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MARINITE AND MARINE SHEATHING

MARINE EQUIPMENT

Officers Board Meeting, April 6th, 1942

CONTENTS

CRMC-RUCK-000793

1. HISTORY

While Johns-Manville has for years sold fire-resisting and fire-proof products of various forms, we were never able to make much progress on ships until September 8th, 1934, the date of the Morro Castle fire. This incident, while unfortunate, did give us an opportunity to capitalize on fire-proof construction as well as putting us in the business of selling marine products. A meeting was held by Mr. Mial, attended by Rinehart, Baldwin and others, before the fire was extinguished to lay plans to get into this business and Evan Rinehart shortly gathered together samples of expanded Transite, Flexboard, Transite and Asbestos Cloth to discuss these materials with marine architects.

A prominent Marine Architect and Chairman of the Marine Committee of the National Fire Protection Association, Mr. George C. Sharp, had been for some time conducting a study of ship fires and had presented several papers at Marine and N. F. P. A. Meetings. Naturally, Mr. Sharp was interviewed by reporters and had a splendid chance to get full publicity for his ideas.

Four days after the Morro Castle fire, the newspapers carried a statement from President Roosevelt advocating fire-proof ships and a ban on the old style wooden construction.

Just one month later, on October 10th, 1934, "Financial World" in its gossip column, "Board Room Brevities", said:-

> "General Fireproofing has acquired the metal furniture business of Aluminum Company of America just in time to go after the business of several ocean liners which are throwing out most of their wood furnishings ..... Along the same line, Johns-Manville is working on a number of asbestos fabrics to supply fireproof rugs, draperies and upholsteries."

Although we investigated the volume and profit possibilities, Johns-Manville did not go into the upholstering business but we were on our way in the marine business just as soon as Sharp's Committee, appointed a little later by President Roosevelt, swung into action and started to make an orderly survey of the situation.

Evan Rinehart practically lived with Sharp in those days and certainly took full advantage of all opportunities in the development stage. An interesting sidelight on this first committee is that Commander H. L. Vickery, U. S. Navy, was Vice-Chairman. He is now Rear Admiral Howard L. Vickery, Assistant to the Chairman of the Maritime Commission.

Sharp's Committee realized that the basic problem of fire-proofing a ship was one of confining fires to the areas in which they started rather than attempting to go in for materials like asbestos draperies and upholsteries. This meant building staterooms and cabins of fireproof materials and sectionalizing the ship with still more fire-proof bulkheads. To give the Committee a chance to test its ideas, a small steamship, the S. S. Nantasket, was assigned for actual fire tests under simulated operating conditions. All manufacturers with any ideas were requested to submit materials for building sample staterooms. Among these were Johns-Manville, Philip Carey, Keasbey & Mattison, and a number of companies engaged in making sectional metal panels.

In 1935, our first thoughts were towards panels constructed of lime silica paper in cellular form and [illegible] material of this type was sold. These cellular panels had the disadvantage of not being vermin and rat proof and were not adapted to holding screws. Consequently, Mr. G. B. Brown of our Research Department, upon the insistence of these marine engineers for a solid panel of

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light weight, developed marine sheathing, a lime, celite and Canadian asbestos fibre board of 70 lb. density. This met with some acceptance but the marine engineers and shipbuilding companies all felt that it was too heavy.

Design requirements dictated that not over 40 lbs. per cu. ft. could be allowed for the weight of the fire-proof panels. This caused Mr. Brown to try numerous substitutes for the Canadian fibre in marine sheathing until finally, early in 1936, the problem was solved by using Amosite fibre to bring the weight down and Marinite was invented. Every authority consulted was enthusiastic about the first laboratory samples weighing about 40 lbs. per cu. ft. Mr. Brown went to Nashua and made trial production runs for sample staterooms in the fire test program then well underway on the S. S. Nantasket.

Both Marinite and Marine Sheathing, as well as several other manufacturers' products, were approved in the fire tests which were run throughout 1936 and 1937.

The U. S. Maritime Commission was also established in 1936 and started surveys which resulted in the passage of a bill requiring either automatic sprinklers or fire-proof construction on every U. S. passenger vessel in service after July 1st, 1937. At the same time, the Maritime Commission embarked on its program of building fifty modern, fast, fire-proof vessels per year for ten years. Johns-Manville signed its first contract with Hopeman Brothers and became established in the marine business. Shortly thereafter, Senator Copeland's bill requiring real fire-proof construction on every U. S. vessel put in service after January 1, 1940 was passed. It also became apparent that we were going to secure the contract for panels on the new U. S. liner "AMERICA".

We were fortunate in finding that Nashua had plenty of extra press capacity when marine sheathing and marinite were first produced. By utilizing this extra capacity, the Production Department was able to work out manufacturing problems without the purchase of any important extra equipment. By the latter part of 1937, with increases in the sale of ebony and flat transite, press capacity was at a premium and it was necessary to consider additional manufacturing facilities. The first thought was to erect a plant at Manville and several reports were prepared, one, August 28, 1937, in considerable detail by the Engineering Department at Manville. This called for expenditures of from $138,200 to $188,120, plus $250,000 if a new building was required. No action was taken on the new plant at this time.

By June 1938, we were in better position to estimate possibilities in these new products as we had secured the Newport News order for the "America" of 420,000 board feet. We had secured a large job for fireproofing a Houdry Unit for the Sun Oil Company and the business of bake ovens for the Loose-Wiles Company was taking form, making it possible to go before the Officers Board and forecast sales as follows:-

1938	-	$200,000
1939	-	524,000
1940	-	780,200

Due to crowded conditions at Nashua in the latter part of 1938, 60,000 sq. ft. of Marinite, requiring 10' lengths, were pressed at Manville and the sheets shipped to Nashua for subsequent finishing. Later a large fire-proofing order amounting to some 100,000 sq. was also made at Manville early in the year 1939. On February 20th, 19[illegible] Officers Board approved the Billerica Plant

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which shipped 175,000 sq. ft. of marinite and marine sheathing by August 1st, or 35% of total shipments for the five months after the plant was approved. This plant, in buildings rented from the B & M Railroad, required an appropriation of around $80,000 and was capable of an estimated capacity of 2,000,000 bd. ft. Subsequent improvements have brought this capacity up to the present 2,400,000 bd. ft. or 4,000,000 sq. ft. per year.

As was to be expected, Billerica did not reach full operation until the Spring of 1940 and full capacity was not needed until the middle of 1941. At present, with the increased ship production, the original 50 regular ships have been doubled and redoubled, and now amount to 800 for 1942.

Before presenting the detailed analysis of this business, we want to take this opportunity of thanking the Research and Production Departments as well as the Officers Board for the real cooperation given us during this development.

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2. SALES OBJECTIVES

When Marinite was first developed for fireproof ship panels, the marine program of 50 ships a year did not offer sufficient volume and we had no positive assurance this ship building program would be permanent.

Due to the outstanding insulating value of Marinite as well as its fire-resisting qualities, many industrial uses could be anticipated such as ovens, fireproofing steel columns and many others.

For years the Electrical Department had been selling flat and corrugated transite for protection of buss bars, switching equipment and instruments. Marinite and Marine Sheathing either alone or faced with harder materials offered a big improvement. Thus our modern Trancell was born in 1937.

With this background of other industrial uses, no hesitation was felt in recommending a plant designed for marinite production alone as it was felt the marine work would account for at least 50% of the production. We, therefore, set up the following sales objectives:-

1. Use the rapidly developing marine business as basis for building a plant.
2. Develop the electrical business in Trancell materials.
3. Emphasize industrial uses other than marine, such as ovens, fireproofing and dozens of small applications.

It was felt that the second and third objectives above could be promoted to form at least one-half of our total factory capacity. We were soon well on our way toward this goal as Trancell and Industrial sales amounted to 27% of total dollar volume in 1940 and would have been larger in 1941 except for the emergency doubling and redoubling of shipbuilding and enforcement of priorities which made it necessary to turn down a great deal of industrial business. As it was, the industrial and electrical end was 25% of the total $1,140,652 sales in 1941. This change in sales objectives is only temporary. We have the necessary missionary work and key installations already made. If and when the marine work slows down, we can build very quickly from the point we left off in 1941. The item for Loose-Wiles ovens alone may amount to some 1,000.000 to 2,000,000 bd. ft. spread over two or three years.

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3. MARINE MATERIALS

3(a) U. S. MARITIME COMMISSION PROGRAM

YEAR

1937	-	Program started	50	ships	per	year for 10 years
1939	-	" doubled	100	"	"	"
1940	-	" redoubled	200	"	"	"
1941	-	"	400	"	"	"
1942	-	"	800	"	"	"
1943	-	"	1500	"	"	"

Liberty ship program (EC-2) started February, 1941.

March 1942 - Total 2,419 major vessels contracted by Maritime Commission.

Consisting of Standard Cargo and Passenger Vessels	-	598
Oil Tankers	-	287
Army and Navy Transports	-	6
Miscellaneous Vessels	-	40
Emergency Liberty Vessels	-	1488
TOTAL		2419

Completions

Prior to 1937 only 2 major vessels had been completed in 14 years. Years 1937 and 1938 were taken up with design and getting started.

1939	-	20
1940	-	41
1941	-	134
1942	-	786 - estimated

Comparison Standard Cargo (C Design) with Liberty Ship (EC-2)

	Std. C-2	EC-2
Length	459'	441'
Beam	63'	57'
Cargo Load	9600 tons	9146 tons
Propulsion	Turbine or Diesel	Reciprocating
Horsepower	6000 - 7500	2500
Speed	15½ knots	11 knots

Quantities J-M Materials per Ship

	Std. C-2	EC-2
Marinite-Mar.Shthg.	$ 4000	--
Magnesia & Superex	2000	$ 2000
HX-4M	1050	1050
	$ 7050	$ 3050

The Liberty EC-2 ship is an emergency proposition designed for speedy construction, with "competitive life" of 5 years. By changing the reciprocating engines to turbines and speeding them up, there is no reason why these boats could not be converted to fast, 14½ knot boats provided the emergency is over in 5 years. It is interesting to note that it appears now that Liberty Ships can be completed in 105 days or 3 months and 15 days as against the fastest time secured [illegible] Island of 7 months and 5 days, the average ranging over 10 mon[illegible]

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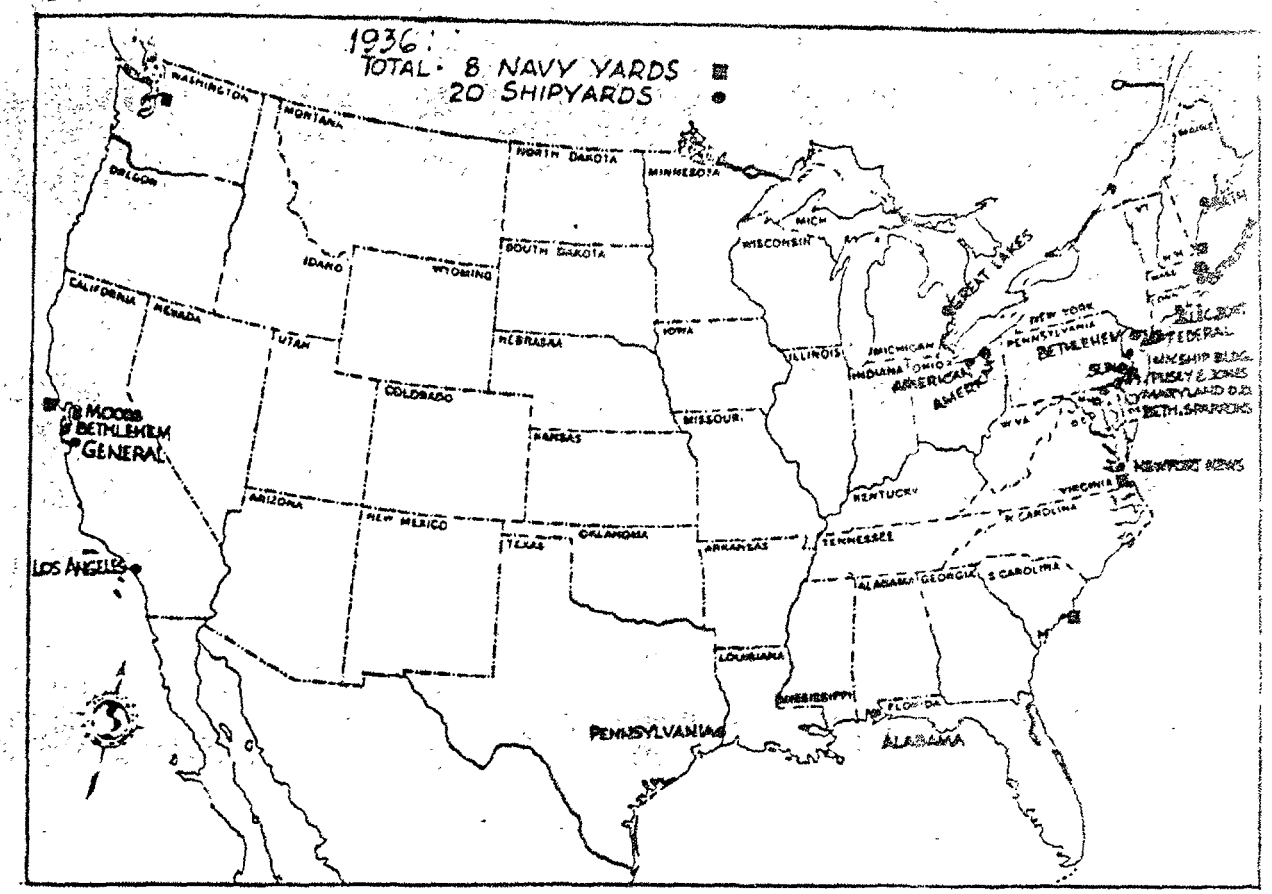
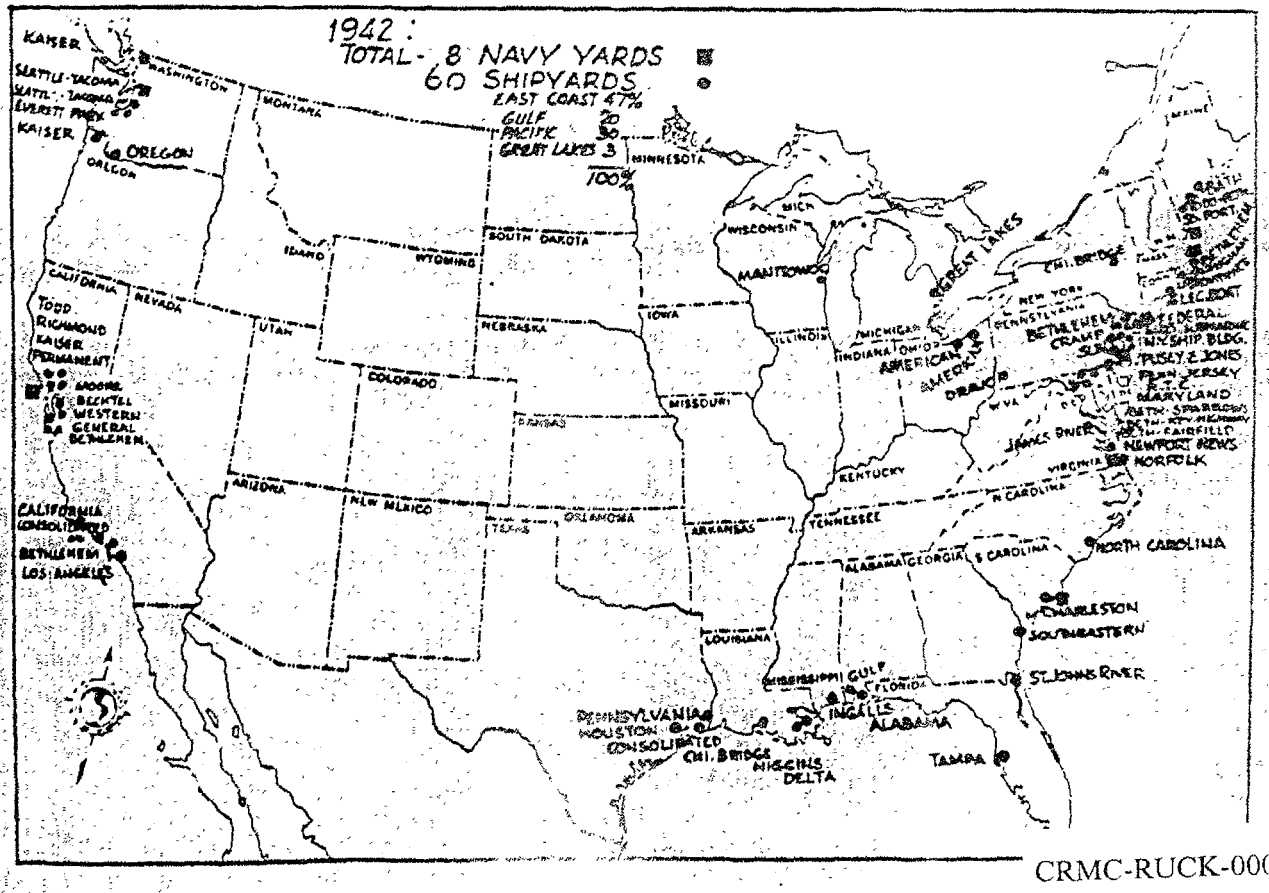
5.(b)





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3. (c) MARINE SALES

3. (c) (1) Development

As a result of the fire test on the S. S. Nantasket, the Maritime Commission approved the following materials:-

Johns-Manville Marinite
Johns-Manville Marine Sheathing
Johns-Manville VBF Panel, consisting of 8-ply core of asbestos air-cell faced with veneer of flexboard
Carey Marine Panel, approximately the same as Johns-Manville VBF
Dietz Steel or Aluminum Sectional Panel, a hollow metal section filled with asbestos air-cell

Several years later, additional approvals were added for:-

Martin-Parry Panel, similar to Dietz above.
K & M Sea-Board, similar to Marinite

The Johns-Manville Marinite and Marine Sheathing and the Martin-Parry Panel are the only materials listed above which had any real commercial success. Martin-Parry enjoys today about 10% of the available business. Keasbey & Mattison produced one or two carloads of material and had a great deal of trouble furnishing a satisfactory product and, with the rush of business on their presses for flat and corrugated, no longer offers it for sale.

The business in Johns-Manville Panels started with a number of small jobs such as thirty staterooms in 1936 on the S. S. Catherine, Bull Line, and later on, a similar job on the S. S. Barbara for the same line. We did four boats for Henry Ford, three for the Bethlehem Shipbuilding Company, and furnished the materials for fireproof officer and crew quarters in several tankers. We really established ourselves in the business, however, with the securement of panels on the America in the spring of 1938.

During the year and a half of negotiations towards securing the panels on the America, we worked very closely with the largest contractor of joiner work aboard ship, Hopeman Brothers. These people occupy a very important position in the field as they do about three-fourths of all the interior finish work on the Maritime Commission's C - type boats. The picture of our Marine Sales would not be complete without a description of Hopeman Brothers' operations.

3. (c) (2) Hopeman Brothers

Hopeman Brothers have been an old high-class, family owned, contracting firm in Rochester, N. Y. for many years. With wood working plants at both Rochester, New York, and Waynesboro, Va., it was natural that they should go into joiner work or marine cabinet work for ships when wood was the accepted construction.

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Three of the oldest and best established shipbuilders, Federal (U. S. Steel), Bethlehem (Bethlehem Steel) and Sun (Pew Interests) contracted all of their joiner work with Hopeman when the U. S. Maritime Commission started its long program of most of the fireproof ships

went to the three shipbuilders mentioned above and to Newport News who do their own joiner work.

We worked with both the shipbuilders and Hopeman, who were clever enough to work out a thin steel veneer cemented to our Marinite. This steel business appealed to the steel company backers of Federal and Bethlehem as an outlet for steel. Newport News became familiar with Marinite through the America and used Marinite panels without the steel veneer.

Hopeman Brothers signed their first contract with us in 1937 and with minor exceptions have never used any other type of fireproof panel. They have successfully expanded their business until they now handle the fireproof joiner work in dozens of yards as well as the wood joiner work on many of the Liberty boats.

Our relations over the last 5 years have been very satisfactory. Our sales expense is very low as all contacts are made here in New York and they buy everything on an annual contract. They take material into their factories by the carload in bulk and give us shipping schedules months in advance. We, in turn, have given them excellent service.

By referring to the graphs showing prices and profits, it will be seen that we were able to raise prices as our material and labor costs advanced. Also with the reduction in costs effected by stream line operation at Billerica from 1941 on, an average gross profit of 40% now applies.

Other Joiner Contractors

With the expansion in the shipbuilding program, other smaller joiner contractors have come into the picture such as the Aetna Sales Corporation, Zalud Marine Corporation, W. & J. Sloane, and more recently, our refrigerator insulation contractor, Eastern Cold Storage Insulation Co.

Some of the other shipyards do their own joiner work such as the
Gulf Shipbuilding & Dry Dock, Mobile, Ala.
Alabama Dry Dock & Shipbuilding, Mobile, Ala.
Marietta Manufacturing Co., Point Pleasant, W. Va.
American Shipbuilding Corp., Cleveland, Ohio
Great Lakes Engineering Co., River Rouge, Mich.

All of these concerns use our materials.

3. (c) (3) BX-44 Insulation

The new standard fireproof ships called for fireproof insulation instead of the old vegetable cork which burned readily. Our Laboratories developed BX-44 of felted rock wool with a density of 4 lbs. per cu. ft. BX-44 has been the stepchild in the marine field. Originally developed at Richmond on the Stonefelt machine, we have operated for years taking the capacity of this machine after the Stonefelt orders were filled. Last year the Research Department, working with Richmond Factory, was able to make this product on the large batt machine. With the practical elimination of the refrigerator insulation business, as well as a slackening in batt home insulation requirements, we plan to increase our sales from an average of $[illegible] per year to $500,000 this year at a gross profit of around [illegible]

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Marine Acoustical Sales

Other interesting side lines in this marine business are Marine Veneer (a form of Flexboard), Marine Acoustical Units (some $40,000 on the "America"), and perforated metal sheets to cover sound absorbing material in ducts and to cover acoustical treatment in engine rooms, communications rooms and other places not revealed to us. This latter use is a specialty worked out by the Acoustical Section of the Laboratory with the U. S. Navy on which we had total securements last year amounting to $65,000.

While the total sales of marine materials for 1941 amounted to one and a third million dollars it begins to look as though this year of full capacity production will amount to nearly two million dollars and that this potential will be normal for several years to come until our present tremendous losses in ships are made up. These two million dollars do not include our sales of Magnesia, Superex, Packings, Electrical and Building Materials for shipyard expansion which are carried along through the close contacts established with shipyards and marine architects.

To take one example, our company had not been very successful in securing the normal business of the Newport News Shipbuilding and Dry Dock Company for a number of years. Through the cultivation of the account for marine products and the service rendered on these products over a two year period, 1937 and 1938, sales to this one account have been as follows:-

	1935	1936	1937	1938	1939	1940	1941
Packings	1856	307	1643	2163	4713	6413	13709
Insulation	4819	4365	3546	6858	20647	67727	108180
Bldg. Mtl.	147	--	--	11126	4995	15777	18438
Marine Panels	--	--	1400	27414	204916	165302	23654
Electrical	2975	1307	1972	198	741	2324	5619

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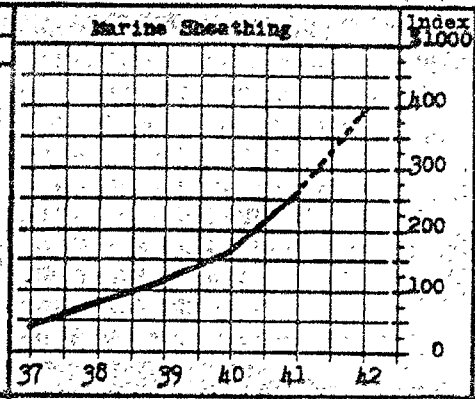
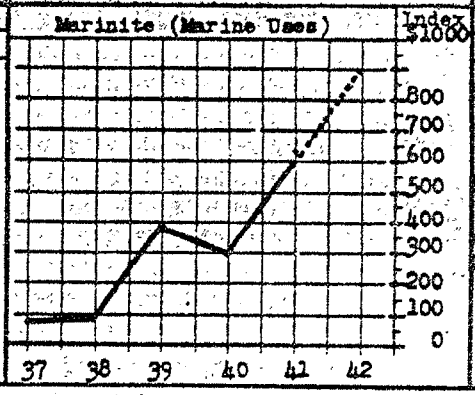
DOLLAR SALES MARINITE & MARINE SHEATHING

SALES	
Year	Dollars
1935	1,636
6	17,956
7	98,190
8	78,637
9	109,441
1940	164,670
1	261,762



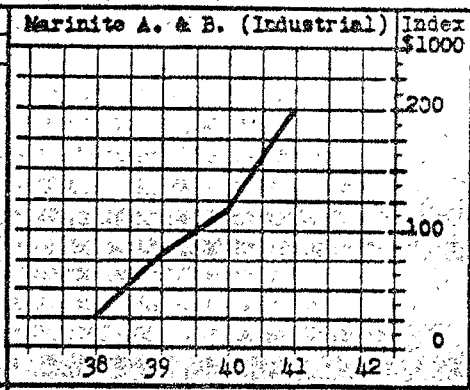
Notes:
Sales Marine Sheathing are confined almost 100% to marine ceilings and show true growth of our marine business.

SALES	
Year	Dollars
1937	77,606
8	85,340
9	339,579
1940	293,317
1	591,384



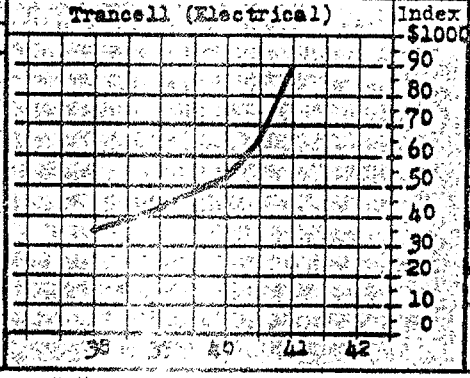
Notes:
The sharp rise in 1939 due to shipments on the Passenger Liner "America".

SALES	
Year	Dollars
1938	25,000
9	80,000
1940	115,992
1	198,897



Notes:
The volume for 1942 will drop off sharply due to action of W.P.B. in restricting Marinite to marine use.

SALES	
Year	Dollars
1938	35,938
9	42,937
1940	53,247
1	88,609



Notes:
As this curve indicates Trancell business was growing at a rapid rate Jan. 1, 1942. Progress during 1942 will be sharply curtailed due to W.P.B. restrictions.

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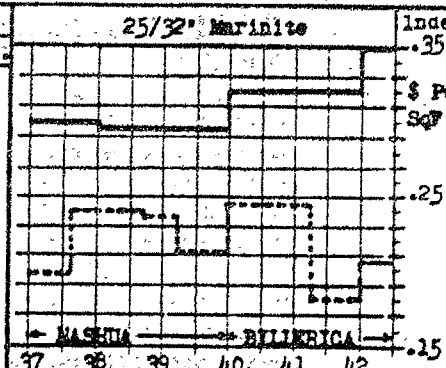
HOPEMAN BROTHERS

SELLING PRICES

Year	$ Per Sq.Ft.
37	$.30
8	.295
9	.295
40	.32
1	.32
2	.35

25/32" Marinite



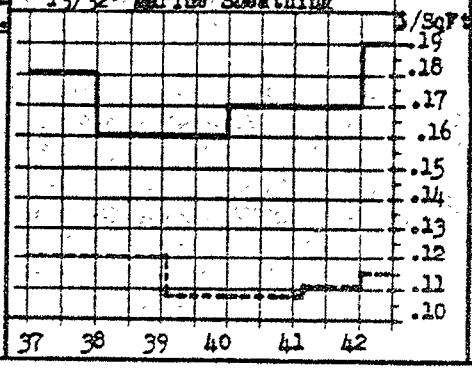
COSTS

Year	$ Per Sq.Ft.	Gross
10/1/36	.1960	- 34%
9/1/37	.2397	- 20%
12/1/37	.2406	- 20%
10/1/38	.2352	- 20%
3/1/39	.413	- 28%
12/1/39	.2482	- 22%
4/1/41	.1811	- 43%
1/1/42	.2063	- 41%

SELLING PRICES

Year	$ Per Sq.Ft.
37	.18
8	.16
9	.16
40	.17
1	.17
2	.19

13/32" Marine Sheathing



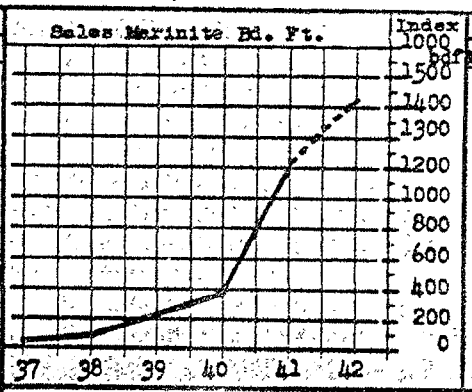
COSTS

Year	$ Per Sq.Ft.	Gross
12/1/37	.1205	- 33%
3/1/39	.1076	- 33%
4/1/41	.1104	- 35%
2/10/42	.1147	- 40%

SALES

Year	BD.FT.
37	71,300
8	83,500
9	226,000
40	363,100
1	1,208,000

Sales Marinite Bd. Ft.



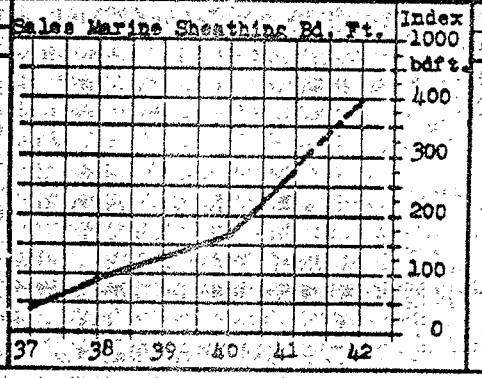
% TOTAL MARINE SALES

Year	%
37	43
8	29
9	27
40	39
1	90

SALES

Year	BD.FT.
37	34,200
8	91,000
9	117,000
40	170,260
1	280,000

Sales Marine Sheathing Bd. Ft.

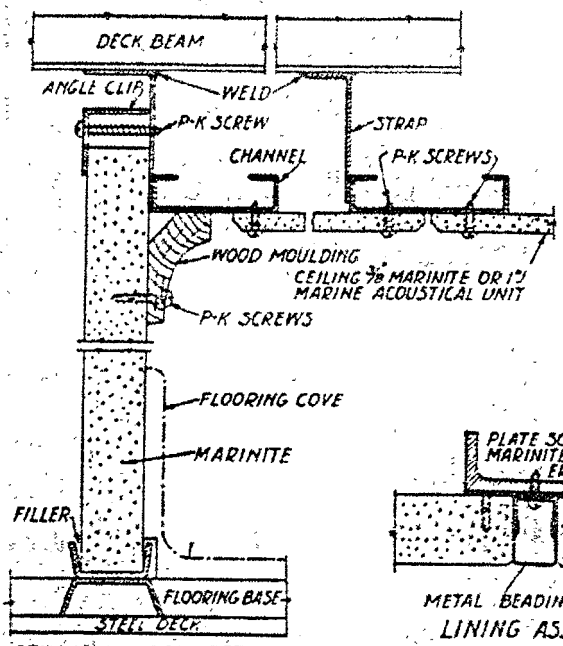


% TOTAL MARINE SALES

Year	%
37	43
8	90
9	50
40	56
1	57

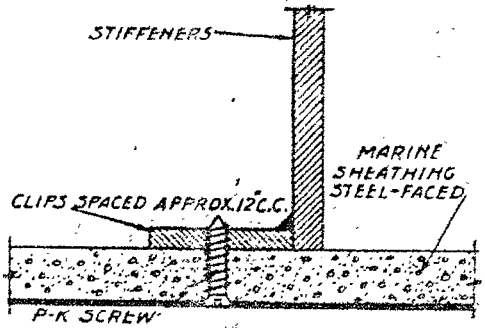
3 (c)(6)

Methods Adaptable to Erection of J-M Marine Joiner Materials

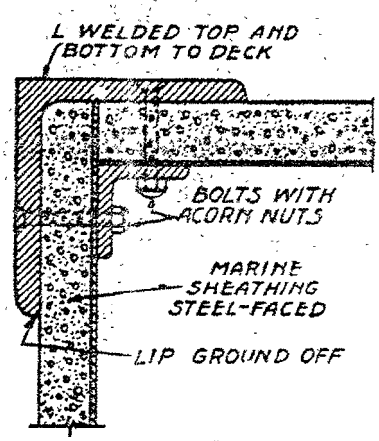


CEILING AND DECK DETAILS

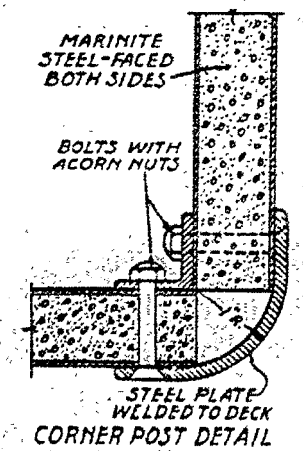
LINING ASSEMBLY



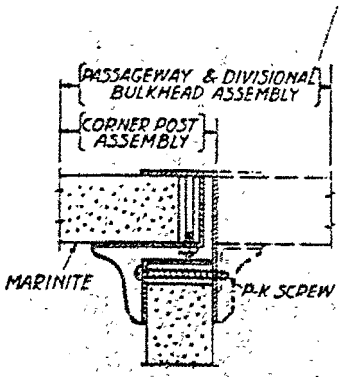
CEILING MEMBER



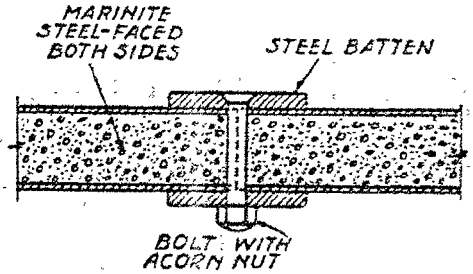
DETAIL OF CORNER ASSEMBLY



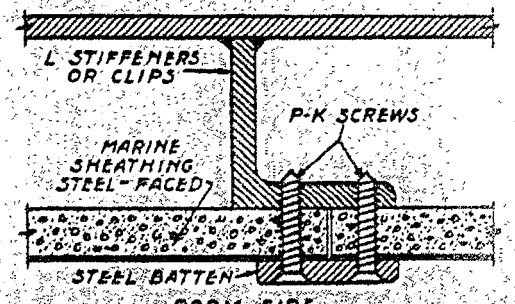
CORNER POST DETAIL



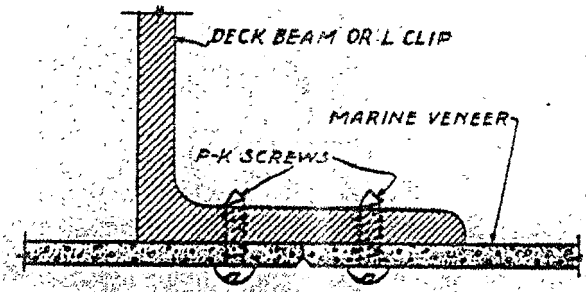
HORIZONTAL SECTION OF CORNER POST



BULKHEAD POST MEMBER



OUTBOARD LINING ASSEMBLY



TYPICAL CEILING ASSEMBLY

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4. INDUSTRIAL USES OTHER THAN MARINE

4 (a) Trancell For Cell Structures (Electrical)

The elaborate switching apparatus and buss bars carrying current in modern electric plants must be separated from other equipment for the protection of this equipment and the operators. The earliest types of cell structures were built of concrete or brick. Later a number of materials were developed for this use such as Flat and Corrugated Transite, Alberene Stone (which is a natural soapstone), Zellite, manufactured of gypsum and an organic binder, as well as metal cubicles of sheet steel.

Over the years brick and concrete have almost disappeared on account of the initial expense, large floor space occupied and the excess weight.

Alberene Stone, being a natural material, has some variation in quality due to possibilities of metallic veins in the soapstone and is much heavier and more fragile than Transite or steel.

Zellite is in much the same position due to its high weight, low tensile and compressive strength. Most of the competition today is in steel structures made up and shipped in complete units. Steel structures have the advantage of high strength, some fire-proofness and the distinct advantage that the entire structure can be easily grounded.

Trancell Structures

J-M materials first appeared in combination with brick and concrete structures 15 or 20 years ago. About ten years ago, we began fabricating complete cell structures using Flat Transite for the smaller barriers and shelves and a combination of Flat and Corrugated for the larger pieces. In some cases, the entire equipment was fabricated at our factory and in others, customers purchased full size sheets and did their own cutting.

In 1937, the first experiments were made using Marine Sheathing and Marinite which were named Trancell HW and LW, respectively, in order to bring down the weight of our Trancell materials. Where a hard surface was desired, thin layers of Transite or Flexboard were veneered to the Marinite or Marine Sheathing. Transite weighs approximately 125 lbs. per cu. ft. whereas Marine Sheathing weighs 70 lbs. and Marinite, 36 lbs. per cu. ft. By adding thin covers 1/8" thick of Transite or Flexboard, it was possible to get a much lighter sheet which was just as strong as Transite but much more workable and fire-proof.

CRMC-RUCK-000806

Doors

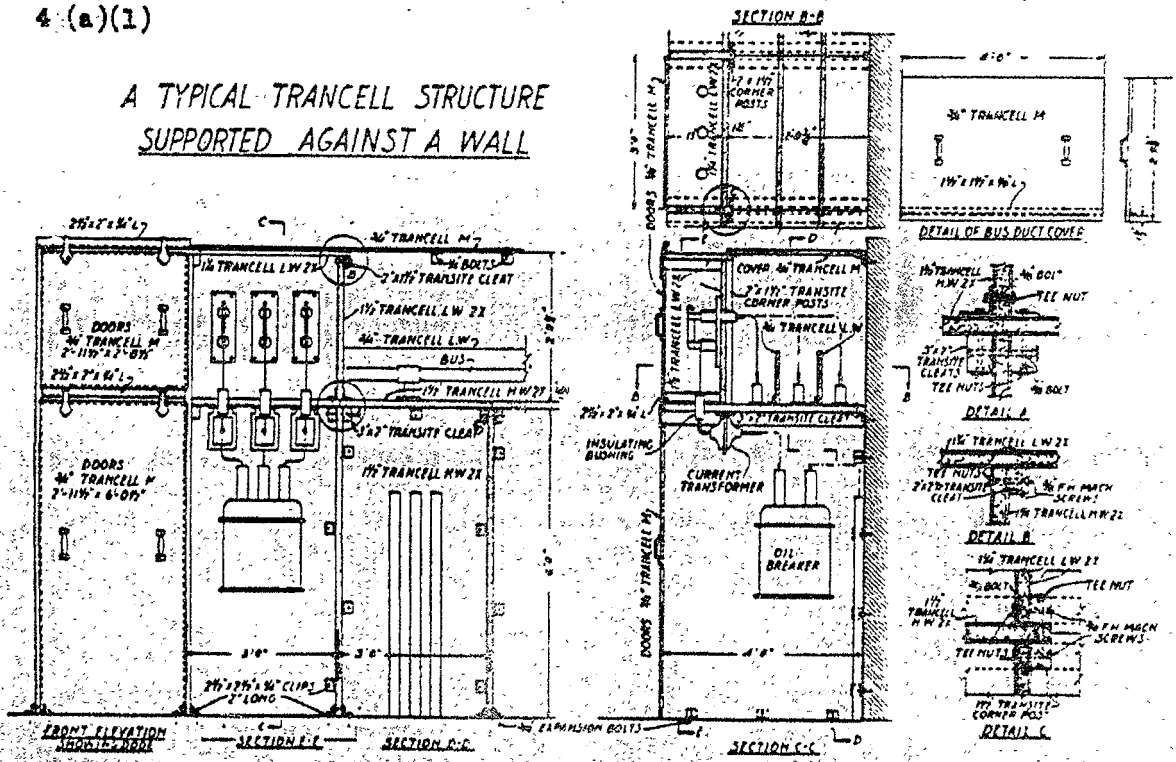
Quite often our doors, labelled Trancoll M, are used with other types of cell structures. Our present standard door is made of 1/2" thick Trancell LW (marinite) and Flexboard faces on each side. It is strong, free from warpage and has a very pleasing appearance. It weighs approximately 4 lbs. per sq. ft. and no reinforcing or trim is required. Hinges, hangers and latches can be mounted where desired.

Trancell installations, with many repeat orders, have been made by a number of the leading utilities such as Consolidated New York Edison; Consumer Power, Michigan; Duquesne Light, Pittsburgh; Laclede Power & Light, St. Louis; Cities Service and many others. Industrials, like the Aluminum Company, have also taken a number of installations. Due to regulations by the W.P.B., all further use of Marinite for Trancells will be discontinued but the Electrical Department is now working on various combinations of Marine Sheathing with which they hope to hold some of this business during the present emergency.

Refer to graph at bottom of page 11, for sales from 1938-41 and to drawing below showing a typical Trancell installation.

4 (a)(1)

A TYPICAL TRANCELL STRUCTURE
SUPPORTED AGAINST A WALL



CRMC-RUCK-000807

4. (b) Marinite A & B Industrial

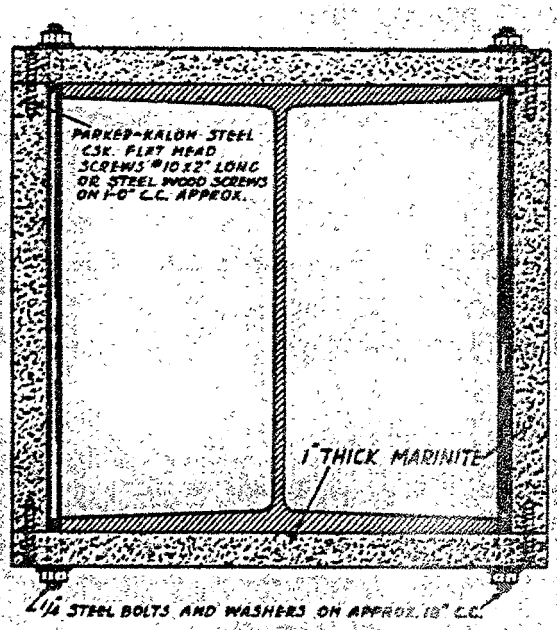
4. (b) (1) Fireproofing

The problem of protecting the load bearing members of structural steel supports from fire has been a serious one for a long time, particularly in the Oil Industry. The development of the Houdry Unit for oil refining occurred about the same time as our development of Marinite and we secured the first job with the Sun Oil Company at Marcus Hook, Pa. in 1937.

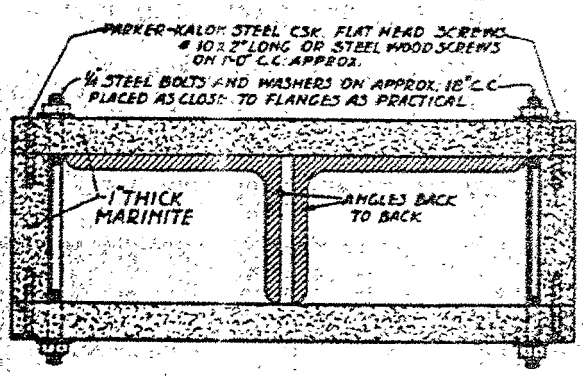
This was followed by a number of other jobs with other oil companies to a total extent of some 250,000 bd. ft. The light weight of Marinite imposed very little load on the structural steel in contrast to concrete formerly used. Marinite can also be worked by carpenters and has all of the easy handling qualities of wood.

In addition to its primary use as structural fireproofing, it is well adapted to boxes or houses for electrical equipment, conduits and cables. The sketches below show the methods used in framing the Marinite around structural members.

FIRE PROTECTION OF STRUCTURAL STEEL WITH MARINITE
ILLUSTRATING TYPICAL METHODS OF APPLICATION AS USED IN THE OIL INDUSTRY



METHOD "A"



METHOD "C"

4 (b) (2) Loose-Wiles Ovens

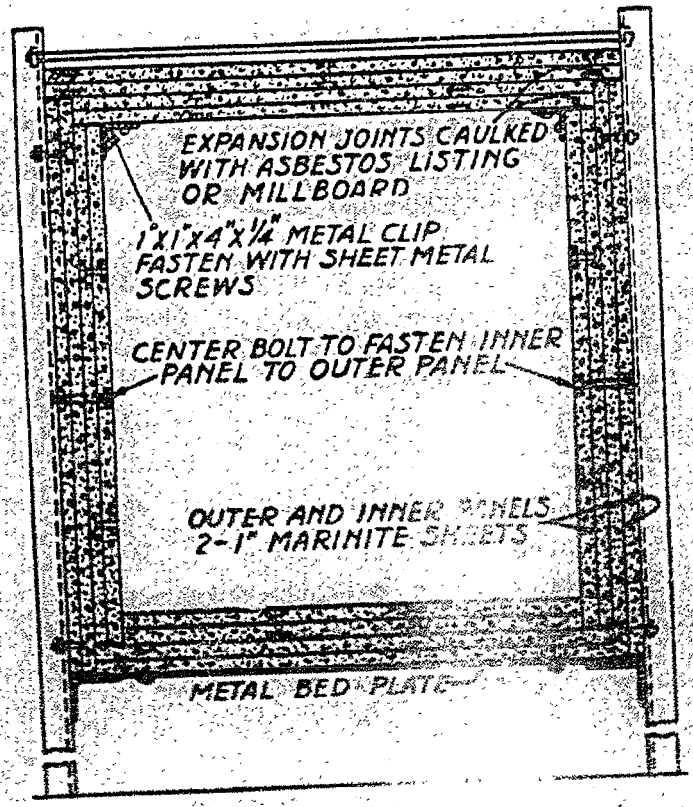
The industrial applications of Marinite are many as this material has the unique features of enough structural strength to be a self-supporting sheet combined with excellent insulation efficiency, about two thirds as good as Magnesia. It seemed evident to our insulation engineers that industrial ovens offered a sales possibility. Mr. Loose, President of Loose-Wiles, was very much interested in a new type of oven wherein the bakery goods would enter at one end as a mass of dough to be fabricated into cookies on a moving belt, coming out at the other end completely baked and ready for packaging.

In 1937, our engineers and Mr. Loose discussed Marinite for this service and in January 1938, a trial order for a section 24' long by 5' wide by 4' high, with walls of Marinite some 5" thick, was placed.

This was sold to Loose-Wiles on the basis that if it passed their engineers' test at Dayton, it would become an integral part of a finished oven 440' long.

The tests were so satisfactory on this first section that by the middle of the year. we had received an order for the complete oven, 440' long, involving some 47,000 sq. ft. of Marinite 1" thick at an approximate price of $ 35,000. This was followed by an order for their New York Plant in December of 1938 and many other repeat orders, bringing the total score to date to ten ovens, sold to them at a total price of around $300,000, including accessories, and 400,000 sq. ft. of Marinite. This includes 4 ovens in their New York plant, 2 in the Dayton, Ohio, Plant, 2 in the Oakland, Calif., plant and 2 in Saginaw, Mich.

While any further expansion of this business by Loose-Wiles has been held up due to their inability to secure the mechanical accessories for this oven, we have been assured by them, that after the war they intend to put in from 15 to 20 more ovens which may amount to some one million or more additional square feet of Marinite spread over two or three years.



CROSS SE

The sketch herewith showing a cross-section of an industrial oven gives a fair idea of the type of oven employed by Loose-Wiles.

Other industrial uses have been developed by such companies as Aluminum Company, a number of the textile industries, and for such miscellaneous uses as Crane cabs in the steel industry.

Refer to graph on page 11, for sales 1938-41.

CRMC-RUCK-000809

5. RESEARCH

The development of Marine Sheathing and Marinite, as discussed earlier, was an outstanding job by the Research Department. Their contribution did not stop with the mere development of the materials.

From April 1936 to November 1938, some sixty laboratory reports were issued on these materials. By far the greater part of these reports was occasioned by our securing the order for all the joiner materials on the America from Newport News Shipbuilding and Dry Dock Company. The transition from a brand new type of material just discovered in 1936 to the high degree of perfection required for the decorative features in this new super-liner, all in the course of two years, was a major laboratory achievement.

The gross profit of around $50,000 made on this one job, while low in percentage, was more than sufficient to pay for all of this research expense and left us with a product fully developed to meet all the needs of the marine industry.

The research work covered the following main points:-

1. Thorough evaluation of all the physical properties of Marinite and Marine Sheathing.
2. Preliminary work on fire tests.
3. Reduction in density from 40 to 35 lbs. per cu. ft.
4. Development of proper finishes for painting, veneering and other finishes.
5. Development of proper cementing agents for veneers.
6. Cost reduction investigations, by improving fiberizing equipment, better mixing and reduction of waste due to excess thickness.

At present our research program is mainly devoted to finding suitable substitutes for materials now used ranging from the basic Amosite fiber to the cements and oils used with various veneers and finishes.

Research and Development Expense

1935		$ 5250
1936		2720
1937		4700
1938		9100
1939		8650
1940		12000
1941		6200
	Total	$48,620

CRMC-RUCK-000810

6. SALES PROMOTION EXPENSE - MARINE

Due to the nature of the Marine field, and the fact that a relatively few companies and individuals represent a large proportion of the total potential, it has been possible to do an effective advertising and sales promotion job with a very modest expenditure.

1936	Approximate	$ 425
1937	"	3700
1938	"	2100
1939	"	2100
1940	"	3600
1941	Actual	4265
1942	Budget	4102

1941 Actual		1942 Budget
Trade & Tech. Mags.	$3500	$ 3400
Tech. Data Sheets	650	600
Miscellaneous	115	102
	$4265	$ 4102

Most of our advertising has been concentrated in one publication - MARINE ENGINEERING - which reaches a large part of our market in this field.

We have a booklet showing typical marine advertising which we will pass around.

7. FUTURE SALES PLANS

The recent decision of the War Production Board to restrict all materials using Amosite Fibre to marine uses has very definitely stopped other industrial applications of Marinite. Even if this ruling had not been made, it is doubtful whether any capacity would be available over the high priority marine business until the marine program is finished.

We are fortunate in having installations in many of the industrial fields such as ovens, trancells and fireproofing and will be able to capitalize on our pioneer installations. The opening up of these new fields will call for a higher sales expense but this is compensated by the fact that in general we are able to get 5 to 10% more gross profit for these industrial uses. As one more example of the possibilities we have the newest member of the family, Pal-lite.

Pal-lite

Pal-lite was introduced to the Ceramic Industries in April, 1941, to replace wood, glass, Plaster of Paris, metal, slate and sundry types of fabricated boards for use in drying many types of ware preliminary to firing.

It was quickly accepted by producers of Super Refractories, Crucibles, Grinding Wheels, China Ware and its use may be extended to the glass industry. The chief advantages are its low warpage tolerance and its ability to absorb moisture quickly from the drying ware.

The Carborundum Company have advised us confidentially that the use of Pal-lite has enabled them to produce some of their special shapes in 20 days which formerly required 30 days and furthermore more accurate sized pieces are obtained thus eliminating rejections.

Furnished in 1" thickness, regular sizes run from 6" x 6" up to pieces 36" x 36", giving us a chance to use up scrap and broken pieces at the factory. We hope to secure permission from the W.P.B. to continue to supply such pieces as we can from scrap not usable in Marine work.

CRMC-RUCK-000811

While sales of Pal-lite were only some $7,000.00 in 1941, the sales for the first two months of 1942 were $12,600 and this one specialty in normal times could be developed to a volume of $200,000.

With this experience we are confident that we were only beginning to find the new uses of Marinite when the war intervened. With the same kind of effort after the war is over, we should have no difficulty in selling a large part of factory capacity in industrial uses and thus accomplish the second and third sales objectives, we outlined at the beginning of this development.

Due to the emergency, Mr. Evan Rinehart went into active service as a Lieutenant-Commander in the Navy on September 1st, 1940. Mr. C. A. McWilliams succeeded Mr. Rinehart as Acting Manager of Marine Sales and was called into the Navy as Lieutenant on January 5th of this year. Mr. C. C. Simoni, Manager of the low pressure insulation section of the Insulation Department, has been drafted to handle both the marine sales and low pressure insulation section. Mr. Simoni with an assistant, Mr. A. V. Pretot, and a Secretary is doing an excellent job in carrying on this work.

L. A. Baldwin

April 6, 1942.

CRMC-RUCK-000812