

**NATIONAL OCCUPATIONAL STANDARD**

**Marble - Natural Stone Quarry Worker**

**LEVEL 5**

**REFERENCE CODE** / …

**OFFICIAL JOURNAL DATE-ISSUE/**

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| **Occupation:** | **Marble - Natural Stone Quarry Worker**  |
| **Level:** | **5** |
| **Reference Code:** | **…………………………………….** |
| **Prepared by:** | ………………………………………… |
| **Verified by:** | **VQA ………. Sector Committee** |
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| **Revision No:** | **00** |

**TERMS, SYMBOLS AND ABBREVIATIONS**

**FACE:** The opened face of mine quarry,

**SITE DUMPING:** Removal of the large primary mass from its place through lower and side cutting in order to maintain a block in economical size,

**QUARRYING STEPS:** Regular horizontal and vertical surfaces that are formed through excavations in order to ensure surface safety and transportation convenience,

**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 which can 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,

**CORE:** The sample taken from underground by drilling,

**CARD INDEX:** Compilation of information on cards in accordance with an organized 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 blocks are produced,

**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

**RESERVE:** The amount of ore that bears an economical value,

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

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

**DRESSING:** Cutting the stone in economical size into a prism,

**DRILLING:** Taking samples from underground,

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

**STOCKING AREA:** The area where blocks and rubble bearing economical value are exhibited in the quarry,

**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,

**TECHNICAL SUPERVISOR:** the authorized mining engineer who supervises the enterprises in terms of technicality and safety,

**TRIANGLE CUT:** Triangle-shaped cut of the rock while the quarry is opened,

**CUSHIONING:** Waste is stacked to the direction where the large primary cut is going to be tilted over, so that the block does not get broken into pieces with the impact and the required flexibility is maintained.

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1. **INTRODUCTION**

National occupational standard titled Marble Natural Stone Quarry Worker (Level 5) 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 5) 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**
	1. **Definition of the Occupation**

Marble Natural Stone Quarry Worker (level 5) is the qualified person who makes research and detection of marble quarry area, performs production preparation studies of marble license, starts and maintains production by opening marble quarry, and manages occupational development composing administrative and service departments by taking the precautions in terms of work health and safety as well as environment.

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

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

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

Social Security and General Health Insurance Law No.5510

Regulation on Heavy and Dangerous Work, Regulation on Occupational Health and Safety, Regulation on Conditions of Health and Safety in Using Work Equipment, Regulation on Use of Personal Protective Equipments in the Workplace, Regulation on Safety and Health Signs

Regulation on Heavy and Dangerous Work Communication on Vocational Training of Workers in Heavy and Dangerous Work

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

Occupational Safety and Health Regulation

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

Regulation of the Control of Solid Wastes

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

Regulation on Fire

Furthermore, it is essential to obey laws, statutory rules and regulations on occupational health and safety and environment; and to perform risk analysis regarding this issue.

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

Labor Law No. 4857

Social Security and General Health Insurance Law No.5510

Mining Law No.3217

Forest Law No. 6831

Environmental Law No. 2872

And it is essential to obey other current legislations, laws, statutory rules and by-laws.

* 1. **Working Environment and Conditions**

Marble natural stone quarry worker (level 5) usually works outdoors. However, according to the quarry administration, marble natural stone quarry worker can also work in underground mining. Marble natural stone quarry worker is mostly active during the working process; also works in the office environment according to the characteristics of the work. The working hours are flexible according to the requirements of the work. Marble natural stone quarry worker actively communicates and coordinates with the managers as well as other units continuously, s/he has to work in high places according to the positions of the production units and the equipments in the quarry. S/he works in an environment that is partially dusty, noisy, requires work health and safety precautions, between -5/+45 degrees of weather, where snow, rain and mud can be encountered according to the climate conditions and seasons. The negative conditions of the working environment consist of dust, noise and mud. Work can be carried out during the whole year in locations where above mentioned conditions are available. Occupational diseases caused by the environmental conditions such as lumbar pain, rheumatic diseases, heat stroke, common cold, etc. can be seen. Appropriate personal protective equipment is used during the operations.

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 quarry worker (level 5) must have “Form of Initial Entrance and Periodical Medical Examination for Workers in Heavy and Dangerous Work" report.

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 carry out activities related to taking OSH, environmental safety and quality-related precautions  | **A.1** | To be informed of and to participate in trainings/ meetings of environment and OSH | **A.1.1** | Identifies training needs of him/herself or field personnel within the frame of work experiences and observations, demands his/her superiors. |
| **A.1.2** | Makes recommendations in order to meet training needs in line with identifications, ensures that these trainings are carried out. |
| **A.1.3** | Participates in trainings organized according to requirements.  |
| **A.1.4**  | Evaluates trainings from the aspect of qualification.  |
| **A.1.5** | Gives feedback to the authorities for the evaluations of trainings. |
| **A.2** | To ensure that the employees follow OHS and environmental rules, and to take precautions related to risks and hazards  | **A.2.1** | Repeats informing employees periodically by providing information on risks and hazard 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** | Ensures the employees receive on-the-job training on the machines and appliances in order to ensure the safety of employees. |
| **A.2.4** | Informs on situations requiring emergency action and on actions to be taken, prepares the instructions and ensures that instructions are followed. |
| **A.2.5** | Informs on personal protective equipment and its use, prepares the instructions and ensures that the instructions are followed.  |
| **A.2.6** | Provides information on safe use of equipment and appliances required for work, prepares the instructions and ensures that the instructions are followed. |
| **A.2.7** | Ensures that employees learn and follow instructions by informing them on warning signs which are required to be present in work environment, prepares the instructions and ensures that the instruction are learned and followed.  |
| **A.2.8** | Plans the practices which will enable the personnel to apply the theoretical information in practice on environmental and occupational safety, prepares the instructions, and ensures that the instructions are followed. |
| **A.2.9** | Provides information on use of work environment clearly, orderly and in conformity with hygienic rules by the employees, prepares the instructions and ensures that the instructions are followed. |
| **A.2.10** | Ensures that they are controlled all equipment related to work at working area in compliance with the instructions of occupational health and safety specialist or technical supervisor. |
| **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 and ensures that deficiencies are resolved. |
| **A.3.3** | Demands on improvement, change or renewal of personal protective equipment and appliances which are non-suitable and unsafe to use and ensures that necessary actions are taken. |
| **A.3.4** | Enables the provision and use of equipment required for communication in emergency case. |

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| **Duties** | **Tasks** | **Performance Criteria** |
| **Code** | **Title** | **Code** | **Title** | **Code** | **Description** |
| **B** | To search for marble quarry area and make detection studies of quarry area | **B.1** | To determine parameters of marble quarry exploration | **B.1.1** | Determines exploration parameters and methods, makes exploration plan  |
| **B.1.2** | Analyses regions where the production of marble and natural stone are made extensively in country. |
| **B.1.3** | Takes into consideration of the percentage of production productivity and factors  |
| **B.1.4**  | Examines the opportunities of block sale. |
| **B.1.5** | Regards supply and demand equilibrium. |
| **B.1.6** | Analyses the number of quarry and factory which makes production in the region. |
| **B.1.7** | Takes into consideration of the industrial, social and transportation opportunities of the region. |
| **B.1.8** | Examines advantages and disadvantages of produced stone within the subject of marketing and takes this into consideration. |
| **B.1.9** | Examines the potential of worker and auxiliary staff at the region. |
| **B.1.10** | Determines the region where s/he will make exploration of quarry in line with these parameters. |
| **B.2** | To search for marble quarry area | **B.2.1** | Collects information on geological structure of the region widely. |
| **B.2.2** | To achieve this, determines the spread area of marble and natural stones in 1/100.000 1/ 25000 scaled geological maps. |
| **B.2.3** | Makes research on legal status of the areas s/he determined.  |
| **B.2.4** | Identifies nonlicensed, licensed areas and areas for tendering. |
| **B.2.5** | Searches the opportunities of transportation and settlement by using 1/25000 scaled topographical map on these lands.  |
| **B.2.6** | Prepares to work on land by giving priority to the most advantageous area in transportation and settlement.  |
| **B.2.7** | Selects a suitable vehicle to use in field conditions smoothly and gets it serviced.  |
| **B.2.8** | Ensures that s/he has appliances for tyre change in operation and a spare tyre. |
| **B.2.9** | Ensures that s/he has a GPS with back-up batteries in order to be detected in the field.  |
| **B.2.10** | Ensures that s/he has a geologist's compass in order to measure strike and dip, and to find direction. |
| **B.2.11** | Ensures that s/he has appliances such as sample bag, label, steel tape (min. 5 m), pen with ink not affected by water, hammer, sledgehammer, chisel with different tips, camera, field glasses, pickaxe, shovel, towline, and raincoat. |
| **B.2.12** | Informs the closest mukhtar of the area that s/he is to make exploration by communicating. |
| **B.2.13** | Gathers information related to his/her purpose from local people. |
| **B.2.14** | When s/he reaches the targets determined before, s/he parks his/her car in an apparent way. |
| **B.2.15** | Leaves a note which includes his/her identity and his/her aim into car in an easily visible and readable way. |
| **B.2.16** | Makes analyzes on possible marble quarry areas, takes samples from the points which he considers important. |
| **B.2.17** | Writes coordinates of samples on labels, pastes them to sample bags, takes small notes defining samples and their characteristics. |
| **B.2.18** | Determines corner points of the area which s/he deems suitable, takes their coordinates, enter them in 1/25000 scaled topographical map. |
| **B.2.19** | Investigates legal status of the area. |
| **B.2.20** | If the area is open for exploration, s/he follows necessary procedure for obtaining license, gets the exploration license. |
| **B.2.21** | If the area is for tendering, s/he follows the procedure and the process, gets the exploration license. |
| **B.2.22** | If the area is licensed, s/he investigates whether the study was already conducted or not, communicates with license holder, enables the study on area by purchasing or by royalty in accordance with the opportunities. |
| **B.2.23** | Follows and performs all obligations required by mining law in exploration and operating periods, including all necessary permits. |
| **B.3** | To detect place of quarry at license field | **B.3.1** | Determines the most suitable area which may be quarry with surface data by considering layer structures and thicknesses, joint and fault systems, faults and folds and the solid block structures between them.  |
| **B.3.2** | Makes core drilling planning for points which s/he finds necessary in order to detect amount of apparent reserve and to follow changes or relation of surface data with the depth which is third dimension. |
| **B.3.3** | Ensures that all necessary and planned transport and legal requirements are fulfilled to realize core sampling. |
| **B.3.4** | Ensures that core sampling studies are conducted from planned points. |
| **B.3.5** | Makes the evaluation of sampled cores, ensures that they are preserved without any harm.  |
| **B.3.6** | Draws determination and logs of core, forms geological sections passing in cores, defines discontinuities and block structures by way of this sections. |
| **B.3.7** | If consistency between surface data and core evaluation is obtained and if it is positive, s/he starts quarry opening operations on the area determined. |

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| **Duties** | **Tasks** | **Performance Criteria** |
| **Code** | **Title** | **Code** | **Title** | **Code** | **Description** |
| **C** | To perform production preparation studies of marble license | **C.1** | To have operating project of marble license prepared | **C.1.1** | Defines corner coordinates and boundaries of operation permit area according to considered production targets and years. |
| **C.1.2** | Has operation project prepared within the operation permit area according to amount of production and years.  |
| **C.1.3** | Ensures that all necessary legal permits are obtained so as to start to work in accordance with prescribed operation project.  |
| **C.1.4** | Following the obtaining of licenses, s/he plans the number of employees, necessary machine and appliances, stock area, waste disposal area, settlement area as required within the license area in line with production schemes. |
| **C.1.5** | Obtains operating license and permit. |
| **C.2** | Information sharing with public authorities  | **C.2.1** | Determines the province, district, town and office of mukhtar of the working area.  |
| **C.2.2** | Presents information on company, planned working, settlement area, number of employees to civilian authorities and police and security forces under these authorities, and municipalities. |
| **C.2.3** | Informs concerned authorities periodically of works. |
| **C.3** | To determine settlement area at working field, to ensure that its construction is carried out. | **C.3.1** | Determines settlement area at working field in a way which will not impede to any development in the future. |
| **C.3.2** | Pays attention that this area is not affected from working conditions and risks while selecting the settlement area. |
| **C.3.3** | Determines the route to make employees reach to work and return to settlement area safely. |
| **C.3.4** | Determines capacity, design and location of the settlement area according to the number of employees and possible developments, have the plan drew,  |
| **C.3.5** | Ensures that all legal permits required for construction are obtained. |
| **C.3.6** | Makes quantity survey and cost calculation related to settlement area as a part of project, shares information with his/her superiors, starts the construction. |
| **C.3.7** | Ensures that technical office, cafeteria, store cupboard, bathroom and restrooms, spare parts and consumables storages are constructed. |
| **C.3.8** | Plans how employees and auxiliary staff are placed in the settlement area. |
| **C.3.9** | Puts instructions in specified sections of the settlement area to ensure that the concerned tools are used in a clean and ordered manner, and in conformity with hygienic rules, ensures compliance to these instructions. |
| C.3.10 | Explains settlement plan to the employees and staff, and ensures its use according to determined plan. |
| **C.4** | To determine necessary machine and appliances, to ensure their provision | **C.4.1** | Determines machine, appliances and consumables required as minimum\ optimum in accordance with the production targets, demands their provision by reporting to concerned people.  |
| **C.4.2** | Enables the provision of necessary cutting machines, appliances and consumables from company storages if available.  |
| **C.4.3** | Makes market research/have it made for lacking appliances and consumables, receive tenders/have tenders received for the same. Ensures that they are provided under appropriate conditions. |
| **C.4.4** | Makes registry of material storage, records material input and output.  |
| **C.4.5** | Follows duration and periods of material use, prevents use of deficient material, ensures its correct use. |
| **C.4.6** | Ensures that the necessary actions are taken in order to keep each machine and appliances operational.  |
| **C.4.7** | Records the periodical maintenance of each machine, tools and appliances in line with the criteria provided from the manufacturer.  |
| **C.4.8** | Ensures that all maintenance and repair are performed at the services, holder of authorization certificate, within the frame of statutory liability, |
| **C.4.9** | Preserves the maintenance and repair documents of the machines in his/her files. |
| C.4.10 | Takes into consideration that possible failures which may hamper working of the machine may occur, ensures that system works by setting up a stock system of spare parts.  |
| **C.5** | To determine parking lot of heavy equipment and transportation vehicles. | **C.5.1** | Determines parking lot of heavy equipment after operation and during break in a safe distance to the settlement area.  |
| **C.5.2** | Makes an instruction on how machines will be parked in parking lot, ensures that the instruction is followed. |
| **C.5.3** | Determines a section for in situ maintenance and repair of malfunctioning machines. |
| **C.5.4** | Prepares instructions regarding usage of this area and ensures that they are followed. |
| **C.6** | To plan and to establish infrastructures for production and settlement areas.  | **C.6.1** | Makes infrastructure planning which will serve to employees and which is required for works. |
| **C.6.2** | Ensures that electricity, water and more than one means of transport are introduced/brought to the area defined as furnace. |
| **C.6.3** | Ensures that legal necessities such as habitation permit for buildings constructed as settlement area are fulfilled. |
| **C.6.4** | In line with the received permits, provides the structuring required for supplying the buildings with facilities such as electricity, water, communication, etc. |
| **C.6.5** | Ensures that the areas where the needs of the staff, such as office, kitchen, sleeping quarter are met, prepares the instruction manual and ensures that the instructions are followed. |
| **C.7** | To determine waste disposal area, to plan its use | **C.7.1** | Determines waste disposal area by taking into account the structure planned for development of the quarry at the working area, plans its use. |
| **C.7.2** | Pays attention to the issue that no factor affects reserve negatively in this determination. |
| **C.7.3** | Considers the importance of saving time, fuel and round-trip of the waste transport vehicles and heavy equipments in this determination. |
| **C.7.4** | Determines expansion limit of waste disposal area over the years according to productivity and waste rates defined at the quarry, enters this in production scheme. |
| **C.8** | To determine demonstration fields of block and economic rubble stock  | **C.8.1** | Defines quality classification of blocks to be produced according to color, measure and durability criteria in line with the production scheme during the production process and determines the way in which they will be classified at the stocking area, prepares an instruction on this subject, ensures that it is followed. |
| **C.8.2** | Informs the concerned people of the reports in writing. |
| **C.8.3** | Allocates a place for blocks and rubbles in accordance with the accepted classification.  |
| **C.8.4** | According to this classification, determines how block and rubble are placed in defined areas, prepares an instruction.  |
| **C.8.5** | Ensures that blocks and rubbles are replaced in line with the instructions. |
|  |  | **C.9** | To determine and to form working teams | **C.9.1** | Makes the planning of employee and auxiliary staff in line with the production targets, machines and appliances to be used and other needs. |
| **C.9.2** | Informs concerned people in writing of the provision of identified staff requirements and ensures that it is provided.  |
| **C.9.3** | Measures and determines the abilities and experiences of the employees by making interview and having them practice according to machine and appliances to be used by employees and staff; recruits the ones who are competent.  |
| **C.9.4** | Forms personal information file of the staff. Records results and determination of the interviews and practices in this file.  |
| **C.9.5** | Transmits all kinds of information related to staff to institutions before starting to work. |
| **C.9.6** | Prepares work instruction for employees and staff, makes distribution of work, prepares shift schedule according to working hours, informs employees of the issue. |
| **C.9.7** | Makes the planning of rotation among teams and employees during the work. |
| **C.9.8** | Makes the planning of the leaves of the employees. |
| C.9.9 | Ensures and approves that the scoring and leaves of the employees are recorded. |

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| **Duties** | **Tasks** | **Performance Criteria** |
| **Code** | **Title** | **Code** | **Title** | **Code** | **Description** |
| **D** | To start the production by opening the marble quarry | **D.1** | To ensure that employees comply with the environment and OHS rules, to take precautions against risks and hazards | **D.1.1** | Informs the employees of risks and hazards to arose in work environment. Repeats informing them periodically. |
| **D.1.2** | Attends to the studies conducted to evaluate the risk factors and obtains information and skills for reducing the same or have it performed. |
| **D.1.3** | Ensures that each of the employees is received applied training on-the-job about machine and appliances of the company which they will use. |
| **D.1.4** | Informs on situations requiring emergency action and on actions to be taken, prepares the instructions and ensures that instructions are followed.  |
| **D.1.5** | Informs on personal protective equipment and its use, prepares the instructions and ensures that the instructions are followed.  |
| **D.1.6** | Ensures that employees learn and follow instructions by informing them on warning signs which are required to be present in work environment, prepares the instructions and ensures that the instruction are learned and followed.  |
| **D.1.7** | Plans the practices which will enable the personnel to apply the theoretical information in practice on environmental and occupational safety, prepares the instructions, ensures that the instructions are followed. |
| **D.1.8** | Provides information on use of work environment clearly, orderly and in conformity with hygienic rules by the employees, prepares the instructions and ensures that the instructions are followed. |
| **D.1.9** | Takes signed statements from employees for each subject that they received training theoretically and practically, and puts these into files. |
| **D.1.10** | Ensures that controls of all equipment related to work at working area in compliance with the instructions of occupational health and safety specialist or technical supervisor are performed. |
| **D.2** | To ensure the realization of the production. | **D.2.1** | Ensures that the first triangle cutting is performed on the area determined according to surface data and drill core results. |
| **D.2.2** | Determines block measurements left between discontinuities on surface where the cutting is performed, determines direction of quarry expansion by considering surface data. |
| **D.2.3** | Ensures that the cutting is performed and will be performed by forming corners, quarrying steps in the direction of the quarry expansion at the field. |
| **D.2.4** | Ensures that cuttings are performed by determining dressing techniques in order to obtain economic-sized blocks and by analyzing separated parts which are separated due to the discontinuities from tilted blocks as a result of large cuttings. |
| **D.2.5** | Ensures that blocks obtained as the result of cuttings are classified in line with the instructions and placed to block area. |
| **D.2.6** | Ensures that starting test structures and test results are used at marketing by taking samples from blocks generally representing the production. |
| **D.2.7** | By sending samples from blocks representing the production to surrounding factories and by making these samples cut, s/he ensures that they are turned into a final product.  |
| **D.2.8** | Defines quality classification by considering color, pattern and size data in produced blocks.  |
| **D.2.9** | Calculates production percentages by evaluating statistically the results received according to quality classification for sales and notifies marketing and sales representatives. |
| **D.2.10** | Ensures that waste produced at the disposal area is discharged to waste disposal area. |
| **D.2.11** | Enters production data in production plans and manufacturing maps, |
| D.2.12 | Informs his/her superiors by making recommendations and giving reasons on developments and negativities at the production process. |
| **D.3** | To make studies for improving productivity at the marble quarry. | **D.3.1** | Determines the productivity direction with data obtained as the result of the cuttings at the quarry.  |
| **D.3.2** | Makes core drilling conducted in the direction of maximum – minimum productivity, makes predictions on improvement direction of productivity. |
| **D.3.3** | Changes the face of the quarry in the predicted direction. |

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| **Duties** | **Tasks** | **Performance Criteria** |
| **Code** | **Title** | **Code** | **Title** | **Code** | **Description** |
| **E** | To form administrative and service departments**(To be continued)** | **E.1** | To establish pre-accounting department.  | **E.1.1** | Measures all expenses, makes cost calculation. |
| **E.1.2** | Determines the number of accounting staff and auxiliary staff according to the measurement results. |
| **E.1.3** | Determines number of staff required for pre-accounting, makes job announcement, recruits. |
| **E.1.4** | Prepares the task instructions of pre-accounting, informs his/her staff, ensures that they work as instructed and audits them periodically. |
| **E.1.5** | Transfers all documents, signed, related to expenses s/he made as of s/he took up the position to pre-accounting, makes them recorded. |
| **E.1.6** | Puts a steel safe which has sufficient weight for preservation of cash and valuable documents at the accounting department. |
| **E.1.7** | Ensures that all employees, machine and appliances, settlement areas, all material and tools at the settlement area are insured by receiving tenders against fire, flood, earthquake, occupational accidents and all similar hazards. |
| **E.2** | Establishes marketing, sales and purchase departments. | **E.2.1** | Determines number of staff required, makes job announcement, recruits. |
| **E.2.2** | Transfers all documents related to marketing, sales and purchase which s/he has performed since s/he took up the position against signature with instructions to the employee whom s/he charged. |
| **E.2.3** | Evaluates marble and natural stone knowledge of the marketing, sales and purchase staff, gives training and information to make up their deficiencies. |
| **E.3** | Establishes department of human resources. | **E.3.1** | Determines number of staff required, makes job announcement, recruits. |
| **E.3.2** | Gives and audits the instruction for new or present employees' personal rights, conducting labor productivity and performance measurement of the employees. |

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| **Duties** | **Tasks** | **Performance Criteria** |
| **Code** | **Title** | **Code** | **Title** | **Code** | **Description** |
| **F** | Activities regarding vocational development and their management | **F.1** | To follow occupational publications. | **F.1.1** | Follows the professional chambers and relevant technical publications. |
| **F.1.2** | Provides and watches the practices and the visual material about production methods and ensures they are also watched by others. (DVD, VCD etc.)  |
| **F.1.3** | Follows and participates in the professional seminars, conferences, congresses and symposiums. |
| **F.2** | Follows the technological innovations about the occupation. | **F.2.1** | Follows and visits professional fairs. |
| **F.2.2** | Participates in vocational development and integration courses and trainings, ensures that the information obtained are disseminated within the working environment.  |
| **F.2.3** | Becomes a member of the relevant professional chamber and associations. |
| **F.2.4** | Uses the internet efficiently in order to receive information for occupational development. |
| **F.2.5** | Follows the innovations in machinery, tools&equipment and consumables, follows the ones that can prove useful in the working environment and informs the concerned persons of this in writing. |
| **F.3** | Follows the laws, regulations and legislations about the occupation. | **F.3.1** | Learns about the legislations of mining in various fields such as mining, environment, forestry, agriculture. |
| **F.3.2** | Determines necessary permits for work in accordance with the related legislation's provisions and ensures that they are obtained. |

* 1. **Tools, Appliances and Equipment Used**
1. Sprinkler
2. Fuel tank
3. Hammer or geologist's hammer
4. Steel gauge
5. Wood with variable sizes
6. Plank with variable sizes (10\*20.5-10-5\*5)
7. Vertical and lateral grooving machine and rods
8. Excavator
9. Diamond vertical wire cutting (dressing) machine
10. Cutting chain with diamond sockets
11. Diamond wire
12. Diamond wire impact protection board
13. Diamond wire cutting machine (mountain cutting)
14. GPS
15. Airbag
16. Communication tools (radio set, telephone etc.)
17. Generator
18. Geologist's compass
19. Truck
20. Core drill
21. Core drilling tools (rods, core boxes, core tube, core barrel)
22. Personal protective equipment (helmet, boots, raincoat, ear protectors, goggles, dust goggles, dust mask, work shoes, protective gloves, overalls etc.)
23. Chain saw machine
24. Compressor gun (Drilling tip set between 0.8 M-6.15 m)
25. Rubber tire water tank
26. Quarry warning signs and boards
27. Electric drill (Diamond – Rock Pit – Rungsten Carbide Shoes)
28. Panter
29. Mechanical lever jack (with 5-10 tonnes of capacity)
30. Fixed water tank
31. Water container
32. Water pump
33. Water cushion
34. Plumb, laser
35. Basic hand tools (voltage tester, screwdriver, hammer and wrench set etc.)
36. Titano
37. Tractor
38. Tufted grappling wire
39. Crane (jalaskar)
40. Assisting tools and materials (steel meter, water hose, pickaxe, shovel, sledge hammer, bucket, jimmy, chisel, jerry can, thick rope, rope, waterproof pen, non-wettable label, chock, cotton waste, Styrofoam etc.)
41. Plate and key
42. Loader
	1. **Knowledge & Skills**
43. Knowledge on emergency situation
44. Knowledge on tools, apparatus and equipment
45. Knowledge on computer usage
46. Knowledge on land use
47. Knowledge and skill of drawing
48. Team management skill
49. Knowledge and skill of using hand tools
50. Manual skill
51. Visual skill
52. Knowledge of maps
53. Ability of persuasion
54. Communication skill
55. Basic first aid knowledge
56. Knowledge on human psychology
57. Knowledge on Occupational Health and Safety Precautions
58. Knowledge on the work site operation procedures
59. Knowledge on quality control principles
60. Ability of decision making
61. Knowledge on use of user's guide, handbook and maintenance book
62. Knowledge on materials
63. Ability of distance and weight estimation
64. Knowledge on legal regulations regarding the occupation
65. Knowledge on vocational electricity
66. Knowledge on vocational physics
67. Knowledge on vocational geology
68. Knowledge on vocational mathematics
69. Knowledge on occupational and technological advancements
70. Knowledge of vocational terms
71. Ability of note taking
72. Ability of working in a team or an organization
73. Skill of learning and being able to share what s/he learned
74. Ability to learn and teach
75. Knowledge on measuring and control
76. Ability of planning and problem solving
77. Knowledge on colors
78. Knowledge on standard materials
79. Knowledge and skill of technical drawing
80. Knowledge on warning sign and table
81. Knowledge on product
82. Knowledge on fire fighting techniques and use of fire-extinguisher
83. Knowledge on spare parts and consumables
84. Ability to find directions
85. Knowledge of surface
	1. **Attitudes and Behaviors**
86. To be cold blooded and calm under emergency and stressful situations
87. To pay attention to use of appliances and consumables
88. To be researcher
89. To be hardworking
90. To be able to use working time effectively and efficiently in compliance with work orders and instructions
91. To be sensitive to protection of environment
92. To adopt environmental, quality and OHS rules
93. To be open to change and to adapt to changing conditions
94. To pay attention to details
95. To be attentive
96. To be honest
97. To be in harmony with the team
98. To be open to criticism
99. To be energetic
100. To be observer
101. To be cheerful
102. To take initiatives
103. To take care of human relations
104. To have working discipline
105. To pay attention to work safety
106. To obey the working principles of the workplace
107. To pay attention to cleaning, tidiness and workplace organization
108. To pay attention to the usage of tools, appliances and equipments belonging to workplace
109. To pay attention to quality
110. To be decisive
111. To be willingful to improve himself/herself
112. To ensure his/her own safety and safety of other people
113. To have professional ethics
114. To be planned and organized
115. To be sensitive to issues of risk and hazard factors
116. To be patient
117. To take care of his/her own health
118. To know his/her responsibilities and to fulfill the same
119. To learn instructions and guides and to comply them meticulously
120. To give fast and right reaction in dangerous situation in his/her own movement area
121. To be clean
122. To inform superiors properly and in time
123. To share information clearly, effectively at shift change
124. To be open to innovations
125. To inform concerned people about the malfunctions which are not under his/her authority

**4. TESTING, ASSESSMENT AND CERTIFICATION**

Testing and assessment for certification with respect to national qualifications based on marble natural stone quarry worker (Level 5) Occupational Standard shall be held in written 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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