YEAR 2021 CCIL CORRELATION

MIX DESIGN (ON QC)

PLEASE NOTE: Type A laboratories are **NOT** required to carry out additional testing on Mix compliance (MC) samples

SAMPLES

One bag of coarse and one bag of fine aggregate for each of two mix designs (four bags total) along with asphalt cement have been provided.

Note 1: To ensure that all laboratories receive identical samples, the fine aggregate samples have been recombined from individual sieve sizes. Before commencing any testing, these samples should be **carefully but thoroughly mixed** (each fine aggregate separately) by running through a mini-splitter several times.

Note 2: Pay attention to the notes included with each weigh card.

PREPARATION OF THE MATERIALS BY THE PARTICIPATING LABORATORIES

On receipt of the bulk samples of coarse and fine aggregate, dry the samples to constant mass and size the **coarse** aggregate (down to 2.36 mm size).

TESTING

AGGREGATES
Coarse aggregates shall be tested according to LS-604 (Latest Revision) "Method of test for Relative Density and Absorption of Coarse Aggregate" and fine aggregates shall be tested according to LS-605 (Latest Revision) "Method of test for Relative Density and Absorption of Fine Aggregate". Two determinations for each aggregate **(MDCA-A-X; MDCA-B-X, MDFA-A-X; MDFA-B-X)** are required.

MIXES
Combine the dried aggregate and asphalt cement **(MDAC-A-X or MDAC-BC-X)** in the proportions given on the attached mix "WEIGH CARDS", for Material A and Material B on page 3. MTO laboratory test method LS-261 (latest revision) "Method of Test for Preparation of Marshall Specimens" shall then be followed to prepare the Marshall specimens.

Note 3: Samples for each Marshall briquette specimen and Maximum Relative Density Test are to be batched individually. A total of six (6) briquettes and two (2) Maximum Relative Density samples shall be prepared for each mix. Manual compaction of briquettes shall be carried out using **75 blows per side**.

Note 4: With the manual hammer, the following should be noted: (a) compaction pedestal must be secured; (b) the timing of blows should be 60± 5 blows per minute; (c) the hammer should be allowed to rebound between successive blows.

The mixing temperature and **compaction temperature** shall be as indicated on the mix design weigh card forms. **Trough, moulds and hammers** shall be preheated to **135±5°C.**

YEAR 2021 CCIL CORRELATION

Thereafter the specimens shall be tested for:

1. Bulk relative density, LS-262 (latest revision), “Bulk Relative Density of Compacted Bituminous Mixes”

2. Marshall stability and flow, LS-263 (Revision 32), "Resistance to Plastic Flow of Bituminous Mixtures using the Marshall Apparatus"

   Note 5: Stability must be reported in Newtons and Flow in 0.25mm units.

3. Maximum relative density, LS-264 (latest revision), “Theoretical Maximum Relative Density of Bituminous Paving Mixtures”

   Note 6: To allow a proper comparison, the Maximum Relative Density test shall be carried out on uncompacted freshly mixed material as described in Section 5 including the heat treatment (Item 5.10).

4. Air voids, LS-265, (latest revision), “Determination of Percent Air Voids in Compacted Dense Bituminous Pavement Mixtures”

5. VMA, LS-266 (latest revision), “Determination of VMA in Compacted Bituminous Mixtures”

All test results shall be reported online and submitted by **January 8 2021**. An example of a completed report form is shown on Pages 4 and 5.

Note 7: Please identify the method used for the determination of flow by selecting from the dropdown feature on the Reporting Form.

Hard copies of the report forms and work sheets must be submitted by **January 8 2021** by mail or courier to:

Nabil Kamel, M.A.Sc., P.Eng.
CCIL Program Manager
3410 South Service Road, Suite 104
Burlington, Ontario, L7N 3T2
Tel: 289-337-8888: Fax: 289-337-8889: e-mail: nkamel@ccil.com

DO NOT send reports and worksheets by fax

YEAR 2021 CCIL CORRELATION

Mix Design – Material A

Weigh Card (mass in grams)

Mass Type	Coarse Aggregate MDCA-A-X						Fine Aggregate MDFA-A-X	Dust	Asphalt Cement MDAC-A-X
		13.2mm *	9.5mm	4.75mm	2.36mm	Pass ** 2.36mm			
Individual		**22.2**	**197.7**	**325.9**	**4.4**	**3.7**	**600.1**	**33.5**	**62.5**
Cumulative		**22.2**	**219.9**	**545.8**	**550.2**	**553.9**	**1,154**	**1,187.5**	**1,250**

Mixing Temperature = 147°C Compaction Temperature = 133°C
AC Content = 5.0%

Notes:

1 *** Is** material retained on the 13.2mm sieve to be discarded? **No**

2 ****** Is material passing the 2.36mm sieve material from coarse aggregate to be discarded? **No**

OR

has the pass 2.36mm sieve material been included in the component package? **No**

3. *** Has dust been supplied separately? **Yes. In a separate bag with the coarse aggregate**.

4. Masses provided for BRD specimens are to be adjusted proportionally to provide for Maximum Theoretical Relative Density (MRD) test samples.

Mix Design – Material B

Weigh Card
(mass in grams)

Mass Type	Coarse Aggregate MDCA-B-X						Fine Aggregate MDFA-B-X	Dust	Asphalt Cement MDAC-B-X
		13.2mm *	9.5mm	4.75mm	2.36mm	Pass ** 2.36mm			
Individual		**15.2**	**144.9**	**339.2**	**37.8**	**12.3**	**595.1**	**34.3**	**71.2**
Cumulative		**15.2**	**160.1**	**499.3**	**537.1**	**549.4**	**1144.5**	**1178.8**	**1250**

Mixing Temperature = 148°C Compaction Temperature = 135°C
AC Content = 5.70%

Notes:

1. *** Is** material retained on the 13.2mm sieve to be discarded? **No**

2. ****** Is material passing the 2.36mm sieve material from coarse aggregate to be discarded? **NO**

OR

has the pass 2.36mm sieve material been included in the component package? **NO**

3. *** Has dust been supplied separately? **YES. In a plastic bag with the fine aggregate bag.**

4. Masses provided for BRD specimens are to be adjusted proportionally to provide for Maximum Theoretical Relative Density (MRD) test samples.

YEAR 2021 CCIL CORRELATION

Canadian Council of Independent Laboratories

2020 Asphalt Reporting Form
Mix Design

Mix Design Report - Certification Program

- **CCIL Confidential Lab #** CCIL 999
- **Lab Name:** Demo Lab
- **Tested by:**
  - ○ Lab Technician
  - ○ Supervisor / Manager
  - ◉ Not listed

Please specify

Super Technician

Mix Design Report

Test	A-MD-xxx x	A-MD-xxx y	- Avg	B-MD-xxx x	B-MD-xxx y	- Avg
BRD - *LS-262/D2726*	2.376	2.380	2.378	2.421	2.430	2.426
MRD - *LS-264/D2041*	2.485	2.484	2.484	2.504	2.504	2.504
% Voids	4.5	4.4	4.5	3.2	3.0	3.1
% VMA	15.6	15.8	15.7	14.2	14.4	14.3

Flow Measurement

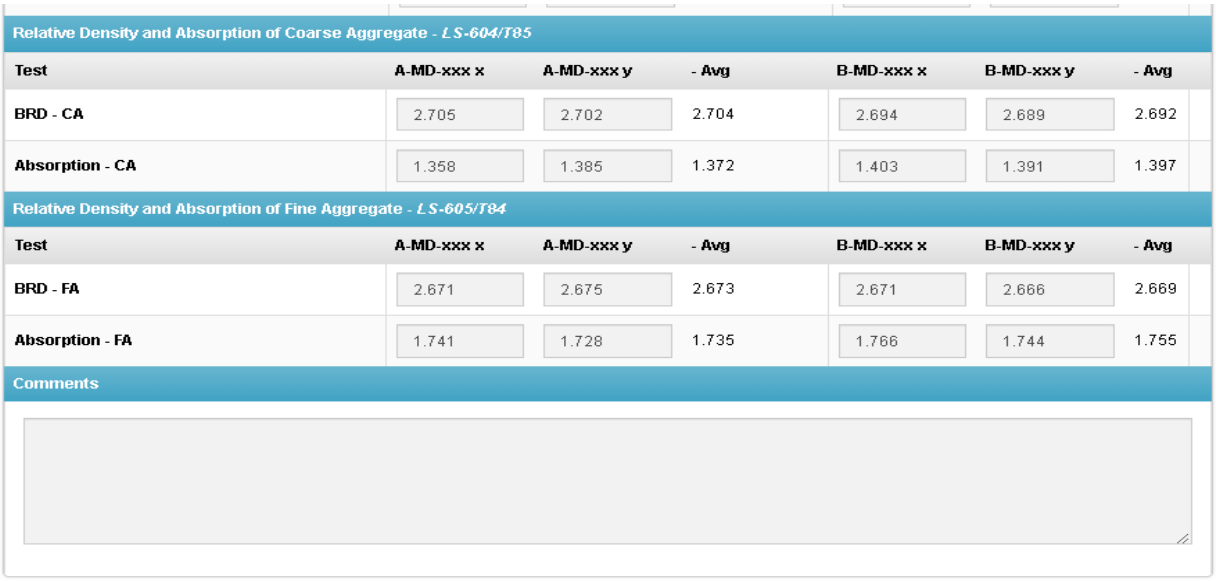
Automated Method

Marshall Stability and Flow of Bituminous Mixtures - *LS-263/D6927*

Test	A-MD-xxx x	A-MD-xxx y	- Avg	B-MD-xxx x	B-MD-xxx y	- Avg
Stability (N)	10864	11625	11245	9424	9821	9623
Flow (0.25mm units)	10.4	10.2	10.3	9.6	10.2	9.9

Note: BRD values under “x” and “y” are the average of the group of 3 specimens.

YEAR 2021 CCIL CORRELATION



Relative Density and Absorption of Coarse Aggregate - *LS-604/T85*

Test	A-MD-xxx x	A-MD-xxx y	- Avg	B-MD-xxx x	B-MD-xxx y	- Avg
BRD - CA	2.705	2.702	2.704	2.694	2.689	2.692
Absorption - CA	1.358	1.385	1.372	1.403	1.391	1.397

Relative Density and Absorption of Fine Aggregate - *LS-605/T84*

Test	A-MD-xxx x	A-MD-xxx y	- Avg	B-MD-xxx x	B-MD-xxx y	- Avg
BRD - FA	2.671	2.675	2.673	2.671	2.666	2.669
Absorption - FA	1.741	1.728	1.735	1.766	1.744	1.755

Comments