

Sampling & Testing Guide-Minimum Frequency

**PORTLAND CEMENT CONCRETE PAVEMENT, PAVEMENT WIDENING, BASE WIDENING  
CURB & GUTTER, & PAVED SHOULDERS**

October 16, 2007  
Supersedes April 17, 2007

Section 2122, 2201, 2213, 2301, 2302, 2310, SS-01046

Matls. IM 204  
Appendix E (US) Units

MATERIAL OR CONSTRUCTION ITEM	TESTS	METHOD OF ACCEPTANCE & RELATED IMs	QUALITY CONTROL					INDEPENDENT ASSURANCE & VERIFICATION S&T					REMARKS	
			SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPT.	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY		REPORT
<b>SOURCE INSPECTION</b>														
Aggregates-Fine (4110)		AS 209												
Aggregate-Coarse (4115), Intermediate		AS 209												
Portland Cement (4101)	Quality	AS 401												
Fly Ash (4108)	Quality	AS 491.17												
GGBFS (Ground Granulated Blast Furnace Slag)	Quality	AS 491.14												
Curing Compounds (4105)	Lab-Tested													
Clear Curing Compounds (4105)		AB 405.07												
Air Entraining Admixture (4103)	Quality	AB 403												
Water Reducing Admix. (4103)	Quality	AB 403												
Retarding Admixture (4103)	Quality	AB 403												
Joint Sealer (4136.02)	Lab Tested	436.01, 436.02,436.03												
Backer Rod (4136.02)	Lab Tested	AB 436.04												
Mixing Water (4102)	Lab Tested							V	RCE/ CONTR	1/ source	1 pint	CTRL		Not required for potable water from municipal supply
AS-Approved Source		Cert A-Type A Certification		RCE-Resident Construction Engineer/Project Engineer				IA-Independent Assurance						
ASD-Approved Shop Drawing		Cert C-Type C Certification		DME-District Materials Engineer				V-Verification						
S&T-Sampling & Testing		Cert D-Type D Certification		CTRL-Central Materials Office				QMC-Quality Management Concrete						
				CONTR-Contractor										

**NOTE:** RCE/CONTR indicates that the contractor shall assist in the sampling at the direction of and witnessed by the project engineer.

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				SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	
<b>SOURCE INSPECTION</b>														
Steel Reinforcement (4151)														
Dowels	Quality	AS	451											
Tie Bars	Quality	AS	451											
General Use	Quality	AS	451											
<b>PLANT INSPECTION</b>														
Aggregates-Fine (4110/4111)	Grad * QMC	302 306 336		CONTR	1/1500cy	IM 301	CONTR	800240	IA V	DME RCE CONTR	1/100,000 sy, sample 1/day, test 1 <sup>st</sup> day + 2/lot	IM 301 IM 301	DME RCE/ DME	See Notes See IM 213
	Grad * Non-QMC	302 306 336		CONTR	1/day	IM 301	CONTR		IA V	DME RCE/ CONTR	1/100,000 sy, sample 1/day, test 1 <sup>st</sup> day + 1/lot	IM 301 IM 301	DME RCE/ DME	
	Moist	308, 527		CONTR	1/half day	1000 gm	CONTR							Not applicable with probe
	Sp. Gr.	307		CONTR	IM 527	1000 gm	CONTR							
	Quality	AS	209											
AS-Approved Source ASD-Approved Shop Drawing S&T-Sampling & Testing		Cert A-Type A Certification Cert C-Type C Certification Cert D-Type D Certification			RCE-Resident Construction Engineer/Project Engineer DME-District Materials Engineer CTRL-Central Materials Office CONTR-Contractor				IA-Independent Assurance V-Verification  QMC-Quality Management Concrete					

\* A system approach to independent assurance may be applied, at the discretion of the DME.

**NOTE:** When Certified Plant Inspection is not provided, the engineer is responsible for performing quality control sampling and testing.

**NOTE:** RCE/CONTR indicates that the contractor shall assist in the sampling at the direction of and witnessed by the project engineer.

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<b>PLANT INSPECTION</b>															
Aggregates-Coarse (4115), Intermediate	Grad * QMC	302 306 336	CONTR	QMC 1/1500 cy	IM 301	CONTR	800240	IA V	DME RCE/ CONTR	1/100,000 sy Sample 1/day, test 1 <sup>st</sup> day+2/lot	IM 301 IM 301	DME RCE/ DME		See Notes	
	Grad * Non-QMC	302 306 336	CONTR	1/day	IM 301	CONTR		IA V	DME RCE/ CONTR	1/100,000 sy, sample 1/day, test 1 <sup>st</sup> day + 1/lot	IM 301 IM 301	DME RCE/ DME			
	Moist	308	CONTR	1/half day	IM 301	CONTR									
	Sp. Gr.	307	CONTR	IM 527	IM 301	CONTR									
	Quality	AS 209						V	DME	1/100,000 sy	50 lb	CTRL			
Portland Cement (4101)	Quality	AS Cert D		Each Load				V	DME	1/100,000 sy	15 lb	CTRL			
	Cement Yield		CONTR	1/10,000 cy		CONTR	820912								
Fly Ash	Quality	AS Cert D		Each Load			800240	V	DME	1/100,000 sy	15 lb	CTRL			
GGBFS(Ground Granulated Blast Furnace Slag)	Quality	AS Cert		Each Load				V	DME	1/100,000 sy	15 lb	CTRL			
Air Admixture	Quality	AS 403						V	DME	1/batch	1 pint	CTRL		Sample batches not previously reported or as required by DME	
Water Reducer	Quality	AS 403						V	DME	1/batch	1 pint	CTRL			
Retarding Admixture	Quality	AS 403						V	DME	1/batch	1 pint	CTRL			
AS-Approved Source		Cert A-Type A Certification		RCE-Resident Construction Engineer/Project Engineer				IA-Independent Assurance							
ASD-Approved Shop Drawing		Cert C-Type C Certification		DME-District Materials Engineer				V-Verification							
S&T-Sampling & Testing		Cert D-Type D Certification		CTRL-Central Materials Office											
				CONTR-Contractor							QMC-Quality Management Concrete				

\* A system approach to independent assurance may be applied, at the discretion of the DME.

**NOTE:** When Certified Plant Inspection is not provided, the engineer is responsible for performing quality control sampling and testing.

**NOTE:** Quality samples not required when mix quantity is less than 2000 sq. yds., except for curing compound.

**NOTE:** RCE/CONTR indicates that the contractor shall assist in the sampling at the direction of and witnessed by the project engineer.

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<b>GRADE INSPECTION</b>														
Chloride Solution	Concentration	373	RCE	1/day										
Steel Reinforcement: Dowels	Quality	AS 451.03B					V	DME	1/District/Yr	2 ft	CTRL			
	Quality	AS 451 Cert D 451.03B												
Dowel Basket Assembly Tie Bars	Quality	AS 451					V	DME	1/District/Yr	2 ft	CTRL			
	Quality	AS 451					V	DME	1/District/Yr	48 in	CTRL			
General Use	Quality	AS 451					V	DME	1/batch	1/qt	CTRL		Sample batches not previously reported or as required by DME	
Curing Compound	Quality	Tested 4105					V	DME	1/batch	1/qt	CTRL			
Plastic Concrete	Air	318 327	QMC CONTR	QMC only 2301.04C 1/350 cy		QMC CONTR	E115	IA V	DME RCE	1/100,000 sy  2301.04C 1/700 cy, 1/100 cy for transit mixer		DME RCE		Min. 1 test/pour
	Slump	317						V	RCE	1/700 cy, min 1/pour		RCE		For hand finish or fixed form only
	Grade Yield		RCE	1/1000 cy		RCE								
	Beams**	316, 327, 328	RCE	2/day		RCE	E115							
Hardened Concrete	Thickness*	346, 347						IA V	DME RCE/ CONTR	1/2000 sy	10%	DME RCE		
	Smoothness	341 Cert. Test Rept.	CONTR		100%	CONTR		V	DME		10%	DME		
AS-Approved Source ASD-Approved Shop Drawing S&T-Sampling & Testing		Cert A-Type A Certification Cert C-Type C Certification Cert D-Type D Certification		RCE-Resident Construction Engineer/Project Engineer DME-District Materials Engineer CTRL-Central Materials Office CONTR-Contractor				IA-Independent Assurance V-Verification  QMC-Quality Management Concrete						

\*IA thickness cores sent to Central Lab for additional project information testing (Interstate and Primary only.)

\*\*None required when maturity is used. Quality samples not required when mix quantity is less than 2000 sq. yds., except for curing compound.

**NOTE:** RCE/CONTR indicates that the contractor shall assist in the sampling at the direction of and witnessed by the project engineer. **NOTE:** Form #E115 available from the Office of Construction.