AASHTO MATERIALS REFERENCE LABORATORY
4441 Buckeystown Pike, Frederick, MD 21704

REPORT ON ASSESSMENT OF MATERIALS LABORATORY

Assessors Present	Assessor Roles (circle one)	Assessment #	
1.	Normal Training Combo Cross-Training	Start Date	
2.	Normal Training Combo Cross-Training	End Date	
3.	Normal Training Combo Cross-Training	Old Report #	
4.	Normal Training Combo Cross-Training	Old Re. Date	
		Lab AMRL #	

1. **Location of Laboratory:**

Phone No. (include area code):_____

Name of Laboratory: _____

Address _____

_____

3. **Distribution of Report:**

	Original	Copy
Name:		
Title:		
Email:		

Circle one:

LAB ACCREDITED? **Yes** **Seeking** **No**

Copy to FHWA (Main State DOTs only)? **Yes** **No**

Out-of-Sequence Laboratory (OOS)? **Yes** **No** **Supplemental**

Kit Letter _____	Temp. Probe A	Temp. Probe B	Uncertainty
Offset at 20°C			**± 1°C**
Offset at 60°C			**± 1°C**
Offset at 110°C			**± 1°C**

AMRL PRE-ASSESSMENT CHECKLIST

Assessor: *Before departing on a trip, review the following information. Note any items for discussion with the laboratory.*

☐ **Scope of the Assessment** - Review the assessment request form and the laboratory's current accreditation status.

New methods / scopes requested: _____

Accredited methods not requested: _____

Currently suspended / revoked: _____

Reason for suspension / revocation: _____

Aggregate assessed by: AMRL CCRL mixture none

Note: CCRL doesn't offer C1252 (uncompacted voids) or any aggregate "D" methods except for D2419 (Sand Eq).

☐ **PSP Enrollment**

Review the laboratory's current PSP enrollment. Check that the laboratory is signed up for all of the PSP samples required for their scope of accreditation.

BAC	PGB	EML	AGC	AGF	HMS	HMI
MAR	HVM	HMG	SOL	RVL	CBR	PNT

Rebar testing: ask a QA about Rebar PSP enrollment.

Notes: _____

☐ **PSP Data**

Review current PSP results. Check for current low ratings (0, 1, -1, 2, or -2). Note any data trends, such as results that are consistently below or consistently above the average result. Compare to laboratory's internal audits.

Test Method	Sample #	Ratings	Comments / Trends

☐ **Previous Assessment Report**

Currently accredited for: **C1077** **D3666** **D3740** **E329**

Review the previous assessment report (if applicable). Have a copy available to reference while writing the preliminary assessment report in the laboratory. Perform: **Full QMS review** **Abbreviated QMS review**

Notes: _____

_____

_____

Date completed: _____ Assessor: _____

AMRL LABORATORY ASSESSMENT OPENING MEETING

Date: _____

Assessor: *Upon arrival at the laboratory, arrange and conduct an opening meeting with the contact person and/or primary person in charge of the facility as well as any other key staff that may be involve in the assessment. Review each item from the checklist below with the laboratory:*

☐ **Purpose of Assessment and Accreditation Criteria**

The laboratory is being assessed to evaluate the competency to perform test methods in conformance to AASHTO, ASTM, and other governing standards as requested by the laboratory. Laboratories seeking AASHTO accreditation will additionally be evaluated for conformance to the criteria specified in AASHTO R18, the AASHTO Accreditation Program Requirements Manual, and additional quality system standards (C1077, D3666, D3740, E329) as requested by the lab.

☐ **Scope of the Assessment**

Review the assessment request form and (1) verify that the laboratory is in agreement with the planned scope of testing, and (2) if accredited, that the scope requested is in agreement with current accreditation scope. Note any tests to be added or dropped. Discuss any changes to the scope of the assessment and how it will affect the laboratory's accreditation status.

Methods Added: _____

Methods Dropped: _____

☐ **Assessment Schedule** - Discuss/review the following as it relates to the schedule:

- Length of Assessment
- Quality Manual and Records Review schedule
- Special Circumstances – preference of scope order, field testing requirements, staff requirements, etc.
- Approximate close-out meeting time

☐ **Confidentiality**

Explain that all information obtained during the assessment will be held in confidence and will not be shared with other parties.

☐ **Initials**

Ask that a member of the laboratory staff who was present at the opening meeting initial the worksheets, indicating that this material was discussed.

Review with (Laboratory Representative):

Name (Print): | Initials:

Assessor Notes - *for additional ASTM quality standards, the following criteria apply:*

- **C1077** - demonstrate ASTM methods C117, C127, C128, and C136 during the AMRL or CCRL on-site assessment.
- **D3666** - demonstrate at least one ASTM Hot Mix test method during the on-site assessment.
- **D3740** - demonstrate at least 5 ASTM Soil tests (**Note:** *any soil tests we assess for are acceptable, except for ASTM D2419*).
- **E329** - lab must meet the requirements of ASTM C1077, D3666, or D3740. (**Note:** *A laboratory may cover ASTM C1077 through CCRL.*) Alternatively, they can become accredited for E329 for SFRM testing only, if SFRM testing is performed during the on-site assessment.

AMRL LABORATORY ASSESSMENT CLOSING MEETING

Date: _____

- ☐ Explain that this is a preliminary report and that things may change on the final report. Explain that findings must be resolved within 90 calendar days of the date of issuance of the final report.
- ☐ Explain Nonconformities, Observations, and Informational as described on page 1 of the report.
- ☐ Distribute and review the preliminary report. Record names of all in attendance on assessment worksheets.
- ☐ Discuss the new AAP system for responding to findings – make sure you provide a copy of the tutorial with the preliminary report. Give an explanation of how to resolve deficiencies. (*Must present invoices, packing slips, revised QS documents, completed records, etc. Purchase orders will not suffice.*)
- ☐ Discuss the new specifier role (DOT's, FHWA, multiple branch labs, other specifiers) that allows laboratories to share accreditation information, access to assessment reports, PSP results, etc, with specifiers they choose.
- ☐ Remind laboratory personnel that they can provide feedback by visiting the "About Us" page on the website or by contacting our Quality and Information Manager.
- ☐ Mention the availability of AASHTO accreditation for ISO/IEC 17025, *General Requirements for the Competence of Calibration and Testing Laboratories.* An additional visit by an AMRL 17025 auditor is required.
- ☐ Mention that anyone can sign up to receive our newsletter by sending an email to subscribe@amrl.net.
- ☐ Explain that all information obtained during the assessment will be held in confidence and will not be shared with other parties.
- ☐ Thank the laboratory for participating in the AMRL program(s).
- ☐ Confirm email address for final report.

WORKSHEET & TEST METHOD SUGGESTIONS

Record any suggestions you have for changes to the worksheets in the table below. Suggestions for changes to the test methods can also be recorded here. (Example: Agg-11 | T85 | suggestion…) **Please discuss anything you write here with an APS.**

Set / p#	Test	Suggestions

Fill out if handing suggestions to APS:

Assessor Name: _____ Report Number: _____

PERSONNEL

Date: _____

1. Laboratory workers involved in the assessment:

Name: _____ **Position:** _____

Name: _____ **Position:** _____

Name: _____ **Position:** _____

Name: _____ **Position:** _____

Name: _____ **Position:** _____

Name: _____ **Position:** _____

Name: _____ **Position:** _____

Name: _____ **Position:** _____

Name: _____ **Position:** _____

2. Laboratory personnel involved in the review of the report:

Name: _____ **Position:** _____

Name: _____ **Position:** _____

Name: _____ **Position:** _____

Name: _____ **Position:** _____

Name: _____ **Position:** _____

Name: _____ **Position:** _____

Name: _____ **Position:** _____

Name: _____ **Position:** _____

Name: _____ **Position:** _____

Name: _____ **Position:** _____

For Combo labs, please record which assessor observed which scopes (or test methods if scope was split)★:

Assessor 1 Name: _____ **Observed:** _____

_____

Assessor 2 Name: _____ **Observed:** _____

_____

GENERAL

Date: _____

HOURS

Please record the actual number of hours for each activity indicated below. Do not include lunch breaks or similar breaks if not auditing. For combo labs, please account accurately for each assessor's time. Do not record hours for trainees or cross-trainees.

- **Auditing Hours - time spent on testing, measuring equipment, and meetings (do not include QS Review or Reporting hours in Auditing Hours)**
- **Quality System Review Hours – time spent reviewing quality system paperwork**
- **Reporting Hours - time spent writing the report in the field**

	Auditing Hours	Reporting Hours	QS Review Hours
Day 1			
Day 2			
Day 3			
Day 4			
Day 5			
Total Hours			

MECHANICAL SIEVING DEVICES *

Manufacturer	ID#	Standarization Time	Set Time	Elapsed Run Time	Condition OK?

*** Only record devices that you have seen in operation**

OVENS

Manufacturer	Model No.	Serial No.	Temperature Range (°C)			110 ± 5°C (*230 ± 9°F*)?
			Min.	Max.	Ave.	

Note: If the average temperature is not within the allowable range specified in the method (110 ± 5°C), or if the min/max temperature recorded is beyond the allowable limits specified in the method by more than (min/max outside of 110 ± 10°C), report the deficiency below. The temperature of the oven should be recorded for a minimum of 10 minutes.

COMMENTS:

LITERATURE

Date: _____

Soil

AASHTO books		ASTM books	
AASHTO	Date	ASTM	Date
R58-11		D421-85	
T88-13		D422-63	
T89-13		D4318-10	
T90-00		D4318-10	
T99-10		D698-12	
T100-06		D854-10	
T134-05		D558-11	
T135-13		D559-03	*
T136-13		D560-03	*
T146-96		--------	--------
T176-08		D2419-09	
T180-10		D1557-12	
T190-13		D2844-13	
T191-13		D1556-07	
T193-13		D1883-07	
T208-10		D2166-13	
T215-70	*	D2434-68	
T216-07		D2435-11	
T217-13		D4944-11	
T224-10		D4718-87	
T236-08		D3080-11	
T265-12		D2216-10	
T267-86		D2974-13	
T288-12		--------	--------
T289-91		--------	--------
T296-10		D2850-03a	
T297-94	*	D4767-11	
T310-13		D6938-10	
T311-00		--------	--------
--------	--------	D1140-00	
--------	--------	D2487-11	
--------	--------	D2488-09a	
--------	--------	D2937-10	
--------	--------	D4546-08	
--------	--------	D4643-08	
--------	--------	D4644-08	
--------	--------	D4829-11	
--------	--------	D4943-08	
--------	--------	D4972-13	
--------	--------	D5084-10	
--------	--------	D5731-08	
--------	--------	D6913-04	
--------	--------	D7012-13	

Aggregate

AASHTO books		ASTM books	
AASHTO	Date	ASTM	Date
T2-91		D75-13	
T11-05		C117-13	
T19-09		C29-09	
T21-05		C40-11	
T27-11		C136-06	
T37-07		D546-10	
T84-13		C128-12	
T85-13		C127-12	
T96-02	*	C131-06	
T104-99		C88-13	
T112-00		C142-10	
T113-06		C123-12	
T176-08		D2419-09	
T210-10		D3744-11a	
T248-11		C702-11	
T255-00		C566-13	
T304-11		C1252-06	
T327-12		D6928-10	
T335-09		D5821-13	
--------	--------	C535-12	
--------	--------	D4791-10	
--------	--------	D7172-06	
--------	--------	D7370-09	
--------	--------	D7428-08	

Quality Systems

AASHTO	Date	ASTM	Date
R18-10		C1077-14	
--------	--------	D3666-13	
--------	--------	D3740-12a	
--------	--------	E329-13c	

Non AASHTO/ASTM Standards

FM 5-515 Printed 2000		(Available free online)	--------

* red standards are no longer printed in current books

Note: For each Test Method presented, look for the most current edition. If the test method was not demonstrated, mark it with a line.

COMMENTS:

LITERATURE

Date: _____

Hot Mix Asphalt

AASHTO books		ASTM books	
AASHTO	Date	ASTM	Date
R47-08		--------	--------
R59-11		D1856-09	
T30-13		D5444-08	
T110-03		D1461-11	
T164-13		D2172-11	
T166-13		D2726-13	
T167-10		D1074-09	
T209-12		D2041-11	
T245-13		D6926-10	
T245-13		D6927-06	
T246-10		D1560-09a	
T247-10		D1561-13	
T269-11		D3203-11	
T275-07		D1188-07	
T283-07		D4867-09	
T287-06		D4125-10	
T305-09		D6390-11	
T308-10		D6307-10	
T312-12		D6925-09	
T324-11		--------	--------
T329-13		--------	--------
T331-13		D6752-11	
--------	--------	D1075-11	
--------	--------	D2950-11	
--------	--------	D4013-09	
--------	--------	D5404-12	
--------	--------	D6931-12	

Emulsions

AASHTO books		ASTM books	
AASHTO	Date	ASTM	Date
T59-13		D6929-10	
T59-13		D6930-10	
T59-13		D6933-13	
T59-13		D6934-08	
T59-13		D6935-11	
T59-13		D6936-09	
T59-13		D6937-08	
T59-13		D6997-12	
T59-13		D6998-11	
T59-13		D7402-09	
T59-13		D7496-11	
--------	--------	D7000-11	

COMMENTS:

Asphalt Cement

AASHTO books		ASTM books	
AASHTO	Date	ASTM	Date
R28-12		D6521-13	
R29-08		--------	--------
T44-13		D2042-09	
T48-06	*	D92-12a	
T49-07	*	D5-13	
T50-09	*	D139-12	
T51-09	*	D113-07	
T53-09	*	D36-09	
T55-02	*	D95-13	
T78-10		D402-08	
T79-12		D3143-13	
T179-05		D1754-09	
T201-10	*	D2170-10	
T202-10	*	D2171-10	
T228-09	*	D70-09	
T240-13		D2872-12	
T295-13		D3142-11	
T300-11		--------	--------
T301-13		D6084-06	
T313-12		D6648-08	
T314-12		D6723-12	
T315-12		D7175-08	
T316-13		D4402-12	
--------	--------	D243-08	
--------	--------	D3289-08	
--------	--------	D5801-95	
--------	--------	D7405-10a	
--------	--------	D7553-10	

Quality Systems

AASHTO books		ASTM books	
AASHTO	Date	ASTM	Date
R18-10		C1077-14	
--------	--------	D3666-13	
--------	--------	D3740-12a	
--------	--------	E329-13c	

Sprayed Fire-Resistive Materials

--------	--------	E605-93	
--------	--------	E736-00	

METALS LITERATURE

Date: _____

Ensure the laboratory also has the **specification** in the shaded box above each section.

Test Name	AASHTO	Date	ASTM	Date
Deformed and Plain Billet-Steel Bars	---------	---------	**A615-13**	
Low-Alloy Steel, Deformed and Plain Bars	---------	---------	**A706-09b**	
• CA Testing Mechanical and Welded Splices	---------	---------	CT670-11	
Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel	**M111-11**		**A123-13**	
• Thickness of Zinc Coating	T65-13		A90-11	
Steel Welded Wire, Plain	**M55-09**		**A1064-13**	
Steel Welded Wire, Deformed	**M221-09**		**A1064-13**	
• Bend Test	---------	---------	---------	---------
• Weld Shear	---------	---------	---------	---------
• Tensile Strength	T244-13		A370-12a	
High-Strength Bolts for Structural Steel Joints	**none**	---------	**A325-10**	
• Rotational Capacity	---------	---------	---------	---------
• Brinell Hardness	none	---------	E10-12	
• Rockwell Hardness	none	---------	E18-14	
• Tensile Strength	T244-13		F606-13	
• Proof Load Determination	T244-13		F606-13	
Steel Strand, Uncoated 7-Wire	**M203-12**		**A416-12a**	
• Tensile Strength	T244-13		A1061-09	
Gray Iron Castings	**M105-09**		**A48-03**	
• Tensile Strength	none	---------	E8-13	
Steel Wire, Deformed	**M225-09**		**A1064-13**	
Steel Wire, Plain	**M32-09**		**A1064-13**	
• Bend Test	---------	---------	---------	---------
• Tensile Strength	T244-13		A370-12a	
Deformed and Plain Billet-Steel Bars	**M31-10**		**A615-13**	
Low-Alloy Steel, Deformed and Plain Bars	**none**		**A706-09b**	
Rail-Steel and Axle-Steel Deformed Bars	**M322-10**		**A996-14**	
• Testing Mechanical Splices	---------	---------	A1034-10a	
• Tensile Strength	T244-13		A370-12a	
• Bend Test	T285-89		E290-13	
Structural Steel	**M270-12**		**A709-13a**	
• Tension Test	none	---------	A6-13a	
• Bend Test	none	---------	A6-13a	
• Charpy V-Notch	T266-08*	*	E23-12c	
Zinc Coated Steel Wire Rope & Fittings for Guardrail	**M30-02**		**A741-11**	
• Ductility (Wrap Test) / Adherence of Coating	---------	---------	---------	---------
• Tensile Strength	T244-13		A370-12a	
• Mass of Zinc Coating	T65-13		A90-13	
Epoxy Coated Reinforcing Bars	**M284-09 ***	*	**A775-07b**	
• Coating Flexibility (Bend Test)	---------	---------	---------	---------
• Film Thickness	---------	---------	G12-07	
• Continuity of Coating (Holidays)	---------	---------	G62-07	
Headed Steel Bars	---------	---------	**A970-13a**	
• Bend Test	---------	---------	---------	---------
• Tensile Strength	---------	---------	A370-12a	

^ = reprint of ASTM version except for small changes

A6, A48, A90, A123, A325, A370, A416, A615, A709, A741, A775, A970, A996, A1061, A1064, E8, E10, E18, E23, E290, F606, G12, G62.

M30, M31, M32, M55, M105, M111, M203, M221, M225, M270, M284*, M322, T65, T244, T266*, T285.

Pipe: D2412, D2444, D2680, D3034, M252, M264, M278, M294, F405, F2306

Other standards we reference: D88, D2168, D4753, E1, E4, E11, E77, E100, M92, M231, M320, PP57, R30, T72, T224, TP71

SAMPLE SIZE REDUCERS (T248/C702)

Date: _____

1. Jones or Flat Riffle Samplers:

Manufacturer (Record)				
Chutes:				
(a) Coarse: 8 or more? (record number)				
Fine: 12 or more? (record number)				
(b) Equal size openings?				
(c) Minimum distance between dividers?				
(d) Adjacent chutes discharge oppositely?				
(d) Dividers in good condition?				
Miscellaneous:				
(a) Splitter level?				
(b) Number of splits per run is two?				
Feeder: (Only required for AASHTO)				
(a) Feeder width equal to or slightly less (1/4 in.) than total chute width?				
(b) Edge of feeder straight?				
Discharge Pans:				
(a) Length equals or exceeds total chute width?				
(b) Pans in good condition?				

2. Miscellaneous Splitters

Manufacturer	Type	Nom. Opening	Nom. Particle Size	Condition OK?

3. <u>Quartering Equipment</u>:

(a) (Optional) Quartering cloth, 6 x 8 ft. (2 x 2.5 m)? ..... _____
(b) Straightedge scoop? ..... _____
(c) Shovel or trowel? ..... _____
(d) Brush or broom? ..... _____

4. <u>Miniature Stockpile Sampling:</u>

(a) Sample thief, small scoop, or small spoon? ..... _____

COMMENTS:

SIEVES (as specified in M92/E11)

Date: _____

Set			Metric (mm)	Size (in.) or Number	Min. opening size (mm)	Max. opening size (mm)	No. Inspected	No. OK	Remarks
			75	3	72.8	78.1			
		S	63	2 1/2	61.1	65.7			
1		S	50	2	48.5	52.3			
1	2	S	37.5	1 1/2	36.4	39.3			
		S	31.5	1 1/4	30.6	33.1			
1		S	25.0	1	24.2	26.4			
1	2	S	19.0	3/4	18.4	20.1			
		S	16.0	5/8	15.5	17.0			
		S	12.5	1/2	12.12	13.33			
1	2	S	9.5	3/8	9.21	10.18			
		S	8.0	5/16	7.75	8.60			
			6.3	1/4 (No. 3)	6.10	6.81			
1	2	S	4.75	No. 4	4.60	5.16			
		S	4.00	5	3.87	4.37			
	2	S	2.36	8	2.284	2.61			
1			2.00	10	1.935	2.23			
			1.7	12	1.644	1.90			
	2	S	1.18	16	1.140	1.34			
1			0.850	20	0.821	0.977			
	2	S	0.600	30	0.579	0.701			
1			0.425	40	0.410	0.506			
	2	S	0.300	50	0.289	0.365			
1			0.250	60	0.240	0.308			
	2	S	0.150	100	0.143	0.193			
1			0.106	140	0.101	0.141			
1		2	0.075	200	0.071	0.104			
						Pans OK?		Covers OK?	

Note: Each sieve shall have a label marked with the following information: (1) Test Sieve; (2) ASTM E-11; (3) Standard sieve designation; (4) Name of manufacturer or distributor; (5) Alternative sieve designation (optional); and (6) a unique serial number permanently engraved or etched onto the sieve frame, skirt, or nameplate.

Note: **1 – T88/D422 Hydrometer, sieve set 1** [*ASTM only: 1 1/2 in., 3/4 in., No. 20, No. 60, and No. 140 sieves are required.*]
2 – T88/D422 Hydrometer, sieve set 2
S – T104/C88 Sulfate Soundness sieve set

COMMENTS:

THERMOMETERS

Date: _____

General Condition of Thermometers (Reference ***ASTM E77 and E1***)

ASTM Liquid in glass	IP	Group	Range	Imm. Line T=total	Divisions	# insp.	Serial Number(s)	# OK
7F		**2**	**30 to 580°F**	**T**	**2°F**			
7C	**5C**	**2**	**-2 to 300°C**	**T**	**1°C**			
8F		**2**	**30 to 760°F**	**T**	**2°F**			
8C	**6C**	**2**	**-2 to 400°C**	**T**	**1°C**			
9F	**15F**	**2**	**20 to 230°F**	**57 mm**	**1°F**			
9C	**15C**	**2**	**-5 to 110°C**	**57 mm**	**0.5°C**			
11F	**28F**	**2**	**20 to 760°F**	**25 mm**	**5°F**			
11C	**28C**	**2**	**-6 to 400°C**	**25 mm**	**2°C**			
12F	**64F**	**2**	**-5 to 215°F**	**T**	**0.5°F**			
12C	**64C**	**2**	**-20 to 102°C**	**T**	**0.2°C**			
13C	**47C**	**2**	**155 to 170°C**	**T**	**0.5°C**			
15F		**2**	**30 to 180°F**	**T**	**0.5°F**			
15C	**60C**	**2**	**-2 to 80°C**	**T**	**0.2°C**			
16F		**2**	**85 to 392°F**	**T**	**1°F**			
16C	**61C**	**2**	**30 to 200°C**	**T**	**0.5°C**			
17F		**2**	**66 to 80°F**	**T**	**0.2°F**			
17C		**2**	**19 to 27°C**	**T**	**0.1°C**			
19F		**2**	**120 to 134°F**	**T**	**0.2°F**			
19C		**2**	**49 to 57°C**	**T**	**0.1°C**			
20F		**2**	**134 to 148°F**	**T**	**0.2°F**			
20C		**2**	**57 to 65°C**	**T**	**0.1°C**			
47F	**35F**	**1**	**137.5 to 142.5°F**	**T**	**0.1°F**			
47C	**35C**	**1**	**58.6 to 61.4°C**	**T**	**0.05°C**			
62C		**1**	**-38 to 2°C**	**T**	**0.1°C**			
63F		**1**	**18 to 89°F**	**T**	**0.2°F**			
63C		**1**	**-8 to 32°C**	**T**	**0.1°C**			
64F		**1**	**77 to 131°F**	**T**	**0.2°F**			
64C		**1**	**25 to 55°C**	**T**	**0.1°C**			
110F		**1**	**272.5 to 277.5°F**	**T**	**0.1°F**			
110C	**93C**	**1**	**133.6 to 136.4°C**	**T**	**0.05°C**			
digital	**liquid in glass**		°		°			
digital	**liquid in glass**		°		°			
digital	**liquid in glass**		°		°			
digital	**liquid in glass**		°		°			
digital	**liquid in glass**		°		°			

Note to Assessors: Total immersion thermometers (T) must be submerged up to the top of the liquid (mercury, etc) column to get an accurate reading. Partial immersion thermometers must be submerged to the immersion line (ex: 25 mm). For write-in thermometers please mark the type of thermometer.

Group 1 – May be read to fractions of a division, often by using a magnifying aid. Without magnification, consider as Group 2.
Group 2 – May be read to nearest half division.

COMMENTS:

GENERAL PURPOSE BALANCES (M231/**D4753**) Date: ___________________

Before testing the balance, check the levelness of the balance (most have a built-in bubble level) and clean off the balance pan.

Class	Readability / Sensitivity	Accuracy*
G1 *(ASTM: GP1)*	**0.01 g**	**0.02 g or 0.1 %**
G2 *(ASTM: GP2)*	**0.1 g**	**0.2 g or 0.1 %**
G5 *(ASTM: GP5)*	**1 g**	**2 g or 0.1 %**
G20 *(ASTM: GP10)*	**5 g**	**5 g or 0.1 %**
G100	**20 g**	**20 g or 0.1%**
ASTM GP100	**50 g**	**50 g or 0.1%**

Serial #:		**5 kg**		**500 g**		**20 g**		**1 g**	
Class G/GP:	**Capacity:**	**3 kg**		**200 g**		**10 g**		**0.5 g**	
Mfgr:	**Type:**	**2 kg**		**100 g**		**5 g**		**0.2 g**	
Sensitivity OK?	**Accuracy OK?**	**1 kg**		**50 g**		**2 g**		**0.1 g**	

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***Accuracy equal to the mass stated or 0.1 percent of the test load, whichever is greater, throughout the range of use.**
***The accuracy requirements shall be met for application of a test load on any point on the pan.**
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