SECONDARY WIND MOMENTS IN

A FIVE-BAY TEN STORY BUILDING BENT

Thesis by

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PROBLEM

The purpose of this thesis is to determine the effect of secondary wind moments due to column shortening under wind load upon a five bay ten-story structural steel building bent.

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THE BENT

The bent used was obtained by adding two twenty-two foot bays to the upper tensitories of the classical Wilson-Maney bent, analyzed in Bulletin 80 of the University of Illinois. The dimensions and sections are the same as for the Wilson-Maney bent except that the first story height has been increased to 16'-O". Diagram 1 shows the dimensions and properties of the bent. This same structure was investigated for primary wind stresses only by Rolland A. Philleo as a thesis problem for the degree of Master of Science in Civil Engineering at the Graduate School of Cornell University.

ASSUMPTIONS

It was assumed that the joints in the bent were perfectly rigid and that no relative rotation of the members occurred at their intersections.

The foundations were assumed rigid against settlement but were allowed to rotate by connecting them with a beam.

These two assumptions are not consistent, of course, but it was thought that allowing the footings to rotate would be a better assumption than the ordinary one of assuming them as completely fixed.

LOADS

The load used was the same one used in Bulletin 80 of the University of Illinois, i.e., a horizontal wind load of thirty pounds per square foot on a vertical surface one foot wide.

PROCEDURE

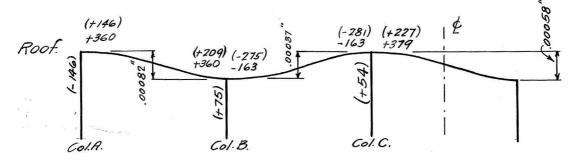
Calculation of Wind Moments

The wind moments were first obtained by the Hardy Cross method by the ordinary procedure. Seven complete cycles were carried through to obtain the moments. The wind moments are shown on diagram No. 2.

Calculation of Secondary Wind Moments

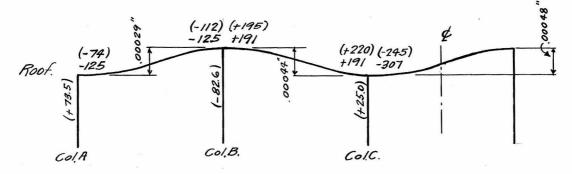
The change in length of the columns due to wind loads, the resulting differences in elevations of the ends of the beams and the fixedend beam moments were then determined. These fixed end moments were then distributed by the Hardy Cross method and the secondary wind moments found. Six complete cycles were carried through with the Hardy Cross method to determine the moments.

In the upper stories of the bent the secondary moments were quite large and would also produce column loads and deformations and more secondary moments or corrections to the secondary moments which, in general, would be opposite to the secondary moments. These corrections to the secondaries would produce a second correction which, in general, would add to the secondary moments. What actually happens when the wind load is applied to the bent is that the columns deform and the stresses arrange themselves in the structure producing equilibrium. In the solution for wind moments the columns are not allowed to deform and the column loads obtained from these moments are too large since it can be seen that allowing the columns to deform tends to reduce these loads.

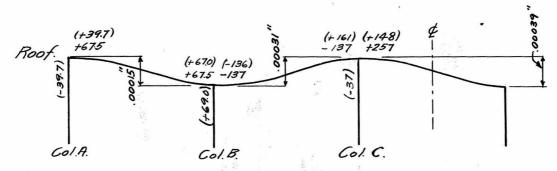


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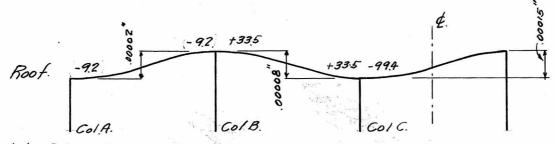
(a) Column Deformations and Moments Due to Wind Moments



(b) Column Deformations and Moments Due to Secondary Moments



(c) Column Deformations and Moments Due to First Correction to Secondary Moments.



(d) Column Deformations and Moments Due to Second Corrections to

Secondary Moments.

The diagrams in Figure 1 show the column deformations, fixed end moments, and final distributed moments at the roof due to wind moments, secondary moments, and first, and second corrections to the secondary moments.

The figures in brackets are the distributed moments and the other figures are the fixed end moments. The moments are in foot-pounds and positive moment tends to rotate the joint in a clockwise direction. The wind load is applied at the left.

The diagrams in Figure 1 are for the roof only but the floors below act in a similar way, the actual deflections of course being smaller. It can be seen from Figure 1 that one correction to the secondary moments will give secondary moments that are too small. When the second correction is applied the resulting corrected secondary moments (algebraic sum of secondary moments and two corrections) will be too large and the final wind moments (algebraic sum of wind moments and corrected secondary moments) will in general be too small. The magnitude of the error, however, will be small, as can be seen from the fixed end moments due to the second correction to the secondary moments. In the solution only two corrections to the secondary moments were solved for.

The steps gone through in obtaining the secondary moments are a series of approximations identically analogous to those gone through in

applying the Hardy Cross method. Assuming that the columns do not deform, corresponds to fixing the joints against rotation and the calculation of each set of moments corresponds to distribution. Allowing the columns to deform is analogous to balancing and the calculation of fixed-end moments gives the carry-over effect.

Diagram No. 3 shows the first secondary wind moments, the first and second corrections to the secondary moments, and the corrected secondary moments, (algebraic sum of first secondary moments and corrections.)

Diagram No. 4 gives the ratios of the first secondary moments to the wind moments and the ratios of the corrected secondary moment to the wind moments. The first ratio is given near the member and the latter is given over the first one. Positive ratios indicate that the secondary moments add to the wind moments and vice versa.

Diagram No. 5 shows the wind moments, corrected secondary moments, and the ratio of the former to the latter.

		Span AB	_ 0 0		an BC	~ ~	Span CC L = 18'-0" I/L = 9.4					
	L = 22'-	Second second	= 7.7	L = 22'	with man and an and an and and and and and and	= 7.7		the second second second	Construction of the owner owne			
Floor	$\frac{M_L + M_R}{L}$	d E	Fixed-End Moment Ft. x lbs.	$\frac{M_L + M_R}{\frac{L}{10s}}$	$\frac{\mathrm{d}}{\mathrm{h}} \mathrm{E}$	Fixed-End Moment Ft.x lbs.	$\frac{M_{\rm L} + M_{\rm R}}{1 \rm bs.}$	d E	Fixed-End Moment Ft. xlbs.			
Roof	The second in the submittee of the second in	171.5	360	22.3	77.6	163	32.6	121.0	379			
10	61.2	170.7	358	53.8	77.2	162	79.1	120.4	377			
9	101.1	168.1	355	88.2	76.0	160	130.5	118.6	371			
8	141.5	162.6	341	123.2	73.5	154	179.8	114.8	359			
7	180.9	153.0	322	159.5	69.1	145	234.8	108.2	338			
6	219.0	139.4	293	192.3	62.9	132	282.8	98.89	308			
5	254.8	120.0	252	228.2	54.0	113	336.2	85.2	266			
4	293.7	99.7	210	265.3	45.2	95	390.1	71.6	224			
3	328.5	73.5	154	297.1	33.8	71	446.8	53.8	168			
2	302.6	45.9	94	359.5	21.1	44	527.9	33.6	105			

Table - 1.(a)

Calculation of Fixed End Moments Due to Wind Load Column Deformations

		Column A.		(Column B.		Colum			
Story	Load lbs.	Area Sq. in.	$\frac{P}{A} \frac{1bs.}{in.^2}$	Load lbs.	Area Sq. in.	$\frac{P}{A} \frac{1bs.}{in.^2}$	Load lbs.	$\frac{P}{A}$ $\frac{1bs.}{in.^2}$	Story Height	
10-R	- 27.1	38.86	0.70	+ 4.8	41.00	0.1	- 10.3	0.3	12'-0	
9-10	- 88.3	11	2.27	+12.2	tt	0.3	- 35.6	0.9	**	
8-9	-189.4	19	4.88	+25.1	ft	0.6	- 77.9	1.9	19	
7-8	-330.9	ft.	8.52	+43.4	tt	1.1	-134.5	3.3	**	
6-7	-511.8	42.26	12.10	+64.8	44.39	1.5	-209.8	4.7	ŦŤ	
5-6	-730.8	17	17.3	+91.5	11	2.1	-300.3	6.8	77	
4-5	-985.6	53.79	18.3	+118.1	59.72	2.0	-408.3	6.8	11	
3-4	-1279.0	tt	23.7	+146.5	11	2.5	-533.1	8.9	11	
2-3	-1607.8	64.24	25.0	+177.9	67.80	2.6	-682.8	10.1	ft	
1-2	-2004.1	11	31.2	+214.7	11	3.2	3.2 -851.2 12.6			

Table - l.(b)

Calculation of Fixed End Moments Due to Wind Load Column Deformations.

Tables 1.(a) and 1.(b) show the calculations for the column deformations and fixed-end beam moments due to wind load. The quantity, $\frac{M_L + M_R}{L}$ which is the sum of the moments at each end of a beam, divided by span gives the beam shears, the sum of which is the column load. The quantity $\frac{d}{h}E$ is the difference in the elevations of the ends of the beams in inches. (d), divided by (h), the story height in inches times (E), the modulus of elasticity for steel, (30,000,000 lbs. per sq. in.).

All the story heights except the first one are equal, so by reducing the first story stress to one producing the same deformation in a column having the length of the upper columns, (multiply by $\frac{16}{12}$) it was possible to factor out the common story height as indicated.

If the difference in elevations of the ends of the beams are given the fixed-end moment is given by the following expression,

 $M = \frac{E I}{2L^2} d = \frac{E (I/L)}{2 L} \frac{d E}{h} \frac{h}{E} = \frac{1}{2} \left(\frac{h}{L}\right) \left(\frac{I}{L}\right) \left(\frac{d E}{h}\right) Ft. x lbs.$

Where h is the story height (12'-O") and L is the span of the beam.

Checking Solution

Each solution for moments was checked by calculating the horizontal deflection of each column. Obviously the deflections of all the columns in a story should be equal since the ends are rigidly connected by the beams.

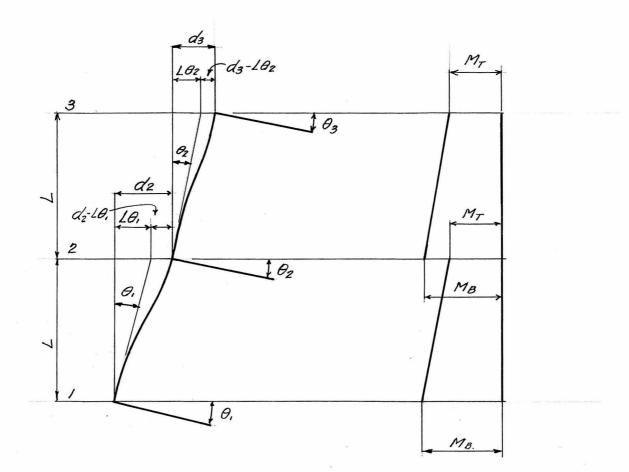


Figure 2.

Let Figure 2 represent a column under load causing bending moments shown in diagram. Θ , can be calculated from the known conditions at the base, i.e., the foundations do not settle. Take statical moment of the moment diagram for Col. 1-2 about 2.

 $\frac{M_B}{EI} \quad \frac{L}{2} \quad \frac{2 \ L}{3} \quad - \quad \frac{M_T}{EI} \quad \frac{L}{2} \quad \frac{L}{3} = \quad \frac{2 \ M_B - M_T}{6} \quad \frac{L}{(\frac{L}{L})E} = d_2 - L \ \theta_1$ Multiplying through by E/L, $\frac{2 \ M_B - M_T}{6 \ (\frac{L}{T})} = \frac{E \ d_2}{L} - \theta_1 E$

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(1)

adding the known value of Θ_1 we get the value of $\frac{E d_2}{L}$ which should be the same for each column in a story.

The value of θ_2 may be found by adding the change in rotation between the bottom and the top of the column 1-2 to θ_1 . This is equal to the area of the $\frac{M}{EI}$ diagram of the column 1-2.

 $\triangle \Theta_{1-2} = (\frac{M_B - M_T}{2 EI}) L = \frac{M_B - M_T}{2 E \frac{1}{L}}$ Multiplying through by E we get:

$$\mathbb{E} \bigtriangleup \Theta_{1-2} = \frac{M_{\rm B} - M_{\rm T}}{2 \left(\frac{1}{L}\right)} \tag{2}$$

Then $E \Theta_2 = E \Theta_1 + E \varDelta \Theta_{1-2}$.

The sign convention used in these expressions is the same as that used before, namely, that moments tending to rotate a joint in a clockwise direction are positive. Angular rotation in a clockwise direction is also considered positive.

Table II. gives the computations for the deflections of the columns in the first four stories of the bent due to secondary wind moments. No other calculations beside those appearing in the table are necessary and after a little practice the application of the check becomes very rapid.

Story	Column	ΕΘ	$\frac{(d - L\theta)E}{L}$	de L	EΔθ	$\frac{I}{L}$
	A	+ .087	+ .364	+ .451	+ .957	18.8
lst.Story	B	+ .162	+ .293	+ .455	+ .528	19.9
	C	+ .142	+ .343	+ .485	+ .628	19.9
	A	+1.044	+ .044	+1.088	+ .691	18.8
2nd.Story	В	+ .690	+ .360	+1.050	+ .502	19.9
	C	+ .770	+ .352	+1.122	+ .502	19.9
	A	+1.735	128	+1.607	+ .629	18.3
3rd.Story	В	+1.192	+ .439	+1.631	+ .511	18.6
	C	+1.272	+ .341	+1.613	+ .403	18.6
	A	+2.364	283	+2.081	+ .601	18.3
4th.Story	В	+1.703	+ .412	+2.115	+ .323	18.6
	C	+1.675	+ .385	+2.060	+ .350	18.6
	A	+2.965	514	+2.451	+ .560	14.3
5th.Story	В	+2.026	+ .423	+2.449	+ .171	14.6
	C	+2.025	+ .525	+2.550	+ .445	14.6

Table II.

Calculations of Horizontal Deflections of Columns

The values of E θ for the first story columns were calculated from the first story beams connecting the bottoms of the columns. Since the foundations were assumed to be fixed in elevation the value of d in equation (1) is zero and the expression gives the desired E θ . It will be noticed that the moments are given in foot-pounds so that if the deflections are wanted in inches, where E is in pounds per square inch, the result must be multiplied by 12". The values of $\frac{d}{L}$ are merely proportional to the inclination of the column from the vertical and serve only as a check.

The above method of checking results was found to be very valuable. The expressions for the rotation and deflection are very simple and can be applied even with rough mental calculations and are often useful in checking and predicting results at least in a qualitative way. The same concept may be applied to any indeterminate structure and should prove to be of appreciable assistance at least in interpreting results.

The calculations for wind moments and first secondary moments by the Cross method were made on large sized diagrams as used by the Engineering Department of the Institute. Subsequent calculations, however, were tabulated as suggested by E. A. MacLean, Esq. in his discussion of the Cross method on page 421, Proceedings of the American Society of Civil Engineers for March, 1932. The latter method was found much faster and easier than using the large diagrams and is recommended very highly. The flexibility of the Cross method in general was demonstrated on several occasions. In some cases the moments at a joint would not balance due to errors made in computations. The error was easily corrected applying it as an unbalanced moment and carrying over perhaps once or twice, depending on the relative size of In calculating the fixed-end moments due to the secondary the error. moments an error was made which affected all the fixed-end moments in the center span. The error was not discovered until the entire solution for the first correction to the secondary moments had been made. The error was corrected by running an independent solution using the error in the moments in the center span as the fixed-end moments. The correct moments were then the algebraic sum of the two solutions.

DISCUSSION

Foundations

As was stated above, the foundations were assumed fixed against vertical movement. This assumption of course does not seem reasonable since the foundations act as an elastic body and deform under load. The movement of the foundations would tend to increase the fixed-end moments and hence the secondary moments.

Assuming that the foundations deform 1/8" under a unit load of 6000 lbs. per square foot, and proportioning the footings to carry the allowable load of the first story columns at the above unit soil ave fowing / load. pressure, the deflections of the footings were found to be from 25 to 50% of the column deformations at the roof. From this rough calculation it would seem that the settlement of the foundations would add appreciably to the secondary moments.

Secondary Wind Stresses in Wilson-Maney Bent

The secondary wind moments in the twenty-story Wilson-Maney bent were calculated by Mr. M. P. White as a thesis problem and were found to be negligible. This result can be justified if it is noticed that the unit wind stresses and hence the column deformations are very nearly proportional to the distance from the center line of the bent. All the fixed-end beam moments act in one direction and the resulting sway will tend to decrease them so that when equilibrium is reached

the beams will have very little moment in them and will be practically straight.

The column deformations in the bent analyzed in this problem were alternate lengthening and shortening (See Fig. 1.) and the fixed-end moments were in different directions. Side-sway in this case increases some moments and decreases others with the result that the secondary moments are quite appreciable.

CONCLUSION

The conclusions to be drawn from this investigation are not very definite or far reaching. Even the justification of the results obtained was at times quite difficult and certainly any very general prediction regarding the magnitude and effect of secondary moments would be hazardous.

It is believed that the following general statements may be safely made regarding secondary wind moments in building bents.

1. Secondary wind moments of appreciable magnitude occur in the upper stories only.

2. If the wind stresses in the columns vary approximately as their distance from the center of the bent, the secondary moments will be small and if the columns are alternately in tension and compression under wind load the secondary moments may be large. DIAGRAM OF BENT.

				DIAG	RAM	OF DENT.			SYM	ABT. C
			$\frac{I}{Z} = 7.7$			$\frac{I}{Z} = 7.7$			<u>I</u> = 9 4	Roof.
,12:0	<u>T</u> =/3.1	A=38.86 D"	$\frac{J}{L} = 7.7$	<u>T</u> =/3.2	A=4/.00 ¤"	<u>I</u> =7.7	<u>[</u> =/3.2	A= 41.00 a"	<u>+</u> = 9.4	IOIH FL.
12:0"	<u>T</u> =/31	A= 38.86 <i>a</i> "	<u>I</u> = 7.7	<u>T</u> =/3.2	A=41.00 n"	<u></u> =7.7	<u>7</u> =/3.2	A=41.00 a"	<u>I</u> = 9,4-	9 IH FL.
12:0"	<u>.</u> <u>7</u> -/3/	A=38,86 <i>∟</i> ″	$\frac{I}{L}$ =7.7	<u>T</u> =13.2	A=41.00 a"	$\frac{Z}{Z} = 7.7$	<u>T</u> =/3.2	A=4/.00 "	<u>I</u> =9.4	81HFL
. 12-0"	<u>T</u> = /3.1	A= 38.86 D"	<u>I</u> =7.7	<u>T</u> =/3.2	A=4/.00	<u>I</u> =7.7	<u>T</u> =/3.2	A=4/.00a"	<u></u> = 9.4	7 <i>™ FL</i> .
12'-0"	<u>7</u> = /4.3	A=38.86 ⊡"	<u>I</u> = 7.7	<u>T</u> =14.6	A <i>= 43.39 u"</i>] =7.7	<u>T</u> =14.6	A=43.39 ^{_D} "	<u>I</u> =9.4	6 ^{T#} FL.
12'-0"	<u> </u> =/4.3	A=42.260"	<u>1</u> =7.7	<u>T</u> =14.6	A=43.39 <i>0</i> ″	<u>I</u> =77	<u>T</u> =14.6	A=43.39 n"	<u>↓</u> 	5 TH FL
	<u>T</u> =18.3	A=53.79 ±	<u>I</u> =7.7	<u>T</u> =18.6	A= 59.72 <i>0</i> "	<u>I</u> =7.7	<u>T</u> =18.6	A=59.72 n"	<u>I</u> = 9.4	4 <u>™</u> FL
12-0"	<u>7</u> =/8.3	,	<u>1</u> <u>7</u> =77	<u>T</u> =18.6	A=59.72 a"	<u>I</u> =7.7	<u>T</u> =18.6	A=59.72 ¤*	<u>I</u> =9,4	3ªºFL.
12-0"	<u>1</u> = 18.8	A=64.2412"	<u>I</u> =7.7	<u>T</u> =/9.9	A=61.80¤"	$\frac{T}{Z} = 7.7$	<u>T</u> =/9.9	A=67,80a"	<u>I</u> :9,4	2 Mº FL.
16-0"	<u>7</u> =/88	A=64.24 Ľ	<u>I</u> =77	<u>7</u> = 19.9		<u>I</u> = 7.7	<u>7</u> =/9.9		<u></u>	15TFL.
		Co!A	22-0"		Col.B	22 <u>-</u> 0″		Co1.C.	9 ' 0"	

DIAGRAM NO. I

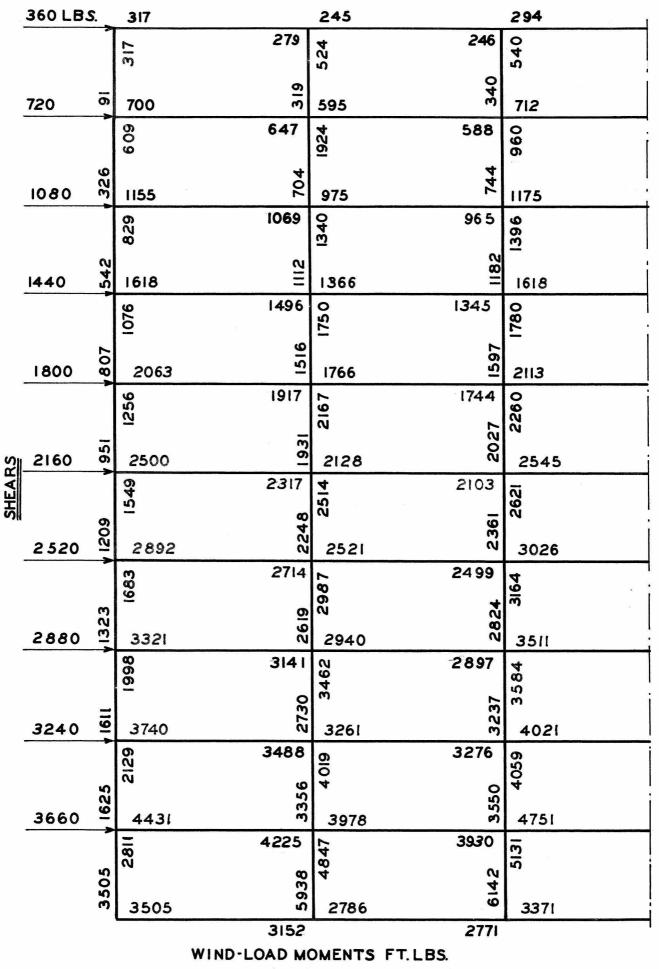


DIAGRAM NO. 2

	+39.7 2-ND -73.5 I-ST.0 +146.0 I-ST.5	CORR.	- <u>216.2</u> -136.0 +194.8 -275.0		+ <u>179.4</u> +197.7 -245.3 +227.0	R
	-146.0 +73.5 -39.7 -112.2	+200.0 -112.2 <u>-67.1</u> +154.9	+75.0 -82.6 +68.8 +61.2	-281.0 +219.9 <u>+161.0</u> -222.1	+54.0 +25.4 -36.5 +124.9	
-83.2 -26.5 +4.9.3 -106.0	<u>+144.7</u> +45.2 -84.5 +184.0	+46.4 +52.6 -64.2 +58.0	<u>-238.5</u> -14 4.9 +205.4 -299.0	<u>+38.0</u> -28.3 +17.3	+ <u>172.6</u> +207.6 -249.0 +214.0	10
	-78.0 +35.2 -18.7 -61.5	+204.0 -99.3 +55.5 +160.2	+37.0 -41.9 +36.8 +31.9	-296.0 +216.5 -155.7 -235.2	+33.0 +15.2 -23.6 +24.6	
-64. -20. -83.0	+ <u>135.7</u> +42.0 -79.3 +173.0	+32.4 +39.9 -48.5 +41.0	<u>-229,3</u> -134,1 +189,8 -285,0	<u>+27.4</u> -23.4 +15.8 +35.0	<u>+176.7</u> +193.9 -235.5 +218.0	9
	-900 +40.3 -21.9 -71.6	+202.0 -96.2 <u>+54.8</u> +160.6	+42.0 -45.1 +39.4 +36.3	-287.0 +203.0 <u>-146.5</u> -230.5	+34.0 +16.4 -24.1 +26.3	
-69.7 -19.7 -86.0	+ <u>135.7</u> +38.6 -72.9 +170.0	+ <u>36.6</u> + <u>36.6</u> -45.3 +43.0	<u>-227.1</u> -123.2 +174.1 -278.0	<u>+30.5</u> -22.3 +13.7 +39.0	+174.3 +178.1 -215.8 +212.0	8
	-84.0 +36.9 -18.9 -66.0	+196.0 -88.7 <u>+49.8</u> +15 7.1	+39.0 -40.1 +34.5 +33.4	-280.0 +186.1 - <u>134.4</u> -228.3	+29.0 +16.0 -21.4 +23.5	
-60.0 -16.4 -76.0	+ <u>I30.3</u> +33.8 -64.5 +16I.0	+33.2 +33.6 -40.4 +40.0	<u>-2 4.0</u> - 107.2 + 54.2 -26 .0	+ <u>26.8</u> -19.2 +13.0	<u>+163.2</u> +156.3 -192.1 -199.0	 7
	-85.0 +32.1 -174 -70.3	+186.0 -79.1 <u>+43.1</u> +150.0	+35.0 -34.7 +30.5 +30.8	-263.0 +164.6 <u>-116.6</u> -215.0	+31.0 +14.5 -20.5 +25.0	
-59.0 -14.5 +28.5 -73.0	<u>+121.5</u> +28.5 -56.0 -149.0	+34.3 +303 -36.0 +40.0	<u>-195.7</u> -89.9 + 131.2 -237.0	+26.0 -17.4 +10.4 +33.0	+151.7 +131.2 -162.5 +183.0	6
	-76.0 +27.5 -14.0 -62.5	+170.0 -66.6 +36.2 +139.6	+270 -28.6 +23.4 +21.8	-236.0 + 40.3 -97.4 - 93.1	+20.0 +11.8 -16.4 +15.4	

FIRST SECONDARY MOMENTS, FIRST AND SECOND CORRECTIONS AND CORRECTED SECONDARY MOMENTS

-48.2 -10.1 +21.9 - 60.0	<u>+ ,5</u> +22.3 - 45.8 + 35.0	+ <u>27.0</u> +22.8 -27.8 +32.0	-170.7 -70.7 +104.0 -204.0	+ <u>28.5</u> -13.0 + 33.0	+130.2 +104.6 -130.4 +156.0	5
	-75.0 +23.9 -12.2 -63.3	+150.0 -52.2 +26.5 +125.3	+22.0 -24.0 +20.4 +18.4	-206.0 +110.6 _76.1 -171.5	+17.0 +11.3 <u>-15.5</u> +12.8	
-44.6 - 9.0 +17.4 -53.0	+95.8 +17.9 -35.1 +113.0	<u>+ 29.8</u> +1 <u>9.9</u> -24.1 +34.0	<u>-141.3</u> -54.9 +81.6 -168.0	<u>+25.5</u> -11.8 +7.3 +30.0	+110.6 +81.1 -102.5 +132.0	4
	-60.0 +17.7 -8.9 -51.2	+123.0 -41.4 <u>+21.5</u> +103.0	+11.0 +13.5 +8:4 +8:4	-170.0 +86.1 -58.4 -142.3	8.0 +9.0 +6. <u> </u>	
<u>-30.3</u> -5.8 -37.0	+71.5 +122 -24.7 +84.0	<u>+27.2</u> +13.8 -16.6 +30.0	<u>-105.1</u> -37.8 + 56.7 -124.0	+ 1 <u>9.2</u> + 23.0	+85.5 +57.6 -71.1 +99.0	3
	-47.0 +12.2 -6.4 -41.2	+91.0 -28.6 <u>+14.7</u> +77.1	+3.0 -11.5 +9.3 +0.6	-124.0 +59.2 <u>-40.6</u> -105.4	+2.0 +7.3 - <u>8.6</u> +0.7	:
-17.1 -3.8 -7.7 -21.0	+44.8 +7.0 -14.2 +52.0	+ <u>20.3</u> +9 <u>.9</u> -12.6	<u>-63.5</u> -21.6 +33.1 -75.0	<u>+21.7</u> -5.4 +5.1	<u>+56.6</u> +32.4 -39.8 +64.0	2
	-31.0 +6.5 -3.2 -27.7	+59.0 -16.8 <u>+8.5</u> +50.7	-7.0 -3.7 <u>+3.2</u> -7.5	-77.0 +29.0 -23.2 -71.2	- 9.0 +5.4 - <u>3.8</u> -7.4	
	-4.8 -0.5		<u>-7.4</u> -0.9	() () () () () () () () () () () () () (<u>-7.7</u> 0.0	ļ
+ 4.8 + 0.5 + 5.0	+0.7 -5.0	+ 12.9 +1.9 - 3.0 +14.0	-0.9 +1.5 -8.0	+ <u>15.2</u> +0.4 +16.0	+0.3 -8.0	
		-6.0 +1.5 -1.0 -5.5		-8.0 +0.9 -0.4 -7.5		!

NOTES:

ALL MOMENTS ARE IN FT.LBS.

+MOMENTS TEND TO ROTATE JOINT IN CLOCWISE DIRECT.

FIRST SECONDARY MOMENTS, FIRST AND SECOND CORRECTIONS AND CORRECTED SECONDARY MOMENTS

RATIOS OF FIRST SECONDARY MOMENTS AND CORRECTED SECONDARY MOMENTS TO WIND MOMENTS

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12-0'	91	21 26		<u>4</u> .+ 40.+	+.40 +.50			-24 30		10
°0	1	MOI		32 25	402 4.02		+ .50 +.40	+.03		1.0
12-0"	25	12 15		+.05 +.06	+.23 +.29		+.04 +.05		· ·	19
		= <u>0</u>	аналаны жана байлага ници х	19 15	+.03		+.30 +.24	+02		
12-0"	- <u>.</u> 1.13	08		+03	+.17 +.20		+ -03 + +	11 13		
:		800- -080-		-:13 -:11	+.02		+2l +.17	+02		8
12'-0"	-07	06		+.02 +.03	+.12		+.02	08		
		08 09 02 02		-+ + 10 08	+.15 20 +	-99 - 47 - 94 - 16 - 16 - 16 - 16 - 16 - 16 - 16 - 1	+ + +.15 +.12	09 10.0. + +	and a second and a second s	7
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DIAGRAM NO.4

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91 -83 +91	21 +145 -700	+. 4 +46 +3 9	+.40 - 2 39 -595	+.II +38 +340	24 +173 _712	10
	+609 -62 -10	-647 +160 -25	+1924 +32 +.02	-588 -235 +:40	+960 +25 +.03	
21 -64 +326	12 +136 -1155	+.05 +32 +704	+.23 - 229 -975	+.04 +27 +744	15 +177 -1175	9
	+829 -72 -09	-1069 +161 -15	+1340 +36 +.03	-965 -231 +.24	+1396 +26 +.02	
13 - 70 +542	08 +I36 -I6I8	+.03 +37 +1112	+.17 - 277 -1366	+.03 +30 +1182	11 +174 -1618	8
	+1076 -66 -06	-1496 +157 11	+1750 +33 +02	-1345 -228 +.17	+1780 +23 +.02	
07 -60 +807	06 +I30 -2063	+.02 +33 +1516	+.12 - 21 4 -1766	+.02 +27 +1597	08 +163 -2113	7
	+1256 - 70 -:06	-1917 +150 08	+2167 +31 +.01 +.01	-174 4 -215 +12	+2260 +25 +.01	
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	+1549 -63 04	-2317 +140 06	+2514 +22 +.01	-2103 -193 +.09	-2545 -2555 -2555	

WIND MOMENTS CORRECTED SECONARY MOMENTS AND RATIO OF CORRECTED SECONDARY MOMENTS TO WIND MOMENTS

04	04	+.01	+.07	+.01	04	5
-48	+112	+27	-171	+29	+130	
+1209	-2892	+2248	-2521	+2361	-3026	
	+1683 -63 04	-2714 +125 05	+ 2987 +18 +.01 +.01	-2499 -172 +.07	+3164 +13 .00	
03	03	+.01	+.0 5	+.01	03	4
-45	+96	+30	-141	+26	+	
+1323	-3321	+2619	-2940	+2824	-35	
	+1998 -5- -03	-3 4 +103 03	+3 462 + 8 .00	-2897 -142 + <u>.</u> 05	+3584 +6 .00	
02	02	+.01	+.03	+.01	02	3
-30	+72	+27	-105	+19	+86	
+1161	- 3740	+2730	-3261	+3237	-4021	
	+2129 -41 -02	-3488 +77 - <u>0</u> 2	+ 4019 + 1 - 00.	-3276 -105 +.03	+4059 +1 .00	:
01	01	+01	+.02	+01	01	2
-17	+45	+20	-64	+22	+57	
+1625	- 4431	+33	-3978	+3550	-4751	
	+281 -28 10:-	-4225 +51 -01	+4847 -8 .00	-3930 -71 + <u>0</u> 2	+5131 -7 .00	
.00	.00	.00	.00	,00	.00	
+5	-5	+13	-7	+15	- 8	
+3505	-3505	+5938	-2786	+6142	-3371	
		-3152 - 6 .00		-277I -8 .00		I

NOTE S:

MOMENTS ARE IN FT-LBS.

+MOMENTS TEND TO ROTATE JOINT IN CLOCKWISE DIRECTION.

WIND MOMENTS, COR RECTED SECONDARY MOMENTS AND RATIO OF CORRECTED SECONDARY MOMENTS TO WIND MOMENTS

DIAGRAM NO.5

WIND BRACING IN STEEL BUILDINGS

Discussion

This article was submitted to the "Proceedings" of the American Society of Civil Engineers as a discussion to the report of the Committee on Wind Bracing.

A rather sketchy investigation disclosed only one reference to the subject of Secondary Stresses in building bents due to column shortening under wind-load. Bulletin 80 of the University of Illinois covers the subject in a paragraph. The shortening of the first story columns of the twenty-story bent is computed and the fixed-end moments in the first story girders determined. These moments are small compared with the original wind moments. However, it must be remembered that the effect of column shortening is cumulative from bottom to top, while the girder moments due to wind become smaller so that the effect of column shortening should be much greater at the top than near the ground.

In its discussion the Committee on Wind-Eracing states that in the case of a high, narrow building secondary moments require investigation. In the relatively high and narrow Wilson-Maney bent secondary moments are negligible. Apparently there is another criterion. The importance of secondary moments depends upon the relative size of bays and upon the relative stiffness of columns and girders. In the Wilson-Maney bent both columns on one side of the center line have the same kind of stress under wind load and this stress and, therefore, the shortening

is roughly proportional to the distance from the center line. Since all the fixed-end moments in the girders due to column shortening act in the same direction, they will all be reduced by the resulting sidesway and the girders in their final position (after equilibrium is reached) will be nearly straight. When we have alternate tension and compression in the columns, the girders are constrained and may therefore have large bending moments after equilibrium is reached. In such a case sidesway will increase certain girder moments and decrease others.

The Committee does not consider the possibility that the secondary moments as first obtained may require correction. For example, in general (not always) the secondary moments in the girders will be opposite to the primary moments. If the secondaries are large, say 50% of the primaries, the resultant moment will be one-half of the original. But the secondaries will also produce column shortening which will cause more secondary moments, ordinarily of the same sign as the primary moments. If the first secondaries are 50% of the primary moments then the second secondaries will be about 25% of the primary moments which will make the resulting moments 75% of the original moments instead of 50%.

In general the first secondary moments will give results which, for girders, are on the unsafe side.

Calculations were made on two bents; one, the twenty story Wilson-Maney bent, gave negligible secondary moments. The other bent which was obtained by adding twenty-two foot bays to the upper ten stories

of the Wilson-Maney bent gave very interesting results. Under wind loads the columns of this bent were alternately in tension and compression. The accompanying diagram gives the ratio of the first secondary to the original wind moments (lower figure), and the ratio of the secondary moment after two corrections (algebraic sum of secondary plus first correction plus second correction) to the original moment.

> V. A. Vanoni, Junior Member, Am.Soc.C.E., Graduate Student, California Institute of Technology.

> M. P. White, Assistant in Civil Engineering, California Institute of Technology.

* Diagram No. 4.

- APPENDIX -

SECONDARY WIND MOMENTS IN A.

BUILDING BENT.

ORIGINAL CALCULATIONS.

Diagram of Bent A B Wind Moments. Calc of Fixed end Moments due to Wind load Col Deform. 1 2 First Secondary Wind Moments 3 Secondary Moments With one Correction Calculation of Fixed-end Moments 5 Method of Checking results 6-7 Check for Secondary Moments 8 9 Ratio of First Secondary to Wind Mom. Calc of Fixed-end Momis due to Col deformations Caused 10 by Secondary Mom. Calc of First Correction to Secondary Moments. 11-16 First Correction to Sec Wind Mom. 17 Check for 1st. Corr to Sec Mom. 18 Correction of error to 1st Corr to Sec Mom. 19-25 Check for Correction of error in 1st Corr to Sec Mom. 26 First Correct to Sec Momis 27 Fixed-end Momis due to 1st Corr to Secondaries 28 Calc of 2ND Corr to Secondary Momis 29-34 35 2 No Corr to Secondary Mom's Check to 2ND Corr to Secondary Moments. 36 Secondary Wind Moments With two Corrections 37 Fixed-End Moments due to Second Corr to Secondary 38. Moments. Wind Moments Corrected Sec. Mom's & Ratio. 39 40. Column Deformations Due to Secondary Mom's 41-2 Calculation of Wind Moments 43-4 Calculation of Secondary Moments

- CONTENTS-

Thesis. Wind load = 30 1/2' on a vertical strip I'wide. Loads given a total Shears in the story. Sym abt & R 360 200 (7.7 77 (28.6) (303) 9.4 38.86 - 1 41.00 0* 12-0 13:1 13.2 137 20 .02573 720 339 43.5 41.8 (94) 10 7.7 77) 12:00 13/ 131 132) N h 19 10 80 339 9 77 (418) 94 43.5 97) 10. 124 (13.2) 13.4 13.2 и 2 1442 339 8 7.7 (41.8) 43.5 94 77 0 13.2 121 13.2 3.1 46 1800 351 7 43.2 7.7-94 44.9 7.7 12:0" \$ 44.39 D" 42.26 0 46 02366 2162 363 6 7.7 446 (94) 7.7) 46.3 "0-21 14.6 43 = 146 2520 403 7.7-5 (7.7) 48.6 (94) 50.3 0-21 59.72 53.790 18.0 (18.6) 18.3 14 .1859 2880 (44.3) 4 543 (7.7) 94 (77) 52 0,21 8 3240 44.8 18.6 2 Cot A. 6/8-18.0 13 (7.7) 3 7.7 53,9 55.6 94 1220" 64.24 0 567.800 19.9 18-8 .1557 13660 (45.3) 2 (7.7) 7.7 56.9 557 94 16-0" (19.9) 19.9 18-8 353 37.0 26.5 9.4 7.7 7.7 bay B bay A. 22-0" bay C. 9-0" 22'-0" X

		(27	4 = 170,45	/		14911 55	= 74.287	VBC	×/114.9)
R	-3/1	7 7.73 15	596) 5.2	3 -27.9	-245 5-	3.4 534	-246	-294 21	22 Root
	6.95	+	27.1	9.20 4	(1448)	(22.3)**	9.34 2	1468	32,6#
£=.6	97- 14	68) 58 /c	P - Maral	902 +	5/143 81	-4.850 14	+251 +	814 371+	103 = 14.4
10	1.72 \$ -70	10 16.3 (1	347) 128	5-647	595	13:03 (1183) 12	57 -588	+ -7/2 12	(5×10+4
	11.3 60 2	.7.6 6	\$1.2 #	14.4 4	2734	(53.8)#	14.9 9		79.1
A G	57 9 2	7.736834	FR. PA	-297 0-	4 444	-122 P/=	.868 +	27.91	151 .6)
227	- 55 - 115	5269	272.4 21	3 6.12	+ 075 21	[2 PA= 72.74]	7 6.6.1	42 1.3 1 3	(27 gt4
$R = \frac{F_{+} = .6}{4}$ $\frac{F_{+} = .8}{4}$ $\frac{F_{+} = .8}{4}$ $\frac{F_{+} = .8}{4}$ $\frac{F_{+} = .8}{4}$ $\frac{F_{+} = .12}{4}$	1225 0 1		101.1	100 04	710 61	882	0,1 -705	-1175	130.5
P/= 4.8	7 00 +	5 6 5×189	Wp PA==	612 +	N K	-25/ 1/2=1.	90 2.0.0 m	40.7 ×	179
0	3.25 55 -16	10 377	(EA=162,28) 11.17	140.77	12 A= 70.2	3] 12.23	8 40.88 (E	A= 108.86)
8	N. 12 FA	0 -1.1	1415	1776	-/366 -	123.2	8.6 -/345	-1618 2	179.8
P/= 8;	5/	5-13301	2-B - PA	=-1.06 4	24.1 27 Fa -	424 P=	3.28 811	54.5	134.5
7	80.73	12478	21A=15271	07 1017	5557.6	2 292-65.	97	1 (SA:	102.3) 744
	N 9	6271.0	16.9	3, 3 - 1711	-116630. F	159.5		-21/3 3 1	2240
Pl in	3/18	6.0	00,1	2 In Mar	9 6.5.9	P	1470 000	6.5.9	237,0
A=16	11 2 2 6	3.25 511.	· P. = 12 9 1.	136 146	th 65.8	-64.8 /A	17.16 4	NY 65.6	+209.8
Al -	95.	(=	1017137.19	1	¢.	[2/A = 59.71]	0	202 (24	92.86)
,6	1-25	00 20.0	7190.	0.4-2311	-212846:	192.3	5.0 - 2/03	* - 2545 4	15.2 -
P= 15	779 25	0,0	A A	2=-2.06 F	2.84 1251	Bat	77,2 0	89	282.8
14-14	* * 7	7.4 - 730	8		77.6	-915 A	77.6 3	× e +	300.3
	10.1	(;	E P= 119.79	2248	2.6	(EA = 50,8	36/	1: (ZA:	= 79.32)
5	+ -28	92673.	(\$ 606)	54.8 +	-252155	0 (5020)	53.6 ×	-3026 53	6 27
- H=18.	3	15.9	454.8	-114	186	La Co Bo Co	- 2477	49	336,2
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4 2	+ -332	21 74.5	(6462)	64.0 ×	-2940 64	5 (5837)	61.8 4	-3511 62	·3 4Th
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	4.00	09.8	328.5	-3488	610	297.1 1/4 = 8.99	-3276	224	446.8
P/= 25	483	10 241607.	8 P/ == 2.6	2109.3 5	\$ -177.9	P/A = 8,99	-3276 10 9.6 00 m	1 +687.8	
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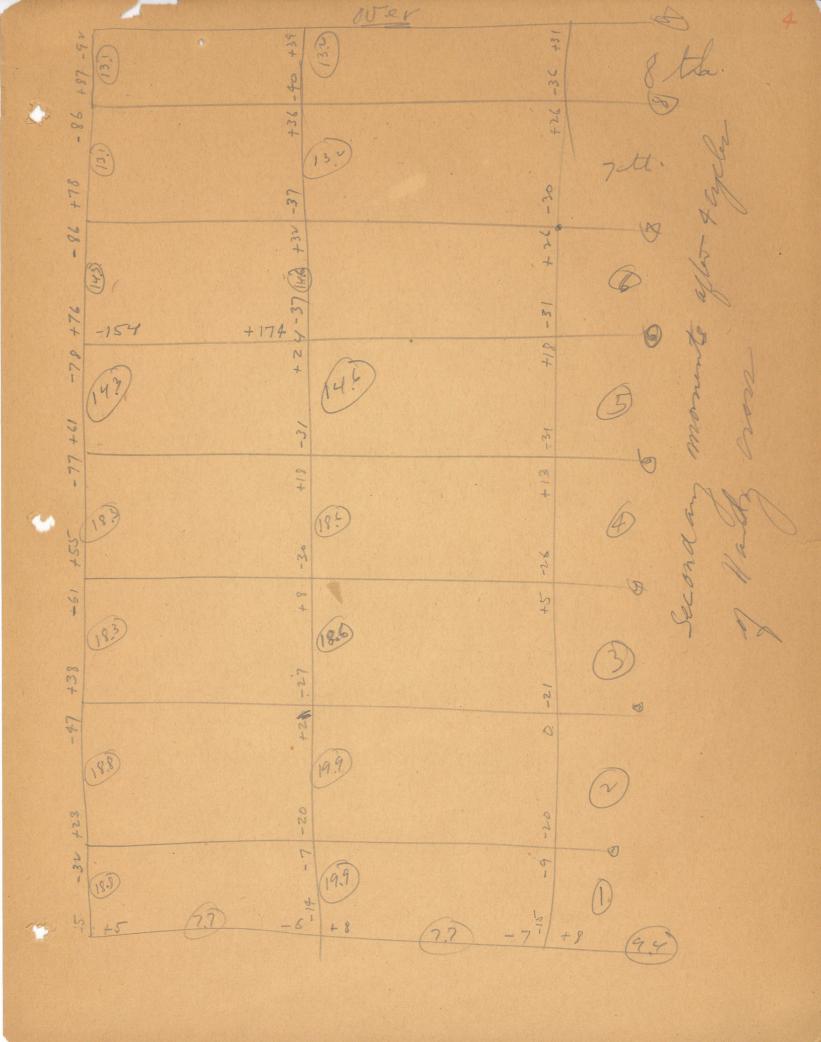
		Peo	condary	Wind	Mon	nents.	(1179 1	No Co.	rrections)	- 4
	P				+ 200			-281		
-	R	146	+146		6	-275		4	+227	
		- 14			14	- 275		ы +	+227	
			2			01			5	
	10		20/11/84		+204	4		+ -296 % +	+	
		100	+184		37	-299		3	+214	
					+			+		
			- 83 -		1200	-285		207	5 + + 218	
	9	. 0	+173		+ 40 L	+		- 681	+ + 218	
		0			44	200		4 34	1 - 1 0	
						1				
	8		-86		+196	4		-280	+34	
		. 84	+170		+196	-278		52	+ 212	
					T					
						+40			m m + + 199	
	7		-76		+186 +355	+		-263	+	
		85	+161		m +	- 601		131	<i>T</i> · / /	
									00	
	6		M.L.		+170	+41		-236	+33	
	6	S	+149		+170	-237	+	0	10 50 7 7 7 7 83	
					+			4		
			9			N			10 M	
	5		9.		+150	+		-206	+	
		32-	\$ +135		+22	-20\$		1	* + 15 *	
	1		5-5-		+123	+34		- 178	+30	
	4	9	+//3		==+	-168			+132	
					+			4		
						2			M	
	3		-37		+91	+		-/24	+	
		41	+ 84		m	m + −124		1 2	+ +/32 \$ NOV+ +99	
	2		-2/		+59	+23		-77 0	+22	
	4							0	+64	
		à						1		
			1			4			-0	
	1		54		-6	+14		- 8	+16	
			A-5			B-8 .		(- 8	
U-										

Soran

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Moments in Ffx 153 ingt. Secondary These Moments uncorrected + 85 -115 +209 146 + 12 + MM -2753788 +1463+68 -252 +235. +++++++53 +99 (+204 55) 7 -91 {-296 1 × × +197 2+197 3+102 + 184- 3+93 - 162 + 146 -16 +35 +55 143 +101 {+202 + 1] -95 -287 - 47 5 4 + 218 3 +16 +173 3+88 1 -2852F103 +159 +103 -93 40 4 - 86 +3 +3 -104 5+176 -17 8 5 + +170 3+92 + 4 +2/23+27 5 -2782-111 -164 +142 1-22 -107 -263 +103 +186 + 2 2 15- +161 3+ 92 +33 +4 3 4 +1833+34 5 -26/2-113 +140 +31 +31 +34 +34 +36 -103 -236 +41 +100 \$+ 170 14 - 493+89 N 1 1 + 12 63 52+ 22 + 1833+44 +115 - 60 -101 8+105 # 2 2 -206 # + 2 +95 -55 10 × 1353+86 N+ + + 1573+46 N = m + 20 3 2 -103 - 129 +104 - 87.9 {+ 82.1 0 + 9:1 = 9:1 = 1 1.914 - 25 + 79.5 5 23 +34-207 -60 +113 2+75.6 45--168 289.4 +132 3+4.7 - 87.6 }+ 5.4.4 + 3.8 - 97 + 72 -2.5 -37 +13.9 +30 -14.2 +15.8 +61 5+30 4: 12: 1 + 84 4: 12: 14 + 84 -2:6:5)+\$7.5 15 m + 499 2+38.5 -7.3 -10.3 +3 -12 4 369.5 - 68 + 50 +41.3 {+59 + 1 + 21.9} 12-+52 236.9 2 0 -24.9 + 6.1 -31 5 2 5 +64 3+30.3 -75 3-43.1 - 47 + 35 -7.2 - 8 2 + 6 -12 A -5 - 3 - 4.6 (B)+1.3 - 6.7 ()+03 -7.7



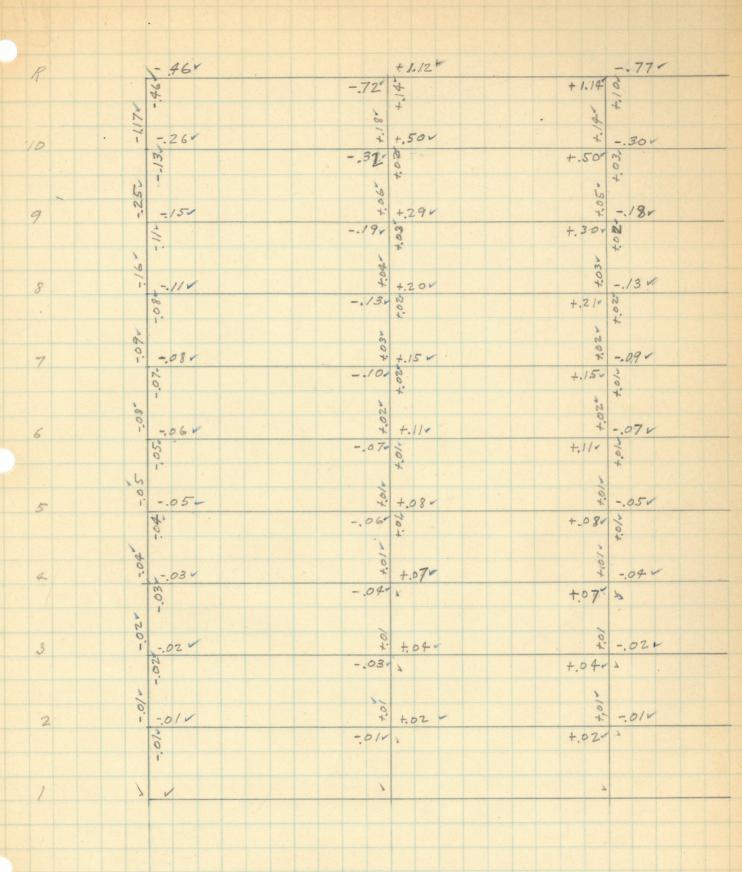
Fixed End Beam moments JAh. let Ah be the absolute diff evence in elevation of the M ends in the beam AB Assulme ends filed a gramst rotation. Takeing Statical M $\Delta h = \frac{M}{EI} \left(\frac{4}{2} \frac{24}{3} - \frac{4}{2} \frac{4}{3} \right)^{-2} = \frac{ML^2}{6EI}$ M= GEEAH = GEAHYE) $\left(\frac{1}{L} \right) = \left(\frac{1n^4}{1n} \right) = 1n^3.$ A = Inches. L = ft = 12L inches M= ftx/bs = 12 M/1nx/bs 3EAh /2 12 M 1244 4 Ah= ZRA-ZRAE 1 2/2 If & E are Const-JAh. AL = E ZA - ZA PIA. P2 AL M= 65.6 [Z] - Z] [E] = 10×165 M=2/2 [=) [= 1 - 2 A, - 2 A,] = F+ x 1bs

Developement of method of checking moments 0/ I2 R L, d-ho_ Let let above tigure. represent a portion of a bent under load applying the principal of and mount. almit A $L_{\chi} \partial_{BA} = L_{\chi} \partial = \frac{M_{BA}L_{\chi}}{2} \frac{2L_{\chi}}{3EL_{\chi}} + \frac{M_{AB}L_{\chi}}{2} \frac{L_{\chi}}{3EL_{\chi}}$ 0 = JE(IX) (2MBA + MAR) Similarly OBE = 0 = 3E(E) (MBC+ MCB) Taking Statical moment of the tet dig det D. (d-le) = JF(I3) (MDB + MBD) The check consists in tinding the angle of notation of each beam and comparing it will the angle of notation for the other learn at the same yound, and also figuring the deflection of you the top any bottom yeach lother meach story obrandy the deflections for all coar me story choice back

		+ Jom	entrap	5 4 Cy	icles	~ Che	ich for	Jeco,	cles rolary	Stresses,
		Bo	<u>d-10</u> L	14	AD'	Do .	d-10	. Z	DÓ	·
	A	+.0875	.372	(. 459	.985	4.087	.364	+.451	.957	
1St Story		.173	.294	467	A second statement of the second statement of the	4.162	.293	+.455	.578	
/+	12	4.130	.327	,457	.603	+176	.343	+.459	.628	
	A	1.072	.00 9	(1.081		1.044	.044	1.088	.692	
HO V	B	.701	368	71.019	.452	.740	.344	1.084	.488	
	+ C	.733	33.5	1.268	.505	.744	. 369	1.11.3	.577	
20	A	1.710	-137	(1.573	.628	1.736	/28	1.608	.629	~
329	ß	1.153	.413	1. 566	.511	1.228	.440	1.668	.511	
	7	1.238	. 332	1.570	. 430	1.321	.341	1.662	.403	
gth .	A	.2.338	301	2.037	.601	2.365	273	2.092	.628	* 18.3
4	13	1.664		2.041	.323	1.739	.403	2.14.2	.296	18,4
	C	1.568	ESSAMENT	2.018		1.724	.385	2.109	.350	184
Elv	A	2.939		2.426		2.993	5/3	2.480	D. Contraction	14.3
	B	1.987	. 434 502	2.421	.239 445	2.035		2.480		14.6
id	A	3.533	770	3.763	.350	3.553	.537	2.611	. 385	14.6
bit;	B	2.226	.480	2.706	.171	2.240	.537	2.777	.205	14.5
	C	2.463	.411	2.874	.171	2.519	.434	2.953	.13.7	14.6
11	3.88 3	891	2.992	XC/	.305	3.938	865	3.073	.305	/3,/
754	2.397		2.877	and the second s	. 038	2.445	Contraction of the second	2.950		132
	2.634	N PARTY NOT THE REAL PROPERTY NOT	3.064		.154	2.656	A STATE OF A STATE OF A STATE	3.124		13.2
H	R		-1.043	3.145	.191	4.243	-1.043	3.200	.153	
8th	B	2.435	CONTRACTOR OF STREET	2.953	.039	2.495	of the second second second second	3.026	1077	
	c	2.788	.518	3.306	.189	2.808	.556	3.364	.189	
att.	4	4.379	and a low of the second of the second of the	3.2.49	.153	4.396	-1.108 .568	3.090	.152	
2th	3	2.473	.541	2.914	.076	2.997	.464	3.461	.076	
, ki	K	the second s		3.692		4.549	840	3.709		
10 chc.	R 13 C		Contractor of the second second	3 105		2.674	.493	3.167		
	-	3.053	.530	3.583		3.073	.55/	3,624		
										I

Secondaries, MA MB. $EIL \theta_{A} = \frac{M_{A}L_{X}ZL_{+}}{Z} + \frac{M_{B}L_{\perp}}{Z} \frac{J}{3} \frac{\theta_{A}}{Z}$ $\theta_{A} = \left(2M_{A} + M_{B}\right)\frac{L}{6ET} = \left(2M_{A} + M_{B}\right)\frac{1}{6E\left(\frac{L}{L}\right)}$ For Purposes of checking omit E BA then becomes (2 MA + MB) (=) Change in A. MA 19,8 -d-LBB LBB. JAD. C $\Delta \theta = \frac{(M_A + M_B)L}{2EI} = \frac{M_A + M_B}{2E(\frac{1}{2})}$ B= BA+DBAB d-LAR. LOA B Op A

Ratio of First secondary Moment To Wind Moment.



 $M = 2. W \left(\frac{\Delta E}{h} \right) FFX | bs for L = 22!$ $M = \underbrace{2.57}_{h} \left(\frac{\Delta E}{h} \right) FFX | bs for L = 18'$ Secondaries Figured on Assumption that Foundations do not settle Length 1220 5.77 16-0 Col C - 2: = 7.69 5.56 6.50 Load MA 10-R +15.7 38.86 .41 -41.0 4100 1.00 +50.5 1.23 2.09 +101.9 2.47 5.56 543 5.93 4.16 +200.6 5.03 370 $\frac{6EZ\Delta}{L^{\gamma}} = \frac{CE}{L} \left(\frac{L}{L} \right)^{2} = \frac{6L}{L} \times \frac{E}{L} \left(\frac{1}{h} \right) \frac{h}{R} = \frac{6}{2} \times \frac{12}{L} \left(\frac{1}{h} \right) \frac{h}{R} = \frac{1}{6} \times \frac{12}{L} \left(\frac{1}{h} \right) \frac{h}{R}$ 3.14 +151.6 N = 2 P 4.66 +329.4 4.75 +2465 5,10 +354.5 5,56 +288.3 4.77 +376.8 4.95 +390.8 V = 6.60 Phil. Calculation of Fix-End Noments Due to Uncorrected Kito A. Vanoni . Col B Load Area +128.9 64.24 2.01 -3235 67.80 +110.3 53.79 2.05 -278.1 59.72 +82.8 4226 1.96 -210.9 44.39 u 1+ -170.8 -3042 2.31 -246.4 +134.0 W2) 2.09 -3359 8.86 - 85.7 11.30 -128.8 2.25 134-2.79 1.73 1 de 3.13 Br 4 Area И Col A. 00 +121.0 +50.4 +97.3 18 2 4 The Span BL (2210) Span. CC (8's) CO. 9-10 +33.3 +67.0 Positive loads on cols are in downward direction Positive Deformation of cols are a shortening. Of Col. 8-9 5-4 7-8 6-2 5-6 3-4 2-3 7.1 15.38 - 40 1-2 Small (multiply 5) 213 A 1 17.6 58.09 -122 27.1 88.70 +186 23.8 95.79-296 17.1 55.14 -116 26.0 84.14 +177 24.2 90.80-233 15.7 59.50 -125. 25.3 90.93+191 25.2 9820-256 11.0 26.50 -68 13.0 30.23 -64. 18.7 45.74 496 17.4 49.22 -127 10.7 22.52 -49 15.4 35.65 +75 14.7 38.36 -99 7.95 1617 -34 11.3 24.62 +52 11.0 26.50 -68 145 38.10 -80 21.5 57.80 +121 203 62.22 -160 5070 -107 25.4 77.30 +162 23.6 83.40 -214 15.8 44.81 - 94 23.8 68.11 + 143 22.1 4 7334 -188 0 Note, Noments in Span cc are too 1705-189.4 0 $ET\Delta = \frac{ML}{2} \frac{L}{3} = \frac{ML}{2}$ 1= 12-0" 6.9 19,29 +30 0 M= 4425-20t.1 Defl. = Load × H = PH 5.05 9.39 -20. W" 4 50 4701 41 W" 4 50 4701 41 W" 50 4701 41 Beam shear 2948 = 1995. 16.6 1 R-AB Bm -01 4 -10 -6 21 1 100 7-19 2/1395. - 55 21.5 -54 - 14.8 -35 14-15-01 -28 0.6 64ue correct Mom. 6 07 of fur unon

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) .																
	Joint		RA				RE	3				RC	:			I.M.
	Mem.	A-(R-10)	R-B	R-AB	Unbal Mom.	BIRHD	RBA	R-BA	R-BC	Unbal Mom.	C(R-10)	5-3	R-CB	R-CC	Mom	6a.
	CIT 1	.166				.167					./67					un un
	X	.630		.370		.462		.269	.269		.436		.254	.310		8
1	F.E. MO.	0		-125		0	8 44	-125	+191	+(76)	0		+191	-256	-65	0
)	Dist.	+79		+46		-35	-	-21	-20	66	+28		+17	+20		
	C. 0	+23		-10		-10~		+23"	+ 8"		+9"		-10"	+10"		+175
(Bal	- 29.		ő		-29"		0	.0 -	+	-29		0"	0'		+175
	Dist	+10'		+6'	-16*	+41		+2"	+2'	+ 81	+9~		+5.	+6-	-20	
	60	- 1.		-1~		+92		+ 3-	+31		+ 51		+/~	+ 3~		
1	Bal	-12		r		-13		r	V	L	-12		r	~		+73
	Dist	+9		+5	-14	- /		-/	0	+2	+1		+1	+1	- 3	
1	C.O.	+2		+0		+2		+2.	0		+1		0	0		
	Bal	- 5		r	1. 124	-5		r.	~		-5		٢	V		+29
	Dist-	+2		+1	-3	+/	-6	0	0	-1	+ 2		+1	+1	-4	
		+78		-78		- 77		-117	+184	-10	+9		+206	-215		
						+ 5		+ 2	+ 3							
						-72		-115	+187							
		2.0 2.8								1.02						
	Name and Address of the Owner o			Linder and the same	-				-			In the second second second	The Party of the P			
	Toint		10-A			ж		10-1	3			10	- C			Part
		A (10-R)			unbal	B(10-R)	B(10-9)			Unbal Mom.	C-10-R			10-00	Unb. M	Whad M Priet 2 #1
	Mem	A (10-R) -166			unbal _M	B(10-R) 167	B(10-9) •/67			Unbal Mom.	C-10-R .167			10-00	Unb. M	
			A(10-9)		unbal _M	167				Unbal Mom.		C-(10-9)		10-cc .217	Unb. M	01-
	Mem	.166	A(10-9) -166	10-AB	unbal _M	167	./67	10-BA	10-BC	Unbal Mom.	.167	C-(10-9) 167	10-CB		Unb. M	
	Mem K/zk	·166 .386	A(10-9) -166 -386	10-AB .228 -122	unbal _M	·16 7 . 316	·/67 .3/6	10-BA .184 -122 -12	10-BC -184 +186 -12		-167 .303 0 +18	C-(10-1) 167 .303 0 +18	10-CB ./77 +/86 +//	.217 -246 +13	M - 60	9-10
	Mem Kzk F.E. N.	.166 .386 0	A(10-9) -166 .386 0 +47	10-AB -228 -122 +28		·167 .316 0	·/67 .3/6 0	10-BA .184 -122	10-BC -184 +186 -12	+6	·167 .303 0	C-(10-1) 167 .303 0 +18	10-CB .177 +186 +11 -6.	.217 -246 +13 +6	M - 60	01-6
	Mem KZK F.E. N. Dist	.166 .386 0 +47	A(10-9) ·/66 .386 0 +47 +22	10-AB -228 -122 +28 -6		-167 .316 0 -20	·/67 .3/6 0 -20	10-BA .184 -122 -12 +14	10-BC -184 +186 -12 +5.	+6	-167 .303 0 +18	C-(10-9) 167 .303 0 +18 +8 -22	10-CB .177 +186 +11 -6. 0 [×]	.217 -246 +13	M - 60	9-10
	Mem KZK F.E. N. Dist C.O.	.166 .386 0 +47 +39 [×]	A(10-9) ·/66 .386 0 +47 +22 -22	10-AB -228 -122 +28 -6 0	L	167 .316 0 -20 -17 [°] -29	·/67 .3/6 0 -20, -9 -22	10-BA .184 -122 -12 +14 ^v 0 ^v .	10-BC -184 +186 -12 +5. 6	+ 6 + 6 4	.167 .303 0 +18 +14	C-(10-9) 167 .303 0 +18 +8	10-CB .177 +186 +11 -6. 0 [×]	.217 -246 +13 +6' 0' +6'	- 60 -29	01-6 ×31
	Mem Kzk F.E. N. Dist C.O. Bal	.166 .386 0 +47 +39 [°] -29 [°]	A(10-9) ·/66 .386 0 +47 +22 -22 -1	10-AB -228 -122 +28 -6 0 ⁻	+4*	167 .316 0 -20 -17 [°] -29	·/67 .3/6 0 -20, -9 -22	10-BA .184 -122 -12 +14 0'. +11	10-BC -184 +186 -12 +5: 6' +11: +3v	+ 6 + 64 - 58,*	.167 .303 0 +18 +14 [×] -29 [×]	c-(10-9) 167 .303 0 +18 +8 -22 +9 +9 +4	10-CB .177 +186 +11 -6' +5r +6r	.217 -246 +13 + 6' 0' + 6' + 6' + 3'	- 60 -29	01-6 31
	Mem Kzk F.E. N. Dist C.O. Bal Dist	.166 .386 6 +47 +39 [°] -29 [°] -2 [°]	A(10-9) ·/66 .386 0 +47 +22 -22 -1	10-AB -228 -122 +28 -6 0 ⁻ -1 ⁻	+4*	167 .316 0 -20 -17 ^v -29 +18	·/67 .3/6 0 -20, -9 -22 [*] +18 [*]	10-BA .184 -122 -12 +14 0'. +11	10-BC -184 +186 -12 +5. 6' +11	+ 6 + 64 - 58,*	.167 .303 0 +18 +14 -29 + +9+	C-(10-9) 167 .303 0 +18 +8' -22' +9.	10-CB .177 +186 +11 -6 * +5r	.217 -246 +13 +6' 0' +6'	- 60 -29	01-6 ×31
	Mem Kzk F.E. N. Dist C.O. Bal Dist C.O.	.166 .386 6 +47 +39 [×] -29 [×] -2 [×] +5 [×]	A(10-9) ·/66 .386 0 +47 +22 -22 -1° +1~	10-AB -228 -122 +28 -6 0 -1 +6	+4*	167 .316 0 -20 -17 -29 +18 +2	·/67 .3/6 0 -20, -9 -22" +18" +7*	10-BA . 184 -122 -12 +14 0'. +11- -1-	10-BC -184 +186 -12 +5: 6' +11: +3v	+ 6 + 64 - 58,*	.167 .303 0 +18 +14 -29 + +9- +5-	c-(10-9) 167 .303 0 +18 +8 -22 +9 +9 +4	10-CB .177 +186 +11 -6' +5r +6r	.217 -246 +13 + 6' 0' + 6' + 6' + 3'	- 60 -29	01-6 31
	Mem KZK F.E. N. Dist C.O. Bal Dist C.O. Bal	.166 .386 0 +47 +39 ^v -29 ^v -2 ^v +5 ^v -12	A(10-9) ·/66 .386 0 +47 +22 -22 -1° +1~ -13	10-AB -228 -122 +28 -6 0 -1- +6- -	+4~	$\frac{167}{.316}$ 0 -20 -17 ^{$*$} + 2 ^{$*$} + 2 ^{$*$} -12	·/67 .3/6 0 -20 -9 -22 +18 +7× -/3	10-BA .184 -122 -12 +14 +14 +11- -1-	10-BC -184 +186 -12 +5. 6' +11 +3v +3 0	+ 6 + 64 - 58,*	-167 .303 0 +18 +14 -29: +9+ +5+ -12	C-(10-9) 167 .303 0 +18 +8' -22' +9. +4' -13	10-CB .177 +186 +11 -6° +5° +5° +6°	$ \frac{217}{-246} + 13 + 6' + 6' + 6' + 5' + 6' + 5' + 5' + 5'$	- 60 -29	01-6 +131 +79
	Mem Kzk FE. N. Dist C.O. Bal Dist C.O. Bal Dist	-166 -386 0 +47 +39 -29 -2° +5 -12 +5	A(10-9) ·/66 .386 0 +47 +22 -22 -1° +1~ -13 +5	10-AB -228 -122 +28 -6 0 -1- +6- +6- +3	+4~	$\frac{167}{.316}$ 0 -20 $-17^{'}$ $-29^{'}$ $+18^{'}$ $+2^{''}$ -12 +4	·/67 .3/6 0 -20, -9 -22" +18" +7" +7" +5 0 +5	10-BA .184 -122 -12 +14* 0'. +11* -1* +2	10-BC -184 +186 -12 +5. 6' +11 +3v +3 0 -	+ 6 + 64 - 58,*	$ \frac{.167}{.303} \\ 0 \\ +18 \\ +14' \\ -29' \\ +9' \\ +5' \\ -12 \\ +2 $	$\begin{array}{c} c-(10-9)\\ 167\\ .303\\ 0\\ +18\\ +8\\ +8\\ -22\\ +9\\ +2\\ +4\\ -13\\ +2\\ +1\\ -5\end{array}$	10-CB .177 +186 +11 -6° +5° +6° +6° +1. +1. +1. -1.	$ \frac{.217}{-246} + 13 + 6' + 6' + 6' + 5' + 6' + 5' + 1 + 1 + 1 + 1 $	- 60 -29 -7	01-6 31
	Mem Kzk FE. N. Dist C.O. Bal Dist C.O. Bal Dist C.O.	$-\frac{166}{386}$ 0 +47 $+39^{'}$ $-29^{'}$ $-2^{'}$ $+5^{'}$ -12 +5 +4 +5 +4 +5 +4 +5	$\begin{array}{c} A(10-9)\\ \cdot 166\\ \cdot 386\\ \cdot \\ 0\\ +47\\ +22\\ \cdot \\ -22\\ \cdot \\ -12\\ \cdot \\ +5\\ +3\\ +5\\ +3\\ -5\\ +1\\ \end{array}$	10-AB -228 -122 +28 -6 0 ⁻ +6 ⁻ +6 ⁻ +3 +1	+4~	$ \frac{167}{.316} $ 0 -20 -17' -29' +18' +2'' -12 +4 0	·/67 .3/6 0 -20, -9 -22" +18" +7" -/3 +5 0 -5 +3	10-BA .184 -122 -12 +14 0'. +11 -12 +11 -12 +11 -12 +11 -12 +12 +11 -12 +12 +12 -12 +14 -12 -12 +14 -12 -12 +14 -12 -12 +14 -12 -12 +14 -12 -12 +14 -12 -12 -12 +14 -12 -12 -12 +14 -12 -12 -12 +14 -12 -12 -12 +14 -12 -12 -12 +14 -12 -12 -12 -12 -12 -12 -12 -12	10-BC -184 +186 -12 +5. 6' +11 +3 v +3 0 +1 +1	+ 6 + 64 - 58 [*] - 14 - 9	.167 .303 0 +18 +14 -29 + +9 + +9 + 5 -12 +2 0	$\begin{array}{c} c^{-(10-9)} \\ 167 \\ .303 \\ 0 \\ +18 \\ +8' \\ -22' \\ +9' \\ -22' \\ +9' \\ -13 \\ +2 \\ +1 \\ -5 \\ +2 \\ +2 \end{array}$	10-CB .177 +186 +11 -6' +5 ~ +6 ~ +1. +1. +1. +1. +1.	$ \begin{array}{c} .217 \\ -246 \\ +13 \\ +6' \\ 0' \\ +6' \\ +3'' \\ +2 \\ +1 \\ \nu \\ +2 \\ \end{array} $	- 60 -29	01-6 +131 +79
	Mem KZK F.E. N. Dist C.O. Bal Dist C.O. Bal Dist C.O. Bal Dist C.O. Bal Dist	$-\frac{166}{386}$ 0 +47 $+39^{'}$ $-29^{'}$ $-2^{'}$ $+5^{'}$ -12 +5 +4 -75	$\begin{array}{c} A(10-\hat{q}) \\ .766 \\ .386 \\ 0 \\ +47 \\ +22 \\ -22^{2} \\ -22^{2} \\ -1^{2} \\ +5 \\ +3 \\ -5 \end{array}$	10-AB -228 -122 +28 -6 0 -1 +6 +3 +1	-13	$ \frac{167}{.316} $ 0 -20 $-17'$ $-29'$ $+18'$ $+2''$ -12 $+4$ $\cdot0$ -5	·/67 .3/6 0 -20, -9 -22" +18" +7" +7" +5 0 +5	10-BA .184 -122 -12 +14 0'. +11 -12 +12 +12 +1 -12 -12 +14 -12 -12 +14 -12 -12 +14 -12 -12 +14 -12 -12 -12 -12 -12 -12 -12 -12	10-BC -184 +186 -12 +5. 6' +11 +3 v +3 0 +1 +1	+ 6 + 64 - 58 [*] - 14 - 9	$ \frac{.167}{.303} \\ 0 \\ + 18 \\ + 14' \\ - 29' \\ + 9' \\ + 5' \\ - 12 \\ + 2 \\ 0 \\ + 5 \\ - 5$	$\begin{array}{c} c-(10-9)\\ 167\\ .303\\ 0\\ +18\\ +8\\ +8\\ -22\\ +9\\ +2\\ +4\\ -13\\ +2\\ +1\\ -5\end{array}$	10-CB .177 +186 +11 -6° +5° +6° +6° +1. +1. +1. -1.	$ \begin{array}{c} .217 \\ -246 \\ +13 \\ +6' \\ 0' \\ +6' \\ +3'' \\ +2 \\ +1 \\ \nu \\ +2 \\ +2 \end{array} $	- 60 -29 -7	01-6 +131 +79
	Mem KZK F.E. N. Dist C.O. Bal Dist C.O. Bal Dist C.O. Bal Dist C.O. Bal Dist	$-\frac{166}{386}$ $-\frac{386}{5}$ +47 +39' -29' -2' +5'' -12 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +5'' +47 +5'' +12'' +5'' +12'' +5'' +12'' +5'' +12'' +12'' +12'' +11'' +11'' +11'' +11'' +11'' +11'' +11'' +11'' +11'' +11'' +11'' +11'' +11''' +11'''''''''''''''''''''''''''''''''''	$\begin{array}{c} A(10-9)\\ \cdot 166\\ \cdot 386\\ \cdot \\ 0\\ +47\\ +22\\ \cdot \\ -22\\ \cdot \\ -12\\ \cdot \\ +5\\ +3\\ +5\\ +3\\ -5\\ +1\\ \end{array}$	10-AB -228 -122 +28 -6 0 -1- +6 + +3 +1 - -	-13	$ \frac{167}{.316} $ 0 -20 $ -17^{*} $ $ +2^{*} $ $ +2^{*} $ $ +2^{*} $ $ +2^{*} $ $ +2^{*} $ +3	·/67 .3/6 0 -20, -9 -22" +18" +7" -/3 +5 0 -5 +3	10-BA .184 -122 -12 +14 0'. +11 -12 +11 -12 +11 -12 +11 -12 +12 +11 -12 +12 +12 -12 +14 -12 -12 +14 -12 -12 +14 -12 -12 +14 -12 -12 +14 -12 -12 +14 -12 -12 +14 -12 -12 -12 +14 -12 -12 -12 +14 -12 -12 -12 +14 -12 -12 -12 +14 -12 -12 -12 -12 -12 -12 -12 -12	10-BC -184 +186 -12 +5. 6' +11 +3 v +3 0 +1 +1	+ 6 + 64 - 58 [*] - 14 - 9	$ \begin{array}{r} .167 \\ .303 \\ 0 \\ +18 \\ +14' \\ -29' \\ +9' \\ +5' \\ -12 \\ +2 \\ 0 \\ -5 \\ +2 \end{array} $	$\begin{array}{c} c^{-(10-9)} \\ 167 \\ .303 \\ 0 \\ +18 \\ +8' \\ -22' \\ +9' \\ -22' \\ +9' \\ -13 \\ +2 \\ +1 \\ -5 \\ +2 \\ +2 \end{array}$	10-CB .177 +186 +11 -6' +5 ~ +6 ~ +1. +1. +1. +1. +1.	$ \begin{array}{c} .217 \\ -246 \\ +13 \\ +6' \\ 0' \\ +6' \\ +3'' \\ +2 \\ +1 \\ \nu \\ +2 \\ \end{array} $	- 60 -29 -7	01-6 +131 +79
	Mem KZK F.E. N. Dist C.O. Bal Dist C.O. Bal Dist C.O. Bal Dist C.O. Bal Dist	$-\frac{166}{386}$ $-\frac{386}{5}$ +47 +39' -29' -2' +5'' -12 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +47 +5'' +5'' +5'' +47 +5'' +12'' +5'' +12'' +5'' +11'' +11'' +11'' +11'' +11'' +11'' +11'' +11'' +11'' +11'' +11'' +11'' +11'' +11'' +11''' +11'''''''''''''''''''''''''''''''''''	$\begin{array}{c} A(10-9)\\ \cdot 166\\ \cdot 386\\ \cdot \\ 0\\ +47\\ +22\\ \cdot \\ -22\\ \cdot \\ -12\\ \cdot \\ +5\\ +3\\ +5\\ +3\\ -5\\ +1\\ \end{array}$	10-AB -228 -122 +28 -6 0 -1- +6 + +3 +1 - -	-13	$ \frac{167}{.316} $ 0 -20 $ -17^{*} $ $ +2^{*} $ $ +2^{*} $ $ +2^{*} $ $ +2^{*} $ $ +2^{*} $ +3	·/67 .3/6 0 -20, -9 -22" +18" +7" -/3 +5 0 -5 +3	10-BA .184 -122 -12 +14 0'. +11 -12 +11 -12 +11 -12 +11 -12 +12 +11 -12 +12 +12 -12 +14 -12 -12 +14 -12 -12 +14 -12 -12 +14 -12 -12 +14 -12 -12 +14 -12 -12 +14 -12 -12 -12 +14 -12 -12 -12 +14 -12 -12 -12 +14 -12 -12 -12 +14 -12 -12 -12 -12 -12 -12 -12 -12	10-BC -184 +186 -12 +5. 6' +11 +3 v +3 0 +1 +1	+ 6 + 64 - 58 [*] - 14 - 9	$ \begin{array}{r} .167 \\ .303 \\ 0 \\ +18 \\ +14' \\ -29' \\ +9' \\ +5' \\ -12 \\ +2 \\ 0 \\ -5 \\ +2 \end{array} $	$\begin{array}{c} c^{-(10-9)} \\ 167 \\ .303 \\ 0 \\ +18 \\ +8' \\ -22' \\ +9' \\ -22' \\ +9' \\ -13 \\ +2 \\ +1 \\ -5 \\ +2 \\ +2 \end{array}$	10-CB .177 +186 +11 -6' +5 ~ +6 ~ +1. +1. +1. +1. +1.	$ \begin{array}{c} .217 \\ -246 \\ +13 \\ +6' \\ 0' \\ +6' \\ +3'' \\ +2 \\ +1 \\ \nu \\ +2 \\ \end{array} $	- 60 -29 -7	01-6 +131 +79

												and a second				1
	Joint	1	9-A	9			9	7-8				90				Unbal Mom
	Mem	A 9-8	A 9-10	9-AB		B-9-8	B 9-10	9-8A	9-BC		C9-8	C 9-10	9-CB	9-00	un M.	1/m
		.166	.166			.1.67	. 167				.167	.167				160
	KIZK	.386	.386	.228		.316	.316 -	.184	.184		.303	.303	.177	.217		3-
	F.E. M.	0	0	-116		0	0	-116	+177	+ 61	0	0	+177	-233		
	Dist	+ 45	+45	+26		-19	-19	-//	-/2		+17	+/7	+10	+12	+ 56	101
	<i>c.o.</i>	+20	+23	- 5"		- 8"	-10	+13'	+5		+ 8'	+ 9"	-6	+ 6"		00
	Bal	-21		0.		-21	-22'	or	0-		-21	-22	01	01		+/2
	Dist	+2-	+2-	+1-	-51	+14	+14	+ 8-	+ 7	-43 ¹	+ 8	+ 8:	+5-	+ 57	-26	
	00	+ 1.~	+ /~	+4-		+6~	+9,2	+12	+31		+4.	+50	+4"	+3-		
	Bal	-11	-13	~		-/1	-13	1	-		-11	-13	-	L		+6
	Dist	+7	+7	+4	-18	+2	+1	+1	+1	-5	+2	+3	+1	+2:	-8	
	00	+3	+2	0		+1.	+2	+2	6		+1	+1.	0	+1		
	Ba1	-5	-5	L		-5	+5.	-	r		-5	+5	r	2		+31
	Dist	+2	+2:	+1	-5	+2	+1	+1	+ 1.	-5	+2	+2	+1.	+2	-7	
		+43	+42	-85		-39	- 42	-101	+182		+5	+5	+192	-202		
													13			
	Joint		8,	4			86	3				8	C			10 10
	Mem	A 8-9	A8-7	8-AB		B.8-9	B 8-7	8-BA	8-BC		C-8-9	C 8-7	8-68	8-66		UN bal Mara
		.166	.166			.167	.167				167	.167				2000
	KIEK	.386	.386	.228		.316	.316	.184	.184		.303	.303	.177	.217		2.
	FEIM	0	0	-107		6	0	-107	+162		0	0	+162	-214		00
	Dist	+41	+41	+25		-17	-17	-10	-11	. + 53	+16	+16	+9	+11	-52	2 1
	C.D.	+22"	+17	-5		+9"	-7"	+12	+4		+ 8"	+ 6	- 5	+ 5	1	
	Bal	-21		and the second s		-21	-/8~	0.	0.		-21	-18"	0'	0 1		+10
	Dist	+ 2*		+1-	-51	+12	+12	+7"	+ 8-	-39	+7-	+ 8	+4"	+6	-25	
	C.D.	+1"				+7-		+1-	+2~		+4~	+3.	+4.		1000	
	Bal	-11	-10	-		-11	-10	-	-		-//	-10	-	~		+6
	Dist.		+6	+ 3	-15	+2	+1	+1	+T	-5	+2	+2	+1	+2	-7	
	Bal	+3	+3	0		+1	0	+1	0		+1	+1	0	+1		
	60	-5	-4	1		-5	-4	r	~		-5	-4	-	-		+2
	Pist	+1	+1	+1	-3	+2	+2	+2	+1	-7	+2	+2	+1	+1	-6	
-		+39	+39			-39		-93	+167		+3	+6	+176			
											1-1-					

	Joint		7-A	>			7	'-B					7-C			2
	Mem	A.7-6	A-7-8	7-AB		B7-6	B.7-8	7-BA	7-BC		C7-6	67-8	7.CB	7-6C		1 m
		.164	.166			.168	.167				.168	.167	1			Unball Nom
	K/EK	.407	.373	.220		.338	.306	.178	.178		.325	.294	.171	.209		10 m
	F.E. M.	0	0	-94		0	0	-94	+143		0	0	+143	-188		1
	Dist-	+38	+35	+21		-16	-15	-9	-9	+49	715	+13	+8	+ 95	-45	e.
	6.0.	+16	+20	-4"		- 6"	- 8"	+10"	+4		+6"	+ 8	-4*	+4		
	Bal	-17.	-181	01		-17	-181	Or	0 ×	1	-17	-18-	V	V		+102
	Dist	+ 1	+ 1-	+1-	- 3	+12.	+111	+6-	+6-	-35	+7-	+ 6-	+4-	+4'	-21	
	6.6.	+1.~	+1-	+3-		+6"	+ 6.4	+1-	+2~		+3.~	+4+	+ 3."	+2-		
	Bal	-10	-10	r		-10	-10	4	4		-10	-10	-	r		+59
	Pist	+6	+6	+3	-15	+ 2	.+1.	+1.	+1	-5	+3	+2	+1	+ 2	- 8	
	00	+2	+3	0		+1.	0	+1	0		+1	+1.	0	+1		
	Bal	-5	+4	L		-5	-4	-			+5	+4	-	r		+29
	Dist	+2	+1	+1.	-4	+ 3.	+ 2	+1	+/	-7	+2	+2	+1	+1	-6	
		+34	+35	-69		-30	-35	- 83	+148		+5	+4	+156	-165		
						5.0 50										
	Joint		6-	A				6-1	3				6-6			
	Mem	A 6-7	A 6-5	G-AB		B6-7	136-5	6-8-A	6-BC		C 6-7	C 6-5	6 (-:8	6-60		in
		.164	.164			.168	.168				.168	.168				Unbal Nomin
	K/2K	.394	.394	.212		.328	.328	. 172	.172		.316	.316	.166	.202		Um
	F.E.M.	0	0	-80		0	0	-80	+121		0	0	+121	-160		0
	Pist	+ 32	+32	+16		-/3	-14	-7	- 7	+41	+12	+12	+ 7	+8	-39	
	60.	+19"	+11"	-3-		- 8 -	-5	+8"	+3-		+7"	+4	-3	+4"		~
	Bal	-17'	-12"	and the second se		-17	-/3	~	r		-17	-13"	~	4		+77
	Dist	+ 1-	+1-	0-	- 2	.+ 1.1 -	+12	+5.0	+ 5	-32	+6-	+6	+3-	+3	-18	
	6.0.	+1.	0-	+3-		+ 6.	+4	or	+2-		+4"	+.2*	+ 3"	+2"		
	Bal	-10	- 8	r		-10	- 8.	~ ~	-		-10	-8	5	~		+46
	Dist	+5	+6	+3	- 14	+2	+2	+1	+ 1	-6	+2	+2	+1	+2	-7	
	00	+3	+2	0		+1	0	+1	0		+1	+1	0	+1.		
	301	-5	-4	-		-5	-4	-	L		-5	+4	r	~		+25
	Dist	+2	+1	+1.	-4	+2	+2	+2	+1	-7	+2	+2	+ +	+1.	-6	
		+31	+29	-60		-31	-25	-70	+126		+2	+4	+133	-139		
Y																
								and a fair							100	

	Joint		5-1	7			5	B					- C	-		
	Mem	A 5-4	A 5-6	5 A-B		B 5-9-	B5-6	5-BA	5-BC		C 45-4	C-56	5.CB	5-00		unbal M. In Story.
		.165	.1645			.1675	.168				.1675	.168	a			bal st
	15/ZK	.454	.355	.191		.383	.301	.158	.158		.370	.290	.153	.187		un.
	F.E.M	0	0	-64		0	0	-64	+96		0	0	+96	-127		5
	Dist	+29	+23	+12		-12	-10	-5	- 5-	+32	+11	+9	+5	+6	-31	4
	G.P.	+10	+16	- Z."		-4	-7'	+6*	+2"		+4	+6	- Z ~	+3		
	Bal	- 11	-12"	1		-12	-13	r	r		-12	-13	r	V		+70
	Dist	-/0	0.	0-	+11	+11	+ 81	+51	+4'	-28	+5-	+4-	+ 2-	+3.	-14	
	C.O.	00	+1-	+3 ×		+ 4-	+6-	0-	+1-		+2-	+3~	+2-	+2"		
	Bal	- 7	- 8	r		-7	- 8	+			-7	-8	4	r		+41.5
	Dist-	+ 5	+4	+2	-11	+1	+1	+1	+ /.	-4	+2	+2	+1	+1	-6	
	C.0	+2	+3	0		0	+1	+1	0		+1	+1	0	٥		
	Bal	-7	-4	v		-4	-4	r	-		-4	-4	r	~		+21.8
	Dist	+2	+1	+D	-3	+2	+2	+1	+1.	-6	+2	+2	+1	+1	-6	
		+25	+24	-49		-21	-24	- 55	+100		+4	+2	+105	-111		
		1-0														
1	Joint		41	7				4-13				4-0	2			
	Mem	A45	A43	4AB		B45	B43	4BA	4BC		C45	643	468	400		14
		.165	.165			.1675	.1675				.1675	.1675				Unbal N In Story
	N/3K	.413	413	.174		.354	.354	.146	.146		.343	.343	.141	.173		un
	FEM	0	0	-49		0	ö	-49	+75		0	0	+75	-99		4
	Dist		+20				-9		-4	+26	+ 8	+8	+4		-24	m
	C.O.	+14	+7			-6'	- 3	+4"	+2		+5"	V		+ 2'		V
	Bal	- //×	- 8.1.	-		-12	- 8.2	L			-12	- 8.2		1		+49.1
	Dist	Ð-	+.1	0-	1	+ 8.2	r	+ 3.4	+3.4	-23.2	1	1 1	+1.8	+2.1	-12.5	
	60	-1-	·or			+6~	V		-		+3~		+1.7-			
	Bal	121 124.07		r		and the second second	-5.1	4	1		- 7.0		4	+		+30.7
	Disti	+4.7	+4.7		-11.4			+0.4		-2.6	+1.7	+1.7	111200	+1.0	-5.1	
	60	+2	+1.2	No. 1000 1907 111		+0,5			+0.3		+1	+0.5				
	Ba/	+4	+2.9		-3	-4	-3.0	L.	L			-3.0	V	r		+17.7
	Dist		+1.4	+0.7	-3.5	+1.7				-4.7	+1.6	+1.6	+0.7		-4.8	
		+19.1				-20.7		- 43.5		State State	+1.6		+82.1			
		11.1.1	110.5	1.4			36	100	1 TURS		11.5	15.0				
	1		E											1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1

	Joint		3-A	2				3-B				3	- 6		1	
-		A32	A34			B32	B34		3BC		1 20	C34		300		23.
)-	Men.		·165	JAU		.170	.1675	SOA	304		C32 .170	.1675	SCA	500		sto.
	KIEK	.420	408	.172		.369	.345	.143	.143		.358	.334	./39	.169		unt in
~	F.E.M.	.720	0	-34		0	0	-34	+52		0	0	+52	-68		p
V	Dist-	+14	+14	+6		-7	- 6	-2.5	- 2.5	+18	+5.7	+5.4	+ 2.2	+2.7	-16	N
V	6.0.	+ 4.1	+10"	-1.3		- 1.8	-4"	+ 3	+ 1.1	110	+1.7	+4"	- 1.3	+1.3		
	Bal	-5.0	- 8.1	r		-5.3	in the second		V		-5.3	- 8.2		~		+ 31.2
	Pist	+.1	+ = 1"	+ 0/	3:	+5.6		+2.2	+ 2.2	-152	+2.8	and the second	+1.1 -	+1.3	-7.8	
	6.0.	+.2*		+ 10/2		+1.6	+4.12		++.5-		+1.9"		+1.1-			
	Bal	-3.8	-5.1	F		- 4.0	-5.1	-	4		- 4.0	-5.1	-	-	20	+236
	Dish	+ 2.5	+2.4	+0.9	-5.8	+1.1	+1.0	+ 0.4	+0.4	-2.9	+ 1.1	+1.1	+0.4	+0.6		
	60	+1.3	+24	+0.2		+0.3	+0:5		+0.2.		+0.5	+0.8	+0.2	+0.3		
	Bal		+2.9.	r		-2.2	+3.0	r	v		-2.2	+3.0	r	V		+13.2
	Dist	+.5	+.4	+ 62	-1.1	+1.4	+1.3	+0.5	+0.6	- 3.8	+1.2	+ 1.1	+0.5	+0.6		-3.4
		+11.8		-26.8		-10.3	-14.2	-30.0	+54.5		+3.4	+0.9	+56.2	-60.5		
		+0.8	+0.8		-1.9											
		+12.6	+13.9	-26.5												
	_															
)-	Jonal-		2-	-A				2-B				2-	1			22
		A23	2- A21	-A 2.A.B		B23	B21	2- <i>B</i> 2 .8 A	2BC		C 2 3	C21	C 2CB	266		tory
)-	Mem	.160	A21 .160	2.8.8		.170	B21 .170	2 .8 A			.170	C21 .170	268			hoad M
)-		.160	A21			.170 .360	B21	2 .8 A .140	.140		.170 .350	C21 .170 .350	2CB	.165		Unbal 14 In story
)	Mem K/sk F.E.M	.160 .415 0	A21 .160 .415 0	2. A.B .170 -20		.170 .360 0	B21 .170 .360	2 BA .140 -20	·140 +30		.170 .350 0	C21 ./70 .350	2 CB .135 +30	. 165 -40		
~	Mem K/sk F.E.M Dist	.160 .415 0 + 8.3	A21 .160 .415 0 + 8:3	2. A.B .170 -20 + 3.4		.170 .360 0 -3.6	B21 .176 .366 0. -3.6	2 8 A .140 -20 -1.4	·140 +30 -1.4	+10	.170 .350 0 +3.5	C21 .170 .350 0 +3.5	2CB .135 +30 +1.4	. 365 -48 +1.6	-10	1-2 Wheat M
) * *	Mem K/s.k F.E.M Dist C.O.	.160 .415 6 + 8.3 + 7.6	A21 .160 .415 0 + 8:3 0 [×]	2. A.B .170 -20		./70 .360 0 -3.6 -3.5	B21 .176 .360 0. -3.6 0	2 .8 A .140 -20 -1.4 +1.7	.140 +30 -1.4 +.7	+10	.170 .350 0 + 3.5 + 2.8	C21 .170 .350 0 +3.5 0	2CB .135 +30 +1.4 - 7.0	. 165 -4a +1.6 +.8		1-2
) * * *	Mem K/s.k F.E.M Dist C.O. Bal	.160 .415 6 + 8.3 + 7.6 -5.6	A21 .160 .415 0 + 8.3 0 ⁻ -2.0	2.7.8 .170 -20 +3.4 7 7		.170 .360 0 -3.6 -3.5 -5.3	B21 .176 .360 0. -3.6 0' -2.1	2.8A .140 -20 -1.4 +1.7	·/40 +30 -/.4 +.7.	•	.170 .350 6 +3.5 +2.8 -5.3	C21 .170 .350 0 +3.5 0 -2.1	2CB -135 +30 +1.4 - 7.0	. 165 -48 +1.6 +.8 -		
· · · · ·	Mem K/s.k F.E.M Dist C.O. Bal Dist	.160 .415 6 + 8.3 + 7.6 -5.6 + • 3.	A21 .160 .415 0 + 8.3 0 ⁻ -2.0 +.3	2.8.8 .170 -20 + 3.4 7 7 + .1	7	.170 .360 -3.6 -3.5 -5.3 +3.1	B21 .170 .360 0. -3.6 0 -2.1 +3.1	2.8A .140 -20 -1.4 +1.7 +1.2 +1.2	·/40 +30 -/.4 +.7 -/.4 +.7	- 8.5	.170 .350 0 +3.5 +2.8 -5.3 +3.8	C21 .170 .350 0 +3.5 0 -Z.1 +3.8	2CB -135 +30 +1.4 - 7.0 - +1.4	. 165 -48 +1.6 +.8 +1.8	-10.8	1-2
· · · ·	Mem K/s.k F.E.M Dist C.O. Bal Dist C.O.	.160 .415 6 + 8.3 + 7.6 -5.6 + • 3.	A21 .160 .415 0 + 8.3 0 [×] -2.0 +.3 [×] 7 [×]	2.8.8 .170 -20 + 3.4 7 +.1 +.1 +.6	-=7	.170 .360 -3.6 -3.5 -5.3 +3.1 +2.8	B21 .170 .360 0. -3.6 0 -2.1 +3.1 +1.1	2.8A .140 -20 -1.4 +1.7 +1.7 +1.2 -	·/40 +30 -/.4 +.7. +.7. +1.1' +.7v	- 8.5	.170 .350 0 + 3.5 + 2.8 - 5.3 + 3.8 + 1.4	C21 .170 .350 0 +3.5 0 -2.1 +3.8 + .1	2CB -135 +30 +1.4 - 7.0 - +1.4 +1.4 +.6	. 165 -48 +1.6 +.8 +1.8 +1.8 +1.8	-10.8	7-1 +122
* * *	Mem K/s.k F.E.M Dist C.O. Bal Dist C.D. B	.160 .415 6 + 8.3 + 7.6 -5.6 + • 3 -3.8	A21 .160 .415 0 + 8.3 0 ^v -2.0 +.3 7v -2.0	2.7.8 .170 -20 +3.4 7 +01 +.6 -	-07	.170 .360 0 -3.6 -3.5 -5.3 +3.1 +2.8 -4.0	B21 .170 .360 0. -3.6 0 -2.1 +3.1 +1.1 -2.1	2.8A .140 -20 -1.4 +1.7 +1.7 +1.2 -	·/40 +30 -/.4 +.7 +.7 +1.1 +1.1 +.7 -	- 8.5	.170 .350 \$ + 3.5 + 2.8 + 2.8 + 3.5 + 3.8 + 1.4 - 4.0	$ \begin{array}{c} C21 \\ .170 \\ .350 \\ 0 \\ +3.5 \\ 0 \\ -2.1 \\ +3.8 \\ +.1 \\ -2.1 \\ \end{array} $	2CB -135 +30 +1.4 - 7.0 - +1.4 +1.4 -	. 165 -48 +1.6 +.8 +1.8 +1.8 +1.8 +.9 -	-10.8	1-2
· · · · ·	Mem K/s.k F.E.M Dist C.O. Bal Dist C.D. B Dist	.160 .415 6 + 8.3 + 7.6 -5.6 + .3 0 -3.8 +2.5	A21 .160 .415 0 + 8.3 0 -2.0 +.3 7 7 7 7 -2.0 +2.5	2.7.8 ·170 -20 + 3.4 7 + 0.1 + 0.9	-07	.170 .360 0 -3.6 -3.5 -5.3 +3.1 +2.8 -4.0 +0.5	B21 .170 .360 0. -3.6 0 -2.1 +3.1 +1.1 -2.1 +0.5	2.8A .140 -20 -1.4 +1.7 +1.2 +1.2 +1.2 +1.2 +0.3	·140 +30 -1.4 +.7 +.7 +1.1 +.7 +1.1 +.7 +0.2	- 8.5	.170 .350 0 + 3.5 + 2.8 + 2.8 + 3.8 + 1.4 + 1.4 + 1.1	$\begin{array}{c} C21\\ .170\\ .350\\ 0\\ +3.5\\ 0\\ -2.1\\ +3.8\\ +.1\\ -2.1\\ +1.1\\ +1.1\end{array}$	2CB -135 +30 +1.4 - 7.0 - +1.4 +1.4 +1.4 +1.4 +1.4 +1.4 +1.4 +1.4	.165 -4a +1.6 +.8 +1.8 +1.8 +1.8 +.9 - +0.5	-10.8 + 2 -3.1	7-1 +122
	Mem K/EK F.E.M Dist C.O. Bal Dist C.O. B Dist C.O.	.160 .415 6 + 8.3 + 7.6 -5.6 + .3 -3.8 +2.5 +1.3	A21 .160 .415 0 + 8:3 0 ^v -2.0 +.3 ^v 7v -2.0 +2.5 +0.5	2.9.8 .170 -20 + 3.4 7 + .1 + .1 + .1 + .6 + 0.9 + 0.4	-07	.170 .360 -3.6 -3.5 -5.3 +3.1 +2.8 -4.0 +0.5 +0.5	B21 .170 .360 0. -3.6 0 -2.1 +3.1 +1.1 +0.5 +0.5 +0.2	2.8A .140 -20 -1.4 +1.7 +1.2 +1.2 +1.2 +1.2 +0.3 +0.1	·/40 +30 -/.4 +.7 +.7 +1.1 +.7 +0.2 +0.2	- 8.5	.170 .350 0 + 3.5 + 2.8 - 5.3 + 3.8 + 1.4 - 4.0 + 1.1 + 0.5	$\begin{array}{c} C21\\ .170\\ .350\\ 0\\ +3.5\\ 0\\ -2.1\\ +3.8\\ +.1\\ -2.1\\ +1.1\\ -0.1\\ \end{array}$	2CB -135 +30 +1.4 - 7.0 - +1.4 +1.4 +1.4 +0.7 +0.7 +0.1	. 165 -48 +1.6 +.8 +1.8 +1.8 +1.8 +1.8 +0.5 +0.2	-10.8 + 2 -3.1	7-1 +12.2
	Mem K/SK F.E.M Dist C.O. Bal Dist C.O. Bal	.160 .415 6 + 8.3 + 7.6 -5.6 + • 3 -3.8 +2.5 +1.3 -2.1	A21 ·160 .415 0 + 8.3 0 ⁻ -2.0 +.3 7 -2.0 +2.5 +0.5 -1.3	2.9.8 .170 -20 +3.4 7 +.6 +0.7 +0.9 +0.9 +0.9 +0.9	-5.9	.170 .360 0 -3.6 -3.5 -5.3 +3.1 +2.8 +2.8 +0.5 +0.5 +0.5 -2.2	B21 .170 .360 0. -3.6 0 -2.1 +3.1 +1.1 +1.1 +0.5 +0.2 -1.4.	2.8A .140 -20 -1.4 +1.7 +1.7 +1.2 0 - +0.3 +0.1 -	·/40 +30 -/4 +.7 +.7 +1.1 +1.1 +0.2 +0.2	- 8.5 -1.5	.170 .350 0 + 3.5 + 2.8 + 2.8 + 3.5 + 3.5 + 3.5 + 3.5 + 3.5 + 1.4 + 1.4 + 1.4 + 1.1 + 0.5 - 2.2	$\begin{array}{c} C21\\ .170\\ .350\\ 0\\ +3.5\\ 0\\ -2.1\\ +3.8\\ +.1\\ -2.1\\ +1.1\\ -0.1\\ -1.4\end{array}$	2CB .135 +30 +1.4 - 7.0 - +1.4 +1.4 +.6 - +0.4 +0.1	. 165 -48 +1.6 + .8 +1.8 +1.8 + .9 - +0.5 +0.2 -	-10,8 +12 -3.1	7-1 +12.2 +12.2 +8,2
	Mem K/EK F.E.M Dist C.O. Bal Dist C.O. B Dist C.O.	.160 .415 6 + 8.3 + 7.6 -5.6 + .3 -5.6 + .3 + 2.5 + 1.3 -2.1 + 0.5	A21 .160 .415 0 + 8.3 0 ^v -2.0 +.3 7v -2.0 +2.5 +0.5 -1.3 +0.5	2.9.8 .170 -20 +3.4 7 +.4 +0.1 +0.7 +0.9 +0.9 +0.4 +0.2	-5.9	./70 .360 0 -3.6 -3.5 -5.3 +3.1 +2.8 +2.8 +0.5 +0.5 +0.5 +0.9	B21 .170 .360 0. -3.6 0 -2.1 +3.1 +1.1 +0.5 +0.5 +0.2 -1.4. +0.9	2.8A .140 -20 -1.4 +1.7 +1.2 +1.2 +0.3 +0.3 +0.1 +0.4	·/40 +30 -/.4 +.7 +.7 +1.1 +.7 +0.2 +0.2 +0.2 +0.4	- 8.5 -1.5 -2.6	.170 .350 0 +3.5 +2.8 +3.5 +3.8 +1.4 +1.4 +1.1 +0.5 -2.2 +0.9	$\begin{array}{c} C21\\ .170\\ .350\\ 0\\ +3.5\\ 0\\ -2.1\\ +3.8\\ +.1\\ -2.1\\ +1.1\\ -0.1\\ -1.4\\ +0.9\end{array}$	2CB -135 +30 +1.4 - 7.0 - +1.4 +1.4 +1.4 +1.4 +1.4 +0.4	. 165 -48 +1.6 +.8 +1.8 +1.8 +0.5 +0.5 +0.2 - - +0.5	-10,8 +12 -3.1	7-1 +12.2 +12.2 +8,2
	Mem K/SK F.E.M Dist C.O. Bal Dist C.O. Bal	.160 .415 6 + 8.3 + 7.6 -5.6 + • 3 -3.8 +2.5 +1.3 -2.1	A21 ·160 .415 0 + 8.3 0 ⁻ -2.0 +.3 7 -2.0 +2.5 +0.5 -1.3	2.9.8 .170 -20 +3.4 7 +.6 +0.7 +0.9 +0.9 +0.9 +0.9	-5.9	.170 .360 0 -3.6 -3.5 -5.3 +3.1 +2.8 +2.8 +0.5 +0.5 +0.5 -2.2	B21 .170 .360 0. -3.6 0 -2.1 +3.1 +1.1 +0.5 +0.5 +0.2 -1.4. +0.9	2.8A .140 -20 -1.4 +1.7 +1.2 +1.2 +0.3 +0.3 +0.1 +0.4	·/40 +30 -/.4 +.7 +.7 +1.1 +.7 +0.2 +0.2 +0.2 +0.4	- 8.5 -1.5 -2.6	.170 .350 0 + 3.5 + 2.8 + 2.8 + 3.5 + 3.5 + 3.5 + 3.5 + 3.5 + 1.4 + 1.4 + 1.4 + 1.1 + 0.5 - 2.2	$\begin{array}{c} C21\\ .170\\ .350\\ 0\\ +3.5\\ 0\\ -2.1\\ +3.8\\ +.1\\ -2.1\\ +1.1\\ -0.1\\ -1.4\\ +0.9\end{array}$	2CB -135 +30 +1.4 - 7.0 - +1.4 +1.4 +1.4 +1.4 +1.4 +0.4	. 165 -48 +1.6 + .8 +1.8 +1.8 + .9 - +0.5 +0.2 -	-10,8 +12 -3.1	7-1 +12.2 +12.2 +8,2
	Mem K/SK F.E.M Dist C.O. Bal Dist C.O. Bal	.160 .415 6 + 8.3 + 7.6 -5.6 + .3 -5.6 + .3 + 2.5 + 1.3 -2.1 + 0.5	A21 .160 .415 0 + 8.3 0 ^v -2.0 +.3 7v -2.0 +2.5 +0.5 -1.3 +0.5	2.9.8 .170 -20 +3.4 7 +.4 +0.1 +0.7 +0.9 +0.9 +0.4 +0.2	-5.9	./70 .360 0 -3.6 -3.5 -5.3 +3.1 +2.8 +2.8 +0.5 +0.5 +0.5 +0.9	B21 .170 .360 0. -3.6 0 -2.1 +3.1 +1.1 +0.5 +0.5 +0.2 -1.4. +0.9	2.8A .140 -20 -1.4 +1.7 +1.2 +1.2 +0.3 +0.3 +0.1 +0.4	·/40 +30 -/.4 +.7 +.7 +1.1 +.7 +0.2 +0.2 +0.2 +0.4	- 8.5 -1.5 -2.6	.170 .350 0 +3.5 +2.8 +3.5 +3.8 +1.4 +1.4 +1.1 +0.5 -2.2 +0.9	$\begin{array}{c} C21\\ .170\\ .350\\ 0\\ +3.5\\ 0\\ -2.1\\ +3.8\\ +.1\\ -2.1\\ +1.1\\ -0.1\\ -1.4\\ +0.9\end{array}$	2CB -135 +30 +1.4 - 7.0 - +1.4 +1.4 +1.4 +1.4 +1.4 +0.4	. 165 -48 +1.6 +.8 +1.8 +1.8 +0.5 +0.5 +0.2 - - +0.5	-10,8 +12 -3.1	7-1 +12.2 +12.2 +8,2

	TT /		/-,	n				1-13				1	-		1	
	Joint	1		1						1101 - 1					1011	2-
	Mem		A12	IAB	Unbal Mom		B12	IBA	IBC	Unbal Mom.		C12	ICB	160	Mom.	100
			.160				.170					.170				nal
	1×12k		.710	.290			.564	.218	.2/8			.538	.208	.2.54		in
r	F.E.M		0	0			0	0	0			۵	Ø	Ø		
r	Dist		0	0			0	0	0			0	٥	0		
v	60.		+4.1	0			-1.8"	0"	0'			+.1.7		0-		
	Bal		-2.0	4			-2.1'		L			-2.1	4	-		
	Dist		-1.5	6	+2.1	+29	+2.2	+.8	+ . 9	-3.9	- 3.9	+ .2	+ • /	+.1	4	
	6.0.		+ 0/.	+ 4				3v				+ 1.9.	+.5	+.1		
	Bal		-2.0				-2.1	r	5			-2.1	r	5		
	Dist		+1.0	+0.5	-1.5		+.4.	+0.2	+0.2	- 0.8		+0.2	-0.1	-0.1	+.4	
	60		+12	+0.1			+0.2	+0.2	+001			+0.5	+01	0		
	Baj		-/.3.	V			-1.4	L	r			-1.4	V	1		
	Dist.		0	0		0	+0.6	+0.2	+0.2	-1.0		+0.4	+0.2	+02	8	-
			4	+-4			-2.4	+1.1	+1,3			-1.1	+0.8	+0.3		
			•													

	~		Correct	ion to	Secon	dary Mor	nents	178	
	(Seco	nda	vies obtaine	d 64 0	assumi	ng no set,	Hement	Lof Found	1)
									1
	R			- 115	mentana ar fall Procession and an and the form	+2.06			
5		+75	-78.	72	+187	6 +	-215		
				- 115	.9				
	10		5.54	-105	5	+205	+	And a local strengt	
		+38	-91	-105 95 -	+193	+205 N	-2/3		
		X	2						
	9		+ + + + + + + + + + + + + + + + + + +	-101	24-	+192	5t		
	1	43	-85	39	+182	. 17	-202		
		×	24						
	8		130	- 93	ŝ	+176	5		
		+39	-78	5	5 m 1 + 167	+176	-185		
		+		1	10				
	7		+32	- 83	Ser	+156 +	4		
	/	A	-69	and the second s	+148	+156 +	- 165		
		*		1. 16 S. 1 12 4		+			
			+31	-70	m	+133	42		
	6		-60	6	+126	and the second	-139		
		+		N	+126				
	~		+24	- 5-10	+100	+105	2		
<u> </u>	5	5	- 29	-35	+/00	. 7703	-111	1997 - 19	
		4	-49	1	N	+	-111	V	
			+19.1	-43.5	20.1		+1.6		
	4		- 37.4	-435 X	+78.6	AND	a manufacture of the same state of the		
		+18.3		4/-		13.00	01.0		
			+13.9		-14.2		0		
-	3	9	× -265	-30 M		+56.2		www.ustnaarauguroscuster.	
		+12.6		-/0.3	+54.5	43.4			
-			¢.		-10.8		+2.5		
	2	~		-/7.7				NAME OF CONTRACTOR OF	
		0 ig	-15.1 Đ	0 0	+31.9	(F) m	-33.7		
				1					
			A. I		42.		11-		
	1	Ð		+1.1		+0.8	Concern an and an and	an a	
			+0.4/0	6	+1.3	· · ·	+0.3		
		1	40	Ð.	BO	æ (60		
0_						is in erre		e other	
T		di	agram to	v Corr.	ected	Solutions			

Moments are in foot × 165.

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- is wounded

Check for Correction to Secondaries.

					->+			
I	story	001	Both	<u>d-10</u>	d/L	10	I/L	
		A	1.0065	06/2	0547	+.1730.	18.8	
	1	B	:0390V	0117	:0507	+.0251	19.9	
		C	-0070-		.0556	1188	4	
		R	1665	+.0479-	1186	0930	18.8	
	2	B	01392		- 1085	+.0125	19.9	
		C	1250		11161	0226	41	
I		A	2595-	A CONTRACTOR OF	1730	1200	18.3	
	3	B	8264-	A LANGE MERCENTER	-1519	+.0054	18.6	
		C	1476		16 55	0780	4	
		A	3795		2592	1346	18.3	
	4	B		/830	2040	+.0081	18.6	
		C	2256		2328	0645	4.	
-		A	5135		- 2915	7.1400	14.3	
	5	A	0129	- ,2630	2759	+.0342	14.6	
		C	2901	0000	-2901	0684	4	
		A	6535	+.3270	3265	- 1050	143	
	6	B	+.0213	3650	+.3437	+.034V	14.6	
		C	3585	0114	3699	1027	4	
		A	7585	+.3950	3635	1530	/3.1	
-	7	B	+.0555	- 4420	3865	.0000	13.2	
		C	4612	+.0253	3359	0760	4	
-		A	9115	+.4460	4655	-, 1530	13.1	
	8	13	+.0555	4930	4375	- 0000	132	
		C	5372	+.0126	52 46	- 0760	4	
a contraction of		A	-1.0645	+.5850	4795	+.1530	13.1	
	9	18	+.0555	6060	5505	2270	13.2	
		G	6132	+ .0757	5375	+.0379	1.	
		A	-:9115	+.3570	5545		13.1	
	10	B	1715	5060	6775		13.2	
		C	5753	0126	5879		1,	

Correction of error in 1st Correction to Becondary Wind mom? X "Note: - error Was in Calculation of fix-end momin spance.

C	Joint		RA				RB					RC		1		4
	Mem			R-AB	Unb. N.	B-810		R-BR	R-BC	unb.M	C-RID		RCB	R-CC	Unb. M	10-
	KK K	.166				.167					.167					
	K Jt.	.630		.370		.462		.269	.269		.436		.254	.310		
	FEM.	0		. 0		0		0	0		.0		0	- 55		
	duct	-		v		~		r	r		+24.0		+14.0	+17.0		
	C.O.	~		r		~		~	+7.0		+ 8.1		V	+ 8.5		
	Bal	-10.0		~		-10.1		r	. ~		-10.1		r	r		+60
	Dist	+6:3		+3.7	-10.0	+1.4		+ 0.8	+0.9	- 3./	-2.8		-1.7	-2.0	+6.5	
	6.0	+3.5		+0.4		+2.1	~	+1.9	-0.9		-1.2		+0.5	-1.0		
	Bal	-3.4		~		+3.4		~	r		-3.5		r	~		+20.
	Dist	-0.3		-0.2	+0.5	+0,1.		+0.1	+0.1	+0.3	+2.3		+1.3	+1.6	-5.2	
	6.0.	0		r		+0.6.		-0.1	+0.6		+1.4		r	+0.8		
	Bal	- 1,5				-1.5		r	r		-1.6		r	r		+9
-	Dist	+0.9		+0.6	- 1.5	+0.2		+0.1	+0,1	-0.4	-0.2		-0.2	-0.2	+0.6	
		- 4.5		+4.5		-10,6		+2.8	+7.8		+16.4		+13.9	-30.3		
	Joint		1.0	5												110
	And the second		10	A				10B				10	DC			
	Mem	A-IOR		10-AB.	unb. M.	B-10R	B 10-9	free contraction of the contract	10-BC	unb.	C 10-R		1	10-CC	ипь. 14.	
	Mem Kzk St.	and the second s			unb. M.	B-10R .167	B 10-9 .167	free contraction of the contract		unb _M .	C 10-R .167		1	10-00	unb. 14.	01-
	K St.	and the second s	A 10-9		unb. M.			free contraction of the contract		unb _M .		C 10-9 -167 . 303	1	10-cc .217	ипь. М.	01-6
	K St.	.166	A 10-9	10-AB.	unb. M.	.167	.167	ID-BA	10-BC	unb _M .	.167	C 10-9 -167 . 303 Q	10-CB	.217 - 54	ипь. 14.	1
	K ZK St. K Jt.	·166 · 386	A 10-9 .166 .386	10-AB.	Unb. M.	·167 .316	.167 .316	10-BA .184	10-8C	unb _M	.167 .303	C 10-9 -167 . 303 0 +16.3	10-CB .177 0 +9.5	. 217	ипь. 14.	1
	KZK St. KK St. FEN	·/66 · 386 0	A 10-9 .166 .386	10-AB.	Unb. M.	·167 .316 0	.167 .316 0	10-BA .184	10-8C	unb _M .	.167 .303 0	C 10-9 -167 . 303 0	10-CB .177 0 +9.5	10-cc .217 - 54 +11.9 +5.8	Unb. 14.	1
	KZKSA. KKJt. FEN dist-	·166 · 386 · 0	A 10-9 .166 .386 0	10-AB. .228 6	Unb. M.	·167 .316 0	.167 .316 0	10-BA .184 0	10-80 .184 0	Unb _M .	.167 .303 0 +16.3	C 10-9 -167 . 303 0 +16.3	10-CB .177 0 +9.5 V	.217 - 54 +11.9	Unb. 14.	1-6
	KZKSA- KXJt. FEIH dist- C.D	·166 · 386 · 0 · -	A 10-9 .166 .386 6 	10-AB. .228 G L	<u>Unb.</u> <u>M</u> . -17.9	·167 ·316 0 	.167 .316 0 1	10-BA .184. 0 	10-86 .184 0 1 + 4.7		.167 .303 0 +16.3 +12.0	C 10-9 -167 . 303 0 +/6.3 + 7.8	10-CB .177 0 +9.5 V	10-cc .217 - 54 +11.9 +5.8	<u>Unb.</u> <u>14</u> . +7.5	1-6
	KIK St. KK St. FEIY dist. C. O Bal	·166 · 386 · 0 · 1 · 1 · 10.0	A 10-9 .166 .386 6 - - - 7.9 +6.9	10-AB. .228 6 		·167 ·316 0 	-167 -316 - -8.0	10-BA .184 	10-86 .184 0 1 + 4.7		.167 .303 0 +16.3 +12.0 -10.1	C 10-9 -167 . 303 0 +/6.3 + 7.8 - 8.0.	10-CB -177 0 +9.5 V - -1.3.	10-cc .217 -54 +11.9 +5.8	14.	1-6
	KIK St. KK St. FEIY dist. C O Bal Dist.	·166 · 386 · 0 · -/0.0 · -/0.0 · +6.9	A 10-9 .166 .386 6 	10-AB. .228 6 7 7 7 7 7 7		·167 ·316 0 	.167 .316 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2	10-BA .184 0 	10-80 .184 0 		.167 .303 0 +16.3 +12.0 -10.1 - 2.3	C 10-9 -167 . 303 0 +16.3 + 7.8 - 8.0 - 2.3 - 0.8	10-CB .177 0 +9.5 V -1.3. +1.3	10-cc .217 -54 +11.9 +5.8 -1.6	<u>14</u> . +7.5	+47
	KIKST. KKJt. FEIT dist- C.O. Bal Dist- C.O.	·166 · 386 ·	A 10-9 .166 .386 6 	10-AB. .228 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		·167 ·316 0 	.167 .316 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2	10-BA .184 0 	10-80 .184 0 +4.7 +2.5 -0.7 -		.167 .303 0 +16.3 +12.0 -10.1 - 2.3 -1.4 -3.5	C 10-9 -167 . 303 0 +/6.3 + 7.8 - 8.0. - 2.3. - 0.8 - 0.8	10-CB .177 0 +9.5 V -/.3. +1.3 V	10-cc .217 -54 +11.9 +5.8 -1.6 -0.8	14.	+47
	Kzk St. Kzk St. FEIH dist- C. D. Bal Dist C. D. 3al	·166 · 386 ·	A 10-9 .166 .386 6 	10-AB. .228 G V V +4.1 +1.3 V O	-17.9	·167 ·316 0 - - - - 10.1 +4.2 +0.7 -3.4	.167 .316 0 1 1 -8.0 +4.2 +1.7 -4.1	10-BA .184 0 - - +2.5 +2.7 +2.7 - +2.7 - - - - - - - - - - - - -	10-80 .184 0 +4.7 +2.5 -0.7 -	-/3.4	.167 .303 0 +16.3 +12.0 -10.1 - 2.3 -1.4 -3.5	C 10-9 -167 . 303 0 +/6.3 + 7.8 - 8.0. - 2.3. - 0.8 - 0.8	10-CB .177 0 +9.5 V -1.3. +1.3 V +1.7	10-cc .217 -54 +11.9 +5.8 -1.6 -0.8	<u>14</u> . +7.5	+47
	KIKST KIKJt FEIY dist C. O Bal Dist C. O. Bal Dist	·166 · 386 0 	A 10-9 .166 .386 6 	10-AB. .228 G V V +4.1. +1.3 V O	-17.9	·167 ·316 0 - - - 10.1 +4.2 +0.7 -3.4 +1.2	.167 .316 0 1 1 -8.0 +4.2 +1.7 -4.1. +1.2	10-BA .184 0 - - +2.5 +2.1 - +0.7 -	10-86 .184 0 +4.7 +2.5 -0.7 +0.6	-/3.4	.167 .303 0 +16.3 +12.0 -10.1 -2.3 -1.4 -3.5 +2.9	C 10-9 -167 . 303 0 +/6.3 + 7.8 - 8.0 - 2.3 - 0.8 - 4.1 + 2.9	10-CB .177 0 +9.5 V -1.3. +1.3 V +1.7	10-cc .217 -54 +11.9 +5.8 -1.6 -0.8 -1.8	<u>14</u> . +7.5	+47
	Kzk St. Kzk St. FEIH dist- C.O. Bal Dist- C.O. Bal Dist- CO	·166 · 386 0 · · · · · · · · · · · · · · · · · · ·	A 10-9 .166 .386 6 - - -7.9 +6.9 +3.0 -4.1 0 +0.1 -2.0.	10-AB. .228 G V V +4.1. +1.3 V O	-17.9	·167 ·316 0 	.167 .316 0 1 1 -8.0 +4.2 +1.7 +1.7 +1.2 +0.4 -2.0	10-BA .184 0 - - +2.5 +2.1 - +0.7 -	10-80 .184 0 +4.7 +2.5 -0.7 - +0.6 +0.8	- 13.4	.167 .303 0 +16.3 +12.0 -10.1 - 2.3 -1.4 -3.5 +2.9 +1.1 -1.6	C 10-9 -167 . 303 0 +1/6.3 + 7.8 - 8.0 - 2.3 - 0.8 - 0.8 - 4.1 + 2.9 + 1.4	10-CB .177 0 +9.5 V -1.3. +1.3 V +1.7	10-cc .217 -54 +11.9 +5.8 -1.6 -0.8 -1.8	<u>14</u> . +7.5	+47

Correction of Error in 1st Corr. to Sec.

-	Joint	9	NRA.				9 16	B				9 10.	C			y.
-	Mem	A9-8	A9-10	9-AB	unbal M	89-8	89-10	9-BA	9-BC	Mom.	C9-8	C9-10	9-CB	9-00	UND M.	
-	K St.	.166	.166			.167	.167				.167	.167				6
	K JE.	.386	.386	. 228		.316	.316	.184	.184		.303	. 303	.177	.217		8
	FE.M.	0	0	0		0	0	0	0		0	0	0	-51		
	Dist	V	r	-		L	L	~	L		+15.5	+15.5	+9.0	+11.0		
	6.0.	~	V	r		V	~	V	+4.5		+ 7.1	+ 8.1	L	+ 5.5		
	Bal	-7.4	7.9	V		-7.4	-8.0	~	V	1.12	- 7.5.	-8.0	~	V		+ 4 4.6
	Dist	+5.9	+5.9	+3.5	-/5.3	+3.4	+3.4	+2.0	+2.1	-10.9	-1.6	-1.6	-0.9	-/./	+5.2	
2	0.0	+2.7.	+3:5	+1.0		+1.6	+2.1	+1.8	-0.5	8/12	-0.7	-1.4	+1.1	-0.6		
	Bal	-3.7.	-41	v		-3.7	-4.1	~	~		-3.7	- 4.1	~	-		+22-3
	Dist	+0.2.	+0.2	+0.2	-0.6	+0.9	+0.9	+0.5	+0.5	-2.8	+ 2.9	+2.9	+1.6	+2.0	-9.4	
	C.O.	+0.1	0	+0.2		+0.4	+0.6	+0.1	+0.8		+1.2	+1.4	+0.2	+1.0		
	Bal	-1.9	- 2.0	r		-1.9	-2.0	r	~		- 1.9	-2.0	r	~		+11.2
	Dist	+1.4	+1.4	+0.8	-3.6	+0.6	+0.6	+0.4	+0.4	-2.0	+0.1	r	L	~	-0.1	
		=2.7	-3.0	+ 5.7		-6.1	-6.5	+4.8	+7.8		+11.4	+10.8	+11.0	+33.2		

Joint		8 A	2				8 B				80				
	A8-9			Unb. M.	88-9	8-8-7	8- 8A	8-BC	unb. M	68-9	C 8-7	SCB	8-00	unb M	
K St.	166	.166			.167	.167			-	.167	.167				2-2
and the source of the Line of the source and the source of	.386	.386	.228		.316	.316	.184	.184		.303	.303	.177	.217		1
FEM.	0	0	0		0	0	0	0		0	0	0	-47	1	
Dist	r	~	~		~	L	-	4		+14.2	+14.2	+8.3	+10.3;		
6.0.	~	r	L		~	1	L	+4.1		+ 7.8	+6.0	1	+5.1		
Bal	-7.4	- 6.5	L		-7.4	-6.6	V	V		- 7.5	- 66	V	V	1.	+ 39.4
Dist	+5.4	+5.4	+3.1	-13.9	+31.	+3.1	+1.8	+1.9	-9,9	-1.4	- 1.5	-0.8	- /. /.	+4.8	
c.a	+3.0	+2.4-	+0.9		+1.7	+1.4	+1.6	-0.4		-0.8	-0.7.	+1.0	-0.6		
Bal	-3.7	-3.3	r		-3.7	-3.3	~			-3.7	-3.3	-	v		+19.8
Dist	+0.3	+0.3.	+0.1	-0.7	+0.8	+0.9	+0.5	+0.5	-2.7	+2.5	+2.5	+1.4	+1.7		- 8./
6.0	+01	+0.1	+0.2		+0.4	+0.4	V	+0.7		+1.4	+1.1	+0.2	+0.8		
Bal	-1.9	-/.7	r		-1.9	-1.7	r	5		-1.9	-1.7	5	r		+10.3
Dist	+1.2	+1.2	+0.8	-3.2	+0.7	+0.7	+0.4	+0.3	-21	+0.1	V	-	-	-0.1	
	-3.0	-2.1	+5.1		- 6.3	-5./	+43	+7.1		+10.7	+10.0	+10.1	-30.8		
P. A.					0.0		1.1								14

Correction of error to 1st Corr. to See.

				-										1.1.1.1.1.	
Joint		7A				7	B.				7	C			
Mem.	A7-6	A7-8	7-AB	UMD. M.	B-76	87-8	7- BA	7-BC	ung	67-6	C7-8	7-CB	7-66	Una M	N
K St.	.164	.166			.168 .	.167				.168	.167				61
K jE.	.407	. 373	.220		.338	.306	.178	.178		.325	.294	.171	.209		
F.5.11.	0	0	0		0	0	0	0		0	0	0	- 41		
Dist		r	r		F	~	~	V		+13.3	+12.1	+7.0	+ 8.6		
C. O.	Tr	r	~		V	r	r	+3.5		+5.6	+ 7.1	V	+4.3		
Bal	-6:0	-6.5	V		-6.1	-66	V	r		- 6.1.	-6.6	r	~		+36.5
Dist	+5.1	+4.7.	+2.7.	-12.5	+3.1	+2.8	+1.6	+1.7	- 9.2	- 1.4.	-1.3	-0.7	-0.9	+4.3	
6.0.	+2.1	+2.7	+0.8		+1.3	+1.5	+14	-0.4		-0.5	- 0.8.	+0.9	-0.5		
Bal	-3./	-3.3	~		-3.2	-3.3	F	r		- 3.2	- 3.3	5	r		+1.9.0
Dist	+0.3	+0.3	+0.2	-0.8	+0.9	+0.8.	+0.4	+0.5	-2.6	+2.4	+2.2.	+1.2	+1.6	-7.4	
00	+0.1	+0.1	+0.2		+0.3	+0.4	+0.1	+0.6		+1.0.	+ 1.2	+0.2	+0.8		
Bal	-1.6	-1.7	r		-1.6	-1.7	r	r		-/.7	-1.7	r	r		+9.8
Dist	+1.2	+1.1	+0.6	-2.9	+0.6	+0.6	+0.4	+0.3	-1.9	+0.1.	+0.1	-	r	-0.2	
	-1.9	-2.6	+4.5		-4.7	-5.4	+3.9	+6.2		+9.5	+9.0	+ 8.6	- 27./		

				and a set of				10-10-10-10							-
Joint.			6A				6	B			60				
Mem	A6-7	A6-5	6-AB	Unb. M.	B-67	86-5	6-BA	6-BC	M	66-7	66-5	6CB	6-00	M.	1.0
K St.	.164	.164			.168	.168				.168	.168				1
K Jt.		. 394	.212		. 328	.328	.172	. 172		.316	.316	.166	.202		5
FE.M.	0	0	0		0	0	0	0		D	0	0	- 35		
Dist	~	-	~		~	r	r			+11.1	+11.1	+5.8	+7.0		
 6.0	r	~	r		r	V	r	+29		+6.6	+4.0	4	+ 3.5		
Bal	-6.0	-4.7	i		-6.1	-4.8	-	L		- 6.1	-4.9	4	~		+28.8
Dist	+4.2	+4.2	+ 2.3	-10.7	+2.6	+2.6	+1.4	+1.4	- 8.0	+1.0	-1.0	-0.5	-0.6	+3.1	
6.0.	+ 2.6.	+1.6.	+0.7		+1.6	+1.1	+1.2	-0.3		-0.7	-0.4	+0.7.	-0.3		
Bal	- 3./-	-2.6	r		-3.2	-2.6	L	~		- 3.2	-2.6	2	~		+15.7
Dist	+0.3	+0.3	+0.2	-0.8	+0.7.	+0.7	+0.4	+0.4	-2.2	+2.1	+2.1.	+1.1	+1.2	-6.5	
60	+0.1.	+0.1	+0.2		+0.4	+0.3	+0.1	+0.5		+1.2	+0.8	+0.2	+0.6		
Bal	-1.6	-1.4	~		-1.6	-1.4	r	r		-1.7	-1.4	~			+ 8.4
Pigt	+1.0	+1.0	+0.6	-2.6	+0.6	+0.5	+0.3	+0.3	-1.7	+0.1	+01	r	+0.1	-0,3	
	- 2.5	-1.5	+4.0		-5.0	-3.6	+3.4	+5.2		+8.4	+7.8	+7.3	-23.5		
				1											

Correction to Error to 1st Corr to Sec.

1								Colline and an owner surface of First Process	and the second second second	Constant of the International States						
	Joint		5A				5B					56			,	
	Mem	A 5-4	A 5-6		unb. M	85-4	85-6	5-8A	5-BC	unbal M	C-54	C 5-6	5-CB	5-66	M	6
	K st.	.165	.164	5-AB		.1675	.168	158			1675	.168				1 I
	K 76 .	.454	.355	.191		.383	. 301	. 158	.158		.370	.290	.153	.187		V.
	F.E.M.	0	0	0		0	0	0	0		0	0	٥	-28		
	Dist	V	4	L		r	v	v	V		+10.4	+8.1	+4.3	+5.2		
	6.0.	~	V	r		1	~	r.	+2.1		+3.7	+5.6	~	+2.6		
	Bal	-4.4	- 4.7	~		-4.5	-4.8	L	r		- 4:5	-4.9.	4	1		+26.7
	Dist	+4.1	+3.2	+1.8	-9.1	+2.8	+2.2	+1.1	+1.1	-7.2	-0.9	-0.7	-0.4	-0.5	+2.5	
	60.	+1.6	+2.1	+0.6		+1.1	+1.3	+09	-0.2		-0.3	-0.5	+0.6	-0.3		
	Bal	-2.7.	-2.6	L		-2.7.	-2.6	r	1		-2.7	-2.6	r	4		+16,2
	Dist-	+0.5	+0.3-	+0.2	-1.0	+0.8	+0.7	+0.4	+0.3	-2.2	+2.2	+1.7	+0.9	+1.0.	-5.8	
-	6.0.	+0.2	+0.1	+0.2		+0.3	+0.3	+0.1	+0.4		+0.8	+1.0	+0.1	+0.5		
	Bal	-1.5	-1.4-	v		-1.5	-1.4	~	r		-1.6	-1.4	-	~		+9.3
	Dist	+1-1	+0.9	+0.4	-2.4	+0.7	+0.5	+0.3	+0.3	-1.8	+0.2	+0.2	+0.1	+0.1	-0.6	
		-1.1	-2.1	+ 3.2		-3.0	-3.8	+2.8	+4.0		+7.3	+6.5	+5.6	-19.4		
	1.50					1.1.1	12.00	August States		1000						1.1.5

								1.0							
Joint.		4.	A				48				40	6			
Mem	A4-5	R4-3	Contraction of the other states	Unb. 14	B4-5	B4-3	4:BA	4-BC	Unb Mom	C-45	C43	4-CB	4-66	Mons.	4
K st.	.165	.165			.1675	.1675				.1675	. 1675				3-5
K Jt.	.413	.413	.174		.354	.354	.146	.146		. 343	.343	.141	.173)
FEIN.	٥	6	0		G	0	0	4		0	0	B	-21.5		
Dist	r	r	~		r	r	r	V		+7.4-	+7.4	+3.0	+ 3.7.		
60.	-	~	L		~	1	r	+1.5		+5.2	+2.4	r	+1.8		
Bal	- 4.4	-3.0	4		-4.5	-3.1	-	~		- 4.5	- 3.1.	~		1	+18.4
Dist	+3.1	+3.1	+1.2	-7.4	+2.2.	+21	+0.9	+0.9	-6.1	-0.6	-0.6	-0.3	-0.3	+1.8	
60	+2.2	+1.0.	+0.5		+1.4.	+0.9.	+0.6	-0.2		-0.5	-0.2	+0.5	-0.2		
Bal	-2,7	-2.0.	-		-2.7.	-2.0	r	r		-2.7	-2.0	r	-		+12.1
Dist	+0.4	+0.4	+0.2	-1.0	+0.7	+0.7.	+0.3	+0.3	-2.0	+1.7.	+1.7	+0.7	+1.0	- 5./	
6.0.	+0.2.	+0.1.	+0.1		+0.4.	+0.3	+0.1	+0.3		+1.1	+0.6	+0.1	+0.5		
But	-1.5	-1.2	-		-1.5	-1.2	4	~		-1.6	- 1.2	~	~		+ 7.2
Dist	+1.0	+1.0	+0.3	-2.3	+0.6	+0.6	+0.2	+0.2	-1.6	+0.2:	+0.2	0	+0.1	-0.5	
	-1.7	-0.6	+2.3		-3.4	-1.7.	+2.1	+3.0		+5.7	+5.2	+4.0	-14.9		
					1	1.1									12 1-13

Correction to Error in 1st Corr. to Sec.

P ²											1				
Joint		34	2	Vnb			B		Unb		30	1		unb	14
Mem		A3-4	3-AB	14	8-32	B-34	3-BA	3-86	M	C32	C34	3CB	366	M	M
1/2KSt	.160	.165			.170	.1675	74			.170	.1675				N
Sk J6.	.420	.408	.172		.369	. 345	.143	.143		.358	.334	.139	.169		
FER.	0	0	0		0	0	0	6		0	0	6	- 14.8		
Dist	r	r	v		L	L	L	~		+5.3	+4.9	+2./	+2.5		
60	r	1	r		V	~	~	+1.0	4.2	+1.5	+3.7	r	+1.2		
Bal	-2.0	-3.0	V		-2./	-3./	V	L	6	-2.1	-3.1.	r	V		+12:4
Dist-	+2.1	+2.0	+0.9	-5.0	+1.9.	+1.8	+0.7	+0.8	(-5.2)	-0.4	+0.4.	+0.2	-0.2	+1.2	
6.0.	+0.6	+1.6	+0.4		+0.4	+1.1.	+0.5	-0.1		-0.1.	-0.3.	+0.4	-0.1		
Bal	-1.3.	-2.0	r		-1.4	-2.1	r	~		-1.4	-2.0	r	~		+ 8.2
Dist	+0.3.	+0.3	+0.1	-0.7	+0.6	+0.6	+0.2	+0.2	-1.6	+1.3	+1.2	+0.5	+0.5	-3.5	
60	~	+02	+0.1		+0.1	+0.3	V	+0.2.		+0.4	+0.8	+0.1	+0.2		
Bal	-0.8	-1.2			-0.8	-1.2	r			-0.8	-1.2	~	v		+4.9
Dist	+0.7	+0.7	+0.3	-1.7	+0.5	+0.5	+0.2	+02	-1.4	+0.2	+0,1	+0.1	+0.1	-0.5	
	-0.4	-1.4	+1.8		-0.8	-2.1	+1.6	+2.3		+3.9	+3.7	+3.0	-10.6		
					+0.4	-0.3	+0.2	10.1	-1						
					-1.2	-2.4	+1.4	+2:2							
					and the second s						100 C 100			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	121.20
													1.1		
Toint		2	17				28				20	•			
Joint Mem	A2-3		A 2AB	UNB	B2-3	B2-1	2.B 2-BA		Unb	C-23	20	2-68	2-66	unb	
Mem	A2-3 .160	A2-1	14 2.14.15	UNBM	<i>B2-3</i> ./70	B2-1 -170			UND M	C-23 .170	1	2-CB	2-66	unb M	-2
Mem K st.	./60	A2-1 .160	2 AB	Unb	.170		2-18A		UN6 M		62-1	2-C.B .135	2-66	unb M	1+2
Mem K st. K st. K st.	.160	A2-1 .160 .415	2 AB .170	Uno	.170 .360	.170		2- BC	Unb	.170	C2-1 .170			Unb M	1-2
Mem K st. Ek St. K St. FEM	.160	A2-1 .160	2 AB	Unb	.170	-170 -360	2-13A .140	2- BC	UND M	.170 .350	C2-1 .170 .350	. 135	.165	Unb M	1-2
Mem <u>K</u> st. <u>F</u> EK Dist	.160	A2-1 .160 .415	2 AB .170	Unb	.170 .360	-170 -360	2-13A .140	2- BC	UNG	.170 .350 6 +3.6	C2-1 .170 .350	. 135	.165 -8.6	Unb	1+2
Mem K St. K St. K St. Mem K St. Mem K St. Mem K St. Mem K St. Mem K St. K St.	.160 .415 0 1	H2-1 .160 .415 .5 .7 .7	2 AB .170	Unb	.170 .360 	-170 -360 - -	2-13A .140	2- BC .140 	Unb M	.170 .350	C2-1 .170 .350 	.135 • +1.2 Ľ	.165 -8.6 +1.4	Unb	
Mem K St. EK St. FEM Dist- C.O. Bal	.160 .415 0 	H2-1 .160 .415 .5 .7 .7 .7 .7	2 AB .170 C - - - -		.170 .360 	-170 -360 - - - - -0.8"	2-18A .140 .140 	2- BC .140 0 		.170 .350 8 +3.0 +2.6	C2-1 ·170 ·350 ·350 · · · · · · · · · · · · ·	.135 • +1.2 Ľ	.165 -8.6 +1.4	Un6 M +0.4	+4.5
Mem K St. EK St. FEM Dist C.O. Bal Pist	.160 .415 0 	H2-1 .160 .415 .5 .7 .7 .7 .7 .7 .7 .7 .7 .7	2 AB .170 C - - - - - - - - - - - - - - - - - -		.170 .360 	-170 -360 - - - - - 0.8" + 0.8"	2-BA .140 .140 	2- BC .140 0 - +0.6 +0.6 +0.4	-2.3	.170 .350 \$ +3.0 +2.6 -2.1.*	C2-1 ·170 ·350 +3:0 · -0.8 ^v -0.2 ^v	.135 +1.2 	.165 -8.6 +1.4 +0.7 -0.1	<u>M</u>	+4.5
Mem <u>K</u> st. <u>F</u> C Dist C.o. Bal Pist C.O	.160 .415 	A2-1 .160 .415 .5 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7	2 AB .170 C L L L L L L L L L L L L L L L L L L		.170 .360 	-170 -360 - - - - -0.8"	2-BA .140 .140 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2	2- BC .140 0 	-2.3	.170 .350 +3.0 +2.6 -2.1.* -0.1 * -0.2	C2-1 ·170 ·350 +3:0 × -0.8 -0.2 -0.2 -0.2	.135 +1.2 	.165 -8.6 +1.4 +0.7 -0.1	<u>M</u>	+4.5
Mem K St. K St. K St. Dist. C.O. Bal Dist. C.O. Bal Dist. C.O. Bal	.160 .415 0 	H2-1 .160 .415 .5 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7	2 AB .170 	-2.7	.170 .360 	-170 -360 - - - - - 0.8" + 0.8" + 0.8" + 0.2" -0.6"	2-BA .140 .140 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2	2- BC .140 0 - +0.6 +0.6 +0.4	-2.3	.170 .350 +3.6 +2.6 -2.1.* -0.1	C2-1 ·170 ·350 +3:0 × -0.8 -0.2 -0.2 -0.2	.135 +1.2 	.165 -8.6 +1.4 +0.7 -0.1	<u>M</u>	+1/ +4.5
Mem K. St. K. St. K. St. K. St. Dist C.O. Bal Dist C.D Bal Dist	·160 .415 0 .415 	A2-1 .160 .415 .5 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7	2 AB .170 		.170 .360 	-170 -360 - - - - - 0.8" + 0.8" + 0.8" + 0.2" + 0.2"	2-18A .140 2 2 10.3 10.3 10.3 10.3 10.1	2- BC .140 0 - +0.6° +0.6° +0.4 0 - - - - - - - - - - - - -	-2.3	.170 .350 +3.6 +2.6 -2.1.* -0.1 -0.2 + -1.4 +0.8	C2-1 .170 .350 +3:0 -0.8 -0.8 -0.2 -0.2 -0.6 +0.8 +0.8	.135 +1.2 V +0.2 +0.3	.165 -8.6 +1.4 +0.7 -0.1 -0.1 +0.4	M +0.4 -2.3	+1/ +4.5
Mem K St. K St. K St. Mem K St. C.O. Bal Dist C.O. Bal Dist C.O. Bal Dist C.O. Bal Dist C.O.	·160 .415 0 -2.0 +1.1. +1.1. +0.1 +0.1	$\begin{array}{c} H_{2-1} \\ .160 \\ .415 \\$	2 AB .170 	-2.7	.170 .360 	-170 -360 - - - - - 0.8" + 0.8" + 0.8" + 0.2" + 0.2" + 0.2" + 0.1.1	2-18A .140 2 2 10.3 10.3 10.3 10.3 10.1	2- BC .140 0 - +0.6 - +0.4 0 - - - - - - - - - - - - -	-2.3	·170 ·350 +3.0 +2.6 -2.1.* -0.1 -0.2 * +0.7 +0.7	C2-1 ·170 ·350 +3:0 · -0.8 ^v -0.2 ^v -0.2 ^v -0.2 ^v +0.8 ^v +0.2 ^v +0.2 ^v	.135 +1.2 V +0.2 +0.2 +0.3 V	.165 -8.6 +1.4 +0.7 -0.1 -0.1	M +0.4 -2.3	+1/ +4.5
Mem K St. K St. K St. Dist. C.O. Bal Dist. C.O. Bal Dist. C.O. Bal Dist. C.O. Bal Dist. C.O. Bal	·160 .415 0 -2.0 +1.1. +1.1. +0.1 +0.1 -0.8	$\begin{array}{c} 42-1\\ .160\\ .415\\ .5\\ .\\ .\\ .\\ .\\ .\\ .\\ .\\ .\\ .\\ .\\ .\\ .\\ .\\$	2 AB .170 2 2 2 2 2 40.5 7 40.5 7 40.2 7 7 0 2 7	-2.7	.170 .360 - -2.1* +0.8, +1.0 -1.4* +0.2* +0.3* -0.8*	-170 -360 - - - - - 0.8" + 0.8" + 0.8" + 0.2" + 0.2" + 0.2" + 0.1.7 - 0.4"	2-18A .140 2 1 1 1 1 1 1 1 1 1 1 1 1 1	2- BC .140 0 - +0.6° +0.6° +0.4 0 - - - - - - - - - - - - -	-2.3 -0.5	$ \frac{.170}{.350} $ $ \frac{.350}{.350} $ $ \frac{.350}{.12} $ $.350$	C2-1 ·170 ·350 +3:0 · -0.8 ^v -0.2 ^v -0.2 ^v -0.2 ^v +0.8 ^v +0.2 ^v +0.2 ^v	.135 +1.2 V +0.2 +0.2 +0.3 V	.165 -8.6 +1.4 +0.7 -0.1 -0.1 +0.4	M +0.4 -2.3	+4.5 +3.4
Mem K St. K St. K St. R St. Dist. C.O. Bal Pist C.O. Bal Dist. C.O. Bal Dist. C.O. Bal	.160 .415 .415 .415 	$\begin{array}{c} 42-1 \\ .160 \\ .415 \\ .5 \\ .7 \\ -0.7 \\ +1.1 \\ +0.3 \\ -0.5 \\ +0.1 \\ -0.5 \\ +0.5 \\ +0.5 \\ +0.5 \end{array}$	2 AB .170 2 2 2 2 2 40.5 7 40.2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	-2.7 -0.2 -1.1	.170 .360 - - -2.1* +0.8, +1.0 -1.4* +0.2* +0.3* +0.2*	-170 -360 - - - - - 0.8" + 0.8" + 0.8" + 0.2" + 0.2" + 0.2" + 0.1.1 + 0.2" + 0.2" + 0.2"	2-18A .140 2 2 140 2 1 2 140 3 140.3 1 40.3 1 2 1 10.1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	2- BC .140 0 - +0.6 - +0.6 - +0.7 - - - - - - - - - - - - -	-2.3	·170 ·350 +3.0 +2.6 -2.1." -0.1" -0.2" -1.4. +0.7" +0.7" +0.7" +0.1	C2-1 ·170 ·350 · +3:0 · -0.8 -0.2 -0.2 -0.2 -0.6 +0.8 +0.2 · -0.4 · ·	.135 +1.2 2 +1.2 2 -0 +0.2 - - - - - - -	.165 -8.6 +1.4 +0.7 -0.1 -0.1 +0.4 +0.2 -	M +0,4 -2,3	+4.5 +3.4
Mem K St. K St. K St. Dist. C.O. Bal Dist. C.O. Bal Dist. C.O. Bal Dist. C.O. Bal Dist. C.O. Bal	·160 .415 0 -2.0 +1.1. +1.1. +0.1 +0.1 -0.8	$\begin{array}{c} 42-1\\ .160\\ .415\\ .5\\ .\\ .\\ .\\ .\\ .\\ .\\ .\\ .\\ .\\ .\\ .\\ .\\ .\\$	2 AB .170 2 2 2 2 2 40.5 7 40.2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	-2.7 -0.2 -1.1	.170 .360 - -2.1* +0.8, +1.0 -1.4* +0.2* +0.3* -0.8*	-170 -360 - - - - - 0.8" + 0.8" + 0.8" + 0.2" + 0.2" + 0.2" + 0.1.7 - 0.4"	2-18A .140 2 1 1 1 1 1 1 1 1 1 1 1 1 1	2- BC .140 0 - +0.6 - +0.6 - +0.7 - - - - - - - - - - - - -	-2.3 -0.5	$ \frac{.170}{.350} $ $ \frac{.350}{.350} $ $ \frac{.350}{.12} $ $.350$	C2-1 ·170 ·350 +3:0 · -0.8 ^v -0.2 ^v -0.2 ^v -0.2 ^v +0.2 ^v +0.8 ^v +0.2 ^v -0.4 ^v	.135 +1.2 V +0.2 +0.2 +0.3 V	.165 -8.6 +1.4 +0.7 -0.1 -0.1 +0.4	M +0,4 -2,3	+4.5 +3.4

Correction of Error to 1st Con to Sec.

19				
	Joint .	IA.	18	16
0	Mem.	A1-2 1-AB UNB	BH2 I-BA I-BE M	C1-2 1-CB 1-CC MG.
	K st.	.160	. 173	.170
	K.JE.	.710 .290	.564 .218 .218	.538 .208 .254
	FEM.	000		
	Dist	1 4 4 1		× + -
	6.0.	VV		$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	Bal	-0.7 -	-0.8	-0.8. ~ ~
	Dist	+0.5 +0.2 -0.7 ×	+0.4. +0.2 +0.2 -0.8	+0.4 +0.1 +0,2 +0.7
	00	+0.5 +0.1-	+0.4 +0.1 -0.D	-0.1- +0.1-0.1-
	Bar	-0.5 V	-0.6	-0.6 4 4
	Dist	-0.2 0 +0.2	+0.10.1	+0.4. +0.1 +0.2 -0.7
	6.0.	+ ~ ~	+0.1	to.4" ~ + 0.1"
	Bal	-0.30.3 -	-0.4 +	-0.4 +0.1 +0.1
	Dist	+0.3 + 9 -0.3	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	+0.1 ~ ~ +0.1
		-0.3 +0.3	-0.6 +0.4 +0.2	+0.1 +0.1 0
0				
1		-		
	. hi 1			

24 6.

Moments (Correction of of Error in 1st Corr to Secondary Mom) 7

R +2.8 5+ + 4.5 + 13.9 + 13.9 + - 30.3 + + 12.7 + - 36.0 + 11.5 + - 36.0 N. 5- + 65 +5.7 10 + 4.8 1.9 1. + 11.0 4:11+ 0.81 + 5.7 9 +10.1 001 - 30.8 + 4.3 1:5-0.m. + 5./ 8 2.1 9.2- + 4.5 +3.9 1.4.7 +6.2 + 8.6 + - 27.1 7 6.1 + 3.4 95- +5.2 +7.3 + 8: -23.5 - - 3:5-6 -1.5 +5.6 5.9+ +2.8 5. 0.5 + 4.0 1:2- +3.2 5 54 2.4 + 4.0 2:57 - 14.9 +2:1 1: +3:0 1.1- +2.3 7-1 4 0.6 +3.0 5.8+ 5.8+ +1.4 1.7.1. 4.1- +1.8 3 - 0.4 5.1-4.04 + 1.7 8.1+ +0.5 +1.2 2 5.0- +0.3 + 0.4 1 B + 0.2 +0.1 : 1 10

Moments are in ff x165

Correction of Error In 1st Corr to Secondary Wind Moments. 26 %. (Check of solution)

			0.			+		
Valueofor			(*+		-01	2		
by Area M.	story	Col	00	<u>d-10</u>	a/2	A B	1/2	
		A	006 50	.00886	01536	* .0186	18.8	
	1-2	B	008.66	.00754	01620	- 00753	19.9	
		C	.000	.0168	01680	-0.4780	н	ABCCBA
.0195		A	02510	7.01950	04460	-0239	18.8	the Bent is dett-
.0174	2-3	B	0/62	0201	0363	-015-10	19.9	ected as shown
,0260		4	0478	+.0109	0369	0327	h	in diag. and values
.0477		A	0490	0200	0690	0219	18.3	of Oat Jointe can
.0260	3-4	B	03/3	0278	0591	0188	18.6	be figured directly
		4	0805	+.0197	0608	0323	4,	by area mom
.0.541		A	0709	0210	0919	- ,0164	18-3	
.0423	4=5	B	0501	0341	0842	0054	18.6	
.1083		C	1128	+.0368	0760	0430	h	
.0780		A	0873	0315	1188	0210	14.3	
.0521	5-6	. B	- 0555	0492	1047	0068	14.6	
. 1560		C	1558	+ .0365	- 1193	0945	h	
.0995		A	1083	0595	1678	0560.	14.3	
.0640	6-7	B	0623	- ,0605	1228	0105	14.6	
.2040		C	2003	7.0834	1169	0377	ц	
.110		A	1643	0395	2038	0191	13.1	
.0770	7-8	B	0728	6720	1448	0114	13.2	
.238		C	2.380	+.1010	1370	0378	h	
.1278		A	1834	0417	2251	0114	13.1	
.0783	8-9	A	0842	0820	-1662	0076	13.2	
.284		G.	2758	+ .1263	1495	0265	4	
.1580		A	1948	0407	2355	0076	13.1	
.0897	9-10	B	0918	0644	1562	0227	13.2	
.308		C	3023	+ ./3/3	1710	0152	h	
.1340		A	2024	0369	2393	-	13.1	
.1078	10-R	B	1145	0732	/ 8 77	-	13.2	
.316		C	-3175	+.1290	1865	-	11	

as can be seen from the check the deflection of Col A does not check with that of Col B&C. above sixth floor. I will also be noticed that the difference in deflection between Col A & Col B&C is Const above 6th FL This means that there is an error in the moments in Col A (6-7) Mom A 7-6 is probably too small. First Correction to Secondary Moments.

R

10

9

8

7

6

5

4

3

2

27 (2)

Figure next to member is a moment which was found to be in error due to using incorrect values for fix - end moments. The next figures represent the Correction of the 1st moment and the third figure (Sum of 1st& 2nd) is the first Correction to Second 112.2 - 115 + 2199 + 206 avy moments. 52 + 78. 2-73.5 + 178. + 194.8 + 194.8 + 194.8 + 196 - 215.3 - 245.3 -99.3 + 5.7 95 - 2.49 +2165 +11.5 +205 ++11.5 + 11.5 0: 9 +197 55 m + 8.4 } + 205.4 -2/3 - 360} - 249.0 +15.2 +11.2 +4.0 -96.2 + 4.8 -101 199+ -101 199+ +7.8 +10.8 24+ 24+ 24+ 25+ 25+ 25+ 25-25+ 25-25-25-27-79.3 +203.0 {+192 +192 ***** +182 +189.8 - 202 - 33.2 }-235.2 0.98+ +30 +32 +32 +32 +32 -72.9 +3.0 +10.7 +13.7 + 186.1 + 10.1 + 176 -185 -30.8 } - 215.8 195 +167 +174.1 +10.0 +164.6 +86 +165 -165.1 + 164.6 +156 +165.1 -165.1 + 164.6 +156 +165.1 + 164.6 +165.1 + 164.6 +165.1 + 164.6 +165.1 + 164.6 +165.1 + 164.6 +165.1 + 164.6 +165.1 + 164.6 +165.1 + 164.6 +165.1 + 164.6 +165.1 + 164.6 +165.1 + 164.6 +165.1 + 164.6 +165.1 + 164.6 +165.1 + 165. -79.1 + 3.9 55 + 04-+32:1 148 +154.2 +154.2 -165 - 192.1 - 66.6 (- 70).95 -+285 +2:0 +84 +10:4 +140.3 + 133 27.5 -139 } -162.5 -60 +40 28.6 + 11.8 +126 +131,2 -56.0 - 52.2 + 2.8 Mm 12 +110.6 +105 + + + 0.54 + 100 + 104.0 -111 -19.4 }= 130.4 + 11.3 + 7.3 + 4.0 -41.4 (+2:1 0m 14 10/+ - 37.4 - 35-1 +2-3 + 86.1 (+ 82.1 + 151 + 1914. +78.62 + 81.6 +3.03 + 81.6 +17.7 - 0.6 +18.3 012:54 - 87.63 - 102.5 -14.9] - 102.5 +13.9 -1.4 +12.5 -28.62-30.0 + 59.2 + 3.0 0 1 4 Land + 5452 + 567 7:217 - 2652 - 24 .7 5:217 + 1.8 6:54 -60.57 -71.1 +29.0 +27.3 + 1.7 1. 1. 1. +31.9 + 33.1 +6.5 4, 6, y - 33.7 - 39.8 - 67 - 39.8 4.01 +0.9 +0.8 201 +0,4 3 + 0.7 A+0.3 } + 0.7 C+0.3 3+0,3 +1.3 }+1.5 B +0.2 }+1.5

Moments are in ff x 165.

28 X 45407 12-0 12-0 16-0 > 6×7.7×22×Ed×2=2.20 ED F+×165 for Span AB& BC. 6×9.4×78×Ed×2=3.13 Ed F+×165 for Span CC. 41.09 4.53 4.42 6:04 548 4.80 1.12 3.32 4.80 4,48 2.26 4.32 de Colc. 46.00 Load 2.64 267.38 2.82 286.39 2.60 299.55 92.82 2.54 177.03 2.83 212.81 3.23 243.13 2.66 306.77 1.97 136.16 1.34 24,18 .66 3.55 à Fix-end moments due to 1st Correction to secondaries 91 157.30 5972 27.23 41,00 125.22 44.39 .85 176.06 67.80 PAIN Load Area Co1 B 11 14 11 97 168.38 1.02 143.10 .87 180.29 43 5470 8051 83 104.22 64 7.94 .22 16: 1.16 1 53.79 64.24 42.26 Area 38.86 116 P/H I -de-11 h 11 Col A 8.43# 48.62 52.09 55.92 54.51 38.61 Story Load 32.09 44.17 24.75 9-10 16.78 $\frac{\mathcal{E}E\Gamma\Delta}{\mathcal{L}} = \frac{\mathcal{E}\left(\frac{\mathcal{I}}{\mathcal{L}}\right)\left(\frac{\mathcal{E}\Delta}{h}\right)\frac{1}{h}}{L}$ 5-6 $EIA = \frac{ML}{2} \left(\frac{2L}{3} - \frac{L}{2} \right) = \frac{ML}{6}$ 10-R 6-7 4-5 2-8 3-4 1-2 6-8 20.92 +67.5 2-3 1 79.84 +250. 2.82 9.59 -202 4.4 12.08 +38. 82.08 +257 39.48 +124 75.32 +235 30.52 +95 60.04 +188 50.44 +157 MLTMR DE FIXE 68.68 +215 + 5µ04 CC = 18-6 14 = 9.4 182.4 27.2 27.7 23.9 14.5 7.9 21.3 7.61 24.23 -51.0 11.4 26:/ 18.0. + 1-1 M2 =W 9.75 31.35 -65.8 526 76.67 - 34.9 FIXE 12:32 40:06 -84. 18.80 65.22 -137. 14.48 47.69 -100 16.37 59.55 -116 Span BC=22' 17.84 59.84 -126 19.12 63.42 -133 7.7 A E F/L = 2 2740,2 ML+MR 124.37 N 1.41 4.71 +9.9 32.12 +67.5 A E FE.M 6:52 23:49 +49.4 7.34 26.86 4564 1-1-1+ Span A 18=22' 5:56 19.75 +41.5 4.45 15.56 +31.6 31.24 +65.7 7.97 29.47 +61.9 3.47 11.95 +25.1 E1 = 7.7 Shear In # 816 12361 2.42 16.25 Mr. + MR 8.35 8.43 24 4 X Floor 4 4 w w R 10 01 0 00 7

Calculation of 2ND Correction to Secondary Wind Moments &.

	Joint		RA					RB				RC				
		A(R-10)		R-AB	unbal. Mom.	B(R-10)		R(BA)	R-BC	Unbai Mom.	C(R-10		R-68	R-66	Mom	10m
1	Is for The Cols.					.167					.167					Unbal Nom in Story.
1	K/2K	.630		.370		.462		.269	.269		.436		.254	.310		un un
	FEM.	0		+67.5		0		+67.5	-137	- 69.5	0		- 137	+257	+120	8-
	Dist	-42.5		-250		+32.1		+18.7	+18.7		-52.3		-30.5	- 37.2		10.
	00.	-12.7		+9.3		+10.6		-12.5	-15.2		-17.7		+ 9.3	-18.6		
	B.	+25.5		~		+25.6		i-	r		+25.6		r	r		- /533
	P	-13.9.		- 8.2	+22.1	- 3.9		-2.3	-2.3	+ 8.5	+0.6		+0.4	+0.4	-1.4	
	6.0	-3.4		-1.2		- 8.4		-4.1	+0.2		+0.7		- 1.2	+0.2		
	Bal	+9.4		r		+9.4		. ~	V	7	+9.4		r	r		-563
	Dist	-3,0		-1.8	+ 4.8	+1.3		+0.8	+0.8	-2.9	- 4.0		-2.3	-2.8	+9.1	
	60	-0.8		+0.4		-1.5		-0.9	-1.1		-2.4		+0.4	-1.4		
	Bal.	+3.8		r		+3.8		r	~		+3.8		r	~		-22.8
	Pist	-2.1		-/.3	+3.4	-0.2		-0.1	-0.1	+0.3	-0.2		-0.1	-0,1	+0.4	
		-39.7		+39.7		+68.8		+67.1	-1360		-36.5		-161.0	+197.7		
					See Leve							1 Albert				
							-	10.24			Sector Sector Sector				and the state	
										1.4						
) .	Joint		10)-A				10-,	8			,	106			w
)	Mem		10 A(10-9)		unbai Mom	B(10-R)	B(10-9)		B 10-BC	unbai Mom	C(10-R)	, c(10-9)		10-66	Unb Mom	Hom
)	Mem				unbai Mom	B(10-R) .167	B(10-9) .167			unbai Mom	C(10-R) .167			10-66	Unb Mom	bal Mom Story
)			A(10-9)		unbai Mom					Unbai Mom		c(10-9)		10-66	Unb Mom	Unbal Mem in Story
	Mem K for Sis Cols	.166	A(10-9) .166	10-A8	unbai Mom	.167	.167	10-84	10-BC	Unbai Mom - 67.3	.167	c(10-9) ·167	10-68			
)	Mem K for SK Cols K/EK FEM	.166	A(10-9) .166 .386	10-A8 .228 +65.7	Mom	.167 .316 0	.167 .316 0	10-BA .184 +65.7	10-BC	Mom - 67.3	.167 .303 O	c(10-9) ·167 .303	10-68 .177 -/33	•217 +250	+117	41
	Mem K. for SK Cols K/EK FEM Dist	.166 .386 0	A(10-9) .166 .386 0 -25.4	10-AB .228 +65.7 -14.9	Mom	.167 .316 0 +21.3	.167 .316 0 +2/.3	10-0A .184 +65.7 +12.4	10-BC .184 -/33	Mom - 67.3	.167 .303 0 +35.4	c(10-9) ·167 ·303 ©	10-68 .177 -/33 +20.7	•217 +250 +25.5	+117	ul 21-
	Mem K. for SK Cols K/EK FEM Dist CO	.166 .386 0 -25.4	A(10-9) -166 .386 0 -25.4 -11.9	10-AB .228 +65.7 -14.9 +6.2	Mom	.167 .316 0 +21.3 +16.0	.167 .316 0 +2/.3	10-8A .184 +65.7 +12.4 -7.4	10-8c .184 -/33 +/2.3 -/0,3	Mom - 67.3	.167 .303 0 +35.4	c(10-9) ·167 ·303 © -35.4 -16.5	10-68 .177 -/33 +20.7 +6./	•217 +250 +25.5	+117	ul 21-
	Mem K. for Six Cols K/EK FEM Dist CO Bal	.166 .386 0 -25.4 -21.2	A(10-9) .166 .386 0 -25.4 -11.9 +19.0	10-A8 .228 +65.7 -14.9 +6.2	Mom	.167 .316 0 +21.3 +16.0 +25.6	.167 .316 0 +2/.3- +10.1	10-8A -184 +65.7 +12.4 -7.4	10-8c .184 -/33 +12.3 -/0,3	Mom - 67.3	.167 .303 0 +35.4 -26.1 +25.6	c(10-9) .167 .303 0 -35.4 -16.5	10-68 .177 -133 +20.7 +6.1 +	.217 +250 -25.5 -12.7	+117	41 41 21-6 3 114.3
	Mem K. for Six Cols K/EK FEM Dist CO Bal Dist	.166 .386 0 -25.4 -21.2 +25.5 - 6.8	A(10-9) .166 .386 0 -25.4 -11.9 +19.0	10-AB .228 +65.7 -14.9 +6.2 -4.0	Mom	.167 .316 0 +21.3 +16.0 +25.6 -16.8	.167 .316 0 +2/.3 +10,1 +19,1	10-8A .184 +65.7 +12.4 -7.4 - -9.7	10-8c .184 -/33 +12.3 -10,3 -10,3 -9.8	Mom - 67.3	.167 .303 0 +35.4 -26./ +25.6 +1.3	c(10-9) ·167 ·303 O -35.4 -16.5 +19.1	10-68 .177 -/33 +20.7 +6./ +0.8	.217 +250 +255 +12.7 +12.7 +1.0	+117	41 41 21-6 3 114.3
	Mem K. for SK Cols K/EK FEM Dist CO Bal Dist C.O.	.166 .386 0 -25.4 -21.2 +25.5 - 6.8 - 7.0	A(10-9) .166 .386 0 -25.4 -/1.9 +19.0 -6.8 -3.6	10-AB .228 +65.7 -14.9 +6.2 -4.0 -4.9	Mom	.167 .316 0 +21.3 +16.0 +25.6 -16.8	.167 .316 0 +2/.3 +10.1 +19.1, -16.8 - 6.3	10-8A .184 +65.7 +12.4 -7.4 -9.7 -2.6	10-8c .184 -/33 +12.3 -10,3 -9.8 +0.4	Mom - 67.3	.167 .303 0 +35.4 -26,1 +25.6 +1.3 +0.3	c(10-9) ·167 ·303 O -35.4 -16.5 +19.1 +1.4	10-68 .177 -133 +20.7 +6.1 +0.8 -4.9	.217 +250 +255 +12.7 +12.7 +1.0	+117	41 41 21-6 3 114.3
	Mem K. for SK Cols K/EK FEM Dist CO Bal Dist C.O. Bal	.166 .386 0 -25.4 -21.2 +25.5 - 6.8	A(10-9) .166 .386 0 -25.4 -11.9 +19.0 -6.8 -3.6 +10.3	10-AB .228 +65.7 -14.9 +6.2 -4.0 -4.9	Mom	.167 .316 0 +21.3 +16.6 +25.6 -16.8 -2.0 +9.4	·167 .316 0 +2/.3 +10,1 +19.1, -16.8 - 6.3 +10,3	10-8A .184 +65.7 +12.4 -7.4 -9.7 -2.6	10-8c .184 -/33 +/2.3 -/0,3 - -9.8 +0.4	Mom - 67.3	.167 .303 0 +35.4 -26.1 +25.6 +1.3 +0.3 +9.4	c(10-9) ·167 ·303 O -35.4 -16.5 +19.1 +1.4 +0.4 +10.3	10-68 .177 -133 +20.7 +6.1 +0.8 -4.9	.217 +250 +255 +12.7 +12.7 +1.0 +0.5 +	+117	41 91-6 -114.3 -61.9
	Mem <u>K.for</u> <u>SK.Cols</u> <u>K/EK</u> <u>FEM</u> <u>Dist</u> <u>CO</u> <u>Bal</u> <u>Dist</u> <u>CO</u> <u>Bal</u> <u>Dist</u> .	.166 .386 0 -25.4 -21.2 +25.5 -6.8 -7.0 +9.4 -1.6	A(10-9) -166 .386 -25.4 -11.9 +19.0 -6.8 -3.6 +10.3 -1.6	10-A8 .228 +65.7 -14.9 +6.2 -4.0 -4.9 -4.9 -1.0	<u>Hom</u> +17.6	.167 .316 0 +21.3 +16.6 +25.6 -16.8 -2.0 +9.4	·167 ·167 ·167 ·167 ·167 ·177	10-8A .184 +65.7 +12.4 -7.4 -7.4 - -7.5 - -2.6 - - -1.8	10-8c .184 -/33 +/2.3 -/0,3 - -9.8 +0.4	Mom - 67.3 +53.1 +9.8	.167 .303 0 +35.4 -26.1 +25.6 +1.3 +0.3 +9.4 -4.8	c(10-9) ·167 ·303 O -35.4 -16.5 +19.1 +1.4 +0.4 +10.3	10-68 .177 -/33 +20.7 +6./ +0.8 -4.9 -2:8	.217 +250 +25.5 +12.7 +1.0 +0.5 -3.6	+117	41 91-6 -114.3 -61.9
	Mem K. for SK Cols K/EK FEM Dist C.O. Bay Dist. C.O.	.166 .386 0 -25.4 -21.2 +25.5 -6.8 -7.0 +9.4 -1.6 -1.5	A(10-9) .166 .386 0 -25.4 -11.9 +19.0 -6.8 -3.6 +10.3	10-A8 .228 +65.7 -14.9 +6.2 -4.0 -4.0 -4.9 -1.0 -0,9	<u>Hom</u> +17.6	.167 .316 0 +21.3 +16.6 +25.6 -16.8 -2.0 +9.4 -3.1	·167 ·167 ·167 ·167 ·167 ·177	10-8A .184 +65.7 +12.4 -7.4 - -9.7 -2.0 - -1.8 +0.5	10-8c .184 -/33 +12.3 -/0,3 - -9.8 +0.4 - -1.8	Mom - 67.3 +53.1 +9.8	.167 .303 0 +35.4 -26.1 +25.6 +1.3 +0.3 +9.4 -4.8	c(10-9) ·167 ·303 O -35.4 -16.5 +19.1 +1.4 +0.4 +10.3 -4.8 -2.5	10-68 .177 -133 +20.7 +6.1 +0.8 -4.9 - -2:8 -0.9	.217 +250 +25.5 +12.7 +1.0 +0.5 -3.6	+117	41 91-6 -114.3 -61.9
	Mem K. for SK Cols K/EK FEM Dist C.O. Baf Dist. C.O. Baf Dist. C.O. Baf	.166 .386 0 -25.4 -21.2 +25.5 -6.8 -7.0 +9.4 -1.6 -1.5 +3.8	A(10-9) .166 .386 0 -25.4 -11.9 +19.0 -6.8 -3.6 +10.3 -1.6 -1.7 +4.7	10-AB .228 +65.7 -14.9 +6.2 -4.0 -4.0 -4.9 -1.0 -0.9 -0.9	<i>Mom</i> +17.6 + 4.2	.167 .316 0 +21.3 +16.0 +25.6 -16.8 -2.0 +9.4 -3.1 +0.6 +3.8	·167 ·167 ·316 0 +2/.3 +10.1 +19.1 -16.8 -6.3 +10.3 -3.1 -0.5	10-8A .184 +65.7 +12.4 -7.4 -9.7 -2.6 -1.8 +0.5 -	10-8c .184 -/33 +/2.3 -/0,3 - -9.8 +0.4 - -1.8 -1.4 - - - - - - - - - - - - -	Mom - 67.3 +53.1 +9.8	.167 .303 0 +35.4 -26.1 +25.6 +1.3 +0.3 +0.3 +9.4 -4.8 -2.0 +3.8	c(10-9) ·167 ·303 © -35.4 -16.5 +19.1 +1.4 +0.4 +10.3 -4.8 -2.5 +4.8	10-68 .177 -/33 +20.7 +6.1 - +0.8 -4.9 - -2.8 -0.9 -	.217 +250 +255 +12.7 +12.7 +1.0 +0.5 -3.6 -1.8 +	+/17 -4.5 +16:0	41 91-6 -114.3 -61.9 -2.8.6
	Mem K. for SK Cols K/EK FEM Dist C.O. Baf Dist. C.O. Baf Dist. C.O. Baf	.166 .386 0 -25.4 -21.2 +25.5 -6.8 -7.0 +9.4 -1.6 -1.5 +3.8 -1.7	A(10-9) .166 .386 0 -25.4 -11.9 +19.0 -6.8 -3.6 +10.3 -1.6 -1.7 +4.7 -1.7	10-AB .228 +65.7 -14.9 +6.2 -4.0 -4.0 -4.9 -1.0 -0.9 -0.9	Mom +17.6 +4.2 +4.4	.167 .316 0 +21.3 +16.6 +25.6 -16.8 -2.0 +9.4 -3.1 +0.6 +3.8 -2.2	·167 ·167 ·167 ·167 ·167 ·167 ·101 ·101 ·101 ·103 ·103 ·3.1 ·0.5 ·44.8 ·2.1	10-8A .184 +65.7 +12.4 -7.4 -7.4 -9.7 -2.6 -1.8 +0.5 -1.2	10-8c .184 -/33 +/2.3 -/0,3 - -9.8 +0.4 - -1.8 -1.4 - - - - - - - - - - - - -	Mom - 67.3 +53.1 +9.8 +6.8	.167 .303 0 +35.4 -26.1 +25.6 +1.3 +0.3 +9.4 -4.8 -2.0 +3.8 -0.4	c(10-9) ·167 ·303 O -35.4 -16.5 +19.1 +1.4 +0.4 +10.3 -4.8 -2.5 +4.8 -2.5 +4.8 -0.4	10-68 .177 -133 +20.7 +6.1 +0.8 -4.9 - 2:8 -0.9 - -0.3	.217 +250 +255 +12.7 +1.0 +0.5 -3.6 -1.8 +	+117 -4.5 +16:0 +1.4	41 91-6 -114.3 -61.9 -2.8.6

2 NO Corv to Secondary Wind Mom.

			<u>esci (5</u> 1)												
Joint		9-1	9				98				9	°C			
Mem	A98	A9-10	9-AB		B9-8	B 9-10	9-BA	9-BC		C-98	C 9-10	9CB	966		
Ky for	.166	.166			.167	.167				.167	.167	200	g-te		
KEK	.386	.386	.228		.316	.316	.184	184		.303	.303	.177	.217		
FEM	0	0	+61.9		0	0	+61.9	-126	- 64.1	0	0	-126	+235	+109	6
Dist	-23.9	-23.9	-14.1		+20.3	+20.2	+11.8	+11.8		-33,0	-33.0	-19.3	-23.7		8
0.0.	-10.9	-12.7	+59		+9.4	+10.6	-7.0	-9.6		-15.0	+17.7	+5.9	-11.8		
Bal	+17.3	+ 19.0	r		+17.4	+19.1	r	~		+17.4	+19.1	L	L		-104.4
Dist	- 7.2	-7.2	- 4.2	+18.6	-12.6	-12.6	-7.3	-7,4	+39.9	+0.6	+0.7	+0.4	+0.4	-2.1	
6.0.	-3.3	- 3.4	-3.7		- 5.6	- 8.4	-2.1	+0.2		+0.3	+0.7	- 3.7	+0.2		
Bai	+9.1	+10.3	r		+9.1	+10.3	r	r		+9.1	+10.3	r	~		-54.7
Dist	-3.5	-3.5	-2.0	+9.0	-1.1.	-1.1	- 0.6	-0.7	+3.5	-5.1	-5.1	-3.0	- 3.7	+16.9	
60	-1.5	-0.8	-0.3		-0.6	-1.5	-1.0	-1.5		- 2.2	-2.4	- 0.3	-1.8		
Bal	+4.5	+47	r		+4.6	+4.8	r	v		+ 4.6	+4.8	4	-		-27.5
			-1.5	+6.6	- 1.5	-1.5	-0.9	-0.9	+4.8	-0.8	-0-8	-0.5	-0.6	+2.7	
		1	+ 42.0		+39.4	+39.9	+54.8	-134.1		- 24.1	- 23.4	- 146.5	+193.9		
												3.			

	Joint		8	RA				8B				8	C			
Mem	K Agr	A 8-9	A 8-7	8-AB		88-9	B8-7	8-BR	8-BC		C 8-9	68-7	8.C.B	8-66		
	K Jank		./66			.167	.167				167	.167				
	K Joint	.386	.386	. 228		.316	.316	.184	.184		.303	.303	.177	.217		-
	FEM	0	0	+56.4		0	0	+56.4	-116	- 59.6	0	0	-116	+215	+99	20
	Dist	-21.8	-21.8	-12.8		+18.8	+18.8	+11.0	+11.0		-30.0	-30.0	-17.5	-21.5		1-1
	20.	-11.9	- 9.2	+55		+10.1	+7.7	- 6.4	- 8.7		-16.5	-12.9	+5.5	-10.7		
	Bal	+17.3	+15.4	r		+17.4	+15.5	r	r		+17.4	+ 15.5	r	~		-92-7
	Disto		-6.6		+17.1	-11.2	-//.2	-6.6	-6.6	+35.6	+ 0.5	+0.5	+0.3	+0.4	-1.7	
	0.0.	-3.6	-2.8	-3.3		-6.3	- 5./	-2.0	+0.2		+0.3	+0.2	-3.3	+0.2		
	Bal					+9.1	+ 8.3	r	~		+9.1	+ 8.3	~	r		- 499
	Piet			-1.7	+7.7	-1.3	-1.3	-0.8	-0.8	+4.2	- 4.5	- 4.5	-2.6	-3.2	+14.8	
	00		-1.3	-04		-0.5	-0.6	-0.8	-1.3		-2.5	-2.0	-0.4	-1.6		
	Bal	1	+4.1			+4.6	+4.2	~	5		+4.6	+4.2				-2.5.1
				-1.2	+5.2			-1.0	-1.0	+516	- 0.7	-0.7	-0.4	-0.5	+2.3	
	-			+38.6				+49.8				-21.4	1			
		1 101	4139						10 2							

2 ND Corr to Secondary Wind Mom.

1																
-	Joint		TA			•	7	18				70	-			
	Mem	A76	A 7-8	7A-B		B7-6	B7-8	78-A	7.B-C		67-6	67-8	7-CB	7-66		
	K st.	. 164	.166	.222		.168	.167				.168	.167				
	K Jt.	.407	.373	.220		.338	.306	. 178	.178		.325	.294	.171	.209		
	FEM.	.0	0	+494		0	0	+49.4	-100	-50.6	0	0	-100	+188	+88	5
-		-201		-10.9		+17.1	+15.5	+9.0	+9.0		-28.6	-25.9	-15.0	-18.4		i
	State of Sta	- 8.1		+4.5		+6.9	+9.4	- 5.4	-7.5		-11.5	-15.0	+ 4.5	- 9.2		
1	Bal	+ 14.0	+15.4	r		+14.4	+15.5	v	v .		+14.4	+15.5	r	~		- 85.6
	Pist	- 6.1	- 5.5	- 3.3	+14.9	-11.3	- 10.2	- 5.9	-5.9	+333	+0.4	+0.4	+0.2	+0.3	-1,3	
	C.O.	-2.5	-3.3	-3.0		-4.7	- 5.6	-1.7	+0.1		+0.2	+0.3	- 3.0	+0.2		
	Bal	+7.6	+ 8.3	r		+7.8	+8.3	r	r		+7.8	+ 8.3	F	V		-46.6
	Dist	-2.9	-2.7	-1.5	+ 7.1	-1.4	-1.3	-0.7	-0.8	+4.2	- 4.5	-4.1	-2.4	-2.8	+13.8	
	00.					-0.5	-0.6	-0.7	-1.2		-1.9	-2.2	-0.4	-1.4		
	Bal		+41			+40	+42	r	V		+4.0	+4.2	r	V		-24.1
		-2.1			+5.1	-1.8			-0.9	+5.2	-0.8	-0.7	-0.4	-0.4	+2.3	
	were and the second second second	-17.4	No. of the second s			+30.5	+33.6	+43.7	-107.2		-20.5	-19.2	-116,6	+156.3		
		1/./									1.					
				1.1.1												1.4.5

-	Joint		6	A				6B					60			
	Mem.	A 6-7	A6-5	6-AB		B6-7	86-5	6-BA	6-BC		C.6-7	C 6-5	6-CB	6-66		
	K St.	.164	.164			./68 #8	.168				.168	.168				
	K Jt.	.394	.394	.212		.328	.328	172	.172		. 316	. 316	.166	.202		
	FEM	0	6	+41.5		0	0	+415	- 84-	-42.5	0	0	-84	+157	+73	2
	Dist		-16.4	- 8.8		+13.9	+13.9	+7.3	+7.4		-23./	-231	-12.1	-14.7	1	5
	00.	-10.0	- 5.6	+3.6		+ 8.5	+5.1	-4.4	-6.0		-/4.3	+ 8.4	+3.7	- 7.3		
	Bal	+14.0	+10.7	r		+14.4	+10.9	r	~		+14.4	+10.9	r	r		-65.1
	Pist	-5.0	- 5.0	-2.7	+12.7	- 9.3	-9.4	- 4.9	- 4.9	+28.5	+0.3	+0.3	+0.2	+0.2	-1.0	
	60	-3.1	-/.8	-2.5		- 5.7	-3.8	-1.4	+0.1		+0.2	10.2	-2.5	+0.1		
	Bal	+7.6	+6.1	-		+7.8	+ 6.3	r	-		+7.8	+6.3	-	~		-37.2
	Drist	-2.5	-2.5	-1.3	+6.3	- 1./	-1.1	-0.5	-0.6	+ 3.3	-3.8	-3.8	-2.0	-2.5	+12.1	
	Ca	-1.4	-1.0	-0.2		-07	-0.4	-0.6	-1.0		-2.2	-1.5	-0,3	-1.2		
	Bal	+4.0	+3.3	~		+4.0	+3.4	~	-		+4.0	+3.4	~	~		-20.0
	Dist	- 1.8	-1.8	- 1.1	+4.7	-/.5	-1.5	-0.8	-0.9	+4.7	-0.7	-0.7	-0.4	-0.4	+2.2	
	No. of Concession, Name	-14.5	- 14.0	+28.5		+30.3	+23.4	+36.2	- 89.9		-17.4	-16.4	-97,4	+131.2		
		1.1				12.0										

2 ND. Corr to Secondary Wind Mom.

Joint		51	9				5B				-	56			
Mem	A-5-4	A5-6	5-AB		B5-4	B5-6	5-BA	5-BC		65-4	65-6	5-68	5-00		
K St	.165	.164			.1675	. 168				.1675	.168				
K Jt.	.454	. 355	.19/		.383	.301	.158	.158		.370	.290	.153	.187		
FEM	0	0	+31.6		0	0	+31.6	-65.8		0	0	-65.8	+124		
	-14.3		-6.1		+13.1	+10.3	+5.4	+5.4	-34.2	+21.6	-16.9	- 8.9	-10.8	+58.2	5
C.O.	-52	- 8.2	+2.7		+4.6	+6.9	-3.0	-44		- 7.5	-11.5	+2.7.	-5.4		4
Bal	+9.7	+10.7	r		+9.8	+10.9	r	r		+9.8	+10.9	r	~		-58.6
Dist	-44	-3.5	-1.8	+9.7	-9.5	-7.5	- 3.9	- 3.9	+24.8	+ 0.4	+0.3	+0.1	+0,2	-1.0	
and the second se	-1.6		1000		- 3.8	-47	-0.9	+0.1		+0.2	+0.2	-2.0	+0.1		
	+5.9	+61	r		+6.0	+6.3	4	r		+6.0	+6.3	r	r		-35.8
			- 1.1	+59	- 1.1	-0.9	-0.5	-0.5	+3.0	-4.0	-3.1	- 1.6	-2.1	+10.8	
and a second second second second	-1.1				-0.4	-0.5	-0.5	-0.8		- 1.5	-19	-0.2	-1.0		
Bal	+34	+3.3	V		+3.5	+34	r	V		+3.5	+3.4	r	v		-20.7
			-0.8	+42	-1.8	-14	-0.7	- 0.8	+4.7	-0.8	-0.7	-0.4	- 0.4	+2.3	
and the second s	Contractory of the control of		+22.3		a particular service in a cost of the cost	+22.8	1			-155	-13.0	-76.1	+1046		
					1 - 1 -					17	120		1		1.50

																and the second
)	Joint			4A	•			4B				4	C			
	Mem	A4-5	A4-3	4-AB		B-45	B43	4-8A	4-BC		6-45	C4-3	4CB	4CC		
	K St.	.165	.165			.1675	.1675				.1675	. 1675				
	K Jt.	.413	.413	.174		. 354	.354	.146	.146		.343	.343	.141	173	1	
	FEN	0	0	+25.1		0	0	+25.1	-51.0	-25.9	0	٥	-51.0	+95	+44	
	Dist	-10.4	-10.4	-4.3		+9.2	+9.2	+3.7	+3.8		- 15.1	-15.1	-6.2	-7.6		4-
	C.O.	- 7.1	-3.5	+1.8		+6.5	+3.1	-2.1	- 3./		-10.8	-5.4	+1.9	-3.8		n
	Bal	+9.7	+6.9	~		+9.8	+7.0	~	-		+9.8	+7.0	r	r		-41.9
	dest	-3.2	-3.2	-1.4	+7.8	- 7.5	-7.5	-3./	- 3./	+21.2	+0.4	+0,5	+0.2	+0.2	-1.3	
	C.D.	-2.2	-1.1	-1.6		-4.8	- 2.5	-0.7	+0.1		+0.2	+0.1	-1.6	+0.1		
	Bal	+5.9	+4.3	~		+6.0	+4.3	-	4		+6.0	+4.3		~		-25.9
	Dist	-2.2	-2.2	-0.9	+ 5.3	-0.8	-0.9	-0.4	-0.3	+2.4	- 3.1	-3.1	- 1.3	-1.6	+9.1	
	00	-1.3	-0.7	-0.2		-0.5	-0.3	-0.4	-0.6		-20	- 1.1	-0.1	-0.8		
	Bal	+34	+2.6	-		+3.5	+2.6	r	r		+3.5	+2.6	-	r		-15.6
	Prot		-1.6	-0.6	+3.8	-1.5	-1.5	-0.6	-0.7	+4.3	-0.7	-0.7	- 0.3	-0.4	+21	
		-9.0		+17.9		+19.9		+21.5	-54.9		-11-8	-10.9	-58.4	+841		
									1							

2 ND Corr to Secondary Wing Mom.

													1.1.1			
	Joint		34	7			-	38					30			
	Mem.	A-32	A3-4	3-AB.		8-32	<i>B</i> 3-9	3-BA	3-13C		6-32	63.4	3-CB	3CC		
	K St.	.160	.165			.170	.1675				.170	. 16 75				
	KEK J4.	.420	.408	.172		.369	345	.143	. 143		.358	. 334	.139	.169		
	FEM	0	0	+17.1		0	0	+17.1	-34.9	17.8	0	0	-34.9	+67.5	+32.6	~
	Dist	-7.2	-7.0	-2.9		+6.6	+62	+2.5	+2.5		-11.7	+10.9	+4.5	+5.5		5
- AND	C.O.	-2.0	-5.2	+1.2		+1.8	+ 4.6	-1.4	-2.2		-3.1	- 7.5.	+1.2	-2.7		N
	Bal	+4.5	+6.9.	r		+4.8	+7.0	~	L		+4.8	+7.0	-	r		-28.3
	Dirl	-2.3	-2.2	-0.9	+5.4	-5.4	- 5.0	-2.1	-2.1	+14.6	+0.1	+0.1	0	+0.1	-0.3	
	C.O.	-0.7	-1.6	-1.2		-1.4	-3.8	- 0.5	r		+0.1	+0.3	-1.2	+0.1		
	Bal	+2.8	+4.3	r		+3.0	+ 4.3	r	~		+3.0	+ 4.3	r	r		-17.4-
	Dist	-1.5	- 1.5	-0.6	+3.6	-0.6	-0.6		- 0.2	+1.6	-2.4	-2.2	-0.9	- 1.1	+6.6	
	0.0.	-0.6	- 1.1	-0.1		-0.1	-0.4	-0.3	-0.4		-0.6	-1.5	-0.1	-05		
	Bal	+1.7	+2.6			+1.8	+2.6	r	r		+1.8	+2.6	r	r		-10.7
-	Pret	- 1.1 .	- 1.0	-0.4	+2.5	-12	-1.1	-0.4	-0.5	+3.2	- 0.6	- 0.6	-0.2	-0.3	+1.7	
		-6.4	- 5.8	+12.2		+9.3	+13.8	+14.7	-37.8		- 8.6	- 8.4	-40,6	+57.6		
																121
	Joint		21	7				28					2 C			
	Mem	A23	21 A21	49 2-AB		B2-3	B 2-1	2 B 2- BA	·2-BC		C-23	2	2 C 2 C B	266		
	Mem K st.	A23 .160				B2-3 .170			2-BC		C-23 .170		ZCB			
	Mem		A21			.170	B2-1 .170 .360		2-BC .140		.170	C21	1			
	Mem K st.	.160	A 21 .160 .415 0	2-AB		.170 .360 0	B 2-1 .170	2- BA .140 + 9.9	.140 -20.2	-10.3	.170 .350	C21 .170 .350 0	2CB .135 -20.2	.165 +38	+17-8	
	Mem K st. K st. K st.	.160 .415	A 21 .160 .415	2-AB .170		.170	B2-1 .170 .360	2- 8A .140 + 9.9 + 1.4	.140	-10.3	.170 .350 0 -6.2	C21 .170 .350 0 -6.2	2CB .135 -20.2 -2.4	.165 +38 -3.0	+17-8	0
	Mem <u>k</u> st. <u>sk</u> st. <u>k</u> st. <u>k</u> st. <u>k</u> st. <u>FEM</u>	.160 .415 0	A 21 .160 .415 0	2-AB .170 +9.9		.170 .360 0	B2-1 .170 .360 0	2- BA .140 + 9.9	.140 -20.2	- 10.3	.170 .350	C21 .170 .350 0	2CB .135 -20.2 -2.4 +0.7	.165 +38 -3.0 -1.5	+17-8	1-2
	Mem <u>k</u> st. <u>k</u> st. <u>k</u> st. FEM Dist.	.160 .415 0 -4.1	A21 .160 .415 0 -4.1	2-AB .170 +9.9 -1.7		.170 .360 0 +3.7	<i>B</i> 2-1 .170 .360 0 +3.7	2- 8A .140 + 9.9 + 1.4	.140 -20.2 +1.5	-10.3	.170 .350 0 -6.2	C21 .170 .350 0 -6.2 V +1.7	2CB .135 -20.2 -2.4 +0.7	.165 +38 -3.0 -1.5		0
	Мет <u>к</u> st: <u>к</u> st	.160 .415 0 -4.1 - 3 .6	A21 .160 .415 0 -4.1 V	2-AB .170 +9.9 -1.7 +0.7	+ 3.2	.170 .360 0 +3.7 +3.3 +4.8 -2.8	B 2-1 .170 .360 0 +3.7 -2.8	2- 8A .140 + 9.9 + 1.4 -6.8 	.140 -20.2 +1.5 -1.2	-10.3	.170 .350 0 -6.2 -5.8 +4.8 +0.1	C21 .170 .350 0 -6.2 V +1.7	2CB .135 -20.2 -2.4 +0.7	.165 +38 -3.0 -1.5 -	+17-8	1-2
	Mem <u>k</u> st. <u>k</u> st. <u>k</u> st. <u>FEM</u> <u>Dist.</u> <u>Bal</u>	.160 .415 0 -4.1 - 3 .6 +4.5	A21 .160 .415 0 -4.1 V +1.6	2-AB .170 +9.9 -1.7 +0.7	+ 3.2	.170 .360 0 +3.7 +3.3 +4.8	B 2-1 .170 .360 0 +3.7 V +1.7	2- 8A .140 + 9.9 + 1.4 - 6.8	.140 -20.2 +1.5 -1.2 - -1.1 -1.1		.170 .350 0 -6.2 -5.8 +4.8	C21 .170 .350 0 -62 V +1.7 +1.7	2CB .135 -20.2 -2.4 +0.7 - -	.165 +38 -3.0 -1.5		2-1 -10.0
	Mem K st. K st. K st. FEM Dist. Bal Dast	.160 .415 0 -4.1 -3.6 +4.5 -1.3	A21 .160 .415 0 -4.1 V +1.6 -1.3	2-AB .170 +9.9 -1.7 +0.7 V -0.6	+3.2	.170 .360 0 +3.7 +3.3 +4.8 -2.8	B 2-1 .170 .360 0 +3.7 -2.8 -1.0	2- 8A .140 + 9.9 + 1.4 -6.8 	.140 -20.2 +1.5 -1.2 -1.1		.170 .350 0 -6.2 -5.8 +4.8 +0.1 +0.1 +3.0	C21 .170 .350 0 -6.2 V +1.7	2CB .135 -20.2 -2.4 +0.7 -	.165 +38 -3.0 -1.5 -		1-2
	Mem Kak st. KK St. FEM Dist. Bal Diot CO.	.160 .415 0 -4.1 -3.6 +4.5 -1.3 -1.2 +2.8	A21 .160 .415 0 -4.1 V +1.6 -1.3 +0.2	2-AB .170 +9.9 -1.7 +0.7 V -0.6 -0.6		.170 .360 () +3.7 +3.3 +4.8 -2.8 (-2.7	B 2-1 .170 .360 0 +3.7 -2.8 -1.0	2- 8A .140 + 9.9 + 1.4 -0.8 -1.1 -0.3	.140 -20.2 +1.5 -1.2 - -1.1 -1.1		.170 .350 0 -6.2 -5.8 +4.8 +0.1 +0.1	C21 .170 .350 0 -62 V +1.7 +1.7	2 C B .135 -20.2 -2.4 +0.7 - - 0.6 - - 0.6	.165 +38 -3.0 -1.5 - - - - - - - - - - - - - - - - - - -	-0.1	-10.0
	Mem <u>K</u> st. <u>FEM</u> Dist. <u>Co.</u> <u>Bal</u> <u>Co.</u> <u>Bal</u> <u>Co.</u> <u>Bal</u>	.160 .415 0 -4.1 -3.6 +4.5 -1.3 -1.2 +2.8	A21 .160 .415 0 -4.1 V +1.6 -1.3 +0.2 +1.6	2-AB .170 +9.9 -1.7 +0.7 v -0.6 -0.6 v		.170 .360 0 +3.7 +3.3 +4.8 -2.8 -2.7 +3.0	B 2-1 .170 .360 0 +3.7 -1.7 +1.7 -2.8 -1.0 +.1.6	2- 8A .140 + 9.9 + 1.4 -6.8 	.140 -20.2 +1.5 -1.2 -1.1 -1.1 -	+7.8	.170 .350 0 -6.2 -5.8 +4.8 +0.1 +0.1 +3.0	C21 .170 .350 0 -6.2 V +1.7 +1.7 +1.6	2 C B .135 -20.2 -2.4 +0.7 - - - - - - - - - - - - - - - - - - -	.165 +38 -3.0 -1.5 - - - .5 - - .5 - - .5 - - .5 	-0.1	-10.0
	Mem Kak st. Kak St. FEM Dist. Go. Bal Co. Bal Co. Bal Dist. Co.	.160 .415 0 -4.1 -3.6 +4.5 -1.3 -1.2 +2.8 -1.2	A21 .160 .415 -4.1 V +1.6 -1.3 +0.2 +1.6 -1.2	2-AB .170 +9.9 -1.7 +0.7 V -0.6 -0.6 V -0.4		.170 .360 0 +3.7 +3.3 +4.8 -2.8 -2.7 +3.0 -0.2	B 2-1 .170 .360 0 +3.7 -2.8 -1.0 +.1.6 -0.2	2- 8A .140 + 9.9 + 1.4 -0.8 -1.1 -0.3 -0.1	.140 -20.2 +1.5 -1.2 -1.1 -1.1 -0.1	+7.8	.170 .350 0 -6.2 -5.8 +4.8 +0.1 +0.1 +3.0 -1.6	C21 .170 .350 0 -6.2 V +1.7 +1.7 +1.6 -1.6	2 C B .135 -20.2 -2.4 +0.7 - - 0.6 - - 0.6	.165 +38 -3.0 -1.5 -1.5 - - - - - - - - - 7	-0.1	-10.0
	Mem Kak st. KK St. FEM Dist. Bal Dist. Bal Dist. Co. Bal Dist. Co.	.160 .415 0 -4.1 -3.6 +4.5 -1.3 -1.2 +2.8 -1.2 -0.7 +1.7	A21 .160 .415 0 -4.1 V +1.6 -1.3 +0.2 +1.6 -1.2 -0.1	2-AB .170 +9.9 -1.7 +0.7 V -0.6 -0.6 V -0.4		.170 .360 +3.7 +3.7 +3.3 +4.8 -2.8 -2.7 +3.0 -0.2 -0.3	B 2-1 .170 .360 0 +3.7 -2.8 -1.0 +.1.6 -0.2	2- 8A .140 + 9.9 + 1.4 - 6.8 1.1 - 0.3 - 0.1 - 0.2	.140 -20.2 +1.5 -1.2 -1.1 -1.1 -0.1 -0.2	+7.8	.170 .350 0 -6.2 -5.8 +4.8 +0.1 +0.1 +3.0 -1.8 -1.2	$\begin{array}{c} C21\\ .170\\ .350\\ 0\\ -6.2\\ v\\ +1.7\\\\ +0.4\\ +1.6\\ -1.6\\ -0.2\\ \end{array}$	2CB .135 -20.2 -2.4 +0.7 - -0.6 - -0.6 V	.165 +38 -3.0 -1.5 - - - - - 0.7 -0.3	-0.1	-10.0
	Mem Kak st. KK St. FEM Dist. CO. Bal Dist CO. Bal CO. Bal CO. Bal	.160 .415 0 -4.1 -3.6 +4.5 -1.3 -1.2 +2.8 -1.2 -0.7 +1.7	A21 .160 .415 0 -4.1 V +1.6 -1.3 +0.2 +1.6 -1.2 -0.1 +0.8	2-AB .170 +9.9 -1.7 +0.7 V -0.6 -0.6 V -0.4 V	+2.8	.170 .360 0 +3.7 +3.3 +4.8 -2.8 -2.7 +3.0 -0.2 -0.3 +1.8	B 2-1 .170 .360 0 +3.7 -1.7 +1.7 -2.8 -1.0 +.1.6 -0.2 -1.0 +.1.6 -0.2	2- 8A .140 + 9.9 + 1.4 -6.8 -1.1 -0.3 -0.3 -0.2 -0.2	.140 -20.2 +1.5 -1.2 -1.1 -0.1 -0.1 -0.2 -0.3	+7.8	.170 .350 0 -6.2 -5.8 +4.8 +0.1 +0.1 +3.0 -1.6 -1.2 +1.8	C21 .170 .350 0 -6.2 V +1.7 +1.7 +1.6 -1.6 -0.2 +0.9	2 C B .135 -20.2 -2.4 +0.7 - -0.6 - -0.6 - -0.6 -	.165 +38 -3.0 -1.5 - - - - 0.7 - 0.7 - 0.7 - 0.3 - - 0.7	-0.1 +4:5 +1-0	-10.0

33 %.*

2ND Corr to Secondary Wind morn.

34 X

	Joint	1.	A				1B				1	C		unhal	
	Mem.	A1-2	I-AB	M.		81-2	1-BM	1-BC	unbal N		61-2	1-CB	1-6C .254	M	MIN
	1 SK ST:	.160				.170					.170				sto
833	K Jt.	.710	.290			. 564	.218	.218			. 538	.208	.254		0 11
	FEH	0	0			0.	0	۵			0	0	0		
	Dist	-	-			~	4	~		8 1	r	r	r		
	60	-2.1	r			+1.8	~	~			-3.1	r	r		
	Bal	+1.6	-			+1.7	r	~			+ 1.7	r	~		
	Past	+0.4	+0.1	-0.5		-2.0	-0.7				+0.7	+0.3	+0.4	+1.4	
	6.0.	- 0.7	and the second se			-1.4	+0.1	× +0.2				-0.4	to.2×		1
	Bal	+1.6	r			+1.6	-	r			+1.6	5	~	2	
	. Ast	- 0.3	-0.2	+0.5		-0.3	-0.1	-0.1	+0.5		- 0.7	-0.3	-0.4	+1.4	
	C.O.	-0.6	r .			-0.1	-0.1.	-0.1			-0.6	V	- 0.2		
	Bal	+0.8	and the second se			+0.9	r					r	~		
	Prs7	 -0,2	r	+0.2		-0.3	-0.2	-0.1	+0.6				-0.1	+0.1	
		+0.5	-0.5			+1.9	-1,0	-0.9			+0.4	-0.4	-0./		
5															
															15
					10										
			-												
						1.1									
		- and -								and the second					
															-
		,								1.0				F	

2 No Correction to Secondary Wind Moment.

30

R.		+67.1	-161.0
	6 + 397	\$ -/3 6. D	5 +197.7 m
	4		
10	2:92-	+55.5 54	-155.7 N
10	8 + 45.2	00 = 144.9 15	9: +207.6 8: N
	~	6 4 3	· 4
9		+54.8 4	- 146.5
	6: +42.0	t: -/34.1 ∞ +	+193.9
		б т т	
0	1.61-	4.49.8 ⁶⁰	-134.4
8	0.00 + 38.6		
		5 -/2 3.2	4. +178.1 -
	4.9/-	+ 9°5°8°+ + 43.1	-//6.6 7
7	4: +33.8		-1/6.6 T 0. + 156.3
	14	5: -107.2 00:+	- 21
	- 14.S	0.3	-97.4
6'	4. +28.5	+36.2 +	
	07: +28.5	· + : -89.9	+.9/ +/31.2
		50	-76.1
5	-10		
	2:21-	+-70.7 +	19 +104.6
	0.5	+21.5 +	
4			-58.4
and a little	0: +17.9 00	5.57-54.9	5: + 81.1 Q
	1 100	+ 00	14
3	10-	+14.7	-40.6 1
	+ + 12.2	+14.7 + -37.8	29 + 57.6 1
2	m I	+8.5 5	-23.2 1
	2 +7.0	21-21.6 E	-23.2 5
,	10. 10. 14.	-1.0	-0.4
	-05	-0,9	0.0

B

A

C

35 X

2 ND Correction to Secondary Momis (Check of Solution)

nite to

			At.		->+					
Ste	ory	Col.	0	<u>d-10</u>	d/L	ΔÐ	I/L	2 M2+ MR	$\frac{M_L + M_R}{2}$	
	/	A	.003	.0372	+.0372	+.0985	18.8			
1-	-2	B	+.0325	-0050	+.0375	0327	19.9			
		C	0	.0386	+.0386	+.1057	n			
		A	+.0985	0106	+.0879	+.0692	18.8			
2-	3	B	+.0002	.0880	+.0882	+.0151	19.9			
		C	.1057	.0184	+ .0873	+.0805	ы			
		A	+ .1677	0246	+.1431	+.0847	18.3	2.57	1.55	
3-	4	B	+.01.49	+ .12.67	+.1476	+.0081	18.4	14.1	.15	
		C	+.1862	0529	+.13.33	+.0672	И	5.9.	1.25	
		A	+.2524	:0527	+.1997	+.0875	18.3	5.8.	1.6	
4-	5	B.	+.0230	+.1740	+.1970	0135	18.4	19.4.	.25	
		C	+.2534	0727	+.1887	+.0995	h	8.1	1.85	
		A	+3399	0722	+2677	+.1360	14.3	6.2.	1.95.	
5-	6	B	+ 0095	+.2540	+.2635	02.06	14.6	22.2	.30	
		C	+.3529	- 1097	+.2432	+ .1164	4	9.6.	1.70	
		A	+.4759	-,1350	+,3409	+ .1013	14.3	11.6	1.45	
6.	-7	B	0116	3440	+.3329	0069	14.6	30,1	0,10,	
		6	+.4693	.1633	+.3060	+ .1060,	84	14.3	1.55	
		A	+.5772	,1770	+.4002	+.0955	13.1	13.9	1.25	
7-	8	B	0180	.4140	+ 3960	0341	13.2	32.7	.45	
		C	+.5753	.2150	+.3603	+ .0834	n	17.0	1.1	
		A	7.6727	.2230	+4497	+.0840	13.1	17.5	1.1	
8-	9	. 13	0521	.4860		0190	13.2	38.4	.2.5	•
-	-	5	+.6587	.2590	+.3997	+ .06 82	11	20.5	. 9.0	
		A B	+,7567	.2740	+ 4827	+.0535	13.1	21.5	.70	
9.	-10		0711	.5440	+.4729	+.1174	13.2	43.0	1.55	
		4	+.7269	.2942	+.4329	+.0076	4	23.2	0.10	-
	-	A	+.8102	.1693	+,6409		13.1	13.3		-
10	-R	B	4.0463	.4610	+ 5073		13.2	36.4		-
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		1, *!	+112.2		+ 216-2		- 235-2		
			0 1 2 10	+ 160.2 + 55.5	0124			00000	
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	10	- 61.5 + 35.2 - 780	+184.0 - 84.5	31.9	-299.0 +205.4			+214.0 -299.0	
		1-1+1 D-WY	+45.2	+31.9 +36.8 +37.0	-144.9		+24,6 -23,6 +15,2 +33,0	+207.6	
			+144.7	+160.6	-238.5		-730.5	+172.6	
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		1 1 7 1	+ 42.6 + 135.7	2 4 1 1	-/34.1		4 140	+ 193.9 + 176.7	
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				+ 49.8 - 88.7	0 5 2 3 2 3 0		-134.4 +1861 -2800	+39.0 +13.7 +3.7 +3.7 +30.5	
	8	0000	1411	+196.0	44 64		-2800	and the second se	
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Wind Moments-Corrected Secondary Moments- 39 Ratio of Corrected Wind Mom to Wind Mom 70

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4		+28/1 - +1898 - +1698 - +1683 - 28 + + + + + + + + + + + + + + + + + +	-2714 +125 -055 -055 -055 -055 -055 -055 -051 -3141 +103 -07 -105 -07 -07 -07 -07 -07 -07 -07 -07 -07 -05 -05 -05 -05 -05 -05 -05 -05 -05 -05	$ \frac{1867}{100} + 4 + \frac{100}{100} + \frac{100}{1$	-2499-2	$\frac{1}{2} = \frac{1}{2} = \frac{1}$	
4	011021031 1730031 +1625 +1611 +1323 +	12891- 140-	-2714 +125 -051 -051 -051 -3141 +1031 -021 +1031 -021 +1031 -021 +021 +021 +021 +021 +021 +021 +021 +	$ \frac{1867}{100} + 4 + \frac{100}{100} + \frac{100}{1$	-24997 -1092+2424 -2897 -2897 -2897 -2897 -2897 -2897 -105 -2897 -105 -2897 -105 -270 -2897 -105 -270 -200 -2405 -200 -2405 -200 -2405 -200 -2405 -200 -2405 -200 -2405 -200 -2405 -200 -200 -200 -200 -200 -200 -200 -2	$\frac{1}{2} = \frac{1}{2} = \frac{1}$	

(281) (+227) (+146) +360(+379 (720g) (-275) Th -76.3 Ronf -.00058 -163 +360 - 146) (+2+) .00082" (52+) 00037 Deformations due to Wind Toads. Col. .000 44 2.00048 (-112) (+195) -125 +191 (-735) (+220) (-245) -125 +191 -307 Rouf (- 82.6) .00029" + 73.57 (52+) Defórmations due to secondary Moments Col. 1-00039 (+39.7) (+161) (+148) -137 +257 +67.5 Roof . (+67) (-136) (-39.7) +675 -137 37) (69+ .00015 00031 Col Defor mations Due to 1st Correction to Secondary moments. Without brackets are fixed and moments. Moments Moments in brackets are distributed fixend moms 00002 00008" +33.5 1.00015 h -9.2 -99.4 - 9.2 +33.5 2 40 Tor to secondaries Col Ref due to Aug