



ALL SCREW STAYS W/
OUTSIDE SCREW STAYS ON BACK HEAD 2" DIA
MARKEED THUS ○ NET AREA 268.59 IN.
SCREW STAYS ON BACK HEAD MARKED THUS ○
WRAPPER SCREW STAYS 1/4 DIA NET AREA 197
GIRDER SCREW STAYS 3/4 DIA NUTS 3/8" DEEP
ALL SCREW STAYS EXCEPTING GIRDER SCREW
STAYS ARE RIVETED OVER BOTH ENDS
ALL SCREW STAYS TO HAVE 3/8" HOLE DRILLED 1/2"
BEYOND INNER SURFACE OF PLATE

CONSTRUCTED UNDER THE BOARD OF SUPERVISING INSPECTORS DEPT OF COMMERCE & LLOYDS RULES. FOR 220 LBS WORKING PRESSURE.									
DESCRIPTION	THICK	U. S. RULES			LLOYDS RULES				
SHELL	1/2"	$P = \frac{6000 \times 175}{8 \times 120} = 221^{\frac{1}{2}}$			$P = \frac{175 \times 104 \times (25)}{8 \times 120} = 226^{\frac{1}{2}}$			BOILER DATA	WYE BOILER HEATING SUR.
FURNACE	23/32"	$P = \frac{6000 \times 175}{8 \times 120} = 225^{\frac{1}{2}}$			$P = \frac{125 \times (115-2)}{8 \times 120} = 229^{\frac{1}{2}}$			TUBES	2571.5 #
TOP HEAD PLATE	5/16"	$P = \frac{175 \times 192}{8 \times 120} = 233^{\frac{1}{2}}$			$P = \frac{175 \times 192}{8 \times 120} = 233^{\frac{1}{2}}$			FURNACES	175 #
TOP HEAD STAY	3/8"	$P = \frac{16375 \times 16 \times 220}{8 \times 120} = 8403^{\frac{1}{2}}$			$P = \frac{10000 \times 170686}{8 \times 120} = 2172^{\frac{1}{2}}$			COMB CHAM	264.6 #
TUBE PLATE	27/32"	$P = \frac{6000 \times 175 \times 27000}{8 \times 120} = 228^{\frac{1}{2}}$			$P = \frac{675 \times 220 \times 103 \times 103}{40 \times 375} = 239^{\frac{1}{2}}$			BACKTUBE PLATE	55 #
C.C. GROUND PLATE	11/16"	$P = \frac{135 \times 112}{8 \times 120} = 234^{\frac{1}{2}}$			$P = \frac{135 \times 112}{8 \times 120} = 234^{\frac{1}{2}}$			TOTAL H.S.	3066 #
C.C. GROUND STAYS	1/2"	$P = \frac{8375 \times 8125 \times 220}{8 \times 120} = 1496^{\frac{1}{2}}$			$P = \frac{7300 \times 1297}{8 \times 120} = 226^{\frac{1}{2}}$			GRATE SUR.	65.6 #
WRAPPER PLATE	11/16"	$P = \frac{54 \times 138}{8 \times 120} = 228^{\frac{1}{2}}$			$P = \frac{100 \times 174}{8 \times 120} = 223^{\frac{1}{2}}$			H/S	46.7
WRAPPER STAYS	1/2"	$P = \frac{8 \frac{1}{2} \times 6 \frac{1}{2} \times 220}{8 \times 120} = 5817^{\frac{1}{2}}$			$P = \frac{2500 \times 1947}{8 \times 120 \times 6.5} = 228^{\frac{1}{2}}$			CHLORIMETER	13 #
C.C. BACK PLATE	3/4"	$P = \frac{120 \times 182}{8 \times 120} = 270^{\frac{1}{2}}$			$P = \frac{100 \times 182}{8 \times 120} = 225^{\frac{1}{2}}$			G.S. C/L	5.04
C.C. BACK STAYS	1/2"	$P = \frac{8 \times 8 \times 220}{8 \times 120} = 7050^{\frac{1}{2}}$			$P = \frac{7500 \times 1947}{8 \times 8 \times 120} = 234^{\frac{1}{2}}$			LENGTH OF GRATE	5' 4"
CROWN PLAINS	11/16"	$P = \frac{8175 \times 98}{8 \times 120} = 335,345-224^{\frac{1}{2}}$			$P = \frac{11850 \times 112 \times 2}{40 \times (8125 \times 8.375 \times 40)} = 268^{\frac{1}{2}}$				
30 TON COMB ON	1/4"	$P = \frac{30(300 \times 16) \times (2 \times 3453)}{8 \times 120} = 224^{\frac{1}{2}}$			$P = \frac{30(300 \times 16 \times 40)}{8 \times 120} = 225^{\frac{1}{2}}$				
WIDE WATER SPACE FRONT	1/8"				$P = \frac{140 \times 16.5^3}{132} = 225^{\frac{1}{2}}$				

TENSILE STRENGTH OF SHELL PLATES		60,000 TO 70,000 LBS.
"	"	FLANGE " 55,000 TO 65,000 LBS.
"	"	GIRDERS 60,000 TO 70,000 LBS.

WORKING PRESSURE 220# PER SQ. IN.
WATER TEST 330#

EVAPORATION 270 LBS OF WATER PER SQ. FOOT
OF GRATE PER HOUR

2 AS DRAWN	{ AFT STBD. FORD PORT
2 TO OTHER HAND	{ AFT PORT FORD STBD

ISSUE FOR CONT.	DATE	APP
37	7/4/20	
38	7/4/20	
40	7/4/20	
41	7/4/20	
42	7/4/20	
43	7/4/20	

APPROVED

SUN SHIPBUILDING COMPANY
CHESTER PENNA. U.S.A.

43 " ENGINEERING DEPARTMENT

Ex. 8.8 "Heil"

13 10445. John 114 BETHN. HERD

351 SCOTCH BOILER
222 351 SCOTCH BOILER

EXERCISES WORKING PRESSURE

DRAWN BY J.B. CHIEF DRAFTSMAN E.Y. Com

CHIEF BY PLA. 4231 P.A. Howe

SCALE 1" = 1 FT CHIEF ENGINEER

DR. 37-862-1 Lloyd's Po

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2010

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John Secretary
New York

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Samuel B.
Scottish Boiler



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FRONT TUBE SHEET

Lloyd's Register
Foundation