



Bangladesh Technical Education Board

National Competency Standards for Rod Binding

Qualification Title: **National Skills Certificate-I Rod Binding (Construction Sector)**

Qualification Code : **CONRB.....**

July 2016



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The **National Competency Standard for Rod Binding (NSC I)** is a referral document for the development of curricula, teaching and learning materials, and assessment tools. It also serves as the base document for providing trainings consistent with existing quality assurance systems.

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Approval Sheet

The National Competency Standards for **National Skills Certificate-I Rod Binding (Construction Sector)** Qualification is a document developed by the Technical sub Committee of Construction Industry Skills Council (CISC).

It was approved by the Bangladesh Technical Education Board (BTEB) upon the endorsement of the Industry Skills Council of **Construction Sector** at a meeting held on 14-06-2016 at the office of the Industry Skills Council

The Standard was also approved by Standard and Curriculum Development Committee (SCDC) on 24-07-2016

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Preface

The TVET system has a large role to play in economic growth and social development as workforce provider to the labor market and as provider of skills to those who are looking for employment. In the case of Bangladesh, the TVET sector needs major reforms to ensure that issues of quality and capacity, relevance, and access are properly addressed.

Construction Industry Skills Council (CISC) in collaboration with Skills and Employment Programme branded as Sudokkho and Bangladesh Technical Education Board (BTEB) developed competency standards following National Skills Development Policy 2011 for the occupations which are in demand for the construction sector.

The development of competency standards is regarded as the heart of a competency-based training regime. Each standard defines sets of knowledge, skills and attitudes (KSAs) that a Bangladeshi trainee should be able to demonstrate at a recognized level of competence. It provides a common framework of outcomes between the labor and education sectors, as well as among workers, trainers and trainees.

A series of workshops – development, review and finalization - were conducted to ensure a workable National Competency Standards for the occupation. In the process of development, Sudokkho jointly with CISC and BTEB facilitated the competency standards development workshops involving industry experts recommended by the CISC. Standards development Technical Sub-Committee formed by CSIC took lead to review, modify, and edit standards so that identified competencies and standards match with the skills level of workers working in the industry. Subsequently, developed competency standards was validated and endorsed by Curriculum Development and Training Support Standing Committee which is a wing of CISC for developing curriculums and standards for construction sector.

It is hoped that this document reflects the real needs of the industry thereby providing a concrete basis for the curriculum development and assessment. In such a way, the development of relevant and competent workforce is not farfetched.

Engr. Shafiqul Alam Bhuiyan
Chairperson
Construction Industry Skills Council

Chairman
Bangladesh Technical Education Board

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Acronyms

MoE	Ministry of Education
DG	Director General
DTE	Directorate of Technical Education
SDP	Skills Development Project
PD	Project Director
PIU	Project Implementation Unit
GOB	Government of Bangladesh
ADB	Asian Development Bank
SC	Swiss contact
ANTA	Australian National Training Authority
APEC	Asia Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
BMET	Bureau of Manpower Employment and Training
NTVQ	National Technical Vocational Qualification
NTVQF	National Technical Vocational Qualification Framework
BTEB	Bangladesh Technical Education Board
CBT	Competency Based Training
CS	Competency Standard
HSC (Voc)	Higher Secondary Certificate (Vocational)
KSA	Knowledge, Skills, Attitude
MoLE	Ministry of Labor and Employment
NTVQF	National Technical Vocational Qualification Framework
NTVQ	National Technical Vocational Qualification
OHS	Occupational Health and Safety
PSC	Project Steering Committee
RMG	Ready Made Garments
RPL	Recognition of Prior Learning
SSC (Voc)	Secondary School Certificate (Vocational)

Introduction:

These Competency Standards were developed by the Technical Sub Committee (TSC) that was established by **Construction Industry Skills Council**. The rules of Skill Development Policy are maintained to develop the standards. The competency standards are the foundation on which new competency based curriculum will be developed that responds better to the needs of industry for skilled workers. The members of the TSC are primarily from industry and training institutes. The members were trained and guided by an International Expert and National Experts to develop the standard. Persons who will successfully complete the new TVET programs based on these competency standards will receive a qualification in the new National Technical and Vocational Qualification Framework (NTVQF).

Competency Standards are nationally agreed and industry-determined competencies required for effective work performance. These are presented in a consistent format following sequence such as:

- Unit Title
- Unit Code
- Nominal Hours
- Unit descriptor
- Elements and performance criteria
- Range of Variables
- Evidence Guide

The Competency Standards are the core element for training, assessment and certification of skilled workers. Candidates who are successful in the assessment will receive a qualification in the National Technical and Vocational Qualification Framework (NTVQF).

This document contains Course structures for each qualification. This structure contains the Unit code, unit title and nominal hours for the competencies.

The Competency Standard for Rod Binding was developed by the Technical Sub Committee (TSC) that was established under the Construction Industry Skills Council (CISC). The technical experts are primarily from industry nominated by Industry Skills Council with representatives from the Bangladesh Technical Education Board (BTEB) involved in this occupation. The Standards and Curriculum Development Committee (SCDC) of BTEB reviewed this document.

The development of Competency Standards was assisted by Sudokkho (Former Skills and Employment Programmes in Bangladesh; SEP-B) funded by DFID and SDC. This project is being implemented by the Palladium Group in partnership with Swisscontact and the British Council. The executing agency for the project is Directorate of Technical Education (DTE) of the Government of Bangladesh.

Endorsed by

Approved by:

Construction Industry Skills Council
Date:

Bangladesh Technical Education Board (BTEB)
Date:

National Competency Standards for Rod Binding In the CONSTRUCTION Sector

Sl. No.	Unit Code and Title		UoC Level	Nominal Duration (Hours)
Generic (5 UoCs required)				
1.	GN1001A1	Use Basic Mathematical Concepts.	1	40
2.	GN1002A1	Apply OSH Practices in the Workplace.	1	30
3.	GN2003A1	Use English in the Workplace	2	70
4.	GN2004A1	Operate in a self-directed team	2	30
5.	GN2005A1	Present and Apply Workplace Information.	2	30
Sector Specific (4UoCs required)				
6.	CON100112A	Work in the Construction (Rod Binding) Sector	1	24
7.	CON100212A	Interpret Drawings and Specifications in Construction (Rod Binding) Sector	1	30
8.	CON100312A	Perform Measurement and Calculations in Construction (Rod Binding) Sector	1	38
9.	CON100412A	Use Hand Tools and Power Tools for the Construction (Rod Binding) Sector	1	36
Occupation Specific – Compulsory (17UoCs required)				
10.	CONRB100112A	Prepare Rod for Work	1	40
11.	CONRB100212A	Perform Rod Bending	1	32
12.	CONRB100312A	Prepare Stirrups	1	50
13.	CONRB100412A	Perform Rod Binding for Base/Footing	1	40
14.	CONRB200512A	Perform Rod Binding for Column	2	
15.	CONRB200612A	Perform Rod Binding for Lintel with Sun Shade	2	
16.	CONRB200712A	Perform Rod Binding for Beam	2	
17.	CONRB200812A	Perform Rod Binding for One-Way Slab	2	
18.	CONRB300912A	Perform Rod Binding for Two-Way Slab	3	
19.	CONRB301012A	Perform Rod Binding for Drop-Wall.	3	
20.	CONRB301112A	Perform Rod Binding for Underground Water Reservoir	3	

21.	CONRB301212A	Perform Rod Binding for Stair	3	
22.	CONRB401312A	Perform Rod Binding for Shear Wall	4	
23.	CONRB401412A	Perform Rod Binding for Flat Slab	4	
24.	CONRB401512A	Perform Rod Binding for Retaining Wall	4	
25.	CONRB401612A	Perform Rod Binding for Pile with Pile Cap	4	
26.	CONRB401712A	Perform Rod Binding for Arch	4	
Total Nominal Learning Hours				

Course Structure
For
National Skill Certificate in Rod Binding (NTVQF Level-1)
In the CONSTRUCTION Sector

Sl. No.	Unit Code and Title		UoC Level	Nominal Duration (Hours)
Generic (2UoCs required)				70
1.	GN1001A1	Use Basic Mathematical Concepts.	1	40
2.	GN1002A1	Apply OSH Practices in the Workplace.	1	30
Sector Specific (4 UoCs required)				128
3.	CON100112A	Work in the Construction (Rod Binding) Sector	1	24
4.	CON100212A	Interpret Drawings and Specifications in Construction (Rod Binding) Sector	1	30
5.	CON100312A	Perform Measurement and Calculations in Construction (Rod Binding) Sector	1	38
6.	CON100412A	Use Hand Tools and Power Tools for the Construction (Rod Binding) Sector	1	36
Occupation Specific – Compulsory (4UoCs required)				162
7.	CONRB100112A	Prepare Rod for Work	1	40
8.	CONRB100212A	Perform Rod Bending	1	32
9.	CONRB100312A	Prepare Stirrups	1	50
10.	CONRB100412A	Perform Rod Binding for Base/Footing	1	40
Total Nominal Learning Hours				360
On –Job Training				160

GENERIC COMPETENCIES

National Technical and Vocational Qualification Framework for Bangladesh
Unit of Competency

Unit Title	Use Basic Mathematical Concepts
Unit Code	GN1001A1
Nominal Hours	40 hours
Unit Descriptor	This requires the knowledge, skill and attitude to apply mathematical methods such as addition, subtraction, multiplication, and division, among others, in the routine tasks of an organization.
Elements of Competency	Performance Criteria <i>Bold and Italicized</i> terms are elaborated in the Range of Variable Training Components
1. Identify calculation requirements in the workplace	1.1 Calculation requirements are identified from <i>workplace information</i>
2. Select appropriate mathematical methods for the calculation	2.1 Appropriate <i>Mathematical methods</i> are selected to carry out the calculation. 2.2 <i>System and units of measurement</i> to be followed are determined.
3. Use basic mathematical concepts to calculate workplace calculation.	3.1 Calculations are completed using appropriate methods such as addition, subtraction, multiplication and division. 3.2 Systems and units of measurement for the task are applied to workplace calculation.
Range of Variables	
Variable	Range (May include but not limited to)
1. Equipment and tools	1.1 Calculator 1.2 Computer with office software
2. Mathematical methods	2.1 Addition 2.2 Subtraction 2.3 Division 2.4 Multiplication 2.5 Ratio on any types of real values (such as whole numbers, fractional numbers, percentages, numbers with exponents)
3. System and units of measurement	3.1 Measurement 3.2 Volume 3.3 Weight 3.4 Mass 3.5 Density 3.6 Percentage 3.7 Length / Breadth / Thickness 3.8 Capacity 3.9 Time 3.10 Temperature 3.11 Budget, Pay/ Wages, Leave entitlements 3.12 Material usage 3.13 Speed 3.14 Costing
4. Workplace information	4.1 Project documents 4.2 Graphs 4.3 Charts 4.4 Tables

	<ul style="list-style-type: none"> 4.5 Spread sheets 4.6 Item price quotations 4.7 Equipment manuals
5. Budget	<ul style="list-style-type: none"> 5.1 Budget of consumables 5.2 Calculation for software components 5.3 Hardware equipment 5.4 Maintenance budget of a set-up 5.5 Cost estimation
Evidence Guide	
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 Applied mathematical methods such as addition, subtraction, division and multiplication to workplace calculations.
2. Underpinning knowledge	<ul style="list-style-type: none"> 2.1 Calculation requirements in the workplace 2.2 Select appropriate mathematical methods 2.3 Equipment and tools 2.4 Mathematical language, symbols and terminology 2.5 Application of units 2.6 Workplace information 2.7 Using arithmetic processes to find solutions to simple mathematical problems
3. Underpinning skill	<ul style="list-style-type: none"> 3.1 Ability to identify calculation requirements from workplace information 3.2 Ability to select appropriate mathematical methods 3.3 Ability to use appropriate technology 3.4 Ability to use mathematical language, symbols and terminology 3.5 Understanding of appropriate units of measurement (such as kg, meter) and application may include measurement, volume, weight, density, percentage etc. 3.6 Ability to include workplace information (project documents, graphs, charts, tables, spread sheets, item price quotations, equipment manuals) 3.7 Ability to use arithmetic processes to find solutions to simple mathematical problems 3.8 Ability to apply in the workplace.
4. Required attitude	<ul style="list-style-type: none"> 4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace
5. Resource implication	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> 5.1 Tools, equipment and physical facilities appropriate to perform activities. 5.2 Materials, consumables to perform activities.

6. Methods of assessment	6.1 Demonstration 6.2 Oral questioning 6.3 Written test 6.4 Portfolio 6.5 Log book
7. Context of assessment	7.1 Competencies may be assessed in the work place or a simulated work place

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.

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
Unit of Competency

Unit Title	Apply OSH practices in the workplace
Unit Code	GN1002A1
Nominal Hours	30 hours
Unit Descriptor	This unit covers the knowledge, skills and attitude required to identify and apply OSH in the workplace. This also covers identifying, controlling and reporting OSH hazards, conducting of work in a safe manner, following emergency response procedure and maintaining and improving health and safety in the workplace.
Elements of Competency	Performance Criteria <i>Bold and Italicized</i> terms are elaborated in the Range of Variable Training Components
1. Identify, control and report OSH hazards	<p>1.1 Immediate work area is routinely checked for OSH hazards prior to commencing and during work.</p> <p>1.2 <i>Hazards</i> and unacceptable performance are identified and corrective action is taken within the level of responsibility.</p> <p>1.3 OSH hazards and incidents are reported to appropriate personnel according to workplace procedures.</p> <p>1.4 Safety Signs and symbols are identified and followed</p>
2. Conduct work safely	<p>2.1 Apply OSH practices in the workplace.</p> <p>2.2 Appropriate <i>personal protective equipment (PPE)</i> is selected and worn.</p>
3. Follow emergency response procedures	<p>3.1 Emergency situations are identified and reported according to workplace reporting requirements.</p> <p>3.2 Emergency procedures are followed as appropriate to the nature of the emergency and according to workplace procedures.</p> <p>3.3 <i>Workplace procedures</i> for dealing with accidents, fires and emergencies are followed whenever necessary within scope of responsibilities.</p>
4. Maintain and improve health and safety in the work place	<p>4.1 Risks are identified and appropriate control measures are implemented in the work area.</p> <p>4.2 Recommendations arising from risk assessments are implemented within level of responsibility.</p> <p>4.3 Opportunities for improving OSH performance are identified and raised with relevant personnel.</p> <p>4.4 Safety records according to <i>company policies</i> are maintained.</p>
Range of Variables	
Variable	Range (May include but not limited to)
1. Company policies	1.1 Job-related Standard Operating Procedures (SOPs) and OSH-specific procedures. Examples of OSH procedures include consultation and participation, emergency response, response to specific hazards, incident investigation, risk assessment, reporting arrangements and issue resolution procedures
2. Workplace procedures	2.1 OSH system and related documentation including policies and procedures

	<ul style="list-style-type: none"> 2.2 Standard Operating Procedures (SOPs) 2.3 information on hazards and the work process, hazard alerts, safety signs and symbols 2.4 Labels 2.5 Material Safety Data Sheets (MSDSs) and manufacturers' advice.
3. Hazards	<ul style="list-style-type: none"> 3.1 OSH incidents include near misses, injuries, illnesses and property damage, noise, handling hazardous substances, other hazards 3.2 Working with and near moving equipment/load shifting equipment 3.3 Broken or damaged equipment or materials
4. Personal Protective equipment (PPE)	<ul style="list-style-type: none"> 4.1 Goggles 4.2 Ear muffs 4.3 Ear plugs 4.4 Gloves 4.5 Clothing 4.6 Apron 4.7 Helmet 4.8 Boots
Evidence Guide	
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	<ul style="list-style-type: none"> 1.1 Identified, controlled and reported OSH hazards 1.2 Followed work safety. 1.3 Followed emergency response procedures. 1.4 Maintained and improved health and safety in the workplace.
2. Underpinning knowledge	<ul style="list-style-type: none"> 2.1 Personal protective equipment - Hand gloves, safety shoes, safety goggles, masks, apron, 2.2 Identification of tools and equipment 2.3 Hazardous events 2.4 Tools, equipment, machinery and relevant accessories. 2.5 Communication 2.6 Job roles, responsibilities and compliance 2.7 Workplace laws
3. Underpinning skill	<ul style="list-style-type: none"> 3.1 Ability to use the appropriate PPE. 3.2 Ability to identify tools and equipment. 3.3 Ability to quick response and to take safety precautions for different hazardous situations. 3.4 Ability to operate and use tools, equipment, machinery and accessories properly as per SOP (Company standards). 3.5 Ability to communicate with peers and supervisors. 3.6 Ability to apply in the workplace.
4. Required attitude	<ul style="list-style-type: none"> 4.1 Commitment to occupational health and safety. 4.2 Promptness in carrying out activities. 4.3 Sincere and honest to duties. 4.4 Environmental concerns. 4.5 Eagerness to learn. 4.6 Tidiness and timeliness. 4.7 Respect for rights of peers and seniors in workplace.

	4.8 Communication with peers, sub-ordinates and seniors in workplace.
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	6.1 Demonstration 6.2 Oral questioning 6.3 Written test 6.4 Portfolio 6.5 Log book
7. Context of assessment	7.1 Competencies may be assessed in the work place or a simulated work place
<p>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. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

SECTOR SPECIFIC COMPETENCIES

National Technical and Vocational Qualifications Framework for Bangladesh
Unit of Competency

Unit Title	Work in the Construction (Rod Binding) Sector
Unit Code	CON100112A
Nominal Hours	24
Unit Descriptor	This unit covers the skills, knowledge and attitude in working in the construction (Rod Binding) sector. It includes the following steps: describe the organizational structure within the construction (Rod Binding) sector; identifying processes and procedures; identify tools, equipment and materials; identify workplace practices; organize own workload; and practice OHS.
Elements of Competency	Performance Criteria <i>Bold & italicized</i> words are detailed in the Range of Variables
1. Describe the organizational structure within the sector (Rod Binding)	1.1 Scope, nature and <i>major fields</i> of the construction (Rod Binding) sector are determined 1.2 Profile of the construction (Rod Binding) sector in relation to Bangladesh <i>employment conditions</i> is determined 1.3 Trends and technologies relevant to the sector are explained. 1.4 Relevant policies and guidelines are identified and interpreted. 1.5 <i>Instructions</i> as to procedures in achieving quality are obtained, understood, and clarified.
2. Identify processes and procedures	2.1 Relevant <i>OHS</i> practices are identified, interpreted and implemented. 2.2 Construction processes are identified, described and explained based on specifications. 2.3 Work activities are correctly identified based on code/ Manuals of Instruction. 2.4 Adjustments are interpreted.
3. Identify tools, equipment and materials	3.1 Appropriate <i>manuals</i> are accessed to ensure up-to-date specifications of tools, materials and equipment. 3.2 Construction <i>tools, materials and equipment</i> are identified. 3.3 Substitutes are identified in case of non-availability of tools, equipment and materials based on job requirements.
4. Identify workplace requirements	4.1 <i>Workplace requirements</i> are identified and clarified. 4.2 Roles and responsibilities of all personnel are described. 4.3 Workplace's practices are identified. 4.4 <i>Problem-solving strategies</i> are used to address bottlenecks, inconsistencies and other concerns.
5. Organize own workload	5.1 Own work activities are planned and progress of work is communicated to relevant staff. 5.2 Work activities are completed based on workplace standards. 5.3 Difficulties and bottlenecks are identified, and solutions are put forward. 5.4 Own work is monitored against workplace standards

and areas for improvement identified and acted upon.	
Range of Variables	
Variables	Range (May Include but not limited to):
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 Labor 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	Refers to all tools, equipment and materials appropriate to any of the constructions (Rod Binding) 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
8. OHS	8.1 Reporting hazards, risks and emergencies 8.2 Arrangement of workplaces 8.3 Standard Operating Procedure 8.4 Workplace environment and safety 8.5 Safe storage of tools and equipment 8.6 Use of PPE
Evidence Guide:	
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	Assessment requires evidence that the candidate: 1.1 Determine job roles and responsibilities in the

	<p>construction industry</p> <p>1.2 Identify and observe OSH in the construction industry.</p> <p>1.3 Determine Individual tasks and agreed on according to workplace environment.</p>
2. Underpinning knowledge	<p>2.1 Scope and Major Divisions of the Construction (Rod Binding) Sector</p> <p>2.2 Relevant Policies and Guidelines in the Construction (Rod Binding) Sector</p> <p>2.3 Manuals used in the Construction (Rod Binding) Sector</p> <p>2.4 Relevant Terminologies and Acronyms</p> <p>2.5 Types and Uses of Construction (Rod Binding) Tools and Materials</p> <p>2.6 Workplace Practices</p> <p>2.7 Occupational Health and Safety Practices</p> <p>2.8 Recording and Reporting practices</p>
3. Underpinning Skills	<p>3.1 Describing organization structure</p> <p>3.2 Identifying construction (Rod Binding) processes and procedures</p> <p>3.3 Identifying tools, equipment and materials</p> <p>3.4 Identifying workplace practices</p> <p>3.5 Organizing own workload</p> <p>3.6 Practicing OHS</p>
4. Underpinning Attitude	<p>4.1 Commitment to occupational health and safety</p> <p>4.2 Environmental concerns</p> <p>4.3 Eagerness to learn</p> <p>4.4 Tidiness and timeliness</p> <p>4.5 Respect for rights of peers and seniors in workplace</p>
5. Resource Implications	<p>The following resources should be provided</p> <p>5.1 Adequate workplace</p> <p>5.2 Availability of quality tools and materials required</p> <p>5.3 Information on SOP, OHS, and other policies and guidelines</p> <p>5.4 Relevant specifications and work instructions</p>
6. Method of Assessment	<p>Competency must be assessed by</p> <p>6.1 Direct observation of processes and procedures</p> <p>6.2 Oral Interview</p> <p>6.3 Written Test</p> <p>6.4 Feedback or certificate from supervisors, colleagues or appropriate persons</p>
7. Context of Assessment	<p>For certification, competency must be assessed in the actual workplace individually by direct observation.</p>
<p>Accreditation Requirements</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 Qualifications Framework for Bangladesh
Unit of Competency

Unit Title	Interpret Drawings and Specifications in Construction (Rod Binding)Sector
Unit Code	CON100212A
Nominal Hours	30 hours
Unit Descriptor	This unit covers the knowledge, skill and attitude required in interpreting drawings and specifications in construction (Rod Binding) documents. It includes the following steps: identify information, identify drawings and specifications, interpret drawings and specifications, and apply occupational health and safety procedures.
Elements of Competency	Performance Criteria <i>Bold & italicized</i> words are detailed in the Range of Variables
1. Identify information from manuals	1.1 Appropriate <i>manuals</i> are identified and accessed. 1.2 Version and date of manual are checked to ensure up-to-date specifications of tools, equipment, materials and procedures.
2. Identify drawings and specifications	2.1 Relevant <i>drawings</i> and <i>specifications</i> are identified/selected. 2.2 <i>Terms and abbreviations</i> are identified. 2.3 <i>Signs and symbols</i> are interpreted.
3. Interpret drawings and specifications	3.1 Drawings and specifications are interpreted. 3.2 Schedules, dimensions and specifications contained in the drawings are interpreted according to job requirement.
4. Store manuals	4.1 Manuals and documents are collected and packed. 4.2 Manuals and documents are stored as per instruction to prevent damage, ready access and updating of information when required.
Range of Variables	
Variables	Range (Include but are not limited to):
1. Manuals	1.1 Manufacturer's Specification Manual 1.2 Repair Manual 1.3 Maintenance Procedure Manual 1.4 Periodic Maintenance Manual 1.5 Quality Manual 1.6 Manual of Instruction
2. Drawings	2.1 Technical Drawings 2.2 Sketch
3. Specifications	3.1 Product specifications 3.2 Performance specifications 3.3 Method specifications
4. Instructions	4.1 Orders 4.2 Special Orders
5. Terms and abbreviations	Refers to all terms and abbreviations associated with the construction (Rod Binding) sector
6. Signs and symbols	Include all signs and symbols associated with the construction (Rod Binding) sector

Evidence Guide:	
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	Assessment requires evidence that the candidate: 1.1 Select and interpret drawings and specifications in construction (Rod Binding)) sector 1.2 Use and follow instruction according to job requirement
2. Underpinning knowledge	2.1 Types of Construction (Rod Binding) Manuals 2.2 Identification of Signs and Symbols 2.3 Identification of Units of Measurement 2.4 Identification of Units of Conversion 2.5 Drawings and Specifications 2.6 Terms and Abbreviations Used
3. Underpinning skills	3.1 Identifying appropriate manuals 3.2 Identifying drawings and specifications 3.3 Interpreting drawings and specifications 3.4 Storing manuals
4. Underpinning Attitude	4.1 Commitment to occupational health and safety 4.2 Environmental concerns 4.3 Eagerness to learn 4.4 Tidiness and timeliness 4.5 Respect for rights of peers and seniors in workplace
5. Resource implications	The following resources must be provided 5.1 Availability of all manuals. 5.2 Accessibility of storage area
6. Methods of assessment	Competency must be assessed by 6.1 Direct observation 6.2 Demonstration. 6.3 Written Questioning 6.4 Oral questioning. 6.5 Portfolio.
7. Context of assessment	For certification, competency must be assessed in the actual workplace individually by direct observation.
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. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.	

National Technical and Vocational Qualifications Framework for Bangladesh
Unit of Competency

Unit Title	Perform Measurement and Calculations in (Rod Binding) Sector
Unit Code	CON100312A
Nominal Hours	48 hours
Unit Descriptor	This unit covers the knowledge skills and attitude required in performing measurements and calculations relating to activities in the construction (Rod Binding) sector. It includes the following steps: select measuring devices, obtain measurements, perform calculations, and clean-up.
Elements of Competency	Performance Criteria <i>Bold & italicized</i> words are detailed in the Range of Variables
1. Select measuring devices	<p>1.1 Work instructions are confirmed and applied.</p> <p>1.2 Materials to be measured are identified and classified.</p> <p>1.3 Appropriate measuring devices are selected based on materials to be measured or job requirements.</p> <p>1.4 Specifications are obtained from relevant documents.</p> <p>1.5 Tolerance and clearance limits are identified and adjusted according to job requirements.</p> <p>1.6 PPE (Personal protective equipment) and other safety devices are selected and used as per safety regulations.</p>
2. Obtain measurements	<p>2.1 Accurate measurements are obtained using measuring devices and in accordance with job requirements.</p> <p>2.2 Systems of measurements are identified and converted.</p> <p>2.3 Results are confirmed and recorded.</p>
3. Perform simple calculations	<p>3.1 Simple calculations involving four basic operations are carried out.</p> <p>3.2 Other operations are used to complete tasks.</p> <p>3.3 Appropriate formulas for calculating quantities of materials are selected.</p> <p>3.4 Calculations are performed and verified for accuracy as per specification.</p> <p>3.5 Material quantities are accurately calculated.</p> <p>3.6 Results are interpreted and communicated to authority.</p>
4. Clean and store measuring devices	<p>4.1 Cleaning tools and equipment are selected and collected.</p> <p>4.2 Cleaning tools and equipment are prepared for cleaning.</p> <p>4.3 Cleaning is completed.</p> <p>4.4 Used tools and equipment are cleaned and stored as per company standard.</p>

Range of Variables	
Variables	Range (Include but are not limited to):
1. Materials	Refers to all construction materials included but not limited to the following: 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. Measuring devices	2.1 Set squares 2.2 Try Square 2.3 Micrometers 2.4 S. W. G. 2.5 Steel rule 2.6 Slide calipers 2.7 Steel tape measure 2.8 Triangle 2.9 Steel rule 2.10 Carpenter's square 2.11 Calculator 2.12 Verniers 2.13 Feeler gauges 2.14 Thermometers 2.15 protractors
3. PPE	3.1 Dust mask 3.2 Goggles 3.3 Gloves 3.4 Safety shoes 3.5 Aprons 3.6 Overalls 3.7 Helmet
4. Documents	4.1 Technical Manuals 4.2 Specifications 4.3 Sketches 4.4 Drawings
5. Measurements	5.1 Length 5.2 Width 5.3 Depth 5.4 Height 5.5 Weight 5.6 Number 5.7 Mass 5.8 Diameter 5.9 Tolerance 5.10 Roundness 5.11 Angles 5.12 Flatness angle 5.13 Clearances 5.14 Plumpness
6. Four Generic Operations	6.1 Addition 6.2 Subtraction

	6.3 Multiplication 6.4 Division
7. Other operations	7.1 Fractions 7.2 Percentages 7.3 Mixed numbers 7.4 Conversions 7.5 Scales 7.6 Trigonometric functions 7.7 Algebraic computations
8. Calculations	8.1 Area 8.2 Volume 8.3 Circumference 8.4 Clearance 8.5 Diameter 8.6 Scales 8.7 Ratio

Evidence Guide:

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	Assessment required evidence that the candidate: 1.1 Select measuring device and performing measurement of measurement and calculation, 1.2 Perform simple calculation 1.3 Record of measurement and calculation
2. Underpinning knowledge	2.1 Types of Measuring Devices 2.2 Measurement and Calculation 2.3 Recording 2.4 Collection and storing materials. 2.5 Fraction and Decimals 2.6 Linear Measurement 2.7 Unit Of Conversion and Conversion Factors 2.8 Dimension 2.9 Ratio And Proportion 2.10 Trigonometric Function 2.11 Algebraic Equation 2.12 Allowances And Tolerances 2.13 Presentation Of Data and Information 2.14 Tolerances 2.15 Care in the Use of Measuring Devices
3. Underpinning Skills	3.1 Selecting measuring devices 3.2 Obtaining measurements 3.3 Performing calculations 3.4 Cleaning up
4. Underpinning Attitude	4.1 Commitment to occupational health and safety 4.2 Environmental concerns 4.3 Eagerness to learn 4.4 Tidiness and timeliness 4.5 Respect for rights of peers and seniors in workplace
5. Resource Implications	The following resources must be provided 5.1 Suitable ventilated work area/shop with facilities and accessories. 5.2 Easy access and scope of measurement.

	<p>5.3 Availability of quality measuring and calculating devices.</p> <p>5.4 Information on construction materials appropriate to the relevant construction field.</p>
6. Method of Assessment	<p>Competency must be assessed by</p> <p>6.1 Demonstration</p> <p>6.2 Written Questioning</p> <p>6.3 Oral Questioning</p> <p>6.4 Portfolio</p>
7. Context of Assessment	<p>For certification, competency must be assessed in the actual workplace or in a simulated workplace individually after completion of the module.</p>

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.

Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.

National Technical and Vocational Qualifications Framework for Bangladesh
Unit of Competency

Unit Title	Use Hand Tools and Power Tools for the Construction (Rod Binding) Sector
Unit Code	CON100412A
Nominal Hours	36 hours
Unit Descriptor	This unit covers the skills, knowledge and attitude in using appropriate hand tools and power tools for the construction (Rod Binding) sector. It includes the following steps: identify tools, use hand tools, use power tools, practice OHS, and cleaning up.
Elements of Competency	Performance Criteria <i>Bold & italicized</i> words are detailed in the Range of Variables
1. Identify tools	1.1 Appropriate <i>tools</i> are selected based on job requirements. 1.2 <i>Applications</i> of tools are defined properly. 1.3 <i>Hand tools</i> and <i>power tools</i> are prepared according to workplace procedures. 1.4 Sources of power supply for power tools are recognized.
2. Use hand tools	2.1 Appropriate tool is used according to workplace procedures. 2.2 Proper hand-eye coordination is applied in the use of hand tools. 2.3 Safety requirements are complied with before, during and after use. 2.4 Unsafe or faulty tools are identified and marked for repair according to workplace procedures.
3. Use power tools	3.1 Route for power supply established in accordance with work safety requirements. 3.2 Specific sequence of operations is applied in using power tools to produce results based on job specifications. 3.3 Power tools are safely and effectively used.
4. Perform basic preventive maintenance	4.1 Tools and equipment are cleaned according to workplace instructions. 4.2 Appropriate lubricants are identified according to types of equipment. 4.3 Tools and equipment are lubricated according to instructions. 4.4 Measuring instruments are checked and calibrated according to manufacturer's instructions. 4.5 Defective instruments, equipment and accessories are inspected and corrected/replaced to meet manufacturer's specifications. 4.6 Tools are inspected, repaired and replaced

	<p>after use.</p> <p>4.7 Work place is cleaned and cleared of debris and unwanted materials as per OHS regulations.</p>
5. Practice OHS	<p>5.1 Waste materials are disposed according to OHS and workplace requirements.</p> <p>5.2 Hazardous materials are identified for separate handling.</p> <p>5.3 PPE are used as appropriate.</p> <p>5.4 Devices to suppress dust are used to minimize health risk of workers</p> <p>5.5 Safety requirements are being adhered to before, during and after use.</p> <p>5.6 Accidents and emergency cases are reported to proper authority.</p> <p>5.7 Workplace is cleaned and cleared of debris and unwanted materials.</p>
6. Store tools and equipment	<p>6.1 Inventory of tools equipment are conducted, and recorded as per stock register by using forms.</p> <p>6.2 Tools and equipment are cleaned and stored as per manufacturer's recommendation in appropriate location.</p>
Range of Variables	
Variables	Range (May Include but not limited to):
1. Tools	<p>1.1 Hand Tools</p> <p>1.2 Power Tools</p>
2. Applications	<p>2.1 Adjusting</p> <p>2.2 Aligning</p> <p>2.3 Assembling</p> <p>2.4 Boring</p> <p>2.5 Clamping</p> <p>2.6 Cleaning</p> <p>2.7 Cutting</p> <p>2.8 Dismantling</p> <p>2.9 Finishing</p> <p>2.10 Hand sharpening</p> <p>2.11 Lubricating</p> <p>2.12 Scraping</p> <p>2.13 Simple Tool Repairs</p> <p>2.14 Threading</p> <p>2.15 Tightening</p> <p>2.16 Testing</p>
3. Hand tools	<p>3.1 Adjustable spanners</p> <p>3.2 Auger bits</p> <p>3.3 Bars (crow and pitch)</p> <p>3.4 Bench vise</p> <p>3.5 Bolt cutters</p> <p>3.6 Brace</p> <p>3.7 C-clamp</p> <p>3.8 Chisels</p> <p>3.9 Crosscut saw</p> <p>3.10 Die and stock</p> <p>3.11 Drill bits</p>

	<ul style="list-style-type: none"> 3.12 Files of all cross-sectional shapes and types 3.13 Gouges 3.14 Grin let 3.15 Hacksaw 3.16 Hammers 3.17 Hand drill 3.18 Hand saws 3.19 Measuring Tapes 3.20 Nips 3.21 Paint Brushes/Rollers 3.22 Picks/Mattocks 3.23 Pliers 3.24 Plumb bob 3.25 Punches 3.26 Rip saw 3.27 Scarpers 3.28 Screwdrivers 3.29 Sealant Gun 3.30 Shovel/Spades 3.31 Sledge Hammers 3.32 Sockets 3.33 Spanners and Wrenches 3.34 Spatula/Putty Knives 3.35 Steel tape measure 3.36 String Lines 3.37 Taps 3.38 Triangle 3.39 Trowels and Floats 3.40 Try square 3.41 Vice grip 3.42 Wire Cutters 3.43 Wood Planes
4. Power Tools	<ul style="list-style-type: none"> 4.1 Drills 4.2 Nail guns 4.3 Staplers 4.4 Screw Drivers 4.5 Angle Grinders 4.6 Pneumatic wrenches 4.7 Circular saw 4.8 Grinders 4.9 Jigsaws 4.10 Nibblers 4.11 Cutting saw 4.12 Threading machine 4.13 Sanders 4.14 Planers 4.15 Routers 4.16 Pedestal drills 4.17 Pedestal grinders
5. Instructions	<ul style="list-style-type: none"> 5.1 Manufacturer's Specifications and Instructions for specific tools/equipment 5.2 Workplace orders and instructions 5.3 Work schedule documentation 5.4 Procedures

6. PPE	6.1 Dust mask 6.2 Safety glasses/Goggles 6.3 Gloves 6.4 Safety shoes/boots 6.5 Aprons 6.6 Face masks 6.7 Overalls 6.8 Helmet
7. Forms	7.1 Maintenance schedule forms 7.2 Requisition slip 7.3 Inventory Form 7.4 Inspection Forms 7.5 Procedures
Evidence Guide: 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	Assessment requires evidence that the candidate: <ul style="list-style-type: none"> 1.1 Use hand tools as per workplace requirement. 1.2 Maintain safety precaution for use hand & power tools. 1.3 Maintain operation procedure of power tools 1.4 Use power tools as per work place requirement.
2. Underpinning knowledge	<ul style="list-style-type: none"> 2.1 Types of Tools <ul style="list-style-type: none"> 2.1.1.Hand Tools 2.1.2.Power Tools 2.2 Technical Application of Tools 2.3 Procedures in the Use of Hand Tools and Power Tools 2.4 Policies and procedures for Occupational health and Safety <ul style="list-style-type: none"> 2.4.1.Use of PPE 2.4.2.Handling of Tools and Equipment 2.4.3.Reporting and Documentation 2.5 Preventive Maintenance <ul style="list-style-type: none"> 2.5.1.Methods and Techniques 2.5.2.Quality Procedures 2.6 Storage Procedures
3. Underpinning Skills	<ul style="list-style-type: none"> 3.1 Identifying Appropriate Tools 3.2 Using Hand Tools Correctly 3.3 Using Power Tools Correctly 3.4 Performing Preventive Maintenance 3.5 Practicing OHS 3.6 Storing tools and equipment 3.7 Cleaning Up
4. Underpinning Attitude	<ul style="list-style-type: none"> 4.1 Commitment to occupational health and safety 4.2 Environmental concerns 4.3 Eagerness to learn 4.4 Tidiness and timeliness 4.5 Respect for rights of peers and seniors in workplace

5. Resource Implications	The following resources must be provided 5.1 Tools, equipment, materials, consumables and physical facilities appropriate to the construction process 5.2 Information and documentation 5.3 Product specifications 5.4 Manual, Codes, Standards and reference materials
6. Method of Assessment	Competency must be assessed by 6.1 Demonstration 6.2 Written Test 6.3 Oral Questioning 6.4 Portfolio
7. Context of Assessment	Competency must be assessed in the actual workplace or in a simulated workplace individually after completion of the module.
<p>Accreditation Requirements</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 COMPETENCIES

National Technical and Vocational Qualification Framework for Bangladesh
Rod Binding: Level 1
Unit of Competency

Unit Title	Prepare Rod for Work.
Unit Code	CONRB100112A
Nominal Hours	40
Unit Descriptor	This unit of competency covers knowledge, skills, and attitude required to prepare rod for works. It includes collecting tools and materials, preparing work bench, straighten rods, cutting rods as per measurement, cleaning the work area.
Elements Of Competency	Performance Criteria <i>Bold & Italicized</i> terms are elaborated in the range of variables
1. Collect tools and materials	<p>1.1 <i>Personal Protective Equipment</i> (PPE) is selected and worn.</p> <p>1.2 Drawings are identified and collected as per job requirements with the help of senior.</p> <p>1.3 <i>Tools</i> are selected and collected as per job requirements.</p> <p>1.4 <i>Materials</i> are selected and collected according to job requirements.</p> <p>1.5 <i>Fundamental Quality</i> of materials is checked as per job specification.</p> <p>1.6 Tools and materials are checked for safe and effective operations.</p>
2. Prepare work bench	<p>2.1 The work area is selected and prepared</p> <p>2.2 Timber for posts/legs and horizontal members for work bench are selected as per job requirement.</p> <p>2.3 Edge of horizontal members and posts/legs are fixed.</p> <p>2.4 Two <i>zigs</i> are inserted at the top of horizontal bench following the distance 50 to 75mm from each other.</p> <p>2.5 Two holes are dug into the ground at sufficient depth to hold the post.</p> <p>2.6 Holes are filled up to half of the depth with mud and the rest half with cement concrete.</p> <p>2.7 Durability of work bench is checked.</p>
3 Straighten rods	<p>3.1 A single rod from the bundle is separated and placed on leveled ground.</p> <p>3.2 Folded part of rod is unfolded using rod bender/handle.</p> <p>3.3 Rod is straighten using hammer and anvil/work bench.</p> <p>3.4 Rod is cleaned and made rust free using emery paper and steel brush.</p>
4 Cut rods as per measurement.	<p>4.1 Measurement is taken as per specification and drawing.</p> <p>4.2 Rod is marked as per bar schedule and</p>

	<p>measurement.</p> <p>4.3 The straight rod is cut using rod-cutter machine/ chisel and hammer/ hacksaw.</p> <p>4.4 Quality of cut rod is checked as per specification</p>
5 Clean the work area	<p>5.1 Work area and tools are cleaned as per requirement of workplace procedure.</p> <p>5.2 Tools and equipment are stored in safe place as per manufacturer's instruction.</p> <p>5.3 Unused materials are stored in the designated place.</p> <p>5.4 Waste materials are disposed as per work place procedure.</p>
Range of Variables	
Variable	Range (may include but not limited to) :
1. Personal protective equipment (PPE)	<p>1.1 Safety shoes</p> <p>1.2 Apron</p> <p>1.3 Hand gloves</p> <p>1.4 Helmet</p> <p>1.5 Goggles</p> <p>1.6 Dust mask</p> <p>1.7 Ear Plug</p>
2. Hand Tools	<p>2.1 Anvil/Rail</p> <p>2.2 Rod Bender</p> <p>2.3 Sledge Hammer</p> <p>2.4 Chisel</p> <p>2.5 Fork</p> <p>2.6 Hack saw</p> <p>2.7 Hand saw</p> <p>2.8 Trowel</p> <p>2.9 Shovel</p> <p>2.10 Masonry Tray</p> <p>2.11 Rammer</p> <p>2.12 Crowbar</p> <p>2.13 Measuring tape</p> <p>2.14 Ball pin Hammer</p> <p>2.15 Claw hammer</p> <p>2.16 Steel Brush</p>
3. Power Tools	<p>3.1 Disc cutter machine</p> <p>3.2 Grinding machine</p> <p>3.3 Bar shearing machine</p> <p>3.4 Electric hand drill machine</p>
4. Materials	<p>4.1 Rod</p> <p>4.2 Timber section (12" x 6")</p> <p>4.3 Wooden posts</p> <p>4.4 Chalk/Paint</p> <p>4.5 Nails</p> <p>4.6 Cement</p> <p>4.7 Sand</p> <p>4.8 Aggregate</p>

	<ul style="list-style-type: none"> 4.9 Water 4.10 Mug 4.11 Bucket 4.12 Masonry Tray 4.13 Wood Batten 4.14 Emery Paper (waterproof)
5. Zigs	5.1 Short Rod (12-25mm diameter).
6. Rod-Cutter	<ul style="list-style-type: none"> 6.1 Disc Cutter 6.2 Chisel 6.3 Hack saw 6.4 Bar shearing Machine 6.5 Grinding Machine 6.6 Power Saw Machine
7. Quality	<ul style="list-style-type: none"> 7.1 Rod must be cut as per measurement. 7.2 Posts must be fixed with horizontal member. 7.3 Measurement tolerance must be kept within $\pm 05\text{mm}$. 7.4 Rod must be cleaned and rust free.
Evidence Guide	
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	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Followed safety procedures. 1.2 Selected quality materials. 1.3 Selected and prepared power tools, hand tools and equipment as required. 1.4 Prepared rod as per measurement.
2. Underpinning knowledge	<ul style="list-style-type: none"> 2.1 List required tools, equipment and materials. 2.2 Different diameter of rod. 2.3 Procedure of straightening folded rod. 2.4 Use of bending key (handle). 2.5 Use of Bar Schedule. 2.6 Cutting techniques using Disk cutter machine. 2.7 Working bench making procedure.
3. Underpinning skills	<ul style="list-style-type: none"> 3.1 Identifying of materials according to specification. 3.2 Checking quality of materials. 3.3 Handling tools and equipment. 3.4 Applying technique to prepare rod.
4. Required attitude	<ul style="list-style-type: none"> 4.1 Commitment to occupational safety and health 4.2 Communication with peers, subordinates and seniors in workplace. 4.3 Promptness in carrying out activities. 4.4 Tidiness and timeliness. 4.5 Respect of peers, subordinates and seniors in workplace. 4.6 Environmental concern. 4.7 Sincere and honest to duties. 4.8 Eagerness to learn.

5. Resource implication	The following resources must be provided: 5.1 Tools, equipment, materials and physical facilities required to perform activities. 5.2 Required PPE.
6. Methods of assessment	Competency must be assessed through: 6.1 Performance Test / Demonstration 6.2 Oral Questioning 6.3 Written Test
7. Context of assessment	Participants must be assessed individually in the actual work place or in a simulated work place.

Accreditation Requirements

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

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National Technical and Vocational Qualification Framework for Bangladesh
Rod Binding: Level 1
Unit of Competency

Unit Title	Perform Rod Bending.
Unit Code	CONRB100212A
Nominal Hours	32
Unit Descriptor	This unit of competency covers knowledge, skills, and attitude required to bend rod according to bar schedule. It includes collecting tools, equipment and materials, bending rod and cleaning the work area.
Elements Of Competency	Performance Criteria <i>Bold & Italicized</i> terms are elaborated in the range of variables
1. Collect tools, equipment and materials	1.1 <i>Personal Protective Equipment (PPE)</i> is selected and worn. 1.2 Drawings are collected and identified with the help of senior as per job requirements. 1.3 <i>Tools</i> and <i>equipment</i> are selected and collected as per job requirements. 1.4 <i>Materials</i> are selected and collected according to job requirements. specification 1.5 <i>Fundamental Quality</i> of materials is checked as per job requirement. 1.6 Tools are checked for safe and effective operations.
2 Bend rod	2.1 Bar schedule is interpreted. 2.2 Cut rods are identified. 2.3 Length of each rod is calculated. 2.4 Rod is marked for bending as per specification /drawing. 2.5 Rod is bent in required <i>shape</i> .
3 Clean the work area	3.1 Work area and tools are cleaned as per requirement of workplace procedure. 3.2 Tools and equipment are stored in safe place as per workplace procedure. 3.3 Workplace is cleaned as per job requirement. 3.4 Unused materials are stored in the designated place. 3.5 Waste materials are disposed as per work place procedure.
Range of Variables	
Variable	Range (may include but not limited to) :

1 Personal protective equipment (PPE)	1.1 Safety shoes 1.2 Apron 1.3 Hand gloves 1.4 Helmet 1.5 Goggles 1.6 Dust mask 1.7 Ear Plug
2. Hand Tools	2.1 Anvil 2.2 Rod Bender/Handle 2.3 Sledge Hammer 2.4 Chisel 2.5 Fork 2.6 Hack saw 2.7 Measuring tape 2.8 Ball pin hammer 2.9 Tri- square 2.10 Protractor
3. Power Tools	3.1 Rod Bender Machine
4. Equipment	4.1 Work Bench (Jogan)
5. Materials	5.1 MS Bar (Rod) 5.2 Chalk
6. Shape	6.1 45° 6.2 90° 6.3 135° 6.4 180° 6.5 Crank 6.6 Chair/Separator/Rod Spacer 6.7 Hook 6.8 Clamp
7. Quality	7.1 Rod bend must be done as per measurement. 7.2 Bend must be uniform in shape and size. 7.3 Measurement tolerance $\pm 5^\circ$ and $\pm 5\text{mm}$.
Evidence Guide 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	Assessment requires evidence that the candidate: 1.1 Followed safety procedures. 1.2 Selected and prepared power tools, hand tools and equipment. 1.3 Bended rod as per measurement/bar schedule. 1.4 Cleaned tools & equipment and store.
2. Underpinning knowledge	2.1 List required tools, equipment and materials. 2.2 Different shape of bend rod. 2.3 Procedure of bending rod. 2.4 Use of bending key/handle. 2.5 Use of Bar Schedule. 2.6 Standard hooks, chairs/Separators/Rod Spacers.

3. Underpinning skills	3.1 Identifying materials according to specification. 3.2 Checking different angles. 3.3 Applying technique of rod bending. 3.4 Handling tools and equipment.
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. 4.8 Eagerness to learn.
5. Resource implication	The following resources must be provided: 5.1 Tools, equipment, materials and physical facilities required to perform activities. 5.2 Required PPE.
6. Methods of assessment	Competency must be assessed through: 6.1 Performance Test / Demonstration 6.2 Oral Questioning 6.3 Written Test
7. Context of assessment	Participants must be assessed individually in the actual work place or in a simulated work place.
<p>Accreditation Requirements Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assessment body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit toward 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
Rod Binding: Level 1
Unit of Competency

Unit Title	Prepare Stirrups
Unit Code	CONRB100312A
Nominal Hours	50
Unit Descriptor	This unit of competency covers skills, knowledge and attitude required to prepare stirrups. It includes collecting tools, equipment and materials, preparing rod for stirrups, making stirrup and cleaning the work area.
Elements Of Competency	Performance Criteria <i>Bold & Italicized</i> terms are elaborated in the range of variables
1. Collect tools, equipment and materials	1.1 <i>Personal Protective Equipment (PPE)</i> is selected and worn. 1.2 Drawings are collected and identified with help of senior as per job requirements. 1.3 <i>Tools</i> and <i>equipment</i> are selected and collected as per job requirements. 1.4 <i>Materials</i> are selected and collected according to job requirements. 1.5 <i>Fundamental Quality</i> of materials is checked as per job specification. 1.6 Tools and equipment are checked for safe and effective operations.
2. Prepare rod for stirrups	2.1 <i>Stirrups</i> are identified according to specification. 2.2 Total length for each stirrup is calculated as per drawing and specification. 2.3 Rod is marked and cut in required length.
3. Make stirrup	3.1 Rod is bent as per drawing/ measurement. 3.2 Work bench is used. 3.3 Size and shape of stirrup is measured and checked according to specification.
4. Clean the work area	4.1 Work area and tools are cleaned as per requirement of workplace procedure. 4.2 Tools and equipment are stored in safe place as per manufacturer's instruction. 4.3 Unused materials are stored in the designated place. 4.4 Waste materials are disposed as per work place procedure.
Range of Variables	
Variable	Range (may include but not limited to) :
1 Personal protective equipment (PPE)	1.1 Safety shoes. 1.2 Apron. 1.3 Hand gloves. 1.4 Helmet. 1.5 Goggles. 1.6 Dust mask. 1.7 Ear Plug

2 Hand Tools	2.1 Anvil/Rail 2.2 Rod Bender/Handle 2.3 Sledge Hammer 2.4 Chisel 2.5 Fork 2.6 Hack saw 2.7 Measuring tape 2.8 Ball pin Hammer 2.9 Tri- square
3 Power Tools	3.1 Disc cutter machine 3.2 Grinding machine 3.3 Bar shearing machine
4 Equipment	4.1 Work Bench (Jogan)
5 Materials	5.1 MS Bar (Rod) 5.2 Chalk.
6 Stirrups	6.1 Rectangular 6.2 Square 6.3 Triangular 6.4 Circular 6.5 Polygonal 6.6 Pistol Ring 6.7 Tie Ring
7 Quality	7.1 Rod must be cut as per measurement. 7.2 Stirrup must be uniform in shape and size. 7.3 Hook length must be same for each stirrup. 7.4 Measurement tolerance $\pm 5\text{mm}$ and 5° .
Evidence Guide	
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	Assessment requires evidence that the candidate: 1.1 Followed safety procedures. 1.2 Selected and prepared power tools, hand tools and equipment. 1.3 Prepared stirrups as per measurement/ drawing. 1.4 Measured and checked the size and shape of stirrup.
2. Underpinning knowledge	2.1 List required tools, equipment and materials. 2.2 Different types of stirrups. 2.3 Use of different types of stirrups and ties. 2.4 Procedure of making stirrup. 2.5 Hook length for stirrup.
3. Underpinning skills	3.1 Identifying materials according to specification. 3.2 Checking shape and size. 3.3 Applying technique to make stirrup. 3.4 Handling tools and equipment.
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.

	<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> <p>4.8 Eagerness to learn.</p>
5. Resource implication	<p>The following resources must be provided:</p> <p>5.1 Tools, equipment, materials and physical facilities required to perform activities.</p> <p>5.2 Required PPE.</p>
6. Methods of assessment	<p>Competency must be assessed through:</p> <p>6.1 Performance Test / Demonstration</p> <p>6.2 Oral Questioning</p> <p>6.3 Written Test</p>
7. Context of assessment	<p>Participants must be assessed individually in the actual work place or in a simulated work place.</p>
<p>Accreditation Requirements</p> <p>Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assessment body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit toward 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
Rod Binding: Level 1
Unit of Competency

Unit Title	Perform Rod Binding for Base/Footing
Unit Code	CONRB100412A
Nominal Hours	40
Unit Descriptor	This unit of competency covers knowledge, skills and attitude required to Perform Rod Binding for Base/Footing. It includes collecting tools, equipment and materials, preparing rod for base /footing, fixing rod for base/ footing, checking the quality and cleaning the work area.
Elements Of Competency	Performance Criteria <i>Bold & Italicized</i> terms are elaborated in the range of variables
1. Collect tools, equipment and materials	1.1 <i>Personal Protective Equipment (PPE)</i> is selected and worn. 1.2 Drawings are collected and identified with the help of senior as per job requirements. 1.3 <i>Tools</i> and <i>Equipment</i> are selected and collected as per job requirements. 1.4 <i>Materials</i> are selected and collected according to job requirements. 1.5 <i>Fundamental Quality</i> of materials is checked as per job specification. 1.6 Tools and equipment are checked for safe and effective operations.
2. Prepare rod for base /footing	2.1 Total number and length of each rod is calculated for both long and short direction. 2.2 Rods are marked and cut in required size. 2.3 End part of each rod is bent at 90° to make hook.
3. Fix rod for base/ footing	3.1 A plane surface is selected to fix rod. 3.2 Four outer rods are marked as spacing given in the drawing and tied with GI (22 or 24 gauge) wire at four corners. 3.3 Rods in long and short direction are placed along the marked points. 3.4 Each cross point of rods are tied by GI wire.
4. Check the quality	4.1 Diagonal measurement is checked. 4.2 Rod spacing is followed as per drawing. 4.3 Length and angle tolerance is measured. 4.4 Clear cover in all directions is maintained.
5. Clean the work area	5.1 Work area and tools are cleaned as per requirement of workplace procedure. 5.2 Tools and equipment are stored in safe place as per manufacturer instruction. 5.3 Unused materials are stored in the designated place. 5.4 Waste materials are disposed as per work place procedure.

Range of Variables	
Variable	Range (may include but not limited to) :
1 Personal protective equipment (PPE)	1.1 Safety shoes 1.2 Apron 1.3 Hand gloves 1.4 Helmet 1.5 Goggles 1.6 Dust mask 1.7 Ear Plug
2 Hand Tools	2.1 Anvil 2.2 Rod Bender/Handle 2.3 Sledge Hammer 2.4 Chisel 2.5 Fork 2.6 Hack saw 2.7 Measuring tape 2.8 Ball pin Hammer 2.9 Tie roller 2.10 Wire cutter 2.11 Tri- square
3 Power Tools	3.1 Disc cutter machine 3.2 Grinding machine 3.3 Bar shearing machine
4 Equipment	4.1 Work Bench
5 Materials	5.3 MS Bar (Rod). 5.4 GI Wire(22 or 24 Gauge) 5.5 Chalk.
6 Quality	6.1 Diagonal measurement must be equal. 6.2 Rod spacing must be as per drawing. 6.3 Measurement tolerance must be ± 05 mm. 6.4 Rod and GI wire must be rust free. 6.5 Cross point must be tied.
Evidence Guide	
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	Assessment requires evidence that the candidate: 1.1 Followed safety procedures. 1.2 Selected quality materials. 1.3 Selected and prepared power tools, hand tools and equipment. 1.4 Prepared net for base/ footing as required. 1.5 Followed rod spacing.
2. Underpinning knowledge	2.1 List required tools, equipment and materials. 2.2 Definition of base or footing. 2.3 Function of base or footing. 2.4 Importance of using tie roller. 2.5 Procedure of making base or footing.
3. Underpinning skills	3.1 Identifying materials according to specification. 3.2 Applying technique of maintaining rod spacing. 3.3 Applying technique of rod binding with tie roller. 3.4 Handling tools and equipment.
4. Required attitude	4.1 Commitment to occupational safety and health

	<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> <p>4.8 Eagerness to learn.</p>
5. Resource implication	<p>The following resources must be provided:</p> <p>5.1 Tools, equipment, materials and physical facilities required to perform activities.</p> <p>5.2 Required PPE.</p>
6. Methods of assessment	<p>Competency must be assessed through:</p> <p>6.1 Performance Test / Demonstration</p> <p>6.2 Oral Questioning</p> <p>6.3 Written Test</p>
7. Context of assessment	<p>Participants must be assessed individually in the actual work place or in a simulated work place.</p>
<p>Accreditation Requirements</p> <p>Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assessment body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit toward 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>	

Annexes
Annex 1. Competency Map for Rod Binding in Construction Sector

Occupation Specific Competencies	Prepare Rod for Work	Perform Rod Bending	Prepare Stirrups	Perform Rod Binding for Base/Footing		
	1	1	1			
	2	2	2	2	2	
	3	3	3	3	3	

Sector Specific Competencies	Work in the Construction (Rod Binding) Sector	Interpret Drawings and Specifications in Construction (Rod Binding) Sector	Perform Measurement and Calculations in Construction (Rod Binding) Sector	Use Hand Tools and Power Tools for the Construction (Rod Binding) Sector		
	1	1	1	1		
	2	2				
Generic Competencies	Use Basic Mathematical Concepts	Apply OSH Practices in the Workplace				
	1	1				
	3	3	3			

Annex 2. Bangladesh National Qualifications Framework

TVQF Level	Education Type			Current Qualification Structure	Job Classification
	Pre-Voc	VE	TE		
TVQF 6			Diploma	4-year Diploma	Supervisor/Middle Manager/Sub-Assistant Engineer
TVQF 5		**NSC-V		NSS Master	Highly-Skilled Worker/Supervisor
TVQF 4		**NSC-IV		NSS 1/HSC (Voc) Year 11/12	Skilled Worker
TVQF 3		**NSC-III		NSS 2/SSC (Voc) Year 10	Semi-Skilled Worker
TVQF 2		**NSC-II		NSS 3/SSC (Voc) Year 9	Basic Skilled Worker
TVQF 1		**NSC-I		NSS Basic/Basic Trade Course	Basic Worker
Pre-Voc 2	*NPVC-II			None	Pre-Vocational Trainee
Pre-Voc 1	*NPVC-I			None	Pre-Vocational Trainee

*NPVC – National Pre-Vocational Certificate

**NSC – National Skill Certificate

Annex 3. Qualification Level Descriptors

BTVQ F Level	Knowledge	Skill	Responsibility	Job Class
6	Comprehensive actual and theoretical knowledge within a specific study area with an awareness of the limits of that knowledge.	Specialised and restricted range of cognitive and practical skills required to provide leadership in the development of creative solutions to defined problems	Manage a team or teams in workplace activities where there is unpredictable change Identify and design learning programs to develop performance of team members	Supervisor/Middle-Level Manager/Sub Assistant Engineer
5	Very broad knowledge of the underlying, concepts, principles, and processes in a specific study area	Very broad range of cognitive and practical skills required to generate solutions to specific problems in one or more study areas.	Take overall responsibility for completion of tasks in work or study Apply past experiences in solving similar problems	Highly Skilled Worker/ Supervisor (NSC 4)
4	Broad knowledge of the underlying, concepts, principles, and processes in a specific study area	Range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying the full range of methods, tools, materials and information	Take responsibility, within reason, for completion of tasks in work or study Apply past experiences in solving similar problems	Skilled Worker
3	Moderately broad knowledge in a specific study area.	Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools	Work or study under supervision with some autonomy	Semi Skilled worker
2	Basic underpinning knowledge in a specific study area.	Basic skills required to carry out simple tasks	Work or study under indirect supervision in a structured context	Medium Skilled Worker
1	Elementary understanding of the underpinning knowledge in a specific study area.	Limited range of skills required to carry out simple tasks	Work or study under direct supervision in a structured context	Basic Skilled Worker

BTVQ F Level	Knowledge	Skill	Responsibility	Job Class
Pre-Voc 2	Limited general knowledge	Very limited range of skills and use of tools required to carry out simple tasks	Work or study under direct supervision in a well-defined, structured context.	Pre-Vocation Trainee (NPVC 2)
Pre-Voc 1	Extremely limited general knowledge	Minimal range of skills required to carry out simple tasks	Simple work or study exercises, under direct supervision in a clear, well defined structured context	Pre-Vocation Trainee (NPVC 1)

Annex 4. Key for Coding

Code	Description
Occupational Sector	
RMG	Ready-Made Garments
LEG	Light Engineering
CON	Construction
INF	Informal Sector
Occupation	
MAS	Mason
PLM	Plumbing
PNT	Painter
SFF	Scaffold and Form Fitter
RB	Rod Binding
Competencies	
GN	Generic Competencies
SS	Sector Specific Competency
OS	Occupation Specific competency

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