



Quality Technician

QP Code: CON/Q0403

Version: 1.0

NSQF Level: 6

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CON/Q0403: Quality Technician

Brief Job Description

This job role is responsible for conducting test of construction material in site laboratory, carrying out inspection of construction material, work quality at site and conducting field testing. Also job holder is responsible for maintaining QA/QC documents and maintaining construction site laboratory as Quality Management System (QMS). The individual should possess sound technical knowledge, should be able to monitor and maintain safe and quality working practices.

Personal Attributes

This job role requires the individual to be physically and mentally strong enough to oversee the quality control work at a construction site. The individual should be having strong organizational, interpersonal and communication skills, along with comprehensive technical knowledge of quality assurance and quality control operations and ability to supervise construction crew.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [CON/N0407: Conduct testing of construction material as per IS standards/work method statement and compute test result](#)
2. [CON/N0408: Carry out inspection of construction material, work quality at site and conduct field test](#)
3. [CON/N0409: Maintain QA/QC documents as per Quality Management system](#)
4. [CON/N0410: Maintain construction site laboratory](#)
5. [CON/N8003: Supervise, monitor and evaluate performance of subordinates at workplace](#)
6. [CON/N9002: Manage workplace for safe and healthy work environment](#)

Qualification Pack (QP) Parameters

Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Quality Assurance & Quality Control
Country	India



Qualification Pack



NSQF Level	6
Credits	NA
Aligned to NCO/ISCO/ISIC Code	NCOâ€¢2004/3111.10
Minimum Educational Qualification & Experience	12th Class with 5-10 Years of experience as a certified Construction Laboratory & Field Technician OR 12th Class with 5-10 Years of experience in case of a Non trained worker, in same occupation
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	Recommended training period of 20-24 weeks as per QP of Quality Technician
Minimum Job Entry Age	18 Years
Last Reviewed On	23/08/2015
Next Review Date	31/03/2022
Deactivation Date	31/03/2022
NSQC Approval Date	09/10/2017
Version	1.0
Reference code on NQR	2017/CON/CSDCI/02016
NQR Version	1.0



CON/N0407: Conduct testing of construction material as per IS standards/work method statement and compute test result

Description

This unit describes the skills and knowledge required to conduct testing of construction material as per IS standards/work method statement and compute test result

Scope

The scope covers the following:

- Cement: Consistency, Initial and final setting, fineness, soundness, specific gravity,
- Concrete: Slump test, compressive strength
- Fine aggregate: Specific gravity, particle size distribution, silt content, bulking
- Coarse aggregate: Specific gravity, bulk density, gradation, flakiness and elongation index, crushing value, impact value, abrasion value
- Bitumen: Bitumen content, specific gravity, ductility, penetration, softening point, flash and fire point, Marshall stability
- Brick & concrete block: Water absorption, compressive strength

Elements and Performance Criteria

Conduct testing of construction material as per IS standard code /work method statement and compute test result

To be competent, the user/individual on the job must be able to:

- PC1.** read and understand standard test procedure for testing of cement, aggregate, sand, bitumen, brick, concrete blocks, soil, concrete in the site laboratory
- PC2.** ensure right test sample is selected for testing as per tagging/coding/numbering
- PC3.** ensure instrument, equipments used for tests are calibrated as per schedule of calibration
- PC4.** ensure all tools, apparatus, instrument and equipments are available in the site laboratory and are in proper working condition
- PC5.** oversee sample preparation and test done by sub-ordinates
- PC6.** ensure test instrument are operated and loads are applied for required test as per manufacturers guideline confirming to is standards for testing
- PC7.** read and record dial reading in a test register as shown by the test instruments in standard test performa
- PC8.** record observation while conducting test in an observation sheet
- PC9.** fill test report containing detail of test such as type of material, testing date, identification of sample, dial reading, observation during test, weight of material, average value of test, test method reference etc
- PC10.** compute the result of test performed for cement, aggregate, sand, bitumen, brick, concrete blocks, soil, concrete for approval from quality engineer/laboratory-incharge

Knowledge and Understanding (KU)



Qualification Pack



The individual on the job needs to know and understand:

- KU1.** standard practices for quality control works at construction site
- KU2.** safety rules and regulations for handling and storing required tools, equipment and materials
- KU3.** personal protection including the use of related safety gears & equipments
- KU4.** service request procedures for tools, materials and equipments
- KU5.** statutory compliance requirement related to workmen engagement
- KU6.** how to conduct testing of construction material as per IS standard
- KU7.** standard practices for tagging/coding/numbering
- KU8.** different types of field test for soil, concrete, bitumen
- KU9.** field test for cement, bricks, AEC blocks
- KU10.** method for extracting soil, bitumen samples from field
- KU11.** procedure for sampling of testing material and preparation of test specimen
- KU12.** method for transporting test sample from field to site laboratory
- KU13.** time period for periodical testing of construction material
- KU14.** type and use of construction material and relevance & testing
- KU15.** storing and handling of construction material
- KU16.** how to read dial reading on testing instrument
- KU17.** handling technique of tools and equipments
- KU18.** upkeep repair and maintenance of tools and equipments
- KU19.** preservation of equipments from dust and heat
- KU20.** standard time period for periodical calibration of machines and equipment
- KU21.** disposal/ utilization of tested material in appropriate manner
- KU22.** standard housekeeping procedure
- KU23.** use of personal protective equipments
- KU24.** different environmental norms and policies
- KU25.** maintenance of register for testing of incoming material
- KU26.** acceptance criteria of construction material
- KU27.** physical property of construction material
- KU28.** arithmetic calculation, interpolation, graphical understanding
- KU29.** computer literacy, basics of MS office and internet
- KU30.** mix design process for concrete

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** write in one or more language, preferably in the local language of the site
- GS2.** provide clear and simple instructions, details & sketches to sub-ordinate
- GS3.** record and document daily productivity report, daily labour attendance & details regarding work
- GS4.** prepare basic status updates for the superiors in the prescribed format



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- GS5.** read one or more language, preferably in the local language of the site
- GS6.** read standard testing procedures for construction materials
- GS7.** read key documents including quality standards and standard working methods
- GS8.** read various, sign boards, safety rules and safety tags , instructions related to exit routes during emergency at the workplace
- GS9.** speak in one or more language, preferably in one of the local languages of the site
- GS10.** listen and follow instructions clearly given by the superior
- GS11.** provide clear instructions to subordinates for completion of task as per work plan, time schedule and quality
- GS12.** decide for the acceptance of material sample to be tested
- GS13.** decide on the acceptance of test specimen prepared by the sub-ordinate
- GS14.** decide on the utilization/disposal of tested materia
- GS15.** plan work & organize required resource in coordination with team members and superior
- GS16.** plan work targets, allocate time schedule to sub-ordinates and organize completion of task within allocated time
- GS17.** plan for availability of required materials and tools in construction laboratory
- GS18.** conduct material testing at site and in construction laboratory as per IS standard code/work method statement
- GS19.** record and document test result as per Quality Management System (QMS)
- GS20.** resolve and solve any conflict within the team
- GS21.** oversee the testing procedure and take rectification measures if required
- GS22.** analyze and compute the result of the test performed
- GS23.** do a trail mix of concrete cube by varying the amount of water and other components so as to get desired strength of concrete
- GS24.** check proper functioning of testing instruments and equipments
- GS25.** adverse effect of excessive water or cement content in concrete trail mix design
- GS26.** ensure adopted method used for testing is as per is standard/standard work method statement



Qualification Pack



Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Conduct testing of construction material as per IS standard code /work method statement and compute test result</i>	50	50	-	-
PC1. read and understand standard test procedure for testing of cement, aggregate, sand, bitumen, brick, concrete blocks, soil, concrete in the site laboratory	5	5	-	-
PC2. ensure right test sample is selected for testing as per tagging/coding/numbering	5	5	-	-
PC3. ensure instrument, equipments used for tests are calibrated as per schedule of calibration	5	5	-	-
PC4. ensure all tools, apparatus, instrument and equipments are available in the site laboratory and are in proper working condition	5	5	-	-
PC5. oversee sample preparation and test done by sub-ordinates	5	5	-	-
PC6. ensure test instrument are operated and loads are applied for required test as per manufacturers guideline confirming to is standards for testing	5	5	-	-
PC7. read and record dial reading in a test register as shown by the test instruments in standard test performa	5	5	-	-
PC8. record observation while conducting test in an observation sheet	5	5	-	-
PC9. fill test report containing detail of test such as type of material, testing date, identification of sample, dial reading, observation during test, weight of material, average value of test, test method reference etc	5	5	-	-
PC10. compute the result of test performed for cement, aggregate, sand, bitumen, brick, concrete blocks, soil, concrete for approval from quality engineer/laboratory-incharge	5	5	-	-
NOS Total	50	50	-	-



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National Occupational Standards (NOS) Parameters

NOS Code	CON/N0407
NOS Name	Conduct testing of construction material as per IS standards/work method statement and compute test result
Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Quality Assurance & Quality Control
NSQF Level	6
Credits	TBD
Version	1.0
Last Reviewed Date	23/08/2015
Next Review Date	31/03/2022
NSQC Clearance Date	09/10/2017



CON/N0408: Carry out inspection of construction material, work quality at site and conduct field test

Description

This unit describes the skills and knowledge required to carry out inspection of construction material, work quality at site and conduct field test

Scope

The scope covers the following:

- Carry out inspection of construction material in field (cement, sand, aggregate, concrete, soil, bitumen, brick, blocks)
- Conduct Field test for concrete, soil and bitumen
- Carry out inspection to ensure work quality in field

Elements and Performance Criteria

Carry out inspection of construction material in field (cement, sand, aggregate, concrete, soil, bitumen, brick, blocks)

To be competent, the user/individual on the job must be able to:

- PC1.** read and understand standard test procedures and methods related to material testing (cement, sand, aggregate, concrete, soil, bitumen, brick, blocks, asphalt)
- PC2.** check to assure only approved materials (cement, sand, aggregate, bitumen, steel, brick, blocks, admixtures, asphalt) are used at site
- PC3.** carry out visual/physical inspection of cement, bricks, blocks, sand, aggregate, concrete, bitumen in field
- PC4.** report to superior in case any substandard quality material is observed

Conduct Field test for concrete, soil and bitumen

To be competent, the user/individual on the job must be able to:

- PC5.** conduct extraction of soil sample in field by core cutting method
- PC6.** conduct field testing of soil to determine water content, dry density of soil as per standard test procedure
- PC7.** conduct field testing of concrete to determine slump value and ensure concrete cubes are casted in field as per standard cube casting procedure
- PC8.** conduct extraction of bitumen sample in field by core cutting method
- PC9.** conduct field testing of bitumen to determine bitumen content as per standard test procedure
- PC10.** ensure extracted test sample of soil and bitumen, concrete cubes casted in field are transferred undisturbed to site laboratory case of test to be performed in laboratory as per test requirement
- PC11.** facilitate third party agency for testing of soil, concrete, asphalt in field as per applicability

Carry out inspection to ensure work quality in field

To be competent, the user/individual on the job must be able to:



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- PC12.** read and interpret details from the drawing, work method statement to ensure works are as per quality norms
- PC13.** perform routine checks at site including testing and confirming compliances
- PC14.** document all results carried out at site as per quality plan
- PC15.** carryout inspection and checking for all quality related procedures in the site and ensures activity at site are as per approved method statement and inspection test plan
- PC16.** identify, communicate, and document deficiencies in site related to work quality and check they are corrected
- PC17.** check that necessary action is taken for closure of snag list and get an approval from concerned authority for snag list
- PC18.** get approval from the concerned superior/qaqc engineer/client for next succeeding activity
- PC19.** prepare notes/reports regarding completion of construction works for respective structures

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** standard practices for quality control works
- KU2.** safety rules and regulations for handling and storing required tools, equipment and materials
- KU3.** personal protection including the use of related safety gears & equipments
- KU4.** service request procedures for tools, materials and equipments
- KU5.** statutory compliance requirement related to working at height
- KU6.** statutory compliance requirement related to workmen engagement
- KU7.** site quality plan related to construction work
- KU8.** civil works drawing
- KU9.** different types of field test for construction materials
- KU10.** how to check quality of structural works, finishing works, waterproofing works, road laying works
- KU11.** identification of bad workmanship related to shuttering, reinforcements, concreting, water proofing, road laying, anti-termite treatment, finishing works
- KU12.** standard procedure for carrying out shuttering reinforcement, concreting, water proofing, road laying, anti-termite treatments and finishing works
- KU13.** rendering method for bad workmanship
- KU14.** importance of non-conformance report
- KU15.** tools, instruments and equipments required for field testing and their use
- KU16.** upkeep repair and maintenance of tools and equipments
- KU17.** different environmental norms and policies
- KU18.** maintenance of testing records, test reports and other related documents
- KU19.** standard housekeeping procedure related to site laboratory

Generic Skills (GS)

User/individual on the job needs to know how to:



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- GS1.** write in at least two language, preferably in the local language of the site and basic English
- GS2.** provide clear and simple instructions, details & sketches to sub-ordinate
- GS3.** record and document daily productivity report, daily labour attendance & details regarding work
- GS4.** prepare basic status updates for the superiors in the prescribed format
- GS5.** provide clear documentation on results of tested materials
- GS6.** read one or more language, preferably in the local language of the site
- GS7.** read standard test procedures and methods related to relevant work
- GS8.** read key documents including quality standards and standard working methods
- GS9.** read various, sign boards, safety rules and safety tags , instructions related to exit routes during emergency at the workplace
- GS10.** speak in one or more language, preferably in one of the local languages of the site
- GS11.** listen and follow instructions clearly given by the superior
- GS12.** provide clear instructions to subordinates for completion of task as per work plan, time schedule and quality
- GS13.** decide for the acceptance of material sample to be tested
- GS14.** decide on the acceptance of test specimen prepared by the sub-ordinate
- GS15.** decide on the utilization/disposal of tested materia
- GS16.** plan work & organize required resource in coordination with team members and superior
- GS17.** plan work targets, allocate time schedule to sub-ordinates and organize completion of task within allocated time
- GS18.** conduct material testing at site and in construction laboratory as per IS standard code/work method statement
- GS19.** record and document test result as per Quality Management System (QMS)
- GS20.** resolve and solve any conflict within the team
- GS21.** check for use of substandard material and report to superior
- GS22.** check for conformance with compliances by carrying out routine checks at site
- GS23.** communicate and rectify deficiencies in site related work
- GS24.** assess quantity of materials for day work
- GS25.** optimize resources
- GS26.** minimize wastages
- GS27.** ensure test results are accurate and as per approved procedures
- GS28.** assess and analyze water content and dry density of soil
- GS29.** assess and analyze slump value of concrete
- GS30.** assess and analyze bitumen content
- GS31.** assess complexity of the tasks and provide guidance for carrying out corrective action as per requirement
- GS32.** identify and assess how violation of any safety norms may lead to accidents



Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Carry out inspection of construction material in field (cement, sand, aggregate, concrete, soil, bitumen, brick, blocks)</i>	10	10	-	-
PC1. read and understand standard test procedures and methods related to material testing (cement, sand, aggregate, concrete, soil, bitumen, brick, blocks, asphalt)	2.5	2.5	-	-
PC2. check to assure only approved materials (cement, sand, aggregate, bitumen, steel, brick, blocks, admixtures, asphalt) are used at site	2.5	2.5	-	-
PC3. carry out visual/physical inspection of cement, bricks, blocks, sand, aggregate, concrete, bitumen in field	2.5	2.5	-	-
PC4. report to superior in case any substandard quality material is observed	2.5	2.5	-	-
<i>Conduct Field test for concrete, soil and bitumen</i>	20	20	-	-
PC5. conduct extraction of soil sample in field by core cutting method	2.5	2.5	-	-
PC6. conduct field testing of soil to determine water content, dry density of soil as per standard test procedure	3	3	-	-
PC7. conduct field testing of concrete to determine slump value and ensure concrete cubes are casted in field as per standard cube casting procedure	3	3	-	-
PC8. conduct extraction of bitumen sample in field by core cutting method	3	3	-	-
PC9. conduct field testing of bitumen to determine bitumen content as per standard test procedure	3	3	-	-
PC10. ensure extracted test sample of soil and bitumen, concrete cubes casted in field are transferred undisturbed to site laboratory case of test to be performed in laboratory as per test requirement	3	3	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. facilitate third party agency for testing of soil, concrete, asphalt in field as per applicability	2.5	2.5	-	-
<i>Carry out inspection to ensure work quality in field</i>	20	20	-	-
PC12. read and interpret details from the drawing, work method statement to ensure works are as per quality norms	2.5	2.5	-	-
PC13. perform routine checks at site including testing and confirming compliances	2.5	2.5	-	-
PC14. document all results carried out at site as per quality plan	2.5	2.5	-	-
PC15. carryout inspection and checking for all quality related procedures in the site and ensures activity at site are as per approved method statement and inspection test plan	2.5	2.5	-	-
PC16. identify, communicate, and document deficiencies in site related to work quality and check they are corrected	2.5	2.5	-	-
PC17. check that necessary action is taken for closure of snag list and get an approval from concerned authority for snag list	2.5	2.5	-	-
PC18. get approval from the concerned superior/qaqc engineer/client for next succeeding activity	2.5	2.5	-	-
PC19. prepare notes/reports regarding completion of construction works for respective structures	2.5	2.5	-	-
NOS Total	50	50	-	-



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National Occupational Standards (NOS) Parameters

NOS Code	CON/N0408
NOS Name	Carry out inspection of construction material, work quality at site and conduct field test
Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Quality Assurance & Quality Control
NSQF Level	6
Credits	TBD
Version	1.0
Last Reviewed Date	23/08/2015
Next Review Date	31/03/2022
NSQC Clearance Date	09/10/2017



CON/N0409: Maintain QA/QC documents as per Quality Management system

Description

This unit describes the skills and knowledge required to maintain QA/QC documents as per Quality Management system

Scope

The scope covers the following:

- Maintain QA/QC documents as per Quality Management system

Elements and Performance Criteria

Maintain QA/QC documents as per Quality Management system

To be competent, the user/individual on the job must be able to:

- PC1.** read, understand and follow standard procedure for maintenance of QA/QC documents in laboratory
- PC2.** provide suitable codes and title to the documents file as per the site quality plan of documentation
- PC3.** maintain register for incoming test material sample
- PC4.** maintain QA/QC documents such as method statements, standard testing procedures, site quality plans, site inspection checklist
- PC5.** maintain document related to test equipment manual, ISO quality manual
- PC6.** maintain current records providing factual evidence that required quality control activities and/or tests have been performed
- PC7.** maintain QA/QC documents including incoming test material sample register, test results, test certificates, equipments calibration reports, inspection requests, non-compliance reports and site instruction/observations, RMC reports, cube register and other QA/QC documents

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** standard practices for maintaining documents for QA/QC works
- KU2.** safety rules and regulations for handling and storing required tools, equipment and materials
- KU3.** personal protection including the use of related safety gears & equipments
- KU4.** service request procedures for tools, materials and equipments
- KU5.** statutory compliance requirement related to working at height
- KU6.** statutory compliance requirement related to workmen engagement
- KU7.** how to provide coding for documents as per quality management system
- KU8.** maintenance of register for testing of incoming test material sample, details to be filled in



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- KU9.** documentation of method statements, quality plans, inspection checklist
- KU10.** documentation of site inspection/test reports
- KU11.** documentation of bad workmanship in site
- KU12.** documentation of QA/QC documents related to test sample, test results, third party inspection, materials test certificate, calibration certificate , noncompliance reports
- KU13.** documentation of closure of non-compliance reports
- KU14.** documentation of work approval from clients/superior

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** write in at least two language, preferably in the local language of the site and basic English
- GS2.** provide clear and simple instructions, details & sketches to sub-ordinate
- GS3.** record and document daily productivity report, daily labour attendance & details regarding QA / QC work
- GS4.** prepare basic status updates for the superiors in the prescribed format
- GS5.** read one or more language, preferably in the local language of the site
- GS6.** read drawing, specification and standards related to relevant work
- GS7.** read key documents including quality standards and standard working methods
- GS8.** read various, sign boards, safety rules and safety tags , instructions related to exit routes during emergency at the workplace
- GS9.** speak in one or more language, preferably in one of the local languages of the site
- GS10.** listen and follow instructions clearly given by the superior
- GS11.** provide clear instructions to subordinates for completion of task as per work plan, time schedule and quality
- GS12.** estimate required material and resources for work
- GS13.** decide alternate course of action in case of hindrance to work
- GS14.** determine whether all quality related documentation is as per site compliance requirement with all necessary supporting documents and factual evidence
- GS15.** plan work & organize required resource in coordination with team members and superior
- GS16.** plan work targets, allocate time schedule to sub-ordinates and organize completion of task within allocated time
- GS17.** ensure that all document files have been suitably coded and filed
- GS18.** record and document test result as per Quality Management System (QMS)
- GS19.** resolve and solve any conflict within the team
- GS20.** assess quantity of materials for day work
- GS21.** optimize resources
- GS22.** minimize wastages
- GS23.** assess complexity of the tasks and provide guidance for carrying out corrective action as per requirement



Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain QA/QC documents as per Quality Management system</i>	50	50	-	-
PC1. read, understand and follow standard procedure for maintenance of QA/Qc documents in laboratory	6	6	-	-
PC2. provide suitable codes and title to the documents file as per the site quality plan of documentation	6.5	6.5	-	-
PC3. maintain register for incoming test material sample	7.5	7.5	-	-
PC4. maintain QA/QC documents such as method statements, standard testing procedures, site quality plans, site inspection checklist	7.5	7.5	-	-
PC5. maintain document related to test equipment manual, ISO quality manual	7.5	7.5	-	-
PC6. maintain current records providing factual evidence that required quality control activities and/or tests have been performed	7.5	7.5	-	-
PC7. maintain QA/QC documents including incoming test material sample register, test results , test certificates, equipments calibration reports, inspection requests, non-compliance reports and siteinstruction/observations, RMC reports, cube register and other QA/QC documents	7.5	7.5	-	-
NOS Total	50	50	-	-



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National Occupational Standards (NOS) Parameters

NOS Code	CON/N0409
NOS Name	Maintain QA/QC documents as per Quality Management system
Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Quality Assurance & Quality Control
NSQF Level	6
Credits	TBD
Version	1.0
Last Reviewed Date	23/08/2015
Next Review Date	31/03/2022
NSQC Clearance Date	09/10/2017



CON/N0410: Maintain construction site laboratory

Description

This unit describes the skills and knowledge required to maintain construction site laboratory

Scope

The scope covers the following:

- Maintain construction site laboratory

Elements and Performance Criteria

Maintain construction site laboratory

To be competent, the user/individual on the job must be able to:

- PC1.** read, understand and ensure standard procedure is followed for storing, and tagging of construction test material sample
- PC2.** check proper functioning of testing instrument and equipment
- PC3.** report to superior/manufactures in case of break down/non-functioning of test instruments and equipments
- PC4.** ensure instrument, equipments used for tests are periodically calibrated as per schedule of calibration
- PC5.** prevent testing instrument and equipments from dust/moisture/ heat and other degrading agents when not in use
- PC6.** ensure cleaning of tools, apparatus, instrument, accessories and placing at appropriate location after use
- PC7.** ensure standard procedure is followed for storing of chemical, admixtures, inflammable material in site laboratory
- PC8.** ensure all tools, apparatus, instrument and equipments are readily available for testing in site laboratory
- PC9.** ensure all field testing instrument are readily available for testing
- PC10.** ensure tested material is kept at laboratory for a specified duration as per applicability
- PC11.** ensure test sample material are disposed/utilized after testing as per standard practices keeping in view environmental norms at site
- PC12.** ensure curing tank is cleaned periodically as per site quality plan

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** standard practices for maintaining documents for QA/QC works
- KU2.** safety rules and regulations for handling and storing required tools, equipment and materials
- KU3.** personal protection including the use of related safety gears & equipments
- KU4.** service request procedures for tools, materials and equipments



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- KU5.** statutory compliance requirement related to working at height
- KU6.** statutory compliance requirement related to workmen engagement
- KU7.** storing and handling of construction material
- KU8.** storing of hazardous material
- KU9.** safety norms for storing and handling of hazardous material
- KU10.** storage of test sample of different construction materials
- KU11.** manufacturer guideline for storing and handling of testing tools, instruments and equipments
- KU12.** handling technique of tools and equipments
- KU13.** upkeep repair and maintenance of tools and equipments
- KU14.** preservation of equipments from dust and heat
- KU15.** placement of testing tools , instruments and equipments at appropriate location
- KU16.** standard time for periodical calibration of machines and equipment
- KU17.** different environmental norms and policies
- KU18.** standard housekeeping procedure related to site laboratory

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** write in at least two language, preferably in the local language of the site and basic English
- GS2.** provide clear and simple instructions, details & sketches to sub-ordinate
- GS3.** record and document daily productivity report, daily labour attendance & details regarding QA / QC work
- GS4.** prepare basic status updates for the superiors in the prescribed format
- GS5.** read one or more language, preferably in the local language of the site
- GS6.** read drawing, specification and standards related to relevant work
- GS7.** read key documents including quality standards and standard working methods
- GS8.** read various, sign boards, safety rules and safety tags , instructions related to exit routes during emergency at the workplace
- GS9.** speak in one or more language, preferably in one of the local languages of the site
- GS10.** listen and follow instructions clearly given by the superior
- GS11.** provide clear instructions to subordinates for completion of task as per work plan, time schedule and quality
- GS12.** estimate required material and resources for work
- GS13.** decide alternate course of action in case of hindrance to work
- GS14.** determine whether standard procedure has been followed for tagging and storing of test samples
- GS15.** determine whether testing equipment and instruments are functioning properly and are calibrated
- GS16.** plan work & organize required resource in coordination with team members and superior



Qualification Pack



- GS17.** plan work targets, allocate time schedule to sub-ordinates and organize completion of task within allocated time
- GS18.** ensure completion of work as per agreed time schedule and quality
- GS19.** resolve and solve any conflict within the team
- GS20.** ensure standard procedures are used for cleaning and storing of materials and equipments in construction laboratory
- GS21.** ensure that test samples are disposed off as per standard procedure and duration of storage
- GS22.** assess equipment / instruments that are malfunctioning and report to superiors
- GS23.** assess quantity of materials for day work
- GS24.** optimize resources
- GS25.** minimize wastages
- GS26.** analyze appropriate duration of storing test samples in the laboratory
- GS27.** assess complexity of the tasks and provide guidance for carrying out corrective action as per requirement
- GS28.** identify and assess how violation of any safety norms may lead to accidents



Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain construction site laboratory</i>	50	50	-	-
PC1. read, understand and ensure standard procedure is followed for storing, and tagging of construction test material sample	5	5	-	-
PC2. check proper functioning of testing instrument and equipment	5	5	-	-
PC3. report to superior/manufactures in case of break down/non-functioning of test instruments and equipments	2.5	2.5	-	-
PC4. ensure instrument, equipments used for tests are periodically calibrated as per schedule of calibration	2.5	2.5	-	-
PC5. prevent testing instrument and equipments from dust/moisture/ heat and other degrading agents when not in use	5	5	-	-
PC6. ensure cleaning of tools, apparatus, instrument, accessories and placing at appropriate location after use	4	4	-	-
PC7. ensure standard procedure is followed for storing of chemical, admixtures, inflammable material in site laboratory	5	5	-	-
PC8. ensure all tools, apparatus, instrument and equipments are readily available for testing in site laboratory	4	4	-	-
PC9. ensure all field testing instrument are readily available for testing	4	4	-	-
PC10. ensure tested material is kept at laboratory for a specified duration as per applicability	5	5	-	-
PC11. ensure test sample material are disposed/utilized after testing as per standard practices keeping in view environmental norms at site	4	4	-	-
PC12. ensure curing tank is cleaned periodically as per site quality plan	4	4	-	-



Qualification Pack



Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	50	50	-	-



Qualification Pack



National Occupational Standards (NOS) Parameters

NOS Code	CON/N0410
NOS Name	Maintain construction site laboratory
Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Quality Assurance & Quality Control
NSQF Level	6
Credits	TBD
Version	1.0
Last Reviewed Date	23/08/2015
Next Review Date	31/03/2022
NSQC Clearance Date	09/10/2017



CON/N8003: Supervise, monitor and evaluate performance of subordinates at workplace

Description

This OS covers the skills and knowledge required by an individual to supervise, monitor and evaluate performance of subordinates at work place

Scope

The scope covers the following:

- Monitor all construction work activities performed by subordinates and evaluate their performance and ensure strict adherence to quality instructions & timelines as per organizational policies and procedures

Elements and Performance Criteria

Supervise, monitor and evaluate performance of all subordinates and ensure adherence to organizational policies and procedures

To be competent, the user/individual on the job must be able to:

- PC1.** fix expected targets for the respective gang as per site requirements and allocate work to subordinates
- PC2.** establish expected performance standards and expectations for the respective gang of workers to meet the desired outcomes
- PC3.** inspect assigned work to the respected gang of workers through progressive checking
- PC4.** observe and verify the work activities performed by the subordinates at the construction site
- PC5.** monitor overall performance of subordinates on the designed measures to ensure quality requirements set by the concerned authority
- PC6.** ensure adherence to the organizational policies and procedures for all relevant construction activities by the workmen subordinations

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** policies, procedures and work targets for performance evaluation and appraisals
- KU2.** organizational policies, procedures and protocol for smooth completion of work at the respective workplace
- KU3.** complete work/task accurately by following standard specifications and procedures by optimized and correct used of materials , tools, tackles and equipment

Generic Skills (GS)

User/individual on the job needs to know how to:



Qualification Pack



- GS1.** write in at one or more language, preferably the local language
- GS2.** read in at one or more language, preferably the local language at the site
- GS3.** speak in at one or more language, preferably one of the local language at the site
- GS4.** effectively communicate with team members at workplace
- GS5.** rectify errors, select workman according to the performance and carry out appropriate allocation of task
- GS6.** motivate the subordinate for better quality work
- GS7.** plan work as per right sequence and organize required resources in coordination with the team members
- GS8.** complete work as per the requirement
- GS9.** solve any anomalies in work processes, critical problems & cause for delays at workplace
- GS10.** sort workers activities in order of sequence and importance workers
- GS11.** identify root cause and effects of workers conflicts at workplace
- GS12.** evaluate and find solutions to minimize errors and suggest improvements for optimizing resource utilization
- GS13.** assess which situations would require intervention of superiors



Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Supervise, monitor and evaluate performance of all subordinates and ensure adherence to organizational policies and procedures</i>	50	50	-	-
PC1. fix expected targets for the respective gang as per site requirements and allocate work to subordinates	7.5	7.5	-	-
PC2. establish expected performance standards and expectations for the respective gang of workers to meet the desired outcomes	7.5	7.5	-	-
PC3. inspect assigned work to the respected gang of workers through progressive checking	10	10	-	-
PC4. observe and verify the work activities performed by the subordinates at the construction site	10	10	-	-
PC5. monitor overall performance of subordinates on the designed measures to ensure quality requirements set by the concerned authority	7.5	7.5	-	-
PC6. ensure adherence to the organizational policies and procedures for all relevant construction activities by the workmen subordinations	7.5	7.5	-	-
NOS Total	50	50	-	-



Qualification Pack



National Occupational Standards (NOS) Parameters

NOS Code	CON/N8003
NOS Name	Supervise, monitor and evaluate performance of subordinates at workplace
Sector	Construction
Sub-Sector	Generic
Occupation	Generic
NSQF Level	6
Credits	TBD
Version	1.1
Last Reviewed Date	23/03/2015
Next Review Date	31/03/2022
NSQC Clearance Date	19/05/2015



CON/N9002: Manage workplace for safe and healthy work environment

Description

This unit describes the skill and knowledge required to maintain a healthy & safe working environment for the group of people working under an individual

Scope

This unit/task covers the following:

- Ensure healthy and safe working environment for subordinates.
- Ensure effective implementation of health, safety and environment policies and procedures
- Identify and respond to risks / fire and emergencies associated with the work practices, workplace and ensure related organizational & statutory requirement as followed

Elements and Performance Criteria

Ensure healthy and safe working environment for subordinates

To be competent, the user/individual on the job must be able to:

- PC1.** ensure proper housekeeping at workplace
- PC2.** implement safe handling , stacking methods at workplace / store
- PC3.** ensure that health and safety plan is followed by all subordinates
- PC4.** Identify any hazard in workplace and notify them to appropriate authority
- PC5.** ensure that all safety and protection installation are correctly placed & adequate
- PC6.** ensure safe access is available at work place for movement of workers & materials
- PC7.** ensure safe use of tools and tackles by the workmen as per applicability
- PC8.** ensure appropriate use of following Personal Protective Equipment (PPE) as per applicability:
Head Protection (Helmets Ear Protection Fall Protection Foot Protection Face and Eye Protection, Hand &Body Protection Respiratory Protection
- PC9.** maintain entrances & exit from confined spaces , excavated pits and other location in concurrence with safety parameters or instruction from safety personals

Identify and respond to risks / fire and emergencies associated with the work practices, workplace and ensure related organizational & statutory requirement as followed

To be competent, the user/individual on the job must be able to:

- PC10.** ensure organizational policies and procedures are followed for health , safety and welfare, in relation to: methods of receiving or sourcing information dealing with accidents and emergencies associated with the work and environment reporting stooping work evacuation fire risks and safe exit procedures
- PC11.** follow procedures for accident recording and reporting as per organizational and statutory requirements
- PC12.** ensure effective adherence to response to emergency procedures /protocols
- PC13.** report any case of emergency / risks to the concern people at the construction site
- PC14.** report any perceived risk hazards to the superiors / concerned EHS
- PC15.** demonstrate the use of fire protection equipments for different type of fire hazard



PC16. implement control measures to reduce risk & meet legal requirement as per organizational policies

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the policies, procedures and protocol set up by the EHS Department With respect to Health , Safety and Environment at the respective construction site
- KU2.** reporting procedures in cases of breaches or hazards in site safety, accidents or emergency situations
- KU3.** safe working practices for tools, tackles and equipment
- KU4.** workplace policies and health and safety requirements for dealing with potential risks as defined by the EHS department
- KU5.** how to respond to accidents & emergencies
- KU6.** the appropriate personal protective equipment to be used based on various working conditions
- KU7.** how to use necessary material ,tools, tackles and equipment in a safe and appropriate manner as specified by site EHS for each level and respective workman gang
- KU8.** monitoring working in workplace keeping safety & health in mind

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** write in one or more language
- GS2.** read in one or more language
- GS3.** read instructions, rules, guidelines, sign boards related to safety as per the requirements
- GS4.** speak in one or more language, preferably one of the local language at the site
- GS5.** listen and follow instructions shared by site EHS and superiors regarding site safety
- GS6.** communicate reporting of site conditions, hazards, accidents, etc.
- GS7.** decide upon the appropriate application & installation of safety equipments like barricades and nets
- GS8.** decide upon the tools box talks contents
- GS9.** identify any hazards in workplace organize safety equipments prior to commencing work
- GS10.** work to ensure safe and healthy environmental conditions at workplace
- GS11.** identify analysis & report hazards, accidents, health and safety risks, etc. or seek help from the appropriate authorities to address the same as per the guidelines laid down by site EHS
- GS12.** analyze areas of work which are potential safety hazards and could result in damage to life or property for the respective gang at the construction site
- GS13.** respond to critical health risks or accidents on an urgent basis through appropriate actions



Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Ensure healthy and safe working environment for subordinates</i>	25	25	-	-
PC1. ensure proper housekeeping at workplace	2.5	2.5	-	-
PC2. implement safe handling , stacking methods at workplace / store	2.5	2.5	-	-
PC3. ensure that health and safety plan is followed by all subordinates	2.5	2.5	-	-
PC4. Identify any hazard in workplace and notify them to appropriate authority	2.5	2.5	-	-
PC5. ensure that all safety and protection installation are correctly placed & adequate	2.5	2.5	-	-
PC6. ensure safe access is available at work place for movement of workers & materials	2.5	2.5	-	-
PC7. ensure safe use of tools and tackles by the workmen as per applicability	2.5	2.5	-	-
PC8. ensure appropriate use of following Personal Protective Equipment (PPE) as per applicability: Head Protection (Helmets Ear Protection Fall Protection Foot Protection Face and Eye Protection, Hand &Body Protection Respiratory Protection	5	5	-	-
PC9. maintain entrances & exit from confined spaces , excavated pits and other location in concurrence with safety parameters or instruction form safety personals	2.5	2.5	-	-
<i>Identify and respond to risks / fire and emergencies associated with the work practices, workplace and ensure related organizational & statutory requirement as followed</i>	25	25	-	-



Qualification Pack



Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. ensure organizational policies and procedures are followed for health , safety and welfare, in relation to: methods of receiving or sourcing information dealing with accidents and emergencies associated with the work and environment reporting stooping work evacuation fire risks and safe exit procedures	5	5	-	-
PC11. follow procedures for accident recording and reporting as per organizational and statutory requirements	2.5	2.5	-	-
PC12. ensure effective adherence to response to emergency procedures /protocols	3.75	3.75	-	-
PC13. report any case of emergency / risks to the concern people at the construction site	3.75	3.75	-	-
PC14. report any perceived risk hazards to the superiors / concerned EHS	3.75	3.75	-	-
PC15. demonstrate the use of fire protection equipments for different type of fire hazard	3.75	3.75	-	-
PC16. implement control measures to reduce risk & meet legal requirement as per organizational policies	2.5	2.5	-	-
NOS Total	50	50	-	-



National Occupational Standards (NOS) Parameters

NOS Code	CON/N9002
NOS Name	Manage workplace for safe and healthy work environment
Sector	Construction
Sub-Sector	Generic
Occupation	Generic
NSQF Level	6
Credits	TBD
Version	1.1
Last Reviewed Date	23/03/2015
Next Review Date	31/03/2022
NSQC Clearance Date	19/05/2015

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

- 1.Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
5. In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.
6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

Minimum Aggregate Passing % at QP Level : 70



Qualification Pack



(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
CON/N0407. Conduct testing of construction material as per IS standards/work method statement and compute test result	50	50	-	-	100	25
CON/N0408. Carry out inspection of construction material, work quality at site and conduct field test	50	50	-	-	100	20
CON/N0409. Maintain QA/QC documents as per Quality Management system	50	50	-	-	100	15
CON/N0410. Maintain construction site laboratory	50	50	-	-	100	10
CON/N8003. Supervise, monitor and evaluate performance of subordinates at workplace	50	50	-	-	100	15
CON/N9002. Manage workplace for safe and healthy work environment	50	50	-	-	100	15
Total	300	300	-	-	600	100



Qualification Pack



Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training



Qualification Pack



Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.



Qualification Pack



Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.