



COMPETENCY STANDARD

Rod Binding

Level: 2

(Construction Sector)

Competency Standard Code: CS-CS-RB-L2-EN-V1



National Skills Development Authority
Prime Minister's Office
Government of the People's Republic of Bangladesh

Copyright

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This Competency Standard for Rod Binding is a document for the development of curricula, teaching and learning materials, and assessment tools. It also serves as the document for providing training consistent with the requirements of industry in order to meet the qualification of individuals who graduated through the established standard via competency-based assessment for a relevant job.

This document has been validated by NSDA in association with Construction Sector, industry representatives, academia, related specialist, trainer and related employee.

Public and private institutions may use the information contained in this standard for activities benefitting Bangladesh.

Introduction

The NSDA aims to enhance an individual's employability by certifying completeness with skills. NSDA works to expand the skilling capacity of identified public and private training providers qualitatively and quantitatively. It also aims to establish and operationalize a responsive skills ecosystem and delivery mechanism through a combination of well-defined set of mechanisms and necessary technical supports.

Key priority economic growth sectors identified by the government have been targeted by NSDA to improve current job skills along with existing workforce to ensure required skills to industry standards. Training providers are encouraged and supported to work with industry to address identified skills and knowledge to enable industry growth and increased employment through the provision of market responsive inclusive skills training program. "Rod Binding" is selected as one of the priority occupations of Construction Sector. This standard is developed to adopt a demand driven approach to training with effective inputs from Industry Skills Councils (ISC's), employer associations and employers.

Generally, a competency standard informs curriculum, learning materials, assessment and certification of trainees enrolled in Skills Training. Trainees who successfully pass the assessment will receive a qualification in the National Skills Qualification Framework (NSQF) under Bangladesh National Qualification Framework and will be listed on the NSDA's online portal.

This competency standard is developed to improve skills and knowledge in accordance with the job roles, duties and tasks of the occupation and ensure that the required skills and knowledge are aligned to industry requirements. A series of stakeholder consultations, workshops were held to develop this document.

The document also details the format, sequencing, wording and layout of the Competency Standard for an occupation which is comprised of Units of Competence and its corresponding Elements.

Overview

A competency standard is a written specification of the knowledge, skills and attitudes required for the performance of an occupation, trade or job corresponding to the industry standard of performance required in the workplace.

The purpose of a competency standards is to:

- provide a consistent and reliable set of components for training, recognising and assessing people's skills, and may also have optional support materials
- enable industry recognised qualifications to be awarded through direct assessment of workplace competencies
- encourage the development and delivery of flexible training which suits individual and industry requirements
- encourage learning and assessment in a work-related environment which leads to verifiable workplace outcomes

Competency standards are developed by a working group comprised of representative from NSDA, Key Institutions, ISC, and industry experts to identify the competencies required of an occupation in Informal Sector.

Competency standards describe the skills, knowledge and attitude needed to perform effectively in the workplace. CS acknowledge that people can achieve technical and vocational competency in many ways by emphasizing what the learner can do, not how or where they learned to do it.

With competency standards, training and assessment may be conducted at the workplace or at training institute or any combination of these.

Competency standards consist of a number of units of competency. A unit of competency describes a distinct work activity that would normally be undertaken by one person in accordance with industry standards.

Units of competency are documented in a standard format that comprises of:

- unit title
- nominal duration
- unit code
- unit descriptor
- elements and performance criteria
- variables and range statement
- curricular content guide
- assessment evidence guides

Together, all the parts of a unit of competency:

- describe a work activity
- guide the assessor to determine whether the candidate is competent or not yet competent

The ensuing sections of this document comprise of a description of the relevant occupation, trade or job with all the key components of a unit of competency, including:

- a chart with an overview of all Units of Competency for the relevant occupation, trade or job including the Unit Codes and the Unit of Competency titles and corresponding Elements
- the Competency Standard that includes the Unit of Competency, Unit Descriptor, Elements and Performance Criteria, Range of Variables, Curricular Content Guide and Assessment Evidence Guide.

Competency Standards for National Skill Certificate, Level-2 in Rod Binding in Construction Sector

Level Descriptors of NSQF (BNQF 1-6)

Level & Job classification	Knowledge Domain	Skills Domain	Responsibility Domain
6-Mid-Level Manager/ Sub Assistant Engineer	Comprehensive actual and theoretical knowledge within a specific work or study area with an awareness of the validity and limits of that knowledge, able to analyse, compare, relate and evaluate.	Specialised and wider range of cognitive and practical skills required to provide leadership in the development of creative solutions to defined problems. Communicate professional issues and solutions to the team and to external partners/users.	Work under broad guidance and self-motivation to execute strategic and operational plan/s. Lead lower-level management. Diagnose and resolve problems within and among work groups.
5-Supervisor	Broad knowledge of the underlying, concepts, principles, and processes in a specific work or study area, able to scrutinize and break information into parts by identifying motives or causes.	Broad range of cognitive and practical skills required to generate solutions to specific problems in one or more work or study areas. Communicate practice-related problems and possible solutions to external partners.	Work under guidance of management and self-direction to resolve specific issues. Lead and take responsibility for the work and actions of group/team members. Bridge between management.
4-Highly Skilled Worker	Broader knowledge of the underlying, concepts, principles, and processes in a specific work or study area, able to solve problems to new situations by comparing and applying acquired knowledge.	A 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. Communicate using technical terminology and IT technology with partners and users as per workplace requirements.	Work under minimal supervision in specific contexts in response to workplace requirements. Resolve technical issues in response to workplace requirements and lead/guide a team/ group.
3-Skilled Worker	Moderately broad knowledge in a specific work or study area, able to perceive ideas and abstract from drawing and design according to workplace requirements.	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. Communicate with his team and limited external partners upholding the values, nature and culture of the workplace	Work or study under supervision with considerable autonomy. Participate in teams and responsible for group coordination.
2-Semi Skilled Worker	Basic understanding of underpinning knowledge in a specific work or study area, able to interpret and apply common occupational terms and instructions.	Skills required to carry out simple tasks, communicate with his team in the workplace presenting and discussing results of his work with required clarity.	Work or study under supervision in a structured context with limited scope of manipulation
1 –Basic Skilled Worker	Elementary understanding of ability to interpret the underpinning knowledge in a specific study area, able to interpret common occupational terms and instructions.	Specific Basic skills required to carry out simple tasks. Interpret occupational terms and present the results of own work within guided work environment/ under supervision.	Work under direct supervision in a structured context with limited range of responsibilities.

List of Abbreviations

CS	Competency Standard
ISC	Industry Skills Council
NSDA	National Skills Development Authority
NSQF	National Skills Qualifications Framework
OSH	Occupational Safety and Health
PPE	Personal Protective Equipment
SCVC	Standards and Curriculum Validation Committee
STP	Skills Training Provider
SOP	Standard Operating Procedure
UoC	Unit of Competency
ISO	International Organization for Standardization
MSDS	Material Safety Data Sheet
OSH	Occupational Safety and Health
PPE	Personal Protective Equipment
SOP	Standard Operating Procedures

Approval of Competency Standard

Approved By
21st Authority Meeting of NSDA Held on 19.09.2022



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Deputy Director (Admin)

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**Competency Standards for National Skill Certificate, Level- 2 in
Rod Binding in Construction Sector**

Course Structure

SL No	Unit code and Title	UOC Level	Nominal (hours)
Generic Units of Competencies			
1.	GU-02-L2-V1	Apply Occupational Safety and Health (OSH) Procedure in the Workplace	2 15
2.	GU-08-L2-V1	Work in a Team Environment	2 20
3.	GU-12-L2-V1	Communicate in the Workplace	2 20
Sub Total			55
Sector Specific Units of Competencies			
4.	SU-CON-01-L2-V1	Work effectively within construction Sector	2 15
5.	SU-CON-02-L2-V1	Interpret drawings and specifications in construction manuals	2 20
Sub Total			35
Occupation Specific Units of Competencies			
6.	OU-CON-RB-01-L2-V1	Perform Fundamental Works of Rod Binding	2 30
7.	OU-CON-RB-02-L2-V1	Use Tools for Rod Binding Works	2 30
8.	OU-CON-RB-03-L2-V1	Prepare Rod for Work	2 50
9.	OU-CON-RB-04-L2-V1	Prepare Stirrups and Ties	2 60
10.	OU-CON-RB-05-L2-V1	Perform Rod Binding for Base / Footing	2 50
11.	OU-CON-RB-06-L2-V1	Perform Rod Binding for Column	2 50
Sub Total			270
Total Duration			360

Units & Elements at Glance

Generic Units of Competencies

Code	Unit of competency	Elements of competency	Duration (hours)
GU-02-L2-V1	Apply Occupational Safety and Health (OSH) procedure In the Workplace	<ol style="list-style-type: none"> 1. Identify OSH policies and procedures 2. Follow OSH procedure 3. Report hazards and risks 4. Respond to emergencies 5. Maintain personal well-being 	15
GU-08-L2-V1	Work in a Team Environment	<ol style="list-style-type: none"> 1. Define team role and scope 2. Identify individual role and responsibility 3. Participate in team discussions 4. Work as a team member 	20
GU-12-L2-V1	Communicate in the Workplace	<ol style="list-style-type: none"> 1. Receive verbal instructions. 2. Interpret verbal and written information/ instruction 3. Convey instructions using verbal and written forms of communication 4. Complete written documentation 5. Participate in work place meetings and discussions 	20
Total hours			55

Sector Specific Units of Competencies

Code	Unit of competency	Elements of competency	Duration (hours)
SU-CON-01-L2-V1	Work effectively within construction workplace	<ol style="list-style-type: none"> 1. Identify the organizational structure 2. Interpret processes and procedures 3. Identify workplace requirements 4. Organize own workload 	15
SU-CON-02-L2-V1	Interpret drawings and specifications in construction manuals	<ol style="list-style-type: none"> 1. Identify information from manuals 2. Identify drawings and specifications 3. Interpret drawings and specifications 	20
Total hours			35

Occupation Specific Units of Competencies

Code	Unit of competency	Elements of competency	Duration (hours)
OU-CON-RB-01-L2-V1	Perform Fundamental Works of Rod Binding	<ol style="list-style-type: none"> 1. Identify basic building components. 2. Identify materials for rod binding works 3. Interpret drawing and specifications 4. Perform basic measurement and calculations 5. Maintain tools, equipment and workplace 	30
OU-CON-RB-02-L2-V1	Use Tools for Rod Binding Works	<ol style="list-style-type: none"> 1. Identify tools 2. Use hand tools 3. Use power tools 4. Perform basic preventive maintenance 5. Maintain tools, equipment and workplace 	30
OU-CON-RB-03-L2-V1	Prepare Rod for Work	<ol style="list-style-type: none"> 1. Prepare for works 2. Prepare working bench 3. Straighten rods / bars 4. Cut rods / bars as per measurement 5. Bend rod/bar 6. Maintain tools, equipment and workplace 	50
OU-CON-RB-04-L2-V1	Prepare Stirrups and Ties	<ol style="list-style-type: none"> 1. Collect tools, equipment and materials 2. Prepare rod for stirrups or ties 3. Make stirrup or ties 4. Maintain tools, equipment and workplace 	60
OU-CON-RB-05-L2-V1	Perform Rod Binding for Base / Footing	<ol style="list-style-type: none"> 1. Collect tools, equipment and materials 2. Prepare rod for base / footing 3. Fix rod for base / footing 4. Maintain tools, equipment and workplace 	50
OU-CON-RB-06-L2-V1	Perform Rod Binding for Column	<ol style="list-style-type: none"> 1. Prepare for works 2. Prepare steel reinforcements for column 3. Make tie for column 4. Fix tie with column bar 5. Maintain tools, equipment and workplace 	50
Total Hours			270

Generic Units of Competencies

Unit Code and Title	GU-02-L2-V1: Apply Occupational Safety and Health (OSH) Procedure in the Workplace
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to apply occupational safety and health (OSH) procedure in the workplace. It specifically includes the task of identifying OSH policies and procedures, following OSH procedure, reporting hazards and risks, responding to emergencies and maintaining personal well-being.
Nominal Hours	15 Hours
Elements of Competency	Performance Criteria <u>Bold & Underlined</u> terms are elaborated in the Range of Variables
1. Identify OSH policies and procedures	1.1. <u>OSH policies</u> and <u>safe operating procedures</u> are accessed and stated 1.2. <u>Safety signs and symbols</u> are identified and followed 1.3. Emergency response, evacuation procedures and other contingency measures are determined according to workplace requirements
2. Follow OSH procedure	2.1 <u>Personal protective equipment (PPE)</u> is selected and collected as required 2.2 Personal protective equipment (PPE) is correctly used in accordance with organization OSH procedures and practices 2.3 A clear and tidy workplace is maintained as per workplace standard 2.4 PPE is maintained to keep them operational and compliant with OSH regulations
3. Report hazards and risks	3.1 <u>Hazards</u> and risks are identified, assessed and controlled 3.2 Incidents arising from hazards and risks are reported to designated authority
4. Respond to emergencies	4.1 Alarms and warning devices are responded 4.2 Workplace <u>emergency procedures</u> are followed 4.3 <u>Contingency measures</u> during workplace accidents, fire and other emergencies are recognized and followed in accordance with organization procedures 4.4 First aid procedures are applied during emergency situations
5. Maintain personal well-being	5.1 OSH policies and procedures are adhered to OSH awareness programs are participated in as per workplace guidelines and procedures.

	<p>5.2 Corrective actions are implemented to correct unsafe condition in the workplace</p> <p>5.3 <u>“Fit to work” records</u> are updated and maintained according to workplace requirements</p>
Range of Variables	
Variables	Range (may include but not limited to):
1. OSH policies	<p>1.1. Bangladesh standards for OSH</p> <p>1.2. Fire Safety Rules and Regulations</p> <p>1.3. Code of Practice</p> <p>1.4. Industry Guidelines</p>
2. Safe operating procedures	<p>2.1 Orientation on emergency exits, fire extinguishers, fire escape, etc.</p> <p>2.2 Emergency procedures</p> <p>2.3 First Aid procedures</p> <p>2.4 Tagging procedures</p> <p>2.5 Use of PPE</p> <p>2.6 Safety procedures for hazardous substances</p>
3. Safety signs and symbols	<p>3.1 Direction signs (exit, emergency exit, etc.)</p> <p>3.2 First aid signs</p> <p>3.3 Danger Tags</p> <p>3.4 Hazard signs</p> <p>3.5 Safety tags</p> <p>3.6 Warning signs</p>
4. Personal Protective Equipment (PPE)	<p>4.1 Gas Mask</p> <p>4.2 Gloves</p> <p>4.3 Safety boots</p> <p>4.4 Face mask</p> <p>4.5 Overalls</p> <p>4.6 Goggles and safety glasses</p> <p>4.7 Sun block</p> <p>4.8 Chemical/Gas detectors</p>
5. Hazards	<p>5.1 Chemical hazards</p> <p>5.2 Biological hazards</p> <p>5.3 Physical Hazards</p> <p>5.4 Mechanical and Electrical Hazard</p> <p>5.5 Mental hazard</p> <p>5.6 Ergonomic hazard</p>
6. Emergency procedures	<p>6.1 Fire fighting</p> <p>6.2 Earthquake</p> <p>6.3 Medical and first aid</p> <p>6.4 Evacuation</p>

7. Contingency measures	7.1 Evacuation 7.2 Isolation 7.1 Decontamination
8. "Fit to Work" records	8.1 Medical Certificate every year 8.2 Accident reports, if any 8.3 Eye vision certificate
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency	
1. Critical aspects of competency	Assessment required evidence that the candidate: 1.1 stated OSH policies and safe operating procedures 1.2 followed safety signs and symbols 1.3 used personal protective equipment (PPE) 1.4 maintained workplace clear and tidy 1.5 assessed and Controlled hazards 1.6 followed emergency procedures 1.7 followed contingency measures 1.8 implemented corrective actions
2. Underpinning knowledge	2.1 Define OSH 2.2 OSH Workplace Policies and Procedures 2.3 Work safety procedures 2.4 Emergency procedures 2.5 Hazard control procedure 2.6 Different types of hazards 2.7 PPE and there uses 2.8 Personal hygiene practices 2.9 OSH awareness
3. Underpinning skills	3.1 Accessing OSH policies 3.2 Using of PPE 3.3 Handling cleaning tools and equipment 3.4 Writing report 3.5 Responding to emergency procedures
4. Required attitude	4.1 Commitment to occupational health and safety 4.2 Sincere and honest to duties 4.3 Promptness in carrying out activities 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect of peers and seniors in workplace 4.8 Communicate with peers and seniors in workplace
5. Resource implications	5.1 Workplace

	5.2 Equipment and outfits appropriate in applying safety measures 5.3 Tools, equipment, materials and documentation required 5.4 OSH Policies and Procedures
6. Methods of assessment	Competency should be assessed by: 6.1 Written test 6.2 Demonstration 6.3 Oral questioning
7. Context of assessment	7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor
<p>Accreditation Requirements</p> <p>Training Providers must be accredited by National Skills Development Authority (NSDA), 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 qualification under NSQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.</p>	

Unit Code and Title	GU-08-L2-V1: Work in a Team Environment
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to work in a team environment. It specifically includes the task of defining team role and scope, identifying individual role and responsibility, participating in team discussions and working as a team member.
Nominal Hours	20 Hours
Elements of Competency	Performance Criteria <u>Bold & Underlined</u> terms are elaborated in the Range of Variables
1. Define team role and scope	1.1. Role and objectives of the team are defined 1.2. Team structure, responsibilities and reporting relations are identified from team discussions and other external sources
2. Identify individual role and responsibility	2.1 Individual roles and responsibilities of <u>team members</u> are identified 2.2 Reporting relationships among team members are defined and clarified 2.3 Reporting relationships external to the team are defined and clarified
3. Participate in team discussions	3.1 Ideas related to team plans are contributed 3.2 Recommendations for improving team work are put forward
4. Work as a team member	4.1 Effective forms of communication are used to interact with team members 4.2 Communication channels are followed 4.3 OHS practices are followed
Range of Variables	
Variables	Range (may include but not limited to):
1. Team Members	1.1 Coach/mentor 1.2 Supervisor/Manager 1.3 Peers/Colleagues 1.4 Employee representative
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency	
1. Critical aspects of competency	Assessment required evidence that the candidate: 1.1 demonstrated knowledge in working in a team environment. 1.2 satisfied the requirements mentioned in the

	1.3 Performance Criteria and Range of Variables
2. Underpinning knowledge	2.1 Team structure, role and responsibility 2.2 Individual members' roles and responsibilities 2.3 Communication flow and reporting structures 2.4 Team planning 2.5 Interpersonal communication skills 2.6 Team meeting procedures 2.7 OHS practices
3. Underpinning skills	3.1 Identifying the role and responsibility of the team 3.2 Identifying roles and responsibilities of individual members 3.3 Participating in team discussions 3.4 Working as a team member
4. Required attitude	4.1 Commitment to occupational health and safety 4.2 Sincere and honest to duties 4.3 Promptness in carrying out activities 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect of peers and seniors in workplace 4.8 Communicate with peers and seniors in workplace
5. Resource implications	5.1 Pens 5.2 Telephone 5.3 Computer 5.4 Writing materials 5.5 Online communication
6. Methods of assessment	Competency should be assessed by: 6.1 Written test 6.2 Demonstration 6.3 Oral questioning
7. Context of assessment	7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor

Accreditation Requirements

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Unit Code and Title	GU-12-L2-V1: Communicate in the Workplace
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to communicate in the workplace. It specifically includes the task of receiving verbal instructions, interpreting verbal and written information/ instruction, conveying instructions using verbal and written forms of communication, completing written documentation and participating in workplace meetings and discussions.
Nominal Hours	20 Hours
Elements of Competency	Performance Criteria <u>Bold & Underlined</u> terms are elaborated in the Range of Variables
1. Receive verbal instructions.	1.1 Instructions are accessed and interpreted 1.2 Questions are asked to clarify understanding or gain more information. 1.3 Information/instruction is recorded.
2. Interpret verbal and written information/ instruction	2.1 <u>Written instructions</u> are interpreted. 2.2 Work <u>signage's</u> are properly responded. 2.3 Routine written instructions are followed in sequence. 2.4 Feedback is given to workplace supervisor.
3. Convey instructions using verbal and written forms of communication	3.1 Relevant <u>communication</u> methods are used to transmit instructions. 3.2 Appropriate non-verbal communication is used. 3.3 Channels of communication are identified and followed 3.4 Communication <u>tools and equipment</u> are operated and faults are identified and reported. 3.5 Information is conveyed using appropriate <u>forms</u> .
4. Complete written documentation	4.1 All required <u>documentation</u> is completed 4.2 Workplace data are recorded 4.3 Written information/instruction is passed to personnel.
5. Participate in work place meetings and discussions	5.1 Meetings are attended regularly and on time. 5.2 Meeting inputs are consistent with the meeting purpose and established protocols. 5.3 Opinions are expressed without interruption. 5.4 Meeting outputs are processed and implemented.
Range of Variables	
Variables	Range (may include but not limited to):
1. Written instructions	1.1 Supervisor's/manager's instructions 1.2 Memoranda 1.3 Rules and regulations 1.4 Signage

	<ul style="list-style-type: none"> 1.5 Approved work plan 1.6 External communications
2. Signage	<ul style="list-style-type: none"> 2.1. On-site direction signs 2.2. Common site warnings 2.3. Location signs 2.4. Traffic signs
3. Communication	<ul style="list-style-type: none"> 3.1 Verbal instructions 3.2 Written instructions 3.3 Online communication
4. Tools and machinery	<ul style="list-style-type: none"> 4.1 Telephone 4.2 Mobile phone 4.3 Fax machines 4.4 Two-way radio 4.5 Computers 4.6 Forms 4.7 Memo
5. Forms	<ul style="list-style-type: none"> 5.1 Memorandum 5.2 Requisitioning form 5.3 Personnel form 5.4 Safety report form
6. Documentation	<ul style="list-style-type: none"> 6.1 Reports (Monthly, Quarterly, Half-Yearly, Annual) 6.2 Plans (Strategic Plan, Operational Plan, Monthly Schedule) 6.3 Monitoring and Evaluation Report 6.4 Minutes of Meetings
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency	
1. Critical aspects of competency	<p>Assessment required evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 demonstrated knowledge of workplace procedures in receiving, interpreting and conveying verbal & written communication. 1.2 satisfied the requirements mentioned in the Performance Criteria and Range of Variables.
2. Underpinning knowledge	<ul style="list-style-type: none"> 2.1 Workplace Communication Policies, Standards and Procedures 2.2 Verbal and non-verbal communication 2.3 Modes of communication 2.4 Communication equipment: types, uses and faults 2.5 Channels of communication
3. Underpinning skills	<ul style="list-style-type: none"> 3.1 Receiving verbal instructions. 3.2 Interpreting verbal and written information/ instruction 3.3 Conveying instructions using verbal and written forms

	<ul style="list-style-type: none"> 3.4 of communication 3.5 Completing written documentation 3.6 Participating in workplace meetings and discussions
4. Required attitude	<ul style="list-style-type: none"> 4.1 Commitment to occupational health and safety 4.2 Sincere and honest to duties 4.3 Promptness in carrying out activities 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect of peers and seniors in workplace 4.8 Communicate with peers and seniors in workplace
5. Resource implications	<ul style="list-style-type: none"> 5.1 Pens 5.2 Telephone 5.3 Computer 5.4 Writing materials 5.5 Online communication
6. Methods of assessment	<p>Competency should be assessed by:</p> <ul style="list-style-type: none"> 6.1 Written test 6.2 Demonstration 6.3 Oral Questioning
7. Context of assessment	<ul style="list-style-type: none"> 7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor
<p>Accreditation Requirements</p> <p>Training Providers must be accredited by National Skills Development Authority (NSDA), 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 qualification under NSQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.</p>	

Sector Specific Units of Competencies

Unit Code and Title	SU-CON-01-L2-V1: Work Effectively in the Construction Sector
Unit Descriptor	This unit covers the skills, knowledge and attitude required to work effectively in the construction Sector. It specifically includes the task of identifying the organizational structure, interpreting processes and procedures, identifying workplace requirements and organize own workload.
Nominal Hours	15 Hours
Elements of Competency	Performance Criteria <u>Bold and Underlined</u> terms are elaborated in the Range of Variables.
1. Identify the organizational structure	1.1 Scope, nature and <u>major fields</u> of the construction sector are identified 1.2 The profile of the construction sector in relation to Bangladesh <u>employment conditions</u> is identified 1.3 Trends and technologies relevant to the sector are interpreted. 1.4 Relevant policies and guidelines are identified and accessed. 1.5 <u>Instructions</u> as to procedures in achieving quality are maintained.
2. Interpret processes and procedures	2.1 Construction processes and procedure are interpreted 2.2 Work activities are identified. 2.3 Adjustments are interpreted.
3. Identify workplace requirements	3.1 <u>Workplace requirements</u> are identified. 3.2 Own roles and responsibilities in the workplace are interpreted. 3.3 Workplace practices are interpreted. 3.4 <u>Problem-solving strategies</u> are identified.
4. Organize own workload	4.1 Own work activities are planned and progress of work is communicated to relevant staff. 4.2 Work activities are performed. 4.3 Difficulties are identified and solutions are put forwarded. 4.4 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 Residential building construction 1.2 Industrial and commercial building construction 1.3 Roads & highway construction 1.4 Bridge & culvert construction 1.5 Railway construction

	<ul style="list-style-type: none"> 1.6 Foundation works (anchoring and piling) 1.7 Pipelaying 1.8 Tunnel/marine construction 1.9 Mass rapid transit (MRT) and Bus rapid transit (BRT)
2. Employment conditions	<ul style="list-style-type: none"> 2.1 Code of practice 2.2 Salary/wage system 2.3 Labor practices 2.4 Gender issues 2.5 Awards 2.6 Procedures for handling disputes
3. Instructions	<ul style="list-style-type: none"> 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. Workplace requirements	<ul style="list-style-type: none"> 4.1 Goals and objectives 4.2 Strategic and operational plans 4.3 Systems and processes 4.4 Monitoring and evaluation 4.5 Reports and documentation
5. Problem-solving strategies	<ul style="list-style-type: none"> 5.1. Asking questions 5.2. Feedback and feed forward system 5.3. Reference to standard operating procedures 5.4. Accessing information 5.5. Reviews 5.6. Brainstorming
<p>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.</p>	
1. Critical aspects of competency	<p>Assessment required evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 identified the organizational structure 1.2 interpreted processes and procedures 1.3 identified workplace requirements 1.4 organized own workload
2. Underpinning knowledge	<ul style="list-style-type: none"> 2.1 Scope and major divisions of the construction workplace 2.2 Relevant policies and guidelines in the construction workplace 2.3 Manuals used in the construction workplace 2.4 Relevant terminologies and acronyms 2.5 Workplace practices 2.6 Recording and reporting practices

3. Underpinning skills	<ul style="list-style-type: none"> 3.1 Describing the 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. Underpinning attitudes	<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	<ul style="list-style-type: none"> 5.1 Pens 5.2 Telephone 5.3 Computer 5.4 Writing materials
6. Methods of assessment	<p>Competency should be assessed by</p> <ul style="list-style-type: none"> 6.1 Workplace observation 6.2 Demonstration 6.3 Oral questioning 6.4 Written test
7. Context of assessment	<ul style="list-style-type: none"> 7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor

Accreditation Requirements

Training Providers must be accredited by National Skills Development Authority (NSDA), 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 NSQF qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.

Unit Code and Title	SU-CON-02-L2-V1: Interpret Drawings and Specifications in Construction Manuals
Nominal Hours	20 Hours
Unit Descriptor	This unit covers the knowledge, skill and attitude required to Interpret Drawings and Specifications in Construction Manuals. It specially includes the task of identifying information from manuals, drawings and specifications and interpreting drawings and specifications.
Elements of Competency	Performance Criteria <u>Bold and Underlined</u> terms are elaborated in the Range of Variables.
1. Identify information from manuals	1.1 Appropriate <u>manuals</u> are identified and accessed. 1.2 Version and date of the manual are checked to ensure up-to-date specifications of tools, equipment, materials and procedures.
2. Identify drawings and specifications	2.1 Relevant <u>drawings</u> and specifications are identified. 2.2 Terms and abbreviations are identified. 2.3 Signs and symbols are identified
3. Interpret drawings and specifications	3.1 Drawings and specifications are interpreted. 3.2 Dimensions and specifications contained in the drawings are interpreted. 3.3 Documents are stored to prevent damage, and ready access and updating of information when required.
Range of Variables	
Variables	Range (may include but not limited to):
1. Manuals	1.1 Maintenance Procedure Manual 1.2 Periodic Maintenance Manual 1.3 Quality Manual 1.4 Manual of Instruction
2. Drawings	2.1 Technical drawings 2.2 Working drawings
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 identified information from manuals 1.2 identified drawings and specifications 1.3 interpreted drawings and specifications

2. Underpinning knowledge	<ul style="list-style-type: none"> 2.1 Types of drawing 2.2 Identification of signs and symbols 2.3 Identification of units of measurement 2.4 Identification of units of conversion 2.5 Terms and abbreviations used 2.6 Construction manual
3. Underpinning skills	<ul style="list-style-type: none"> 3.1 Identifying appropriate manuals 3.2 Identifying drawings and specifications 3.3 Interpreting drawings and specifications 3.4 Identifying sign and symbols
4. Underpinning attitudes	<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	<ul style="list-style-type: none"> 5.1 Pens 5.2 Telephone 5.3 Computer
6. Methods of assessment	<p>Competency should be assessed by:</p> <ul style="list-style-type: none"> 6.1 Written test 6.2 Demonstration 6.3 Oral questioning
7. Context of assessment	<ul style="list-style-type: none"> 7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor
<p>Accreditation Requirements</p> <p>Training Providers must be accredited by National Skills Development Authority (NSDA), 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 NSQF qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.</p>	

Occupation Specific Units of Competencies

Unit Code and Title	OU-CON-RB-01-L2-V1: Perform Fundamental Works of Rod Binding
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to perform fundamental works of rod binding. It specifically includes the task of identifying basic building components, identifying materials for rod binding works, interpreting drawing and specifications, performing basic measurement and calculations and maintaining tools, equipment and workplace.
Nominal Hours	30 Hours
Elements of Competency	Performance Criteria <u>Bold & underlined</u> terms are elaborated in the Range of Variables
1. Identify basic building components.	1.1 <u>Personal Protective Equipment (PPE)</u> are worn as per job requirement. 1.2 Model building structure is collected. 1.3 Main <u>building components</u> are identified from a model building structure. 1.4 Name of main building components are listed. 1.5 Function of main building components are interpreted.
2. Identify materials for rod binding works	2.1 <u>Materials</u> are collected and kept on table separately. 2.2 Materials are identified and tagged. 2.3 Use of materials are interpreted.
3. Interpret drawing and specifications	3.1 Relevant <u>drawings</u> are identified as per requirement. 3.2 Specifications are interpreted. 3.3 Terms and abbreviations are interpreted from the relevant drawing. 3.4 Bar schedule is interpreted
4. Perform basic measurement and calculations	4.1 <u>Measuring units</u> are interpreted as per workplace requirement. 4.2 <u>Measuring instruments</u> are selected as per requirement. 4.3 <u>Measurement</u> of <u>shapes</u> are taken using measuring instrument. 4.4 Required materials are calculated.

5. Maintain tools, equipment and workplace	<p>5.1 Tools and equipment are cleaned as per manufacturer instruction.</p> <p>5.2 Tools, equipment and materials are restored as per workplace procedure.</p> <p>5.3 Defective tools and equipment are identified, separated and reported.</p> <p>5.4 Workplace is cleaned.</p> <p>5.5 Waste materials are disposed in the designated place.</p>
Range of Variables	
Variable	Range (may include but not limited to):
1. Personal Protective Equipment (PPE)	<p>1.1 Helmet</p> <p>1.2 Goggles</p> <p>1.3 Mask</p> <p>1.4 Apron</p> <p>1.5 Hand Gloves</p> <p>1.6 Safety shoes</p> <p>1.7 Ear plug</p>
2. Building components	<p>2.1 Foundation</p> <p>2.2 Pedestal</p> <p>2.3 Column</p> <p>2.4 Grade beam</p> <p>2.5 Lintel</p> <p>2.6 Sunshade</p> <p>2.7 Beam</p> <p>2.8 Slab</p> <p>2.9 Parapet wall</p> <p>2.10 Drop wall</p> <p>2.11 Shear wall</p> <p>2.12 Balcony</p> <p>2.13 Stair</p> <p>2.14 Overhead water tank</p> <p>2.15 Underground water reservoir</p>

3. Materials	<ul style="list-style-type: none"> 3.1 MS bar (Rod) 3.2 Chalk/ Marker pen 3.3 Timber Section/ Jugan 3.4 Wood/ bamboo posts 3.5 Nail 3.6 Cement 3.7 Sand 3.8 Water 3.9 Mug 3.10 Bucket 3.11 Nylon string 3.12 Masonry tray/ pan 3.13 Wood Batten 3.14 Wire brush 3.15 Emery paper (Water proof) 3.16 Drill bit 3.17 GI Wire 3.18 Cutting disc
4. Drawings	<ul style="list-style-type: none"> 4.1 Structural Drawings 4.2 Bar Schedule
5. Measuring units	<ul style="list-style-type: none"> 5.1 FPS system 5.2 SI unit
6. Measuring instruments	<ul style="list-style-type: none"> 6.1 Try Square 6.2 Micrometers 6.3 Slide calipers 6.4 Steel tape 6.5 S.W.G. 6.6 Measuring tape 6.7 Calculator 6.8 Plumb Bob 6.9 Water level 6.10 Spirit level 6.11 Weighing machine
7. Measurements	<ul style="list-style-type: none"> 7.1 Length 7.2 Width 7.3 Height 7.4 Depth 7.5 Diameter 7.6 Quantities of materials
8. Shapes	<ul style="list-style-type: none"> 8.1 Triangular 8.2 Square 8.3 Rectangular

	8.4 Circular 8.5 Angular 8.6 Polygonal
9. Calculations	9.1 Addition 9.2 Subtraction 9.3 Multiplication 9.4 Division 9.5 Mass 9.6 Area 9.7 Volume
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment required evidences that the candidate: 1.1 interpreted main building components 1.2 identified different types of rod binding materials 1.3 interpreted drawings and specifications for rod binding works 1.4 interpreted sign and symbols from drawing 1.5 took measurement of shapes with measuring instrument 1.6 carried out calculations following appropriate methods.
2. Underpinning knowledge	2.1 Basic building components and their functions 2.2 Materials use and specification. 2.3 Identification of different types of rod binding materials. 2.4 Types of Drawings. 2.5 Terms and abbreviations used. 2.6 Identification of Signs and Symbols. 2.7 Identification of Units of Measurement. 2.8 Calculations following 2.9 Storing knowledge. 2.10 Cleaning knowledge.
3. Underpinning skills	3.1 Making a list of basic building components 3.2 Identifying rod binding materials. 3.3 Interpreting Drawings and Specifications. 3.4 Interpreting plan, elevation and section. 3.5 Taking measurement of shapes 3.6 Performing calculations as per requirement.

4. Required attitudes	<ul style="list-style-type: none"> 4.1 Commitment to occupational safety and health. 4.2 Promptness in carrying out activities. 4.3 Sincere and honest to duties. 4.4 Eagerness to learn. 4.5 Tidiness and timeliness. 4.6 Environmental concerns. 4.7 Respect for rights of peers and seniors at workplace. 4.8 Communication with peers and seniors at workplace.
5. Resources implication	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> 5.1 workplace (actual or simulated) 5.2 construction materials 5.3 tools appropriate to the construction process 5.4 information and documentation 5.5 product specifications 5.6 manual, codes, standards and reference materials.
6. Methods of assessment	<p>Methods of assessment may include but not limited to:</p> <ul style="list-style-type: none"> 6.1 written test 6.2 demonstration 6.3 oral questioning
7. Context for assessment	<ul style="list-style-type: none"> 7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor
<p>Accreditation Requirements</p> <p>Training Providers must be accredited by National Skills Development Authority (NSDA), 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 qualification under NSQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.</p>	

Unit Code and Title	OU-CON-RB-02-L2-V1: Use Tools for Rod Binding Works
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to use tools for rod binding works. It specifically includes the task of identifying tools, using hand tools, using power tools, performing basic preventive maintenance and maintaining tools, equipment and workplace.
Nominal Hours	30 Hours
Elements of Competency	Performance Criteria <u>Bold & underlined</u> terms are elaborated in the Range of Variables
1. Identify tools	1.1 <u>Hand tools</u> are identified and selected. 1.2 Use of hand tools are interpreted 1.3 <u>Power tools</u> are identified and selected. 1.4 Use of power tools are interpreted 1.1 <u>Applications</u> of tools are defined.
2. Use hand tools	2.1. <u>Personal Protective Equipment (PPE)</u> are used as per nature of job. 2.2. Hand tools are prepared for works according to workplace procedures. 2.3. Proper hand-eye coordination is applied when using hand tools. 2.4. Safety requirements are complied with before, during and after use. 2.5. Unsafe or faulty tools are identified and marked for repair according to workplace procedures.
3. Use power tools	3.1 <u>Power sources</u> are recognized. 3.2 Power tools are prepared according to workplace procedures. 3.3 Route for power supply established in accordance with work safety requirements. 3.4 Power tools are used as per job requirement following Standard Operating Procedure (SOP).
4. Perform basic preventive maintenance	5.1. Tools are inspected and reported to supervisor as per work place procedure. 5.2. Tools and equipment are cleaned according to workplace instructions. 5.3. Appropriate <u>lubricants</u> are identified. 5.4. Tools and equipment are lubricated.

5. Maintain tools, equipment and workplace	5.1. Tools and equipment are cleaned as per manufacturer instruction. 5.2. Tools, equipment and materials are restored as per workplace procedure. 5.3. Defective tools and equipment are identified, separated and reported. 5.4. Workplace is cleaned. 5.5. Waste materials are disposed in the designated place.
Range of Variables	
Variable	Range (may include but not limited to):
1. Hand tools	1.1 Anvil / rail 1.2 Rod Bender/handle 1.3 Sledge hammer 1.4 Chisel 1.5 Hammer 1.6 Fork 1.7 Hack Saw 1.8 Measuring Tape 1.9 Ball Peen Hammer 1.10 Tri-Square 1.11 Protractor 1.12 Hand Saw 1.13 Trowel 1.14 Shovel 1.15 Masonry Tray 1.16 Claw Hammer 1.17 Bars (crow and pitch) 1.18 Wire cutting Pliers 1.19 Bolt Cutter 1.20 File 1.21 Hook Key/ Tie Roller 1.22 Plumb bob 1.23 Water Level 1.24 Spirit level
2. Power tools	2.1 Rod Cutting machine 2.2 Angle grinding machine 2.3 Disc Cutter machine
3. Applications	3.1 Adjusting 3.2 Aligning 3.3 Assembling 3.4 Drilling

	3.5 Clamping 3.6 Cleaning 3.7 Cutting 3.8 Dismantling 3.9 Finishing 3.10 Lubricating 3.11 Scraping 3.12 Simple Tool Repairs 3.13 Tightening
4. Personal Protective Equipment (PPE)	4.1 Dust mask 4.2 Safety glasses / Goggles 4.3 Gloves 4.4 Safety shoes / boots 4.5 Aprons 4.6 Face masks 4.7 Coveralls 4.8 Helmet 4.9 Ear plug 4.10 Safety belt
5. Power sources	5.1 Electric 5.2 Pneumatic 5.3 Hydraulic
6. Lubricants	5.1 Grease 5.2 Mobil
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.	
1. Critical aspect of competency	Assessment required evidences that the candidate: <ol style="list-style-type: none"> 1.1 followed OHS as per job requirement 1.2 identified appropriate tools 1.3 used hand tools with appropriate method 1.4 used power tools with appropriate SOP 1.5 performed preventive maintenance.
2. Underpinning knowledge	<ol style="list-style-type: none"> 2.1 Definition of tools. 2.2 Types of tools. 2.3 Different types of power sources. 2.4 Procedure of the use of hand tools and power tools. 2.5 Application of hand tools and power tools. 2.6 Basic preventive maintenance of tools.
3. Underpinning skills	<ol style="list-style-type: none"> 3.1 Identifying appropriate tools. 3.2 Using hand tools with appropriate method. 3.3 Using power tools with appropriate SOP.

	3.4 Performing preventive maintenance.
4. Required attitudes	4.1 Commitment to occupational safety and health. 4.2 Promptness in carrying out activities. 4.3 Sincere and honest to duties. 4.4 Eagerness to learn 4.5 Tidiness and timeliness 4.6 Environmental concerns 4.7 Respect for rights of peers and seniors at workplace. 4.8 Communicate with peers and seniors at workplace.
5. Resource implication	The following resources must be available: 5.1 workplace (actual or simulated) 5.2 tools, equipment, materials and physical facilities appropriate to perform activities 5.3 relevant drawings, manuals and reference materials 5.4 required PPE.
6. Methods of assessment	Methods of assessment may include but not limited to: 6.1 written test 6.2 demonstration 6.3 oral questioning
7. Context of assessment	7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor
<p>Accreditation Requirements</p> <p>Training Providers must be accredited by National Skills Development Authority (NSDA), 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 qualification under NSQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.</p>	

Unit Code and Title	OU-CON-RB-03-L2-V1: Prepare Rod for Work
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to prepare rod for work. It specifically includes the task of preparing for works, preparing working bench, straightening rods / bars, cutting rods / bars as per measurement, bending rod / bar and maintaining tools, equipment and workplace
Nominal Hours	50 Hours
Elements of Competency	Performance Criteria <u>Bold & underlined</u> terms are elaborated in the Range of Variables
1. Prepare for works	<p>1.1 <u>Personal Protective Equipment (PPE)</u> is used.</p> <p>1.2 <u>Tools and equipment</u> are selected and collected as per job requirements.</p> <p>1.3 <u>Materials</u> are selected and collected.</p>
2. Prepare working bench	<p>2.1 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 with GI wire and nail.</p> <p>2.4 Two zigs are inserted at the top of horizontal bench following the distance 50 to 75 mm 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 soil and the rest half with cement concrete.</p> <p>2.7 Durability of work bench is checked.</p>
3. Straighten rods / bars	<p>3.1. Single rod from the bundle is separated and placed on levelled ground.</p> <p>3.2. Folded part of rod is unfolded using rod / bar 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 wire brush.</p>
4. Cut rods / bars 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 measurement.</p> <p>4.3 The straight rod is cut using appropriate tools.</p> <p>4.4 Measurement of rod is checked as per specification</p>

5. Bend rod/bar	<p>5.1 Bar schedule is interpreted.</p> <p>5.2 Cut rods / bars are identified as per requirement.</p> <p>5.3 Length of each rod is calculated.</p> <p>5.4 Rod is marked for bending as per specification / drawing.</p> <p>5.5 Rod bending is performed in required shape.</p> <p>5.6 Measurement of bend is checked as per specification</p>
6. Maintain tools, equipment and workplace	<p>6.1 Work area and tools are cleaned as per requirement of workplace procedure.</p> <p>6.2 Tools and equipment are stored as per manufacturer's instruction.</p> <p>6.3 Unused materials are stored in the designated place.</p> <p>6.4 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. Tools and equipment	<p>2.1 Bar Bender</p> <p>2.2 Measuring tape</p> <p>2.3 Ball peen Hammer</p> <p>2.4 Working bench</p> <p>Power Tools</p> <p>2.5 Disc cutter machine</p> <p>2.6 Grinding machine</p> <p>2.7 Electric hand drill machine</p> <p>2.8 Rod Bender Machine</p>
3. Materials	<p>3.1 Rod</p> <p>3.2 Timber section/ Jugan</p> <p>3.3 Chalk/marker</p> <p>3.4 Nails</p>
4. Rod bending	<p>4.1 45⁰ angle</p> <p>4.2 60⁰ angle</p> <p>4.3 90⁰ angle</p> <p>4.4 135⁰ angle</p>

	<p>4.5 180⁰ angle/ U-hook</p> <p>4.6 Circular</p>
<p>Evidence Guide</p> <p>The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.</p>	
<p>1. Critical aspect of competency</p>	<p>Assessment required evidences that the candidate:</p> <p>1.1 followed safety procedures</p> <p>1.2 selected quality materials</p> <p>1.3 prepared power tools, hand tools and equipment as required</p> <p>1.4 fixed posts with horizontal member</p> <p>1.5 cleaned rod to remove rust</p> <p>1.6 bended rod as per measurement / bar schedule</p> <p>1.7 bent rod must be uniform in shape and size</p> <p>1.8 kept measurement tolerance $\pm 5^\circ$ and $\pm 5\text{mm}$.</p>
<p>2. Underpinning knowledge</p>	<p>2.1 List required tools, equipment and materials.</p> <p>2.2 Different diameter of rod.</p> <p>2.3 Procedure of straightening folded rod.</p> <p>2.4 Use of bending key (handle).</p> <p>2.5 Use of Bar Schedule.</p> <p>2.6 Cutting techniques using Disk cutter machine.</p> <p>2.7 Different shape of bend rod.</p>
<p>3. Underpinning skills</p>	<p>3.1 Identifying of materials according to specification.</p> <p>3.2 Checking quality of materials.</p> <p>3.3 Handling tools and equipment.</p> <p>3.4 Straightening rod for use.</p> <p>3.5 Cutting rod as per measurement.</p> <p>3.6 Checking different angles</p> <p>3.7 Applying technique of rod bending</p>
<p>4. Required attitudes</p>	<p>4.1 Commitment to occupational safety and health.</p> <p>4.2 Promptness in carrying out activities.</p> <p>4.3 Sincere and honest to duties.</p> <p>4.4 Eagerness to learn.</p> <p>4.5 Tidiness and timeliness.</p> <p>4.6 Environmental concerns.</p> <p>4.7 Respect for rights of peers and seniors at workplace.</p> <p>4.8 Communicate with peers and seniors at workplace.</p>

5. Resource implication	<p>The following resources must be available:</p> <ul style="list-style-type: none"> 5.1 workplace (actual or simulated) 5.2 tools, equipment, materials and physical facilities appropriate to perform activities 5.3 relevant drawings, manuals and reference materials 5.4 required PPE.
6. Methods of assessment	<p>Methods of assessment may include but not limited to:</p> <ul style="list-style-type: none"> 6.1 written test 6.2 demonstration 6.3 oral questioning
7. Context of assessment	<ul style="list-style-type: none"> 7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor
<p>Accreditation Requirements</p> <p>Training Providers must be accredited by National Skills Development Authority (NSDA), 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 qualification under NSQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.</p>	

Unit Code and Title	OU-CON-RB-04-L2-V1: Prepare Stirrups and Ties
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to prepare stirrup and ties. It specifically includes the task of collecting tools, equipment and materials, preparing rod for stirrups or tie, making stirrup or tie and maintaining tools, equipment and workplace
Nominal Hours	60 Hours
Elements of Competency	Performance Criteria <u>Bold & underlined</u> terms are elaborated in the Range of Variables
1. Collect tools, equipment and materials	1.1 <u>Personal Protective Equipment (PPE)</u> is selected and worn. 1.2 Drawings are collected and identified with help of senior as per job requirements. 1.3 <u>Tools and equipment</u> are selected and collected as per job requirements. 1.4 <u>Materials</u> are selected and collected according to job requirements.
2. Prepare rod for stirrups and ties	2.1 <u>Stirrups</u> are identified as per bar schedule. 2.2 Total length for each stirrup is calculated. 2.3 Rod is marked and cut as per requirement.
3. Make stirrups and ties	3.1 Rod is bent as per drawing / measurement. 3.2 Work bench is used. 3.3 <u>Size and shape</u> of stirrup is measured and checked
4. Maintain tools, equipment and workplace	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 selected place. 4.4. Waste materials are disposed as per workplace 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 1.8 Safety belt/Harness
2. Tools and equipment	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 Power tools 2.10 Disc cutter machine 2.11 Grinding machine 2.12 Bar shearing machine Equipment 2.13 Working Bench (Jugan)
3. Materials	3.1 MS Bar (Rod) 3.2 Chalk
4. Size and shape	4.1 Rectangular 4.2 Square 4.3 Triangular 4.4 Circular 4.5 Polygonal
Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.	
1. Critical aspect of competency	Assessment requires evidence that the candidate: <ol style="list-style-type: none"> 1.1 followed safety procedures 1.2 prepared power tools, hand tools and equipment 1.3 kept uniform shape and size of stirrup 1.4 kept same hook length for each stirrup 1.5 prepared stirrups as per measurement / drawing 1.6 kept measurement tolerance $\pm 5\text{mm}$ and 50 1.7 measured and checked size and shape of stirrup.

2. Underpinning knowledge	<ul style="list-style-type: none"> 2.1 List required tools, equipment and materials. 2.2 Difference between stirrups and ties. 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	<ul style="list-style-type: none"> 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 attitudes	<ul style="list-style-type: none"> 4.1 Commitment to occupational safety and health. 4.2 Promptness in carrying out activities. 4.3 Sincere and honest to duties. 4.4 Eagerness to learn. 4.5 Tidiness and timeliness. 4.6 Environmental concerns. 4.7 Respect for rights of peers and seniors at workplace. 4.8 Communicate with peers and seniors at workplace.
5. Resource implication	<p>The following resources must be available:</p> <ul style="list-style-type: none"> 5.1 workplace (actual or simulated) 5.2 tools, equipment, materials and physical facilities appropriate to perform activities 5.3 relevant drawings, manuals and reference materials 5.4 required PPE.
6. Methods of assessment	<p>Methods of assessment may include but not limited to:</p> <ul style="list-style-type: none"> 6.1 written test 6.2 demonstration 6.3 oral questioning.
7. Context of assessment	<ul style="list-style-type: none"> 7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor
<p>Accreditation Requirements</p> <p>Training Providers must be accredited by National Skills Development Authority (NSDA), 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 qualification under NSQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA</p>	

Unit Code and Title	OU-CON-RB-05-L2-V1: Perform Rod Binding for Base / Footing
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to perform rod binding base / footing. It specifically includes the task of collecting tools, equipment and materials, preparing rod for base / footing, fixing rod for base / footing and maintaining workplace, tools, equipment and materials.
Nominal Hours	50 Hours
Elements of Competency	Performance Criteria <u>Bold & underlined</u> terms are elaborated in the Range of Variables
1. Collect tools, equipment and materials	1.1 <u>Personal Protective Equipment (PPE)</u> is selected and worn. 1.2 Drawings are collected and identified with the help of senior as per job requirements. 1.3 <u>Tools and Equipment</u> are selected and collected as per job requirements. 1.4 <u>Materials</u> are selected and collected according to job requirements.
2. Prepare rod for base / footing	2.1 Length of each rod is calculated for both long and short direction. 2.2 Total number rods are calculated for both long and short direction. 2.3 Rods are marked and cut in required size. 2.4 End part of each rod is bent at 90 ⁰ / 180 ⁰ angle.
3. Fix rod for base / footing	3.1 Plane surface is selected to <u>tie</u> . 3.2 Four outer rods are marked as spacing given in the drawing 3.3 Four outer rods are tied with GI wire at four corners. 3.4 Spacer/ covering block is used under footing rod. 3.5 Rods in long and short direction are placed along the marked points as per drawing. 3.6 Each cross point of rods is tied by GI wire. 3.7 Measurement and alignment are checked.
4. Maintain tools, equipment and workplace	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 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. Tools and equipment	2.1 Anvil 2.2 Rod Bender/Handle/Bar bender 2.3 Sledge Hammer 2.4 Cold chisel 2.5 Measuring tape 2.6 Ball peen Hammer 2.7 Tie roller 2.8 Wire cutter 2.9 Tri- square
3. Materials	3.1 MS Bar (Rod). 3.2 GI Wire (22 or 24 Gauge) 3.3 Chalk/ Marker 3.4 String
4. Tie	4.1 Simple 4.2 Cross 4.3 Corner
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.	

1. Critical aspect of competency	<p>Assessment required evidences that the candidate:</p> <ol style="list-style-type: none"> 1.1 followed safety procedures 1.2 selected quality materials 1.3 prepared net for base / footing as required 1.4 followed rod spacing 1.5 kept equal diagonal measurement 1.6 kept measurement tolerance is ± 05 mm and 50. 1.7 used rust free rod and GI wire 1.8 maintain clear cover in all directions 1.9 checked tightness of cross point.
2. Underpinning knowledge	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 attitudes	<ol style="list-style-type: none"> 4.1 Commitment to occupational safety and health. 4.2 Promptness in carrying out activities. 4.3 Sincere and honest to duties. 4.4 Eagerness to learn. 4.5 Tidiness and timeliness. 4.6 Environmental concerns. 4.7 Respect for rights of peers and seniors at workplace. 4.8 Communicate with peers and seniors at workplace.
5. Resource implication	<p>The following resources must be available:</p> <ol style="list-style-type: none"> 5.1 workplace (actual or simulated) 5.2 tools, equipment, materials and physical facilities appropriate to perform activities 5.3 relevant drawings, manuals and reference materials 5.4 required PPE.
6. Methods of assessment	<p>Methods of assessment may include but not limited to:</p> <ol style="list-style-type: none"> 6.1 written test 6.2 demonstration 6.3 oral questioning

7. Context of assessment	<p>7.1 Competency assessment must be done in NSDA accredited assessment centre</p> <p>7.2 Assessment should be done by a NSDA certified/nominated assessor</p>
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Accreditation Requirements

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Unit Code and Title	OU-CON-RB-06-L2-V1: Perform Rod Binding for Column
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to perform rod binding for column. It specifically includes the task of preparing for works, preparing steel reinforcements for column, making tie for column, fixing ties with column bar and maintaining tools, equipment and workplace.
Nominal Hours	50 Hours
Elements of Competency	Performance Criteria <u>Bold & underlined</u> terms are elaborated in the Range of Variables
1. Prepare for works	1.1 <u>Personal Protective Equipment (PPE)</u> is collected and worn as per job requirement. 1.2 Workplace is prepared as per job requirement. 1.3 <u>Tools, equipment</u> and <u>materials</u> are selected and collected as per job requirement.
2. Prepare steel reinforcements for column	2.1 Length of each rod is measured as per bar schedule. 2.2 Rod is cut as per measurement. 2.3 Rods are straightened as per job requirement. 2.4 Rod is marked for bending as per bar schedule. 2.5 Rod is bent in required shape. 2.6 Length and angle are checked as per drawing.
3. Make tie for column	3.1 Tie is prepared as per bar schedule. 3.2 Size and shape of tie is measured and checked according to specification.
4. Fix ties with column bar	4.1 Vertical bar is measured and marked as per drawing. 4.2 Ties are inserted into vertical bar and placed hook in alternate direction 4.3 Ties are fixed and tied with vertical bar using GI wire at marked position. 4.4 Ties spacing are checked. 4.5 Vertical and horizontal alignment are checked.
5. Maintain tools, equipment and workplace	5.1 Tools and equipment are cleaned as per manufacturer instruction. 5.2 Tools, equipment and materials are restored as per workplace procedure. 5.3 Defective tools and equipment are identified, separated and reported. 5.4 Workplace is cleaned.

	5.5 Waste materials are disposed in the designated place.
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 1.8 Safety belt/ safety harness
2. Tools, equipment	Hand tools 2.1 Anvil/Rail 2.2 Rod Bender 2.3 Ball peen Hammer 2.4 Measuring tape 2.5 Tri square 2.6 Plumb bob 2.7 Hook key 2.8 Wire cutting pliers 2.9 Working bench
3. Materials	3.1 Rod 3.2 Chalk/ marker pen 3.3 GI wire 3.4 Broom stick 3.5 Plastic belcha 3.6 Cotton jute 3.7 Hand wash
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.	
1. Critical aspect of competency	Assessment required evidences that the candidate: 1.1 applied safety procedures 1.2 prepared power tools, hand tools and equipment as required 1.3 checked Length and angle 1.4 checked alignment 1.5 measured angle as per drawing 1.6 kept uniform shape and size of stirrup 1.7 prepared stirrups as per measurement / drawing 1.8 kept measurement tolerance $\pm 5\text{mm}$ and 50 1.9 measured and checked the size and shape of stirrup

2. Underpinning knowledge	2.1 Tools, equipment and materials. 2.2 Interpret bar schedule 2.3 Different types of shapes and sizes 2.4 Types of ring 2.5 Measurement knowledge 2.6 Types of rods
3. Underpinning skills	3.1 Handling tools and equipment. 3.2 Applying technique to prepare rod. 3.3 Performing rod bent is required shape. 3.4 Making stirrup for column. 3.5 Fixing, tying.
4. Required attitudes	4.1 Commitment to occupational safety and health. 4.2 Promptness in carrying out activities. 4.3 Sincere and honest to duties. 4.4 Eagerness to learn. 4.5 Tidiness and timeliness. 4.6 Environmental concerns. 4.7 Respect for rights of peers and seniors at workplace. 4.8 Communicate with peers and seniors at workplace.
5. Resource implication	The following resources must be available: 5.1 workplace (actual or simulated) 5.2 tools, equipment, materials and physical facilities appropriate to perform activities. 5.3 relevant drawings, manuals, standards and reference materials. 5.4 required PPEs.
6. Methods of assessment	Methods of assessment may include but not limited to: 6.1 written test 6.2 demonstration 6.3 oral questioning
7. Context of assessment	7.1 Competency assessment must be done in NSDA accredited assessment centre 7.2 Assessment should be done by a NSDA certified/nominated assessor

Accreditation Requirements

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Development of Competency Standard

The Competency Standards for National Skills Certificate in Rod Binding, Level-2 is developed by SEIP on 14th of February 2016.

List of Members

SI No	Name and Address	Position in the committee
1.	Nibir kanti Sarker, Head (Machinery Division), Project builders Ltd. (PBL)	Member
2.	Faysoluzzaman, Project Engineer, Diligent Engineers,	Member
3.	Md. Samin Yasar, Site Engineer, Building Design & Consultant	Member
4.	Mr. Md. Monirul Islam, Project Engineer, National Development Engineers	Member
5.	Mr. Md. Jalal Mia, Manager, Atlanta group of industries	Member
6.	Engr. Dilip Kumar Sarker, Deputy Chief engineer, Project Builders Ltd. (PBL)	Member
7.	Md. Mohiuddin Ahmed Samsuddin, Sr. Site Engineer, Mia & Associates Ltd.	Member
8.	Md. Amanulla, Sr. Engineer, Engineer foundation & Consultant	Member
9.	Md. Khairuzzaman, Sr. Project Engineer, Mia Asset development and holding Ltd.	Member
10.	Md. Majed Ali, Sr. Project Engineer, Asset Development & holding	Member

Validation of Competency Standard

The Competency Standards for National Skills Certificate in Rod Binding, Level- 2 is validated by NSDA 30th August 2022.

List of Members of SCVC

Sl No	Name and Address	Position in the committee	Signature
1.	Engr Shafiqul Alam Bhuiyan, Chairman, CISC, Email: sabhuiyan63@gmail.com , Mobile: 01711522766	Chairperson	
2.	Md. Hasmot Ali Biswas, Instructor-Rtd, (Civil Construction), BKTTC, Resource person, LGED, Dhaka., Email: hasmotalibiswas@gmail.com , Mobile: 01712561057	Member	
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5.	Md Mijanur Rahman, Manager construction, H.I Technology and Properties Ltd., Email: engrmijanrahman@gmail.com , Mobile: 01712184303.	Member	
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