

**NATIONAL OCCUPATIONAL STANDARD**

**Marble - Natural Stone Sizing and Cutting Worker**

**LEVEL 4**

**REFERENCE CODE** / …

**OFFICIAL JOURNAL DATE-ISSUE/ …**

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| **Occupation:** | **Marble - Natural Stone Sizing and Cutting Worker** |
| **Level:** | **4** |
| **Reference Code:** | **…………………………………….** |
| **Prepared by:** | ………………………………………… |
| **Verified by:** | **VQA ………. Sector Committee** |
| **VQA Board of Directors Approval Date/Issue:** | **………… Date and ………. Decision No.** |
| **Official Gazette Date / Issue:**  | …  |
| **Revision No:** | **00** |

**TERMS, SYMBOLS AND ABBREVIATIONS**

**BLOCK:** Properly shaped mass which has economic value and obtained from marble blocks.

**NATURAL STONE:** It is the name given to rocks formed naturally in nature which can take any shape with specific hand tools in the decorative way, on which all kinds of surface treatment can be performed, which can be polished and be cut and which give corner and edge when cut, which permit taking blocks whatever their style of formation.

**DIAMOND WIRE:** The wire used for cutting purposes and made of thick disc-shaped beads of industrial diamonds lined sequentially with springs with a diameter of approximately 0.7 cm within steel with a diameter of 1 cm on a steel rope.

**ISCO:** International Standard Classification of Occupations.

**OHS:** Occupational Health and Safety

**INDEX CARD:** Compile of information processed on cards according to a system.

**PERSONAL PROTECTIVE EQUIPMENT (PPE):** All kinds of tools, instruments, appliances and devices which are worn, put on or hold by the worker and which protect the worker from one or more hazards arise from the work and effect the health and safety of the worker, and which were designed to suit such purpose,

**MARBLE:** Marble is the rock formed as a result of the recrystallisation of limestones combined with Calcium Carbonate or Magnesium Calcium by metamorphosing under the effect of pressure and temperature.

**QUARRY:** The place where marble block production is performed.

**WASTE:** Pieces of marble or natural stone which cannot be utilized as block and rubble at the quarry.

**WASTE DISPOSAL AREA:** Specific area for disposal of waste.

**RISK:** The composition of the possibility of any dangerous situation and the results of the same.

**ROTATION:** Taking over different assignments in turns.

**DISCONTINUITY:** The cracked and broken structures in large marble masses.

**DANGER:** Potential of damage or injury likely to affect the worker or work place and likely to exist in the workplace or to be caused externally.

**APPLICATION:** Implementing project measures and forms to land determined with one scale.

**PRODUCTION UNIT:** Area where machines for production are placed.

**TREATMENT PLANT:** A private plant, in which marble natural stone particles that mixed with the cutting water during the cutting procedure are removed from the water.

**TIME SCHEDULE:** Plan which indicates day, month and year for a production.

**FLOW CHART:** Diagram indicating phases of production.

**SOCKET:** The pieces, which are produced by placing diamond particles in steel dough, and which welded to the places removed from the edges of saws that are 2-5 cm long,0.4 -1 cm thick, and 1 cm wide.

**TABLE OF CONTENTS**

[**1.** **INTRODUCTION** 6](#_Toc336246055)

[**2.** **INTRODUCTION OF THE OCCUPATION** 7](#_Toc336246056)

[**2.1.** **Place of the Occupation in International Classification System** 7](#_Toc336246057)

[**2.2.** **Regulations on Health, Safety and Environment** 7](#_Toc336246058)

[**2.3.** **Other Legislation regarding the Occupation** 8](#_Toc336246059)

[**2.4.** **Working Environment and Conditions** 8](#_Toc336246060)

[**2.5.** **Other Requirements regarding the Occupation** 8](#_Toc336246061)

[**3.** **OCCUPATIONAL PROFILE** 9](#_Toc336246062)

[**3.1.** **Duties, Tasks and Performance Criteria** 9](#_Toc336246063)

[**3.2.** **Tools, Appliances and Equipment Used** 16](#_Toc336246064)

[**3.3.** **Knowledge & Skills** 16](#_Toc336246065)

[**3.4.** **Attitudes and Behaviors** 17](#_Toc336246066)

[**4.TESTING, ASSESSMENT AND CERTIFICATION** 18](#_Toc336246067)

1. **INTRODUCTION**

National occupational standard titled Marble Natural Stone Sizing and Cutting Worker (Level 4) was issued by Turkish Association of Marble, Natural Stone and Machine Producers (TÜMMER) assigned as per the provisions of Vocational Qualifications Authority (VQA) Law No.5544 and “Bylaw on Drawing up National Occupational Standards” and “Regulation on the Establishment, Duties and Operation Procedures and Principles of the Sector Committees of Vocational Qualification Authority” introduced pursuant to the aforementioned Law.

National occupational standard titled Marble-Natural Stone Quarry Worker (Level 4) was assessed upon receiving the opinions of the related institutions and organizations in the sector, and approved by VQA Board of Directors upon examination of VQA Mining Sector Committee.

1. **INTRODUCTION OF THE OCCUPATION**

Marble-Natural Stone Sizing and Cutting Worker Level (4) is a qualified person who participates in occupational development activities, manages the section of cutting in production and makes work organization by taking precautions related to occupational health and safety and environment within the frame of quality systems.

* 1. **Place of the Occupation in International Classification System**

**ISCO 08 :** 7113 Stonemasons, stone cutters and carvers”

**NACE Rev.2 :** C-MANUFACTURING 23-7

* 1. **Regulations on Health, Safety and Environment**

Social Security and General Health Insurance Law No.5510

Regulation on Heavy and Dangerous Work (Date of Official Gazette: 6/16/04, Issue of Official Gazette: 25494)

Bylaw on Occupational Health and Safety (Date of Official Gazette: 1/11/74, Issue of Official Gazette: 14765)

Regulation on Health and Safety Conditions in Use of Work Equipments (Date of Official Gazette: 2/11/04, Issue of Official Gazette: 25370)

Regulation on Use of Personal Protective Equipments in the Workplace (Date of Official Gazette: 2/11/04, Issue of Official Gazette: 25370)

Safety and Health Signs Regulation (Date of Official Gazette: 23.12. 2003, Issue of Official Gazette: 25325)

Regulation on Heavy and Dangerous Works

Notification on the professional Trainings of the Workers to be employed in Heavy and Dangerous Works

Regulation on the General Principles of Waste Management

Regulation on Procedures and Principles of Occupational Health and Safety Trainings of the Employees

Regulation on Health and Security Measures for Working with Devices with Screens

Regulation on Manual Handling Works

Regulation on Noise

Regulation on Preparation, Completing and Cleaning Works

Occupational Safety and Health Regulation

Regulation on Health and Safety Measures to be taken in the Workplace Buildings and Additional Buildings

Regulation on Business Licenses

Regulation for Control of Solid Waste

Regulation on Preventing the Personnel from the Hazards of the Explosive Environments

Regulation on Fire

\*Furthermore it is essential to follow legislation, laws, bylaws and regulations on occupational health and safety and environment; and to perform risk analysis regarding this issue.

* 1. **Other Legislation regarding the Occupation**

Labor Act No.4857

Social Security and General Health Insurance Law No.5510

Mining Law No.3217

Environmental Law No.2872

\*Furthermore, it is essential to follow other current legislations, laws, bylaws and regulations concerning the occupation.

* 1. **Working Environment and Conditions**

Marble natural stone sizing and cutting worker level (4) works at appropriate temperature in open or closed factory environment that includes machines working with a large quantity of water, which is adequately lighted, humid, dusty, noisy; and where occupational health and safety measures are required to be taken.

S/he works in communication with his/her co-workers and relevant authorities, depending on the requirements of work.

Works almost any time of the year as long as atmospheric conditions are convenient.

Mostly is on the move in the process of work and sometimes must stand on feet for a long time and carry heavy materials.

May face occupational diseases like backache, knee pain, rheumatism diseases etc. due to the environmental conditions.

Works with appropriate personal protective equipment during processes. There are also damage and injury risks which require taking occupational health and safety measures while practicing the work.

* 1. **Other Requirements regarding the Occupation**

Marble and natural stone sizing and cutting worker (level 4) must have the “Form of Initial Entrance and Periodical Medical Examination for Workers in Heavy and Dangerous Works”.

1. **OCCUPATIONAL PROFILE**
	1. **Duties, Tasks and Performance Criteria**

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| --- | --- | --- |
| **Duties** | **Tasks** | **Performance Criteria** |
| **Code** | **Title** | **Code** | **Title** | **Code** | **Description** |
| **A** | To apply and follow the Rules of Occupational Health and Safety | **A.1** | To be informed of and to participate in trainings/ meetings of environment and OSH | **A.1.1** | Creates conditions by taking precautions necessary for meeting the training requirements of employees.  |
| **A.1.2** | Ensures that trainings are received. |
| **A.1.3** | Informs and demands his/her superiors on training subjects s/he identified or needed related to work. |
| **A.1.4**  | Participates in trainings organized according to needs. |
| **A.1.5** | Observes how much the field personnel and other employees according to the working hierarchy benefited and determines the deficiencies.  |
| **A.1.6** | Makes recommendations by notifying deficiencies of his/her superiors in writing. |
| **A.2** | To ensure that the employees follow OHS and environmental rules, and to take precautions related to risks and hazards | **A.2.1** | Ensures that the employees follow instructions by informing them periodically on risks and hazards to arose in work environment. |
| **A.2.2** | Attends to the studies conducted to evaluate the risk factors and obtains information and skills for reducing the same. |
| **A.2.3** | By informing employees on hazards likely to imperil their safety and health at work,  |
| **A.2.4** | Ensures that employees follow instructions, by informing them on situations requiring emergency action and on actions to be taken. |
| **A.2.5** | Ensures that personal protective equipment is used in compliance with instructions by giving information on this equipment and its use. |
| **A.2.6** | Ensures that personal protective equipment required for work is delivered to employees with delivery bill. |
| **A.2.7** | Provides information on safe use of equipment and appliances required for work, ensures that instructions are followed. |
| **A.2.8** | Ensures that employees learn and follow instructions by informing them on warning signs which are required to be present in work environment.  |
| **A.2.9** | Ensures that planned practices, which will enable the personnel to apply the theoretical information on environmental and occupational safety to practice, are performed, and participates in practices. |
| **A.2.10** | Ensures that employees follow instructions on using of work environment clearly, orderly and in conformity with hygienic rules. |
| **A.2.11** | Controls all equipment related to work at working area, in compliance with the instructions of occupational health and safety specialist or technical supervisor, or ensures that they are controlled. |
| **A.3** | To notify concerned people of deficiencies on environment and OHS  | **A.3.1** | Identifies deficiencies related to OHS and environment such as insufficient lighting, warning sign and protective equipment which may imperil worker's safety at work. |
| **A.3.2** | Notifies concerned people in writing of non resolved deficiencies.  |
| **A.3.3** | Notifies concerned people in writing for improvement, change or renewal of personal protective equipment and appliances which are non-suitable and unsafe with its justifications. |
| **A.3.4** | Enables the use and preparation of equipment required for communication in emergency case. |

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| **Duties** | **Tasks** | **Performance Criteria** |
| **Code** | **Title** | **Code** | **Title** | **Code** | **Description** |
| **B** | To organize the work | **B.1** | To enable the construction of factory and all outbuildings | **B.1.1** | Determines entrance and exit routes of working area. |
| **B.1.2** | Ensures the provision of what is required for the location of factory and outbuildings, design and capacity according to employee number and developments likely to occur. |
| **B.1.3** | Reports all developments to authorities during the construction of factory and outbuildings. |
| **B.1.4** | Ensures that the employees and auxiliary staff are placed according to planned positions at factory and outbuildings. |
| **B.1.5** | Puts instructions in specified sections of factory and outbuildings to ensure that the concerned tools are used in a clean and ordered manner, and in conformity with hygienic rules; follows these instructions by ensuring compliance to them.  |
| **B.2** | To provide required machine and appliances | **B.2.1** | Enables the provision of necessary cutting machines, appliances and consumables from company storages if available.  |
| **B.2.2** | Enables the provision of lacking appliances and consumables under suitable conditions upon making a market research. |
| **B.2.3** | Ensures that the cutting machines and appliances are ready for operation. |
| **B.2.4** | Prepares periodical maintenance card index in line with criteria provided by manufacturer for cutting machines and appliances. |
| **B.2.5** | Ensures that the spare part storage system is formed and works without any problem, taking into consideration the malfunctions preventing the cutting machinery from working. |
| **B.3** | To compose determined working groups | **B.3.1** | Ensures the provision of planned employee and auxiliary staff. |
| **B.3.2** | Ensures the provision of identified staff requirements by informing concerned people in writing. |
| **B.3.3** | Ensures that the staff works in compliance with the definition included in the personal information file by starting them to work |
| **B.3.4** | Notifies his/her superiors of his/her opinions related to rotation between staff and employees. |
| **B.3.5** | Notifies his/her superiors of employees’ requests of leave. |
| **B.3.6** | Records score card and leave records of employees daily, weekly and monthly, informs accounting department.  |
|  |  | **B.4** | To share information with official authorities and civilian authorities | **B.4.1** | Provides all necessary information and document related to work, and shares them with his/her superiors.  |

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| **Duties** | **Tasks** | **Performance Criteria** |
| **Code** | **Title** | **Code** | **Title** | **Code** | **Description** |
| **C** | To manage cutting section of the production (To be continued) | **C.1** | To provide marble natural stone blocks | C.1.1 | Informs his/her superiors by determining amount of block which should be present at the storage area in accordance with daily, weekly and monthly production objectives. |
| C.1.2 | Informs his/her superiors by determining minimum block sizes which will affect productivity in a positive way. |
| C.1.3 | Informs his/her superiors by defining essentials of amount, measure and productivity in block purchase.  |
| C.1.4 | Ensures the placement of block and rubble for gang saw and jig saw to storage area in accordance with the instructions. |
| **C.2** | To make production | **C.2.1** | Examines delivered routine factory schedule and order forms. |
| **C.2.2** | Determines ways of making production in the best way by comparing amount and delivery times stated in order forms with block stock amount and production schedule. |
| **C.2.3** | Ensures the performing of routine factory schedule and/or orders. |
| **C.2.4** | Informs his/her superiors by identifying reasons causing failure. |
| **C.2.5** | Delivers observer samples by signature.  |
| **C.2.6** | Make demands of his/her superiors in order to provide block in accordance with amount, marble type and sizes in routine factory schedule and/or orders. |
| **C.2.7** | Ensures plate, dimensional marble or tile lines put in according to routine factory schedule and/or order types. |
| **C.2.8** | Examines the structure of blocks to be cut, instructs to his/her subordinates on cutting form by determining color, hardness and selection. |
| **C.2.9** | Instructs on which point of process the produced material will be directed following the production and ensures that the instruction is followed. |
| **C.2.10** | Informs his/her superiors by preparing daily, weekly and monthly production reports. |
| **C.3** | To determine and provide factors increasing productivity | C.3.1 | Ensures that all cutting machines work with maximum performance by continuously observing their production rate. |
| C.3.2 | Informs his/her superiors in writing by recording the results and observing productivity of the machines according to types and hardness of stone. |
| C.3.3 | Ensures that the malfunctions in the production are resolved in accordance with the objectives defined. |
| C.3.4 | Makes demand from his/her superiors on determining of diamond dough ratio of sockets in a way that will bring cutting of marble and natural stone types to maximum. |
| C.3.5 | Identifies the maximum productivity duration of consumables, and ensures that they are replaced in this duration. |

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| **Duties** | **Tasks** | **Performance Criteria** |
| **Code** | **Title** | **Code** | **Title** | **Code** | **Description** |
| **D** | To be involved in activities regarding vocational development | **D.1** | To follow occupational publications | **D.1.1** | Follows the professional chambers and relevant technical publications. |
| **D.1.2** | Provides and watches the practices and the visual material about production methods and ensures that the employees got informed.  |
| **D.1.3** | Follows and tries to participate in the professional seminars, conferences, congresses and symposiums... |
| **D.2** | To follow the technological innovations about the occupation | **D.2.1** | Follows and visits professional fairs. |
| **D.2.2** | Participates in vocational development and integration courses and trainings, ensures that the information obtained are disseminated within the working environment.  |
| **D.2.3** | Becomes a member of the relevant professional chamber and associations. |
| **D.2.4** | Uses the internet efficiently in order to receive information for occupational development. |
| **D.2.5** | Follows and examines the innovations in machinery, tools, equipment and consumables  |
| **D.2.6** | Detects the innovations likely to be profitable in the work site, and informs the related authorities in writing. |
| **D.3** | Follows the laws, regulations and legislations about the occupation | **D.3.1** | Learns about the legislations of mining in various fields such as mining, environment etc. |

* 1. **Tools, Appliances and Equipment Used**
1. Communication Equipments (radio, telephone etc.)
2. Personal protective equipment (helmet, boot, earflap, glasses, dust glasses, dust mask, work shoes, protective gloves, coverall etc.)
3. Warning signs and tablets
4. Basic hand tools (voltage tester, screwdriver, hammer and wrench set etc.)
	1. **Knowledge & Skills**

Knowledge on emergency situation

Knowledge on tools, apparatus and equipment

Knowledge on computer usage

Knowledge on land use

Knowledge and skill of drawing

Team management skill

Knowledge and skill of using hand tools

Manual skill

Visual skill

Knowledge of maps

Ability of persuasion

Communication skills

Basic first aid knowledge

Knowledge on human psychology

Knowledge on Occupational Health and Safety Precautions

Knowledge on the work site operation procedures

Knowledge on quality control principles

Ability of decision making

Knowledge on use of user's guide, handbook and maintenance book

Knowledge on materials

Ability of distance and weight estimation

Knowledge on legal regulations regarding the occupation

Vocational electric knowledge

Vocational physics knowledge

Vocational geology knowledge

Vocational geology knowledge

Knowledge on occupational and technological advancements

Knowledge of vocational terms

Ability of note taking

Ability of working in a team or an organization

Skill of learning and being able to share what s/he learned

Ability to learn and teach

Knowledge on measuring and control

Ability to planning and problem solving

Knowledge of colors

Knowledge on standard materials

Knowledge and skill of technical drawing

Knowledge on warning sign and table

Knowledge on product

Knowledge on fire fighting techniques and use of fire-extinguisher

Knowledge on spare parts and consumables

Ability to find directions

Knowledge of surface

* 1. **Attitudes and Behaviors**

To be cold blooded and calm under emergency and stressful situations

To pay attention to use of appliances and consumables

To be researcher

To be hardworking

To be able to use working time effectively and efficiently in compliance with work orders and instructions

To be sensitive to protection of environment

To adopt environmental, quality and OHS rules

To be open to change and to adapt to changing conditions

To pay attention to details

To be attentive

To be honest

Team management skill

To be open to criticism

To be energetic

To be observer

To be cheerful

To take initiatives

To take care of human relations

To have working discipline

To pay attention to work safety

To follow the working principles of the workplace

To pay attention to cleaning, tidiness and workplace organization

To pay attention to the usage of tools, appliances and equipments belonging to workplace

To pay attention to quality

To be decisive

To be willing to improve himself/herself

To ensure his/her own safety and safety of other people

To have professional ethics

To be planned and organized

To be sensitive to issues of risk and hazard factors

To be patient

To take care of his/her own health

To know his/her responsibilities and to fulfill the same

To learn instructions and guides and to comply them meticulously

To give fast and right reaction in dangerous situation in his/her own movement area

To be clean

To inform superiors properly and in time

To share information clearly, effectively at shift change

To be open to innovations

To inform concerned people about the malfunctions which are not under his/her authority

Efficient time management

**4. TESTING, ASSESSMENT AND CERTIFICATION**

Testing and assessment for certification with respect to national qualifications based on marble natural stone sizing and cutting worker (Level 4) Occupational Standard shall be held in writing and/or oral forms, theoretically and practically, in testing and assessment centers where required conditions are met.

Testing and assessment method and practice principles shall be detailed with national qualifications to be drawn up pursuant to this occupational standard. Activities regarding testing, assessment and certification shall be conducted within the framework of Vocational Qualification Authority, Testing and Certification Regulation.

Note: This part shall not be published on the Official Gazette, shall only be included on the web site of VQA.

**Annex: Institutions participated in the Occupational Standard Preparation Process**

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