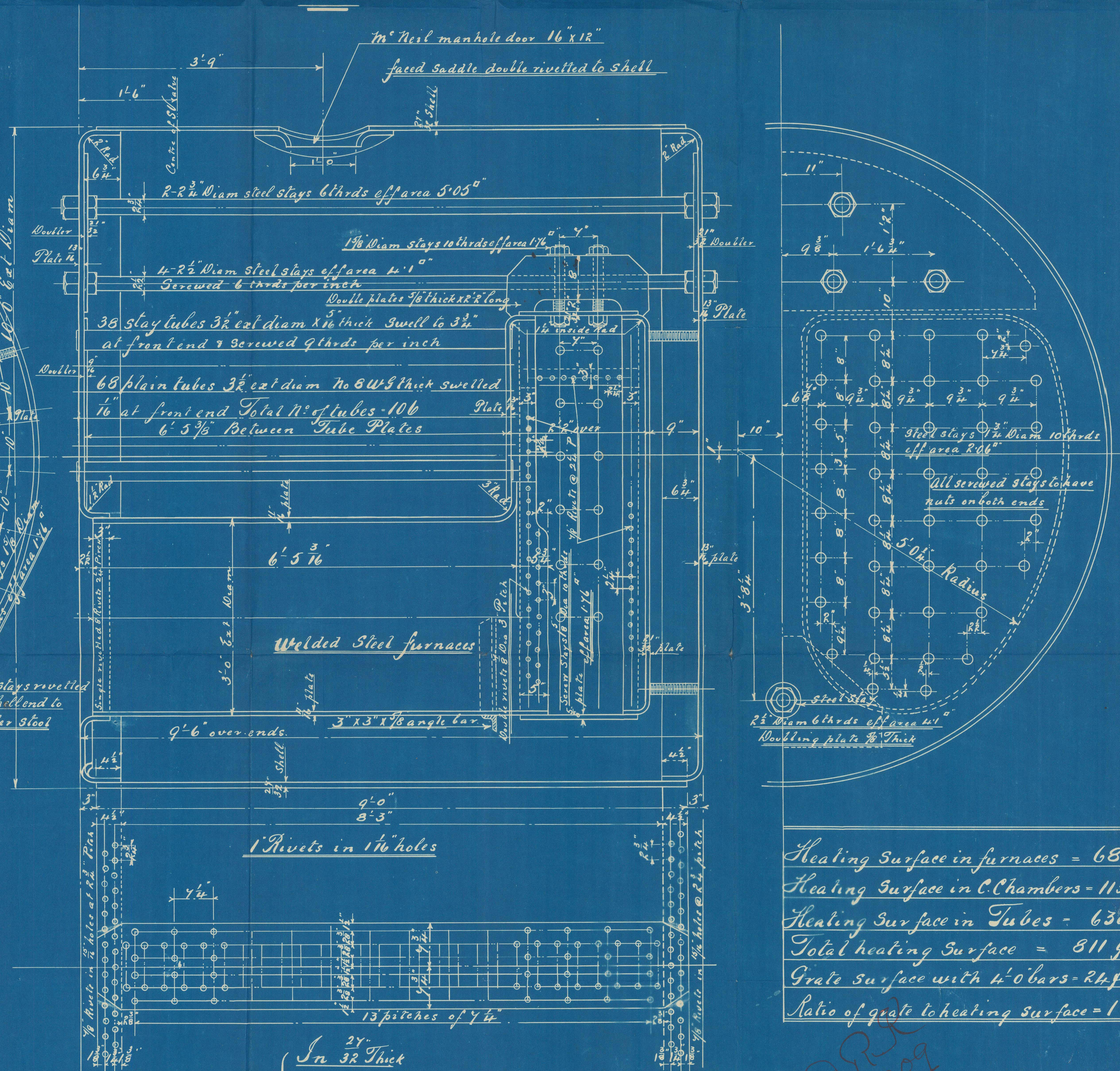


*All plates, rivets & Stays of Steel
Tubes of iron. Tensile strength of
Shell plates & Butt Straps 28 to 32
tons per Square inch*



$$\text{Longitudinal Plate between Rivets} \quad \frac{P \cdot D}{P} \lambda \frac{100}{1} = \frac{7.25 \cdot 106}{7.25} \times \frac{100}{1} = 85.3\%$$

$$\text{Seam Rivets} \quad \frac{N \times A \times 165}{P \times T \times H} = \frac{4 \times 886 \times 7 \times 85}{7.25 \times 64 \times 4} = 86.5\%$$

$$\text{Shell } 32 \text{ thick } 110 \text{ Internal Diam} \quad \frac{2R(13\frac{1}{2} - R) \times 85.3}{118 \cdot 312} = 182 \text{ lbs}$$

$$\text{End plates in seam space } 16 \text{ thick } 32 \text{ Doubler} \quad \frac{C(T + \frac{1}{2})}{\frac{P \cdot D}{2}} = \frac{15 \times 18\frac{1}{2}}{(22 + \frac{14 + 11}{2})} \cdot \frac{1}{2}$$

$$\text{Greatest pitch of stays } 1'10" \times \frac{14 + 11}{R} = \frac{175 \times 342 \cdot 2}{320 \cdot 1} = 188 \text{ lbs.}$$

$$\text{Top Row Main stays area } 5'05" \text{ Max pitch } 1'10" \times \frac{14 + 11}{2} = \frac{10 \cdot 00 \times 85.05}{R \times 12.5} = 191 \text{ lbs.}$$

$$\text{Bottom Main Stays area } 4'1" \text{ Max pitch } 1'6\frac{3}{4}" \times \frac{14 + 10}{2} = \frac{10 \cdot 00 \times 4 \cdot 1}{18 \cdot 75 \times 12} = 189 \text{ lbs}$$

$$\text{Wide space between nests of tubes } 16 \text{ plate } 16 \text{ Doubler} \quad \frac{140 \times (T + \frac{1}{2})}{P^2} = \frac{140 \times 17.5^2}{15^2} = 190 \text{ lbs.}$$

$$\text{Wide space between CC Backs } 16 \text{ plate } 16 \text{ stays } 13 \times 18" \quad \frac{C \times T^2}{2} = \frac{135 \times 169}{2} = \frac{135 \times 110 \cdot 25}{190 + 64} = 190 \text{ lbs.}$$

$$\text{CC Backs } 16 \text{ plate } 32 \text{ Stays } 9\frac{3}{4}" \times 8\frac{1}{4}" \quad \frac{C \times T^2}{2} = \frac{135 \times 110 \cdot 25}{2} = \frac{135 \times 110 \cdot 25}{81 \cdot 5} = 182 \text{ lbs.}$$

$$\text{CC Tops } 32 \text{ plate } 16 \text{ Stays } 10\frac{1}{2}" \times 7" \quad \frac{C \times T^2}{2} = \frac{135 \times 110 \cdot 25}{2} = \frac{135 \times 110 \cdot 25}{110 \cdot 25 + 49} = 187 \text{ lbs}$$

$$\text{CC Sides } 8 \text{ plate } 16 \text{ Stays } 10" \times 7" \quad \frac{C \times T^2}{2} = \frac{135 \times 110 \cdot 25}{2} = \frac{135 \times 110 \cdot 25}{110 \cdot 25 + 49} = 181 \text{ lbs.}$$

$$\text{Turnaces } 11 \text{ thick} \quad \frac{C \times D^2 \times T}{36} = \frac{50 \times (300 \times 887.5 - 71.5)}{36} = 187 \text{ lbs}$$

$$\text{Girders } (L - P) \times D \times L \quad \frac{C \times D^2 \times T}{(35 \cdot 4) \times 10 \cdot 5 \times 25} = \frac{10660 \times 64 \times 1 \cdot 25}{35 \cdot 4 \cdot 5} = 181 \text{ lbs.}$$

$$\text{C.C. Back Stays } 9\frac{3}{4}" \times 8\frac{1}{4}" \times 14 \text{ Dia Area } 206 \quad \frac{2 \cdot 06 \times 9000}{9 \cdot 45 \times 8 \cdot 25} = 236 \text{ lbs}$$

$$\text{C.C. Side & Top Stays Max pitch } 10\frac{1}{2}" \times 7" \text{ area } 176 \quad \frac{176 \times 8000}{10 \cdot 5 \times 4} = 184 \text{ lbs}$$

Butt Straps { In $\frac{27}{32}$ Thick
Out $\frac{27}{32}$ Thick

JOB NO		
1	off	815
1	"	816
1	"	817
1	"	822

Heating Surface in furnaces = 68 sq. ft.
Heating Surface in C. Chambers = 113 sq. ft.
Heating Surface in Tubes = 630 sq. ft.
Total heating Surface = 811 sq. ft.
Grate surface with 4'0 bars = 24 sq. ft.
Ratio of grate to heating surface = 1 : 33.8

F
5

J. Abernethy & Co.

Main Boilers

N^{os} 815, 16, 17.

815 / S.S. "Maggie Gault"

Abercept N^o 10242.

816 / S.S. "Boulardbank"

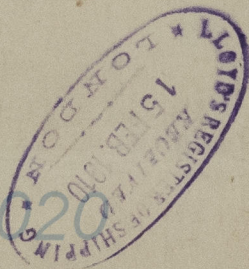
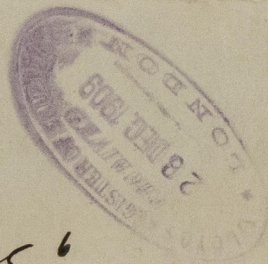
Abercept N^o 10256.

817 / S.S. "Ond Hill"

Abercept N^o 10267.

822 / S.S. "

Abercept N^o



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