



MEMORANDUM

cc: Mr. D. Suva - BBM
Mr. J. Arnold - BBT
Mr. W. Kimball - BT
Mr. K. Colvin - MS

PLAINTIFF'S EXHIBIT

BIR-894

To Mr. D. Laidlaw - RCC
From Mr. K. Sutton - RBH
Date March 4, 1982
Subject MINERAL FELT COST ANALYSIS

The mineral felt project for Shreveport has progressed to the point where a current cost analysis is required. The project itself has expanded to include mineral felt for saturated rolls as well as for shingles. The formulation for mineral felt is 60% mineral filler, 36% corrugated fiber and 4% Dow latex (XD 30374.33) solids. Betz 1260 polymeric flocculant is used at a rate of 2.5 pounds per ton of felt produced. This formula will be used for shingles and roll goods. Mr. Kimball has given me the latest costs of raw materials needed for mineral felt and these will be found in Table 1.

The cost analysis for shingles should be developed under the same assumptions that were used in your August 18, 1981 cost analysis with the exception that the mineral felt will be produced on DSPM #2 instead of DSPM #1. The material formula for a standard weight, flat shingle using saturated mineral felt (at 70% saturation) in place of saturated organic felt (at 175% saturation) is presented in Table 2. The costs generated for this shingle should be compared to standard current costs at Shreveport for a standard weight, flat, glass mat shingle.

The analysis for roll goods will require separate costs for a 15# saturated felt and 30# saturated felt. Raw material specification for these products will be found in Tables 3 and 4 respectively. The manufacturing assumptions used above also apply. The final mineral felt roll good costs should be compared to current costs for 15# and 30# saturated organic felt products at FS.

If there are any questions or additional information you require for this work, please feel free to call and we can discuss them.

KS/cem

TABLE 1

Bulk Raw Material Prices - 3/2/82
FOB Shreveport

<u>Item</u>	
Dow Latex XD 30374.33	\$ 0.73/pound
Corrugated	\$47.60/ton
Mineral Filler (ground limestone)	\$38.80/ton
Betz 1260	\$326.59/cwt

TABLE 2

Wind Seal Raw Material Specification

<u>Item</u>	<u>Net weight/square</u>
Mineral Felt, 55#	27.0# (240 ft ²)
Saturant, 70%	18.9
Coating	38.8
Filler, 53%	43.9
Back Surfacing Talc	2.0
#11 Granules, Natural	52.6
#11 Granules, Colored	22.5
Wind Seal Adhesive	1.8
Anti Stick	0.2
Total	207.7#
(Cut outs, 2.07 sq ft)	- 1.8#
Net Weight per square	205.9#
Finishing Materials	1.0#
Final shipping weight per square	206.9#

12" x 36" shingle
5" x 1/4" cutouts
80 shingles per square
Standard FS production rate

TABLE 3

15# Felt Raw Material Specification
4 Square Roll

<u>Item</u>	<u>Net weight per roll</u>
Mineral Felt, 39#	35.3# (432 ft ²)
Saturant, 70%	24.7
Total	60.0#
Finishing Materials	0.1#
Final Weight per roll	60.1#

Standard FS production rate

TABLE 4

30# Felt Raw Material Specification
2 Square Roll

<u>Item</u>	<u>Net weight per roll</u>
Mineral Felt, 78#	35.3#
Saturant, 70%	24.7
<u>Total</u>	<u>60.0#</u>
<u>Finishing Materials</u>	<u>0.1#</u>
Final shipping weight	60.1#



MEMORANDUM

cc: J. W. Jackson - BBH✓
D. R. Suva - BBM
F. W. Wood - BBP
J. Zilfi - RCA

to J. K. Colvin - MS
from D. A. Laidlaw - RCC
date May 19, 1982
subject MINERAL FELT SHINGLE COST ANALYSIS - SHREVEPORT

Shown below is a cost comparison for a Firescreen shingle and a Mineral Felt shingle:

	PREVIOUS Fiberglass Base	Mineral Felt Base	Glass Over (Under) Mineral Base
WEB <i>price = 5.14</i> <i>1.81/100 ft²</i> = \$ 4.34		<i>1.29/100 ft²</i> 3.09	\$ 1.25
ASPHALTS <i>FK = 1.40</i>	5.63	5.46	.17
FILLER	.61	.33	.28
ALL OTHER	<u>3.26</u>	<u>3.26</u>	--
SUB-TOTAL MATERIAL	\$13.84	\$12.14	\$ 1.70
LABOR	.67	.75	(.08)
OVERHEAD	2.37	2.63	(.26)
TOTAL COST	<u>\$16.88</u>	<u>\$15.52</u>	<u>\$ 1.36</u>
RCD SPEED	428	384	

The following formula and assumptions have been provided by Mr. F. W. Wood and J. W. Jackson:

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1. Standard Shingle Formulation:

	Mineral Felt Base	
	<u>Net</u>	<u>Gross</u>
Mat	27.0	28.9 lbs.
Saturant	18.9	19.4
Coating	38.8	39.9
Filler	43.9	45.2
All Other	<u>78.3</u>	<u>84.6</u>
Shingle Weight	206.9	218.0

2. Mineral Mat Formulation - 55# Mat

	<u>Net</u>	<u>Gross</u>
Corrugated	720	792
Filler	1200	1236
Dow Latex XD 30374.33	80	84
Betz 1260 flocculant	2.5	2.5

3. Raw Material Costs:

Corrugated	\$ 47.60/ton
Latex	\$.73/lb
Filler (Marble Falls, Texas) <i>Mic +4</i>	\$ 37.15/ton <i>bulk 48.30/ton color FS at 7</i>
Flocculant	<i>0.40 Centex Mc.</i> \$326.59/cwt <i>" 50.00/ton " 5/10/82</i>
Asphalt	\$152.50/ton
Colored Slate	\$ 74.00/ton
Base Slate	\$ 29.59/ton

4. Felt Mill Assumptions

1. No estimates included for capital improvements
2. Mineral Felt produced on DSPM #1 using a seven day schedule.
(DSPM #2 producing corrugated medium on seven day schedule).
3. DSPM #1 steam consumption would be reduced by 35% while manufacturing a mineral felt versus organic felt.
4. The web speed for mineral felt production is equivalent to organic felt.

5. Roofing Mill Assumptions

1. No estimates included for capital improvements.
2. Mineral felt shingle speeds would be equivalent to organic base shingles.
3. Standard labor and overhead rates used on the #10 shingle machine.
4. Mineral Felt "broke" can be recycled similar to organic.

nms