SAFETY LIGHT CORPORATION

4150-A OLD BERWICK ROAD, BLOOMSBURG, PA 17815 717-784-4344 FAX 717-784-1402

4 March 1991

U.S. Nuclear Regulatory Commission Nuclear Material Safety & Safeguards Mailstop 6-H-3 Washington, D.C. 20555

ATTN: Mr. Tom Rich

Dear Tom:

Enclosed please find two (2) copies of Dwg. 880-12-6 per your request. The material specification for ABS Cycolact was faxed to Nicole Hill.

Should you require any additional information, please do not hesitate to call or write.

Regards, SAFETY LIGHT,CORPORATION

Amo Larry/Harmon

Plant Manager

LH:cwl enclosures

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ETY LIGHT CORPORATION SA 4150-A OLD BERWICK ROAD, BLOOMSBURG, PA 17815 7.17-784-4344 FAX 717-784-1402 DATE: 3 NO. PA FACSIMILE TRANSMITTAL COVER SHEET TRANSMITTED TO: ATTN: NICOLE HILL NRC PHONE #: 301-492-0503 FAXU: 301-492-0260 DEAR NICOLE THIS IS THE INFO. YOU REQUESTED. WILL CALL IN 10 OR 15 MIN. T LARRY. 3040167 950711 PDR

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MAR 01

01:05PM G ASTICS/ (413-448-5351)PI)ata ABS Resin General Electric Company One Plastics Avenue, Pittstier, MA 01201 **GE** Plastics 419 448-8341 Technical Seles Service Repitex-413 448-7731

CYCOLAC: T AVAILABILITY: Europe, USA COMMERCIAL

ABS, injection moulding, multi purpose grade. Combination of impact strength with rigidity, easy moulding, excellent gloss and colour quality.

PROPERTY	TYPICAL DATA	UNIT	метнор
MECHANICAL Tensile Strength, yield, Type I, .125" Tensile Modulus, Type I, .125" Flexural Strength, yield, .125" Flexural Modulus, .125" Compressive Strength Compressive Modulus Hardness, Rockwell R	6000 330000 10500 340000 7600 340000 103	psi psi psi psi psi psi	ASTM D 638 ASTM D 638 ASTM D 638 ASTM D 790 ASTM D 790 ASTM D 695 ASTM D 695 ASTM D 785
IMPACT Izod Impact, notched, 73F Izod Impact, notched, -40F	6.5 1.5	ft-10/in ft-10/in	ASTM D 256 ASTM D 256
THERMAL DTUL, 66 psi, .500", annealed DTUL, 66 psi, .500", unannealed DTUL, 264 psi, .500", unannealed DTUL, 264 psi, .500", unannealed Thermal Conductivity CTE, flow, .40F to 100F Thermal Index, Elec Prop Thermal Index, Mech Prop with impact Thermal Index, Mech Prop without impact	215 203 210 188 0.19 5.3 E-5 60 60 60	deg F deg F deg F deg F W/m-C in/in-F deg C deg C	ASTM D 648 ASTM D 648 ASTM D 648 ASTM D 648 ASTM D 648 ASTM C 177 ASTM C 177 ASTM C 177 ASTM C 177 UL 746B UL 746B UL 746B
PHYSICAL Specific Gravity, solid Melt Flow Rate, Test Method Melt Flow Rate, Temperature/Load Melt Flow Rate, Nominal (MFR) Mold Shrinkage, flow, 0.125"			ASTM 5 792
FLAME CHARACTERISTICS USA UL File Number as of February, 1989 94HB Rated (tested thickness) CSA (See File for complete listing) Oxygen Index (LOI)	-		UL 94 CSA LISTED ASTM D 2863
Source Eris, print date: 90/10/12, last up	pdated: 90/09/1	4	5
ALL DATA SUBJECT TO STANDAD	RD DISCLAIMER		ļ

- Flame Characteristics - This rating is not intended to reflect hazards presented by this or any other material under actual firs conditions.

The values shown on the attached pages are typical values that have been obtained using test bara molded from typical lots and are not intended for specification purposes. These values are for natural colors only. Addition of pigmants may alter some values. Inasmuch as the General Electric Company has no control over the use to which others may gut the material, it does not guarantee that the same results as those described herein will be obtained. Each user of the material should make his own test to be construined the material in the same results as those described herein will be obtained. Each user of the material should make his own test to be construined the material. the metarial's suitability for his own particular use. Statements concarning possible or suggested uses of the materials described herein are not to be construed as constituting a license under any General Electric patent covaring such use or as recommendations for use of such materials in the intringement of any patent.

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GE Plustics Technical Sales Service

01:04PM

General Electric Company One Plastics Avenue, Pittsfield, MA 01201 413 448-6341 Regifax-413 448-7731

CYCOLAC: Ť AVAILABILITY: Europe, USA COMMERCIAL

6351)PI

ABS, injection moulding, multi purpose grade. Combination of impact strength with rigidity, easy moulding, excellent gloss and colour quality,

INJECTION MOLDING

SPECIFIC GRAVITY MFR Mold Shrinkage Drying	1.04 2.2 (200C, 5.0 kgf (G)) 5-8 E-3 in/in 190-200F, 2-4 hrs - 8 max
TEMPERATURES (F)	Max moisture: 0.1% MELT 425-500 NOZZLE 425-500 FRONT 420-480 MIDDLE 400-450 REAR 380-420
BACK PRESSURE Screw Speed Shot Size	MOLD 130-160 100 psi 50-60 rpm 50-70% to machine capacity

ASTIC

Source Eris, print date: 90/10/12, last updated: 90/09/17

ALL DATA SUBJECT TO STANDARD DISCLAIMER

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The values shown on the attached pages are typical values that have been obtained using test bars molded from typical lots and are not intended for specification purposes. These values are for natural colors only. Addition of pigments may alter some values. Inasmuch as the General Electric Company has no control over the use to which others may put the material, it does not guarantee that the same results as mose described herein will be obtained. Each user of the material should make his own test to be construed as the material's suitability for his own particular use. Statements concerning possible or suggested uses of the materials described herein the intringement of any patera. constituting a license under any General Electric patent covering such use or as recommendations for use of such materials in the intringement of any pater

030-08335

RECEIVED INVISION OF ACCOMENDA

SAFETY LIGHT CORPORATION

4150-A OLD BERWICK ROAD, BLOOMSBURG, PA 17815 717-784-4344 FAX 717-784-1402

9 February 1991

U.S. Nuclear Regulatory Commission Region I 475 Allendale Rd. King of Prussia, PA 19406

RE: License No. 37-00030-09G.

Gentlemen:

'91 MAR 22 A9:15 na Remitter Check' No. Amount Fee Category Type of Fee_ Am Date Check Rec'd. Date Completed Bv:

Safety Light Corporation requests an amendment to Condition 10 of the above referenced license to include Device Model Number SLX-60, this device is a safety egress marker to be installed generally on building structures and in ambient environs. The device will be used in means of egress, pathway, safety and emergency signage or marker type applications.

Safety Light Corporation currently has two products which are similiar in design and application to the proposed device. The internal design, materials, construction methods and manufacturing procedures currently used in producing Model #880-12-6 and Model #2000 devices will be the same for Model #SLX-60. The only difference will be a slight change in the size and configuration of the outside frame.

Even though similarities in the design described above indicates no negative affect on structural integrity of the Model #SLX-60 device, Safety Light Corp. subjected two prototype devices to the applicable physical tests defined in the American National Standards N540-1975 Handbook.

This device will not exceed 25 Curies of tritium, which is the maximum amount already allowed under this license for devices used within enclosed structures for the intended use described herein. Under ordinary conditions of handling, storage and use of the devices, the tritium gas contained within the device will not be released or inadvertently removed, therefore it is unlikely that any person will receive, in any period of one calendar quarter, a dose in excess of 0.125 REM. Under accident conditions associated with handling, storage and use of the devices, it is unlikely that a person would receive a dose in excess of 15 REM.

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SAFETY LIGHT CORPORATION

U.S. Nuclear Regulatory Commission Page 2 9 February 1991

Accordingly, all labeling, quality control procedures and related information pertinent to manufacturing and distribution of this device is incorporated by reference and is contained in previous application of USNRC License No. 37-00030-09G, Amendment No. 10, dated 21 July 1987. We believe that the information contained herein is evidence that general distribution of this device meets the intent of Section 31.5 of 10 CFR 31 or equivalent provisions of the regulations of any Agreement State.

Considering the similarities of this product to others that we are currently manufacturing, we would appreciate anything that could be done to expedite this product through the licensing procedure. A major U.S. company is anxious to purchase a large annual volume of this product, and an expedious review of this request would allow Safety Light Corp. to realize income that is needed to partially offset increases in the cost of tritium gas and legal expenses associated with past operations at Bloomsburg.

Possibly the Registration Certificate and Safety Evaluation could come at a later date than the amendment to include this model number in Condition 10 of our general license.

Enclosed are two copies each of product engineering drawings and prototype test data reflecting conditions encountered in storage, handling and use of the product, as well as, in accordance with 10 CFR 170.31(3) (J), a check for \$230.00 and in accordance with 170.31(9)(A), a check for \$580.00.

We trust that this information will suffice to permit you to review our request for General License coverage of this product. Please do not hesitate to contact the undersigned if any information requires clarification.

> Very truly yours, SAFETY LIGHT CORPORATION

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ack Miler resident

JTM:cwl enclosures cc: Steve Baggett, USNRC

SAFETY LIGHT CORPORATION

4150-A OLD BERWICK ROAD, BLOOMSBURG, PA 17815 717-784-4344 FAX 717-784-1402

ANSI N540¹ TESTING OF SAFETY LIGHT CORPORATION PRODUCT

Reference Drawing #2200

1.0 INTRODUCTION:

Tests to demonstrate a TGGC Classification have been performed on Safety Light Corporation's (SLC) Model SLX-60 Exit Sign. The devices are to be used for marking means of egress, pathway, safety and emergency signage or marker type applications, at maximum tritium content of 25 Curies.

2.0 DESCRIPTION:

The ANSI test prescribed for SLC Model SLX-60 Exit Signs requires a performance test level of 3 for the temperature, thermal shock, and reduced pressure tests, and a test level of 4 for the impact, vibration and immersion tests. Two sample devices were subjected to the test sequence. The tests described were run consecutively on the same devices, and were performed at 23 degrees C +/- 10 degrees C, at a barometric pressure of 710-790 mmHg, and a maximum of 80% relative humidity. At the end of each test, the devices were examined visually, and checked with a tritium monitor for possible tritium gas leakage.

2.1 Discoloration:

The devices were exposed to the light of an S4 lamp, filtered by a Corex D filter, at a distance of 20 centimeters, for 12 hours. The test was conducted in air with a temperature of 27 degrees C +/- 10 degrees C, and a relative humidity of 95-100%. When examined by photometer, there was less than 20% loss.

2.2 Temperature Test:

The devices were subjected to temperatures of -55 degrees C and 80 degrees C for one hour at each temperature. The devices were cooled to the low temperature in less than 45 minutes and heated to the high temperature in less than 5 minutes. At the conclusion of each test, the devices remained within the test enclosure until they reached ambient temperature.

2.3 Thermal Shock Test:

The devices were subjected to the temperature of 80 degrees C for no less than 15 minutes. In approximately 5 seconds the devices were transferred to a cold chamber held at -55 degrees C for 15 minutes and then removed to ambient temperature.

¹U.S. Dept. of Commerce, National Bureau of Standards, American National Standards N540-1795; Classification of Radioactive Self-Luminous Light Sources, NBS Handbook 166, Washington, D.C., January 1976.

2.4 Reduced Pressure Test:

The devices were placed in a vacuum chamber and the pressure reduced to 87 mmHg absolute, for 4 periods of 15 minutes each, the pressure being returned to atmospheric between each period.

2.5 Impact Test:

The devices were dropped onto a 0.75 inch thick rigid steel plate which was lying on a flat concrete floor. The devices were allowed to free-fall and impact the steel plate in a random manner 20 times from 1 meter distance elevation, and 2 times from 2 meters.

2.6 Vibration Test:

The devices were secured on the table of a vibration test machine having the capability of providing simple harmonic motion with an amplitude of 0.075 centimeters and a maximum total excursion of 0.15 centimeters. The frequency was varied uniformly between 10 and 55 Hertz, and returning to 10 Hertz in approximately 1 minute. The test was conducted for 60 minutes.

2.7 Immersion Test:

The devices were immersed in a cold water bath maintained at 0 degrees C +/-3 degrees C for 15 minutes and then transferred within 5 seconds to a hot water bath maintained at 80 degrees C and allowed to remain there 15 minutes. The devices were then transferred back to the cold water bath in less than 5 seconds and allowed to remain for a further 15 minutes. This cycle was repeated 5 times. The temperature of the baths did not change more than +/-3 degrees C during the test cycles. Upon completion of the immersion test, the radioactivity of the water in the hot and cold baths was analyzed by liquid scintillation counting.

3.0 EVALUATION:

Determination of compliance with the performance test requirements was made on both devices in accordance with the procedures described below. After completion of the test sequence, the devices were evaluated by the following criteria in addition to the evaluation specified for the individual tests.

3.1 Visual Evaluation:

The devices were examined visually for any evidence of failure, visible leakage, or degradation after each test and at the end of the test sequence. Apart from slight surface indentations and scratches, no evidence of failure, visible leakage, or degradation was noted.

3.2 Brightness Evaluation:

The devices were measured both before and after testing by photometer. There was less than 20% loss of luminosity.

3.3 Loss of Radioactive Content Evaluation:

3.3.1 Hot and Cold Bath Evaluation:

The liquid scintillation analysis results from the hot and cold baths in Section 2.7 indicated that the liquids in each bath did not exceed the 50 nanoCurie limit for gaseous tritium sources.

3.3.2 24-Hour Soak Test:

Each device was soak-tested for 24 hours in a volume of water approximately equal to 10 times the volume of the source. After the devices were removed, the water was analyzed by liquid scintillation testing. The analysis results did not exceed the 50 nanoCurie limit for gaseous tritium sources.

4.0 CONCLUSIONS

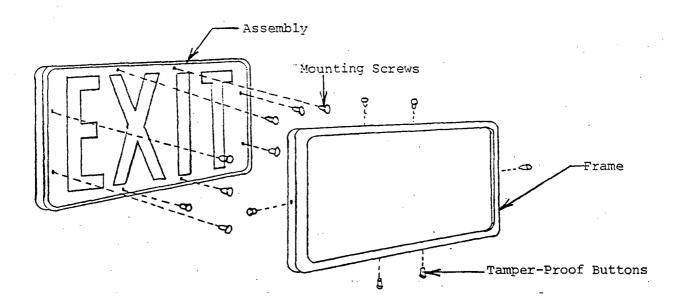
In view of the excellent condition of the devices at the conclusion of the tests, we conclude that the device, SLC Model SLX-60Exit Sign, Drawing No. 2200 meets and exceeds the requirements for a <u>T6GC</u> classification of the ANSI N540 standard.

Larry Harmon

Plant Manager

DATE: 2/11/9/

SELF LUMINOUS EXIT



MCUNTING

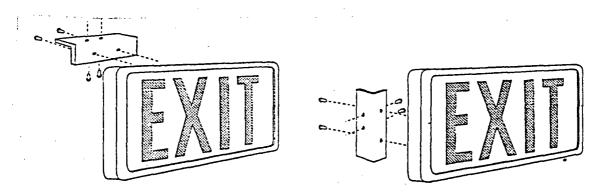
Select the method of mounting (Wall, end or ceiling)

Surface:

The sign has eight (8) mounting holes; select the mounting holes which best suit your application and using the screws provided, fix to wall. Replace front frame, locate and snap the tamper-proof buttons into place.

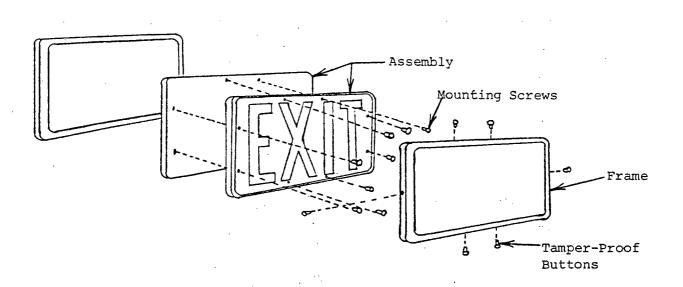
Bracket:

Side bracket can be used on wall or ceiling as shown.



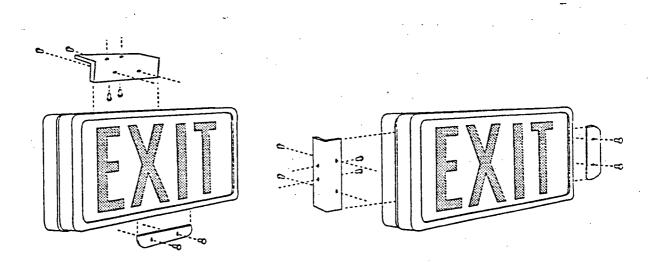
Screw bracket in position, then fix sign to bracket using screws provided. Replace front frame. Snap tamper-proof buttons into place.

DOUBLE FACED SELF-LUMINOUS EXIT



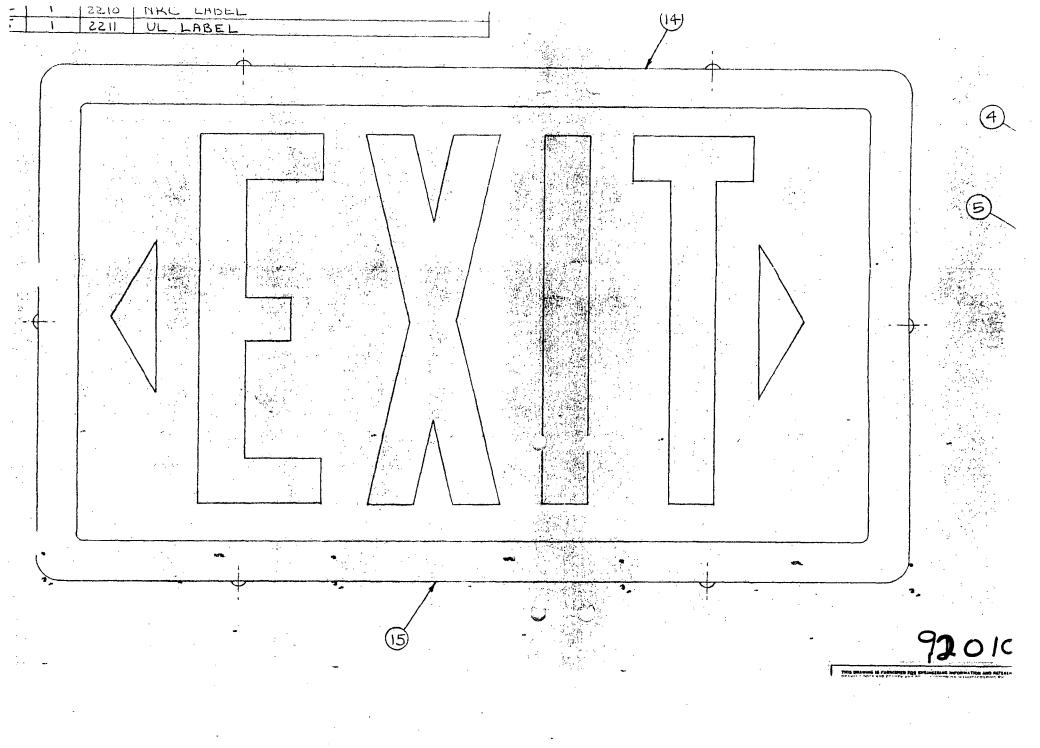
MOUNTING:

Remove frame. The sign has eight (8) mounting holes; Lay assembly units back-to-back ensuring that all holes are in proper alignment. Attach side bracket between the units using bolts and nuts provided either on top or side for ceiling or end mounting respectively. Between the units on the opposite side secure the plastic separator using bolts and nuts provided. Screw bracket in position, then fix sign to bracket using screws provided. Replace frame. Snap tamperproof buttons into place.



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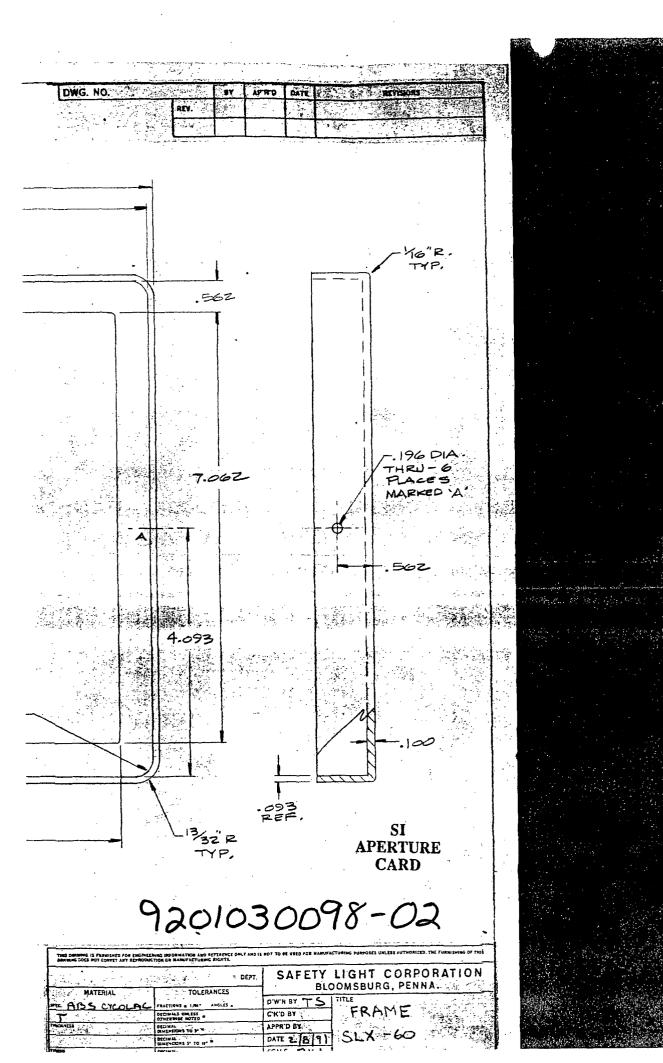


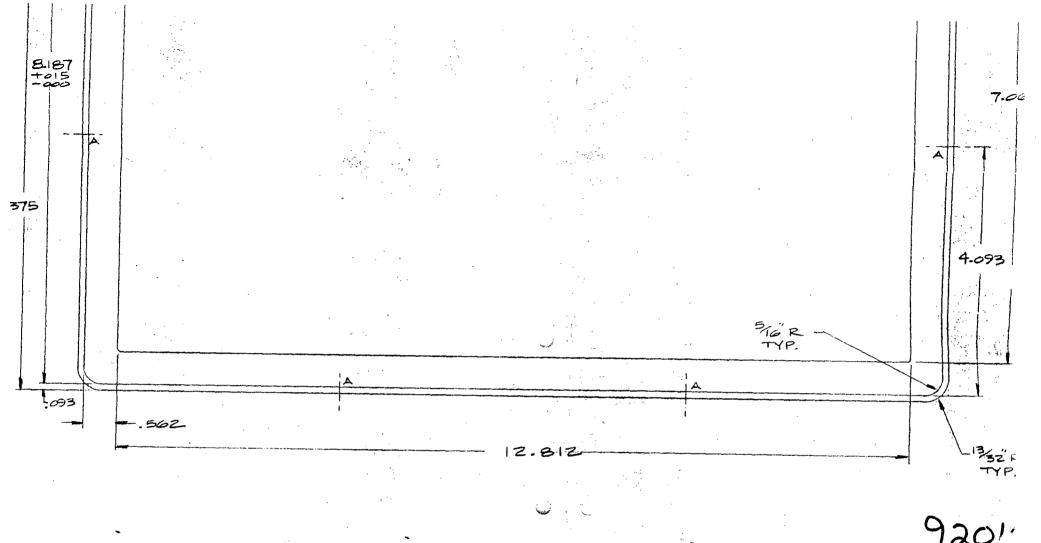
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ITEM No.	QUAN.	DWG. NO.	DESCRIPTION	
	1	2201	FRAME ABS CYCOLAC T	
2	1	2055	BACK ADS CYCOLAC T	
3	6		RIVET	
.4	-	2204	LEGEND .010 LEXAN	
5		2205	LENSE .080 ACRYLIC OR LEXAN	
6	1	· · ·	DIFUSER STIMPSONITE	
7		2207	BLANK FOAM SHEET	
8)	2208	DIE CUT FOAM SHEET	
9	1	2209	TUBE TRAY .OZO VINYL	
10	6		SMM THEE X 3 LG CI.SB CURIE	MAX.
- 11	2		5 MM TUBE X 13/4" LG. C .85 CURIE	MAX.
. 12	2		5 MM TUBE X 5 3/4" LG. C 3.20 CURIE	MAX.
13	2		5 MM TUBE X 65/8" LG. C 3.71 CURIE	- MAX-
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15	1	2211	UL LABEL	
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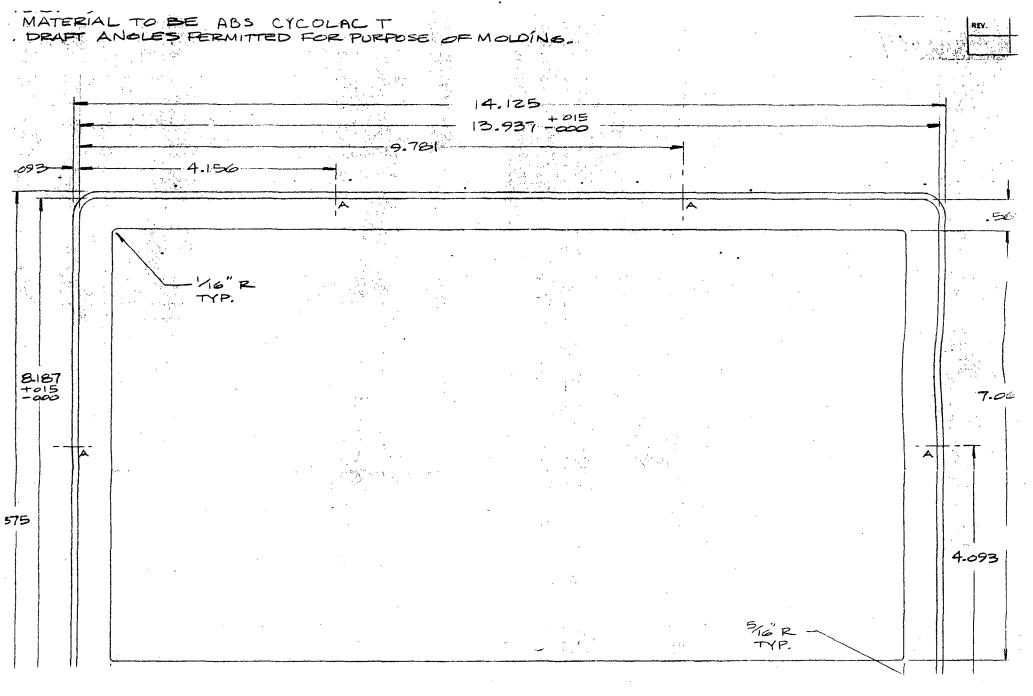
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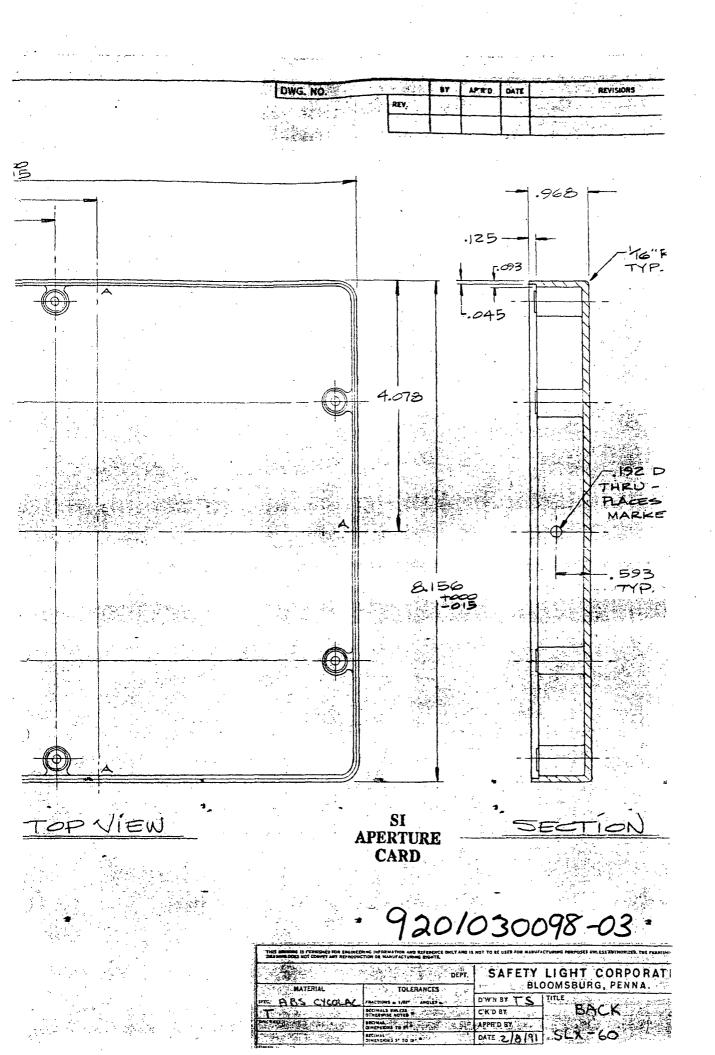
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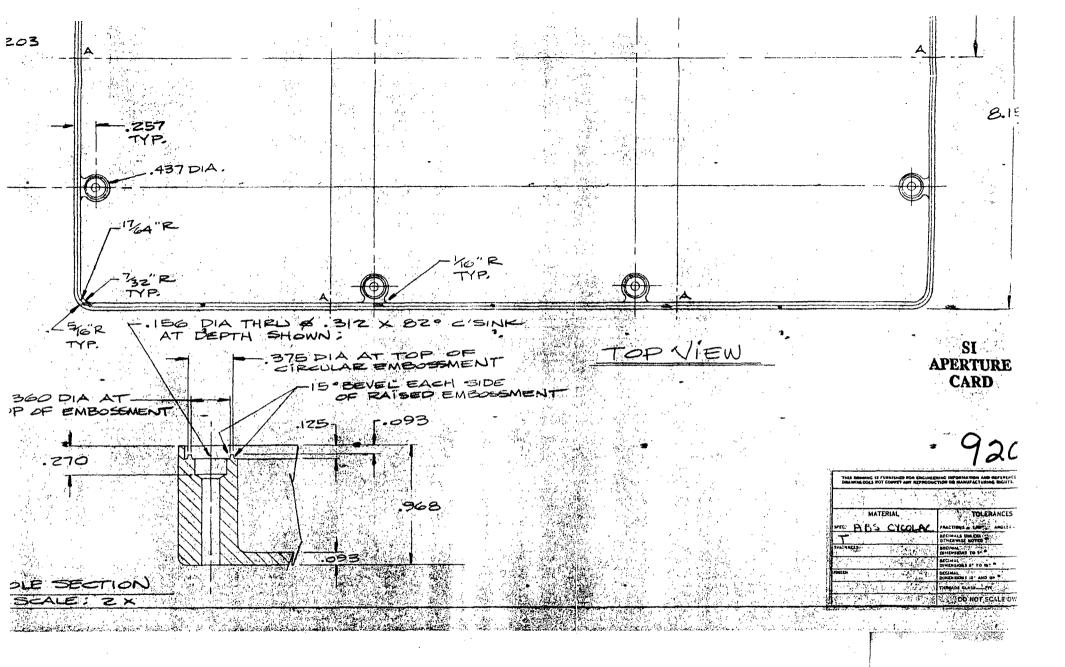


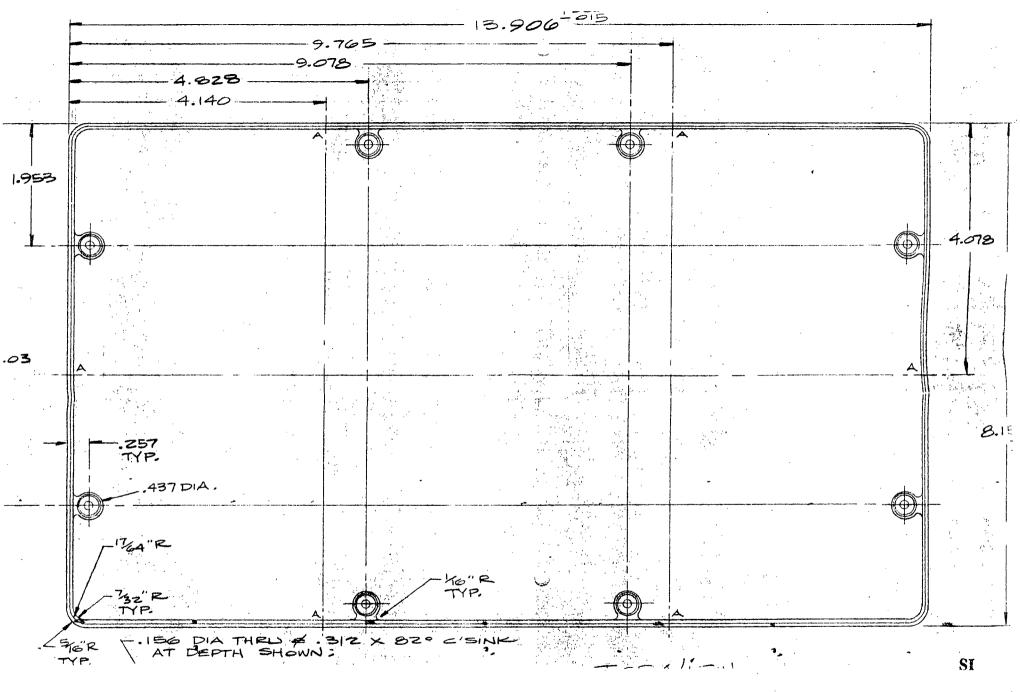


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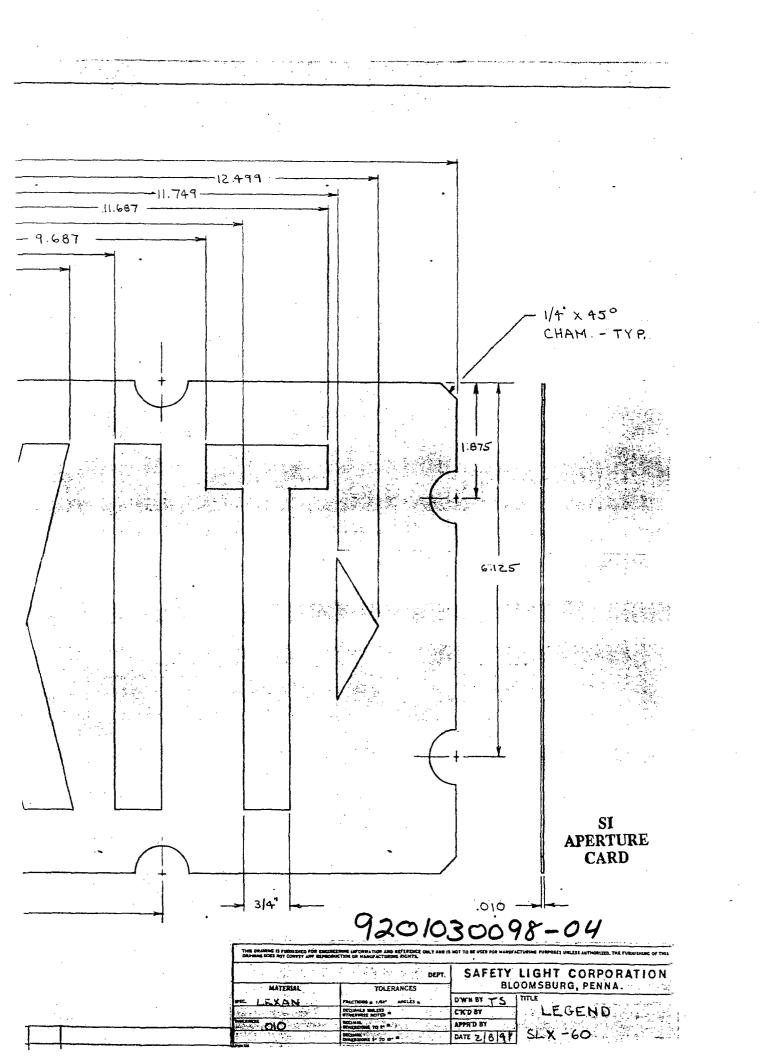


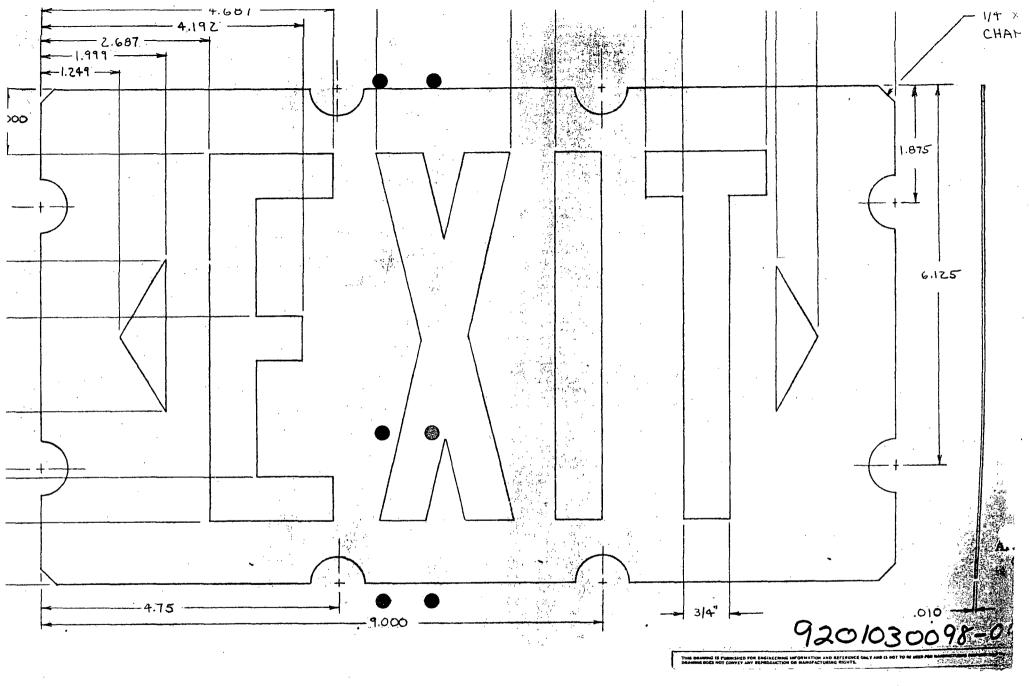


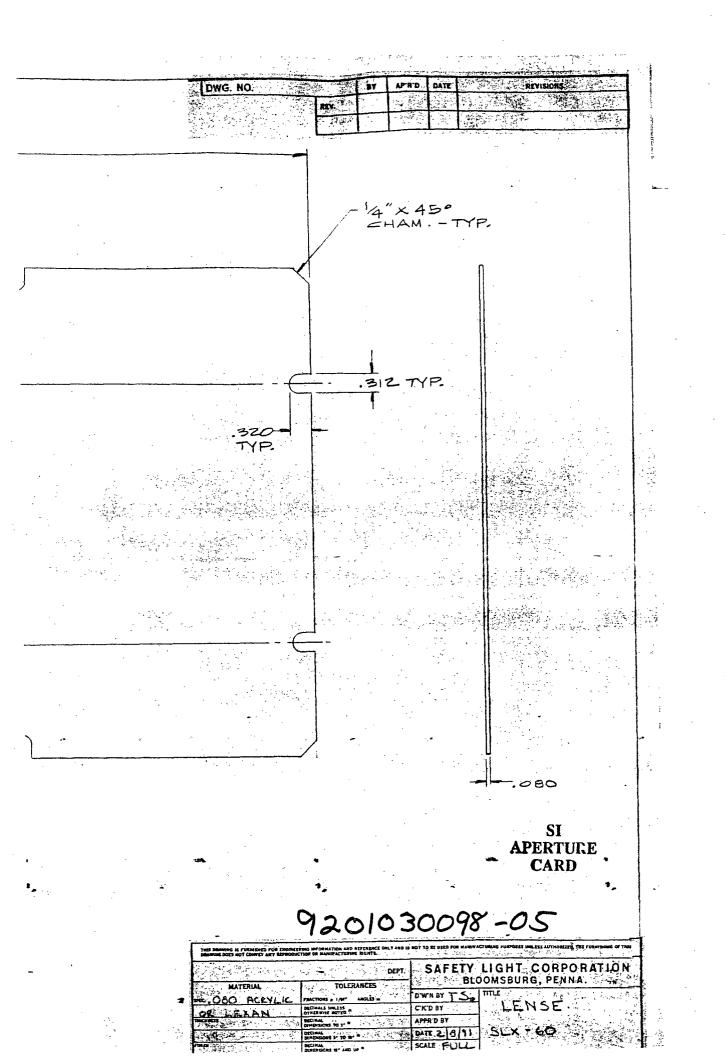


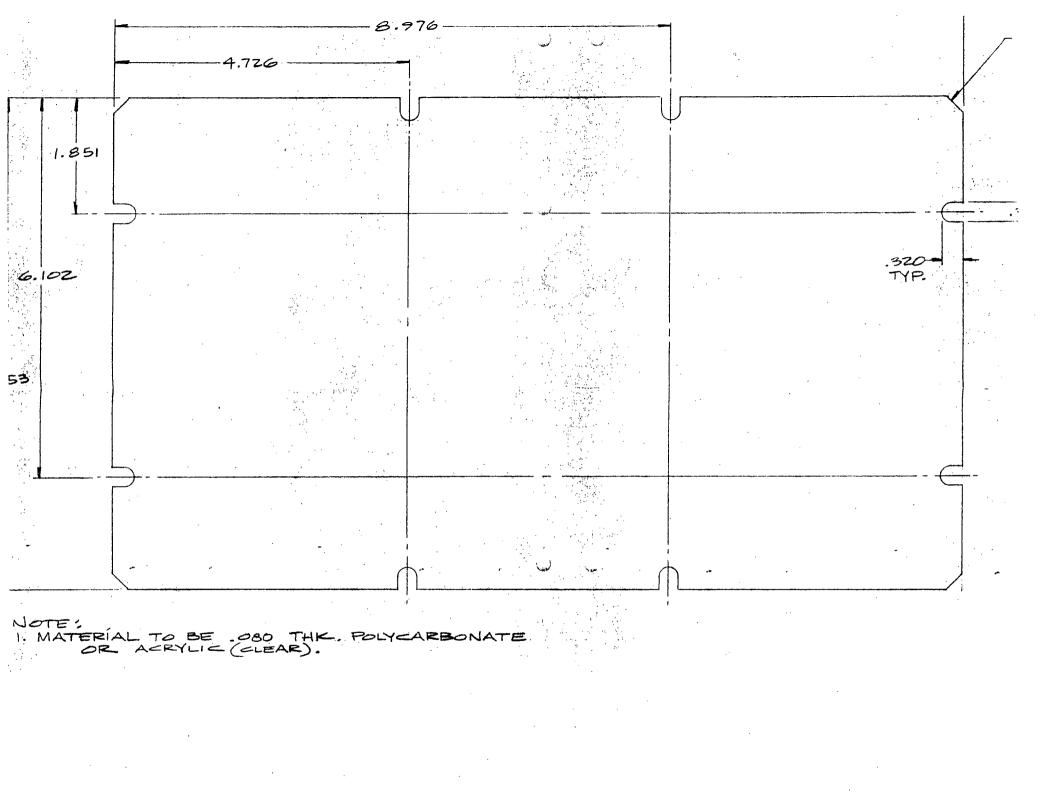


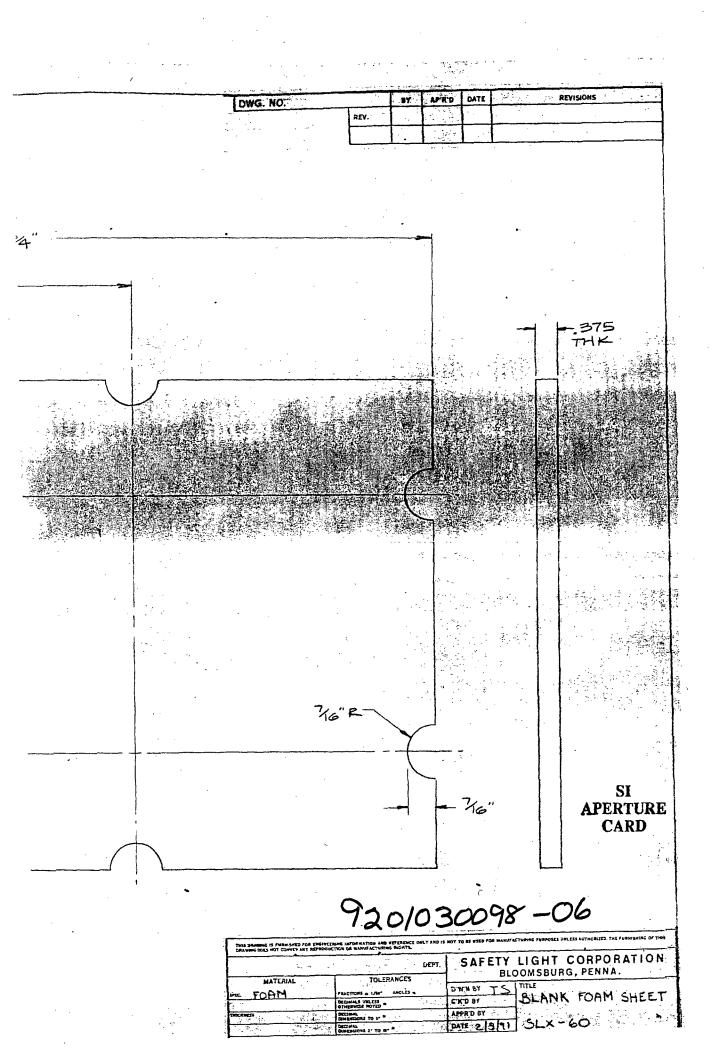
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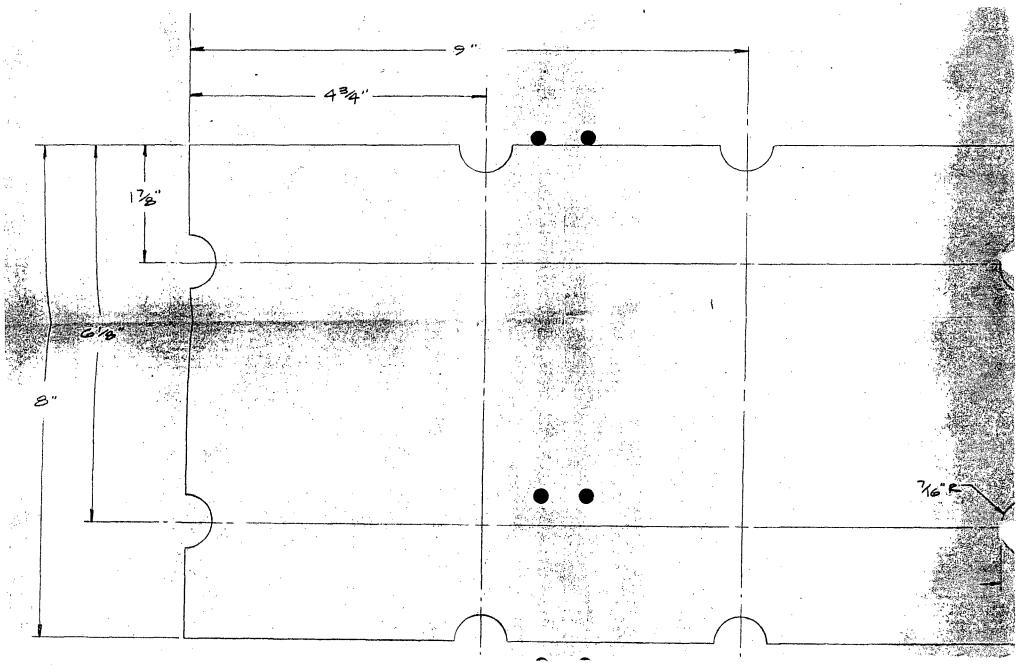


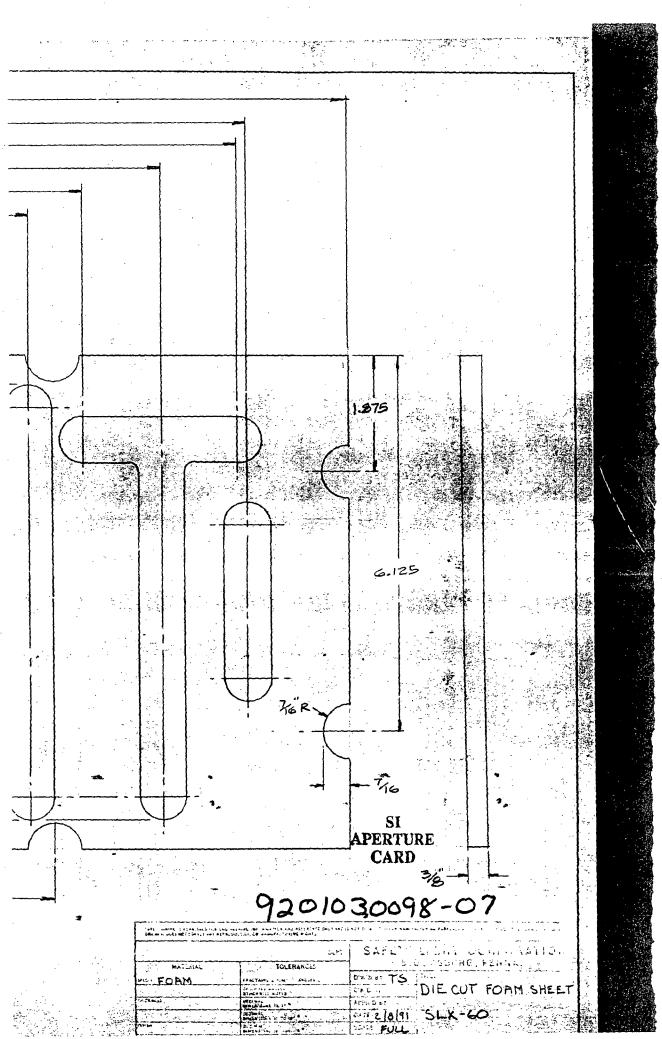




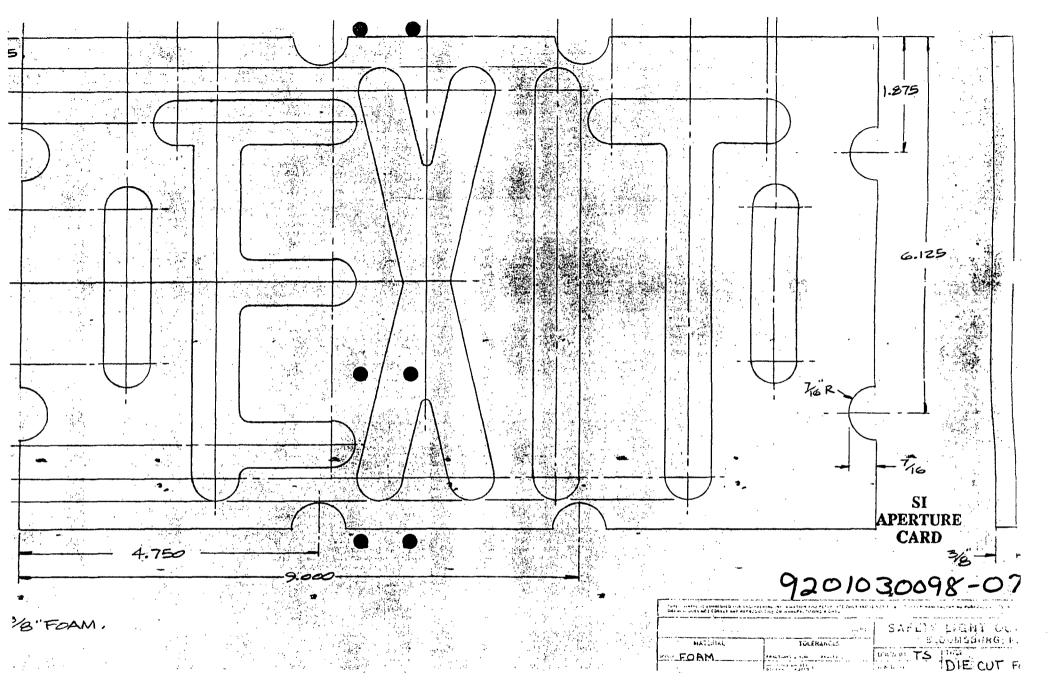




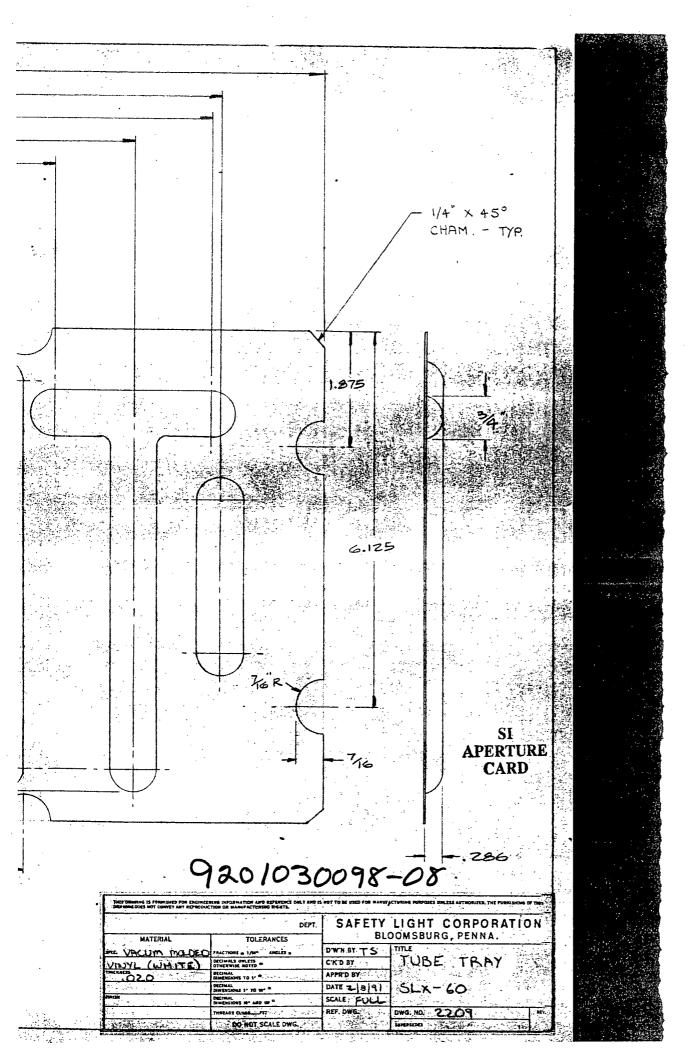


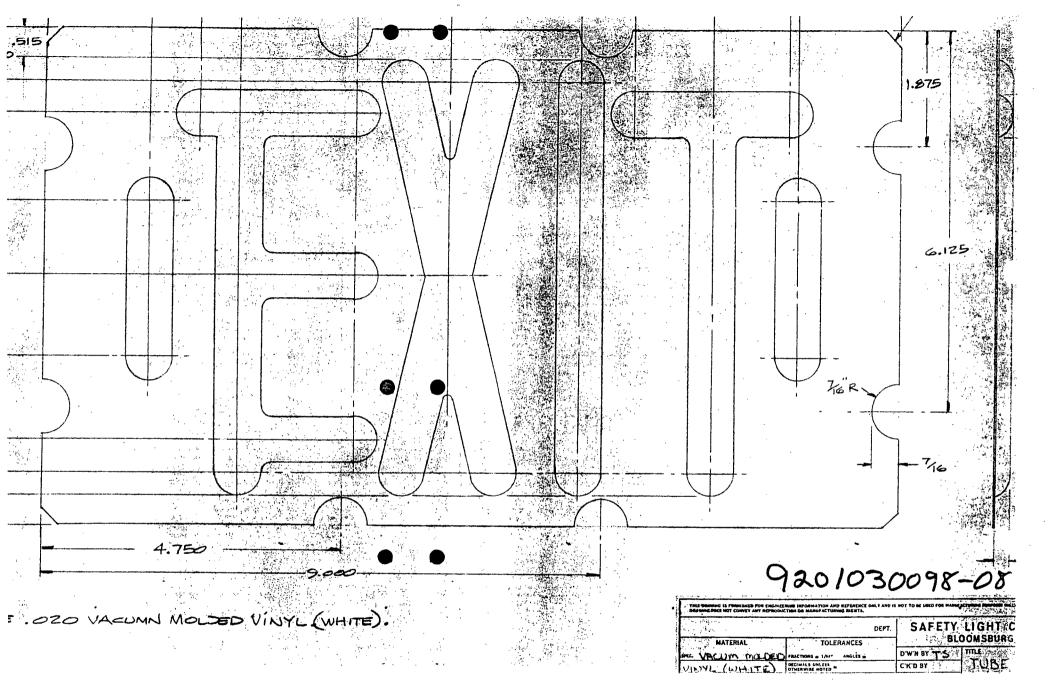


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EMERGILITE

MANUFACTURED BY

SAFETY LIGHT CORP. BLOOMSBURG, PA

CAUTION-RADIOACTIVE MATERIAL

CONTAINS CURIES TRITIUM

SERIAL NO.

REVISIONS

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REMOVAL OF THIS LABEL IS PROHIBITED.

The receipt, possession, use and transfer of this device, are subject to a general license or the equivalent and the regulations of the U.S. Nuclear Regulatory Commission or a state with which the NRC has entered into an agreement for the exercise of a regulatory authority.

DATE

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Do not sell, transfer, abandon or dispose of this device except by transfer to persons specifically licensed by NRC or an Agreement State.

Use of this device is prohibited if there is any indication of failure of or damage to, containment of radioactive material.

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	DEPT.		LIGHT CORPORATION
MATERIAL	TOLERANCES] BL	OOMSBURG, PENNA.
SPEC.	FRACTIONS ± 1/64" ANGLES ±	D'W'N BY	TITLE
	DECIMALS UNLESS OTHERWISE NOTED	C'K'D BY	INRC LABEL
THICKNESS	DECIMAL DIMENSIONS TO S. *	APPR'D BY	
	DECIMAL DIMENSIONS & TO IN *	DATE 2 11 91	
FINISH	DECIMAL DIMENSIONS 10" AND UP +	SCALE	
	THREADS CLASSFIT	REF. DWG.	DWG. NO. 2210 MEV.

