

## YEAR 2018 CCIL CORRELATION

### SUPERPAVE GYRATORY COMPACTION - LAB MIX (AB YT)

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

Also please note Clause 5) under Mix Preparation pertaining to Material I.

#### Lab Mix Samples

One bag of coarse aggregate each (**I-GYCA-(N)** and **II-GYCA-(N)**) and one bag of fine aggregate each (**I-GYFA-(N)** and **II-GYFA-(N)**) along with asphalt cement (**I-GYAC-(N)** and **II-GYAC-(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 2.5 mm size) and pass 2.5 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:**             $N_{\text{ini}} = 7, N_{\text{des}} = 75$   
**For Material II:**         $N_{\text{ini}} = 8, N_{\text{des}} = 100$

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. However, a cooling period of 5 to 10 minutes in front of a fan is highly recommended before extruding specimens for Material I to ensure the specimens are not damaged.

#### 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.

## YEAR 2018 CCIL CORRELATION

### 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 at  $N_{design}$  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 online and submitted by **January 5 2018**. 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 5 2018** 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: email: [nkamel@ccil.com](mailto:nkamel@ccil.com)

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

## YEAR 2018 CCIL CORRELATION

### Superpave Gyratory Specimens – Material I

Weigh Card (mass in grams)									
Mass Type	Coarse Aggregate I-GYCA-(N)						Fine Aggregate I-GYFA-(N)	Dust	Asphalt Cement I-GYAC-(N)
		12.5mm *	10.0mm	5.0mm	2.5mm	Pass ** 2.5mm			
Individual		70.7	772.8	1102.2	47.4	20.2	2460.6	156.6	269.5
Cumulative		70.7	843.5	1945.7	1993.1	2013.3	4473.9	4630.5	4900.0

*Mixing Temperature* = 148°C                      *Compaction Temperature* = 135°C  
*AC Content (by total mix mass)* = 5.5%

Notes:

- \* Is material retained on the 12.5mm sieve to be discarded? **No**
- \*\* Is material passing the 2.5mm sieve material from coarse aggregate to be discarded? **No**  
**OR**  
 has the pass 2.5mm 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 II-GYCA-(N)						Fine Aggregate II-GYFA-(N)	Dust***	Asphalt Cement II-GYAC-(N)
		12.5mm *	10.0mm	5.0mm	2.5mm	Pass ** 2.5mm			
Individual		72.6	793.7	1132.0	48.7	20.6	2496.6	32.0	303.8
Cumulative		72.6	866.3	1998.3	2047.0	2067.6	4564.2	4596.2	4900.0

*Mixing Temperature* = 148°C                      *Compaction Temperature* = 135°C  
*AC Content (by total mix mass)* = 6.2%

Notes:

- \* Is material retained on the 12.5mm sieve to be discarded? **No**
- \*\* Is material passing the 2.5mm sieve material from coarse aggregate to be discarded? **No**  
**OR**  
 has the pass 2.5mm 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.

YEAR 2018 CCIL CORRELATION

**2018 CCIL CORRELATION - SAMPLE REPORT ALBERTA and YUKON**

**Testing Admin Information**

your assigned CCIL Lab No.: **AB99**

• 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 5 2018</b>

**Gyratory Compaction - Laboratory Mix**

Manufacturer:	Best	Model:	123	S/N:	1234
---------------	------	--------	-----	------	------

Results for: Sample Number	I-GY			II-GY		
	a	b	Average	a	b	Average
• <i>M S G (G<sub>mm</sub> by ASTM 2041)</i>	<b>2.510</b>	<b>2.508</b>	<b>2.509</b>	<b>2.515</b>	<b>2.519</b>	<b>2.517</b>
• <i>B R D @ N<sub>des</sub></i>	<b>2.425</b>	<b>2.416</b>	<b>2.421</b>	<b>2.431</b>	<b>2.431</b>	<b>2.431</b>
• <i>B R D @ N<sub>ini</sub></i>	<b>2.146</b>	<b>2.150</b>	<b>2.148</b>	<b>2.168</b>	<b>2.156</b>	<b>2.162</b>
• <i>% G<sub>mm</sub> @ N<sub>ini</sub></i>	<b>85.5</b>	<b>85.7</b>	<b>85.6</b>	<b>86.2</b>	<b>85.6</b>	<b>85.9</b>
• <i>% Air Voids (@ N<sub>des</sub>)</i>	<b>3.4</b>	<b>3.7</b>	<b>3.6</b>	<b>3.3</b>	<b>3.5</b>	<b>3.4</b>

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

Internal Angle (1.16 deg.)	<b>x</b>
External Angle (1.25 deg.)	