



IN PUBLIC BUILDINGS
EARTHQUAKE RESISTANCE & ENERGY EFFICIENCY PROJECT
(KADEV PROJECT)

Istanbul Technical University AyazaĐa Campus - Phase 2
Faculty of Aeronautics and Astronautics
Faculty of Naval Architecture and Ocean Engineering
Faculty of Mining
AyazaĐa Girls' Dormitory
Ferhunde Birkan Girls' Dormitory

Revised Occupational Health and Safety Plan

FEBRUARY
2026



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Contents

1. Terms & Abbreviations.....	7
2. Objective.....	8
3. Scope.....	8
4. Legal Regulations	9
5. Management Commitment & HSE Objectives	10
5.1. Management Commitment.....	10
Date : 20.03.2024	11
5.2. Policy	11
5.2.1. Key Strategies Related to HSE	11
5.3. Objectives	12
6. Project Information	13
6.1. General Information.....	13
6.1.1 Buildings Within the Project Scope	13
6.2 Pre-Construction Information & Site Plans	23
6.3 General Construction Site Rules	23
7. Health & Safety Organization.....	36
7.1 Consultant	37
7.1.1. Duties of the Project Manager	37
7.1.2. Duties of the HSE Expert.....	38
7.1.3. Duties of Workplace Physicians	40
7.1.4. Occupational Health and Safety Duties of Technical Experts	43
7.1.5. OHS Responsibilities of the Social Specialist	43
7.1.6. Duties of Support Personnel	44
7.2 Contractor Company.....	44
7.2.1. Employer & Employer Representative Responsibilities	44
7.2.2. Duties of OHS Experts.....	44
7.2.3. Duties of Subcontractor Workplace Physicians	45
7.2.4. Occupational Health and Safety Duties of Technical Experts	45
7.2.5. Duties of Employee Representatives	46
7.2.6. Duties of Support Staff	46
8. Management of Works.....	47
General Work Program and Cross-Interaction.....	47
8.1 Work Methods	48
8.1.1 Structural Strengthening	48
8.1.2 Energy Efficiency	68
9. Determination of Risks and Control Measures	101
9.1 Determination of Risks Affecting the General Construction Site and Control Measures.....	101
9.2 Identification of Potential Risks Related to the Work and Control Measures, and Evaluation of the Impact on Third Parties.....	101
9.3 Risks Arising from Overlapping Tasks in Time and Space	102
10. Determination of the Need and Qualifications of Work Equipment.....	102
10.1 Determining the Need for Protective Equipment.....	103

10.1.1 Collective Protection Systems	103
10.1.2 Personal Protective Equipment	103
11. Work Permit System.....	104
Use of Forms.....	105
9. EKED SYSTEM.....	108
12. Observation and Inspection.....	109
14. Employee Training.....	117
Monitoring of Employee Health Status	117
Employee Professional Competence.....	117
15. Emergency Preparedness	117
Emergency Assembly Points	120
ADME and First Aid Teams	120
16. Accident and Incident Investigation	120
Considerations to be taken into account after the accident;.....	122
17. Occupational Health and Safety Budget	123
Appendix-1 Traffic Plan, Emergency Gathering Area, Risky Areas.....	124

Index

Table 1List of Relevant Legal Regulations (Law).....	9
Table 2 List of Relevant Legal Regulations.....	9
Table 3 Objectives Table	12
Table 3Consultant Information Table	13
Table 4ITU Ayazağa Campus Faculties (Campus No: 9) Building List.....	13
Table 5ITU Ayazağa Campus Faculty of Aeronautics and Astronautics General Information Table.....	14
Table 6ITÜ Ayazağa Campus Ayazağa Girls' Student Dormitory General Information Table.....	16
Table 6ITÜ Ayazağa Campus Indoor Sports Hall General Information Table	Hata! Yer işareti tanımlanmamış.
Table 6ITÜ Ayazağa Campus Institute of Science General Information Table	Hata! Yer işareti tanımlanmamış.
Table 6ITÜ Ayazağa Campus Faculty of Naval Architecture and Ocean Engineering General Information Table	17
Table 6ITÜ Ayazağa Campus Faculty of Mining General Information Table	18
Table 7 Planned Works to be Carried Out in the 2nd Phase of ITÜ Ayazağa Campus	19
Table 9: General Work Program.....	47
Table 10: Building Strengthening & Infrastructure Works Control Table	55
Table 12 Risk Analysis	56
Table 13Roof-Top PV Works Control Table.....	85
Table 12RISK ANALYSIS.....	85
Table 13KASKAD Segmented Condensing Premix Type Boiler Facility Control Table	90
Table 14 Risk Analysis	90
Table 15Installation Work Control Table for Integrated Frequency Controlled Motor Pump Combinations	92
Table 16 Risk Analysis	93
Table 19Completion Control Plan for the LED Conversion of Existing Lighting Elements.....	96
Table 18 Risk Analysis	96
Table 19Sanitary Installation Insulation Works Control Plan	98
Table 20Electronic Building Management System and Automation System Works Control Plan	99
Table 21RISK ANALYSIS.....	99
Table 23: LIST OF COLLECTIVE PROTECTION SYSTEMS.....	103
Table 24: PPE TABLE.....	103
Table 25: OHS CONTROL LIST	109
Table 26 OHS Monitoring Plan	111
Table 26Estimated ISG Budget	123
Figure 1İstanbul Technical University Faculty Area Layout....	Hata! Yer işareti tanımlanmamış.
Figure 2ITU Ayazağa Campus Ayazağa Female Student Dormitory Temporary Storage Area	23
Figure 3ITU Ayazağa Campus Faculty of Aeronautics and Astronautics Temporary Storage Area..	25
Figure 4Temporary Storage Area of the Faculty of Naval Architecture at ITU Ayazağa Campus	25
Figure 5Temporary Storage Area of the Mining Faculty Building at ITU Ayazağa Campus	26
Figure 6 ITÜ Ayazağa Campus Ferhunde Birkan Girls' Dormitory Building Temporary Storage Area.....	25
Figure: EMERGENCY ASSEMBLY AREAS27	
Figure32	
Figure.....	49
FigurePat Test Label Sample Visual.....	49
Figure 1: SAMPLE VISUAL OF ANCHOR RODS BEING DRIVEN.....	50

Figure 1	53
Figure 1 PV Layout Plan on the Roof of ITU Ayazağa Campus Building II.....	68
Figure 1 Representative Image of Movement Restriction	71
Figure 1	72
Figure 1	77
Figure 1	95
Figure 1	124
Figure 1	126

1. Terms & Abbreviations

Contractor	The company responsible for implementing all structural reinforcement and energy efficiency-focused renovation activities as a result of the tender conducted by the Ministry of Environment, Urbanization and Climate Change.
Subcontractor	The company assigned by the contractor to carry out a portion of the project.
Consultant	TÜMAŞ ATLASCert® HILL partnership
Corrective Action	<i>A set of activities carried out to eliminate the root causes of a detected nonconformity and other undesirable situations. (Corrective actions must be recorded, including the detection date, the person/department that detected it, the definition of the nonconformity and root cause, proposed corrective actions, deadlines, and the date and method of resolving the nonconformity.)</i>
Root Cause Analysis	When defining/evaluating an event, problem, or undesirable outcomes; identifying the main causes/factors beyond immediate causes to prevent similar events or problems from recurring in the future. (Corrective actions should focus on eliminating or correcting these main causes/factors.)
MoEUCC	Ministry of Environment, Urbanization and Climate Change
Major	Large, very important
PPE	Personal Protective Equipment
LoTo	Label, Lock, Secure, Try
PAT	<i>Portable Appliance Test (Taşınabilir Elektrikli Cihaz Testi)</i>
MSDS	Material Safety Data Sheet (Malzeme Güvenlik Bilgi Formu)
ADME	Emergency Response Team

2. Purpose

Structural feasibility, energy auditing, structural energy strengthening, project design, and construction supervision consulting services work STRUCTURAL STRENGTHENING and RENOVATION process

- Before the project-focused construction process begins, a completion declaration for services covering High-Risk Work, which must be obtained from external agencies, is required.
- Regarding construction activities; the identification of hazards and risks, and the determination of safety measures to be taken are aimed.
- It is intended to establish the minimum conditions for personnel involved in the construction process and to prevent those who do not meet these minimum conditions from participating.

In line with this purpose;

- The construction method and risk analysis related to structural reinforcement and renovation processes,
- Personnel qualification charts,
- Control/inspection methods before, during, and after fieldwork,
- Record forms and methods,
- Additional safety measures that must be taken by beneficiary institutions
- Completion of necessary operations in accordance with the project and regulations with external supplier organizations (Natural Gas Local Distribution Company, Electricity Local Distribution Company, Local Government Infrastructure and Technical Affairs Departments) before the delivery of services to the field.

This document is defined within.

This Occupational Health and Safety Report prepared by the Consultant will officially inform the contractor that they need to prepare their own OHS plan, Risk Assessments, and Method Statements related to project-based operations through official channels. This process will be carried out by referencing the Occupational Health and Safety (OHS) Plan prepared by the Consultant.

3. Scope

The WB/CS-DESSUP 01 project includes the structural reinforcement and renovation of the Faculty of Aeronautics and Astronautics, Faculty of Shipbuilding and Marine Engineering, Faculty of Mining, Ayazağa Girls' Student Dormitory, and Ferhunde Birkan Girls' Student Dormitory at ISTANBUL UNIVERSITY AYAZAĞA CAMPUS. A list of buildings with a total construction area of 50,595.39 m² and satellite images is provided under the title "Buildings within the Project Scope."

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

- Reinforcement of structural elements
- Facade and facade component renovations, mechanical and electrical system renovations within the framework of energy efficiency.
- Sustainable clean energy production (Rooftop solar power plants)

4. Legal Regulations

This OHS Plan (ISGP) has been prepared primarily in accordance with the laws and regulations related to Occupational Health and Safety in Turkey, as well as the Environmental and Social Standards of the World Bank, particularly ESS2: Labor and Working Conditions, and ESS4: Community Health and Safety. A list of relevant legal regulations is provided below.

Table 1 Relevant Legal Regulation List (Law)

	<u>NO</u>	<u>KABUL DATE</u>	<u>OFFICIAL GAZETTE NUMBER & DATE</u>
Labor Law (Current Version)	1475	25.08.1971	OG: 01.09.1971/13943
Labor Law	4857	22.05.2003	OG: 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
Law on Misdemeanors	5326	30.03.2005	RG: 31.03.2005/25772 M.
Vocational Education Law	3308	05.06.1986	RG: 19.06.1986/19139
Law on Certain Regulations Related to the Vocational Qualifications Authority (Vocational Qualifications Authority Law)	5544	21.09.2006	Official Gazette: 07.10.2006/26312
Social Insurance and General Health Insurance Law	5510	31.05.2006	Official Gazette: 16.06.2006/26200
Social Insurance Law (Current Version)	506	17.07.1964	Official Gazette: 29.07.1964/11766
Law on the Preparation and Implementation of Technical Legislation Related to 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 Regulations2

	<u>OFFICIAL GAZETTE NUMBER & DATE</u>
Subcontractor Regulation	RG: 27.09.2008/27010 Amendment 25.08.2017/30165
Regulation on the Protection of Employees from Risks Related to Noise	RG: 28.07.2013/28721
Regulation on the Procedures and Principles of Occupational Health and Safety Training for Employees	RG: 15.05.2013/28648 Amendment 24.05.2018/30430
Regulation on the Procedures and Principles of Medical Examinations for Employee Health Monitoring	RG: 20.01.2022/31725
Regulation on Manual Handling Operations	RG: 24.07.2013/28717
Regulation on Hygiene Training	RG: 05.07.2013/28698
First Aid Regulation	Official Gazette: 29.07.2015/29429

Regulation on Health and Safety Conditions in the Use of Work Equipment	Official Gazette: 25.04.2013/28628 Amendment: 18.02.2022/31754
Regulation on the Duties, Authorities, Responsibilities, and Training of Occupational Safety Experts	Official Gazette: 29.12.2012/28512 Amendment: 16.04.2020/31101
Regulation on Working Hours Related to the Labor Law	Official Gazette: 06.04.2004/25425 Amendment 25.08.2017/30165
Regulation on Overtime and Working with Excessive Hours Related to the Labor Law	Official Gazette: 06.04.2004/25425 Amendment 25.08.2017/30165
Regulation on Occupational Health and Safety Risk Assessment	Official Gazette: 29.12.2012/28512
Regulation on the Duties, Authorities, Responsibilities, and Training of Workplace Physicians and Other Health Personnel	Official Gazette: 20.07.2013/28713 Amendment: 16.04.2020/31101
Regulation on Emergency Situations in Workplaces	Official Gazette: 18.06.2013/28681 Amendment 01.10.2021/31615
Regulation on Stopping Work in Workplaces	Official Gazette: 30.03.2013/28603 Amendment 11.02.2016/29621
Regulation on Personal Protective Equipment	RG: 01.05.2019/30761
Regulation on the Use of Personal Protective Equipment in Workplaces	RG: 02.07.2013/28695
Machine Safety Regulation (2006/42/EC)	RG: 03.03.2009/27158 Amendment 28.09.2014/29133
Regulation on Examination, Measurement, Evaluation, and Certification of the Vocational Qualifications Authority	RG: 15.10.2015/29503
Regulation on Health and Safety Signs	RG: 11.09.2013/28762
Regulation on the Vocational Training of Those to be Employed in Jobs Classified as Dangerous and Very Dangerous	RG: 13.07.2013/28706 Amendment 11.05.2017/30063
Regulation on Dust Control	RG: 05.11.2013/28812

5. Management Commitment & Occupational Health and Safety Goals

5.1. Management Commitment

As the manager of TÜMAŞ | Hill | ATLASCert® Partnership; I commit that during the preparation and implementation phases of the Seismic Strengthening and Energy Efficiency project for Public Buildings, the health and safety of employees and other stakeholders will be prioritized until the completion of the project, that full compliance with the relevant legal regulations and other defined requirements will be ensured, that all necessary measures for occupational health and safety will be taken in a timely manner, that collective protective measures will be prioritized when determining and implementing these measures, that importance will be given to the training and informing of

employees regarding occupational health and safety, that necessary and sufficient resources will be provided for occupational health and safety, and that no expenses necessary for this will be avoided, that the suggestions and ideas of employees will be taken into account in occupational health and safety practices, that necessary participation, exchange of ideas, and cooperation in the field of occupational health and safety will be ensured between management and employees, that the plan has been prepared for the conditions of this construction site, employees, and other stakeholders, that it will be implemented throughout the project duration, and that it will be updated when necessary, that sufficient information will be provided to every employee and visitor at all levels involved in the project, including the highest-level manager, regarding their responsibilities under this plan, I commit.

Date: 20.02.2026

Name & Surname: Vecihe Arzu TÜRKER

Signature:

5.2. Policy

By complying with national and international regulations, we will provide a healthy and safe working environment;

- We will ensure that the awareness of occupational health and safety is adopted by all our stakeholders and continuously developed,
- We will take all necessary measures within the framework of occupational health and safety regulations for all relevant parties;
- We will work to prevent workplace accidents before they occur through effective risk assessment,
- We will train our employees beyond the legal requirements regarding occupational health and safety,
- We will respect our employees' collective bargaining rights and support initiatives in this direction,
- We will reference the Universal Declaration of Human Rights, International Labour Organization (ILO) conventions, the United Nations Global Compact, the United Nations Sustainable Development Goals Declaration, and the OECD Guidelines for Multinational Enterprises.
- We will ensure that our visitors at all levels, our suppliers, and the employees of the companies we purchase services from comply with occupational health and safety rules,
- We will provide a healthy environment where employees feel comfortable, safe, and happy to work, taking mental health issues seriously and supporting all staff facing challenges.

Date: 20.02.2026

Full Name: Vecihe Arzu TÜRKER

Signature:

5.2.1. Basic Strategies Related to ISGP

- Leadership of management teams,

- Ensuring that all employees are involved in ISG requirements and problem-solving by obtaining their views and suggestions,
- Identifying hazards and planning and implementing sufficient control activities in advance to prevent workplace accidents,
- Ensuring that all employees develop adequate awareness and motivation regarding Occupational Health and Safety.

5.3. Objectives

To regularly measure the project's ISG performance, "performance criteria" compatible with the project contract and measurable "objectives" corresponding to each performance criterion, which will be tracked on a monthly basis, have been established. In the first week of each month, the ISG Monthly Activity Report for the previous month will be prepared in the format approved by the consultant and submitted to the administration.

Table 3 Objectives Table3

TARGET DEFINITION	QUANTITATIVE DATA
Number of lost time work accidents (maximum)	0
Number of non-lost time work accidents (maximum)	0
Number of Ramakkala incidents (maximum)	2
Accident frequency rate (AFR) (maximum) ¹	60
Accident Severity Rate (ASR) (maximum) ²	0
Occupational Health and Safety (OHS) training specific to this project	20 Person.Hours
Fire drill specific to this project	1 Ad.
This project specifically focuses on earthquake drills.	1 Ad.
This project specifically focuses on injured worker rescue drills.	1 Ad.

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

The questions to be answered within the scope of performance measurement are as follows:

- Are we achieving our Occupational Health and Safety (OHS) targets?
- Are we operating in compliance with OHS regulations?
- Are the planned control activities from the risk assessment effective in reducing risks?
- Are accidents and near-miss incidents being recorded? Is an accident investigation and root cause analysis being conducted to prevent recurrence?

$$^1 KSO = \frac{\text{Toplam Kaza Sayısı}}{\text{Toplam Çalışma Süresi (saat)}} \times 1.000.000$$

$$^2 KAO = \frac{\text{Toplam Kayıp Gün Sayısı}}{(\text{Toplam Çalışma Günü} - \text{Çalışma Olmayan Gün})} \times 1.000$$

- Are corrective actions planned and implemented for non-conformities/violations identified on-site (by the Contractor or Consultant)?
- Are the implemented corrective actions effective?
- When the need arises, are necessary changes (revisions) made to the prepared ISGP?
- Are the trainings provided effective in creating awareness and motivation for occupational health and safety among employees?

The records that the Consultant will need to monitor the Contractor's occupational health and safety performance will be shared by the Contractor on a monthly basis:

- Accident and near-miss incident reports,
- Records related to mandatory trainings as required by legislation (training records, certificates, etc.)
- Periodic inspection reports of machines/equipment (reports prepared by an A-type inspection organization accredited by TÜRKAK)

The status of non-conformities related to occupational health and safety recorded by the Contractor or Consultant (open/closed, definition of corrective actions, etc.)

6. Project Information

6.1. General Information

Information about the consulting firm is provided in the table below.

4Table 4 Consultant Information Table

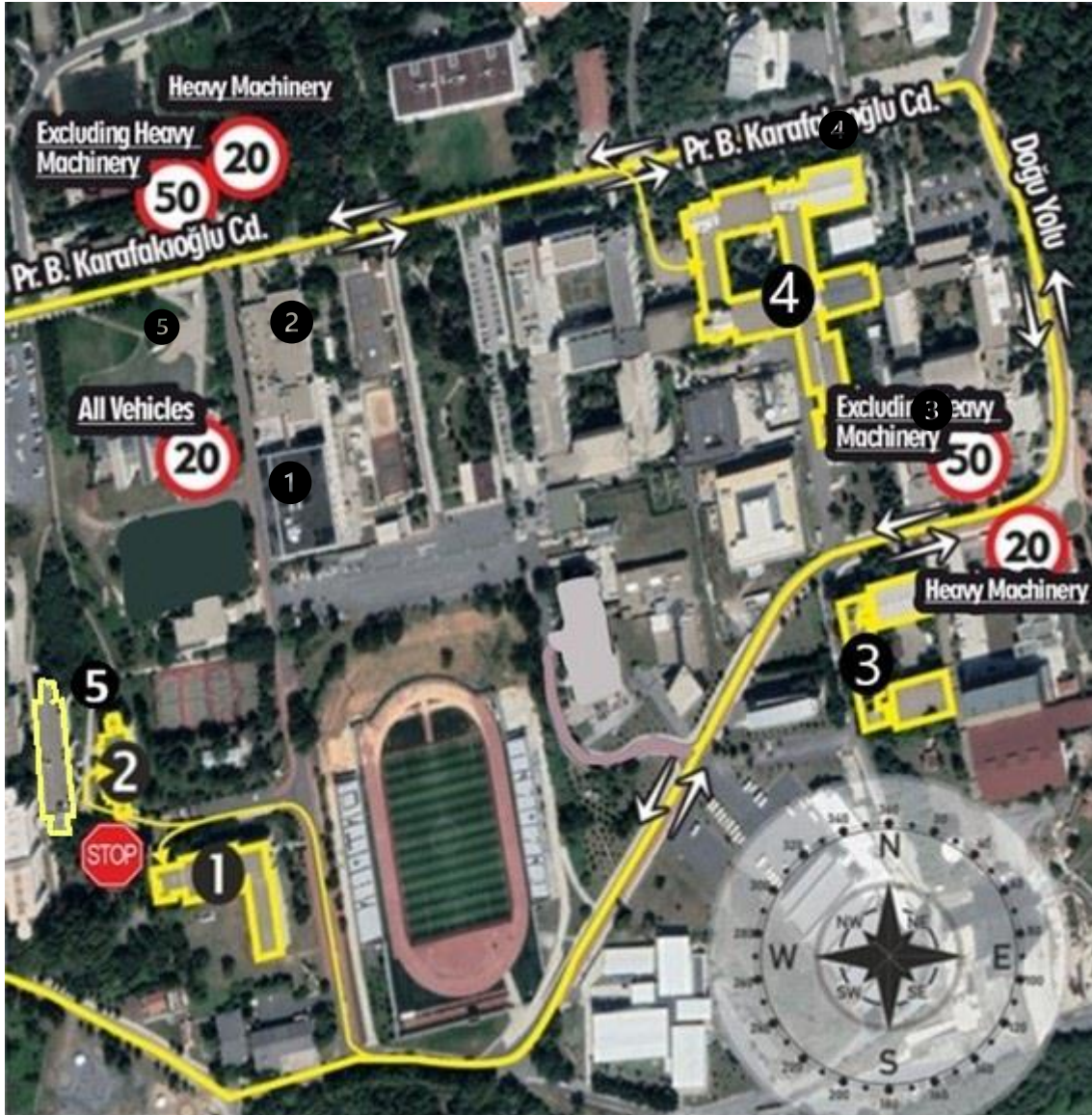
CONSULTANT	TÜMAŞ TÜRK ENGINEERING CONTRACTING AND CONSULTING INC.
SGK REGISTRATION NO	271120202003584600607-24/000
ADDRESS	TUNUS STREET NO: 43 KAVAKLIDERE/ANKARA
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OCCUPATIONAL SAFETY EXPERT	Murat GELMEZ İGU-27253
OCCUPATIONAL PHYSICIAN	Dr. Erdal KOLAN İH-40533

6.1.1 Buildings Within the Project Scope

5Table 5 ITU Ayazağa Campus Faculties (Campus No: 9) Building List

<u>BUILDING NAME</u>	<u>REGION</u>	<u>YEAR OF CONSTRUCTION</u>	<u>BUILDING CONSTRUCTION AREA m2</u>
01 Faculty of Aeronautics and Astronautics	ISTANBUL	1992	8.414,30
02 Ayazağa Girls' Dormitory	ISTANBUL	1992	3.395,30
03 Faculty of Shipbuilding	ISTANBUL	1987	13.020,00
04 Faculty of Mining	ISTANBUL	1987	18.765,90
05 Ferhunde Birkan Girls' Dormitory	ISTANBUL	2000	7000,00
			50.595,39

1



General information regarding the mentioned structures is presented on the next page.

6Table 6: General Information Table of the Faculty of Aeronautics and Astronautics at ITU Ayazağa Campus

BUILDING NAME	İTÜ Ayazağa Campus Faculty of Aeronautics and Astronautics		
BUILDING OWNER	ISTANBUL TECHNICAL UNIVERSITY		
ADDRESS	Reşitpaşa Mh Ord. Prof. B. Karafakıroğlu Cad, 34467 SARIYER/ISTANBUL		
PROVINCE	ISTANBUL	POSTAL CODE	34467
YEAR OF CONSTRUCTION	1992	CONSTRUCTION	8,414.29 m2

CONSTRUCTION		AREA	
PURPOSE OF USE	FACULTY	NUMBER OF BLOCKS IN THE CONSTRUCTION GROUP	1
USABLE CLOSED AREA	□ 8,050 m ²	TOTAL CLOSED VOLUME	~ 32,065.80 μ ³
NUMBER OF USERS	TOTAL	35,370 Individuals/Year	
TECHNICAL RESPONSIBLE	NAME SURNAME		Yasin ÖZKAN
	CONTACT INFORMATION	0090 (212) 285 69 17	0090 (212) 473 70 00
		yasinozkan@itu.edu.tr	eyup.esenboga@iuc.edu.tr
PLANNED MANUFACTURING IN THE BUILDING			
All planned manufacturing in the building is listed in Table 11.			
DURATION AND SEASON OF ACTIVITIES			
The preparation of the tender documents is planned, and the Contractor is expected to complete the manufacturing at the Faculty of Aeronautics and Astronautics within 4-6 months following the delivery date. Due to the uncertainty of the delivery, a specific season cannot be determined, and the work will be completed after the tender process planned for 2024.			
NUMBER OF EMPLOYEES EXPECTED TO WORK DURING RENOVATION WORKS			
To complete the planned manufacturing within the targeted timeframe, an employment of 15 employees/day is anticipated.			

Building Height:~ 22.6 m (vertical distance between the lowest point and the highest point of the building)

Number of Floors: 5+1 (Facility Floor)

Coordinates: 41° 06'04.97"N x 29°01'18.38"E

3D Model: [CLICK HERE FOR MODEL ACCESS!](#)³

³ Modelleme ATLAS® tarafından gerçekleştirilmiştir.

Table7General Information Table of ITU Ayazağa Campus Ayazağa Girls' Dormitory

BUILDING NAME	ITU Ayazağa Campus Ayazağa Girls' Dormitory		
BUILDING OWNER	ISTANBUL TECHNICAL UNIVERSITY		
ADDRESS	Reşitpaşa Mh Ord. Prof. B. Karafakıroğlu Cad, 34467 SARIYER/ISTANBUL		
PROVINCE	ISTANBUL	POSTAL CODE	34467
YEAR OF CONSTRUCTION	1992	CONSTRUCTION AREA	3,395.25 m ²
PURPOSE OF USE	STUDENT DORMITORY	NUMBER OF BLOCKS IN THE CONSTRUCTION GROUP	1
USABLE CLOSED AREA	□ 3,050 m ²	TOTAL CLOSED VOLUME	□ 12,444.21 m ³
NUMBER OF USERS	TOTAL	62,100 Individuals/Year	
TECHNICAL RESPONSIBLE	NAME SURNAME		Yasin ÖZKAN
	PHONE	0090 (212) 285 69 17	0090 (212) 473 70 00
		yasinozkan@itu.edu.tr	yasinozkan@itu.edu.tr
PLANNED MANUFACTURING IN THE BUILDING			
All planned manufacturing in the building is listed in Table 11.			
DURATION AND SEASON OF ACTIVITIES			
It is planned for the Contractor to complete the construction of the Ayazağa Girls' Student Dormitory within 4-6 months following the delivery date. Due to the uncertainty of the delivery, a specific season cannot be determined, and the work will be completed after the tender process planned for 2024.			
NUMBER OF EMPLOYEES EXPECTED TO WORK DURING RENOVATION WORKS			
To complete the planned manufacturing within the targeted timeframe, an employment of 15 employees/day is anticipated.			

Building Height: □ 19.0 m (vertical distance between the lowest point and the highest point of the building)

Number of Floors: 3+1 (Facility Floor)

Coordinates: 41° 01'21.25"K x 29°02'08.75"D

3D Model: [CLICK HERE FOR ACCESS!](#)⁴

- The planned construction activities, estimated personnel count, and completion timelines are presented in table format on the next page. This table is for general informational purposes, and it is expected that the contractor will revise this table according to their own work schedule/plans.

⁴ Modelleme ATLAS® tarafından gerçekleştirilmiştir.

8Table 8 ITU Ayazağa Campus Shipbuilding and Maritime Faculty General Information Table

BUILDING NAME	Shipbuilding and Maritime Faculty		
BUILDING OWNER	ISTANBUL TECHNICAL UNIVERSITY		
ADDRESS	Reşitpaşa Mh Ord. Prof. B. Karafakıroğlu Cad, 34467 SARIYER/ISTANBUL		
PROVINCE	ISTANBUL	POSTAL CODE	34467
YEAR OF CONSTRUCTION	1987	CONSTRUCTION AREA	13,020.00 m ²
PURPOSE OF USE	FACULTY	NUMBER OF BLOCKS IN THE CONSTRUCTION GROUP	1
USABLE CLOSED AREA	□□□.000 m ²	TOTAL CLOSED VOLUME	□□□.776,11 m ³
NUMBER OF USERS	TOTAL	123,000 Individuals/Year	
TECHNICAL RESPONSIBLE	NAME SURNAME		Yasin ÖZKAN
	CONTACT INFORMATION	PHONE	0090 (212) 473 70 00
		E-MAIL	yasinozkan@itu.edu.tr
PLANNED MANUFACTURING IN THE BUILDING			
All planned manufacturing in the building is listed in Table 11.			
DURATION AND SEASON OF ACTIVITIES			
The preparation of the tender documents is planned to be completed by the Contractor within 4-6 months following the delivery date of the Shipbuilding and Maritime Faculty's production. Due to the uncertainty of the delivery, a specific season cannot be determined, and the work will be completed after the tender process planned for 2024.			
NUMBER OF EMPLOYEES EXPECTED TO WORK DURING RENOVATION WORKS			
To complete the planned manufacturing within the targeted timeframe, an employment of 15 employees/day is anticipated.			

Building Height: □ 18.0 m (vertical distance between the lowest point and the highest point of the structure)

Number of Floors: 4+1 (Facility Floor)

Coordinates: 41° 06'09.02"K x 29°01'37.25"D

3D Model: [CLICK HERE FOR MODEL ACCESS!](#)⁵

- The planned construction activities, estimated personnel count, and completion timelines are presented in table format on the next page. This table is for general informational purposes, and it is expected that the contractor will revise this table according to their own work schedule/plans.

⁵ Modelleme ATLAS® tarafından gerçekleştirilmiştir.

9Table 9 General Information Table of ITU Ayazağa Campus Mining Faculty

BUILDING NAME	ITU AYAZAĞA CAMPUS MINING FACULTY		
BUILDING OWNER	ISTANBUL TECHNICAL UNIVERSITY		
ADDRESS	Reşitpaşa Mh Ord. Prof. B. Karafakıroğlu Cad, 34467 SARIYER/ISTANBUL		
PROVINCE	ISTANBUL	POSTAL CODE	34467
YEAR OF CONSTRUCTION	1987	CONSTRUCTION AREA	18,765.00 m ²
PURPOSE OF USE	FACULTY	NUMBER OF BLOCKS IN THE CONSTRUCTION GROUP	1
USABLE CLOSED AREA	□ 17,200 m ²	TOTAL CLOSED VOLUME	□ 91,335.2 m ³
NUMBER OF USERS	TOTAL	123,000 Individuals/Year	
TECHNICAL RESPONSIBLE	NAME SURNAME		Yasin ÖZKAN
	CONTACT INFORMATION	PHONE	0090 (212) 473 70 00
		E-MAIL	yasinozkan@itu.edu.tr
PLANNED MANUFACTURING IN THE BUILDING			
All planned manufacturing in the building is listed in Table 11.			
DURATION AND SEASON OF ACTIVITIES			
The preparation of the tender documents is planned to be completed by the Contractor within 4-6 months following the delivery date of the Mining Faculty's production. Due to the uncertainty of the delivery, a specific season cannot be determined, and the work will be completed after the tender process planned for 2024.			
NUMBER OF EMPLOYEES EXPECTED TO WORK DURING RENOVATION WORKS			
To complete the planned manufacturing within the targeted timeframe, an employment of 15 employees/day is anticipated.			

Building Height:~ 22.50 m (vertical distance between the lowest point and the highest point of the structure)

Number of Floors: 5+2 (Facility Floor)

Coordinates: 41° 06'16.02"N x 29°01'33.05"E

3D Model: [CLICK HERE FOR MODEL ACCESS!](#)⁶

- The planned construction activities, estimated personnel count, and completion timelines are presented in table format on the next page. This table is for general informational purposes, and it is expected that the contractor will revise this table according to their own work schedule/plans.

⁶ Modelleme ATLAS® tarafından gerçekleştirilmiştir.

Table 10 General Information Table of ITU Ayazağa Campus Ferhunde Birkan Girls' Dormitory

BUILDING NAME	ITU AYAZAĞA CAMPUS FERHUNDE BIRKAN GIRLS' DORMITORY		
BUILDING OWNER	ISTANBUL TECHNICAL UNIVERSITY		
ADDRESS	Reşitpaşa Mh Ord. Prof. B. Karafakıroğlu Cad, 34467 SARIYER/ISTANBUL		
PROVINCE	ISTANBUL	POSTAL CODE	34467
YEAR OF CONSTRUCTION	2000	CONSTRUCTION AREA	7,000.00 m ²
PURPOSE OF USE	STUDENT DORMITORY	NUMBER OF BLOCKS IN THE CONSTRUCTION GROUP	1
USABLE CLOSED AREA	~993,00m ²	TOTAL CLOSED VOLUME	~ 18.000,0m ³
NUMBER OF USERS	TOTAL	123,000 Individuals/Year	
TECHNICAL RESPONSIBLE	NAME SURNAME		Yasin ÖZKAN
	CONTACT INFORMATION	PHONE	0090 (212) 473 70 00
		E-MAIL	yasinozkan@itu.edu.tr
PLANNED MANUFACTURING IN THE BUILDING			
All planned manufacturing in the building is listed in Table 11.			
DURATION AND SEASON OF ACTIVITIES			
With the preparation of the tender documents, it is planned for the Contractor to complete the construction of the Ferhunde Birkan Girls' Dormitory within 4-6 months following the site delivery date. Due to the uncertainty of the delivery, a specific season cannot be determined, and the work will be completed after the tender process planned for 2024.			
NUMBER OF EMPLOYEES EXPECTED TO WORK DURING RENOVATION WORKS			
To complete the planned manufacturing within the targeted timeframe, an employment of 15 employees/day is anticipated.			

Building Height:~ 22.50 m (vertical distance between the lowest point and the highest point of the structure)

Number of Floors: 5+2 (Facility Floor)

Coordinates: 41° 06'16.02"N x 29°01'33.05"E

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

10

	GENERAL DESCRIPTION OF WORK TO BE DONE	EXPECTED NUMBER OF PERSONNEL	EXPECTED DURATION (WEEKS)
STRUCTURAL STRENGTHENING	WALL DEMOLITION & DISMANTLING WORKS	10	3
	ELECTRICAL AND MECHANICAL SYSTEM INSTALLATION	8	3
	SUBBASE CONCRETE BREAKING AND FILLING INSIDE THE FOUNDATION	10	2
	EPOXY ANCHORS AND TESTS	6	3
	NEW EQUIPMENT INSTALLATION	10	4
	MOULDING AND CONCRETE CASTING	10	3
	CARBON FIBER POLYMER (KLP, FRP) COMPOSITE APPLICATIONS	10	5
FINISHING WORKS	WALL CONSTRUCTION	8	3
	PLASTERING	8	5
	PAINTING	4	4
	FLOORING	3	5
	ELECTRICAL & MECHANICAL INSTALLATIONS	10	4
	AUTOMATION	3	3
OTHER WORKS	SOLAR PANEL INSTALLATION	6	1
	TEST & MUAYENE	2	1

Table 12 includes some of the electrical & mechanical installation works, as well as automation and solar panel installation sections, which will be carried out within the framework of energy efficiency measures. The relevant measures are listed below.

Table 12 Planned Works at ITU Ayazağa Campus II

GENERAL DESCRIPTION OF WORK TO BE DONE	EXPECTED NUMBER OF PERSONNEL	EXPECTED DURATION (WEEKS)
<p>Installation of Solar Power Plants on the Roofs of the Faculty of Aeronautics and Astronautics, Faculty of Naval Architecture and Marine Engineering, and Faculty of Mining located within the Ayazağa campus.</p> <p>On the Terrace Roof of the Faculty of Aeronautics and Astronautics Number of Panels: 328 pcs. System Capacity: 178.76 kWp Weight / Area: 11 TON / 850m²</p> <p>On the Roof of the Faculty of Naval Architecture and Marine Engineering Number of Panels: 449 pcs. System Capacity: 244.71 kWp Weight / Area: 15 TON / 1200m²</p> <p>On the Roof of the Faculty of Mining Number of Panels: 1080 pcs. System Capacity: 588.60 kWp Weight / Area: 36 TON / 2800m²</p> <p>Ayazağa Girls' Dormitory. On the Roof Number of Panels: 144 pcs. System Capacity: 78.50 kWp Weight / Area: 5 TON / 320m²</p> <p>Ferhunde Birkan Girls' Dormitory. On the Roof Number of Panels: 168 pcs. System Capacity: 78.50 kWp Weight / Area: 5 TON / 320m²</p>	12	1,5
10 cm thick stone wool (U<0.035Wm ² /K) thermal insulation installation on the exterior of the FACULTY OF AERONAUTICS AND ASTRONAUTICS. (4200m ² application area)	5	2
10 cm thick stone wool (U<0.035Wm ² /K) thermal insulation installation on the exterior of the Faculty of Naval Architecture and Marine Engineering. (4700m ² application area)	5	1
10 cm thick stone wool (U<0.035Wm ² /K) thermal insulation installation on the exterior of the Faculty of Mining. (11,500m ² application area)	1	0,2
The Faculty of Shipbuilding will install 10 cm XPS (U<0.031Wm ² /K) thermal insulation on the terrace roof and replace the metal standing seam roof with ready-made roof panels that have 10 cm thermal insulation.	2	1
Installation of 10 cm thick stone wool (U<0.035Wm ² /K) thermal insulation on the exterior facade of Ferhunde Birkan Girls' Dormitory. (4200m ² application area)	5	4
<p>Replacement of single-glazed and uninsulated external doors with thermal insulated doors of the same dimensions (the glass will be 4x16x4).</p> <p>Faculty of Aerospace Engineering: Doors 5-6-7-8-9 (22m²) Faculty of Shipbuilding: Doors 2-4-5 (15m²) Faculty of Mining: Doors 2-4-5-6-7-8-9-10-11-12-13-14-18 (50m²)</p>	3	3
Conversion of split air conditioners (in academic staff rooms) in the Faculty of Aerospace Engineering to a VRV system. (84 units)	2	0,2
Conversion of identified split air conditioners (67 units) in the Faculty of Shipbuilding to a VRV system.	3	2
Completion of LED conversion in all buildings included in the project scope. (Standard driver, Dali protocol, lighting automation is not included.)	2	2
Replacement of ventilation motors in the Faculty of Aerospace Engineering with high-efficiency units, installation of a frequency converter for the conference room	2	2

air conditioning motor. (4 units), maintenance and cleaning of air conditioning units, installation of a gear belt pulley system instead of the traditional belt pulley system.		
Replacement of existing motor-pump combinations in the Faculty of Aerospace Engineering, Faculty of Shipbuilding, and Faculty of Mining with high-efficiency integrated frequency-controlled IE4 energy class motor-pump systems. (24 units)	3	1
Installation of thermal insulation on existing uninsulated system components and exchangers in the Faculty of Aerospace Engineering and Faculty of Shipbuilding. (109 units)	5	2
Conversion of identified split air conditioners (158 units) in the Faculty of Mining to a VRV system.	10	2-3
AERONAUTICS FACULTY, SHIPBUILDING FACULTY, SCIENCES (COMPUTING INSTITUTE), MINING FACULTY installation of thermostatic valves to all existing radiator units (1683 pcs)	3	2
Covers all structures as an energy management system	2	4-10

6.2 Pre-Construction Information & Site Plans

Field data regarding the campuses where work will be conducted, building approach areas, traffic action plans, temporary storage areas, parking areas for work vehicles and machinery, and elevation differences, etc. are specified in APPENDIX 1.

6.3 General Construction Site Rules

- Access and exit of vehicles (including construction machinery) to work areas and parking areas are indicated in Figure-17. (See also Appendix 1).
- Structures included in the project scope are out of use during the activities. Therefore;
 - There is no establishment of a structure such as a container in the working areas within the construction site.
- There is no allocation of special areas for employees to eat and rest. (For employees, the areas to be used in the buildings where work will be carried out for general and human needs (toilets, break/rest areas, dining rooms, etc.) will be determined by the technical and administrative units of the beneficiary institution and communicated to the contracting company.
- Accommodation for employees within the campus area is not permitted. The contractor and subcontractors will arrange suitable places (hotel, motel, etc.) for employee accommodation.
- Temporary storage areas (off-site) are specified below on a building basis. Temporary storage is not allowed outside of these designated areas.

Figure 2: ITU Ayazağa Campus Ayazağa Girls' Dormitory Building Temporary Storage Area



Figure 3: ITU Ayazağa Campus Faculty of Aeronautics and Astronautics Building Temporary Storage Area



Figure 4: ITU Ayazağa Campus Faculty of Naval Architecture and Marine Engineering Building Temporary Storage Area

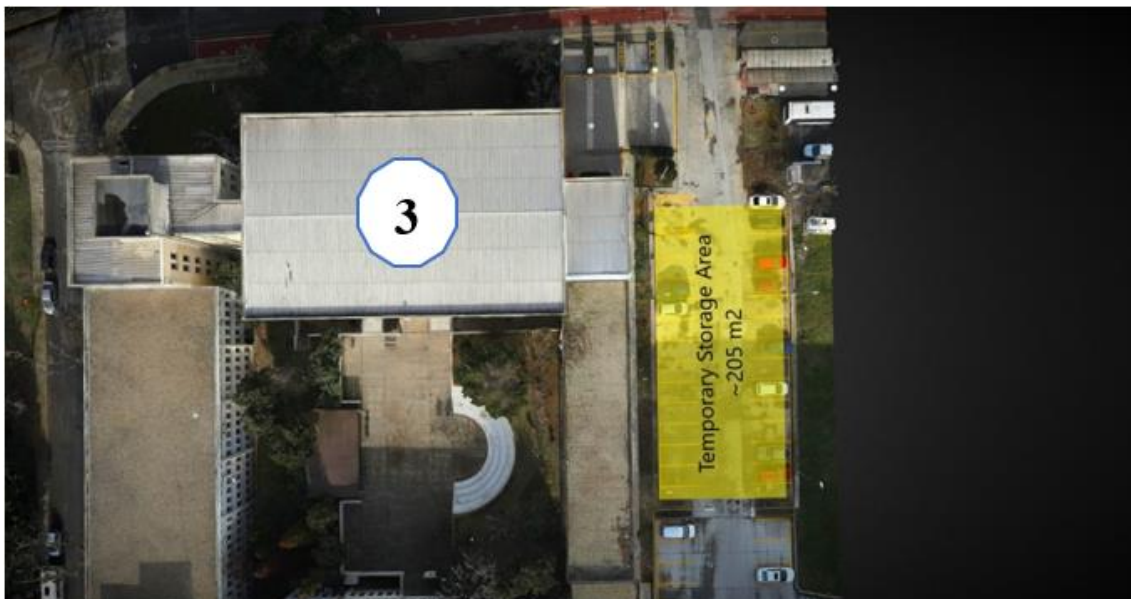
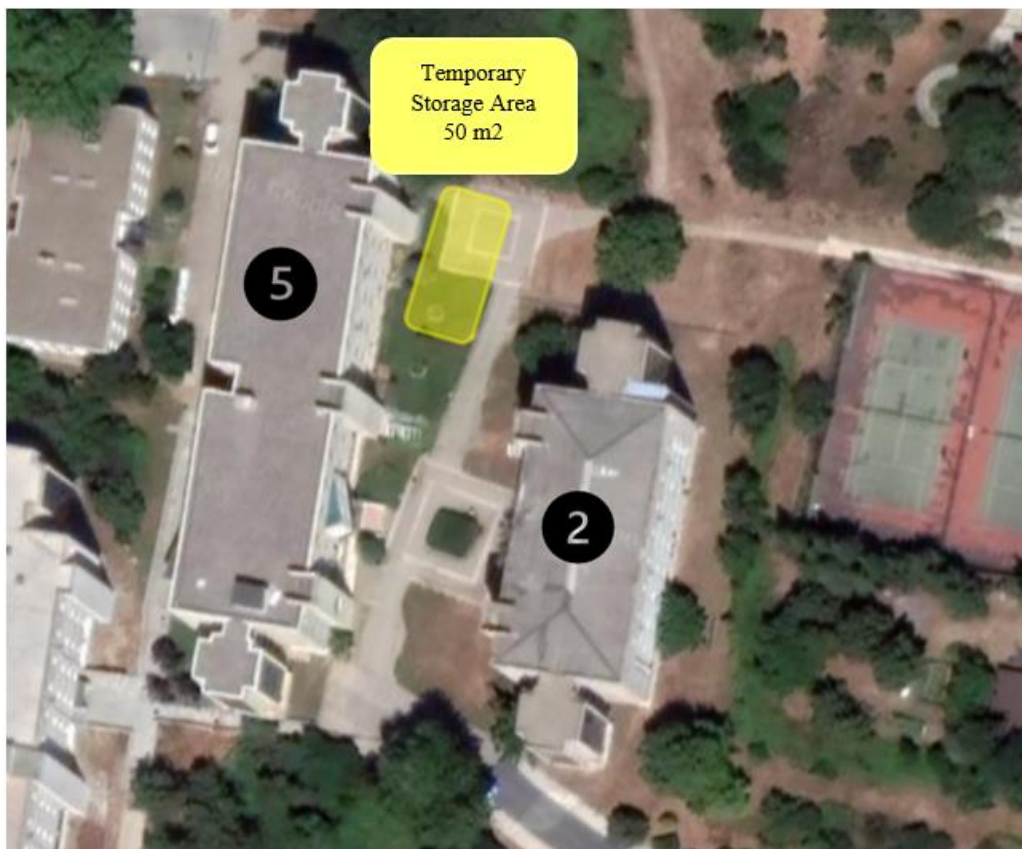


Figure 5: ITU Ayazağa Campus Faculty of Mining Engineering Building Temporary Storage Area

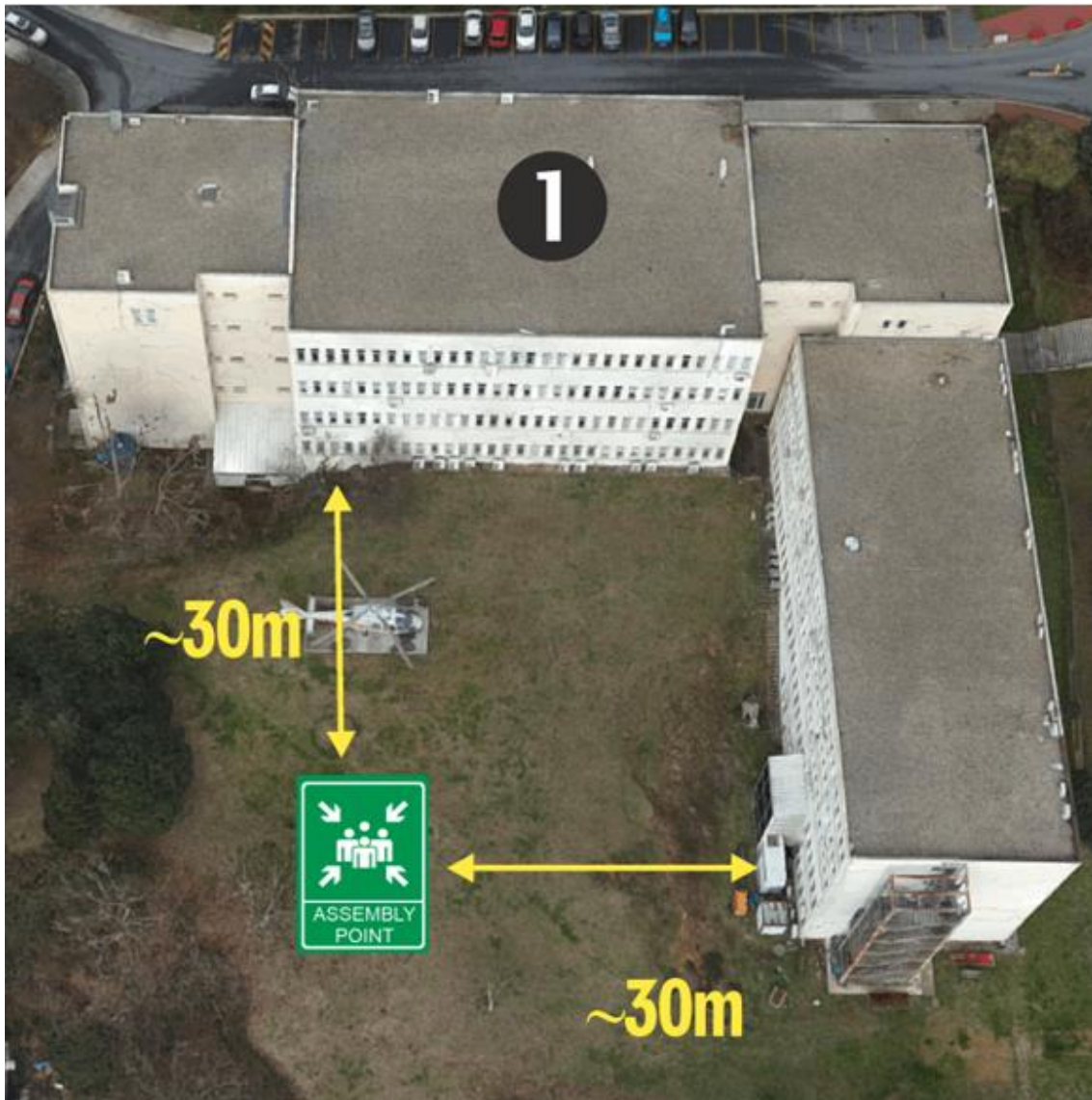


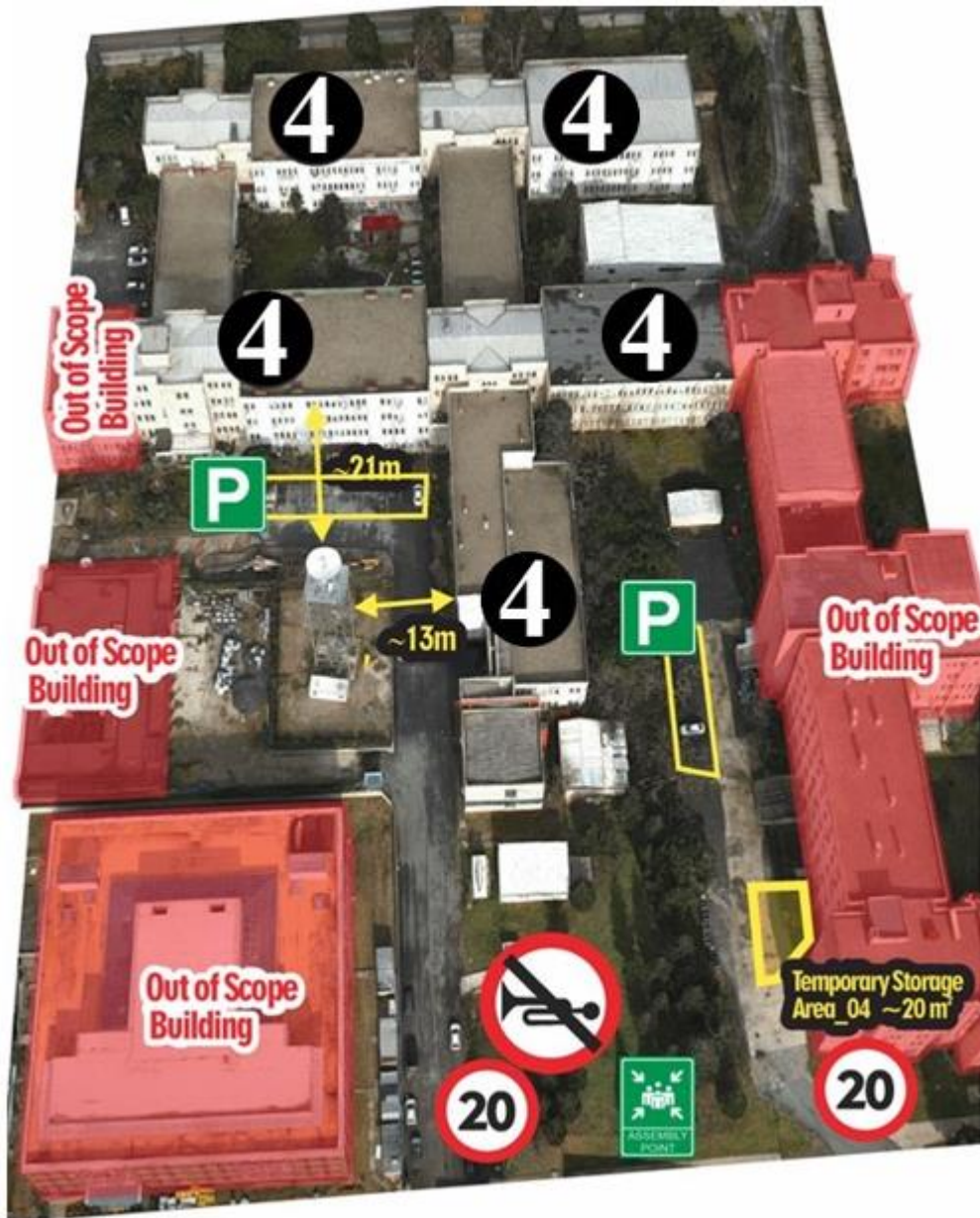
Figure 6: ITU Ayazağa Campus Ferhunde Birkan Girls' Dormitory Building Temporary Storage Area

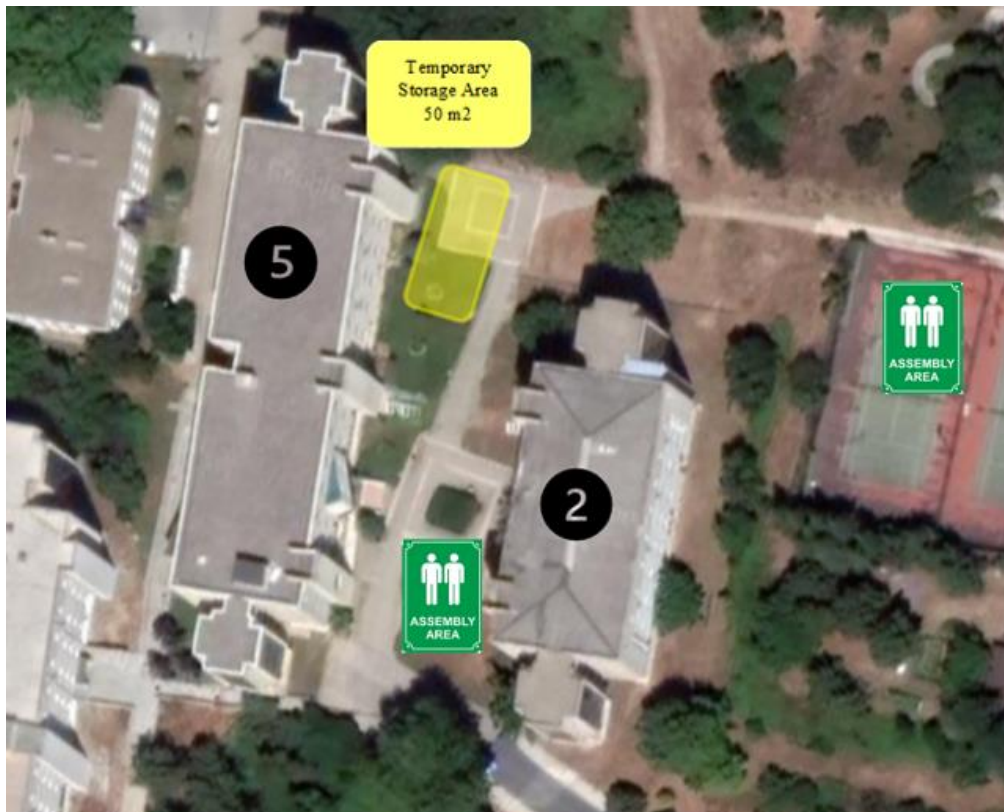


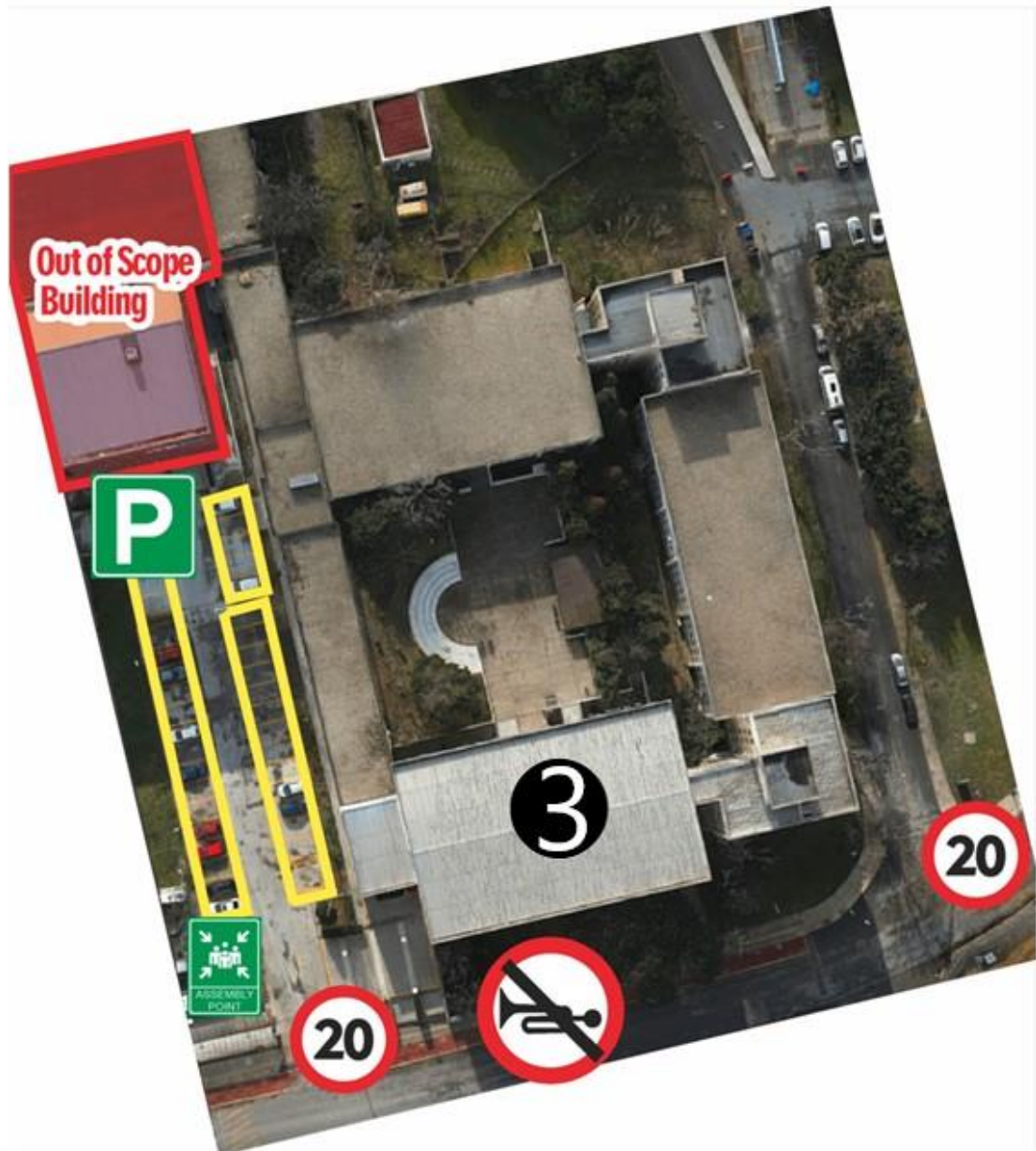
- During temporary storage, materials and equipment must be stacked in a way that does not pose risks, protected from environmental conditions, and measures must be taken to prevent hazardous chemicals from leaking into the soil. The contractor must describe how the above-mentioned issues will be addressed before the use of the designated storage areas. Otherwise, the use of temporary storage areas will not be permitted.
- Emergency assembly areas are specified below on a building basis. Warning signs will be provided in these areas, and all employees will be informed about the assembly areas by the occupational health and safety expert.

Figure 7: EMERGENCY ASSEMBLY AREAS









- The emergency assembly areas mentioned above will be used in all OHS drills. The responsible OHS Experts will be asked to determine the emergency assembly times for each drill.
 - The emergency assembly areas will be specified in the OHS training materials.
- Indoor restrooms will be used for toilet needs.

- Staff's shower needs will be met in areas arranged by the contractor and subcontractors for employee accommodation (hotels, etc.). Indoor restrooms will be used for washbasin needs.
- Drinking water is not allowed from the restrooms and washbasins. Drinking water will be provided for all employees in bottled form. Warning signs as specified below will be installed in all restrooms.



- Smoking is prohibited inside the building and in temporary storage areas. Warning signs as specified below will be installed at building entrances and in temporary storage areas (a warning sign regarding the prohibition of open flames in temporary storage areas should also be established).



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



All machines and electrical devices used during construction activities must have the CE mark, and this is mandatory. Products that fall under the "CE" MARK REGULATION and do not meet the requirements associated with this symbol are not allowed to be used.⁷

⁷ İlgili Direktifler;

- MAKİNA EMNİYETİ YÖNETMELİĞİ (2006/42/AT)
- BELİRLİ GERİLİM SINIRLARI İÇİN TASARLANAN ELEKTRİK Lİ EKİPMAN İLE İLGİLİ YÖNETMELİK (2014/35/AB)
- BASINÇLI EKİPMANLAR YÖNETMELİĞİ (2014/68/AB)
- GAZ YAKAN CİHAZLARA DAİR YÖNETMELİK (2016/426/AB)

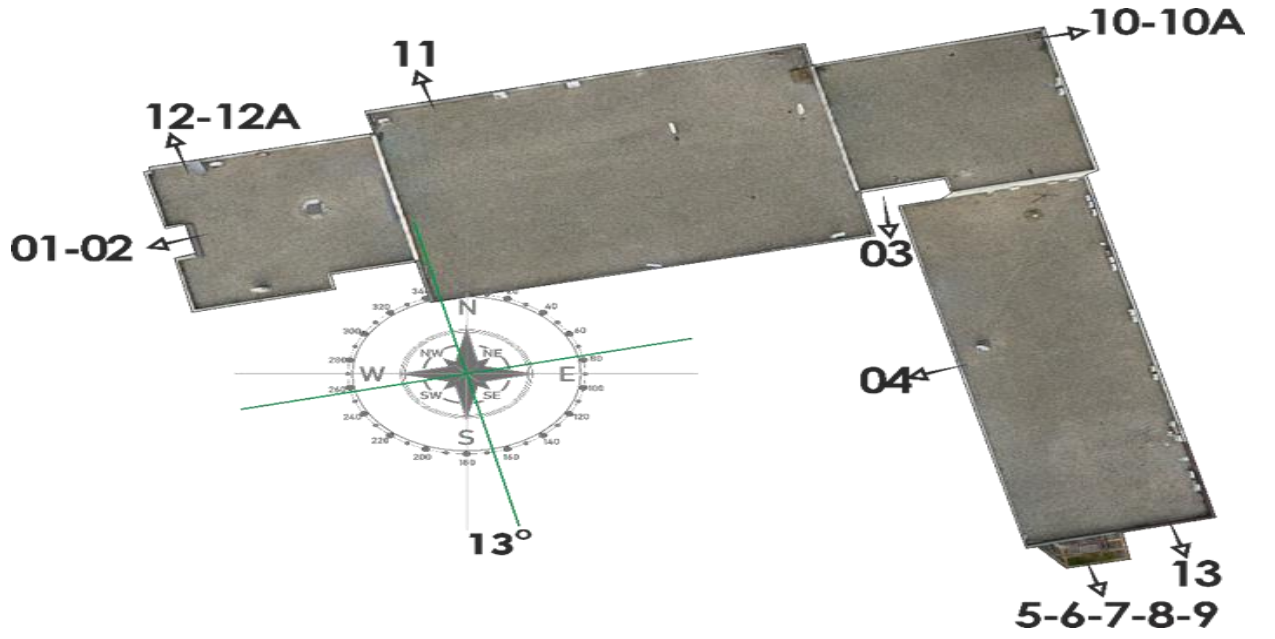
İlgili standartlar (her bir cihaz için ayrıca gözden geçirilmelidir.)

- TS EN ISO 12100 Makinalarda güvenlik - Tasarım için genel prensipler - Risk değerlendirilmesi ve risk azaltılması
- TS EN 60204-1 Makinalarda güvenlik - Makinaların elektrik donanımı - bölüm 1: Genel kurallar
- TS EN 60335-1 Güvenlik kuralları - Ev ve benzeri yerlerde kullanılan elektrikli cihazlar için - Bölüm 1: Genel kurallar

Figure 8 Building Exterior Doors

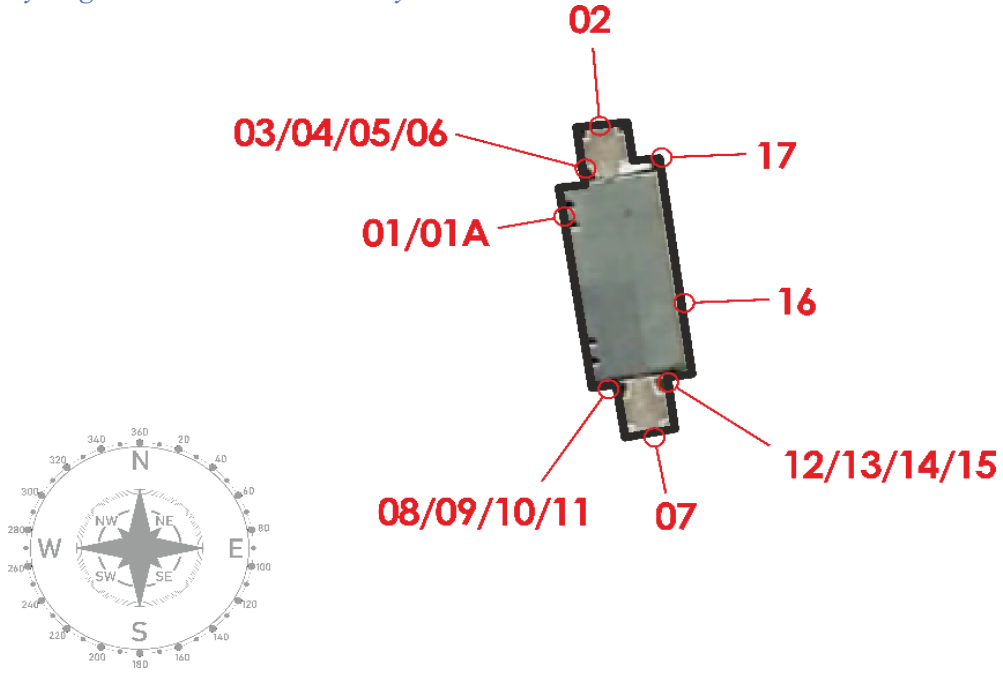
Access to the building can be made through the exterior doors. The locations, types, and general visuals of these doors are provided below.

Aerospace and Aviation Sciences Faculty

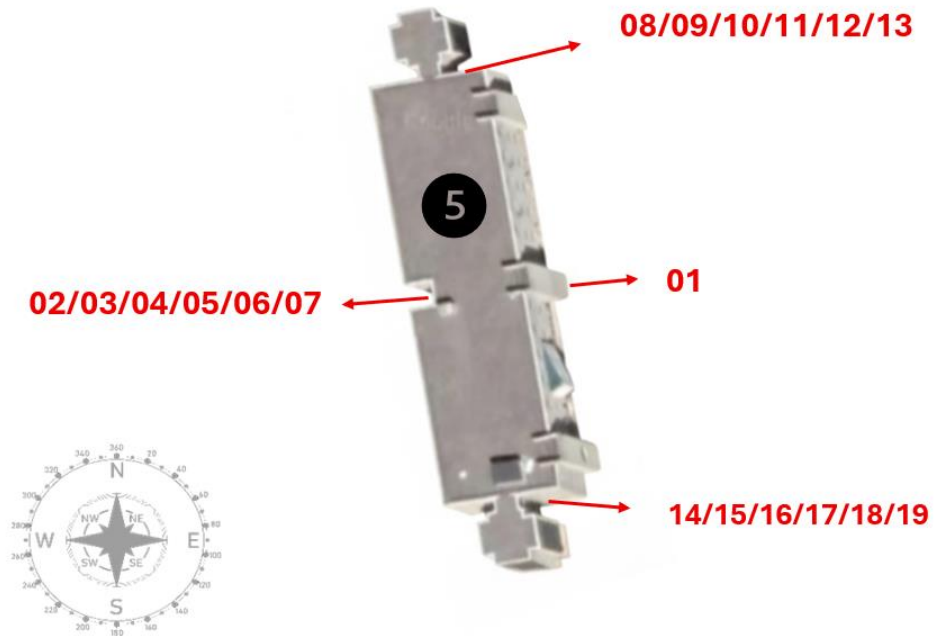


- TS 1203 EN 286-1 Tanklar – Basit – Alev almayan – Basıncılı
- TS 10116 Vinçler (Krenler) – Deney ve muayene yöntemleri
- TS ISO 9927-1 Vinçler-Muayeneler-Bölüm 1: Genel

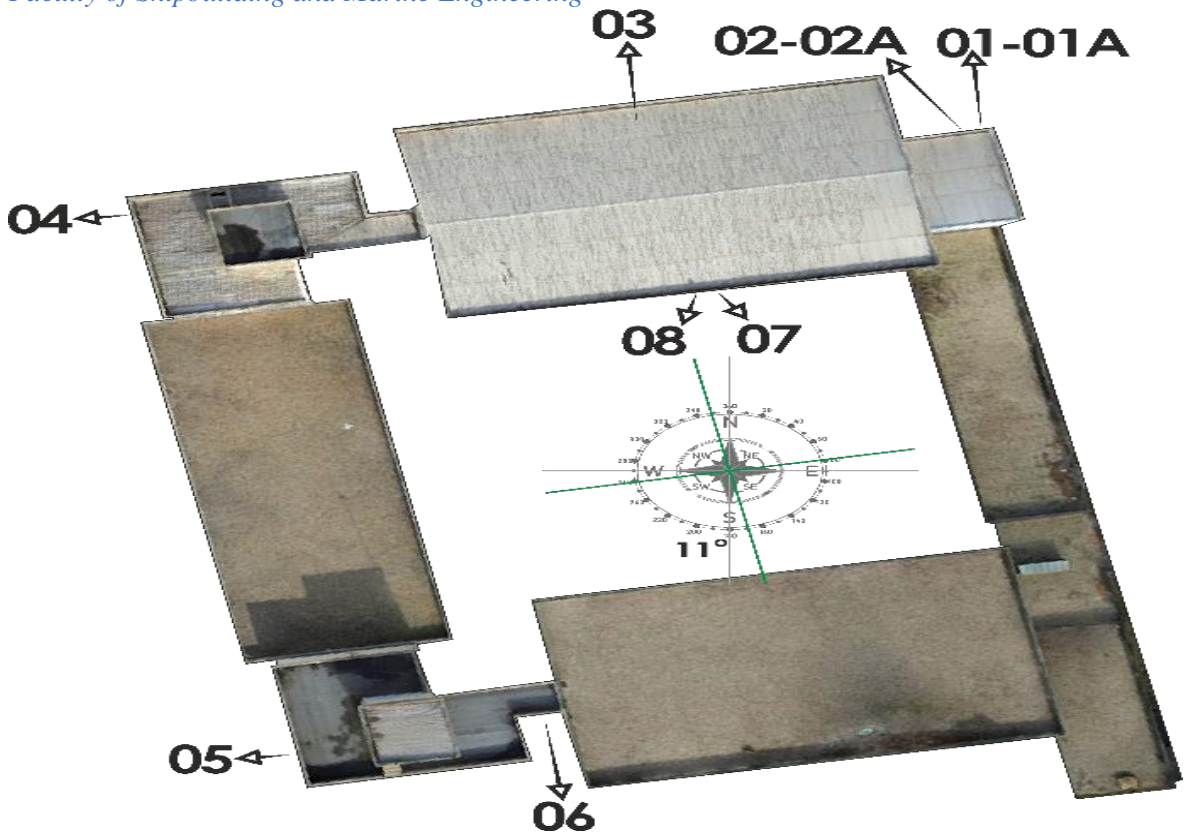
Ayazağa Girls' Student Dormitory



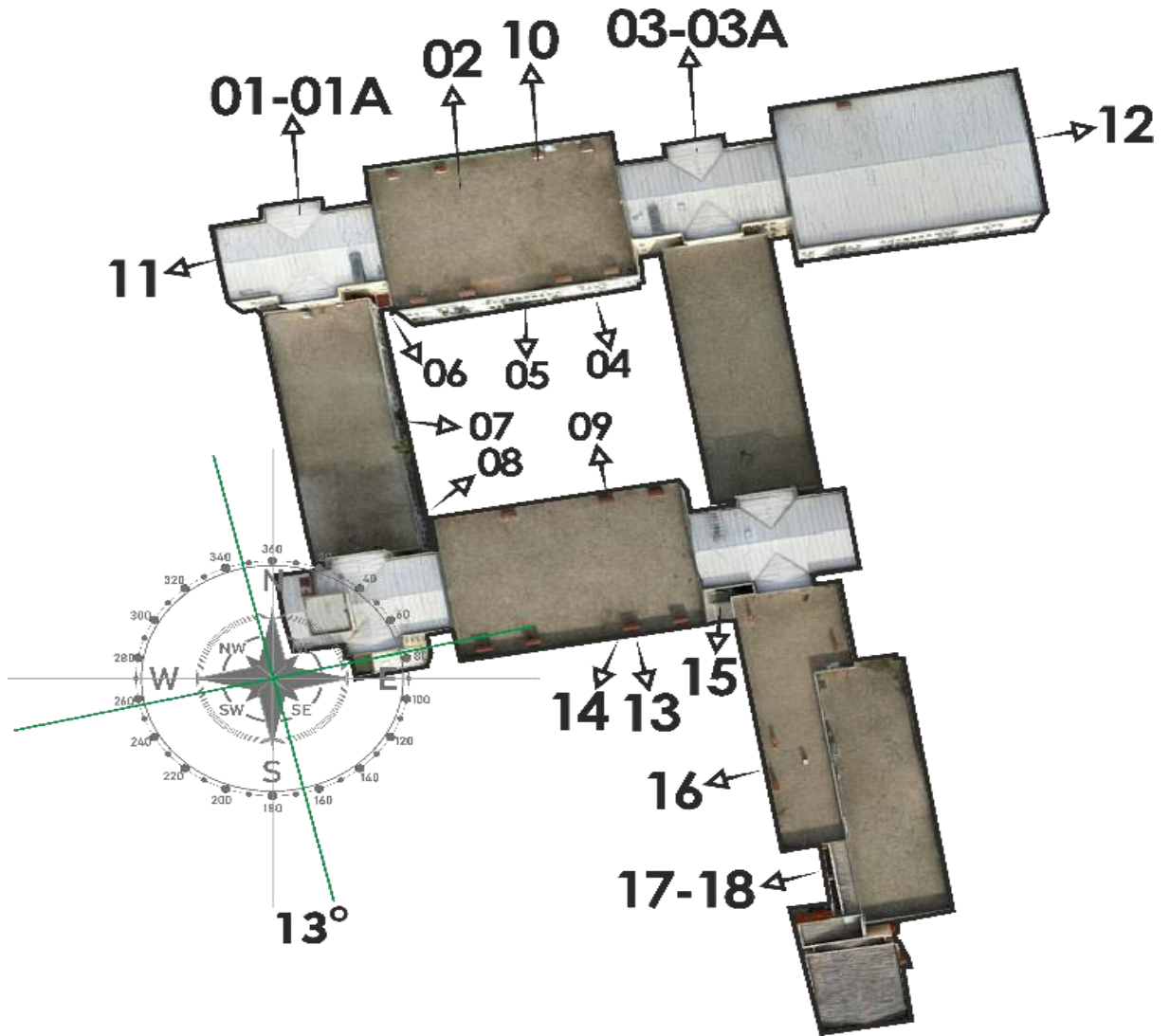
Ferhunde Birkan Girls' Student Dormitory



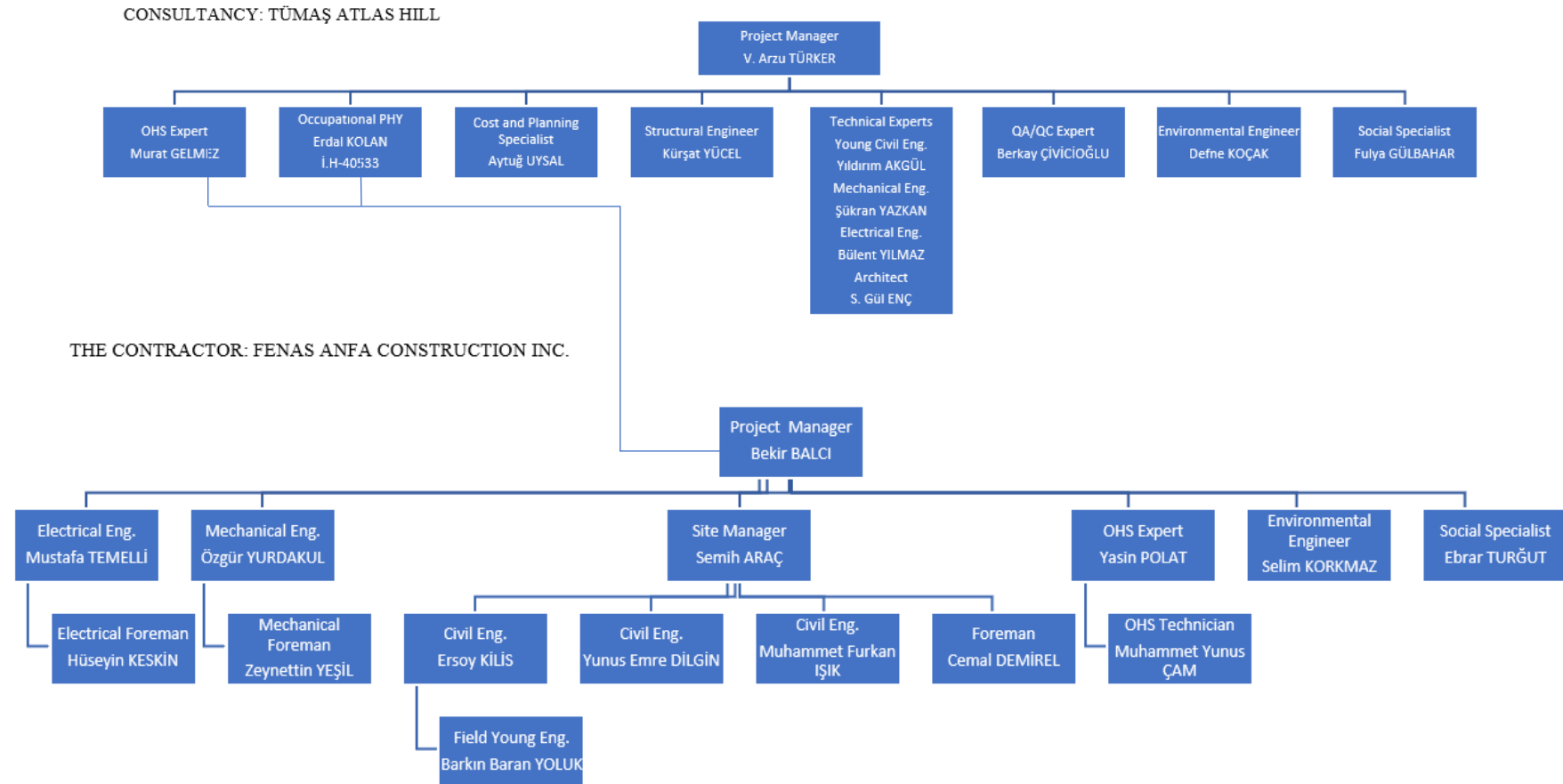
Faculty of Shipbuilding and Marine Engineering



Faculty of Mining



7. Health & Safety Organization



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

7.1 Consultant

7.1.1. Duties of the Project Manager

The Project Manager has been appointed as the representative of the employer, limited to this project. In this context, he/she has assumed the employer's responsibilities.

In this context;

1. To ensure the implementation of the Occupational Health and Safety Plan and legal regulations and best practices within the scope of the project.
2. The construction methods and risk analyses to be prepared by the contractor firm should be examined with a focus on technical, administrative, and occupational health and safety aspects. If found insufficient, the reasons should be communicated, and the revision processes should be monitored.⁸
 - a) The construction methods and risk analyses to be prepared by the contractor firm must encompass the entire project. Therefore, subcontractor activities are also included in this scope.
 - b) To ensure the control/inspection of the contractor and subcontractors regarding the following issues related to risks and precautions;
 - i. All employees should be adequately informed,
 - ii. The necessary resources (tools, equipment, human resources) should be provided,
 - iii. All managers and employees must comply with the relevant rules.
3. To ensure that the appropriateness and adequacy of risk assessments are controlled through field inspections.
 - a) All non-conformities identified as a result of these inspections will be recorded under corrective actions. The identified non-conformities must be addressed appropriately and within the specified timeframe.
 - b) Identified non-conformities or corrective actions may necessitate a revision of the risk analysis. In this case, the revision number, date, and reasons should be specified, and the necessary approval processes should be completed to reissue the risk analyses.
4. To ensure the procurement of periodic health reports for employees and to control them based on the work they perform. Those who do not have reports indicating the suitability of their health status within the scope of their work should not be allowed to work.
5. Ensure that the educational status of employees is monitored and do not allow those who cannot prove that they have received training in accordance with legal requirements to work.
6. Ensure the control of employees' professional qualifications and do not allow those who cannot prove they possess the appropriate professional qualifications within the scope of their duties to work.

⁸ It should be evaluated within the scope of Corrective Action (dates of detection, reasons, proposed corrective actions, deadlines, etc.) and recorded.

7. Ensure the identification, procurement, and appropriate delivery of necessary personal protective equipment (PPE) to employees.
8. Identify, procure, and ensure the proper installation of safety equipment that must be present at work sites (such as protective nets, guardrails, lifelines, etc.).
9. Ensure that work accidents are reported in accordance with Article 14 of the 6331 Occupational Health and Safety Law.
10. Fulfill the employer's other defined duties completely within the framework of the 6331 Occupational Health and Safety Law.

a-) To achieve this, the Project Manager should review the current law and relevant regulations with the Occupational Health and Safety Specialist and the Workplace Physician.

7.1.2. Duties of the Occupational Health and Safety Specialist

The duties of Occupational Health and Safety Specialists are specified in Article 9 of the Regulation on the Duties, Authorities, Responsibilities, and Training of Occupational Safety Experts (Official Gazette Date: 29.12.2012 Official Gazette Number: 28512) as listed below. They will manage occupational health and safety activities in accordance with the duties outlined below.

1. Guidance;
 - a) Make recommendations to the employer to ensure that the planning, organization, and implementation of work, including the condition, maintenance, selection of design, machinery, and other equipment, as well as the materials used, personal protective equipment selection, procurement, use, maintenance, storage, and testing, are carried out in accordance with occupational health and safety legislation and general workplace safety rules.
 - b) Notify the employer in writing of the measures to be taken regarding occupational health and safety.
 - c) Conduct studies on the causes of workplace accidents and occupational diseases, and make recommendations to the employer on measures to prevent recurrence.
 - d) Investigate the causes of incidents that occur in the workplace but do not result in death or injury, yet have the potential to harm employees, equipment, or the workplace, and make recommendations to the employer.
2. Risk assessment;

Participate in studies and implementation related to risk assessment in terms of occupational health and safety, make recommendations to the employer regarding the health and safety measures to be taken as a result of the risk assessment, and follow up on them.
3. Work environment monitoring;
 - a) Monitor the work environment, plan and control the periodic maintenance, checks, and measurements required by occupational health and safety regulations in the workplace.
 - b) Participate in efforts to prevent accidents, fires, or explosions in the workplace, make recommendations to the employer on this matter, follow up on implementations; participate in the preparation of emergency plans for situations such as natural disasters, accidents, fires, or explosions, and monitor and control the periodic training and drills related to this issue, ensuring actions are taken according to the emergency plan.
4. Training, information, and record-keeping;

- a) Work on planning the occupational health and safety training for employees in accordance with relevant regulations, present it for the employer's approval, and carry out or control the implementations.
 - b) Record the occupational health and safety studies related to the work environment and the results of the work environment supervision.
 - c) Organizing information activities for employees to present for employer approval and to monitor implementation.
 - d) Preparing occupational health and safety instructions and work permit procedures for necessary use, presenting them for employer approval, and monitoring implementation.
5. Collaboration with relevant units;
- a) Conducting assessments related to work accidents and occupational diseases together with the workplace physician, investigating and researching to prevent the recurrence of hazardous events, preparing necessary preventive action plans, and monitoring their implementation.
 - b) Preparing the annual work plan that includes occupational health and safety activities to be carried out in the following year together with the workplace physician.
 - c) Working in collaboration with the occupational health and safety committee, if available;
 - d) Supporting the work of employee representatives and support staff and collaborating with these individuals.

In this context;

1. Reviewing construction methods and risk analyses, preparing a report on their suitability. Submit the prepared report to the Project Manager and the Contractor's Project Manager.
2. Preparing weekly monitoring reports during the project preparation phase and submitting them to the Project Implementation Unit.
3. Ensuring that the Contractor prepares monthly Occupational Health and Safety (OHS) reports during the project implementation phase and submitting the reports to the administration in the specified format.
4. Obtaining and checking the periodic inspection reports of construction machinery. (The maximum inspection frequency specified in the regulation is 1 year.)
5. Ensuring that all personal protective equipment specified in the risk analysis is delivered to employees. (During field inspections, checking the delivery records of PPE, questioning the adequacy of the equipment and its appropriate use.)
6. Verification of the authority and appointments of the Contractor and Subcontractor Occupational Health and Safety Specialist and Workplace Doctor.
7. Improvement of this document and updating it based on on-site findings.
8. Checking employee personnel files.
9. Verification of records and certificates related to employees' past occupational health and safety training (maximum 1 year).
10. Participating in weekly and monthly occupational health and safety meetings and reporting them to management.
11. Verification of employees' professional competency certificates.

12. Reviewing work reports from the perspective of occupational health and safety, evaluating work or equipment that may violate occupational health and safety rules.
13. Conducting daily field inspections, evaluating work or equipment that may violate occupational health and safety rules. On-site assessment of the adequacy of risk analyses and identified measures.
14. Review of on-site inspection reports prepared by the Contractor and Subcontractor's Occupational Health and Safety (OHS) specialists. Monitoring and controlling the identified non-compliances.
15. Reviewing the records of existing training provided by the Contractor and Subcontractor Occupational Health and Safety (OHS) Experts (Risk Analysis, Toolbox, etc.). Evaluating their qualifications (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. Receiving accident reports prepared by the Contractor and Subcontractor OHS Experts and checking whether notifications are made in accordance with legal requirements by examining the content and sequence of events.
18. Checking suggestion and complaint boxes. Evaluating feedback received in printed or digital form within the framework of OHS (Occupational Health and Safety), informing those who provided feedback, assessing requests, and determining necessary actions. (Collaboration with the Social Expert will be involved in this process).
19. Providing timely information to the Project Manager regarding field observations, feedback, information received from Contractor and Subcontractor OHS experts, and work accidents without delay.

7.1.3. Duties of Workplace Physicians

The duties of workplace physicians are outlined in the REGULATION ON THE DUTIES, AUTHORITIES, RESPONSIBILITIES, AND TRAINING OF WORKPLACE PHYSICIANS AND OTHER HEALTH PERSONNEL (Official Gazette Date: 20.07.2013 Official Gazette Number: 28713) Article 9 as follows;

1. Guidance;
 - a) To guide the employer regarding health monitoring of employees and monitoring of the working environment within the scope of occupational health and safety services.
 - b) To make recommendations to the employer to ensure that the planning, organization, and implementation of work, including the design of the workplace and the materials used, as well as the selection of personal protective equipment, are carried out in accordance with occupational health and safety legislation and general occupational health rules regarding the work being done and any changes to be made.
 - c) To advise the employer on necessary activities aimed at improving the health of employees in the workplace.
 - d) Participate in research related to occupational health and safety, taking into account ergonomic and psychosocial risks in the workplace to ensure the alignment between the work and the capabilities of employees, and conduct research to protect employees from stress factors in the work environment. Consider the results of these studies in guidance activities.

- e) Continuously monitor and inspect the general hygiene conditions of workplace buildings and extensions, including the canteen, dining hall, dormitory, changing rooms, showers, and toilets, and provide recommendations on meeting the nutritional needs required by the work and ensuring the availability of suitable drinking water for employees.
 - f) Conduct studies on the causes of workplace accidents and occupational diseases, and make recommendations to the employer on measures to prevent recurrence.
 - g) Conduct studies to investigate the causes of incidents that occur in the workplace but do not result in death or injury, yet have the potential to cause harm to employees, equipment, or the workplace, and make recommendations to the employer.
 - h) Notify the employer in writing of the measures to be taken regarding occupational health and safety.
2. Risk assessment;
- Participate in studies and implementation related to risk assessment in terms of occupational health and safety, make recommendations to the employer regarding the health and safety measures to be taken as a result of the risk assessment, and follow up on them.
3. Health monitoring;
- a) Inform employees about the pre-employment and periodic examinations and tests to be conducted within the scope of health monitoring and obtain their consent.
 - b) Conduct health monitoring for employees, including night shifts.
 - c) *Repeat periodic examinations once a year. (However, these intervals may be shortened if deemed necessary by the workplace physician.)*
 - d) Determine whether there is a relationship between absenteeism due to health issues and potential health hazards in the workplace, plan to conduct measurements related to the work environment if necessary, present it for the employer's approval, and evaluate the results in terms of employee health.
 - e) Conduct return-to-work examinations for employees who have been repeatedly absent due to health reasons, and recommend that those who are deemed unfit for their previous roles be assigned to positions suitable for their current health status, presenting this for the employer's approval.
 - f) Provide necessary hygiene training, as well as prevention and immunization efforts to control infectious diseases, and ensure that necessary examinations and tests are conducted.
 - g) To record the health monitoring activities in the workplace, collaborate with the occupational safety expert to evaluate work accidents and occupational diseases, conduct investigations and research to prepare necessary preventive action plans to prevent the recurrence of hazardous events, and prepare an annual work plan that includes these topics to submit for the employer's approval, follow up on the implementations, and prepare the annual evaluation report.
 - h) Check whether the health reports indicating the suitability of the work to be done by employees temporarily assigned to the workplace from another employer and subcontractor employees have expired.
4. Training, information, and registration;

- a) Work on planning the occupational health and safety training for employees in accordance with relevant regulations, present it for the employer's approval, and carry out or control the implementations.
 - b) Provide training to managers, members of the occupational health and safety board if available, and employees on general health, occupational health and safety, hygiene, the harms of substance abuse, personal protective equipment, and collective protection methods, ensuring the continuity of training.
 - c) Inform employees about workplace risks, health monitoring, entry and periodic examinations related to the work performed.
 - d) Prepare the annual evaluation report, which records the results of occupational health and safety activities and health monitoring, in collaboration with the occupational safety specialist.
 - e) Report information related to occupational health and safety issues determined by the Ministry to the General Directorate via the OHS Registry system.
5. Collaboration with relevant units;
- a) Based on the results of health monitoring, propose necessary measurements within the scope of monitoring the work environment in collaboration with the occupational safety specialist, and evaluate the measurement results.
 - b) Collaborate with the occupational health and safety board, if a member is present.
 - c) Cooperate with relevant parties to provide information and training on occupational health and safety issues in the workplace.
 - d) Participate in the development of programs aimed at improving existing practices, such as the analysis of workplace accidents and occupational diseases, programs for improving work practices, and the health assessment and testing of new technology and equipment.
 - e) To work in cooperation with hospitals authorized to prepare health board reports related to occupational diseases according to the Regulation on the Rate of Loss of Working Power and Earning Power in the Profession, and to collaborate with relevant units regarding the rehabilitation of employees who have suffered work accidents or contracted occupational diseases.
 - f) To contribute to the preparation of occupational health and safety instructions and work permit procedures for use in necessary places, in collaboration with the occupational safety expert.
 - g) To support the work of the employee representative and support staff assigned at the workplace and to collaborate with these individuals.

In this context;

1. To check the authority and appointments of the Contractor and Subcontractor Workplace Physicians.
2. To develop this document and update it based on field findings.
3. To support the risk analysis control process by reviewing construction methods obtained from subcontractors and other experts, as well as data related to the areas where work will be conducted.
4. To check employee personal files.
5. To review the periodic health reports of employees.

6. To evaluate weekly work reports from an occupational health perspective; to assess any inappropriate work or equipment presence.
7. To review reports related to field inspections conducted by the Contractor and Subcontractor Workplace Physicians. To follow up and control identified non-compliances.
8. The Contractor shall review the records of the current training provided by the Subcontractor's Workplace Physicians. The suitability (duration, content) shall be questioned.
9. Contacting Employee Representatives and requesting feedback. Informing the Social Specialist and Project Manager about the issues reported by the employee representative, determining and implementing necessary actions regarding occupational health.
10. Obtaining occupational disease reports prepared by the Contractor's and Subcontractor's Workplace Physician, and examining them at the content and event structure level. Checking whether notifications have been made in accordance with legal requirements.
11. Evaluating the feedback obtained within the framework of the suggestion and complaint system in terms of occupational health, based on the requests of the Social Specialist, and determining necessary actions.
12. Informing the Project Manager without delay about field observations, feedback, information obtained from the Contractor and Subcontractor's Workplace Physicians, and workplace accidents.

7.1.4. Occupational Health and Safety Duties of Technical Experts

The Technical Expertise Unit, consisting of Civil Engineering, Mechanical Engineering, and Electrical Engineering disciplines, will perform the following duties in Occupational Health and Safety processes:

1. Informing Occupational Health and Safety Experts about the technical details and processes of the work,
2. Ensuring that the work they supervise is carried out in a manner that protects the health and safety of employees.
3. Reviewing the construction methods prepared by the Contractor and making a judgment about their adequacy.
4. Technically evaluating the issues specified in risk analyses (hazards, risks, and precautions) and making a judgment about their suitability.
5. If the Occupational Health and Safety (OHS) Specialist deems it necessary, to be included in the work permit system, to answer the questions of the OHS Specialist, to evaluate and question the documents communicated by the OHS Specialist within this framework.
6. To technically evaluate the OHS training content carried out by the contractor company. To make a judgment regarding the adequacy (e.g., EKED system, scaffold installation and usage, etc.)

7.1.5. OHS Responsibilities of the Social Specialist

1. To receive and list the printed suggestion complaint forms obtained by the OHS Specialist,
2. To review the feedback obtained within the Suggestion & Complaint system, and to include the OHS Specialist and Workplace Physician in the feedback evaluation process when deemed necessary.

3. To be in contact with Employee Representatives, and to support the establishment of healthy and strong communication between the OHS Specialist, Workplace Physician, and Employee Representatives.

7.1.6. Support Staff Responsibilities

To carry out the tasks requested by the OHS Specialist and Workplace Physician.

7.2 Contractor Company

7.2.1. Employer & Employer Representative Responsibilities

The Project Manager has been appointed as the representative of the employer, limited to this project. In this context, he/she has assumed the employer's responsibilities.

1. As an employer, to fully fulfill the duties specified in the 6331 Occupational Health and Safety Law,
2. The Contractor shall ensure the monitoring requirements, frequencies, and responsibilities specified in Table 28 of the Occupational Health and Safety (OHS) Monitoring Plan are met,
3. Ensure that this document provided by the OHS Consultant is communicated to and understood by all relevant units,
4. Ensure the preparation of construction methods and risk analysis and communicate them to the Consultant before field studies,
5. Ensure the preparation of the OHS Plan, construction methods, and risk analysis is completed and presented to the Consultant before the fieldwork begins,
6. Ensure the prompt provision and delivery of information and documents requested by the Social Consultant,
7. Establish the suggestion and complaint system communicated by the Social Consultant and ensure its effectiveness.
8. Participate in meetings and discussions requested by the Project Manager of the Consultant.
9. Monitor and control the performance of the assigned OHS expert and workplace physician.
10. Review the reports regarding the performance of the OHS Expert and Workplace Physician reported by the OHS Consultant and fulfill the requests (such as expert change, warning, etc.)

7.2.2. Duties of OHS Experts

1. To fully perform the duties specified in the regulation regarding the duties, authorities, responsibilities, and training of occupational safety experts.
2. To ensure that the contractor company prepares for project work in accordance with this occupational safety and health program (ISGP), creates a risk analysis within the framework of the construction method, and presents it to the occupational safety expert before the fieldwork begins.
3. To forward the records and certificates of employees' past occupational safety and health training to the consulting occupational safety expert.

4. To provide employees with up-to-date training within the framework of this document and risk analysis. To maintain training records and forward these records to the consulting occupational safety expert.
5. To plan and implement additional training requested by the consulting occupational safety expert. To maintain training records and forward them to the consulting occupational safety expert.
6. To forward the employees' Professional Competence Certificates to the consulting occupational safety expert.
7. To inform all employees about the suggestion and complaint system applied specifically for this project.
8. To forward the periodic inspection reports of construction machinery to the consulting occupational safety expert.
9. To forward the Personal Protective Equipment (PPE) lists (standards, quantities, etc.) and delivery receipts to the consulting occupational safety expert.
10. To participate in field inspections by the consulting occupational safety expert and to have the information and documents requested by the consulting occupational safety expert readily available.
11. To forward the reports regarding work accidents to the Consultant Occupational Health and Safety Specialist.
12. Implement the corrective actions communicated by the Consultant and inform the Consultant's Occupational Health Specialist and/or Workplace Physician regarding the process.
13. Plan, attend, and report on weekly and monthly Occupational Health and Safety meetings.

7.2.3. Duties of Subcontractor Workplace Physicians

1. Fulfill the duties specified in the regulation regarding the responsibilities, authorities, and training of the WORKPLACE PHYSICIAN AND OTHER HEALTH PERSONNEL completely.
2. Ensure the creation of risk analysis within the framework of the construction method.
3. Forward the periodic occupational health reports of employees to the Consultant's Workplace Physician.
4. Submit records and certificates of employees' past occupational health training to the Consultant's Workplace Physician.
5. Plan and implement additional training requested by the Consultant's Workplace Physician. Maintain training records and forward them to the Consultant's Workplace Physician.
6. Forward records related to occupational diseases to the Consultant's Workplace Physician.

7.2.4. Technical Experts' Occupational Health and Safety Duties

The Technical Expertise Unit, consisting of Civil Engineering, Mechanical Engineering, and Electrical Engineering disciplines, will perform the following duties in Occupational Health and Safety processes:

1. Informing Occupational Health and Safety Experts about the technical details and processes of the work,
7. Ensure that the work is carried out in a manner that protects the health and safety of employees.
2. Develop construction methods and communicate them to the Occupational Health and Safety Expert.
3. Technically evaluating the issues specified in risk analyses (hazards, risks, and precautions) and making a judgment about their suitability.
4. If the Occupational Health and Safety (OHS) Specialist deems it necessary, to be included in the work permit system, to answer the questions of the OHS Specialist, to evaluate and question the documents communicated by the OHS Specialist within this framework.
5. Ensure the technical development of occupational health and safety training content. (e.g., EKED system, scaffold setup and usage, etc.)

7.2.5. Employee Representative Duties

1. Fulfill the duties and responsibilities specified in the 6331 Occupational Health and Safety LAW (Official Gazette Date: 30.06.2012 Official Gazette Number: 28339) completely.
2. Participate in risk analysis studies within the framework of the construction method.
3. Support the Occupational Health and Safety Expert in implementing feedback from other employees through the Proposal Complaint system prepared specifically for this project, and provide information to employees on this matter.
4. Establish strong communication with the Consulting Occupational Health and Safety Expert, workplace physician, and social expert, and provide information about the general requests and situations of employees.
5. Report any situations encountered regarding avoidance of work to the Consulting Occupational Health and Safety Expert without delay.
6. Report any situation that may negatively affect the effectiveness of the suggestion and complaint system to the Social Expert Consultant.

7.2.6. Support Staff Duties

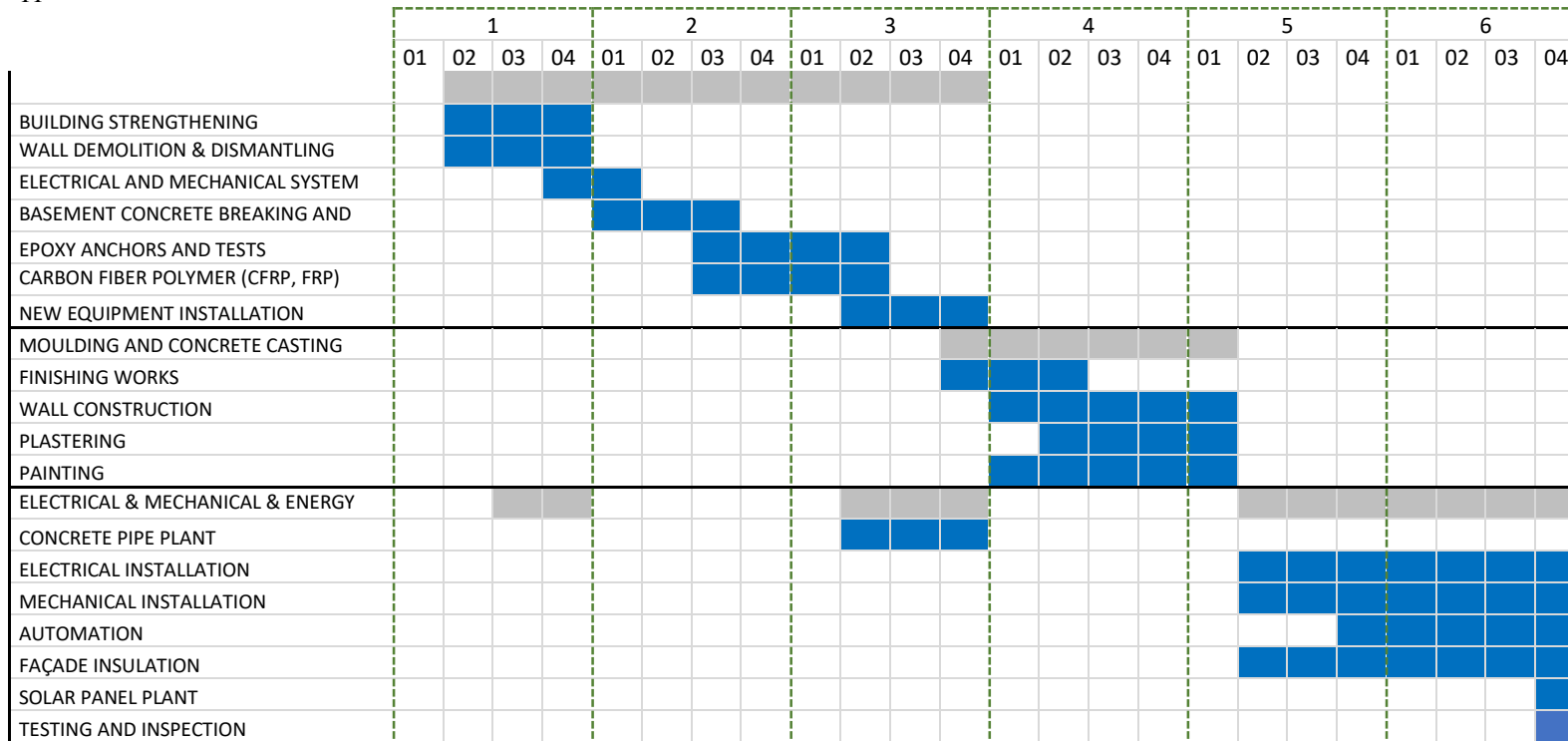
To carry out the tasks requested by the Occupational Health and Safety Specialist and the Workplace Physician. A team of two occupational health and safety workers will perform regular duties on-site.

8. Management of Works

General Work Program and Cross-Interaction

The general work program is presented for your attention below. This program is not final; it has been created solely 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.

11



8.1 Working Methods

The general descriptions regarding the construction process specified below have been created to guide the contractor in detailed construction methods and risk analysis studies. The contractor will prepare the construction method and risk analysis before starting each new job and submit it for the consultant's approval, and will begin work after receiving approval.

8.1.1 Structural Strengthening

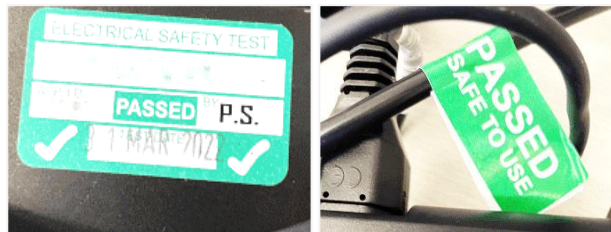
1. The Existing Condition Performance Report, prepared based on structural research and findings, provides objective evidence that the structure needs strengthening. The construction of infrastructure around the buildings, land surveying, route excavation, adjustment of route elevations, scaffolding installation, and chimney creation will be carried out using traditional methods. The connection of the superstructure exiting the building to the new chimneys will be made. Important points to be considered are listed below.
 - The use of construction machinery is very important. Excavation work involves the use of excavators, loaders, and trucks. Before starting work, it is essential to check the periodic inspection reports of these devices and the user qualification documents (operator licenses, Class C licenses).
 - In the areas where the underground natural gas pipeline facility is located, the Natural Gas Supplier Company is responsible for providing a suitable environment by carrying out the necessary work before the start of Phase II of the Projects (Construction Phase). The implementation of the project must be carried out under the supervision of the Infrastructure Construction Control Personnel Level 4 (National Vocational Qualification Authority (MYK) Law No. 5544 - 12UY0042-4).
 - (The relevant Natural Gas Pipeline process will be fully prepared, and in order to create the necessary environment, all controls and tests will be conducted by the Service Provider Local Distribution Company before the Site Handover, and delivery will be provided as specified in the projects. The Property Owner must apply in accordance with the relevant legislation for the construction of these facilities. Therefore, neither the Consulting Firm nor the Contractor can intervene in these natural gas pipelines UNDER ANY CIRCUMSTANCES.)
2. In the superstructure reinforcement application, demolition operations will primarily be carried out from the upper floors to the lower floors. The reinforcement walls and column jackets on the designated axes will be demolished starting from the top floor using hammers and breakers. Before the walls are demolished, items that could be damaged, such as doors, windows, fixtures, countertops, and electrical and mechanical installations, should be removed and protected. Important points to be considered are listed below.
 - The potential danger of including electrical cables in the elements to be demolished must be taken into account. Priority should be given to electrical outages in the area; the electricity needs of tools such as breakers and drills should be supplied from alternative sources. Distribution boxes, sockets, lighting element lines, switches, and other components should be checked before demolition, and it should be verified that there is no electricity. During this process, it is not sufficient to use only inspection items. Control devices such as phase voltage detectors should be used minimally. Functional checks of these test devices should be performed daily (using working sockets).

Figure 9 Example Visual of Phase Detector



- All electric hand tools must have undergone PAT tests. PAT test reports will be requested and checked before work begins. During field inspections, the presence of PAT control and approval labels on electric devices will be checked. Devices without a compliance label will not be allowed for use. (Extension cords are also included in this scope.)

Figure 10 Example Visual of PAT Test Label



- Necessary care should be taken to prevent electric extension cords from being damaged and to ensure that these cords do not come into contact with water. Extension cords and other electrical device power cables will be checked daily. The use of damaged cables is not permitted.
- During demolition, both sides of the walls should be checked, and necessary restrictions (limiting access, observing the impact areas of the walls to be demolished, using warning and caution signs, etc.) should be implemented to ensure that workers do not get trapped under debris.
- In wall demolitions affecting the exterior of the building, impact areas should be identified, and access to these areas should be prohibited.
- Areas with reinforcement should be marked before wall demolition. It is essential that the mentioned reinforced elements (load-bearing) do not suffer damage. The demolition team will be warned about this on a daily basis.
- To prevent damage to the flooring during demolition work, walls must be broken into pieces and brought down in a controlled manner. Techniques that should be applied to avoid the walls collapsing as a whole must be communicated to the workers. Protective coverings of appropriate thickness should be used for surfaces that need to be protected.
- Workers involved in the removal of debris should be informed about manual handling procedures. It is prohibited to throw waste uncontrollably from a height. The method of debris removal will be determined and communicated by the contracting company.
- Workers assigned to the transportation of rubble should be informed about manual handling rules. It is prohibited to throw rubble uncontrollably from a height.

The method for removing rubble will be determined and communicated by the contracting company.

- To protect workers from dust during the demolition process, the use of dust masks and protective goggles is mandatory.
 - To protect workers from noise during the demolition process, the use of earplugs or headphones is essential.
 - To protect workers from flying debris during the demolition process, it is essential for them to wear protective goggles.
3. After the dismantling process, it is necessary to break the foundation concrete and excavate the fill inside the foundation to open the perimeter of the curtain and column casing for the purpose of connecting reinforcement elements to the foundations. This breaking and excavation work will be carried out manually (with a breaker and hammer) and/or with small machines that can enter the structure (such as bobcats).

The major issues that need to be considered are listed below.

- During excavation work, for the use of small excavators and loaders, it is essential to first check the periodic inspection reports of the machines and the user competency certificates (operator licenses).
 - During maneuvers with construction machinery in the work area, responsible operators should be informed beforehand to ensure that the walls and equipped components that need protection are not damaged. The construction methods regarding the use of these construction machines inside the building should be communicated to the consultant in advance. (This document should specify whether there is a risk of permanent damage during the transportation of the construction machine to the work area, the demolition of walls, and maneuvers and operations inside the building.)
 - Warning tapes should be installed around the excavated areas. If work is to be carried out at night, these tapes must have reflective properties.
4. After the excavation and digging operations are completed, anchorage bars will be driven into the existing columns, beams, and foundations. The process involves drilling holes in the existing elements according to the dimensions in the detailed projects using drilling machines, cleaning the hole with an air compressor, injecting epoxy adhesive into the hole, and inserting the pre-prepared anchorage rebar (made from normal ribbed construction steel) into the hole.

Figure 11: EXAMPLE VISUAL OF ANCHORAGE BARS BEING DRIVEN



The major issues that need to be considered are listed below.

- Open-ended anchorage bars pose a serious risk of injury or even death in case of a fall. As long as these areas pose a risk, they should be surrounded by warning labels, and workers should be alerted. (Care should be taken to ensure that the ends of the anchorage bars are not sharp or cutting.) Areas with a risk of falling should be surrounded by warning tapes based on the principle of impact zones.
 - All electric hand tools must have undergone PAT tests. PAT test reports will be requested and checked before work begins. During field inspections, the presence of PAT control and approval labels on electric devices will be checked. Devices without a compliance label will not be allowed for use. (Extension cords are also included in this scope.)
 - Necessary care should be taken to prevent electric extension cords from being damaged and to ensure that these cords do not come into contact with water. Extension cords and other electrical device power cables will be checked daily. The use of damaged cables is not permitted.
 - There is a risk of anchorage bars falling from the outside of the building. Workers should consider this risk during the stacking and installation of these ribbed steels. It is essential for all workers to wear helmets within the work area.
 - It is likely that the anchorage bars may be rusty. Therefore, it is necessary for workers to use appropriate types of protective gloves. Additionally, all workers must have received their tetanus vaccinations. (The workplace physician should inform workers about the infections and tetanus caused by rusty metals during training sessions.)
 - The compressors to be used for hole cleaning should be checked by qualified mechanical engineers, and their suitability must be verified.
 - The MSDS (Material Safety Data Sheets) of epoxy adhesives should be checked by workplace physicians, and workers should be informed (about volatile properties, eye contact, etc.).
 - The necessity of eye wash stations in relation to dust and chemical usage should be determined by the workplace physician.
 - Personnel processing the reinforcement bars must possess the Concrete Reinforcement Worker Level 3 (11UY0012-3) certification.
5. The installation of reinforcement elements along with the production of anchors.

The major issues that need to be considered are listed below.

- During the placement of reinforcement metals, risks of sinking and cutting should be considered, and the ends should not be left exposed in a way that poses a danger.
- The ends of reinforcement metals, which carry a risk of sinking and may be difficult to see due to differences in elevation, should be covered using plastic wedges and made conspicuous with warning signs.
- It is likely that the reinforcement bars are rusty. Therefore, it is essential for workers to use appropriate types of protective gloves. Additionally, all workers must have received their tetanus vaccinations. (The workplace physician should

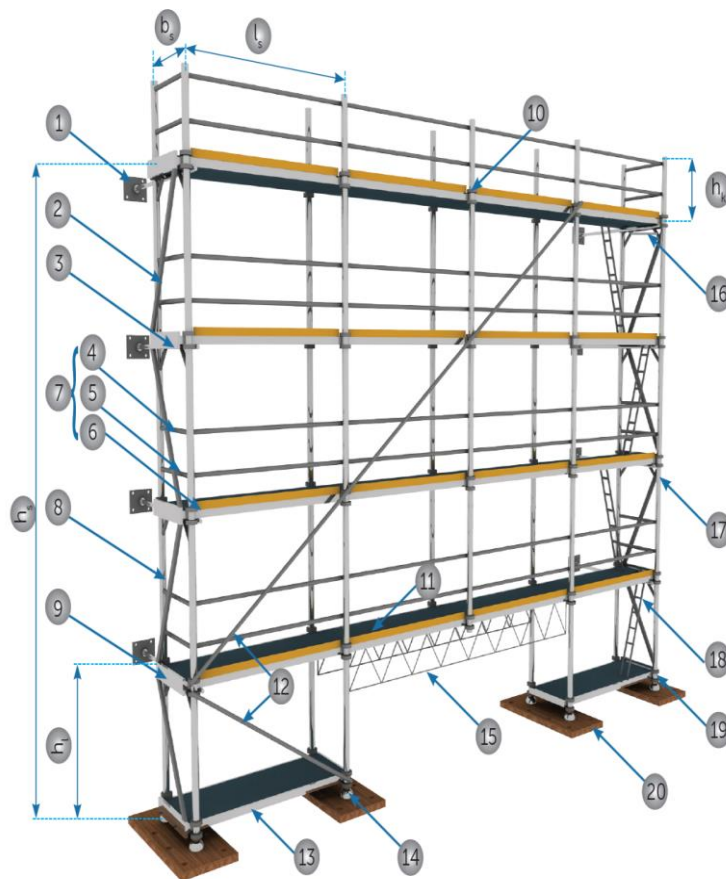
inform employees about the infections caused by rusty metals and tetanus during training sessions.)

- When shaping reinforcement bars using bending and cutting machines, these machines must have undergone PAT testing. PAT test reports will be requested and checked before work begins. During field inspections, the presence of PAT control and approval labels on electrical devices will be verified. Devices and equipment without a compliance label are not permitted for use. (Extension cords are also included in this scope.)
 - Personnel processing the reinforcement bars must possess the Concrete Reinforcement Worker Level 3 (11UY0012-3) certification.
6. After the experiments and reinforcement samples have been received by the control organization, plywood molds are closed, and "self-leveling concrete" (fine aggregate, super plasticizer added concrete) is poured into the mold through a hole opened from the upper floor or from funnels made from the mold, also known as bird mouths. The concrete pouring process is carried out using a transit mixer and a concrete pump. If necessary, portable pipes (corrugated pipes, etc.) or manual transportation of concrete can be used for areas that the pump cannot reach within the existing structure. The concrete for the reinforcement element of one floor should be poured, and at least 2 days should pass before pouring the concrete for the upper floor. Any potential voids that may occur due to the inability of concrete to reach between existing elements and the new reinforcement element will be filled with high-strength, polymer fiber-reinforced repair mortars. Major considerations to be noted at this stage are listed below.
- All electric hand tools (mobile concrete mixers, vibrators, concrete pumps, etc.) must have undergone PAT testing. PAT test reports will be requested and checked before work begins. During field inspections, the presence of PAT control and approval labels on electrical devices will be verified. Devices and equipment without a compliance label are not permitted for use. (Extension cords are also included in this scope.)
 - Necessary care should be taken to prevent electric extension cords from being damaged and to ensure that these cords do not come into contact with water. Extension cords and other electrical device power cables will be checked daily. The use of damaged cables is not permitted.
 - MSDS for repair mortars and similar materials should be checked by workplace physicians, and employees should be informed (regarding inhalation, eye contact, etc.).
 - During the access of transit mixers to the work area, traffic action plan rules should be followed. Access of unrelated workers to the vicinity of the transit mixer should be restricted with warning tapes during parking and working hours.
 - Personnel assigned to formwork tasks must possess the Wood Formwork Level 3 (11UY0011-3) certificate.
 - The personnel assigned to concrete pouring tasks must possess the Concrete Worker Level 3 (12UY0049-3) certificate.
7. After the completion of the rough construction, the repair work will begin. The strengthening works will be completed by applying plaster, paint, insulation, etc., to the

inner and outer surfaces of the strengthening walls, leveling concrete and finishing material arrangements for damaged floors, installing electrical and mechanical systems, and manufacturing doors and windows if necessary. The major issues to be considered at this stage are listed below.

- In necessary cases, the mobile and fixed temporary work scaffolds that need to be established must be designed and constructed in accordance with TS EN 12811-1 and TS EN 12810-2 standards, ensuring they will not accidentally move or collapse. Scaffold components must be designed to be safely transported, assembled, used, maintained, disassembled, and stacked. The materials used must meet the conditions specified in TS EN 12810-1 and TS EN 12811-2 standards, which provide the design data, and must be strong and durable enough to withstand normal working conditions. All personnel working on these scaffolds are required to have received training for working at heights and to use full-body safety harnesses and fall protection equipment.

Figure12: Example Visual of Exterior Scaffold



hs: Scaffold Height

bs: Scaffold Extension Width (From the center to the center of the verticals)

ls: Scaffold Extension Length (From the center to the center of the verticals)

hl: Scaffold Level Height

hk: Guardrail Height

1: Anchor

2: Vertical Plane Support (Transverse)

3: Node Point

4: Main Guardrail

5: Intermediate Guardrail

6: Toe Board

7: Side Protection

8: Vertical

9: Transverse Intermediate Connection
Common Element

Platform

Vertical Plane Support (Longitudinal)

Longitudinal Intermediate Connection

Base Plate

Cage Beam

Brace Element

Vertical Frame

Staircase

Height Adjustable Base Plate

Ground Stabilization Base

Note: The figure is intended for the introduction of scaffold components and does not show the conditions that need to be met.

- Personnel who will set up the scaffold must possess the Scaffold Installation Personnel Level 3 (12UY0056-3) certificate.

- Personnel working in the electrical installation must at least possess the Electrician Level 3 (15UY0241-3) certificate.
- The personnel who will perform the installation in electrical panels and boards must have at least the Electrical Panel Installer Level 3 (12UY0075-3) certificate.
- During the installation of electrical panels/tables, torque-controlled screwdrivers and tightening equipment should be used. Appropriate tightening forces should be predetermined based on the type of switchgear or the size of screws and nuts, and communicated to the responsible personnel.
- Personnel involved in the mechanical installation process must at least possess the Heating and Natural Gas Internal Installation Construction Personnel Level 3 (11UY0031-3) certificate.
- Personnel who will be constructing walls must possess the Wall Builder Level 3 (12UY0048-3) certificate.
- Personnel who will perform plastering must possess the Plasterer Level 3 (11UY0024-3) certificate.
- Personnel who will perform gypsum work must possess the Gypsum Plaster Applicator Level 3 (12UY0055-3) certificate.
- Personnel involved in ceramic tile work must possess the Ceramic Tile Layer Level 3 (12UY0051-3) certificate.
- Personnel involved in painting work must possess the Construction Painter Level 3 (11UY0023-3) certificate.
- Personnel who will work on-site must at least possess the Construction Worker Level 2 (16UY0253-2) certificate.
- MSDSs for repair mortars, paints, and other chemicals should be checked by workplace physicians, and employees should be informed (regarding inhalation, eye contact, etc.).
- All personnel who will carry heavy loads must receive training in manual lifting and handling.

12Table 12: Building Strengthening & Infrastructure Works Control Table

Work to be Done:	Building Strengthening & Infrastructure Works
WORKING METHOD	
Technical Description and Requirements	
Construction Technique and Technology	
<ul style="list-style-type: none"> - Building Strengthening and Infrastructure Works 	
Use of Work Equipment	
<ul style="list-style-type: none"> - EXCAVATOR LOADER - TRANS MIXER - KAMYON - PUNCHING DRILL - SPIRAL - MORTAR MIXER - COMPRESSOR - MOBILE CONCRETE MIXER - IRON BENDING MACHINE - IRON CUTTING MACHINE - CORDLESS / FIXED DRILL - CORDLESS SCREW/NUT TIGHTENING - PHASE VOLTAGE DETECTOR - MULTIMETER - TORQUE CONTROLLED SCREWDRIVER - TORQUE CONTROLLED TIGHTENING - INTERNAL SCAFFOLDING (MOBILE / FIXED) - HAMMER & CHISEL - CORDLESS SCREWDRIVER - EXTENSION CORD 	
Chemical Substance Usage	
<ul style="list-style-type: none"> - CEMENT, PLASTER, EPOXY BINDER, PAINT, PAINT THINNER 	
Access to the Work Area	
<ul style="list-style-type: none"> - The access route is provided in a plan format under the title Construction Preliminary Information & Site Plans. <ul style="list-style-type: none"> • The maximum speed for trucks within the campus is limited to 20 km/h. • The maximum speed for mobile cranes within the campus is limited to 20 km/h. 	
Transportation & Supply of Materials	
<ul style="list-style-type: none"> - Details regarding the lifting, transportation, and unloading of consumables and related technical materials are specified and explained under the General Site Rules subheading. 	

PPE - GENERAL	Need for Trained Personnel
<ul style="list-style-type: none"> • 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 SAFETY HARNESS EN 361 • ROPE BRAKING SYSTEM EN 353 • SAFETY HOOK EN 362 • FALL ARRESTER 	<ul style="list-style-type: none"> • MACHINE ENGINEER • ELECTRICAL ENGINEER • CIVIL ENGINEER • ARCHITECT • SCAFFOLDING INSTALLATION ELEMENT LEVEL 3 (12UY0056-3) • ELECTRICIAN LEVEL 3 (15UY0241-3) • HEATING AND VENTILATION SYSTEM INSTALLER LEVEL 3 (11UY0031-3) • WALL MASON LEVEL 3 (12UY0048-3) • PLUMBER LEVEL 3 (11UY0024-3) • PLASTERER LEVEL 3 (12UY0055-3) • CERAMIC TILE INSTALLER LEVEL 3 (12UY0051-3) • CONSTRUCTION PAINTER LEVEL 3 (11UY0023-3) • CONSTRUCTION WORKER LEVEL 2 (16UY0253-2)

- SAFETY ROPES
EN 355

13

WORK TO BE DONE	DANGER SOURCE	RISKS	PRECAUTION
Natural gas pipeline interventions	Gas leak and explosion	<ul style="list-style-type: none"> ▪ Trauma ▪ Severe burn ▪ Loss of limb ▪ Death 	<ul style="list-style-type: none"> ▪ It must be verified through İGDAŞ that there are no natural gas pipes in the relevant area before excavation work. ▪ Natural gas pipelines must be shut down and protected with the EKED system before any intervention. ▪ Interventions on existing pipelines or the establishment of new lines will be carried out under the supervision of the Natural Gas Infrastructure Construction Control Personnel Level 4 (12UY0042-4). ▪ It is mandatory for personnel in the work area to wear safety shoes, protective goggles, helmets, dust masks, and ear protection. ▪ The areas where work will be conducted will be separated by safety tape, and risks will be posted with safety signs.

WORK TO BE DONE	DANGER SOURCE	RISKS	PRECAUTION
Wall demolition	<p>Risk of being under heavy load</p> <p>Electric shock</p>	<ul style="list-style-type: none"> ▪ Crushing ▪ Trauma ▪ Electric shock 	<ul style="list-style-type: none"> ▪ The risk of structural elements being in contact with electrical lines must be considered. The power supply to the area in question should be cut off; the electrical needs of breaking, drilling, etc. devices must be met from other lines. ▪ In the event of a power outage, EKED rules must be implemented. ▪ Before the work begins, the presence of equipment such as sockets, switches, circuit breakers, and junction boxes on the wall should be checked, and the disassembly of equipment and cables should be carried out in accordance with the instructions of the electrical engineer before demolition. ▪ Before demolition, it must be verified that there is no power using a phase voltage detector through the socket, junction box, and switch. ▪ All breaking and piercing equipment to be used in the demolition must pass the PAT test and be verified as electrically suitable. ▪ Necessary care should be taken to prevent electric extension cords from being damaged and to ensure that these cords do not come into contact with water. Extension cords and other electrical device power cables will be checked daily. The use of damaged cables is not permitted. ▪ The sides of the walls to be demolished must be separated by safety barriers, and warning signs must be installed. ▪ Walls should not be demolished as a whole but rather in controlled pieces. ▪ It is mandatory for personnel in the work area to wear safety shoes, protective goggles, helmets, dust masks, and ear protection.

WORK TO BE DONE	DANGER SOURCE	RISKS	PRECAUTION
Wall demolition	<ul style="list-style-type: none"> ▪ Heavy objects falling from heights. ▪ Workers falling from heights. 	<ul style="list-style-type: none"> ▪ Head and body injuries. ▪ Death 	<ul style="list-style-type: none"> ▪ The building perimeter will be separated by safety barriers and warning signs. ▪ High-risk areas where parts of the wall to be demolished may fall will be identified before work begins and monitored by responsible personnel. ▪ Personnel involved in the demolition of the wall will use full-body safety harnesses and fall protection equipment. These devices will be connected to lifelines anchored to solid structures. (The personnel in question must receive training for working at heights.) ▪ The wall sections that have been demolished will be secured with temporary barriers and warning tapes/signs until the new wall is established. If work is to be carried out at night, these tapes and signs must have reflective properties. <ul style="list-style-type: none"> ▪ It is mandatory for personnel in the work area to wear safety shoes, protective goggles, helmets, dust masks, and ear protection.
Opening of the curtain and column mantle area	<ul style="list-style-type: none"> ▪ Construction machinery 	<ul style="list-style-type: none"> ▪ Injury due to collision during the maneuvering of construction machinery. ▪ Crushing or cutting of limbs during the adjustment and part replacement of construction machinery. 	<ul style="list-style-type: none"> ▪ The suitability of the construction machinery must be verified with a periodic inspection report. ▪ Before operating the construction machinery, the operator must visually inspect it and assess the presence of any physical defects. ▪ Construction machinery must be functionally checked by the operator before each operation. (reverse maneuver warning siren, warning/indicator lights, etc.) ▪ Construction machinery can only be operated by authorized operators. The operator's professional suitability documents must be checked and verified. ▪ Intervention by personnel and experts other than authorized personnel (Operator, Mechanical Engineer, etc.) is not permitted on the construction machinery. ▪ The construction site for the machinery will be separated by safety barriers, and it should be indicated with safety signs that approaching the machinery is prohibited. ▪ It is mandatory for personnel in the work area to wear safety shoes, protective goggles, helmets, dust masks, and ear protection.

WORK TO BE DONE	DANGER SOURCE	RISKS	PRECAUTION
Opening of the curtain and column mantle area	Çukur	<ul style="list-style-type: none"> ▪ Injury resulting from falling into a pit. 	<ul style="list-style-type: none"> ▪ Warning tapes and signs should be installed around the excavated areas. If work is to be carried out at night, these tapes and signs must have reflective properties.
Anchoring rods should be driven into the existing columns, beams, and foundations.	Rusty metal Sharp, pointed parts Use of electric tools	<ul style="list-style-type: none"> ▪ Severe trauma due to cutting or puncturing ▪ Tetanus ▪ Respiratory disorders ▪ Eye irritation/small particle intrusion. <p>Electric shock</p>	<ul style="list-style-type: none"> ▪ It is essential that all electric equipment used for drilling and cutting reinforcement be subjected to PAT testing and verified for electrical safety. ▪ Extension cords and device power cables must be physically protected. Cables should not be left lying on the ground in a haphazard manner, allowing passage over them by carts and workers. Cables must not be allowed to remain in puddles of water. ▪ Before use, electric equipment should be visually inspected, and devices with physical defects must be taken out of service. ▪ The areas where anchor rods are installed should be marked with warning tapes and signs. If work is to be done at night, these tapes and signs must have reflective properties. ▪ Employees must have received their tetanus vaccinations. (The workplace physician should inform employees about infections caused by rusty metals and tetanus during training sessions.) All employees must use appropriate types of protective gloves. ▪ The necessity of eye wash stations in relation to dust and chemical usage should be determined by the workplace physician. ▪ Personnel processing reinforcement bars must possess a Level 3 Reinforced Concrete Ironworker certificate (11UY0012-3). ▪ Sharp, pointed ends should be chamfered with an appropriate type of cutter or spiral. Rubber bumpers should be installed on uncorrectable sharp, pointed ends. ▪ It is mandatory for personnel in the work area to wear safety shoes, protective goggles, helmets, dust masks, and ear protection.
Anchoring rods should be driven into the existing columns, beams, and foundations.	Epoxy adhesives	<ul style="list-style-type: none"> ▪ Disorders related to the chemical theme. 	<ul style="list-style-type: none"> ▪ Epoxy adhesives' MSDS should be checked by workplace physicians, and employees should be informed (volatile properties, eye contact, etc.). <ul style="list-style-type: none"> ▪ The necessity of eye wash stations in relation to dust and chemical usage should be determined by the workplace physician.

WORK TO BE DONE	DANGER SOURCE	RISKS	PRECAUTION
Installation of reinforcement elements.	Metal, cutting, bending. Rusty metal Sharp, pointed parts Use of electric tools	<ul style="list-style-type: none"> ▪ Severe trauma due to cutting or puncturing ▪ Limbs caught. ▪ Tetanus ▪ Respiratory disorders ▪ Eye irritation/small particle intrusion. <p>Electric shock</p>	<ul style="list-style-type: none"> ▪ Personnel processing reinforcement bars must possess a Level 3 Reinforced Concrete Ironworker certificate (11UY0012-3). ▪ It is essential to cut and bend reinforcement, and all electrical equipment must undergo PAT testing to verify electrical safety. ▪ Extension cords and device power cables must be physically protected. Cables should not be left lying on the ground in a haphazard manner, allowing passage over them by carts and workers. Cables must not be allowed to remain in puddles of water. ▪ Before use, electric equipment should be visually inspected, and devices with physical defects must be taken out of service. ▪ When using an electric reinforcement bending device, protective gloves should be removed before performing work close to the bending heads. ▪ Sharp, pointed ends should be chamfered with an appropriate type of cutter or spiral. Rubber bumpers should be installed on uncorrectable sharp, pointed ends. ▪ It is mandatory for personnel in the work area to wear safety shoes, protective goggles, helmets, dust masks, and ear protection.
Installation of reinforcement elements.	Temporary work scaffolding.	<ul style="list-style-type: none"> ▪ Falling from heights. ▪ Traumas caused by falling objects. 	<ul style="list-style-type: none"> ▪ Regardless of the size of the work scaffolding to be erected, it is essential to meet the TS EN 12811-1 standard requirements. All personnel working on these scaffolds must have received training for working at heights and must use full-body safety harnesses and fall protection equipment. ▪ It is mandatory for personnel in the work area to wear safety shoes, protective goggles, helmets, dust masks, and ear protection.

WORK TO BE DONE	DANGER SOURCE	RISKS	PRECAUTION
Concrete plant	Temporary work scaffolding. Use of electrical equipment Use of chemical substances	<ul style="list-style-type: none"> ▪ Falling from heights. ▪ Traumas caused by falling objects. ▪ Disorders related to the chemical theme. ▪ Electric shock 	<ul style="list-style-type: none"> ▪ Personnel assigned to formwork tasks must possess the Wood Formwork Level 3 (11UY0011-3) certificate. ▪ Personnel assigned to concrete pouring tasks must possess the Concrete Worker Level 3 (12UY0049-3) certificate. ▪ Regardless of the size of the scaffolding to be erected, it is essential that it meets the TS EN 12811-1 standard conditions. All personnel working on these scaffolds must have received training for working at heights and must use full-body safety harnesses and fall protection equipment. ▪ All electric equipment such as vibrators must undergo PAT testing and be verified as electrically safe. ▪ Extension cords and device power cables must be physically protected. Cables should not be left lying on the ground in a haphazard manner, allowing passage over them by carts and workers. Cables must not be allowed to remain in puddles of water. ▪ MSDS for repair mortars and similar materials should be checked by workplace physicians, and employees must be informed (regarding inhalation, eye contact, etc.). ▪ It is mandatory for personnel in the work area to wear safety shoes, protective goggles, helmets, dust masks, and ear protection.

WORK TO BE DONE	DANGER SOURCE	RISKS	PRECAUTION
CARBON FIBER POLYMER (KLP, FRP) COMPOSITE APPLICATIONS	Temporary work scaffolding. Use of electrical equipment Use of chemical substances	<ul style="list-style-type: none"> ▪ Falling from heights. ▪ Traumas caused by falling objects. ▪ Disorders related to the chemical theme. ▪ Electric shock 	<ul style="list-style-type: none"> ▪ Personnel involved in composite applications must have relevant training. ▪ Regardless of the size of the work scaffolding to be erected, it is essential to meet the TS EN 12811-1 standard requirements. All personnel working on these scaffolds must have received training for working at heights and must use full-body safety harnesses and fall protection equipment. ▪ Extension cords and device power cables must be physically protected. Cables should not be left lying on the ground in a haphazard manner, allowing passage over them by carts and workers. Cables must not be allowed to remain in puddles of water. ▪ MSDS for repair mortars and similar materials should be checked by workplace physicians, and employees must be informed (regarding inhalation, eye contact, etc.). ▪ It is essential for personnel on duty to wear safety shoes, protective goggles, helmets, face shields, dust masks, and ear protection.
Wall construction	Heavy load transportation Chemical substances Temporary work scaffolding	<ul style="list-style-type: none"> ▪ Orthopedic disorders ▪ Disorders related to contact with chemical substances ▪ Falling from heights. ▪ Traumas caused by falling objects from heights. 	<ul style="list-style-type: none"> ▪ Personnel who will build walls must have the Wall Builder Level 3 (12UY0048-3) certificate. ▪ Regardless of the size of the work scaffolding to be erected, it is essential to meet the TS EN 12811-1 standard requirements. All personnel working on these scaffolds must have received training for working at heights and must use full-body safety harnesses and fall protection equipment. ▪ MSDS of materials such as mortar must be checked by workplace physicians, and employees should be informed (inhalation, eye contact, etc.). ▪ It is mandatory for personnel in the work area to wear safety shoes, protective goggles, helmets, dust masks, and ear protection.

WORK TO BE DONE	DANGER SOURCE	RISKS	PRECAUTION
Electrical installation	Temporary work scaffolding Electricity	<ul style="list-style-type: none"> ▪ Falling from heights. ▪ Traumas caused by falling objects. ▪ Electric shock 	<ul style="list-style-type: none"> ▪ Personnel working in the electrical installation must at least possess the Electrician Level 3 (15UY0241-3) certificate. ▪ The personnel who will perform the installation in electrical panels and boards must have at least the Electrical Panel Installer Level 3 (12UY0075-3) certificate. All electrical work will be carried out under the supervision of a responsible Electrical or Electrical Electronics Engineer. ▪ During the installation of electrical panels/tables, torque-controlled screwdrivers and tightening equipment should be used. Appropriate tightening forces should be predetermined based on the type of switchgear or the size of screws and nuts, and communicated to the responsible personnel. ▪ All assigned personnel must use appropriately insulated electrical gloves and work shoes according to low voltage safety limits. The suitability of these personal protective equipment (PPE) must be specifically verified by an Occupational Health and Safety (OHS) Specialist based on standards and CE markings. ▪ Regardless of the size of the work scaffolding to be erected, it is essential to meet the TS EN 12811-1 standard requirements. All personnel working on these scaffolds must have received training for working at heights and must use full-body safety harnesses and fall protection equipment.

WORK TO BE DONE	DANGER SOURCE	RISKS	PRECAUTION
Lighting fixture installation	Temporary work scaffolding Electricity	<ul style="list-style-type: none"> ▪ Falling from heights. ▪ Traumas caused by falling objects. ▪ Electric shock 	<ul style="list-style-type: none"> ▪ The personnel who will work must have at least the Electrical Installer Level 3 (15UY0241-3) certificate. ▪ Before the installation of the lighting fixture, the relevant circuit must be disconnected from the electrical energy through the substation equipment and secured with the EKED system. ▪ Before disassembly, the switch, circuit breaker, etc., through which the electrical energy has been cut off, should be checked with control devices such as phase voltage detectors. ▪ Regardless of the size of the work scaffolding to be erected, it is essential to meet the TS EN 12811-1 standard requirements. All personnel working on these scaffolds must have received training for working at heights and must use full-body safety harnesses and fall protection equipment. ▪ All assigned personnel must use appropriately insulated electrical gloves and work shoes according to low voltage safety limits. The suitability of these personal protective equipment (PPE) must be specifically verified by an Occupational Health and Safety (OHS) Specialist based on standards and CE markings.

WORK TO BE DONE	DANGER SOURCE	RISKS	PRECAUTION
Plaster application	Temporary work scaffolding Chemical substances Electricity	<ul style="list-style-type: none"> ▪ Falling from heights. ▪ Traumas caused by falling objects. ▪ Electric shock. ▪ Disorders related to contact with chemical substances 	<ul style="list-style-type: none"> ▪ The personnel who will carry out plastering operations must possess the Plaster Applicator Level 3 (12UY0055-3) certificate. ▪ Regardless of the size of the work scaffolding to be erected, it is essential to meet the TS EN 12811-1 standard requirements. All personnel working on these scaffolds must have received training for working at heights and must use full-body safety harnesses and fall protection equipment. ▪ It is essential that all electrical equipment, such as control lighting, mixers, etc., undergo PAT testing and be verified as electrically safe. ▪ Extension cords and device power cables must be physically protected. Cables should not be left lying on the ground in a haphazard manner, allowing passage over them by carts and workers. Cables must not be allowed to remain in puddles of water. ▪ Repair mortars, plaster, and similar materials' MSDS should be checked by workplace physicians, and employees should be informed (inhalation, eye contact, etc.). ▪ It is mandatory for personnel in the work area to wear safety shoes, protective goggles, helmets, dust masks, and ear protection.

WORK TO BE DONE	DANGER SOURCE	RISKS	PRECAUTION
Paint	Temporary work scaffolding Chemical substances Electricity	<ul style="list-style-type: none"> ▪ Falling from heights. ▪ Traumas caused by falling objects. ▪ Electric shock. ▪ Disorders related to contact with chemical substances 	<ul style="list-style-type: none"> ▪ Personnel involved in painting work must possess the Construction Painter Level 3 (11UY0023-3) certificate. ▪ Regardless of the size of the work scaffolding to be erected, it is essential to meet the TS EN 12811-1 standard requirements. All personnel working on these scaffolds must have received training for working at heights and must use full-body safety harnesses and fall protection equipment. ▪ It is essential that all electrical equipment, such as control lighting, mixers, etc., undergo PAT testing and be verified as electrically safe. ▪ Extension cords and device power cables must be physically protected. Cables should not be left lying on the ground in a haphazard manner, allowing passage over them by carts and workers. Cables must not be allowed to remain in puddles of water. ▪ Repair mortars, paint, solvents, and similar materials' MSDS should be checked by workplace physicians, and employees should be informed (inhalation, eye contact, etc.). ▪ It is mandatory for personnel in the work area to wear safety shoes, protective goggles, helmets, dust masks, and ear protection.
Ceramic tile and similar flooring work	Chemical substances Electricity	<ul style="list-style-type: none"> ▪ Electric shock. ▪ Disorders related to contact with chemical substances 	<ul style="list-style-type: none"> ▪ Personnel involved in ceramic tile work must possess the Ceramic Tile Layer Level 3 (12UY0051-3) certificate. ▪ It is essential that all electrical equipment, such as mixers, crushers/drillers, etc., undergo PAT testing and be verified as electrically safe. ▪ Extension cords and device power cables must be physically protected. Cables should not be left lying on the ground in a haphazard manner, allowing passage over them by carts and workers. Cables must not be allowed to remain in puddles of water. ▪ Adhesive mortars and similar materials' MSDS should be checked by workplace physicians, and employees should be informed (inhalation, eye contact, etc.). ▪ It is mandatory for personnel in the work area to wear safety shoes, protective goggles, helmets, dust masks, and ear protection.

WORK TO BE DONE	DANGER SOURCE	RISKS	PRECAUTION
Mechanical installation	Electricity	<ul style="list-style-type: none">▪ Electric shock.	<ul style="list-style-type: none">▪ The personnel involved in the mechanical installation process must have at least the Heating and Natural Gas Internal Installation Construction Personnel Level 3 (11UY0031-3) certificate.▪ It is essential that all electrical equipment undergoes PAT testing and is verified to be electrically safe.▪ Extension cords and device power cables must be physically protected. Cables should not be left lying on the ground in a haphazard manner, allowing passage over them by carts and workers. Cables must not be allowed to remain in puddles of water.▪ It is mandatory for personnel in the work area to wear safety shoes, protective goggles, helmets, dust masks, and ear protection.

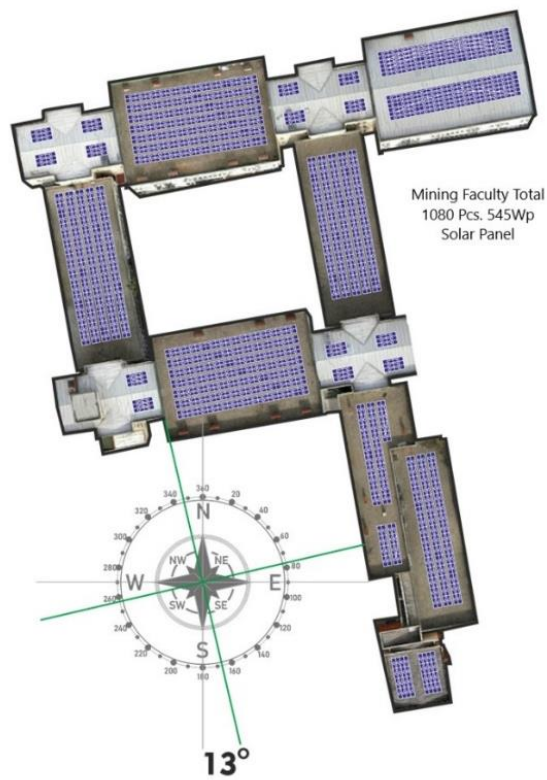
8.1.2 Energy Efficiency

The energy efficiency-focused renovation topics are listed below.

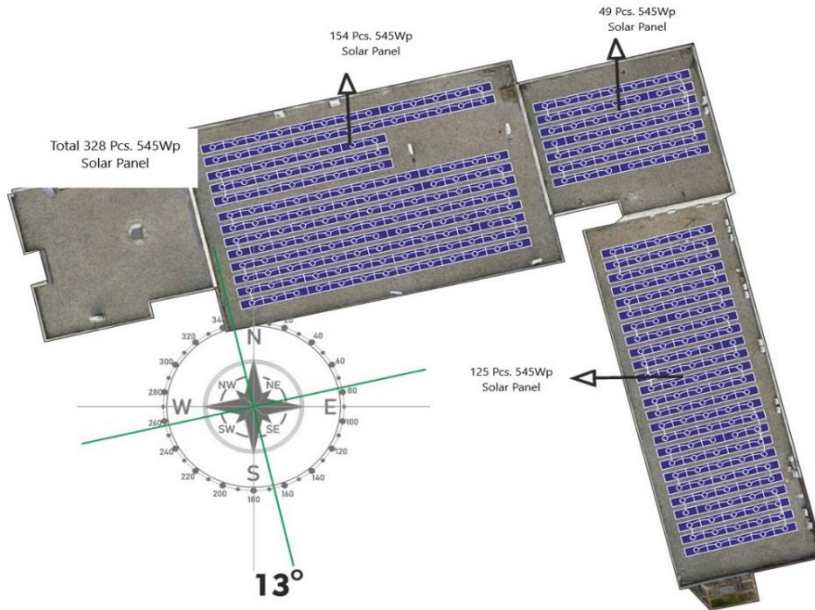
- Electricity generation with a monocrystalline PV system on a pitched roof.
- The roofs and layout plans where the PV will be installed are presented for your attention below.

Figure 13 ITU Ayazağa Campus II Building Rooftop PV Layout Plan

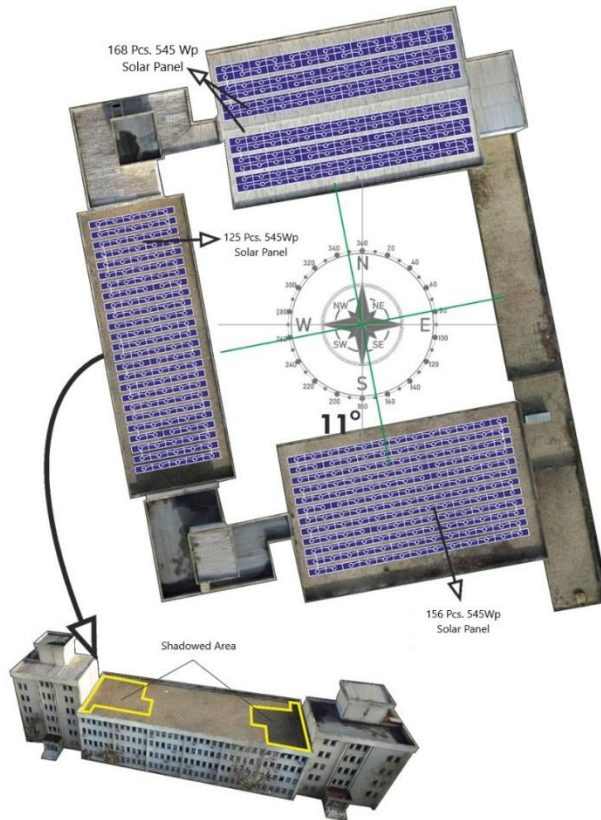
Faculty of Mining



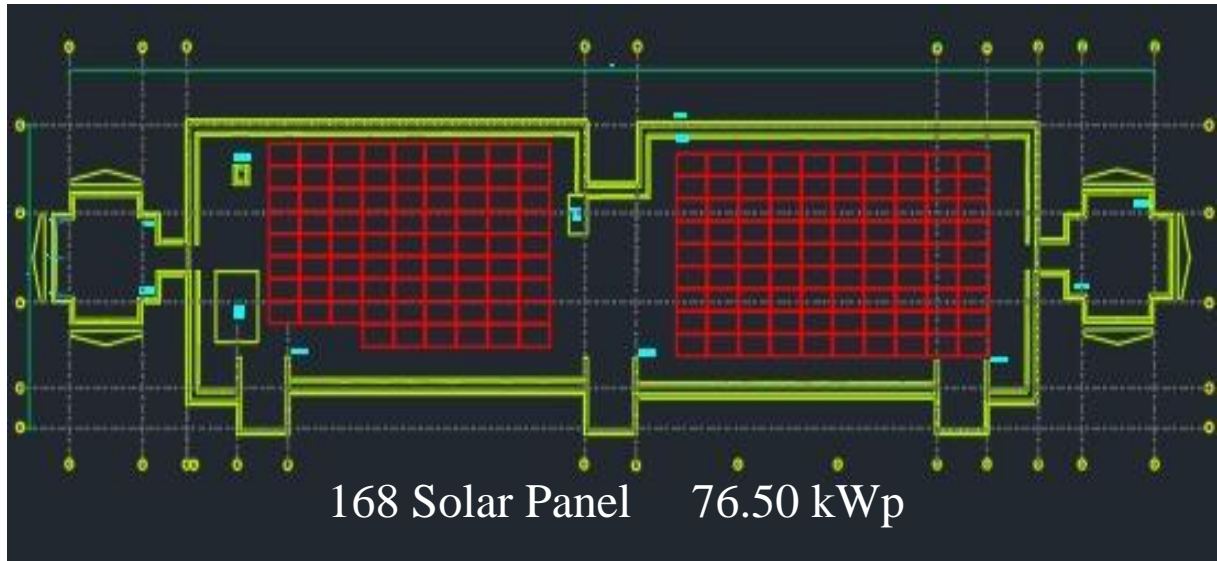
Faculty of Aeronautics and Astronautics



Faculty of Shipbuilding



Ferhunde Birkan Girls' Dormitory Building



Ayazağa Girls' Student Dormitory



- All work must be carried out under the supervision of a qualified Electrical or Electrical Electronics Engineer.
- It is essential that all personnel working have received training for working at heights.

- It is essential that all personnel working use full-body safety harnesses and fall protection equipment.
- For the connection of fall protection equipment, a horizontal safety line must be established on the roofs.
- Due to the need to protect the chimney, which is a boiler chimney located on the roofs of all blocks, it has been determined that the maintenance of the shaft voids and chimneys has deteriorated due to changes in the current situation.

Figure 14 Representation of Movement Restrictor



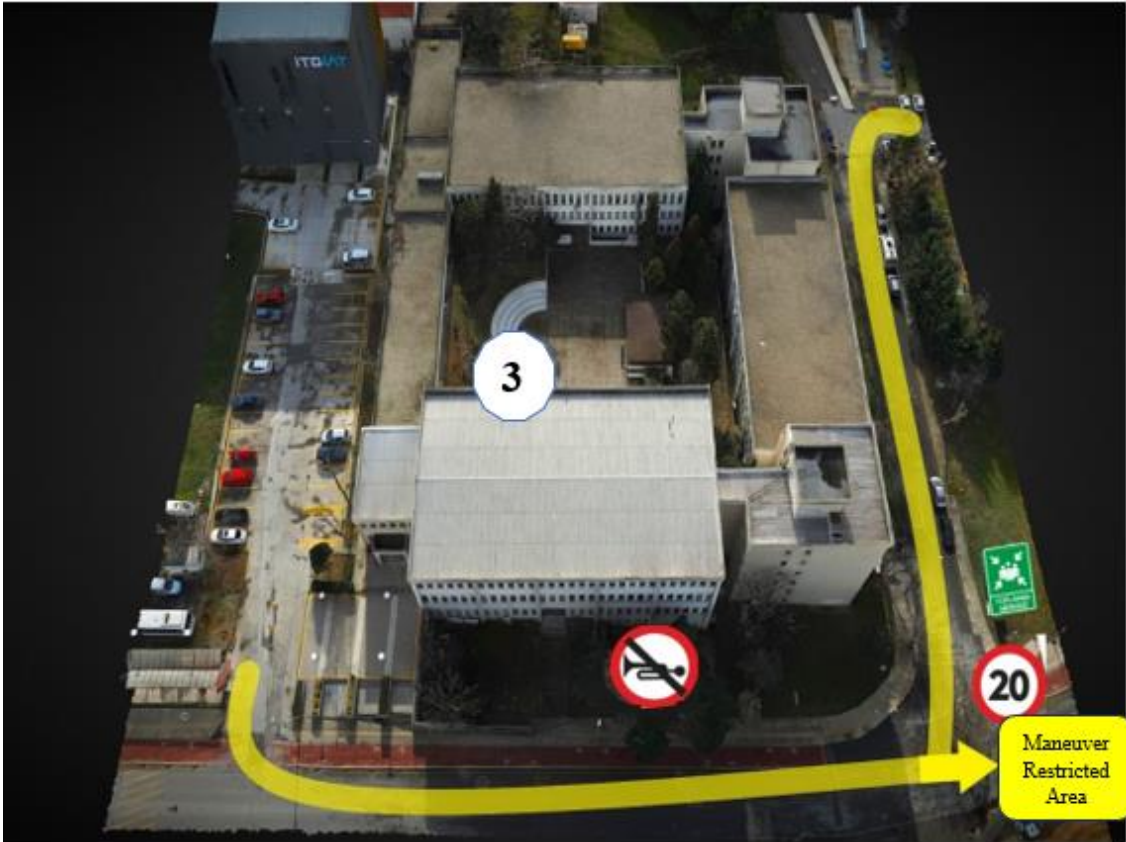
- It is essential that the truck and mobile crane used for transporting all the panels and bringing them to the roof operate in accordance with the traffic action plan.
- The transport line must be secured during the lifting and transportation operations of the mobile crane (preventing access to areas with fall hazards).
- The mobile crane, slings, and lifting straps must be inspected, and their suitability must be verified.
- The operator's certificate of the employee who will operate the mobile crane must be checked and verified.
- The personnel establishing the guiding ropes and lifting slings must hold the Signaler Level 2 (15UY0218-2) Slings Training certificate.
- All electric hand tools (mobile concrete mixers, vibrators, concrete pumps, etc.) must have undergone PAT testing. PAT test reports will be requested and checked before work begins. During field inspections, the presence of PAT control and approval labels on electrical devices will be verified. Devices and equipment without a compliance label are not permitted for use. (Extension cords are also included in this scope.)
- Personnel working on the electrical installation must at least possess the Electrician Level 3 (15UY0241-3) certificate.
- Personnel who will perform installations on electrical panels and boards must at least hold the Electric Panel Installer Level 3 (12UY0075-3) certificate.
- During the installation of electrical panels/boards, torque-controlled screwdrivers and tightening equipment must be used. Appropriate tightening forces should be predetermined based on the type of switchgear or the size of the 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 should be used against electric shocks.

Figure 15 Representation of the Motion Restrictor

Faculty of Mines



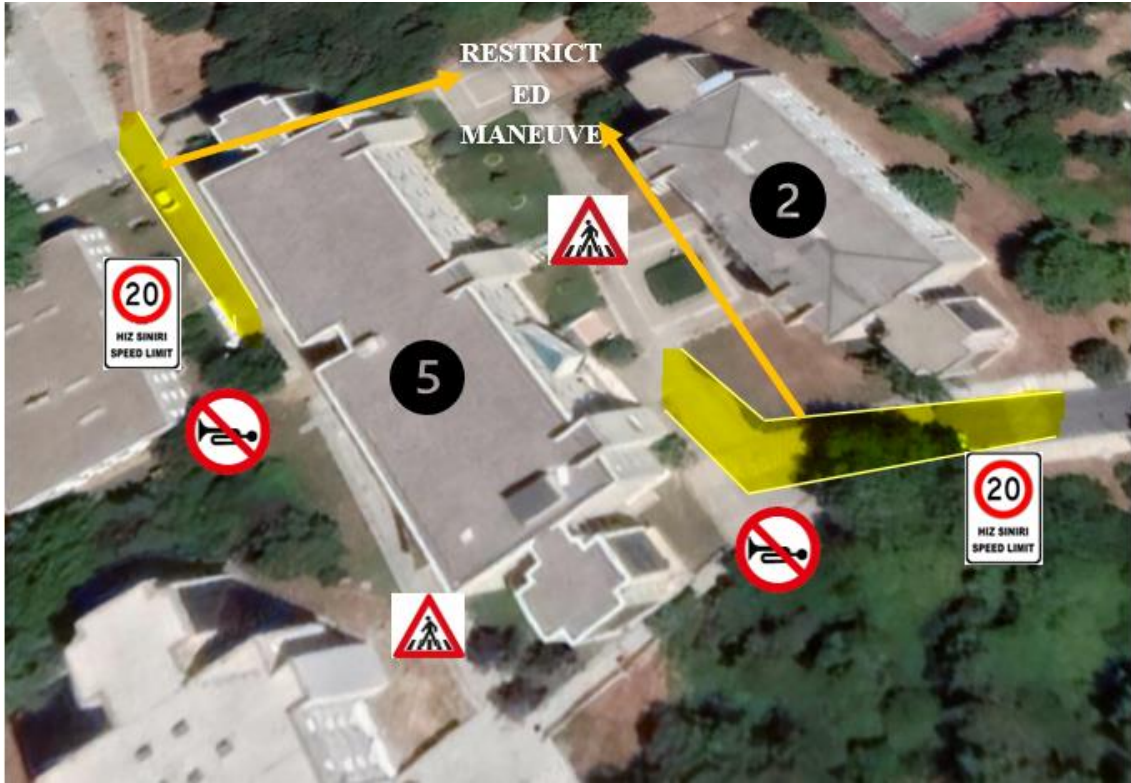
Faculty of Shipbuilding



Faculty of Aeronautics and Astronautics



Ferhunde Birkan Girls' Dormitory Building



Ayazağa Girls' Dormitory

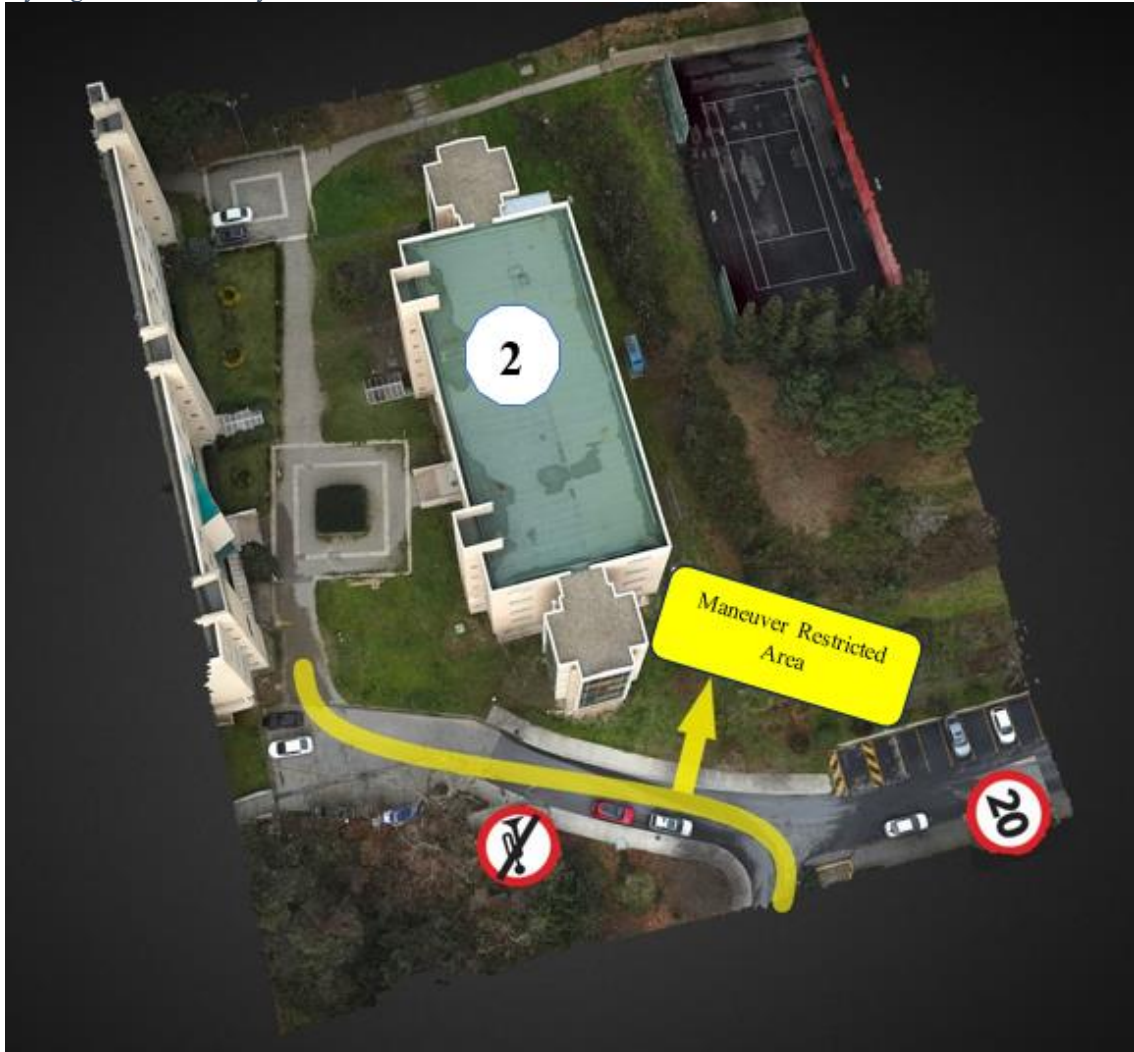
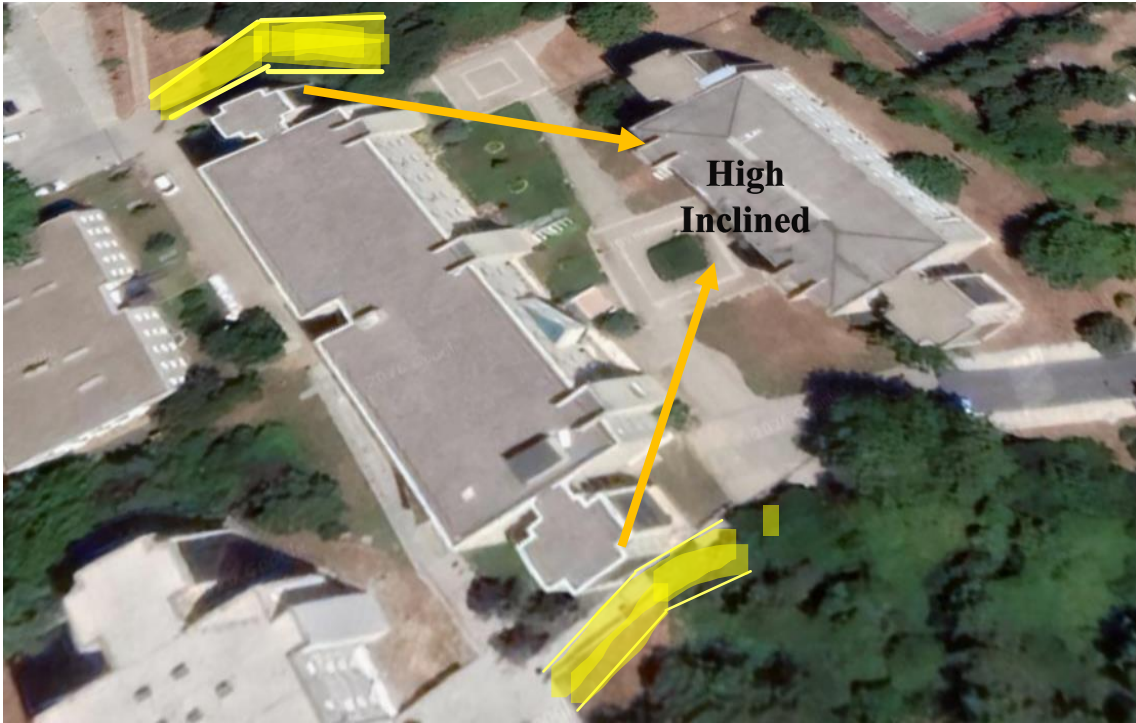


Figure 16: Inclined and Vertical Area

Ayazağa Girls' Dormitory



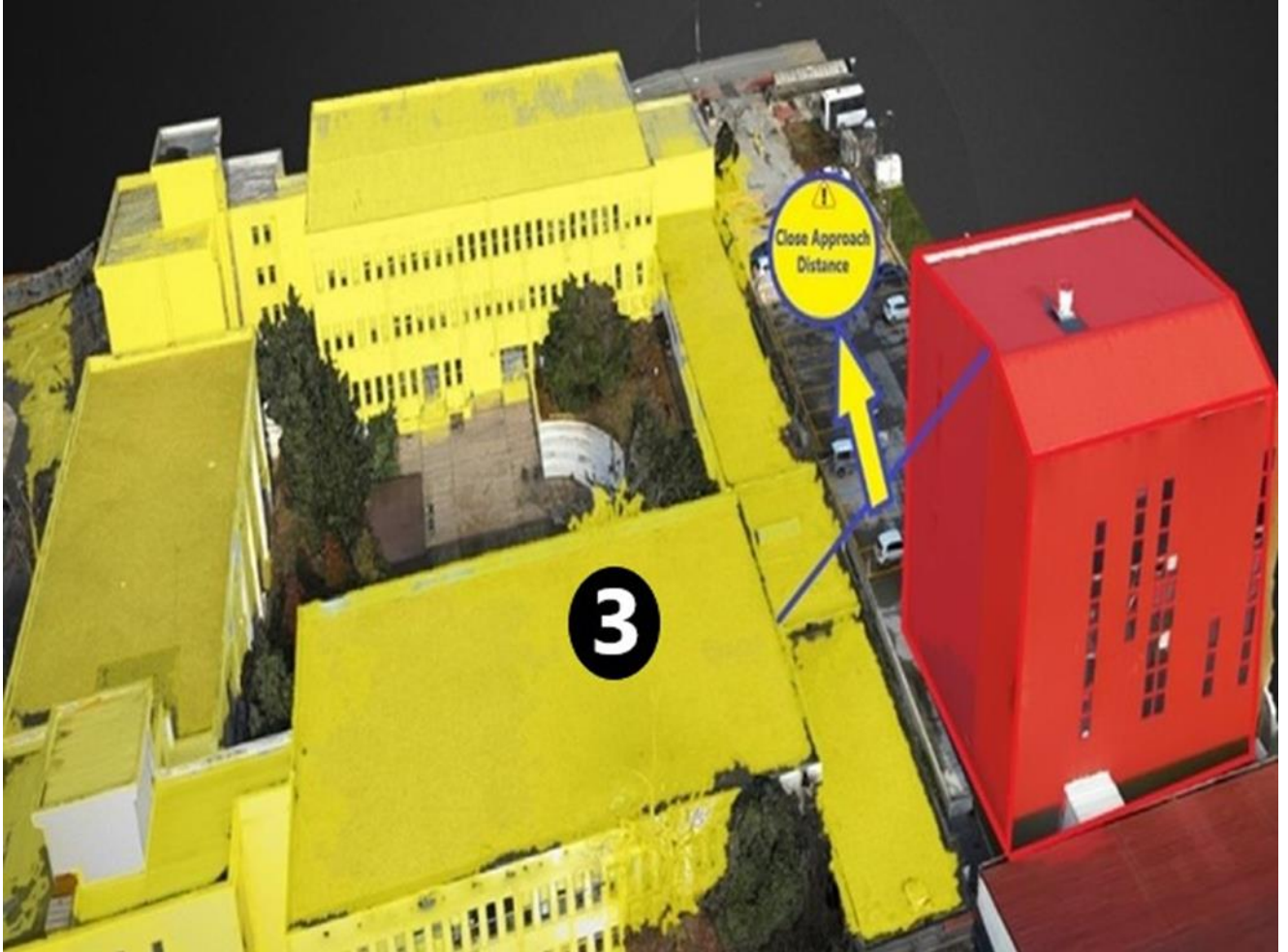
Ferhunde Birkan Girls' Dormitory Building



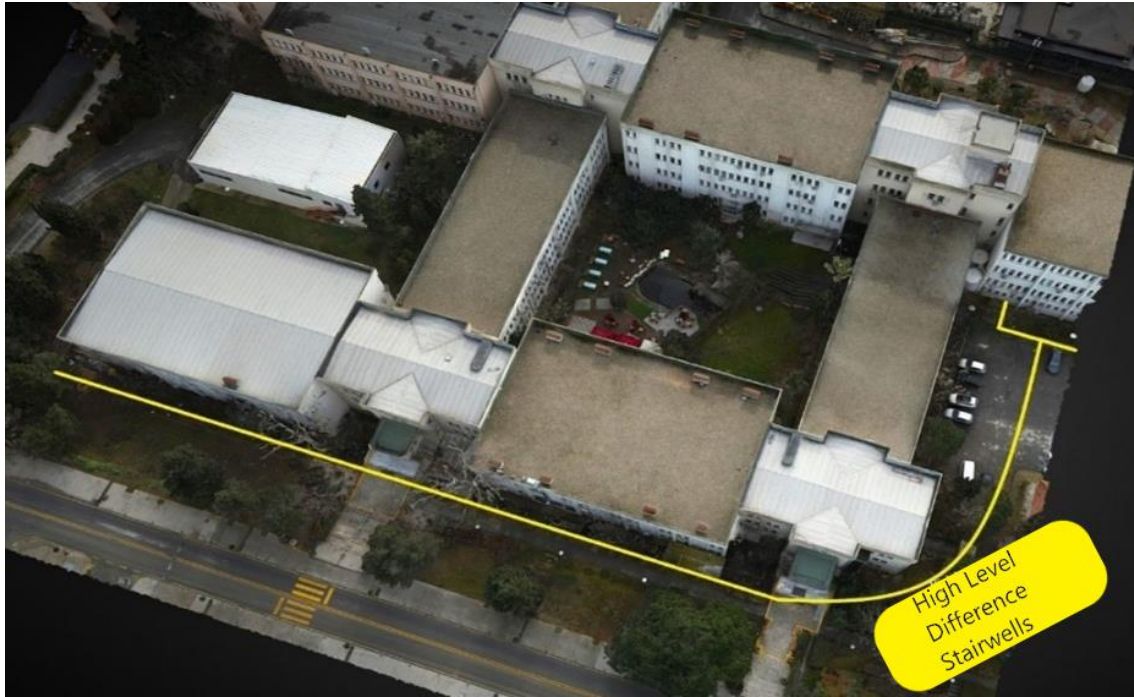
Faculty of Shipbuilding



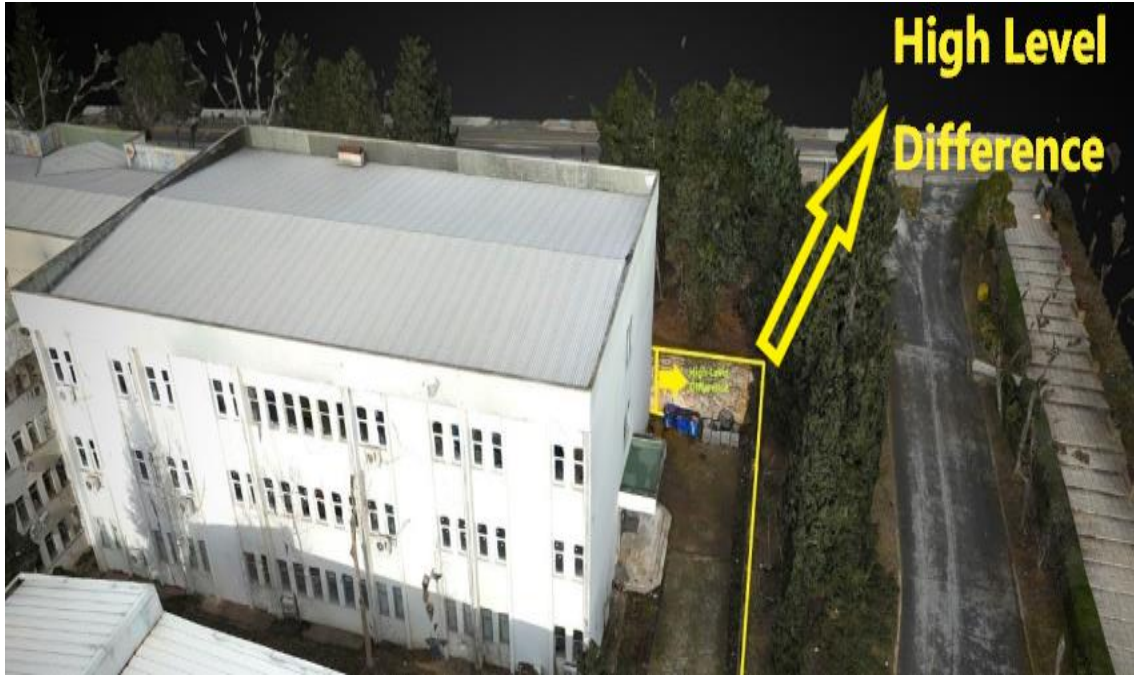
Shipbuilding Faculty-2



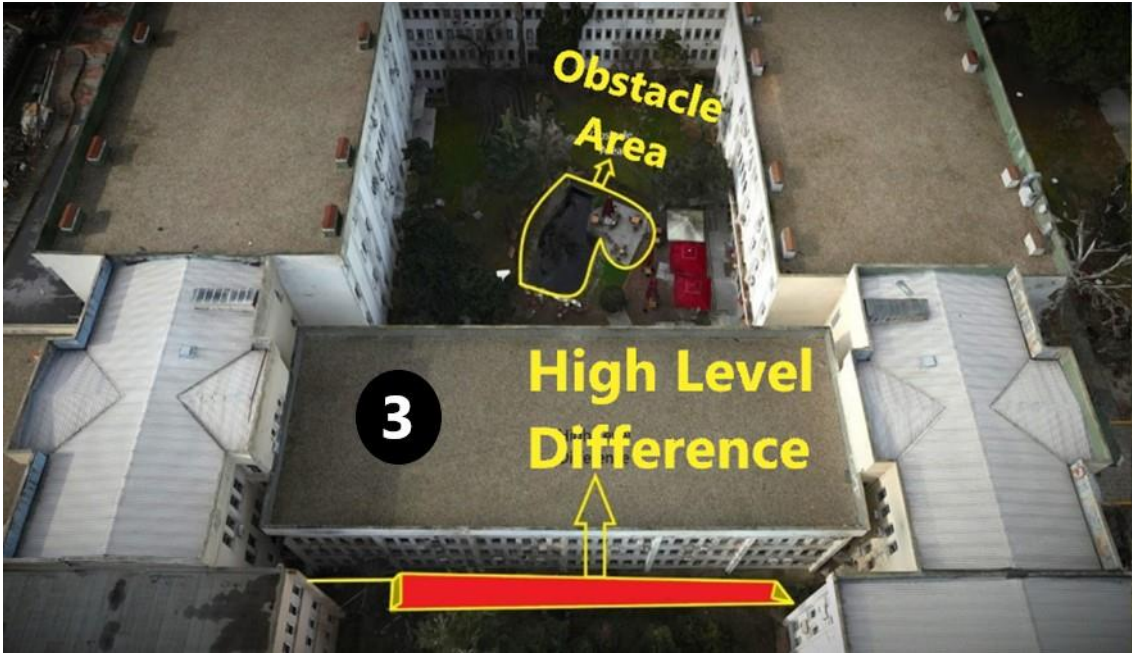
Faculty of Mining



Mining Faculty-2



Mining Faculty-3



Faculty of Aeronautics and Astronautics



- Construction safety net, or construction safety net system, is used to prevent falls of people or materials in construction sites. The measures to be taken against falls at construction sites must comply with TSE 1263-1 and TSE 1263-2 standards in terms of raw materials, production methods, and application. Safety nets are the most effective general safety measure among passive fall arrest systems.
- It can be installed horizontally, vertically, or at an angle depending on the area to be mounted.
- The personnel performing the installation must have technical knowledge regarding angular values, selection of connection points, and net placement.

14Table 14 Roof PV Works Control Table

Work to be Done:	Installation of Photovoltaic Energy Facility	
WORKING METHOD		
Technical Description and Requirements		
Construction Technique and Technology		
<ul style="list-style-type: none"> - The panel mounting lightweight structure will be fixed to the roof using drill, screw, and nut sets. The panels transported to the roof by a mobile crane will be securely attached to the structure in accordance with the project, and connection cables will be pulled. The energy and grounding cables combined with connectors will be connected to the inverter and GES panel installed in the main panel. 		
Use of Work Equipment		
<ul style="list-style-type: none"> - Truck - Mobile crane - Load handling equipment (Mapa, sling, hook, chain) - Torque wrench - Cordless drill - Screwdriver set - Multimeter - Cable cutting and stripping hand tools (chisel, pliers, needle-nose pliers, etc.) - Silicone gun 		
Chemical Substance Usage		
<ul style="list-style-type: none"> - Silicone 		
Access to the Work Area		
<ul style="list-style-type: none"> - The access path is provided in a plan under the General Construction Technique heading. <ul style="list-style-type: none"> • The maximum speed for trucks within the campus is limited to 20 km/h. • The maximum speed for mobile cranes within the campus is limited to 20 km/h. 		
PPE - GENERAL		Need for Trained Personnel
<ol style="list-style-type: none"> 1. EN 397 HELMET 2. EN 420 INSULATED GLOVES 3. EN 345 INSULATED WORK FOOTWEAR 200J 4. EN 340 GENERAL WORK CLOTHING 5. FULL BODY SAFETY HARNESS (EN 361) 6. ROPE BRAKING SYSTEM (EN 353) 7. SAFETY HOOK (EN 362) 8. FALL ARRESTER (EN 355) 		<ol style="list-style-type: none"> 1. Electrical Electronics Engineer 2. Truck driver with a Class C driver's license 3. Mobile Crane Operator (Cert. No.: 13UY0172-3 Level 3) 4. Signaler (Cert. No.: 15UY0218-2 Level 2) 5. Electrical Panel Installer (Cert. No.: 12UY0075-3 Level 3)

15Table 15 RISK ANALYSIS

WORK TO BE DONE	DANGER	RISK	PRECAUTION
Transportation of materials	Truck	Injury or death resulting from a traffic accident	<ul style="list-style-type: none"> ▪ The truck will be used by employees with a Class C driver's license. ▪ The city speed limit will not be exceeded. (50 km/h) ▪ The speed limit on the building campus is restricted to 20 km/h. Movements and maneuvers within the area will be monitored by an occupational health and safety expert.
Transportation of materials	PV panels and mounting parts	Injury or death resulting from the tipping of PV panels or parts	<ul style="list-style-type: none"> ▪ All materials will be placed in a balanced manner at the center of the truck bed, taking into account the center of gravity. ▪ Units will be secured with slings. ▪ Assembly parts will be transported packaged on a pallet. ▪ The truck's side and rear doors will be closed and secured.

WORK TO BE DONE	DANGER	RISK	PRECAUTION
Transportation and unloading of materials	Mobile Crane & lifting equipment	Injury or death due to load falling during lifting, transporting, and unloading	<ul style="list-style-type: none"> ▪ The crane can be operated by a Mobile Crane Operator (Cert. No.: 13UY0172-3 Level 3). ▪ Slings and guidance will be carried out by certified signalers. ▪ The crane's periodic inspection report will be checked and verified by the occupational health and safety specialist before work begins. (It will be requested to be provided within a maximum period of 6 months.) ▪ The slings, chains, hooks, and periodic inspection report will be checked and verified by the occupational health and safety specialist before work begins. (It will be requested to be provided within a maximum period of 6 months.) ▪ Sapan, the map, and the hook will be visually inspected before work begins. The carrying capacity and physical condition will be verified. ▪ The mobile crane's hydraulic stabilizing legs will be fixed to the ground. ▪ Before the lifting operation, the main boom angle of the mobile crane and the lifting capacities related to that angle will be checked. ▪ The load will be directed by a marker through the control line. ▪ Access to the work area will be restricted during the lifting and transportation operations. Passing under the load is prohibited. ▪ Warning signs will be established. ▪ The work will be subject to the WORK PERMIT SYSTEM.

WORK TO BE DONE	DANGER	RISK	PRECAUTION
Assembly work	Working at heights	Falling from heights, falling materials	<ul style="list-style-type: none"> ▪ A T-type safety net or edge protection railing will be installed to prevent large parts and workers from falling at the main entrance gate of the site and on the roof number 4. ▪ According to TS EN 1263-2 standard, the width of the T-type safety net must be at least 2 m, and the maximum height of the vertical installation must be 1 m.9 ▪ Employees are required to have completed Rope Access Training for Working at Heights before starting work. These trainings will be provided by experts holding at least the IRATA (Industrial Rope Access Trade Association) International Level 2 Certificate. ▪ During work carried out on the roof, especially in areas where the risk of falling is high, restrictive systems will be used during work conducted at the edge line (1 m away from the edge line). (horizontal lifelines) ▪ The materials to be installed will not be held at the edges and will be secured to the ground with a free material securing net when not in use. ▪ The area around the building where the installation will take place will be marked with safety tape, preventing entry by employees and third parties.
Cutting off the power supply from the electrical panel	Power panel, line cable	Injury or death due to electric shock caused by unauthorized reactivation of power by other individuals or technical problems	<ul style="list-style-type: none"> ▪ Intervention in the panel will be carried out by a qualified Electric Panel Installer (Cert. No.: 12UY0075-3 Level 3) under the supervision of an Electrical or Electrical Electronics Engineer. ▪ After the power is cut off, it will be verified using a multimeter that there is no power on the neutral and ground lines. ▪ The panel in question will be locked and labeled. ▪ LOTO lock system key will be held by the technical personnel who lock it. It is prohibited to give the lock to someone else before the work is completed. ▪ Before disconnecting device connections and making new connections, it will be verified using a multimeter that there is no power.

⁹ Geçici iş donanımları - Güvenlik ağıları - Bölüm 2: Konumlandırma sınırları için güvenlik kuralları

WORK TO BE DONE	DANGER	RISK	PRECAUTION
Cutting off the line power through the electrical panel, re-energizing.	Power panel, line cable	Electric shock during work carried out inside the panel.	<ul style="list-style-type: none"> ▪ Intervention in the panel will be carried out by a qualified Electric Panel Installer (Cert. No.: 12UY0075-3 Level 3) under the supervision of an Electrical or Electrical Electronics Engineer. ▪ During electrical work, insulated gloves compliant with EN 60903:2003 standard, insulated electrician work shoes compliant with EN 344 standard, and an insulated mat (EN 60243-1) or table (EN 60243-1) will be placed on the ground. ▪ Work will be carried out by at least two technical personnel. These individuals will not make contact with each other during the work. ▪ Technical personnel who will carry out the work will be trained on the effects of electric shock and first aid, and a drill will be conducted.
PV Panel and Structure Assembly	Assembly work	Amputation or entrapment while mounting PV panels and structures.	<ul style="list-style-type: none"> ▪ The installation of PV panels and construction will be carried out by a Machine Assembler (Cert. No.: 12UY0105-3 Level 3). ▪ During the installation, helmets and general protective gloves will be used to prevent head and hand injuries.

- KASKAD segmented condensing premix ground-type boiler facility.

The method of disassembling the existing boilers, removing them from the building, transportation processes, and the transportation and installation of new boilers will be prepared by the contractor and submitted for consultant approval. Work can commence once the method is approved. The main elements and considerations regarding the boiler facility process are listed below.

- All work must be carried out under the supervision of a qualified Mechanical Engineer.
- A method for the disassembly and removal of the existing boiler and its delivery to the university must be defined.
- The truck used for the transportation of the new boiler must operate in accordance with the traffic action plan.
- *The route construction method to be used for the removal of the disassembled boiler and the entry of the new boiler must be specified. (If wall demolition and reconstruction are required, the personnel working must hold the Mason Level 3 (12UY0048-3) certificate.)*
- Personnel involved in the mechanical installation process must at least possess the Heating and Natural Gas Internal Installation Construction Personnel Level 3 (11UY0031-3) certificate.
- The suitability of the equipment to be used for lifting and transporting the boiler indoors must be verified through periodic inspection reports (prepared by Authorized Mechanical Engineers).
- The area around the heating center should be surrounded by warning tape to prevent unauthorized personnel from entering during the renovation process.
- The personnel who will carry out the electrical installation and panel assembly work must have at least the Electric Panel Assembler Level 3 (12UY0075-3) certificate.
- 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 should be used against electric shocks.
- All personnel who will carry heavy loads must receive training in manual lifting and handling.

16Table 16 KASKAD Layered Condensing Premix Stationary Boiler Facility Control Table

Work to be Done:	Natural gas boiler facility.
WORKING METHOD	
Technical Description and Requirements	
Construction Technique and Technology	
<ul style="list-style-type: none"> - The existing boiler will be disassembled, and a smaller boiler will be fixed to the ground first, followed by the connection of the burner natural gas line, and the supply and return hot water connections will be made. 	
Use of Work Equipment	
<ul style="list-style-type: none"> - Truck - Mobile crane - Load handling equipment (Mapa, sling, hook, chain) - Torque wrench - Cordless drill - Screwdriver set - Multimeter - Cable cutting and stripping hand tools (chisel, pliers, needle-nose pliers, etc.) - Mechanical assembly equipment (pipe cutting, bending) 	
Chemical Substance Usage	
<ul style="list-style-type: none"> - Cleaning chemicals - Mechanical system oils 	
Access to the Work Area	
<ul style="list-style-type: none"> - The access path is provided in a plan under the General Construction Technique heading. <ul style="list-style-type: none"> • The maximum speed for trucks within the campus is limited to 20 km/h. • The maximum speed for mobile cranes within the campus is limited to 20 km/h. 	
PPE - GENERAL	Need for Trained Personnel
<ol style="list-style-type: none"> 1. EN 397 HELMET 2. EN 420 GENERAL PURPOSE GLOVES 3. EN 345 SAFETY FOOTWEAR 200J 4. EN 420 INSULATED GLOVES 5. EN 345 ISOLATED WORK SHOES 200J 6. EN 340 GENERAL WORK CLOTHING 	<ol style="list-style-type: none"> 1. MACHINE ENGINEER 2. TRUCK DRIVER WITH CLASS C DRIVER'S LICENSE 3. MOBILE CRANE OPERATOR (CERT. NO.: 13UY0172-3 LEVEL 3) 4. SIGNALMAN (CERT. NO.: 15UY0218-2 LEVEL 2) 5. HEATING AND NATURAL GAS INSIDE INSTALLATION PERMIT LEVEL 3 (11UY0031-3) 6. ELECTRICAL PANEL INSTALLER (CERT. NO.: 12UY0075-3 LEVEL 3)

17

WORK TO BE DONE	DANGER	RISK	PRECAUTION
Transportation of materials	Truck	Injury or death resulting from a traffic accident	<ul style="list-style-type: none"> ▪ The truck will be used by employees with a Class C driver's license. ▪ The city speed limit will not be exceeded. (50 km/h) ▪ The speed limit on the building campus is restricted to 20 km/h. Movements and maneuvers within the area will be monitored by an occupational health and safety expert.

WORK TO BE DONE	DANGER	RISK	PRECAUTION
Transportation of materials	PV panels and mounting parts	Injury or death resulting from the tipping of PV panels or parts	<ul style="list-style-type: none"> ▪ All materials will be placed in a balanced manner at the center of the truck bed, taking into account the center of gravity. ▪ Units will be secured with slings. ▪ Assembly parts will be transported packaged on a pallet. ▪ The truck's side and rear doors will be closed and secured.
Transportation and unloading of materials	Mobile Crane & lifting equipment	Injury or death due to load falling during lifting, transporting, and unloading	<ul style="list-style-type: none"> ▪ The crane can be operated by a Mobile Crane Operator (Cert. No.: 13UY0172-3 Level 3). ▪ Slings and guidance will be carried out by certified signalers. ▪ The crane's periodic inspection report will be checked and verified by the occupational health and safety specialist before work begins. (It will be requested to be provided within a maximum period of 6 months.) ▪ The slings, chains, hooks, and periodic inspection report will be checked and verified by the occupational health and safety specialist before work begins. (It will be requested to be provided within a maximum period of 6 months.) ▪ Sapan, the map, and the hook will be visually inspected before work begins. The carrying capacity and physical condition will be verified. ▪ The mobile crane's hydraulic stabilizing legs will be fixed to the ground. ▪ Before the lifting operation, the mobile crane boom angle and the lifting capacities related to that angle will be checked. ▪ The load will be directed by a marker through the control line. ▪ Access to the work area will be restricted during the lifting and transportation operations. Passing under the load is prohibited. ▪ Warning signs will be established. ▪ The work will be subject to the WORK PERMIT SYSTEM.
Cutting of the natural gas line	NATURAL GAS	Fire, explosion, and flash	<ul style="list-style-type: none"> ▪ Before disassembly, the natural gas line must be cut off and secured with EKED. ▪ The absence of natural gas should be checked with gas detection devices. ▪ After the new line connections are completed, gas should be reintroduced in accordance with EKED rules. After the gas valves are opened, it should be checked for leaks using gas detection devices.

WORK TO BE DONE	DANGER	RISK	PRECAUTION
Cutting off the line power through the electrical panel, re-energizing.	Power panel, line cable	Electric shock during work carried out inside the panel.	<ul style="list-style-type: none"> ▪ The panel intervention will be carried out by an Electrical Panel Installer (Cert. No.: 12UY0075-3 Level 3). ▪ During electrical work, insulated gloves compliant with EN 60903:2003 standard, insulated electrician work shoes compliant with EN 344 standard, and an insulated mat (EN 60243-1) or table (EN 60243-1) will be placed on the ground. ▪ Work will be carried out by at least two technical personnel. These individuals will not make contact with each other during the work. ▪ Technical personnel who will carry out the work will be trained on the effects of electric shock and first aid, and a drill will be conducted.

- Replacement of existing motor & pump components in the circulation system with integrated frequency-controlled high-efficiency systems.
 - The personnel responsible for the motor line and panel connections must have at least an Electrical Panel Installer Level 3 (12UY0075-3) certification.
 - During the installation of the electrical panel/panel, torque-controlled screwdrivers and tightening equipment should be used. Appropriate tightening forces should be predetermined based on the type of switchgear or the size of nuts and bolts, and communicated to the responsible personnel.
 - To protect against electric shock, insulated gloves (suitable for low voltage conditions) and insulated work boots should be worn.
 - For panel safety, the EKED system should be used.
 - All personnel involved in the transportation of heavy loads must receive training in manual lifting and carrying.

18Table 18 Integrated Frequency Controlled Motor Pump Combination Assembly Work Control Table

Work to be Done:	Installation of integrated frequency-controlled motor pump combinations.
WORKING METHOD	
Technical Description and Requirements	
Construction Technique and Technology	
<ul style="list-style-type: none"> – The existing energy of the motor will be cut off, and first, the electrical connections will be removed using a suitable screwdriver. Then, the fastening connections will be removed, and the components will be stacked on the ground. The pumps will be disassembled using appropriate hand tools and stacked on the ground. The combined motor-pump elements will be fixed to the pipeline according to the project specifications, and the electrical connections specified by the manufacturer will be made. – During panel assembly, a suitably sized sleeve will be used, and the energized end will not be left exposed. 	

<p>Use of Work Equipment</p> <ul style="list-style-type: none"> – Electric tools (Pliers, voltage tester, screwdriver, etc.) – Multimeter <p>Chemical Substance Usage</p> <ul style="list-style-type: none"> – No intention has been made to use any chemical. <p>Access to the Work Area</p> <ul style="list-style-type: none"> – The heating center is inside the building. <p>Transportation of Materials</p> <ul style="list-style-type: none"> – Materials will be transported manually. (Manual handling training should be provided.) 	
<p>PPE - GENERAL</p> <ol style="list-style-type: none"> 1. EN 397 HELMET 2. EN 420 GENERAL PURPOSE GLOVES 3. EN 345 SAFETY FOOTWEAR 4. EN 340 GENERAL WORK CLOTHING 	<p>Need for Trained Personnel</p> <ol style="list-style-type: none"> 1. Electrical Panel Installer (Authorization No.: 12UY0075-3 Level 3)

19

WORK TO BE DONE	DANGER	RISK	PRECAUTION
<p>Cutting off the power supply from the electrical panel</p>	<p>Power panel, line cable</p>	<p>Injury or death due to electric shock caused by unauthorized reactivation of power by other individuals or technical problems</p>	<ul style="list-style-type: none"> ▪ Intervention in the panel will be carried out by a qualified Electric Panel Installer (Cert. No.: 12UY0075-3 Level 3) under the supervision of an Electrical or Electrical Electronics Engineer. ▪ After the power is cut off, it will be verified using a multimeter that there is no power on the neutral and ground lines. ▪ The panel in question will be locked and labeled. ▪ LOTO lock system key will be held by the technical personnel who lock it. It is prohibited to give the lock to someone else before the work is completed. ▪ Before disconnecting device connections and making new connections, it will be verified using a multimeter that there is no power.

WORK TO BE DONE	DANGER	RISK	PRECAUTION
Installation, re-energization	Power panel, line cable	Electric shock during motor and panel connection.	<ul style="list-style-type: none"> ▪ ☑ Motor connections will be made by at least a Level 3 Electrical Panel Installer (12UY0075-3) under the supervision of an Electrical or Electrical Electronics Engineer. ▪ ☑ Panel intervention will be carried out by a minimum Level 3 Electrical Panel Installer (12UY0075-3) under the supervision of an Electrical or Electrical Electronics Engineer. ▪ ☑ During electrical work, insulated gloves compliant with EN 60903:2003 standard and insulated electrician work shoes compliant with EN 344 standard will be used. An insulated mat (EN 60243-1) or table will be placed on the ground. ▪ ☑ The work will be carried out by at least two technical personnel. These individuals will not come into contact with each other during the work. ▪ ☑ The technical personnel performing the work will be trained on the effects of electric shock and first aid, and practical drills will be conducted.

- Replacement of non-LED fixtures with high-efficiency LED fixtures of the same size.
 - Personnel involved in the replacement of fixtures must hold at least an Electrician Level 3 (15UY0241-3) certification.
 - To prevent electric shock, insulated gloves (suitable for low voltage conditions) and insulated work shoes must be used.
 - Personnel making connections inside the panel must have an Electric Panel Installer certification (certificate: 12UY0075-3 | Level 3).
 - Use of the EKED system for panel safety.
 - If the protection fuse of the lighting line is not labeled, labeling will be done.
 - Mobile work scaffolds must comply with TS EN 12811-1 standards. All personnel working on these scaffolds must have received training for working at heights and must use a full-body safety harness and fall protection equipment.
 - Personnel responsible for scaffold installation must hold a Scaffold Installation Operator Level 3 (12UY0056-3) certification.

Figure 17 Mobile Scaffold Example Demonstration



20Table 20 Control Plan for Completion of LED Conversion of Existing Lighting Fixtures

Work to be Done:	Completion of LED Conversions of Existing Lighting Fixtures
WORKING METHOD	
Technical Description and Requirements	
Construction Technique and Technology	
<ul style="list-style-type: none"> ▪ The energy of the lighting element will be cut off through the column and line line and will be checked with a multimeter. ▪ The existing lighting fixtures will have their mounting screws removed. The fixtures left idle will be taken out to expose the terminal connections. ▪ The cable energy connection will be removed using a suitable headed screw through the terminal blocks. The cable will be visually inspected and prepared for the new fixture connection. ▪ The new fixture connection will be made through the terminal block, the connection strength will be checked manually, and the fixture will be secured to the ceiling using the fasteners provided by the manufacturer. 	
Use of Work Equipment	
<ul style="list-style-type: none"> – Electric hand tools (pliers, voltage tester, screwdriver, etc.), H or L type mobile scaffolding 	
Chemical Substance Usage	
<ul style="list-style-type: none"> – No chemical substances are anticipated to be used. <ul style="list-style-type: none"> • The installation of the newly procured LED fixtures will be carried out. 	
Access to the Work Area	
<ul style="list-style-type: none"> – The work area is located at various points within the building. Internal transportation routes will be used. 	
Transportation of Materials	
<ul style="list-style-type: none"> – Materials will be transported manually. 	
PPE – GENERAL	Need for Trained Personnel
<ol style="list-style-type: none"> 1. EN 397 HELMET 2. EN 420 ISOLATED ELECTRIC GLOVES 3. EN 345 ISOLATED WORK SHOES 4. EN 340 GENERAL WORK CLOTHING 5. FULL BODY SAFETY HARNESS (EN 361) 6. ROPE BRAKING SYSTEM (EN 353) 7. SAFETY HOOK (EN 362) 8. FALL ARRESTER (EN 355) 	<ol style="list-style-type: none"> 1. ELECTRICIAN LEVEL 3 (15UY0241-3) 2. ELECTRICAL PANEL INSTALLER (CERT. NO.: 12UY0075-3 LEVEL 3)

21

WORK TO BE DONE	HAZARD	RISKS	PRECAUTION
Cutting off the power supply from the electrical panel	Power panel, line cable	Injury or death due to electric shock caused by unauthorized reactivation of power by other individuals or technical problems	<ul style="list-style-type: none"> ▪ The panel intervention will be carried out by a minimum Electric Panel Installer (Cert. No.: 12UY0075-3 Level 3) under the supervision of an Electrical or Electrical Electronics Engineer. ▪ After the power is cut off, it will be verified using a multimeter that there is no power on the neutral and ground lines. ▪ The panel in question will be locked and labeled in accordance with EKED rules. ▪ Before disconnecting device connections and making new connections, it will be verified using a multimeter that there is no power.

WORK TO BE DONE	HAZARD	RISKS	PRECAUTION
Dismantling and assembly	scaffold	Falling from a height, Material drop	<ul style="list-style-type: none"> ▪ A type H or L mobile scaffold will be set up. The scaffold in question must comply with TS EN 1004-1 standards. The scaffold installation will be carried out by personnel holding a Scaffold Installation Personnel certificate. (Competency Code: 12UY0056-3 Level 3)10 ▪ The mobile scaffold that has been installed must be secured with the fastening elements established by the manufacturer before work begins. Working in a moving position is strictly prohibited. ▪ The completed scaffolds will be inspected and approved by the Site Occupational Health and Safety Specialist. The use of unapproved mobile scaffolds is prohibited. ▪ Information on the maximum load capacity of the scaffold and warning signs will be present. ▪ There will be a toe board on the scaffold to prevent material drops.
Dismantling, Assembly, Re-energizing	Power panel, line cable	Electric shock during work carried out inside the panel.	<ul style="list-style-type: none"> ▪ Dismantling and assembly of fixtures will be carried out by technical personnel holding an ELECTRICIAN LEVEL 3 (15UY0241-3) competency certificate. ▪ Before dismantling, the absence of electrical current will be verified using a multimeter. During this time, not only the phase lines but also the grounding and neutral lines will be checked. ▪ Intervention in the panel will be carried out by a qualified Electric Panel Installer (Cert. No.: 12UY0075-3 Level 3) under the supervision of an Electrical or Electrical Electronics Engineer. ▪ During electrical work, insulated gloves compliant with EN 60903:2003 standard, insulated electrician work shoes compliant with EN 344 standard, and an insulated mat (EN 60243-1) or table (EN 60243-1) will be placed on the ground. ▪ Work will be carried out by at least two technical personnel. These individuals will not make contact with each other during the work. ▪ Technical personnel who will carry out the work will be trained on the effects of electric shock and first aid, and a drill will be conducted.

- Thermal insulation will be installed on uninsulated installation elements and the heat exchanger.
 - Personnel involved in the mechanical installation process must at least possess the Heating and Natural Gas Internal Installation Construction Personnel Level 3 (11UY0031-3) certificate.

22Table 22 Plumbing Insulation Works Control Plan

Work to be Done:	Insulation of Installations	
WORKING METHOD		
Technical Description and Requirements		
Construction Technique and Technology		
Insulation jackets installed in appropriate sizes will be fitted onto the installation elements and secured using jacket fastening ropes / Velcro.		
Use of Work Equipment		
– No equipment usage is anticipated.		
Chemical Substance Usage		
– No chemical substances are anticipated to be used.		
Access to the Work Area		
– The work area is located in the basement of the building, and existing access routes will be used.		
Transportation of Materials		
– It will be carried manually.		
PPE - GENERAL	Need for Trained Personnel	
1. EN 397 HELMET 2. EN 420 GENERAL PURPOSE GLOVES 3. EN 345 SAFETY FOOTWEAR 200J 4. EN 340 GENERAL WORK CLOTHING	1. Heating and Natural Gas Internal Installation Y. Per. Level 3 (11UY0031-3)	

- No specific risk list is deemed necessary for this subject. General risk analysis rules apply.

- The energy monitoring system must be established in accordance with the EN ISO 50001 Energy Management System requirements and ensure its effectiveness.
 - Personnel involved in the installation of the energy monitoring system and automation systems must possess at least the Automation Systems Installer Level 4 (12UY0076-4) certificate.
 - Insulated work gloves (suitable for low voltage conditions) and insulated work shoes should be used against electric shocks.
 - The EKED system should be used for panel security.

23Table 23 Electronic Building Management System and Automation System Control Plan

Work to be Done:	Electronic Building Management System & Automation System General Construction Technique		
WORKING METHOD			
Technical Description and Requirements			
Construction Technique and Technology			
<ul style="list-style-type: none"> - Central air conditioning systems such as boilers and heat pumps will have control cables and flow meter cables routed to the MCC & DCC panel. - Motor pump control cables will be routed to the MCC & DCC panel, and frequency inverter inputs will be implemented. - Line pressure difference and temperature sensors will be connected to the installation in accordance with the project, and signal cables will be routed to the MCC & DCC panels. - MCC & DCC cables will be routed to the central panel, and connections such as switches will be made. 			
Use of Work Equipment			
<ul style="list-style-type: none"> - Electric hand tools (pliers, voltage tester, screwdriver, etc.), cable cutting/stripping accessories, multimeter 			
Chemical Substance Usage			
<ul style="list-style-type: none"> - No chemical substances are anticipated to be used. 			
Access to the Work Area			
<ul style="list-style-type: none"> - Work will be carried out throughout the building using existing access routes. 			
Transportation of Materials			
<ul style="list-style-type: none"> - It will be carried manually. 			
PPE - GENERAL	Need for Trained Personnel		
<ol style="list-style-type: none"> 1. EN 397 HELMET 2. EN 420 ISOLATED WORK GLOVES 3. EN 345 INSULATED WORK FOOTWEAR 200J 4. EN 340 GENERAL WORK CLOTHING 	<ol style="list-style-type: none"> 1. ELECTRICAL PANEL INSTALLER (CERT. NO.: 12UY0075-3 LEVEL 3) 2. ASSEMBLER OF AUTOMATION SYSTEMS (12UY0076-4 LEVEL 4) 		

24Table 24 RISK ANALYSIS

WORK TO BE DONE	HAZARD	RISK	PRECAUTION
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WORK TO BE DONE	HAZARD	RISK	PRECAUTION
Cutting off the power supply from the electrical panel	Power panel, line cable	Electric Shock	<ul style="list-style-type: none"> ▪ The panel intervention will be carried out by a minimum Electrical Panel Assembler (Cert. No.: 12UY0075-3 Level 3) under the supervision of an Electrical or Electrical Electronics Engineer. ▪ After the power is cut off, it will be verified using a multimeter that there is no power on the neutral and ground lines. ▪ The relevant panel will be locked and labeled. (EKED) ▪ Before disconnecting device connections and making new connections, it will be verified using a multimeter that there is no power. ▪ Work will be carried out by at least two technical personnel. These individuals will not make contact with each other during the work. ▪ Technical personnel who will carry out the work will be trained on the effects of electric shock and initial intervention, and a drill will be conducted.

- Risk analysis lists are prepared for sample purposes. The contractor must conduct detailed risk analyses considering these lists for every job under their responsibility. Risk analyses should be prepared in accordance with the Occupational Health and Safety Risk Assessment Regulation (Official Gazette: 29.12.2012/28512) and revised when necessary.

9. Determination of Risks and Control Measures

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

The entire construction site has been examined through solid models created by drones, and efforts have been made to identify field risks. The risks identified as a result of this examination are listed below item by item. Objective evidence regarding these items is provided under the heading “Pre-Construction Information & Site Plans” in this report.

- The areas specified below must be checked by the Contractor's Occupational Health and Safety (OHS) Specialist, who should inform employees about additional safety measures when necessary.
- The risks related to the sites may not be limited to these findings; if the Contractor encounters risky areas outside of those identified, they must immediately report this situation to the Main Contractor's OHS Specialist.
 - a) Areas with a height difference of up to 2 meters have been observed. This information should be taken into account during vehicle maneuvers.
 - b) Concrete stairs without appropriate railings have been observed. They pose a fall risk for employees.

9.2 Identification of Potential Risks Related to the Work and Control Measures, and Evaluation of the Impact on Third Parties

The risks related to the structural feasibility process within the project are presented in tabular form under the heading "General Site Rules and Management of Works" in this document. Aside from these risks;

- Traffic accidents that may occur during employees' access to buildings included in the project should be taken into account. In this context;
 - Actions should be taken in accordance with the traffic action plans specified in the report.
 - All individuals in the vehicle, including those in the back seats, must wear seat belts.
 - Vehicle drivers must strictly adhere to traffic rules and speed limits.
 - Visual checks such as fuel, oil leaks, tire treads, and pressure conditions must be performed by the driver before using the vehicle. The use of defective or faulty vehicles is prohibited. Any identified defects will be reported immediately to the Subcontractor's Occupational Health and Safety (OHS) Specialists.
 - Passengers should not hesitate to warn drivers when they encounter traffic rule violations and this situation will be reported immediately to the Subcontractor's OHS Specialists.
- The use of trucks, drilling machines, and other construction equipment inherently carries risks, especially during maneuvers around the construction site. Before accessing the site, building floor models should be accessed online, and the working areas, road levels and slopes, road widths, and approach limits should be evaluated. Access links to building floor models will be requested from the main contractor via phone or email.

- During the use of cars, vans, trucks, and construction machinery around the building, pedestrian movements must be taken into account. Pedestrian crossings should always be given priority. The reverse maneuver warning sirens of trucks, vans, and construction machinery will be checked before the use of any vehicle.
- Truck and construction machinery usage is not permitted at night except in emergencies. In urgent cases, the work permit system will be activated, and permission will be requested from the OHS specialist by stating the reason.
- During drilling operations and construction machinery operations, third parties and stakeholders should not be allowed to approach within 20 meters. For this purpose, the area where work will be done should be separated by safety strips, and warning signs will be installed.

9.3 Risks Arising from Overlapping Tasks in Time and Space

Plans have been reviewed, and no risks arising from overlapping tasks have been observed. If overlapping tasks are encountered when construction work begins, this situation will be evaluated by the contractor in the work plan and risk analyses and reported to the consultant. After appropriate measures are taken for the risks, work will commence following the consultant's approval.

10. Determination of the Need and Qualifications of Work Equipment

- The contractor must determine and list all devices and equipment to be used during the work, in accordance with safety directives (CE marking Regulation) and relevant standards, along with periodic inspection reports, and submit them to the consultant.^{11,12}
- All electrical devices and equipment must be subjected to PAT testing and indicated with PAT approval labels to show they are electrically safe.

¹¹ İlgili Direktifler;

- MAKİNA EMNİYETİ YÖNETMELİĞİ (2006/42/AT)
- BELİRLİ GERİLİM SINIRLARI İÇİN TASARLANAN ELEKTRİKLİ EKİPMAN İLE İLGİLİ YÖNETMELİK (2014/35/AB)
- BASINÇLI EKİPMANLAR YÖNETMELİĞİ (2014/68/AB)
- GAZ YAKAN CİHAZLARA DAİR YÖNETMELİK (2016/426/AB)

¹² İlgili standartlar (her bir cihaz için ayrıca gözden geçirilmelidir.)

- TS EN ISO 12100 Makinalarda güvenlik - Tasarım için genel prensipler - Risk değerlendirilmesi ve risk azaltılması
- TS EN 60204-1 Makinalarda güvenlik – Makinaların elektrik donanımı – bölüm 1: Genel kurallar
- TS EN 60335-1 Güvenlik kuralları - Ev ve benzeri yerlerde kullanılan elektrikli cihazlar için - Bölüm 1: Genel kurallar
- TS 1203 EN 286-1 Tanklar – Basit – Alev almayan – Basınçlı
- TS 10116 Vinçler (Krenler) – Deney ve muayene yöntemleri
- TS ISO 9927-1 Vinçler-Muayeneler-Bölüm 1: Genel

10.1 Determining the Need for Protective Equipment

10.1.1 Collective Protection Systems

25

TYPE OF PROTECTION	PLACE OF USE	DURATION OF USE	STANDARDS
SAFETY STRIP	HAZARDOUS WORK AREAS (FALLING OBJECTS, USE OF MACHINERY, FALL RISK, WORKING WITH ELECTRICITY, HEAVY LOAD TRANSPORTATION)	Until local work is completed.	-
ACCESS / FALL RESTRICTION BARRIER	DRILLING WORK AREAS, EDGES OF COLLAPSED EXTERIOR WALLS.	Until local work is completed.	TS EN 13374+A1
LIFELINE	WORKS ON SCAFFOLDING, WORKS ON ROOFS, WORKS NEAR COLLAPSED FACADE WALLS.	Until local work is completed.	TS EN 795
SAFETY NET	DEEP AREA CREATED BY HIGH HEIGHT BETWEEN THE EXCLUDED BUILDING AND THE DINING HALL.	Until the dismantling process is completed.	TS EN 1263-2

10.1.2 Personal Protective Equipment

26

DEFINITION	CATEGORY	MAINTENANCE/RENEWAL PERIOD	MACHINE USAGE PERIOD	STANDARD	COLOR CODE
HELMET	II	1 YEAR	CONTINUOUS	TS EN 397+A1	White: Engineer Yellow: Employee Red: HSE Specialist Green: ADME ¹³
EARPLUG	I	DAILY	DURING NOISY WORKING HOURS (³ 80dB)	TS EN 352-2	-
PROTECTIVE GLASSES	I	3 MONTHS	The risk of drawing escape indicated in the risk analysis applies throughout the entire duration of the work.	TS EN ISO 16321-3	-
GENERAL PURPOSE WORK GLOVES	I	3 MONTHS	CONTINUOUS	TS EN ISO 21420	-
WORK SHOES	II	1 YEAR	CONTINUOUS	TS EN ISO 20347	-
HALF FACE MASK	I	DAILY	DUSTY WORKS	TS EN 140	-
FULL BODY SAFETY HARNESS	II	1 YEAR	ALL TYPES OF WORK AT HEIGHT	TS EN 361	-
FALL	II	1 YEAR	ALL TYPES OF	EN 355	-

¹³ EMERGENCY RESPONSE TEAM

PROTECTION EQUIPMENT AND LIFELINES			WORK AT HEIGHT		
INSULATED GLOVES AND WORK SHOES	I	3 MONTHS	ELECTRICAL WORKS	TS EN ISO 21420	-

11. Work Permit System

The actions subject to the work permit system are listed below.

- All types of night work.
No work can be performed without approval from the Occupational Health and Safety (OHS) Specialist. The elements to be checked for night work are listed below;
 - Approval from the building management and technical units,
 - Control of appropriate lighting and lighting levels for outdoor work,
 - Whether the building technical teams can accompany,
 - Employees' working hours,
 - Information about the work environment (Photo),
 - The professional qualifications of employees,
- Working at heights,
Thermal insulation facility for the facade
 - Installation of the work scaffold in accordance with TS EN 12811-1 standards
 - Securing the work scaffold to the ground and facade at appropriate points
 - Establishment of horizontal and vertical lifelines,
 - Specification of the capacities of the work scaffold and lifelines (total number of users – weight)
 - Training for personnel working at heights (Working at Heights Training), with a statement of suitability for working at heights in health examination reports
- Within the scope of this project; work in enclosed areas, welding, plasma cutting, and similar activities are not foreseen. However, if such activities are required even for partial and simple operations, the work permit system will be activated.

The work permit system will be provided through a Google form filled out via mobile phones and approved by the occupational health and safety (OHS) specialist. The form link should be requested from the subcontractor OHS specialists.

The process is described below;

1. For the activities specified in the work permit section, it is essential to prepare the WORK PERMIT form (Google forms, request the link from your Occupational Health and Safety Specialist) and request approval. However, work can only commence after the form has been registered in the system and approval has been granted. It is prohibited to start work without approval.
 - a) Necessary personal protective equipment must be provided completely and used in a disciplined manner.

- Before work begins, the personal protective equipment (PPE) to be used should be visually inspected, and in case of physical defects, expiration of service life, etc., they should be immediately replaced with new ones. Under no circumstances will unsuitable PPE be used.
- b) Individuals without professional qualifications cannot participate in work that requires a work permit. Therefore, the relevant professional qualification documents should be kept in the employees' personal files or uploaded to a digital form.
 - Before work begins, the validity status of the professional qualification documents must be verified. Individuals with expired documents/certificates that need renewal will not be approved for fieldwork.

Form Usage

The digital work permit form will be filled out using smart mobile phones and submitted for approval to the Occupational Health and Safety Specialist.

The diagram illustrates the layout of a digital work permit form. It consists of two main input sections:

- Description of job of work:** A text input field with the prompt "Describe the work(s) you will do in general in this section." and a label "Your Answer:".
- Working Date and Time*:** A form with two input fields: "Date" (format: DD.MM.YYYY with a calendar icon) and "Time" (format: HH:MM with a clock icon).

Two callout boxes provide instructions for these sections:

- The top callout box points to the "Description of job of work" section and states: "A GENERAL EXPLANATION SHOULD BE MADE REGARDING THE WORK FOR WHICH PERMISSION IS REQUESTED (INCLUDING THE REASON FOR WORK) AND THE EXACT WORK DATE AND HOUR SHOULD BE SPECIFIED."
- The bottom callout box points to the "Working Date and Time*" section and states: "A GENERAL DESCRIPTION RELATED TO THE WORK FOR WHICH PERMISSION IS REQUESTED MUST BE MADE (INCLUDING THE REASON FOR WORK) AND THE SPECIFIC WORK DATE AND TIME MUST BE STATED."

Personal Protective Equipment*

Please Tick the Personal Protective Equipment to be Used During Work!

- Earplug & Protective Headphone
- Work Glasses
- Welder Goggles / Barrier
- Safety Helmet
- Dust mask
- Safety Belt
- Work Shoes (General)
- Work shoes (Electrical)
- Safety Glove
- Safety Anti-Static Glove (Electrical-Low Voltage)
- Safety Anti-Static Glove (Electrical-High Voltage)
- Safety Glove (Welding)
- Isolated Mat
- Insulated Stool
- Protective Work Clothing Against Electric Arc
- Other _____

PERSONAL PROTECTIVE EQUIPMENT TO BE USED DURING WORK MUST BE MARKED. IT SHOULD BE REMEMBERED THAT MORE THAN ONE OPTION MAY BE SELECTED, AND A VISUAL INSPECTION OF THE PPE SHOULD BE CONDUCTED BEFORE MARKING.

Certificate Of Professional Competence-01

Are the Professional Competence Certificates of the employees included in their personnel file

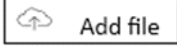
- Yes
- No

IF THE PROFESSIONAL QUALIFICATION DOCUMENTS OF THE WORKING PERSONNEL ARE AVAILABLE IN THE PERSONAL FILE, "YES" SHOULD BE MARKED; IF NOT AVAILABLE (FOR TEMPORARY WORKERS, ETC.), THE "NO" SECTION SHOULD BE MARKED TO PROCEED TO THE NEXT SECTION.

Certificate Of Professional Competence-01

Please Save the Vocational Competence Certificate in the System!*

Uploadable File Size is Limited to 10 MB. Please Check File Size!.

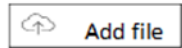


DOCUMENTS OF EMPLOYEES WHO DO NOT HAVE A PROFESSIONAL COMPETENCE CERTIFICATE IN THEIR PERSONAL FILES (TEMPORARY ASSIGNMENTS, ETC.) MUST BE UPLOADED TO THE SYSTEM. DURING THE UPLOAD, MAKE SURE THAT THE FILE SIZE DOES NOT EXCEED 10MB; OTHERWISE, THE FORM WILL NOT ALLOW FILE UPLOAD.

FIELD INFORMATION

Please save the pictures of the area where work will be done to the system.

Uploadable File Size is Limited to 10 MB. Ple



PHOTOS OF THE WORK AREA MUST BE UPLOADED TO THE SYSTEM. DURING THE UPLOAD, MAKE SURE THAT THE IMAGE SIZE DOES NOT EXCEED 10MB; OTHERWISE, THE FORM FILE UPLOAD WILL NOT BE ALLOWED.

The data you enter will be evaluated by our central OHS Experts and if deemed appropriate, approval will be given over the phone. It is forbidden to start work subject to a work permit before the approval procedures are completed.







AFTER COMPLETING THE FORM DATA ENTRY, THE "SUBMIT" BUTTON SHOULD BE PRESSED, AND CONFIRMATION BY PHONE IS EXPECTED. **WORKS CAN ONLY BEGIN AFTER APPROVAL HAS BEEN RECEIVED.**

9. EKED SYSTEM

EKED refers to the use of physical barriers and informational labels together to eliminate risks such as unexpected energy/gas supply, operation, electric shock/fire, explosion, etc., during the control, maintenance, and replacement works of energized systems and devices, as well as natural gas lines.¹⁴
DURING THE WORK:

- It is essential that all personnel involved receive lockout/tagout training.
- The necessary equipment for lockout/tagout must be provided and kept ready by the contracting company.
- The neutral and ground lines of the devices should also be disconnected from the bus/connection point. This will prevent electric shocks caused by another system/device.
- To eliminate energy from pressure in the devices, the valves supplying the section to be intervened must be closed and locked. The existing pressure should be relieved through a vent or drain.

1

<p>DANGER Definitely Don't Operate! EQUIPMENT LOCKED</p>		<p>DANGER Use of this device is prohibited</p> 	<p>Kilitleme Makine, elektrik panosu, şalt ekipmanı, vana vb. ekipmanlara, erişilmesini ve/veya çalıştırılmasını engelleyecek şekilde tasarlanmış kilit mekanizmalarının kullanılmalıdır. Kilitleme işleminin etiket/uyarı levhaları ile duyurulması gerekmektedir. Aksi takdirde kilitlerin yanlış açılması, zorlanması gibi durumlarda kayıplarına muhtemeldir.</p> 	<p>Locking It is the use of locking mechanisms designed to prevent access and/or operation of machinery, electrical panels, switchgear, valves, etc. The locking process must be announced with labels/warning signs. Otherwise, it is possible to encounter situations such as locks being opened or forced without permission.</p>
<p>Labeling It is the use of labels that clearly state that actions such as opening, operating, energizing are prohibited for a certain period of time. It is definitely not recommended to use labels/warning signs alone in high-risk studies.</p>	<p>Etiketleme Açma, çalıştırma, enerji verme gibi eylemlerin belli bir süre için yasaklandığını açık bir şekilde bildiren etiketlerin kullanılmalıdır. Yüksek riskli çalışmalarda iş başında etiket/uyarı levhalarının kullanılması kesinlikle önerilmez.</p> 	<p>Uygun kilitleme elemanlarının sağlanması Kullanılan ekipmanlar ve prosesler dikkate alınarak uygun kilitleme elemanlarının temin edilmesi ve ihtiyaç halinde kullanıma hazır bulundurulması, işverenin sorumluluğundadır.</p> 	<p>Elektrik & Sigorta Kilitleri</p>  <p>Coklu kilit sistemi örneği</p>	<p>Electrical & Insurance Locks Multiple lock system visual</p>
<p>Providing suitable locking elements Considering the equipment and processes used; It is the employer's responsibility to provide appropriate locking elements and keep them ready for use when needed.</p>				

¹⁴ Etiketle Kilitle Emniyete Al Dene

12. Observation and Inspection

In routine field inspections, the minimum control list presented below will be used. Inspection forms will be prepared by the contractor in accordance with the nature of the work to be done.

27

NO	CONTROL SUBJECT	SCORE	TERM	RESPONSIBLE	ACTION
01	Have the necessary occupational health and safety trainings been provided to the employees?				
02	Is the continuity of the measures taken regarding occupational health and safety being observed?				
03	Is regular information being received from employee representatives and support staff about the workplace?				
04	Are the initial and periodic health examinations of employees being conducted regularly?				
05	Are health records being kept in accordance with confidentiality principles?				
06	Is the compatibility between the job and the employee ensured, and is guidance provided to protect them from stress factors in the working environment?				
07	Are potential occupational diseases in the sector identified and workplace observations related to them conducted?				
08	Are measures identified to control the entry and exit to the workplace, and is the employer informed?				
09	Are near-miss records being evaluated?				
10	Are records of work accidents and occupational diseases being evaluated?				
11	Is regular participation in the Occupational Health and Safety Committee ensured, and are the committee's decisions monitored?				
12	Are occupational health and safety instructions prepared, submitted for the employer's approval, and is their implementation checked?				
13	Are the work permit procedures prepared and submitted for the employer's approval, and is their implementation being monitored?				
14	Are the necessary hygiene and safety conditions evaluated for suitable living spaces (canteen, dormitory, shower, WC, etc.) that meet the regulatory requirements?				
15	Are environmental physical-chemical-biological factors taken into consideration?				
16	Is the employer informed about the identification of first aid, fire-fighting, and search-rescue-evacuation teams, as well as the necessary training?				
17	Is the emergency plan prepared appropriately for the site?				
18	Have escape routes and assembly points for emergencies been determined and marked?				
19	Has work been done regarding the measures to be taken against fire?				
20	Are emergency drills being conducted, monitored, and evaluated?				
21	Is the risk assessment prepared according to the site conditions?				
22	Is the risk assessment carried out with the team specified in the regulations?				
23	Are the control steps being followed after the risk assessment?				

NO	CONTROL SUBJECT	SCORE	TERM	RESPONSIBLE	ACTION
24	Is the risk assessment updated in the situations specified in the legislation?				
25	Is there work being done for groups that require special policies?				
26	Is appropriate personal protective equipment (PPE) selected for employees, and is training provided on its use in the field?				
27	Are environmental measurements that need to be conducted in the workplace identified and communicated to the employer?				
28	Is there information provided about the compliance of the equipment used in the workplace with the standards?				
29	If there are pedestrian paths and vehicle use within the workplace, are the vehicle paths appropriately designated?				
30	Have suitable stacking areas for products or equipment to be stored, or parking areas for machinery been designated?				
31	Are the periodic inspections of work equipment being monitored?				
32	Are the competencies of employees using work equipment being checked?				
33	Are copies of approved records regularly maintained by the occupational safety specialist and workplace physician during each workplace visit?				
34	Has a realistic annual work plan for the workplace been prepared?				
35	Is the work schedule in the prepared annual work plan being followed?				
36	Is there a realistic annual evaluation report for the workplace available?				

Inspections conducted by the Consultant and Contractor with Occupational Health and Safety (OHS) Checklists similar to or improved from those in Table 27 will be reported to the Project Implementation Unit at the intervals specified in Table 28. The Contractor will submit the reports to the Consultant in the specified format, and the Consultant will present the final reports to the Directorate of Earthquake Strengthening under the Ministry of Environment, Urbanization, and Climate Change.

What parameters will be monitored?	Where parameters will be monitored?	How parameters will be monitored?	When <i>What is the parameter to be monitored (measurement frequency)?</i>	Why parameters will be monitored?	Reporting	Responsibility
Field Preparation Activities for Renewal and Strengthening Works						
Community health and safety management and implemented protective measures	Around the project site	Visual inspections Field Control Existence and implementation of the Active Community Safety and Traffic Management Plan	At the beginning of the renewal/strengthening works (first day) Every business day during the project activities	To minimize health and safety risks and mechanical injuries to local residents	• Weekly	<ul style="list-style-type: none"> • Consultant • Contractor
Occupational health and safety protection measures applied to workers on construction sites	Project site and buildings near the project site	Visual inspections Field Control Existence and implementation of the occupational health and safety plan	Every business day during the project activities	To minimize risks related to workers' health and safety, especially protective equipment and clothing for workers who will remove asbestos-containing roofing Compliance with the Occupational Health and Safety Law, relevant regulations, notifications, circulars, and other regulations	• Weekly	<ul style="list-style-type: none"> • Consultant • Contractor

What parameters will be monitored?	Where parameters will be monitored?	How parameters will be monitored?	When <i>What is the parameter to be monitored (measurement frequency)?</i>	Why parameters will be monitored?	Reporting	Responsibility
Avoiding and minimizing safety and health risks for affected individuals from the project	In the building and on the project site	Visual inspections	At the beginning of the Renewal/Strengthening work and continuously every business day	Preventing Post Activation Potential (PAP) injury due to inhalation of asbestos fibers or other construction dusts	<ul style="list-style-type: none"> Weekly 	<ul style="list-style-type: none"> Consultant Contractor
The start and end times of renovation/reinforcement works, especially the removal of existing parts containing asbestos	On the project site	Site inspection Review of document records Visual inspections	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	<ul style="list-style-type: none"> Weekly 	<ul style="list-style-type: none"> Consultant Contractor Asbestos Cleaning Specialist
Renovation/Strengthening Works Operational Process						

What parameters will be monitored?	Where parameters will be monitored?	How parameters will be monitored?	When What is the parameter to be monitored (measurement frequency)?	Why parameters will be monitored?	Reporting	Responsibility
Occupational Health and Safety (OHS) protective measures applied to field workers (working at heights, working with hazardous materials, working with rotating equipment, working with electrical devices, etc.)	Project site Buildings near the project site	Control of relevant OHS certificates and documents related to trained employees Visual checks on the use of protective equipment Implementation of the OHS Plan and site-specific Health and Safety instructions Site inspection Control of records	Before starting demolition works Every business day during project activities	Minimizing risks related to workers' health and safety Compliance with the Occupational Health and Safety Law, relevant regulations, notifications, circulars, and other arrangements	<ul style="list-style-type: none"> • Monthly 	<ul style="list-style-type: none"> • Consultant • Contractor
Work and working conditions	Project site	Final OHS Plan control Site inspection Complaint mechanism (feedback)	Every business day during project activities	Compliance with the Occupational Health and Safety Law, relevant regulations, notifications, circulars, and other arrangements	<ul style="list-style-type: none"> • Monthly 	<ul style="list-style-type: none"> • Consultant • Contractor

What parameters will be monitored?	Where parameters will be monitored?	How parameters will be monitored?	When What is the parameter to be monitored (measurement frequency)?	Why parameters will be monitored?	Reporting	Responsibility
Manufacturing, Operation, and Delivery (pipeline manufacturing and construction)	In Manufacturing and Construction Areas	Visual inspections Field Control Records Necessary Tests Personnel Competence Control by the Relevant Authority	When the relevant manufacturing and processes are completed.	To confirm that the pipeline construction is completed before delivery. To prevent any potential disaster after production and delivery to the end user.	<ul style="list-style-type: none"> Reporting 	<ul style="list-style-type: none"> Beneficiary Institution Service Provider Organization Occupational Health and Safety Department Consultant Contractor
Health and Safety Records	Project Area	Health and Safety Site Documentation Control	Monthly	Ensure the necessary Occupational Health and Safety records are maintained on construction sites	<ul style="list-style-type: none"> Monthly 	<ul style="list-style-type: none"> Consultant Contractor
Identification of asbestos-containing waste, proper packaging, labeling as hazardous waste	On project sites Before starting dismantling/removal work	Identification of asbestos-containing waste according to the waste list Site inspection Review of document records	Throughout the project lifecycle/Daily If detected	Regulation on Health and Safety Measures in Asbestos Work	<ul style="list-style-type: none"> Immediately (If detected) Monthly 	<ul style="list-style-type: none"> Consultant Contractor

What parameters will be monitored?	Where parameters will be monitored?	How parameters will be monitored?	When <i>What is the parameter to be monitored (measurement frequency)?</i>	Why parameters will be monitored?	Reporting	Responsibility
Vehicle and Pedestrian Safety	Project site and access roads	Visual inspection Use of appropriate signs and signals Site inspection Implementation of the Community Safety and Traffic Management Plan	Daily	Protecting construction workers, their beneficiaries' employees, and local communities from injuries and fatalities related to traffic accidents	<ul style="list-style-type: none"> • Weekly 	<ul style="list-style-type: none"> • Consultant • Contractor

Renovation/Strengthening Works Operational Process						
Health and safety	Renovated/Reinforced buildings	Checking the roof, windows, doors, leaks, etc. Regular inspections and maintenance should be carried out	Regularly (throughout the project's lifespan)	Ensuring the health and safety of building occupants/users	<ul style="list-style-type: none"> • Within 1 week after the inspection 	İTÜ
Renovation and Strengthening Works Site Preparation Activities						
Community health and safety management and implemented protective measures	Around the project area	Visual inspections Field Control	At the beginning of the renovation/strengthening works (first day) Every business day during project activities	To ensure the minimization of health and safety risks for local residents and mechanical sports	<ul style="list-style-type: none"> • Monthly 	<ul style="list-style-type: none"> • Consultant • Contractor
Occupational health and safety protection measures applied to workers on construction sites	The project site and buildings near the project site	Visual inspections	Every business day during project activities	To minimize risks related to the health and safety of workers, especially protective equipment and clothing for workers removing asbestos-containing roof coverings	<ul style="list-style-type: none"> • Weekly 	<ul style="list-style-type: none"> • Consultant • Contractor
Prevention and minimization of safety and health risks for affected individuals	In the building and on the project site	Field Control	At the beginning of the renovation/strengthening works and continuously on every working day	Compliance with the Occupational Health and Safety Law, relevant regulations, notifications, circulars, and other arrangements	<ul style="list-style-type: none"> • Weekly 	<ul style="list-style-type: none"> • Consultant • Contractor

14. Employee Training

- All employees must have received training that meets the minimum requirements specified in the REGULATION ON THE PROCEDURES AND PRINCIPLES OF EMPLOYEES' OCCUPATIONAL HEALTH AND SAFETY TRAINING (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). In this context, training records and certificates of subcontractor personnel will be requested and checked.

Occupational Health and Safety (OHS) trainings should be listed including the employee's name, position, start date, training names, and dates, and should be submitted to the consulting OHS Specialist.

- For this project, all employees will undergo a minimum of 2 person-days of training within the framework of this document and risk analyses. The training will be provided by the OHS Specialists of the contractor and subcontractor, and training records will be submitted to the Consultant.
- Employees are required to have completed Rope Access Training for Working at Heights before starting work. These trainings will be provided by experts who hold at least the IRATA (Industrial Rope Access Trade Association) International Level 2 Certificate.

Monitoring of Employee Health Status

- Periodic health reports of employees will be checked, and it will be verified through these reports whether their health status is suitable for their duties.
- Health Reports should be listed including the employee's name, position, start date, occupational health training names, and dates, and should be submitted to the Consulting Workplace Physician.

Employee Professional Competence

- The professional competence requirements outlined in this document are specified. The contractor company should list all employees, including the employee's name, position, start date, professional competence certificate, certificate date, and certificate validity date, and submit this list to the Consulting OHS Specialist.

15. Emergency Preparedness

The emergency action plan will be prepared by the Contractor in the form of a report containing the necessary parameters and guidelines that are mapped and sketched specifically for the job, as required by Article 11 of the 6331 Occupational Health and Safety Law. The prepared emergency action plan may vary or be applicable according to the anticipated emergencies.

The potential emergencies anticipated during structural reinforcement and renovation works and the preventive measures related to these emergencies are provided in the table below.

Fire and Explosion	<ul style="list-style-type: none"> • Periodic maintenance and inspections of electrical and grounding installations, lightning protection systems, generators, fire extinguishing and fire detection and warning systems, portable fire extinguishers, and ventilation systems; immediate rectification of any potential malfunction by authorized personnel. • Limiting smoking areas and marking these areas with signs. • Removal of flammable dry grass and tree branches. • Presence and continuous operation of fire detection and warning systems (alarms, gas, smoke detectors, etc.). • Periodic checks of the heating system and prevention of unauthorized access to the boiler room. • Proper labeling and storage of chemical substances • Regular storage of chemical waste • Keeping flammable, explosive, and reactive substances away from heat sources • In cases where energy needs to be cut off, identifying the locations of facilities such as gas valves and electrical panels for intervention by authorized personnel • Conducting environmental measurements
Spread from Hazardous Chemical Substances	<ul style="list-style-type: none"> • Storing chemicals according to their properties and hazards, preventing situations that could lead to leaks, and ensuring proper ventilation • Preventing unauthorized individuals from entering chemical storage areas • Providing employees with personal protective equipment that meets standards for chemicals and ensuring its proper use • Displaying Safety Data Sheets for chemicals in a suitable and visible manner in the work area • Having a hazardous material intervention card • Conducting environmental measurements
Poisoning	<ul style="list-style-type: none"> • Checking the expiration dates of food products • Preparing meals under hygienic conditions • Keeping serving materials such as plates, forks, trays, etc. clean • Taking witness samples from meals • Training staff involved in meal service • Providing general hygiene training to all staff • Ensuring that meal service personnel use appropriate gloves, caps, work uniforms, etc.
Epidemic Disease	<ul style="list-style-type: none"> • Vaccination • Protective medications • Combatting harmful pests and conducting pest control • Ensuring hygiene • Establishing a First Aid Team and providing necessary training • Regular checks of drinking water and water dispensers • Taking witness samples from meals
Sabotage	<ul style="list-style-type: none"> • Establishment of a security unit. • Installation of security cameras in necessary locations for continuous monitoring. • Controlled entry and exit. • Keeping records of individuals coming from outside, conducting identity checks at the entrance, and issuing visitor badges. • Controlled opening of incoming shipments. • Inspection of transportation vehicles. • Restriction of unauthorized access to high-security areas. • Sufficient indoor and outdoor lighting.

Natural disasters	<ul style="list-style-type: none"> • Reinforcement of the ground. • Securing cabinets and shelves, placing large tools and equipment in safe locations. • Inspection of buildings' earthquake resistance. • Training all employees on what to do during an earthquake. • Preparation of an earthquake kit containing first aid supplies, flashlight, batteries, radio, etc. • Control and maintenance of rainwater channels. • Prioritizing afforestation. • Portable barriers for windows and doors in enclosed workplaces. • Use of emergency valves for the quick and safe shutdown of electricity (electricity, gas, etc.) and assignment of qualified personnel. • Ensuring that equipment is ready for use during and after disasters.
Work Accidents	<ul style="list-style-type: none"> • Providing occupational health and safety training. • Conducting health monitoring (periodic examinations and tests, etc.). • Providing additional training for tasks requiring special skills, such as working at heights and in confined spaces, and keeping reports demonstrating suitability for these jobs. • Keeping the Risk Assessment up to date and continuously monitoring the measures taken. • Investigate the events of Ramak kala and take necessary measures to prevent their recurrence. • Conducting accident investigations and root cause analysis. • Avoiding the assignment of personnel to tasks for which they are insufficiently qualified. • Implementing a health and safety incentive/warning system and conducting efforts to develop a workplace safety culture. • Implementing an effective monitoring mechanism. • Monitoring the correct and effective use of Personal Protective Equipment. • Avoiding working alone. • Ensuring that personnel employed through service procurement are employed in accordance with occupational health and safety regulations. • Establishing a First Aid Team and providing necessary training.
Cyber Attacks	<ul style="list-style-type: none"> • Providing training to employees on cyber risks and security. • Installation and maintenance of antivirus and anti-spyware software. • 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. • Establishing authorization levels for access to information within the network.
General	<ul style="list-style-type: none"> • Posting evacuation plans, entrances and exits of workplace buildings and extensions, floors, and evacuation routes at heights visible to employees. • Indicating the locations of fire extinguishing equipment and first aid supplies, as well as the evacuation routes in the evacuation plan. • Determining the meeting point after evacuation and indicating it on the plan. • Having suitable emergency escape routes and appropriate signage for emergency exit doors. • Placing appropriate signs indicating escape routes in visible locations. • Establishing emergency response teams and providing necessary training. • Posting visible communication numbers for emergencies. • Parking vehicles in a way that allows for forward movement.

- | | |
|--|--|
| | <ul style="list-style-type: none"> • Informing employees about potential emergencies and emergency plans. • Conducting regular emergency drills and ensuring participation from all employees. • Informing customers, visitors, and others present in the workplace about emergencies and emergency plans. • Keeping emergency plans up to date. • Keep the equipment that emergency response teams will use always ready for use. • Use a sound and/or light alarm system to alert employees in emergencies. • Mark the location of the First Aid kit, ensure it is accessible to all employees, ensure it contains the necessary quantity and quality of materials, and continuously check the expiration dates. • Provide assistance in the evacuation of elderly, disabled, or pregnant individuals. |
|--|--|

The contractor must prepare detailed emergency action plans regarding the above-mentioned issues and submit them to the Consultant Occupational Health and Safety Specialist and the Workplace Physician.

Emergency Assembly Points

- Emergency assembly points have been designated for each structure and incorporated into the rigid model plans. The emergency assembly areas have been determined considering earthquake risk and building sizes. These locations are indicated under the title "Pre-Construction Information & Site Plans" using the EMERGENCY ASSEMBLY AREA SIGNAGE visual.

ADME and First Aid Teams

The contractor and subcontractors must list the names, duties, start dates, emergency preparedness training dates, first aid certification dates, and validity dates of the ADME (Emergency Response Teams) and first aiders they have designated, in accordance with regulatory requirements, and submit this list to the Consultant Occupational Health and Safety Specialist.

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

16. Accident and Incident Investigation

- The report form to be used for investigating and reporting accidents, incidents, and events that may occur on-site is provided below.
- Major environmental accidents and workplace accidents (such as injuries, fatal accidents, environmental spills, etc.) that may occur during construction activities will be shared with the Consultant and the Project Management Unit on the same day; they will be reported to the Ministry of Labor and Social Security within 3 business days. The Project Management Unit will inform the World Bank about the accident within 48 hours. The contractor will

send the accident report, along with a root cause analysis, to the Project Management Unit within 30 business days. The Project Management Unit will also share this information simultaneously with the World Bank.

The accident report will be completed in accordance with the rules specified below.

The image shows a detailed accident report form. It includes sections for:

- Company Name**, **Incident Location**, **Client Date/Time**, and **Report Date/Time**.
- CASUALTY INFORMATION**: Name, Number, Start Date of Work, and Insurance Agency No.
- INCIDENT ANALYSIS**: Incident Code, a grid for **PERSONNEL DAMAGE**, **PROPERTY DAMAGE**, and **ENVIRONMENTAL DAMAGE**, and a section for **affected body parts** with a human figure diagram.

- All sections of the accident report must be filled out completely and accurately.
- The accident code should be determined and defined according to the procedure specified in the report.
- The areas where the injured party was hurt should be indicated on the graphic on the first page, and information regarding the injury should be described in accordance with the procedure specified in this section of the report.
- The factors that caused the accident should be selected from the list provided on page 2 of the Accident Report.
- When describing the accident and the root causes that led to it on page 3 of the Accident Report, great care should be taken; the accident should be thoroughly investigated, and care should be taken to avoid using ambiguous expressions.
- Two personnel who witnessed the accident should be identified within page 3 of the Accident Report.
- If the number of personnel who witnessed the accident exceeds 2, efforts should be made to select impartial personnel who can adequately describe the accident.
- Witnesses defined on page 3 must sign the ACCIDENT REPORT section provided on page 7.

- Objective evidence such as photographs of the accident scene, photographs of the injured, and photographs of the device or equipment that caused the accident, etc., should be presented and added to page 4 of the Report. If there are many photographs, important ones should be specified in this section, while the others should be kept in the appendices of the report. (A note indicating that additional photographs are included in the report appendix should be written at the bottom of page 4.)
- The personal protective equipment (PPE) used by personnel during the accident should be specified on page 5 of the report. Care should be taken to identify the PPE actually used by the personnel, not the PPE delivered to them. A record regarding the PPE delivered to personnel will be provided in the appendix of the Accident Report.
- Measures to be taken immediately after the accident and measures to prevent the accident from recurring will be specified separately on page 6 of the Accident Report.
- The accident report provided on page 7 should, if possible, be filled out by the personnel who were directly involved in the accident. In cases where this is not possible, a personnel selected from the witnesses mentioned in the report will be requested to fill out this section, or if there are no witnesses, the employer or employer representatives will be asked to complete it in their own handwriting.

- The prepared report must be signed by the Occupational Health and Safety Specialist, Workplace Physician, and Employer/Employer Representative.
- It will be ensured that the following documents are included in the appendix of the prepared Accident Report;
 - PPE delivery record,
 - Participation forms and certificates for training provided up to the date of the accident,
 - Orientation training form,
 - Certificates and diplomas related to professional qualifications,
 - The health report indicating fitness for work,
 - Overtime approval form (in case the accident occurs outside working hours),
 - If available, pre-prepared warning letters related to the cause of the accident,
 - Minutes prepared regarding occupational health and safety,
 - SGK work accident notification report,
 - Health report obtained after the accident,
 - Disability report issued by a physician,
 - Insured employment entry declaration,

It should not be forgotten that work accidents can occur regardless of the precautions taken. It is important to act calmly during and after the accident for both the victim and the business. Therefore, it is recommended that WORK ACCIDENTS/INJURED RESCUE drills be conducted seriously before field studies.

Post-accident measures should be evaluated in two separate categories: corrections that need to be made urgently and corrections aimed at eliminating the ROOT cause of the accident. It is essential to eliminate the factors that caused the work accident in a way that prevents recurrence.

Considerations to be taken into account after the accident;

- During the inspection phase, necessary arrangements will be made in the field to facilitate the inspectors arriving at the accident site, and all information and documents related to the victim will be kept ready. It should be noted that the access time to the information and documents requested by the inspector is of great importance.
- The SGK accident notification will be made within a maximum of 3 days from the date of the accident. (Along with the visit paper)
- If applicable, the control reports of the machinery and equipment that caused the accident, as well as regular maintenance cards, will also be kept as an appendix to the accident report for examination.
- All documents kept as an appendix to the Accident Report will be copies. However, preparations will be made to ensure quick access to original documents if requested by the inspectors.

17. Occupational Health and Safety Budget

The Occupational Health and Safety Budget presented below has been created for general informational purposes. It is accepted that the contractor's tender proposal will also include the budget necessary for taking measures related to occupational health and safety.

29Table 29 Estimated Occupational Health and Safety Budget

	QUANTITY	UNIT	UNIT PRICE	TUTAR
CATEGORY II HELMET (TS EN 397+A1)	100	AD.	₺200.00	₺22,000.00
CATEGORY I EARPLUG (TS EN 352-2)	3050	AD.	₺15.00	₺45,750.00
CATEGORY I PROTECTIVE GLASSES (TS EN ISO 16321-3)	100	AD.	₺60.00	₺6,000.00
GENERAL PURPOSE WORK GLOVES (TS EN ISO 21420)	100	AD.	₺30.00	₺3,000.00
ELECTRICAL WORK GLOVES (LOW VOLTAGE) (TS EN ISO 21420)	25	AD.	₺750.00	₺18,500.00
WORK SHOES (TS EN ISO 20347)	100	AD.	₺450.00	₺45,000.00
ISOLATED WORK FOOTWEAR (LOW VOLTAGE) (TS EN ISO 20347)	20	AD.	₺1,100.00	₺22,000.00
TOZ MASKESİ	3050	AD.	₺5.00	₺15,750.00
YARIM YÜZ MASKESİ (TS EN 140)	35	AD.	₺500.00	₺17,500.00
KATEGORİ II TAM VÜCUT EMNİYET KEMERİ (TS EN 361)	105	AD.	₺450.00	₺47,250.00
DÜŞME ENGELLEYİCİ DONANIMLAR (EN 355)	70	AD.	₺250.00	₺17,500.00
LIFELINES (EN 355)	75	m.	₺450.00	₺35,500.00
SAFETY STRIP	450	m.	₺2.50	₺1,125.00
SAFETY NET (EN 355)	350	m2	₺350.00	₺122,500.00

TOTAL: **₺419.375,00**

VAT: **₺83.875,00**

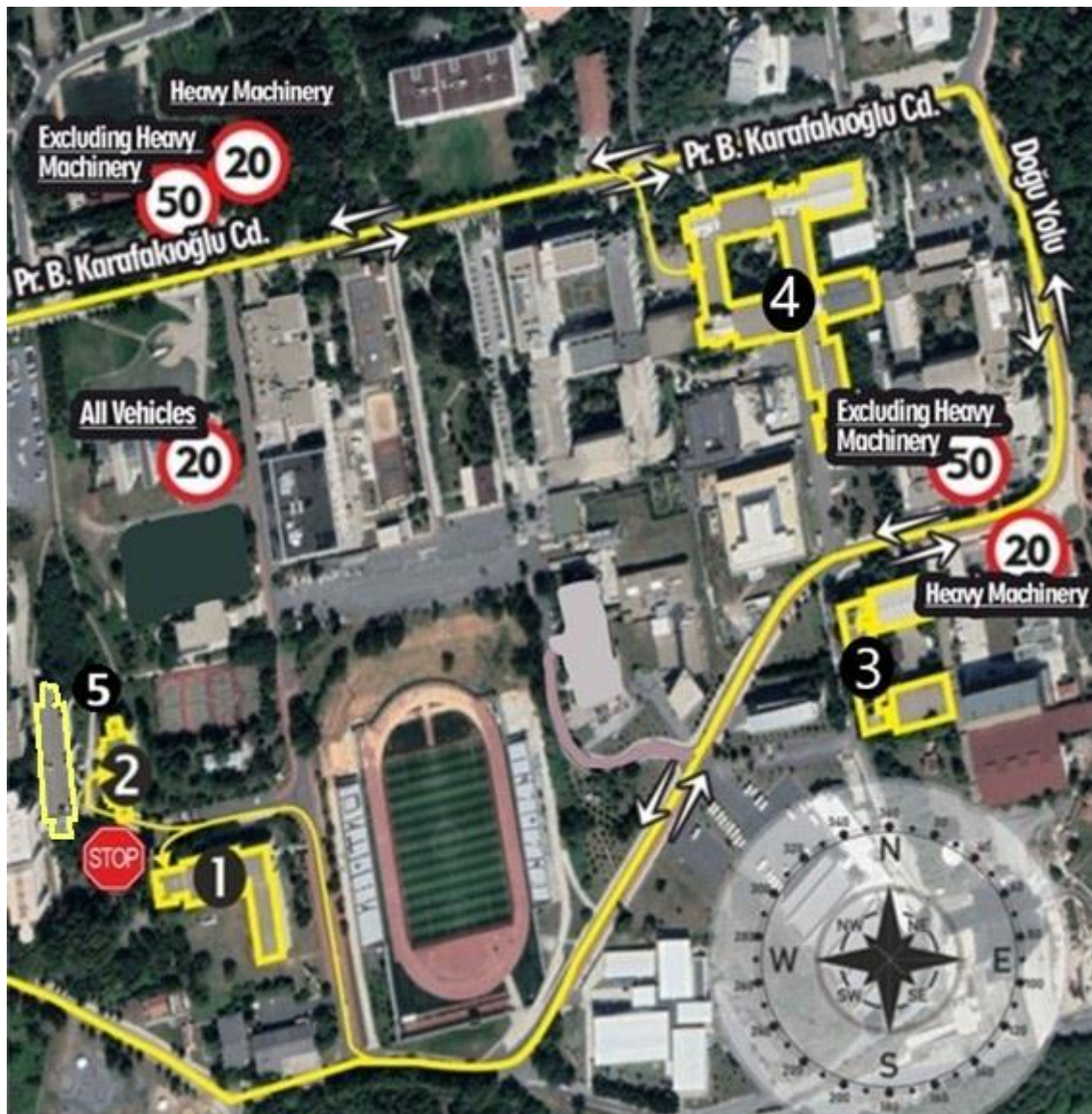
GRAND

TOTAL: **₺503.250,00**

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

Regarding the structures within the scope of the ITU Ayazağa Campus 2nd Phase project; the sections of the construction site traffic plan, parking areas, emergency gathering areas, and hazardous elevation differences are presented for your attention below;

Figure 18 ITU Ayazağa Campus 2nd Phase Traffic Plan



ITU Ayazağa Girls' Dormitory



ITU Faculty of Naval Architecture



ITU Faculty of Aerospace and Aeronautical Sciences



ITU Ferhunde Birkan Girls' Dormitory

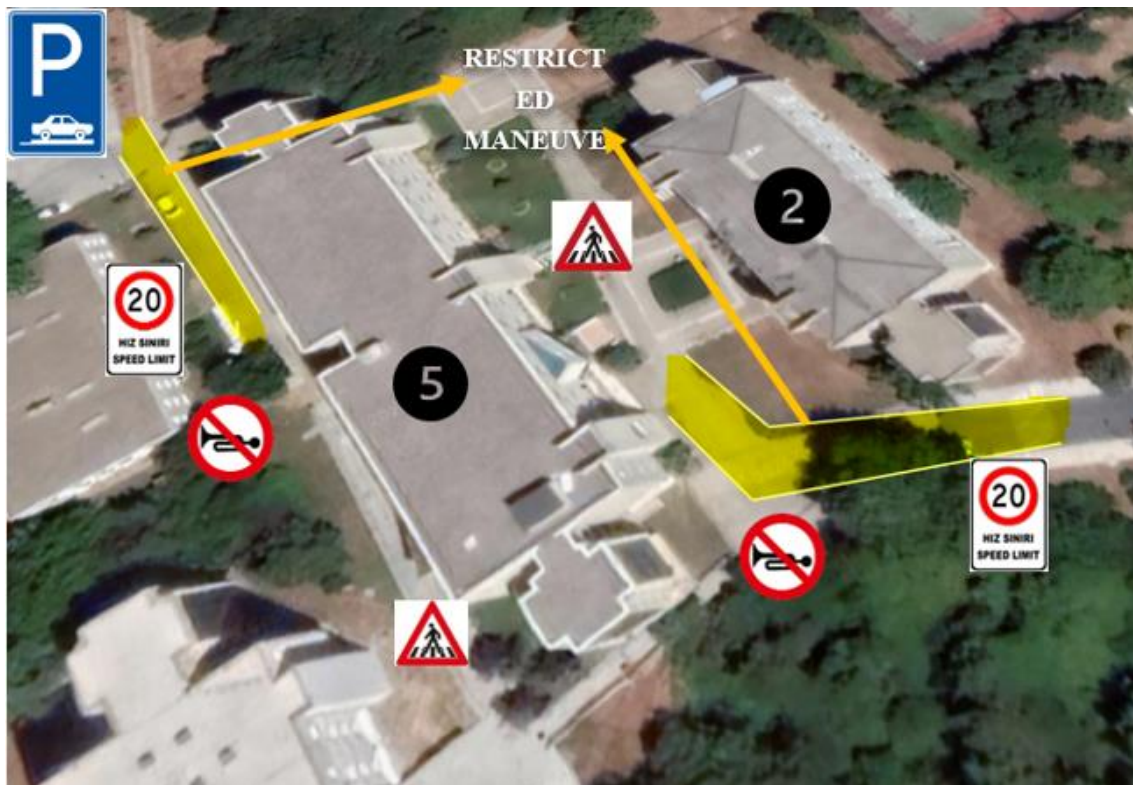


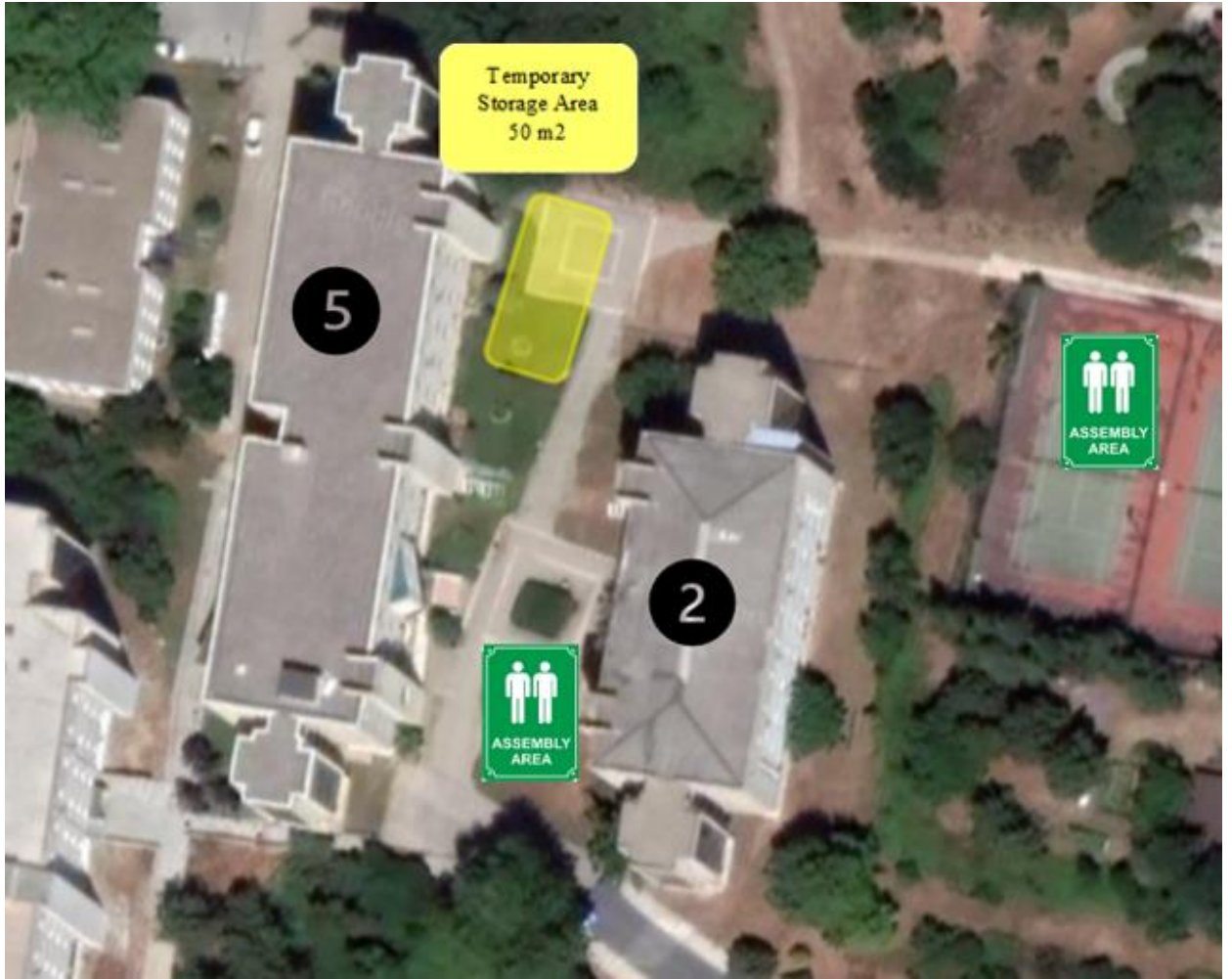
Figure 19: ITU Ayazağa Campus II Gathering Area



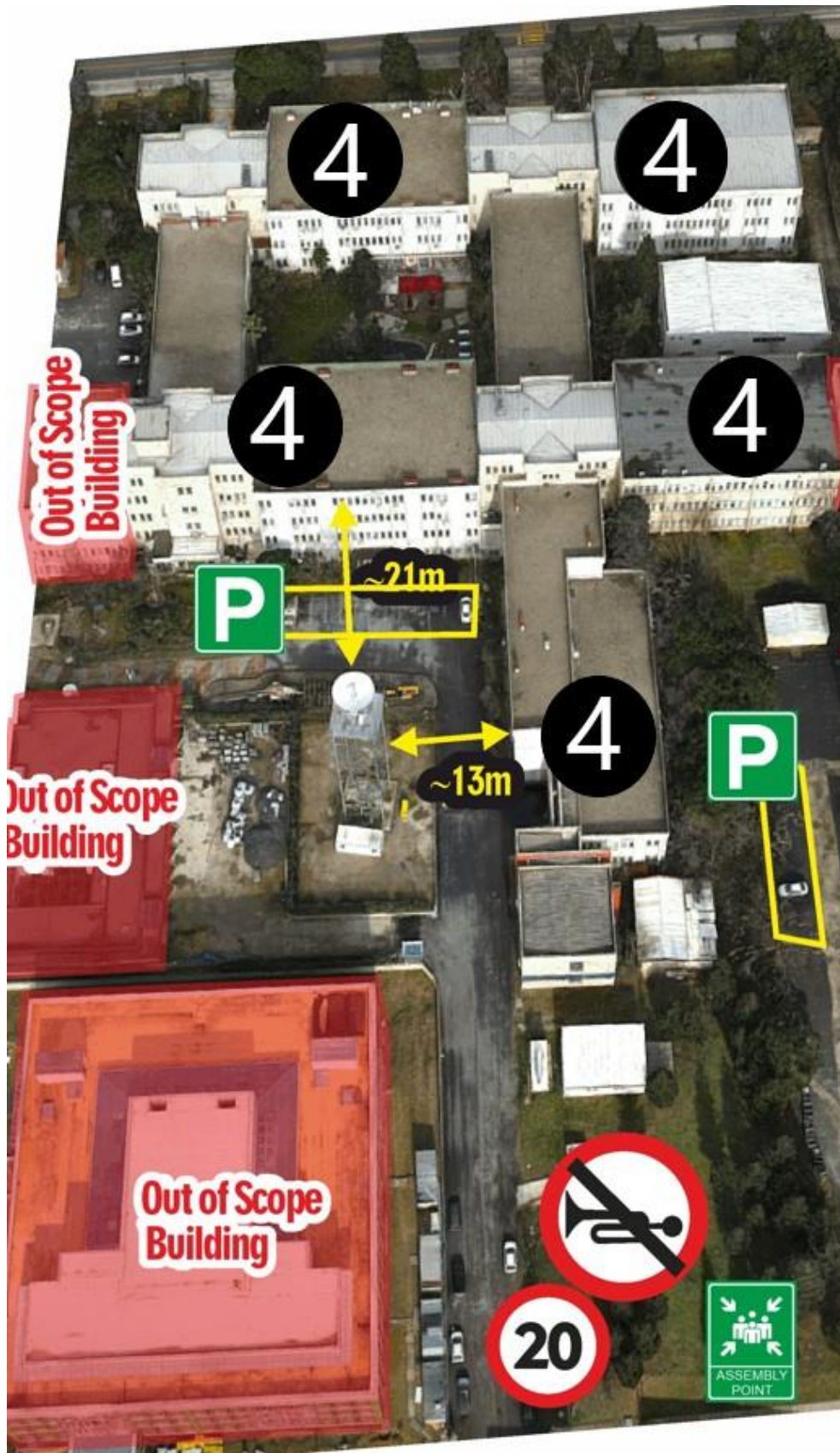
ITU Ayazağa Girls' Dormitory



ITU Ferhunde Birkan Girls' Dormitory



ITU Faculty of Mining



ITU Faculty of Aerospace and Aeronautical Sciences

