

**Field      Engineering and Technology****Review of *Pavement Surfacing* unit standards**

<b>Subfield</b>	<b>Domain</b>	<b>ID</b>
Pavement Surfacing	Asphalt Surfacing	1508-1510, 1512, 13514, 13515, 13518, 13519, 13521, 17672, 20443-20448, 21665, 21666, 23611, 23612
	Bitumen Surfacing	1502, 20449, 20450, 20455, 20456, 20458-20460, 20463
	Chipseal Surfacing	1505, 1507, 8021, 13517, 13520, 17670, 17671, 20451-20454, 20461, 20462, 21664, 23613-23616

InfraTrain New Zealand Ltd has completed the review of the unit standards listed above.

**Date new versions published**

**March 2012**

**Planned review date**

**December 2016**

**Summary**

All unit standards in the *Pavement Surfacing* subfield had passed their planned review date which was October 2009; therefore, InfraTrain established an industry advisory group (IAG) comprised of representatives from all sectors and major stakeholders including large, medium, and small companies in the Pavement industry. The IAG members met in September 2010, to review the unit standards, focusing on two areas: firstly, the levels, outcomes, and credits, to ensure the unit standards accurately reflected the skills, knowledge, and indicative notional learning hours typically needed to meet the outcomes; and secondly, the relevance of the unit standards to the industry, compliance with current legislation, codes of practice and adherence to industry best practice.

There were significant changes to the credit value of a number of unit standards. This was a result of a detailed analysis undertaken by InfraTrain which identified disparities with unit standards, when compared to similar existing *Infrastructure works* unit standards. Secondly, analysis of the unit standards by a pavement industry sub-working group revealed the unit standards could be grouped into three distinct categories to address issues of credit parity:

- Group A: Design (15-20 credits)
- Group B: Operator (10-15 credits)
- Group C: Demonstrate knowledge and skill (5-10 credits)

The unit standards were assigned a weighting influenced by the task complexity and experience and skills required to undertake the task. Additionally, the pavement industry sub-working group compared similar tasks undertaken in the pavement industry to confirm the unit standard credit values.

The unit standards were made available on-line for wider consultation and amended as required to reflect feedback from wider consultation. The final versions of the unit standards were endorsed by the IAG in December 2011.

### Main changes

- Level of unit standards 1508 and 1512 has been reduced to better reflect the complexity of skill required to achieve the outcomes.
- Credits of most unit standards have been decreased to better reflect the indicative notional learning hours typically needed to gain the outcomes.
- Critical health and safety prerequisites specified under entry information for unit standard 20444 and 23616 have been updated to now also include Unit 20455, *Demonstrate basic knowledge of safety relating to bituminous materials.*
- Unit standard 20447 has been designated expiring without replacement as the content is duplicated in unit standard 13519.
- Explanatory notes, outcomes, evidence requirements, and range statements were amended and updated in line with industry best practice, changes to legislation, codes of practice, and manufacturing instructions.

### The Category D unit standard will expire at the end of December 2013

The last date for assessment of superseded versions of all the standards is 31 December 2013. Results will not be accepted where the assessment date is after the last date for assessment of the superseded version of the standard.

### Impact on registered qualifications

Key to type of impact	
<b>Affected</b>	The qualification lists a reviewed classification (domain or subfield) in an elective set The qualification lists a standard that has changes to level or credits The qualification lists a C or D category standard
<b>Not materially affected</b>	The qualification lists a standard that has a new title The qualification lists a standard that has a new classification

The following InfraTrain New Zealand Ltd qualifications are impacted by the outcome of this review and will be updated when they are reviewed in 2012. The standards that generated the status *Affected* are listed in **bold**.

Ref	Qualification Title	Classification or ID
0196	National Certificate in Pavement Surfacing (Chipseal Design) (Level 5)	1505, <b>21664</b>
0466	National Certificate in Pavement Surfacing (Asphalt Production) (Level 4)	1509, <b>20443, 20444, 20449, 20450</b>
0467	National Certificate in Pavement Surfacing (Hot Mix Asphalt Design) (Level 5)	<b>13514, 20446, 20449, 21665</b>
1427	National Certificate in Pavement Surfacing (Bulk Bitumen Equipment) with strands in Gangbar Sprayer, Handbar Sprayer, and Tank Wagon	20458, <b>20449, 20450, 20451, 20452, 20460, 23616</b>
1428	National Certificate in Pavement Surfacing (Plant Operation) (Level 3)	<b>20448</b>

1429	National Certificate in Pavement Surfacing (Asphalt Paving Machine Operation) (Level 3)	<b>13519, 20447</b>
1658	National Certificate in Infrastructure Works Supervision with optional strands in Asphalt Surfacing, Chipseal Surfacing, Civil Works and Utilities, Road Works, Water, and Wastewater	1510, <b>20447, 23612</b>
1659	National Certificate in Infrastructure Works Supervision (Level 5) with optional strands in Civil Plant Management, Civil Works, Pavement Surfacing, Roadmarking, Road Works, and Rural Contracting	1505, <b>1507, 1508, 1509, 1510, 1512, 21665</b>
1660	National Certificate in Infrastructure Works (Level 2) with optional strands in Earthworks, Pavement Surfacing, Roads, Rural Contracting, and Utilities	<b>13518</b>

### Detailed list of unit standards – classification, title, level, and credits

All changes are in **bold**.

Key to review category	
<b>A</b>	Dates changed, but no other changes are made - the new version of the standard carries the same ID and a new version number
<b>B</b>	Changes made, but the overall outcome remains the same - the new version of the standard carries the same ID and a new version number
<b>C</b>	Major changes that necessitate the registration of a replacement standard with a new ID
<b>D</b>	Standard will expire and not be replaced

### Engineering and Technology > Pavement Surfacing > Asphalt Surfacing

ID	Title	Level	Credit	Review Category
1508	Plan and organise construction activities as an asphalt paving supervisor	5 <b>4</b>	15	B
1509	Demonstrate knowledge of materials used in asphalt production and construction <b>Demonstrate knowledge of materials used in asphalt paving production and construction</b>	4	10	B
1510	Demonstrate knowledge of asphalt mixes and achieving construction specification requirements <b>Demonstrate knowledge of asphalt mix options, pavement pretreatments, and asphalt paving operations requirements</b>	4	12	B
1512	Supervise asphalt paving construction activities	5 <b>4</b>	18	B
13514	Design hot mix asphalt using the Marshall method <b>Design hot mix asphalt</b>	5	35 <b>25</b>	B
13515	Carry out acceptance testing for asphalt paving	4	10	B
13518	Demonstrate sweeping, placing, compacting, and associated handwork skills for asphalt surfacing	2	20 <b>15</b>	B
13519	Operate an asphalt paving machine	3	25 <b>20</b>	B
13521	Demonstrate knowledge of the compaction of hot mix asphalt	3	5	B

ID	Title	Level	Credit	Review Category
17672	Demonstrate knowledge of the use of polymer modifiers in hot mix asphalt production and construction	4	5	B
20443	Operate bitumen storage and heating equipment at an asphalt plant	4	12 10	B
20444	Operate an asphalt production plant	4	25 20	B
20445	Demonstrate knowledge of asphalt production plants	4	10	B
20446	Demonstrate knowledge of asphalt mix design methods and specifications	5	20 15	B
20447	Demonstrate knowledge of the care and operation of an asphalt paving machine	3	15	D
20448	Operate a self-propelled roller for asphalt surfacing	3	15 10	B
21665	Demonstrate knowledge of materials and mixes for hot mix asphalt designs	5	15 10	B
21666	Explain the properties, selection, and effects of polymer-modified binders in hot mix asphalt	5	8	B
23611	Demonstrate knowledge of, and plan work for, asphalt paving construction as a foreperson	4	12	B
23612	Undertake foreperson duties on asphalt paving construction sites	4	15 10	B

## Engineering and Technology &gt; Pavement Surfacing &gt; Bitumen Surfacing

ID	Title	Level	Credit	Review Category
1502	Demonstrate knowledge of contract documents required for bitumen surfacing supervision	4	15	B
20449	Demonstrate knowledge of the dangers of handling bituminous materials and the need for safety	3	20 10	B
20450	Describe safe heating, blending, modification, and transfer of bulk bituminous liquids	4	20 15	B
20455	Demonstrate basic knowledge of safety relating to bituminous materials	2	5	B
20456	Demonstrate first aid relating to liquid bitumen and bitumen additives	2	1	B
20458	Describe placarding requirements and produce documentation for transporting bituminous materials <b>Describe placarding requirements and produce documentation for transporting bituminous liquids</b>	2	3	B
20459	Transport bulk bituminous liquids by road and assist with loading and unloading	3	8	B
20460	Operate a bitumen tank wagon	4	15 10	B
20463	Determine and document bitumen blends	3	5	B

## Engineering and Technology &gt; Pavement Surfacing &gt; Chipseal Surfacing

ID	Title	Level	Credit	Review Category
1505	Demonstrate knowledge of the impact of site requirements on the chipseal design process <b>Demonstrate knowledge of chipseal design surfacing requirements</b>	4	15	B
1507	Demonstrate knowledge of, and supervise, construction activities as a chipseal surfacing supervisor	5	20 <b>15</b>	B
8021	Demonstrate knowledge of chipseal construction plant	3	5	B
13517	Demonstrate sweeping, chip-spreading, and associated handwork skills for chipseal surfacing	2	15	B
13520	Operate a truck-mounted roller-spreader on chipsealing works	3	10	B
17670	Demonstrate knowledge of hot polymer-modified binders and their use in chipseal construction	4	5	B
17671	Design chipseal surfacings using polymer-modified binders	5	5	B
20451	Operate bitumen gangbar sprayer transfer, heating, and blending equipment	4	20 <b>15</b>	B
20452	Spray bitumen for chipseal surfacing using a gangbar sprayer	4	30 <b>15</b>	B
20453	Plan and organise construction activities as a chipseal surfacing supervisor	5	15	B
20454	Demonstrate knowledge of materials used in chipseal surfacing	4	6	B
20461	Demonstrate knowledge of bitumen gangbar sprayers and operations	4	10	B
20462	Operate a self-propelled roller for chipseal surfacing	3	8	B
21664	Design chipseal surfacings and pretreatments	5	40 <b>25</b>	B
23613	Demonstrate knowledge of, and plan work for, chipseal surfacing construction as a foreperson	4	15	B
23614	Undertake foreperson duties on chipseal surfacing construction sites	4	15	B
23615	Demonstrate knowledge of bitumen handbar sprayers and operations	3	5	B
23616	Operate bitumen handbar sprayer equipment, and handspray bitumen for chipseal surfacing	3	15 <b>10</b>	B