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S U M M A R Y

GENERAL

The Gypsum Research Center was formally dedicated with an open house held on June 13. We were host to the Northwest Plaster Bureau and a science class from Tigard on two other occasions. We have obtained our Tigard City license (\$20) so we are now a bonafide member of the community.

FACTS & FIGURES

A conservative estimate of our investment in Gypsum Research since 1961 is \$1,000,000 not including the new building. In the past six months the gross profits generated as a direct result of this investment were \$296,474. This is an annual return of 59%. The sales generated from new products amounted to \$1,888,296. The compilation by product is shown on pages 5, 6 and 7. These figures compare with new product sales and profits of \$1,532,939 and \$116,580 for the first 6 months of 1967. The 1968 new product figures represent 5.2% of the division sales and 4.0% of the division profits for the period.

\$238,000 has been budgeted for gypsum research in 1968. As of June 30, \$136,450 of the total has already been invested. This budget excess is mainly due to higher than expected costs which have occurred in conjunction with the molded grainboard project. The distribution of research investment is shown on page 4.

A large portion of our budget is allocated for fire and sound testing. Firestop sales decreased slightly when compared to the same period last year, but 1/4" sound deadening board sales increased from 438 M sq. ft. in the first six months of 1967 to 2,343 M sq. ft. in the comparable period of 1968.

NEW PRODUCTS AND IMPROVED PRODUCTS

We are now confident that molded grainboard can be produced continuously. The next step is the evaluation of shipping and handling properties and the market acceptance of this molded gypsum paneling.

Our radiant heating panel has passed all Underwriters' tests conducted thus far and indications are that we should obtain U.L. approval. This approval is necessary before much field testing can be done.

Some work has been resumed on a gypsum filler for metal fire-doors. This has great potential if we can satisfy the product requirements.

Hard end wallboard was manufactured continuously at Acme for a couple months. Equipment modifications are being tried before we consider installing end treatment equipment at other plants.

The possibility of replacing limestone with gypsum in certain joint system products is under investigation. Field trials are scheduled to test ready mix and two texture products formulated with gypsum filler. In addition to some significant savings at Acme, we are interested in gypsum as a filler so we can manufacture these products at Sigurd. This will put us in a better competitive position on the West Coast with Joint System.

SALES SERVICE

A whole series of excellent sound test ratings have been achieved using 1/4" sound deadening board. One hour fire ratings were also passed for the combination of 1/2" Firestop and 1/4" sound deadening board over both wood and metal studs. No fasteners were used in the field of the face board, so the ratings are applicable to Eternawall as well as regular board. A flamespread of 25 was obtained for fabric backed vinyl Eternawall. These fire and sound ratings should assist in sales promotion of 1/4" sound board, Firestop and Eternawall.

A series of tests was conducted to develop a system of wall-board application to compete with USG's smooth-wall and National's sta-smooth systems. These test results along with the hard end development will enable us to recommend a system for controlling edge joint beading.

Just recently U.L. approval was gained for the Dens-Cote radiant heat system and for our tile backer in the Los Angeles market. These approvals were received on the basis of successful tests.

PATENTS

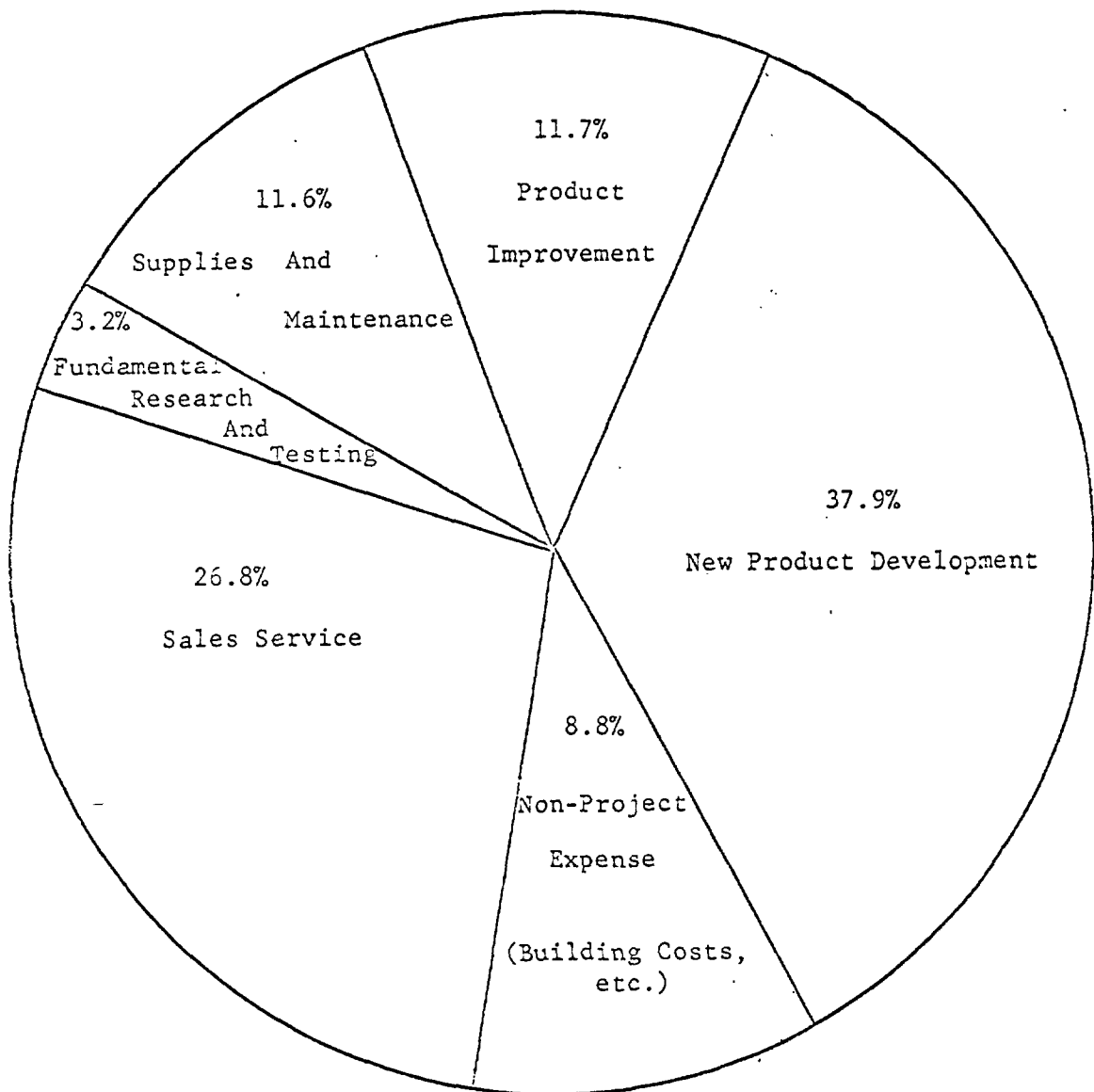
Patent #3,382,636 covering Dens-Cote base was issued to George Green. Flintkote is the only infringer that we are aware of. A decision has been made to place an injunction against National Gypsum Company for infringement of our patent #2,744,022 covering Firestop wallboard. Information is being developed to prepare a patent application covering hard end wallboard.

THE FUTURE

In addition to pursuing the current projects, we are increasing our capabilities so we can expand our present functions. A capital investment has just been approved to establish a continuous pilot mixing station to simulate a plant wallboard operation. This will permit certain experiments to be conducted at Tigard which now must be handled at one of the plants. Another investment being considered is a research test house which will be submitted for approval in 1969. The primary purpose of this facility is to permit exploratory field trials and product displays to be made at Tigard rather than having Sales search for a location. We also plan to conduct field sound tests in this structure.

Our most important investment in the future are the engineers and technicians we have in the Research Department. We recently hired Mr. George Fowler and Mr. William Gettel and this makes a total of 7 men. We have no plans to expand the staff in 1969. However, with the new men gaining in experience, it should be possible for us to accomplish more in 1969 than in any previous year.

DISTRIBUTION OF RESEARCH EXPENDITURES
FOR FIRST SIX MONTHS OF 1968



MARKET PERFORMANCE OF PRODUCTS DEVELOPED THROUGH RESEARCH

<u>DESCRIPTION</u>	<u>VOLUME</u>	<u>LIST SALES</u>	<u>GROSS PROFIT</u>
<u>Dens-Cote Base - MSF</u>			
26330-3/8" Base	4.8	174.29	38.79
26332-3/8" Base	1,534.5	56,050.92	15,121.90
26340-1/2" Base	23.1	961.23	271.76
26342-1/2" Base	8,461.9	352,878.33	103,923.30
26345-1/2" Firestop			
Base	461.1	19,979.09	5,333.84
26350-5/8" Base	150.6	7,511.14	2,528.32
26355-5/8" Firestop			
Base	<u>72.9</u>	<u>3,933.92</u>	<u>924.53</u>
Totals	10,708.9	441,488.92	128,142.44

Tile Backer Board - MSF

20540-1/2" Tile Backer	2,520.4	184,196.79	85,795.97
20544-1/2" Firestop			
Tile Backer	25.6	2,253.23	971.62
20546-1/2" Insulating			
Tile Backer	.8	71.08	32.66
20550-5/8" Tile Backer	248.9	20,753.99	8,236.46
20554-5/8" Firestop			
Tile Backer	<u>255.2</u>	<u>23,682.96</u>	<u>10,009.83</u>
Totals	3,050.9	230,958.05	105,046.54

1/4" Gypsum Sound
Deadening Board - MSF

20127	<u>2,343.0</u>	<u>75,262.36</u>	<u>19,063.50</u>
Totals	2,343.0	75,262.36	19,063.50

One Day Joint Compound - Tons

30898-Buff, 25 lbs	167.3	19,284.96	1,404.15
30899-White	<u>24.5</u>	<u>3,629.08</u>	<u>525.61</u>
Totals	191.8	22,914.04	1,929.76

MARKET PERFORMANCE OF PRODUCTS DEVELOPED THROUGH RESEARCH

<u>DESCRIPTION</u>	<u>VOLUME</u>	<u>LIST SALES</u>	<u>GROSS PROFIT</u>
<u>Ready Mix - Tons</u>			
30876-5 Gal Pails	3,837.6	436,215.36	4,038.16
30877-1 Gal Pails	145.1	27,481.79	5,571.35
30879-4 Gal Cartons	10.2	1,044.10	(.50)
30880-5 Gal Cartons	<u>63.1</u>	<u>5,942.48</u>	<u>494.02</u>
Totals	4,056.0	470,683.73	10,103.03
 <u>Triple Duty - Tons</u>			
30860-25 lbs	1,969.6	258,949.56	18,550.91
30861-50 lbs	<u>1,274.5</u>	<u>153,104.72</u>	<u>1,820.32</u>
Totals	3,244.1	412,054.28	20,371.23
 <u>Grabit - Tons</u>			
31896	<u>81.5</u>	<u>10,592.72</u>	<u>3,188.28</u>
Totals	81.5	10,592.72	3,188.28
 <u>Bestex A - Tons</u>			
31850-25 lbs	558.9	73,733.96	(1,811.72)
31854-50 lbs	<u>72.4</u>	<u>6,444.90</u>	<u>(1,911.45)</u>
Totals	631.3	80,218.86	(3,723.17)
 <u>Bestex B - Tons</u>			
31851	<u>29.9</u>	<u>4,623.59</u>	<u>(1,372.79)</u>
Totals	29.9	4,623.59	(1,372.79)

MARKET PERFORMANCE OF PRODUCTS DEVELOPED THROUGH RESEARCH

<u>DESCRIPTION</u>	<u>VOLUME</u>	<u>LIST SALES</u>	<u>GROSS PROFIT</u>
<u>Bestex C - Tons</u>			
31852	<u>149.6</u>	<u>23,166.32</u>	<u>(6,114.97)</u>
Totals	149.6	23,166.32	(6,114.97)
 <u>Bestex D- Tons</u>			
31853	<u>19.6</u>	<u>4,069.20</u>	<u>1,384.72</u>
Totals	19.6	4,069.20	1,384.72
 <u>Dens-Cote Plaster - Tons</u>			
10164-Smooth Finish	854.4	46,172.48	7,164.42
10165-Smooth Finish	620.4	34,803.97	3,719.77
10166-Sand Finish	43.8	2,313.99	788.24
10167-Base	<u>192.9</u>	<u>8,850.69</u>	<u>2,488.17</u>
Totals	1,711.5	92,141.13	14,160.60
 <u>Dens-Cote Tape - Rolls</u>			
10983-300' Roll	2,507.3	6,379.58	773.82
10984-100' Roll	<u>1,037.0</u>	<u>976.84</u>	<u>402.10</u>
Totals	3,544.3	7,356.42	1,175.92
 <u>Model Densite - Tons</u>			
40837	<u>.1</u>	<u>2.30</u>	<u>1.35</u>
Totals	.1	2.30	1.35

MARKET PERFORMANCE OF PRODUCTS DEVELOPED THROUGH RESEARCH

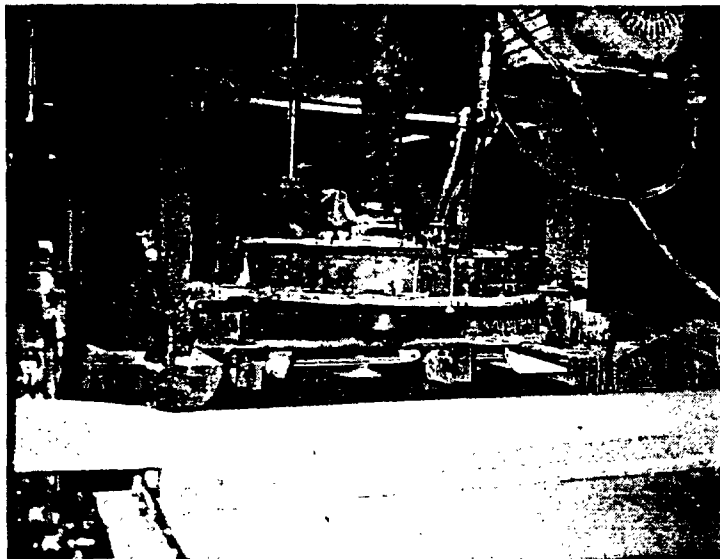
<u>DESCRIPTION</u>	<u>VOLUME</u>	<u>LIST SALES</u>	<u>GROSS PROFIT</u>
<u>Ram Process Plaster - Tons</u>			
40840	<u>57.7</u>	<u>5,154.68</u>	<u>2,782.91</u>
Totals	57.7	5,154.68	2,782.91
 <u>Denscal HP - Tons</u>			
45770	<u>44.2</u>	<u>2,609.95</u>	<u>335.22</u>
Totals	44.2	2,609.95	335.22
 TOTALS		<u><u>\$1,888,296.55</u></u>	<u><u>\$296,474.57</u></u>

NEW PRODUCT SECTION

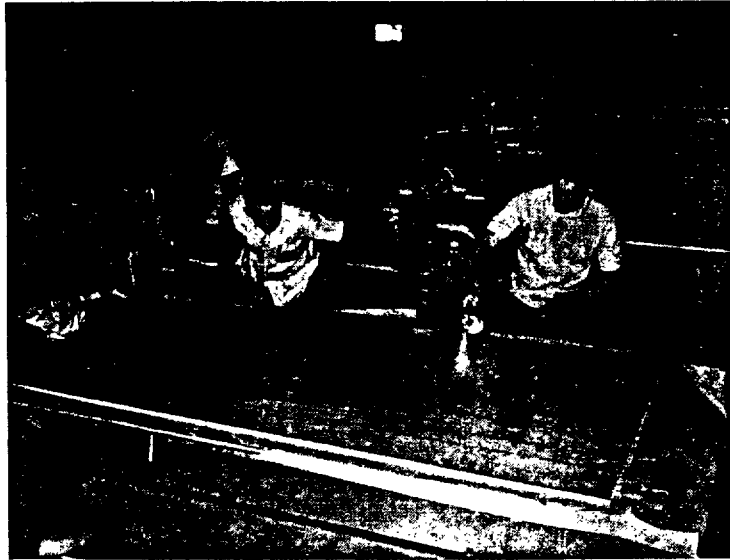
1. Molded Grainboard

a. Pilot Plant

A number of significant improvements were made in the pilot operation and all but one of the major problems were resolved. Proper edge formation is the remaining unsolved problem. We are confident of being able to form edges properly after the new belt has been received. It is planned to install edge belts which along with the wood grain belt will make a complete moving envelope to retain the coating slurry until it has set. This arrangement can't be installed on the present belt because the belt oscillates back and forth. We expect to be able to track the new belt better because it will be thicker and have more uniform dimensions than the old belt. Some photographs of the process are shown below.



MIXING AND FORMING



TOP COATING



LOADING CART WITH FINISHED BOARD

b. New Belt

A new grain pattern was fabricated by laminating selected oak veneer onto an 0.04" thick aluminum backing. This pattern is much better than the pattern used to make the original belt. This should be reflected in the quality of the new belt. The new belt will be molded by Goodyear in three stages - a first impression, a heat resistant rubber matrix and then the final belt. The cost of the three belts weren't much more than having a single belt made. Future belts can be made from the matrix belt. In the event that the veneer pattern is ruined, which is what happened in making the first belt, we will still be able to make other belts from the matrix. The finished belt is scheduled to be delivered in August.

c. Field Trials

About 50 finished panels have been prepared for field testing. We plan to produce another 100-200 panels for additional tests. The evaluation of the shipping and handling properties of the panels as well as the market acceptance is an important and critical phase of the molded grainboard development.

2. Radiant Heating Panel

a. U.L. Testing

The Underwriters' testing of the laminated or prefabricated version of our radiant heat panel is nearly complete. We have passed all of the tests that have been conducted thus far. We were concerned about the current leakage test, but our panel clearly out-performed USG's Thermalux which already has U.L. approval. We expect that Underwriters will approve our panel very shortly. The next step will be to request U.L. approval for a job laminated system like USG's Thermalux system with our products. The difference between this and our laminated panel is that the board is laminated on the job and the electrical connections are also made on the job.

b. Field Testing

Very little field testing has been done because it is difficult to have an electrical heating system installed when it isn't U.L. approved. Armstrong plans to use the panel in their rehab project in Lancaster, Pa., but we do not have any definite details on this. As soon as the U.L. approval is granted, we will want to embark on a comprehensive field testing program to gain practical experience.

c. Laboratory Investigation

One of the weaknesses of our panel has been the tendency for it to calcine when operated at the rated voltage for extended periods. USG's Thermalux has some built in resistance to calcination. Our tests show that the combination of boric acid and potassium sulfate makes an effective calcination inhibitor when used in the board formula. There is some question how much potassium sulfate can be incorporated in the board. We will be able to build in some resistance to calcination; but we are not sure exactly how much is required. Further experiments will be carried on to find more effective calcination inhibitors.

We have also been able to make some improvements in the panel while the U.L. tests are in progress. Extending the pigtail leads to the copper foil conductor strips rather than bringing the foil strips to the pigtail has facilitated the panel construction. Also, the fiber grommet has been replaced with a silicone rubber mastic to reinforce the hole where the pigtail exits from the panel. These were suggestions made by Mr. DiLorenzo during one of our discussions.

3. Firedoor Filler

This project has been kicked around for several years as we have attempted to meet the requirements of a non-combustible filler for hollow wood flush doors. We ran into a snag when the doors were laminated under pressure with water thinned glues. The water would weaken the gypsum enough that it would collapse under the applied pressure during the lamination of the veneers.

The interest in the project had dwindled but was recently revived when a metal door manufacturer (Westinghouse) expressed interest in a gypsum filler for fire doors. Samples of our filler have been sent to Westinghouse and we are awaiting their comments. If we can satisfy the requirements, this product will have tremendous potential.

4. Thin Wallboard Core For Wood Paneling

The Eugene Division tried to laminate face veneer on both sides of thin (1/8") gypsum wallboard. Each time blisters developed when the steam pressure caused the plies of the thin wallboard to separate. It was decided to make one further attempt by having a special adhesive made and using a low press temperature. There were significantly fewer blisters, but there was still the tendency for the product to delaminate at the wallboard paper. To add to these woes, the plant had considerable difficulty manufacturing a thin wallboard, so it seems as though there are just too many drawbacks to warrant continuing the investigation. Unless there are unforeseen developments, the project will be abandoned.

PRODUCT IMPROVEMENT SECTION

1. Hard End Wallboard

a. Plant Trial

A set of sprays was installed at Acme to apply resin onto the ends of their wallboard. They sprayed resin onto the ends of all of their production of 1/2" and 5/8" board for three months except for intermittent breakdowns. They had repeated problems with the pump which supplies resin to the spray head. The pump is being replaced by a pressure tank and the evaluation of the operation will be resumed.

b. Laboratory Testing

A number of different resins from several different manufacturers were tested. These are of the vinyl acetate homopolymer, vinyl acetate copolymer and combination acetate/acrylic copolymers. The acetate/acrylic copolymers have shown the best results so far. These polymers are more water resistant than the other types and this may be the reason.

c. Patent Work

A patent search did not reveal any prior art and the fact that certain resins are better than others is a basis for invention according to our patent attorney. More tests will be conducted to provide data to support a patent application.

2. Gypsum Filler For Joint System

Now that we have successful experience with vinyl binders, it opens the door to using gypsum rather than limestone as a filler for joint system. We estimate raw material savings of 15-20% wherever this substitution can be made. Ready Mix and our texture line are likely candidates to start with. The profit margin on both can stand some improvement.

Another factor in favor of a gypsum filler is that it would enable us to manufacture certain joint system products at

Sigurd and sell them competitively on the West Coast. This is particularly true of textures since the West Coast is such a large texture market. In other words, it is a means of generating some plus business for Sigurd since we are not competitive with joint system shipped from Sigurd at the present time.

3. Type X 5/8" Firestop

Our major competitors are marketing two 5/8" fire rated wallboards. One is a super fire rated board which will pass the two or three hour ceiling ratings as well as the one hour walls which are more frequently encountered. The second type contains less glass fiber and no vermiculite or perlite, consequently it is less costly to manufacture. Up to this time, our position has been that we would manufacture only the super type which will pass all ratings and not become involved in stocking two different 5/8" fire rated boards. It is estimated that this position is costing us about \$80,000 per year and that we should change our position and develop a 5/8" type x board. A 5/8" Firestop weighing 2275 lbs/M containing 4 lbs/M of glass fiber and 20 lbs/M of raw vermiculite was manufactured at Lovell and tested at U.L. At 57½ minutes the wood stud partition failed to support the load imposed. This is a surprise since our competition has passed this rating with a similar formula. As a next step, we will compare tests of our board versus competitive 5/8" type x boards before deciding whether to try again.

4. New Emulsion For Waterproof Sheathing

Plant trials of a wax/rosin emulsion manufactured by Hercules Chemical were made at Akron, Ft. Dodge and Sigurd. The first two trials at Akron and Ft. Dodge were relatively favorable and it appeared that we were on our way to improving the water resistance properties of sheathing with reduction in cost at some plants. The Sigurd trial, however, turned out badly with the sheathing having core splits and poor water resistance. We have been asked by manufacturing to discontinue this project at the plant level. Since there is no other level at which it can be investigated, the project will be abandoned, at least temporarily.

5. Firestop Formula Improvement

A series of 1/2" Firestop board was made at Lovell containing 0, 17, 25, 40, and 55 lbs of raw vermiculite per M sq. ft. These boards were tested in our wall furnace to evaluate their ability to resist the passage of heat through the wall construction. We concluded from these tests that the higher the vermiculite content the more resistance there is to the passage of heat. This is particularly true up to 40 lbs/M. After that the gain appears to diminish. This information will be used in our continued work on Firestop formulations. It will be specifically used in the formulation of the Firestop Dens-Cote Base used in the test to get an hour rating on metal studs. This is work covered in the Sales Service Section which follows.

SALES SERVICE SECTION

1. Sound Testing

A series of sound tests was conducted at Geiger & Hamme acoustical laboratories with the emphasis on 1/4" gypsum sound deadening board. Wood stud walls, metal stud walls, staggered stud walls and separated walls were all tested with various combinations of 1/4" sound deadening board and 1/2" or 5/8" Firestop. Sound ratings of 45 to 55 STC were obtained for the various assemblies. These results are as good as ratings for more expensive partition systems. Airborne and impact noise ratings were also established for 1/4" sound deadening board and Firestop on ceilings. Although these results were not as impressive, the test values complete the family of sound systems available with these products.

A book of sound tests was compiled which puts our sound data in a more usable form.

2. Fire Testing

a. 1/4" Sound Deadening Board And Firestop

One hour ratings were achieved for the combination of the 1/4" board and 1/2" Firestop over both wood and metal studs. No fasteners were used in the field of the board (top and bottom only) so the ratings are applicable to Eternawall as well as regular 1/2" Firestop. These fire ratings will go along with our sound ratings in providing ammunition for Sales to use in promoting sound deadening board and Firestop.

b. Dens-Cote Over Metal Studs

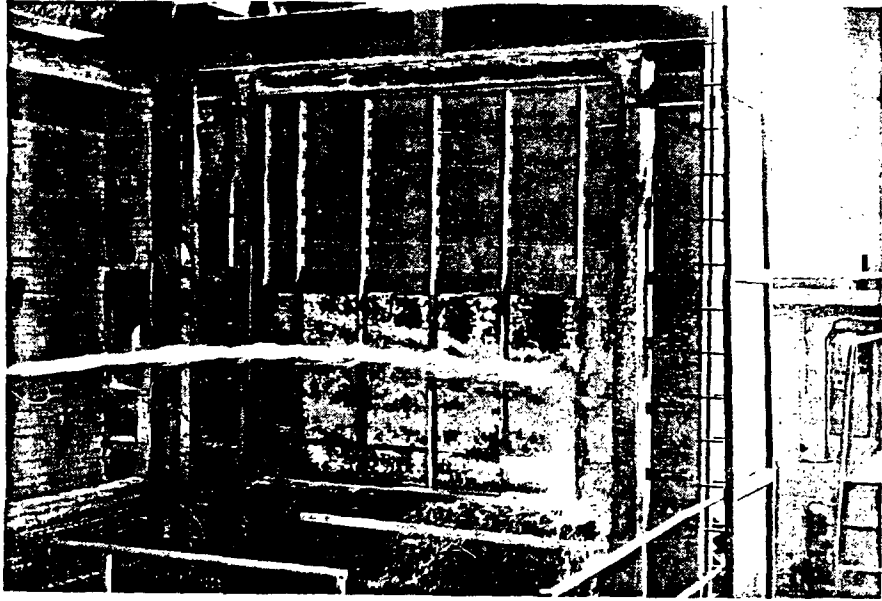
After a comprehensive series of laboratory fire tests, a test was scheduled at Ohio State. A special Dens-Cote base was used (40 lbs/M of raw vermiculite). Also, glass fibers were added to the Dens-Cote plaster and everything was on the plus side to give us every chance of passing. The partition did pass the fire test lasting 62 minutes and we thought we finally had gotten this rating which has eluded us for so long. Much to our chagrin the partition failed to pass the hose stream

test. This unexpected result puts us in the position of either altering the partition to get by the hose stream or starting all over with the fire test. We hope to avoid the latter.

A pilot hose stream test is being set up to determine what course to take. Pictures illustrating a hose stream test are shown below. This particular test is an exploratory hose stream test conducted at Ohio State.



START OF HOSE STREAM AFTER 30 MINUTES FIRE ENDURANCE



45 SECONDS OF 60 SECOND TEST



BOTTOM BOARD SHOWS FAILURE; TOP BOARD O.K.

c. Flamespread Rating For Fabric Back Eternawall

A flamespread rating of 25 was gained for fabric backed Eternawall in a U.L. test at Santa Clara. This will now make us competitive with National who has had the rating and USG who has just gotten it. This should also help promote the sale of Eternawall. There is some question how we should list our Firestop Eternawall and we have asked Sales for a decision. We can list both it and the unsupported vinyl Eternawall, or we can list one rating for wall coverings and another for vinyl covered wallboard.

3. Dens-Cote Radiant Heating System

Official U.L. approval was received based on the tests that had been made at their Melville, Long Island location. This means that Georgia-Pacific and USG are the only companies that have such approval.

4. Tile Backer Code Acceptance

Capillarity tests were conducted, witnessed and submitted to the Los Angeles Building Department. Acceptance of our product has just been granted based on these tests. This means we can sell Tile Backer in the city and county of Los Angeles.

5. Miscellaneous

During the past six months a partition manufactured by Angeles Metal Products and one produced by Donn Products were evaluated as to construction and installation. Some stud adhesives were tested for the Distribution Division. We also had the Northwest Plaster Bureau visit us at the request of Sales. We also cooperated with Advertising by preparing demonstrations and samples for the open house.

INDUSTRY SECTION

We represent the company on the Technical Committee of the Gypsum Association, ASTM Committee C-11 on gypsum and ASTM Committee E-5 on fire testing. We have also participated on the industrial advisory committee of Mt. Hood Community College to establish a chemical technician program. This may be a source of future chemical technicians for the company. The major activities of the Gypsum Association and ASTM which are most pertinent to us are as follows:

Gypsum Association

A reissue of the fire resistance design manual is being prepared. This will contain sound and fire test ratings and should be the most complete book of its kind when it is finished. A series of exploratory fire tests is planned by the Association to evaluate the fire protection offered by using gypsum wallboard under the sub-flooring and the roof sheathing of a wood frame house. If successful, this could generate some new business for the gypsum industry. The label service controversy has subsided somewhat. We are still adamant in our position that the industry should not drop U.L. label service without a satisfactory substitute and there is no other similar service under consideration.

ASTM

The industry is still working on a better performance specification for gypsum. We have developed a good method for nail head pull-through and will present it at the next meeting. A specification for water resistant tile backer board is presently being considered by the committee. We have proposed a change in the type x lath specification in order to distinguish between regular type x lath and the super type. A type R plaster (rapid plaster) has been recognized to the extent that it has been included in ASTM C 28 which lists the types of gypsum plasters available. Our representative to E-5 kept alive the matter of hose stream criteria and placing thermocouples over fastener heads. We believe the procedures being used in these tests should be improved, but it looks as though it will take years to get any change made.

PATENT SECTION

1. Infringement

A series of muffle furnace tests was conducted to investigate infringement of our patent #2,744,022 by National Gypsum. By analysis we find that National uses somewhere between 1.5% and 2.5% raw vermiculite. Our patent states not substantially less than 3½% nor substantially more than 7½% as limits. Since the time these limits were established, the extraction of vermiculite has become more efficient. Consequently, less vermiculite is required today to give the expansion indicated in the patent which issued in 1956. The patent states that the purpose of the vermiculite is to counter-act the shrinkage of the core. There is no question in our mind that National is infringing. The question is, do we have sufficient basis for legal action. Another factor is that we have been collecting royalties from our other licensees while National has been getting off scot-free.

After receiving an opinion from legal counsel and weighing the economics, it has been decided to enjoin National Gypsum against further infringement of our patent. The injunction was filed on June 17.

2. Status Of Patents Applied For

a. Dens-Cote Base

Patent #3,382,636 was issued to George Green. This covers the combination of wetting agent and pinholes which provide suction control.

b. Method Of Processing Synthetic Gypsum

Our legal counsel has advised us that they expect the Canadian application to result in an issued patent very shortly. We have heard nothing from the U.S. application since the continuation-in-part was submitted over two years ago.

c. Firestop Improvement Patent

We haven't had any action on this application which was filed about 1½ years ago.

d. New Inventions

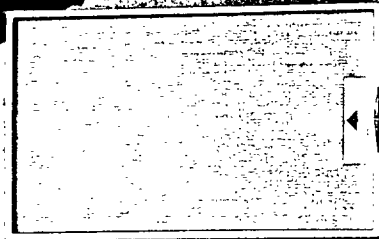
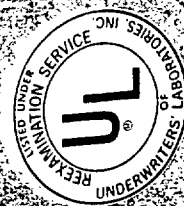
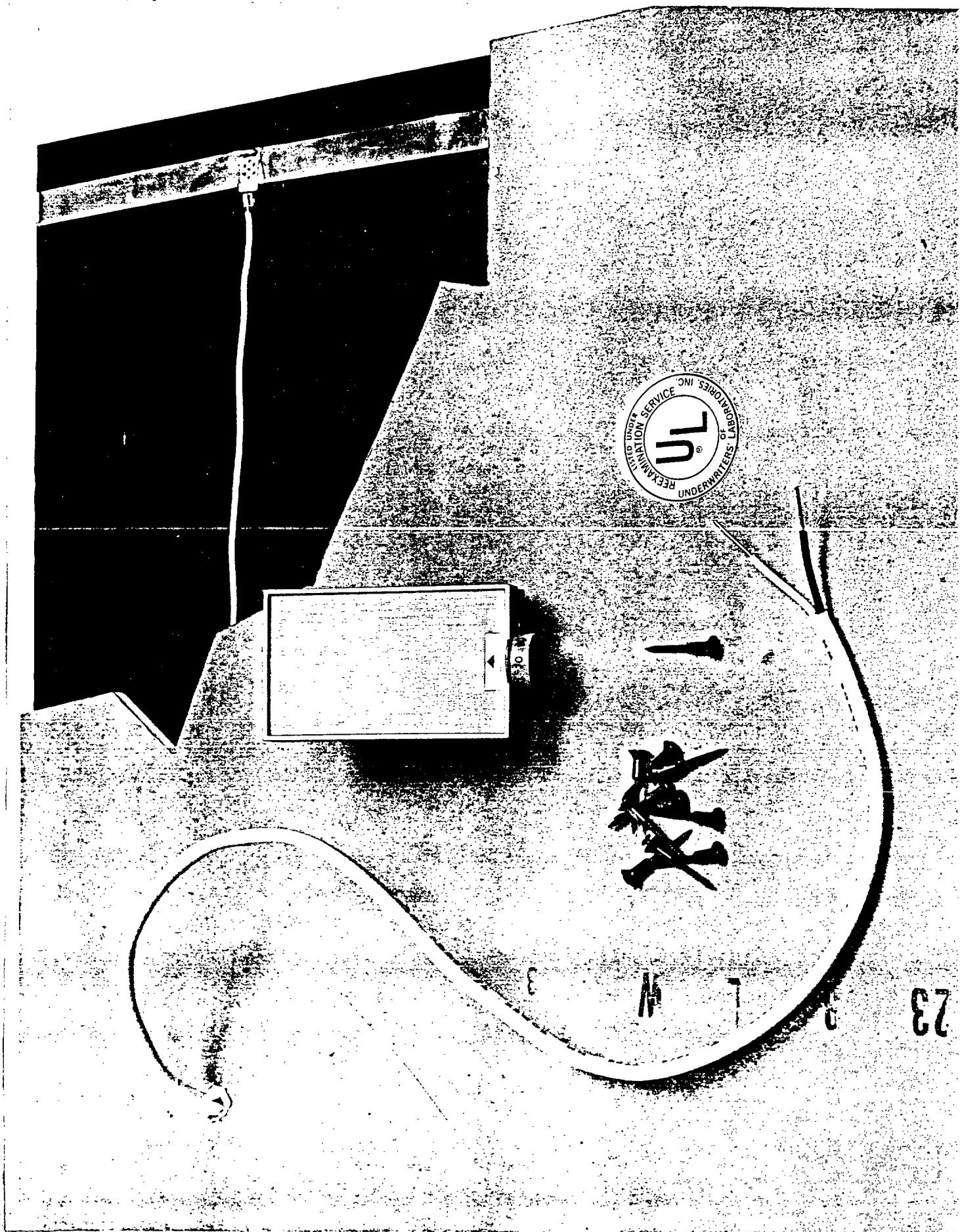
Patent counsel has expressed the opinion that our hard end wallboard may be patentable. Tests are in progress to develop data to support a patent application.

R&D FACILITY AND EQUIPMENT SECTION

It has been our policy each year to add new equipment and facilities which are needed to expand our research function. Since we just moved into the new Tigard Lab, there was more expense than normal to get our equipment in shape and replace equipment which was either lost or stolen in the relocation. Some items were:

1. The pilot furnaces were installed with exhaust systems, burner controls, test frames and accessories all taking time and money to put into proper working order. Both the wall furnace which had never been installed at Paoli and the old floor-ceiling furnace are being used now.
2. A spray booth was installed in order to make a comprehensive study of joint system textures without redecorating the shop.
3. Cantilever racks were purchased to store wallboard.
4. A used fork lift truck was purchased from Acme for \$600 plus freight. Also an old pick-up was transferred to us from the Trucking Division. We found that the distance from all of our plants resulted in our stocking and handling more wallboard than we did back East. It has been desirable to have the equipment to stock and handle this board.

An RCE has been submitted for installing a complete pilot mixing and board forming station. The object of this additional equipment is to permit certain wallboard investigations to be carried out at Tigard rather than having to interrupt plant schedules to conduct experiments. Another proposal under consideration for next year is a test house. This would be a shell house with the unfinished interior, open studs, masonry wall, bathroom with exterior complete but with roughed-in plumbing, etc. that would be representative of actual job conditions. This house would be used for initial field trials of new products as well as to demonstrate existing products. If we had such a house now, we would have it heated with our radiant panels, several walls of molded grainboard installed, and trials of various joint system products with gypsum filler. This would be another addition to our facilities that would expand our function by permitting us to do things here that normally would have to be done in the field. It is our opinion that such facilities will justify the investment by the savings in time and travel expense that would be necessary if we have to go elsewhere to conduct the tests.



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