Good Asphalt Starts With Good Stone Meeting The Needs Of A Demanding Market

February 20, 2025

45th APAWV Asphalt Paving Conference Embassy Suites - Charleston, WV

Chadley Miller Quarry Operations Manager J. F. Allen Company





Good Asphalt Starts With Good Stone

Disclaimer : Photos used within this presentation are for illustrative purposes only, any references to individuals or specific products are unintentional and coincidental. (CDM)

J.F. ALLEN



Why Good Asphalt?



Why Good Asphalt?

- Satisfy the General Public
- Maximize Efficiency of Infrastructure Dollars
- Keep Asphalt as Viable Alternative to Concrete
- Get Paid For the Project







> Old Perspective:

"Make it black and don't look back."

> "When it rains, pray it drains."





> Old Perspective: nck and don't ok back." Make it rains, presit drai " Whe F. ALLEN

> Modern Perspective:

A CONSISTANT mix of Liquid Asphalt and Aggregate that meets ALL Specifications, is Relatively Simple to Produce, a Pleasure to Lay, Easily Compacted across a Variety of Field Conditions, AND is Smooth.....







DIVISION OF HIGHWAYS



STANDARD SPECIFICATIONS ROADS AND BRIDGES

Adopted 2023





DEST OF A DEST OF TAXAGED FOR TAXA EVEN OF TAXAGED FOR TAXAGED FOR

APPRIAL PRODUCES

The projection use challed is only to will be below option of the degree of respective of failed asplicitly promotion, it is finded; second-ris failed

3.5.1 The two methods metabolises a processive the determining the exercise increases testing and metabolise and the metabolises or specific approximate of a factors without an instrument description procession of the latitude strate determining of the first factor and an another the the average steps to the testing of the testing and and another the the average steps to the testing of the testing and the average steps that the testing of the testing of the testing of the testing of the average steps that the testing to the testing of the testing of the average steps that the difference of the testing of testing of the average of the average steps that the difference of the testing of the average of the average steps of the testing of the testing of the testing of the testing of the average steps of the testing of testing of the testing of testing of the testing of testing of the testing of testing of the testing of testing of the testing of the testing of the testing of testing of testing of testing of testing of the testing of the testing of the testing of t

3.2 The second addated using the presenting is defended everyop parameter matchenian statistic to not released in agree of contents directly will fear the second secon

The shelped due to copied is address all of the safety sectors. If any monotony with to due the his sequendity of the size of the standard to estimate supporter safety and reading colored and interview the accounting of regularity (includes only read).

2.1 The classified choices of the hollow assessive and phase of Tig. 1 and

3.1.1 Interview front paint advances reacting for concentration for a Type 1 association mattery point on per 1442-1773 IAMP Interview Spectrations for States (Inter-tional).

Succession Dis. solid

HERE VERSING REPAIRS NOT TRANSPORTATION.

DEVENDENCE DEGENANTS. SPECIAL PROTEINS

THE

START PRIME T ST SHEEK: PERSONAL PROPERTY NO VIEW.

SET THAT HE

HOT MIN AND BALL BARE, WEARING AND PATERING AND LEVEL DIG-COLUMN:

DESITS THE COME CONTRACT OF THE DESIT OF REAL-AND THE CONTRACT OF THE DESITE OF THE CONTRACT OF THE DESITE OF THE DESIT.

TRACEDOX MIL

ASPHALT BASE, WEARING AND PARCHING AND LEVEL DOC COURSES

and ship for the state

This is that the distribution of constraints is the two tensors of the rest and it (FFA), where the optimizer of the straints of the optimizer of the straints of the optimizer mental description is considered with other the theorem of the property of the straints of the straint of the optimizer of the other the theorem of the property of the straints of the optimizer of the other the theorem of the optimizer of the straints of the other oth

The set of approximately set of a set of the ANDERN

and Statistical A. An approximate and contrast to the other size converting to

10 4111 11

VILLE INC. A CONTROL OF A TRANSPORT

Just is DETERMINE AFTER ALL BASE AND A STREAM OF MALTING AND A STREAM OF A DETERMINE

mimute

- a second or oppose radiation in the second s a since
- The try model access for extendents of the strategy land river straight process holds of suched accessing process is access services of both floored, and floorest
- This lead realities a septement to preve detector reary derivative and provide training and reality and an entering provide the the state of the last state of a sector real real state last in the design behavior applied on the state of the last state of the sector of the sector state of the sector sector state of the sector sector. the time is a particular and a set the entry section in the section has been when the

interpretational accounting the

- ACCEVE Anticenter 1 The Sector of New York and the Sector of the Sector of the Sector of Sector

11 ADD Deserve D. MTL Researce is Place from at Electronic Stream Indu. Name According to the According Systems (Science).

APPARITUR

- 4.1 Second to be sensed to the second bur the last result will be the thermal term conversion works (proton any proposition). The second term term is the conversion and rest rest relation to the second term is the second term. The second term of the second term is the second term term extension between the second term of the second term is the second term term extension term. The second term of the second term is the second term is the second term is the second term of the second term is the second term is the second term terms and term is the second term is the second term is the term of the second term of the second term is the second term is the term of the second term is the second term is the second term is the second term of the second term is the second term is the second term is the term of term is the second term is the second term is the second term is the term of term is the second term is the second term is the second term is the term of term is the second term is the second term is the second term is the second term of term is the second term of term of term is the second term is the term of t
- 4.1 Landag Martins "In Landag Contra dial protos a utility lands for the local parts of another the Contrast Contra Contrast of the Contrast of the Contrast of the Contrast of Contrast Contrast of the Contrast of the

AND AT LLS

HALF THE ALL AND THE MEAN THE ADDRESS OF A DESCRIPTION OF 10112-001-00022-00

(1) All and a second control of the second state of the second

rational

- 14.1 Name of a statistic for their moduling and shalls managers of Expression with the state of the s
- Travel & means to the last southern poly. Provide minit particularies (and under a particularies) in the advances of each coding on second systems of the constraints.
- Name and a statement of the statement of the state descents of Assaying or manifold of statement.
- 14 have a matter of adequation to decript antiant a te-
- Automia .
- 14 the investment property with its approximity in things is a fill beginning out

Dervict Mout 1.1

10 ALT 11 TH

14

VILLE INC. 4 CONVERSE OF THE ALCONUMN MARKING MARKETS AND MARKETS AND THE ALCONUMN MARKETS AND THE ALCONUMN

Just 16 DOTESTICATION AND ADDRESS AND A DOTESTICATION AND A DOTEST

of second or depend radiation debuters in which was plot design

The two modes scores the extension with a distribution does not all discovery broken a world scored agreement is used scores of table flowed and flowed and the score score of table flowed and table table

The local control is approach to party directly that be included a problem in the second seco

2.1. Starting approximation of the second starting to define the second starting the second starting the second starting the second starting to the second st

ADD Devices
D. MTL Research is Place. This of Education House India, Hanter Annual A and Sector Contempt.

4. Bond for particle of the stress card bit does have shown for the strength of the stress of the

4.1 Lasting Marina - "In Lasting contras shall provide a sufficie lastic formation" of the second state of the second state

mierceli

a sign

1. Ingravitational bootstation for

a AMMANTUR

- 100 HE HA HOURD - THE AVECTORY TO E HIGH THE OTHERS IN A WAR WITH THE AVEC
- (d) The article of equated that is to polyped propoletion in corporation of the basis of a calculation energy and the operated memory of the tradition. The energy article of the tradition of the tradition is nergy of a care of 2000 and 2000 Mg, and the second data of application of the tradition of 2000 and 2000 Mg, and the tradition of the 12
- might could associate if the lot specific method series interesting and the series interesting and the series of the series of

1. Publicht

5. 600PF

All Maximum

the entertainty.

1.8 MATCHINE AND ROLFMAN

The Desix tributes brisks an Terr. This contract and an entral operation of the second second

AMAGED TH

WEDT-INDIAL DETAILINESS OF TRANSPORTATION HAVE ADD TO BE ADD THE PUBLIC WITH THE PUBLIC OF THE PUBLI ANY COLUMN ANY COLUMN

(INFORMATION AND A DATA STREET REPORT OF READING

hornesi

- For experience tog band under to periods a forward for knowing perspective station of appendix datasets
- ± 1007
- 144 The second second is the analysis of the descent second se
- The sets instead any Ris related of its science in most install induing 22
- contraction and
- Statement in any features.
- 221 Section of the and gots in the adults for the effort of the
- 324 Symposium or lend any patient and any second second Appropriate post-main his
- 14.1 descentifications. 1.80

48 10:02

- a Spatial Processor Statement and Australian States Training and "along and the state of the sta
- Statuted Printer and + 67 YO M, Supply Sector and Accelerate V Automations
 - A DET MET A 12 A ANTIMAL TIME APPRINT THE ART. a bill 484 (17 d), Meanware of the Pathware of Audion Research Local Direct
 - 117 2012 (A. Stateman & Anna Amagin & Statemark Aspect in survey

 - 197 (2111) Conversion of Parametric Links

WERT VIEWA DEPARTMENT OF THE OPPORTUDIES. International Statements And Statements

Internation and the local distances THEORY & MALERON OF ADVALTOWING TO WITH DURING AND WORKINGS

1. Names

- (1) Preside a restructive parameter data interactive para president pagent president componenting manufal parameter radio subsensary granulos, coll est in pre-tactive parameter of the subsensary collecting in collection.
- 12 Long party from an doministration in anterior performance
- 13 Veters I in electronic the emodel in severe constant 1. 10201
- The product chief is appeared to all non-paint fill fills and have post the language and particular process.
- In these to represent the term of a last's while registry presents, last last present the term of term of the term of term of the term of t
- a nervenues support
- 11 Neuro chiese inter 40, separa neuropare pressing an interargence resing characterization association (2011).

No all the

which infrares "Although dar" of Texasienth Care. THE DEBALS CONTRACTOR INCOME.

INEE" VIRGINA DEPARTMENT OF TRANSPORTATION DIVERSILEF HOMINAL MATERIALS CONTROL SOLD AND TEXTING REVENUE

Internal Processing

VARIAR) HETHOR OF HEAD, MEVEN FOR THIS ARES OF ADVALT WARRANT DIRUCTORIES CONTR.

Ramon a cal served by appleting transmig tablet. Names and to be descended a solution of the server.

3.1 Paratrades and in growing of Netrolan Systems of loss one of seven set.

Range Provided Statistics 473, space 2846, Preside and California Coloredge Statistics and Patients, 277

hat the result is shown in this way for much through the same and interceptor

4.1 A second water spectral water with the to capit, generation of another second s

4.1 Measure and events for compared for community and in the end of the matrix should estimate. The events matrix build be torus for all the sectors of the sectors.

13 W10000 Internet income water Malawari (with

10 metric all other impression in the local and he was

11. Million to be financial second distances in the second s

INCOMES AND ADDRESS OF

ACCRETE AND

10¹⁰ 40¹⁰ 10¹⁰ 20

The interest of the second sec

to evenies

Network

1 01000

a accurator

1. MINIMUCIÓ COCOMPUTA

14 Of CONTROLS IN CONTRACTOR

STATISTICS CONTRACTORS

- 11 The exception described before care described in once to path the accel of the factors and approximation for financial define cardin of the fact or the factors in a subsection of the second second second define cardin of the factors and the second second
- 22 80099
- 21 To provide a streng spirality of the factor former, in Solar (II) of the function (performance) in protection on the detection of the factories in protection sectors in a profile transmission (Solar and Editors for taking relate to PP), detection of the product an influence of the Terrefficient and a PP). Concepto Canaligo - Anima an
- 12 The spating PD, taken inner set any Po analytic way is in cost is calculate participation or the community participation for basis Proceeded Toron 401.7
- to executively

11. Construction and a final construction of a second of the second o

Asphalt Pavement Association OF WEST VIRGINIA

88 Pages of "PWL" Stuff J.F. ALLEN



Specifications & MPs – Guidance / Parameters





J.F. ALLEN COMPANY





- Specifications & MPs Guidance / Definition
- Lab Testing Volumetrics / Initial Indicators













- Specifications & MPs Guidance / Definition
- Lab Testing Volumetrics / Initial Indicators
- Field Testing Performance & Life Cycle Indicators









- Specifications & MPs Guidance / Define Parameters
- Lab Testing Volumetrics / Initial Indicators
- Field Testing Performance & Life Cycle Indicators
- Monitoring Track Actual Performance







RGINI



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS



STANDARD SPECIFICATIONS ROADS AND BRIDGES

Adopted 2023

J.F. ALLEN COMPANY



	STA	NDA	RD S	IZES	6 OF	COA	ABLE	C 703	.4 REG	ATE	S (A	ASHT	TO M	(43)		
s - 6			Am	ounts	Finer 1	Than E	ach La	borato	ry Siev	e (Squ	are Op	enings), Perc	ent By	Weight	43
Size No.	Nominal Size Square Openings ⁽¹⁾	4 in 100 mm	3½ in 90 mm	3 in 75 mm	2½ in 63 mm	2 in. 50 mm	1½ in 37.5 mm	1 in 25.0 mm	3/4 in 19.0 mm	1/2 in 12.5 mm	3/8 in 9.5 mm	No. 4 4.75 mm	No. 8 2.36 mm	No. 16 1.18 mm	No. 50 300 μm	No. 100
1	3½ to 1½ in 90 to 37.5 mm	100	90 to 100		25 to 60		0 to 15		0 to 5							
2	2½ to 1½ in 63 to 37.5 mm			100	90 to 100	35 to 70	0 to 15		0 to 5							
24	2½ to ¾ in 63 to 19.0 mm			100	90 to 100		25 to 60		0 to 10	<mark>0 to</mark> 5						
3	2 to 1 in 50 to 25.0 mm				100	90 to 100	35 to 70	0 to 15		0 to 5						
357	2 in to No. 4	î			100	95 to 100		35 to 70		10 to 30		0 to 5				
4	1½ to 3/4 in 37.5 to 19.0 mm					100	90 to 100	20 to 55	0 to 15		0 to 5					
467	1½ in to No 4					100	95 to 100		35 to 70		10 to 30	0 to 5				
5	1 to 1/2 in 25.0 to 12.5 mm						100	90 to 100	20 to 55	0 to 10	0 to 5					
56	1 to 3/8 in 25.0 to 9.5 mm						100	90 to 100	40 to 85	10 to 40	0 to 15	0 to 5				
57	1 in. to No 4						100	95 to 100		25 to 60		0 to 10	0 to 5			
6	3/4 to 3/8 in 19.0 to 9.5 mm							100	90 to 100	20 to 55	0 to 15	0 to 5				
67	3/4 in to No 4							100	90 to 100		20 to 55	0 to 10	0 to 5			
68	3/4 in to No 8			- S	2 2	. 2	с г С	100	90 to 100	8	30 to 65	5 to 25	0 to 10	0 to 5		il sh
7	1/2 in to No 4								100	90 to 100	40 to 70	0 to 15	0 to 5			
78	1/2 in to No 8	() 	2 9	c 8	2 2	с г С	с 8 -		100	90 to 100	40 to 75	5 to 25	0 to 10	0 to 5		a si
8	3/8 in to No 8								3	100	85 to 100	10 to 30	0 to 10	0 to 5		
89	3/8 in to No 16		2 2		8	() (с - 2		8 3	100	90 to 100	20 to 55	5 to 30	0 to 10	0 to 5	a
9	No. 4 to No. 16	;{								5	100	85 to 100	10 to 40	0 to 10	0 to 5) î
10	No. 4 to 0 ⁽²⁾								8 3	¢ ,	100	85 to 100				10 to 30



⁽¹⁾ In inches, except where otherwise indicated. Numbered sieves are those of the United States Standard Sieve Series ⁽²⁾ Screenings

Where standard size of coarse aggregate designated by two or three digit numbers are specified, obtain the specified gradation by combining the appropriate single digit standard size aggregates by a suitable proportioning device where has a separate compartment for each coarse aggregate combined. Performed the blending as directed by the Laboratory.



Specifications – Guidance / Definine Parameters













- Specifications & MPs Guidance / Definine Parameters
- Lab Testing Durability & Quality Indicators
 - 1. Sodium Sulfate Soundness
 - 2. LA Abrasion
 - 3. Shale
 - 4. Coal & Lightweights
 - 5. Friables





- Specifications & MPs Guidance / Definine Parameters
- Asphalt Tight Bands on many parameters
- Stone Wider Bands Stockpile Gradations Don't Even Have To Pass
- Lab Testing Durability & Quality Indicators
- Asphalt Every Day Usually 2X Daily
- Stone Once a Year





Stone Supply

- Asphalt Plants in WV :
 - Dependent Aggregate Supply From an Outside Source (Another Company)
 - Self Reliant Own Their Aggregate Source



















Dependent Plants :

- Received from External Supplier
- Minimal Control Over Product Use Whacha' Got
- Asphalt Technicians Must Be Well Trained
- Less Flexibility With Scheduling Deliveries





Self Reliant Plants :

- Received From Own Sources
- Maximum Control Over Product
- Aggregate Technicians Must Be Well Trained
- More Flexibility With Scheduling Deliveries





Stone Sources



VIRGINIA

Stone Sources


Aggregate Quarries in WV :

- Underground Stone Is Mined From Below the Surface
- Open Pit Overburden Is Removed Exposing Stone In Layers









Underground:

• Pros

- Stone Is of More Consistent Quality
- Environmental Conditions are Consistent

Cons

- Heightened Safety Concerns
- Not All Stone Is Recovered (Support)















• Open Pit :

- Pros
 - More Stone Is Recovered
 - Working In "Normal" Environment
- Cons
 - Stone Is Less Consistent (Quality)
 - Overburden Can Contaminate Clean Stone
 - Weather Has a Greater Effect On Process





What Is Good Asphalt?

> Reminder:

A CONSISTANT mix of Liquid Asphalt and Aggregate that meets ALL Specifications, is Relatively Simple to Produce, a Pleasure to Lay, Easily Compacted across a Variety of Field Conditions, AND is Smooth.....







Why Good Stone ?



Why Good Stone ?

Crushing Process:

- Jaw Crusher 40" Max Size \rightarrow 10" Max
- Cone Crusher $10" \times \frac{3}{4}" \rightarrow 5"$ Max
- VSI Crusher 5" Max \rightarrow 1 ½" Max
- VSI Crusher $1 \frac{1}{2}$ " x $\frac{3}{4}$ " \rightarrow 1" Max





Why Good Stone ?

Crushing Process:

- Jaw Crusher 40" Max Size \rightarrow 12" Max
- HSI Crusher 12" x $\frac{3}{4}$ " \rightarrow 2 $\frac{1}{2}$ " Max • 2 $\frac{1}{2}$ " x 1" \rightarrow Returns











 Δ

















J.F. ALLEN















There Kopla

















Managing Materials



Managing Materials



Managing Materials






Managing Materials







Managing Materials



Good Asphalt Starts With Good Stone

Questions ???

Disclaimer : Photos used within this presentation are for illustrative purposes only, any references to individuals or specific products are unintentional and coincidental. (CDM)



