PLAINTIFF'S EXHIBIT

KG-216

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Attorneys for Defendant
KAISER CEMENT & GYPSUM CORPORATION

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF SAN FRANCISCO

DEMETRIO D. DURAN,

Plaintiff,

vs.

JOHNS-MANVILLE SALES CORPORATION, et al.,

Defendants.

NO: 719-238

ANSWERS TO INTERROGATORIE.

PROPOUNDING PARTY: Plaintiff, DEMETRIO D. DURAN

RESPONDING PARTY: Defendant, KAISER CEMENT & GYPSUM CORPORATION

SET NUMBER: One

DATED: January 31, 1978

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By _____
VICTOR J. GIANUNZIO

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1. State the name, present business address, business telephone, present residence address and capacity or title of the individual signing these interrogatories on behalf of the answering defendant.

ANSWER: Ian Watson, Vice President, Engineering and Research, Kaiser Cement & Gypsum Corporation, 300 Lakeside Drive, Oakland, California.

2. When did you first begin to manufacture and sell asbestos? Identify and describe all documentary or tangible evidence on which you base your answer.

ANSWER: Kaiser Cement & Gypsum is a California corporation. Kaiser Gypsum Company, Inc., a Washington Corporation, is a wholly owned subsidiary of Kaiser Cement & Gypsum.

Kaiser Cement & Gypsum Corporation and its subsidiary, Kaiser Gypsum Company, have never manufactured or sold asbestos. Kaiser Cement & Gypsum and Kaiser Gypsum Company has in the period between 1963 and 1976 sold several products that contained less than five (5) percent asbestos.

Kaiser Gypsum Company sold most of the products containing asbestos. These products include Pre-Mix Joint Compounds, Finishing Compounds, K-Spray Ceiling Texture, Cover-Tex Wall Texture and various fire rated gypsum wallboards containing fiberglass. The only product sold by Kaiser Cement & Gypsum containing asbestos was plastic gun cement.

Because we were named in the complaint as Kaiser Cement & Gypsum, we have answered these interrogatories in the name of Kaiser Cement & Gypsum despite the fact that many of the products containing asbestos were sold by Kaiser Gypsum Company.

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The documentary evidence on which we base our answer are the attached products formulas for each of the products

3. What percentage of asbestos or fiberglass by weight do the products mentioned in Interrogatory No. 2 contain? In answering this interrogatory, fully describe and identify all documentary or tangible evidence on which you base your answer.

ANSWER: The percentage of asbestos by weight used in the products mentioned in the answer to Interrogatory No. 2 varied between less than 1% to slightly less than 5%. Kaiser Cement & Gypsum Corporation purchased fiberglass and used approximately 0.3% fiberglass in fire-rated gypsum wallboards. Kaiser Cement & Gypsum Corporation also purchased for resale Fiberglass Building Insulation from Owens-Corning Fiberglass Corporation from 1962 to 1972.

The documentary evidence upon which this answer is based is the same product formulas attached to the answer to interrogatory No. 2 as well as the attached product formulas to this answer.

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4. Did you ever supply any products containing asbestos or fiberglass to the United States Government Naval Shipyards through the Naval Supply System or any other purchasing system for the United States Government?

ANSWER: Kaiser Cement & Gypsum has not, to our knowledge, supplied products containing asbestos or fiberglass to the U.S. Government Naval Shipyards.

5. If the answer to Interrogatory No. 4 is affirmative, give the exact amounts, types of products, dates of sales, and person or persons in your company responsible for each sale. In answering this Interrogatory, itemize and fully describe all of the facts, acts, events and/or documentary or tangible evidence on which you base your answer.

ANSWER: Not applicable.

6. What brand names have you supplied throughout the period from when you first began selling asbestos or fiberglass products to the present?

ANSWER: Kaiser Cement & Gypsum products, which used to contain small amounts of asbestos, were sold under our company name.

7. Please list the names, titles, current address, and current position of each sales manager responsible for asbestos and fiberglass product sales to the United States Naval Shipyards for the periods between 1935 and 1971.

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ANSWER: Kaiser Cement & Gypsum did not, to our know sell products containing asbestos or fiberglass to the United States Naval Shipyards between the years 1935 to 1971 or at any other time.

8. Please list the names, titles, current address, and current position of each sales person responsible for asbest or fiberglass products sales to Hunters Point Naval Shipyard and Mare Island Naval Shipyard for the periods between 1935 and 1971 if different than the periods names in your answer to Interrogatc No. 7.

ANSWER: See answer to Interrogatory No. 7.

9. Please list the names, address and titles of all persons who have control of sales record, sales summaries, graphs of sales, purchase orders, or invoices for asbestos or fiberglass product sales for the period from 1935 to 1971.

ANSWER: Kaiser Cement & Gypsum objects to this interrogatory as burdensome and oppressive. Kaiser Cement & Gypsum does not sell asbestos or fiberglass. We did sell products containing small amounts of asbestos and fiberglass as stated in our answer to Interrogatory No. 3. As further stated in our answers to Interrogatory Nos. 4, 7, 8 and 10, to the best of our knowledge Kaiser Cement & Gypsum has never supplied asbestos or fiberglass to the U.S. Naval Shipyards. Kaiser Cement & Gypsum is not trying to be unreasonable in answering this interrogatory. If there are any further questions regarding the answer to this interrogatory, please contact the Law Offices of Kincaid, Gianunzio, Caudle & Hubert.

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10. Did you ever supply asbestos or fiberglass product through distributorsor wholesalers who sold those products to the Hunters Point Naval Shipyard or the Mare Island Naval Shipyard between the years of 1935 and 1971?

ANSWER: Kaiser Cement & Gypsum has not, to our knowledge, supplied products containing asbestos or fiberglass throug distributors or wholesalers for sale to the Hunters Point Naval Shipyard or the Mare Island Naval Shipyard between 1935 and 1971 or at any other time.

11. If the answer to Interrogatory No. 10 is affirmative, please supply the names of those distributor or wholesalers the products supplied through them, dates of supply, and the name addresses and titles of those persons presently employed at said distributors or wholesalers who have specific information on such purchases and sales.

ANSWER: Not applicable.

12. If, in your answers to the foregiong Interrogatori you state that records are unavailable or have been destroyed, please give the names, address and positions within your company of all persons who have personal knowledge of the information con tained in such unavailable or destroyed records.

ANSWER: Not applicable.

13. Please provide the names, address, titles of all management, product safety, and medical persons within your company who became aware of each of the articles or reports, the date they became aware of each and every article or report, and what was done by each person in response to becoming aware of each and every article or report as set forth on the attached

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Appendix to Interrogatory No. 13.

ANSWER: Kaiser Cement & Gypsum personnel have not seen or been aware of any of the reports or articles listed in Appendi to Interrogatory No. 13.

14. If you will do so without a motion to produce, please provide copies of any handwritten or typed memoranda, notes or letters issued to or by the persons regarding each and every report or article listed in Interrogatory No. 13.

ANSWER: There are no notes, letters or memoranda regarding the articles listed in Interrogatory No. 13 because Kaiser Cement & Gypsum personnel were not aware of the reports listed in Interrogatory No. 13.

15. Please list all medical information upon which you relied in making conclusions as to the health hazard of exposure to asbestos dust from the date you began supplying asbestos to 1971.

ANSWER: Kaiser Cement & Gypsum did not receive or have medical information on the health hazard of exposure to asbestos dust prior to 1971.

16. If you will do so without a motion to produce, please provide copies of all medical information referred to in your answer to Interrogatory No. 15.

ANSWER: Not applicable.

17. What are the names and addresses of all doctors or medical advisors who provided you with information on the health hazards of exposure to asbestos dust during the years between the time you began supplying asbestos products until 1971.

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ANSWER: Kaiser Cement & Gypsum did not receive from doctors or medical advisors information on the health hazards of exposure to asbestos dust prior to 1971.

18. If you will do so without a motion to produce, please provide copies of all handwritten or typed memoranda, note or letters provided any person in your company from any doctor or medical advisor listed in your answer to Interrogatory No. 17.

ANSWER: Not applicable.

19. State the name and address of your liability carrier or carriers for the period from 1935 to 1971.

ANSWER: Kaiser Cement & Gypsum has searched its record and is unable to locate records concerning its liability carriers for the period from 1935 to 1971. The only records available concerning liability coverage cover the years 1964 to 1971. See attached sheet for coverage information.

20. State the exact nature of any warning notices on the packaging of your products which contain asbestos and the dates when each such warning was placed on the packaging.

ANSWER: Kaiser Cement & Gypsum placed the following warning notice on packages of joint compounds, textured paints, and plastic cements containing small amounts of asbestos. This warning notice was used from 1972 until asbestos was discontinued in these products in 1976. See attached sheet for copy of the warning notice

21. Did you every supply any warnings or precautionary information to any consumer or purchaser of products you manufactured or sold, either verbally or in written form before 1966, as to health hazards involved with the use of such products or

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safety information as to its use?

ANSWER: Kaiser Cement & Gypsum objects to this interrogatory as irrelevant, because Kaiser Cement & Gypsum has never manufactured asbestos and has never sold its products to the U.S. Naval Shipyards. However, in an effort to avoid disputes, Kaiser Cement & Gypsum answers as follows. Kaiser Cement & Gypsum did not supply any special warnings or precautionary information prior to 1966 relating to the small amounts of asbestos in joint compounds, texture paints, and fire-rated mineral fiber boards. Prior to 1966, Kaiser Cement & Gypsum provided normal instructions for using its products. These instructions included standard precautions to be observed in using Portland cement.

22. Did you ever supply any warnings or precautionary information to any consumer or purchaser of products you manufactured or sold, either verbally or in written form after 1966, as to health hazards involved with the use of such products or safety information as to its use?

ANSWER: Kaiser Cement & Gypsum did place the warning notice, attached to the answer to Interrogatory No. 20, on packages of joint compounds, texture paints and plastic cements containing small amounts of asbestos, starting in 1972. This warning notice was used until asbestos was discontinued in these products by 1976.

23. If your answers to Interrogatory No. 21 or No. 22 is affirmative, please provide a copy of such warnings or precautionary information, dates such information was provided and names or persons to whom such inforamtion was provided.

ANSWER: See attached copy of said warning in answers

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to Interrogatories No. 20 and 22. This warning notice was used from 1972 until asbestos was discontinued in these products by 1976. This warning notice on the packages was available to all persons using these products.

24. Do you contend that prolonged exposure to asbesto: dust does not create a health hazard to the human being exposed thereto?

ANSWER: Kaiser Cement & Gypsum is not sufficiently aware of reports and studies of prolonged exposure to asbestos dust to enable it to make any contention concerning whether such prolonged exposure creates a health hazard to the person being exposed thereto.

25. If your answer to Interrogatory No. 24 is affirmative, itemize and fully describe all of the facts, acts, events or conduct or documentary or tangible evidence presently known to you on which you base such contention, and the exact duration of exposure in years upon which such information is based.

ANSWER: Not applicable.

26. Do you contend that prolonged exposure to fiberglas dust does not create a health hazard to the human being exposed thereto?

ANSWER: Kaiser Cement & Gypsum is not sufficiently aware of reports and studies on prolonged exposure to fiberglass dust and thus is not able to make any contention concerning whether such prolonged exposure creates a health hazard to the person being exposed thereto.

27. If your answer to Interrogatory No. 26 is affirmative, itemize and fully describe all of the facts, acts, events

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or conduct or documentary or tangible evidence presently known to you on which you base such contention, and the exact duratio of exposure in years upon which such information is based.

ANSWER: Not applicable.

28. List all tests or studies performed on asbestos or fiberglass products of which you are aware, either by persons employed by your company, independent contractors or private persons, groups or foundations.

ANSWER: To our knowledge, tests have not been performe on Kaiser Cement & Gypsum products containing small amounts of asbestos to evaluate airborne asbestos during mixing and sanding. Tests are currently being made by the State Health Department to evaluate airborne asbestos in residences where ceiling texture was applied several years ago. Other tests have been made on Kaiser Cement & Gypsum products concerning the products flame-resistant qualities and sound reduction qualities.

Except as otherwise answered above, Kaiser Cement & Gypsum objects to this question as burdensome and oppressive.

29. Do you contend that management personnel were not aware of the dangers of prolonged exposure of twenty (20) years or more to asbestos dust during the following years:

(a)	1902 - 1918	Yes.
(b)	1919 - 1930	Yes.
(c)	1931 - 1936	Yes.
(d)	1936 - 1938	Yes.
(e)	1939 - 1942	Yes.
(f)	1942 - 1947	Yes.
(g)	1947 - 1955	Yes.
(h)	1955 - 1960	Yes.
(i)	1969 - 1966	Yes.

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(j) 1966 - 1971. Yes.

(k) 1971 - 1977 No.

30. If your answers to Interrogatory No. 29 were tha management personnel were aware of the dangers during any peric listed in (a) through (k), please list the name of each person received such notice, their title, and what action was taken af such information was received.

ANSWER: Beginning in 1971, Kaiser Cement & Gypsum personnel generally became increasingly aware of dangers of prolonged exposure of twenty years or more to asbestos dust.

31. Please provide the name and address of your prese Director of Safety and Occupational Health.

ANSWER: Mr. R. H. Berby, Manager, Environmental Contr and Energy, Kaiser Cement & Gypsum Corporation, 300 Lakeside Drive, Oakland, California 94666.

32. Were any of your products containing asbestos and, or, fiberglass qualified to meet federal specification numbers LLI-1-535 (1960 and prior) or SS-A-00118-C (1960 and Later)?

ANSWER: Kaiser Cement & Gypsum produced fire-rated mineral fiberboards, containing small amounts of asbestos, meetin federal specification SS-A-00118C. Our fire-rated mineral fiberboards were qualified to meet Type IV C; noise reduction Grades 6, 7 and 8; sound absorption Grades 106, 107, 108 and 109; and flame resistance Class A of Federal Specification SS-A-00118C. We cannot find LLI-1-535 in the index to the federal specifications. None of the Kaiser Cement & Gypsum products containing small amounts of asbestos and, or, fiberglass were qualified to meet federal specification LLI-1-535.

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33. Please list your sources of supply of asbestos fibers which are mined and sold by other suppliers for the years you began selling asbestos products until the year 1976.

ANSWER: Kaiser Cement & Gypsum objects to this interrogatory and each and every other interrogatory using or referri to the undefined term "asbestos products", as it does not believe it ever sold what could be called "asbestos products". Kaiser Cement & Gypsum did sell products that contained very small amoun of asbestos. Kaiser Cement & Gypsum does not wish to be uncooperative and in an effort to avoid dispute, answer this interrogatory as set forth below.

Kaiser Cement & Gypsum purchased asbestos from:

	Approximate %
Johns-Manville	50-55%
Philip Carey	35-40%
Union Carbide	5-10%
Western Chemical & Mfg. Company	2-5%

34. Did you do your own advertising to the public or consumer about your asbestos products?

ANSWER: Kaiser Cement & Gypsum objects to this interrogatory and each and every other interrogatory using or referring to the undefined term "asbestos products", as it does not believe it ever sold what could be called "asbestos products". Kaiser Cement & Gypsum does conduct their own advertising.

35. If the answer to Interrogatory No. 34 above is in the affirmative, please state:

A. Name and address of persons in charge of such advertising for the years from 1935-1970.

ANSWER: Mr. Lee Bryan, Manager of Public Relations, is in charge of Kaiser Cement & Gypsum's advertising. Mr. Bryan has held this position for approximately the past fifteen (15) years.

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B. Whether warranty was oral or written;
C. How it was given to purchasers of these products.

ANSWER: Kaiser Cement & Gypsum sets forth a standard warranty on all sales of their products on the back side of the sales order form. See attached form.

39. Did you, at the time of manufacture or sale of asbestos products, make any disclaimer, limitation, or exclusion of warranty concerning the quality, use or benefits of these products?

ANSWER: Kaiser Cement & Gypsum has only sold products that contained a very small percentage of asbestos. These produc were sold under our standard warranty set forth in our Terms and Conditions of Sale. Such Terms and Conditions of Sale included certain disclaimers, limitations, or exclusions of warranty concerning the quality, use or benefits of these products.

40. If your answer to Interrogatory No. 39 above is in the affirmative, please state:

A. Specific language of disclaimer, limitation, or exclusion of warranty given (or attach copy);

B. Whether the disclaimer, limitation or exclusion was oral or written;

C. How it was given to purchaser of this product;

D. Name and address of each person in custody of specific disclaimer of warranty.

ANSWER: A. A copy of our standard Terms and Conditions of Sale is attached.

B. The disclaimers, limitations or exclusions are in writing.

C. Terms and Conditions of Sale were printed on all customer invoices until January 1, 1976; on all Bills of Lading or notices of shipment to customers from at least December, 1972, through the year 1976; and on all price bulletins to customers starting

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October 1, 1975 through the year 1976.

41. Do you contend that the injuries resulting from t. use of the product resulted from contributory negligence of the plaintiffs or third person?

ANSWER: Kaiser Cement & Gypsum has no knowledge at th time of injuries resulting from the use of its joint compounds, texture paints, plastic cements, fire-rated mineral fiberboards, any other product. Therefore, at this time, Kaiser Cement & Gypsum makes no contention concerning contributory negligence of any plaintiffs or third persons sustaining injuries resulting frc the use of our products.

42. If your answer to Interrogatory No. 41 above is in the affirmative, please state:

A. Each fact of which you have knowledge that supports this allegation;

B. Name and address of each person who has knowledge of facts that support this allegation.

ANSWER: Not applicable.

43. Do you contend that the injuries resulting from the use of the product resulted from an assumption of risk on the part of the plaintiffs?

ANSWER: Kaiser Cement & Gypsum has no knowledge at this time of injuries resulting from the use of joint compounds, texture paints, plastic cements, fire-rated mineral fiberboards, or any other products. Therefore, at this time, Kaiser Cement & Gypsum makes no contention concerning whether any injuries sustained by plaintiff or third person resulted from those persons' assumption of the risk in using our products.

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DRYWALL ACCESSORY PRODUCTS	FINISHING COMPOUND (POLYMERIC BASE)	BULLETIN NO: J 6[illegible] DATE: 3/28/73 PAGE: 1 of 2
APPROVALS: [illegible]	PRODUCING PLANT SEATTLE	CANCELS: J 6[illegible] DATE: 5/20/70

BULLETIN	DESCRIPTION	%	POUNDS	GALLS
220	Whiting	68.63	1400	
251	Mica, WAO PSOK	9.80	200	
260	Sericite, Marvon	14.70	300	
045	Asbestos 7RF 10	3.68	75	
166	Hamaco 277 Gum	1.23	25	
330	Polyvinyl Alcohol	1.23	25	
245	Thickener	.24	5	
453	Preservative	.10	2	
454	Nopco PD 1	.15	3	
164	Glyoxal 80%	.24	5	
	TOTAL	100.00	2040	

MANUFACTURING INSTRUCTIONS:

1. See Process Bulletin No. J 303.
2. Mixing time shall be 8 minutes minimum and 12 minutes maximum.

QUALITY CONTROL:

TM-1	Viscosity, 150 gm cylinder @ 5 cpc 220 gm to 150 cc water	32 - 40 sec
TM-3A	Pond	6 - 7
TM-6	Application	Equal to Standard
TM-7	Workability	Equal to Standard
TM-35	0.25% Boric Acid Test	No firm gel after 1 min.

[illegible] PRODUCTS	COMPOUND	DATE: 3/26/74 PAGE: 1 of 3
APPROVALS:	PRODUCING PLANT Antioch	CANCELS: P-60 DATE: 9/1/68

BULLETIN	DESCRIPTION	%	POUNDS	CALC
076	Calcined Gypsum	25.74	500	
291	Mica, P80F	7.72	150	
330	Polyvinyl Alcohol	.76	15	
045	Asbestos 7RF 10	3.35	65	
325	Polyvinyl Acetate, D702	4.12	80	
245	Thickener	.36	7	
430	Sodium Tripolyphosphate (STPP)	.05	1.0	
453	Preservative	.08	2.5	
320	Dibutyl Phthalate (Dry liquid concentrate)	.38	7.5	
332	Potassium Sulphate, K_2SO_4 (98% - 100 mesh)	.76	10 - 15	
417	Sodium Citrate (98% - 100 mesh)	.05	1.0	
220	Whiting	25.74	500	
106	Cao Cal 50	5.15	100	
076	Calcined Gypsum	25.74	500	
	TOTAL BATCH WEIGHT	100.00	1943 lbs.	

MANUFACTURING INSTRUCTIONS:

1. A thorough clean-out with whiting must be made before and after each production run.
2. Wall Texture or Joint Compounds are to be run immediately after a run of this product.
3. Mixing time shall be 8 minutes minimum and 12 minutes maximum.
4. Special orders of SLOW SET One Day Joint Compound can be made by reducing the amount of potassium sulfate (Bulletin No. 332) from 10 - 15 pounds to 2.5 to 5.0 pounds per batch.

DRYWALL ACCESSORY PRODUCTS	COMPOUND (POLYMERIC BASE)	DATE: 2/22/73 PAGE: 1 of 2
APPROVALS: [illegible]	PRODUCING PLANT DELANCO	CANCELS: J 6418 DATE: 12/22/71

BULLETIN	DESCRIPTION	%	POUNDS	CALC
220	Whiting	60.95	1250	
251	AMC Mica	12.20	250	
260	Gericite (Harvon)	12.20	250	
045	Asbestos 7RF 10	4.88	100	
186	Hydrite Flat D Clay	4.88	100	
166	Hemaco 277	2.44	50	
330	Polyvinyl Alcohol	1.47	30	
244	Thickener	.48	10	
453	Preservative	.07	1.5	
164	Glyoxal	.24	5.0	
454	Hopco-PDI	.15	3.0	
	TOTAL	100.00	2049.5	

MANUFACTURING INSTRUCTIONS:

1. See Process Bulletin J 308.
2. Mixing time shall be 8 minutes minimum and 12 minutes maximum.

QUALITY CONTROL:

TM-1	Viscosity, Brookfield 200 gm to 140 cc water	160,000 - 190,000 cps
TM-3	Bond	9 - 10
TM-6	Application	Equal to Standard
TM-7	Workability	Equal to Standard
TM-35	0.25% Boric Acid Test	No firm gel after 1 min

[illegible] EXTERIOR ACRYLIC PRODUCTS	[illegible] COMPOUND DUAL PURPOSE	BULLETIN NO: J [illegible] DATE: 2/1/72 PAGE: 1 of 2
APPROVALS:	PRODUCING PLANT JACKSONVILLE	CANCELS: J 6[illegible] DATE: 9/20/71

BULLETIN	DESCRIPTION	%	POUNDS	TOTAL
220	Whiting	39.72	2550	
256	Mica 1203	7.79	500	
261	Mica, Marvon CEF 2	6.23	400	
050	Asbestos 7 TF 1	3.89	250	
456	Troysan CMP 100PP	.09	6	
349	Methocel 22d	.31	24	
200	Natrosol	.16	10	
	Water (starting)	25.09	1608	200
470	PVA Emulsion	6.92	444	48
078	Carbitol Solvent	.47	30	3.
	Water (adjust to standard			
	viscosity)	8.43	541.5	65
	TOTAL	100.00	6[illegible]	

MANUFACTURING INSTRUCTIONS:

1. See Process Bulletin J 205.
2. For MIG, add 4 lbs yellow oxide code.

QUALITY CONTROL:

TM-1A	Viscosity, Brookfield	340,000 to [illegible] cps
TM-3	Tape Bond	9 - 11
TM-31	Standard Test Viscosity, Brookfield	190,000 - 21[illegible]

PRODUCT BULLETIN DRYWALL ACCESSORY PRODUCTS	PREMIX JOINTING COMPOUND	BULLETIN NO: J-6[illegible] DATE: 11-20-74 PAGE: 1 of 2
APPROVALS:	PRODUCING PLANT: JACKSONVILLE	CANCELS: J-6[illegible] DATE: 5-16-73

BULLETIN RM-J	DESCRIPTION	%	POUNDS	GALLONS
221	Whiting	61.60	4000	
047	Asbestos SG 210	.92	60	
442	Talc, Nytal 200	1.54	100	
086	Celite 434	1.54	100	
245	Thickener W/C 226	.25	16	
200	Attagel	.08	5	
330	PV Alcohol	.16	10	
493	PVA 10 SRP	.06	4	
470	PVA Emulsion 4.40% on solids	5.11	332	36
	Water	26.95	1750	210 [illegible]
284	Oleic Acid	.37	24	
450	Triethanolamine	.19	12	
267	Odorless Mineral Spirits	1.23	80	12.5
191	Red Oxide Color		0.25	4.2[illegible]
	TOTAL	100.00	6493.25	

MANUFACTURING INSTRUCTIONS:

1. See Process Bulletin J-2.
2. Add Red Oxide color to the water and mix for one minute before addition of other items (RM J-191). Two ounces Red Oxide color per batch.
3. Filling: 4 gal. 45# gross; 5 gal. pail: .60# gross.

QUALITY CONTROL:

TM-1	Viscosity, 150 gm cylinder @ 5 sec.	14 to 16 cm
TM-6	Application	Equal to Standard
TM-7	Workability	Equal to Standard

MANUFACTURING BULLETIN DRYWALL ACCESSORY PRODUCTS	COVER-TEX WALL TEXTURE	BULLETIN NO: J-5305 DATE: 11-20-74 PAGE: 1 of 2
APPROVALS:	PRODUCING PLANT: JACKSONVILLE	CANCELS: J-5305 DATE: 12-9-69

BULLETIN RM-J	DESCRIPTION	%	POUNDS	GALLC
220	Whiting	66.43	1350	
442	Talc (Mytal 220)	19.68	400	
045	Asbestos 7RF10	4.92	100	
446	Titanium Pigment	2.46	50	
056	Clay Wyogel	1.23	25	
436	Starch	2.46	50	
084	Casein	1.23	25	
102	Diammonium Phosphate	0.10	2	
022	Ammonium Biborate	0.10	2	
456	RM-10-SEP	0.15	3	
454	Nopco PD-1	0.15	3	
200	Keltose	0.30	6	
245	Methocel 228	0.30	6	
164	Glyoxal 80%	0.49	10	
	TOTAL	100.00	2032	

MANUFACTURING INSTRUCTIONS:

Mixing time shall be 8 minutes minimum and 12 minutes maximum.

QUALITY CONTROL:

TM-1	Viscosity, Brookfield spindle "A" @ 5 RPM, 240 gm/300 cc water	30,000-35,000 CP
TM-3A	Bond	Equal to Standard
TM-34	Hardness	Equal to Standard

PRODUCTS	CEILING TEXTURE	DATE: 3/20/74 PAGE: 1 of 2
APPROVALS:	PRODUCING PLANT ANTIOCH	CANCELS: J-55C6 DATE: 5/16/73

BULLETIN	DESCRIPTION	%	POUNDS	CALC.
442	Talc, Westal 202	31.18	300	
221	Limestone	31.18	300	
446	Titanium Pigment	2.60	25	
056	Wyojel Bentonite	2.60	25	
035	Asbestos 3Z	1.30	12.5	
065	Bone Glue	.52	5	
084	Casein	1.04	10	
025	Amm. Oxalate	.21	2.0	
026	Amm. Pentaborate	.26	2.5	
506	Zinc Oxide	.05	0.5	
166	Hydrated Lime	.05	0.5	
245	Methocel 228	.31	3.0	
074	Burnt Umber	---	(1 oz.)	
282	Percel Kasma	---	(1 oz.)	
322	Styrene Aggregate	2.60	25	150
167	Hydrite MP Clay	15.60	150	
441	Snocal 50 Clay	10.40	100	
453	Preservative	.10	1.0	
	TOTAL	100.00	962	

MANUFACTURING INSTRUCTIONS:

1. See Process Bulletin No. J-4, except as noted below:
   a. Use a Broughton, paddle type mixer, with no Entoleter after blending.
   b. Charge all items except Styrene aggregate into the mixer. Mix for eight (8) minutes after the Sweco screen has cleared.
   c. With mixer running, add the styrene aggregate. Continue mixing for a minimum of three (3) minutes after completing addition of aggregate.
2. Package 32 pounds minimum per bag.

QUALITY CONTROL:

TM-1B - Viscosity, cc per 100 gm to give 5 - 5-1/2" diameter patty.		110 to 190 cc
TM-3A - Bond		Equal to Stand

PERMANENTE CEMENT COMPANY

PLANT: Permanente | Product Specification | No. P1.G-

Standard Product: Plastic Gun Cement | Effective Date: 1 August, 196

Special Product: | Supercedes No. P1.G-2

FORMULATION(1)	Acceptance Limits (2) Minimum	Acceptance Limits (2) Maximum	Control Values Minimum	Control Values Standard	Control Values Maxim
3.0% Lincoln Clay					
0.1% R.D.A.					
0.1% Airalon					
3.0 to 5.0% Asbestos Fiber	(percent Grd	Asb. Bond 6-0-X	g Co.) lbs.		
3.75% Gypsum					
11.0% Approximate					
Remainder Type I, II, IIIA, V clinker					
SO_3, %	1.30	2.50	1.55	1.75	1.9
Loss on Ignition, %		3.0		1.80	2.1
PHYSICAL REQUIREMENTS					
Fineness, sq.cm./g.				(4500)(3)	
Soundness; exp., %		0.70			
Time of Setting, Gillmore					
Initial, hrs. & min.	1:15				
Final, hrs. & min.		9:00			
Air Content, % by vol.	23.0	31.0	25.0	28.0	30.0
Compressive Strength, psi. 1 Day	550		600	800	1000
Percent plus 48 mesh	1.3	4.0	1.5	2.0	3.0

Supercedes 9/1/66

NOTES: (1) 0.25% $CaCl_2$ may be added in winter months.

(2) All limits set by PCC.

(3) Typical only (with asbestos).

Originated By:	Approved By:	Authorized By:
Process Eng. Dept. 8/8/63 Date	[signature] Tech. Director 8/9/63 Date	[signature] Vice President in Charge of Operations
Reason: L.O.I. increase due to combined water in asbestos	J. C. Kleiber Mgr., Proc. Engr. 8/9/63 Date	Date: 8/13/63

Form 665 (11/62)

PERMANENTE CEMENT COMPANY

PLANT: Permanente — Product Specification — No. Pl.-

Standard Product: Plastic and Plasti-Spred Cement — Effective Date: 1 August, 19(

Special Product: _____ — Supercedes No. Pl.-3

	Acceptance Limits (2)		Control Values		
	Minimum	Maximum	Minimum	Standard	Maxi
FORMULATION(1)					
3.0% Lincoln Clay					
0.1% R.D.A.					
0.1% Airalon					
3.0 to 5.0% Asbestos Fines					
3.75% Gypsum					
11.0% Approximate					
Remainder Type I, II, IILA, V clinker					
SO_3, %	1.30	2.50	1.55	1.75	1.9
Loss on Ign., %		3.0		1.80	2.1(
PHYSICAL REQUIREMENTS					
Fineness, sq.cm./g.				(4400)(3)	
Soundness; exp., %		0.70			
Time of Setting, Gillmore					
Initial, hrs. & min.	1:15				
Final, hrs. & min.		9:00			
Air Content, % by vol.	23.0	31.0	25.0	28.0	30.0
Compressive Strength, psi. 1 Day	650		700	850	1000

Supercedes 9/1/63

NOTES: (1) 0.25% $CaCl_2$ may be added in winter months.

(2) All limits set by PCC.

(3) Typical only.

Originated By:	Approved By:	Authorized By:
Process Eng. Dept. 8/8/63 Date	[signature] Tech. Director 8/9/63 Date	[signature] Vice President in Charge of Operations
Reason: L.O.I. increase due to combined water in asbestos.	J. C. Kleiber Mgr., Proc. Engr. 8/9/63 Date	Date: 8/23/63

Form 665 (11/62)

BOARD BULLETIN INSULATION PRODUCTS ST. HELENS, OREGON	MINERAL FIBERBOARD UL FIRE RATED	BULLETIN NO: DATE: PAGE:	B-10 6/1/ 1 of
APPROVALS		CANCELS: DATE:	B-10 6/22,

	Tile and Lay-In	
	1/2"	5/8"
Mineral Wool, %	59.7	59.7
Sterling Clay, %	11.5	11.5
Asbestos, %	1.6	1.6
Sawdust Fiber, %	1.1	1.1
Starch (BD), %	8.5	8.5
Paracol 1276 (Solid), %	1.0	1.0
Repulped Broke & Planer Dust, %	16.6	16.6
Gendriv 162, %	0.15	0.15
Standard Machine Speed, FPM	21	19
Density, Planed, Lbs/Cu. Ft., (BD)	22-23	22-23
Transverse Cross, Headrig, Lbs., Minimum	25	31
Hardness, Planed, Lbs., Minimum	33	33
Shrinkage at 1400 F., %, Maximum	3	3
Incombustibles, %, Minimum	85	85
Water Absorption, % By Volume, Maximum	5	5
Sag at 1700°F., %, Maximum	0.100	0.100
Headrig Thickness, Inches	.630-.660	.740-.77
Planed Thickness, Inches	.525-.530	.650-.6[illegible]
Calender Thickness, Inches		
Individual	.490-.500	.615-.62
Tape Measure, 10 pieces	4-7/8 - 5	6-3/16 - 6-1/4
Weight, Headrig, Lbs/MSF	1210	1420
Weight, Finished, Lbs/MSF	990	1225

PRODUCT BULLETIN GYPSUM PRODUCTS	GYPSUM WALLBOARD 1/2" NULL-A-FIRE (UL) TYPE X	BULLETIN NO: B-4 DATE: 10/8/64 PAGE: 1 of 2 CANCELS: B-4 DATE: 3/9/64

PRODUCING PLANTS: Long Beach, Antioch, Seattle, Rosario, and Jacksonville

Core Formula: (Lbs./M sq.ft.)		ALL PLANTS (Except as noted)
Board Stucco	(S-1 and S-2)	1500 - 1700
Glass Fiber	(B-G-1)	4.7 - 5.1
Paper Fiber	(B-G-1)	0 - 10.0
Starch	(RM-B-11)	7 - 10
Perlite - Null-A-Fire (c.f./M)	(B-G-1)	0 - 5.5
Soap	(B-G-1)	0.2 - 1.5 (Long Beach, Antioch & Jacksonville 0.2 - 0.7
Lignin	(B-G-1)	0 - 3.0
Ground Gypsum	(B-G-1)	60 maximum
Potassium Sulfate (Rosario - 2.0 maximum)	(B-G-1)	5.0 "
Rehydrated Gypsum	(B-G-1)	0 - 30
Hydrated Lime	(RM-P-3)	0 - 0.75
Retarder (Rosario only)	(B-G-1)	0 - 0.5

Note: Formula shall conform to U.L. Code No. 3543

Paper Liners - Manila and Greyback paper

OPERATING SPECIFICATIONS: (Refer to Process Bulletin B-G-2 for General Specifications.)

1. Slurry Setting Time, minutes	2 - 4
2. Wet Slurry Weight (lbs./c.f.)	77 - 85
3. Wet Compressive Strength, psi	350 - 500

PRODUCT BULLETIN GYPSUM PRODUCTS	GYPSUM WALLBOARD 1/2" NULL-A-FIRE (UL)	BULLETIN NO: B-4 DATE: 1/22/62 PAGE: 2 of 2 CANCELS: B-4 DATE: 10/20/60

PRODUCT SPECIFICATIONS: (Refer to Product Bulletin B-G-4 for General Specifications)

Wet Weight (lbs./M sq.ft.)	3000 - 3300
Dry Weight (lbs./M sq.ft.)	2120 - 2250 - Average 2175
Evaporation Loss (lbs./M sq.ft.)	900 - 1100
Thickness - Average (inch)	.480 - .505
" - Individual reading (inch)	± 0.10 from average
*Edge Hardness at Take-off (lbs.)	8.0 minimum
End Peel after Sawing (inch)	1/8 maximum
Flexural Strength, minimum	
Across grain (lbs.)	150
Parallel "	45
Deflection at Break, minimum	
Across grain (inch)	0.25
Parallel "	0.15
Punch Test (lbs.)	1100 - 1800
Twist Test, maximum split	
Face (inch)	3/4
Back "	3/4
Hammer Loss Test, decigrams	
Individual Test, maximum	5
Bond at High Humidity, maximum peel	
Face (inch)	1/2
Back "	1/2
Face printing shall read - 1/2" NULL-A-FIRE TYPE X	1/2" NULL-A-FIRE TYPE X

*Denotes additional charges.

PRODUCT BULLETIN GYPSUM PRODUCTS	GYPSUM WALLBOARD 5/8" NULL-A-FIRE (UL) * TYPE X	BULLETIN NO: B-6 DATE: 4/29/ PAGE: 1 of 3 CANCELS: B-6 DATE: 8/8/6

PRODUCING PLANTS: LONG BEACH, ANTIOCH, SEATTLE, ROSARIO

Core Formula: (Lbs./M sq.ft.)		ALL PLANTS (Except as noted)	ANTIOCH
Board Stucco	(S-1 and S-2)	1900 - 2150 (Rosario - 1960 - 2175)	1850 - 2150
Glass Fiber	(B-G-1)	6.0 - 6.5	6.0 - 6.5
Paper Fiber	(B-G-1)	0 - 12.0	None
Starch	(RM-B-11)	9.0 - 12.5	9.0 - 15.0
Perlite Null-A-Fire (c.f./M)	(B-G-1)	6.0 - 7.0	6.0 - 7.0
*Soap	(B-G-1)	0.3 - 1.5 (Rosario - 0.6 - 2.0)	2.0 - 3.5
Lignin	(B-G-1)	0 - 4.0	0 - 4.0
Ground Gypsum	(B-G-1)	60.0 maximum (Rosario - None)	130.0 maximum
Rehydrated Gypsum	(B-G-1)	0 - 24	None
Potassium Sulfate	(B-G-1)	2.0 maximum	2.0 maximum
Retarder (Rosario only)	(B-G-1)	0.75 "	--
Hydrated Lime	(RM-P-3)	0 - 1.13	0 - 1.13

*Note 1. Formula shall conform to U.L. Code No. 3543.
*Note 2. At Antioch, Hercules soap is preferred. Ultrawet usage range - 0.2 - 0.6.

Paper Liners

1. Manila and greyback paper.

2. For 5/8" x 24" face board for Moveable Partitions, use following width paper:

Manila - 27 inches

Greyback - 23-1/4 inches

*Denotes additions and changes.

General Liability

Oct 1964 TO Present	100/300/300 BI 100/100 PI
Truck Insurance Exchange	EFF 1-30-71
# 350-40-00	500,000. CSL
	EFF 10-1-77
	500,000 CSL 1,000,000 CSL

Umbrella

Jan 1, 1968 TO Jan 30-1971

Lloyds	LUS 1066A	1,000,000 XS RL
Lloyds	LUS 1067A	9,000,000 XS Above
Lloyds	LUS 1068A	10,000,000 XS Above

Jan 30-1971 – Jan 30-74

C V Starr	411-4919	5,000,000 XS Prim
C V Starr	411 4969	15,000,000 XS Above
Lloyds (C.V. Starr)	12.0053	7,000,000. } XS Above
C.V. Starr	411 4970	3,000,000 }

CAUTION

CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST

BREATHING ASBESTOS DUST

MAY CAUSE SERIOUS BODILY HARM

Above label is in compliance with Federal Regulations relating to Occupational, Safety, and Health Standards, 29 CFR 1910.93a.

Cement Plastering

f all architectural exterior finish-
g materials, only portland
ent plaster offers the flexibility
render to perfection every
iance and subtlety between the
tricate modeling required to
store San Francisco's Palace of
ne Arts, shown on the cover,
id to create the dramatic inter-
'ays of light and shadow which
stinguish the contemporary
uctures pictured on this page.
nd, of all plastering materials,
nly portland cement plasters offer
ie durability and hardness
quired to withstand the rigors of
terior exposures . . . the
ipability to survive repeated
/cles of wetting and drying, freeze
nd thaw . . . the ability to ward
ff hard knocks and abuse.

Here is a material which can be
xtured to any depth, finished flat,
nbedded with tiny mineral flakes
r coarse marble chips, integrally
olored or painted. Arched,
urved, rounded or angular,
oth or rough planes pose no
problems when plastering with today's improved plastic cement plaster. This is truly a versatile medium. Of equal importance, it is economical to use, incombustible, vermin-proof and a natural insulator.

With Kaiser Permanente Plastic and Plastic Gun Cements, contractors can bypass the troublesome and often unreliable measuring and mixing chores of the past. Kaiser Permanente Plastic Cements are pre-mixed to controlled formulas that take the guesswork out of on-the-job cement plaster mixing. Only clean sand and water need be added. This assures uniformity of mix, batch after batch, job after job.

Experienced contractors are readily available. The techniques they use are outlined on the following pages so that you may find this "Guide To Cement Plastering" a useful tool when you specify Kaiser Permanente Plastic or Plastic Gun Cements.

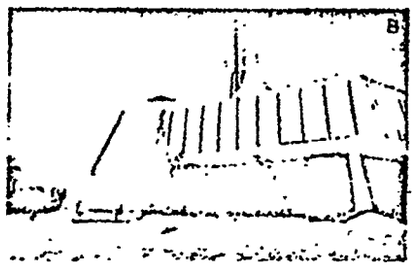
er: Palace of Fine Arts, San Francisco.
neral Contractor: M & K
chitect: William Gladstone Merchant & Assoc. and Welton Becket & Assoc.

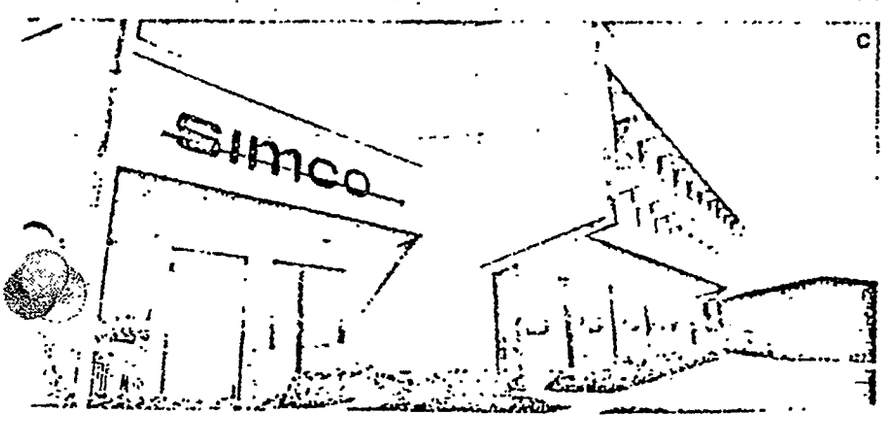
525 West Remington Building, Sunnyvale.
ner: Nick Tikvica.
neral Contractor: Oscar Liebert.
chitect: W. L. Carmen.

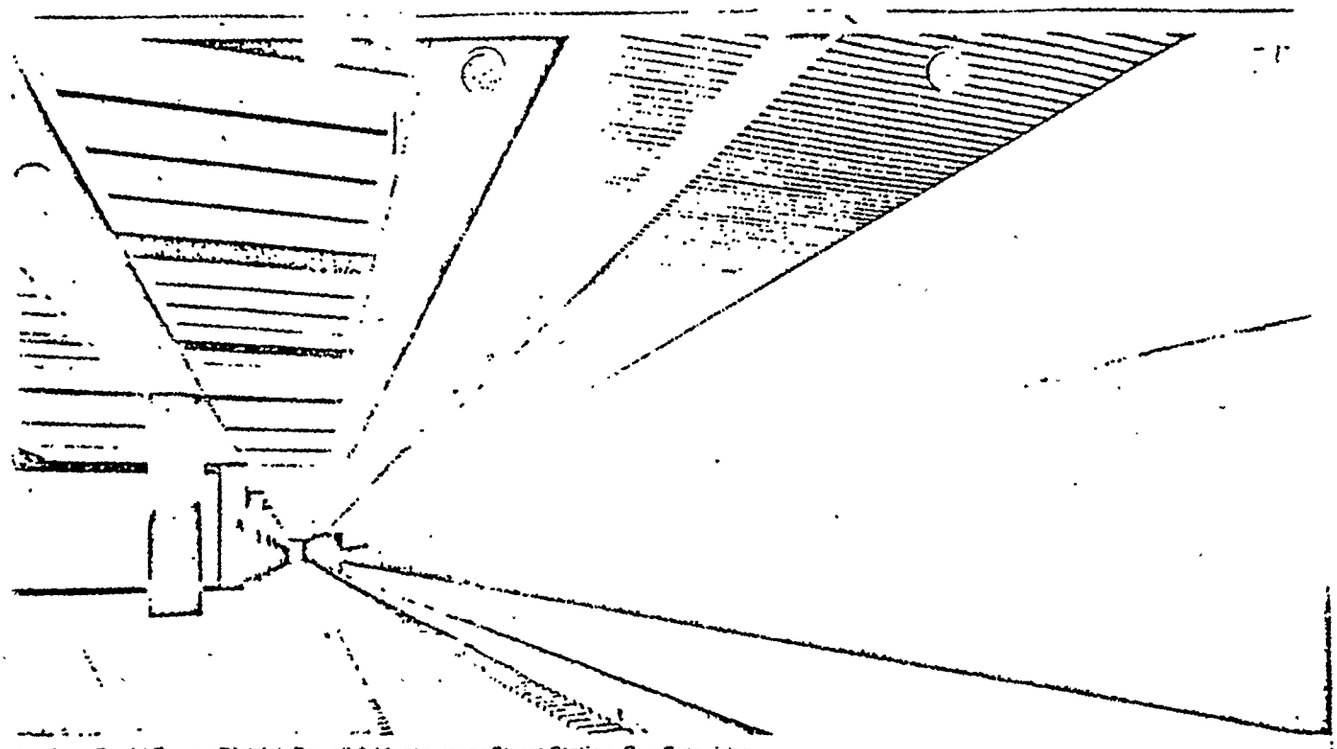
B. Valley Church, Cupertino.
General Contractor: Arthur Brothers.
Architect: Hawley & Peterson.

C. Pacific Maintenance Company Building, San Jose.
Owner: Giuleo Chiani.
General Contractor: G. C. Holvick & Company.
Architect: M. O'Hearn.









Bay Area Rapid Transit District, Powell & Montgomery Street Station, San Francisco.
General Contractor: Rothschild & Raffin.
Architect: Skidmore, Owens & Merrill.

ease of application

General Kaiser Permanente Plastic and Plastic Gun Cements can be applied with equal ease over metal lath, paper-backed wire fabric, concrete or concrete masonry; and, when proper preparations are made, over hard- or medium-burned brick and clay tile. Usually applied in two or three coats, plastic cement plasters produce non-combustible, vermin-proof walls with excellent insulating properties. Commercial stucco may be specified as the finish coat.

Kaiser Permanente Plastic Cement is applied manually with a trowel, and Plastic Gun Cement is applied with a plastering machine. Both have had plasticizing and air entraining additives accurately proportioned and blended with portland cement at Kaiser Cement plants to eliminate the labor and cost of additional weighing and mixing at the job-site. Plastic Gun Cement always contains a lubricating agent (asbestos) to facilitate pumping and to speed up job-site production. The plasticity and adhesive

KAISER CEMENT

A guide to cement plastering

Kaiser Permanente plastic and plastic gun cements.

FINISHES
portland cement plaster

FINISHES
portland cement plast

APPLICATION

Use a commercial spray unit, including air compressor, pump, connecting hoses and spray gun with nozzle. Adjust the fluid and air flow so as to apply an even coat of texture to a maximum of 1/8" thickness over the entire ceiling surface. Depending on method of application and desired pattern, each bag of K-Spray will decorate from 200 to 300 square feet of ceiling surface. For a heavy texture application, apply in two separate coats, allowing adequate drying time between coats. In addition, surfaces of unequal suction may require two coat application for best results.

Dry the sprayed texture surface rapidly. Maintain a minimum of 55° F. with adequate ventilation in the structure during application and drying.

NOTE

Do not use in areas of high humidity or dampness.

Use a respirator and eye protection during spray application.

TECHNICAL BULLETIN

KAISER GYPSUM

DATE: October 1973 BULLETIN NO. 5703-A

WALLBOARD ACCESSORIES - K-SPRAY CEILING TEXTURE

DESCRIPTION

Kaiser K-Spray Ceiling Texture is a specially formulated dry powder which, when mixed with water, will provide a textured pattern and final white decoration for ceilings. The texture has been formulated for easy mixing, maximum coverage, excellent hide and white color, and easy application.

USES

Kaiser K-Spray is a premixed lightweight aggregate spray texture for use over gypsum wallboard or interior concrete ceilings. The polystyrene aggregate is proportioned to provide a coarse texture final ceiling finish. Designed for use with large capacity pumping systems which have continuous agitation in paste hoppers to prevent aggregate flotation. K-Spray is shipped in sacks, each sack containing a net weight of 32 pounds of K-Spray. A 1/8" thick texture will provide coverage of approximately 250 square feet of surface per sack.

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

Gypsum Wallboard

Prepare gypsum wallboard surfaces with Kaiser Joint and Finishing Compounds as directed. All joints and nail spots should be clean and dry prior to application of K-Spray Ceiling Texture. For best results, apply an alkyd type sealer over entire surface and allow to dry before texture application. A full coverage sealer application is recommended when K-Spray is applied during cold or humid weather conditions which will cause excessively slow drying of texture.

Concrete

All surfaces must be clean, dry, and sound with no chalkiness or efflorescence. Prime exposed wire and metal with rust preventive primer. New concrete ceilings should be aged at least 60 days before application of texture. Remove dirt, grease, and form oil. Irregularities in the concrete surfaces should be removed or filled with one or more applications of Kaiser Joint Compound allowing the first coat to dry before a second application. For best results, apply an alkyd type sealer over entire surface and allow to dry before texture application.

MIXING

Mix Kaiser K-Spray Ceiling Texture with clean, cool water only and do not contaminate with other materials. Add 32-pound sack of K-Spray to 5 to 6 gallons of water. Mix to a thick paste by slowly adding the dry powder to the water with continuous stirring with a mechanical mixer until the paste is lump-free. Remix after 15 minutes and adjust the paste to desired consistency. Do not over-thin. Mix only enough material that will be used within 24 hours. Keep paste covered when not being used and avoid exposure to direct sunlight or temperature in excess of 90° F. Remix immediately before use, or use continuous agitation in paste hopper during spray application.

Hand Application

A wide range of different texture effects can be obtained with Cover-Tex by texturing the painted surfaces with one or more of the following tools:

Brush, roller, sponge, whisk broom, wadded cloth, or a scrub brush

A celluloid triangle may be lightly drawn over a textured area to flatten high spots and produce a brocade effect. A sand finish can be obtained by adding a few handfuls of white silica sand to the mixed material.

DECORATION

Allow Cover-Tex to dry thoroughly before decorating.

TECHNICAL BULLETIN

KAISER GYPSUM

DATE: October 1973 BULLETIN NO. 5707

WALLBOARD ACCESSORIES - COVER-TEX WALL TEXTURE

DESCRIPTION

Kaiser Cover-Tex Wall Texture is a specially formulated dry powder which, when mixed with water, will provide various texture patterns when applied over gypsum wallboard surfaces. The texture is formulated for easy mixing, maximum coverage, excellent hide, easy application, and a white surface as a base for final decoration of walls or ceilings.

USES

Kaiser Cover-Tex is a dry powder texture designed for either hand or spray application for use as a base or final texture on gypsum wallboard walls or ceilings. It is particularly formulated to have good spraying qualities for both "fog" application and for heavy "splatter" patterns, with no sag or running of the texture. Color matched so that when used as a spray wall texture, it will match K-Spray Ceiling Texture.

A wide range of textures may be obtained by hand applying with a brush, sponge, roller, whisk broom, scrub brush, wadded paper, or cloth. A trowel dragged over a stippled area to knock down high spots will produce a brocade effect. Cover-Tex is shipped in 25- or 50-pound sacks. Depending upon the type and thickness of texture, a good approximation of coverage is 20 square feet per pound of dry powder.

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

All joints, fasteners, and irregularities shall be finished with Kaiser Joint Treatment Products; and the wallboard surface shall be clean and dry. For best results, seal all surfaces with a primer-sealer before applying the texture to equalize the suction between the wallboard and the joint treatment.

MIXING

Mix Cover-Tex using 2-1/2 gallons of clean, cool water per 25-pound sack. Add powder to water with continuous stirring with a mechanical mixer until the paste is smooth and lump-free. After letting stand for 15 to 30 minutes, remix and adjust paste to desired consistency. Mix only sufficient material for use within 24 hours and keep paste covered when not being used. Avoid exposure to direct sunlight or temperatures above 90° F.

White sand may be added to Cover-Tex when a sand finish is desired.

APPLICATION

Maintain a minimum of 55° F. with adequate ventilation in the structure during application and drying.

Spray Application

Use a commercial spray unit including an air compressor, pump, connecting hoses, and spray gun with nozzle. Adjust air pressure on spray gun to produce type of textured finish desired, such as a thin coat (fog spray), stipple finish or orange peel finish. Apply an even coat of texture material by moving the nozzle at a uniform rate across the surface. Spray ceilings first and then sidewalls. Use respirator and eye protection during spray application.

Pre-Mix Topping Compound (PMT)

A factory premixed polyvinyl acetate-base paste specially formulated for topping and finishing of wallboard joints. This material combines good workability features with minimum shrinkage and easy sanding. Use in temperatures of 55° to 110° F. Available in 4-gallon cartons. For the two coats, a 4-gallon carton will cover the joints on approximately 600 sq. ft. of wallboard surface.

Three-Purpose Pre-Mix (PM3)

An all-purpose polyvinyl acetate-base factory premixed paste for general use in taping, topping, and finishing joints in wallboard surfaces and for applying a texture to the wallboard surface. Ideally suited for general use for limited applications for the nonprofessional, the product is available in one-gallon plastic buckets. Use in temperatures from 55° F. to 85° F.

Wallboard Joint Tape

A specially manufactured high quality paper joint reinforcing tape provided with tiny perforations, chamfered and slit edges. Provides easy bedding with joint compounds and resists joint cracks, blisters, edge cracking, wrinkling, and ridging of the joints. Available in 75, 250, and 500 ft. rolls. A 500 ft. roll will cover the joints on approximately 1,000 sq. ft. of wallboard surface.

APPLICATION

Mixing - Mix dry powders with cool, clean water only. Use approximately 2 gallons of water per 25 pounds of dry compound. Add powder to water with continuous stirring with a mechanical mixer until the paste is smooth and lump-free. After letting stand for approximately 30 minutes, remix and adjust paste to desired consistency. Mix only sufficient material for use within 24 hours (3 hours for One-Day Joint Compound) and keep covered when not being used.

Premixed pastes generally require no mixing; however, they may be thinned with water and mechanically mixed to desired uniformity and consistency. Premix compounds may be stored for 6 months without souring under normal warehousing conditions. Avoid exposure to direct sunlight and temperatures in excess of 90° F. Prevent paste from freezing.

Application - Since there are a variety of joint treatment products, a number of methods of application are available. A particular method should be selected depending upon the type of job and prevailing climatic conditions.

Method 1 - (Basic application using Joint Compound (JC), Tape, and Finishing Compound (FC) (Average temperature 55° - 85° F.) Spread Joint Compound evenly over the joint and press the tape slowly into the compound. Press firmly for adhesion and elimination of entrained air. This material may be used for either hand application with a broadknife or with a mechanical tool, such as Ames tools. Allow the Joint Compound to dry for 24 to 72 hours, depending upon weather conditions. Following this, apply a coat of Finishing Compound to a width of 8" to 10" over the joint. Allow this to dry and follow with a second coat of Finishing Compound 10" to 12" wide. Allow to thoroughly dry and sand lightly to provide a smooth surface. The Finishing Compound may also be applied by mechanical means, such as with Ames tools. Nailheads and corner beads may be covered in a similar fashion, except that only one finish coat is normally required over corner beads where an additional texture is to be used.

Method 2 - (Basic method - use Three-Purpose Compound (JFT) and tape for entire process) (Average temperature 55°-85°F.) Apply Three-Purpose Compound for all three coats using same techniques as described in Method 1.

Method 3 - (Basic method using Dual-Purpose Pre-Mix (PMW) and tape) (Use in temperatures 55° - 110° F.) Apply Dual-Purpose Pre-Mix (PMW) for all three coats in manner similar to that described in Method 1.

Method 4 - (Alternate method for cold climates using Joint Compound (JC), tape, and Dual-Purpose Pre-Mix (PMG) or Pre-Mix Topping Compound (PMT) (Average temperature 45° - 110° F.) Apply Joint Compound (JC), and tape as in Method 1 for the first coat and use Dual-Purpose Pre-Mix (PMG) or Pre-Mix Topping Compound (PMT) for the final two coats for colder climates.

Method 5 - (Fast method using One-Day Joint Compound (JOD), tape, and Finishing Compound (FC) (Average temperature 55° - 85° F.) Apply a coat of One-Day Joint Compound and embed tape similar to Method 1. Allow to harden (approximately three hours) and apply second coat of One-Day Joint Compound approximately 8" to 10" wide and allow to harden for another three hours. The final coat, 10" to 12" wide, is then applied using Finishing Compound. After this finishing coat has dried, sand lightly for a smooth surface. Nailheads and metal corner beads may be treated in the same manner.

Method 6 - (Fast method using One-Day Joint Compound (JOD), tape, and Dual-Purpose Pre-Mix (PMW) or Pre-Mix Topping Compound (PMT) (Average temperatures 55° - 110° F.) Similar application as Method 5 except use Dual-Purpose Pre-Mix (PMW) or Pre-Mix Topping Compound (PMT) as final finishing coat.

A description of possible field problems and suggested —

TECHNICAL BULLETIN

KAISER GYPSUM

DATE: March 1972 BULLETIN NO. 5701-B

WALLBOARD ACCESSORIES - JOINT TREATMENT PRODUCTS DESCRIPTION, USE, AND APPLICATION

DESCRIPTION

Kaiser Joint Treatment Products are a group of dry powders (field mixed) and premixed paste used in conjunction with reinforcing tape to conceal the joints in gypsum wallboard surfaces.

TYPES AND USES

Several types of materials are available to provide various methods of joint concealment.

Joint Compound (JC)

A dry powder adhesive, formulated with high strength and adhesive qualities, whose primary use is to bond the reinforcing paper tape to the wallboard at the joints. Maintain minimum temperatures of 55° F. and maximum of approximately 85° F. during application. The material may be used for either hand or mechanical application. Twenty-five pounds of dry powder will cover the joints on approximately 1,000 sq. ft. of wallboard surface. This material may also be used to fill surface irregularities, conceal nailheads, cover corner beads, and as a surface texture. Available in 25- and 10-pound bags; 5-pound boxes; and in 18- and 5-pound boxes in combination with wallboard tape.

Finishing Compound (FC)

A specially formulated dry powder topping compound designed primarily for use as a second and third coat application in conjunction with Joint Compound. This material provides a high quality finish that is easy to sand and has good workability for both hand and mechanical application. Maintain a minimum temperature of 55° F; maximum temperature is unlimited except open time decreases rapidly. For the two coats, approximately 50 pounds of material is required to cover the joints on 1,000 sq. ft. of wallboard surface. Available in 25-pound bags.

One-Day Joint Compound (JOD)

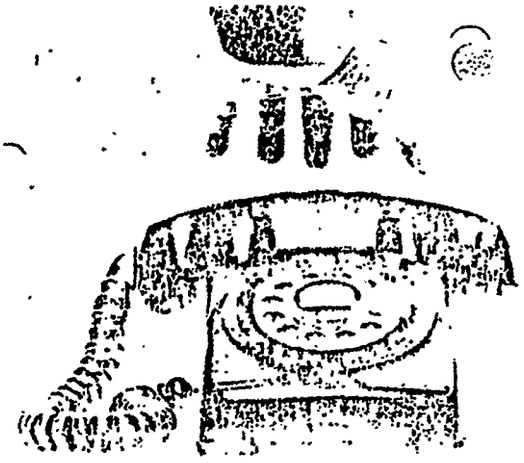
A specially formulated bedding and topping compound which allows complete finishing of wallboard joints within a single day. It hardens in approximately one hour (Fast Set type) or three hours (Slow Set type) so that when used as the first two coats, it allows time to apply the Finishing Compound to complete the job in one day. Use under same temperature conditions as Joint Compound. Two coats of this material will provide coverage for approximately 1,000 sq. ft. with 80 pounds of material. Available in 25-pound bags.

Three-Purpose Compound (JFT)

An all-purpose dry powder compound which is used for taping, topping, and finishing of wallboard joints. In addition, it can be used for texturing wallboard surfaces. This material blends the major features for adhesion, strength, and finishing quality contained in other types of joint or finishing compounds. Use in temperatures from 55° F. to 85° F. An excellent all-purpose type of product supplied in 25-pound bags. Three-coat joint treatment will require approximately 75 pounds to cover wallboard joints on 1,000 sq. ft. of wallboard surface.

Dual-Purpose Pre-Mix (PMW)

A factory premixed polyvinyl acetate-base paste specially formulated for taping, topping, and finishing in preparation for final decoration. Designed for use in temperatures from 55° F. to 110° F. Available in 5-gallon cans or 4- or 5-gallon cartons. Ten gallons will cover the joints on approximately 1,000 sq. ft. of wallboard surface.



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KAISER GYPSUM

KAISER-GYPSUM COMPANY, INC.
KAISER CENTER, 300 LAKESIDE DRIVE, OAKLAND, CALIFORNIA 94604

35

KAISER GYPSUM

NULL-A-FIRE

5/8" GYPSUM WALLBOARD

ONE HOUR FIRE RESISTANCE

[illegible] ASTM [illegible]

- NON-LOAD BEARING PARTITIONS
- LOAD BEARING PARTITIONS
- CEILING CONSTRUCTION

A PRODUCT OF KAISER GYPSUM COMPANY, INC. LOS ANGELES

NO. 2

BUILDING CODE ACCEPTANCE

ICBO Research Report No. 2075 covers Designs 23 - 1 hr. and Design 88 - 2 hr., for use of the lay-in panels with Kaiser Fire-Rated Grid.

MAINTENANCE

Kaiser Fire-Rated Acoustical Products may be easily cleaned with mild soap and water, wallpaper cleaner, or a vacuum cleaner. They also may be repainted a number of times using a brush, or spray gun, without loss of sound absorption, provided reasonable care is taken to keep the holes open.

LIMITATIONS

Kaiser Fire-Rated Acoustical Products are not recommended for use in areas where they will be subject to impact or abuse, or in areas of excessive or continuing high humidity.

SOUND ABSORPTION

High sound absorption values tested in accordance with ASTM Method of Test for Sound Absorption of Acoustical Materials in Reverberation Rooms Designation C 423-60T.

Pattern	Thick-ness	Mounting	Sound Absorption Coefficients 125 cps	250 cps	500 cps	1000 cps	2000 cps	4000 cps	NRC Spec. Range
Swirl Pin-Punched Lay-In	1/2"	7	.27	.32	.54	.78	.66	.49	.55 - .65
	5/8"	7	.33	.43	.66	.84	.68	.56	.65 - .75
Fissured Lay-In	1/2"	7	.23	.30	.51	.79	.78	.74	.55 - .65
	5/8"	7	.24	.34	.61	.87	.85	.82	.65 - .75
Non-directional Fissured Lay-In	5/8"	7	.24	.32	.53	.81	.84	.76	.65 - .75
Fissured Tile	5/8"	7	.35	.36	.63	.74	.64	.61	.50 - .60
Swirl Pin-Punched Tile	5/8"	7	.35	.36	.68	.67	.47	.32	.50 - .60

Mounting No. 7 - Mechanically mounted on metal supports - 16" air space.

SOUND ATTENUATION

When used in suspended ceilings with ceiling-height partitions, Kaiser Fire-Rated Acoustical Products provide a high sound transmission loss value when tested in accordance with Acoustical Materials Association Tentative Method of Test AMA-1-11 "Ceiling Sound Transmission Test by the Two-Room Method."

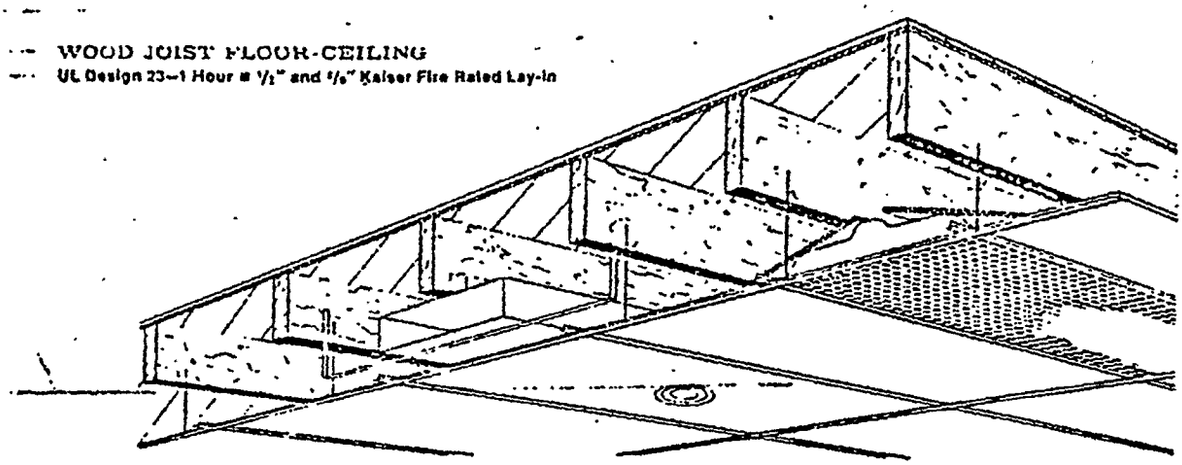
Pattern	Thick-ness	Standard Mounting	Attenuation Factors - Decibels - AMA 1-11 - 1963 125 cps	175 cps	250 cps	350 cps	500 cps	700 cps	1000 cps	1400 cps	2000 cps	2800 cps	4000 cps	Ceiling STC
Fissured Tile	5/8"	CCF	32	36	35	38	40	42	49	55	57	53	48	40 - 44

Pattern	Thick-ness	Standard Mounting	Attenuation Factors - Decibels - AMA 1-11 - 1967 125 cps	160 cps	200 cps	250 cps	315 cps	400 cps	500 cps	630 cps	800 cps	1000 cps	1250 cps	1600 cps	2000 cps	2500 cps	3150 cps	4000 cps	Ceiling STC
Swirl Pin-Punched Lay-In	1/2"	CE (H)	32	40	38	29	29	33	32	32	33	36	40	46	51	55	56	56	35 - 39
	5/8"	CE (H)	33	42	40	31	31	35	34	36	38	41	46	52	55	57	57	57	40 - 44
Fissured Lay-In	1/2"	CE (H)	29	38	37	29	28	31	31	33	33	36	39	43	47	51	54	56	35 - 39
	5/8"	CE (H)	31	40	37	30	30	33	33	35	36	39	43	47	51	53	53	52	35 - 39

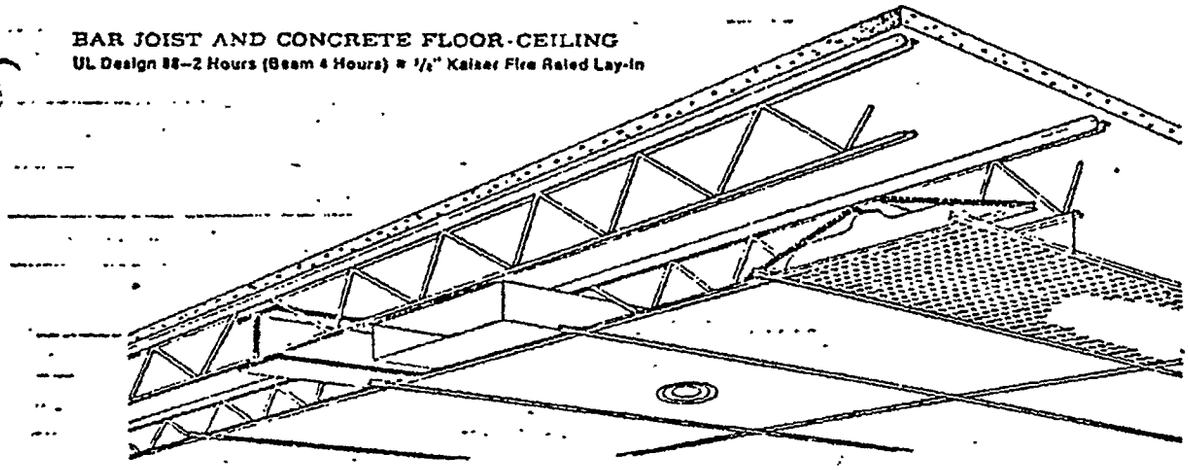
APPLICATION RECOMMENDATIONS

Kaiser Fire-Rated Acoustical Products must be mechanically mounted on metal supports, as detailed in the following, to produce the listed fire ratings. Kaiser Fire-Rated Grid may be used with the lay-in panels in Designs 23 - 1 hour and 88 - 2 hours. See Technical Bulletin 273 for details of this grid.

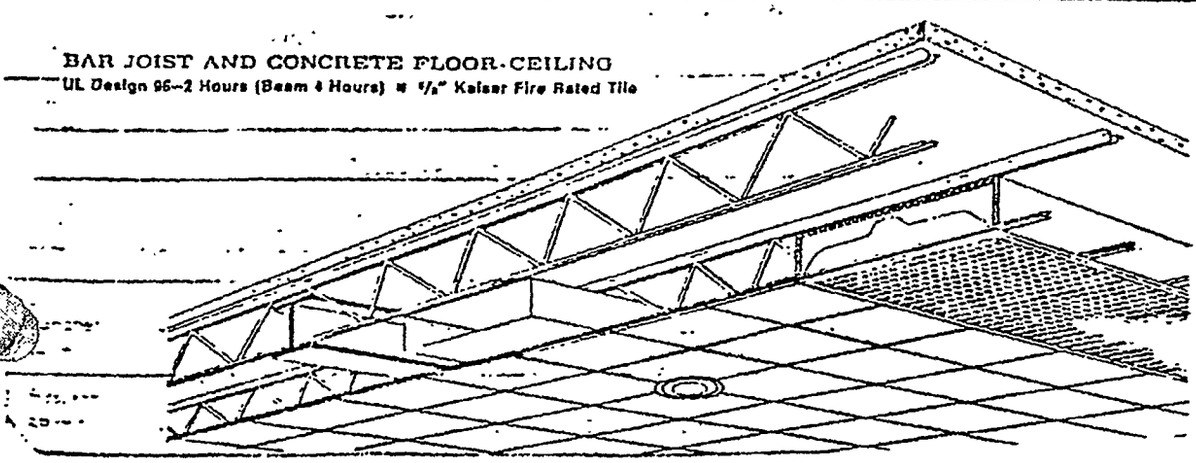
WOOD JOIST FLOOR-CEILING
UL Design 23—1 Hour # 1/2" and 5/8" Kaiser Fire Rated Lay-in



BAR JOIST AND CONCRETE FLOOR-CEILING
UL Design 88—2 Hours (Beam 4 Hours) # 5/8" Kaiser Fire Rated Lay-in



BAR JOIST AND CONCRETE FLOOR-CEILING
UL Design 96—2 Hours (Beam 4 Hours) # 5/8" Kaiser Fire Rated Tile



NULL-A-FIRE
1 HOUR FIRE RESISTANT

5/8" KAISER GYPSUM WALLBOARD

STANDARD SPECIFICATIONS

1. SCOPE OF WORK

This contractor to provide all labor, material, equipment and appliances necessary for installing the wallboard shown on drawings, schedules, or as herein specified as follows:

(a) Walls
(b) Ceilings
(c) Joint treatment (omit if not general practice in locality)

2. MATERIALS

Shall be Kaiser Gypsum NULL-A-FIRE Wallboard as manufactured by Kaiser Gypsum Company in accordance with ASTM Specification C-36 and Federal Specification SS-W-51a, 5/8" thick, at locations shown on drawings and/or schedules.

Nails shall be as follows: 6d, 13½ ga., cement coated, flathead, 1⅞" long.

Material for treating joints and concealing nailheads shall be Kaiser Joint Cement System.

3. APPLICATION

This contractor to check all work upon which he is to apply wallboard, and report to Contractor any work not true, plumb and not complying with local ordinances or true intent of drawings and specifications.

Kaiser Gypsum NULL-A-FIRE panels in lengths as long as possible shall be applied with back toward framing members and nailed directly to studs and joists. Starting with ceilings first, panels shall be applied with long edges perpendicular to framing members. All panels shall be in moderate contact and butted loosely together with none forced into place. All mill or cut ends shall be supported on framing members and joints shall be staggered. Joints on opposite sides of partitions shall not fall on the same stud. Where possible, full length panels shall extend above and below openings. Avoid "piecing."

Nails shall be spaced 5" to 7" apart on ceilings and 6" to 8" apart on walls, and not less than ⅜" from edges and ends of wallboard. Drive nails "home" with heads slightly below the surface, taking care not to break the face paper. Do not use a nail set.

Joints and nail heads shall be treated with Kaiser Joint Cement System mixed and applied in accordance with manufacturer's directions.

All external angles shall be protected by the application of a taped metal cornerbead reinfo.cement. Internal angles shall be reinforced with Kaiser Joint Cement System.

Kaiser Gypsum NULL-A-FIRE 5/8" wallboard is manufactured under constant inspection by Underwriters' Laboratories and subject to approval in accordance with Underwriters' Label Service.

SPECIFICATION SUMMARY & DESCRIPTIVE DATA

TYPE	THICKNESS	WIDTH	LENGTH	EDGE	PACKAGING	APPROX. LBS. PER M.S.F.	RECOMMENDED SUPPORT SPACING	NAILS USED	NAIL SPACING	NAILS: LBS. PER M.S.F.	JOINT TREATMENT	DECORATION
NULL-A-FIRE	5/8"	4'	6'-12'	Tapered Recessed Beveled or Square	2 sheets per bundle	2,700	16" or 24" o.c.	6d c.c.	ceilings: 5"-7" walls: 6"-8"	7	Kaiser Joint Cement System	Paint or Wallpaper

KAISER NULL-A-FIRE WALLBOARD

A superior gypsum wallboard officially rated as *one-hour fire resistant* for:

1. Non-load bearing partitions
2. Load bearing partitions
3. Floor-ceiling construction

in wood frame construction, as determined by official testing laboratories in accordance with A.S.T.M. Designation E119, Standard for Fire Tests of Building Construction and Materials.

Superior because the core of this wallboard contains highly fire resistant gypsum in combination with:

Glass Fibers—incombustible strands acting in much the same manner as reinforcing mesh in a concrete slab, as a "bonding mesh" adding strength and toughness to the board, making it easier to handle in the warehouse and on the job.

Expanded Perlite—acting as an insulator or fire retardant, absorbing thermal "shock," at the same time contributing to a reduction of weight of the core, and improving nailability.

Balanced quantities of these ingredients together with the inherent fire resistant characteristics of gypsum form a highly effective fire barrier insuring safety with economy of construction.

Superior in all respects, including flexural strength, to the A.S.T.M. requirements for wallboard of this type, based on official tests noted above.

FIREPROOF • ECONO...

WOOD JOIST FLOOR-CEILING ASSEMBLY



Underwriters' Laboratories, Inc., Design 23—1 Hour, 5/8" or 3/4" Kaiser Fire Rated Acoustical Lay-In Board.

ELEMENTS OF THE CONSTRUCTION:

1. FINISH FLOOR—1" x 4" T&G.
2. BUILDING PAPER—Commercial red rosin, 0.010 thick
3. SUB-FLOOR—1" x 6" T&G laid diagonally.
4. BRIDGING—1" x 3" wood.
5. WOOD JOISTS—2" x 10" Douglas Fir, Standard grade (1200 psi) at 16" o.c.
6. HANGER WIRE—No. 12 galvanized steel wire gauge attached to wood joists or supplemental 2" x 4" hanger wire supports. Wire spaced 48" o.c. for main beams and 24" o.c. for cross tees
7. STEEL SUSPENSION SYSTEM—Listed by Underwriters' Laboratories, Inc. in the Building Materials List, Guide No. 40 U18 18. Main runners, 12 ft. long, spaced 48" o.c. Cross tees, 4 ft. long spaced 24" o.c., and 2 ft. long spaced parallel to main beams.
8. ACOUSTICAL LAY-IN BOARD—5/8" or 3/4" by 24" x 48" (nominal) Kaiser Fire Rated Acoustical Lay-In Panels

Border units supported by No. 24 gauge painted steel border angles, 1" x 3/4".

9. HOLD-DOWN CLIPS—5/8" x 3/4" deep; .023" electrogalvanized steel. Two clips uniformly spaced (one per 24" length of panel) on each cross tee
10. PENETRATIONS—

(a) Recessed-Type Electric Fixture—Listed by Underwriters' Laboratories, Inc., in the Electrical Construction Materials List, Guide No. 120 12.18, 2 ft. wide by 4 ft. long Fixture housing to be of steel. Spacing not to exceed 16 sq. ft. per 100 sq. ft. of ceiling area.

(b) Mineral Wool Batt Light Fixture Cover—Listed by Underwriters' Laboratories, Inc. in the Building Materials List, Guide No. 40 U18 2. Two 2" x 48" x 1 1/4" pieces, cut from 21" x 48" x 1 1/4" batts, laid along the long dimensions of the fixture and against the suspension member supporting the fixture. Two 17" x 48" x 1 1/4" pieces, cut from 21" x 48" x 1 1/4" batts slit for the hanger wires at the midspan of the fixture, placed to rest on each side of the fixture and the adjacent tile, and wire-tied to the hanger wires at the corners of the fixture. Two 4 1/2" x 24" x 1 1/4" pieces, cut from 21" x 48" x 1 1/4" batts placed on top of the tile at each end of the fixture and wire-tied to the hanger wires at the corners of the fixtures

(c) Air Duct—Duct opening not over 111 sq. in. per 100 sq. ft. of ceiling area. Outside surface of duct throat protected with 1/4 inch of asbestos paper. Duct supported by 1 1/2 inch No. 16 gauge steel channels bolted to 1 1/2 inch wide No. 21 gauge steel straps which are secured to wood joists with two 16d nails at each side at least 4 inches above lower chords of joists. Duct supports spaced 40 inches o.c. Installed so that return air blower system shuts down automatically in fire.

(d) Damper—15 inch square, No. 14 gauge protected with 1/4 inch of asbestos paper on both faces. Held open with fusible link, listed by U.L., Inc., Guide No. 120 UO.

BAR JOIST AND CONCRETE FLOOR-CEILING ASSEMBLY

Underwriters' Laboratories, Inc., Design 88—2 Hours (Beam 4 Hours), 5/8" Kaiser Fire Rated Acoustical Lay-In Board.

ELEMENTS OF THE CONSTRUCTION:

1. SAND AND GRAVEL CONCRETE—1:2 2/3:3 mix, 3400 psi strength.
2. WIRE FABRIC—No. 10 steel wire gauge, 6" x 6" mesh
3. METAL LATH—Expanded, 3/8" ribbed, 3.4 lb. attached to joists with No. 18 gauge S.W.G. galvanized wire, spaced 9" o.c. and at edge overlap between joists.
4. BRIDGING—1/2" diameter steel bridging bars.
5. STEEL JOISTS—8" Type 8J2, spaced 24" o.c. and welded to supports.
6. STEEL BEAMS—8" Type 8WF31.
7. HANGER WIRE—No. 12 galvanized steel wire gauge attached to steel joists or supplemental 1 1/2" cold rolled channel, spaced 48" o.c. on main beams.
8. STEEL SUSPENSION SYSTEM—Listed by U.L., Inc., in the Building Materials List, Guide No. 40 U18 18. Main runners, 8 ft. long spaced 24" o.c., cross tees 2 ft. long spaced 48" o.c.
9. ACOUSTICAL LAY-IN BOARD—5/8" x 24" x 48" or 24" x 24" (nominal) Kaiser Fire Rated Acoustical Lay-In Panels

Border units supported by No. 24 gauge painted steel border angles, 1" x 3/4".

10. HOLD-DOWN CLIPS—15/16" x 1 1/4" x 1/2", 27 gauge electrogalvanized steel. Two clips uniformly spaced (one per 24" length of panel) on each cross tee.
11. PENETRATIONS—

(a) Recessed-Type Electric Fixture—Listed by Underwriters' Laboratories, Inc. in the Electrical Construction Materials List, Guide No. 120 12.18, 2 ft. wide by 4 ft. long Fixture housing to be of steel. Spacing not to exceed 24 sq. ft. per 100 sq. ft. of ceiling area

(b) Mineral Wool Batt Light Fixture Cover—Listed by Underwriters' Laboratories, Inc. in the Building Materials List, Guide No. 40 U18 2. Two 2" x 48" x 1 1/4" pieces, cut from 21" x 48" x 1 1/4" batts, laid along the long dimensions of the fixture and against the suspension member supporting the fixture. Two 17" x 48" x 1 1/4" pieces, cut from 21" x 48" x 1 1/4" batts, slit for the hanger wires at the midspan of the fixture, placed to rest on each side of the fixture and the adjacent tile, and wire-tied to the hanger wires at the corners of the fixture. Two 4 1/2" x 24" x 1 1/4" pieces, cut from 21" x 48" x 1 1/4" batts placed on top of the tile at each end of the fixture and wire-tied to the hanger wires at the corners of the fixtures.

(c) Air Duct—Duct opening not over 70 sq. in. per 100 sq. ft. of ceiling area. Outside surface of duct throat protected with 1/16 inch of asbestos paper. Duct supported by 1 1/2 inch No. 16 gauge steel channels. Installed so that return air blower systems shuts down automatically in fire

(d) Damper—15 inch square, No. 14 gauge protected with 1/16 inch of asbestos paper on both faces. Held open with fusible link, listed by U.L., Inc., Guide No. 120 UO.

BAR JOIST AND CONCRETE-CEILING ASSEMBLY

Underwriters' Laboratories, Inc., Design 95—2 Hours (Beam 4 Hours), 5/8" Kaiser Fire Rated Acoustical Tile.

ELEMENTS OF THE CONSTRUCTION:

1. SAND AND GRAVEL CONCRETE—1 2 1/2:3 1/2 mix, 3900 psi strength.
2. WIRE FABRIC—No. 10 steel wire gauge, 6" x 6" mesh
3. METAL LATH—Expanded, 3/8" ribbed, 3.4 lb. attached to joists with No. 18 gauge S.W.G. galvanized wire, spaced 9" o.c. and at edge overlap between joists
4. BRIDGING—1/2" diameter steel bridging bars
5. STEEL JOISTS—8" Type 8J2 spaced 24" o.c. and welded to supports.
6. STEEL BEAMS—8" Type 8WF31.
7. HANGER WIRE—No. 12 S.W.G. galvanized wire, wire-tied to lower chord of joists, spaced not over 48" o.c. on cold-rolled channels and at all four corners of light fixtures.
8. COLD-ROLLED CHANNELS—No. 16 gauge cold-rolled steel, 1 1/2" deep channels spaced not over 48" o.c. and along the long sides of each light fixture. Additional channels arranged to form a frame around air-duct outlets
9. Z RUNNERS—No. 26 gauge steel, 1 1/2" deep with 1/2" and 7/8" flanges, spaced 12" o.c. Attached to cold-rolled channels with "Z" runner clips. Where runners are interrupted at lights their ends are attached to cold-rolled channels with "Z" runner clips, and with the upper flanges and upper half of webs at the ends cut back 1/4" with the lower portion of web and entire lower flange remaining. "Z" runner splices made of No. 26 gauge electrogalvanized steel, 5" long, 1 1/2" high, and 1/4" deep. End clearances 1/16" at splices and 1/16" at walls. Short pieces of "Z" runners are placed in lateral joints at ends of light-fixture boxes and air-duct outlet, secured with "Z" runner clips
10. Z RUNNER CLIPS—No. 12 S.W.G. galvanized wire, placed over cold-rolled channels and fastened to "Z" runners. Maximum spacing 48" o.c.
11. ACOUSTICAL TILE—5/8" x 12" x 12" T&G Kaiser Fire Rated Acoustical Tile

Border tile supported by No. 24 gauge painted-steel wall channel, 1 1/4" deep with 7/8" legs, along with one spring clip between tile and border channel, made of: No. 26 gauge spring steel, 5/8" deep, 1 1/16" wide, and 4" long. One spring clip must be used with each border tile

12. PENETRATIONS—

(a) Recessed-Type Electrical Fixture—Listed by Underwriters' Laboratories, Inc. in the Building Materials List, Guide No. 120 12.18 Fixtures of 2' x 4' size with steel housing or enclosure and hardware, with spacing not to exceed 16 sq. ft. per 100 sq. ft. of ceiling area.

(b) Light-Fixture Yoke—Two per light fixture assembly, spaced 36" o.c. No. 16 gauge steel channel each supplied with two steel studs 4" long to hold light-fixture protection boxes and light fixtures. Attached to cold-rolled channels with No. 18 gauge steel clamps bolted to brackets

(c) Light-Fixture Protection Boxes—Made of 5/8" thick Kaiser Fire Rated Accessory Board. Each box consists of two side pieces, 4 3/8" by 50 5/8", two end pieces 4 3/8" by 23 7/8", and one top piece 25 1/8" x 50 5/8". Assembled with 8d common nails spaced 6" o.c. on top of the box and 3" o.c. at the sides

(d) Air Duct—Duct opening not over 55 sq. in. per 100 sq. ft. of ceiling area. Outside surface of duct throat protected with 5/8" thick asbestos paper. Duct supported by 1 1/2" cold-rolled channels bolted to No. 20 gauge galvanized-steel duct hangers bent over lower chord of joists and bolted, spacing not over 36" o.c.

(e) Damper—15" square, No. 12 gauge steel protected with 5/8" thick asbestos paper on both surfaces

TECHNICAL BULLETIN

KAISER GYPSUM

DATE: September 1969 BULLETIN NO. 226-D

KAISER FIRE-RATED ACOUSTICAL PRODUCTS

DESCRIPTION

Kaiser Fire-Rated Acoustical Products are manufactured by a new wet felting process using mineral wool fibers felted together and pressed into a rigid acoustical panel. Acoustical products made with this process provide a product which offers an excellent resistance to fire when used in certain floor-ceiling assemblies. In addition, the product has an excellent resistance to sound transmission, has high sound absorption, is incombustible, and is a strong, dimensionally stable acoustical product. The exposed painted surface is provided with a choice of patterns for decorative finish.

PATTERNS

Swirl Pin-Punched	Random punched perforated, approximately 1700 holes per sq. ft., 0.070" and 0.040" diameters.
Fissured	Fissured and random pin-punching.
Non-Directional Fissured	Non-directional fissured, perforated

SPECIFICATIONS

Pattern	Federal Specification
Swirl Pin-Punched	SS-S-118a, Type III, Pattern c, Class 25
Fissured	SS-S-118a, Type III, Pattern d, Class 25
Non-Directional Fissured	SS-S-118a, Type III, Pattern d, Class 25

STANDARD THICKNESSES, SIZES, AND JOINTS - All patterns

1/2" x 24" x 48" (nominal) - square edges
5/8" x 24" x 48" (nominal) - square edges
5/8" x 24" x 24" (nominal) - square edges
5/8" x 12" x 12" - T&G edges

FINISH

White washable, Class A (incombustible)

LIGHT REFLECTION

Class a (over .75)

FIRE HAZARD CLASSIFICATION (FLAME SPREAD)

Underwriters' Laboratories, Inc.

Flame Spread	20
Fuel Contributed	20
Smoke Developed	5

FIRE RESISTANCE CLASSIFICATION

Underwriters' Laboratories, Inc.

1/2" Lay-In	Design 23 - 1 hr.
5/8" Lay-In	Design 23 - 1 hr. and Design 88 - 2 hr.
5/8" Tile	Design 96 - 2 hr.

KAISER GYPSUM COMPANY, INC.

TERMS AND CONDITIONS OF SALE

In the event Buyer's purchase order states terms additional to or different from these Terms and Conditions of Sale, then Seller's acknowledgment in accordance with the terms hereof shall be deemed a notification of objection to such additional and/or different terms, or in the event such purchase order expressly limits acceptance to the terms of the Seller's acknowledgment in accordance with the terms hereof shall be deemed a rejection of Buyer's offer to purchase, and in either event Seller's acknowledgment shall not constitute an offer which may be accepted only in accordance with its terms and without modification, additions or alterations. **THE FAILURE OF BUYER TO DELIVER NOTIFICATION OF OBJECTION TO THESE TERMS AND CONDITIONS OF SALE WITHIN A REASONABLE TIME SHALL BE DEEMED AN ACCEPTANCE THEREOF AND A CONTRACT SHALL BE FORMED ONLY UPON SUCH TERMS AND CONDITIONS OF SALE.**

1. PRICE

The prices of Seller's goods are subject to change without notice. Prices are subject to the Seller's prices in effect at the time of shipment. Purchaser shall pay the net sales price as billed. Unless otherwise agreed in writing, all taxes and assessments will be paid by the Purchaser.

2. TERMS OF PAYMENT

Cash discount will be applicable only if taken within the time stated thereon, and payment will then be net 30 days. Otherwise the net amount of invoices will be payable by the Purchaser on or before the last day of the month in which such discount would have been allowed. Interest on the face of the invoice shall accrue at the rate of one percent (1%) PER ANNUM on the unpaid balance of the invoice from the date of shipment to the Purchaser. Seller reserves the right to require payment in advance or satisfactory guarantee that payments will be promptly paid when due. If Purchaser fails to promptly make the payment in accordance with any other terms of sale, Seller shall have the right to cancel this purchase order. Seller's failure to exercise the rights hereunder upon any default by Purchaser shall not constitute a waiver of such rights.

3. CREDIT

All orders are subject to approval and acceptance by the General Sales Office of the Seller. Seller reserves the right to reject any orders, as well as the right to refuse any shipment. If at any time, in the sole discretion of Seller, the financial responsibility of the Purchaser is unsatisfactory, Seller reserves the right to require payment in advance or satisfactory guarantee that payments will be promptly paid when due. If Purchaser fails to promptly make the payment in accordance with any other terms of sale, Seller shall have the right to cancel this purchase order. Seller's failure to exercise the rights hereunder upon any default by Purchaser shall not constitute a waiver of such rights. Any cancellation hereunder shall not relieve Purchaser of any liability for damages Seller may be entitled to make.

4. DELIVERY AND SHIPMENT

A. All [illegible] are subject to acceptance by Seller at its office in [illegible]. Unless otherwise agreed to in writing, delivery will be made F.O.B. point of shipment and such delivery shall constitute delivery to the Purchaser for purposes of passing title and risk of loss to the Purchaser. Seller reserves a purchase money security interest in the goods sold until payment in full by Purchaser of the sale price. Upon default of payment, Seller shall have the rights of a secured party under the California Uniform Commercial Code. Purchaser agrees to execute such financing statements and other documents as Seller may require to perfect a security interest in the goods sold hereunder. Purchaser authorizes Seller to file this agreement or a carbon, photographic or other reproduction thereof as a financing statement in any jurisdiction Seller deems appropriate. Purchaser shall pay all costs of filing such financing statements and all costs incurred in connection with the preparation, filing and recording thereof. Seller may require payment in advance or guarantee of payment satisfactory to Seller before making any shipment. Seller may withhold shipment if Purchaser is in default in payment of any amount owed to Seller. Seller may, at its option, make partial shipments and bill Purchaser for each shipment. Seller may delay delivery or refuse to deliver without liability for damages or cancellation of the order if Purchaser fails to furnish shipping instructions, assurances or adequate packing when requested

SHORT FORM STRAIGHT BILL OF LADING
COPY - NOT NEGOTIABLE

TERMS AND CONDITIONS OF SALE BETWEEN KAISER GYPSUM COMP INC AND PURCHASER NAMED BELOW GOVERN TRANSFER OF TITL THE BELOW DESCRIBED GOODS

Company the property described be and upon said vessel as above destination of the property specified in or on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any of said property that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Straight Bill of Lading set forth in (1) in Uniform Freight Classification in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff, if this is a motor carrier shipment. Agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____. (1) or the applicable contract of transportation between the consignee and the carrier if this is a shipment to a person interested in and under agreement with the consignee. SHIPPER HEREBY CERTIFIES THAT HE IS FAMILIAR WITH ALL THE TERMS AND CONDITIONS OF THE SAID BILL OF LADING INCLUDING THOSE ON THE BACK THEREOF, SET FORTH IN THE CLASSIFICATION OR TARIFF WHICH GOVERNS THE TRANSPORTATION OF THIS SHIPMENT, AND WHERE APPLICABLE, THE SAID TERMS AND CONDITIONS ARE HEREBY AGREED TO BY THE SHIPPER AND ACCEPTED FOR HIMSELF AND HIS ASSIGNS. PROVIDED HOWEVER THAT IF THIS IS A SHIPMENT BY A CARRIER OR MODE OF TRANSPORTATION WHICH DOES NOT PARTICIPATE IN SAID CLASSIFICATIONS OR TARIFFS THE APPLICABLE CONTRACT OF TRANSPORTATION GOVERNS THE RIGHTS OF THE PARTIES THERETO. DO NOT DIVERT WITHOUT CONSENT OF SHIPPER

SHIPPER'S NO. - 9696

KAISER GYPSUM COMPANY, INC.

CONSIGNOR: KAISER GYPSUM COMPANY, INC.

☐ COLLECT ☐ TO BE PREPAID

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to consignee without recourse on the consignor, the consignor shall sign the following statement: Carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

CC	ORDER DATE	REQUESTED SHIP DATE	SHIPPED FROM									
01	CUSTOMER NO	OUR ORDER NO	TRK/EQUIP	CARRIER	REQ LD	TRT	BAG ST 00	SHEET 00	DATE SHIPPED	FREIGHT RATE	TOTAL WEIGHT	DUNNAGE MIN WT

SOLD TO	02	SHIP TO	01	TAX CODE	
ADDRESS	03	ADDRESS	10	PMA REFERENCE	
CITY & STATE	04	CITY & STATE			
05 CAR INITIAL & CAR NO	06 ROUTING CARRIER	DELIVERING CARRIER			
07 JOB NAME AND ADDRESS OR LOT NO	08 CUSTOMER ORDER NO	POT			
CREDIT APPROVED By _____ Date _____ No	PREPAID	COLLECT	PICKUP	BILLED BY	CHECKED BY	DEVIATION #

CC	PRODUCT CODE NBR	COLOR	COMM'L	DESCRIPTION OF PRODUCT	QUANTITY SHIPPED CONTAINER NUMBER/TYPES	QUANTITY/UNIT
20						
23						
3						
32						
44						
50						
56						
68						
74						

FULFILLMENT OF YOUR ORDER WILL BE UNDERTAKEN ONLY UNDER THE TERMS AND CONDITIONS ON THE REVERSE SIDE HEREOF.

☐ Volume Incentive Requested MRT 2 Item 292

THIS SHIPMENT IS COMPLETELY PREPAID

CARRIER WEIGHT IS _____ LBS. SUBJECT TO VERIFICATION UNDER ONE OF THE FOLLOWING AGREEMENTS: ICSB A 4978 MW 18SA 14193 MW 31140 SWB 22125

SHIPPER PREPAID

BY _____ DATE _____

TRANSFERS _____

COVERING MATERIAL _____

SL & C DUNNAGE _____

TOTAL _____

FREE DUNNAGE _____

TOTAL _____

FRT. RATE

NO PKGS	KIND OF PKG DESC OF ARTICLES SPEC MARKS & EXCEPTIONS	WT (Subject to Corr.)	CLS/RT
	PCS GYP WALLBOARD		
	PLASTERBOARD JT COMPOUND		
	GYPSUM WALLBOARD TEXTURING COMPOUND		
	PCS - 1/5 STUDDING PCS — FURRING CHANNELS		
	PCS ALUM - CHANNELS		
	BOARDS OR SHEETS FLAT GROUND WOOD PULP FIBER NOT PLASTERED WITH RESIN NOT EXCEEDING 10% BY WEIGHT COMPRESSED		
	BOARDS OR SHEETS FLAT GROUND WOOD ETC. WITH NOT MORE THAN 2 COATS OF PAINT		
	WALLBOARD		
	BOARDS - BUILDING		
	EXPANSION JOINT - WOOD FIBER BASE		

KAISER GYPSUM COMPANY, INC.
Shipper, Per _____ Agent _____ Per _____ DATE _____ TIME _____

Permanent post office address of shipper: 300 LAKESIDE DR OAKLAND, CALIF 94666

NOTICE