



MIXBUSTERS

Buzz and Dave

APA ASPHALT PAVEMENT ALLIANCE



MIXBUSTERS

Four asphalt myths to consider

By Dr. Buzz Powell, P.E. and Dave Johnson, P.E.

W

elcome to the third installment of this **Busters** series. This month we are continuing the theme of the Discovery Channel's **MythBusters** program, where Buzz and Dave, the hosts, try to bust some common myths in the asphalt paving industry. This month, we are busting some myths regarding asphalt pavements.

For 10 years Mix-Busters would often receive a question from someone who would ask, "Is it true that asphalt is bad for the environment?" If you are asked to try to determine if this is a true or false statement, the first thing you should do is to consider the source of the asphalt. There are many local and international sources of asphalt that may not be the most ideal source for asphalt pavements.

Moreover, the authors have it on good authority that the paving sector "breaks" the "bust" about once a year. In other words, the paving industry is not the source of asphalt pavements. On the contrary, the paving industry is a major source of asphalt pavements. On the other hand, the paving industry is not the source of asphalt pavements. On the contrary, the paving industry is a major source of asphalt pavements.

Thank you, Dr. Jason Howell, P.E., and Dr. Michael Johnson, P.E., from the Missouri Department of Transportation, for the information. Missouri is a state that has a large amount of asphalt pavements.

Well-designed mixes using smaller aggregates and higher binder contents can perform exceptionally well throughout the pavement depth.

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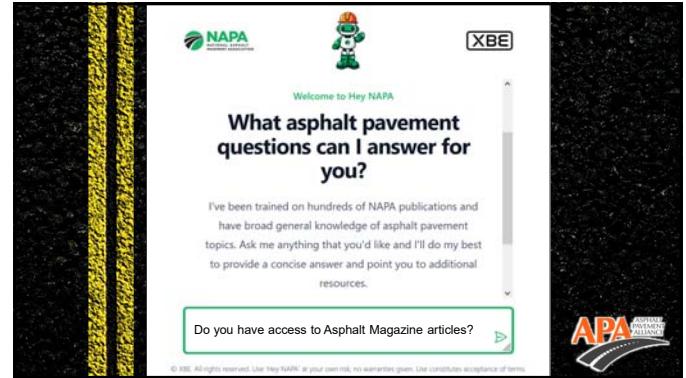


Four Installments to Date

- Winter '24₃ – skipping tack, RAM cooling, ≤ 4 x NMAS
- Spring '25₃ – coefficients, thick perpetual, lean binder
- Summer '25₄ – big rock, low Va, friction agg, COAC
- Fall '25₄ – fogging OGFC, complexity, '93 Guide, PTRs

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Welcome to Hey NAPA

What asphalt pavement questions can I answer for you?

I've been trained on hundreds of NAPA publications and have broad general knowledge of asphalt pavement topics. Ask me anything that you'd like and I'll do my best to provide a concise answer and point you to additional resources.

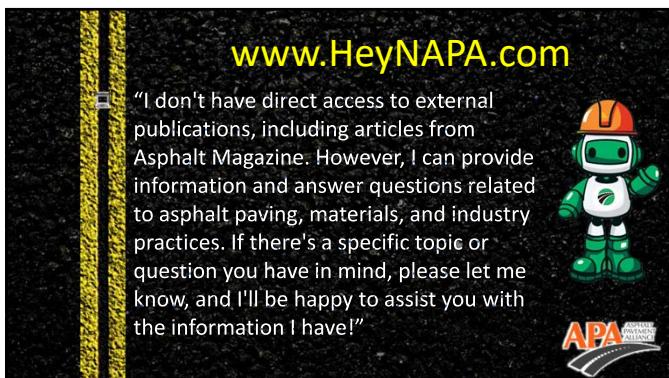
Do you have access to Asphalt Magazine articles?

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"I don't have direct access to external publications, including articles from Asphalt Magazine. However, I can provide information and answer questions related to asphalt paving, materials, and industry practices. If there's a specific topic or question you have in mind, please let me know, and I'll be happy to assist you with the information I have!"

Hey NAPA

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Winter 2024

- Paving thicker than 4 times NMAS hurts compaction
 - Higher recycled asphalt mix (RAM) cools faster
 - Tack coat can be skipped between multiple lifts.



Spring 2025

- Intermediate layer mixes can be leaner, stiffer
 - Layer coefficients should be the same for all mixes
 - Pavements must be very thick to be perpetual.



Summer 2025

- Big rocks are necessary for strong (lower) asphalt
 - Polishing sources should be banned from surface mix
 - RBA implementation requires changing volumetrics
 - Low Va & high VFA always risks rutting & bleeding.



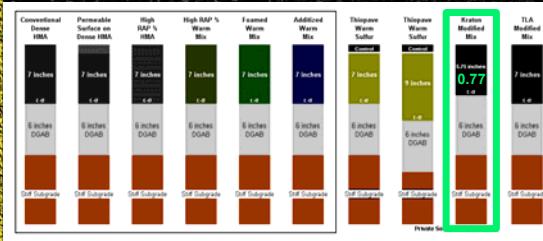
Tack Coat

| Purpose of Each Layer | N5 Control | S5 Higher RAP | S6 RAP+RAS | S13 Recyc Tires |
|--------------------------------|---|--|---|---|
| Durable, Rut Resistant Surface | 20% RAP ₂₉ 67-22/82-16 DG | 25% RAP ₁₁ 67-22/46-22 SMA | 5% RAS ₂₁ 67-22/88-16 SMA | VIRGIN 82-22 ₁₂ SMA |
| Stiff, Strain Reducing Middle | 35% RAP ₃₉ 67-22/88-10 DG | 50% RAP ₄₁ 67-22/92-16 DG | 50% AGED ₂₆₋₂₄ 67-22/94-10 DG | 35% RAP ₃₇ 82-22 ₁₂ DG |
| Fatigue Resistant Base Layer | 35% RAP ₃₉ 67-22/88-10 DG | 35% RAP ₃₄ 88-24/4-10 DG | 25% RAP ₂₄ +76-22/88-16 DG | VIRGIN 88-22 ₁₂ AZ |

Green = Evotherm Q1 Additive, Blue = Astec Green Foamer



Thin Perpetual Pavements



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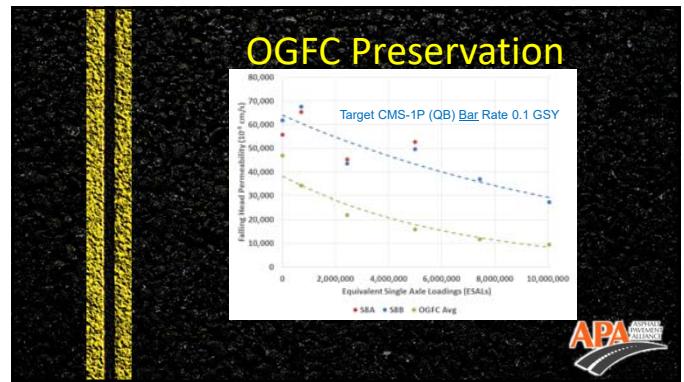
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Fall 2025

- Pavements designed thinner than '93 Guide will fail
- More complex specs are needed to improve quality
- Rubber-tired rollers (PTRs) are not worth the cost
- Fogging OGFC surfaces will reduce permeability.

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Mix Busters Big Takeaways

- Better tack or elimination via thicklay paving
- Higher layer coefficients from innovation
- Perpetual asphalt at concrete thickness
- BMD for $V_{b_{eff}}$ quantity and quality
- Specify performance with less words
- 1) Protect taxpayers and 2) incentivize innovation
- Cracking, rutting, friction at lowest $\$/C_{BMD+f, LCA}$
- Requests: asphaltmixbuster@gmail.com

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#BuzzOnAsphalt

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