Assembly and part drawings for all the equipment used in the purification of plutonium in Building D are compiled in this report.
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If cylinder is rolled, locate steam here.

Cut two 2" x 2" window at 180°.

No. 30 Drill 14 Holes
This end - Locate From Part Bb D

Note: This part can be rolled and silver-soldered from 1/8" brass sheet. SCALE = HALF SIZE.

JACKET WALL - PART Bb B, BRASS TUBING - MAKE ONE

No. 6-40 Tap 6 Deep
6 holes equally spaced
Locate from part Aa G

PART Bb A, BRASS - MAKE TWO - JACKET BOTTOM

Drill 6 in part Aa G
SCALE = FULL SIZE

GASKET RING
PART Bb E, BRASS - MAKE TWO

No. 6-40 Tap Thru, 6 holes at 45°
Locate from part Aa G

Note: Parts Bb A, Bb E and Aa G were cut from Dynatherm 300.

Approved for Coast (6-4-65)
SN Tube - Extractor

Ref No. 3131

Pyrex Glass

4"

2 1/2"

Notes:
- 30° piece should be free from scale.
- Tips for springs
- 10mm thick walled
- 1/30" Male

UNCLASSIFIED
Wash Ring

Part No. 2150  Scale 1"=1"
Pyrex Glass - One Reg'x.

Note: The symbol $\rightarrow$ indicates a $\frac{1}{2}$ mm i.c. hole in the glass tube to direct a stream of water in the direction indicated by the arrow.
Extractor Stirrer
Part No. 3470
Pyrex Glass
One Reyn.

Grind flat & chamfer ends

10mm ± 0.1mm
or to fit bushing furnished
Make Patterns when submitting.

Note: all E's numbered.
A-A are in parallel planes;
all E's numbered G & B are
parallel.
Stirrer Boiler
Part No. 01-70
Material Glass, Pyrex
One Required
Scale 1" = 1"
Reagent Reservoir
Part No. 2311
Pyrex Glass

102/75 Semi-ball Male

Seal as close as practical

6" O.D. Pyrex Tubing
Wall 1/4" ± 1/32

16-1/2"

16-9/16"

Saran Tip

4 mm - 3 Way Stopcock

18/9 semi-ball (female)

Saran Tip
8 & 16 mm od.
Reagent Reservoir Cap
Part No. 2320
Pyrex Glass

2"

3"

\( \frac{1}{2} \) from id. of male when engaged

Section Dwg.

UNCLASSIFIED

10475
Semi-ball female

4-23-45 Redesign

APPROVED FOR PUBLIC RELEASE
500 ml. plain neck Pyrex bottle

1" Saran Tip
8 mm & 10 mm o.d.

1" horizontal Saran tip

4 mm pressure stopcock

1/4" Stemball female with
3 mm (id) drip tip
A liter plain Serum bottle

1" horizontal Saran Tip

4mm 3way pressure stopcock

10mm Qd.

18/9 Semidell (female) with 3mm (id) 214 tip

2illed

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Condenser Return Tube
Port No. 2360
Pyrex Glass
One Leg'd

35/20 SBUN
4.4 ± 0.8
11.7 ± 0.8
2 cm OD Tubing

Short as Possible
12 mm ID drip tip
35/20 SBUN

17 3/8 ± 0.8
Sodium Hydroxide Trap
Part No. 2410

Material: Pyrex
3 per Apparatus

Scale 1/2" = 1"

Approved for Public Release
Spray Trap
Port No. 2460

Material: Pyrex
3 per Apparatus

Scale: 1/2" = 1"

UNCLASSIFIED
Kjeldahl Trap
Part No 2430

Material: Pyrex
3 per Apparatus

Scale 1/2" = 1"

APPROVED FOR PUBLIC RELEASE
UNCLASSIFIED

BUBBLER
PART No. 2442

10mm GLASS TUBING

60-40 SEMI BALL JOINT

WIRE TUBE TO CYLINDER. USE CORK SPACERS

64 mm O.D. GLASS TUBING

1/8 SPACE BETWEEN TUBES

ATTACH TO OUTSIDE OF CYLINDER

MAKE HOLE (FOR RUBBER TUBING) 1/8 ON ALL 10mm TUBE EX.

APPROVED FOR PUBLIC RELEASE
Liquid Drip Catchers  
Drawing No. 6-4.  
Part No. 2470.

Material: Pyrex  
4 Per Apparatus

Scale 1/2" = 1"
Liquid Vapor Tee
Part No. 2531
Pyrex Glass
1 Reg'd

7/60 $ male

Use tail at 7/60$

3/4 female

35/20
Semiball, female

08/75 Semiball
female

Seal sidearm at slight
angle

12 mm (1/2) drip tip.
Et₂O Vapor Tube
Part No. 2540

Material: Pyrex
1 per Apparatus

80-min tube

102/75 Semiball Male

102/75 Semiball Female

Scale: 1" = 5"

Tolerance ± 1/16" on all dimensions
SMALL STORAGE BOTTLE
Part No. 2610
Pyrex Glass
Four Parts per Apparatus
Note: Furnish all lines 3" inside of build.
ALL PARTS MADE OF 
\( \frac{\frac{1}{4}}{\text{PLYWOOD}} \)

ALSO REQD 4 PCS.
\( \frac{1}{4} \) ROUND BRASS ROD
8" LONG THD 2" ON
BOTH ENDS WITH 4-20
DIE (3410-B)
4 holes drill 1/4".
Holes lie at corners of a 6" square whose center is concentric with center of circles.

Round corners ~1/2" radius.

All parts made of 1/2" ply.

Also use 4 pcs, 1/4" round brass rod 11" long, thread 3" on both ends with 1/4-20 die.

(3920-8)
DECLASIFIED

CLAMP FOR STORAGE BOTTLE

PART 3430-D

2 SCREWS

½ 28 NF-2

5 FLAT HEAD SCREWS 1 1/4" LONG
4 1/2" LONG

4 1/2" HOLES, COUNTERSINK HOLE

1 HOLE DRILL AND TAP FOR 1 1/2" TANG TO 1/2" TAP

A

- 4 HOLES DRILL AND TAP NO. 10 32 NF-2 3/8" DEEP

DRILL HOLES - SAW INTO 2 PIECES
IGNORE METAL LOST

4 1/2" HOLES COUNTERSINK

DRILL TAP 3/8" 28 NF-1 TO CENTER

1" 1/2" FULL SIZE

B

FULL SIZE

APPROVED FOR PUBLIC RELEASE

APPROVED FOR PUBLIC RELEASE
Chamfer under side A x 45°

Drill to clear Part B

Drill to clear part A

Part C required

102-75 SPECIAL B.J. CLAMP

Part 3440-8-1

MAT - H.R. BRASS
NO REQ - 1
SCALE - FULL
SPECIAL BALL-JOINT CLAMP

STAMP THIS MARK AS SHOWN ON BOTH SIDES

3 HOLES @ 120°
3 1/2" DIAM φ

1/8" RADIUS

1/8" CHAMFER @ 45°

PART 3440-C-2

2 3/8" DIAM.

4" DIAM.

2 3/4" DIAM.

SECTION A-A

BREAK ALL
CORNERS

NOTE POSITION
OF SLOTS

1/8" DRILL THRU
AND FILE OUT

1/16" DRILL & REAM-THRU

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APPROVED FOR PUBLIC RELEASE
SPECIAL BALL JOINT CLAMP

**PART A - 3-449-6-48**

**PART C - BRASS - MAKE THREE**

**PART D - BRASS - MAKE THREE**

SUB-ASSEMBLY

(soft solder together)

**PART B - BRASS - MAKE THREE**

**FILE ROUND**

\[ \frac{3}{16} \text{ DRILL} \]

\[ 8'' \text{ CHAMFER @ 45°} \]

**NOTE:** PROVIDE THREE THUMB NUTS AND THREE HEX JAM NUTS. PROVIDE THREE SPRINGS - \( \frac{3}{4}'' \) FREE LENGTH - GROUND ENDS - \( \frac{1}{8}'' \) PITCH - 0.029'' SPRING WIRE - SPRING \( \frac{3}{8}'' \) O.D.
CONDENSER CLAMP
MATERIAL - PINE
MAKE TWO

7 15/16"

5/16 DRILL THRU
2 HOLES

APPROVED FOR PUBLIC RELEASE
CEILING CLAMP
FOR
CONDENSER STAND

MATERIAL - PINE
MAKE ONE

CUT SLOT TO FIT VERTICAL "2X4"

REGULAR "2X4" STOCK

SPLIT IN TWO PIECES

PAGE 71
Hood Support Brace

PART 3480

7" L iron welded to ¼" x 3 x 3" butt plate - make 2.

Drill & countersink 4 holes to hold #12 wood screws from L iron side.

2 pcs. - 3/16" x 1 1/2" x 1 1/2"

Note: All fits are 3/8".

MAKE TWO

APPROVED FOR PUBLIC RELEASE
Glycol Solution Storage Tank

Note: Tank to be made of 18 gauge galvanized iron (welded).

Scale: 1" = 2'/0

March 26, 1945
Pump Tray
3510

Make Tray of 18 gauge Black Iron Hard Solder

APPROVED FOR PUBLIC RELEASE
VAPOUR TUBE SEAL
MATERIAL - 1/2" PLYWOOD
MAKE ONE
3520-A

CONDENSER SEAL
MATERIAL - 1/2" PLYWOOD
MAKE ONE
3520-B
G.I. Can for S.N. Bottles

Material: Galvanized Iron
Can must not leak and must be of sturdy construction. Details of construction left to the discretion of builder.
REMOTE CONTROL

PART NO. 2560

DRAW NO. CMS-24316 12/12.

THUMB NUT - BRASS

UNCLASSIFIED

NO. 18 DRILL THROUGH

BRASS - MAKE TWO

3" DRILL THRU AFTER ASSEMBLY BOTH ENDS

NO SOLDER

SOLDER THESE TWO PARTS TOGETHER

NO. 8-32 BOLT - BRASS

UNCLASSIFIED

NO. 38 DRILL THRU WALL

NO. 5-40 TAP THRU WALL

BRASS - MAKE ONE

SOLDER ROD IN CENTER
Unclassified

Bubbler Shield

Mat & Sides - 3/16" ply
Bottom - 3/8" ply

Pieces held together with screws.
UNCLASSIFIED

VALVE HANDLE

3 WAY VALVES

PART 3650

Make from 1/8 x 3/8 strap.
Parts held together with screws. Joints Glued.
Bottom: Reagent Res. Holder
Part 3710

Holes located on 7 3/8" square

Drill 8 holes #28 drill
countersink for 6-32
flat head screw

Mat: 3/8" Lucite - 1 req'd.

Note: Change in dimension would change this drawing and the assembly. Will not change the construction as holes are located from 1/8" to 1/4".

APPROVED FOR PUBLIC RELEASE
Front & Back Plate Assembly

Part 3710

4 Holes Drill #28

6" Holes 3/16 from sides

2 Holes Drill 1/2" Tack 3/8

1" drill

Mat 8 3/8 Lucite - 2 pieces rigid.
Mat's 3/8" Lucite 1 Req'd.

Note: Do not glue this piece in place.

Holes Drill #36
Top 6-32
1" Deep.

SEE ATT.
HEAD. ATT. HOLDER
Part 3710
1. Boiler
2. Extractor
3. Support Block
4. Nozzles (CO₂ system)
5. Boiler Introducer Tube

6. Wolff Bottles
7. Transfer Apparatus
8. Transfer Bottle Holder
9. Ether Vapor Tube
10. Angle Iron Support
1. Vapor Safety Tube
2. Condenser
3. HNO₃ Reservoir
4. Ether Reservoir
5. Trap Door
6. Reagent Reservoir
7. Window
8. Line Traps
9. Bubblers
10. Platform
11. Hood Window
ITEM 1: TWO TYPE E.C. FUME HOODS AS SHOWN

KEWAUNEE MANUFACTURING COMPANY
Adrian, Michigan

APPROVED FOR PUBLIC RELEASE
Bomb Holder - Base Plate

Screw Bushing - One Row Stainless Steel

Scale 1/2 Size

Part 4110 - Screw Control Wheel
One Row Stainless Steel
NOTE:
WELL ALL JOINED

Rough Cut
Spun cup
FOR Part 4110-C

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APPROVED FOR PUBLIC RELEASE 5/8/14
DECLASIFIED

Transfer Appar.
Part 4150

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Splash Guard - R Bottle

Part 4170
ROUGH CUT - BOMB HOLDER SUPPORT
PART 4180
NITRIC ACID BOTTLE HOLDER

PART 4210
Wall Rack—Misc.  
Part 4220

All holes 1/2" deep only.

Attach to back wall with angle brackets.
BOMB DRIER INSERT

Part 4230

18-8 Stainless Steel 20 BWG (0.035"")

\[ \frac{1}{2} \text{ size} \]
Bomb Holder

Part 4240

Inside Dimensions: 5\(\frac{5}{8}\) x 5\(\frac{5}{8}\) x 3\(\frac{1}{2}\)"
1. Bomb Holder and Rack
2. Transfer Can Holder
3. Pan Balance
4. Graduate Rack
5. Bottle Rack
6. Wash Bottle
7. Nitric Acid Bottle
8. Test Tubes
Shelf for "Cut" Room

Part #10

Scale: 1" = 8"
Part F connects D and B
Part G connects E and C

ASSEMBLY OF MOTOR MOUNT 4320
Part D

Make 2

Inside Dimension Should Have a Slip Fit Over the 1" Steel Rod Marked "Part A."

Part E

Make 2

Inside Dimension Should Have a Slip Fit Over the 3/4" Steel Rod Marked "Part B"

Brass Bushings for Motor Mount

4320-A
STEEL ADAPTERS FOR MOTOR MOUNT

1½" Hole Has a Slip Fit Over Brass Bushing, Part D
3¼" Hole Has a Slip Fit Over Steel Rod, Part B

1¼" Hole Has a Slip Fit Over Brass Bushing, Part E
¾" Hole Has a Slip Fit Over Steel Rod, Part C

Scale: 1" = 1"
Part A  Steel  Make 2

Part H should be a slip fit into the 1/8" holes drilled in Part B

Part H  Make 4
43550-D

Part B  Steel  Make 2

In this piece, drill 12 1/8" holes at 3" intervals. The first is to be 3" from one end, and the last 4 inches from the other end.

Note: Tolerance is not critical

Part C  Steel  Make 3

Part C should slip into 1/2" Adapter which is furnished

Tolerances: ±0.01 on Diameters
±0.15 on Lengths

Parts for Motor Mount
Adapter Motor to Stirrer
Part 4340

1/4" 8-32 Allen head set screws
#2 fit on threads for Allen head

Make from stainless steel.
Grind inside to tolerance of .002 .003 .0000".

PAGE 133
SN Cut Pipette

Part 4360

- 12/30 tapered joint, female

- 1 ml micro stick

- 1 ml pipette
Pipette Holder

DECLAS Part 4370

2½

18"

2"

FILLED

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UNCATEGORIZED

APPROVED FOR PUBLIC RELEASE
S.N. Cut Room Drip Catchers - Part 4380

Top flanges, 1/4" wide. Since tubing is in mm, select nearest undersize piece.
Pyrex glass throughout
CAN CABINET - 3 REQ'D

TOP AND SIDES 4\(\frac{1}{8}\)" PLYWOOD

BACK AND DOORS 4\(\frac{1}{4}\)" PLYWOOD

PER DOOR CHEST & FRONT PIECE

SEE DETAIL #1

DOORS (2 5' 6" EACH UNIT)

ALL BAG LOOPS (TOP, BOTTOM & SIDES)

KNOB - DUAL SIZE CYLINDER
\(\frac{1}{2}''\) DIAM. \(\frac{3}{4}''\) LONG. FASTEN
TO BAG WITH COUNTERSINK SCREW THRU CENTER OF KNOB.
M.S.A.: MINE SAFETY APPARATUS ALARM

REDHEAD: Device that actuates Automatic CO₂ Tanks when the rate of temperature rise is rapid.
NOTE:
HEAVY LINE WILL BE SHIPPED LOOSE TO BE INSTALLED IN FIELD.
Data Sheet on Standard Industrial Equipment Purchased

Air Motors — — Binks Agitating Unit 939-A, page 939 in catalogue
Binks Manufacturing Corporation

Circulating Pumps — — Style 153 B 700; Gould Centrifugal Pump
Gould Pumps Incorporated

Combustible Gas Indicator — — Type W-5, calibrated for diethyl ether
Catalogue DM-7782
Mine Safety Appliance Company

Combustible Gas Alarm — — Page 62 in catalogue
Mine Safety Appliance Company

CO₂ Fire Extinguishing System — Kidde Proposal 7975
Walter Kidde & Company

Dial Thermometer — — Serial D-34371, Bulletin 148-7
Foxboro Company

Flexible Cable — — Shaft, Control, Flexible, #150154
Casing, Flexible, #16946
S. S. White Dental Manufacturing Company

Intercommunication System — — Type W-222-A
Rauland Engineering Corp.

Mercuric Switch — — Control, Mercuric, 115/230V, 20 watts maximum
Type DA-231-3, 12-30" vacuum
Mercuric Corporation

Reducing Valve — — No. 227, 3/4" valve, Catalogue 73
Mason-Neilan Regulator Company

Refrigeration Unit — — Compressor, Expansion Chamber, Reservoir,
Brine, Circulating Pump, Centrifugal Pump from
W. S. Kirkpatrick & Co.

Resistance Thermometer — — Catalogue 9004, Page 8
Serial No. 229381
Brown Instrument Company

Supernatant Carts — — Trucks, Box, Standard Steel; Fig. 870-3
Code LURR, Fig. 871 and 975
Nutting Truck and Caster Co.

Vacuum Unit — — from Yoeman Brothers Company
Chicago, Ill.