

# BANGLADESH TECHNICAL EDUCATION BOARD



## NATIONAL COMPETENCY STANDARDS

For

**Tile work: NTVQF 1**

**Construction Sector Industry Skills Council**

**Bangladesh**


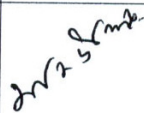

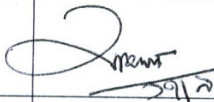
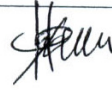
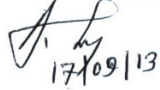
**BANGLADESH TECHNICAL EDUCATION BOARD**

**June, 2013**

## Content

Sl. No.	Description		Page No.
1.	Approval of SCDC on meeting held on 17.09.13		3
2.	Structure of competency		4
<b>Generic – Compulsory (2 UoCs required)</b>			<b>5-10</b>
3.	GN1001A1	Use Basic Mathematical Concepts.	6-7
4.	GN1002A1	Apply OSH practices in the workplace.	8-10
<b>Sector Specific – Compulsory (2 UoCs required)</b>			<b>11-19</b>
5.	CON1001A1	Work in the civil construction sector.	12-14
6.	CON1002A1	Use hand, measuring and power tools.	15-19
<b>Occupation Specific – Compulsory (5 UoCs required)</b>			<b>20-42</b>
7.	TW1001A1	Prepare surface for tile work.	21-25
8.	TW1002A1	Perform floor tile work.	26-29
9.	TW1003A1	Perform wall tile work.	30-33
10.	TW1004A1	Perform stone work.	34-37
11.	TW1005A1	Perform pavement tile work.	38-42

**Bangladesh Technical Education Board**  
**Standard Curriculum Development Committee**  
**NATIONAL COMPETENCY STANDARDS**  
**for**  
**Tile Work , Pre-vocational Level 2 and NTVQF 1**  
**Meeting held on 17.09.2013**

Sl. No	Name of members Contact number	Address,	Designation	Signature	Remarks
1.	Engr. Shamsuzzoha Chowdhury 01711523216	Unique Living Ltd. Padma House, 117/1, Shanti Nagar, Dhaka	Chair Person		CS Documents Approved
2.	Engr. Mohiuddin Ahmed, Director, 01726129415	Vivid Development Ltd. Shanti Nagar, Dhaka.	Member		
3.	Mr. Uzzal Shah Design Engineer 01730020440	Bay Development, Mohakhali, Dhaka.	Member		
4.	Architect AZ Mohamudul Hoq Managing Director,	Vivid Development Ltd. Shanti Nagar, Dhaka.	Member		
5.	Mr. Ahsanur Rahman Assistant Director, 01714237326	Directorate of Technical Education, Dhaka	Member		
6.	Mr. Alok Kumar Shah Senior Instructor 01716607775	Bangladesh German TTC, Dhaka	Member		
7.	Mr. Md. Abdu IHannan Deputy Inspector	Bangladesh Technical Education Board, Dhaka.	Member		
8.		Representative from Private Training Establishment nominated by the Chairman of BTEB	Member	 17/09/13	

**NATIONAL COMPETENCY STANDARDS**  
**For**  
**Tile work: NTVQF 1**  
**Structure of competency**

Sl. No.	Unit Code and Title		UoC Level	Nominal Duration (Hours)
<b>Generic – Compulsory (2 UoCs required)</b>				<b>60</b>
1.	GN1001A1	Use Basic Mathematical Concepts.	NTVQF 1	40
2.	GN1002A1	Apply OSH practices in the workplace.	NTVQF 1	20
<b>Sector Specific – Compulsory (2 UoCs required)</b>				<b>60</b>
3.	CON1001A1	Work in the civil construction sector.	NTVQF 1	30
4.	CON1002A1	Use hand, measuring and power tools.	NTVQF 1	30
<b>Occupation Specific – Compulsory (5 UoCs required)</b>				<b>240</b>
5.	TW1001A1	Prepare surface for tile work.	NTVQF 1	40
6.	TW1002A1	Perform floor tile work.	NTVQF 1	50
7.	TW1003A1	Perform wall tile work.	NTVQF 1	50
8.	TW1004A1	Perform stone work.	NTVQF 1	50
9	TW1005A1	Perform pavement tile work.	NTVQF 1	50
<b>Total Hours</b>				<b>360</b>

# **GENERIC UNITS**

**National Technical and Vocational Qualification Framework for Bangladesh**  
**Title work: NTVQF 1**  
**Unit of Competency**

<b>Unit Code and Title</b>	<b>GN1001A1: Use Basic Mathematical Concepts.</b>
<b>Nominal Hours</b>	<b>40 hours</b>
<b>Unit Descriptor</b>	<b>This unit of competency requires the knowledge, skills and attitude to apply the basic mathematical methods such as addition, subtraction, multiplication and division in the tiles fixing workplace.</b>
<b>Elements of Competency</b>	<b>Performance Criteria</b> <i>Italianized items are elaborated in the range of variable</i>
1. Identify calculation requirements in the workplace.	1.1 <b>Calculation requirements</b> are identified from <b>workplace information</b>
2. Select appropriate mathematical methods for the calculation.	2.1 Appropriate method is selected to carry out the calculation.
3. Use basic mathematical concepts to calculate workplace calculation.	3.1 Calculations are completed using <b>appropriate methods</b> such as addition, subtraction, multiplication and division.
<b>Range of Variables</b>	
<b>Variable</b>	<b>Range (may include but not limited to):</b>
1. Calculation requirements.	1.1. Total length calculation. 1.2. Area calculation. 1.3. Volume calculation.
2. Appropriate methods.	2.1.Addition 2.2.Subtraction 2.3.Division 2.4.Multiplication 2.5.Percentage and ratio
4. Workplace information.	4.1. House area. 4.2. House height. 4.3. Specification of different items. 4.4. Sunlight exposure time.
<b>Evidence Guide</b> The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1.Critical aspects of Competency.	1.2. Use mathematical methods of addition, subtraction, multiplication and division.
2.Underpinning Knowledge.	2.1. Numerical concept. 2.2. Basic mathematical methods such as addition, subtraction, multiplication and division and percentage. 2.3. Mathematical language, symbols and terminology.

	2.4. Measuring units.
3. Underpinning skills.	3.1. Add numbers. 3.2. Subtract numbers from another numbers. 3.3. Multiply numbers. 3.4. Divide numbers. 3.5. Use of mathematical language, symbols, terminology and technology. 3.6. Measure of different physical parameter. 3.7. Calculate area and volume.
4. Underpinning attitude.	4.1. Commitment to occupational safety and health. 4.2. Communication with peers, sub-ordinates and seniors in workplace. 4.3. Promptness in carrying out activities. 4.4. Tidiness and timeliness. 4.5. Respect of peers, sub-ordinates and seniors in workplace. 4.6. Environmental concern. 4.7. Sincere and honest to duties.
5. Resource implication.	The following resources must be provided. 5.1 Stationeries, consumables. 5.2 Calculators, computers, measuring tape.
6. Method of assessment.	<b><i>Methods of assessment may include but not limited to:</i></b> 6.1. Written test. 6.2. Oral questions. 6.3. Demonstration.
7. Context of assessment.	Competencies may be assessed in the work place or in a simulated work place.
<p><b>Accreditation Requirements</b></p> <p>Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.</p> <p>Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

National Technical and Vocational Qualification Framework for Bangladesh

**Tile work: NTVQF 1**

**Unit of Competency**

<b>Unit Code and Title</b>	<b>GN1002A1:</b> <b>Apply OSH practices in the workplace.</b>
<b>Nominal Hours</b>	<b>20 hours</b>
<b>Unit Descriptor</b>	This unit of competency requires the knowledge, skills and attitude to apply OSH practice in the workplace.
<b>Elements of Competency</b>	<b>Performance Criteria</b> <i>Italianized items are elaborated in the range of variable</i>
1. Follow OSH hazards at workplace.	1.1. Personal Protective Equipment ( <b>PPE</b> ) is used. 1.2. <b>Hazards</b> at workplace explained. 1.3. <b>Unsafe tools</b> at workplace are listed. 1.4. <b>Flammable</b> materials are recognized. 1.5. Access and storable materials are preserved in designated place. 1.7. OSH equipment is used safely according to specifications, legislation and standard operating procedures.
2. Perform work in safe condition.	2.1. Safe OSH practices. 2.2. Use <b>personal protective equipment</b> (PPE) 2.3. Safety signs, symbols and banners are displayed. 2.4. Location of the fire fighters are identified. 2.5. Clear and free emergency exit passage is maintained.
3. Use first aid kits.	3.1. Select <b>first aid kit</b> . 3.2. First aid kit in emergency is used.
4. Maintain healthy and hygiene workplace.	4.1. Aspect of good house keeping is explained. 4.2. Useable cleaning agents at workplace is selected. 4.3. Hands and parts of body are washed as per workplace regulation. 4.5. Safe drinking water is made available.
<b>Range of Variables</b>	
<b>Variable</b>	<b>Range (may include but not limited to):</b>
1. Unsafe tools.	1.1. Broken tools. 1.2. Rusted tools. 1.3. Defective tools.
2. Hazard.	2.1. Accumulation of waste materials. 2.2. Random storage of tools, equipment and furniture. 2.3. Storage of rejected wires, cables and structural Materials. 2.4. Storage of flammable materials.



	<ul style="list-style-type: none"> <li>2.5. Congested emergency exit.</li> <li>2.6. Oil splits floor at workplace.</li> </ul>
3. Flammable.	<ul style="list-style-type: none"> <li>3.1. Fabrics.</li> <li>3.2. PVC based materials.</li> <li>3.3. Petroleum based materials.</li> <li>3.4. Dry wood, bamboo.</li> </ul>
4. Personal protective equipment (PPE).	<ul style="list-style-type: none"> <li>2.1. Hand gloves.</li> <li>2.2. Mask.</li> <li>2.3. Apron.</li> <li>2.4. Cap.</li> <li>2.5. Goggle.</li> <li>2.6. Safety shoes.</li> <li>2.7. Cautionary signs, symbols and banners.</li> <li>2.8. Evacuation program.</li> <li>2.9. Fire extinguisher.</li> <li>2.10. Emergency lights.</li> <li>2.11. Instructions.</li> <li>2.12. Stretcher.</li> </ul>
3. First aid kit,	<ul style="list-style-type: none"> <li>3.1. Sterilized cotton.</li> <li>3.2. Bandage.</li> <li>3.3. Scissors.</li> <li>3.4. Washing agent for injury.</li> <li>3.5. Medicine for burn.</li> <li>3.6. Medicine for sudden head-ache.</li> </ul>
<p><b>Evidence Guide</b>  The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.</p>	
1.Critical aspects of competency	<ul style="list-style-type: none"> <li>1.1. Identification of hazards.</li> <li>1.2. Knowledge on hazard prevention.</li> <li>1.3. Use of personal Protective Equipment (PPE).</li> </ul>
2.Required underpinning knowledge	<ul style="list-style-type: none"> <li>2.1. Maintenance of good OSH condition in workplace.</li> <li>2.2. Use of symbols and banners.</li> <li>2.3. Evacuation instructions with pictures and words</li> <li>2.4. Planning of floor layout of workplace.</li> <li>2.5. Elimination of hazardous condition.</li> <li>2.6. Use of PPE.</li> </ul>
3.Required underpinning skills	<ul style="list-style-type: none"> <li>3.1. Use of appropriate PPE.</li> <li>3.2. Preparation of signs and banners.</li> <li>3.4. Displaying of signs and banners.</li> <li>3.5. Quick response in emergency.</li> </ul>
4.Required underpinning attitude	<ul style="list-style-type: none"> <li>4.1. Commitment to occupational safety and health.</li> </ul>

	<p>4.2. Communication with peers, sub-ordinates and seniors in workplace.</p> <p>4.3. Promptness in carrying out activities.</p> <p>4.4. Tidiness and timeliness.</p> <p>4.5. Respect of peers, sub-ordinates and seniors in workplace.</p> <p>4.6. Environmental concern.</p> <p>4.7. Sincere and honest to duties.</p>
5.Resource implication	<p>The following resources must be provided.</p> <p>5.1. Drawing paper.</p> <p>5.2. Drawing templates.</p> <p>5.3. First aid box with required contents.</p> <p>5.4. PPE materials.</p> <p>5.5. Pens, pencils, markers, eraser.</p> <p>5.6. Banners showing OSH practices.</p> <p>5.7. Fire extinguisher</p>
6. Methods of assessment.	<p><b>Methods of assessment may include but not limited to:</b></p> <p>6.1 Written test.</p> <p>6.2 Demonstration.</p> <p>6.3 Oral questions.</p> <p>6.4 Interview.</p> <p>.</p>
7. Context of assessment.	<p>Competencies may be assessed in the work place or in a simulated work place</p>
<p><b>Accreditation Requirements</b></p> <p>Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.</p> <p>Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

## **SECTOR SPECIFIC UNITS**

## National Technical and Vocational Qualification Framework for Bangladesh

### Tile work: NTVQF 1

#### Unit of Competency

<b>Unit Code and Title</b>	<b>CON1001A1: Work in the Construction Sector.</b>
<b>Nominal Hours</b>	<b>30 Hours</b>
<b>Unit Descriptor</b>	This unit of competency requires the knowledge skills, and attitude to work in the construction sector. It includes the following steps: describe the organizational structure, identify processes and procedures, identify tools, equipment and materials, identify workplace practices, organise own workload and practice OSH.
<b>Elements of Competency</b>	<b>Performance Criteria</b> <i>Italianized items are elaborated in the range of variable</i>
1. Describe the organizational structure .	<ol style="list-style-type: none"> <li>1.1. Scope, nature and <b>major fields</b> of the construction sector are clarified.</li> <li>1.2. Profile of the construction sector in relation to Bangladesh <b>employment conditions</b> is explained.</li> <li>1.3. Trends and technologies relevant to the sector are interpreted</li> <li>1.4. Relevant policies and guidelines are identified and interpreted.</li> <li>1.5. <b>Instructions</b> as to procedures in achieving quality are obtained, understood, and clarified.</li> </ol>
2. Identify processes and procedures	<ol style="list-style-type: none"> <li>2.1. Construction processes are identified.</li> <li>2.2. Work activities are identified.</li> <li>2.3. Adjustments are interpreted.</li> </ol>
3. Identify tools, equipment and materials	<ol style="list-style-type: none"> <li>3.1. <b>Manuals</b> are accessed to ensure up-to-date specifications of tools, materials and equipment.</li> <li>3.2. Construction <b>tools, equipment and materials</b> are identified.</li> <li>3.3. Substitutes are identified in case of non-availability based on workplace requirements.</li> </ol>
4. Identify workplace requirements	<ol style="list-style-type: none"> <li>4.1. <b>Workplace requirements</b> are identified.</li> <li>4.2. Roles and responsibilities of all personnel are ensured.</li> <li>4.3. Workplace's practices are identified.</li> <li>4.4. <b>Problem-solving strategies</b> are followed to address bottlenecks, inconsistencies and other concerns.</li> </ol>
5. Organize own workload	<ol style="list-style-type: none"> <li>5.1. Own work activities are planned and progress of work is communicated to relevant staff.</li> <li>5.2. Work activities are completed based on workplace standards.</li> <li>5.3. Difficulties and bottlenecks are identified, and solutions are put forward.</li> <li>5.4. Own work is monitored against workplace standards and areas for improvement identified and acted upon.</li> </ol>
6. Follow OSH	<ol style="list-style-type: none"> <li>6.1. Relevant OSH practices are identified.</li> <li>6.2. PPE is used.</li> <li>6.3. Safety signs, symbols and banners are displayed.</li> <li>6.4. Location of the fire extinguishers is identified.</li> <li>6.5. Clear and free emergency exit passage is maintained.</li> </ol>

<b>Range of Variables</b>	
<b>Variable</b>	<b>Range (may include but not limited to):</b>
1. Major Fields	1.1. Construction Site Support (dogging, rigging etc.) 1.2. Carpentry and Form Works 1.3. Masonry, Brick/Block Laying and Concreting 1.4. Surface Finishing, Tiling and Painting 1.5. Roofing 1.6. Plumbing 1.7. Residential Electrical Wiring and Cabling
2. Employment conditions	2.1. Code of Practice 2.2. Salary/Wage System 2.3. Labour Practices 2.4. Anti-Discrimination Policy 2.5. Gender Issues 2.6. Collective Bargaining and Other Practices 2.7. Awards 2.8. Procedures for Handling Disputes 2.9. Innovations in the Sector
3. Instructions	3.1. Specifications and requirements 3.2. Standard operating procedures 3.3. Manuals of Instruction 3.4. Operations Manual 3.5. Environmental Guidelines 3.6. Gender and Develop Guidelines
4. Manuals	4.1. Manual of Instructions 4.2. Manual of Specifications 4.3. Repair Manual 4.4. Quality Manual 4.5. Maintenance Procedure and Troubleshooting
5. Workplace requirements	5.1. Goals and objectives 5.2. Strategic and Operational Plans 5.3. Systems and Processes 5.4. Monitoring and Evaluation 5.5. Reports and Documentation
6. Tools, equipment and materials.	Tools, equipment and materials refers to all tools, equipment and materials appropriate to any of the construction fields.
7. Problem-solving strategies	7.1. Asking questions 7.2. Feedback and Feed forward system 7.3. Reference to Standard Operating Procedures 7.4. Accessing Information 7.5. Reviews 7.6. Brainstorming
<b>Evidence Guide</b>	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspect of competency.	1.1. Construction equipment and accessories at work place. 1.2. Working environment in the construction sector.
2. Required underpinning Knowledge.	2.1 Scope and Major divisions of the construction Sector. 2.2 Relevant policies and guidelines in the Construction Sector. 2.3 Manuals used in the Construction Sector. 2.4 Relevant terminologies and acronyms.

	2.5 Types and Uses of Construction tools and materials.
3. Required underpinning skills.	3.1 Describing organization structure. 3.2 Identifying construction processes and procedures. 3.3 Identifying tools, equipment and materials. 3.4 Identifying workplace practices. 3.5 Organizing own workload. 3.6 Practicing OHS.
4. Required underpinning attitude.	4.1. Commitment to occupational safety and health. 4.2. Communication with peers, sub-ordinates and seniors in workplace. 4.3. Promptness in carrying out activities. 4.4. Tidiness and timeliness. 4.5. Respect of peers, sub-ordinates and seniors in workplace. 4.6. Environmental concern. 4.7. Sincere and honest to duties.
5. Resource implication.	The following resources must be provided. 5.1 Tools, equipment and physical facilities appropriate to perform activities. 5.2 Materials, consumables to perform activities.
6. Methods of assessment.	<b>Methods of assessment may include but not limited to:</b> 6.1. Oral test. 6.3. Interview. 6.4. Written test.
7. Context of assessment.	Competencies may be assessed in the work place or in a simulated work place
<p><b>Accreditation Requirements</b> Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

**National Technical and Vocational Qualification Framework for Bangladesh**  
**Title work: NTVQF 1**  
**Unit of Competency**

<b>Unit Code and Title</b>	<b>CON1002A1 :</b> Use hand, measuring and power tools.
<b>Nominal Hours</b>	<b>30 Hours</b>
<b>Unit Descriptor</b>	This unit of competency require the skills, knowledge and attitude to Use hand, measuring, power tools and calculations in the building construction sector at the work place.
<b>Elements of Competency</b>	<b>Performance Criteria</b> <i>Italianized items are elaborated in the range of variable</i>
1. Select tools.	1.1. <b>Hand, measuring and power tools are</b> selected as per requirement. 1.2. Hand-eye coordination is applied in the use of tools. 1.3. Unsafe or faulty tools are identified and marked for 1.4. Sources of power supply for power tools are recognized.
2. Take measurements.	2.1. Select measuring tools to obtained measurements as per requirement. 2.2. Systems of measurements are identified. 2.3. Results are recorded.
3. Perform preventive maintenance.	3.1. <b>PPE</b> is selected and worn as per requirement. 3.2. <b>Applications</b> of tools are recognized. 3.3. Tools and equipment are cleaned according to workplace instructions. 3.4. Lubricants are identified according to types of tools. 3.5. Tools are lubricated according to <b>instructions</b> . 3.6. Measuring tools are checked and calibrated. 3.7. Defective hand, measuring and power tools are inspected, corrected and replaced. 3.8. Tools are inspected, repaired and replaced after use.
4. Clean and store.	4.1. Inventory of hand, measuring and power tools are conducted and recorded as per stock register by using <b>forms</b> . 4.2. Tools are cleaned and stored safely. 4.3. Workplace is cleaned and cleared of debris and unwanted materials.
<b>Range of Variables</b>	
<b>Variable</b>	<b>Range (may include but not limited to):</b>
1. Applications	1.1. Adjusting 1.2. Aligning

	<ul style="list-style-type: none"> <li>1.3. Assembling</li> <li>1.4. Boring</li> <li>1.5. Clamping</li> <li>1.6. Cleaning</li> <li>1.7. Cutting</li> <li>1.8. Dismantling</li> <li>1.9. Finishing</li> <li>1.10. Hand sharpening</li> <li>1.11. Lubricating</li> <li>1.12. Scraping</li> <li>1.13. Simple Tool Repairs</li> <li>1.14. Threading</li> <li>1.15. Tightening</li> </ul>
<p>2. Hand tools</p>	<ul style="list-style-type: none"> <li>2.1. Adjustable spanners</li> <li>2.2. Auger bits</li> <li>2.3. Bars (crow and pitch)</li> <li>2.4. Bench vice</li> <li>2.5. Bolt cutters</li> <li>2.6. Brace</li> <li>2.7. C-clamp</li> <li>2.8. Chisels</li> <li>2.9. Crosscut saw</li> <li>2.10. Die and stock</li> <li>2.11. Drill bits</li> <li>2.12. Files</li> <li>2.13. Gouges</li> <li>2.14. Grin let</li> <li>2.15. Hacksaw</li> <li>2.16. Hammers</li> <li>2.17. Hand drill</li> <li>2.18. Hand saws</li> <li>2.19. Measuring Tape</li> <li>2.20. Nips</li> <li>2.21. Paint Brushes/Rollers</li> <li>2.22. Picks/Mattocks</li> <li>2.23. Pliers</li> <li>2.24. Plumb bob</li> <li>2.25. Punches</li> <li>2.26. Rip saw</li> <li>2.27. Scarpers</li> <li>2.28. Screwdrivers</li> <li>2.29. Sealant Gun</li> <li>2.30. Shovel/Spades</li> <li>2.31. Sledge Hammers</li> </ul>



	<ul style="list-style-type: none"> <li>2.32. Sockets</li> <li>2.33. Spanners and Wrenches</li> <li>2.34. Spatula/Putty Knives</li> <li>2.35. Steel tape</li> <li>2.36. String Lines</li> <li>2.37. Taps</li> <li>2.38. Triangle</li> <li>2.39. Trowels and Floats</li> <li>2.40. Try square</li> <li>2.41. Vice grip</li> <li>2.42. Wire Cutters</li> <li>2.43. Wood Planes</li> <li>2.44. spirit level</li> <li>2.45. steel trowel</li> <li>2.46. Jointer trowel</li> <li>2.47. Aluminium float roll</li> <li>2.48. Wooden float roll</li> <li>2.49. Masonry tray</li> <li>2.50. Brick cutting hammer</li> </ul>
3. Measuring tools.	<ul style="list-style-type: none"> <li>3.1. Set squares</li> <li>3.2. Dial indicators</li> <li>3.3. Micrometres</li> <li>3.4. Slide callipers</li> <li>3.5. Steel tape</li> <li>3.6. Triangle</li> <li>3.7. Steel rule</li> <li>3.8. Carpenter's square</li> <li>3.9. Calculator</li> <li>3.10. Vernier caliper</li> <li>3.11. Feeler gauges</li> <li>3.12. Thermometers</li> <li>.13. protractors</li> </ul>
4. Power Tools	<ul style="list-style-type: none"> <li>4.1. Drills</li> <li>4.2. Nail guns</li> <li>4.3. Staplers</li> <li>4.4. Screw Drivers</li> <li>4.5. Angle Grinders</li> <li>4.6. Pneumatic wrenches</li> <li>4.7. Circular saw</li> <li>4.8. Grinders</li> <li>4.9. Jigsaws</li> <li>4.10. Nibblers</li> <li>4.11. Cutting saw</li> <li>4.12. Threading machine</li> </ul>

	<ul style="list-style-type: none"> <li>4.13. Sanders</li> <li>4.14. Planers</li> <li>4.15. Routers</li> <li>4.16. Pedestal drills</li> <li>4.17. Pedestal grinders</li> <li>4.18. Tiles cutting pen</li> <li>4.19. Tiles cutting machine</li> <li>4.20. Concrete mixture machine</li> <li>4.21. Vibrator machine</li> </ul>
5. Instructions	<ul style="list-style-type: none"> <li>5.1. Manufacturer's Specifications and Instructions for specific tools.</li> <li>5.2. Workplace orders and instructions.</li> <li>5.3. Work schedule documentation.</li> <li>5.4. Procedures.</li> </ul>
6. PPE	<ul style="list-style-type: none"> <li>6.1. Mask</li> <li>6.2. Safety goggles</li> <li>6.4. Safety shoes</li> <li>6.5. Aprons</li> </ul>
7. Forms	<ul style="list-style-type: none"> <li>7.1. Maintenance schedule forms</li> <li>7.2. Requisition slip</li> <li>7.3. Inventory Form</li> <li>7.4. Inspection Forms</li> <li>7.5. Procedures</li> </ul>
<p><b>Evidence Guide</b></p> <p>The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.</p>	
1. Critical aspects of competency.	<ul style="list-style-type: none"> <li>1.1. Selection and use of hand, measuring and power tools.</li> <li>1.2. Perform routine maintenance and storage of hand measuring and power tools.</li> </ul>
2. Underpinning knowledge.	<ul style="list-style-type: none"> <li>2.1. Proper selection of hand, measuring and power tools.</li> <li>2.2. Specification, types and use of hand, measuring and power tools.</li> <li>2.3. Principles and techniques in maintenance and care.</li> </ul>
3. Underpinning skills.	<ul style="list-style-type: none"> <li>3.1. Handling of tools.</li> <li>3.2. Repairing of defects hand, measuring and power tools.</li> <li>3.3. Applications of tools.</li> </ul>
4 .Required attitude.	<ul style="list-style-type: none"> <li>4.1. Commitment to occupational safety and health.</li> <li>4.2. Communication with peers, sub-ordinates and seniors in workplace.</li> <li>4.3. Promptness in carrying out activities.</li> <li>4.4. Tidiness and timeliness.</li> <li>4.5. Respect of peers, sub-ordinates and seniors in</li> </ul>

	workplace. 4.6. Environmental concern. 4.7. Sincere and honest to duties.
5. Resource implication.	Tools, equipment and physical facilities appropriate to perform activities.
6. Methods of assessment.	<b><i>Methods of assessment may include but not limited to:</i></b> 6.1. Demonstration 6.2. Written test 6.3. Oral questions
7. Context of assessment.	Competencies may be assessed in the work place or in a simulated work place
<p><b>Accreditation Requirements</b></p> <p>Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.</p> <p>Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

# **OCCUPATION SPECIFIC UNIT**

**National Technical and Vocational Qualification Framework for Bangladesh**  
**Tile work: NTVQF 1**  
**Unit of Competency**

<b>Unit Code and Title</b>	<b>TW1001A1: Prepare surfaces for tile work.</b>
<b>Nominal Hours</b>	<b>40 Hours</b>
<b>Unit Descriptor</b>	This unit of competency requires the knowledge, skills and attitude to prepare surfaces for tile work. It includes Planning of works, preparation of materials and substrates for the tiles fixing process.
<b>Element of Competency</b>	<b>Performance Criteria</b> <i>Italianized items are elaborated in the range of variable</i>
1. Plan and prepare work.	1.1. Work instructions and operational details are obtained using relevant <b>information</b> , confirmed and applied for <b>planning and preparation</b> purposes. 1.2. <b>PPE</b> is selected and worn as per requirement. 1.3. Barricade requirements are implemented. 1.4. <b>Tools and equipment</b> are selected. 1.5. Materials are checked in accordance with plan and specifications and <b>quality requirements</b> .
2. Prepare underlay and sheeting substrate.	2.1. <b>Underlay preparation</b> is provided as provided as per requirement. 2.2. Substrate <b>surface</b> is finished to approve surface standards with joints, flush and sealed.
3. Preparer substrate surface.	3.1. <b>Surface-mounted construction</b> units and attachments are safely detached and removed from work area. 3.2. Surfaces are levelled and cleaned in accordance with job requirements. 3.3. Materials for splash coat are proportioned and mixed. 3.4. Horizontal and vertical surrounds are prepared for tiling process in accordance with <b>type of tile</b> and specified finish. 3.5. Materials for coat are proportioned and mixed. 3.6. <b>Surfaces</b> are scratched, cured and dried.
5. Perform plaster.	5.1. Plastering materials, tools and equipment are collected. 5.2. Plastering area is selected and prepared. 5.3. Mortar is prepared as per requirement. 5.4. Plastering on wall and floor as per work standard.
6. Clean and store.	6.1. Workplace is cleared and materials disposed of, reused or recycled. 6.2. Tools and equipment are cleaned, checked,

	maintained and stored.
<b>Range of Variables</b>	
<b>Variable</b>	<b>Range (<i>may include but not limited to</i>):</b>
1. Information	<ul style="list-style-type: none"> <li>1.1. Diagrams or sketches.</li> <li>1.2. Instructions issued by authorized officials.</li> <li>1.3. Manufacturer specifications and instructions.</li> <li>1.4. Regulatory and legislative requirements pertaining to preparing surfaces for tiling.</li> <li>1.5. Relevant standards.</li> <li>1.6. Safe work procedures relating to preparing surfaces for tiling.</li> <li>1.7. Signage.</li> <li>1.8. Verbal, written and graphical instructions.</li> <li>1.9. Work bulletins.</li> <li>1.10. Work schedules plans and specifications.</li> </ul>
2. Planning and preparation	<ul style="list-style-type: none"> <li>2.1. Assessment of conditions and hazards.</li> <li>2.2. Determination of work requirements and safety plans and policies.</li> <li>2.3. Equipment defect identification.</li> <li>2.4. Work site inspection.</li> </ul>
3. PPE	<ul style="list-style-type: none"> <li>3.1. Musk.</li> <li>3.2. Safety shoes.</li> <li>3.3. Safety goggles.</li> <li>3.4. Apron.</li> <li>3.5. Cap.</li> <li>3.6. Helmet.</li> </ul>
4. Tools and equipment	<ul style="list-style-type: none"> <li>4.1. Brooms</li> <li>4.2. Brushes</li> <li>4.3. Buckets</li> <li>4.4. Caulking guns</li> <li>4.5. Cement sheet cutters</li> <li>4.6. Concrete mixers</li> <li>4.7. Electrical leads</li> <li>4.8. Hammers</li> <li>4.9. Hose and water sprays</li> <li>4.10. Ladders</li> <li>4.11. Levelling equipment</li> <li>4.12. Lump hammers</li> <li>4.13. Measuring tapes and rules</li> <li>4.14. Mortar boards</li> <li>4.15. Nippers</li> <li>4.16. Pointed grouters</li> <li>4.17. Power drills and screwdrivers</li> </ul>

	<ul style="list-style-type: none"> <li>4.18 Power grinders and sanders</li> <li>4.19 Rags</li> <li>4.20 Rubber mallets</li> <li>4.21 Sanding blocks</li> <li>4.22 Saws</li> <li>4.23 Scrapers</li> <li>4.24 Shovels</li> <li>4.25 Spacers and wedges</li> <li>4.26 Spatulas</li> <li>4.27 Sponges</li> <li>4.28 Squares</li> <li>4.29 Squeegees</li> <li>4.30 Straight edges</li> <li>4.31 Stringlines</li> <li>4.32 Trowels</li> <li>4.33 Wet and dry diamond saws</li> <li>4.34 Wheelbarrows</li> <li>4.35 Wire brushes</li> <li>4.36 Wooden floats</li> <li>4.37 Work platforms.</li> </ul>
5. Quality requirements	<ul style="list-style-type: none"> <li>5.1. Bangladesh standards.</li> <li>5.2. Internal company quality policy and standards.</li> <li>5.3. Manufacturer specifications.</li> <li>5.4. Workplace operations and procedures.</li> </ul>
6. Materials	<ul style="list-style-type: none"> <li>6.1. Adhesives.</li> <li>6.2. Caulking compound.</li> <li>6.3. Cement mortar (with and without additives).</li> <li>6.4. Clouts.</li> <li>6.5. Cornice adhesive.</li> <li>6.6. Fixings and fasteners.</li> <li>6.7. Patching materials.</li> <li>6.8. Plasterboard nails.</li> <li>6.9. Pre-mixed and mixed fillers.</li> <li>6.10. Sand and cement.</li> <li>6.11. Self-tapping screws.</li> <li>6.12. Soft sheet nails.</li> <li>6.13. Wall board adhesive.</li> <li>6.14. Acoustic underlay material.</li> <li>6.15. Crack suppression membrane.</li> </ul>

7. Underlay preparation	<ul style="list-style-type: none"> <li>7.1. Acoustic.</li> <li>7.2. In sheet or liquid form.</li> <li>7.3. Provide for crack suppression (in membrane form).</li> <li>7.4. Chemical and mechanical preparation of surfaces.</li> <li>7.5. Rendering to provide a flat surface.</li> <li>7.6. Use of underlay material.</li> </ul>
8. Substrate surface.	<ul style="list-style-type: none"> <li>8.1. Fibre cement sheets or other lining material or cladding of a similar nature.</li> <li>8.2. Painted surfaces.</li> <li>8.3. Pre-cast cladding.</li> <li>8.4. Solid plaster.</li> <li>8.5. Stone, concrete, timber, waterproof plasterboard, masonry and brick/block.</li> <li>8.6. Terrazzo.</li> <li>8.7. Wall and floor tiles.</li> </ul>
9. Surface-mounted construction.	<ul style="list-style-type: none"> <li>9.1. Aluminium framework fixing.</li> <li>9.2. Attachment of steel brackets or fabricated units.</li> <li>9.3. Brick or block walls or abutments.</li> <li>9.4. Curtain walling fixing.</li> <li>9.5. Fitment units.</li> <li>9.6. Formwork and false work construction.</li> <li>9.7. Light steel partition walls.</li> <li>9.8. Stair installations.</li> <li>9.9. Timber partition walls.</li> </ul>
10. Types of tiles.	<ul style="list-style-type: none"> <li>10.1. Ceramic</li> <li>10.2. Glass</li> <li>10.3. Granite</li> <li>10.4. Marble</li> <li>10.5. Porcelain</li> <li>10.6. Stone</li> <li>10.7. Terracotta.</li> </ul>
11. Surfaces.	<ul style="list-style-type: none"> <li>11.1. Block work.</li> <li>11.2. Brick work.</li> <li>11.3. Ceramic or fibro cement underlay.</li> <li>11.4. Concrete work.</li> <li>11.5. Plaster work.</li> <li>11.6. Fibre cement sheet.</li> <li>11.7. Rendered surfaces.</li> <li>11.8. Timber.</li> <li>11.9. Other approved waterproof surfaces.</li> </ul>
<b>Evidence Guide</b>	



The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency.	1.1 Performed surface preparation for tile work. 1.2 Use of tools, equipments and materials.
2. Underpinning knowledge.	2.1 Job safety and safe work method statements. 2.2 Materials storage and environmentally friendly waste management. 2.3 Plans, drawings and specifications. 2.4 Calculation of material requirements. 2.5 Quality requirements.
3. Underpinning skills.	3.1 Preparing surface for laying of tiles. 3.2 Estimating materials and tools. 3.3 Maintaining tools and equipment. 3.4 Use of tools and equipment. 3.5 Proper handling and storing of materials.
4. Required attitude.	4.1. Commitment to occupational safety and health. 4.2. Communication with peers, sub-ordinates and seniors in workplace. 4.3. Promptness in carrying out activities. 4.4. Tidiness and timeliness. 4.5. Respect of peers, sub-ordinates and seniors in workplace. 4.6. Environmental concern. 4.7. Sincere and honest to duties.
5. Resource implication.	5.1. Tools, equipment and physical facilities appropriate to perform activities. 5.2. Materials, consumables to perform activities.
6. Methods of assessment	<b>Methods of assessment may include but not limited to:</b> 6.1. Demonstration. 6.2. Written. 6.3. Oral questions.
7. Context of assessment.	Competencies may be assessed in the work place or in a simulated work place
<p><b>Accreditation Requirements</b></p> <p>Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.</p> <p>Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

**National Technical and Vocational Qualification Framework for Bangladesh**  
**Tile work: NTVQF 1**  
**Unit of Competency**

<b>Unit Code and Title</b>	<b>TW1002A1: Perform floor tile work.</b>
<b>Nominal Hours</b>	<b>50 Hours</b>
<b>Unit Descriptor</b>	This unit of competency requires the knowledge, skills and attitude to perform floor tiles. It includes cutting tiles, laying and setting of tiles in workplace.
<b>Element of Competency</b>	<b>Performance Criteria</b> <i>Italianized items are elaborated in the range of variable</i>
1. Select tools, equipment and materials.	1.1. <b>Tools, equipment, tiling materials</b> and floor tiles are selected and collected. 1.2. Material quantity requirement are calculated in accordance with plans and specifications and <b>quality requirements</b> .
2. Cut tiles.	2.1. Safe <b>OSH</b> practices are followed. 2.2. <b>PPE</b> is selected and worn as per requirement. 2.3. Floor <b>tiles</b> are cut without damage as per requirement. 2.4. Tile is edged to form mitre as per requirement.
3. Lay floor tiles.	3.1. Floor is checked for level, square and membranes. 3.2. <b>Substrate surface</b> is prepared free from contaminants and residues in accordance with plan. 3.3. <b>Adhesive</b> is matched with tile and substrate material and mixed according to usage. 3.4. Cement mortar is prepared to consistency and floor is slurred and screened. 3.5. Tiles are laid in conformance to standards and specifications, maintaining bond with joints as per requirement.
4. Grout and seal the tiles.	4.1. Joints are cleaned and prepared to receive grout according to manufacturer specifications. 4.2. <b>Grout</b> is mixed and applied as per requirement. 4.3. Tiles are cleaned and polished with dry cloth. 4.4. Tiles are sealed and protected as per requirement.
5. Clean and store.	5.1. Workplace is cleared and materials disposed of, reused or recycled. 5.2. Plant, tools and equipment are cleaned, checked, maintained and stored as per requirement.

<b>Range of Variables</b>	
<b>Variable</b>	<b>Range (may include but not limited to):</b>
1. OSH	1.1. Personal Protective Equipment ( <i>PPE</i> ) is used. 1.2. <i>Hazards</i> at workplace explained. 1.3. <i>Unsafe tools</i> at workplace are listed. 1.4. <i>Flammable</i> materials are recognized. 1.5. Access and storable materials are preserved in designated place. 1.6. OSH equipment is used safely according to specifications, legislation and standard operating procedures.
2. PPE	2.1 Musk. 2.2 Safety shoes. 2.3 Safety goggles. 2.4 Apron. 2.5 Cap. 2.6 Helmet.
3. Quality requirements	3.1 Internal company quality policy and standards. 3.2 Manufacturer specifications. 3.3 Workplace operations and procedures.
4. Tools and equipment	4.1 Brooms 4.2 Brushes 4.3 Buckets 4.4 Caulking guns 4.5 Cement sheet cutters 4.6 Hammers 4.7 Hose and water sprays 4.8 Ladders 4.9 Levelling equipment 4.10 Lump hammers 4.11 Measuring tapes and rules 4.12 Mortar boards 4.13 Nippers 4.14 Pointed grouters 4.15 Power drills 4.16 Power leads 4.17 Rags 4.18 Rubber mallets 4.19 Sanding blocks 4.20 Saws 4.21 Scrapers

	<ul style="list-style-type: none"> <li>4.22 Shovels</li> <li>4.23 Spacers and wedges</li> <li>4.24 Spatulas</li> <li>4.25 Sponges</li> <li>4.26 Squares</li> <li>4.27 Squeegees</li> <li>4.28 Straight edges</li> <li>4.29 String lines</li> <li>4.30 Tile cutters and scribes</li> <li>4.31 Trowels</li> <li>4.32 Wet and dry diamond saws</li> <li>4.33 Wheelbarrows</li> <li>4.34 Wire brushes</li> <li>4.35 Wooden floats</li> <li>4.36 Concrete mixers</li> <li>4.37 Masonry drill bits</li> <li>4.38 Power grinders</li> <li>4.39 Power sanders</li> </ul>
5. Materials	<ul style="list-style-type: none"> <li>5.1 Adhesives</li> <li>5.2 Caulking compounds</li> <li>5.3 Cement mortar (with and without additives)</li> <li>5.4 Grout</li> <li>5.5 Sealers</li> <li>5.6 Tiles</li> </ul>
6. Tiles	<ul style="list-style-type: none"> <li>6.1 Ceramic</li> <li>6.2 Glass</li> <li>6.3 Granite</li> <li>6.4 Marble</li> <li>6.5 Porcelain</li> <li>6.6 Stone</li> <li>6.7 Terracotta</li> </ul>
7. Substrate surface	<ul style="list-style-type: none"> <li>7.1 Approved waterproof substrates</li> <li>7.2 Compressed sheeting</li> <li>7.3 Concrete</li> <li>7.4 Fibre cement underlay</li> <li>7.5 Rendered concrete</li> <li>7.6 Timber</li> </ul>
8. Adhesives	<ul style="list-style-type: none"> <li>8.1 Adhesives</li> <li>8.2 Cement mortar</li> <li>8.3 Cement mortar with adhesive additive.</li> </ul>
9. Grout	<ul style="list-style-type: none"> <li>9.1 Cementations</li> <li>9.2 Epoxy</li> </ul>
<b>Evidence Guide</b>	

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency.	1.1 Preparation of the tiling area. 1.2 Tiles cutting. 1.3 Laying and fixing floor tiles.
2. Underpinning knowledge.	2.1 Material safety data sheets (MSDS) and hazards associated with solvents, adhesives and cement or epoxy-based grouts. 2.2 Plans, drawings and specifications. 2.3 Use of tools and equipment types, characteristics, and limitations. 2.4 Calculation of material requirements. 2.5 Quality requirements.
3. Underpinning skills.	3.1 Performing preparing setting out tiles. 3.2 Performing layout and fixing tiles in floor. 3.3 Grouting and setting tiles in floor.
4. Required attitude.	4.1. Commitment to occupational safety and health. 4.2. Communication with peers, sub-ordinates and seniors in workplace. 4.3. Promptness in carrying out activities. 4.4. Tidiness and timeliness. 4.5. Respect of peers, sub-ordinates and seniors in workplace. 4.6. Environmental concern. 4.7. Sincere and honest to duties.
5. Resource implication.	5.1. Tools, equipment and physical facilities appropriate to perform activities. 5.2. Materials, consumables to perform activities.
6. Method of assessment	<b>Methods of assessment may includes but not limited to:</b> 6.1. Demonstration 6.2. Written or oral questions 6.3. Interview. 6.4. Continuous assessment. 6.5. Assignment.
7. Context of assessment.	Competencies may be assessed in the work place or in a simulated work place
<p><b>Accreditation Requirements</b></p> <p>Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.</p> <p>Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

**National Technical and Vocational Qualification Framework for Bangladesh**  
**Tile work: NTVQF 1**  
**Unit of Competency**

<b>Unit Code and Title</b>	<b>TW1003A1: Perform wall tile work.</b>
<b>Nominal Hours</b>	<b>50 Hours</b>
<b>Unit Descriptor</b>	This unit of competency requires the knowledge, skills and attitude to perform wall tile work. It includes cutting tiles, laying and fixing of wall tiles.
<b>Element of Competency</b>	<b>Performance Criteria</b> <i>Italianized items are elaborated in the range of variable</i>
1. Select tools, equipment and materials.	1.1. <b>Tools, equipment, tiling materials and</b> wall tiles are selected and collected. 1.2. Material quantity requirements are calculated in accordance with plans and specifications and <b>quality requirements.</b>
2. Cut tiles.	2.1. Safe <b>OSH</b> practice are followed. 2.2. <b>PPE</b> is selected and worn as per requirement. 2.3. Wall <b>tiles</b> are cut without damage as per requirement. 2.4. Tile is edged to form a mitre as per requirement.
3. Lay wall tiles.	3.1. Wall is checked for level, vertical in 90 degrees and square as per requirement. 3.2. <b>Substrate surface</b> is prepared free from contaminants and residues in accordance with plan. 3.3. <b>Adhesive</b> is matched with tile and substrate material and mixed according to usage. 3.4. Cement mortar is prepared to consistency and floor is slurred and screened. 3.5. Tiles are laid in conformance to standards and specifications, maintaining bond with joints as per requirement.
4. Grout and seal the tiles.	4.1. Joints are cleaned and prepared to receive Grout as per requirement. 4.2. <b>Grout</b> is mixed and applied as per requirement. 4.3. Tiles are cleaned and polished with dry cloth. 4.4. Tiles are sealed and protected.
5. Clean and store.	5.1. Workplace is cleared and materials disposed of, reused or recycled. 5.2. Plant, tools and equipment are cleaned, checked, maintained and stored as per requirement.

<b>Range of Variables</b>	
<b>Variable</b>	<b>Range</b> (the following may include but not limited to):
1. OSH	1.1. Personal Protective Equipment ( <i>PPE</i> ) is used. 1.2. <i>Hazards</i> at workplace explained. 1.3. <i>Unsafe tools</i> at workplace are listed. 1.4. <i>Flammable</i> materials are recognized. 1.5. Access and storable materials are preserved in designated place. 1.6. OSH equipment is used safely according to specifications, legislation and standard operating procedures.
2. PPE	2.1 Musk. 2.2 Safety shoes. 2.3 Safety goggles. 2.4 Apron. 2.5 Cap. 2.6 Helmet.
3. Quality requirements	3.1 Internal company quality policy and standards 3.2 Manufacturer specifications 3.3 Workplace operations and procedures
4. Tools and equipment	4.1 Brooms 4.2 Brushes 4.3 Buckets 4.4 Caulking guns 4.5 Cement sheet cutters 4.6 Hammers 4.7 Hose and water sprays 4.8 Ladders 4.9 Levelling equipment 4.10 Lump hammers 4.11 Measuring tapes and rules 4.12 Mortar boards 4.13 Nippers 4.14 Pointed grouters 4.15 Power drills 4.16 Power leads 4.17 Rags 4.18 Rubber mallets 4.19 Sanding blocks 4.20 Saws 4.21 Scrapers

	4.22 Shovels 4.23 Spacers and wedges 4.24 Spatulas 4.25 Sponges 4.26 Squares 4.27 Squeegees 4.28 Straight edges 4.29 String lines 4.30 Tile cutters and scribes 4.31 Trowels 4.32 Wet and dry diamond saws 4.33 Wheelbarrows 4.34 Wire brushes 4.35 Wooden floats 4.36 Concrete mixers 4.37 Masonry drill bits 4.38 Power grinders 4.39 Power sanders
5. Materials	5.1 Adhesives 5.2 Caulking compounds 5.3 Cement mortar (with and without additives) 5.4 Grout 5.5 Sealers 5.6 Tiles
6. Tiles	6.1 Ceramic 6.2 Glass 6.3 Granite 6.4 Marble 6.5 Porcelain 6.6 Stone 6.7 Terracotta
7. Substrate surface	7.1 Approved waterproof substrates 7.2 Compressed sheeting 7.3 Concrete 7.4 Fibre cement underlay 7.5 Rendered concrete 7.6 Timber
8. Adhesives	8.1 Adhesives 8.2 Cement mortar 8.3 Cement mortar with adhesive additive.
9. Grout	9.1 Cementations 9.2 Epoxy
<b>Evidence Guide</b>	



The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency.	1.1 Cutting of tiles. 1.2 Wall tiles fixing vertically in 90 degree.
2. Underpinning knowledge.	2.1 Materials storage and environmentally friendly waste management. 2.2 Plans, drawings and specifications. 2.3 Use of tools and equipment types, characteristics, uses and limitations. 2.4 Calculation of material requirements. 2.5 Quality requirements.
3. Underpinning skills.	3.1 Performing preparing setting out tiles. 3.2 Performing layout and fixing tiles in wall. 3.3 Grouting and setting tiles in wall.
4. Required attitude.	4.1. Commitment to occupational safety and health. 4.2. Communication with peers, sub-ordinates and seniors in workplace. 4.3. Promptness in carrying out activities. 4.4. Tidiness and timeliness. 4.5. Respect of peers, sub-ordinates and seniors in workplace. 4.6. Environmental concern. 4.7. Sincere and honest to duties.
5. Resource implication.	The following resources must be provided. 5.1. Tools, equipment and physical facilities appropriate to perform activities. 5.2. Materials, consumables to perform activities.
6. Method of assessment	<b>Methods of assessment may includes but not limited to:</b> 6.1. Demonstration 6.2. Written test 6.3 Oral questions
7. Context of assessment.	Competencies may be assessed in the work place or in a simulated work place
<p><b>Accreditation Requirements</b></p> <p>Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.</p> <p>Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

**National Technical and Vocational Qualification Framework for Bangladesh**  
**Tile work: NTVQF 1**  
**Unit of Competency**

<b>Unit Code and Title</b>	<b>TW1004A1: Perform stone work.</b>
<b>Nominal Hours</b>	<b>50 Hours</b>
<b>Unit Descriptor</b>	This unit of competency requires the knowledge, skills and attitude to perform stone work. It includes stone cutting marble and stone tiles, laying and fixing floor marble and stone tiles in the workplace.
<b>Element of Competency</b>	<b>Performance Criteria</b> <i>Italianized items are elaborated in the range of variable</i>
1. Select tools, equipment and materials.	1.1. <b>Tools, equipment, tiling materials</b> and wall tiles are selected and collected. 1.2. Material quantity requirements are calculated in accordance with plans and specifications and <b>quality requirements.</b>
2. Cut stone tiles.	2.1. Safe <b>OSH</b> practices are followed. 2.2. <b>PPE</b> is selected and worn as per requirement. 2.3. Stone are cut without damage as per requirement. 2.4. Recess hole or curve is cut by hand or machine as per specified tolerance. .
3. Lay stone.	3.1. Floor is checked for level and square and membranes as per requirement. 3.2. Wall is checked for level, vertical in 90 degrees and square as per requirement 3.3. <b>Substrate surface</b> is prepared free from contaminants and residues in accordance with plans and specifications. 3.4. <b>Adhesive</b> is matched with stone and substrate material and mixed according to usage, climatic conditions and manufacturer specifications. 3.5. Cement mortar is prepared to consistency and floor and wall is slurred and screeded to specifications. 3.6. Stone are laid and fixed in conformance to standards and specifications,
4. Grout and seal marble / stone tiles.	4.1. Joints are cleaned and prepared to receive grout according to manufacturer specifications. 4.2. <b>Grout</b> is mixed and applied as per requirement. 4.3. Tiles are cleaned and polished with dry cloth to specifications, removing all dust from surface and joints as per requirement.

	4.4. Tiles are sealed and protected as per requirement.
5. Clean and store.	5.1. Workplace is cleared and materials disposed of, reused or recycled. 5.2. Tools and equipment are cleaned, checked, maintained and stored as per requirement.
<b>Range of Variables</b>	
<b>Variable</b>	<b>Range (may include but not limited to):</b>
1. OSH	1.1. Personal Protective Equipment ( <i>PPE</i> ) is used. 1.2. <i>Hazards</i> at workplace explained. 1.3. <i>Unsafe tools</i> at workplace are listed. 1.4. <i>Flammable</i> materials are recognized. 1.5. Access and storable materials are preserved in designated place. 1.6. OSH equipment is used safely according to specifications, legislation and standard operating procedures.
2. PPE	2.1 Musk. 2.2 Safety shoes. 2.3 Safety goggles. 2.4 Apron. 2.5 Cap. 2.6 Helmet.
3. Quality requirements	3.1 Internal company quality policy and standards 3.2 Manufacturer specifications 3.3 Workplace operations and procedures
4. Tools and equipment	4.1 Brooms 4.2 Brushes 4.3 Buckets 4.4 Caulking guns 4.5 Cement sheet cutters 4.6 Hammers 4.7 Hose and water sprays 4.8 Ladders 4.9 Levelling equipment 4.10 Lump hammers 4.11 Measuring tapes and rules 4.12 Mortar boards 4.13 Nippers 4.14 Pointed grouters 4.15 Power drills 4.16 Power leads

	<ul style="list-style-type: none"> <li>4.17 Rags</li> <li>4.18 Rubber mallets</li> <li>4.19 Sanding blocks</li> <li>4.20 Saws</li> <li>4.21 Scrapers</li> <li>4.22 Shovels</li> <li>4.23 Spacers and wedges</li> <li>4.24 Spatulas</li> <li>4.25 Sponges</li> <li>4.26 Squares</li> <li>4.27 Squeegees</li> <li>4.28 Straight edges</li> <li>4.29 String lines</li> <li>4.30 Tile cutters and scribes</li> <li>4.31 Trowels</li> <li>4.32 Wet and dry diamond saws</li> <li>4.33 Wheelbarrows</li> <li>4.34 Wire brushes</li> <li>4.35 Wooden floats</li> <li>4.36 Concrete mixers</li> <li>4.37 Masonry drill bits</li> <li>4.38 Power grinders</li> <li>4.39 Power sanders</li> </ul>
5. Materials	<ul style="list-style-type: none"> <li>5.1 Adhesives</li> <li>5.2 Caulking compounds</li> <li>5.3 Cement mortar (with and without additives)</li> <li>5.4 Grout</li> <li>5.5 Sealers</li> <li>5.6 Tiles</li> </ul>
6. Stone	<ul style="list-style-type: none"> <li>6.1 Granite</li> <li>6.2 Marble</li> <li>6.3 Porcelain</li> <li>6.4 Terracotta</li> </ul>
7. Substrate surface	<ul style="list-style-type: none"> <li>7.1 Approved waterproof substrates</li> <li>7.2 Compressed sheeting</li> <li>7.3 Concrete</li> <li>7.4 Fibre cement underlay</li> <li>7.5 Rendered concrete</li> <li>7.6 Timber</li> </ul>
8. Adhesives	<ul style="list-style-type: none"> <li>8.1 Adhesives</li> <li>8.2 Cement mortar</li> <li>8.3 Cement mortar with adhesive additive.</li> </ul>
9. Grout	<ul style="list-style-type: none"> <li>9.1 Cementations</li> </ul>

	9.2 Epoxy
<b>Evidence Guide</b>	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency.	1.1 Stone cutting. 1.2 Stone laying and fixing.
2. Underpinning knowledge.	2.1 Materials storage and environmentally friendly waste management. 2.2 Plans, drawings and specifications 2.3 Plant, tools and equipment types, characteristics, uses and limitations 2.4 Processes for the calculation of material requirements 2.5 Quality requirements
3. Underpinning skills.	3.1 Stone cutting. 3.2. Stone laying and fixing. 3.3. Performing preparing setting out stone.
4. Required attitude.	4.1. Commitment to occupational safety and health. 4.2. Communication with peers, sub-ordinates and seniors in workplace. 4.3. Promptness in carrying out activities. 4.4. Tidiness and timeliness. 4.5. Respect of peers, sub-ordinates and seniors in workplace. 4.6. Environmental concern. 4.7. Sincere and honest to duties.
5. Resource implication.	5.1. Tools, equipment and physical facilities appropriate to perform activities. 5.2. Materials, consumables to perform activities.
6. Method of assessment	Methods of assessment may includes but not limited to: 6.1. Demonstration 6.2. Written test 6.3. Oral questions
7. Context of assessment.	Competencies may be assessed in the work place or in a simulated work place
<b>Accreditation Requirements</b>	
Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.	
Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.	

**National Technical and Vocational Qualification Framework for Bangladesh**  
**Tile work: NTVQF 1**  
**Unit of Competency**

<b>Unit Code and Title</b>	<b>TW1005A1: Perform pavement tile work.</b>
<b>Nominal Hours</b>	<b>50 Hours</b>
<b>Unit Descriptor</b>	This unit of competency requires the knowledge, skills and attitude to perform pavement tile work. It includes cutting tiles, laying and setting of tiles in workplace.
<b>Element of Competency</b>	<b>Performance Criteria</b> <i>Italianized items are elaborated in the range of variable</i>
1. Select tools, equipment and materials.	1.1. <b>Tools, equipment, pavement tile and tile materials</b> are selected and collected. 1.2. Material quantity requirements are calculated in accordance with plans and specifications and <b>quality requirements</b> .
2. Lay pavement tiles.	2.1. Safe <b>OSH</b> practices are followed. 2.2. <b>PPE</b> is selected and worn as per requirement. 2.3. Surface is checked for level, square and membranes. 2.4. <b>Substrate surface</b> is prepared free from contaminants and residues in accordance with plan. 2.5. <b>Adhesive</b> is matched with pavement tile and substrate material and mixed according to usage. 2.6. Cement mortar is prepared to consistency and surface is slurred and screened. 2.7. Pavement tiles are laid in conformance to standards and specifications, maintaining bond with joints as per requirement.
3. Grout and seal tiles	3.1. Joints are cleaned and prepared to receive grout according to manufacturer specifications. 3.2. <b>Grout</b> is mixed and applied as per requirement. 3.3. Pavement tiles are cleaned and polished with dry cloth. 3.4. Pavement tiles are sealed and protected as per requirement.
4. Clean and store.	4.1. Workplace is cleared and materials disposed of, reused or recycled. 4.2. Plant, tools and equipment are cleaned, checked, maintained and stored as per requirement.
<b>Range of Variables</b>	

<b>Variable</b>	<b>Range (may include but not limited to):</b>
1. OSH	1.1. Personal Protective Equipment ( <i>PPE</i> ) is used. 1.2. <i>Hazards</i> at workplace explained. 1.3. <i>Unsafe tools</i> at workplace are listed. 1.4. <i>Flammable</i> materials are recognized. 1.5. Access and storable materials are preserved in designated place. 1.6. OSH equipment is used safely according to specifications, legislation and standard operating procedures.
2. PPE	2.1 Musk. 2.2 Safety shoes. 2.3 Safety goggles. 2.4 Apron. 2.5 Cap. 2.6 Helmet.
3. Quality requirements	3.1 Internal company quality policy and standards 3.2 Manufacturer specifications 3.3 Workplace operations and procedures
4. Tools and equipment	4.1 Brooms 4.2 Brushes 4.3 Buckets 4.4 Caulking guns 4.5 Cement sheet cutters 4.6 Hammers 4.7 Hose and water sprays 4.8 Ladders 4.9 Levelling equipment 4.10 Lump hammers 4.11 Measuring tapes and rules 4.12 Mortar boards 4.13 Nippers 4.14 Pointed grouters 4.15 Power drills 4.16 Power leads 4.17 Rags 4.18 Rubber mallets 4.19 Sanding blocks 4.20 Saws 4.21 Scrapers 4.22 Shovels 4.23 Spacers and wedges

	4.24 Spatulas 4.25 Sponges 4.26 Squares 4.27 Squeegees 4.28 Straight edges 4.29 String lines 4.30 Tile cutters and scribes 4.31 Trowels 4.32 Wet and dry diamond saws 4.33 Wheelbarrows 4.34 Wire brushes 4.35 Wooden floats 4.36 Concrete mixers 4.37 Masonry drill bits 4.38 Power grinders 4.39 Power sanders
5. Pavement tile materials.	5.1 Granite 5.2 Slate 5.3 Travertine 5.4 Marble 5.5 Oryx 5.6 Sand 5.7 Cement 5.8 Chippings 5.9 Colorant 5.10 Special plasticizer 5.11 Liquid mixture
6. Pavement tiles.	6.1 Wave paver/granite cobbles 6.2 Cheap granite 6.3 Granite floor tile 6.4 Granite steep tile 6.5 Paving stone tile brick 6.6 Stone mosaic 6.7 Terracotta 6.8 Outdoor flooring 6.9 Cobble stone setts 6.10 Natural stone 6.11 Granite mesh 6.12 Sawn paving 6.13 Drive way tile
7. Substrate surface.	7.1 Approved waterproof substrates 7.2 Compressed sheeting 7.3 Concrete



	7.4 Fibre cement underlay 7.5 Rendered concrete 7.6 Timber
8. Adhesives.	8.1 Adhesives 8.2 Cement mortar 8.3 Cement mortar with adhesive additive.
9. Grout.	9.1 Cementations 9.2 Epoxy
<b>Evidence Guide</b>	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency.	1.1 Preparation of the pavement tilling area. 1.3 Laying and fixing pavement tiles.
2. Underpinning knowledge.	2.1 Material safety data sheets (MSDS) and hazards associated with solvents, adhesives and cement or epoxy-based grouts 2.2 Plans, drawings and specifications 2.3 Use of tools and equipment types, characteristics, and limitations 2.4 calculation of material requirements 2.5 Quality requirements
3. Underpinning skills.	3.1 Performing preparing setting out pavement tiles. 3.2 Performing layout and fixing pavement tiles. 3.3 Grouting and setting pavement tiles.
4. Required attitude.	4.1. Commitment to occupational safety and health. 4.2. Communication with peers, sub-ordinates and seniors in workplace. 4.3. Promptness in carrying out activities. 4.4. Tidiness and timeliness. 4.5. Respect of peers, sub-ordinates and seniors in workplace. 4.6. Environmental concern. 4.7. Sincere and honest to duties.
5. Resource implication.	5.1. Tools, equipment and physical facilities appropriate to perform activities. 5.2. Materials, consumables to perform activities.
6. Method of assessment.	<b>Methods of assessment may includes but not limited to:</b> 6.1. Demonstration 6.2. Written or oral questions 6.3. Interview

7. Context of assessment.	Competencies may be assessed in the work place or in a simulated work place
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**Accreditation Requirements**

Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.

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