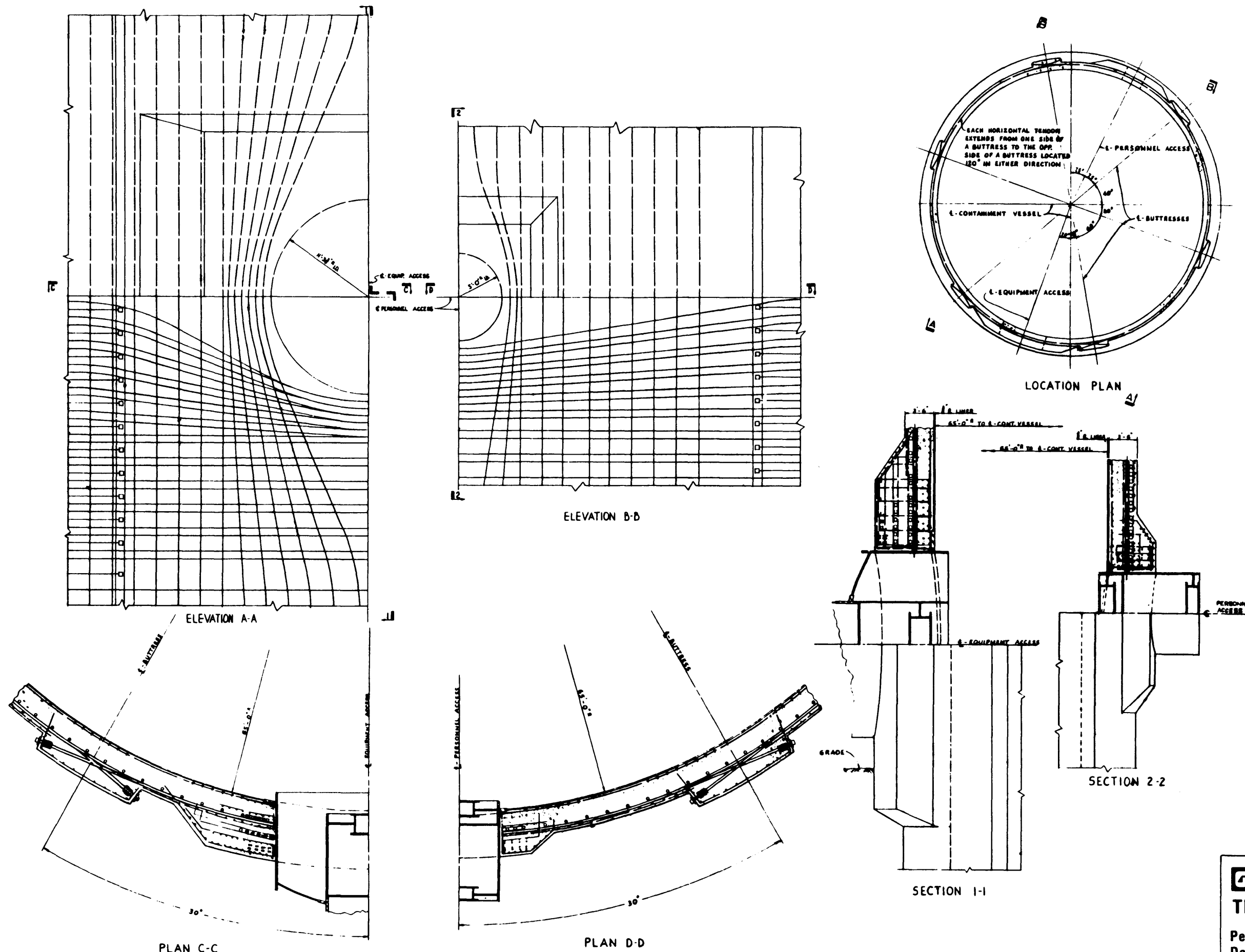




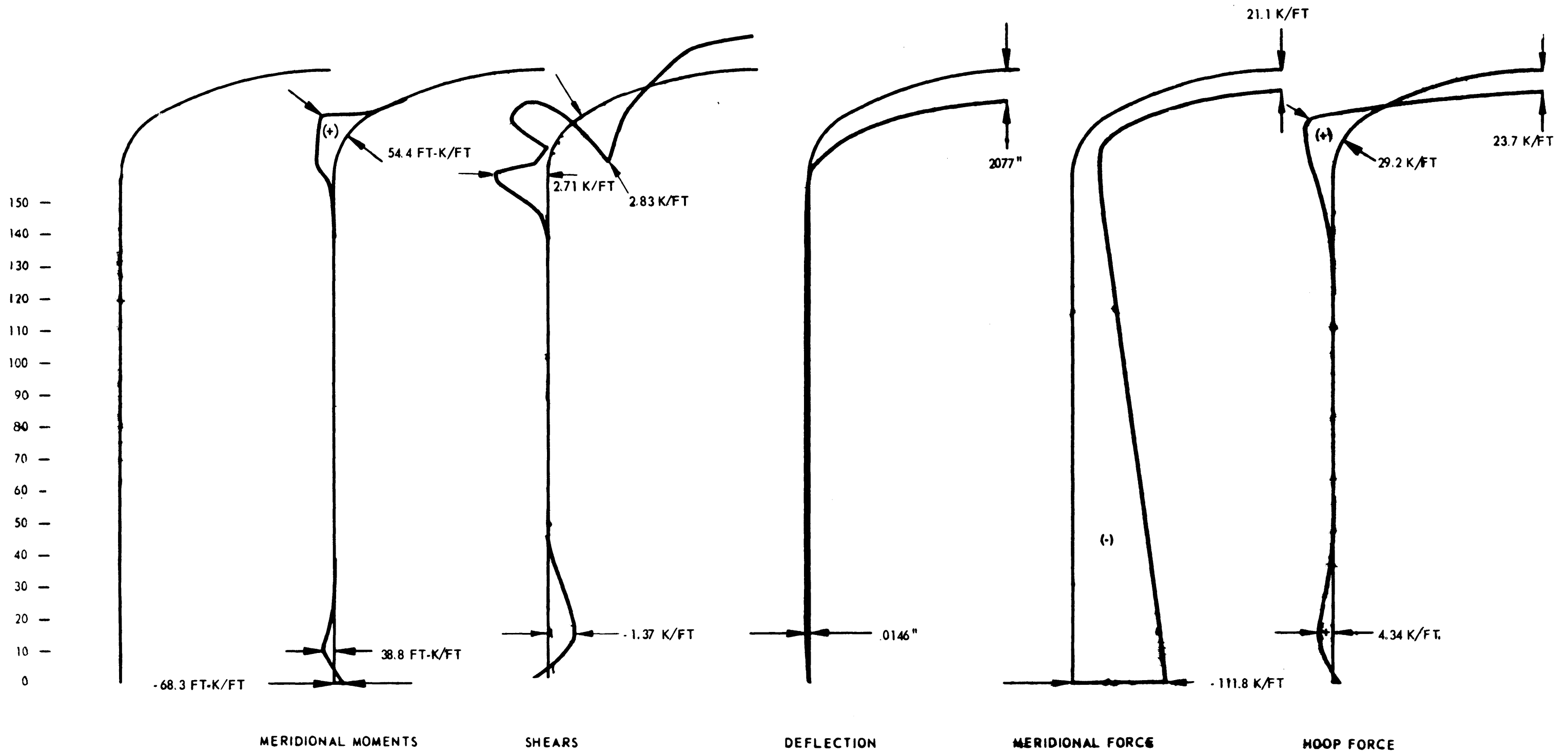
## **TMI UFSAR**

Figure 5.2-2

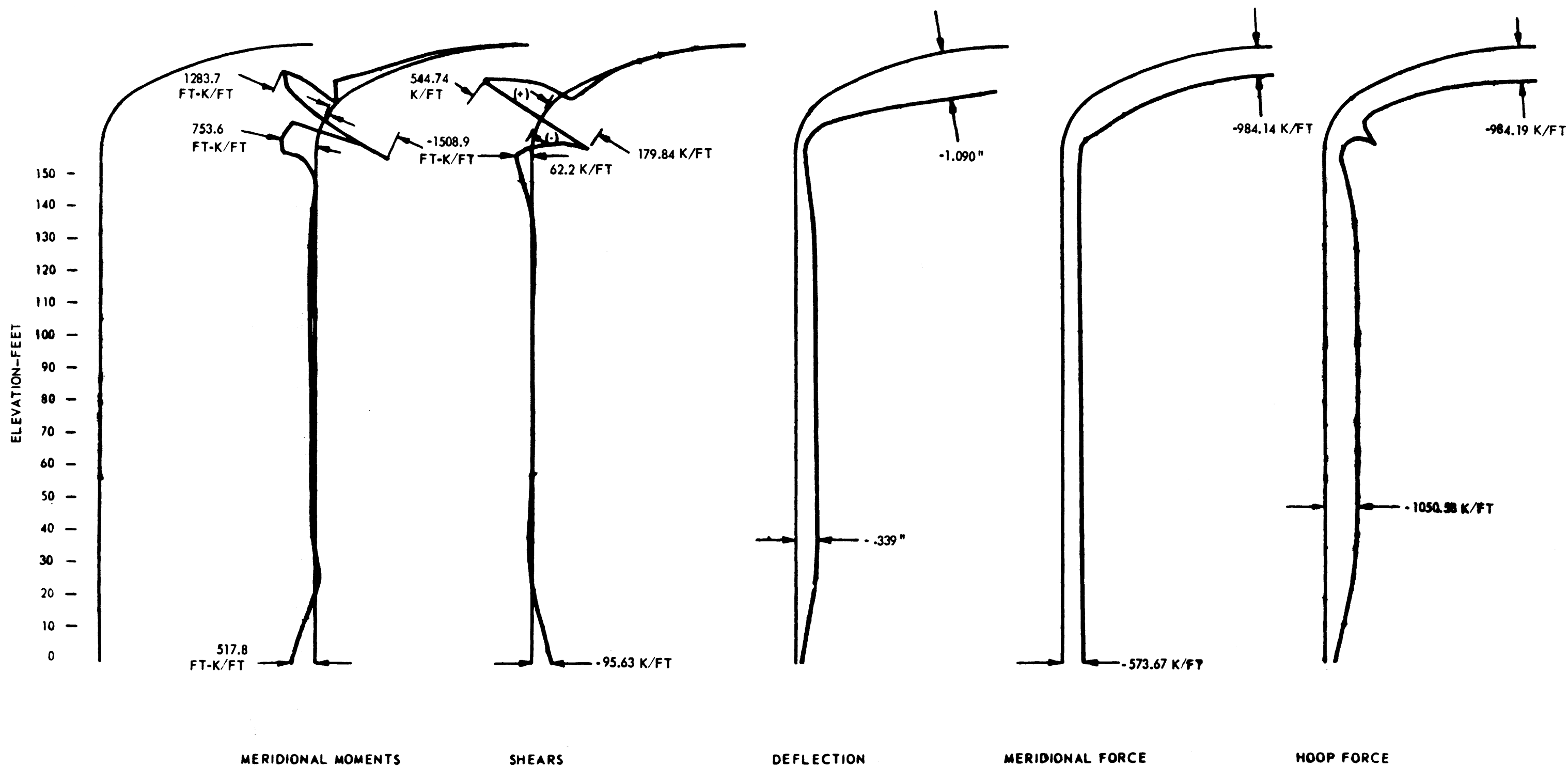
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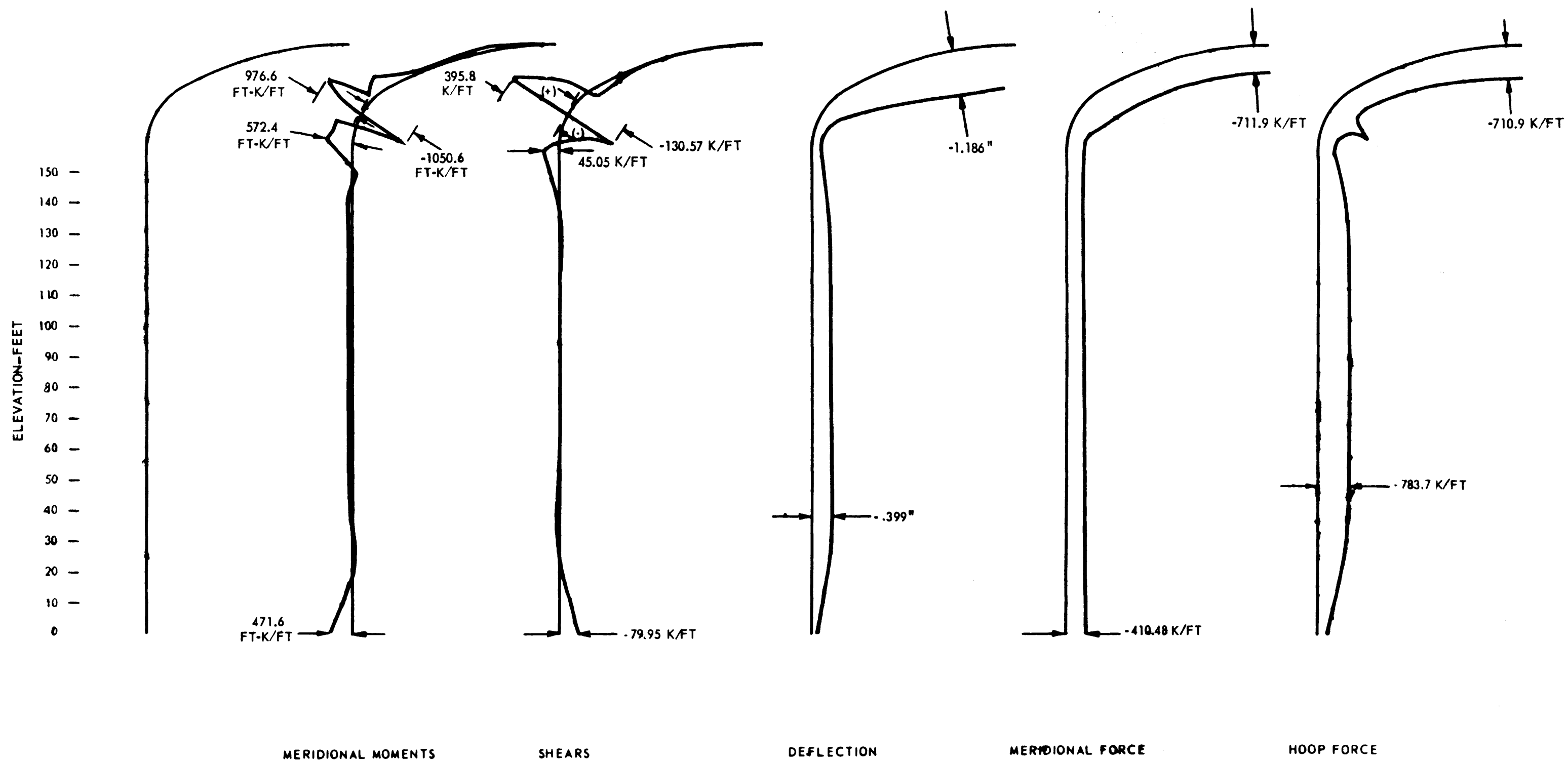
p. 5.FIG-4

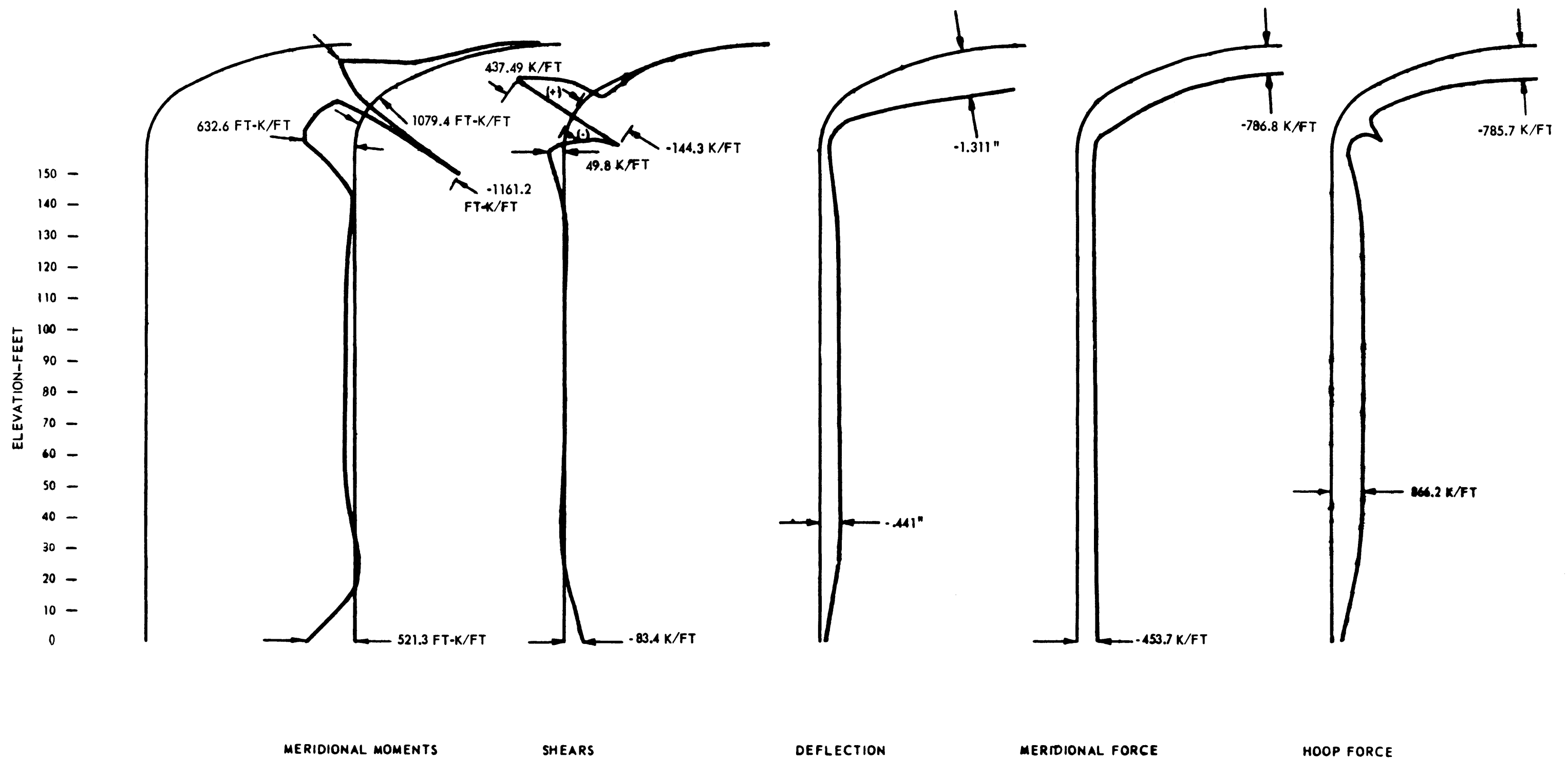


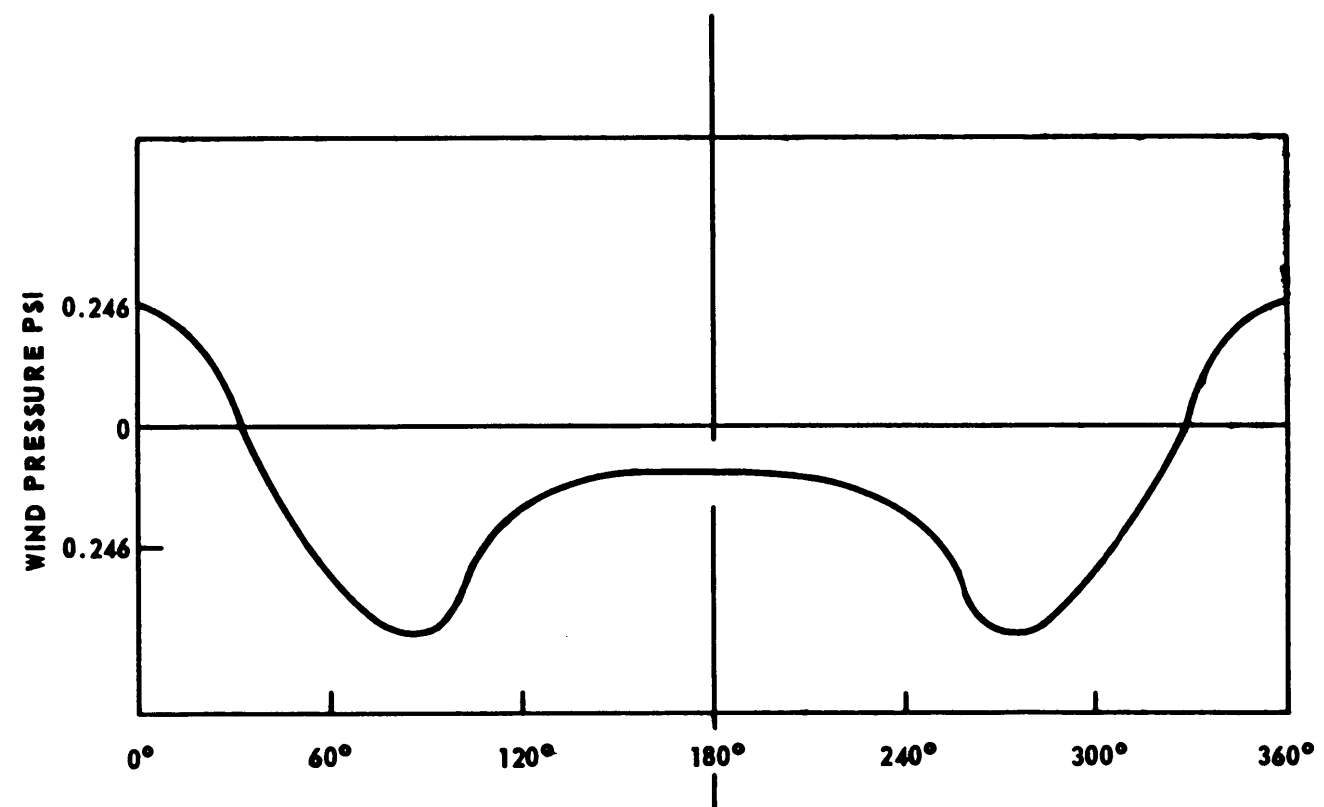
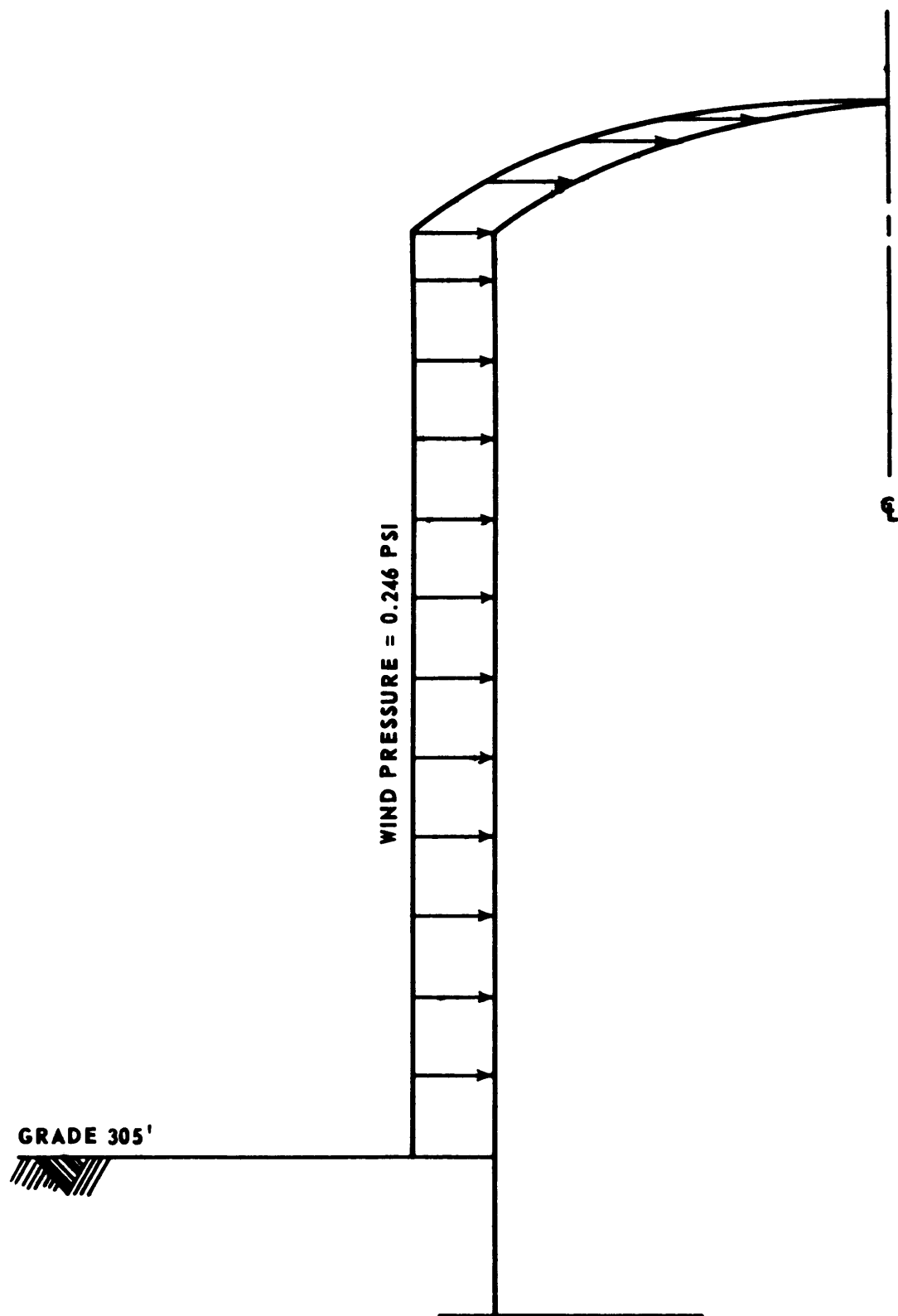
p. 5.FIG-5



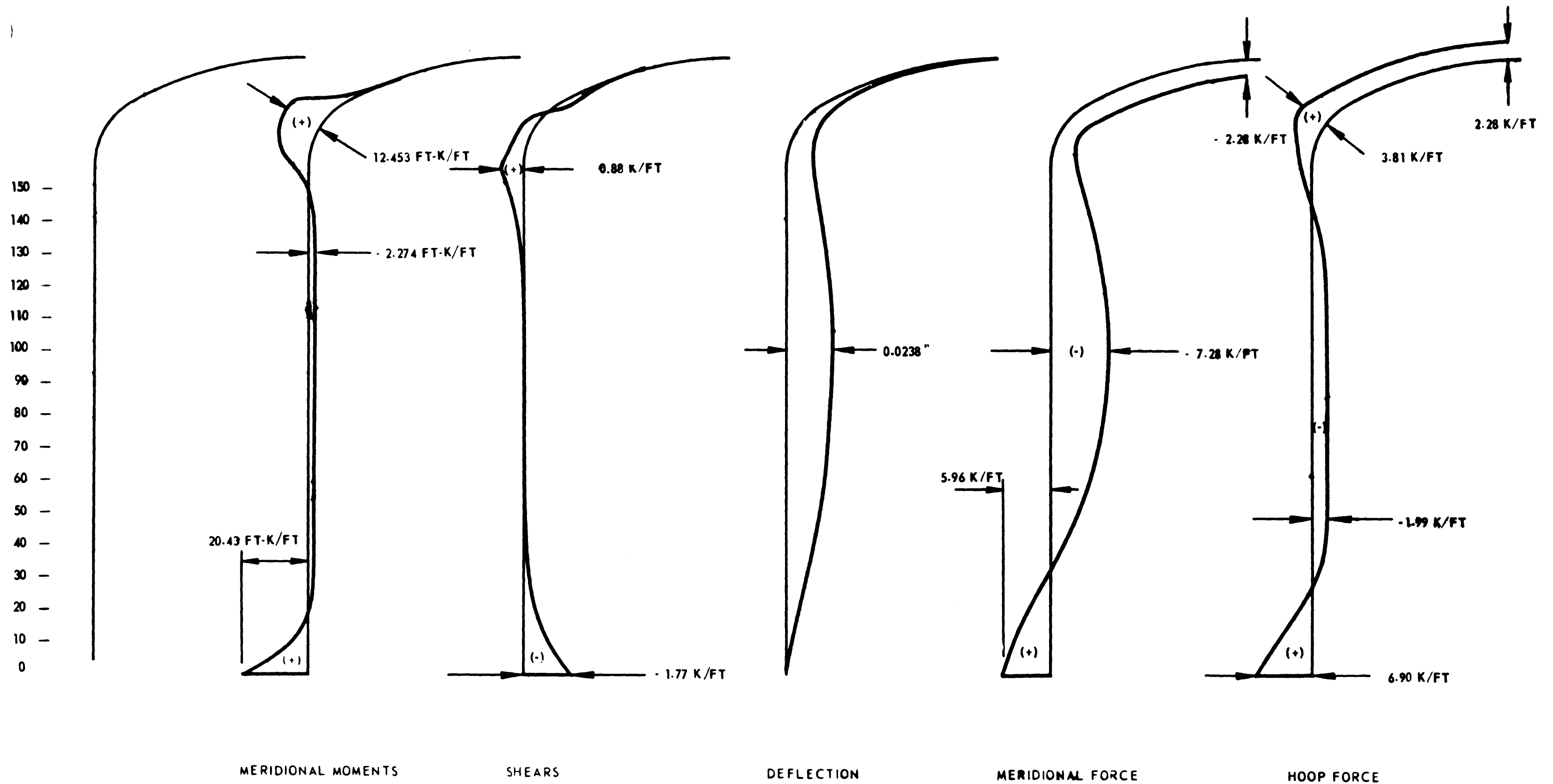
p. 5.FIG-6

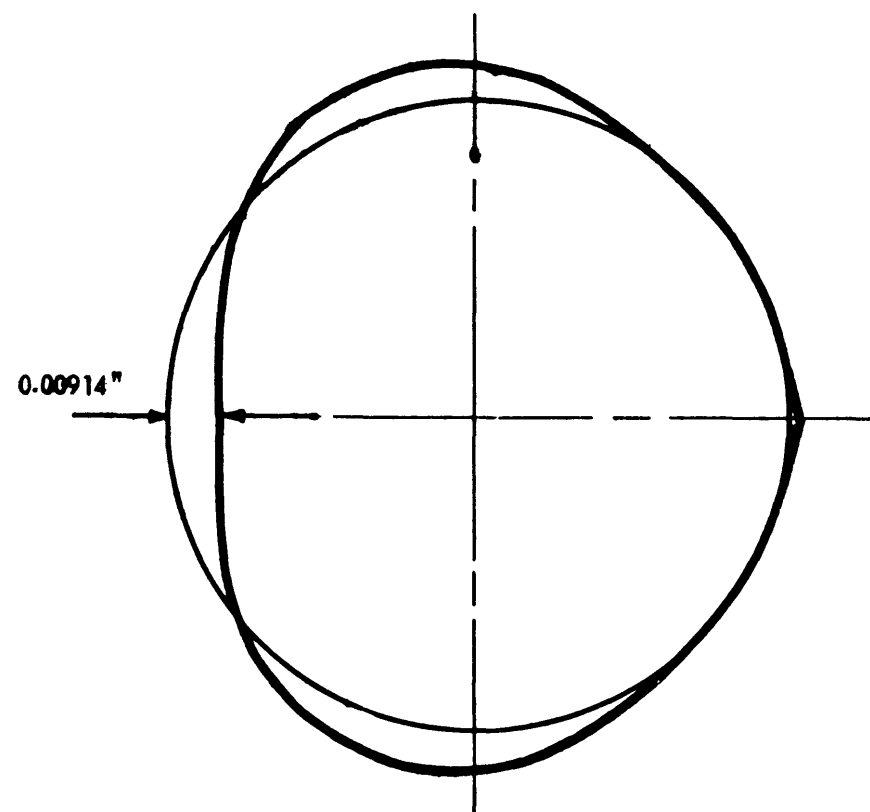




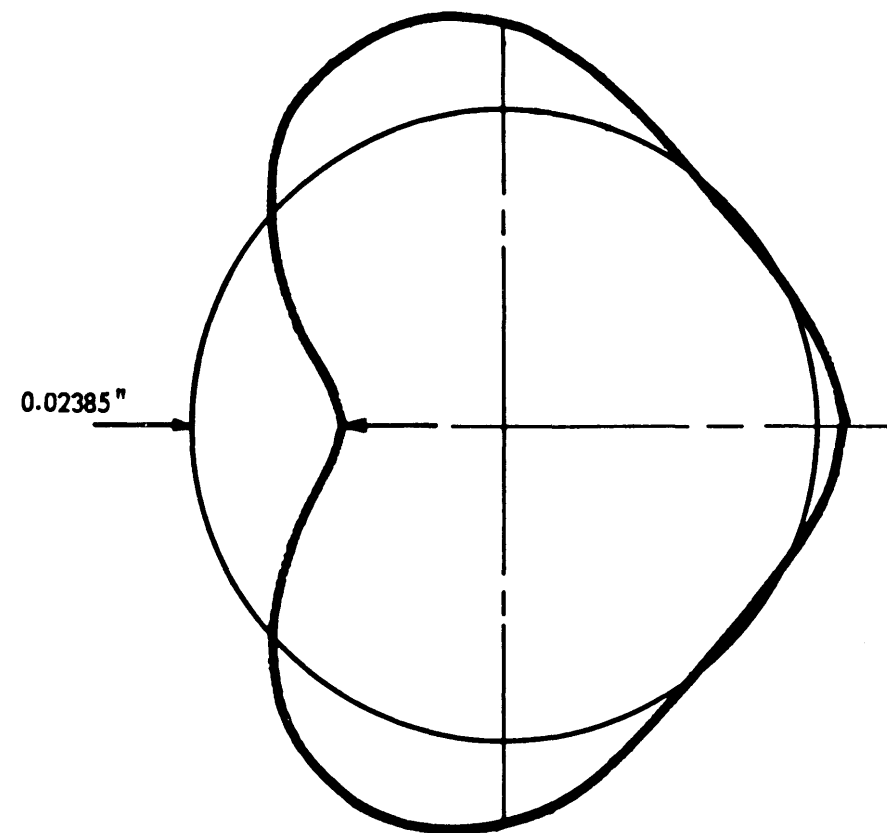




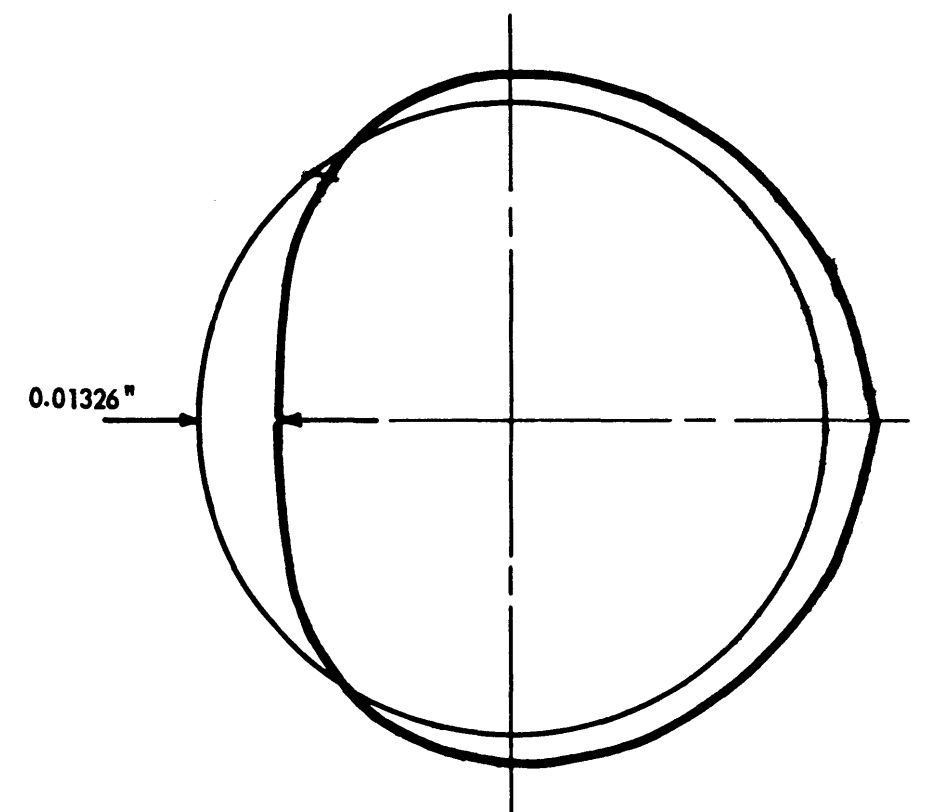




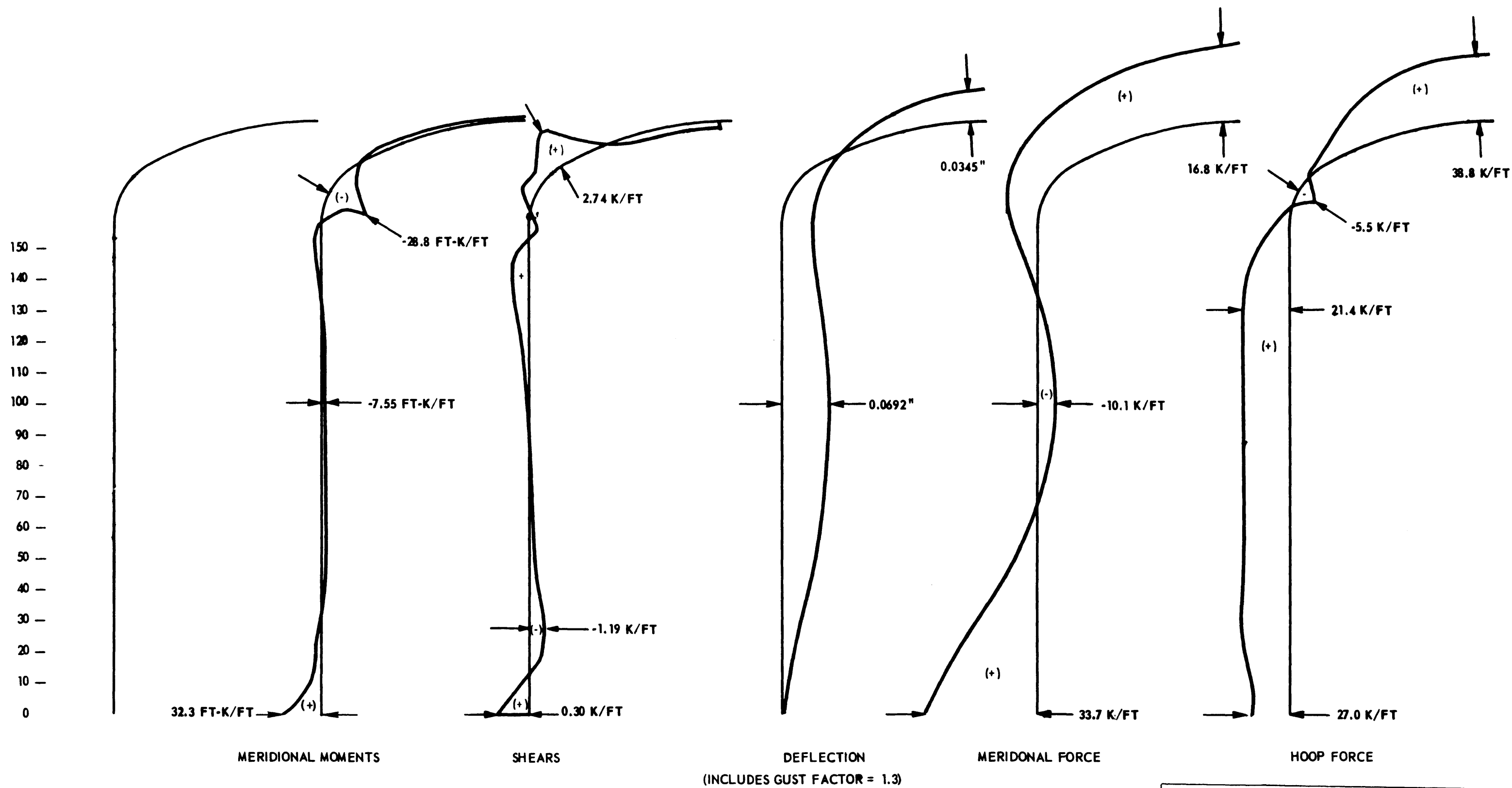
ELEV. 25'-0"



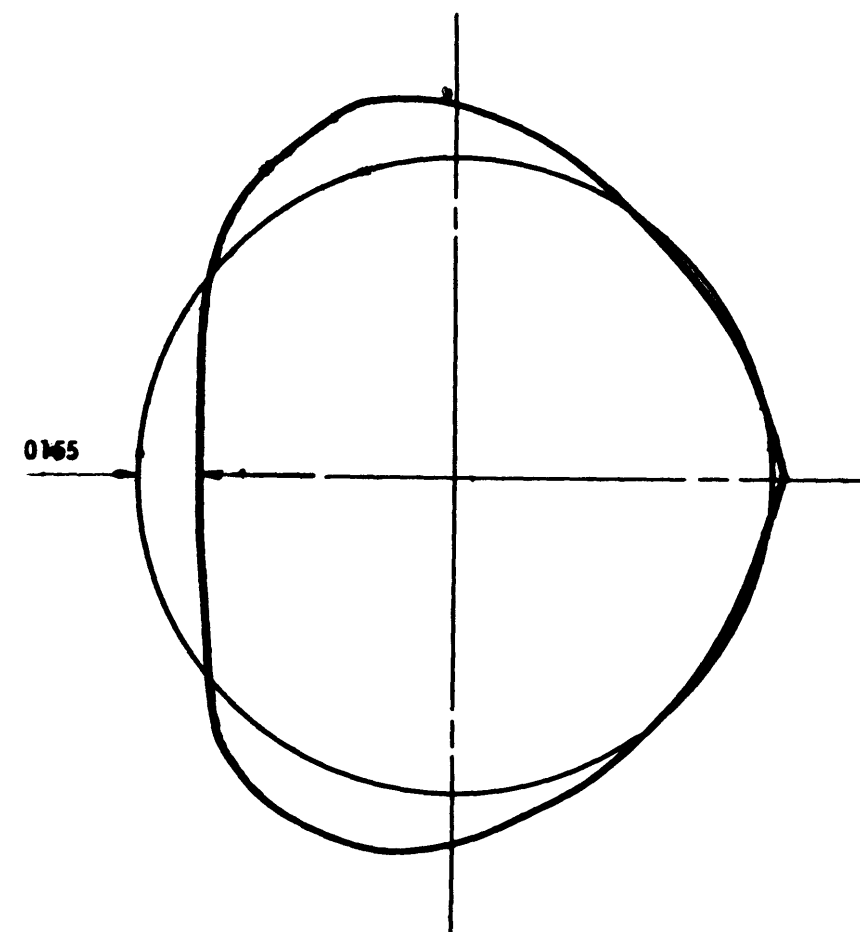
ELEV. 97'-6"



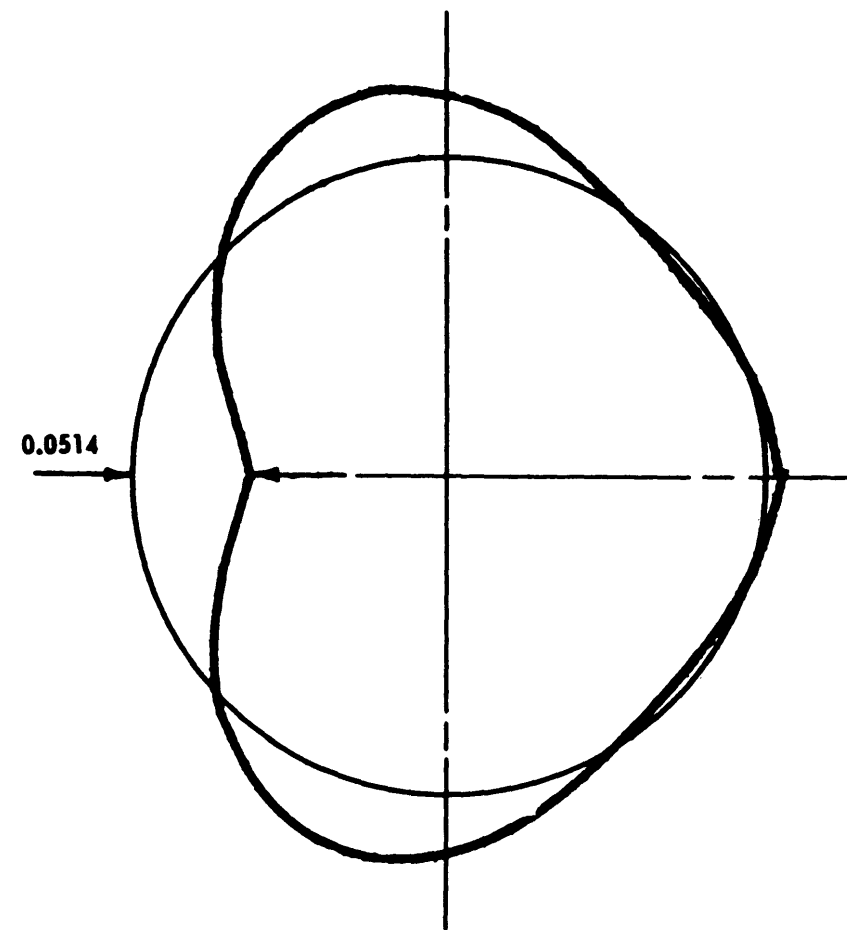
ELEV. 157'-0"



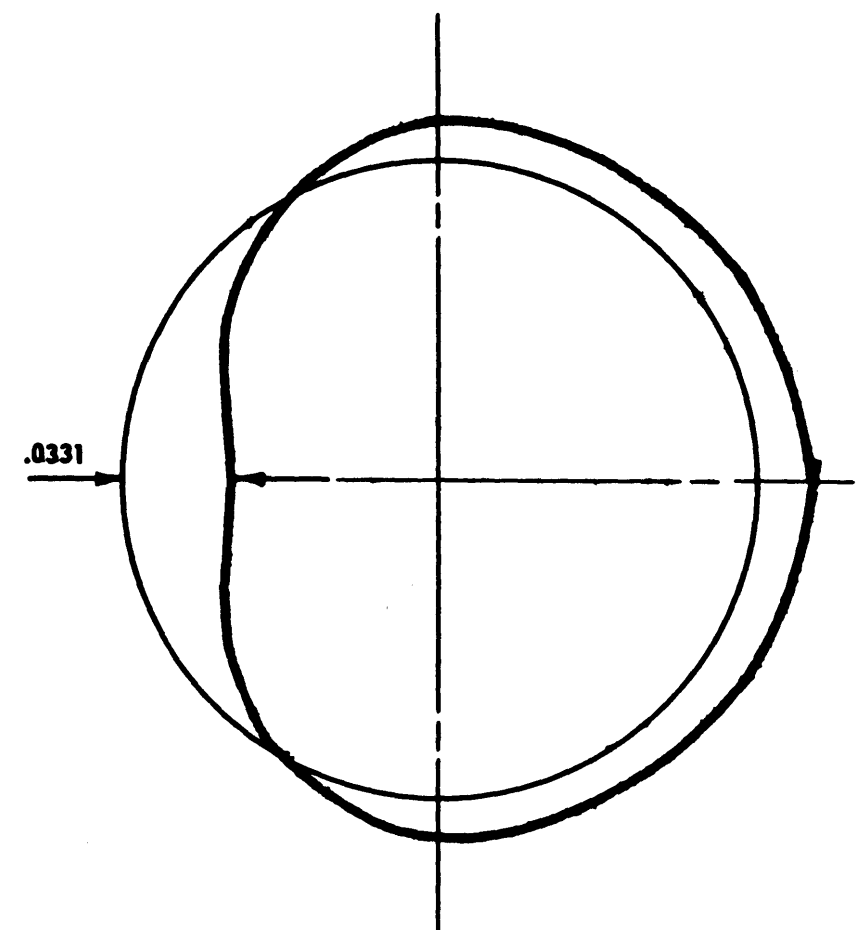
TORNADO LOAD - RADIAL DEFLECTIONS  
(300 MPH WIND & 3 PSI VACUUM)



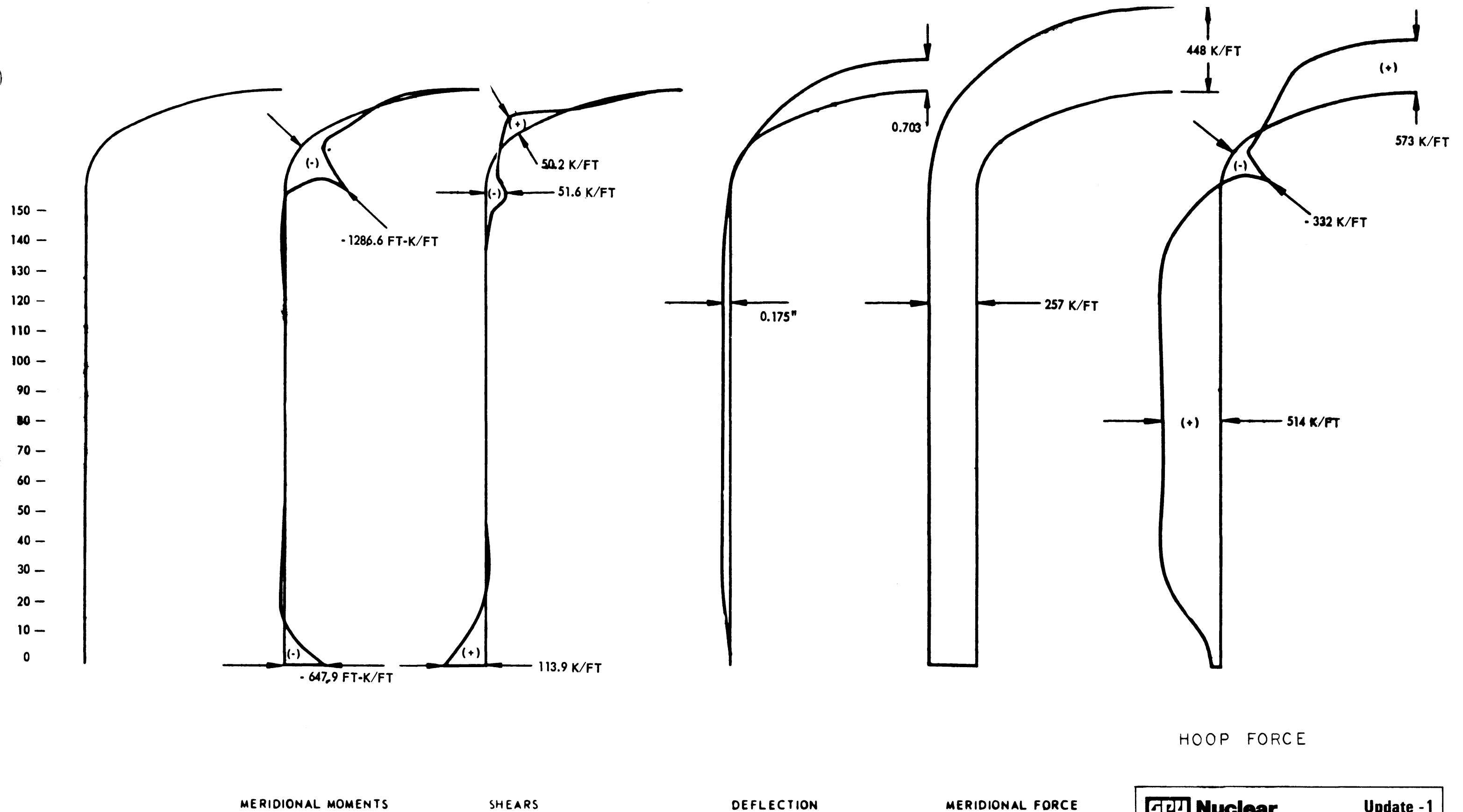
ELEV. 25'-0"



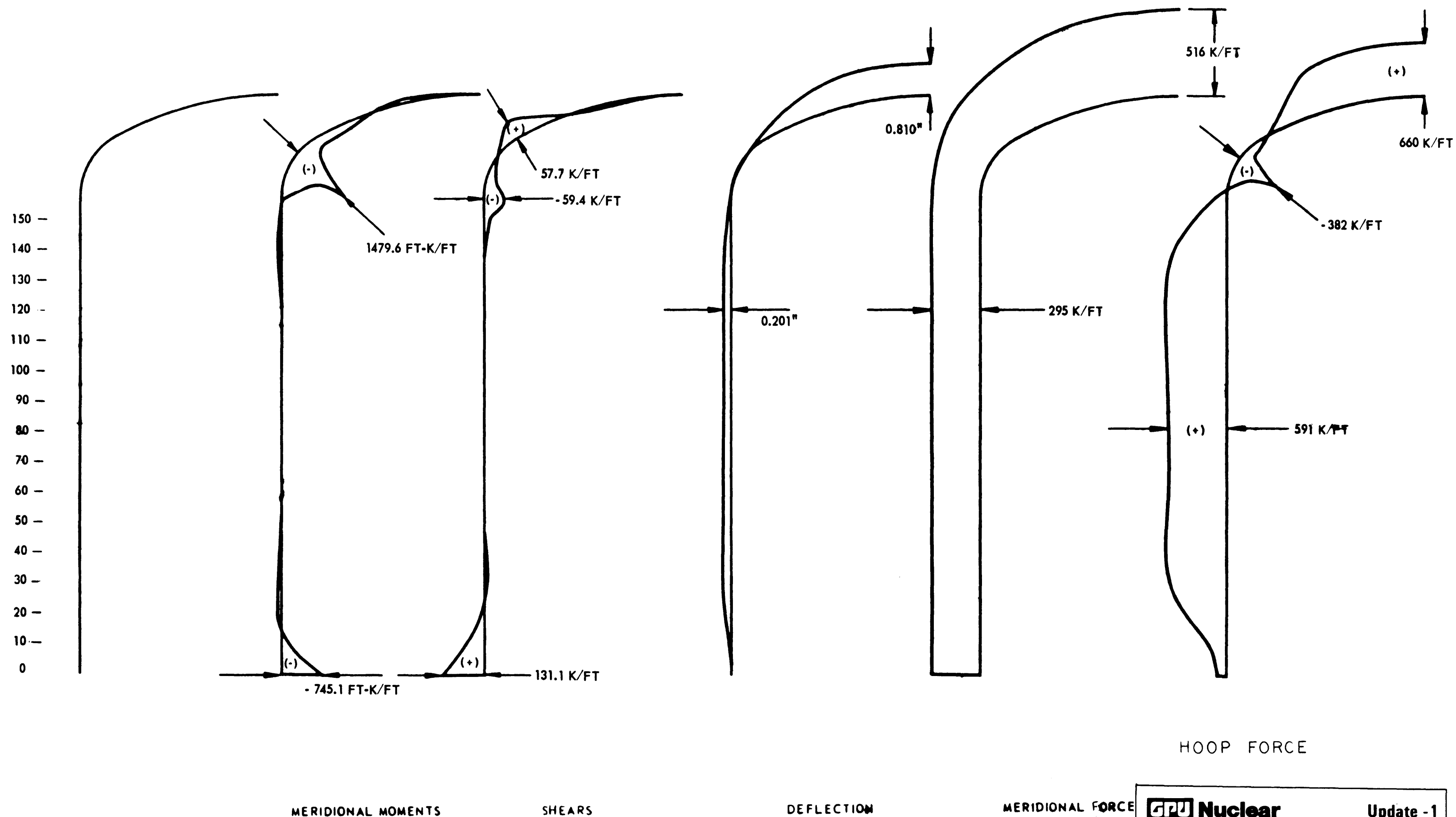
ELEV. 97'-6"



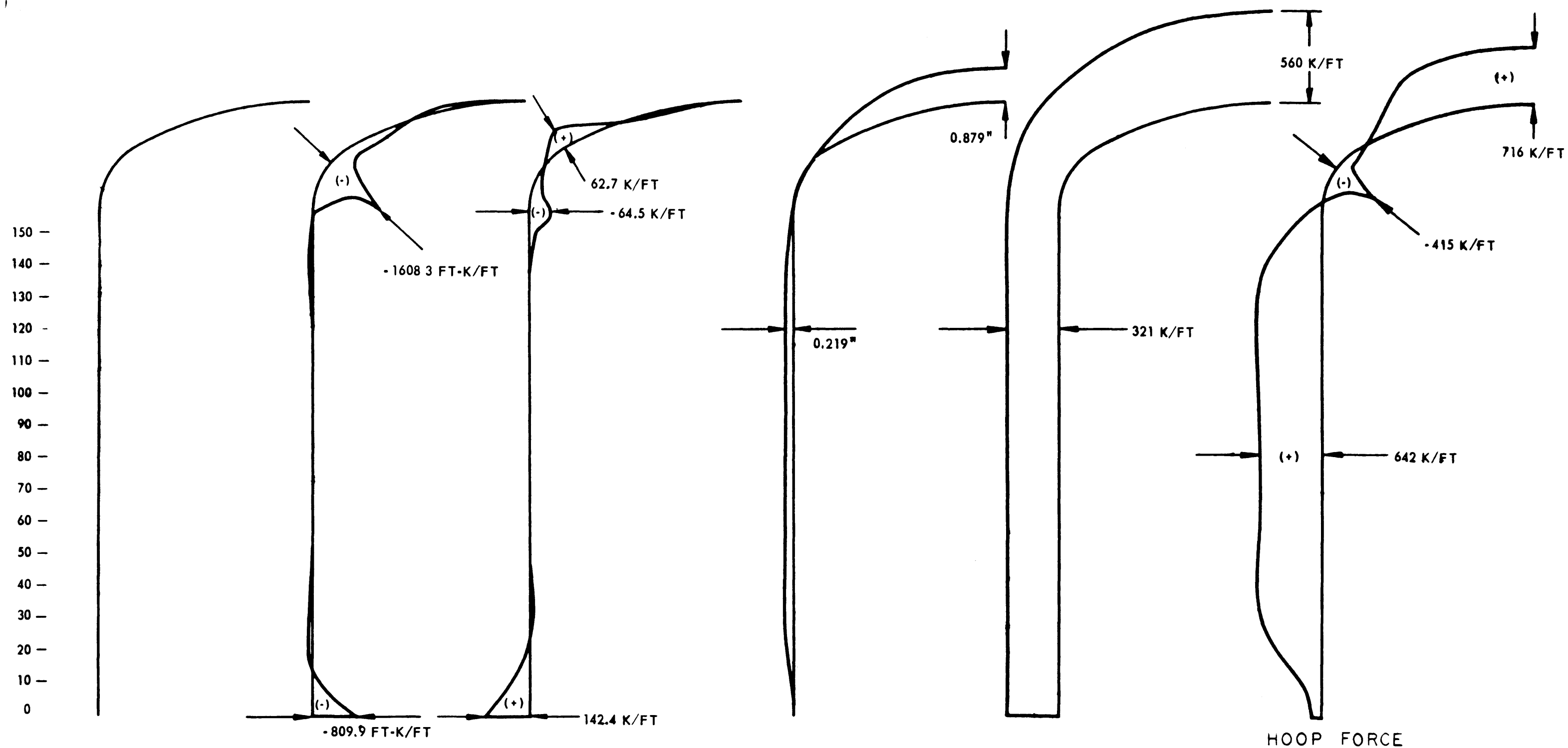
ELEV. 157'-0"



HOOP FORCE



HOOP FORCE



MERIDIONAL MOMENTS

SHEARS

DEFLECTION

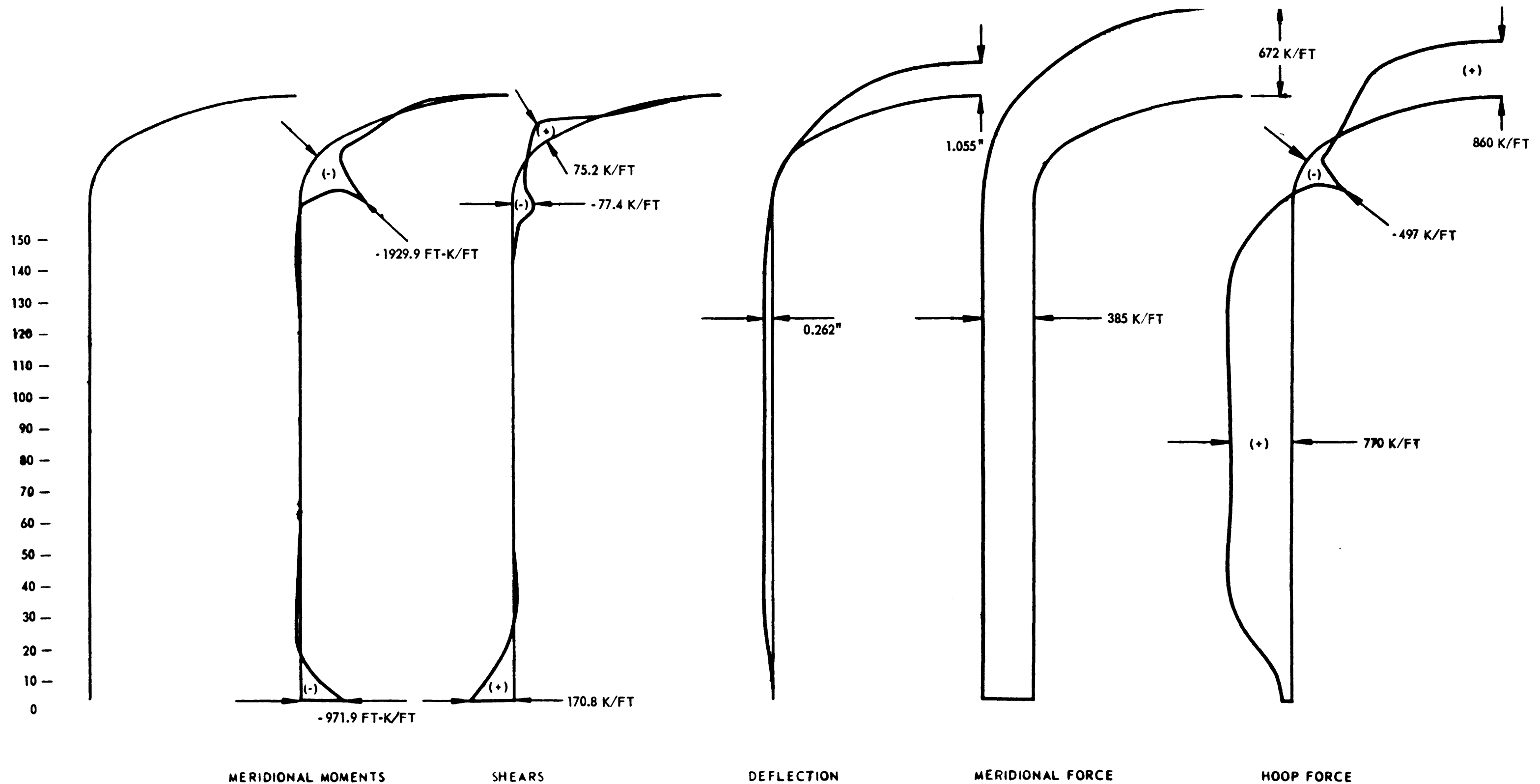
MERIDIONAL FORCE

**GPU Nuclear**  
TMI Unit-1

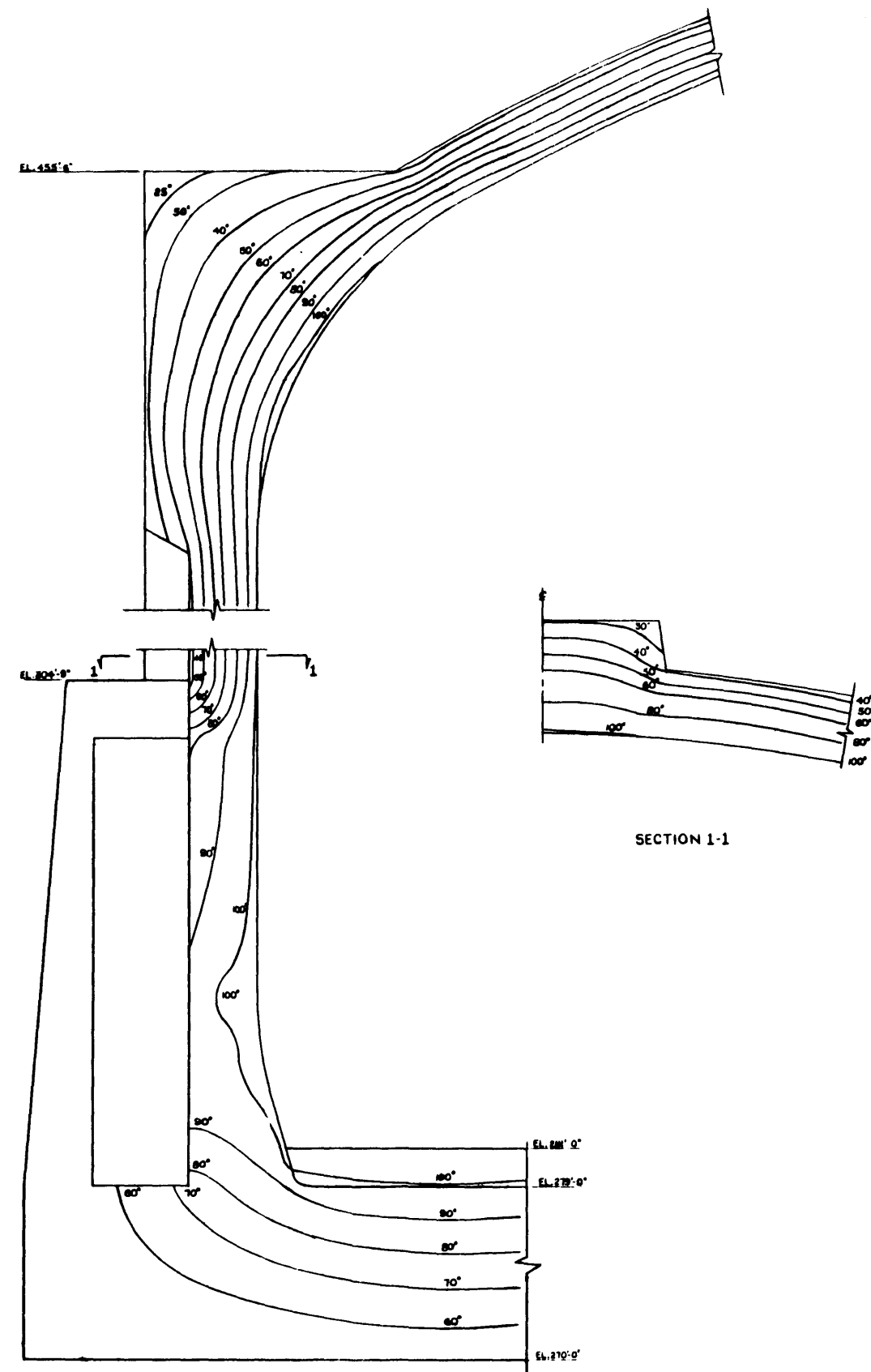
Update -1  
7/82

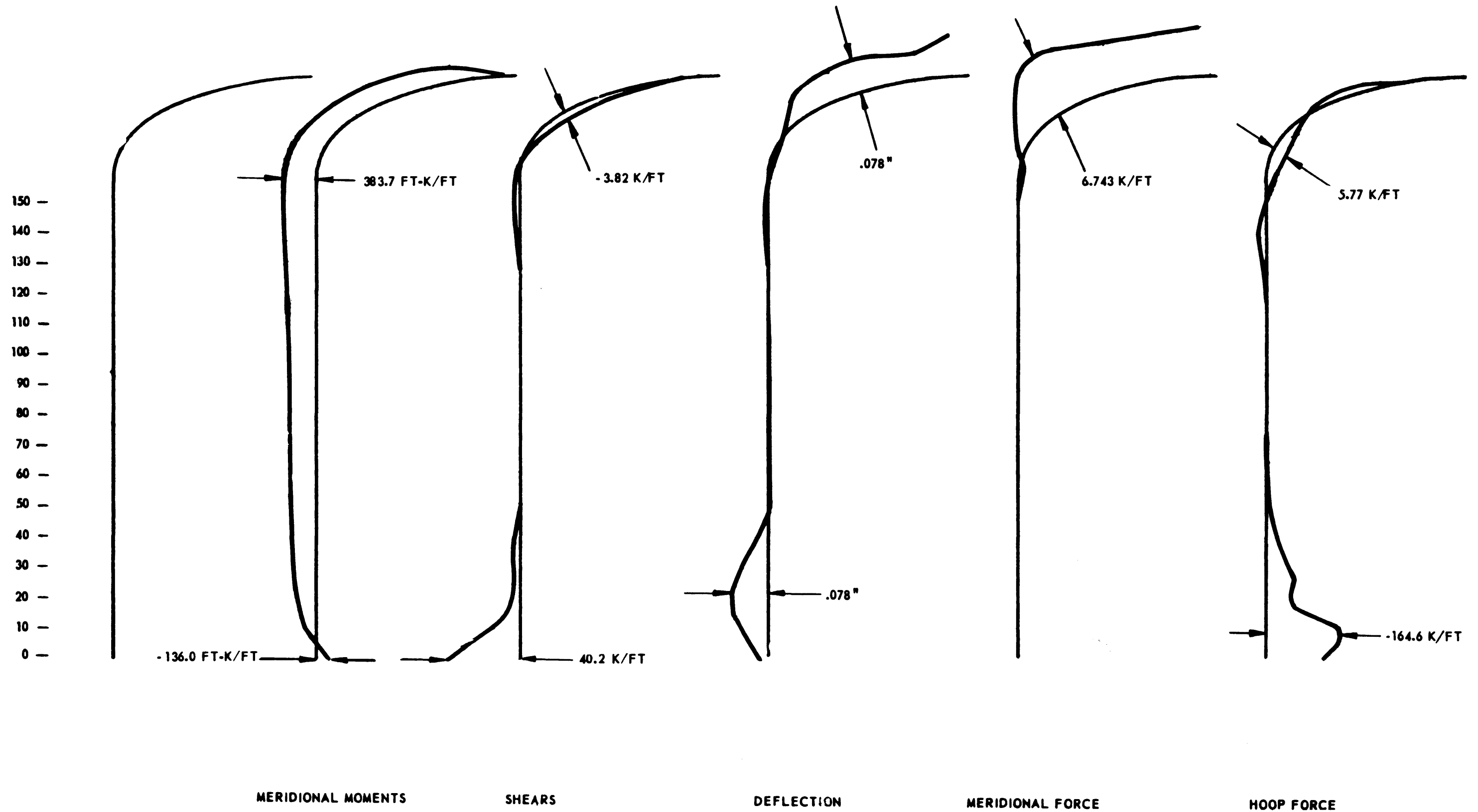
Internal Pressure 68.75 psi

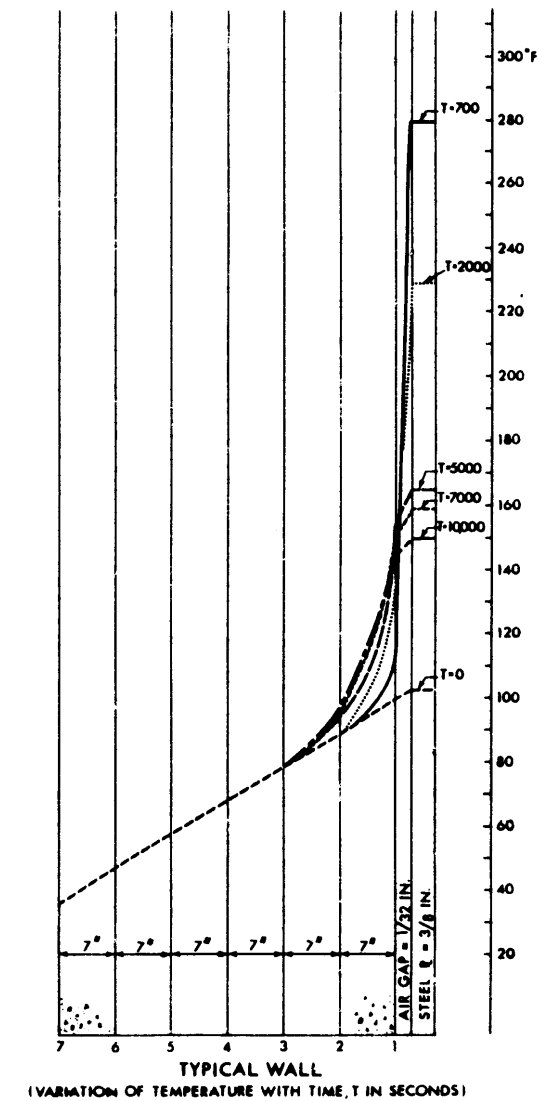
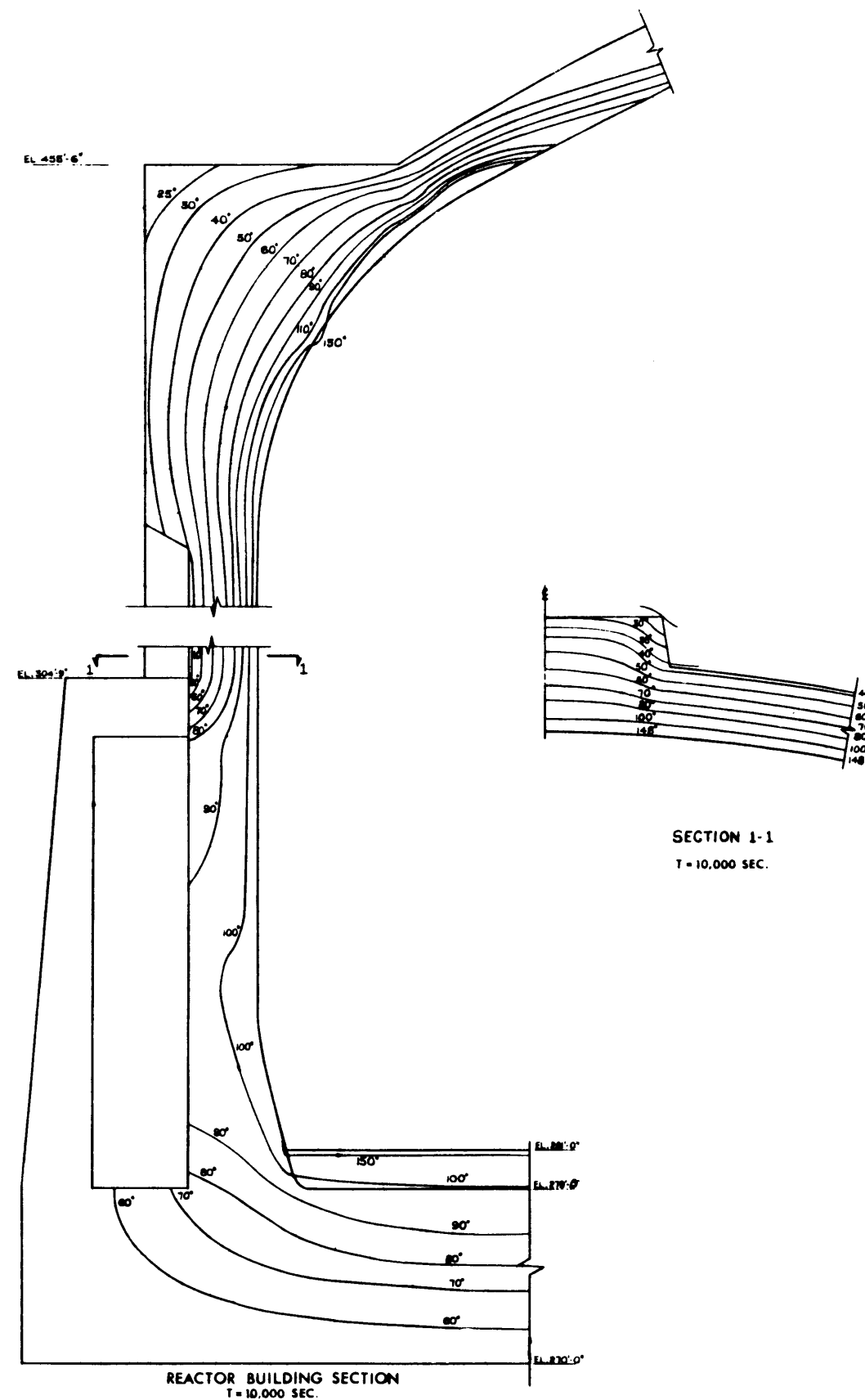
Fig. 5.2-15

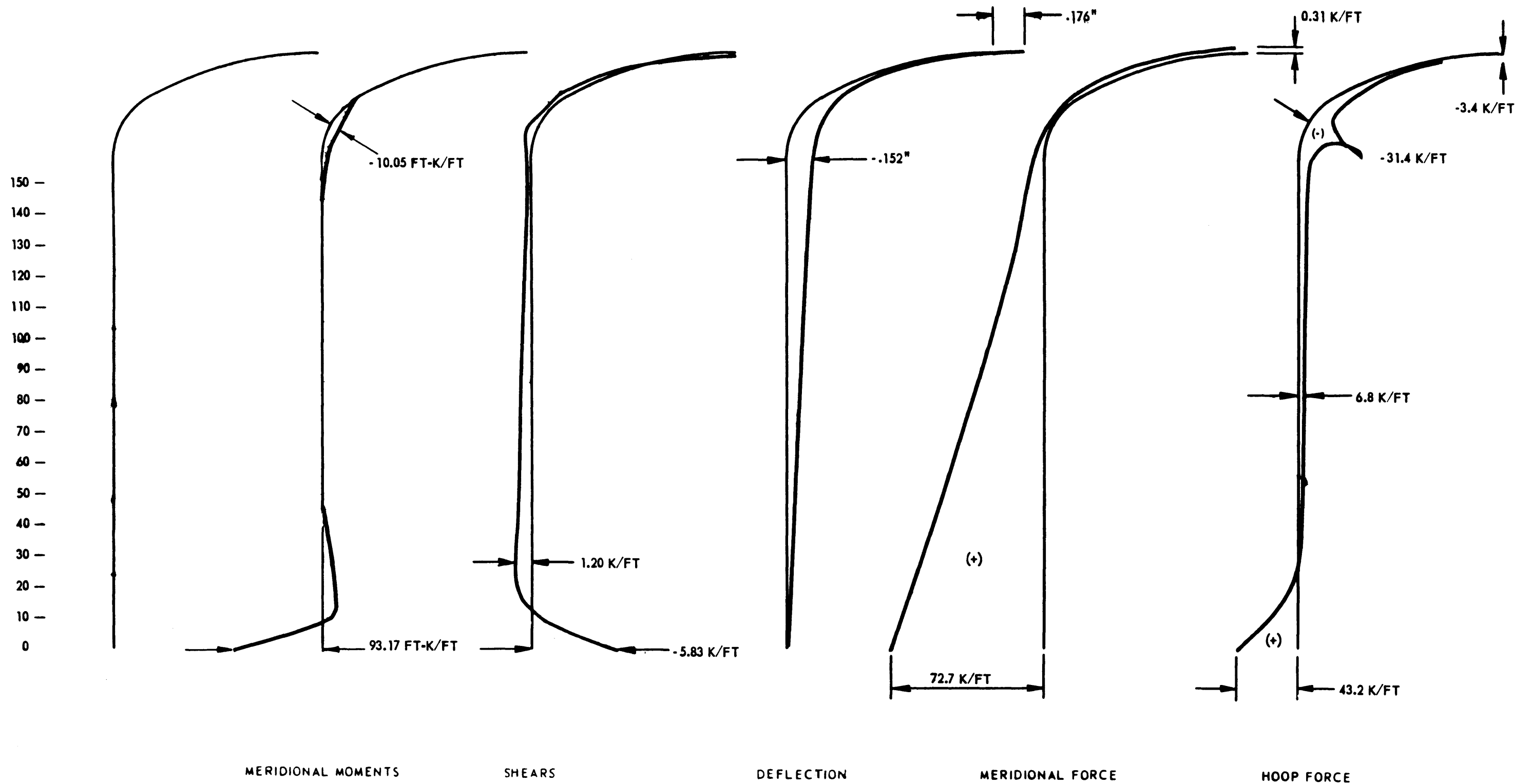


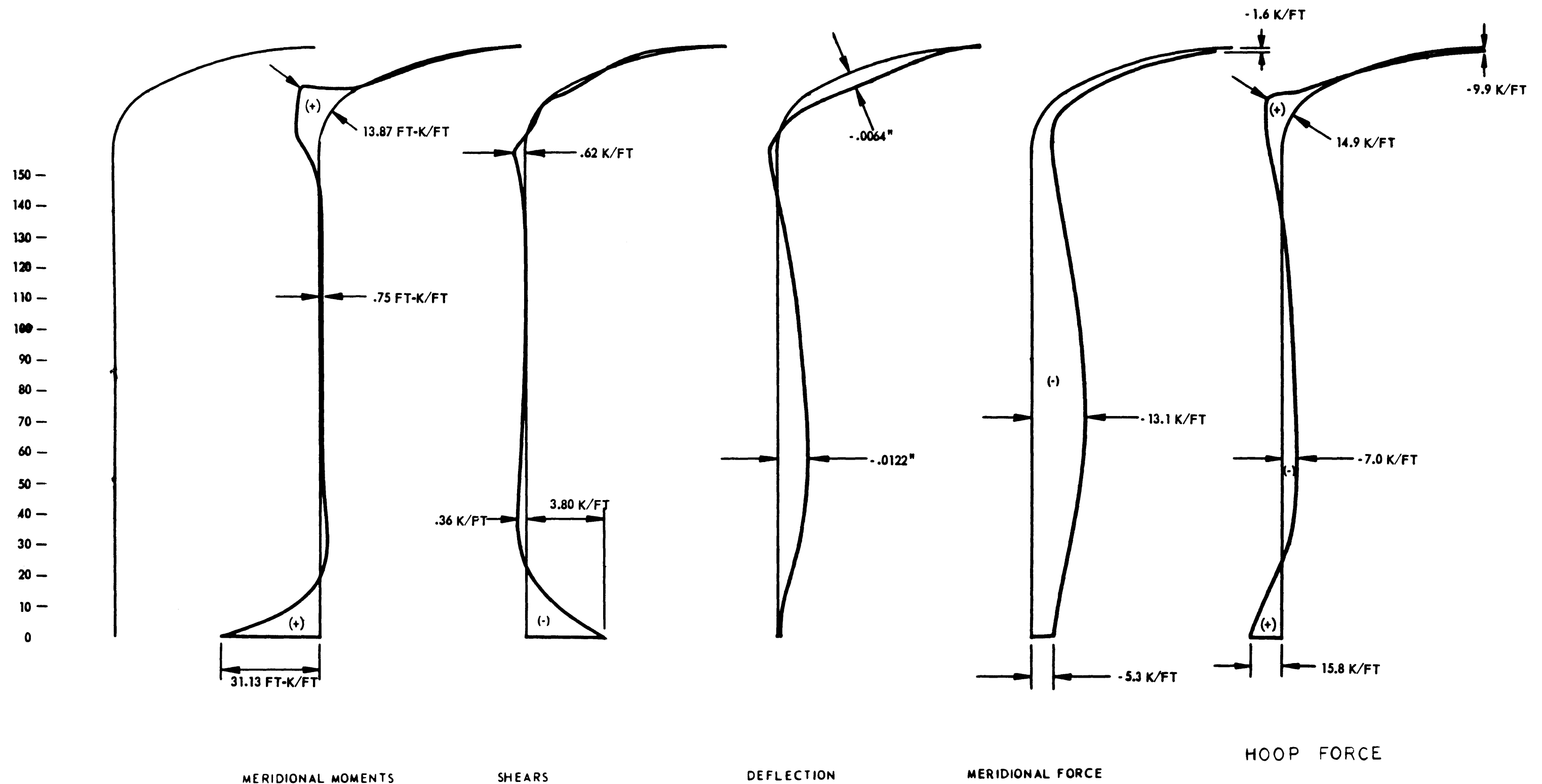


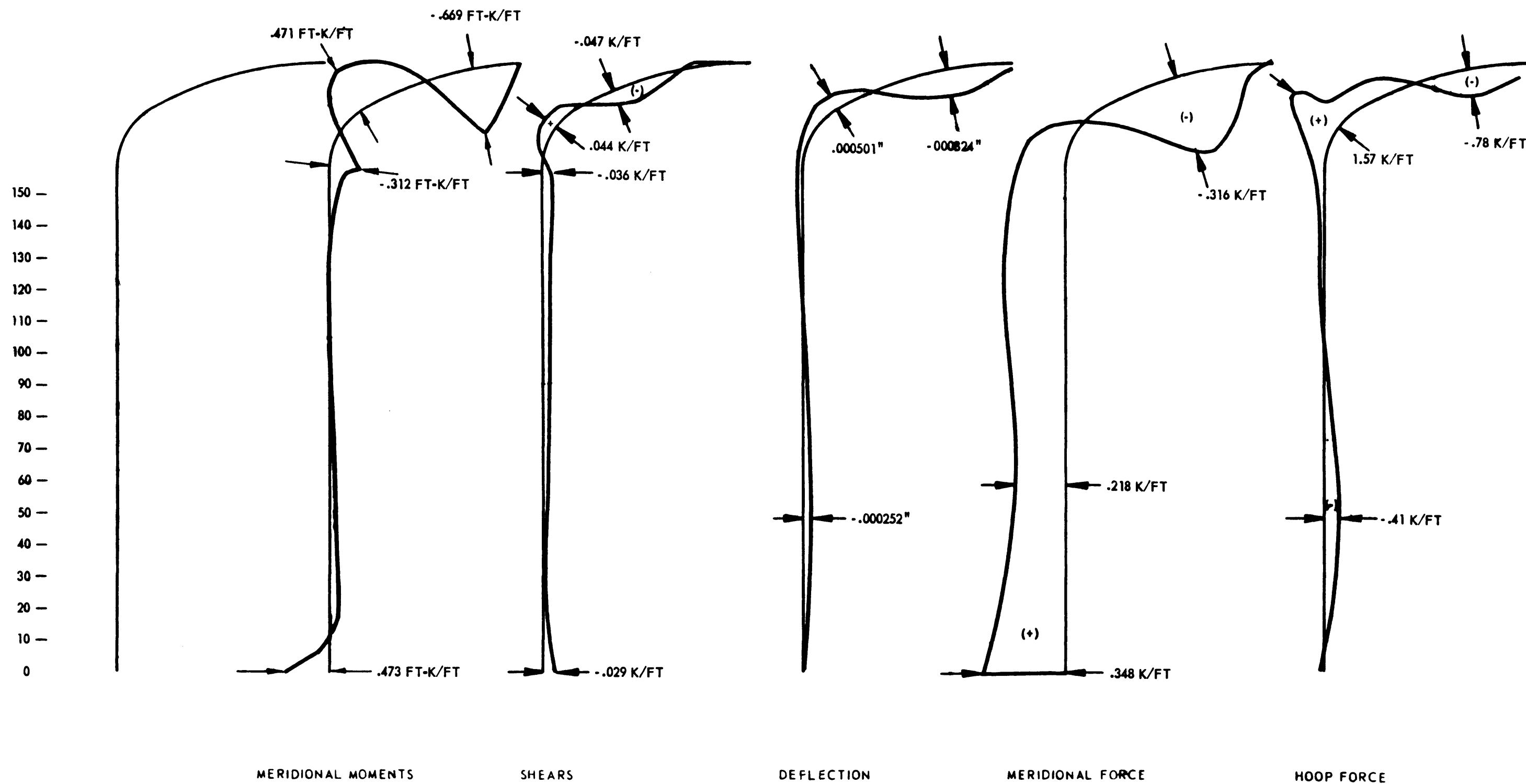


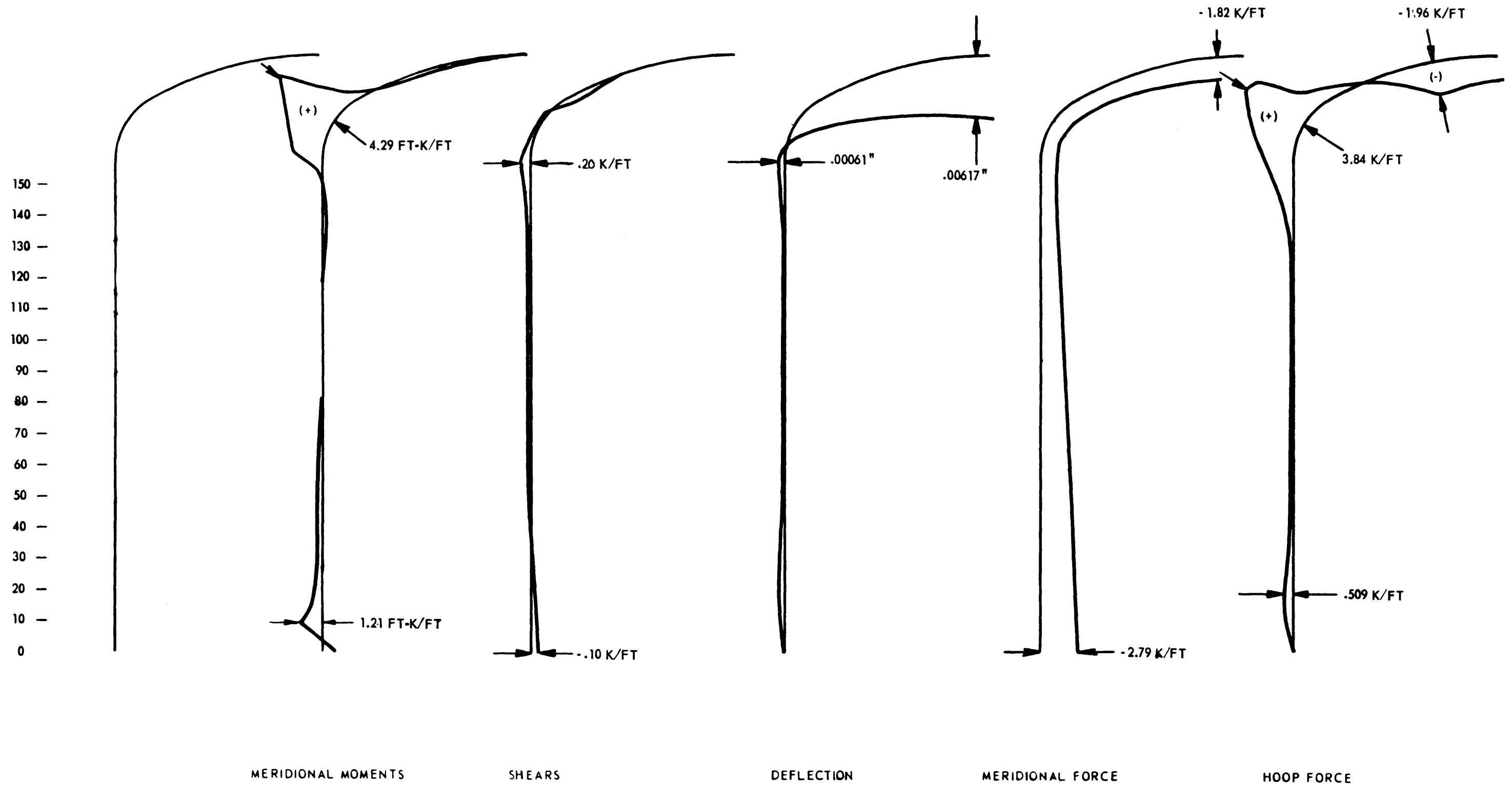


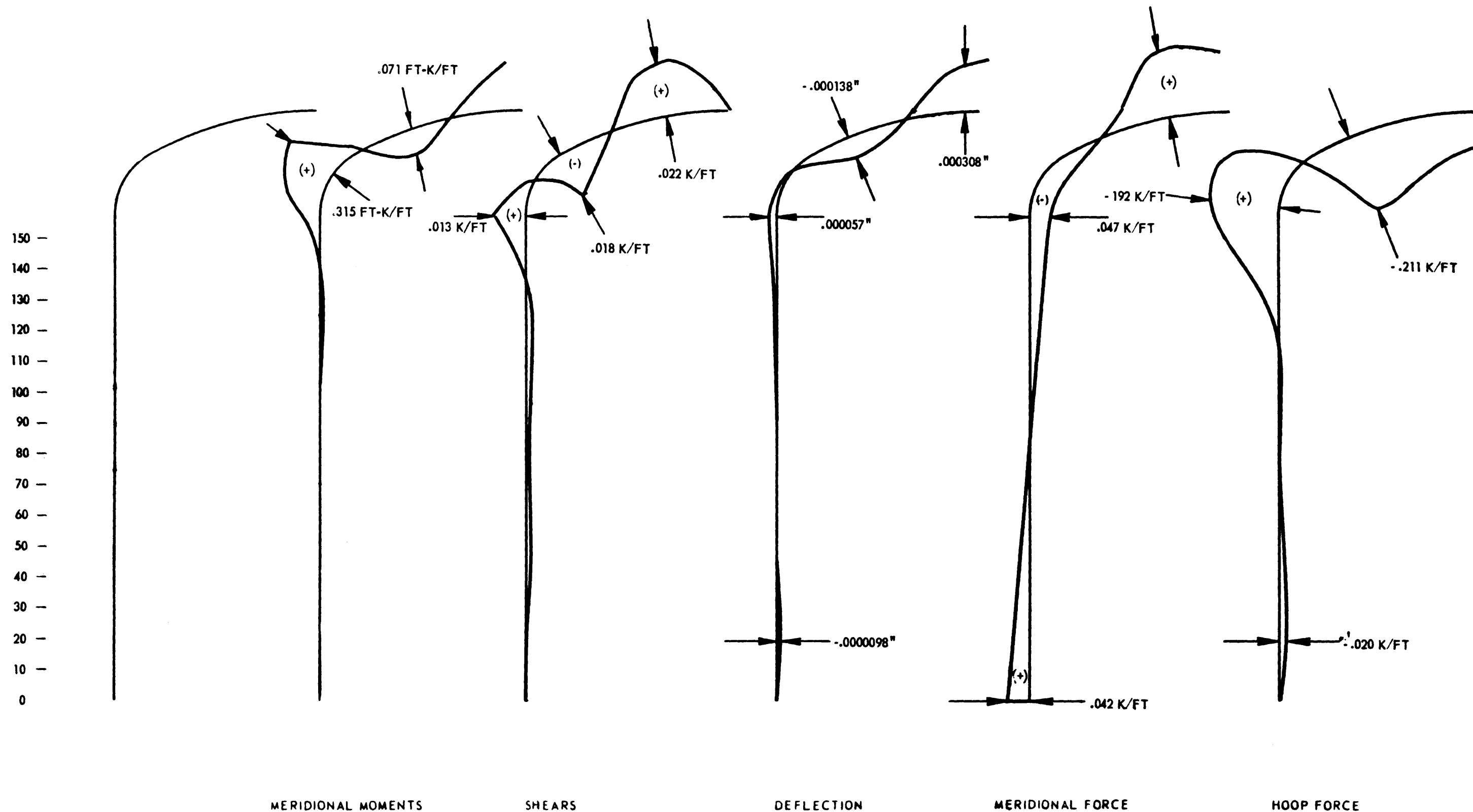






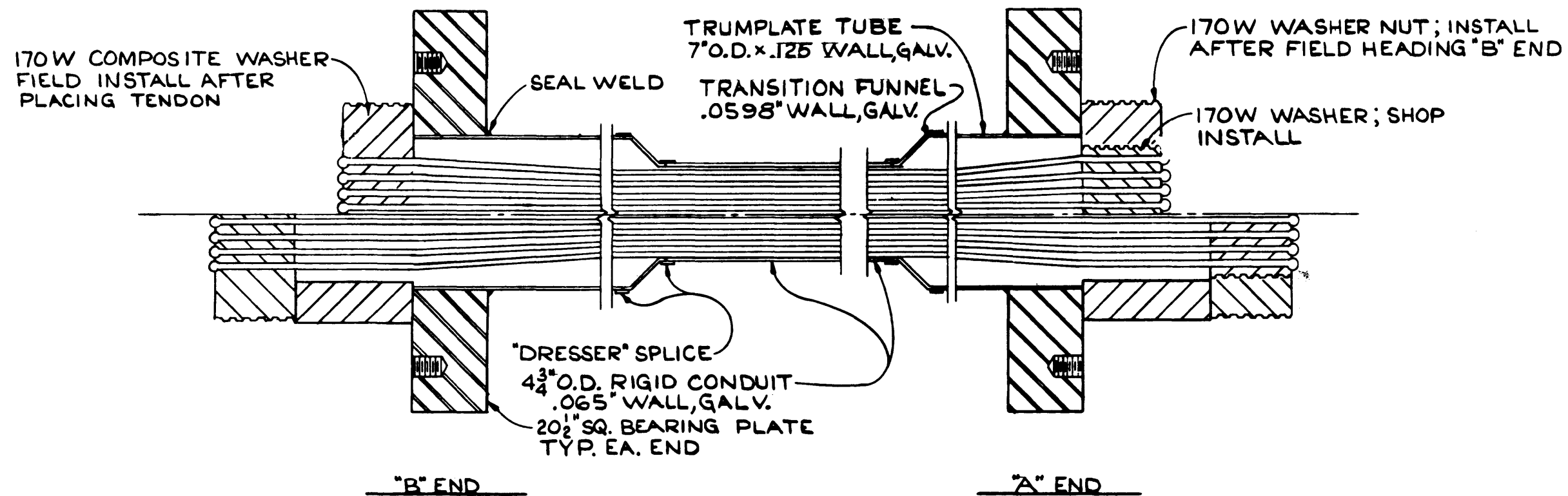




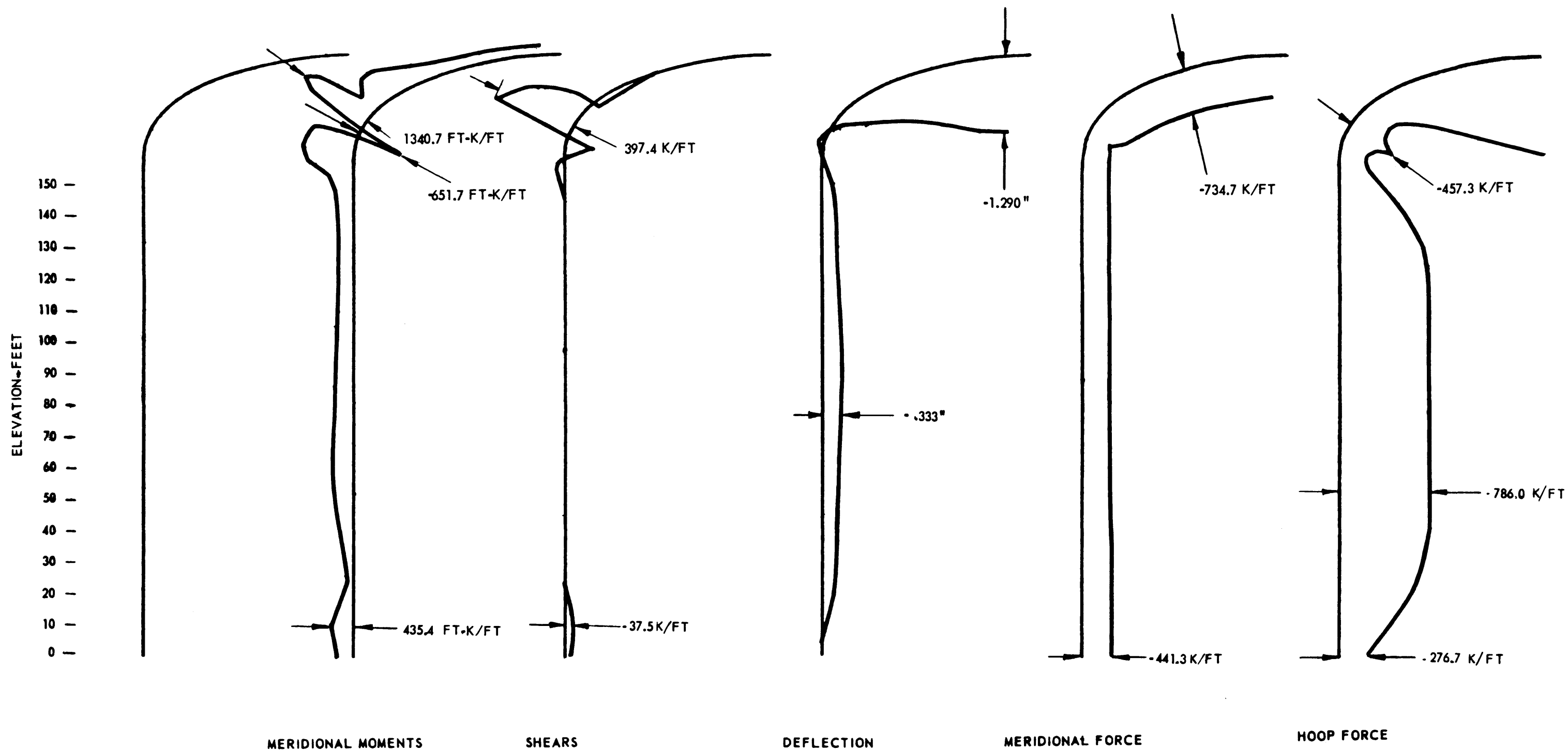


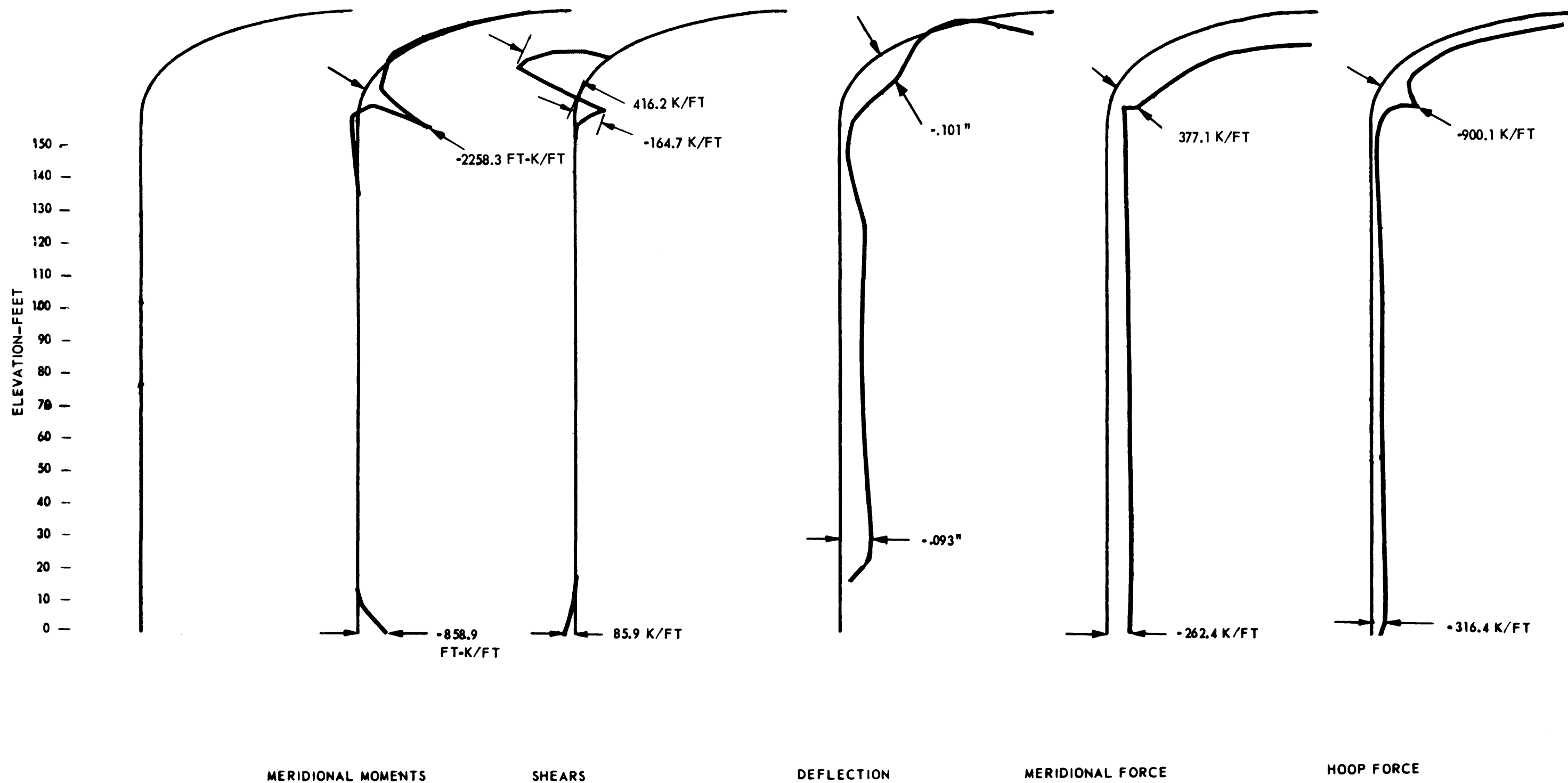


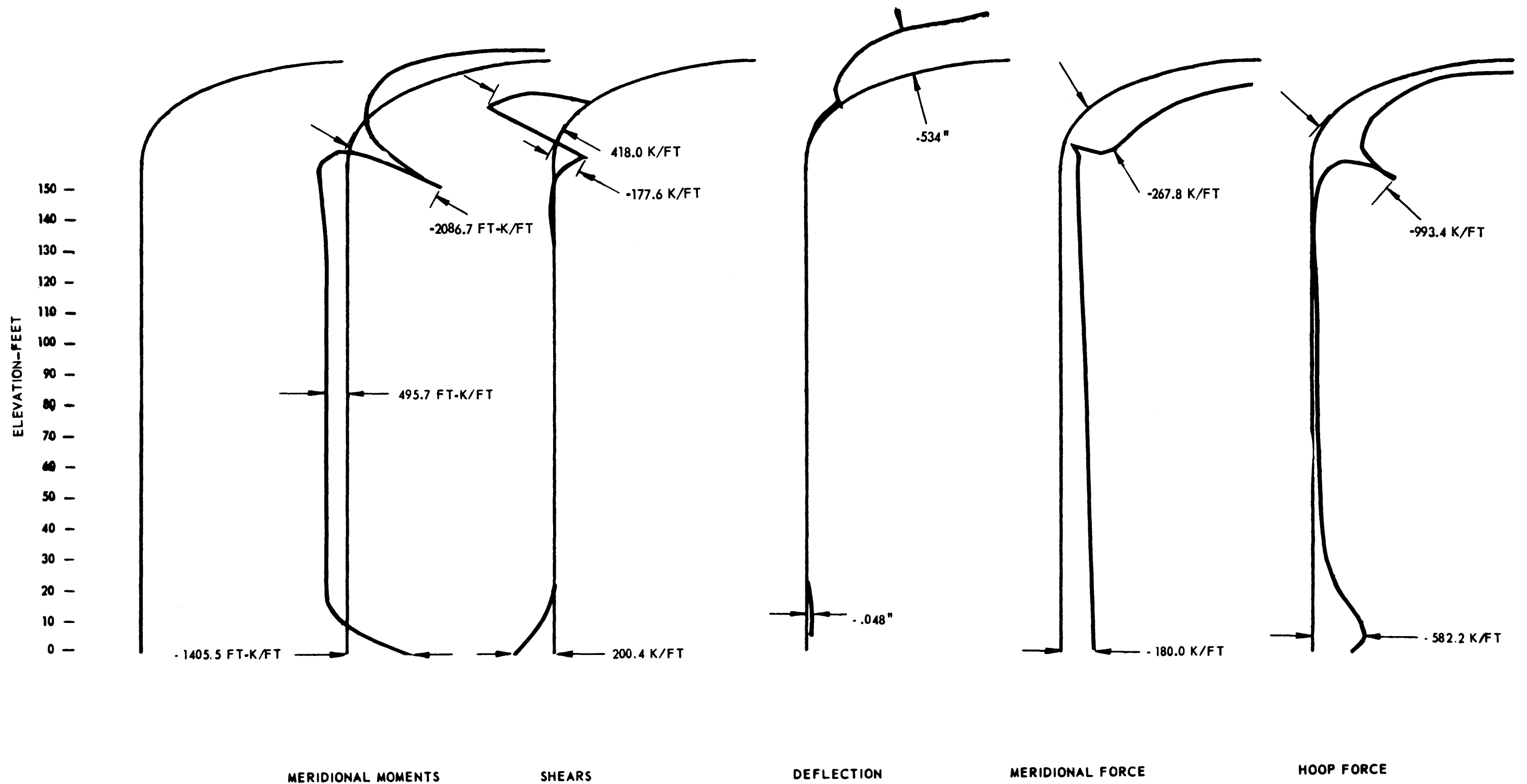


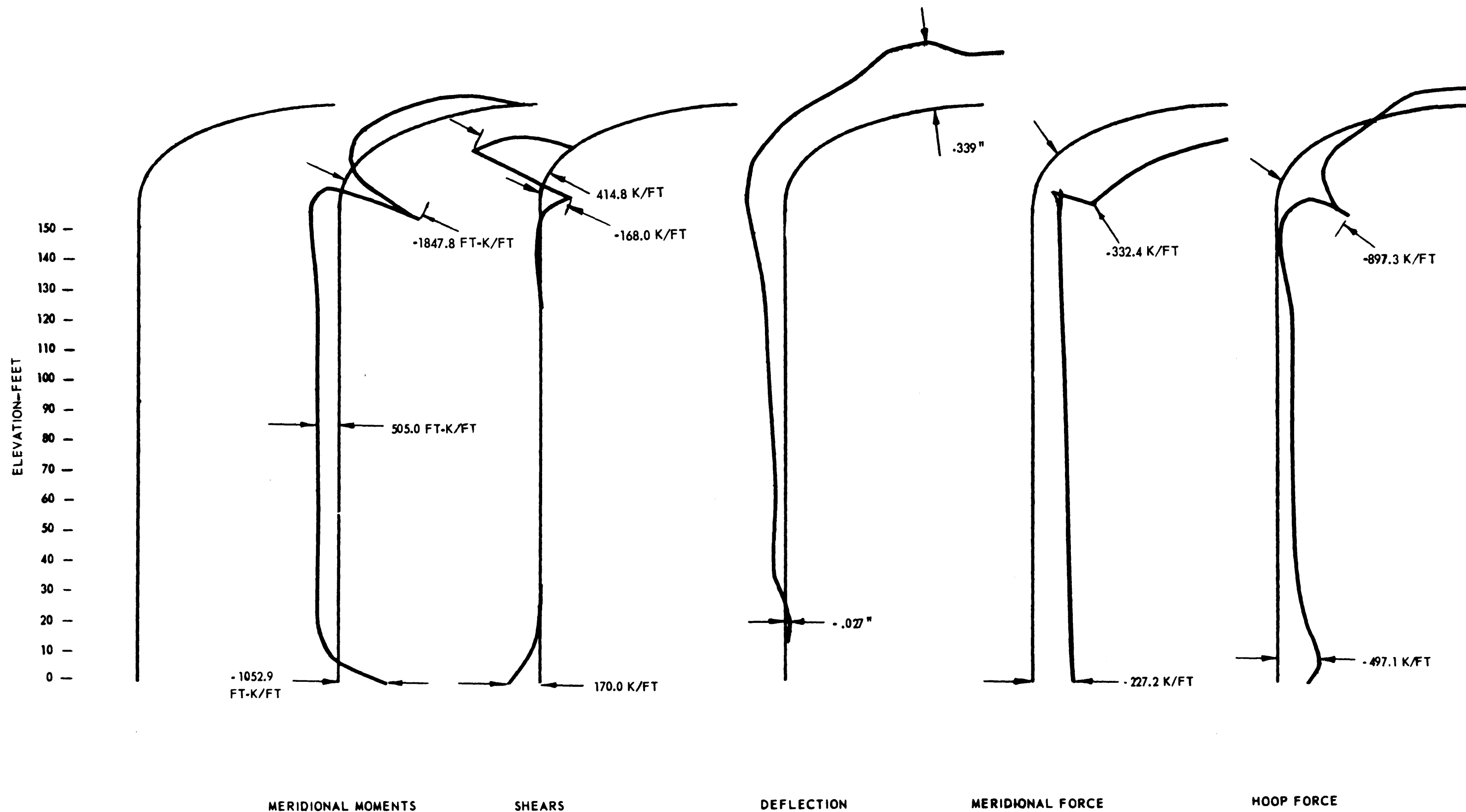


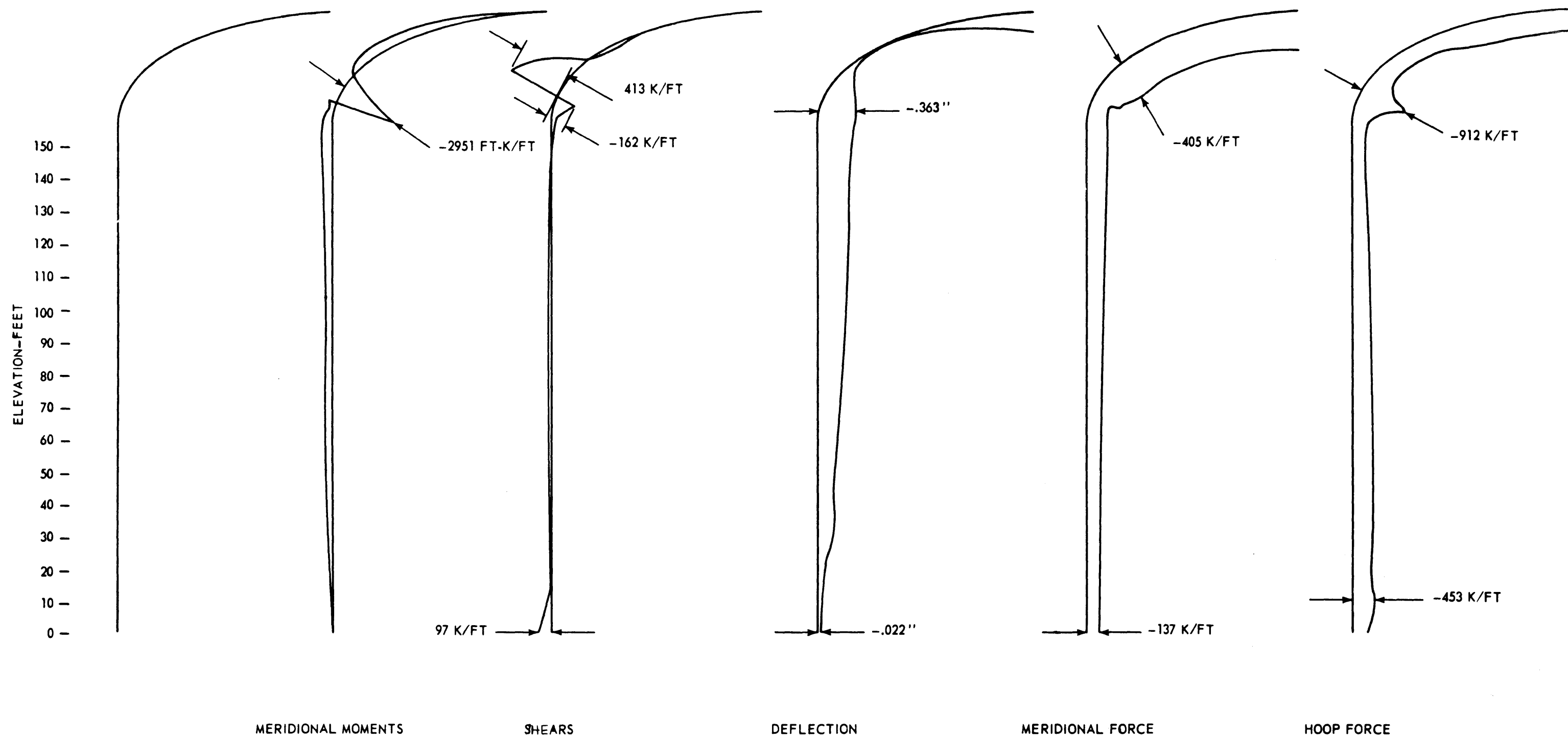
BEFORE STRESSING ABOVE  $\phi$  - AFTER STRESSING BELOW  $\phi$

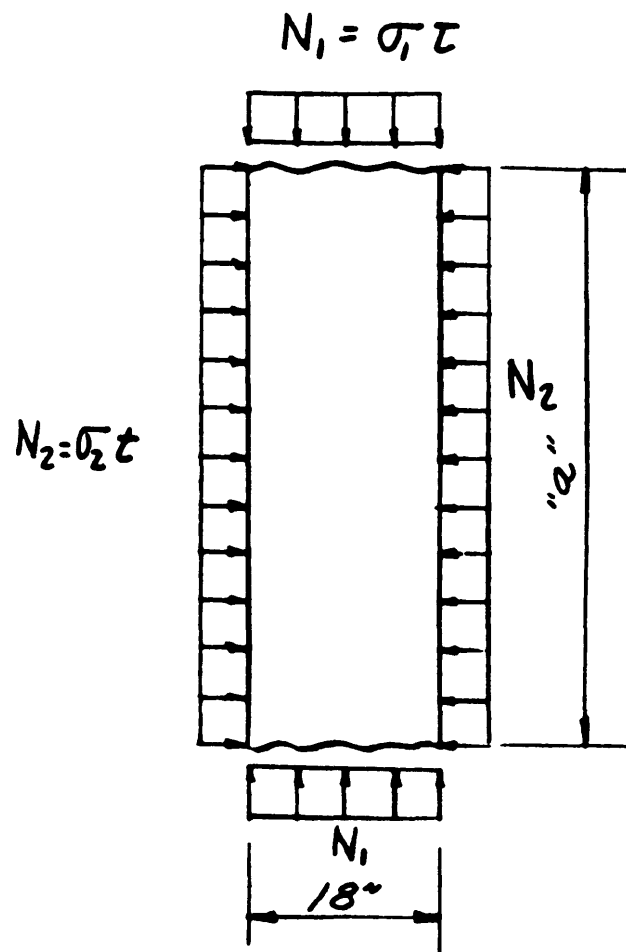




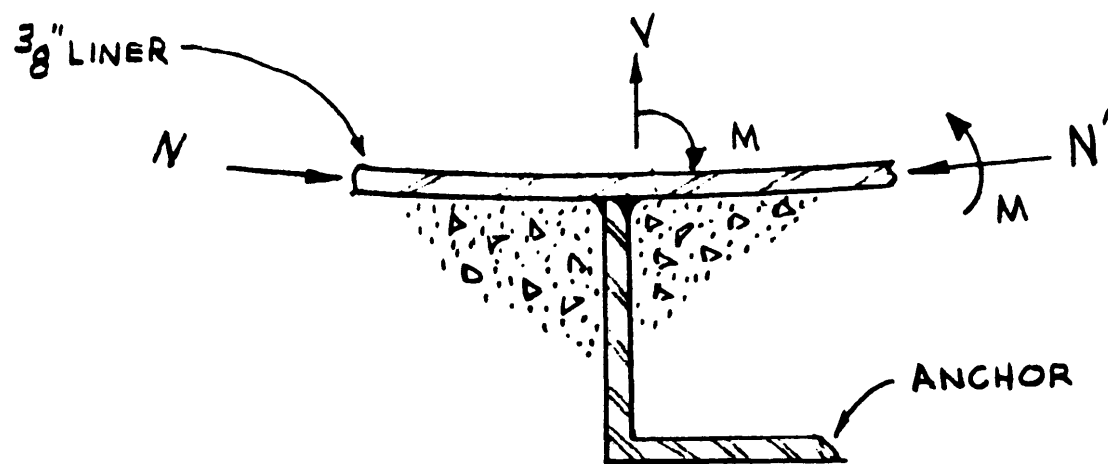












## TMI UFSAR

Figure 5.2-34

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## TMI UFSAR

Figure 5.2-36

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## **TMI UFSAR**

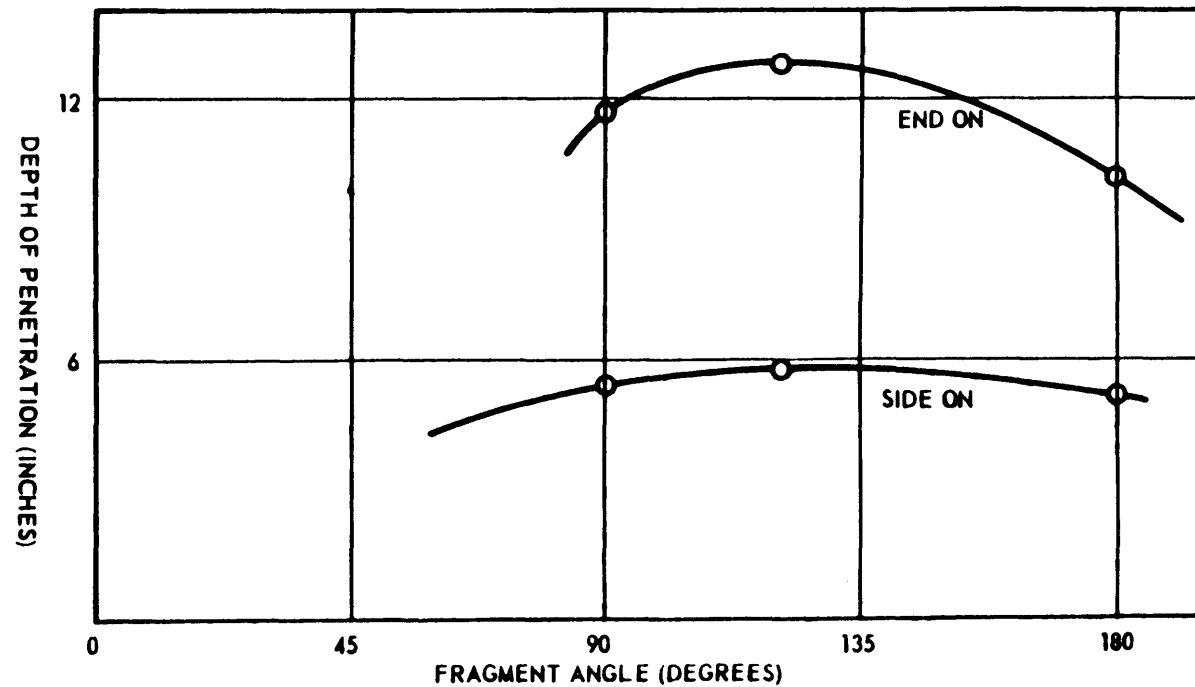
Figures 5.3-1 through 5.3-5

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# LAST STAGE WHEEL MISSILES

FRAGMENT ANGLE	WEIGHT (POUNDS)	IMPACT AREA (FT <sup>2</sup> )		FINAL ENERGY	FINAL VELOCITY	DEPTH OF PENETRATION	
		SIDE ON	END ON			SIDE ON	END ON
90°	4458	6.83	3.17	$15.8 \times 10^6$ (FT-#)	464.0	5.45"	11.8"
120°	5944	8.37	3.66	$20.5 \times 10^6$ (FT-#)	447.3	5.6"	12.8"
180°	8916	9.66	4.83	$17.2 \times 10^6$ (FT-#)	351.0	5.04"	10.1"



p. 5.FIG-49

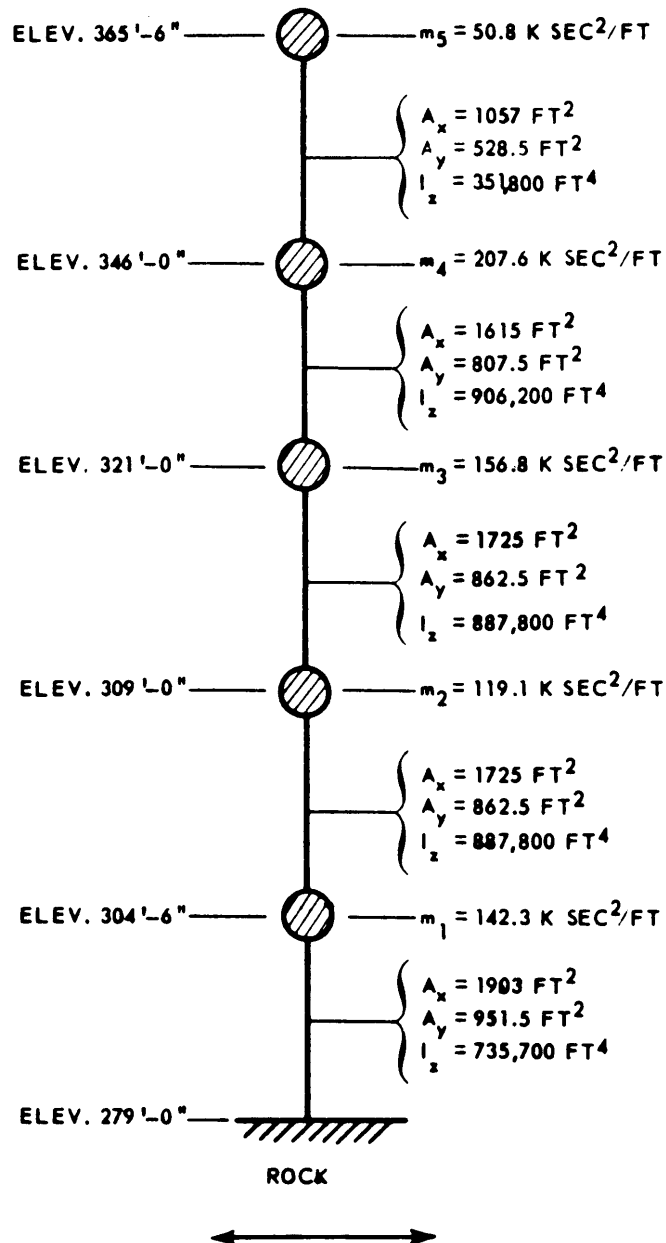
**GF7 Nuclear** Update -1  
**TMI Unit-1** 7/82  
 Missile Penetrations

Fig. 5.4-2

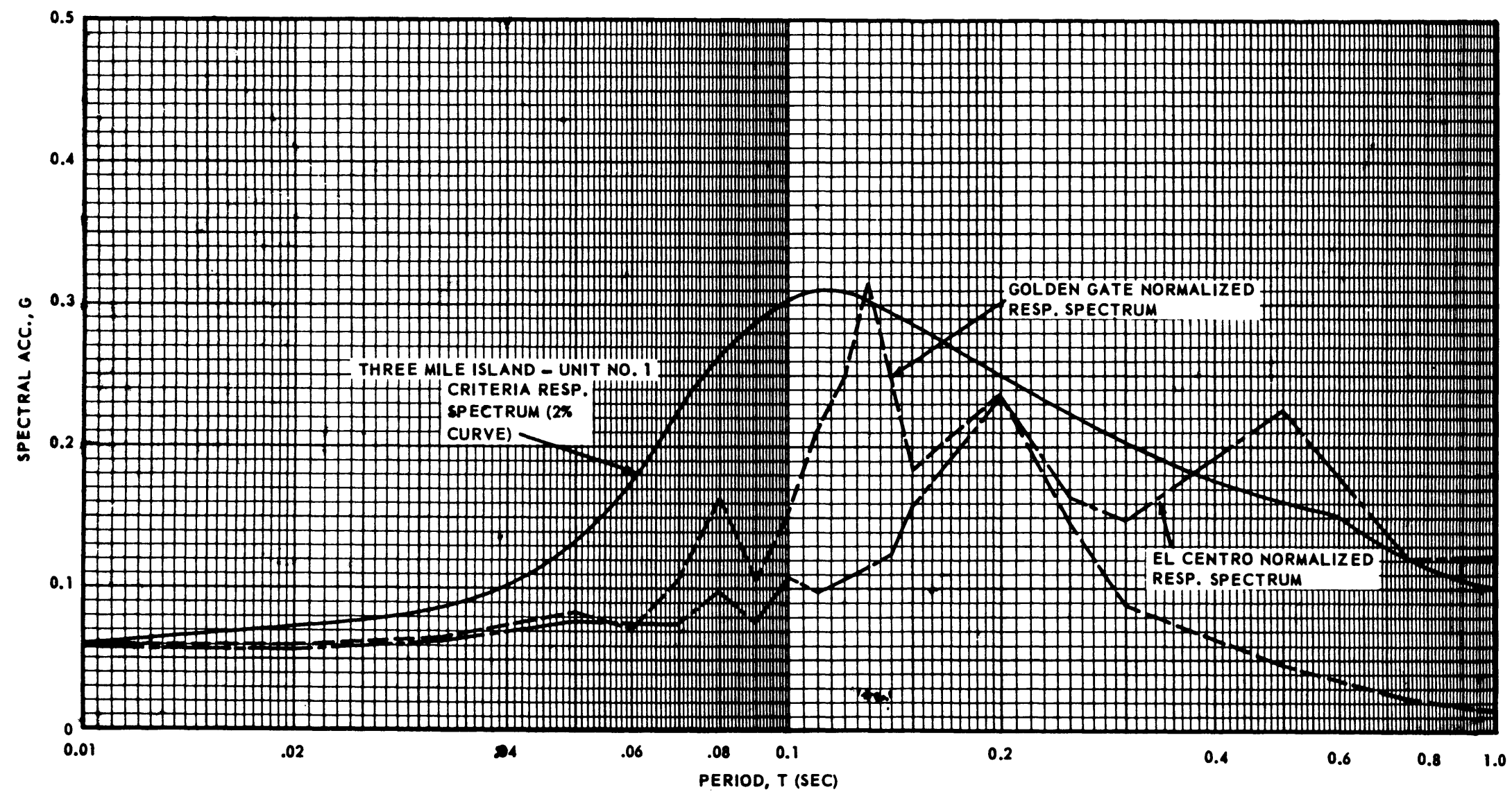
REACTOR BUILDING INTERIOR CONCRETE:

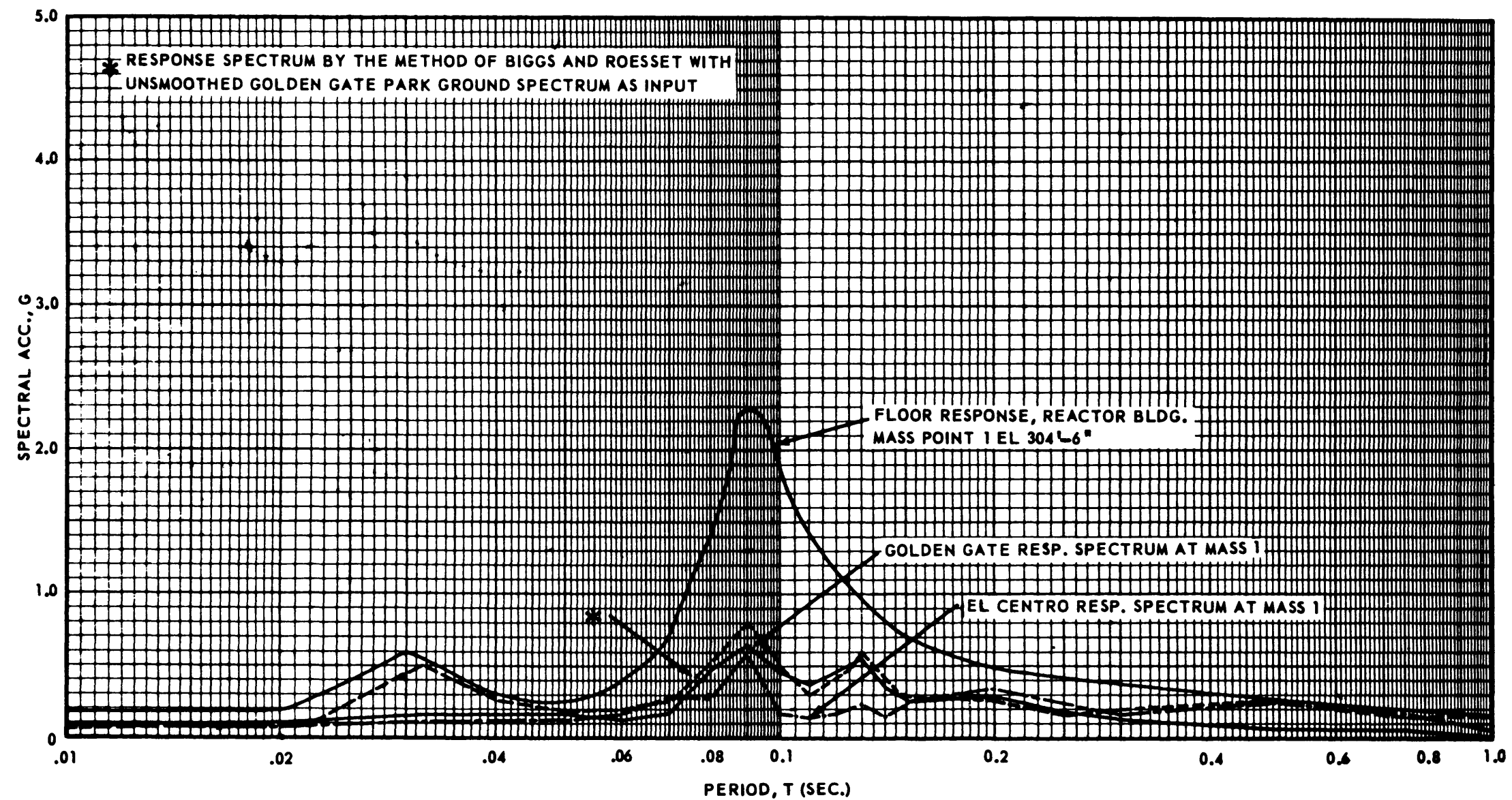
2% STRUCTURAL DAMPING  
0.5% EQUIPMENT DAMPING

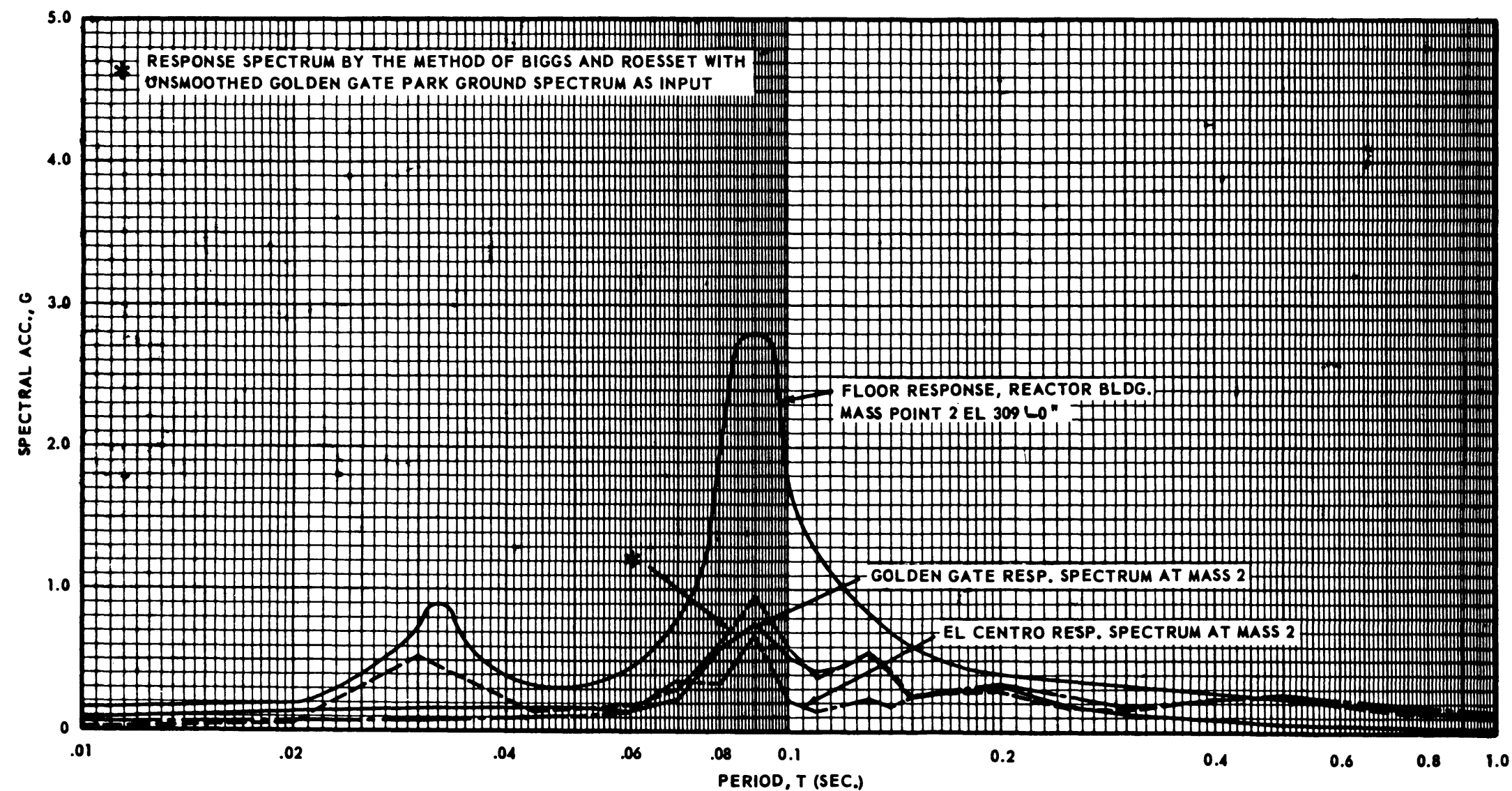
$E = 576,000 \text{ K/FT}^2$   
 $\nu = 0.25$

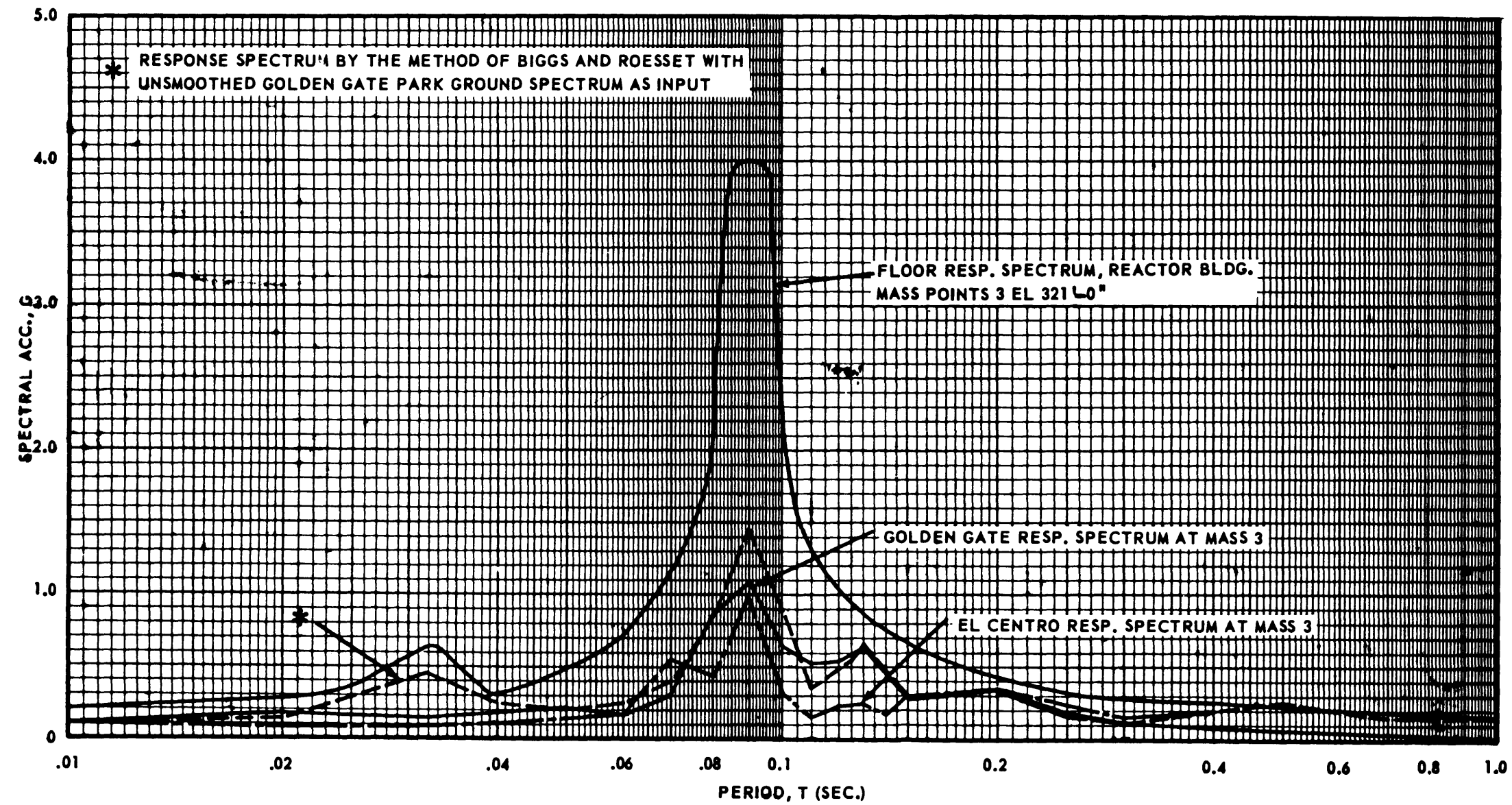


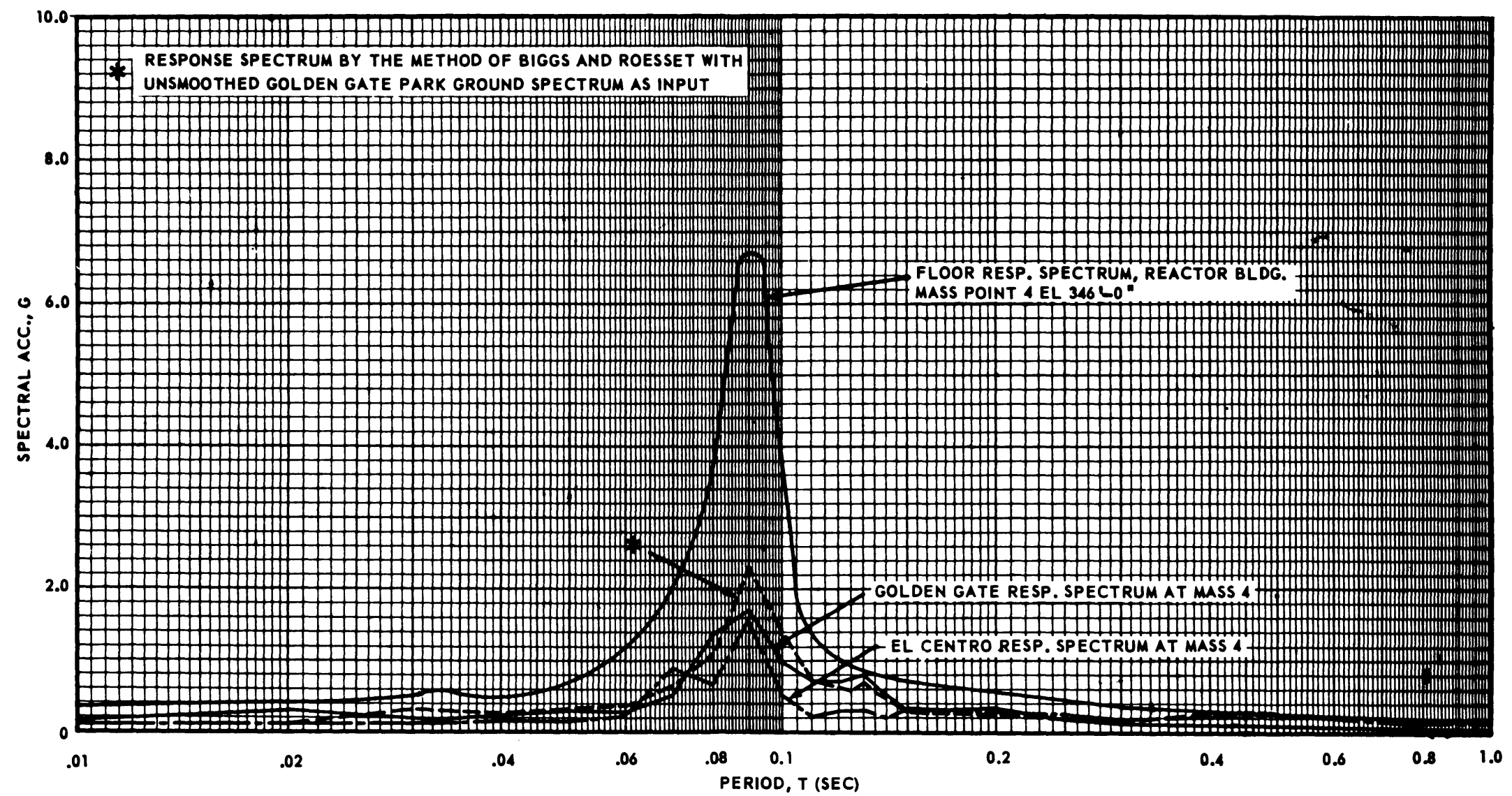


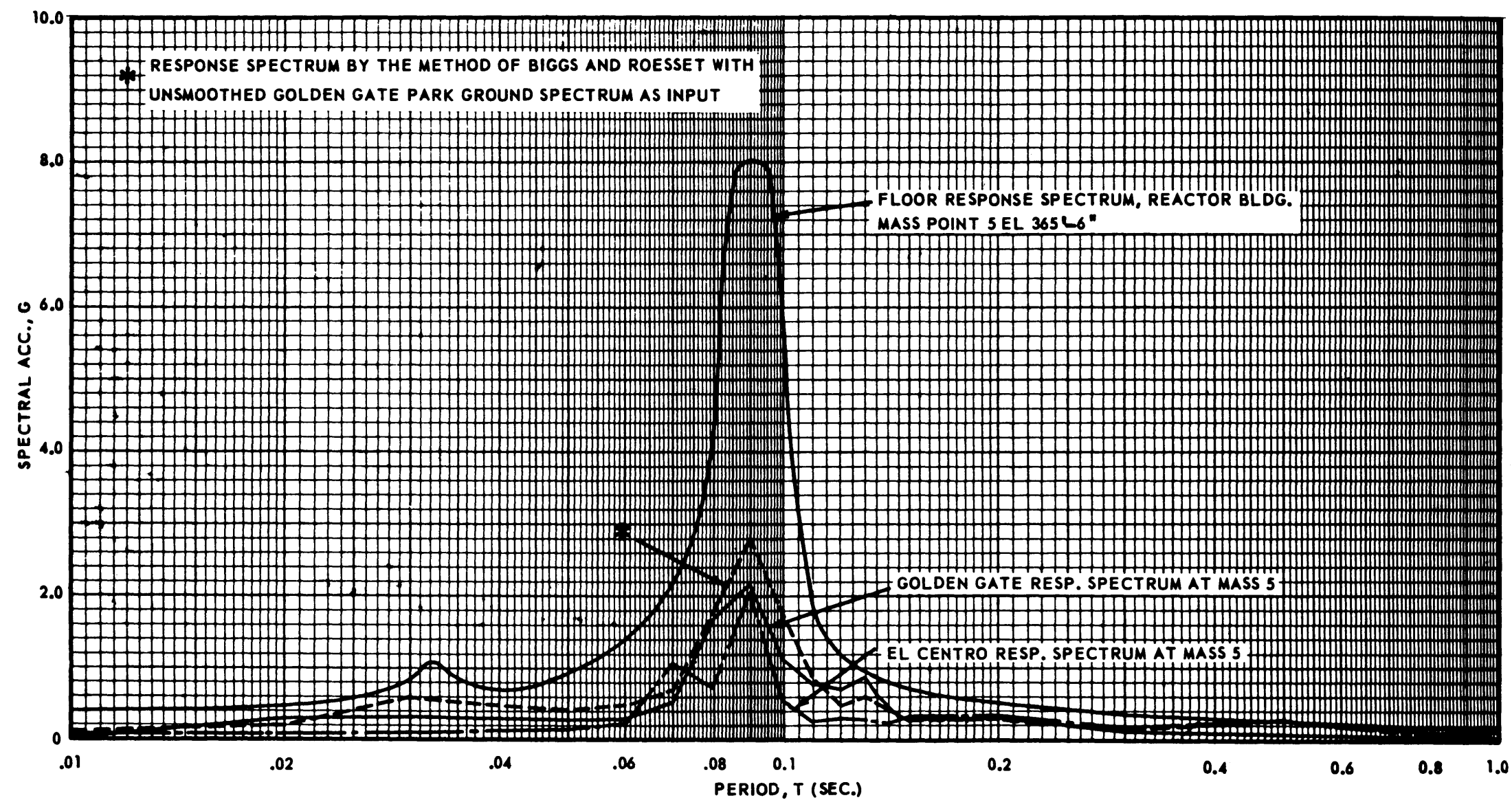














COL 1	COLUMN 2	COL 3	COLUMN 4	COLUMN 5		COLUMN 6	COLUMN 7	COLUMN 8				COLUMN 9				COLUMN 10	COLUMN 11	COLUMN 12		COLUMN 13	COLUMN 14	
PIPE LINE NO.	DESCRIPTION OF PIPE LINE	LINE SPEC.	PIPE MATERIAL 1STN SPEC.	REFERENCED PIPING DIAGRAM		PRESSURE STRESS IN PIPE S <sub>D-F</sub> A CODE PARA 102.3.2(1) (PSI)	MAXIMUM STATIC HEADLOAD STRESS (PSI)	SEISMIC STRESS (0.00g EARTHQUAKE)				SEISMIC STRESS (0.12g EARTHQUAKE) (DOUBLE VALUE OF 0.00g)				SUMMATION OF PRIMARY STRESSES (BASIS: 0.00g EARTHQUAKE) PRESSURE (COL. 6) + HEADLOAD (COL. 7) + SEISMIC STRESS (COL. 8) (PSI)	SUMMATION OF MAXIMUM PRIMARY STRESSES (BASIS: 0.12g EARTHQUAKE) PRESSURE (COL. 6) + HEADLOAD (COL. 7) + SEISMIC STRESS (COL. 8) (PSI)	MAXIMUM THERMAL STRESS		ALLOWABLE THERMAL STRESS (PSI) S <sub>A</sub> (2)	ALLOWABLE PRIMARY STRESS (PSI) 1.2 S <sub>H</sub>	
				FOR THERMAL STRESS ANALYSIS	FOR SEISMIC STRESS ANALYSIS	REF. POINT	X - Y DIRECTION (PSI)	REF. POINT	Y - Z DIRECTION (PSI)	REF. POINT	X - Y DIRECTION (PSI)	REF. POINT	Y - Z DIRECTION (PSI)	REF. POINT	EXPANSION STRESS (PSI) S <sub>E</sub> (4)							
NE-3	DECAY HEAT PUMPS - DISCHARGE	300-2	A350-08 TYPE 304	SS-302-550	SS-302-550-1	3,118	1,430 (10)	10	3,520	20	824	10	7,000	20	1,040	0,073	11,001	14	2,007	27,175	10,000	
NE-24	MAIN STEAM FROM STEAM GENERATOR-A, TO R.B. HALL	000-1	A100-07 GR. B	D-302-503-1	D-302-503-3	5,725	520 (24)	1	3,501	1	3,703	1	7,102	1	7,500	10,047	13,040	1	11,707	22,500	10,000	
NE-26	MAIN STEAM FROM STEAM GENERATOR-B, TO R.B. HALL	000-1	A100-07 GR. B	D-302-502-2	D-302-502-4	5,725	524 (0)	1	2,250	1	2,204	1	4,010	1	4,400	0,500	10,707	1	10,302	22,500	10,000	
NE-28	DECAY HEAT SERVICE COOLING - BAYNOR WATER	150-1	A03-07 GR. B	NOT APPLICABLE	C-302-600	1,520	3,777 (20)	20	3,041	11	3,102	20	7,000	11	0,304	0,147	12,000		NOT APPLICABLE	NOT APPLICABLE	10,000	
NE-66	DECAY HEAT CLOSED CYCLE C.O.B. WATER FROM PUMP DC-PW TO COOLER ON-CIA	150-1	A100-07 GR. B	NOT APPLICABLE	SS-302-650	002	2,406 (31)	25	0,314	30	4,004	25	10,020	30	0,000	0,701	14,105		NOT APPLICABLE	NOT APPLICABLE	10,000	
NE-82	EMERGENCY FEED-WATER PUMP-B, DISCHARGE TO HEADER	000-1	A100-07 GR. B	SS-302-504-1	SS-302-504-2	4,040	2,343 (23)	23	4,003	23	5,503	20	0,300	23	11,120	11,040	17,500	23	230	22,500	10,000	
NE-84	TURBINE DRIVEN EMERG. F.W. PUMP DISCHARGE TO HEADER	000-1	A100-07 GR. B	SS-302-505-1	SS-302-505-2	4,040	3,075 (30)	30	4,035	30	2,301	30	0,270	30	4,722	12,350	10,000	20	002	22,500	10,000	
NE-76	REACTOR BUILDING SPRAY RING #1	300-2	A312-04 TYPE 304	C-302-610	C-302-610	004	1,237 (10)	10	2,370	4	505	10	4,750	4	1,100	4,440	0,707	0	4,152	27,175	10,000	
NE-78	REACTOR BUILDING SPRAY RING #2	300-2	A312-04 TYPE 304	C-302-620	C-302-620	004	1,354 (51)	10	1,520	10	1,350	10	3,040	10	2,700	3,070	5,100	0	4,250	27,175	10,000	
NE-84	NUCLEAR SUB. CLG. W. FROM HEAT EXCHANGERS TO PUMPS	350-1	A100-07 GR. B	NOT APPLICABLE	D-302-632	1,730	2,400 (30)	50	0,017	00	4,445	50	13,034	00	0,000	10,004	17,701		NOT APPLICABLE	NOT APPLICABLE	10,000	
NE-87	25" W.P. INJECTION PIPING FROM PENET. #312 TO D.S.V. COMM.#1	2500-2	A312-04 TYPE 304	NOT APPLICABLE	D-302-644-2	2,005	2,005 (2)	52	044	52	031	52	1,000	52	1,002	0,004	7,000		NOT APPLICABLE	NOT APPLICABLE	10,000	
	REACTOR COOLANT LOOP PIPING -DATA FROM D.S.V. CO.	D & W	A510 GR. 70 & A100 GR. C	D & W	D & W	13,400	1,000		3,700		3,700		7,400		7,400	10,700	22,400	20,000	-	-		• THE TOTAL ACTUAL COMBINED STRESSES ARE 40,500 PSI-ACCORDING TO 031.7
																						• THE TOTAL ALLOWABLE COMBINED STRESS IS 52,100 PSI - ACCORDING TO 031.7

NOTES:

1. USAS (ANSI) B31.1, B-1007 CODE FOR PRESSURE PIPING.
2. FROM PARA. 102.3.2 OF CODE FOR PRESSURE PIPING.
3. FOR VALUES OF  $S_h$  SEE TABLES A-1 AND A-2 OF CODE FOR PRESSURE PIPING.
4. SEE PARA. 110.0.4 OF CODE FOR PRESSURE PIPING.

**GPU Nuclear**

Update - 1

TMI Unit-1

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Summary Tabulation of the Piping Stresses for Seismic Class 1 Piping

Fig. 5.4-10

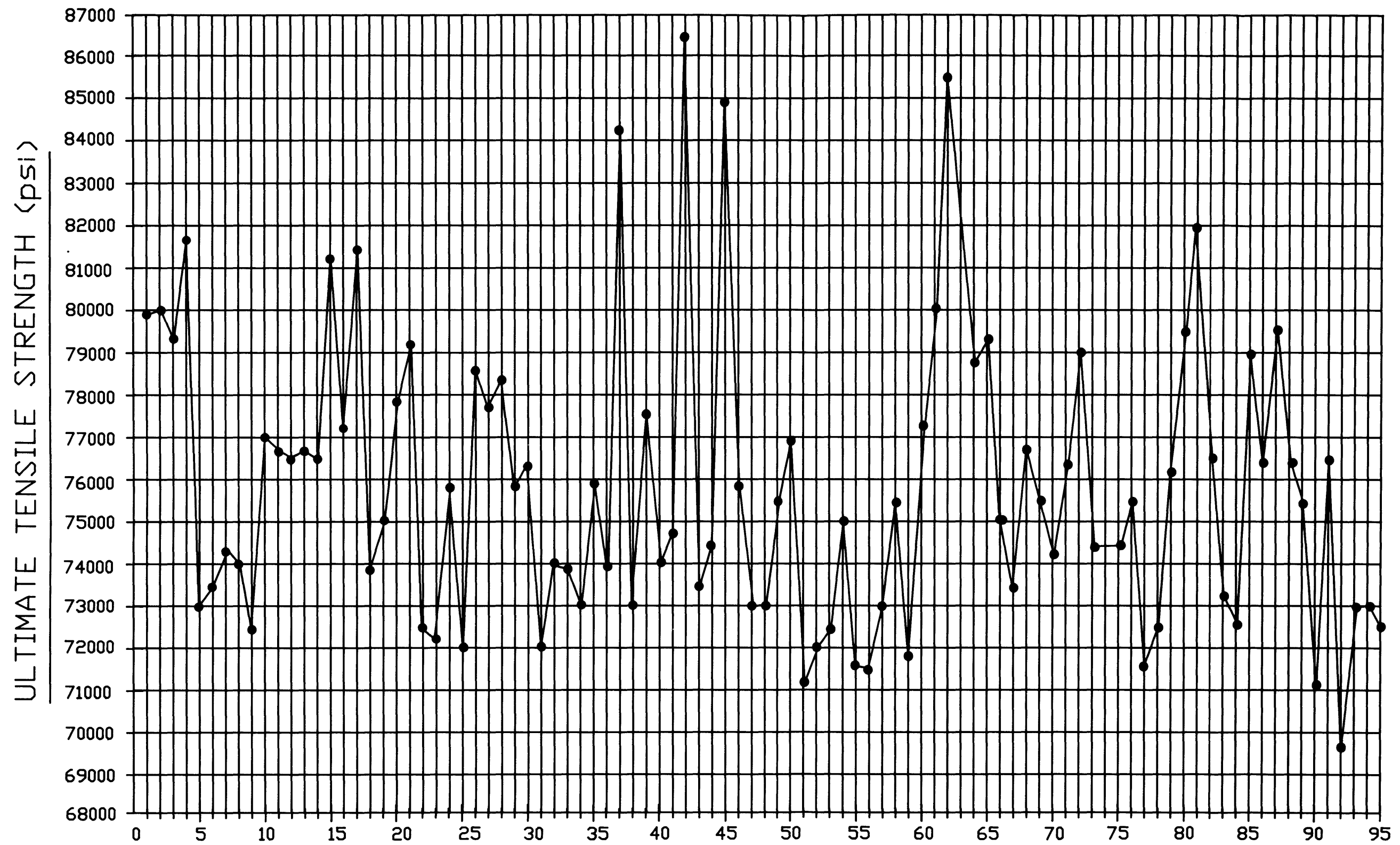






Figure 5.6-2

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