

Sampling & Testing Guide-Minimum Frequency

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

October 16, 2007
Supersedes April 17, 2007

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

Matls. IM 204
Appendix H (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	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							V	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												Sample batches not previously reported or as required by DME
Curing Compound, White (4105)	Lab Tested	AS 405							V	DME	1/batch	1qt	CTRL	
Curing Compound, Clear (4105)		AS 405.07												
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			

NOTE: RCE/CONTR indicates that the Contractor shall assist in the sampling at the direction of and witnessed by the Project Engineer.

Sampling & Testing Guide-Minimum Frequency

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

October 16, 2007
Supersedes April 17, 2007

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

Matls. IM 204
Appendix H (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	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	
SOURCE INSPECTION														
Pre-formed Joint Sealer (4136)	Lab-Tested	AS	436.02 436.05											
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											
Timber (4162) & Lumber (4163)		Treated-Cert A AS	462											
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)		AS D/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				IA-Independent Assurance V-Verification		

NOTE: RCE/CONTR indicates that the Contractor shall assist in the sampling at the direction of and witnessed by the Project Engineer.

Sampling & Testing Guide-Minimum Frequency

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

October 16, 2007
Supersedes April 17, 2007

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

Matls. IM 204
Appendix H (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	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	
SOURCE INSPECTION													
Steel Masonry Plate (4152)		ASD/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							V	DME	1/size	4'	CTRL	
Bentonite		Visual											
Flowable Mortar	Lab Tested	Approved Trial Mix 525, 375											Tested by 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		

NOTE: RCE/CONTR indicates that the Contractor shall assist in the sampling at the direction of and witnessed by the Project Engineer.

Sampling & Testing Guide-Minimum Frequency

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

October 16, 2007
Supersedes April 17, 2007

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

Matls. IM 204
Appendix H (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	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	
PLANT INSPECTION													
Aggregate- Fine (4110)	Gradation Deck	302, 306 336	CONTR	IM 528	IM 301	CONTR	800240	IA V	DME RCE/ CONTR	1/1000 cy Sample & Test 1/deck/wk	IM 301 IM 301	DME RCE	May Use System App.
	Gradation All other		CONTR	IM 528	IM 301	CONTR		IA V	DME RCE/ CONTR	1-1000 cy Sample 1/wk Test 1 st day +20%	IM 301 IM 301	RCE	May Use System App.
	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 Deck	302, 306 336	CONTR	IM 528	IM 301	CONTR		IA V	DME RCE/ CONTR	1/1000 cy Sample & Test 1/deck/wk	IM 301 IM 301	DME RCE	May Use System App.
	Gradation All other		CONTR	IM 528	IM 301	CONTR		IA V	DME RCE/ CONTR	1/1000 cy Sample 1/wk Test 1 st day +20%	IM 301 IM 301	DME RCE	May Use System App.
	Moisture	308, 528	CONTR	1/lot	2000gm	CONTR							
	Sp. Gr.	307	CONTR	IM 528	2000gm	CONTR							
	Quality	AS 209						V	DME	1/1000 cy	50 lb	CTRL	(1)
Portland Cement	w/c ratio	528	CONTR	1/pour		CONTR							
	Quality	AS Cert D						V	DME	1/1000 cy	15 lb	CTRL	(1)
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	

(1) These verification samples for concrete materials not required when mix quantity is less than 50 cu. yd.

NOTE: RCE/CONTR indicates that the Contractor shall assist in the sampling at the direction of and witnessed by the Project Engineer.

Sampling & Testing Guide-Minimum Frequency

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

October 16, 2007
Supersedes April 17, 2007

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

Matls. IM 204
Appendix H (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	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	
PLANT INSPECTION														
Fly Ash	Quality	AS	Cert D		Each Load			800240						
GGBFS(Ground Granulated Blast Furnace Slag)	Quality	AS	Cert D		Each Load									
Air-Entraining Admixture (4103)		AS	403						V	RCE	1/batch	0.5 L	CTRL	(1) Sample lots not previously reported or as required by DME
Retarding Admixture		AS	403						V	RCE	1/batch	0.5 L	CTRL	
Water Reducing Admixture (4103)		AS	403						V	RCE	1/batch	0.5 L	CTRL	
GRADE INSPECTION														
Plastic Concrete	Air Content		316, 327					E145*	IA	DME	1/1000 cy		DME	DME may adjust
	Slump		317, 327						V	RCE	1/30 cy		DME	
	Beams		316, 327, 328						IA	DME	1/1000 cy		Witness Only RCE	
	Cylinders								V	RCE	1/30 cy		RCE	
										RCE	2/placement		RCE	If required per 2403.18 and 2403.19
										DME	▼ 3/project		DME	Primary Projects Only (Information only)
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					

(1) These verification samples for concrete materials not required when mix quantity is less than 50 cu. yd.

NOTE: RCE/CONTR indicates that the Contractor shall assist in the sampling at the direction of and witnessed by the Project Engineer.

* Available from the Office of Construction.

Sampling & Testing Guide-Minimum Frequency

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

October 16, 2007
Supersedes April 17, 2007

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

Matls. IM 204
Appendix H (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	TES BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	
GRADE INSPECTION														
Reinforcing Steel (4151)	Quality	AS	Cert A		Each Shipment			Field Book	V	DME	IM 451	6 ft	CTRL	
Reinforcing Steel Epoxy Coated (4151)	Quality	AS	Cert A		Each Shipment			Field Book	V	DME	1 bar	6 ft	CTRL	Will be acceptance tested for coating
Steel Pile (4167)	Quality	AS	Cert A		Each Heat			Field Book		DME	IM 467		CTRL	
Timber Pile (4165)	Quality	AS	462 Cert A						V	DME	IM 467		CTRL	No grade requirement Charge numbers on butt end.
Anchor Bolts (lighting, signing, handrail)	Lab Tested	ASD							V	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								V	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						V	DME	1/project		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		

NOTE: RCE/CONTR indicates that the Contractor shall assist in the sampling at the direction of and witnessed by the Project Engineer.

Sampling & Testing Guide-Minimum Frequency

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

October 16, 2007
Supersedes April 17, 2007

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

Matls. IM 204
Appendix H (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	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY		REPORT
GRADE INSPECTION														
Timber (4162) & Lumber (4163)	Quality	AS Treated-Cert A 462												
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 Report 341	CONTR	Each Project	Each Wheelpath	CONTR	821301	V		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				

NOTE: RCE/CONTR indicates that the Contractor shall assist in the sampling at the direction of and witnessed by the Project Engineer.