

**MANAGING
ASPHALT
PAVEMENTS**
CONFERENCE AND TRADE SHOW
MAY 15-17, 2023 ★ WACO, TEXAS

WELCOME!

Please check your App for scheduled Sessions!

MANAGING ASPHALT PAVEMENTS

CONFERENCE AND TRADE SHOW
MARCH 15-17, 2023 ★ WACO, TEXAS

Getting Sticky With it.

Track 2: Materials, Construction, and Maintenance

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Getting Stick with it

Tack Coats...

- Why do I need them?
- What are they?
- How to apply them?
- Surface Preparation
- Troubleshooting



You be the Judge

- WWW.Pollev.com/jimw285
- Text **jimw285** to **22333**



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What grade would you give this tack coat?



A

B

C

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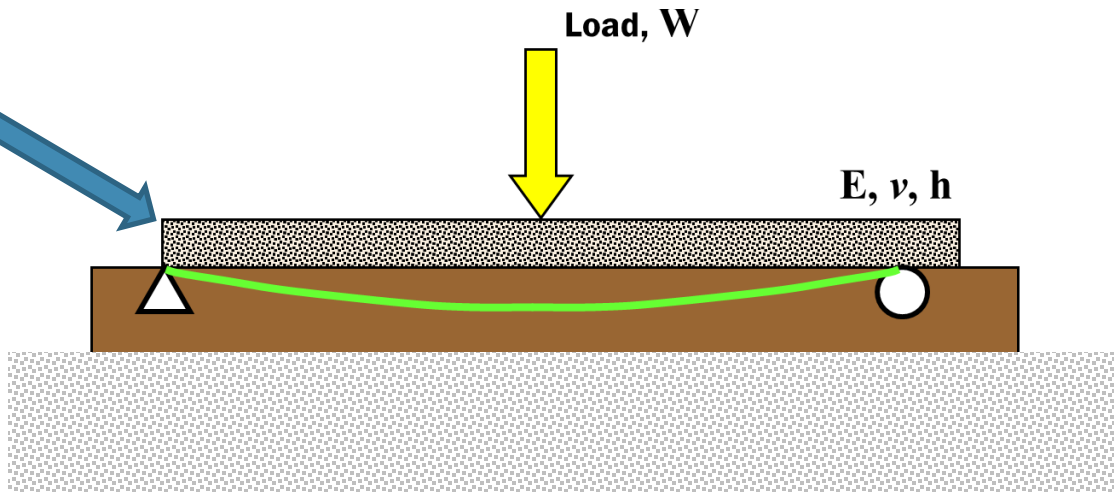
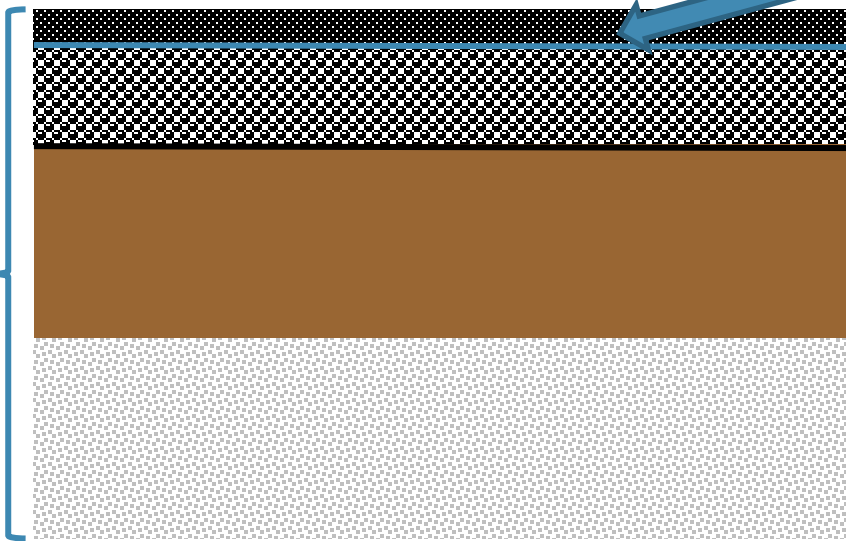


A

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WHY? Tack Coats are the glue that holds the asphalt layers together.



Flexible pavements are the **SUM** of each layer and must work together to perform.

Tack Coats – What are they?

- Liquid asphalt binders
- Emulsions are mixed with
 - Water, and a
 - Chemical Package



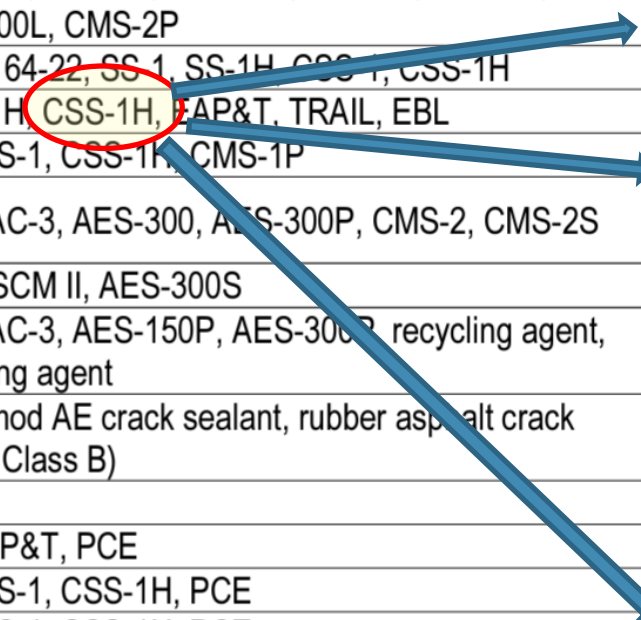
What are they? Many Products.

**Table18
Typical Material Use**

Material Application	Typically Used Materials
Hot-mixed, hot-laid asphalt mixtures	PG binders, A-R binders Types I and II
Surface treatment	AC-5, AC-10, AC-15P, AC-20XP, AC-10-2TR, AC-20-5TR, HFRS-2, MS-2, CRS-2, CRS-2H, CRS-2TR, CMS-2P HFRS-2P, CRS-2P, CHFRS-2P, A-R binders Types II and III
Surface treatment (cool weather)	AC12-5TR, RC-250, RC-800, RC-3000, MC-250, MC-800, MC-3000, MC-2400L, CMS-2P
Precoating	AC-5, AC-10, PG 64-22, SS-1, SS-1H, CSS-1, CSS-1H
Tack coat	PG Binders, SS-1H, CSS-1H, EAP&T, TRAIL, EBL
Fog seal	SS-1, SS-1H, CSS-1, CSS-1H, CMS-1P
Hot-mixed, cold-laid asphalt mixtures	AC-0.6, AC-1.5, AC-3, AES-300, AES-300P, CMS-2, CMS-2S
Patching mix	MC-800, SCM I, SCM II, AES-300S
Recycling	AC-0.6, AC-1.5, AC-3, AES-150P, AES-300P, recycling agent, emulsified recycling agent
Crack sealing	SS-1P, polymer mod AE crack sealant, rubber asphalt crack sealers (Class A, Class B)
Microsurfacing	CSS-1P
Prime	MC-30, AE-P, EAP&T, PCE
Curing membrane	SS-1, SS-1H, CSS-1, CSS-1H, PCE
Erosion control	SS-1, SS-1H, CSS-1, CSS-1H, PCE
FDR -Foaming	PG 64-22, FDR EM-SY, FDR EM-HY

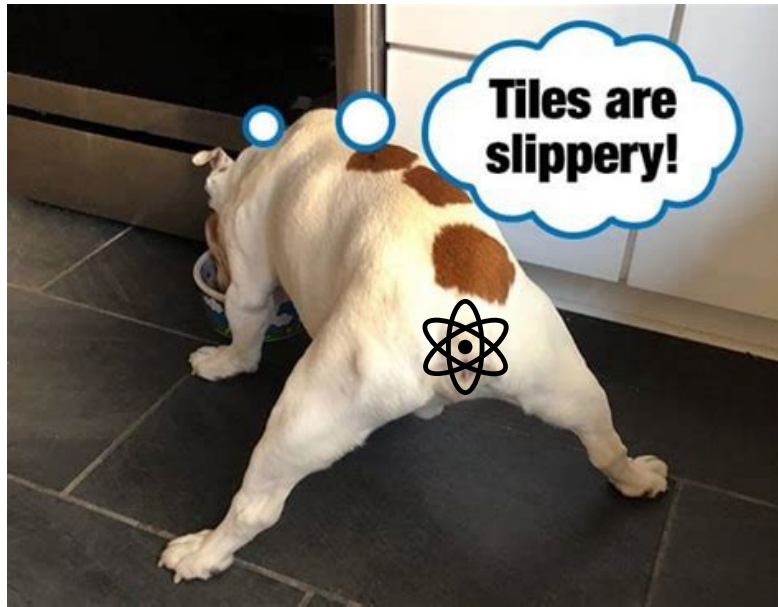
**Table1
Acronyms**

Acronym	Definition
Test Procedure Designations	
Tex T or R D	Department AASHTO ASTM
Polymer Modifier Designations	
P	polymer-modified
SBR or L	styrene-butadiene rubber (latex)
SBS	styrene-butadiene-styrene block co-polymer
TR	tire rubber (from ambient temperature grinding of truck and passenger tires)
AC	asphalt cement
AE	asphalt emulsion
AE-P	asphalt emulsion prime
A-R	asphalt-rubber
C	cationic
EAP&T	emulsified asphalt prime and tack
EBL	emulsified bonding layer
FDR	full depth reclamation
H-suffix	harder residue (lower penetration)
HF	high float
HY	high yield
MC	medium-curing
MS	medium-setting
PCE	prime, cure, and erosion control
PG	performance grade
RC	rapid-curing
RS	rapid-setting
S-suffix	stockpile usage
SCM	special cutback material
SS	slow-setting
SY	standard yield
TRAIL	tracking resistant asphalt interlayer



No Glue – No Stick!

- Contributing factors to slippage
 - Surface preparation
 - Tack coat (too little or too much)



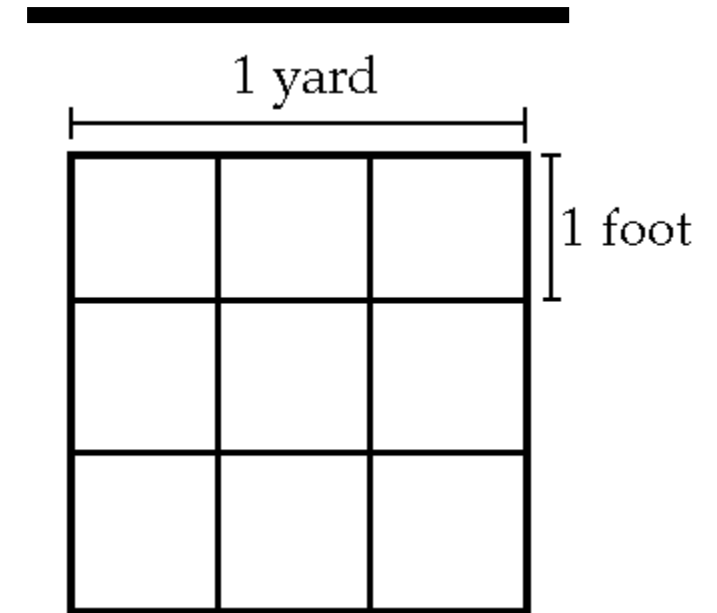
Tack Coat: How to apply them.

- Right product
- At the correct rate
- Uniformly applied
- On a properly prepped surface.



Application Rates

- Surface condition dependent.
- Typically, 0.04-0.10 gallons per square yard (gsy)
- One can of beer (12oz) would be 0.09 gsy
 - Overlaying new asphalt? ½ a beer
 - Overlaying typical surface 1 beer minus a sip.
 - Overlaying milled surface 1 beer



Tacking vertical edges and joints.. plus a bit



Example: Application Rate

- Strap after shot minus before shot (or meter) = 121 gallons used
- Station 95+38 to Station 110+50 = $11050 - 9538 = 1512$ feet
- $1512 \text{ ft} \times 12 \text{ ft mat width} / 9 \text{ ft/sy} = 2016 \text{ sy}$
- 121 gallons divided by 2016 sy = **0.06 gal/sy**

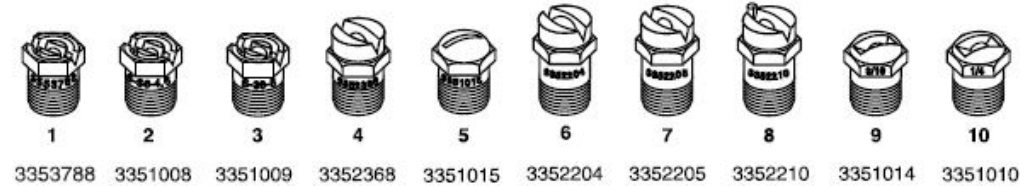
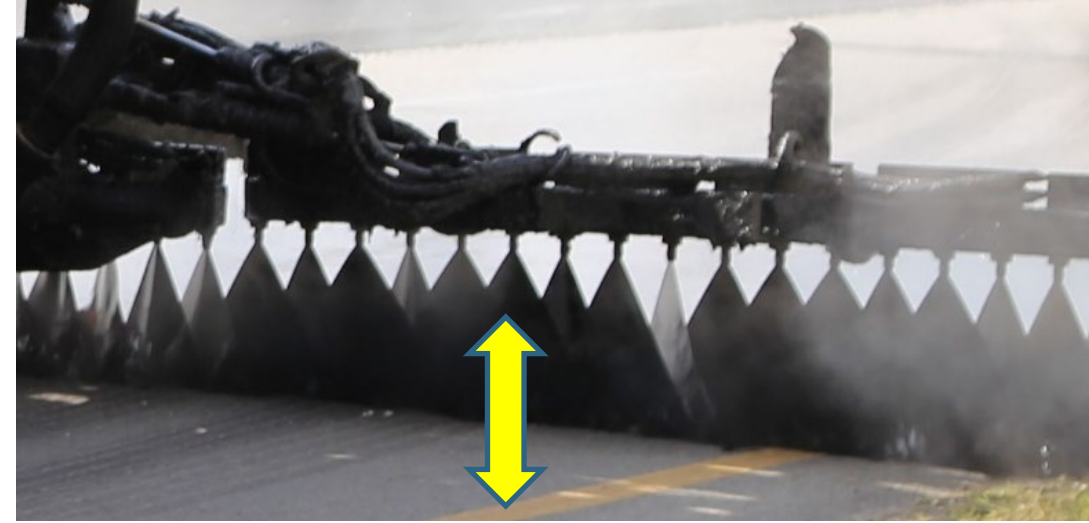
If the target was 0.07 gal/sy...

What would you do?...

Why?...

Proper Setup is key.

- Bar Height – approx. 12 inches
- Nozzle Angle – approx. 30 degrees
- Overlap of spray – double to triple overlap
- Uniform application!
- Right size Nozzle
 - Tack Nozzles
 - Prime Nozzles



Ref.	Part No.	Description	Application Gallons Per Square Yard	Application (Metric) Liters Per Square Meter	US Flow Gallons Per Minute Per Foot
1	3353788	V Slot Tack Nozzle	.05 - .20	.23 - .91	3.0 to 4.5
2	3351008	S36-4 V Slot	.10 - .35	.45 - 1.58	4.0 to 7.5
3	3351009	S36-5 V Slot	.18 - .45	.81 - 2.04	7.0 to 10.0
4	3352368	Multi-Material V Slot	.15 - .40	.68 - 1.81	6.0 to 9.0
5	3351015	3/32" Coin Slot	.15 - .40	.68 - 1.81	6.0 to 9.0
6	3352204*	Multi-Material V Slot	.35 - .95	1.58 - 4.30	12.0 to 21.0
7	3352205*	Multi-Material V Slot	.20 - .55	.91 - 2.49	7.5 to 12.0
8	3352210	End Nozzle (3352205)	.20 - .55	.91 - 2.49	7.5 to 12.0
9	3351014	3/16" Coin Slot	.35 - .95	1.58 - 4.30	12.0 to 21.0
10	3351010	1/4" Coin Slot	.40 - 1.10	1.81 - 4.98	15.0 to 24.0

* Recommended nozzles for seal and chip with emulsified asphalts.

Ref.	Part No.	Description	Application Gallons Per Square Yard
1	3353788	V Slot Tack Nozzle	.05 - .20
2	3351008	S36-4 V Slot	.10 - .35
3	3351009	S36-5 V Slot	.18 - .45
4	3352368	Multi-Material V Slot	.15 - .40

Best Practices for Emulsified Tack Coats

- Take-a-ways
 - **Follow mfg's best practices!**
 - Don't co-mingle different emulsions without checking.
 - Long term storage – check with Mfg. This stuff doesn't last forever...
 - Circulation
 - Watch for extreme temps (hot and cold)
 - Slowly re-heat, don't overheat.
 - Cleanout and flushing lines – don't use more than required, dump to flush tank.
 - Impact of multiple days/weeks in a tank.
 - Proper sampling and testing.
 - **Follow mfg's best practices!**



Rate the importance of these factors relative to bond strength. High to Low

Tack Uniformity

Tack Type

Tack Rate

Surface condition

Grade

- Brown – Unbroke (still contains water)
- Black – Broke (water has evaporated)



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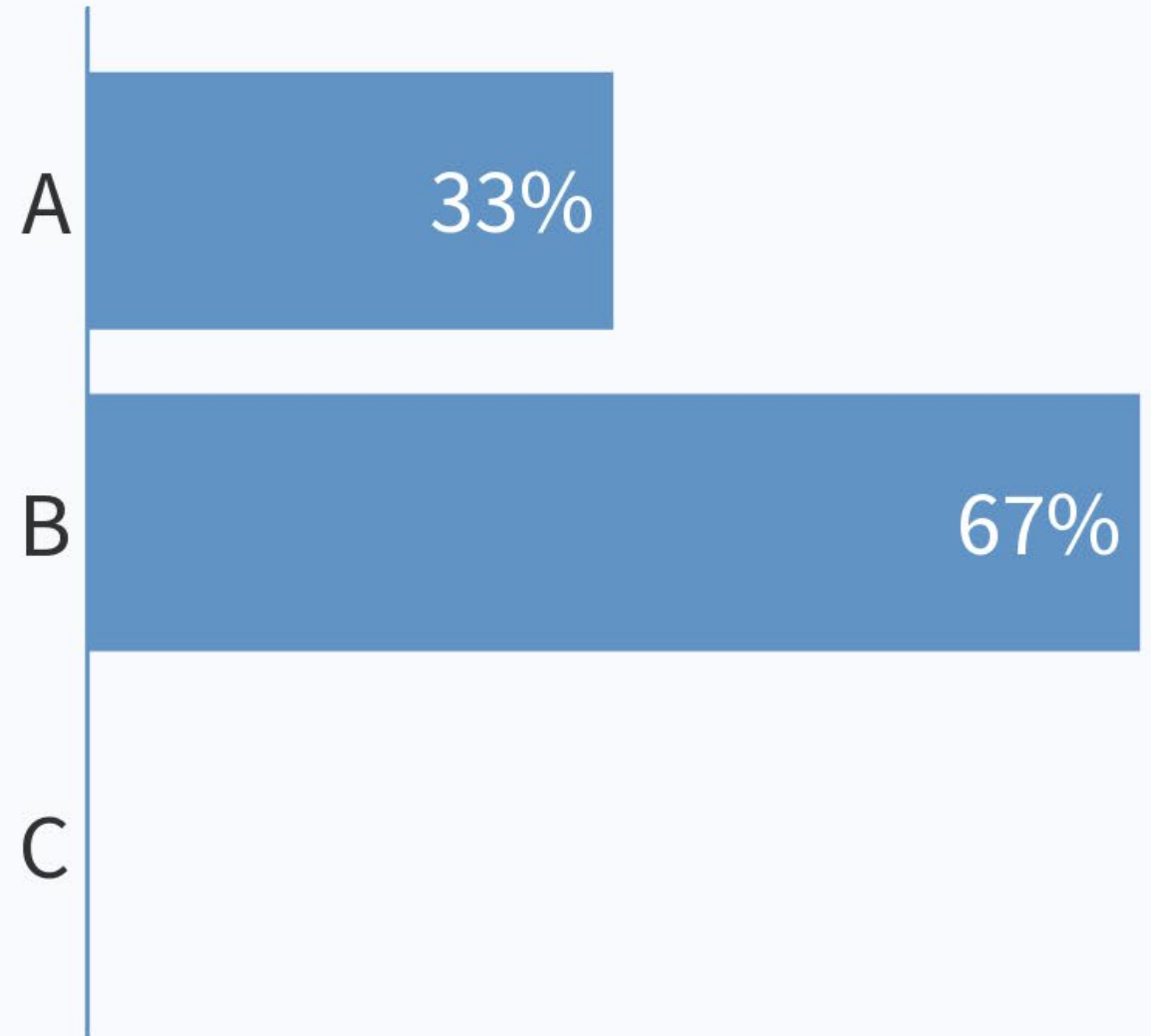


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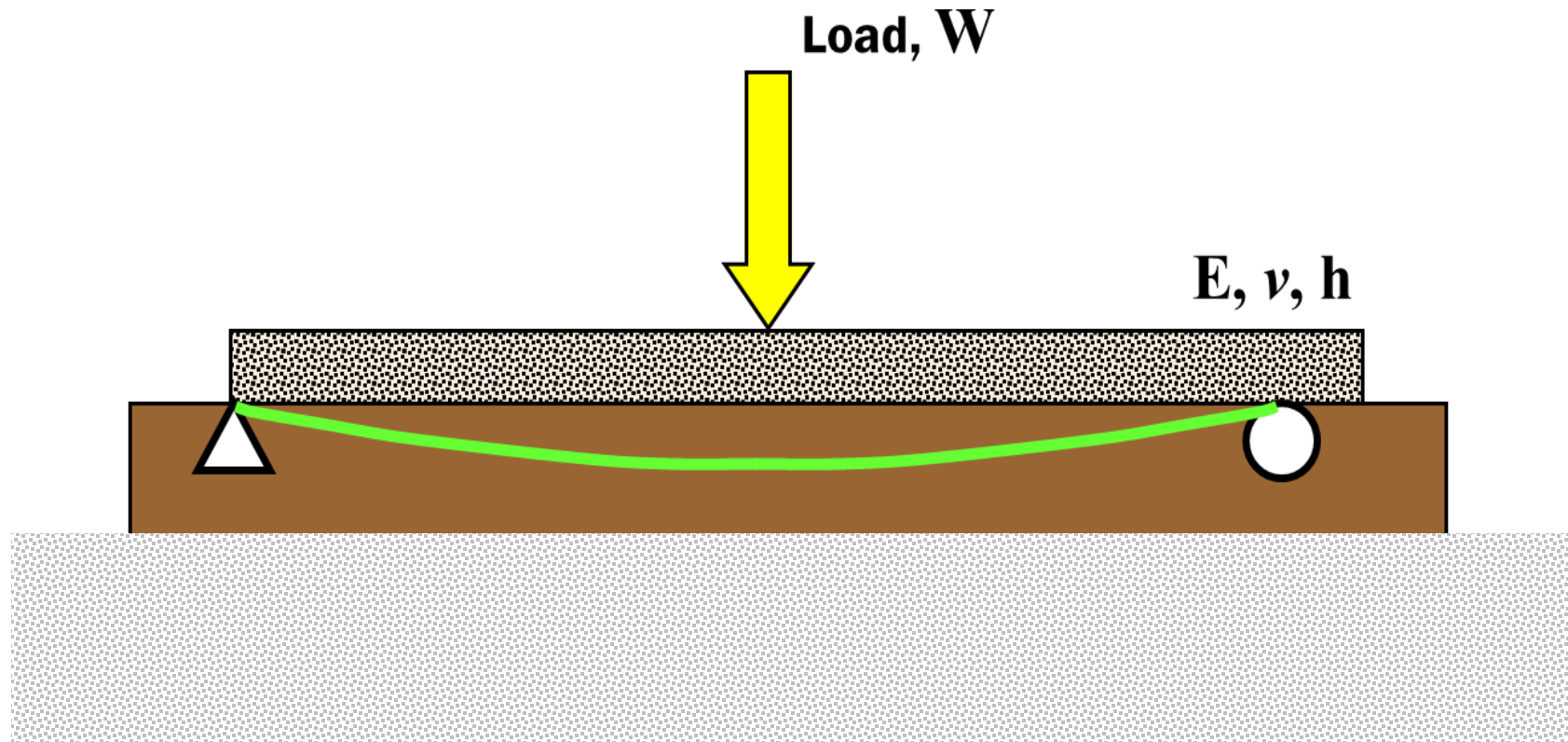


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Remember the why...



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