

FIVE POINTS TO BETTER PAVEMENTS

MAIN DIRECTIONS OF ACTION FOR ELIMINATING SUBSTANDARD PAVEMENTS

McAsphalt recommends the following five directions of action for ensuring superior quality PGAC's and for eliminating substandard performance of asphalt pavements in Ontario:

1. **PGAC Quality and Durability.** Control the quality of your PGAC by specifying MSCR, DENT and Ash Content for all modified grades, in addition to the regular PG specification. This will eliminate questionable modification techniques; will ensure responsible use of REOBs; will mandate elastomeric (polymer) modification and will ensure superior fatigue properties for the binder. Refrain from banning or mandating ingredients, as this approach does not ensure high performance binders.
2. **PGAC Low Temperature Properties.** The adoption of the Extended BBR test is not recommended, as it will lead to substantial cost increases and extend QC testing time significantly. If concerns exist about thermal cracking or other cold weather distresses, it should be addressed by increasing the reliability requirement for the grade selection in LTPPBind, and/or lowering the low-end grade of the PGAC.
3. **AC content for HMA mixes.** A minimum asphalt cement content of 4.7% for base mixes and 5.0% for surface mixes is recommended. Binder content is the single most important parameter for ensuring superior fatigue performance and durability in HMA mixes.
4. **Rational use of RAP.** Control a reasonable utilization of RAP in HMA mixes. The virgin PGAC grade must be adjusted if the RAP content in the HMA exceeds 20%, as per the guideline in the table below. Maximum recommended virgin AC replacement ratios are also shown in the table below. The rational use of RAP ultimately depends on the RAP's characteristics (PGAC content and its recovered properties, gradation, etc.), which should be verified at the mix design stage.

RAP Content in HMA		Virgin PGAC Grade
RAP Content in HMA	0 – 20%	Use original PG grade (ex. 58-28)
	20 – 40%	1 PG grade softer (ex. 52-34)
	Over 40%	2 PG grades softer (ex. 46-40) or special grade
Max. Virgin PGAC Replacement Ratio, %		40% max in base mixes 20% max in surface mixes

5. **HMA Design and Construction.** Ensure that HMA crucial durability requirements are met, such as moisture resistance and target compaction levels. If needed, use antistripping additives, lime, compaction aides, WMA additives, etc., as required by the design. Always ensure that paving best practices are met and that a robust quality assurance testing program is in place.

Please do not hesitate to contact McAsphalt for any questions or about more details regarding the directions described above. We offer detailed technical support for every stage of the HMA road building process, from specifications to formulation, design and construction.