

From the desk of
B. R. WILLIAMS

To:

R. M. Vining

cc: H. A. Brown

RE: Division Work Plans

Attached are notes on
progress against the
two Zonolite product
plans.

Bruce 11/20

A. MONOKOTE

1. Objective

Develop a non-asbestos formulation which has UL fire rating performance and field application performance at least equal to the asbestos-containing MK-3.

2. Definition of Problem

- a. Federal and local legislation is being directed at eliminating all materials which contain asbestos and which are sprayed on construction sites.
- b. Asbestos content in Monokote provided three essential properties at low cost:
 - (1) reinforcement of mass to provide cohesion and adhesion in place to withstand deflection in fire tests without dropoff.
 - (2) bulking of material to give high yield and low density far low in place cost and proper insulating properties.
 - (3) aid for pumping to enable pumping to the heights necessary to spray high-rise buildings.
- c. The non-asbestos MK-4 formulation, which has been marketed in selected markets, did not provide fire performance equal to MK-3 and inadequately met market needs.

3. Solution to Problem

An asbestos-free formulation was developed which provided:

- a. UL fire test performance which exceeded the performance of MK-3.
- b. Application performance which approximates that of MK-3, but appears to have the additional advantage of making possible greater job site control to reduce quality problems in the finished job.
- c. Raw material costs and yield, which makes possible a selling price, which retains competitive balance while improving our margin in relation to MK-3.

4. Market Introduction

- a. UL fire tests were run in July on the new material, designated as MK-5, with key ratings obtained.
- b. Field tests were conducted to provide performance data on the application of the material. Beyond the initial field trials, an extensive field test program has been prepared to extend through the first half of 1973.
- c. The material was announced in October in markets where asbestos-containing materials have been banned. In these areas, a complete changeover from the former non-asbestos MK-4 was announced to be effective August, 1973.
- d. Announcements will be made in all other market areas with MK-5 to replace MK-3 and MK-4 for an orderly transition in 1973 and 1974 at all plants.

BRW/rw
11/21/72

B. CONCRETE AGGREGATE (ZONOLITE ROOF DECKS)

1. Objective

Make possible faster roofing and permit wider use of product in cold weather.

2. Definition of Problem

- a. Roofing Zonolite roof decks has been highly sensitive to condition of concrete surface. If surface were wet, rough or powdery, roofing could not be installed, since adherence of roof depended upon ability of hot asphalt to adhere to the concrete surface.
- b. Roofing a Zonolite roof deck, which had been exposed to heavy rains, trapped water in the insulating concrete. This water, after the roofing was installed, could not be evaporated and remained to reduce the insulation performance of the deck and create roofing problems over long-term service.
- c. Installing a Zonolite roof deck in cold weather posed problems which made winter application impractical:
 - (1) low temperatures slowed rate of set, delaying time when roofing could be installed
 - (2) the exposed concrete was frequently seriously damaged and required extensive repair.

3. Solution to Problems

- a. The development of special nail which holds in Zonolite Concrete eliminated sensitivity of surface to application of roofing.
- b. Testing showed that a specially-perforated steel used as a substrate for ZIC made it possible to dry the concrete rapidly under all conditions. Thus, regardless how much water is in the concrete, the deck may be roofed quickly without problems.

c. For winter application, two aids have been developed:

- (1) a job site hot water heater has been developed for sale to our applicators to provide hot water for winter application of Zonolite roof decks.
- (2) a set accellerator additive has been developed to be used with the hot water to provide an initial fast set to the Zonolite Concrete.

The combination of these developments will permit fast roofing and make winter weather applications practical.

4. Market Introduction

- a. The Zonolite nail was introduced in late 1971. The nail has proven totally successful and effective.
- b. Agreement was reached with one major steel fabricator to produce two gauges of perforated steel. One gauge is now available, the second by January, 1973. Other manufacturers are being encouraged to produce a similar material.
- c. Hot water heaters are being assembled with about 15 units to be in the field service this winter.
- d. Field tests of the additive will be conducted this winter to prove the effectiveness of this approach.

Because of the long time between our applicators bidding jobs and our gaining sales, the major impact of these advances will be on sales in late 1973 and the year 1974.

BRW/rw
11/21/72

WORK PLANS

Construction Products Division

- (1) Carry through Libby modernization and expansion program to meet the RCA (#12) objective of \$1,090,000 after-tax savings with a capital cost of \$6,750,000. Startup is scheduled for the second quarter of 1973, with full cost savings in 1974.

Complete production testing of cyclocell in old mill. 6/30/72

Complete pilot testing of other new equipment items. 4/30/72

	<u>Building Completed</u>	<u>Equipment Installed</u>
Stockpile and blending	4/30/72	9/30/72
Wet mill	4/30/72	12/31/72
Screening plant	10/31/72	3/31/73

- (2) Complete development of improved Zonolite products.

Non-Asbestos Mono-Kote

Select a commercial formulation for fire testing at Underwriters' Laboratories. 6/30/72

Introduce to market. 12/31/72

Concrete Aggregate -- the objective is quicker roofing and wider use of product in cold weather.

Introduce to market. 12/31/72

- (3) Improve Bituthene performance.

Improve present product and resume manufacturing in Chicago. 3/31/72

Implement new marketing plan of selling direct to the applicator. The objective is \$1,200,000 sales in 1972. 12/31/72