

FLOODING CALCULATIONS

DIMENSIONS COEFFICIENTS OF FORM E.T.C.

B.H. 2

NAME OF SHIP : D.C. ANASTASSIADES & A.CH. TSOETANIDES YARD. N° 30

SUBDIVISION LENGTH (L) = 55,75m SUBDIVISION BREADTH (B) = 9,70m MOULDED DEPTH (D) = 4,30m SUBDIVISION DEPTH (d+f) = 4,234m FALL IN SHEER (if any) = - THICKNESS OF BULKHEAD DECK = 0,009m	FREEBOARD TO MARGIN LINE (f) = 1,234m SUBDIVISION DRAFT (d) = 3,00m SHEER OF MARGIN LINE FORWARD (Sf) = 0,80m SHEER OF MARGIN LINE AFT (Sa) = 0,50m CRITERION NUMERAL (B.H.2A) (Cs) = -	FREEBOARD RATIO (f/d) = 0,4113 SHEER RATIO FORWARD (Sf/d) = 0,2668 SHEER RATIO AFT (Sa/d) = 0,1667 FACTOR OF SUBDIVISION (F) = 1	AVERAGE PERMEABILITY (u) (B.H. 2A)										
			AFTER END MACHINERY SPACE FORWARD END										
			95,000% 85,000% 95,000%										
BLOCK COEFFICIENT	COEFFICIENT OF MEAN WATERPLANE												
$\frac{\text{VOLUME OF DISPLACEMENT}}{L \times B \times d} = \frac{817,3}{1622,7} = 0,5035$	$C_1 = \frac{\text{AREA}}{L \times B} = \frac{4190}{55,75 \times 9,70} = 0,775$	$C_2 = \frac{\text{LONG. MOMT OF INERTIA}}{L^3 \times B} = \frac{76882}{5409 \times 55,75^3} = 0,0457$	CENTRE OF FLOTATION AFT OF AMIDSHIPS = 2,106 378 o/o of L										
SECTIONAL AREA COEFFICIENT (β ₁) = $\frac{\text{AREA OF SECTION TO CORRECTED MARGIN LINE}^*}{B \times d}$													
ORDINATE FROM AFT PERPENDICULAR (o/o of L)	0	10	15	20	30	40	45	50	60	70	80	85	90
COEFFICIENT	0,2269	0,4845	0,6358	0,7833	1,0723	1,2475	1,2855	1,2990	1,2615	1,0895	0,7938	0,6253	0,4398

NOT
 * INCLUSIVE OF SHARP BOWING
 + AS CORRECTED (PARABOLIC DECK LINE PASSING FROM TERMINAL POINTS)


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SECTIONAL AREA AT AFT PERPENDICULAR $6,6 \text{ m}^2 > \frac{1}{10} \times \text{AREA} = \frac{1}{10} \times 27,8 = 2,78 \text{ m}^2$
 BUT NO GREEN RULING AVAILABLE FOR DETERMINING EQUITABLE LENGTH

NAME OF SHIP: D.C. ANASTASSIADES & A.CH. TSORTANIDES YARD N° 30

RATIOS ETC (FROM TABLE)				COEFFICIENTS OF MEAN WATER PLANE										CONSTANTS	
BLOCK COEFFICIENT = 0.5035 FREEBOARD RATIO = 0.4113 SHEER RATIO FORWARD = 0.2668 SHEER RATIO AFT = 0.1667 FACTOR OF SUBDIVISION = 1				FOR STANDARD FORM (From Cross Curves)					FOR SHIP (From Table)					$\frac{m \alpha}{h} = \frac{0.0032 \times 0.641}{0.3008} = 0.0066$ $\frac{\alpha_1}{\alpha} = \frac{0.775}{0.641} = 1.209$ $\frac{m_1 \alpha_1}{h_1} = \frac{0.0457 \times 0.641}{0.3008 \times 0.775} = 1.228$	
				$\alpha = 0.641$ $m = 0.0308$ CENTRE OF FLOTATION ABAFT } AMIDSHIPS (PER CENT OF L) } = 4.10					$\alpha_1 = 0.775$ $m_1 = 0.0457$ CENTRE OF FLOTATION { ABAFT } AMIDSHIPS (PER CENT OF L) = 3.78						
				CENTRE OF FLOTATION OF SHIP { BEFORE } THAT OF STANDARD FORM (PER CENT OF L) = 0.32					= 100m						
									= 100m					m = 0.0032	
FOR STANDARD FORM				* VALVES OF FLOTATION	† DISTANCE OF NEW ORDNATE FROM CENTRE OF FLOTATION OF SHIP (X ₁)	‡ DISTANCE OF NEW ORDNATE FROM AMIDSHIPS	+ SECTIONAL AREA FOR SHIP AT NEW ORDNATES	FORM CORRECTION FACTOR = FIGURES IN COL (5) x COL (6) x COL (7)	FORWARD AND AFTER END			MACHINERY SPACE			
DISTANCE OF ORDNATE FROM A.P.	DISTANCE OF ORDNATE FROM CENTRE OF FLOTATION (X)	VALUES OF P = COL 2 + 100	SECTIONAL AREA COEFFICIENT FROM CROSS CURVES						β	β ₁	STANDARD FORM	SHIP		STANDARD FORM	SHIP
(1) ‡	(2) ‡	(3)	(4)	(5)	(6)	(7) ‡	(8) ‡	(9) ‡	(10) ‡	(11) ‡	(12) ‡	(13) ‡	(14) ‡	(15) ‡	16 ‡
A.T.						%L	net _h				%L	net _h		%L	net _h
15	30.90	0.3090	0.622	0.9794	1.254	38.74 ^a	42.52 ^a 23.71 ^a	0.937	2.185	18.455	49.65	22.67			
20	25.90	0.2590	0.782	0.9827	1.250	32.38 ^a	34.16 ^a 20.16 ^a	0.582	1.596	16.229	25.90	14.44	18.485	23.45	16.42
30	15.90	0.1590	1.068	0.9894	1.242	19.74 ^a	23.52 ^a 13.12 ^a	0.977	1.307	16.305	21.30	11.87	18.599	24.29	13.54
40	5.90	0.0590	1.255	0.9961	1.233	7.27 ^a	11.05 ^a 6.16 ^a	1.238	1.220	20.528	25.04	13.96	22.348	28.48	15.88
45	0.90	0.0090	1.320	0.9994	1.229	1.11 ^a	4.89 ^a 2.70 ^a	1.823	1.205	21.425	24.60	13.72	24.335	29.20	16.28
50	4.10	0.0410	1.345	1.0027	1.225	5.02 [‡]	1.24 [‡] 0.69 [‡]	1.342	1.215	18.568	23.52	13.11	21.925	26.62	14.85
60	14.10	0.1410	1.209	1.0094	1.217	17.16 [‡]	12.38 [‡] 7.46 [‡]	1.118	1.319	15.120	19.95	11.12	17.140	23.60	12.60
70	24.10	0.2410	0.900	1.0160	1.209	29.12 [‡]	25.34 [‡] 14.13 [‡]	0.717	1.542	14.426	22.25	12.41	16.249	25.05	13.97
80	34.10	0.3410	0.565	1.0227	1.201	49.95 [‡]	32.17 [‡] 20.72 [‡]	0.389	1.795	12.323	31.08	17.34	19.543		
85	39.10	0.3910	0.418	1.0260	1.198	46.84 [‡]	43.06 [‡] 24.00 [‡]	0.194	2.670	21.524	57.47	32.06			
F.T.															

AFTER BODY

FORE BODY

- * WHEN THE CENTRE OF FLOTATION OF SHIP IS { BEFORE } THAT OF STANDARD FORM THE (+) SIGN IS TAKEN FOR THE FORE BODY AND THE (-) SIGN FOR THE AFTER BODY
- + OBTAINED FROM CURVE OF COEFFICIENTS (β₁) DRAWN FROM PARTICULARS GIVEN IN TABLE
- ‡ PERCENTAGE OF LENGTH (L) OF SHIP

FLOODING CALCULATIONS

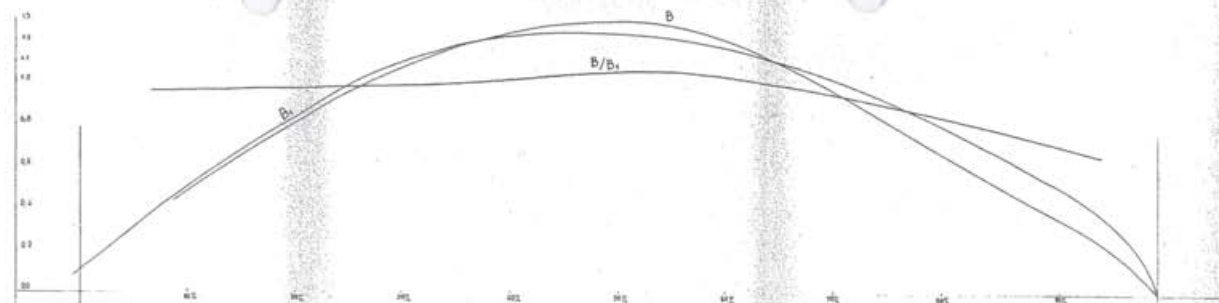
FLOODING LENGTHS FOR SHIP OF STANDARD FORM (expressed as a percentage of the length (L) of the ship)

NAME OF SHIP: D.C. ANASTASSIADES & A.G.H. TSORTANIDES YARD N° 30

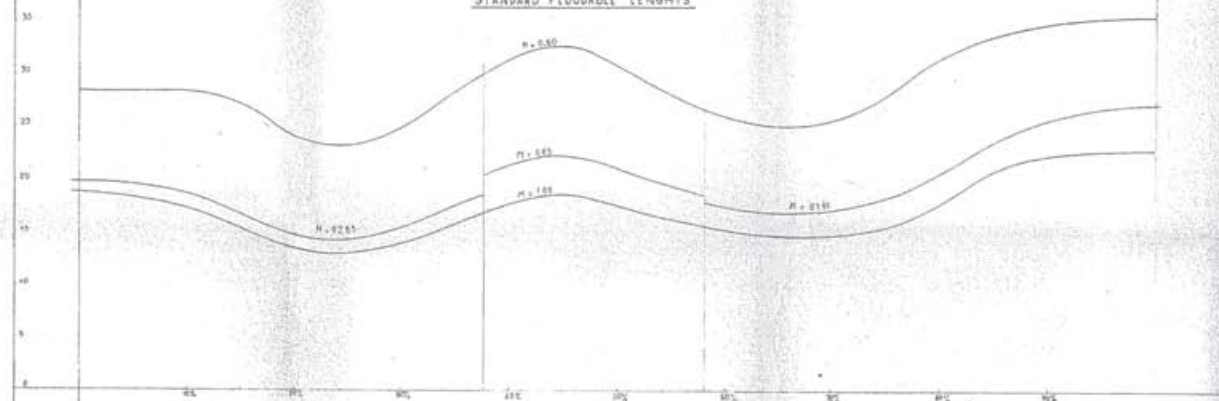
RATIOS FROM B.H. 2			FOR ANY PERMEABILITY μ , THE PERMEABILITY FACTOR (P.F.) IS GIVEN BY $1.5 \left(\frac{100-\mu}{\mu} \right)$							
BLOCK COEFFICIENT = 0.5035			THE FLOODABLE LENGTHS FOR $\mu=63$ MAY BE TAKEN AS 0.95 OF THE FLOODABLE LENGTHS FOR $\mu=60$							
FREEBOARD RATIO = 0.4113			THE FLOODABLE LENGTHS FOR $\mu=95$ MAY BE TAKEN AS 1.06 OF THE FLOODABLE LENGTHS FOR $\mu=100$							
SHEER RATIO FORWARD = 0.2668			AFTER END		MACHINERY SPACE		FORWARD END			
SHEER RATIO AFT = 0.1667			$\mu=95$ *	P.F. = 0.079	$\mu=85$	P.F. = 0.2647	$\mu=95$ *	P.F. = 0.079		
DISTANCE OF ORDINATE FROM THE AFTER PERPENDICULAR	FLOODABLE LENGTHS FROM CROSS CURVES		COL (2) - COL (1)		COL (3) x P.F.		FLOODABLE LENGTH	COL (3) x P.F.		FLOODABLE LENGTH
	$\mu=100$	$\mu=60$	COL (4) + COL (1)	COL (3) x P.F.	COL (6) + COL (1)	COL (3) x P.F.	COL (8) + COL (1)			
% of L	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
A.T	20.50	30.85	10.35	0.816	21.316					
15	17.33	31.58	14.25	1.125	18.455					
20	15.27	27.42	12.15	0.959	16.229	3.215	18.485			
30	15.33	27.68	12.35	0.975	16.305	3.269	18.599			
40	19.33	34.51	15.18	1.198	20.528	4.018	23.348			
45	20.23	35.36	15.13	1.195	21.425	4.005	24.235			
50	18.28	32.05	13.77			3.645	21.925	1.088	19.368	
60	14.26	25.14	10.88			2.880	17.140	0.860	15.120	
70	13.65	23.47	9.82			2.599	16.249	0.776	14.426	
80	16.33	28.47	12.14			3.213	19.543	0.993	17.323	
85	20.23	36.60	16.37					1.294	21.524	
F.T.	24.45	33.18	8.73					0.690	25.140	

[Signature]
 ARCHITECT
 18 BUNGLOW ST.
 ATHENS

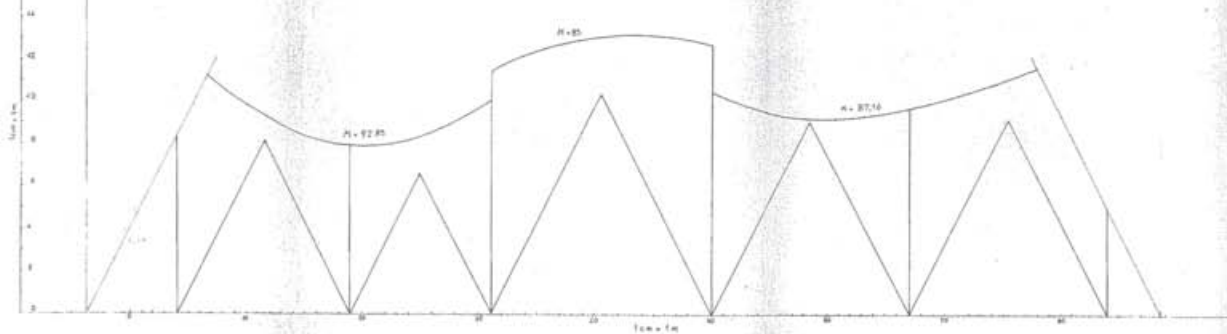
SECTIONAL AREA COEFFICIENTS



STANDARD FLOODABLE LENGTHS



PERMISSIBLE LENGTHS



DISPLACEMENT BEFORE DAMAGE 650 t

DEATH BEFORE DAMAGE 2.75 m

FACTOR OF SUBDIVISION 1

ENGINEER & ARCHT
 DR. KARL E. HANSEN
 1940 DEPT. OF
 NAVY WASHINGTON

DR. ANASTASOPOULOS & CO. 1509 F STREET, N.W. WASHINGTON, D.C.	SCALE
PASSINGER MOTORVEHSEL OF 600 TONS	P.M.V. 1010
FLOODING CALCULATIONS STANDARD DIAGRAM METHOD	DATE: OCTOBER 1939