is involved, the Provider Natural Gas Company is responsible for ensuring a feasible environment by performing necessary operations before the start of Phase II (Construction Phase) of the projects. The implementation of the project must be carried out under the supervision of Infrastructure Construction Control Personnel Level 4 (National Vocational Qualifications Institution (VQI) Law No. 5544 - 12UY0042-4).
    - (*The Natural Gas Pipeline process in question will be completely ready, all controls and tests will be carried out by the **Service Provider Local Distribution Company** before the Site Transfer

takes place in order to create the necessary environment and will ensure delivery as specified in the projects. The Property Owner must apply for the construction of the facilities in question in accordance with the relevant legislation. For this reason, it is **ABSOLUTELY** impossible for neither the Consultant Company nor the Contractor to intervene in these natural gas pipelines.)

Table 10 Road Construction and Infrastructure Connection Works Control Table

WORK TO DO:	Access Road Construction and Infrastructure Connection Works

WORKING METHOD

Technical Description and Requirements

Construction Technique and Technology

- CLEARING AND EXCAVATION (Removing vegetation, rocks, and debris from the construction area, Excavating the ground to the required depth for the road foundation)
- SUBGRADE PREPARATION (Leveling and grading the subgrade to ensure proper drainage and a stable foundation, construction of culverts if any and compaction the subgrade to achieve the desired density and strength)
- SUB-BASE INSTALLATION (Laying and compacting the appropriate material in 30 cm layers in accordance with the plan, profile and section determined in the project)
- BASE COURSE INSTALLATION (Adding and compacting a higher-quality aggregate layer that will support the asphalt.)
- PRIME COAT APPLICATION (Applying a bitumen prime to the base course to improve adhesion and waterproofing)
- BINDER COAT INSTALLATION (Laying and compacting the binder course, which consists of coarser asphalt and provides structural support)
- TACK COAT (Applying a thin layer of asphalt emulsion to promote bonding between the binder course and the surface course.)
- SURFACE COAT INSTALLATION (Laying and compacting the final layer of fine asphalt, providing a smooth driving surface)
- COMPACTION (Using rollers to compact each asphalt layer to the required density and smoothness.)
- PAVEMENT MARKING & SIGNAGE

Use of Work Equipment

- EXCAVATOR
- LOADER
- DUMP TRUCK
- GRADER
- SOIL COMPACTION EQUIPMENT
- HIAB (TRUCK WİTH CRANE)
- PICKUP TRUCK

Use of Chemical Substances:

- ASPHALT EMULSIONS, BITUMEN, ROAD LANE PAINT

Access to the Work Area:

- Access road information is provided in the form of plans under the heading "Pre-construction Information & Site Plans.".
  - The maximum speed within the campus is limited to 20 km/h for trucks.
  - The maximum speed within the campus is limited to 20 km/h for excavators and loaders.

Handling & Supply of Materials

- Details regarding the removal, transportation, and unloading of consumables and related technical materials are specified and explained under the subheading "General Construction Site Rules."

PPE- GENERAL	**Need for Trained Personnel**
• HELMET TS EN 397+A1 • EARPLUG TS EN 352-2 • PROTECTIVE GLASSES TS EN ISO 16321-3 • GENERAL PURPOSE WORK GLOVES TS EN ISO 21420 • WORK SHOES TS EN ISO 20347 • HALF FACE MASK TS EN 140	• CIVIL ENGINEER • TOPOGRAPHICAL ENGINEER • TOPOGRAPHICAL TECHNICIAN (13UY0117-4) • EXCAVATOR, LOADER OPERATOR LEVEL 3 (13UY0171-3) • TRUCK DRIVER LEVEL 3 (17UY0326-3) • ROAD FINISHER OPERATOR LEVEL3, (11UMS0131-3) • CONSTRUCTION WORKER LEVEL 2 (16UY0253-2)

Table 11 Road Construction and Infrastructure Connection Works Risk Analysis

WORK TO DO	SOURCE of DANGER	RİSKS	PRECAUTION
Road Construction (Excavation, Backfill, Soil Compaction, Pavement)	Moving construction equipment (dump trucks, loaders and excavators) hitting an employee or another vehicle	▪ Injury ▪ Dead ▪ Property Damage	▪ Construction machinery and vehicle traffic and road route planning will be made in the work areas, and it will be ensured that vehicle roads do not pass through steep, sloping, uneven and loose surfaces, ▪ Construction machines are provided with reverse horn, ▪ Entrances and exits of construction machines and trucks to the work area will be separated from pedestrian entrances and exits. ▪ A flagman will be employed when necessary to direct and manage vehicle traffic, ▪ Construction machineries will be checked functionally by the operator before each work. (reverse horn warning lights, etc.) ▪ Construction machines will be prevented from leaving the designated route and work area. ▪ Signs will be used for warning and guidance in work areas and passageways.
	Airborne Dust emission during Earthworks	▪ Lung Disorders	▪ In windy and dry weather, construction equipment work areas will be watered and employees will use dust masks.
	Operating Ambient Temperature (Thermal Comfort)	▪ Health problems caused by extremely hot and extremely cold weather	▪ Working hours will be planned so that employees are not affected by extremely hot or cold weather conditions.
	Noise generated during Activities carried out with Construction Machinery	▪ Hearing loss	▪ Ear protections will be used when working with construction equipment that are above the noise level specified in the legislation.
	Construction equipment that creates vibration such as dynamic rollers, etc.	▪ Damages caused by vibration on the body	▪ The duration of work carried out with vibrating machines will be reduced, and appropriate gloves will be used to protect hand and arm from vibration.
	Underground Service Lines (Natural gas, Electricity, Water, etc.)	▪ Explosion, Fire, injury due to electric shock, material damage, damage to existing lines	▪ Underground service lines, overhead power lines, etc. in the area where work will be carried out. Since there may be environmental hazards, work will not be started without contacting the competent and relevant authorities and obtaining the necessary permits, and employees will be informed.
	Suspended or loose material (stones etc.) in excavation areas.	▪ Injury due to material like stone etc. falling down the slope	▪ Loose materials and objects will be cleared from slope areas.

WORK TO DO	SOURCE of DANGER	RİSKS	PRECAUTION
Infrastructure Connections	Damaged Electrical Cables	▪ Dead due to electrical shock	▪ Electrical cables carrying energy will be protected to prevent damage, and contact with water will be prevented.
	Object flying from hand tools such as grinding machine	▪ Injury due to striking object	▪ Personnel will use safety shoes, protective glasses, hard hats and dust masks.
	Uncovered Manholes	▪ Injury due to falling down to manhole	▪ Open manholes will be closed with covers or if kept open then surrounded by barriers.
	Landslide or collapse during trench excavation	▪ Injury and death due to being trapped underground	▪ Depending on the height of the excavation and the characteristics of the soil, a slope will be provided or shoring will be made.
	Dust emission generated during the excavation works	▪ Lung Disease	▪ In windy and dry weather, construction equipment work areas will be watered and employees will use dust masks.
	Substances and materials in working area that may cause tripping or slipping	▪ Injury from falling due to tripping or slipping	▪ The work area will be kept tidy and clean, and environments that may cause slipping and tripping will be eliminated.
	Suspended stones or loose material etc. in trench areas excavated for infrastructure.	▪ Stone etc. Loose objects or materials like pipes, that may roll down from above and fall into the excavation pit, causing injury to the worker in the trench	▪ Unbalanced, loose materials and objects will be removed from the excavation area.

8.2.1.3 Reinforced Concrete Works & Earthquake Isolator Installation

With the completion of the excavation and shoring works, raft foundation construction, installation of earthquake isolators, retaining walls around the building and the construction of the Reinforced Concrete frame system (columns, beams and curtain walls) will be started according to the work program.

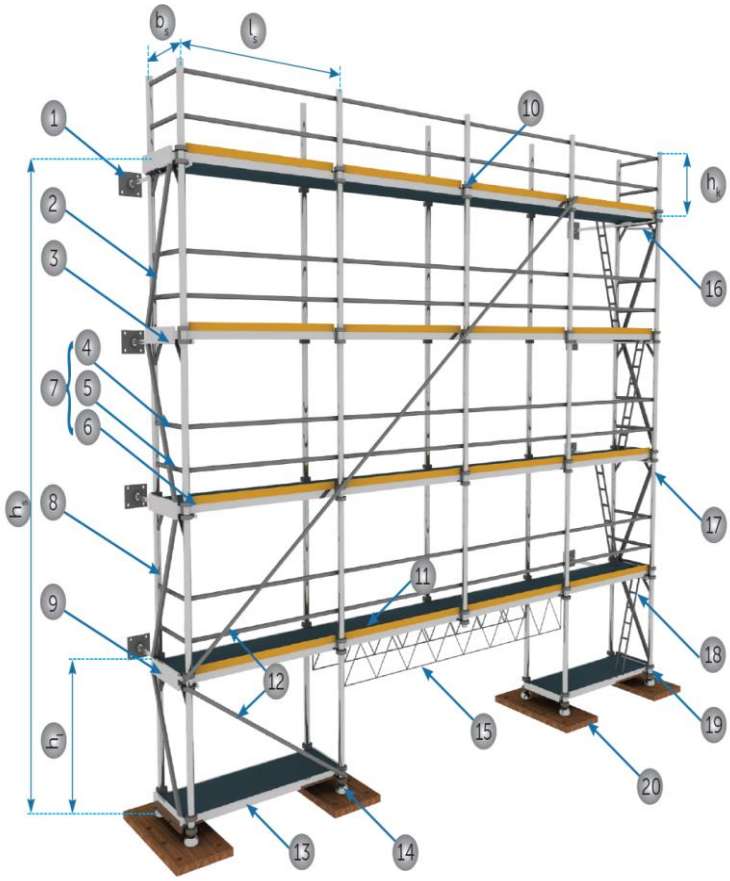
Work platforms and scaffolds with guardrails should be installed to allow safe working against falling from height in works such as reinforced concrete columns, curtain walls, retaining walls to be built in stages due to its height.

Major points to be considered during these activities are listed below:

- In case of water accumulation in the work area due to groundwater or precipitation, necessary precautions, such as drainage of the collected water, should be taken to prevent employees from coming into contact with water and the risk of falling into water.
- The use of site-made wooden stairs and access platforms that are not suitable for safety is strictly prohibited.

- Contact of energy-carrying cables with water in wet areas such as concrete curing areas and rainfall should be prevented. Electrical cables must be protected to prevent damage.
- In order to ensure safe access of employees to workplaces and their safety against falling from height in workplaces during reinforced bars assembly, formwork assembly and dismantling, and concrete pouring works, the followings are provided according to need:
    - Ladders and access platforms complying with standards and regulations,
    - Fall protective guardrails
    - Working platforms and barriers
    - Covers for gaps and space
    - Working scaffolding
    - Safety nets
- Access platforms will be established through which employees can safely enter and exit the building through the seismic gap between the building and the retaining wall/excavation boundary.
- The upper part of areas where employees enter and exit the building on foot, such as access roads and passages where there is a risk of material falling from a height, will be covered with material of sufficient strength.
- Rebar, formwork and other construction materials will be prevented from falling on the safety nets used as a precaution against falling from heights. (Falling objects may damage the net or harm the falling employee if left on it.)
- In cases where collective protection measures cannot be applied, fall arrest equipment will be used together with a vertical or horizontal lifeline connected to anchor points.
- When the "**Free Fall distance**" is not sufficient, the safety belt used by the employee will not provide protection. The level difference between the ground and the Anchor point must be 6 meters or more. In cases where the distance to the ground is less, the use of "fall arrest" equipment is not allowed. In this case, “retractable fall arrester” will be used.
- During work in areas like roof, terrace etc., personal fall limiting systems or positioning type safety belts will be used.
- Floor gaps should be closed with sturdy materials such as steel plate and plywood, if possible, before waiting for the formwork removal or immediately after the formwork removal, in order to prevent accidents that may occur as a result of falling from a height or falling materials.
- The gaps of the concrete expansion/dilatation joints must be closed with suitable material to withstand the load on them.
- Descending and ascending to the work area must be done using stairs or ladders. Going up and down scaffolding or formwork by stepping on them is prohibited because of the risk of falling and causing injury.
- Necessary mobile, fixed temporary scaffolds, and precast steel and aluminum alloy component scaffolds, if required, must be designed and constructed in accordance with TS EN 12811-1 and TS EN 12810-2 standards in a manner that will not accidentally move or collapse, and the scaffold components must be designed to be safely transported, assembled, used, maintained, disassembled, and stacked. The materials used must meet the requirements given in TS EN 12810-1 and TS EN 12811-2 standards where design data is provided and must be robust and durable enough to withstand normal working conditions. It is mandatory

for all personnel working on these scaffolds to have received working at heights training, and they must use full-body harnesses and fall prevention equipment.



hs: Scaffold Height
bs: Scaffold Outreach Width (From center to center of uprights)
ls: Scaffold Outreach Length (From center to center of uprights)
hl: Scaffold Story Height
hk: Railing Height
1: Anchor
2: Vertical Plane Reinforcement (Transverse)
3: Node Point
4: Main Railing
5: Intermediate Railing
6: Toe Board
7: Side Protection
8: Upright
9: Transverse Intermediate Connection
10: Joint Element
11: Platform
12: Vertical Plane Reinforcement (Longitudinal)
13: Longitudinal Intermediate Connection
14: Base Plate
15: Cage Beam
16: Tie Element
17: Vertical Frame
18: Stair
19: Height-Adjustable Base Plate
20: Ground Fixing Base
Note: The figure is for the introduction of scaffold components and does not show the conditions that need to be met.

Figure 8 Exterior Scaffolding Sample Image

- Personnel responsible for scaffold installation must have Scaffold Installer Level 3 (12UY0056-3) certification.
- Scaffolds will be used after being checked and approved by a competent engineer. Unapproved scaffolds will be marked with a red tag and not allowed to be used
- After the floor concrete is poured and the formworks are removed, the building edges will be closed with temporary guardrails until the exterior masonry walls of the building or facade cladding are erected.
- The edges of the concrete slabs where rebar installation works are carried out will be surrounded and closed with temporary guardrails till the concrete pouring against falls from height,
- When temporary guardrails already installed to cover gaps or close edges need to be dismantled in order to carry out some work, it is mandatory to notify the Occupational Safety officer and obtain permission.
- Guardrails will be checked daily, and damaged railings will be repaired or replaced.
- Temporary handrails should be installed on reinforced concrete stairs that are used by employees to access upper and lower floors and whose precast steps have not yet been installed.

- Construction waste on the stairs should be cleared to prevent workers from tripping and falling when ascending or descending.
- The work area must be kept clean and tidy, and must be cleared of obstacles that make walking, passing and working difficult, or that may cause injury as a result of tripping and falling,
- Plastic safety caps should be attached to the ends of sharp metal objects, as the pointed ends of the connecting rods or rebars used in formwork may cause injury when they are at eye, head or body level of the workers,
- Since the surface of the plywood used as formwork material in concrete slab construction is slippery, necessary precautions should be taken to prevent employees from slipping and falling on the surface in rainy weather or due to wood shavings formed during cutting.
- In front of the passages and stairs, access roads to be used during evacuation should not be blocked by obstacles, materials etc. especially in basements, escape routes from the building should be marked with illuminated safety signs.
- During concrete pouring, goggles should be used to protect the eyes against splashing concrete particles
- Safe "waiting areas" should be established at the Work Site that employees can use while waiting for work (ready-mixed concrete, construction equipment, etc.),
- While material is being transported with a tower crane and concrete is being poured with a mobile concrete pump above the excavation area, it should be ensured that no work is done under these machines.
- All electrical hand tools (mobile concrete mixers, vibrators, concrete pumps, etc.) must have undergone Portable Appliance Testing (PAT). PAT test reports will be requested and checked before work begins. During site inspections, the presence of PAT control and approval labels on electrical devices will be verified. Devices and equipment without compliance labels are not allowed to be used. (Extension cables are also included in this scope.)
- Extension cords and other electrical appliance power cords will be checked daily. Damaged or spliced electrical cables should be prevented from being used in the field.
- MSDS forms for concrete chemicals such as repair mortars etc. should be checked by workplace physicians and employees should be informed about the possible harmful effects (breathing, eye contact, etc.).
- Appropriate protective clothing and eye/face protection should be provided to workers during application of concrete chemicals to guard against the allergic skin reactions, skin and particularly eye irritation and similar effects specified in the MSDS forms,
- The entry/exit of concrete mixers to the work site should comply with the traffic action plan. Workers should be prevented from approaching the operating zones of concrete mixers, trucks, cranes, loaders, and similar construction machinery while they are in motion.
- Personnel assigned to formwork tasks must hold the Level 3 Wood Form worker Certificate (11UY0011-3)
- Personnel assigned to concrete pouring tasks must hold the Level 3 Concrete Worker Certificate (12UY0049-3)
- Personnel who will work on reinforcing steel must hold the Level 3 Reinforced Concrete Ironworker Certificate (11UY0012-3)

- Personnel working on the construction site must at a minimum hold the Level 2 Construction Worker Certificate (16UY0253-2)
- The reinforcing bars are likely to be rusty. Therefore, it is essential for workers to use the appropriate type of protective gloves. In addition, all employees must have their tetanus vaccinations. (The Workplace Physician must inform employees about infections and tetanus caused by rusty metals during training.)
- Burning wood and other flammable construction waste for heating purposes is prohibited on the construction site
- All employees who will carry heavy loads must receive manual handling training
- A "Hazardous Waste Area" should be established at the construction site, and hazardous waste generated during activities should be collected and temporarily stored here for disposal.

Table 12 Reinforced Concrete Works & Earthquake Isolator Installation Control Table

WORK TO DO:	Raft Foundation, Building Concrete Works and Earthquake Isolators Installation

WORKING METHOD

Technical Description and Requirements

Construction Technique and Technology

- Rebar Preparation and Fixing
- Formwork Preparation and Installation
- Concrete Puring with mobile or stationary pump using ready-mixed concrete, vibrating concrete
- Levelling and finishing concrete surfaces
- Concrete curing
- Dismantling of formwork after setting of concrete
- Installation of Earthquake isolators on raft foundation

Use of Work Equipment

- REBAR BENDING & CUTTING MACHINE
- TRANSMIXER
- MOBILE AND STATIONARY CONCRETE PUMP
- TOWER CRANE
- MOBILE CRANE, TRUCK MOUNTED CRANE
- AIR COMPRESSOR
- WATER PUMP
- PICKUP TRUCK
- HAND TOOLS (DRILL, GRINDING MACHINE, HAMMER, SCREW DRIVER, TROWEL, LEVER, PLIERS, BROACH etc.)
- PLANNING MACHINE
- WELDING MACHINE
- MOBILE & STATIONARY SCAFFOLD
- STEEL TAPE MEASURE
- CHARGED SCREWING MACHINE, TORQUE CONTROLLED FASTENING
- MOBILE EXTENTION CORD & ELECTRICAL DISTRIBUTION BOARD
- FORKLIFT, PALLET TRUCK

Use of Chemical Substances:

- READY MIXED CONCRETE ADDITIVES, FORMWORK OIL, EPOXY RESIN, REPAIR MORTAR, ISOLATION PRODUCTS

Access to the Work Area:

- Access road information is provided in the form of plans under the heading "Pre-construction Information & Site Plans.".
  - The maximum speed within the campus is limited to 20 km/h for trucks.
  - The maximum speed within the campus is limited to 20 km/h for excavators and loaders.

Handling & Supply of Materials

- Details regarding the removal, transportation, and unloading of consumables and related technical materials are specified and explained under the subheading "General Construction Site Rules."

PPE- GENERAL	**Need for Trained Personnel**
• HELMET TS EN 397+A1 • EARPLUG TS EN 352-2 • PROTECTIVE GLASSES TS EN ISO 16321-3 • GENERAL PURPOSE WORK GLOVES TS EN ISO 21420 • WORK SHOES TS EN ISO 20347 • HALF FACE MASK, TS EN 140 • FULL BODY HARNESS EN 361 • ROPE BRAKING SYSTEM EN 353 • SAFETY HOOK	• CIVIL (STRUCTURAL) ENGINEER • TOPOGRAPHICAL ENGINEER • ELECTRICAL ENGINEER • ELECTRICAL INSTALLER LEVEL 3 (15UY0241-3) • CONSTRUCTION WORKER LEVEL 2 (16UY0253-2) • WOODEN FORMWORKER LEVEL3 (11UY0011-3) • CONCRETE PUMP OPERATOR, LEVEL 3 (18UY0369-3) • CONCRETE TRANSMIXER OPERATOR, LEVEL3 (23UY0567-3) • REBAR FIXER, LEVEL 3 (11UY0012-3) • TRUCK DRIVER LEVEL 3 (17UY0326-3) • STEEL WELDER, LEVEL3 (11UY0010-3) • WATER INSULATOR, LEVEL3 (12UY0058-3) • MOBILE CRANE OPERATOR, LEVEL3 (13UY0172-3) • POINTER, LEVEL2 (15UY0218-2)

EN 362 • FALL PREVENTION SAFETY ROPES • EN 355	

Table 13 RC. Works and Earthquake Isolator Installation Risk Analysis

WORK TO DO	SOURCE of DANGER	RİSKS	PRECAUSION
Reinforced Concrete Works	▪ Injury due to object falling from a height	▪ Head and body traumas ▪ Dead	▪ Toe boards will be used on scaffolds and work platforms, ▪ Areas where there is a possibility of material falling will be surrounded by barriers and entrances to the area will be prevented. ▪ In cases where the object falling cannot be prevented, a fine mesh net or catching platform will be used. ▪ Objects will be fixed against tipping, slipping and flying due to wind. ▪ Hand tools will be tied with a thin rope to prevent them from slipping or falling from the employee's hands.
	▪ Height	▪ Dead due to falling from height	▪ Collective protection measures such as guardrails, scaffolds consisting of pre-fabricated components, working platforms, safety nets, etc. which are compatible with legislation and relevant standards will be used. ▪ Appropriate tools and equipment will be used to ensure safe access for employees to places where they will work at height. ▪ In places where collective protection is not possible, anchor points, lifelines will be provided, Safety equipment such as full body belts, safety ropes, etc., will be used in accordance with the nature of the work performed. ▪ If fall arrest systems are used, the free fall distance will be kept under control. ▪ Any gaps will be closed with solid materials such as steel plate and plywood.
	▪ Being trapped under the material, crushing, ▪ material impact or falling	▪ Injury, Body Traumas	▪ In order to prevent the load carried to the site by the crane from suddenly swinging or turning, guidance will be made by attaching a guide rope to the load. ▪ The correct type of sling and load lashing style will be used to transport the material to the site by crane, and the appropriate connection elements will be chosen and checked before use

WORK TO DO	SOURCE of DANGER	RİSKS	PRECAUSION
			▪ Dismantled or assembled prefabricated formwork materials on the site will be stacked in a way that prevents them from toppling over due to wind, impacts, or similar effects ▪ In areas where transportation is carried out by crane, personnel trained as slingers and signalmen will be used. In cases where the operator cannot see the load, communication will be provided via radio. ▪ During material handling, appropriate gloves will be used to prevent the material from slipping from the hand.
	▪ Being hit by sharp objects	▪ Injury to hand, face, foot	▪ Formwork boards with nails and sharp objects that may cause injuries to employees by sinking into their feet will be removed from the field. ▪ Protective caps will be placed on the sharp ends of objects located at the eye, head, and body level of workers ▪ Metal pipes, profiles, wood, and similar materials will be cleaned of burrs and splinters, otherwise protective gloves will be used
	▪ flying, bouncing object	▪ Injury due to object getting into the eye	▪ The use of protective glasses will be mandatory during rebar preparation and assembly, formwork preparation and assembly, and concrete pouring works.
	▪ Floor prone to getting stuck, tripping and slipping	▪ Injury due to hand or foot getting trapped. Injury due to falling because of tripping or slipping	▪ Workers in the field will not wear watches, tags, necklaces while doing work. ▪ In the work area, construction materials, hand tools, electrical cables, rubble, waste will not be kept or stocked which may cause tripping or ankle sprains. ▪ There will be walkways made using planks to walk on the slab rebars that are still being installed. ▪ Precautions to prevent slipping will be applied when working on slippery surfaces (wet, oily, etc.) ▪ While working with drilling, cutting and bending machines, the use of sagging (loose) work clothes that may get stuck in the rotating parts of the machine will not be allowed. ▪ Rebar cutting and bending machines will be operated according to the user instructions, regular maintenance will be carried out, and there will be an emergency stop button.
	▪ Sharp Objects		

WORK TO DO	SOURCE of DANGER	RİSKS	PRECAUSION
		▪ Cutting on the body (hand, foot, etc.)	▪ Protective equipment such as machine guard must always be used with the tools like grinding machine, sawmill etc. ▪ The grinding machine should not be left unattended until it has stopped working completely, and the electrical connection should be disconnected when not in use.
	▪ Electric Power	▪ Dead due to electrical shock	▪ All electrically powered metal-bodied hand tools, equipment and electrical panels will be grounded. ▪ Residual current device will be installed in all electrical panels ▪ No one other than an electrician will intervene in the electrical installation, locks will be placed on the panels, ▪ Daily checks will be made and damaged or malfunctioning installations will be kept out of use until they are repaired.
	▪ Mobile Scaffold	▪ Dead due to falling from height	▪ The wheels will be locked before working on the mobile scaffolding. ▪ Mobile scaffolds will comply with TS EN 12811 standards ▪ Scaffold legs will be placed on a flat and solid ground. ▪ Mobile scaffolding will not be moved while there are people on it or there is material to fall over. ▪ Scaffolding elements will be checked for stability before each use.
Lifting and Transmitting Operations with Crane	Mobile or Tower Crane	Death, Loss of limb, Injury	▪ Entrances to areas under the lifted load and within the movement area of the crane will be kept under control. ▪ During the operation, communication between the operator and employees will be provided by signs and sounds. Radios will be used when necessary. ▪ Periodic inspection of the crane to be used should be carried out ▪ Work will be suspended in weather conditions where visibility is low or there is strong wind. ▪ The sling used will be protected from sharp corners of the transported load.

WORK TO DO	SOURCE of DANGER	RİSKS	PRECAUSION
			▪ Guide rope will be used when necessary to control the load against swinging. ▪ Care will be taken to ensure that the crane hook is positioned over the load's center of gravity when the load is being secured with a sling ▪ Proper supports will be used under the crane's outrigger pads ▪ The sling used must be suitable for the type and weight of the load, and it must be strong and certified ▪ The crane hook will have a safety latch ▪ No one will stand under the load while the crane is operating
Works Performed Using Power Tools	▪ Power Tools	▪ Death, Loss of limb, Injury	▪ Hand tools will be used in accordance with the user instructions specified by the manufacturer. ▪ Protective equipment like machine guard etc. must be used with the tool. ▪ Appliances that are not double insulated shall be connected to a grounded line. ▪ The power tool or its cable must be prevented from coming into contact with water in the work area. ▪ The power cord shall be protected against oil, chemicals, excessive heat, which may cause damage. ▪ Broken or faulty tools will be reported to the responsible person and removed from the field. ▪ Electrical cables that must pass on the road will be protected against damage
Manual Handling of Construction Materials to the Work Area	Manual Load	Damage or injury to the body caused by manual handling	▪ Appropriate PPE will be used to protect limbs such as head, hands and feet during transportation. ▪ Necessary precautions will be taken on surfaces that may cause tripping or slipping while carrying loads. ▪ Correct body positioning will be ensured during manual handling. ▪ Precautions will be taken to prevent the load from tipping over onto the employee during manual handling or stacking. ▪ Loads such as barrels containing chemicals, industrial tubes, etc. will not be carried by rolling on the ground ▪ Obstacles on the transport path that may cause the carried load to crash, topple over or get stuck will be removed.

WORK TO DO	SOURCE of DANGER	RİSKS	PRECAUSION
Night work	Dark Environment	Injury and death as a result of work accidents due to insufficient visibility	▪ Adequate lighting will be provided to work areas and transportation routes. ▪ Employees will be dressed in high-visibility, phosphorescent work clothes. ▪ Night work will not be done in unsuitable weather conditions. ▪ The lighting system will be designed in a way that does not tire the eyes of employees and does not cause glare. ▪ Night work will be done not to exceed 7.5 hours, ▪ There will be a health report from the Workplace Physician stating that employees are fit to work at night.

8.2.1.4 Finishing Works

Depending on the physical progress of the building's reinforced concrete works, finishing works will begin on the completed floors. Finishing works are detailed construction activities that will ensure the appearance and functionality of the building, both on the exterior and interior. The works within this scope will be carried out gradually, following the below order:

1. **Masonry Works** (Construction of lintels over doors and windows, manufacturing of beams on walls higher than 3 meters are included in the masonry works. Installation of electricity, waste water and potable water installations is also carried out during masonry activities.)
2. **Concrete Plaster and Screed Works** (Rough plaster provides a base layer, covers large imperfections, coarse texture and fine plaster provides a smooth, finished surface, ready for decoration. Screed concrete application to provide a level surface)
3. **Sound, Heat, Water Insulation Works**
4. **Floor and Wall Coverings** (precast staircase installations and parapet coverings are included)
5. **Joinery Assemblies**. (Assemblies of window and door frames are included.)
6. **Exterior Cladding Works** (according to the facade detail in the architectural project)
7. **Plasterboard Panel Installations** (Plasterboard panels are used in building construction for creating interior walls and ceilings.)
8. **Plaster and Satin Gypsum Plaster Works** (Plaster and satin gypsum plaster works are methods of applying plaster to walls and ceilings to create a smooth and durable finish)
9. **Suspended Ceiling Works** (height of the suspended ceiling, is determined ensuring there is adequate space for lighting fixtures, HVAC ducts, and other utilities)
10. **Painting Works**
11. **Wood Works, Door and Furniture Assembly** (involves the installation and assembly of various types of doors such as interior and exterior doors, sliding doors and furniture pieces)

Major issues to be considered in terms of Occupational Health and Safety during architectural finishing works are listed below:

- During activities carried out at height, collective protection equipment and equipment such as appropriate stairs and access platforms, fall prevention guardrails in accordance with standards, work platforms and scaffolds should be used so that employees can safely access their workplaces and work safely against falling from heights.

- In cases where collective protection measures cannot be applied, fall arrest equipment will be used together with a vertical or horizontal lifeline connected to anchor points.
- When the "**Free Fall distance**" is not sufficient, the safety belt used by the employee will not provide protection. The level difference between the ground and the Anchor point must be 6 meters or more. In cases where the distance to the ground is less, the use of "fall arrest" equipment is not allowed. In this case, “retractable fall arrester” will be used.
- During work in areas like roof, terrace etc., personal fall limiting systems or positioning type safety belts will be used.
- In long-term installation works carried out by climbing a ladder and using both hands, instead of a ladder, a suitable mobile scaffolding or working platform should be used to prevent falling from a height.
- Load platforms used to transport materials to the upper floors of the building will have the necessary collective protection equipment (guardrails, etc.) against falling from a height.
- Employees are prohibited from working by climbing on the outside of scaffolds or work platforms or stepping on railings.
- Descending and ascending to work platforms and scaffolds will be via stairs or ladders. Going up and down by stepping on scaffolding elements is prohibited due to the risk of falling.
- During work on the building facade, entrances and exits to the area within the projection of the work area must be kept under control against the risk of material falling from a height.
- In work carried out with a cherry picker or suspended scaffold, a vertical lifeline should be drawn from an upper anchor point to protect employees against falling from a height, and a fall arrester should be used along with a safety belt.
- All electrical hand tools used in finishing works must have undergone Portable Appliance Testing (PAT). PAT test reports will be requested and checked before work begins. During site inspections, the presence of PAT control and approval labels on electrical devices will be verified. Devices and equipment without compliance labels are not allowed to be used. (Extension cables are also included in this scope.)
- Necessary care must be taken to prevent electrical extension cables from being damaged and to prevent them from coming into contact with water. Extension cords and other electrical appliance power cords will be checked daily. The use of damaged cables is not allowed.
- MSDS forms related to finishing works chemicals such as glue, solvent etc. should be checked by workplace physicians and employees should be informed about the possible harmful effects (breathing, eye contact, etc.) of those chemicals
- Appropriate protective clothing and eye/face, hand protection should be provided to workers during application of chemicals to guard against the allergic skin reactions, skin and particularly eye irritation and similar effects specified in the MSDS forms,
- Materials should be stacked in a balanced manner to prevent injuries from slipping or toppling
- Pedestrian crossings, corridors, etc., will be used for evacuation purposes in emergencies, so construction materials and equipment should not be left in these areas to obstruct passage.
- Spaces without windows, dark corridors, and especially work areas in basement floors should be adequately illuminated according to the work being carried out.
- In noisy environments, after conducting noise measurements to determine the intensity and nature of the noise, suitable ear protection should be selected and worn continuously by all employees exposed to the noise.
- Workers involved in the installation of stone wool materials used in facade cladding and similar tasks should use Personal Protective Equipment such as masks, gloves, and goggles due to the irritant properties of these materials on the eyes and skin, as well as their potential harm to the respiratory system.
- During the use of adhesive-type chemicals and spray-painting operations, respiratory protective equipment must be worn by all personnel present. Those not using respiratory

protection should be prevented from entering the isolated area where painting applications are being carried out.

- Metal, plastic, wood, glass, cardboard packaging waste contaminated with chemicals classified as hazardous waste must be segregated from other wastes on the work site and collected in a hazardous waste area.

Figure 9 Hazardous Waste Collected at Site

- In indoor storage areas where flammable materials are stored, there should be a sufficient number of fire extinguishers of appropriate quality for fire type. Warning signs should also be posted to keep cigarettes and other sources of flame or heat away from the area.
- The personnel responsible for masonry works must possess a Bricklayer Level 3 (12UY0048-3) certification.
- The personnel who will perform plastering must have a Plasterer Level 3 (11UY0024-3) certificate.
- Personnel who will perform gypsum plaster work must have a Gypsum Plaster Applicator Level 3 (12UY0055-3) certificate.
- Personnel who will perform plasterboard installation must have a Plasterboard Applicator Level 3 (12UY0054-3) certificate.
- Personnel who will perform thermal insulation work must have a Thermal Insulator Level 3 (12UY0057-3) certificate.
- Personnel who will work in ceramic tile works must have the Ceramic Tile Coater Level 3 (12UY0051-3) certificate.
- Personnel who will work in painting works must have a Construction Painter Level 3 (11UY0023-3) certificate.
- Personnel who will work in waterproofing works must have a Water Insulator Level 3 (11UY0058-3) certificate.
- Personnel who will work in furniture and wood works must have a Furniture and Decoration Assembler Level 3 (11UMS0154-3)
- Personnel who will work in construction site must have, at a minimum, the Construction Worker Level 2 (16UY0253-2) certificate.
- All personnel who will carry heavy loads manually must receive manual handling.

Table 14 Finishing Works Control Table

WORK TO DO:	Architectural (Finishing) Works

WORKING METHOD

Technical Description and Requirements

Construction Technique and Technology

- It is explained in article 8.2.1.4 under the sub-heading of Finishing Works

Use of Work Equipment

- TOWER CRANE
- MOBILE CRANE, TRUCK MOUNTED CRANE, CHERRY PICKER
- PICKUP TRUCK
- SUSPENDED SCAFFOLD
- MOBILE SCAFFOLD, STATIONARY SCAFFOLD
- AIR COMPRESSOR
- METAL CUTTING CIRCULAR SAW
- HAND TOOLS (DRILL, GRINDING MACHINE, HAMMER, SCREW DRIVER, etc.)
- LOAD CARRYING BASKET
- MOBILE & STATIONARY SCAFFOLD
- LIGHTING EQUIPMENT
- STEEL TAPE MEASURE
- CHARGED SCREWING MACHINE, TORQUE CONTROLLED FASTENING
- MOBILE EXTENTION CORD & ELECTRICAL DISTRIBUTION BOARD
- FORKLIFT, PALLET TRUCK

Use of Chemical Substances:

- TILE ADHESIVE GROUT, EPOXY RESINS, BITUMINOUS COATING, PAINTS & COATING, ADHESIVE & SEALANTS

Access to the Work Area:

- Access road information is provided in the form of plans under the heading "Pre-construction Information & Site Plans.".
  - The maximum speed within the campus is limited to 20 km/h for trucks.
  - The maximum speed within the campus is limited to 20 km/h for excavators and loaders.

Handling & Supply of Materials

- Details regarding the removal, transportation, and unloading of consumables and related technical materials are specified and explained under the subheading "General Construction Site Rules."

PPE- GENERAL	Need for Trained Personnel
• HELMET TS EN 397+A1 • EARPLUG TS EN 352-2 • PROTECTIVE GLASSES TS EN ISO 16321-3 • GENERAL PURPOSE WORK GLOVES TS EN ISO 21420 • WORK SHOES TS EN ISO 20347 • HALF FACE MASK, TS EN 140 • FULL BODY HARNESS EN 361 • ROPE BRAKING SYSTEM EN 353 • SAFETY HOOK EN 362 • FALL PREVENTION SAFETY ROPES • EN 355	• ARCHITECT • CIVIL ENGINEER • TOPOGRAPHICAL ENGINEER • CONSTRUCTION WORKER LEVEL 2 (16UY0253-2) • BRICKLAYER, LEVEL3 (12UY0048-3) • PLASTERER Level 3 (11UY0024-3) • GYPSUM PLASTER APPLICATOR Level 3 (12UY0055-3) • PLASTERBOARD APPLICATOR Level 3 (12UY0054-3) • THERMAL INSULATOR Level 3 (12UY0057-3) • CERAMIC TILE COATER Level 3 (12UY0051-3) • CONSTRUCTION PAINTER Level 3 (11UY0023-3) • WATER INSULATOR Level 3 (11UY0058-3) • FURNITURE AND DECORATION ASSEMBLER, Level 3 (11UMS0154-3) • SCAFFOLD INSTALLER Level 3 (12UY0056-3) • MOBILE CRANE OPERATOR, LEVEL3 (13UY0172-3) • POINTER, LEVEL2 (15UY0218-2)

Table 15 Finishing Works Risk Analysis

WORKS TO DO	SOURCE of DANGER	RİSKS	PRECAUTION
Finishing Works	▪ Height	▪ Injury and death due to falling from height	▪ Collective protection measures like guardrails, scaffolding consisting of pre-fabricated components, work platforms, safety nets, etc. in accordance with legislation and standards will be used. ▪ Appropriate tools and equipment will be used to ensure safe access for employees to places where they will work at height. ▪ In places where collective protection is not possible and the falling distance is sufficient, anchor points and lifelines will be provided and used with a fall arrest system (safety harness and lanyard) ▪ It will be ensured that personnel working at heights receive training on working at heights.
	▪ Slippery Surface, Ground	▪ Injury as a result of falling from a height due to loss of balance on slippery ground	▪ If there are slippery surfaces caused by oil leaks, snow, ice or water that may cause slipping, work will not be carried out without taking precautions.
	▪ High Blood Pressure, dizziness	▪ Falling from height due to loss of balance due to dizziness	▪ Employees with high blood pressure or a condition that makes them unsuitable for working at height should not be allowed to work at height.
	▪ Obstacles that will cause you to get stuck on the ground and fall to the ground	▪ Injury due to tripping and falling, ankle sprain	▪ Construction materials, electrical cables, hoses, etc. that may cause employees to trip and fall will not be left on pedestrian crossings.
	▪ Materials hitting employees, ▪ Material falling over or falling	▪ The injury of a worker due to flying, striking, falling, or toppling materials.	▪ Precautions will be taken to prevent unstable or lightweight materials placed on roofs or building edges from being blown away in windy conditions. ▪ To prevent materials and tools from falling on workers from above, they will be kept away from building edges and shaft openings. ▪ During work carried out at heights, construction materials and debris will not be thrown down from the building. ▪ Sharp or pointed objects that cannot be removed from the work area will be covered with protective material.
	▪ Ladders	▪ Injury or fracture resulting from a fall from a ladder.	▪ For heavy, strenuous, long-duration tasks and tasks requiring the use of both hands, a work scaffold will be used instead of a ladder.

WORKS TO DO	SOURCE of DANGER	RİSKS	PRECAUTION
	▪ Stable Scaffolds	▪ Collapse of the scaffold, resulting in injury or death from workers falling off the scaffold.	▪ Necessary precautions will be taken to prevent the ladder from slipping. ▪ While on the ladder, work will not be done by reaching sideways. ▪ The remaining length from where the ladder leans against the upper part will be at least 90 cm. ▪ The ladder will be placed on a firm surface at the correct angle (65-70 degrees). ▪ Facade scaffolding consisting of pre-fabricated components with a certificate of conformity to TS EN 12810-1 standard will be used. ▪ Scaffolding assembly and dismantling tasks will be carried out by trained personnel (Scaffold Installer) under the supervision of authorized technical personnel. ▪ Scaffolds will be checked at specified intervals ▪ In operations involving facade scaffolding, an Assembly, Use, and Dismantling plan will be considered (See Occupational Health and Safety Regulations for Use of Work Equipment, Annex II, Article 4.3.2). ▪ The scaffolding will be grounded as a precaution against static electricity. ▪ Measures will be taken to prevent construction machinery, transported materials, and vehicles from colliding with the scaffold. ▪ Precautions will be taken to prevent materials from falling down while working on the scaffold.
	▪ Suspended Scaffold	▪ Collapse of the scaffold resulting in injury or death from workers falling off the scaffold.	▪ Load carrying capacity of the suspended scaffolding, usage and maintenance instructions will be obtained from the manufacturer. ▪ Periodic inspections of the suspended scaffold will be conducted regularly. ▪ Before use, steel cables, roof brackets, pulleys, and connecting elements will be inspected for deformations such as breakage and crushing. ▪ Personnel who will use the suspended scaffold will receive necessary training. ▪ Vertical lifelines attached to anchor points on the roof will be installed for each worker on the suspended scaffold. ▪ The suspended scaffold will be equipped with overload warning mechanisms and safety brake devices.
	▪ Fire	▪ Death resulting from fire, burning, or smoke inhalation.	

WORKS TO DO	SOURCE of DANGER	RİSKS	PRECAUTION
	▪ Chemicals	▪ Poisoning, allergic reaction, skin burns, etc. while working with chemicals	▪ Fire extinguishers suitable for the size and class of potential fires will be kept in the work areas. ▪ In case of emergencies, emergency escape routes will be marked for evacuating the fire zone. ▪ Employees will receive training on how to intervene in case of fire. ▪ Flammable liquids such as gasoline and ignitable liquids like thinner will be stored and transported in appropriate containers labeled accordingly. ▪ In areas where flammable and combustible liquids are stored, there will be explosion-proof lighting, as well as natural and mechanical ventilation. ▪ There will be no obstructions on escape routes. ▪ Combustible and flammable materials will be removed from areas where hot work like welding, cutting, grinding, etc. is performed. ▪ Before starting work with chemicals, Material Safety Data Sheets (MSDS) will be obtained and necessary precautions will be taken. ▪ Unlabeled and undefined chemicals in non-original packaging will not be kept on the construction site. ▪ To reduce potential health risks, whenever possible, less hazardous alternative chemicals will be used. ▪ Employees will be provided with appropriate Personal Protective Equipment (PPE) to protect them from chemical substances. ▪ During operations, hazardous substances in forms such as dust, vapor, mist, and gas will be removed from the working environment through ventilation and other methods. ▪ Entry and exit to areas where hazardous chemicals are handled will be restricted, and these areas will be isolated from nearby workspaces.
	▪ Flying or splashing objects	▪ Foreign objects entering the eye, facial injury	▪ Protective goggles and face shields will be used to guard against flying or splashing particles during marble, tile, and ceramic cutting.
	Harmful particles settling in the lungs through the respiratory tract.	▪ Lung diseases, shortness of breath, etc.	▪ If employees are exposed to crystalline silica concentrations exceeding 0.025 mg/m^3 in the air over an 8-hour period, work will be stopped. ▪ To reduce the airborne dispersion of silica dust, cutting, drilling, and similar

WORKS TO DO	SOURCE of DANGER	RİSKS	PRECAUTION
	Hand-operated small tools (such as screwdrivers, hammers, pliers, wrenches, knives, awls, pliers, utility knives, etc.)	▪ Injury resulting from puncture wounds or cuts from sharp points and edges. ▪ A sharp-edged hand tool carried on the body injuring the worker if they fall to the ground. ▪ Hand injuries due to crushing or impact. ▪ Dead or Injury due to electric shock ▪ A hand tool slipping from a worker's hand and injuring another worker below.	tasks will employ methods such as wet cutting and surface wetting with water. ▪ To capture and control dust at the source, vacuum attachment systems will be used. ▪ Methods and alternatives that eliminate the need for surface grinding, cutting, and drilling will be investigated. ▪ Respiratory protective masks will be used without fail during operations involving stone wool and glass wool. ▪ Damaged tools will not be used. ▪ PPE will be provided while working with tools, especially protective gloves against mechanical impacts ▪ Tools will be used according to the manufacturer's instructions. ▪ Tools will not be used for purposes other than their intended production. ▪ Small hand tools with a risk of puncturing the body will not be carried on clothing but will be transported in tool carrying bags. ▪ Damaged tools will not be used. ▪ PPE will be provided while working with tools, especially protective gloves against mechanical impacts ▪ Tools will be used according to the manufacturer's instructions. ▪ Tools will not be used for purposes other than their intended production. ▪ Care will be taken to ensure that insulated parts of hand tools, such as handles, are intact and properly insulated. ▪ A safety tether attached to the handle of the hand tool, designed to prevent small hand tools from falling from heights, will be used.

8.2.1.5 Electrical Installation Works

Electrical installation works begin with grounding activities during building raft foundation construction and continue until testing and commissioning phases depending on the project's physical progress. Some of the main electrical installations to be carried out include:

1. Grounding System
2. Installation of cable trays and ducts
3. Electrical system cabling
4. Manufacturing and assembly of electrical panels
5. Busbar (used in electrical power distribution systems and designed to efficiently distribute electrical power while minimizing losses and heat generation)
6. UPS (Uninterruptible Power Supply)
7. Indoor and outdoor building, facade, and road lighting
8. Fire detection and alarm system
9. Lightning rod
10. Communication system and TV, music broadcast
11. CCTV (system of video surveillance cameras that transmit signals to specific monitors or video recorders)
12. Data network system
13. Building Automation System
14. Elevator installations
15. Fixture, switch, socket installations
16. solar power plant

Here are the major considerations to be taken into account during electrical installation works.

- Personnel working in electrical installations must have at least an Electrical Installer Level 3 (15UY0241-3) certificate.
- Personnel performing assembly on electrical panels and switchboards must possess at least an Electrical Panel Assembler Level 3 (12UY0075-3) certificate.
- Personnel tasked with elevator installation must have at least an Elevator Installer Level 3 (12UY0091-3) certificate.
- Personnel responsible for automation systems installation must have at least an Automation Systems Installer Level 3 (12UY0076-4) certificate.
- During the assembly of electrical panels/switchboards, torque-controlled screwdrivers and tightening equipment should be used. Proper tightening forces should be predetermined based on the type of switchgear or the size of bolts and nuts, and communicated to the responsible personnel.
- Mobile or fixed electrical conductors and cables shall be protected against mechanical and chemical influences. In passageways, they should preferably be routed overhead wherever possible or suitable protectors should be placed over them on the ground to prevent crushing.
- Electrical panels and distribution boards will be kept locked, and information signs indicating the location of keys and responsible personnel will be posted on them.
- Electrical panels and distribution boards will have insulating mats made of materials like wood or rubber placed in front of them on the floor.

- Storage area where flammable and explosive materials stored should have a sufficient and appropriate number of fire extinguishers available.

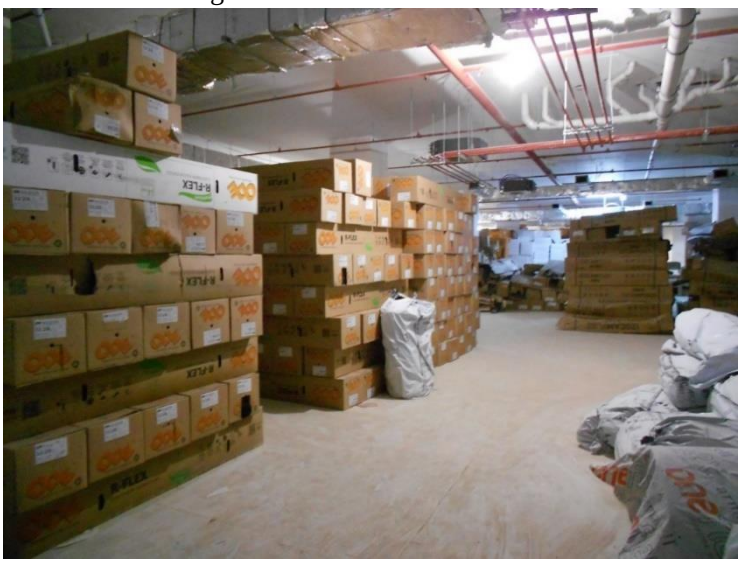


Figure 10 Fire-sensitive enclosed storage areas

- In case of a fire, an evacuation plan should be prepared outlining how employees will evacuate the building to prevent smoke inhalation. Illuminated directional signs should be placed at appropriate points.
- Materials stored in work areas should be removed before work begins to ensure safe working conditions and prevent potential accidents such as tripping and falling. Passageways should not be blocked.
- Unused (surplus) materials and waste left in work areas or passageways will be removed from the work site at the end of the shift to ensure safe working conditions for other subcontractors.
- Rooms without windows, dark corridors, and especially working areas in basement floors should be adequately illuminated according to the type of work being performed.
- Metal-bodied tungsten-halogen bulb projectors should always be mounted high up, and when used in a portable manner, they must be mounted on an insulating table with a residual current device (RCD) installed.
- Electric hand tools will not be used in rainy, wet, or excessively humid conditions.
- In case of a long-term assembly work that requires climbing onto a ladder and using both hands simultaneously; to prevent falls from heights, a suitable mobile scaffold or work platform should be used instead of a ladder.
- Access to work platforms and scaffolds will be via ladders. Climbing up or down by stepping on scaffold components is prohibited due to the risk of falling.
- It is prohibited to work by standing on construction materials, barrels, cans, etc., to reach heights, or to work by standing on cable trays.

Figure 11 Incorrect use of ladders in electrical installation works

- During activities carried out at height, collective protection equipment and equipment such as appropriate stairs and access platforms, fall prevention guardrails in accordance with standards, work platforms and scaffolds should be used so that employees can safely access their workplaces and work safely against falling from heights.
- In cases where collective protection measures cannot be applied, fall arrest equipment will be used together with a vertical or horizontal lifeline connected to anchor points.
- When the "**Free Fall distance**" is not sufficient, the safety belt used by the employee will not provide protection. The level difference between the ground and the Anchor point must be 6 meters or more. In cases where the distance to the ground is less, the use of "fall arrest" equipment is not allowed. In this case, “retractable fall arrester” will be used.
- During work in areas like roof, terrace etc., personal fall limiting systems or positioning type safety belts will be used.
- It is forbidden to climb onto the outer part of scaffolding or work platforms or to stand on their guardrails while working.
- Commissioning and provisional acceptance procedures will not commence until construction activities, including electrical installation, and testing processes are completed.
- Commissioning and acceptance procedures will be carried out by expert teams responsible for operations in accordance with the Lockout/Tagout (LOTO) system and Work Permit systems.
- Before commissioning, experts will conduct a risk assessment to identify all systems that need to be isolated and taken out of service, and they will communicate this information to the personnel responsible for operations.
- Before commissioning, the "Commissioning Checklist" will be completed to ensure that all safety measures have been taken, after which the acceptance procedures will commence.
- A safe zone will be established around equipment (such as transformers) receiving power for the first time to keep workers at a distance.
- During shutdowns and restoration of power due to maintenance or breakdowns, Lockout-Tagout (LOTO) procedures will be followed.
- After power is cut off, neutral and ground lines will be checked with a multimeter to ensure there is no electrical energy present.

Table 16 Electrical Installation Works Control Table

WORK TO DO:	Electrical Works and Electrical Equipment Assembly

WORKING METHOD

Technical Description and Requirements

Construction Technique and Technology

- It is explained in article 8.2.1.5 under the sub-heading of Electrical Installation Works

Use of Work Equipment

- TOWER CRANE
- MOBILE CRANE, TRUCK MOUNTED CRANE, CHERRY PICKER
- PICKUP TRUCK
- MOBILE SCAFFOLD, STATIONARY SCAFFOLD
- POWER TOOLS (DRILL, GRINDING MACHINE, HAMMER, PLIERS, SCREWDRIVER, WRENCH, etc.)
- HAND TOOLS (CABLE CUTTING AND STRIPPING TOOLS, SILICONE GUN, STEEL TAPE MEASURE, UTILITY KNIFE)
- CORDLESS SCREWDRIVER/NUT DRIVER
- TORQUE WRENCH
- MULTIMETER, VOLTMETER AND SIMILAR MEASUREMENT DEVICES
- LIGHTING EQUIPMENT
- STEEL TAPE MEASURE
- MOBILE EXTENTION CORD & ELECTRICAL DISTRIBUTION BOARD
- FORKLIFT, PALLET TRUCK

Use of Chemical Substances:

- ELECTRICAL CONTACT CLEANER, EPOXY RESINS, SILICON SEALANTS, CORROSION INHIBITOR, ADHESIVE

Access to the Work Area:

- Access road information is provided in the form of plans under the heading "Pre-construction Information & Site Plans.".
  - The maximum speed within the campus is limited to 20 km/h for trucks.
  - The maximum speed within the campus is limited to 20 km/h for excavators and loaders.

Handling & Supply of Materials

- Details regarding the removal, transportation, and unloading of consumables and related technical materials are specified and explained under the subheading "General Construction Site Rules."

PPE- GENERAL	**Need for Trained Personnel**
• HELMET TS EN 397+A1 • EARPLUG TS EN 352-2 • PROTECTIVE GLASSES TS EN ISO 16321-3 • INSULATED GLOVES • EN 420 • INSULATED WORK SHOES 200J En 345 TS EN ISO 20347 • HALF FACE MASK, TS EN 140 • FULL BODY HARNESS EN 361 • ROPE BRAKING SYSTEM EN 353 • SAFETY HOOK EN 362 • FALL PREVENTION SAFETY ROPES • EN 355	• ELECTRICAL ENGINEER • ELECTRONICAL ENGINEER • BUILDING AUTOMATION ENGINEER • ELECTRICAL INSTALLER, LEVEL 3 (15UY0241-3) • ELECTRICAL PANEL ASSEMBLER, LEVEL 3 (12UY0075-3) • ELEVATOR INSTALLER, LEVEL 3 (12UY0091-3) • AUTOMATION SYSTEMS INSTALLER, LEVEL 3 (12UY0076-4) • MOBILE CRANE OPERATOR, LEVEL3 (13UY0172-3) • POINTER, LEVEL2 (15UY0218-2)

Table 17 Electrical Installation Works Risk Analysis

YAPILACAK İŞ	TEHLİKE KAYNAĞI	RİSKLER	ÖNLEM
Activities like cable trays and conduit installation carried out at heights	▪ Height	▪ Injury or death due to falling from height.	▪ Collective protection measures like guardrails, scaffolding consisting of pre-fabricated components, work platforms, safety nets, etc. in accordance with legislation and standards will be used. ▪ Appropriate tools and equipment will be used to ensure safe access for employees to places where they will work at height. ▪ In places where collective protection is not possible and the falling distance is sufficient, anchor points and lifelines will be provided and used with a fall arrest system (safety harness and lanyard) ▪ It will be ensured that personnel working at heights receive training on working at heights.
Electrical Installation Works (General)	▪ Electrical Energy	▪ Dead or Injury due to electric shock	▪ Devices and their parts that are energized will always be effectively isolated to prevent contact with workers. ▪ In the main electrical distribution points, 300mA residual current devices (RCDs) will be used for fire protection, and in the sub-distribution points, 30mA RCDs will be used to protect workers from electric shocks. ▪ During commissioning, testing, repair, maintenance, power outages, and deactivation of machinery and equipment, the LOTO (Lockout/Tagout) procedure will be applied to prevent accidental re-energizing of isolated systems. ▪ Excavation and similar works will commence only after obtaining information from authorized authorities regarding the locations of underground energy lines, ensuring necessary precautions are taken accordingly. ▪ The technical personnel conducting the work will receive training on the effects of electric shock and initial first aid measures, including practical exercises. ▪ PAT testing will be applied to electrical equipment before use to verify that it is safe in terms of electrical risks.
	▪ Electrical Cable Reel	▪ While the reel is being opened, the cable breaks loose, flies out and hits the employee, causing injury.	▪ The potential energy in the cable wound around the reel will be dissipated when unwinding the reel. Suitable protective goggles will be used.

YAPILACAK İŞ	TEHLİKE KAYNAĞI	RİSKLER	ÖNLEM
	▪ Grounding Strip	▪ Cutting the hand while laying the grounding strip	▪ Protective gloves against cuts will be used.

8.2.1.6 Mechanical Installation Works

Following the completion of the building reinforced concrete at a certain stage, mechanical works begin and end with the testing and commissioning of the systems. Mechanical installation works and machine assembly activities include the following works:

1. Fire Extinguishing system (sprinklers, fire hydrants, gas extinguishing, etc.)
2. plumbing, sanitary ware and armature installations
3. Medical Gas (Some common types of medical gases include oxygen, nitrous oxide, carbon dioxide etc.)
4. Seismic Protection
5. Ventilation ducts manufacturing, installation and insulation
6. Air conditioning installation
7. Air handling units, chillers, fan coil installations, drainage connections
8. Heating and hot water installations
9. Natural Gas Installation, Boilers
10. Compressed air installation
11. Snow and Ice Melting, Protection against Freezing in Plumbing Pipes

Major points to be considered during the execution of Mechanical Works are listed below:

- In the mechanical installation process, personnel involved must have at minimum the Heating and Natural Gas Interior Installation Construction Personnel Level 3 (11UY0031-3) certificate.
- Personnel who will serve as welders in the mechanical installation process must have at least the Welding Operator Level 3 (11UY0016-4) certificate.
- Personnel who will serve as steel natural gas pipe welders in the mechanical installation process must have at least the Natural Gas Steel Pipe Welder Level 3 (11UY0033-3) certificate.
- MSDS forms related to chemicals used in mechanical installation works such as glue, paint, solvent, mastic etc. should be checked by workplace physicians and employees should be informed about the possible harmful effects (breathing, eye contact, etc.) of those chemicals
- Appropriate protective clothing and eye/face, hand protection should be provided to workers during application of chemicals to guard against the allergic skin reactions, skin and particularly eye irritation and similar effects specified in the MSDS forms,
- All electrical hand tools used in mechanical installation works must have undergone Portable Appliance Testing (PAT). PAT test reports will be requested and checked before work begins. During site inspections, the presence of PAT control and approval labels on electrical devices

will be verified. Devices and equipment without compliance labels are not allowed to be used. (Extension cables are also included in this scope.)

- Care must be taken to prevent damage to extension cords and to ensure they do not come into contact with water. Extension cords and other electrical power cables should be checked daily. Damaged cables should not be used.
- Materials stocked in the working area must be removed from that area before starting work to create a safe working environment.
- Unused materials and waste left in work areas and passageways will be removed from the work site at the end of the shift to ensure safe working conditions for other subcontractors.
- To facilitate the evacuation of the building during emergencies, pedestrian walkways, stairs, corridors, and similar areas must not be obstructed with construction materials, equipment, waste, debris, etc.
- Necessary precautions should be taken and appropriate methods developed to prevent falls from heights and in narrow spaces during welding operations.
- It is forbidden to work by standing on construction materials, barrels, cans, etc., to reach heights or to work by climbing on pipes or equipment.
- During the insulation of air ducts, workers should use appropriate protective masks to guard against glass wool dust.
- All personnel who will carry heavy loads must receive training in manual lifting and carrying techniques.
- Before starting Hot Work (cutting, grinding, welding, etc.), flammable or combustible materials in the work area should be removed or the work area should be isolated. Additionally, a fire extinguisher should be available for initial response.
- Materials used in construction must be stacked in a balanced manner to prevent injuries from slipping or falling over and should not block emergency exits.
- Spaces without windows, dark corridors, and especially work areas in basement floors should be adequately illuminated according to the nature of the work being performed.
- In workplaces with noisy environments, after conducting noise measurements, appropriate ear protectors should be selected based on the intensity and nature of the noise. All employees exposed to noise should wear them continuously.
- In work conducted adjacent to areas with potential for falling from height, such as open elevator shafts or plumbing chases without guardrails, employees must wear fall-restraining or fall-arresting safety harnesses and be securely anchored to a strong anchorage point, regardless of the duration of the task.
- During work conducted near edges such as roof parapets, building edges, or plumbing chases where there is a risk of falling from height, necessary precautions must be taken to prevent injuries from falling materials to lower levels.
- During activities carried out at height, collective protection equipment and equipment such as appropriate stairs and access platforms, fall prevention guardrails in accordance with standards, work platforms and scaffolds should be used so that employees can safely access their workplaces and work safely against falling from heights.
- In cases where collective protection measures cannot be applied, fall arrest equipment will be used together with a vertical or horizontal lifeline connected to anchor points.

- When the "**Free Fall distance**" is not sufficient, the safety belt used by the employee will not provide protection. The level difference between the ground and the Anchor point must be 6 meters or more. In cases where the distance to the ground is less, the use of "fall arrest" equipment is not allowed. In this case, “retractable fall arrester” will be used.
- During work in areas like roof, terrace etc., personal fall limiting systems or positioning type safety belts will be used.
- During prolonged assembly work where both hands are used and climbing on ladders poses a risk of falling from height, it is advisable to use a suitable mobile scaffold or work platform instead of a ladder for safety.
- It is prohibited to work by stepping outside scaffolds or work platforms, or by standing on guardrails.
- Access to and from the work platform or scaffolding will be via ladder. It is prohibited to climb on scaffolding elements for descent or ascent due to the risk of falling.
- During operations conducted with a basket crane, a vertical lifeline above worker should be installed to protect workers from falling from height. Additionally, a fall arrest device should be used in conjunction with a safety harness.
- Commissioning and provisional acceptance procedures will not commence until construction activities, including electrical installation, and testing processes are completed.
- Before commissioning, experts will conduct a risk assessment to identify all systems that need to be isolated and taken out of service, and they will communicate this information to the personnel responsible for operations.
- Before starting machines/equipment and systems, the "Pre-Commissioning Safety Checklist" will be used to ensure that all safety measures have been taken. Acceptance procedures will then commence.
- Commissioning and acceptance procedures will be carried out by expert teams responsible for operations in accordance with the Lockout/Tagout (LOTO) system and Work Permit systems.
- For equipment receiving gas, compressed air, etc., for the first time, a safe area will be established around them to keep workers at a distance.
- During maintenance or repair work that requires temporary shutdown and restoration of gases, steam, compressed air, etc., LOTO rules (Lock out, Tag out) will be applied.
- After supplying gas, compressed air, water, etc., to the system, leakage will be checked using gas detection devices or similar equipment.

Table 18 Mechanical Installation Works Control Table

WORK TO DO:	Mechanical Works and Mechanical Equipment Assembly

WORKING METHOD

Technical Description and Requirements

Construction Technique and Technology

- It is explained in article 8.2.1.6 under the sub-heading of Mechanical Installation Works

Use of Work Equipment

- TOWER CRANE
- MOBILE CRANE, TRUCK MOUNTED CRANE, CHERRY PICKER
- PICKUP TRUCK
- MOBILE SCAFFOLD, STATIONARY SCAFFOLD
- POWER TOOLS (DRILL, GRINDING MACHINE, HAMMER, PLIERS, SCREWDRIVER, WRENCH, etc.)
- HAND TOOLS (METAL SAW, SILICONE GUN, STEEL TAPE MEASURE, INSULATION TAPE, UTILITY KNIFE)
- CORDLESS SCREWDRIVER/NUT DRIVER
- TORQUE WRENCH
- WELDING MACHINE
- PIPE THREADING MACHINE
- PLASTIC PIPE WELDING MACHINE
- MANOMETER, THERMOMETER AND SIMILAR MEASUREMENT DEVICES
- LIGHTING EQUIPMENT
- MOBILE EXTENTION CORD & ELECTRICAL DISTRIBUTION BOARD
- FORKLIFT, PALLET TRUCK, STACKING MACHINE

Use of Chemical Substances:

- ADHESIVE and SEALANTS, SOLVENTS, LUBRICANTS AND COOLANTS, PAINTS AND COATING, INSULATION MATERIALS

Access to the Work Area:

- Access road information is provided in the form of plans under the heading "Pre-construction Information & Site Plans.".
  - The maximum speed within the campus is limited to 20 km/h for trucks.
  - The maximum speed within the campus is limited to 20 km/h for excavators and loaders.

Handling & Supply of Materials

- Details regarding the removal, transportation, and unloading of consumables and related technical materials are specified and explained under the subheading "General Construction Site Rules."

PPE- GENERAL	**Need for Trained Personnel**
• HELMET TS EN 397+A1 • EARPLUG TS EN 352-2 • PROTECTIVE GLASSES TS EN ISO 16321-3 • INSULATED GLOVES • EN 420 • INSULATED WORK SHOES 200J En 345 TS EN ISO 20347 • HALF FACE MASK, TS EN 140 • FULL BODY HARNESS EN 361 • ROPE BRAKING SYSTEM EN 353 • SAFETY HOOK EN 362 • FALL PREVENTION SAFETY ROPES • EN 355	• MECHANICAL ENGINEER • HEATING & NATURAL GAS INTERIOR INSTALLATION CONSTRUCTION PERSONNEL, LEVEL 3 (11UY0031-3) • WELDING OPERATOR, LEVEL 3 (11UY0016-4) • NATURAL GAS STEEL PIPE WELDER, LEVEL 3 (11UY0033-3) • ELECTRICAL INSTALLER, LEVEL 3 (15UY0241-3) • MOBILE CRANE OPERATOR, LEVEL3 (13UY0172-3) • POINTER, LEVEL2 (15UY0218-2)

Table 19 Mechanical Installation Works Risk Analysis

WORK TO DO	SOURCE of DANGER	RİSKS	PRECAUTION
Mechanical Installation Works	▪ Height	▪ Injury or death due to falling from height.	▪ Collective protection measures like guardrails, scaffolding consisting of pre-fabricated components, work platforms, safety nets, etc. in accordance with legislation and standards will be used. ▪ Appropriate tools and equipment will be used to ensure safe access for employees to places where they will work at height. ▪ In places where collective protection is not possible and the falling distance is sufficient, anchor points and lifelines will be provided and used with a fall arrest system (safety harness and lanyard) ▪ It will be ensured that personnel working at heights receive training on working at heights.
	▪ Tubes containing compressed gases such as Oxygen, Acetylene, LPG, etc.	▪ Fire resulting from explosion	▪ Oxygen and acetylene cylinders should be kept away from heat sources and direct sunlight. ▪ Cylinders should be stored securely upright, in well-ventilated dry areas, and away from combustible materials. ▪ These cylinders and their associated equipment should be free from oils and similar substances. ▪ A flashback arrestor will be installed separately for combustible and oxidizing gases behind the torch. ▪ Burnt, worn-out hoses, and damaged fittings will be replaced. ▪ Electric motors that produce sparks must not be used in areas where explosive, flammable, or combustible gases are present.
	▪ Fixed equipment (bench drill, saw, pipe bending machine, pipe threading machine etc.)	▪ Loss of limb due to hand or finger entrapment, or death due to electric shock	▪ Equipment will not be used by unauthorized personnel. ▪ Equipment usage instructions will be kept in the work area. ▪ On/Off and emergency stop buttons will be in working condition. ▪ Full and proper protective machine guard will be available for moving parts. ▪ Planned maintenance of the equipment will be performed.

WORK TO DO	SOURCE of DANGER	RİSKS	PRECAUTION
			▪ The equipment chassis will be grounded. ▪ Suitable personal protective equipment (PPE) according to the instructions will be used.
Hot Works (cutting, grinding, heating, welding, etc.)	▪ Equipment and tools used in Hot Works	▪ Burns on the body, fire hazards, smoke inhalation, inhalation of metal fumes	▪ The equipment to be used in hot works will be checked to ensure it is sturdy and safe. ▪ All flammable materials will be moved at least 10 meters away from the work area. ▪ Exposed levels (voids etc.) beneath the area where hot work is being conducted will be inspected and cleared of flammable materials. ▪ To prevent sparks and slag from escaping the area where hot work is being performed, welding screens or fire-resistant barriers will be used as protective partitions. ▪ Portable welding screens or shields will be used to protect other workers in the welding area. ▪ To prevent the accumulation of toxic substances, the work environment will be adequately ventilated during welding and cutting operations. ▪ If adequate airflow cannot be ensured in enclosed spaces, respiratory protection will be used against toxic substances ▪ During Hot Works, a portable fire extinguisher or, if available, a fire hydrant hose will be kept ready. ▪ During Hot Works, necessary personal protective equipment (PPE) will be provided to employees to protect against hazards such as radiation, hot particles, sparks, slag, etc.
Work carried out using electric hand tools.	Elektric Hand Tools	Death, limb loss, injury	▪ Hand tools will be used in accordance with the manufacturer's specified operating instructions. ▪ Protective equipment (such as machine guard, shields) that should be used with the tools will be provided. ▪ Non-double insulated tools will be connected to an earthed line. ▪ Contact between electric hand tools or their cables with water will be prevented in the work area. ▪ The power cable will be protected against substances that could cause

WORK TO DO	SOURCE of DANGER	RİSKS	PRECAUTION
			damage such as oil, chemicals, and excessive heat. ▪ Malfunctioning or faulty tools will be reported to the responsible person and removed from the site. ▪ Electric cables that must pass over pathways will be enclosed in protective casing.
Manual handling of heavy materials into the work area.	Heavy loads carried by manual handling	Damage or injury to the body resulting from strain or overexertion.	▪ Appropriate personal protective equipment (PPE) will be used to protect body parts such as the head, hands, and feet during manual handling. ▪ Necessary precautions will be taken on floors that could cause slips or trips leading to falls while carrying loads. ▪ Proper body positioning will be ensured during manual handling. ▪ Precautions will be taken to prevent the load from toppling onto the worker during carrying or stacking. ▪ Barrels containing chemicals, industrial-type cylinders, etc., containing chemical substances, gas will not be transported by rolling on the ground. ▪ Obstacles on the transport route that could cause the load to collide, tip over, or snag will be removed.
Mechanical installation work done using ladders.	Ladders	▪ Injury or fracture from falling off a ladder	▪ In heavy, tiring, prolonged tasks where both hands are used, scaffolding will be used instead of ladders. ▪ Necessary precautions will be taken to prevent the ladder from slipping. ▪ Working by reaching out to the edges while on the ladder will not be allowed. ▪ The remaining length above where the ladder leans will be at least 90 cm. ▪ The ladder will be placed on a solid surface at the correct angle (65-70 degrees).
Mechanical installation work done using a mobile (portable) scaffold.	Mobile Scaffold	▪ Death or trauma resulting from falling from heights.	▪ Before starting work on the scaffold, the wheels will be locked. ▪ Mobile scaffolds will comply with TS EN 12811 standards. ▪ The scaffold legs will be placed on a flat and solid surface. ▪ Mobile scaffolding shall not be moved while there is anyone working on it or when there is material to fall over. ▪ Scaffold components will be checked for stability before each use.
Material Cutting Works	Grinding machine, Saw etc.	▪ Cutting on body parts such as hands, feet etc.	▪ Protective attachment such as machine guard, shield etc. must be

WORK TO DO	SOURCE of DANGER	RİSKS	PRECAUTION
			installed when using tools like grinding machine, metal saw etc. ▪ The Grinding machine will not be released from hand until it stops completely, and its electrical connection will be disconnected when not in use. ▪ Equipment needing repair or maintenance will not be used on site.

8.2.2 Energy Efficiency

8.2.2.1 Solar Power Plant Works

For work related to energy production with a monocrystalline PV system on the roof, the following rules will be obeyed:

- All work must be carried out under the supervision of a qualified Electrical and/or Electronics Engineer
- All personnel involved in the work must have received training in working at heights
- All personnel involved in the work must use full-body safety harnesses and fall prevention equipment.
- Horizontal life lines must be installed on roofs for the connection of fall prevention equipment.

Figure 12 Representative Image of Movement Restrictor (Fall Preventer)

- It is mandatory for the truck and mobile crane to act in accordance with the traffic action plan when moving and lifting all panels and bringing them to the roof.
- Securing the transport line in lifting and transportation operations of the mobile crane (preventing entry into areas with a risk of falling).
- Inspection reports of the mobile crane, hoist, and sling should be checked, and their compliance should be verified.
- The operator controlling the mobile crane must have an operator certificate, which should be checked and verified.
- Personnel installing guiding ropes and supporting slings must have a Signaler Level 2 (15UY0218-2) Slinger Training certificate.
- All electrical hand tools (mobile concrete mixer, vibrator, concrete pump, etc.) must undergo PAT tests. PAT test reports will be requested and checked before work. During field inspections, the presence of PAT control and approval labels on electrical devices will be verified. Devices without compliance labels are not allowed for use. (Extension cables are also included in this scope.)
- Personnel working on electrical installations must have a minimum of Level 3 Electrical Installer (15UY0241-3) certification.
- Personnel involved in the assembly of electrical panels and boards must have a minimum of Level 3 Electrical Panel Assembler (12UY0075-3) certification.

- Torque-controlled screwdrivers and tightening equipment must be used during the assembly of electrical panels/boards. Appropriate tightening forces should be predetermined based on the type of switchgear or the dimensions of screws and nuts and communicated to the responsible personnel.
- The grounding line of the electrical system must be reported by authorized Electrical or Electrical Electronics Engineers.
- Insulated work gloves (suitable for low voltage conditions) and insulated work shoes must be used to protect against electric shocks.

Table 20 Building Roof Top PV Works Control Table

<table>
<tr><td>Work to do:</td><td>Establishment of Photovoltaic Energy Facility</td></tr>
<tr><td colspan="2">WORKING METHOD</td></tr>
<tr><td colspan="2"><u>Technical Description and Requirements</u>
Construction Technique and Technology
– Panel fixing lightweight construction will be secured to the roof with drilling and fastening sets using screw nuts. The panels transported to the roof by a mobile crane will be fixed to the mentioned construction in accordance with the project, and connection cables will be drawn. Energy and grounding cables, connected by connectors, will be linked to the inverter and solar power plant panel installed on the main panel.
Use of Work Equipment
– Truck
– mobile crane
– Load carrying equipment (eyebolt, sling, hook, chain)
– torque wrench
– cordless drill
– Screwdriver set
– multimeter
– Cable cutting stripping hand equipment (chisel, pliers, pliers nose etc.)
– Silicone gun
Use of Chemical Substances
– Silicone
Access to Workspace
– The access road is given in plan form under the title of General Construction Technique.
• The maximum speed for trucks within the campus is limited to 20 km.
• The maximum speed for mobile cranes within the campus is limited to 20 km.</td></tr>
<tr><td>PPE - GENERAL</td><td>Need for Trained Personnel</td></tr>
<tr><td>1. EN 397 HELMET
2. EN 420 INSULATED GLOVES
3. EN 345 INSULATED WORK SHOES 200J
4. EN 340 GENERAL WORK CLOTHES
5. FULL BODY SEAT BELT (EN 361)
6. ROPE BRAKING SYSTEM (EN 353)
7. SAFETY HOOK (EN 362)
8. FALL PREVENTOR (EN 355)</td><td>1. ELECTRICAL ENGINEER
2. ELECTRONICS ENGINEER
3. TRUCK DRIVER with a CLASS C driver's license
4. MOBILE CRANE OPERATOR, LEVEL3 (13UY0172-3)
5. POINTER, LEVEL2 (15UY0218-2)
6. ELECTRICAL INSTALLER, LEVEL 3 (15UY0241-3)
7. ELECTRICAL PANEL ASSEMBLER, LEVEL 3 (12UY0075-3)</td></tr>
</table>

Table 21 Building Top PV Works Risk Analysis

WORK TO DO	DANGER	RISK	PRECAUTION
Transportation of materials	Truck	Injury, death as a result of traffic accident	▪ The truck will be operated by employees holding a Class C driving license. ▪ The urban speed limit will not be exceeded (50 km/h). ▪ The speed limit within the building campus area is restricted to 20 km/h. Movements and maneuvers within the area will be observed by the Occupational Safety and Health (OSH) specialist.
Transportation of materials	PV panels and mounting parts		▪ All materials will be placed evenly in the truck bed, considering the center of gravity. ▪ The units will be secured with straps. ▪ Assembly parts will be transported packaged on a pallet. ▪ The truck side and rear doors will be closed and secured.
Transport and unloading of materials	Mobile Crane and lifting equipment	Injury or death due to PV panels or parts falling over	▪ The Mobile Crane Operator (Cert. No: 13UY0172-3 | Level 3) is authorized to use the crane. ▪ Rigging and guidance will be performed by signalers with authorized signaling certificates. ▪ The crane's periodic inspection report will be checked and verified by the HSE specialist before work (it will be requested to be obtained within a maximum of 6 months). ▪ Periodic inspection reports for straps, chains, hooks, etc., will be checked and verified by the HSE specialist before work (it will be requested to be obtained within a maximum of 6 months). ▪ Straps, chains, hooks will be visually inspected before work. Their lifting capacity and physical condition will be confirmed. ▪ The mobile crane's hydraulic stabilizing legs will be secured to the ground. ▪ Before lifting operations, the main boom angle of the mobile crane and lifting capacities related to that angle will be checked. ▪ The signaler will guide the load through a control rope. ▪ Access to the work area will be restricted during lifting and transportation operations. Passing under the load is prohibited. ▪ Warning signs will be installed. ▪ The work will be subject to the WORK PERMIT SYSTEM.

WORK TO DO	DANGER	RISK	PRECAUTION
Assembly work	working at height	Dead or Injury due to falling from height	▪ T-type safety netting or edge protection railing will be installed to prevent the fall of large parts and workers. ▪ According to TS EN 1263-2 standard, the width of the T-type safety net should be at least 2 m, and the vertical installation height should be a maximum of 1 m. ▪ Workers must have received Working at Heights with Rope Access Training before starting work. These training sessions will be provided at a minimum by experts holding the IRATA (Industrial Rope Access Trade Association) International Level 2 Certificate. ▪ During work on the roof, especially when working near the edge where the risk of falling is high (within 1 m from the edge), restraint systems (horizontal lifelines) will be used. ▪ Materials to be assembled will not be held at the edges, and during non-working hours, they will be secured to the ground with a free material restraint net. ▪ The perimeter of the building where assembly will take place will be marked with safety tapes, preventing the entry of workers and third parties.
Cutting off line energy via electrical panel	Power board, line cable	Injury or death as a result of the load falling during lifting, carrying and lowering	▪ Panel intervention will be carried out under the supervision of an Electrical or Electrical Electronics Engineer, with a minimum Electrical Panel Assembler (Cert. No: 12UY0075-3 | Level 3). ▪ After the power is cut off, it will be verified with a multimeter that there is no energy in the neutral and ground lines. ▪ The panel in question will be locked and tagged. ▪ The LOTO (Lockout/Tagout) key for the lock system will be held by the technician who locks it. It is forbidden to give this key to anyone else before the work is completed. ▪ Before disconnecting device, connections and making new connections, it will be verified again with a multimeter that there is no energy.

WORK TO DO	DANGER	RISK	PRECAUTION
Cutting off the line energy and re-energizing it via the electrical panel	Power board, line cable	Fall from height, material fall	▪ Panel intervention will be carried out under the supervision of an Electrical or Electrical Electronics Engineer, with a minimum Electrical Panel Assembler (Cert. No: 12UY0075-3 | Level 3). ▪ During electrical works, 1kV insulated gloves in accordance with EN 60903:2003 standard, insulated electrician shoes in accordance with EN 344 standard, and an insulated mat (EN 60243-1) or table (EN 60243-1) will be placed on the ground. ▪ The work will be carried out by a minimum of two technical workers. These individuals will not come into contact with each other during the work. ▪ Technical personnel who will perform the work will be provided with training on the effects of electric shock and initial intervention, and a practical exercise will be conducted.
PV Panel and construction Installation	Assembly works	Injury or death due to electric shock due to unauthorized switching on of the energy by other people or technical problems	▪ PV panels and construction assembly will be carried out by a Machine Assembler (Cert. No: 12UY0105-3 | Level 3). ▪ Throughout the assembly, a helmet and general protection gloves will be used to prevent head and hand injuries.

9. Determination of Risks & Control Measures

9.1 Determination of Risks and Control Measures Affecting the General Construction Site

The plot of land where the surgical hospital will be constructed has been examined, and potential site risks have been identified. The risks determined as a result of this examination are listed below item by item. Objective evidence related to these items is provided under the section 6.2 "Pre-Construction Information & Site Plans" in this report.

- The areas mentioned below must be inspected by the Contractor's OSS, and if necessary, additional safety measures must be communicated to the workers.
- Site risks may not be limited to these findings; if the Contractor encounters risky areas beyond these findings, they must immediately report this to the Main Contractor's OSS,

a) Precautions must be taken to prevent the overturning of construction machinery in areas with elevation differences and near excavation edges during transitions and maneuvers,
b) A separate road connecting to Millet Avenue is required for the access of construction machinery and logistics traffic to the construction site.

9.2 Determining Possible Business-Related Risks and Control Measures and Evaluating the Impact on Third Parties

As part of the project, risks related to the structural feasibility process are presented in tabular form under the heading “General Construction Rules and Management of Works”. Apart from the risks in question;

- In addition to these risks, the following points should be considered regarding accidents that may occur when workers access to the construction site and their working areas;
    - Actions must be taken in accordance with the Traffic Action Plans specified in the report.
    - All individuals inside the vehicle, including rear seat passengers, are required to wear seat belts.
    - Vehicle drivers must strictly adhere to traffic regulations and speed limits.
    - Visual checks, such as fuel, oil leakage, tire treads, and pressure status, must be performed by the driver before vehicle operation. The use of faulty or defective vehicles is prohibited. Identified defects will be immediately corrected or repaired
    - Passengers should not refrain from warning the drivers if they encounter any behavior by the drivers that violates traffic rules. This should be immediately reported to the Subcontractor's OSS
- The maneuvers of trucks, drilling machines, and other construction machinery, particularly within and around the construction site, inherently carry risks. Before site access during the mobilization phase, the work areas, road levels and slopes, road widths, and approach boundaries should be evaluated.
- Pedestrian movements should be taken into account when using cars, vans, trucks, and construction machinery around the construction site. Pedestrian crossings must be given

priority in all situations. The reverse maneuver warning sirens of trucks, vans, and construction machinery should be in working condition and will be checked before each use.

- Except in necessary cases, the use of trucks and construction machinery is not permitted during nighttime hours. In urgent situations, after the permission of hospital management, the work permit system will be activated, and permission will be requested from the OSS with a justification.
- Third parties and stakeholders should not be allowed to approach within 20 meters of drilling operations and machinery operations. For this purpose, safety barriers should be placed around the work area, and warning signs should be installed.
- The orthopedics building will continue to provide services throughout the project duration. The two-story steel structure building, which is used for English medical education, will be vacated before the project starts and will continue to operate in a more central location within the campus. Since this building is a steel structure, there will be no demolition during the relocation.
- The demolition of the psychiatric building and psychiatric building annex are planned to be completed before the project begins. The demolition work will be carried out by a separate contractor designated by the Beneficiary. During the demolition, all activities will be supervised by the Beneficiary, and information regarding the measures taken will be provided to the Administration. Since the demolition activity is considered part of the project-related work, the adequacy of the measures will also be monitored by the Project Implementation Unit.
- Necessary precautions must be taken against environmental impacts such as dust emissions and noise that occur during construction activities which may affect the immediate environment and may pose a risk to patients receiving service from health units, health staff and surrounding people.
- The buildings most affected by the construction are expected to be Orthopedics building and Çapa Science High School. Patients, staff and students in these buildings are expected to be affected by noise, dust and vibration caused by construction. In this context, to minimize the impact:
    - The construction site will be isolated from its surroundings as much as possible by surrounding it with curtains that prevent the spread of noise and dust emissions.
    - In hot and dry weather, dust formation will be prevented by irrigation with a sprinkler.
    - The speed limit for construction equipment is set at 20km/h.
    - Sounding the horn is prohibited on the construction site.

The new surgical building construction site will be separated from the Çapa Campus by physical barriers. A separate road route will be constructed from Millet Street for the entry and exit of workers, materials and work equipment. Apart from this, other activities such as construction of monoblok, Demolishment and moving of existing building etc. other than this World Bank funded project are being carried out within the Çapa campus. In case these activities overlap with each other, coordination of these activities will be carried out by the beneficiary in order to prevent/eliminate accidents and injuries that patients, visitors and students may encounter. In order to avoid overlapping activities, the beneficiary will inform the administration, consultant and contractor on a weekly basis. According to these information meetings, the contractor will reorganize the activities to be carried out in a way to prevent overlaps.

9.3 Risks Arising from Overlapping Tasks in Terms of Time and Space

The Work Programs will be planned in a way that does not allow multiple teams from different disciplines to work together simultaneously in the same workspace, thus eliminating the risks that could arise from conflicting tasks. If delays occur in construction activities due to falling behind the work schedule, and if there is a risk of encountering conflicting tasks due to the acceleration of progress as per the work program, this situation will be evaluated in the coordination meetings among the relevant parties and the contractor will prepare new the risk assessment according to appropriate measures and reported to the consultant. After appropriate measures are taken to mitigate potential risks and upon approval by the Consultant, work will commence.

If the relocation of the English medical education building and the demolition of the psychology building and its annex building, to be carried out by the beneficiary, conflict with the project's construction activities, the contractor can take the following precautions to mitigate risks arising from building demolition and vacating tasks, ensuring they do not adversely affect project activities, workers, and the surrounding environment:

- Trucks carrying construction waste/debris must adhere to the traffic management plan rules prepared by the Contractor during access to the demolition site.
- During demolition, it should be ensured that necessary precautions are taken to prevent injuries to construction site workers and bystanders by controlling the area around the building. This includes checking whether measures such as restricting entry and exit to the demolition area, covering the impact zones of the building to be demolished with safety screens, and using warning signs and alert boards have been implemented.
- If there is suspicion or knowledge that the building to be demolished contains asbestos-containing materials, before starting work, materials potentially containing asbestos must be identified, laboratory tests conducted, and compliance ensured with the provisions stated in the "Regulation on Health and Safety Measures in Asbestos Work" (Official Gazette Date: 25.01.2013, Official Gazette Number: 28539) to prevent exposure to asbestos dust.
- During the demolition process, it is mandatory for construction site workers to use dust masks to protect themselves from demolition dust.

10. Determining Work Equipment Needs and Specifications

- The contracting firm must determine all devices and equipment it will use during the work, specifying safety directives[4] (CE Marking Regulation), relevant standards,[5] and providing a list along with periodic inspection reports to the Consultant.
- All electrical devices and equipment must undergo Portable Appliance Testing (PAT), and their electrical suitability must be indicated by PAT approval labels.

10.1 Determination of Protective Equipment Needs

10.1.1 Collective protection Systems

Table 22 List of Collective Protection Systems

TYPE OF PROTECTION	PLACE OF USE	DURATION OF USE	STANDARDS
SAFETY STRIP	RISKY WORK AREAS (OBJECTS FALLING FROM HEIGHT, USE OF WORK MACHINE, RISK OF FALLING, WORKING WITH ELECTRICITY, CARRYING HEAVY LOAD)	Until the local work is completed.	-
ACCESS / FALL RESTRICTIVE GUARDRAIL	EXCAVATED AREAS, EXTERIOR BUILDING EDGES,	Until the local work is completed.	TS EN 13374+A1
LIFELINE	ON WORKING PLATFORMS, WORKS ON THE ROOF, WORK AT HEIGHT, SUSPENDED SCAFFOLD	Until the local work is completed.	TS EN 795
MOBILE SCAFFOLD, STATIONARY SCAFFOLD	ALL ACTIVITIES CARRIED OUT AT HEIGHT	Until the local work is completed.	TS EN 12810-1 TS EN 12811-2
SAFETY NET	THE DEEP SPACE CREATED BY THE ELEVATED HEIGHT (TO BE DECIDED)	Until the exterior works in the dining hall are completed.	TS EN 1263-2

[4] Relevant Directives;
- MACHINERY SAFETY REGULATION (2006/42/EC)
- REGULATION ON ELECTRICAL EQUIPMENT DESIGNED FOR CERTAIN VOLTAGE LIMITS (2014/35/EU)
- PRESSURE EQUIPMENT REGULATION (2014/68/EU)
- REGULATION ON GAS-BURNING DEVICES (2016/426/EU)

[5] Relevant standards (must be reviewed separately for each device.)
- TS EN ISO 12100 Safety in machinery - General principles for design - Risk assessment and risk reduction
- TS EN 60204-1 Safety in machines – Electrical equipment of machines – part 1: General rules
- TS EN 60335-1 Safety rules - For electrical devices used in homes and similar places - Part 1: General rules
- TS 1203 EN 286-1 Tanks – Simple – Non-flammable – Pressurized
- TS 10116 Cranes – Test and inspection methods
- TS ISO 9927-1 Cranes-Inspections-Part 1: General

10.1.2 Personal Protective Equipment

Table 23 Personal Protective Equipment

DEFINITION	CATEGORY	MAINTENANCE/ RENOVATION PERIOD	MAX USAGE TIME	STANDARDS	COLOR CODE
SAFETY HELMET	II	1 YEAR	CONTINUALLY	TS EN 397+A1	White: Engineer Yellow: Worker Red: OSS Green: ERT[6]
EAR PROTECTOR EARPLUG	II	DAILY	DURING NOISY OPERATION (³80dB)	TS EN 352-1 TS EN 352-2	-
PROTECTIVE GOGGLES	II	3 MONTHS	DURING ANY WORK POSING RISK OF OBJECTS INTO THE EYES AS SPECIFIED IN THE RISK ANALYSIS	TS EN ISO 16321-3	-
GENERAL PURPOSE WORK GLOVES	II	3 MONTHS	CONTINUALLY	TS EN ISO 21420	-
SAFETY SHOES	II	1 YEAR	CONTINUALLY	TS EN ISO 20347	-
HALF FACE MASK	II	DAILY	DUSTY WORK	TS EN 140	-
FULL-BODY SAFETY HARNESS, ENERGY ABSORBER LANYARD	III	1 YEAR	ALL KINDS OF WORKING AT HEIGHT	TS EN 361 TS EN 355	-
FALL ARRESTOR, FALL PREVENTIVE EQUIPMENT AND LIFE LINES	III	1 YEAR	ALL KINDS OF WORKING AT HEIGHT	TS EN 353-1 + A1 TS EN 353-2	-
RETRACTABLE FALL ARRESTOR	III	1 YEAR	ALL KINDS OF WORKING AT HEIGHT	TS EN 360	
INSULATED GLOVES AND WORK SHOES	III	3 MONTHS	ELECTRICAL WORKS	TS EN ISO 21420	-

[6] EMERGENCY RESPONSE TEAM

11. Work Permit System

The activities subject to the work permit system are listed below:

- All kinds of Night Works
- Working at Height
- Hot Works
- Commissioning and Acceptance (Electrical, Mechanical Systems)
- Any activities subject to LOTO Rules

Under this project scope, working in confined spaces is not anticipated. However, in cases where there is a need to work in confined spaces, even for partial or simple tasks, the work permit system will be activated.

The request for a work permit is made by submitting the "Work Permit Form," filled out by the Activity Supervisor, for approval. Activities dependent on a work permit may commence with approval from the Contractor's OSS (Occupational Safety Specialist) approval. Activities without approved work permits cannot commence.

Alongside the Work Permit Form, checklists specific to the activity, such as the Working at Heights Control Form, shall be utilized.

A copy of the approved Work Permit Form and its attachments shall be kept at the work site. Daily site inspections will be conducted throughout the duration of the activity. If any condition is found to be contrary to the written statements in the Work Permit Form, the Work Permit will be revoked.

Especially during commissioning and acceptance procedures, for safety of the work, heat, gas, electricity isolation of the area will be implemented. LOTO rules will be applied to prevent the unintended use of the implemented measures.

Necessary personal protective equipment (PPE) must be provided completely and used in a disciplined manner. Before starting work, the PPE to be used should be visually inspected, and if any physical defects or signs of expiration are detected, they must be immediately replaced with new ones. Under no circumstances will unsuitable PPE be used.

Individuals without professional qualifications cannot participate in work that requires a permit. Therefore, professional qualification certificates related to the specific work must be kept in the employees' personnel files and submitted to the Consultant upon request. The validity of professional qualification certificates must be verified before commencing work. Individuals with expired or needing renewal certificates will not be approved for fieldwork.

11.1 Use of Form

The "Work Permit Form" will be filled out by the Activity Supervisor and submitted for OSS approval.

WORK PERMIT FORM

Company Name	Permit No.	Request Date	Starting Date Hour	Finishing Date Hour

Location to Work	**Type of Activity Subject to Work Permit**
	☐ Night Work ☐ Working at Height ☐ Hot Works ☐ Commissioning/Test/Acceptance works

ACTIVITY DESCRIPTION

LIST of EMPLOYEES		
Name Surname	T.C. Identification Number	Occupation

Personnel Protective Equipment to be Used		**Constr. Machinery, Equipment, Tools**
☐ Safety Shoes	☐ Shock Absorber Lanyard	1.
☐ Safety Shoes (Electrician)	☐ Half Face Mask	2.
☐ Helmet	☐ Half Face Respirator	3.
☐ Safety Gloves	☐ Earplug	4.
☐ Werder Gloves	☐ Ear Protector	5.
☐ Gloves (low voltage)	☐ Raincoat	6.
☐ Gloves (high voltage)	☐ Boot	7.
☐ Face Shield	☐ Welder Head Mask	8.
☐ Safety Goggles	☐ Welder Hand Mask	9.
☐ Safety Harness		

PERSONAL PROTECTIVE EQUIPMENT TO BE USED DURING WORK MUST BE MARKED. IT SHOULD BE REMEMBERED THAT MULTIPLE SELECTIONS MAY BE MADE, AND A VISUAL INSPECTION OF THE PPE IN QUESTION SHOULD BE CONDUCTED BEFORE MARKING.

DECLARATION *I declare that I understand and accept responsibility for the safe conduct of the activity described above.*		
A comprehensive inspection of the work area was conducted, and potential hazards were identified.	☐ Y	☐ N
All necessary measures to mitigate the risks associated with the activity have been ensured.	☐ Y	☐ N
All personnel have received appropriate training and possess the necessary skills related to the activity.	☐ Y	☐ N
The personnel's Professional Qualification Certificates are available in their personnel files.	☐ Y	☐ N
The work area has been properly isolated from unauthorized personnel.	☐ Y	☐ N
Emergency procedures (rescue, first aid, etc.) related to this activity are known.	☐ Y	☐ N
***Attachments**: If there are documents and records that need to be submitted to the Consultant along with the work permit request (Professional Qualification certificate, Risk Assessment, Site Inspection Forms, etc.), they will be included in this form.*		

Person Requesting Work Permit			**Work Permit Approval**		
Name Surname	Date	Signature	Name Surname	Date	Signature
Notes:					

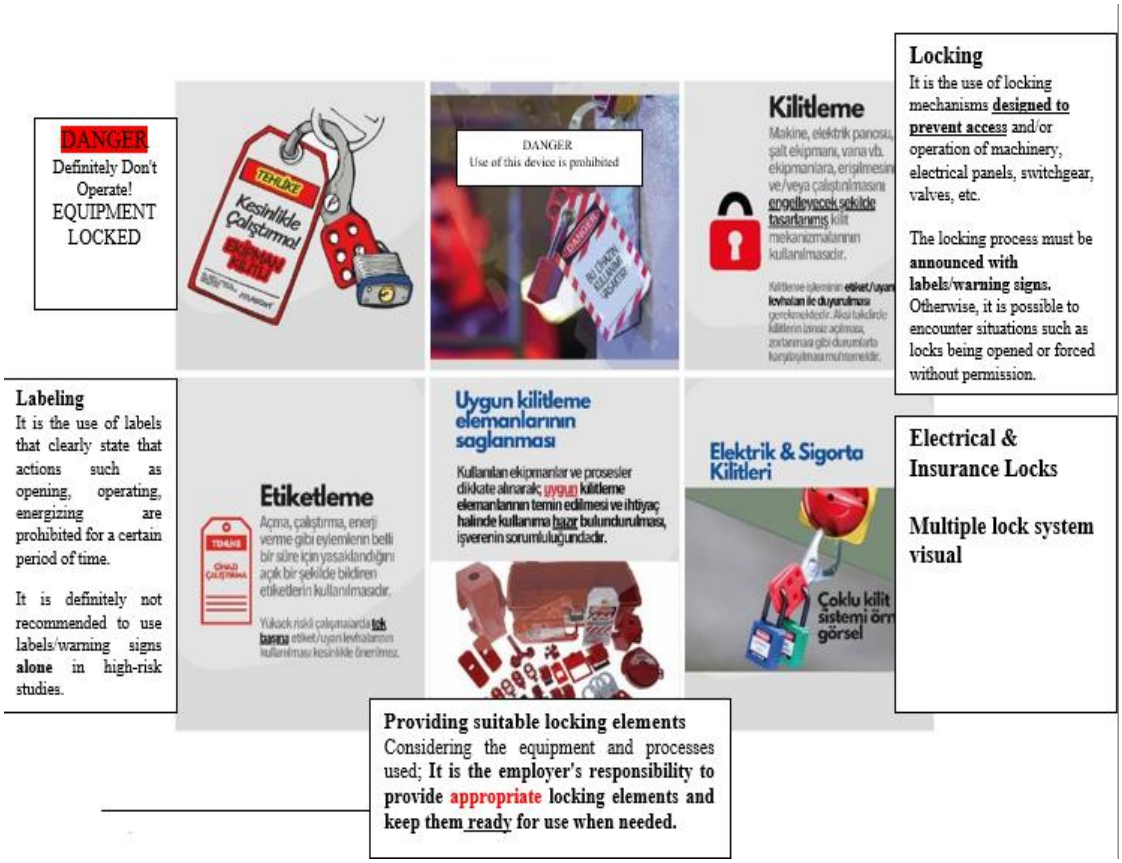
CLOSING WORK PERMIT	
Request Maker	**Approver**
☐ Activity Completed ☐ Not Completed	☐ work permit closed ☐ work permit cancelled
Date, Hour:	Date, Hour:
Signature:	Signature:

12. LOTO System

Energetic Systems and devices are used in controlling, maintaining, and replacing natural gas lines, and during these operations, there's a risk of unexpected energy or gas release, operational issues, electrical shock, fire, explosions, etc. To mitigate these risks, physical barriers and informational tags are used together, referred to as LOTO[7].
During these operations:

- It is mandatory for all personnel involved in the task to receive lockout/tagout training.
- The necessary lockout/tagout equipment must be provided and readily available by the contracting company.
- The neutral and ground lines of the devices should also be disconnected from the bus/connection point. This helps prevent electrical shocks from other systems/devices.
- Valves feeding the section that will be worked on to release energy due to pressure must be closed and locked. Existing pressure should be vented with pressure relief valves or discharged safely.

Figure 13 Lockout - Tagout Training Sample



[7] lockout/tagout

13. Observation and Inspection

A minimum checklist, as presented below, will be used for routine field inspections. Inspection forms will also be prepared by the contractor as per the nature of the work.

Table 24 Occupational Health & Safety Control Checklists

NO	SUBJECT OF CONTROL	YES	NO	N/A	NOTES
HOUSE KEEPING AND ORGANIZATION OF CONSTRUCTION SITE					
01	Is there any material, equipment, waste, etc., that would obstruct the walking and escape routes, passageways, and stairways?				
02	Are there any obstacles (cables, hoses, etc.) on the walking paths that could cause employees to trip and fall?				
03	Are the surfaces of the walking paths arranged in a way that will not cause tripping and falling?				
04	Are there Hazard, Warning, and Mandatory signs and notices? Are they posted in visible places?				
05	Are there illuminated emergency exit signs indicating evacuation and escape routes?				
06	Are the wastes generated during activities segregated according to their type and transferred to the waste area?				
07	"Are the used hand tools and leftover materials removed from the work area at the end of the job?"				
08	Are materials and hand tools kept away from building edges, shafts and openings, platform edges, and excavation pits to prevent them from falling from heights?				
09	Have necessary measures been taken to prevent materials from tipping over or flying away in windy conditions, such as on roofs or building edges?				
10	"Are sharp, pointed objects or similar debris removed from the work areas?"				
11	"Are flammable substances used in the field (such as thinner, gasoline, etc.) and oils stored in suitable containers to prevent spills and fire hazards?"				
12	"Are flammable substances like paint, thinner, and hazardous chemicals stored in their original packaging and labeled?"				
13	"Have necessary precautions been taken against slipping on wet surfaces during rainy weather?"				
14	"Have walkways, ramps, platforms, scaffolds, and stairs been cleaned of mud, oil, or other substances that could cause slipping?"				
15	"Are MSDS (Material Safety Data Sheets) available for the chemicals used on site?"				
16	"Are hazardous chemicals stored properly?"				

NO	SUBJECT OF CONTROL	YES	NO	N/A	NOTES
ELECTRICAL SAFETY					
01	Are there residual current devices (RCDs) in the electrical panels?				
02	Are the electrical panels locked and accessible?				
03	Do the panels have grounding? Has grounding measurement been conducted?				
04	Is there a sign on the front panel of all electrical panels stating 'Danger: High Voltage - Authorized Personnel Only'?				

05	Is the equipment and installations properly grounded and are grounding measurements conducted at regular intervals?				
06	Are there any broken or damaged electrical sockets and extension cords?				
07	Are energy-carrying cables crossing roads protected from being crushed or damaged?				
08	Is the generator undergoing regular maintenance?				
09	Are devices and components carrying electricity effectively isolated from contact by employees at all times?				
10	Are the installation, maintenance, and repairs of electrical equipment, power cables, and electrical facilities carried out by certified electricians?				

NO	SUBJECT OF CONTROL	YES	NO	N/A	NOTES
	SAFETY WHEN WORKING WITH HAND TOOLS				
1	Are safety attachment of Equipment (such as safety guards and protective shield used when required with tools?				
2	Are non-double insulated tools connected to a grounded line?				
3	Are there any damages to the cables, plugs, and sockets used with the tools?				
4	Is contact between electrical hand tools or their cables and water prevented in the work area?				
5	Is contact between the power cable and surfaces that could cause damage prevented? Is it protected against oil, chemicals, and excessive heat?				
6	Are defective or malfunctioning tools reported to responsible personnel and removed from the site?				
7	Are necessary precautions taken to prevent clothing, hair, etc., from becoming entangled in rotating tools such as electric drills?				
8	Is the electrical connection of the hand tool disconnected after use?				
9	Are necessary precautions taken to prevent hand tools from falling and causing accidents during work at heights?				
10	Is the hand tool being used in accordance with the manufacturer's specified instructions?				

NO	SUBJECT OF CONTROL	YES	NO	N/A	NOTES
	GENERAL MACHINE & EQUIPMENT SAFETY				
1	Is there a periodic inspection report for the machinery/equipment being used?				
2	Are scheduled maintenance checks regularly performed on the machinery/equipment being used?				
3	Do construction machines (such as forklifts) have reverse alarms?				
4	Have technical inspections been conducted on rubber-wheeled machines?				
5	Are the lighting fixtures, warning signals, beacon lights, etc., in working condition?				
6	Does the equipment have a CE Compliance Certificate?				
7	Are the on-off switches and emergency stop button operational?				
8	Is there adequate and proper guarding for moving parts?				

9	Is the equipment body properly grounded?				

NO	SUBJECT OF CONTROL	YES	NO	N/A	NOTES
	PRESSURE VESSELS				
1	Are pressurized cylinders stored upright?				
2	Are pressurized cylinders secured to prevent them from tipping over?				
3	Are valve protection caps always in place on unused (empty or full) cylinders?				
4	Are cylinders stored according to gas types and whether they are full or empty?				
5	Are pressurized cylinders kept in a safe area against fire hazards?				
6	Are cylinder valves closed when the job is completed, or during transport to another location, or when they are empty?				
7	Are periodic inspections conducted for pressured vessels such as compressors and boilers?				
8	Are compressors adequately spaced? Are there any obstructions in front of them?				

NO	SUBJECT OF CONTROL	YES	NO	N/A	NOTES
	SITE GENERAL ARRANGEMENT AND PERSONAL PROTECTIVE EQUIPMENT				
1	Are entries/exits to the construction site controlled by security personnel?				
2	Is the construction site perimeter separated from other areas (traffic, pedestrian passage, etc.) with safety barriers? Are there directional and warning signs?				
3	Are the paths used by workers for pedestrian access to construction sites physically separated from roads used by machinery/vehicles?				
4	Do visitors entering the construction site do so after inspection and training by the HSE unit?				
5	Are visitors provided with PPE when entering the site?				
6	Are appropriate personal protective equipment (PPE) being used in the construction site and work areas for the activities being conducted?				
7	Are hazardous areas on the construction site clearly marked? Are existing warning signs adequate?				
8	Do vehicle drivers and heavy machinery operators adhere to the speed limits set for the construction site?				
9	Is a safety tape or barrier used to control entry and exit to the area where heavy machinery operates?				
10	Are there readily available and sufficient fire extinguishers in fire-sensitive areas?				
11	Are periodic inspections conducted on fire extinguishers?				
12	Is adequate lighting provided on the construction site? (Work areas, pedestrian paths, passages and stairs, offices, and auxiliary facilities, etc.)				
13	Are ear protection used when the noise level exceeds 80dB?				
14	Do the employees have OHS training documents, professional qualification certificates, employment and periodic health check certificates, and are they complete?				

Inspections carried out by the Consultant and Contractor with OHS Checklists similar to those in Table 24 or improved will be reported to the Project Implementation Unit at the intervals specified in OHS Monitoring Plan (Refer to Table 25). The Contractor will submit the reports in the specified format to the Consultant, and the Consultant will submit the final version of the reports to the International Finance Sourced Seismic Reinforcement Department of the Ministry of Environment, Urbanization and Climate Change.

Table 25 Occupational Health & Safety Monitoring Plan

What parameter to monitor?	**Where** to monitor parameters?	**How** will parameters be monitored?	**When** will the parameter be monitored (measurement frequency)?	**Why** will the parameter be monitored?	**Reporting**	**Responsibility**
	Renovation and Strengthening Works Site Preparation Activities					
Community health and safety management and implemented protection measures	Around the project site	Visual checks Field Control Availability of active Community Safety and Traffic Management Plan	At the beginning of the renovation/reinforcement works (first day) Every working day during project activities	Ensuring that health and safety risks and mechanical injuries to local residents are minimized	• Weekly	• Consultant • The Contractor

What parameter to monitor?	**Where** to monitor parameters?	**How** will parameters be monitored?	**When** will the parameter be monitored (measurement frequency)?	**Why** will the parameter be monitored?	**Reporting**	**Responsibility**
Community health and safety management and implemented protection measures	Around Çapa Campus	Visual checks Field Control	Every working day during the project activities	Ensuring that health and safety risks related with overlapping activities such as: 1. Construction of new surgery building 2. Demolishment and moving of existing buildings 3. Patient admission 4. Visitors admissions 5. Educational activities 6. Construction traffic 7. Others to local residents are minimized	• Weekly	• Beneficiary

What parameter to monitor?	**Where** to monitor parameters?	**How** will parameters be monitored?	**When** will the parameter be monitored (measurement frequency)?	**Why** will the parameter be monitored?	**Reporting**	**Responsibility**
OSH protection measures applied for workers on construction sites	Project site and buildings near the project site	Visual checks Field Control Availability of OHS plan	Every working day during the project activities	To minimize risks related to occupational health and safety of workers, especially protective equipment and clothing for workers who will remove asbestos-containing roof coverings. Compliance with the Occupational Health and Safety Law, relevant regulations, communiqués, circulars and other regulations.	• Weekly	• Consultant • The Contractor
Avoiding and minimizing safety and health risks for Project Affected Persons	In the building and at the project site	Visual checks	At the beginning of the renewal/strengthening work and continuously every working day	Prevent Post Activation Potential (PAP) injury due to inhalation of asbestos fibers or other construction dust	• Weekly	• Consultant • The Contractor
Start and completion time of renovation/reinforcement works and especially dismantling of existing parts containing asbestos	At the project site	Field inspection Review of document records Visual checks	Every day (In case asbestos is detected)	Avoiding environmental, health and safety risks Compliance with the Regulation on Health and Safety Measures in Working with Asbestos	• Weekly	• Consultant • The Contractor • Asbestos Removal Expert
	Renovation/Reinforcement Works Operation Process					

What parameter to monitor?	**Where** to monitor parameters?	**How** will parameters be monitored?	**When** will the parameter be monitored (measurement frequency)?	**Why** will the parameter be monitored?	**Reporting**	**Responsibility**
OSH protection measures applied for workers in the field (*working at height, working with hazardous substances, working with rotating equipment, working with electrical devices, etc.)*	Project site Buildings near the project site	Checking documents regarding relevant OSH Certificates and trained workers Visual checks for the use of protective equipment Implementation of the OSH Plan and site-specific Health and Safety instructions Field inspection Control of records	Before starting demolition work Every working day during the project activities	Minimizing risks to workers' occupational health and safety Compliance with the Occupational Health and Safety Law, relevant regulations, communiqués, circulars and other regulations	• Monthly	• Consultant • The Contractor
Job and working conditions	Project site	Final OHS Plan control Field inspection Complaint mechanism (feedbacks)	Every working day during the project activities	Compliance with the Occupational Health and Safety Law, relevant regulations, communiqués, circulars and other regulations	• Monthly	• Consultant • The Contractor

What parameter to monitor?	**Where** to monitor parameters?	**How** will parameters be monitored?	**When** will the parameter be monitored (measurement frequency)?	**Why** will the parameter be monitored?	**Reporting**	**Responsibility**
Manufacturing, Operation and Delivery (pipeline manufacturing& construction)	In Manufacturing and Building Fields	Visual checks Field Control Records Required Tests Control of Personnel Qualifications Adequacy by the relevant authority	During the relevant manufacturing process in the project and when the manufacturing is completed	Confirming that pipeline construction is complete before delivery. To prevent a possible disaster after production and delivery to the end user.	• Reporting	• Beneficiary Institution • Service Provider Institution OHS Department • Consultant • Contractor
Health and Safety records	Project site	Health and Safety construction site documentation control	Weekly	Ensuring that necessary Occupational Health and Safety records are kept at construction sites	• Monthly	• Consultant • The Contractor
Identifying asbestos-containing waste, packaging it properly, labeling it as hazardous waste	At project construction sites Before starting removal/dismantling work	Identification of asbestos-containing waste according to the waste list Field inspection Review of document records	Throughout the project lifecycle/Daily If detected	Regulation on Health and Safety Measures in Working with Asbestos	• Immediately (if detected) • Monthly	• Consultant • The Contractor

What parameter to monitor?	**Where** to monitor parameters?	**How** will parameters be monitored?	**When** will the parameter be monitored (measurement frequency)?	**Why** will the parameter be monitored?	**Reporting**	**Responsibility**
Vehicle and Pedestrian Safety	Project sites and access roads	Visual inspection Using appropriate signs and signals Site inspection Implementation of Community Safety and Traffic Management Plan	Daily	Protecting construction workers, their beneficiaries' employees, and local communities from injuries and deaths related to traffic accidents.	• Weekly	• Contractor • Consultant
	Renovation/Reinforcement Works Operation Process					
Health and Safety	Renovated/Reinforced buildings	Check the roof, windows, doors, leaks, etc. regular checks and maintenance	Regularly (throughout the life of the project)	Ensuring the health and safety of building residents/users	• Within 1 week after detection	İstanbul University Cerrahpaşa Rectorate
	Renovation/Reinforcement Works Operation Process					
Community health and safety management and implemented protection measures	Around the project site	Visual checks Field Control	At the beginning of the renovation/reinforcement works (first day) Every working day during the project activities	Ensuring that health and safety risks and mechanical injuries to local residents are minimized	• Weekly	• Consultant • The contractor

What parameter to monitor?	**Where** to monitor parameters?	**How** will parameters be monitored?	**When** will the parameter be monitored (measurement frequency)?	**Why** will the parameter be monitored?	**Reporting**	**Responsibility**
OSH protection measures applied for workers on construction sites	Project site and buildings near the project site	Visual checks Field Control	Every working day during the project activities	To minimize risks related to occupational health and safety of workers, especially protective equipment and clothing for workers who will remove asbestos-containing roof coverings Compliance with the Occupational Health and Safety Law, relevant regulations, communiqués, circulars and other regulations	• Weekly	• Consultant • The contractor
Avoiding and minimizing safety and health risks for Project Affected Persons	In the building and at the project site	Visual checks	At the beginning of the renewal/strengthening work and continuously every working day	Prevent Post Activation Potential (PAP) injury due to inhalation of asbestos fibers or other construction dust	• Weekly	• Consultant • The contractor

14. Employee Training

- All employees must receive training according to the minimum requirements stated in the "Regulation on the Principles and Procedures of Occupational Health and Safety Training of Employees" (Official Gazette Date: 15.05.2013, Official Gazette Number: 28648) and the "Hygiene Training Regulation" (Official Gazette Date: 05.07.2013, Official Gazette Number: 28698). Training records and certificates of Subcontractor personnel will be requested and checked.

  Occupational health and safety training records should include the personnel's name, position, start date, training titles, and dates, and these records should be listed and sent to the consultant Occupational Safety Specialist.

- For this project, all employees will undergo a minimum of 2 person-days of training based on this document and risk analyses. The training will be provided by Contractor and subcontractor Occupational Safety Specialists. Training records will be communicated to the Consultant.

- Employees must have completed Working at Heights Rope Access Training before starting work. This training will be provided by experts holding at least an IRATA (Industrial Rope Access Trade Association) International Level 2 Certificate.

Monitoring Personnel Health Conditions

- Periodic health reports of employees will be checked, and their fitness for the tasks will be verified through these reports.

- Health reports must list the personnel's name, position, start date, occupational health training titles, and dates. These records should be listed and sent to the Consultant Occupational Health Physician.

Personnel Professional Competence

- The required professional competence qualifications are specified in this document. The Contractor company must list all employees, including the personnel's name, position, start date, professional competence certificate, certificate date, and validity period. This list must be submitted to the Consultant Occupational Safety Specialist.

15. Emergency Preparedness

An emergency action plan, as per Article 11 of the Occupational Health and Safety Law No. 6331, will be prepared by the Contractor. This plan will contain specific parameters and instructions for emergencies, mapped and diagrammed. The prepared emergency action plan may vary or be applicable according to the envisaged emergency situations. Apart from emergency action plan prepared by the contractor, beneficiary will consider the emergencies related to overlapping works (ongoing and upcoming other works on the campus) and inform the administration and the consultant about the precautions that they will take.

During the construction of surgery hospital, potential emergencies and preventive measures that may be encountered are provided in the table below:

EMERGENCY	PREVENTIVE AND LIMITING MEASURES
Fire and Explosion	• Periodic maintenance and checks of electrical and grounding installations, lightning protection installations, generators, fire extinguishing, and fire detection and warning systems. • Restricting areas where smoking is allowed and marking these areas. • Removing dry grass and tree branches that can catch fire. • Having fire detection and warning systems (alarm, gas, smoke detectors, etc.) and keeping them in continuous working condition. • Periodic checks of the heating system and preventing unauthorized access to boiler rooms. • Proper labeling and storage of chemicals used. • Proper labeling and storage of chemicals. • Proper storage of flammable, combustible, and explosive materials away from heat sources. • Designating the locations of accessible installations such as gas valves and electrical panels for authorized personnel to intervene immediately in case of energy cuts. • Conducting environmental measurements.
Spread from Hazardous Chemicals	• Proper storage of chemicals according to their properties and hazards, preventing situations that may cause leaks, and ensuring adequate ventilation. • Preventing unauthorized personnel from entering chemical storage areas. • Providing employees with appropriate personal protective equipment according to standards and ensuring correct usage. • Posting Safety Data Sheets (SDS) in visible locations where chemicals are present in the workspace. • Having an intervention card for hazardous substances. • Conducting environmental measurements.
Poisoning	• Checking the expiration dates of food products. • Preparing meals under hygienic conditions. • Keeping materials such as plates, forks, trays, etc., clean. • Taking witness samples from meals. • Providing training to personnel serving meals. • Providing general hygiene training to all personnel. • Meal servers using appropriate gloves, caps, work clothes, etc.
Epidemic Disease	• Vaccination. • Preventive medications. • Pest control and disinfection. • Ensuring hygiene. • Establishing a First Aid Team and providing necessary training. • Regular checks of drinking water and water coolers. • Taking witness samples from meals.
Sabotage	• Establishing a security unit. • Installing security cameras in necessary locations for continuous monitoring. • Controlled entry and exit. • Keeping records of external persons, checking identities at entry, and issuing visitor cards. • Controlled opening of incoming shipments. • Checking of transport vehicles. • Restricting unauthorized access to high-security areas. • Adequate indoor and outdoor lighting.

Natural Disasters	• Strengthening the ground. • Securing cabinets and shelves, placing large tools and equipment in safe positions. • Checking the earthquake resistance of buildings. • Providing training to all employees on what to do in an earthquake. • Having an earthquake bag ready with first aid supplies, flashlight, batteries, radio, etc. • Checking and maintaining rainwater channels. • Prioritizing afforestation. • Portable obstacles for windows and doors in enclosed workplaces. • Using emergency valves for rapid and safe disconnection of electricity (electricity, gas, etc.) and assigning competent individuals. • Having equipment ready for use during and after disasters.
Occupational Accidents	• Providing occupational health and safety training. • Conducting health surveillance (periodic examinations and tests, etc.). • Providing additional training for tasks requiring special skills, such as working at heights, working in confined spaces, etc., and having reports demonstrating fitness for these jobs. • Keeping the Risk Assessment up to date and continuously monitoring the measures taken. • Investigating near-miss incidents and taking necessary measures to prevent their recurrence. • Conducting accident investigation and root cause analysis. • Not assigning personnel to tasks they are not qualified for. • Implementing an incentive/warning system for occupational health and safety and working on workplace safety culture. • Implementing an effective inspection mechanism. • Monitoring the correct and active use of Personal Protective Equipment. • Avoiding working alone. • Ensuring that personnel employed through service procurement are employed in compliance with occupational health and safety legislation. • Establishing a First Aid Team and providing necessary training.
Cyber Attacks	• Providing employees with training on cyber risks and security. • Installing and keeping antivirus and anti-spyware software up-to-date. • Using a firewall for internet connections. • Updating operating systems and applications. • Regularly backing up data and information. • Controlling physical access to computers and servers. • Ensuring the security and privacy of Wi-Fi and LAN networks. • Assigning individual usernames and passwords to each employee. • Creating authorization levels for accessing information within the network.
General	• Posting evacuation plans, entrance and exit of workplace buildings and extensions, floors, and evacuation paths at heights visible to employees. • Indicating the locations of fire extinguishing equipment and first aid materials and evacuation routes on the evacuation plan. • Determining the meeting place after evacuation and showing it on the plan. • Having suitable emergency escape routes and emergency exit doors with appropriate signs. • Placing appropriate signs indicating escape routes in visible places. • Establishing emergency response teams and providing necessary training. • Posting visible contact numbers for emergencies.

	• Parking vehicles in a way that allows forward movement. • Informing employees about possible emergencies and emergency plans. • Conducting regular emergency drills and ensuring the participation of all employees. • Informing customers, visitors, and other individuals present in the workplace about emergencies and emergency plans. • Keeping emergency plans up-to-date. • Keeping the equipment that emergency teams will use ready for use at all times. • Using a sound and/or light alarm system to alert employees in emergencies. • Marking the location of the First Aid kit, ensuring it is accessible to all employees, ensuring that it contains the necessary number and competence of materials, and continuously checking their expiration dates. • Providing accompaniment for the evacuation of the elderly, disabled, or pregnant individuals.

The contractor company must, at a minimum, prepare detailed emergency action plans regarding the above-mentioned issues and forward them to the Consultant OHS Specialist and Workplace Physician.

Muster Points

- Muster points have been determined for each structure and integrated into detailed plans. Emergency gathering areas have been determined taking into account earthquake risks and building dimensions. These locations are indicated using EMERGENCY GATHERING AREA SIGNS in the section titled "Pre-construction Information & Site Plans."

Emergency Response Teams and First Aid Personnel

The contractor and subcontractors must list the names, duties, start dates, dates of emergency preparedness training, and the expiry dates of the first aid certificates of the emergency response teams (ERT) and first aid personnel they have designated, considering legal requirements.

- All these teams must participate in emergency drills at least once, and the participation reports must be submitted to the Consultant OHS Specialist and the Occupational Health Physician.

16. Accident and Incident Investigation

The "Accident Notification Form" will be used for reporting accidents, incidents, and near-miss events that may occur in the field. For investigation purposes, the "Work Accident/Near-Miss Incident Investigation Form" will be utilized. These forms are provided below.

	ACCIDENT NOTIFICATION FORM	Notification Date	
		Notification No.	

VICTIM of the ACCIDENT			
Victim Name Surname		Accident Date	
T.C Identification No.		Accident Hour	
Company		Activity at time of Accident	
Department/Project		Hand Tools, Equipment Used at time of Acc.	
Occupation		Witness Name Surname	
Employm. Duration (day)		Witness Name Surname	

TIME of ACCIDENT			
☐ During Shift	☐ Overtime	☐ During Rest Period	☐ Temporary Duty / Visit

TYPE of ACCIDENT		
☐ Dead	☐ Lost Time (_____Days)	☐ Intervention in the Infirmary
☐ Loss of Limb	☐ Without Lost Time	☐ Medical Intervention in Hospital
☐ Property Damage	☐ Environmental Accident	☐ Occupational Disease
☐ Other (Specify)		

WHAT CAUSES the ACCIDENT HAPPENED			
☐ Slip	☐ Trip, Fall	☐ Fall from Height	☐ Get Stuck / Crash
☐ Cut / Stuck	☐ Hit / Splash	☐ Object Getting in the Eye	☐ Overexertion of the Body
☐ Material, Object Fall	☐ Electric Shock	☐ Fire	☐ Exposure to Cold / Heat
☐ Animal Attack	☐ Insect, Snake Bit	☐ Explosion	☐ Exposure to Radiation
☐ Contact with Chemicals	☐ Collapse	☐ Traffic Accident	☐ Natural Disaster
☐ Infectious Disease	☐ Poisoning	☐ Dead by Drowning	☐ Other:

TYPE of INJURY			
☐ Superficial wound, Scratch	☐ Bleeding Injury	☐ Deep and Open Wound	☐ Dismemberment Injury
☐ Sprain, Strain	☐ Bone Dislocation	☐ Bone Crack	☐ Bone Fracture
☐ Loss of Consciousness	☐ Electrical Burn	☐ Thermal Burn	☐ Chemical Burns
☐ Fainting, Shock	☐ Internal Bleeding	☐ Sun Stroke	☐ Body Freezing
☐ Injury to Muscles	☐ Shortness of Breath	☐ Acute Infection	☐ Acute Poisoning
☐ Other (Specify):			

BODY PARTS AFFECTED BY the ACCIDENT			
☐ Skull	☐ Face	☐ Ears	☐ Eyes
☐ Mouth	☐ Neck	☐ Arms	☐ Hands
☐ Legs	☐ Knees	☐ Feet	☐ Wrist
☐ Fingers	☐ Chest	☐ Belly/Abdominal Cavity	☐ Back/Waist
☐ Other (Specify):			

HOW the ACCIDENT HAPPENED? *(Write in Detail and Clearly)*

Notifier	**Superior of Notifier**	**Employer Representative**
Name Surname - Signature	Name Surname – Signature	Name Surname - Signature

WORK PLACE ACCIDENT, NEAR MISS INCIDENT RESEARCH FORM

Documents and Records Regarding the Accident
Photographs, sketches, diagrams, doctor's reports, witness statements, training records, etc. regarding the accident/incident. In traffic accidents, photocopies of the traffic accident report, alcohol detection report and expert reports, if any, will be sent along with this form. (See Annexes)

Risk Evaluation Related to Accident/Incident		
Environmental Conditions at the time of the Accident/Incident (weather, etc.)		
What PPE was used by the victim during the accident? Is it enough? Is it suitable?		
Has a risk assessment been made for the hazard that caused the accident/incident?	☐ Yes	☐ No
Have necessary precautions been planned against the risk arising from the hazard?	☐ Yes	☐ No
Have the planned measures been implemented?	☐ Yes	☐ No
Are the measures implemented sufficient?	☐ Yes	☐ No
Is the victim aware of the hazard and precautions taken?	☐ Yes	☐ No

How Did the Near Miss Incident Occur? What Would Be the Possible Consequences If the Near Miss Incident Resulted in an Accident? *(If it is a Near Miss Incident, please fill in)*
Medical Interventions and Examinations After the Accident *(If it is an Accident, please fill in)*
Visible (Obvious) Cause and Root Causes (*) Causing the Accident or Near Miss Incident

(*) We can find the root cause of an Accident or incident by asking the why question several times in a row regarding the source, action or situation that is the obvious cause of an Accident or Incident.

Example Accident; *Injury to the eye as a result of a burr (Obvious Cause = Burr) [Why did the burr get into the eye? No protective glasses used] [Why didn't the employee use protective glasses? The employee did not know that goggles were required while cutting.]*

[Why didn't he know? In the training given, this hazard and the preventive measures to be taken against this hazard were not mentioned.]

PREVENTIVE ACTIONS TO PREVENT THE ACCIDENT FROM OCCURING AGAIN			
Corrective/Preventive Action Definition	Responsible Person	Planned Date	Required Sources

Accident/Incident Investigation Team	Occupation / Title	Date/Signature

Major environmental accidents and workplace accidents (such as injuries resulting in death, environmental spills such as spills, etc.) that may occur during construction activities will be shared with the Consultant and CIASB on the same day; it will be reported to the Ministry of Labor and Social Security within 3 working days. CIASB will inform the World Bank about the accident within 48 hours. The contractor will send the accident report to CIASB within 30 working days along with the root cause analysis. CIASB will share this information with the World Bank simultaneously.

The Accident Notification and Investigation Forms will be completed in accordance with the specified rules below:

- Care should be taken to fill out all sections of the accident report completely and accurately.
- When determining how the accident occurred and identifying the root causes that led to it, extreme caution should be exercised. The accident should be thoroughly investigated from all aspects, and care should be taken to avoid using statements that could be misunderstood.
- (If applicable) At least 2 employees who witnessed the accident must be included in the Accident Notification Form, and their signed statements should be included as an attachment to the Accident Investigation Form.
- If the number of personnel who witnessed the accident exceeds 2, efforts should be made to select impartial individuals who can describe the accident accurately.
- Incident site photos, photos of injuries, photos of devices and equipment involved in the accident, and other objective evidence should be included as attachments to the Accident Investigation Report.
- During the accident, the Personal Protective Equipment (PPE) used by the personnel must be specified in the Accident Investigation Form. In this section, it is important to identify the PPE that was actually used by the personnel, not just the ones issued to them. A record of the PPE issued to personnel will be provided as an attachment to the Accident Notification Form.
- The measures to be taken immediately after the accident and the precautions necessary to prevent the recurrence of the accident will be specified in the Accident Investigation Form.
- If possible, the accident report should be completed by the personnel directly involved in the accident. In cases where this is not possible, a selected individual from the witnesses mentioned in the report will fill out this section. If there are no witnesses, then the employer or their representatives will be requested to complete this section in their own handwriting.
- The following documents must be included in the prepared Accident Notification Form as appendix:
    - PPE delivery report,
    - Participation forms and certificates regarding the training given until the accident date,
    - Orientation training form,
    - Certificates, diplomas regarding professional competence,
    - Health report showing suitability for the job,
    - Overtime work approval form (if the accident occurs outside working hours),
    - Pre-prepared warning letters (if related to the cause of the accident),
    - Records prepared regarding occupational health and safety,
    - SSI occupational accident notification form,

- Health report obtained after the accident,
- Physician's report indicating work disability,
- Insured job entry declaration.

It should not be forgotten that accidents can happen no matter what kind of precautions are taken. It is important to act calmly during and after the accident, both for the injured person and for the company. Therefore, it is recommended to conduct EMERGENCY RESCUE drills with dignity before fieldwork related to WORK ACCIDENTS/RESCUE OF INJURED PERSONS.

Post-accident measures: corrections that need to be made urgently and corrections aimed at eliminating the ROOT cause that caused the accident should be evaluated in two separate categories. After a work accident, it is essential to eliminate the elements that caused the accident in a way that will not be repeated.

Post-Accident Considerations;

- During inspections, necessary arrangements will be made in the field to facilitate inspectors' access to the site. All information and documents related to the injured person will be readily available. It should be noted that the access time to the information and documents requested by the inspector is crucial.
- The occupational accident notification to the Social Security Institution (SSI) will be made within a maximum of 3 days from the accident date. (Together with the visit report)
- If available, control reports of the machinery and equipment causing the accident and regular maintenance records will also be kept in the accident report for inspections.
- All documents kept in the Accident Report appendix will be copies. However, necessary preparations will be made to provide access to the original documents to the inspectors if requested.

17. OHS Budget

The OHS Budget presented below has been created for general informative purposes. It is assumed that the bid to be submitted by the contractor includes the budget necessary for taking measures related to occupational health and safety.

Table Estimated OHS Budget

	AMOUNT	UNIT	UNIT PRICE	VALUE
CATEGORY II HELMET (TS EN 397+A1)	150	AD.	₺110,00	₺16.500,00
CATEGORY II EARPLUG (TS EN 352-2)	130	AD.	₺70,00	₺9100,00
CATEGORY II PROTECTIVE GOGGLES (TS EN ISO 16321-3)	150	AD.	₺50,00	₺7.500,00
GENERAL PURPOSE WORK GLOVES (TS EN ISO 21420)	400	AD.	₺65,00	₺26.000,00
ELECTRICAL WORK GLOVES (LOW VOLTAGE) (TS EN ISO 21420)	14	AD.	₺750,00	₺10.500,00
SAFETY SHOES (TS EN ISO 20347)	165	AD.	₺900,00	₺148.500,00
ISOLATED SAFETY SHOES (LOW VOLTAGE) (TS EN ISO 20347)	15	AD.	₺1.100,00	₺16.500,00
HALF FACE DUST MASK	3000	AD.	₺15,00	₺45.000,00
HALF FACE RESPIRATOR (TS EN 140)	12	AD.	₺850,00	₺10.200,00
CATEGORY III FULL BODY SAFETY HARNESS (TS EN 361)	45	AD.	₺1500,00	₺67.500,00
FALL ARREST DEVICES (EN 355)	35	AD.	₺800,00	₺28.000,00
LIFE LINES (EN 355)	250	m.	₺50,00	₺12.500,00
SAFETY STRAP	1000	m.	₺2,50	₺2.500,00
SAFETY NET (EN 355)	350	m^2	₺350,00	₺122.500,00
SAFETY CLOTHES (SUMMER, WINTER)	100	AD.	₺3300,00	₺330.000,00
REFLECTIVE VEST	200	AD.	₺150,00	₺30.000,00
SAFETY SIGNBOARDS	50	AD.	₺100,00	₺5.000,00
ABC TYPE FIRE EXTINGUISHER (6 KG)	25	AD.	₺1400,00	₺35.000,00
TRAFFIC SIGNS and CONES	50	AD.	₺300,00	₺15.000,00
			TOPLAM:	**₺937.800,00**
			KDV:	**Dahil**
			YEKÜN:	**₺937.800,00**

Annex-1 Traffic Plan, Emergency Gathering Area, Risky Areas

Regarding the reconstruction project of the Istanbul University Faculty of Medicine Çapa Campus Surgical Hospital, the sections of the construction site traffic plan, parking areas, emergency assembly points, and hazardous level differences are presented below for your attention:

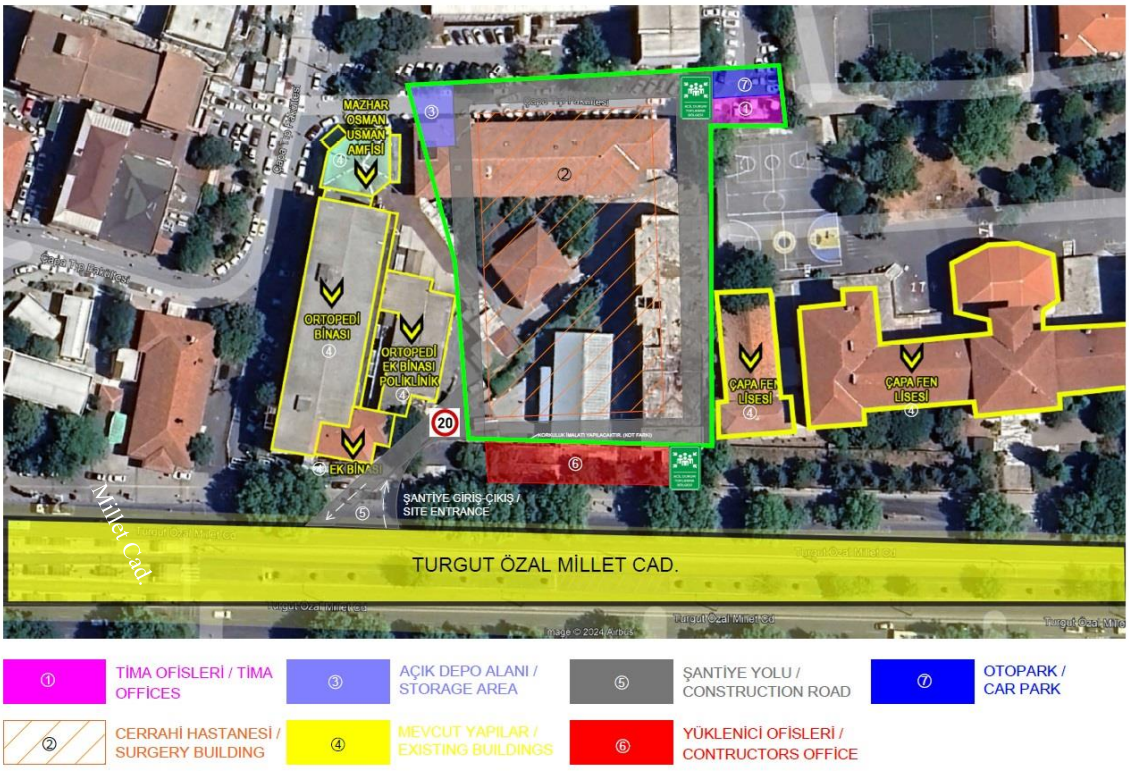


Figure 14Traffic Plan for Çapa Surgical Hospital

Access to the construction site will be facilitated through a new access road opening onto Millet Avenue. This approach aims to prevent traffic congestion, potential accidents, and disturbances to the environment (such as noise, dust, and vibrations) that could result from access via the University campus.

During the implementation of the traffic plan, the necessary equipment (traffic signs, warning signs, lighted signs, traffic cones, barriers, night lighting, etc.) will be provided by the contractor.

In rainy weather conditions, trucks transporting excavation material from the excavation site must have their muddy wheels washed with water at the construction site exit.

Construction machinery and vehicles will not operate or park in a manner that obstructs passage on internal roads within the construction site.

The Contractor responsible for preparing the traffic plan is also accountable for monitoring the outcomes of its implementation and making necessary adjustments based on changing conditions.

The following rules will be implemented to ensure the safety of pedestrians moving within the construction site and also the vehicle traffic within the site, to prevent accidents involving construction machinery and pedestrians:

- Safe walking paths will be designated for pedestrians within the construction site.
- The routes for construction machinery and the walking paths for pedestrians will be separated by traffic barriers and marked with warning signs.
- Adequate parking areas will be designated for construction machinery and passenger vehicles at a sufficient distance from the work area,
- The site offices will be located at a sufficient distance from the storage area.
- Sufficient space should be allocated around the storage area to allow trucks, vans, and other vehicles transporting materials to maneuver, and to enable the operation of machinery such as forklifts and crane trucks during loading and unloading.
- Flagmen will be used as needed to ensure the safe movement of construction machinery and heavy vehicles, and to control traffic.
- The speed limit in the construction site area will be restricted to 20 km/h.
- Machine operators and heavy vehicle drivers will be informed about the rules specified in the traffic plan that they are expected to adhere to,
- Vehicles of visitors will not be allowed into the construction site area.
- Visitors will be informed about how to act in case of emergencies.