

## YEAR 2019 CCIL CORRELATION

### SUPERPAVE GYRATORY COMPACTION - LAB MIX (BC, MB, NB, NL, NS and SK)

**IMPORTANT NOTE:** Type A Superpave Mix Design laboratories are required to carry out Gyratory Compaction and appropriate subsequent testing using **only** Lab Mix samples as the starting material. Type A laboratories are **NOT** required to carry out additional testing on Mix compliance samples.

#### Lab Mix Samples

One bag of coarse aggregate each (**GYCA-I-(N)** and **GYCA-II-(N)**) and one bag of fine aggregate each (**GYFA-I-(N)** and **GYFA-II-(N)**) along with asphalt cement (**GYAC-I-(N)** and **GYAC-II-(N)**) have been provided.

#### Aggregate Preparation

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) and pass 2.36 mm portion.

**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 the weigh cards for each mix

#### Mix Preparation

- 1) For Gyratory samples (**two samples for each mix**) combine the dried aggregate and asphalt cement in the proportions indicated in the Weigh Card tables for Material I and Material II. Mass of the sample to be consistent with those included in the appropriate weigh card.
- 2) An additional sample using the same proportions of dried aggregate and asphalt cement shall be produced for Maximum Theoretical Relative Density (MRD); minimum mass of 1500g.
- 3) The mixing temperature and compaction temperature shall be as indicated on the appropriate mix design weigh card form.
- 4) Mixture conditioning for both Gyratory and MRD samples shall be carried out at the mixture compaction temperature indicated on the weighcard  $\pm 3^{\circ}\text{C}$  for  $2\text{h} \pm 5$  minutes (as indicated in AASHTO R30). Proceed immediately with compaction.

**For Material I:**  $N_{ini} = 8, N_{des} = 100$

**For Material II:**  $N_{ini} = 9, N_{des} = 125$

The same Superpave Gyratory Compactor shall be used to compact both materials.

- 5) The specimens can be extruded from the mold immediately after compaction for Material II.

#### Sample Testing

- 1) Follow D2726 for the determination of the Bulk Relative Density (BRD) of the gyratory samples.
- 2) Follow D2041 for the determination of the Maximum Theoretical Relative Density (MRD) of the separate samples blended for this purpose.

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### Report

- 1) Maximum Theoretical Relative Density (MRD) for gyratory mix
- 2) Bulk Relative Density for gyratory compacted samples
- 3) Percent  $G_{mm}$  at  $N_{ini}$ .
- 4) The calculated percent air voids of the compacted specimen ( $N_{design}$ ) to nearest 0.1%
- 5) Manufacturer, Model, and Serial number of the Superpave Gyratory Compactor used to compact the samples.

All test results shall be reported on line and submitted by **January 4 2019**. An example of a completed report form is shown on page 4.

Hard copies of the report forms and work sheets must be submitted by **January 4 2019** by mail or courier to:

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CCIL Program Manager  
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Burlington, Ontario, L7N 3T2  
Tel: 289-337-8888: Fax: 289-337-8889: e-mail: [nkamel@ccil.com](mailto:nkamel@ccil.com)

**DO NOT** send reports and worksheets by fax

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**Superpave Gyratory Specimens – Material I**

Weigh Card (mass in grams)									
Mass Type	Coarse Aggregate GYCA-I-(N)						Fine Aggregate GYFA-I-(N)	Dust	Asphalt Cement GYAC-I-(N)
		12.5mm *	9.5mm	4.75mm	2.36mm	Pass ** 2.36mm			
Individual		<b>73.1</b>	<b>735.0</b>	<b>1276.6</b>	<b>53.7</b>	<b>10.8</b>	<b>2328.2</b>	<b>143.3</b>	<b>279.3</b>
Cumulative		<b>73.1</b>	<b>808.1</b>	<b>2084.7</b>	<b>2138.4</b>	<b>2149.2</b>	<b>4477.4</b>	<b>4620.7</b>	<b>4900.0</b>

**Mixing Temperature = 148°C      Compaction Temperature = 135°C**  
**AC Content = 5.7%**

Notes:

- \* Is material retained on the 12.5mm sieve to be discarded? No**
- \*\* 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**
- \*\*\* Has dust been supplied separately? Yes. In a separate bag with the fine aggregate.**
- Masses provided for Superpave Gyratory Specimens are to be adjusted proportionally to provide for Maximum Theoretical Relative Density (MRD) test samples.

**Superpave Gyratory Specimens – Material II**

Weigh Card (mass in grams)									
Type Mass	Coarse Aggregate GYCA-II-(N)						Fine Aggregate GYFA-II-(N)	Dust***	Asphalt Cement GYAC-II-(N)
		12.5mm *	9.5mm	4.75mm	2.36mm	Pass ** 2.36mm			
Individual		<b>14.9</b>	<b>768.9</b>	<b>1143.2</b>	<b>17.6</b>	<b>37.4</b>	<b>2492.0</b>	<b>156.6</b>	<b>269.5</b>
Cumulative		<b>14.9</b>	<b>783.8</b>	<b>1927.0</b>	<b>1944.6</b>	<b>1982.0</b>	<b>4474.0</b>	<b>4630.6</b>	<b>4900.1</b>

**Mixing Temperature = 148°C      Compaction Temperature = 135°C**  
**AC Content = 5.5%**

Notes:

- \* Is material retained on the 12.5mm sieve to be discarded? No**
- \*\* 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**
- \*\*\* Has dust been supplied separately? Yes**
- Masses provided for Superpave Gyratory Specimens are to be adjusted proportionally to provide for Maximum Theoretical Relative Density (MRD) test samples.

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**2019 CCIL CORRELATION - EXAMPLE REPORT BC, MB , NB, NL, NS and SK**

**Testing Admin Information** your assigned CCIL Lab No.: **BC99**

• Lab Name (include Branch or Mobile #)	<b>Apex Construction</b>
• E-mail Address	<a href="mailto:enstein@apex.com">enstein@apex.com</a>
• Reported by (Contact Name)	<b>Frank Enstein</b>
• Phone Number (Contact)	<b>(999) 999-9999</b>
• Tested by (Name(s))	<b>Jim Dandy</b>
• Results Reporting Date	<b>January 4 2019</b>

**Gyratory Compaction - Lab Mix**

Manufacturer:	Best	Model:	123	S/N:	1234
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Results for:	GY-I			GY-II		
	a	b	Average	a	b	Average
• <i>M S G (G<sub>mm</sub>)</i>	2.510	2.508	2.509	2.515	2.519	2.517
• <i>B R D @ N<sub>des</sub></i>	2.425	2.416	2.421	2.431	2.431	2.431
• <i>B R D @ N<sub>ini</sub></i>	2.146	2.150	2.148	2.168	2.156	2.162
• <i>% G<sub>mm</sub> @ N<sub>ini</sub></i>	85.5	85.7	85.6	86.2	85.6	85.9
• <i>% Air Voids (@ N<sub>des</sub>)</i>	3.4	3.7	3.6	3.3	3.5	3.4

**Compactor Calibration (Indicate with an "X" the applicable setting).**

Internal Angle (1.16 deg.)	x
External Angle (1.25 deg.)	