NATIONAL QUALIFICATION

17UY0288-5

ELECTRICIAN

LEVEL 5

REVISION NO: 00
AMENDMENT NO: 01

VOCATIONAL QUALIFICATIONS AUTHORITY

Ankara, 2017

PREFACE

Electrician (Level 5) National Qualification has been developed by the Federation of Turkish Electric, Electronic and Similar Technicians, Artisans and Craftsmen (TETESFED) appointed by VQA in line with the Regulation on the Development of National Occupational Standards and National Qualifications published in the Official Gazette dated 19/10/2015 and numbered 29507, which was enacted pursuant to the Law No. 5544 and the provisions of the Regulation on the Establishment, Duties, Working Procedures, and Principles of Vocational Qualifications Authority Sector Committees published in the Official Gazette dated 27/11/2007 and numbered 26713 and assessed by taking the opinions of the relevant institutions and organizations in the sector, and approved by the VQA Executive Board after being reviewed by the VQA Tourism, Accommodation and Food, and Beverage Services Sector Committee.

Electrician (Level 5) National Qualification has been amended by the Presidential Decree dated 10.06.2020 and no. 1570.

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INTRODUCTION

The basic criteria for the development of national qualification, its exam by the sector committees, and its approval by the VQA Executive Board are specified in the Regulation on the Development of National Occupational Standards and National Qualifications.

The basic criteria for national qualifications are defined as follows:

a) National qualifications shall be developed on the basis of national occupational standards or international standards.
b) National qualifications shall be developed with a participatory approach and the opinions and contributions of relevant parties shall be received.
c) National qualifications cover matters related to occupational health and safety, environmental safety and quality, regarding the occupational field.
d) National qualifications shall be written to be understood by users.
e) National qualifications encourage individuals to develop themselves and make progress in the occupation, within the framework of the lifelong learning principle.
f) National qualifications do not contain any discriminative components, either explicit or implicit.
g) National qualifications include components that ensure measuring the knowledge, skills, and competency of individuals within the scope of quality assurance.

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17UY0288-5 ELECTRICIAN (LEVEL 5) NATIONAL QUALIFICATION

1	**NAME OF THE QUALIFICATION UNIT**	Electrician
2	**REFERENCE CODE**	17UY0288-5
3	**LEVEL**	5
4	**PLACE IN THE INTERNATIONAL CLASSIFICATION**	ISCO 08: 3113 (Electricians, electrical engineering technicians, electrical installation and panel monitors, lighting technicians)
5	**TYPE**	-
6	**CREDIT VALUE**	-
7	**A) PUBLICATION DATE**	
	B) REVISION / AMENDMENT NO	Revision No: 00 Amendment No: 01
	C) REVISION / AMENDMENT DATE	Amendment No. 01 10/06/2020-1570
8	**AIM**	This qualification has been developed to ensure that the Electrician (Level 5) occupation is carried out by skilled people and to enhance the quality of the works towards the purposes of; • Defining the qualifications, knowledge, skills, and competencies that the candidates should possess, • Providing the candidates with the opportunity to prove their vocational qualification with a valid and reliable certificate, • Providing a reference and resource for the education system, testing, and awarding bodies.
9	**OCCUPATIONAL STANDARD(S) THAT FORM(S) THE BASIS FOR THE QUALIFICATION UNIT**	
Electrician (Level 5) National Occupational Standard / 16UMS0554-5		
10	**REQUIREMENT(S) FOR ENTERING THE QUALIFICATION EXAM**	
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11	**STRUCTURE OF QUALIFICATION**	
11-a) Mandatory Units		
17UY0288-5/A1 Occupational Health and Safety, Environmental Protection, Quality Management, Work Organization and Professional Development Activities 17UY0288-5/ A2 Electrical Construction Installation Inspection Procedures		
11-b) Elective Units		
17UY0288-5/ B1 Electrical Installation Applications, Ensuring Functionality, Maintenance and Repair Operations 17UY0288-5 / B2 Electrical Installation Projects Preparation Procedures		
11-c) Alternatives for Grouping Units and Additional Learning Outcomes		

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In order for the candidate to achieve a vocational qualification certificate, they must succeed in the compulsory qualification unit and in at least one of the elective qualification units.

12	ASSESSMENT AND EVALUATION

Candidates willing to achieve the Electrician (Level 5) Vocational Qualification Certificate are subjected to the exams defined in the units. Candidates must be successful in the exams defined in the units in order to achieve their vocational qualification certificates. Theoretical and practical exams in the qualification units can be done separately for each unit or together. However, each unit must be assessed independently.

The validity period of qualification units is 2 years from the date of achievement of the unit. In order to achieve a qualification by combining the qualification units, all units must remain valid.

13	**CERTIFICATE VALIDITY PERIOD**	The validity period of the certificate is five (5) years.
14	**OBSERVANCE FREQUENCY**	-
15	**ASSESSMENT AND EVALUATION METHOD TO BE USED IN CERTIFICATE RENEWAL**	At the end of the validity period of five (5) years, the performance of the certificate holder shall be assessed using at least one of the methods defined below; a) Submitting records indicating that they worked in the relevant field for at least two years in total or for the last six months within the 5-year document validity period (such as service transcript, reference letter, contract, invoice, portfolio), b) Taking the practical exams defined for the qualification units within the scope of qualification. For the candidates with a positive assessment result, the validity period of the certificate shall be extended for another 5 years.
16	**ORGANIZATION(S) DEVELOPING THE QUALIFICATION**	Federation of Turkish Electric, Electronic and Similar Technicians, Artisans and Craftsmen (TETESFED)
17	**SECTOR COMMITTEE VERIFYING THE QUALIFICATION**	VQA Electric and Electronics Sector Committee
18	**VQA EXECUTIVE BOARD'S APPROVAL DATE and NUMBER**	08.02.2017 – 2017/14

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17UY0288-5/A1 OCCUPATIONAL HEALTH AND SAFETY, ENVIRONMENTAL PROTECTION, QUALITY MEASURES, WORK ORGANIZATION AND PROFESSIONAL DEVELOPMENT ACTIVITIES QUALIFICATION UNIT

1	**NAME OF THE QUALIFICATION UNIT**	13UY0153-5/A1 Occupational Health and Safety, Environmental Protection and Quality, Work Organization and Professional Development Activities
2	**REFERENCE CODE**	17UY0288-5 / A1
3	**LEVEL**	5
4	**CREDIT VALUE**	
5	**A) PUBLICATION DATE**	
	B) REVISION / AMENDMENT NO	Revision No: 00 Amendment No: 01
	C) REVISION / AMENDMENT DATE	Amendment No. 01 10/06/2020-1570
6	**THE OCCUPATIONAL STANDARD THAT FORMS THE BASIS FOR THE QUALIFICATION UNIT**	
Electrician (Level 5) National Occupational Standard / 16UMS0554-5		
7	**LEARNING OUTCOMES**	

Learning Outcome 1: Explains Occupational Health and Safety measures.

Performance Criteria:

1.1 : Describes legal and workplace-specific occupational health and safety rules.
1.2 : Lists the processes for applying emergency / hazardous situations and exit procedures.
1.3 : Explains job-specific occupational health and safety measures.

Learning Outcome 2: Defines work principles in accordance with the environmental protection legislation.

Performance Criteria:

2.1 : Explains the processes for the application of environmental protection standards and methods.
2.2 : Explains the processes of reducing environmental risks.

Learning Outcome 3: Describes the work processes in accordance with the quality management system documents.

Performance Criteria:

3.1 : Lists the processes of implementing the quality requirements regarding the works performed.
3.2 : Lists the processes of implementing the technical procedures regarding the works performed.
3.3 : Explains the processes of contributing to the elimination of errors and malfunctions detected in the processes.

Learning Outcome 4: Explains work organization processes.

Performance Criteria:

4.1 : Explains the processes for preparing the work program.
4.2 : List the processes regarding the arrangement and inspection of the workspace.
4.3 : Lists the processes regarding keeping work records.
4.4 : Explains hardware, material and equipment inspection processes.

Learning Outcome 5: Explains processes regarding performing the professional development activities.

Performance Criteria:

5.1 : Lists the work processes on individual professional development.

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5.2 : Describes the processes regarding providing vocational training to subordinates and other employees.	
8	**ASSESSMENT AND EVALUATION**
8 a) Theoretical Exam	
(T1): The theoretical exam for the A1 unit shall be applied as per the "Information" checklist in Annex A1-2. In the theoretical exam, candidates should take a written exam (T1) consisting of at least twenty-five (25) four-option multiple-choice questions, each one with an equal point value. No points shall be deducted for wrong answers in the exam consisting of multiple-choice questions. Candidates are given an average time of 2 minutes per question during the exam. The candidate who answers at least 80% of the questions correctly in the exam is considered successful. The questions in the exam should cover all knowledge statements (Annex A1-2) intended to be assessed through the theoretical exam in this unit.	
8 b) Practical Exam	
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8 c) Other Conditions Regarding Assessment and Evaluation	
The candidate must pass the T1 exam in order to be considered successful in the mentioned unit. The validity period of the qualification unit is 2 years from the date of achievement of the unit.	
9	**INSTITUTION/ORGANIZATION(S) DEVELOPING THE QUALIFICATIONS UNIT** — Federation of Turkish Electric, Electronic and Similar Technicians, Artisans and Craftsmen (TETESFED)
10	**SECTOR COMMITTEE VERIFYING THE QUALIFICATION UNIT** — VQA Electric and Electronics Sector Committee
11	**VQA EXECUTIVE BOARD'S APPROVAL DATE and NUMBER** — 08.02.2017 – 2017/14

QUALIFICATION UNIT ANNEXES

ANNEX [A1]-1: Information on the Recommended Training for the Acquisition of the Qualification Unit

Candidates are recommended to complete a program with the below-described training content for the awarding of this unit.

1. Environmental protection
2. Occupational health and safety in electrical installation applications
3. Fires in electrical installations and precautions required to be taken
4. First aid
5. Quality applications
6. Professional development
7. Civil defense
8. Preparation, development and analysis of processes
9. Fundamental labor legislation

ANNEX [A1]-2: Table of Performance Criteria Measured by Evaluation Tools Indicated By The Qualification Unit

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a) INFORMATION

No.	Knowledge Statement	NVS Relevant Department	Qualification Unit Performance Criteria	Assessment Tool
INFO.1	Explains the processes of determining OHS risks and hazards and applying relevant norms.	A.1.1 A.1.2	1.1	T1

No.	Knowledge Statement	NVS Relevant Department	Qualification Unit Performance Criteria	Assessment Tool
INFO.2	Lists the appropriate safety equipment, personal protective equipment and intervention tools to be used.	A.1.3 A.1.4	1.1	T1
INFO.3	Lists the methods to be followed in detecting and reducing the risk-hazard factors that may occur in the work area.	A.1.5 A.1.6	1.1	T1
INFO.4	Explains the detection, taking precautions and the units to be notified in case of hazard, emergency or accident.	A.2.1 A.2.2	1.2	T1
INFO.5	Explains the situations and safety precautions about cutting tools or machines that should be used based on the work environment.	A.3.1 A.3.2	1.3	T1
INFO.6	Explains the harmful results that may occur in the environment as a result of the environment-dimension-impact evaluation of the work performed.	B.1.1 B.1.2	2.1	T1
INFO.7	Explains the recycling of recyclable materials and the necessary separation, classification and temporary storage of hazardous wastes by material types.	B.2.1 B.2.2	2.2	T1
INFO.8	Explains the appropriate tools, materials and equipment to be used against spills and leaks and the storage of flammable and combustible materials.	B.2.3 B.2.4	2.2	T1
INFO.9	Describes how to comply with the quality requirements according to the instructions and plans included under the task forms.	C.1.1 C.1.3	3.1	T1
INFO.10	Applies the quality requirements according to the tolerances and deviations the tolerances and deviations allowed in practice.	C.1.2	3.1	T1
INFO.11	Explains the quality assurance techniques according to the type of operation to be performed and the factors to be considered in filling out the relevant documents.	C.1.4 C.1.5	3.2	T1

No.	Knowledge Statement	NVS Relevant	Qualification Unit Perform	Assessment Tool

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		Department	Performance Criteria	
INFO.12	Explains how to contribute to the inspection of compliance of the device or system to be used with the technical specifications.	C.1.6	3.2	T1
INFO.13	Explains the units to which to report the errors and malfunctions detected during operation.	C.2.1	3.3	T1
INFO.14	Explains the necessary procedures and methods to identify and eliminate the causes of errors and malfunctions.	C.2.2 C.2.3	3.3	T1
INFO.15	Explains the periodical work plan preparation processes according to the work program assigned.	D.1.1	4.1	T1
INFO.16	Explains how to provide the work order according to the type of work and the work method used.	D.1.2	4.1	T1
INFO.17	Explains how to check the conformity and order of the work area according to the type of work and the work method used.	D.2.1 D.2.2	4.2	T1
INFO.18	Explains the methods required for the improvement of the negative features of the work area.	D.2.3	4.2	T1
INFO.19	Lists the aspects to be considered when entering the material records and team work scores into the relevant forms.	D.3.1 D.3.2	4.3	T1
INFO.20	Explains the processes of reporting the completion status of the works to their supervisors according to their implementation stages.	D.3.3	4.3	T1
INFO.21	Explains how to check the conformity of the equipment, materials, and instruments to be used according to the procedures.	D.4.1	4.4	T1
INFO.22	Explains the processes of keeping, installing and arranging the necessary equipment, materials and instruments in the field according to the given instructions.	D.4.2	4.4	T1
INFO.23	Describes the processes for reporting non-conforming hardware, materials and equipment to the relevant persons.	D.4.3	4.4	T1
INFO.24	Explains the process of attending trainings on hardware, materials and basic features of equipment, following new technologies and developments and keeping the documents received.	K.1.1 K.1.2	5.1	T1
INFO.25	Explains the factors that should be considered when transferring their professional knowledge and experience and/or providing training to the people they work with.	K.2.1 K.2.2	5.2	T1

b) SKILLS AND COMPETENCIES

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No.	Statement of Skills and Competencies	NVS Relevant Department	Qualification Unit Performance Criteria	Assessment Tool
-	-	-	-	-

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PROCEDURES QUALIFICATION UNIT

1	**NAME OF THE QUALIFICATION UNIT**	Electrical Construction Installation Inspection Procedures
2	**REFERENCE CODE**	17UY0288-5 / A2
3	**LEVEL**	5
4	**CREDIT VALUE**	
5	**A) PUBLICATION DATE**	
	B) REVISION / AMENDMENT NO	Revision No: 00 Amendment No: 01
	C) REVISION / AMENDMENT DATE	Amendment No. 01 10/06/2020-1570
6	**THE OCCUPATIONAL STANDARD BASIS FOR THE QUALIFICATION UNIT**	
Electrician (Level 5) National Occupational Standard / 16UMS0554-5		
7	**LEARNING OUTCOMES**	

Learning Outcome 1: Inspects the electrical installation project.

Performance Criteria:

1.1 : Inspects the electrical installation project.

1.2 : Inspects the electrical installation application.

Learning Outcome 2: Takes occupational health and safety measures.

Performance Criteria:

2.1 : Follows the legal and workplace-specific occupational health and safety rules.

2.2 : Takes job-specific occupational health and safety measures.

8	**ASSESSMENT AND EVALUATION**

8 a) Theoretical Exam

(T1): The theoretical exam for the A2 unit shall be applied as per the "Information" checklist in Annex A2-2. In the theoretical exam, candidates should take a written exam (T1) consisting of at least twenty (20) four-option multiple-choice questions, each one with an equal point value. No points shall be deducted for wrong answers in the exam consisting of multiple-choice questions. Candidates are given an average time of 2 minutes per question during the exam. The candidate who answers at least 80% of the questions correctly in the exam is considered successful. The questions in the exam should measure all knowledge statements (Annex A2-2) intended to be measured by the theoretical exam in this unit.

8 b) Practical Exam

(P1): The practical exam for the A2 unit shall be applied as per the "Skills and Competencies" checklist in Annex A2-2. The critical steps that must be accomplished by the candidate shall be specified in the "Skills and Competencies" checklist. In order for a candidate to succeed in the practical exam, they should score at least 80 out of 100 points (80%) in the overall exam, provided that they succeed in all the critical steps. The duration of the practical exam should correspond to the period in actual practice conditions within the specified scope. The practical exam shall be carried out in a real or realistically arranged manufacturing and design environment. All expressions of skill and competency (Annex A2-2) should be measured with a practical exam.

8 c) Other Conditions Regarding Assessment and Evaluation

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The validity period of the exams foreseen for the unit shall be 1 year from the date of achievement of the exam. In order to achieve the unit, the time between achieved exam dates cannot exceed one year. The validity period of qualification units is 2 years from the date of achievement of the unit. If the candidate displays behavior that could jeopardize their own safety and the safety of others, the exam shall be terminated.		
9	**INSTITUTION/ORGANIZATION(S) DEVELOPING THE QUALIFICATIONS UNIT**	Federation of Turkish Electric, Electronic and Similar Technicians, Artisans and Craftsmen (TETESFED)
10	**SECTOR COMMITTEE VERIFYING THE QUALIFICATION UNIT**	VQA Electric and Electronics Sector Committee
11	**VQA EXECUTIVE BOARD'S APPROVAL DATE and NUMBER**	08.02.2017 – 2017/14

QUALIFICATION UNIT ANNEXES

ANNEX A2-1: Information on the Recommended Training for the Acquisition of the Qualification Units

Candidates are recommended to complete a program with the below-described training content for the awarding of this unit.

1. Knowledge of electrical projects
2. Inspection processes of electrical installation projects
3. Inspection processes of electrical installation applications
4. Electrician tasks
5. Electrical equipment and materials
6. Occupational health and safety in electrical installation applications
7. Fires in electrical installations and precautions required to be taken
8. First aid
9. Quality applications
10. Civil defense
11. Basic construction
12. Legislation on building inspection and permit procedures and electrical works

ANNEX A2-2: Table of Performance Criteria Measured by Evaluation Tools Indicated By The Qualification Unit

a) INFORMATION

No.	Knowledge Statement	NVS Relevant Department	Qualification Unit Performance Criteria	Assessment Tool
INFO.1	Defines the symbols determined by TSE.	J.1.2	1.1	T1
INFO.2	Describes the conformity of line thicknesses and texts.	J.1.3	1.1	T1
No.	**Knowledge Statement**	**NVS Relevant**	**Qualification Unit Performance**	**Assessment Tool**

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		Department	Criteria	
INFO.3	Explains the checks to be performed on conductor cross-sections and numbers and pipe diameter values.	J.1.4	1.1	T1
INFO.4	Explains how to check the route of the pipe in the electrical installation and the conformity of the layout of junction boxes and boxes.	J.1.5	1.1	T1
INFO.5	Lists the inspection processes regarding the compliance of letters and color-coding used for the switchboards, panels, and lines used in the project.	J.1.6	1.1	T1
INFO.6	Lists the inspection processes of single line diagrams that should be drawn separately according to the relevant legislation of weak current systems.	J.1.7	1.1	T1
INFO.7	Lists the inspection processes of single line diagrams that should be drawn separately according to the relevant legislation of strong current systems.	J.1.7	1.1	T1
INFO.8	Explains inspection processes of the information on the building's main supply line (section, type, approximate length, the pole number to be fed, etc.) and the details of the foundation grounding.	J.1.8	1.1	T1
INFO.9	Explains the inspection processes of the information in the load charts of the switchboards.	J.1.9	1.1	T1
INFO.10	Lists the inspection processes of voltage drop, lighting and similar calculations.	J.1.10	1.1	T1
INFO.11	Explains the processes of checking the conformity of the construction site electrical panel project and the location and structure of the panel and the cable connections according to the project.	J.2.1	1.2	T1
INFO.12	Explains the processes of checking the conformity of the equipment and connections used in the foundation grounding with the standards by using appropriate methods.	J.2.2	1.2	T1
INFO.13	Explains the processes of checking the conformity of the location of the meter panel, cable shaft and energy supply room according to the project and legislation.	J.2.3	1.2	T1
INFO.14	List the processes of checking the conformity of the diameter, quality and route of the deck pipe, the locations of junction boxes and the number of lines according to the project and legislation.	J.2.4	1.2	T1
No.	**Knowledge Statement**	**NVS Relevant Department**	**Qualification Unit Performance Criteria**	**Assessment Tool**

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INFO.15	Lists the processes of checking the conformity of the characteristics and layout of the secondary switchboard, switch, socket frames and junction boxes, wall pipes and cable ducts, if any, according to the project and legislation.	J.2.5	1.2	T1
INFO.16	Lists the processes of checking the conformity of the cross-section, quality, color coding and connections of the cables according to the project and legislation.	J.2.6	1.2	T1
INFO.17	Explains the processes of checking the conformity of the characteristics, connections and assembly of switches and sockets according to the project and legislation.	J.2.7	1.2	T1
INFO.18	Explains the processes of checking the conformity of the quality, connection and cable arrangement of the cable ladders according to the project and legislation.	J.2.8	1.2	T1
INFO.19	Explains the processes of checking the conformity of the connections of the cables used in the main panel or the meter panel and the conformity of the accessories according to the legislation.	J.2.9	1.2	T1
INFO.20	Describes the tasks carried out to determine the possible OHS risks and hazards related to the work done and to reduce the risk factors.	A.1.1 A.1.6	2.1	T1

b) SKILLS AND COMPETENCIES

No.	Statement of Skills and Competencies	NVS Relevant Department	Qualification Unit Performance Criteria	Assessment Tool
*SC.1	Uses the appropriate safety equipment, personal protective equipment according to the work to be performed.	A.1.3	2.1	P1
*SC.2	Works in accordance with the safe usage requirements of the cutting tools to be used in the work environment	A.3.1	2.2	P1
*SC.3	Takes necessary safety precautions while working with job-specific machines and devices.	A.3.2	2.2	P1
*SC.4	Inspects the conformity of the applied electrical installation project to the architectural plan.	J.1.1	1.1	P1
SC.5	Checks the compliance of the symbols used with the symbols determined by the Turkish Standards Institute.	J.1.2	1.1	P1
*SC.6	Checks the conductor cross-sections and writes down the values in the checklist.	J.1.4	1.1	P1
SC.7	Checks the conductor numbers and writes down the values in the checklist.	J.1.4	1.1	P1

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No.	Statement of Skills and Competencies	NVS Relevant Department	Qualification Unit Performance Criteria	Assessment Tool
SC.8	Checks the pipe diameters and writes down the values in the checklist.	J.1.4	1.1	P1
SC.9	Checks the single line diagrams that should be drawn separately according to the relevant legislation of weak current systems.	J.1.7	1.1	P1
SC.10	Checks the single line diagrams that should be drawn separately according to the relevant legislation of strong current systems and air temperature.	J.1.7	1.1	P1
SC.11	Checks of the information in the load charts of the switchboards and air temperature.	J.1.9	1.1	P1
*SC.12	Checks the voltage drop calculation and writes down the value in the checklist.	J.1.10	1.1	P1
*SC.13	Checks the lighting calculation and writes down the values in the checklist.	J.1.10	1.1	P1
SC.14	Checks the attributes and location of the secondary switchboard according to the project and legislation.	J.2.5	1.2	P1
SC.15	Checks the qualities and location of the switch and socket frames according to the project and legislation, and writes down the values in the checklist.	J.2.5	1.2	P1
SC.16	Checks the qualities and locations of junction boxes according to the project and legislation.	J.2.5	1.2	P1
SC.17	Checks the qualities and locations of wall pipes and cable ducts, if any, according to the project and legislation.	J.2.5	1.2	P1
*SC.18	Checks the conformity of the connections of the cables used in the main panel or meter panel and in the line distribution panels according to the project and legislation.	J.2.9	1.2	P1
*SC.19	Checks the conformity of the elements used in the main panel or meter panel and the line distribution panel according to the project and legislation.	J.2.9	1.2	P1
*SC.20	Arranges the necessary forms according to all processes.	J.2.10	1.2	P1

*Critical steps that must be accomplished in the practical exam

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17UY0288-5/ B1 ELECTRICAL INSTALLATION APPLICATIONS, ENSURING FUNCTIONALITY, MAINTENANCE AND REPAIR OPERATIONS QUALIFICATION UNIT

1	**NAME OF THE QUALIFICATION UNIT**	Electrical Installation Applications, Ensuring Functionality, Maintenance and Repair Operations
2	**REFERENCE CODE**	17UY0288-5 / B1
3	**LEVEL**	5
4	**CREDIT VALUE**	
5	**A) PUBLICATION DATE**	
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6	**THE OCCUPATIONAL STANDARD BASIS FOR THE QUALIFICATION UNIT**	
Electrician (Level 5) National Occupational Standard / 16UMS0554-5		
7	**LEARNING OUTCOMES**	

Learning Outcome 1: Prepares for installing electrical installations.

Performance Criteria:
1.1 : Explains how to read electrical installation projects.
1.2 : Lists the material preparation processes.
1.3 : Prepares equipment and devices.
1.4 : Arranges the work environment.

Learning Outcome 2: Installs electrical installations.

Performance Criteria:
2.1: Lists the processes for performing the grounding tasks.
2.2: Explains the process of laying concealed pipes.
2.3: Places switches, socket frames and junction boxes.
2.4: Installs cable ducts.
2.5: Installs cables.
2.6: Makes junction box connections.
2.7: Sets up measurement and distribution panels and distribution switchboards.
2.8: Lists the processes for installing the outdoor lighting installation.
2.9: Lists the building inlet line installation processes.
2.10: Installs the devices and accessories required for the electrical installation.
2.11: Lists the processes of mounting lightning rod equipment.

Learning Outcome 3: Performs the operations for providing and checking the functionality of the electrical installation.
Performance Criteria:
3.1 : Energizes the electrical installation.
3.2 : Describes the operability measurements and tests of the electrical installation.
3.3 : Makes measurements and tests of the grounding system.

Learning Outcome 4: Performs maintenance and repair of the electrical installation.

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Performance Criteria:
4.1 : Conducts necessary inspection and fault detection on the electrical installation.
4.2 : Repairs the electrical installation.

Learning Outcome 5: Works in accordance with occupational health and safety measures and environmental protection legislation.

Performance Criteria:
5.1 : Applies the legal, workplace and job-specific occupational health and safety rules and takes the necessary precautions.
5.2 : Contributes to the reduction of environmental risks.

8	ASSESSMENT AND EVALUATION

8 a) Theoretical Exam

(T1): The theoretical exam for the B1 unit shall be applied as per the "Information" checklist in Annex B1-2. In the theoretical exam, candidates are administered a written exam (T1) consisting of at least thirty-two (32) four-option multiple-choice questions, each one with an equal point value. No points shall be deducted for wrong answers in the exam consisting of multiple-choice questions. Candidates are given an average time of 2 minutes per question during the exam. The candidate who answers at least 80% of the questions correctly in the exam is considered successful. The questions in the exam should cover all knowledge statements (Annex B1-2) intended to be assessed through the theoretical exam in this unit.

8 b) Practical Exam

(P1): The practical exam for the B1 unit is applied as per the "Skills and Competencies" checklist given in Annex B1-2. The critical steps that must be accomplished by the candidate shall be specified in the "Skills and Competencies" checklist. In order for a candidate to succeed in the practical exam, they should score at least 80 out of 100 points (80%) in the overall exam, provided that they succeed in all the critical steps. The duration of the practical exam should correspond to the period in actual practice conditions within the specified scope. The practical exam shall be carried out in a real or realistically arranged manufacturing and design environment. All skills and competencies statements (Annex B1-2) should be assessed with a practical exam.

8 c) Other Conditions Regarding Assessment and Evaluation

The validity period of the exams foreseen for the unit shall be 1 year from the date of achievement of the exam. In order to achieve the unit, the time between achieved exam dates cannot exceed one year.
The validity period of qualification units is 2 years from the date of achievement of the unit.
If the candidate displays behavior that could jeopardize their own safety and the safety of others, the exam shall be terminated.

9	**INSTITUTION/ORGANIZATION(S) DEVELOPING THE QUALIFICATIONS UNIT**	Federation of Turkish Electric, Electronic and Similar Technicians, Artisans and Craftsmen (TETESFED)
10	**SECTOR COMMITTEE VERIFYING THE QUALIFICATION UNIT**	VQA Electric and Electronics Sector Committee
11	**VQA EXECUTIVE BOARD'S APPROVAL DATE and NUMBER**	08.02.2017 – 2017/14

QUALIFICATION UNIT ANNEXES

ANNEX B1-1: Information on Recommended Training for Acquisition of the Qualification Unit

Candidates are recommended to complete a program with the below-described training content for the awarding of this unit.

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1. Environmental protection
2. Knowledge of electrical projects
3. Electrical installation maintenance and repair
4. Electrician tasks
5. Electrical equipment and materials
6. Fires in electrical installations and precautions required to be taken
7. First aid
8. Occupational health and safety
9. Quality applications
10. Civil defense
11. Basic construction
12. Legislation on building inspection and permit procedures and electrical works

ANNEX B1-2: Table of Performance Criteria Measured by Evaluation Tools Indicated by The Qualification Unit

a) INFORMATION

No.	Knowledge Statement	NVS Relevant Department	Qualification Unit Performance Criteria	Assessment Tool
INFO.1	Explains the location/orientation in the project and the meanings of the symbols.	E.1.1 E.1.2	1.1	T1
INFO.2	List the differences between weak and strong current installations.	E.1.3	1.1	T1
INFO.3	Describes conductor cross-sections, current values and similar information.	E.1.4	1.1	T1
INFO.4	Explains the materials to be used according to the project and the relevant conformity control processes.	E.2.1 E.2.2	1.2	T1
INFO.5	Lists the materials and equipment dispatch, arrangement and application phases.	E.2.3 E.3.1	1.2 1.3	T1
INFO.6	Explains the location determination, ground preparation and measures to be taken against corrosion in accordance with the legislation.	F.1.1 F.1.7 F.8.1	2.1 2.8	T1
INFO.7	Explains the installation and testing of grounding and potential compensation installations.	F.1.2 F.1.3 G.3.3	2.1 3.3.	T1
INFO.8	Lists the installation procedures of the potential compensation busbar.	F.1.4	2.1	T1
INFO.9	Describes the processes for making all the connections related to the grounding installation.	F.1.5	2.1	T1
INFO.10	Explains the processes of checking and reporting grounding connections during the electrical installation application.	F.1.6 F.1.8	2.1	T1
No.	**Knowledge Statement**	**NVS Relevant Department**	**Qualification Unit Performance Criteria**	**Assessment Tool**

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INFO.11	Explains the process of determining the location of the concrete pipe route and installation materials and the relevant assembly processes in accordance with the project and legislation.	F.2.1 F.2.2 F.2.3	2.2	T1
INFO.12	Explains the processes of determining the wall pipe route, opening the pipe ducts and placing the pipe in accordance with the project and the legislation.	F.2.4 F.2.5 F.2.6	2.2	T1
INFO.13	Explains the process of determining the locations of frames and junction boxes in accordance with the project and legislation.	F.3.1	2.3	T1
INFO.14	Explains the processes of determining cable duct routes in accordance with the project and legislation.	F.4.1	2.4.	T1
INFO.15	Explains the processes of placing the cable ducts specified in the project by using appropriate equipment, materials and accessories on the routes determined in accordance with the place and purpose of use.	F.4.2	2.4	T1
INFO.16	Explains the processes of installing the busbar system on the route specified in the project, using the appropriate fastening elements.	F.4.3	2.4	T1
INFO.17	Lists the stages of installing the cable duct under the floor with fasteners.	F.4.4	2.4	T1
INFO.18	Lists the color coding and duct closure processes for the cables to be installed according to the project and legislation.	F.5.2 F.5.4	2.5	T1
INFO.19	Explains the processes of determining and mounting the appropriate panels/switchboards according to the project.	F.7.1 F.7.2	2.7	T1
INFO.20	Describes the installation processes for the panel and switchboard measuring materials, and protection and breakers.	F.7.3	2.7	T1
INFO.21	Lists the processes for determining the locations of exterior lighting fixtures according to the project.	F.8.1	2.8	T1
INFO.22	Lists the processes for installing the exterior lighting with appropriate tools-equipment according to the project.	F.8.2	2.8	T1
INFO.23	Explains the processes for determining the building inlet line route according to the project and legislation.	F.9.1	2.9	T1
INFO.24	Lists the processes for installing the building inlet line with appropriate tools-equipment according to the determinations made.	F.9.2	2.9	T1
INFO.25	Explains the processes for placing the lightning rod assembly.	F.11.1	2.11	T1
INFO.26	Explains the processes for assembling the lightning rod equipment and materials by using basic hand tools.	F.11.2	2.11	T1
No.	**Knowledge Statement**	**NVS Relevant Department**	**Qualification Unit Performance Criteria**	**Assessment Tool**

INFO.27	Explains voltage, grounding, lighting and current measurements with the manufacturer's request.	G.2.1	3.2	T1
INFO.28	Lists the processes for testing the operability status of installation devices.	G.2.2	3.2.	T1
INFO.29	Explains the tasks to be performed for measuring and reporting the stability of connections, and resistance values in the processes of ensuring and checking the functionality of the electrical installation.	G.3.1 G.3.2 G.3.4	3.2	T1
INFO.30	Explains how to check the grounding connections manually, visually and with appropriate measuring instruments	H.1.2	4.1	T1
INFO.31	Explains the processes related to work site lighting inspections, and entering relevant process records into checklists and reporting them.	H.1.4 H.1.5	4.1	T1
INFO.32	Explains the sorting and classification processes required for the recovery of recyclable materials.	B.2.1	5.2	T1

b) SKILLS AND COMPETENCIES

No.	Statement of Skills and Competencies	NVS Relevant Department	Qualification Unit Performance Criteria	Assessment Tool
*SC.1	Uses the appropriate safety equipment, personal protective equipment according to the work to be performed.	A.1.3	5.1	P1
*SC.2	Takes necessary safety precautions while working with job-specific machines.	A.3.2	5.1	P1
SC.3	Checks the equipment, devices and tools to be used in the installation process and dispatches them to relevant work area according to the application stages.	E.3.2	1.3	P1
SC.4	Examines the work environment according to the works to be performed and determines the appropriate places for the spatial arrangements to be made.	E.4.1	1.4	P1
SC.5	Checks the materials and equipment at the spaced determined and ensures that they are placed in the site in accordance with the work order.	E.4.2	1.4	P1
SC.6	Places the frames and junction boxes on the walls in the correct size and at leveled state.	F.3.2	2.3	P1
No.	**Statement of Skills and Competencies**	**NVS Relevant Department**	**Qualification Unit Performance Criteria**	**Assessment Tool**
SC.7	Explains the processes of placing the cable ducts specified in the project by using appropriate equipment, materials and accessories on the routes determined in accordance with the place and	F.4.2	2.4	P1

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	purpose of use.			
SC.8	Determines by using the guide whether the pipes or ducts in which the cables will be laid are blocked and eliminates blockages, if any.	F.5.1	2.5	P1
*SC.9	Installs the cables by using the guide in the pipes in accordance with the coding in concealed cable installation practices.	F.5.3	2.5.	P1
SC.10	Detects the correct connections for the installed cables at the junction box.	F.6.1	2.6	P1
*SC.11	Connects the cables that need to be connected at the junction box to each other using terminal boxes and basic hand tools.	F.6.2	2.6	P1
SC.12	Closes the junction box when the connections are complete.	F.6.3	2.6	P1
SC.13	Assembles panel and switchboard measuring materials, protection and breakers with basic hand tools and fasteners.	F.7.3	2.7	P1
SC.14	Makes the connections of the assembled panels and switchboards and the relevant cables in accordance with the project.	F.7.4	2.7	P1
*SC.15	Selects the appropriate material for the project from among the materials supplied for the installation.	F.10.1	2.10	P1
SC.16	Assembles the materials, devices, and accessories in their places at leveled state by using basic hand tools and fasteners.	F.10.2	2.10	P1
SC.17	Makes the installation connections of the engines and/or devices correctly according to the technical instructions and legislation by using basic hand tools and ensures their conformity.	F.10.3 F.10.4	2.10	P1
SC.18	Ensures that the completed installation is energized gradually, in accordance with the relevant procedure.	G.1.1	3.1	P1
SC.19	Checks whether there is power to the installation with appropriate measuring instruments.	G.1.2	3.1	P1
*SC.20	Tests whether the stray current protection or fire protection relays between the phase and the grounding are operational by using the appropriate method.	G.3.3	3.3	P1
SC.21	Checks the soundness of cables, cable ducts and panels that provide electricity distribution by using the appropriate method within the scope of maintenance and repair operations.	H.1.1	4.1	P1
No.	**Statement of Skills and Competencies**	**NVS Relevant Department**	**Qualification Unit Performance Criteria**	**Assessment Tool**
SC.22	Checks interior grounding connections manually, visually and by use of appropriate measuring	H.1.2	3.3	P1

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	instruments.			
SC.23	Applies the loaded/unloaded (cold/hot) or energized/non-energized testing stages by use of appropriate measuring instruments.	H.1.3	4.1	P1
SC.24	Checks the operability of the lighting of the areas.	H.1.4	4.1	P1
*SC.25	Cuts or ensures the cutting of the power to the installation to be dismantled in accordance with the relevant procedure	H.2.1	4.2	P1
*SC.26	Insulates the open terminals separated from their connections with insulating materials.	H.2.2	4.2	P1
SC.27	Disassembles the accessories and assembly materials of the installation with basic hand tools.	H.2.3	4.2	P1
SC.28	Disconnects the cables of the installation and performs the sorting and marking of the related equipment for reuse purposes.	H.2.4	4.2	P1
SC.29	Reassembles the disassembled part of the installation or its accessories.	H.2.5	4.2	P1
SC.30	Explains the sorting and classification processes required for the recovery of recyclable materials.	B.2.1	5.2	P1
SC.31	Sorts the wastes classified according to their types such as plastic, paper, metal and glass.	B.2.1	5.2	P1

*Critical steps that must be accomplished in the practical exam.

17UY0288-5 / B2 ELECTRICAL INSTALLATION PROJECTS PREPARATION PROCEDURES QUALIFICATION UNIT

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1	**NAME OF THE QUALIFICATION UNIT**	Electrical Installation Projects Preparation Procedures
2	**REFERENCE CODE**	17UY0288-5 / B2
3	**LEVEL**	5
4	**CREDIT VALUE**	
5	**A) PUBLICATION DATE**	
	B) REVISION / AMENDMENT NO	Revision No: 00 Amendment No: 01
	C) REVISION / AMENDMENT DATE	Amendment No. 01 10/06/2020-1570
6	**OCCUPATIONAL STANDARD(S) THAT FORM(S) THE BASIS FOR THE QUALIFICATION UNIT**	
Electrician (Level 5) National Occupational Standard / 16UMS0554-5		
7	**LEARNING OUTCOMES**	

Learning Outcome 1: Prepares the electrical installation projects.

Performance Criteria:

1.1 : Makes preliminary preparations for the electrical installation project within the legal limits.

1.2 : Prepares / draws electrical installation projects.

Learning Outcome 2: Works in accordance with the quality management system documents.

Performance Criteria:

2.1 : Applies the quality requirements and technical procedures pertaining to the work to be performed.

2.2 : Contributes to the elimination of errors and malfunctions detected in the processes.

8	**ASSESSMENT AND EVALUATION**

8 a) Theoretical Exam

(T1): The theoretical exam for the B2 unit shall be applied as per the "Information" checklist in Annex B2-2. In the theoretical exam, candidates should take a written exam (T1) consisting of at least ten (10) four-option multiple-choice questions, each one with an equal point value. No points shall be deducted for wrong answers in the exam consisting of multiple-choice questions. Candidates are given an average time of 2 minutes per question during the exam. The candidate who answers at least 80% of the questions correctly in the exam is considered successful. The questions in the exam should measure all knowledge statements (Annex B2-2) intended to be measured by the theoretical exam in this unit.

8 b) Practical Exam

(P1): The practical exam for the B2 unit is realized as per the "Skills and Competencies" checklist given in Annex B2-2. The critical steps that must be accomplished by the candidate shall be specified in the "Skills and Competencies" checklist. In order for a candidate to succeed in the practical exam, they should score at least 80 out of 100 points (80%) in the overall exam, provided that they succeed in all the critical steps. The duration of the practical exam should correspond to the period in actual practice conditions within the specified scope. The practical exam shall be carried out in a real or realistically arranged manufacturing and design environment. All skills and competencies statements (Annex B2-2) should be assessed with a practical exam.

8 c) Other Conditions Regarding Assessment and Evaluation

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The validity period of the exams foreseen for the unit shall be 1 year from the date of achievement of the exam. In order to achieve the unit, the time between achieved exam dates cannot exceed one year. The validity period of qualification units is 2 years from the date of achievement of the unit. If the candidate displays behavior that could jeopardize their own safety and the safety of others, the exam shall be terminated.		
9	**INSTITUTION/ORGANIZATION(S) DEVELOPING THE QUALIFICATIONS UNIT**	Federation of Turkish Electric, Electronic and Similar Technicians, Artisans and Craftsmen (TETESFED)
10	**SECTOR COMMITTEE VERIFYING THE QUALIFICATION UNIT**	VQA Electric and Electronics Sector Committee
11	**VQA EXECUTIVE BOARD APPROVAL DATE and NUMBER**	08.02.2017 – 2017/14

QUALIFICATION UNIT ANNEXES

ANNEX B2-1: Information on Recommended Training for Acquisition of the Qualification Unit

Candidates are recommended to complete a program with the below-described training content for the awarding of this unit.

1. Knowledge of electrical projects
2. Electrical equipment and materials
3. Electrical installation project preparation / drawing
4. Fires in electrical installations and precautions required to be taken
5. Occupational health and safety
6. Quality applications
7. Profession-related basic computer aided drawing software
8. Civil defense
9. Basic construction
10. Legislation on building inspection and permit procedures and electrical works

ANNEX B2-2: Table of Performance Criteria Measured by Evaluation Tools Indicated By The Qualification Unit

a) INFORMATION

No.	Knowledge Statement	NVS Relevant Department	Qualification Unit Performance Criteria	Assessment Tool
INFO.1	Lists the stages of examining the architectural project of the application area in terms of electrical installation.	I.1.1	1.1	T1
INFO.2	Explains the stages of determining the requirements of the electrical installation according to the application area for the project.	I.1.2	1.1	T1
INFO.3	Explains the expressions in the symbols table according to the requirements.	I.1.3	1.1	T1
INFO.4	Determines the locations of the main switchboard and/or the secondary switchboard.	I.1.4	1.1	T1

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No.	Knowledge Statement	NVS Relevant Department	Qualification Unit Performance Criteria	Assessment Tool
INFO.5	Expresses how to create drawing layers, size and/or text settings by using basic computer-aided design programs related to the profession.	I.1.7	1.1	T1
INFO.6	Lists the letters and color coding used for the switchboards, panels and lines in the project.	I.2.2	1.2	T1
INFO.7	Explains the single line diagrams of weak and/or strong current systems according to the relevant legislation.	I.2.3	1.2	T1
INFO.8	Explains how the necessary calculations (power, lighting, grounding, conductor cross-section, current control, voltage drop, compensation, lightning rod etc.) should be made according to the requirements.	I.2.4	1.2	T1
INFO.9	Creates tables and charts for the drawings and calculations prepared.	I.2.5	1.2	T1
INFO.10	Explains how to prepare the project information, within the framework of the quality rules, together with the detected errors and malfunctions, if any, according to the allowed tolerances in the scope of the relevant legislation.	C.1.1 C.2.1	2.1 2.2	T1

b) SKILLS AND COMPETENCIES

No	Statement of Skills and Competencies	NVS Relevant Department	Qualification Unit Performance Criteria	Assessment Tool
*SC.1	Determines the requirements of the electrical installation based on the technical specifications (special specifications, if present).	I.1.2	1.1	P1
*SC.2	Retrieves symbols suitable for requirements from the symbols table.	I.1.3	1.1	P1
SC.3	Determines the locations of the main switchboard and/or the secondary switchboard.	I.1.4	1.1	P1
*SC.4	Determines the locations of switches, sockets, junction boxes, lamps, weak current and similar accessories and elements.	I.1.5	1.1	P1
*SC.5	Determines the appropriate routes for pipes or cable ducts.	I.1.6	1.1	P1
*SC.6	Adjusts the measurement and text settings by using the computer-aided basic design programs related to the profession.	I.1.7	1.1	P1
SC.7	Adjusts the measurement and text settings by using the computer-aided basic design programs related to the profession.	I.1.7	1.1	P1

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No	Statement of Skills and Competencies	NVS Relevant Department	Qualification Unit Performance Criteria	Assessment Tool
*SC.8	Prepares the electrical general drawings of the installation project (column diagrams, floor plans, lighting and similar) in accordance with the requirements and the relevant project legislation.	I.2.1	1.2	P1
*SC.9	Prepares the electrical detail drawings of the installation project (grounding detail, cable-duct detail, panel detail, and if any, cable chimney detail etc.) in accordance with the requirements and the relevant project legislation.	I.2.1	1.2	P1
SC.10	Makes the letter and color coding used for the switchboards, boards and lines used in the project.	I.2.2	1.2	P1
*SC.11	Draws single line diagrams of weak and strong current systems in accordance with the relevant legislation.	I.2.3	1.2	P1
*SC.12	Performs the necessary calculations (power, lighting, conductor cross-section (heat control), current control, voltage drop, compensation, lightning rod etc.) within the framework of quality requirements in line with the allowed tolerances and deviations according to the needs.	C.1.1 I.2.4	1.2 2.1	P1
*SC.13	Creates tables and charts for the drawings and calculations prepared.	I.2.5	1.2	P1
SC.14	Prepares the project information, in the scope of the relevant legislation, together with the detected errors and malfunctions, if any, within the framework of quality rules.	C.2.1	2.2	P1

*Critical steps that must be accomplished in the practical exam.

QUALIFICATION ANNEXES

ANNEX 1: Qualification Units

17UY0288-5/A1 Occupational Health and Safety, Environmental Protection and Quality Management, Business Organization and Professional Development Activities
17UY0288-5/ A2 Electrical Construction Installation Inspection Procedures
17UY0288-5/ B1 Electrical Installation Applications, Ensuring Functionality, Maintenance and Repair Operations
17UY0288-5 / B2 Electrical Installation Projects Preparation Procedures

ANNEX 2: Terms, Symbols and Abbreviations

CURRENT: Electron flow occurring in a conductor,

MAIN PANEL: The first electrical distribution box in the structure, containing protection, control, and measurement elements,

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FASTENERS: Welding, soldering, bonding, rivets, bolts, pins, pins, wedges, shafts and similar tools that connect two or more elements,

BUSBAR: Units where electrical energy of the same voltage and frequency is collected and distributed,

CONCRETE PIPE: The electrical installation pipe placed in the concrete,

JUNCTION BOX: The box used to combine in electrical installations or to divide the current into one or more branches,

BUSBAR: The equipment that provides the electrical energy in the transmission and distribution to the devices to be used with its own internal mechanism and without any additional material,

ENVIRONMENTAL PROTECTION: Use of materials or processes that do not harm the environment, in the studies, or disposing of hazardous wastes properly,

WALL PIPE: The electrical installation pipe placed in the walls,

ELECTRICAL PANEL: The first electrical distribution box/cabinet containing electrical measurement and control elements,

ELECTRICAL SWITCHBOARD: The electrical distribution box, which contains electrical control elements,

VOLTAGE DROP: The percent voltage loss according to the operating voltage calculated from the highest current value for the conductor between the energy inlet and the junction box to which the last receiver is connected,

VOLTAGE: The potential difference between two conductors,

CONDUCTOR CROSS-SECTION: The area in square millimeters of conductors such as copper, aluminum, chrome-nickel used in electrical installations when they are cut transversely, excluding insulation thickness,

CONDUCTOR: Materials that conduct electric current,

ISCO: International Standard Classification of Occupations

OHS: Occupational Health and Safety.

FRAME: Materials used to mount switches, sockets, etc. to the wall,

CABLE SHAFT: Square or triangular shaped channels where the cables passing through the building, extending from the bottom to the top, are distributed as they go upwards,

CABLE LADDERS: Metal assemblies welded at regular intervals, resembling a ladder step, used to carry the cabling installations inside the cable shaft neatly and together,

COLUMN LINE: The line between the first distribution point of the consumer and other distribution points or between switchboards,

GUIDE: Steel or plastic wire used to pass conductors through pipes,

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PERSONAL PROTECTIVE EQUIPMENT (PPE): All tools, equipment, instruments, and devices that are either worn, put on, or held and that are specifically designed to protect the workers against one or multiple risks which may arise during work or which may affect their health and safety.

TERMINAL BOX: The device used to attach the conductors to each other,

CODING: Colors to be used for conductors in electrical interior installations,

COMPENSATION: The system that regulates the phase difference between voltage and current of inductive or capacitive loads and keeps them close to the ideal (0 degrees),

STRONG CURRENT: Current that is hazardous for people and goods under normal situations,

INLET LINE: The line from the distribution panel to the last lighting device (fixture) or the box (junction box) where the socket is connected,

MARKING: The process of separating similar conductors used for different places and purposes,

ASSEMBLY MATERIALS: Switches, sockets, junction boxes, lamps, etc. materials,

MEASUREMENT AND DISTRIBUTION PANELS: The control panel that measures, distributes, protects and controls electrical energy inside and outside the building,

LIGHTNING ROD: The installation established against fires and life-threatening hazards that may arise as a result of a lightning strike,

RISK: The possibility of loss, injury, or other harmful consequences,

RISK ASSESSMENT: Necessary works to detect the internal and external risks at work, to analyze and rank the factors that cause these hazards to turn into risks and the risks caused by hazards, and to determine the control measures.

OUTLET LINE: The connection line between the inlet line and the lighting fixture or socket,

DECK PIPE: The electrical installation pipe placed in the ceiling concrete,

SECONDARY SWITCHBOARD: The electricity distribution point where the protection, control and measurement elements are located after the first distribution point of the consumer,

HAZARD: The potential for harm or damage that exists in the workplace or may come from outside, which may affect the employee or the workplace.

INSTALLATION ACCESSORIES: Electrical devices and the materials controlling these devices,

INSTALLATION: The entire system (lighting, socket, power, telephone, voice-over, fire alarm, etc.) prepared using fuses and infrastructure electrical materials (junction boxes, terminals, pipes, etc.), various switches, conductors, sockets, in accordance with the characteristics of the receivers (lathe, iron, washing machine, electric sewing machine, lamp, etc.) where electricity will be supplied based on their places of use.

INSTALLATION PROJECT: The design of the electrical installation to be assembled in

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accordance with the architectural project, which includes drawings and calculations in certain standards and scales,

GROUNDING: Connecting the metal parts of the devices used in electrical installations with the ground,

APPLICATION AREA: The environment where the electrical installation will be assembled (housing, workplaces, businesses, outdoor areas, etc.),

WEAK CURRENT: The current that is not hazardous for people and goods under normal conditions.

ANNEX 3: Horizontal and Vertical Progression Paths in the Occupation

ANNEX 4: Evaluator Criteria

The evaluator must meet at least one of the following conditions:

1. Having actually provided at least three (3) years of training as an instructor in at least one of the electrical, electrical-electronics and electronics fields in vocational associate schools or faculties,
2. Having worked at least for three (3) years as an instructor in institutions providing vocational and technical education, in at least one of the electricity, electrical-electronics and electronics branches,
3. Having received undergraduate education in at least one of the electrical, electrical-electronics, and electronics departments of the universities and having actually worked for at least five (5) years in the jobs defined in the relevant qualification unit to be assessed and evaluated,
4. Having graduated from the relevant departments of vocational associate schools and having actually worked for at least five (5) years in the jobs defined in the qualification unit to be assessed and evaluated.

The evaluators who have the above qualifications and will take part in the measurement and evaluation process should be provided with training on the vocational qualification system, the national qualification(s), the relevant national occupational standard(s), assessment-evaluation and quality assurance in assessment-evaluation by the institutions authorized in the relevant field.

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