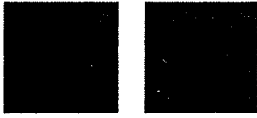


PE

PROGRESSIVE ENGINEERING, INC.
Architectural -- Engineering -- Review Agency -- Surveying -- Testing



58640 STATE ROAD 15
GOSHEN, INDIANA 46528
Telephone (219) 533-0337
Fax (219) 533-9736

ALPHA SYSTEMS, INC.

PEI Standard No. 93-7
Test on Alphaseal 5200

11/17/99

This test report contains twenty-two (22) pages, including the cover sheet. Any additions to, alterations of, or unauthorized use of excerpts from this test are expressly forbidden.

99-1902

1. TITLE

PEI Standard No. 93-7 Performance Requirements for Fastening Gypsum Board to Wood Framing using a Two-Part Polyurethane Adhesive.

This test procedure was written in response to a request from BOCA International for a test procedure that would closely represent ASTM C 557, but would allow the use of a two-part polyurethane adhesive and its unique application to construct the test samples.

The test procedure is based on engineering principles, previously confirmed by testing, testing experience using a two-part polyurethane adhesive and practical usage of a two-part polyurethane adhesive.

2. ADHESIVE MANUFACTURER

Alpha Systems, Inc.
5120 Beck Drive
Elkhart, IN 46516

3. ADHESIVE DESCRIPTION

Alphaseal 5200 - A two-part polyurethane adhesive. Applied in a two-part spray using A-ISO and B-Polyol. Applied with a 1 to 1 ratio.

4. TESTING ORGANIZATION

Progressive Engineering, Inc.
58640 State Road 15
Goshen, IN 46528

5. TESTING PERSONNEL

Test Engineer	-	Evor F. Johns, P.E.
Director of Testing	-	Greg A. Weeden
Assistant Director of Testing	-	Michelle Morris

6. TEST RESULTS

Cure time before moving

All test samples constructed in the following tests used a time of 5 minutes from the time the samples were sprayed until they were moved.

TEST I - Shear strength 24 hrs.

Samples with zero gap
Average shear load reached = 99.07 PSI

Samples with 1/8" gap
Average shear load reached = 155.84 PSI

See attached data sheets for individual loads reached and mode of failure.

TEST II - Shear strength 48 hrs.

Samples with zero gap
Average shear load reached = 94.96 PSI

Samples with 1/8" gap
Average shear load reached = 92.12 PSI

See attached data sheets for individual loads reached and mode of failure.

TEST III - Shear strength after cyclic laboratory exposure

Samples with zero gap
Average shear load reached = 107.20 PSI

TEST IV - Static load in shear

Five (5) shear samples withstood 40 lbs. in an environment of 73.4°F. and 50% relative humidity for 24 hours without failure.

Five (5) shear samples withstood 25 lbs. in an environment of 100°F. and 58% relative humidity for 24 hours without failure.

TEST V - Tensile strength

24 hour test with zero gap
Average tensile load reached = 30.72 PSI

24 hour test with 1/16" gap
Average tensile load reached = 30.28 PSI

48 hour test with zero gap
Average tensile load reached = 76.40 PSI

See attached data sheets for individual loads reached and mode of failure.

TEST VI - Bridging characteristics

24 hour test with 1/4" gap

Average shear load reached = 186.85 PSI

TEST VII - Storage temperature range

Approximately five (5) gallons of A-ISO and five (5) gallons of B-Polyol were cycled at 60°F for 24 hours then immediately to 100°F. for 24 hours. This cycle was completed three (3) times consecutively. The two (2) materials were then brought to room temperature and shear samples were sprayed.

Samples with zero gap

Average shear load reached = 117.44 PSI

Samples with 1/8" gap

Average shear load reached = 122.79 PSI

TEST VIII - Creep test

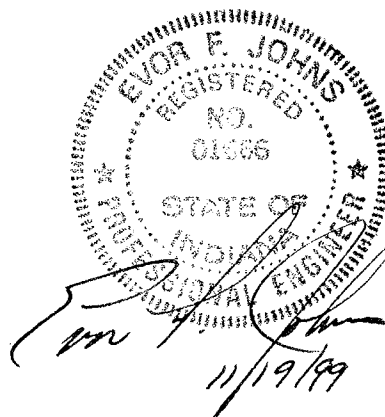
The test samples maintained at 158°F. for 500 hours. See attached data sheet.

7. CONTAINER LABELING

Attached is a copy of the labels used on the containers of A-ISO and B-Polyol for Alphaseal 5200 showing the required information.

8. CONCLUSION

Alphaseal 5200 meets the requirements of PEI Standard No. 93-7.



Progressive Engineering, Inc.
Shear Strength Test

24 hrs. after application
Zero Gap

Sample No.	Ultimate Load Reached	Approx. Coverage on wood	Approx. Coverage on gypsum	Mode Of Failure	Failed PSI Wood	Failed PSI Gypsum	Percent From Ave.
1	600	7.5	7.5	Gypsum paper failure		80.00	2.56%
2	570	3.75	7.5	Gypsum paper failure		76.00	-2.56%
3	390	5	10	Alphaseal 5200 from wood	78.00		-21.27%
4	340	2.5	10	Alphaseal 5200 from wood	136.00		37.28%
5	416	5	5	Alphaseal 5200 from wood	83.20		-16.02%

Ave. = **99.07** **78.00**

24 hrs. after application
1/8" Gap

Sample No.	Ultimate Load Reached	Approx. Coverage on wood	Approx. Coverage on gypsum	Mode Of Failure	Failed PSI Wood	Failed PSI Gypsum	Percent From Ave.
1	564	5	5	Gypsum paper failure	112.80		-27.62%
2	568	5	5	Gypsum paper failure	113.60		-27.10%
3	600	5	5	Gypsum paper failure	120.00		-23.00%
4	510	2.5	2.5	Gypsum paper failure	204.00		30.90%
5	572	2.5	5	Gypsum paper failure	228.80		46.82%

Ave. = **155.84**

24 hrs. after application
1/4" Gap

Sample No.	Ultimate Load Reached	Approx. Coverage on wood	Approx. Coverage on gypsum	Mode Of Failure	Failed PSI Wood	Failed PSI Gypsum	Percent From Ave.
1	946	10	5	Gypsum paper failure		189.20	1.26%
2	860	12.5	5	Gypsum paper failure		172.00	-7.95%
3	1054	10	5	Gypsum paper failure		210.80	12.82%
4	1044	12.5	6.25	Gypsum paper failure		167.04	-10.60%
5	976	10	5	Gypsum paper failure		195.20	4.47%

Ave. = **186.85**

Progressive Engineering, Inc.
Shear Strength Test

48 hrs. after application
Zero Gap

Sample No.	Ultimate Load Reached	Approx. Coverage on wood	Approx. Coverage on gypsum	Mode Of Failure	Failed PS Wood	Failed PS Gypsum	Percent From Ave.
1	570	2.5	7.5	Gypsum paper failure		76.00	-19.97%
2	620	2.5	5	Gypsum paper failure		124.00	30.58%
3	548	2.5	5	Gypsum paper failure		109.60	15.42%
4	552	2.5	7.5	Gypsum paper failure		73.60	-22.49%
5	458	2.5	5	Gypsum paper failure		91.60	-3.54%

Ave. = **94.96**

48 hrs. after application
1/8" Gap

Sample No.	Ultimate Load Reached	Approx. Coverage on wood	Approx. Coverage on gypsum	Mode Of Failure	Failed PS Wood	Failed PS Gypsum	Percent From Ave.
1	590	2.5	5	Gypsum paper failure		118.00	28.09%
2	540	2.5	5	Gypsum paper failure		108.00	17.24%
3	486	2.5	5	Gypsum paper failure		97.20	5.51%
4	525	2.5	7.5	Gypsum paper failure		70.00	-24.01%
5	674	5	10	Gypsum paper failure		67.40	-26.83%

Ave. = **92.12**

Progressive Engineering, Inc.
Shear Strength Test

Cyclic Laboratory Exposure
Zero Gap

Sample No.	Ultimate Load Reached	Approx. Coverage on wood	Approx. Coverage on gypsum	Mode Of Failure	Failed PSI Wood	Failed PSI Gypsum	Percent From Ave.
1	480	7.5	7.5	Alphaseal from wood	64.00		-40.30%
2	450	5	10	Alphaseal from wood	90.00		-16.04%
3	594	3.75	7.5	Alphaseal from gypsum		79.20	0.00%
4	474	5	7.5	Alphaseal from wood	94.80		-11.57%
5	675	3.75	7.5	Alphaseal from wood	180.00		67.91%

Ave. =

107.20

79.20

Progressive Engineering, Inc.
Test 4 - Static Load in Shear

Static Load

40Lbs. For 24 hrs. @ 73 deg. and 50% humidity

Sample No.

- 1 Held load for 24 hours without failure
- 2 Held load for 24 hours without failure
- 3 Held load for 24 hours without failure
- 4 Held load for 24 hours without failure
- 5 Held load for 24 hours without failure

25Lbs. For 24 hrs. @ 100 deg. and 50% humidity

Sample No.

- 1 Held load for 24 hours without failure
- 2 Held load for 24 hours without failure
- 3 Held load for 24 hours without failure
- 4 Held load for 24 hours without failure
- 5 Held load for 24 hours without failure

Progressive Engineering, Inc.
Tensile Pull Test

24 hrs. after application
Zero Gap

Sample No.	Ultimate Load Reached	Approx. Coverage on wood	Approx. Coverage on gypsum	Mode Of Failure	Failed PS Wood	Failed PS Gypsum	Percent From Ave.
1	142	2.5	5	Gypsum paper failure	28.40		-7.55%
2	152	2.5	5	Gypsum paper failure	30.40		-1.04%
3	180	2.5	5	Gypsum paper failure	36.00		17.19%
4	138	2.5	5	Gypsum paper failure	27.60		-10.16%
5	156	2.5	5	Gypsum paper failure	31.20		1.56%

Ave. = **30.72**

24 hrs. after application
1/16" Gap

Sample No.	Ultimate Load Reached	Approx. Coverage on wood	Approx. Coverage on gypsum	Mode Of Failure	Failed PS Wood	Failed PS Gypsum	Percent From Ave.
1	186	5	7.5	Alphaseal 5200 from wood	24.80		-18.10%
2	144	5	7.5	Alphaseal 5200 from wood	19.20		-36.51%
3	178	5	5	Alphaseal 5200 from wood	35.60		17.57%
4	191	5	5	Alphaseal 5200 from wood	38.20		26.16%
5	168	3.75	5	Alphaseal 5200 from wood	33.60		10.96%

Ave. = **30.28**

48 hrs. after application
0" Gap

Sample No.	Ultimate Load Reached	Approx. Coverage on wood	Approx. Coverage on gypsum	Mode Of Failure	Failed PS Wood	Failed PS Gypsum	Percent From Ave.
1	140	2.5	5	Gypsum paper failure	28.00		-14.29%
2	222	2.5	5	Alphaseal 5200 from wood	88.80		16.23%
3	160	2.5	7.5	Alphaseal 5200 from wood	64.00		-16.23%
4	142	2.5	5	Gypsum paper failure	28.40		-13.06%
5	208	2.5	5	Gypsum paper failure	41.60		27.35%

Ave. = **76.40**

32.67

Progressive Engineering, Inc.
Shear Strength Test

Storage Temperature Range

Zero Gap

Sample No.	Ultimate Load Reached	Approx. Coverage on wood	Approx. Coverage on gypsum	Mode Of Failure	Failed PSI Wood	Failed PSI Gypsum	Percent From Ave.
1	480	7.5	7.5	Alphaseal from wood	64.00		-45.50%
2	450	5	10	Alphaseal from wood	90.00		-23.37%
3	594	3.75	7.5	Alphaseal from wood	158.40		34.88%
4	474	5	7.5	Alphaseal from wood	94.80		-19.28%
5	675	3.75	7.5	Alphaseal from wood	180.00		53.27%
Ave. =					117.44		

Storage Temperature Range

1/8" Gap

Sample No.	Ultimate Load Reached	Approx. Coverage on wood	Approx. Coverage on gypsum	Mode Of Failure	Failed PSI Wood	Failed PSI Gypsum	Percent From Ave.
1	487	3.75	7.5	Alphaseal from wood	129.87		5.77%
2	512	5	7.5	Alphaseal from wood	102.40		-16.60%
3	569	7.5	1	Alphaseal from wood	75.87		-38.21%
4	621	3.75	7.5	Alphaseal from wood	165.60		34.87%
5	701	5	7.5	Alphaseal from wood	140.20		14.18%
Ave. =					122.79		

ALPHASEAL 5200 B-RESIN

FIRST AID: IN CASE OF EYE CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER AND CONTACT A PHYSICIAN. MAY CAUSE IRRITATION. SHOULD BE WASHED OFF WITH SOAP AND WATER AS SOON AS PRACTICAL.

NOTE BEFORE USING: FOAMS MADE FROM THESE MATERIALS ARE FLAMMABLE. FOR MORE COMPLETE DETAILS ON FLAMMABILITY AND CONSIDERATIONS CONSULT ALPHA SYSTEMS ALPHASEAL MANUAL.

STORAGE: SHOULD BE STORED OUT OF DIRECT SUNLIGHT AT TEMPERATURES BETWEEN 65 DEGREES F. AND 90 DEGREES F.

WARRANTY: SELLER ASSUMES NO RISK WHATSOEVER AS A RESULT OF USE OF THESE MATERIALS. BUYERS' EXCLUSIVE REMEDY AS TO BREACH OF WARRANTY OR NEGLIGENCE CLAIM SHALL BE LIMITED TO PURCHASE PRICE OF THE MATERIALS.

DISPOSAL: "EMPTY" CONTAINERS RETAIN RESIDUE. LIQUID OR VAPOR CAN BE DANGEROUS. DO NOT PRESSURIZE CUT WELD, BRAZE SOLDER, DRILL, GRIND OR EXPOSE TO HEAT FLAME, SPARKS, OR OTHER SOURCE OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. IN COMPLIANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS, DISPOSING OF CONTAINER, RESIDUAL CONTENTS OR RINSING AND STORAGE PREFERRED. DO NOT USE CONTAINER AS DILUTION OR MIXTURE VESSEL. KEEP CLOSURE ON TO PREVENT LEAKAGE.

EMPTY DRUMS SHOULD NOT BE REFILLED WITH DIFFERENT PRODUCTS FROM THE ORIGINAL LADING. WHEN EMPTIED, SUCH DRUMS MUST CONTAIN AS RESIDUE A MIXTURE THAT IS NO LONGER ACCURATELY DESCRIBED BY THE LABEL. SHIPMENT OF SUCH A DRUM - EVEN TO A RECONDITIONER - MAY VIOLATE DOT REGULATIONS, AND CERTAIN STATES EXPOSES PLANT WORKERS TO UNFORSEEN HAZARDS.

NOT FOR RESALE: THIS PRODUCT IS TO BE SOLD DIRECTLY FROM ALPHA SYSTEMS, INC. • 5120 BECK DRIVE • ELKHART, INDIANA 46516.

FOR CHEMICAL EMERGENCIES:
SPILL, LEAK, EXPOSURE OR ACCIDENT,
CALL CHEMTREC 800-424-9300

MEDICAL EMERGENCIES:
CALL 800-462-4698, EXT. 115

FOR ADDITIONAL INFORMATION AND HANDLING INSTRUCTIONS, REFER TO MATERIAL SAFETY DATA SHEET

ALPHA SYSTEMS, INC.
5120 BECK DRIVE
ELKHART, IN 46516

MADE IN U.S.A.

ALPHASEAL 5200 B-RESIN

Two Component Polyurethane Adhesive System

- ◆ SYSTEM 5200 B-RESIN ◆ TARE ◆ NET
- ◆ RATIO B/A - 1/1 ◆ GROSS ◆ LOT

ALPHA SYSTEMS, ELKHART, IN 46516

FORM 184 (R8/98)

ALPHA SEAL 5200 A-ISO

Two Component Polyurethane Adhesive System

- ◆ SYSTEM 5200 A-ISO ◆ TARE _____ ◆ NET _____
- ◆ RATIO B/A - 1/1 ◆ GROSS _____ ◆ LOT _____

ALPHA SYSTEMS, ELKHART, IN 46516

FORM 183 (88/98)

ALPHASEAL 5200 A-ISO

POLYMERIC METHYLENE DIPHENYL DIISOCYANATE

WARNING: CAUSES EYE IRRITATION, INHALATION OR INGESTION MAY CAUSE MUCOUS MEMBRANE IRRITATION. REPEATED / PROLONGED CONTACT CAN CAUSE SKIN IRRITATION OR SENSITIZATION. VAPORS MAY IRRITATE EYES OR CAUSE RESPIRATORY SENSITIZATION IF INHALED. LUNG INJURY MAY RESULT.

CONTAINS ISOCYANIC ACID, POLYMETHYLENE POLYPHENYLENE ESTER (CAS 9016-87-4, 4,4'-DIPHENYLMETHANE-DI1 SOCYANATE (4,4'MDI; CAS 101-68-8) & SIMILAR STRUCTURAL OLIGOMERS.

AVOID CONTACT WITH EYES & SKIN. AVOID BREATHING VAPORS OR MISTS. INDIVIDUA SENSITIZED TO ISOCYANATE SHOULD NOT BE EXPOSED TO THIS PRODUCT. WEAR CHEMICAL TIGHT GOGGLES, FULL FACE SHIELD, IMPERVIOUS GLOVES, APRON & ARM COVERS. USE WITH FORCED VENTILATION. WASH THOROUGHLY AFTER HANDLING. STORE IN TIGHTLY SEALED CONTAINERS TO PROTECT FROM ATMOSPHERIC MOISTURE. MOISTURE CONTAMINATION CAN CAUSE DANGEROUS PRESSURE BUILD-UP. DO NOT SWALLOW.

FIRST AID: IF ON SKIN, IMMEDIATELY WASH MATERIAL OFF SKIN WITH SOAP & PLENTY OF WATER. IF IN EYES, IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. IF PAIN, ITCHING, OR A BURNING SENSATION DEVELOPS IN EYES OR ON SKIN, WEAR MEDICAL ATTENTION. WASH CONTAMINATED CLOTHING & DECONTAMINATE FOOTWEAR BEFORE REUSE. IF SWALLOWED & CONSCIOUS, GIVE 1 OR 2 GLASSES OF WATER TO DRINK. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. GASTROINTESTINAL SYMPTOMS REFER VICTIM TO MEDICAL PERSONNEL. IF INHALED, REMOVE VICTIM TO FRESH AIR. IF COUGH OR OTHER RESPIRATORY SYMPTOMS DEVELOP, CONSULT MEDICAL PERSONNEL.

IN CASE OF FIRE: WEAR SELF-CONTAINED BREATHING APPARATUS WITH FULL FACE PIECE & PROTECTIVE CLOTHING. USE DRY CHEMICAL FOAM, CARBON DIOXIDE HALOGENATED AGENTS. IF WATER IS USED, USE VERY LARGE QUANTITIES. THE REACTION BETWEEN WATER AND ISOCYANATE MAY BE VIGOROUS.

SPILL OR LEAK: WEAR SKIN, EYE, AND RESPIRATORY PROTECTION DURING CLEAN UP. SOAK UP LIQUID WITH ABSORBENT AND, SHOVEL INTO WASTE CONTAINER. COVER CONTAINER, BUT DO NOT SEAL, AND REMOVE FROM WORK AREA. SEE MATERIAL SAFETY DATA SHEET (MSDS) FOR DETOXIFICATION PROCEDURE.

WASTE DISPOSAL: DISPOSE OF DETOXIFIED WASTE IN FACILITY PERMITTED FOR NONHAZARDOUS WASTE.

CONTAINER DISPOSAL: EMPTY CONTAINER RETAINS PRODUCT RESIDUE. OBSERVE ALL LABEL PRECAUTIONS. DO NOT DISTRIBUTE. MAKE AVAILABLE, FURNISH OR REUSE EMPTY CONTAINER EXCEPT FOR STORAGE OF ORIGINAL PRODUCT. SEE MSDS PROCEDURE FOR DECONTAMINATION OF CONTAINER RESIDUE. CONSULT FEDERAL, STATE, AND LOCAL REGULATIONS ON CHEMICAL WASTE DISPOSAL. PUNCTURE OR OTHERWISE DESTROY EMPTY CONTAINER BEFORE DISPOSAL.

FLASHPOINT: ABOVE 230° (DEG) F, 110° (DEG) C. (COC)

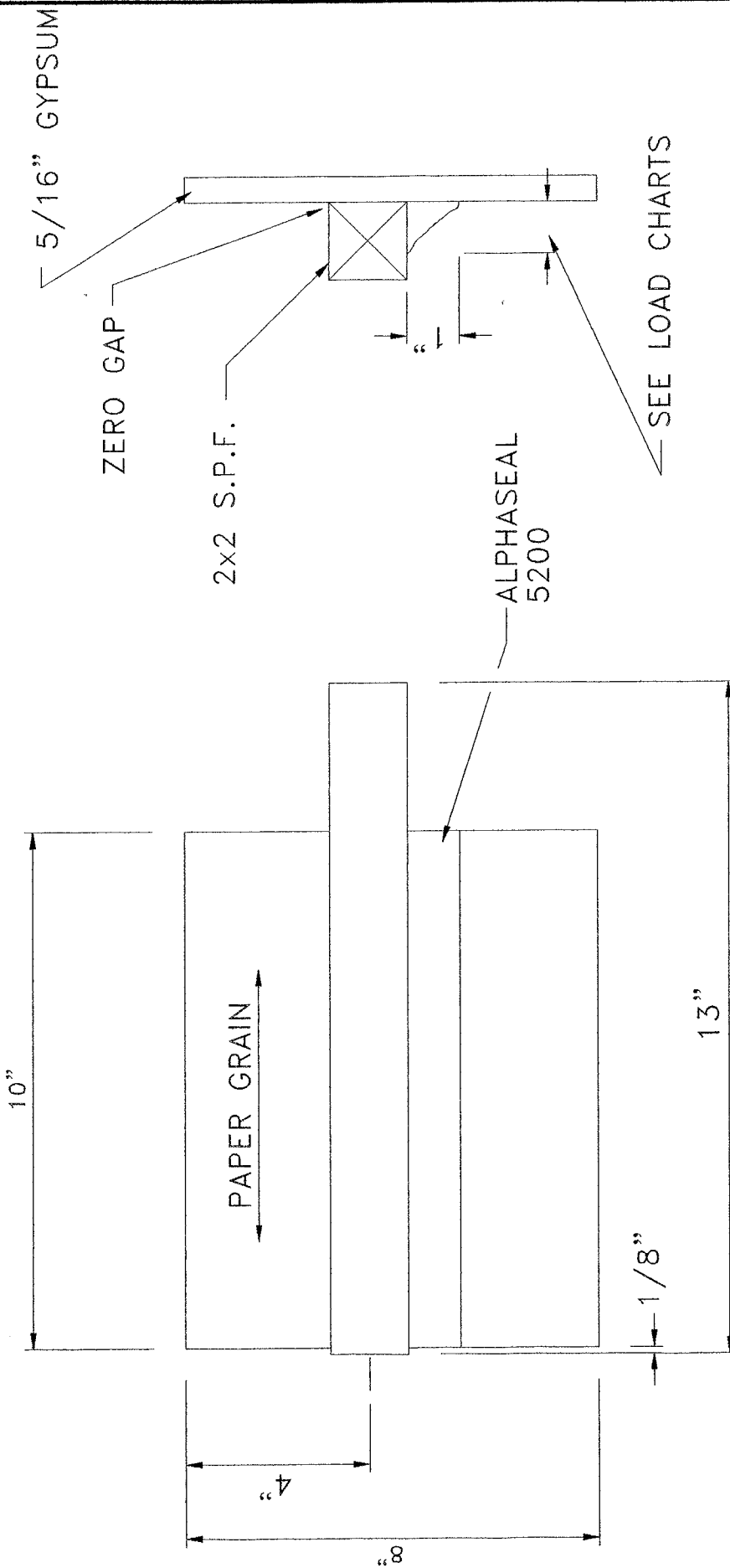
**FOR CHEMICAL EMERGENCIES:
SPILL, LEAK, EXPOSURE OR ACCIDENT,
CALL CHEMTREC 800-424-9300**

**MEDICAL EMERGENCIES:
CALL 800-462-4698, EXT. 115**

FOR ADDITIONAL INFORMATION AND HANDLING INSTRUCTIONS, READ MATERIAL SAFETY DATA SHEET

ALPHA SYSTEMS, INC.
5120 BECK DRIVE
ELKHART, IN 46516

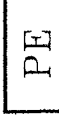
MADE IN USA



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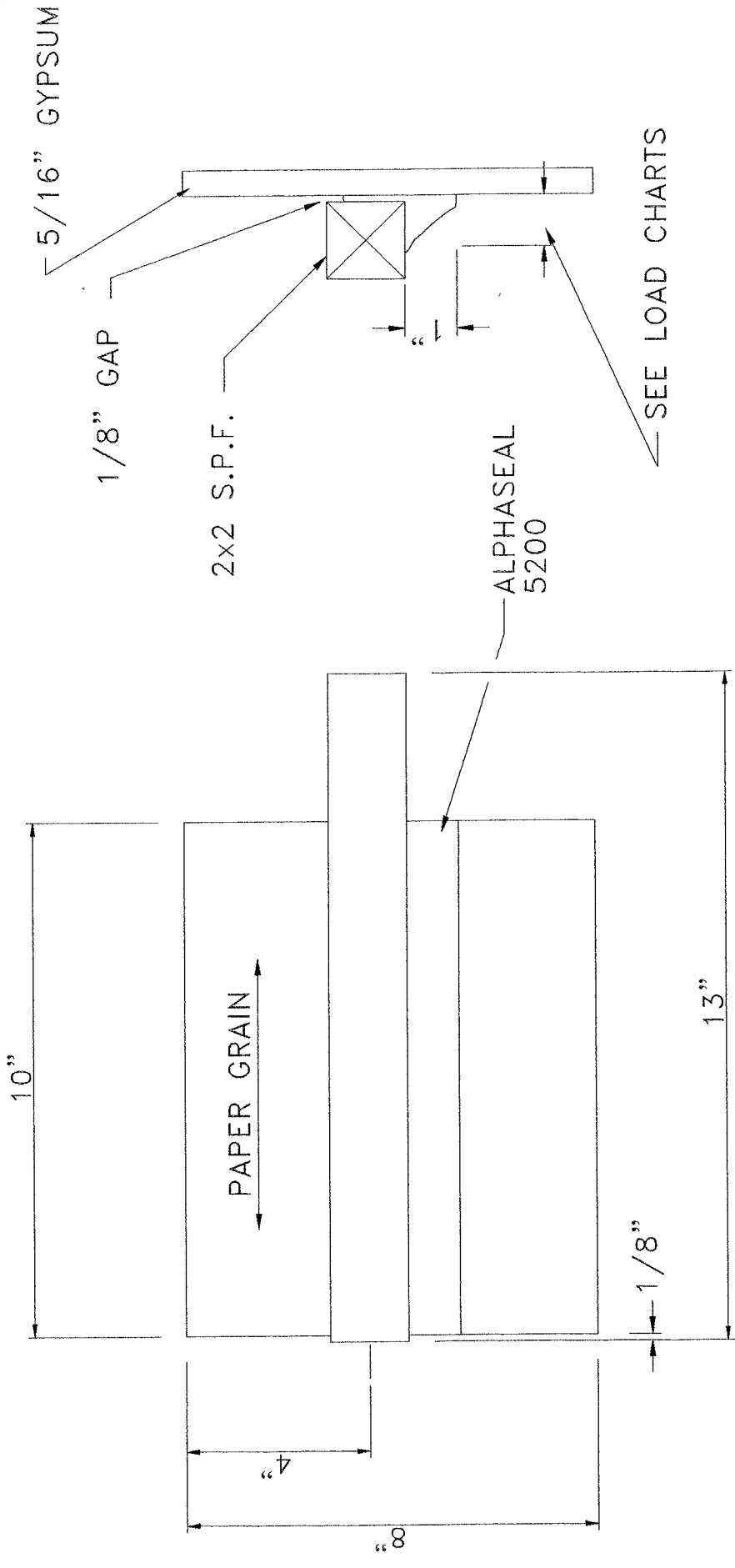
DWN. BY: D. LEHMAN	REVISED OR:	CLIENT:
DATE: 8/31/99		ALPHA SYSTEMS
SCALE: 6"=12"		
JOB NO. 99-1902		TITLE: SHEAR SAMPLES
DWG. NO. B1		ZERO GAP

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TESTING LABORATORY

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Telephone (219) 533-0337



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DWN. BY: D. LEHMAN	REVISED ON:	CLIENT:
DATE: 8/31/99		ALPHA SYSTEMS
SCALE: 6"=12"		TITLE: SHEAR SAMPLES
JOB NO. 99-1902		1/8" GAP
DWG. NO. B2		

3-1/2"

2X4 S.P.F.

ZERO GAP

10"

SEE LOAD CHARTS

5/16" GYPSUM

10"

PAPER GRAIN

ALPHASEAL 5200

∞

4"

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TESTING LABORATORY

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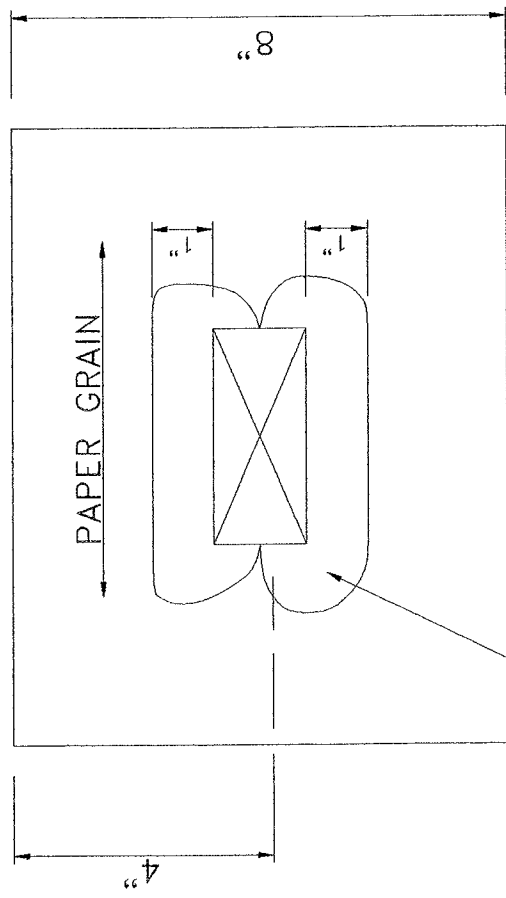
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CLIENT: ALPHA SYSTEMS
TITLE: TENSILE SAMPLES ZERO GAP

DWRN. BY: D. LEHMAN	REVISED ON:
DATE: 8/31/99	
SCALE: 3"=12"	
JOB NO. 99-1902	
DWG. NO. B3	

3-1/2"

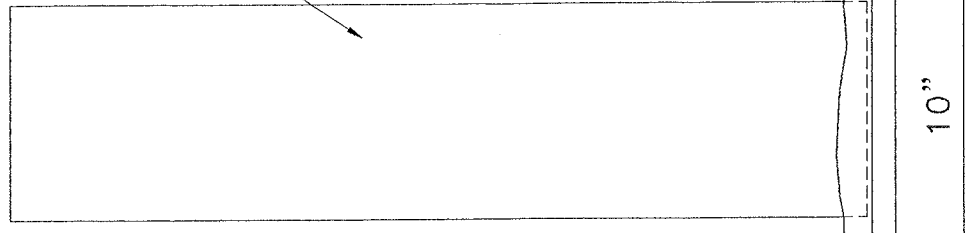
10"



PAPER GRAIN

ALPHASEAL 5200

2X4 S.P.F.



1/16" GAP

SEE LOAD CHARTS

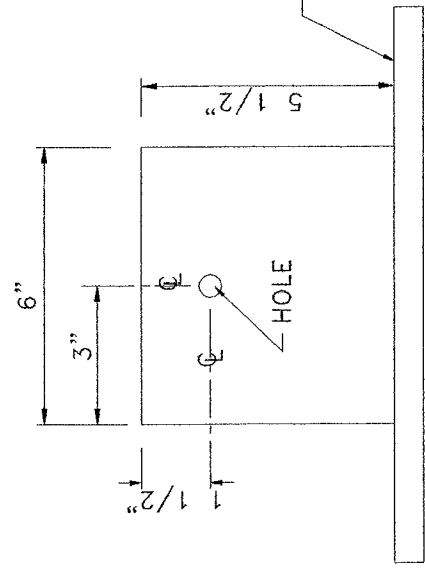
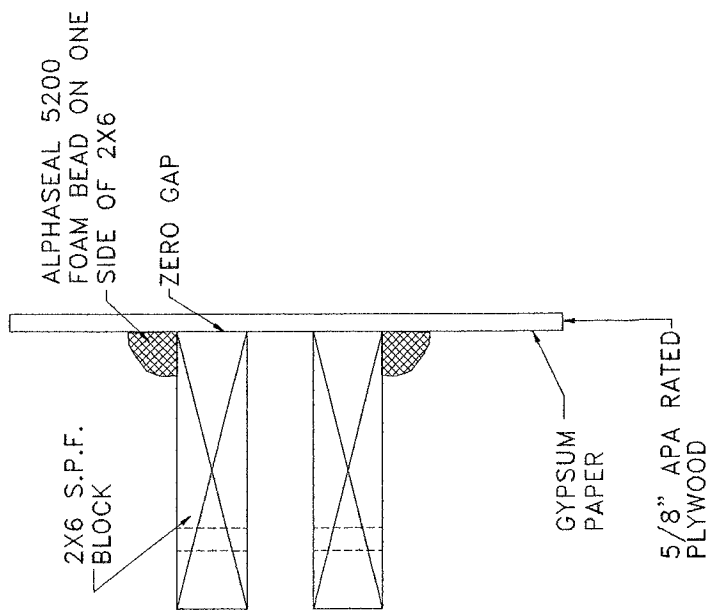
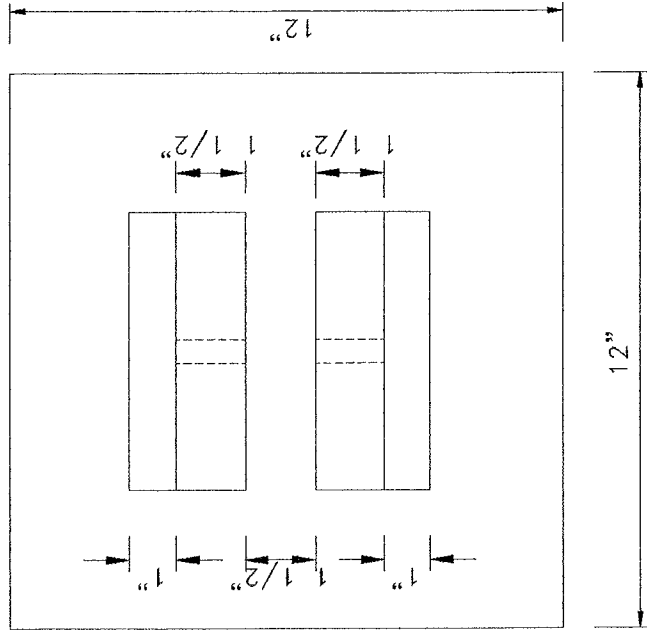
5/16" GYPSUM

10"

THIS DRAWING IS A PART OF TEST REPORT NO. 99-1902

DWN. BY: D. LEHMAN DATE: 8/31/99 SCALE: 3"=12" JOB NO. 99-1902 DWG. NO. B4	REVISED ON:	CLIENT: ALPHA SYSTEMS TENSILE SAMPLES 1/16" GAP	PE PROGRESSIVE ENGINEERING, INC. TESTING LABORATORY	58640 State Road 15 GOSHEN, INDIANA 46526 Telephone (219) 533-0337
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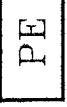


GYPSUM BOARD BACKING PAPER GLUED TO PLYWOOD WITH PVA ADHESIVE

THIS DRAWING IS A PART OF TEST REPORT NO. 99-1902

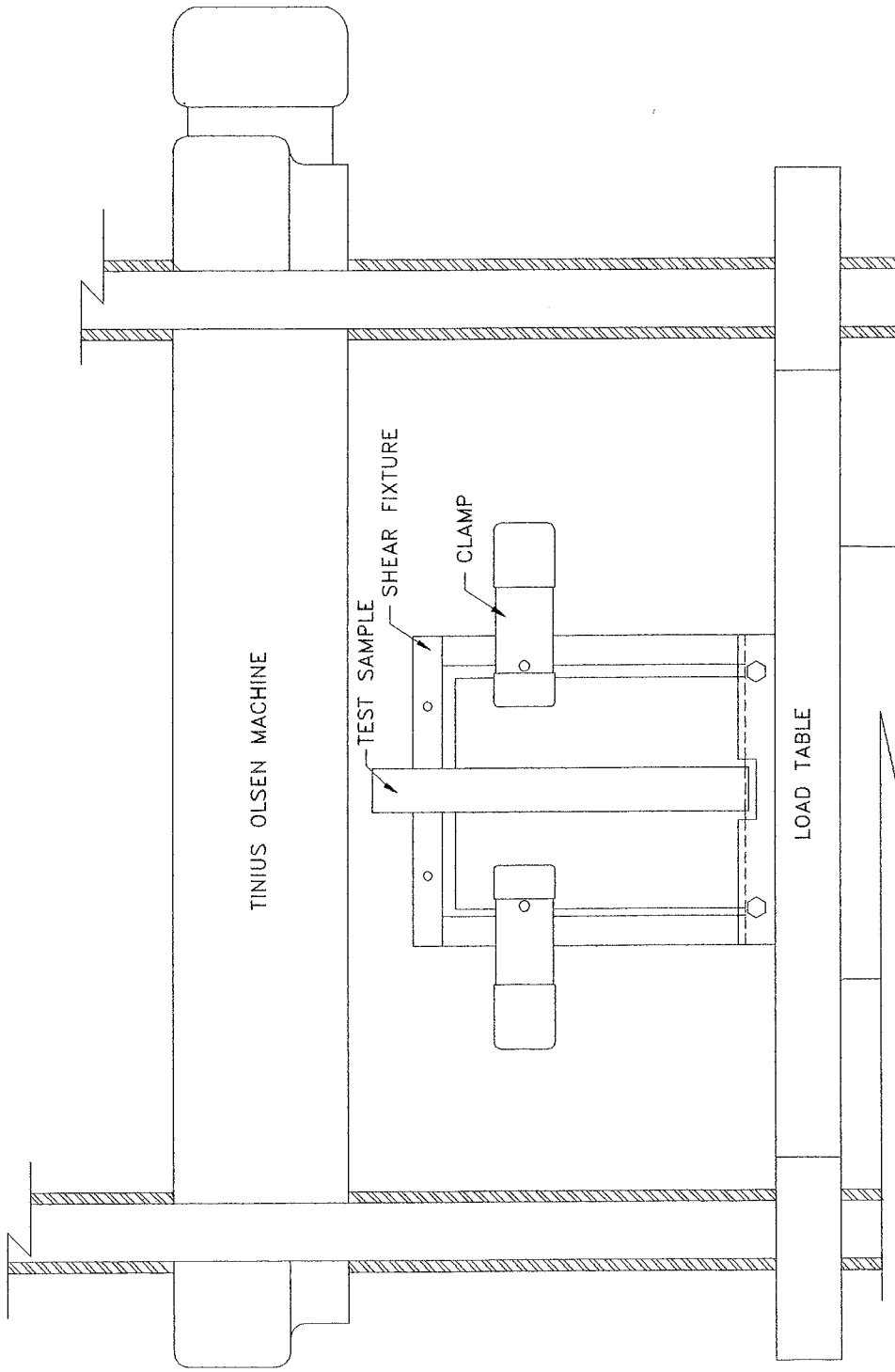
DWN. BY: D. LEHMAN	REVISED ON:	CLIENT:
DATE: 8/31/99		ALPHA SYSTEMS
SCALE: 3"=12"		TITLE: DETAILS
JOB NO. 99-1902		
DWG. NO. B5		

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Telephone (219) 533-0337



DWN. BY: M. PETTIT

DATE: 2/10/93

SCALE: 3" = 12"

DRAWING NUMBER

F284

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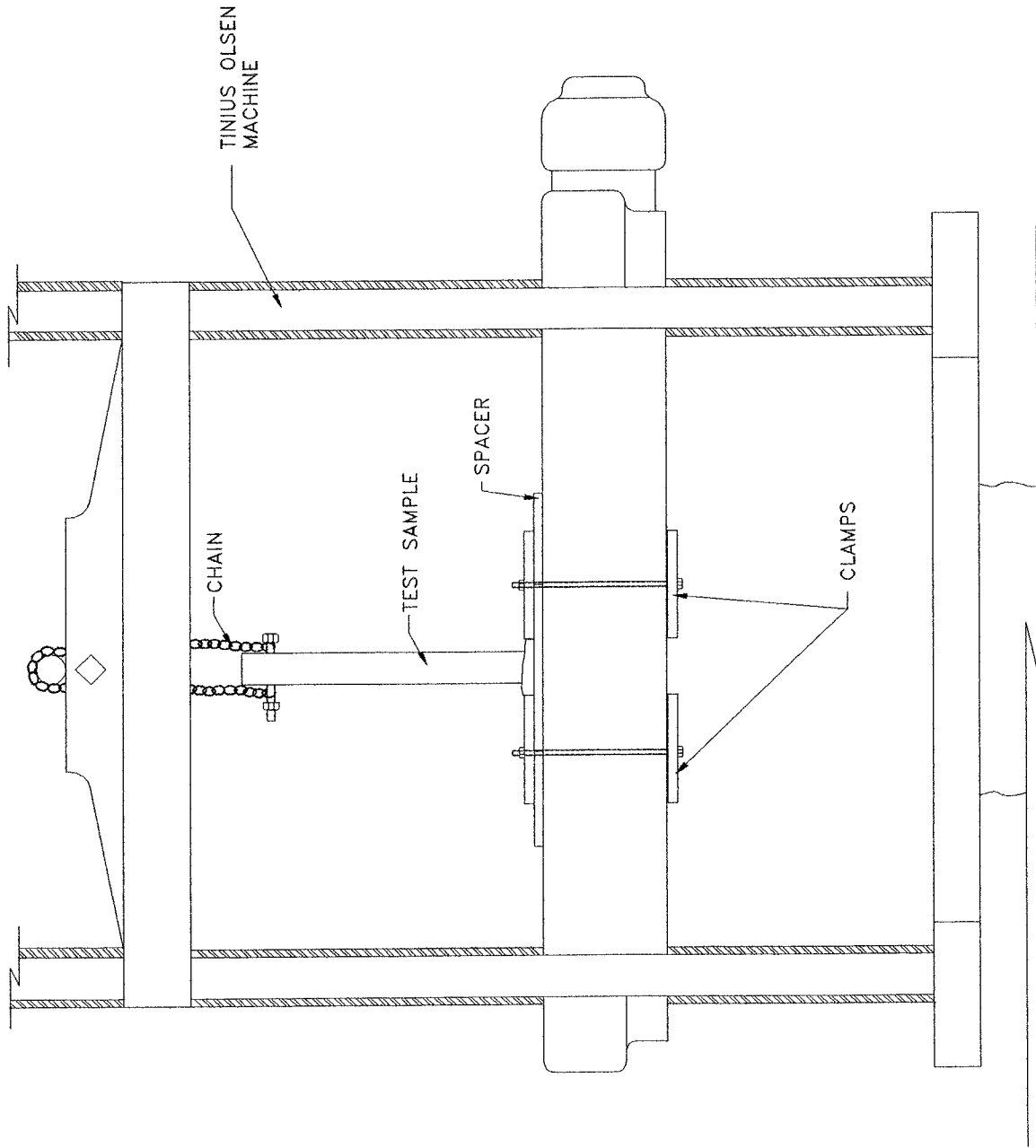
TITLE:

SHEAR TEST

PROGRESSIVE ENGINEERING, INC.
Testing Laboratory

PE

58840 State Road 16
GOOSEBEN, INDIANA 46526
Telephone (219) 583-0887



DWN. BY: M. PETTIT

DATE: 2/18/93

SCALE: 2" = 12"

DRAWING NUMBER

F285

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TITLE:

TENSILE TEST

PE PROGRESSIVE ENGINEERING, INC.
Testing Laboratory

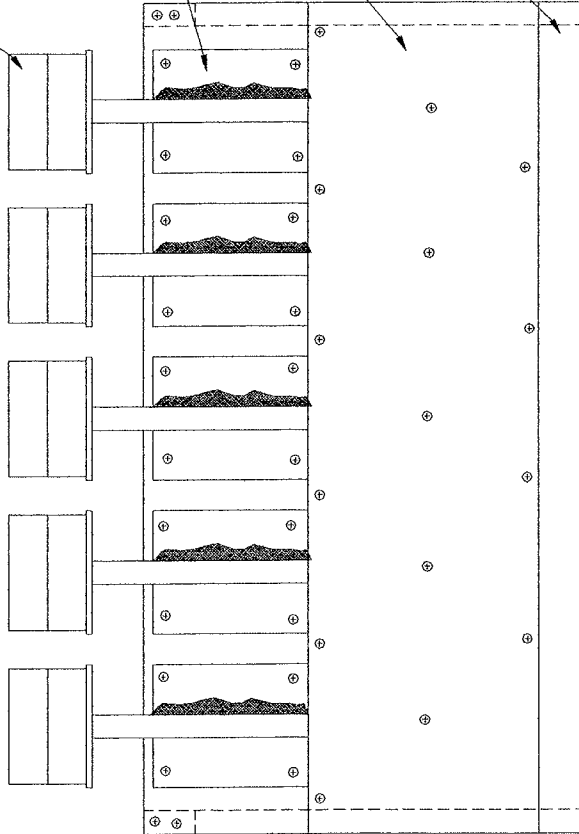
58640 State Road, 15
COCHEEN, INDIANA 46526
Telephone (219) 533-0337

LOAD UNITS

TEST SAMPLE

GYP SUM BEARING

PLYWOOD BACKING



DWN. BY: EVERINGHAM

DATE: 2/23/93

SCALE: 1.5" = 12"

DRAWING NUMBER

F289

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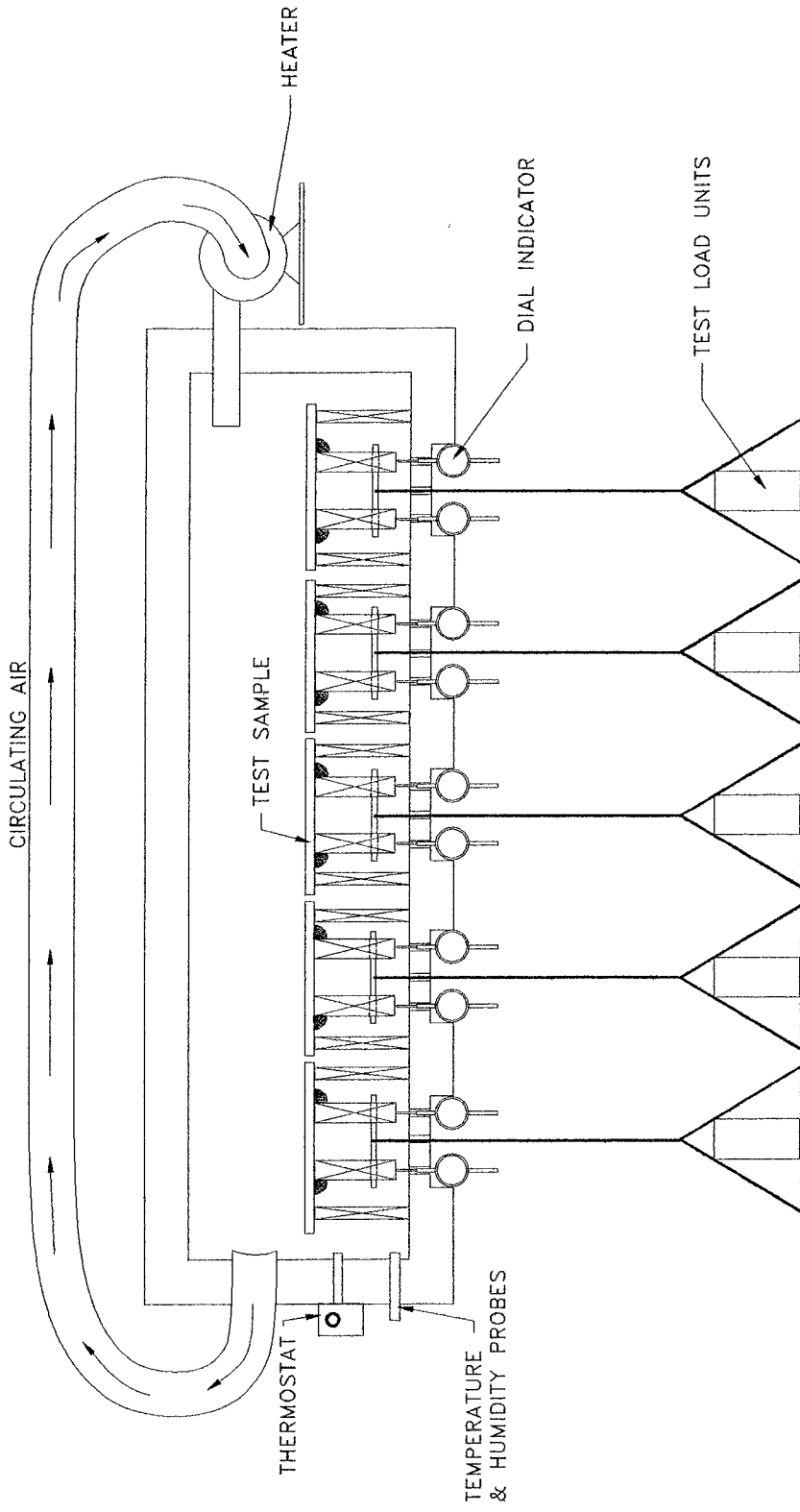
TITLE:

STATIC LOAD

PE

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Testing Laboratory

58640 State Road 16
GOSHEN, INDIANA 46626
Telephone (219) 583-0337



DWN. BY: M. PETTIT
 DATE: 5/13/93
 SCALE: 1.5" = 12"
 DRAWING NUMBER
F306

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TITLE: CREEP TEST

PE PROGRESSIVE ENGINEERING, INC.
 Testing Laboratory
 58640 State Road 15
 GOSHEEN, INDIANA 46628
 Telephone (219) 538-0337

PEI EQUIP.
NO. 135-137