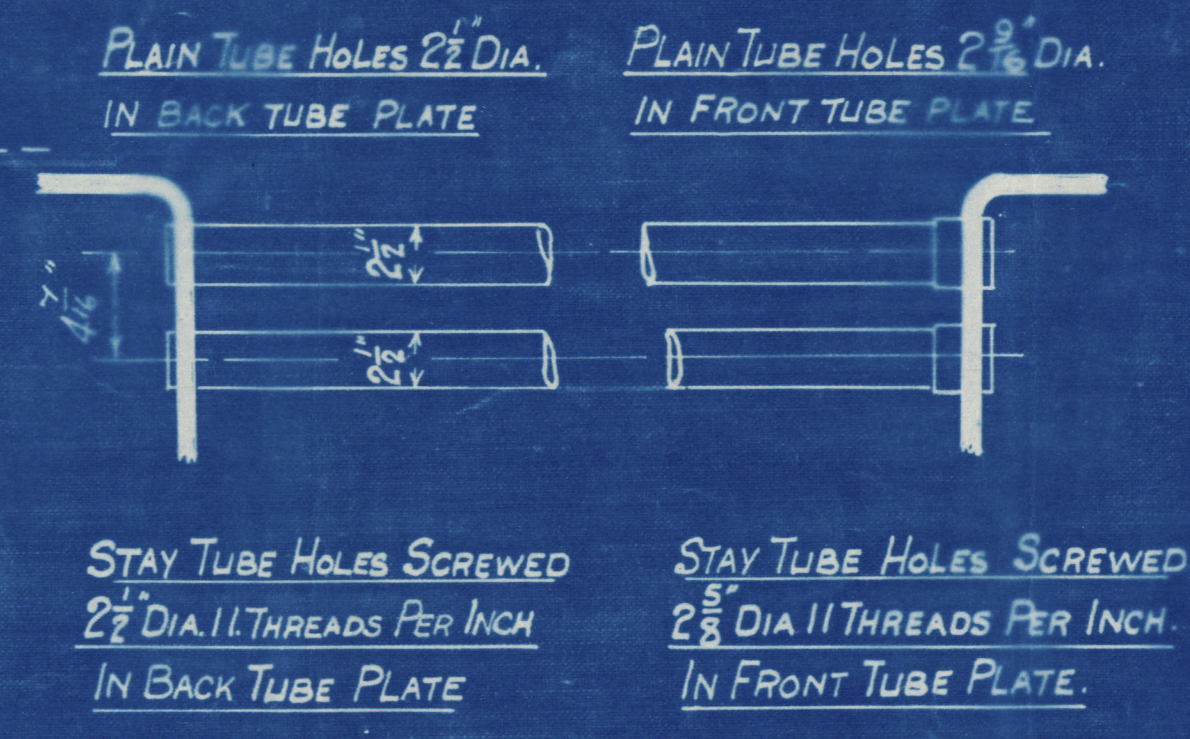
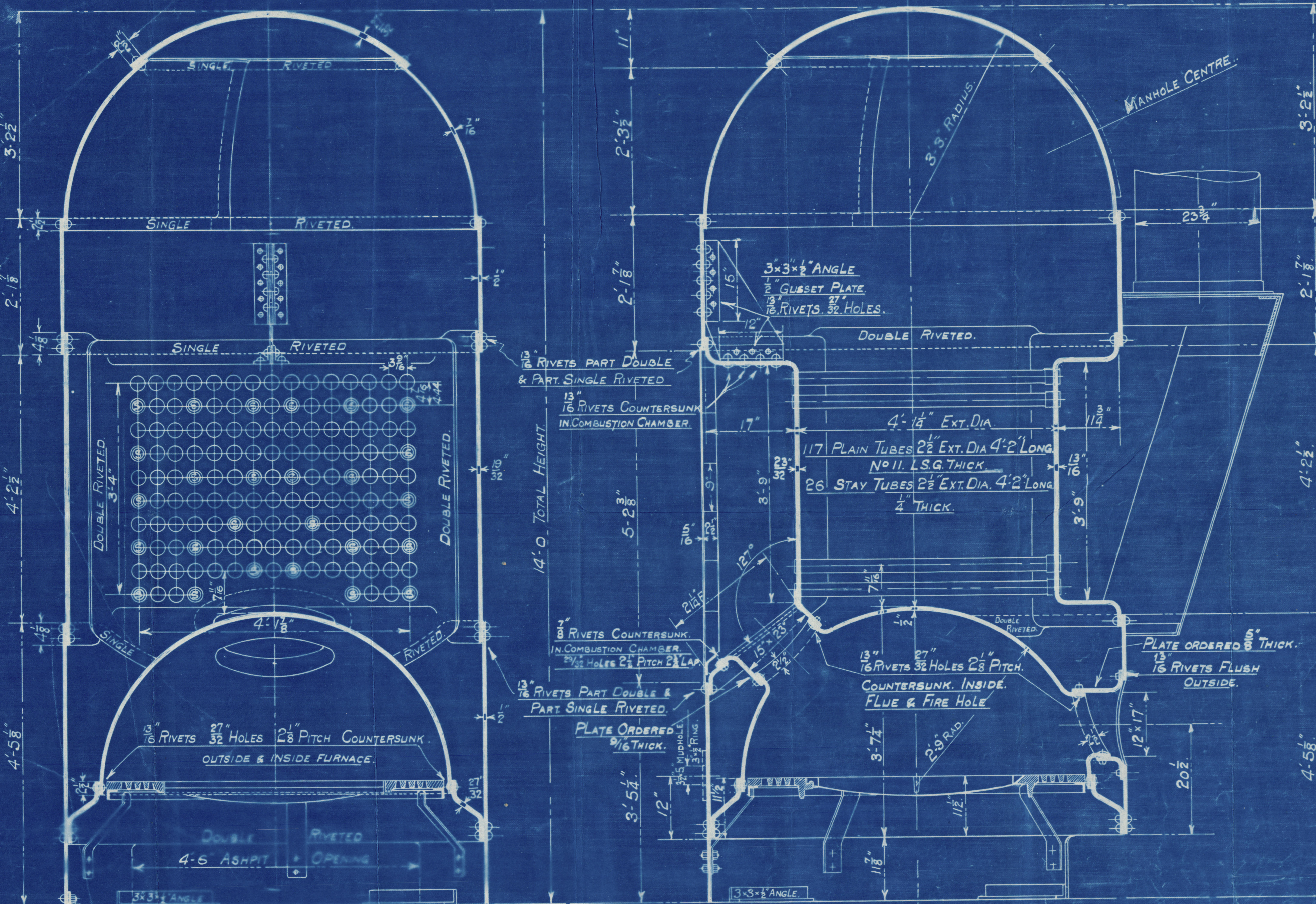


# COCHRAN PATENT VERTICAL MULTITUBULAR BOILER

## HORIZONTAL FLUE TUBES



| HEATING SURFACE |               |
|-----------------|---------------|
| TUBES           | 373.50 FT.    |
| PLATE           | 77.50 FT.     |
| TOTAL           | 450.80 FT.    |
| GRATE AREA      | 22.50 SQ. FT. |

**LLOYDS**

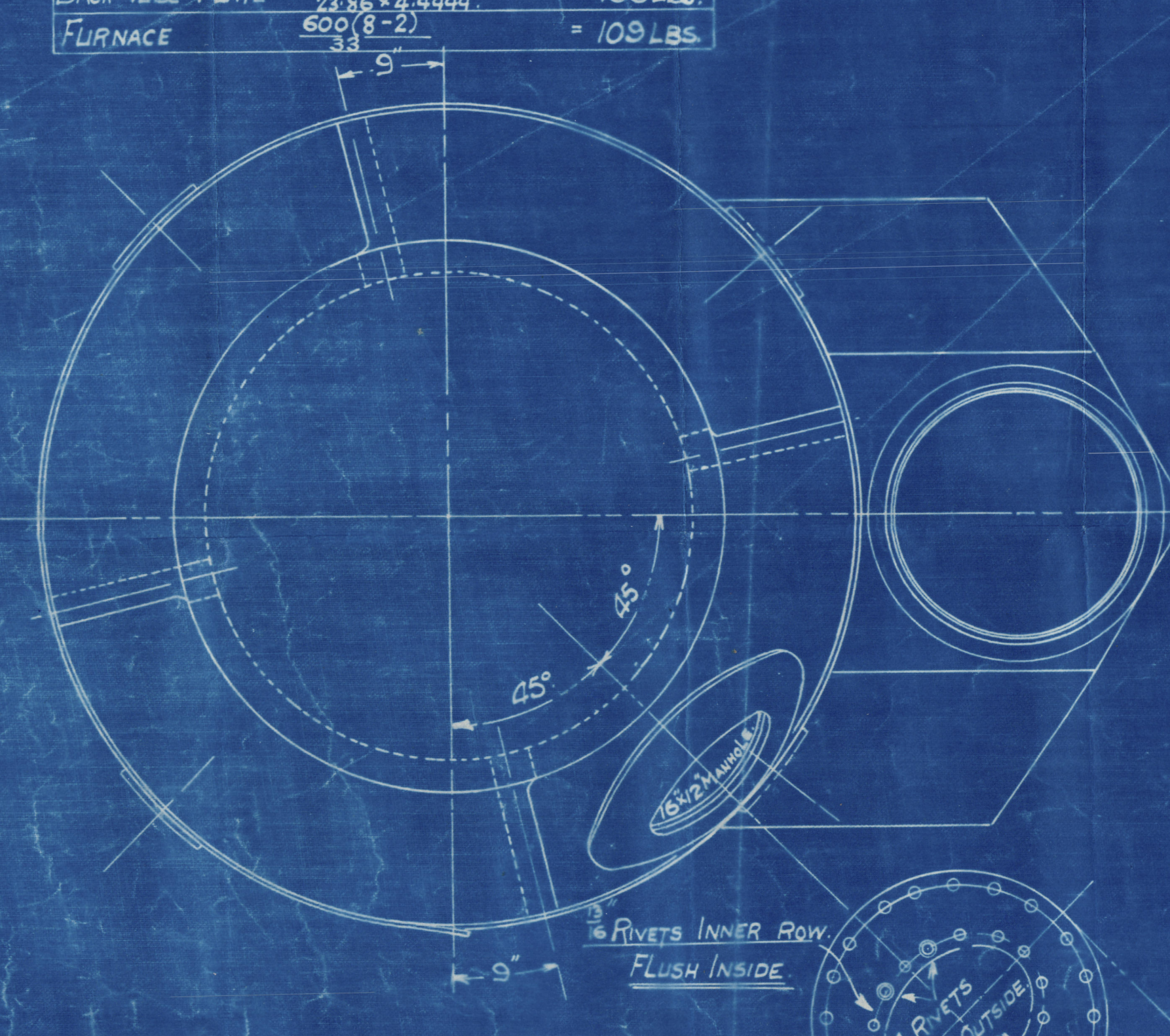
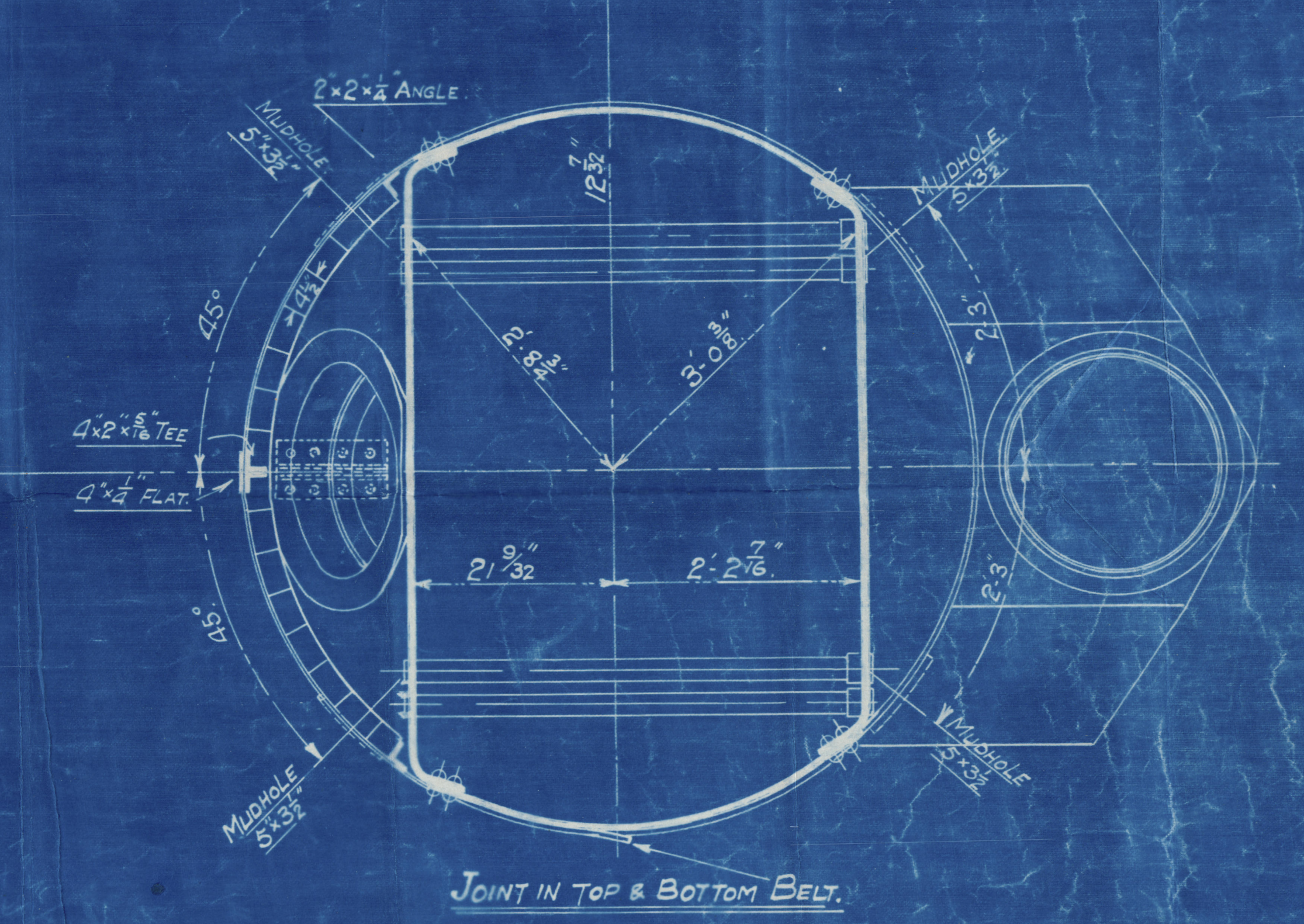
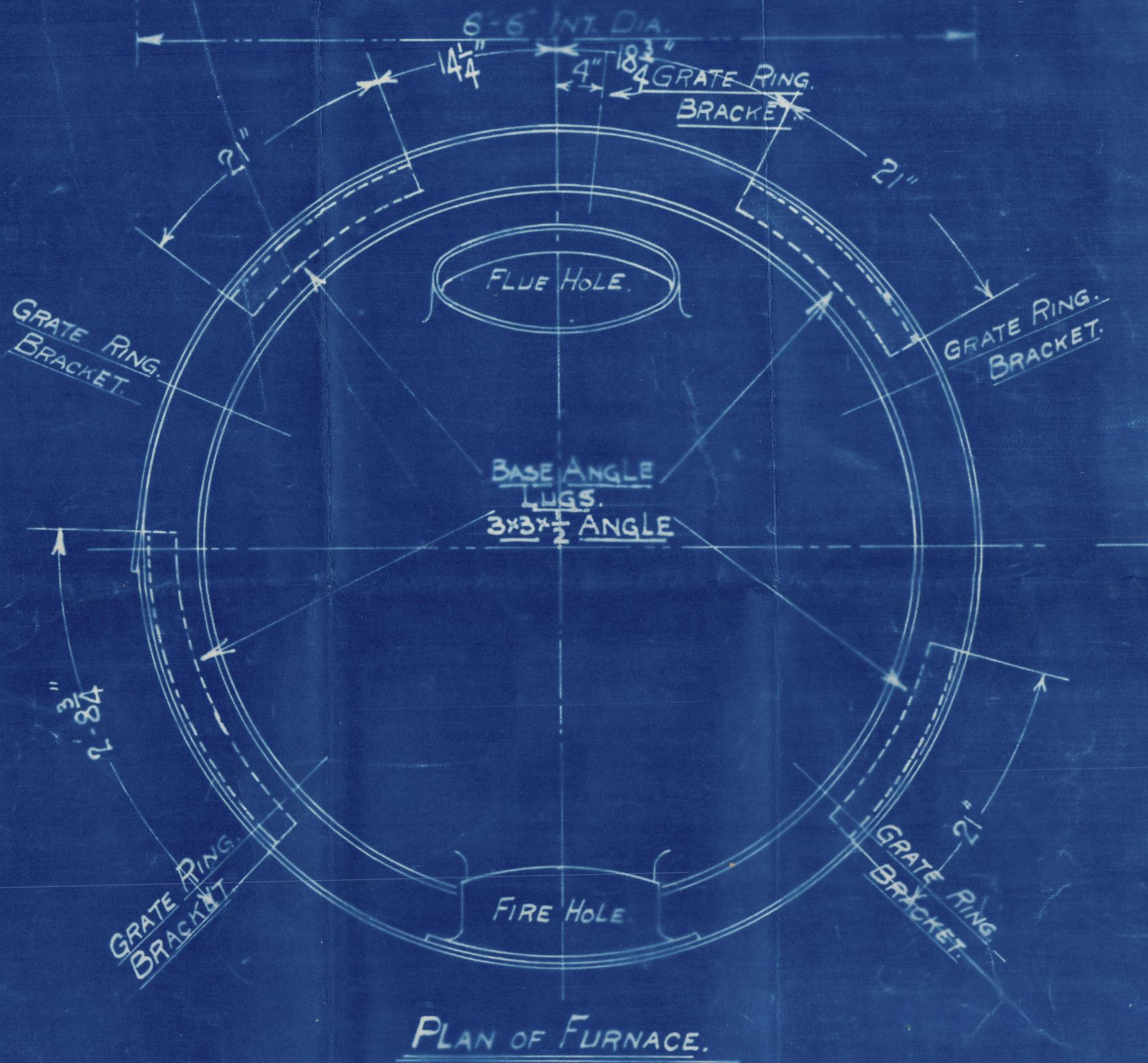
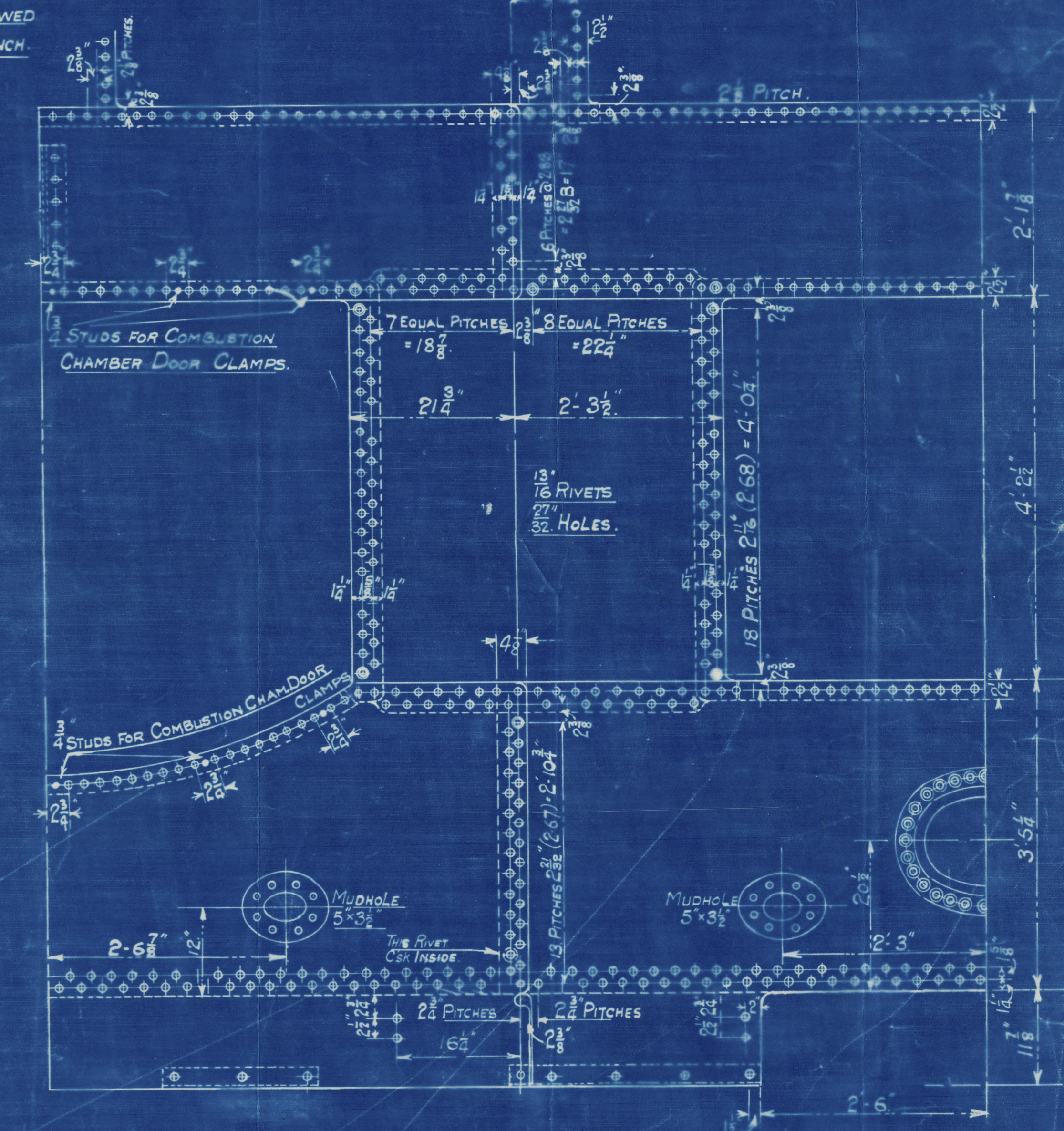
|                  |   |
|------------------|---|
| PLATE            | $2.67 \times 84375 \times 100 = 68.5\%$                             |
| RIVETS           | $2 \times 55914 \times 85 = 66.6\%$                                 |
| FRONT TUBE PLATE | $4.444 \times 2.59375 \times 100 = 41.7\%$                          |
| BACK TUBE PLATE  | $4.444 \times 2.5 \times 100 = 43.7\%$                              |
| SHELL            | $20.5 \times 666 \times (8-2) = 105 \text{ LBS.}$                   |
| FRONT TUBE PLATE | $20.5 \times 437 \times (13-2) \times 26 = 120 \text{ LBS.}$        |
| BACK TUBE PLATE  | $20.5 \times 437 \times (11.5-2) \times 26 = 120.5 \text{ LBS.}$    |
| FURNACE          | $1250 \times (8-2) = 113.6 \text{ LBS.}$                            |
| <i>opening</i>   | $576 \times 13 \frac{1}{2} \div 2 \times 74 = 66 = 10 \text{ inch}$ |

**BOARD OF TRADE**

|                  |   |
|------------------|---|
| PLATE            | $2.67 \times 84375 \times 100 = 68.5\%$                           |
| RIVETS           | $2 \times 55914 \times 4.9 \times 23 \times 100 = 70.7\%$         |
| FRONT TUBE PLATE | $4.444 \times 2.59375 \times 100 = 41.7\%$                        |
| BACK TUBE PLATE  | $4.444 \times 2.5 \times 100 = 43.7\%$                            |
| SHELL            | $28 \times 2240 \times 66.5 \times 5 \times 2 = 113 \text{ LBS.}$ |
| FRONT TUBE PLATE | $26 \times 2240 \times 41.7 \times 8.125 = 166 \text{ LBS.}$      |
| BACK TUBE PLATE  | $26 \times 2240 \times 43.7 \times 7.187 = 136 \text{ LBS.}$      |
| FURNACE          | $14000 \times 5 \div 66 = 106 \text{ LBS.}$                       |

**BUREAU VERITAS**

|                  |   |
|------------------|---|
| PLATE            | $2 \times 28 \times 2240 \times 68.5 (5-04) = 127.5 \text{ LBS.}$     |
| RIVETS           | $2 \times (2 \times 5591) \times 24 \times 2240 = 107.5 \text{ LBS.}$ |
| FRONT TUBE PLATE | $10400 \times 8125 \times (4.444 - 2.59) = 147 \text{ LBS.}$          |
| BACK TUBE PLATE  | $10400 \times 7187.5 \times (4.444 - 2.5) = 136 \text{ LBS.}$         |
| FURNACE          | $600 (8-2) \div 33 = 109 \text{ LBS.}$                                |



Approved 24.2.19  
**PATENT BOILER N° 8230.**  
**6'-6" x 14'-0" x 450# x 100 LBS.**

SCALE 1 INCH TO 1 FOOT  
 SIEMENS MARTIN MILD STEEL PLATES.  
 PLATES NOT EXPOSED TO FLAME OR FLANGED ... 28 TO 32 TONS  
 PLATES EXPOSED TO FLAME OR FLANGED EXCEPT FEE CAN. 26 TO 30 TONS  
 FURNACE CROWN ... 26 TO 29 TONS

**COCHRAN & CO ANNAN, LD.**  
 ENGINEERS & BOILERMAKERS  
 ANNAN, SCOTLAND

**DRAWING N° 11644**

8230 11644

COCHRAN & CO., ANNAN, LD.

Boiler No. 8230

Drawing No. 11644

100 lbs per sq mch.

Insulation boiler:-

No 15193  
Lloyd's Test  
200 lbs  
H.P. 100 lbs  
P.M.C. 26/3/20

Lisoy

GLASGOW REPORT No. 39784

See 10733

W115-0107



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Foundation