CENTRAL CONTROL LABORATORY

BOUND BROOK

JUNE 11, 1952

PLAINTIFF'S EXHIBIT
GF-732

METHODS OF TEST

MILLBOARD MANUFACTURING OPERATION - ERIE 16th ST. PLANT

VISIT TO ERIE DURING WEEK OF JUNE 2 - 6, 1952

REFERENCE: Conversations with Mr. E. Pasold and plant personnel during visit at Erie, June 2-6, 1952.

INTRODUCTION: It is desired to record the essentials of millboard manufacture at the Erie 16th St. Plant.

RESULTS: Millboard Manufacturing Operation - Erie 16th St. Plant.

I. Raw Materials.

Furnishes will vary according to thickness and type of commercial or special millboard, or gasket millboard which is being manufactured. It must be noted that not all of the following raw materials are used for any particular furnish, but rather it is a listing of raw materials encountered in millboard manufacture:

5D Asbestos Fiber
5R Asbestos Fiber
6D Asbestos Fiber
Scrap Asbestos Papers and Millboards
Portland Cement
Lime

The percentage and type of scrap is specified for any particular product.

II. Process of Millboard Manufacture.

A. Beater.

Erie has one large oval type beater, with fluted beater roll and adjustable bed plate beneath beater roll located on ground floor. Motor used to power the beater is 100 hp. Asbestos fibers, cement, and lime are added from bag storage nearby, whereas scrap is added directly from scrap hammer mill by overhead chute.

Hammer mill of 30-40 hp. capacity uses a 3/8" perforated screen for 3/16" millboard scrap and a 3/4" screen for commercial thicknesses greater than 3/16". Ground scrap is carried by air suction through an overhead duct either directly into the beater just ahead of the beater roll, or can be diverted to a storage bin close to the beater.

The slurry in the beater is relatively heavy, no actual percentage of solids being known.

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RESULTS: Continued.

II. Cont'd.

B. Chest and Head Box.

Thick slurry from the beater is allowed to flow by gravity feed down to the basement where the Hatschek machine is located. As the slurry leaves the beater it is diluted with water from the save-all system to about 1% solids, and then pumped to a head box which then distributes the slurry to the three pick-up cylinders on the Hatschek machine.

C. Hatschek Machine.

This machine is 18-20 feet long, consisting essentially of three 30" diameter vat cylinders covered with 10 mesh screens. Pick-up is by drainage. There are three couching rolls just off-center of the pick-up wire cylinders. Web is wool felt. There are one suction pipes located centrally between the pick-up cylinders, and two vacuum boxes: one located just before the first vat cylinder and the other just before the accumulator roll.

First vat cylinder is normally used only in manufacture of the lightest weight millboard, under 3/16" thickness. For all other grades, only the last two cylinders are used. It is claimed that water content is excessive on heavier boards when the first cylinder is used.

Accumulator drum is 36" in diameter and is equipped with a counter and a bar gage suspended over the center of the sheet. When proper thickness of board is accumulated, the rod or bar is tipped and the sheet cutter man slits the sheet and with an assistant removes the sheet to a pallet. A 3/16" millboard requires twenty passes, while for lightweight material, passes may be as few as six or seven.

The speed of the machine is controlled by a chain near the accumulator drum and is estimated to run normally at 40-50 feet per minute which is top speed.

D. Embossing.

For some orders, sheets are taken to an embossing machine. Each sheet is fed through a "wedding" roll while still wet to give slight indentations to one side. The material is then restacked and cured as usual.

E. Curing.

The wet millboard, stacked on skids, is taken to the warehouse, and allowed to cure from 2-5 days depending on the cement content. Normal cure is the only one currently used.

RESULTS: Continued.

III. Cont'd.

F. Drying.

Cured millboard is then transferred from the skids into drying racks which have about an inch separation between sheets. The racks are then placed in steam heated forced convection drying ovens for a period of 8-40 hours, again depending on cement content of the furnish.

Erie currently has 3 drying ovens, each with a capacity of 144 sheets of 3/16" or less thickness, or 50 sheets of 1/2" thickness. Each is blower exhausted and heated by steam coils. Steam is under 150 lbs. gauge pressure. Temperature recorders used have a maximum range of 250°F and recording pen goes over this limit. An estimation of the actual dryer temperature was made out to be 275-300°F.

G. Trimming.

After drying, the sheets are removed from the drying racks, placed on skids and taken to the trimmers. Erie has four Saybolt guillotine type cutters which handle a stack of about 6" height at each trimming operation. Commercial millboard is normally cut to 42" X 48" but orders for different sizes are taken in quantity.

H. Packaging.

Carton Sizes: Commercial millboard cartons are 48-1/4" X 42-1/4" X 1-5/8" strip pasted shut, stencilled bearing number of sheets, shipping weight, thickness and grade. A Ruberoid label also bears this information. Special sizes for other orders.

Crate Sizes: Commercial millboard crates are 40-1/2" X 42-1/2" X 5-1/4" made of wood slats lined with kraft paper. Stencilled bearing number of sheets, gross, tare, and net weights, thickness, and grades. No label.

III. Laboratory Control Tests.

With regard to millboard operations, the Erie St. laboratory performs Quebec screenings and Sedimentation tests on incoming asbestos fibers.

On finished millboard, it checks the following:

Weight per sq. ft. - Ounces
Caliper - to 0.001"
Mullen Burst Strength - Standard Machine
Elastometer - Pusey-Jones instrument used
Density - Normal moisture - Lb./cu.in.

IV. Types of Millboard Currently Being Manufactured.

A. Standard Finish - No. 100 - Soft
No. 101 - Medium
No. 102 - Extra Hard

IV. Continued.

B. Embossed Finish - No. 200 - Soft
No. 201 - Medium
No. 202 - Extra Hard
No. 204 - Special Gasket Stock

Standard Thicknesses include: 3/64", 1/16", 5/64", 3/32", 1/8", 5/32", 3/16", 1/4", 5/16", 3/8", 1/2", 5/8", and 3/4". Special intermediate thicknesses are made for Gasket Millboard No. 211.

J. J. KLIMAS
Laboratory

DJH