

# NSQF QUALIFICATION FILE GUIDANCE

Version 6: Draft of 08 March 2016

**NSDA Reference**

*To be added by NSDA*

## **Name and address of submitting body:**

Infrastructure Equipment Sector Council

# 23-29, FF5, First Floor, "White House Building"

St. Marks Road, (Opp SBI)

Bengaluru - 560001

## **Name and contact details of individual dealing with the submission**

**Name:** Col Krishna Vijay

**Position in the organisation:** Director, Standards & QA

**Address if different from above:** Same as above

**Tel number(s):** +91 80 4212 6666

**E-mail address:** standards@iescindia.com

## **List of documents submitted in support of the Qualifications File**

1. Annexure 1: Qualification Pack
2. Annexure 2: IESC & LabourNet Agreement for development of Occupational Standards
3. Annexure 3: Approval of GC on the classification of small, medium and large companies for NOS development
4. Annexure 4: GC resolution for formation of NOS Sub-committee
5. Annexure 5: Occupational Analysis, List of companies and Industry associations participated in the development of these qualification packs (part of Occupational Analysis)
6. Annexure 6: List of QP/NOS validating companies
7. Annexure 7: NSDC QRC observation and feedback sheet
8. Annexure 8: Standard protocol for accreditation & assessments

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## SUMMARY

<b>Qualification Title</b>	Junior Paver Operator
<b>Qualification Code</b>	IES/Q0121
<b>Nature and purpose of the qualification</b>	<p><b>Nature of Qualification</b></p> <ul style="list-style-type: none"> <li>• Qualification Pack</li> </ul> <p><b>Purpose of Qualification</b></p> <ul style="list-style-type: none"> <li>• To enable candidate to become a Junior Paver Operator</li> </ul>
<b>Body/bodies which will award the qualification</b>	Infrastructure Equipment Sector Council
<b>Body which will accredit providers to offer courses leading to the qualification</b>	Infrastructure Equipment Sector Council
<b>Body/bodies which will carry out assessment of learners</b>	Infrastructure Equipment Sector Council
<b>Occupation(s) to which the qualification gives access</b>	Equipment operations-Junior Paver Operator
<b>Licensing requirements</b>	N/A
<b>Level of the qualification in the NSQF</b>	3
<b>Anticipated volume of training/learning required to complete the qualification</b>	120 Hours
<b>Entry requirements and/or recommendations</b>	Class VIII Preferably
<b>Progression from the qualification</b>	Paver Operator
<b>Planned arrangements for the Recognition of Prior learning (RPL)</b>	Presently the industry has a large work force of operators and mechanics who are trained and experienced but not certified as per the NSQF norms. It is proposed to certify them under the RPL (Recognition of Prior Learning) program which will go a long way in facilitating their career progression.
<b>International comparability where known</b>	<p><b>UK- COSVR393 Operate plant or machinery to lay and distribute</b></p> <p>The standards is about interpreting information, adopting safe and healthy working practices; selecting and/or using materials, components and equipment for plant or machinery operations 4 setting up, operating and shutting down plant or machinery for laying and distribution work.</p>
<b>Date of planned review of the qualification.</b>	30/04/18
<b>Formal structure of the qualification</b>	

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<b>Title of component and identification code.</b>	<b>Mandatory/ Optional</b>	<b>Estimated size (learning hours)</b>	<b>Level</b>
IES/N0140 Assist in carrying out Pre-operational checks on the paver	M	36	3
IES/N0141 Assist in operating a paver	M	30	3
IES/N0142 Assist in regular maintenance of the paver	M	42	3
IES/N7601 Comply with worksite health and safety guidelines	M	12	3

Please attach any document giving further detail about the structure of the qualification – eg a Curriculum Document or a Qualification Pack.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information. Qualification Pack is attached as Annexure 1

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## SECTION 1 ASSESSMENT

### **Body/Bodies which will carry out assessment:**

Confederation of Indian Industries (CII)

### **How will RPL assessment be managed and who will carry it out?**

RPL program is designed to assess and certify those personnel with the requisite qualifications and experience. In the first step, individuals are screened and assessed, both through theory and practical tests, based on the same Assessment Criteria of the approved Qualification Pack. The skill gaps are thus identified and individuals undergo 'bridge

### **Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF.**

The emphasis is on 'learning-by-doing' and practical demonstration of skills and knowledge based on the performance criteria.

The assessment papers are developed by Subject Matter Experts (SME) available with the Assessment Agency as per the performance and assessment criteria mentioned in the Qualification Pack. The assessments papers are also checked for the various outcome based parameters such as quality, time taken, precision, tools & equipment requirement etc. The assessment sets are then reviewed by IESC official for consistency.

The assessments are designed so as to assess maximum parts during the practical hands on work. The technical limitations at the training centres are taken care in theory and viva to assess the conceptual understanding, Criteria such as use of lift to pick heavy objects or selection of fire extinguisher during a fire are also assessed under theory/viva.

The assessment agencies are instructed to hire assessors with integrity, reliability and fairness. Each assessor shall sign a document with its assessment agency by which they commit themselves to comply with the rules of confidentiality and conflict of interest, independence from commercial and other interests that would compromise impartiality of the assessments. The assessment agencies are instructed to ideally have assessor with minimum 15 years industry experience as an ITI graduate / minimum 10 years' industry experience as diploma engineer and minimum 5 years' industry experience as graduate engineer.

The assessors selected by Assessment Agencies are scrutinized and made to undergo training and introduction to IESC Assessment Framework, competency based assessments, assessors guide etc.

The assessors are provided with assessors guide developed by the Subject Matter Expert of the assessment agency as per the assessment framework. The assessment guides are developed to ensure the maximum possible consistency in the assessment by different assessors and elaborate on the following

Qualification Pack Structure

Guidance for the assessor to conduct theory, practical and viva assessments

Guidance for trainees to be given by assessor before the start of the assessments.

Guidance on assessments process, practical brief with steps of operations practical observation checklist and mark sheet

Viva guidance for uniformity and consistency across the batch.

The assessment by assessment agency will be completely based on the assessment criteria as mentioned in the Qualification Pack. Each NOS in the Qualification Pack (QP) will be assigned a relative weightage for assessment based on the criticality of the NOS- unique (functional)/ common NOS for job roles at the same

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levels. Therein each Performance Criteria in the NOS will be assigned marks for or practical based on relative importance, criticality of function and training infrastructure.

The following tools are proposed to be used for final assessment:

Each NOS in the QP will be assigned a relative weightage for assessment based on the functional importance of each. Further each Performance Criteria in the NOS will be assigned marks based on relative functional importance; which is in turn divided into theory and practical assessment. Overall practical constitutes 70% and written 30% of total marks.

Viva/Structured Interview: This tool will be used to assess select conceptual understandings related to practical handling of equipment and procedures with specific tasks at hand; and behavioral aspects of the job role. It will also include questions on tools & equipment; safety and environment

Written Test: This tool will be used to assess general conceptual knowledge / understanding and other aspects of the job role which are either not feasible or difficult to assess practically. The written assessment will comprise of

True / False Statements

Multiple Choice Questions

Matching Type Questions.

Optical Mark Recognition (OMR)/ Online System for this will be preferred.

### ASSESSMENT EVIDENCE

#### CRITERIA FOR ASSESSMENT OF TRAINEES

**Job Role** Junior Paver Operator/Screedman

**Qualification Pack** IES/Q0121

**Sector Skill Council** Infrastructure Equipment

##### Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (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 evaluation for skill practical for every student at each examination/training center based on this criteria
5. To pass the Qualification Pack, every trainee should score a minimum of 40% in each NOS and 50% aggregate.
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification pack.

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Assessment Outcomes	Assessment Criteria for the outcome	Total Mark	Marks Allocation		
			Out Of	Theory	Skills Practical
1. IES/N0140_Assist in carrying out pre-operational checks on the paver	PC1. Visually inspect the machine with supervisor for any malfunctioning, missing or broken parts	35	3	1	2
	PC2. Check that all the instruction and safety labels are in place and readable		2.5	0.5	2
	PC3. Assist in checking general hydraulic hoses/fittings for any leaks in the paver as per instructions from the operator		3	1	2
	PC4. Inspect screed for excessive wear as per the operational manual		3	1	2
	PC5. Inspect screed heaters and gas lines for serviceability as per instructions from the operator		3	1	2
	PC6. Inspect screed plate, tamping bar and screed attack angle for any damages		3	1	2
	PC7. Check for excessive play in crown jack and their mountings as per instructions from the operator		3	1	2
	PC8. Check for smooth operation of the mat thickness adjusting screws		3	1	2
	PC9. Check the various controls-augers, screed, sensing and control equipment as per instructions from the operator		3	1	2
	PC10. Check for the bolt tightness on screed for free plying a per instructions from the operator		2.5	0.5	2

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	PC11. Assist in maintaining a checking/maintenance logbook to record all activities performed before starting the paver operation		3	1	2
	PC12. Report defects precisely to the operator/supervisor if beyond scope of the role		3	1	2
		<b>Total</b>	<b>35</b>	<b>11</b>	<b>24</b>
2. IES/N0141_Assist in operating a paver	PC1. Ensure the screed is clean and properly adjusted for the type of paving to be completed – Crown, cross-slope, etc.	<b>30</b>	2	1	1
	PC2. Assist in pre-heating of paving screed before placement of asphalt		1	0	1
	PC3. Monitor and control temperature settings of the asphalt mixture as per instructions from the operator		2	1	1
	PC4. Adjust the screed paving reference components to the project specification, paving, width, depth (thickness), grade and slope in accordance with manufacturer's instructions		2	1	1
	PC5. Establish the screed-plate angle of attack, position of pre-strike-off plates, and other components		2	0	2
	PC6. Maintain proper contact between gates and the paving surface as per the requirement		1	0	1
	PC7. Adjust springs and chains for clearance as per instructions from the operator		2	1	1
	PC8. Assist the paver operator to fill the auger chamber		1	0	1
	PC9. Check mat thickness and adjust controls as needed to maintain yield		3	1	2

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	PC10. Observe distribution of asphalt materials along the screed and control the direction of the screed to eliminate voids at curbs and joints		1	0	1
	PC11. Assist in navigating the direction of the paver as per the requirement of the surface		3	1	2
	PC12. Operate and manipulate cranks and tow points on the back of the asphalt machine that spreads and levels asphaltic concrete on surfaces		1	0	1
	PC13. Observe distribution of asphalt materials from the hopper to the conveyor and to the auger along the screed width		3	1	2
	PC14. Assist the paver operator in attaching extensions to screed to adjust width as per the requirement		1	0	1
	PC15. Carryout adding or removing accessories associated with asphalt equipment as per instructions from the operator		1	0	1
	PC16. Inform operator/ supervisor of any screed problems during paver operations		2	1	1
	PC17. Assist the operator in recording input and output flow as per the desired formats of the organization		2	1	1
		<b>Total</b>	<b>30</b>	<b>9</b>	<b>21</b>
3. IES/N0142_Assist in regular maintenance of the paver	PC1. Check and lubricate all screed points as per manufacturer specifications	<b>20</b>	1	0	1
	PC2. Remove any debris from screed and check for hose leaks / cylinders leaks		2	1	1



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	PC3. Spray cleaning solvent or release agent on the screed plate, hopper, etc., any place that has come in contact with the mix		1	0	1
	PC4. Lubricate all grease fittings on the auger flight screw, the fitting on the depth screw, and the fittings on the flange bearings located on top of the extension screed. Grease nuts on extension screws		2	1	1
	PC5. Check screws on the rod extensions, tilt screws on the screed pivot		1	0	1
	PC6. Check screed crown on chain and turn buckles for wear and tear		1	0	1
	PC7. Ensure all the tools are kept in the designated place after usage as per organizational guidelines		2	1	1
	PC8. Perform housekeeping activities wherever required		1	0	1
	PC9. Use appropriate tools while troubleshooting		2	1	1
	PC10. Diagnose the problem		1	0	1
	PC11. Dispose waste as per the guidelines of the site/ organization		1	0	1
	PC12. Follow reporting procedures as laid down by the employer		1.5	0.5	1
	PC13. Assist in completing all documentation in the prescribed standards in a timely manner		2	1	1
	PC14. Report defects precisely to the operator/ supervisor if beyond scope of his role		1.5	0.5	1
		<b>Total</b>	<b>20</b>	<b>6</b>	<b>14</b>
4. IES/N7601_Comply with worksite health and safety guidelines	PC1. Comply with safety, health, security and environment related regulations/ guidelines at the work site	<b>15</b>	2	1	1

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	PC2. Use Personal Protective Equipment (PPE) and other safety gear as applicable to the equipment and the worksite		2	1	1
	PC3. Follow safety measures during operations to ensure that the health and safety of self or others (including members of the public) is not at risk		2	0	2
	PC4. Carry out operations as per the manufacturer's and worksite related health and safety guidelines		1	0	1
	PC5. Handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines		2	1	1
	PC6. Operate various grades of fire extinguishers, as applicable		1	0	1
	PC7. Support in administering basic first aid and report to concerned team members, as required, in case of an accident		2	1	1
	PC8. Respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility		1	0	1
	PC9. Record and report details related to operations, incidents or accidents, as applicable		2	1	1
		<b>Total</b>	<b>15</b>	<b>5</b>	<b>10</b>

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### SECTION 2

#### EVIDENCE OF LEVEL

Title/Name of qualification/component: <b>Junior Paver Operator</b>			Level: 3
NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
Process	Junior Paver Operator is expected to Assist in conducting pre-operation checks on paver, assist in paving operations	The activities identified require <b><i>routine and limited range of activities</i></b> for him as these activities are independent of job and worksite he is deployed on, for e.g.: check for smooth operation, check for free plying of screed, assist in pre- heating, screed paving, etc. Considering the outcomes the job roles is pegged at level 03	3
Professional knowledge	Junior Operator is expected to have <b><i>basic knowledge of the functioning and operation</i></b> of paving machine. <b><i>Basic Feature/specifications</i></b> of the various attachment used and <b><i>basic knowledge of the components, pre-operation checklist and routine maintenance</i></b>	Considering the <b><i>basic professional knowledge</i></b> , which a Junior Paver Operator has for assisting the paving operation and maintenance such as knowledge of attachments, basics of screed heating, hydraulic mechanism, method of lubrication, etc., this QP is pegged at Level 3.	3
Professional skill	Junior Paver Operator <b><i>identifies the appropriate attachment</i></b> for aligning the paver, distribution of asphalt, discharging, material flow, etc. He checks the <b><i>paver for operation readiness</i></b> using pre-operation checklist and assists in <b><i>conducting the routine maintenance</i></b> covering lubrication, oil levels, coolant, air filters, battery, tyre, body structure, motors and keep the records as per the operations manual & standard operating procedures.	He is <b><i>practically engaged</i></b> in the paving operation and maintenance. The major skills required of a junior paver operator are recording of deviations, comprehension of sign symbols, signalling, communication, etc.	3
Core skill	Junior Operator is expected to follow and respond to the operators' instructions for reading various instrument panel, fluid levels and other indicators for pre-operation checks under and routine maintenance. He has guide the paver operator and assist in changing of screed as per the job requirement. Junior Operator has to continuously give and	Jobholder is expected to conduct themselves in ways, which show a basic understanding of the <b><i>social and professional environment of working at worksites</i></b> .	3

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Title/Name of qualification/component: <b>Junior Paver Operator</b>			Level: <b>3</b>
NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
	receive instruction and guidance from operator on-site hence they are expected to <i>clearly communicate</i>		
Responsibility	<p>The jobholder is responsible to:</p> <ul style="list-style-type: none"> <li>• Assist in Conduct pre-operation checks</li> <li>• Assist in operations and driving of paving machine</li> <li>• Assist in Conduct routine maintenance</li> <li>• Comply with worksite health and safety</li> </ul>	He has the <i>limited responsibility for own</i> work and majorly <i>function in close supervision</i> of Operator which justifies the pegging of the QP at level 3 and not responsible for self-learning (which is a requirement for Level 4). In his routine activity he is responsible for his own work (which is a requirement of level 2).	3

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## SECTION 3

### EVIDENCE OF NEED

**What evidence is there that the qualification is needed?**

The job roles have been formulated based on 'occupational mapping and functional analysis' involving manufacturers and customers/ end users of the infrastructure equipment sector products. Further these have been validated by all segments of the industry i.e. small, medium and large customers. The methodology / questionnaire and certificates in support for all have been enclosed.

**What is the estimated uptake of this qualification and what is the basis of this estimate?**

The Occupational Analysis Report in support of these job roles has taken into account the industry growth and expected demand over the coming years. These statistics and other details have been covered in depth under the relevant sections of the same.

**What steps were taken to ensure that the qualification(s) does (do) not duplicate already existing or planned qualifications in the NSQF?**

- NSDC list of Approved and Under-Development QPs was checked prior to commissioning the work
- Consultations with Skill Councils for Construction and Mining Sector
- NSDC QRC team also confirmed the same

**What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?**

- Employer feedback will be sought post-placement
- A formal review is scheduled in two years time

Please attach any documents giving further information about any of the topics above.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

Annexure 5: Section 3 and 4.1 of Occupational Analysis

Annexure 7: NSDC QRC observation and feedback sheet

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## **SECTION 4**

### **EVIDENCE OF PROGRESSION**

**What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?**

While designing the national occupational standards, occupational mapping was done on a large sample size and validated across the country. The career progression for roles in each occupation was also analysed and decided, based on industry validation across the country. The current challenges faced by the industry, at large, was also kept in mind.

**Junior Paver Operator (Level 3) > Paver Operator (Level 4) > Senior Paver Operator (Level 5) > Master Operator/Trainer Operator (Level 6) > Supervisor (Level 7)**

*\*Level= NSQF level*

Please attach any documents giving further information about any of the topics above.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

Annexure 5: Section 5 of Occupational Analysis

Annexure 5: List of companies and Industry associations participated in development of these qualifications (Annexure B)