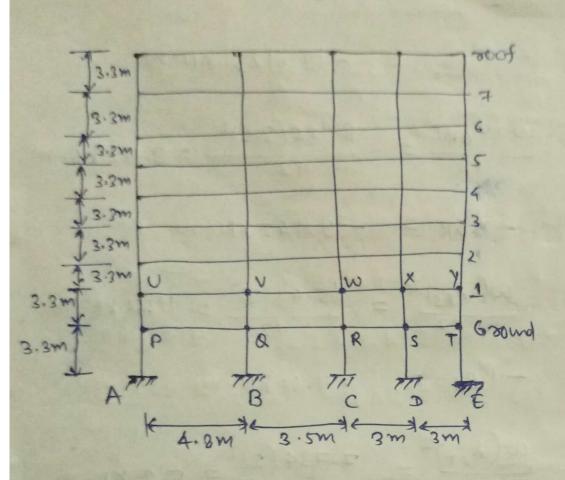
(d) calculation of Member end moments for load combination.
1.5 (PL+ LL) along gridline 4.



## for Ground Floor:

Proportion of the proportion

fixed end moments:  $MpQ = \omega (lpQ)^2 - 10.215x(4.8)^2 - 19.6128 kN-m$ Map = - Mpa = -19.6/28 kn-m.  $M_{QR} = \frac{\omega (l_{QR})^2}{12} = \frac{8.955(3.5)^2}{12} = 9.142 \text{ kN-m}$ MRQ = - Mar = - 9.142 kN-m  $M_{RS} = \frac{\omega(28)^2}{12} = \frac{15.48(3)^2}{12} = 11.61 \text{ kN-m}$  $M_{SR} = -M_{R-S} = -11.61 \text{ kN-m}$  $M_{ST} = \frac{\omega(l_{ST})^2}{12} = \frac{7.734(2)^2}{12} = 5.8 \text{ kN-m}$ MTS = - MST = - 5.8 KN-m

$$M_{PU} = M_{AV} = M_{RW} = M_{SX} = M_{TY} = 0$$
 $M_{PA} = M_{AB} = M_{RC} = M_{SD} = M_{TE} = 0$ 

Toint	member	K	Σk	D. F.
0	PU	4EI/3.37		0.37
P		· 4ET/4.8	3.257EI	0.26
	PQ	4EI/3.3		0.37
	PA	13.3		00
		E THE THE F	1 10 2 7	
Q	QV	4 EI/3,3		0.28
	QR	4EI/3.5	4,4EI	0.26
	QB	4 = 1/3.3		0.28
WARN TO E	QP	4 E I/4.8		0.19
4,422 KI M	+ Marie	W = 1.5(2.15)	1 00 1	
R	RW	4 E \$\frac{1}{3.3}		0.25
	RS	4 EI/3	word like	0.27
MANAGE ET -	RC	4 ET/3.3	4.9EI	0.25
	RQ	4 E I/3.5 ]		0.23
	Sx	4 EI/3.3		0.24
S	ST	4 EJ/3	5.09EI	0.26
	SD	4 E I/3.3		0.24
	SR	4 Et/3		0.26
-	TY	4FI/3.3 7		0.32
BRIGHT MEST	TE	4E \$ /3.3 >	3.424.2	0.32
	<b>T</b> s	4 = 1/3		0.35

	Torted 6. 685 - 3.96	Balonce	. C.O.	· Balance	C.0.	Balance	C.O.	VBalance-2.66-3.78-3.78.203	194·	19.P.	Member Pa PU PA	Joint	Manual Control of the last of
1	2000	e 0.11	-0.2	E -0.28			-1.69	10e-2.	F.E.M. 10.215	. 0.26	D Year	4	
+	55			28	85.0	3	La	- 39	Un		0		
	3.96	0.15	0:14	0.41	0.4	0.81 1.15	1.33	3.78	1	TE: 0	PU	0	
	-2:43	0.1	- 0.	-0.4	0.125	-5	1015	3.78	1	6.37	PA		
	3-10	±0.0 21.0 21.0	0-40	1-0-1	5 0.4		11:3	.203	-/0.215	0.19	ap		
	-10.9 0.8	1.0 T	-0.14 -0.07-0-14 -0.1 -0.1	-0.41-0.41 -0.14-0.2	4 0.18	0.25 0.37 0.34 -0.06 -0.07	-1.33 .   015   -1.33 . 15 . 15	30	1	0.37 0.37 0.19 0.28	QU	0	
	0.8	1 0.1	-0	2 -0		7 0.3	. 5	. 30	1	0.28			
	8	60.00		-0.2 -0.19 0.04 0.04	0.18 -0.03 0.17 -0.04	70:3		. 29	9.142	0.26	ab ar		
	9.38	0-0	0.02-0.09	9 0.0	0, 1	4-0.	-0.28 . 145 - 0.31	0.56	-9.142	0.23	Ra		
	-9.52 -0.99 -0.99 11.49	-0.02 -0.02		4 0.1	100-	0- 0-	0.	-0.567 - 0.617	2	0.25	RW	2	
	99-	.02				40		Name and Address of the Owner, where the Party of the Owner, where the Owner, which the Own	1				
	0.99	-0.02	0.02	0.04	0.04	to. 0-	-0.31	419.0		0.25	RC		
	11.4	-0.02	0	0.05	-0.2	-0.08	0.75	-0.67	11.61	0.27	20 5		
	9 -10	2-0.12	0.02 0.12 0.02	5 0.25	-0.04 -0.27 -0.04 -0.24	-0.5	5-0.3	-0.617 -0.67 [.5] [.39 [.39 [.5]	11.61	0.26	SR		
	-10.87   . 61			5 0.24	04-0.	4-0.	4 0:69	1.3		0.26 0.24 0.24 0.26	XX		
	6)	00	0.12	24 0	24 -(	49-0	0.0	9 1:	1	40.2	CD	5	
	[6]	-0:	0.12	0.24	1.24	-69-	95 1.	391.		40.:	72		
	1.61	10.12	0.19	0.25	-0.24 -0.46	0.54	0 5	5	5.8	26/0			
	53	-0.1	0.12	0.39	-0.27	-0.0	24.0	2.03	-5.8	0.35	75		
	-3.86 1.92	-0.11 -0.11 -0.12 -0.17 -0.15			-	-0.08 -0.54 -0.49 -0.49 -0.54 -0.92 -0.84	0.755-0.34 0:695 0.695 1.015 0.755 0.93	1.86		0.32	+ 4	1	-
	92	5	0.18	0.36	-0.42	The second second					~	+	-
	1.92	-0.15	0.18	0.36	-0.42	-0.8	0.93	1.86	1	0.32	+		
	2	100	00	6	42	84	2	9		2	u		

UDL on RS = 
$$1.5(3.06 + 1.6) = 6.99 kN/m$$
  
UDL on ST =  $1.5(2.5 + 1.3) = 5.7 kN/m$   
UDL on TU =  $1.5(2.5 + 1.3) = 9.855 kN/m$   
UDL on UV =  $1.5(2.156 + 1.125) = 4.922 kN/m$ 

## fixed end moments:

$$M_{RS} = \frac{W.(l_{RD})^2}{12} = \frac{6.99(4.8)^2}{12} = 13.421 \text{ kN-m}$$

$$M_{SR} = -M_{RS} = -13.421 \text{ kN-m}$$

$$M_{ST} = \frac{W.(l_{ST})^2}{12} = \frac{5.7(3.5)^2}{12} = 5.819 \text{ kN-m}$$

$$M_{TS} = -M_{ST} = -5.819 \text{ kN-m}$$

$$M_{TU} = \frac{W(l_{TD})^2}{12} = \frac{9.855(3)^2}{12} = 7.391 \text{ kN-m}$$

$$M_{UT} = -M_{TU} = .-7.391 \text{ kN-m}$$

$$M_{UV} = \frac{W(k_{UV})^2}{12} = \frac{4.922(3)^2}{12} = 3.692 \text{ kN-m}$$

$$M_{UU} = -M_{UV} = -3.692 \text{ kN-m}$$

$$M_{RM} = M_{SN} = M_{TO} = M_{UP} = M_{VQ} = 0$$

$$Toints \qquad Members \qquad k \qquad \Sigma k \qquad D.f.$$

$$R \qquad RS \qquad 4EI/4.8 \qquad Q.41$$

$$RM \qquad 4EI/2.2 \qquad Q.59$$

$$S \qquad ST \qquad 4EI/3.5 \qquad Q.36$$

$$SN \qquad 4EI/3.3 \qquad Q.36$$

$$SR \qquad 4EI/4.8 \qquad Q.36$$

$$Q.36 \qquad Q.36$$

	Mar No.		
R	RS	4 EI/4.8 2 2015ET	0.41
	RM	4 EI/3.3 2.045EI	0.59
S	ST	4 EI/3.5 7	0.36
3	SN	4EI/3.3 3.188EI	0.38
	SR	4 EI/4.8	0.26
T. C. Talain	TU	4EI/3 7 3.688EI	0.36
	T0 TS	461/3.3	0.33
		4EI/3.5 )	0.31
U	UP	4EI/3 7 3.848EI	0.34
ldz ut swe .	UT	461/3	0.34
V	VQ	4 EI/3.3 7 2.545EI	0.48
AND PARK	VU	4 E I /3 ]	0.52

	Total Moment -2.95 (KN-M)	Balance	C.0.	Balance	C.O.	Balance	f.e.m.	0.F.	Members	Joints
	-2.95	1	-0.2	1	-2.75	1	1	21	32	3
	7.45	-0.06	TI	-0.41	100	5:5-	13.421	0.41	25	
	-7.45	-0.08	0.14	1-0.5	0.99	-7.92	1	0.50	R3	R
	-7.45-15.44 4.86	-0.08 -0.04 -0.05	0.14 -0.29 0.22	-0.58 0.29 0.41	0.99 -3.96 1.44 1.37 -0.26	1.98	-13.421 5.819	0.59 0.26 0.36 0.38	SR	
	4.86	THE REAL PROPERTY AND ADDRESS OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN	0.22	0.41	7.44	2,74	5.819	0.36 0	15	0
	4.86	-0.05	0.21	0.44 0.08	1.37-0	2.89-0	1		SN TO	
35 m (51)	6-0.59-6.409	0.09	0.04 0	0.08 0.08	.26 - 0.26	2.74 2.89-0.52-0.53	-5.819	0.33-0.31	TS	1
	6.409 6.	0.00 0.1	0.04 -0.36	8 0.09	26 0.26	3 -0.56	3 7.391 -7391	0.36	10	
	6.921 -6.		10000		W. P. 19 3	6 1.25 1.15	-7.391	0.34 0	UTC	C
_	-6.04 0.94 5.06	0.22 0.20 0.22	0.04 -0.36 -0.33 -0.14	-0.73-0.67-0.73-0.32-0.29	0.57 0.62 0.96 0.62	_	3.6	0.31 0.3	UP UV	
		.220.	0.33 -0.1	73-0.3	960.62	1.25 1.92	3.692-3.60	0.34 0.52	3	~
400	1.88	0.010.06	7	2 -0.29		1,1	19	0.48	000	0
-	1.540.74	1	-0.19	1 4	0.88	1	1	1	ON PU	0
	-			-				1	07	0
1			-	1	-	1		1	SS	2

## Comparison for Ground Plant:

Member   Element	Beam	Excel sheet	Moment distribution method
101	pa	8.4285	6.685
100	QR	10.6194	9.38
78	RS	13.8671	11.49
75	ST	13.22.39	7.64

## Composison for Roof:

Member   Element .M.	Beam	Excel sheet	Moment olistsi butten metho
373	RS	8.547	7.457
372	ST	6.0092	4.86
350	TU	-7.3731	6.921
344	UV	8.9133	5.06

The difference in values can be due to :software precision of SAP 2000. Also there can
be errors in manual calculation.