

Sampling & Testing Guide-Minimum Frequency

**STRUCTURAL CONCRETE, REINFORCEMENT, FOUNDATIONS & SUBSTRUCTURES,
CONCRETE STRUCTURES, CONCRETE FLOORS, & CONCRETE BOX,
ARCH & CIRCULAR CULVERTS**

October 18, 2005
Supersedes April 19, 2005

Sections 2403, 2404, 2405, 2406, 2412, & 2415

Matls. IM 204
Appendix H (Metric) Units

MATERIAL OR CONSTRUCTION ITEM	TESTS	METHOD OF ACCEPTANCE & RELATED IMs	QC/ACCEPTANCE S&T					ASSURANCE, CORRELATION & VERIFICATION S&T					REMARKS ➡➡	
			SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY		REPORT
SOURCE INSPECTION														
Aggregate-Fine (4110)		AS 209												
Aggregate-Coarse (4115)		AS 209												
Granular Backfill (4133)		AS 209												
Portland Cement (4101)	Quality	AS 401												
Fly Ash (4108)	Quality	AS 491.17												
Mixing Water (4102)	Quality		RCE	➡➡ 1/project	1 L	CTRL	731							Not required for potable water from Municipal Supply
GGBFS (Ground Granulated Blast Furnace Slag)	Quality	AS 491.14												
Air Entraining Admixture	Quality	AS 403												
Retarding Admixture	Quality	AS 403												
Water reducing Admixture	Quality	AS 403												
Curing Compound (4105)	Lab Tested	AS 405 ➡➡	DME	1/lot	1 L	CTRL								Bridge Barrier Rails AASHTO, M148, Cert. by Manufacturer
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					ASSUR-Independent Assurance VERIF-Verification CORR-Correlation MON-Monitor						

Verification/Assurance samples not required when mix quantity is less than 40 m³.

NOTE: When the Project Engineer does the acceptance gradation testing, the assurance sample is to be split with the Project Engineer. This split sample is for correlation purposes and, if it is not a routine lot sample, should not be used for determining specification compliance of a lot. However, any non-compliant test result is to be resolved.

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			SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	
SOURCE INSPECTION													
Preformed Joint Sealer (4136)	Lab-Tested	AS 436.02 436.06											
Reinforcing Steel Bars (4151)	Quality	AS 451											
Steel Pile (4167)	Quality	467											
Concrete Pile (4166)	Quality	AS 570											
Timber Pile (4165)	Quality	Cert A AS ➡ 462											DME may obtain monitor samples. Charge number on butt end
Timber (4162) & Lumber (4163)		Cert A AS ➡ 462											DME may obtain monitor samples.
Concrete Anchors	Quality	AS 453.09											
Epoxy Grout	Quality	AS 491.11											
Concrete Sealer	Quality	AS 491.12											
Subdrain Pipe (4143)	Quality	AS 443, 448											
Neoprene Bearing Pads (4195)		AS 495.03											
Bronze Bearing Plates (4190.03)		ASD/Cert A											
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					ASSUR-Independent Assurance VERIF-Verification CORR-Correlation MON-Monitor					

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			SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY		REPORT
SOURCE INSPECTION														
Steel Masonry Plate (4152)		AS Drawing/Cert A												
Precast Units (2407)	Quality	AS 570												
Anchor Bolts (lighting, signing, handrail) (4153)	Lab Tested	ASD												
Structural Steel (4152)	Quality	➡➡ Cert A												Monitor Sample According to plans or other instructions
Aluminum Bridge Rail & Anchor Assembly		ASD												
Conduit (Electrical) (4185.10) Steel)		AS												
Conduit (Plastic) (4185.10)	Lab Tested		DME	1/size	1 m with coupling	C TRL								
Bentonite		Visual												
Flowable Mortar	Lab Tested ➡➡	Approved Trial Mix 525, 375												Tested by DME
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			SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY		REPORT	
PLANT INSPECTION															
Aggregate- Fine (4110)	Gradation	302, 306 336	CONTR	3/lot	IM 301	CONTR	800240	ASSUR CORR	DME CONTR	1/750 m ³ ➡ 1 st day +10%	IM 301	DME RCE		System Approach Applicable	
	Moisture	➡➡ 308, 528	CONTR	1/lot	1000 gm	CONTR								See IM 528 if Moisture Probe is used	
	Sp. Gr.	307	CONTR	IM 528	1000 gm	CONTR									
	Quality	AS 209													
Aggregate- Coarse (4115)	Gradation	302, 306 336	CONTR	3/lot	IM 301	CONTR			ASSUR CORR	DME CONTR	➡➡ 1/750 m ³ 1 st day+10%	IM 301	DME RCE		System Approach Applicable
	Moisture	308, 528	CONTR	1/lot	2000gm	CONTR									
	Sp. Gr.	307	CONTR	IM 528	2000gm	CONTR									
	Quality	AS 209							V	DME	1/750 m ³	22 kg	CTRL		
Portland Cement	w/c ratio	528	CONTR	1/pour		CONTR									
	Quality	AS Cert D							V	DME	1/750 m ³	7 kg	CTRL		
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			ASSUR-Independent Assurance VERIF-Verification CORR-Correlation MON-Monitor							

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PLANT INSPECTION														
Fly Ash	Quality	AS	Cert D		Ea Load			800240						
GGBFS(Ground Granulated Blast Furnace Slag)	Quality	AS	Cert D		Ea Load				V	DME	1/750 m³	7 kg	CTRL	
Air Entraining Admixture (4103)		AS	403	RCE	1/lot➡➡	0.5 L	CTRL							Sample lots not previously reported or as required by DME
Retarding Admixture		AS	403	RCE	1/lot➡➡	0.5 L	CTRL							
Water Reducing Admixture (4103)		AS	403	RCE	1/lot➡➡	0.5 L	CTRL							
GRADE INSPECTION														
Plastic Concrete	Air Content		316, 327	RCE	1/25 m³➡➡		RCE	M145*	ASSUR	DME	1/750 m³		DME	DME may adjust
	Slump		317, 327	RCE	1/25 m³ ➡➡		RCE		ASSUR	DME	1/750m³		Witness Only	DME may adjust
	Beams		316, 327, 328	RCE	2/placement ➡➡		RCE							If required per 2403.18 & 2403.19
	Cylinders									DME	➡➡ 3/project		DME	Primary Projects Only (Information only)
AS-Approved Source		Cert A-Type A Certification		RCE-Resident Construction Engineer				ASSUR-Independent Assurance						
ASD-Approved Shop Drawing		Cert C-Type C Certification		DME-District Materials Engineer				VERIF-Verification						
S&T-Sampling & Testing		Cert D-Type D Certification		CTRL-Central Materials Office				CORR-Correlation						
				CONTR-Contractor				MON-Monitor						

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* Available from the Office of Construction.

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GRADE INSPECTION														
Reinforcing Steel (4151)	Quality	AS	Cert A		Each Shipment			Field Book	V	DME	IM 451	2 m	CTRL	
Reinforcing Steel Epoxy Coated (4151)	Quality	AS	Cert A		Each Shipment			Field Book	V ➡	DME	1 of largest bar in deck	2 m	CTRL	Will be acceptance tested for coating
Steel Pile (4167)	Quality	AS	Cert A		Each Heat			Field Book		DME	IM 467		CTRL	Monitor by CTRL Materials
Timber Pile (4165)	Quality		462						MON					No grade requirement
Anchor Bolts (lighting, signing, handrail)	Lab Tested	ASD		DME	➡ 1/project	1 bolt w/nut & washer	CTRL							Sample only if not source inspected
Steel Masonry Plates (4152)		ASD	Cert A		Each Shipment			Field Book						Approved by Materials Department
Bronze Bearing Plates (4190.03)	Lab Tested			DME	➡ 1/project	1 only	CTRL							Sample only if not source inspected
Neoprene Bearing Pads (4195)		AS	495.03		Each Shipment			820905						
Alum. Bridge Rail & Anchor Assembly		ASD			Each Shipment			Field Book						Approved By Materials Dept.
Drains (Std Steel Pipe)(as per plan)	Dimensions Galvanized	ASD	Visual 332	DME	1/project		DME	Test Report						
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			SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY		REPORT
GRADE INSPECTION														
Timber (4162) & Lumber (4163)	Quality	Visual 462		Each Shipment										
Subdrain Pipe (4143)	Quality	AS Cert D 443, 448		Each Shipment										
Flowable Mortar (2506) ➡	Flow Test	375	RCE	As needed for Project Control		RCE	830211							Mix Design approval by DME
Bentonite	Flow Test	Visual 375				RCE								
Smoothness (2317)	Profilometer	Cert. Test Rpt. 341	CONTR	Each Project	Each Wheelpath	CONTR	821301	CORR	DME	10%				
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