LAMPIRAN 4.01 Pengecekan Eksentrisitas Dan Drift Gedung 5 Lantai

1. Eksentrisitas

   Persamaan yang digunakan:

   - Untuk $0 < e \leq 0{,}3b$:

     ed = 1,5e + 0,05b

     atau:

     ed = e – 0,05b

     dipilih diantara keduanya yang pengaruhnya paling menentukan untuk unsur atau subsistem struktur gedung yang ditinjau, dengan b adalah ukuran horizontal terbesar denah struktur gedung tingkat itu, diukur tegak lurus pada arah pembebanan gempa.

   - Untuk $e > 0{,}3b$

     ed = 1,33e + 0,1b

     atau:

     ed = 1,17e – 0,1b

     Berikut adalah hasil pengecekan eksentrisitas bangunan gedung:

Story	Diaphragm	MassX	MassY	XCM	YCM	CumMassX	CumMassY	XCCM	YCCM	XCR	YCR
STORY5	D1	108538,2	108538,2	24	18	108538,245	108538,25	24	18	24	18
STORY4	D1	123376,7	123376,7	24	18	231914,91	231914,91	24	18	24	18
STORY3	D1	125943,6	125943,6	24	18	357858,547	357858,55	24	18	24	18
STORY2	D1	128914,9	128914,9	24	18	486773,403	486773,4	24	18	24	18
STORY1	D1	131693,1	131693,1	24	18	618466,542	618466,54	24	18	24	18

ex	b	edx	x	ratioex	ey	b	edy	y	ratioey
0	36	1,8	25,8	5,00%	0	48	2,4	20	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20	5,00%

2. Drift

   Simpangan (drift) antar tingkat dari suatu bangunan harus memenuhi persyaratan kinerja layan dan kinerja ultimit yang tercantum dalam “Tata Cara Perencanaan Ketahanan Gempa Untuk Bangunan Gedung”. Persyaratan kinerja batas layan struktur gedung tidak boleh melampaui 0,03/R kali tinggi

tingkat yang bersangkutan. Sementara persyaratan kinerja batas ultimit tidak boleh melampaui 0,02 kali tinggi tingkat yang bersangkutan.

PENGECEKAN DRIFT ARAH X

STORY	DRIFT	KINERJA LAYAN	KINERJA ULTIMIT	SYARAT (0,02 h)	keterangan
5FL	0,001126	0,01235	0,00670	0,07000	OK
4FL	0,001974	0,01235	0,01175	0,07000	OK
3FL	0,002292	0,01235	0,01364	0,07000	OK
2FL	0,002508	0,01235	0,01492	0,07000	OK
1FL	0,001748	0,01588	0,01040	0,09000	OK

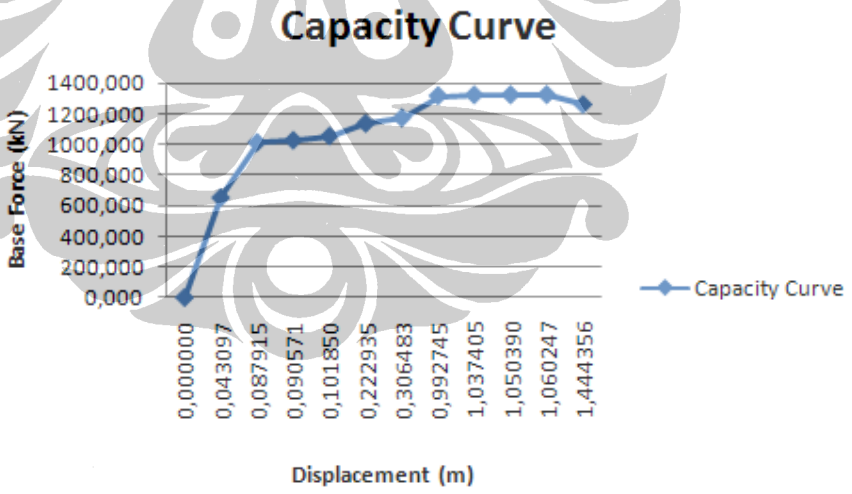
PENGECEKAN DRIFT ARAH Y

STORY	DRIFT	KINERJA LAYAN	KINERJA ULTIMIT	SYARAT (0,02 h)	keterangan
5FL	0,001217	0,01235	0,00724	0,07000	OK
4FL	0,002123	0,01235	0,01263	0,07000	OK
3FL	0,002469	0,01235	0,01469	0,07000	OK
2FL	0,002693	0,01235	0,01602	0,07000	OK
1FL	0,001864	0,01588	0,01109	0,09000	OK

LAMPIRAN 4.02 Tabel Push-Over Untuk Model Struktur Dengan Join Voute Interior Pada Gedung 5 Lantai

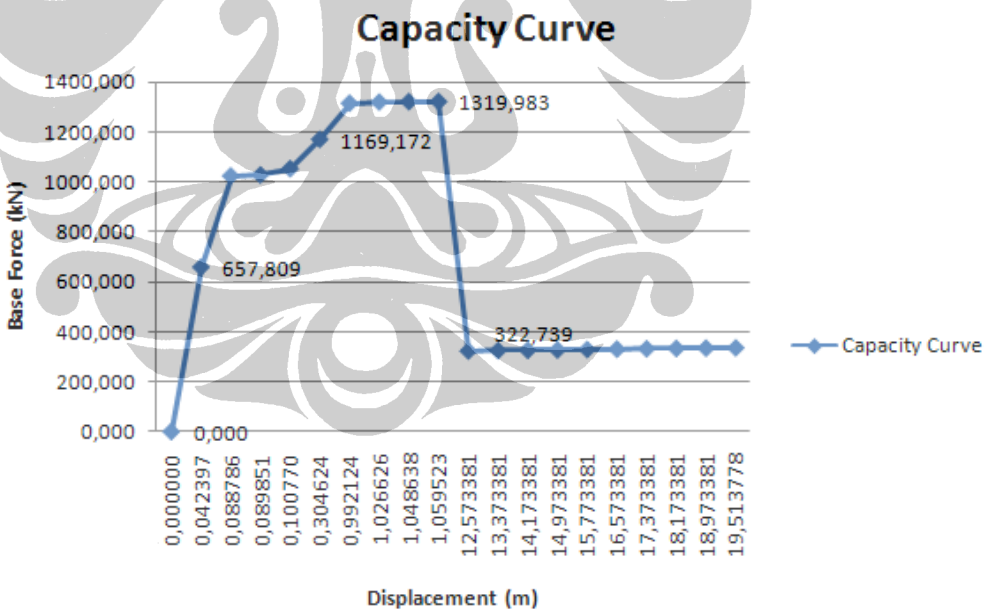
A. TIPE VOUTE 1

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	330	0	0	0	0	0	0	0	330
1	0,043097	650,282	329	1	0	0	0	0	0	0	330
2	0,087915	1009,730	300	18	12	0	0	0	0	0	330
3	0,090571	1023,869	293	24	13	0	0	0	0	0	330
4	0,101850	1051,452	285	26	19	0	0	0	0	0	330
5	0,222935	1133,729	268	21	18	8	15	0	0	0	330
6	0,306483	1169,997	262	25	8	12	23	0	0	0	330
7	0,992745	1313,938	256	12	2	0	48	12	0	0	330
8	1,037405	1319,775	256	12	1	1	37	23	0	0	330
9	1,050390	1320,598	256	12	1	1	33	27	0	0	330
10	1,060247	1320,879	256	12	1	1	27	33	0	0	330
11	1,444356	1256,195	256	12	0	1	1	60	0	0	330
cannot find solution at step 12, dikarenakan terjadinya pembentukan sendi plastis pada join voute lantai 4											



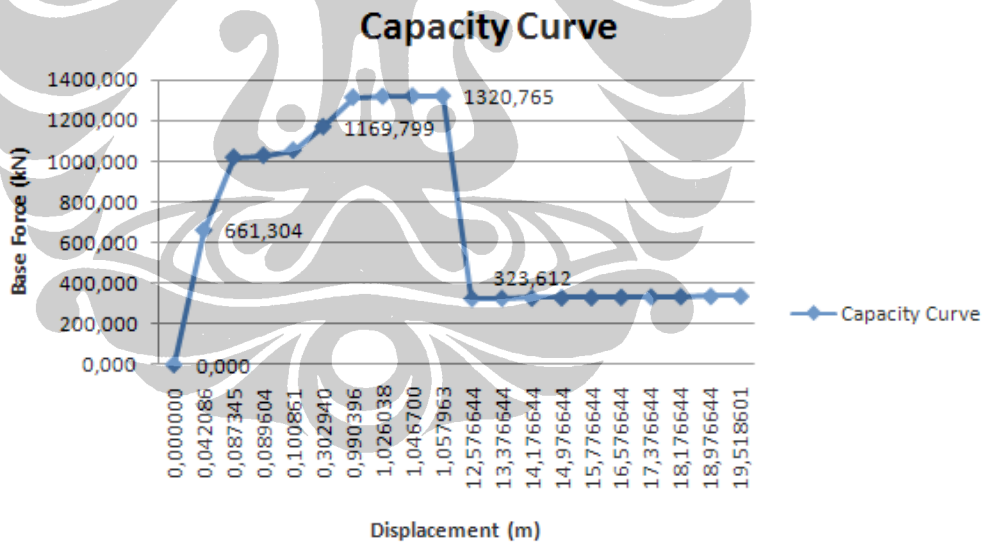
B. TIPE VOUTE 2

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	330	0	0	0	0	0	0	0	330
1	0,042397	657,809	329	1	0	0	0	0	0	0	330
2	0,088786	1022,901	292	25	13	0	0	0	0	0	330
3	0,089851	1026,830	289	28	13	0	0	0	0	0	330
4	0,100770	1051,875	282	30	18	0	0	0	0	0	330
5	0,304624	1169,172	264	23	7	13	23	0	0	0	330
6	0,992124	1313,453	258	12	0	0	48	12	0	0	330
7	1,026626	1318,075	258	12	0	0	41	19	0	0	330
8	1,048638	1319,667	258	12	0	0	33	27	0	0	330
9	1,059523	1319,983	258	12	0	0	27	33	0	0	330
10	12,573381	322,739	258	12	0	0	0	0	0	60	330
11	13,373381	324,163	258	12	0	0	0	0	0	60	330
12	14,173381	325,587	258	12	0	0	0	0	0	60	330
13	14,973381	327,011	258	12	0	0	0	0	0	60	330
14	15,773381	328,435	258	12	0	0	0	0	0	60	330
15	16,573381	329,859	258	12	0	0	0	0	0	60	330
16	17,373381	331,283	258	12	0	0	0	0	0	60	330
17	18,173381	332,707	258	12	0	0	0	0	0	60	330
18	18,973381	334,131	258	12	0	0	0	0	0	60	330
19	19,513778	335,093	258	12	0	0	0	0	0	60	330



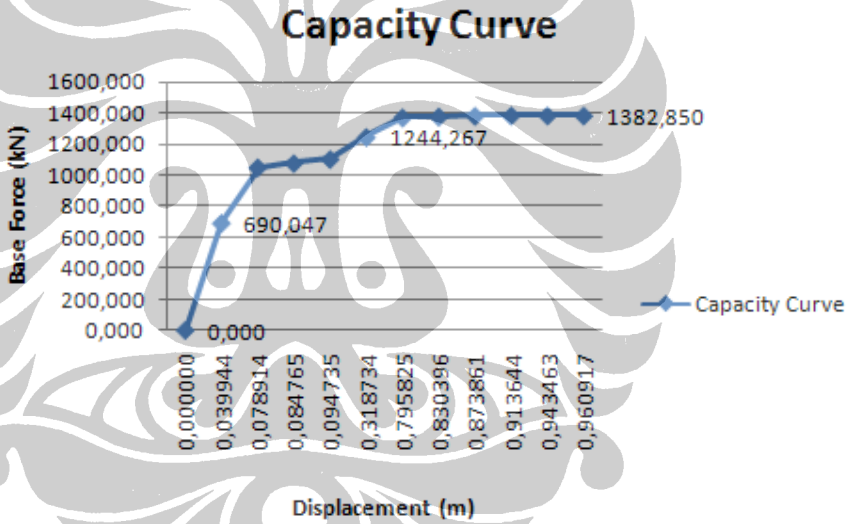
C. TIPE VOUTE 3

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	330	0	0	0	0	0	0	0	330
1	0,042086	661,304	329	1	0	0	0	0	0	0	330
2	0,087345	1018,962	294	24	12	0	0	0	0	0	330
3	0,089604	1028,798	289	28	13	0	0	0	0	0	330
4	0,100861	1053,663	282	30	18	0	0	0	0	0	330
5	0,302940	1169,799	264	23	7	13	23	0	0	0	330
6	0,990396	1314,166	258	12	0	0	48	12	0	0	330
7	1,026038	1318,946	258	12	0	0	41	19	0	0	330
8	1,046700	1320,438	258	12	0	0	33	27	0	0	330
9	1,057963	1320,765	258	12	0	0	27	33	0	0	330
10	12,576644	323,612	258	12	0	0	0	0	0	60	330
11	13,376644	325,036	258	12	0	0	0	0	0	60	330
12	14,176644	326,460	258	12	0	0	0	0	0	60	330
13	14,976644	327,884	258	12	0	0	0	0	0	60	330
14	15,776644	329,308	258	12	0	0	0	0	0	60	330
15	16,576644	330,732	258	12	0	0	0	0	0	60	330
16	17,376644	332,156	258	12	0	0	0	0	0	60	330
17	18,176644	333,580	258	12	0	0	0	0	0	60	330
18	18,976644	335,004	258	12	0	0	0	0	0	60	330
19	19,518601	335,969	258	12	0	0	0	0	0	60	330



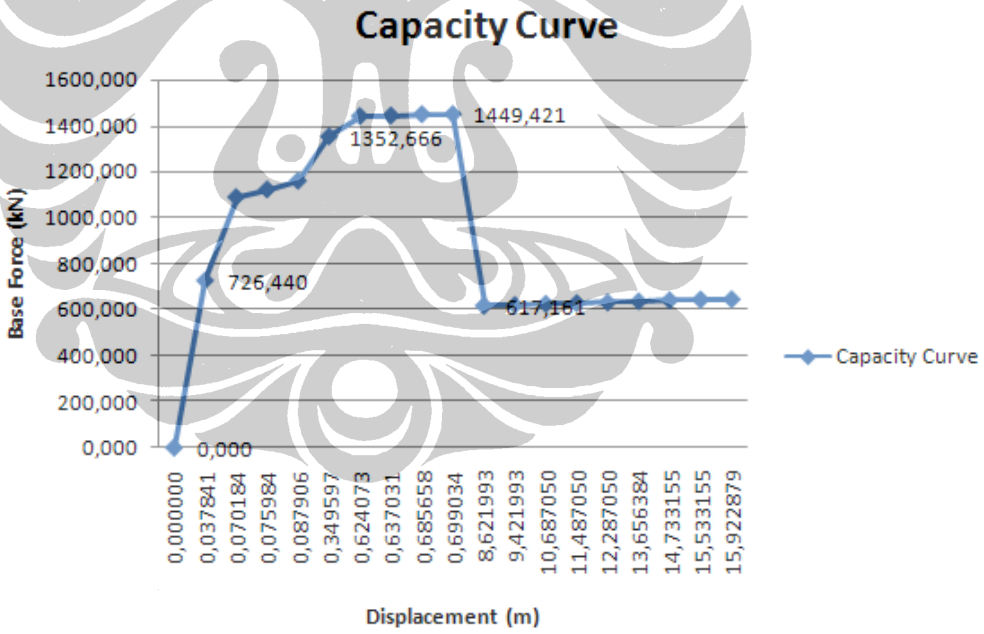
D. TIPE VOUTE 4

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	330	0	0	0	0	0	0	0	330
1	0,039944	690,047	329	1	0	0	0	0	0	0	330
2	0,078914	1048,376	296	24	10	0	0	0	0	0	330
3	0,084765	1075,743	290	27	13	0	0	0	0	0	330
4	0,094735	1101,763	283	30	17	0	0	0	0	0	330
5	0,318734	1244,267	264	17	8	11	30	0	0	0	330
6	0,795825	1369,945	253	17	0	0	52	8	0	0	330
7	0,830396	1375,906	253	17	0	0	48	12	0	0	330
8	0,873861	1380,687	253	17	0	0	44	16	0	0	330
9	0,913644	1382,553	253	17	0	0	38	22	0	0	330
10	0,943463	1382,943	252	18	0	0	37	23	0	0	330
11	0,960917	1382,850	251	19	0	0	35	25	0	0	330
cannot find solution at step 12											



E. TIPE VOUTE 5

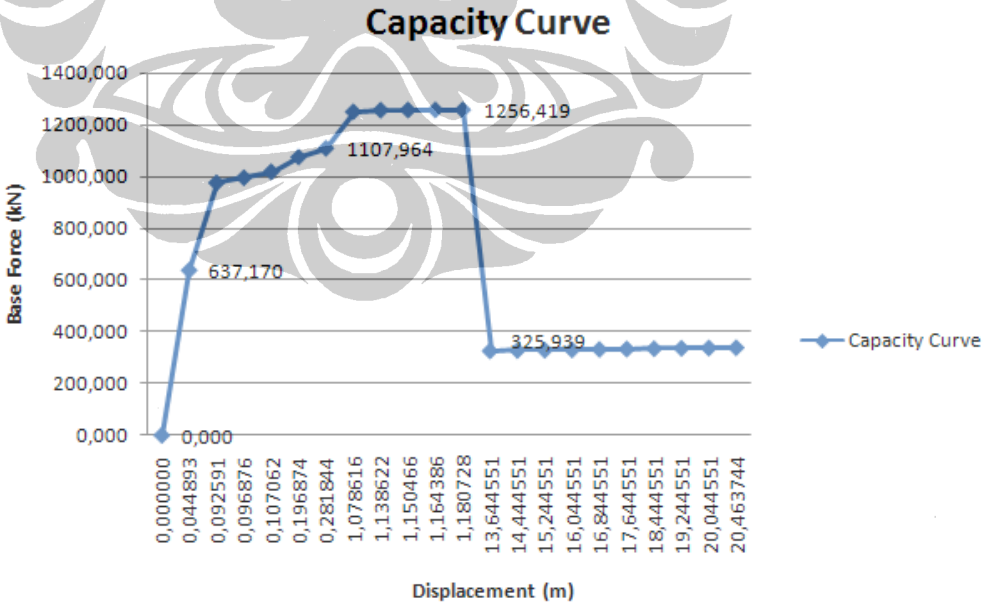
TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	330	0	0	0	0	0	0	0	330
1	0,037841	726,440	329	1	0	0	0	0	0	0	330
2	0,070184	1088,869	298	24	8	0	0	0	0	0	330
3	0,075984	1122,364	291	29	10	0	0	0	0	0	330
4	0,087906	1159,968	287	30	13	0	0	0	0	0	330
5	0,349597	1352,666	265	15	7	6	37	0	0	0	330
6	0,624073	1440,688	253	17	0	2	50	8	0	0	330
7	0,637031	1443,408	253	17	0	1	47	12	0	0	330
8	0,685658	1449,124	248	22	0	0	44	16	0	0	330
9	0,699034	1449,421	247	23	0	0	44	16	0	0	330
10	8,621993	617,161	242	28	0	0	24	0	0	36	330
11	9,421993	620,204	242	28	0	0	24	0	0	36	330
12	10,687050	625,044	242	28	0	0	24	0	0	36	330
13	11,487050	628,062	242	28	0	0	24	0	0	36	330
14	12,287050	631,100	242	28	0	0	24	0	0	36	330
15	13,656384	636,338	242	28	0	0	24	0	0	36	330
16	14,733155	640,467	242	28	0	0	24	0	0	36	330
17	15,533155	643,509	242	28	0	0	24	0	0	36	330
18	15,922879	644,989	242	28	0	0	24	0	0	36	330



LAMPIRAN 4.03 Tabel Push-Over Untuk Model Struktur Dengan Join Voute Eksterior Pada Gedung 5 Lantai

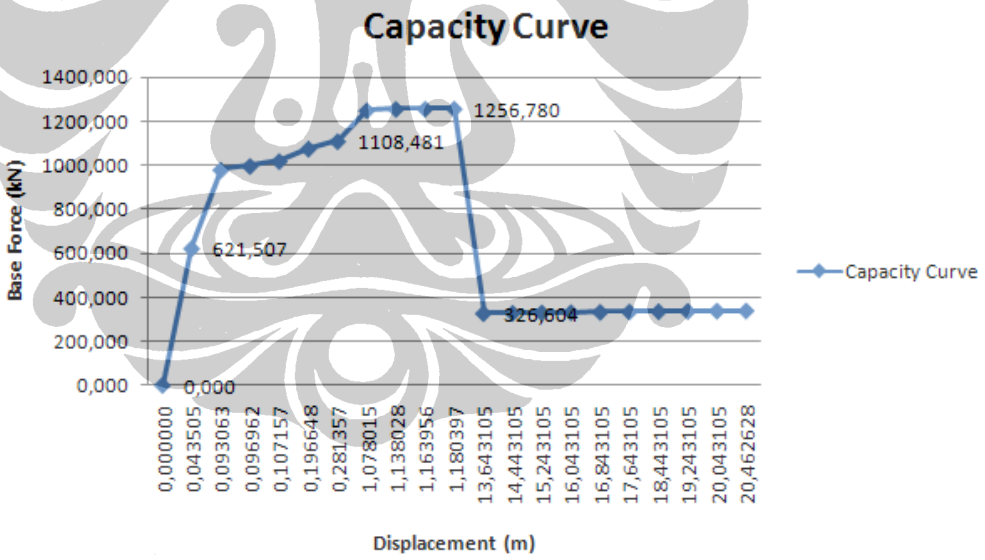
A. TIPE VOUTE 1

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	170	0	0	0	0	0	0	0	170
1	0,044893	637,170	167	3	0	0	0	0	0	0	170
2	0,092591	974,760	138	18	14	0	0	0	0	0	170
3	0,096876	994,500	132	19	19	0	0	0	0	0	170
4	0,107062	1017,076	125	25	20	0	0	0	0	0	170
5	0,196874	1074,319	109	25	12	12	12	0	0	0	170
6	0,281844	1107,964	103	23	12	8	24	0	0	0	170
7	1,078616	1249,082	103	7	0	0	46	14	0	0	170
8	1,138622	1255,295	103	7	0	0	37	23	0	0	170
9	1,150466	1255,867	103	7	0	0	34	26	0	0	170
10	1,164386	1256,244	103	7	0	0	30	30	0	0	170
11	1,180728	1256,419	103	7	0	0	25	35	0	0	170
12	13,644551	325,939	103	7	0	0	0	0	0	60	170
13	14,444551	327,363	103	7	0	0	0	0	0	60	170
14	15,244551	328,787	103	7	0	0	0	0	0	60	170
15	16,044551	330,210	103	7	0	0	0	0	0	60	170
16	16,844551	331,634	103	7	0	0	0	0	0	60	170
17	17,644551	333,058	103	7	0	0	0	0	0	60	170
18	18,444551	334,482	103	7	0	0	0	0	0	60	170
19	19,244551	335,906	103	7	0	0	0	0	0	60	170
20	20,044551	337,329	103	7	0	0	0	0	0	60	170
21	20,463744	338,076	103	7	0	0	0	0	0	60	170



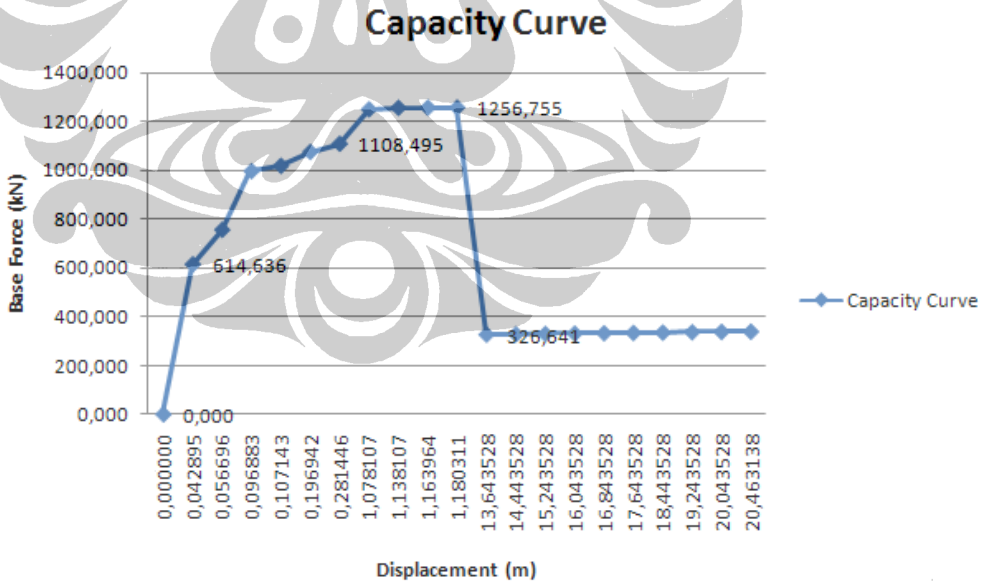
B. TIPE VOUTE 2

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	170	0	0	0	0	0	0	0	170
1	0,043505	621,507	168	2	0	0	0	0	0	0	170
2	0,093063	978,784	137	19	14	0	0	0	0	0	170
3	0,096962	996,250	132	19	19	0	0	0	0	0	170
4	0,107157	1018,210	125	25	20	0	0	0	0	0	170
5	0,196648	1075,014	109	25	12	12	12	0	0	0	170
6	0,281357	1108,481	103	23	13	7	24	0	0	0	170
7	1,078015	1249,497	103	7	0	0	46	14	0	0	170
8	1,138028	1255,718	103	7	0	0	36	24	0	0	170
9	1,163956	1256,602	103	7	0	0	30	30	0	0	170
10	1,180397	1256,780	103	7	0	0	24	36	0	0	170
11	13,643105	326,604	103	7	0	0	0	0	0	60	170
12	14,443105	328,028	103	7	0	0	0	0	0	60	170
13	15,243105	329,451	103	7	0	0	0	0	0	60	170
14	16,043105	330,875	103	7	0	0	0	0	0	60	170
15	16,843105	332,299	103	7	0	0	0	0	0	60	170
16	17,643105	333,723	103	7	0	0	0	0	0	60	170
17	18,443105	335,146	103	7	0	0	0	0	0	60	170
18	19,243105	336,570	103	7	0	0	0	0	0	60	170
19	20,043105	337,994	103	7	0	0	0	0	0	60	170
20	20,462628	338,741	103	7	0	0	0	0	0	60	170



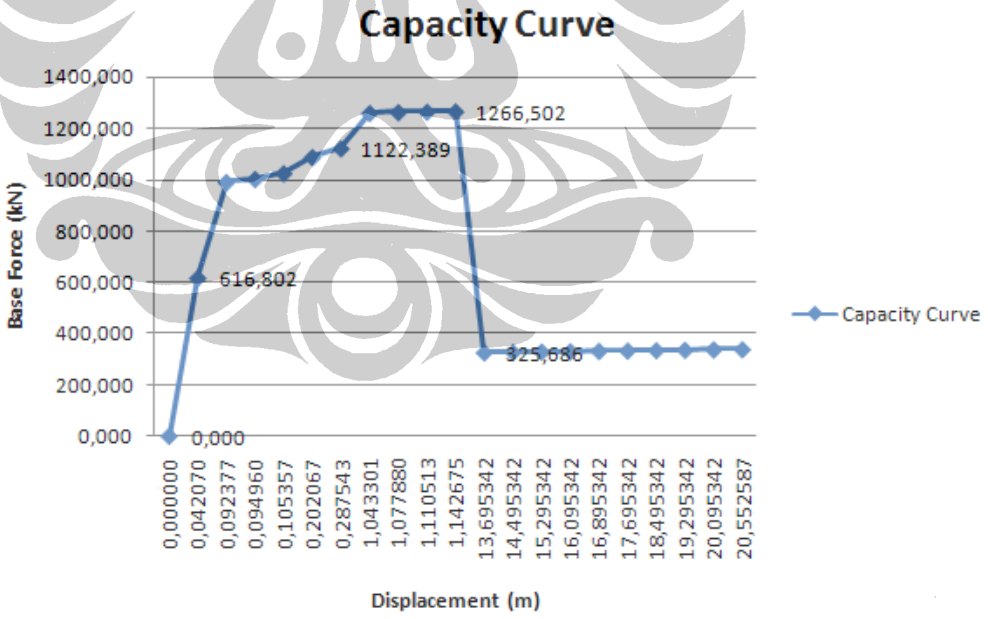
C. TIPE VOUTE 3

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	170	0	0	0	0	0	0	0	170
1	0,042895	614,636	168	2	0	0	0	0	0	0	170
2	0,056696	755,926	150	20	0	0	0	0	0	0	170
3	0,096883	996,392	131	20	19	0	0	0	0	0	170
4	0,107143	1018,274	125	25	20	0	0	0	0	0	170
5	0,196942	1075,165	109	25	12	12	12	0	0	0	170
6	0,281446	1108,495	103	23	13	7	24	0	0	0	170
7	1,078107	1249,483	103	7	0	0	46	14	0	0	170
8	1,138107	1255,698	103	7	0	0	36	24	0	0	170
9	1,163964	1256,579	103	7	0	0	30	30	0	0	170
10	1,180311	1256,755	103	7	0	0	24	36	0	0	170
11	13,643528	326,641	103	7	0	0	0	0	0	60	170
12	14,443528	328,065	103	7	0	0	0	0	0	60	170
13	15,243528	329,489	103	7	0	0	0	0	0	60	170
14	16,043528	330,912	103	7	0	0	0	0	0	60	170
15	16,843528	332,336	103	7	0	0	0	0	0	60	170
16	17,643528	333,760	103	7	0	0	0	0	0	60	170
17	18,443528	335,184	103	7	0	0	0	0	0	60	170
18	19,243528	336,608	103	7	0	0	0	0	0	60	170
19	20,043528	338,031	103	7	0	0	0	0	0	60	170
20	20,463138	338,778	103	7	0	0	0	0	0	60	170



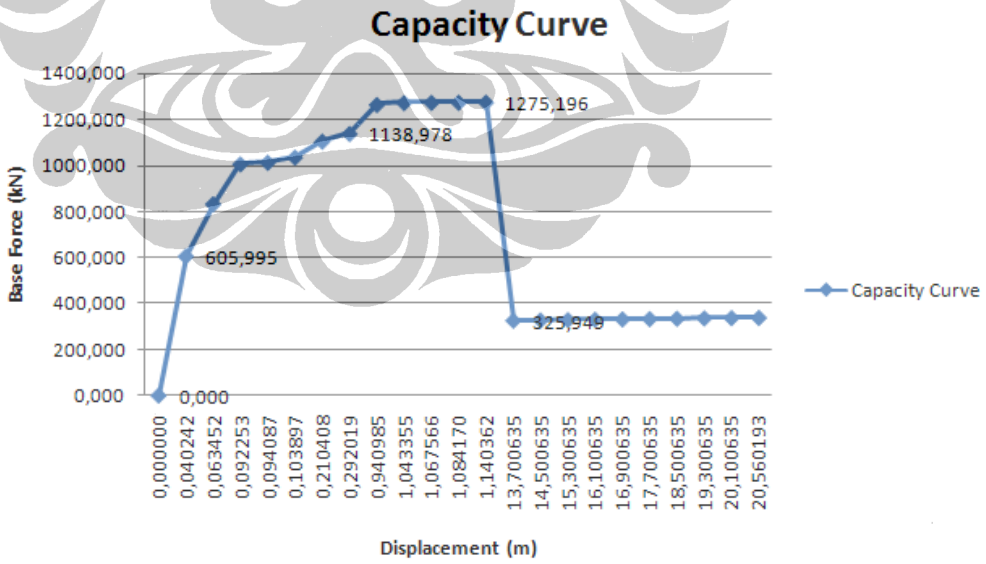
D. TIPE VOUTE 4

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	170	0	0	0	0	0	0	0	170
1	0,042070	616,802	166	4	0	0	0	0	0	0	170
2	0,092377	991,279	136	19	15	0	0	0	0	0	170
3	0,094960	1002,486	131	24	15	0	0	0	0	0	170
4	0,105357	1025,393	125	25	20	0	0	0	0	0	170
5	0,202067	1088,011	109	24	13	12	12	0	0	0	170
6	0,287543	1122,389	103	22	13	8	24	0	0	0	170
7	1,043301	1260,141	103	7	0	0	48	12	0	0	170
8	1,077880	1263,512	103	7	0	0	40	20	0	0	170
9	1,110513	1265,319	103	7	0	0	38	22	0	0	170
10	1,142675	1266,502	103	7	0	0	29	31	0	0	170
11	13,695342	325,686	103	7	0	0	0	0	0	60	170
12	14,495342	327,110	103	7	0	0	0	0	0	60	170
13	15,295342	328,534	103	7	0	0	0	0	0	60	170
14	16,095342	329,958	103	7	0	0	0	0	0	60	170
15	16,895342	331,382	103	7	0	0	0	0	0	60	170
16	17,695342	332,806	103	7	0	0	0	0	0	60	170
17	18,495342	334,230	103	7	0	0	0	0	0	60	170
18	19,295342	335,654	103	7	0	0	0	0	0	60	170
19	20,095342	337,077	103	7	0	0	0	0	0	60	170
20	20,552587	337,891	103	7	0	0	0	0	0	60	170



E. TIPE VOUTE 5

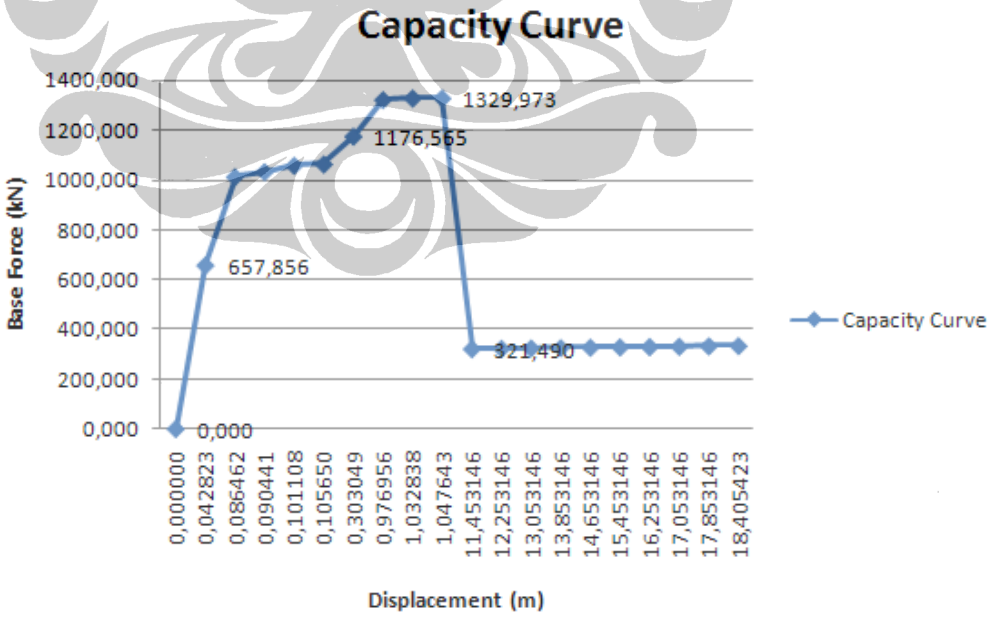
TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	170	0	0	0	0	0	0	0	170
1	0,040242	605,995	168	2	0	0	0	0	0	0	170
2	0,063452	832,572	146	24	0	0	0	0	0	0	170
3	0,092253	1006,151	134	21	15	0	0	0	0	0	170
4	0,094087	1013,448	131	24	15	0	0	0	0	0	170
5	0,103897	1035,711	125	25	20	0	0	0	0	0	170
6	0,210408	1105,387	109	23	14	10	14	0	0	0	170
7	0,292019	1138,978	103	21	9	13	24	0	0	0	170
8	0,940985	1265,170	103	7	0	0	48	12	0	0	170
9	1,043355	1273,360	103	7	0	0	42	18	0	0	170
10	1,067566	1274,386	103	7	0	0	40	20	0	0	170
11	1,084170	1274,837	103	7	0	0	36	24	0	0	170
12	1,140362	1275,196	103	7	0	0	28	32	0	0	170
13	13,700635	325,949	103	7	0	0	0	0	0	60	170
14	14,500635	327,373	103	7	0	0	0	0	0	60	170
15	15,300635	328,797	103	7	0	0	0	0	0	60	170
16	16,100635	330,221	103	7	0	0	0	0	0	60	170
17	16,900635	331,645	103	7	0	0	0	0	0	60	170
18	17,700635	333,069	103	7	0	0	0	0	0	60	170
19	18,500635	334,493	103	7	0	0	0	0	0	60	170
20	19,300635	335,917	103	7	0	0	0	0	0	60	170
21	20,100635	337,341	103	7	0	0	0	0	0	60	170
22	20,560193	338,159	103	7	0	0	0	0	0	60	170



LAMPIRAN 4.04 Tabel Push-Over Untuk Model Struktur Dengan Join Voute Gabungan Pada Gedung 5 Lantai

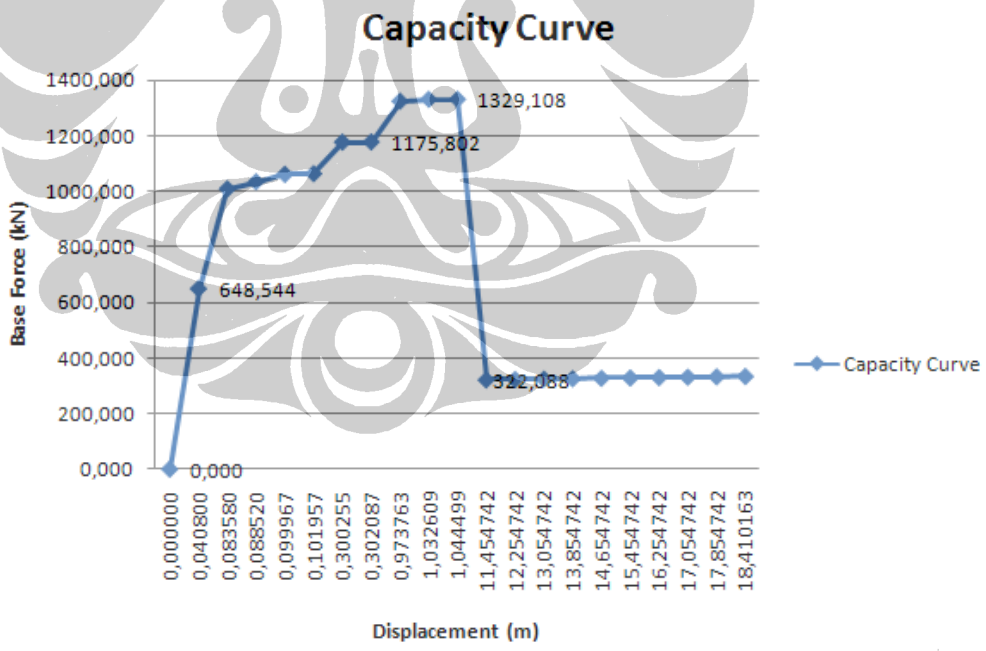
A. TIPE VOUTE 1

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	370	0	0	0	0	0	0	0	370
1	0,042823	657,856	369	1	0	0	0	0	0	0	370
2	0,086462	1013,480	339	18	13	0	0	0	0	0	370
3	0,090441	1033,763	333	23	14	0	0	0	0	0	370
4	0,101108	1059,218	326	25	19	0	0	0	0	0	370
5	0,105650	1064,505	321	30	19	0	0	0	0	0	370
6	0,303049	1176,565	303	22	7	14	24	0	0	0	370
7	0,976956	1323,489	303	7	0	0	47	13	0	0	370
8	1,032838	1329,747	298	12	0	0	29	31	0	0	370
9	1,047643	1329,973	298	12	0	0	23	37	0	0	370
10	11,453146	321,490	298	12	0	0	0	0	0	60	370
11	12,253146	322,914	298	12	0	0	0	0	0	60	370
12	13,053146	324,338	298	12	0	0	0	0	0	60	370
13	13,853146	325,762	298	12	0	0	0	0	0	60	370
14	14,653146	327,186	298	12	0	0	0	0	0	60	370
15	15,453146	328,611	298	12	0	0	0	0	0	60	370
16	16,253146	330,035	298	12	0	0	0	0	0	60	370
17	17,053146	331,459	298	12	0	0	0	0	0	60	370
18	17,853146	332,883	298	12	0	0	0	0	0	60	370
19	18,405423	333,866	298	12	0	0	0	0	0	60	370



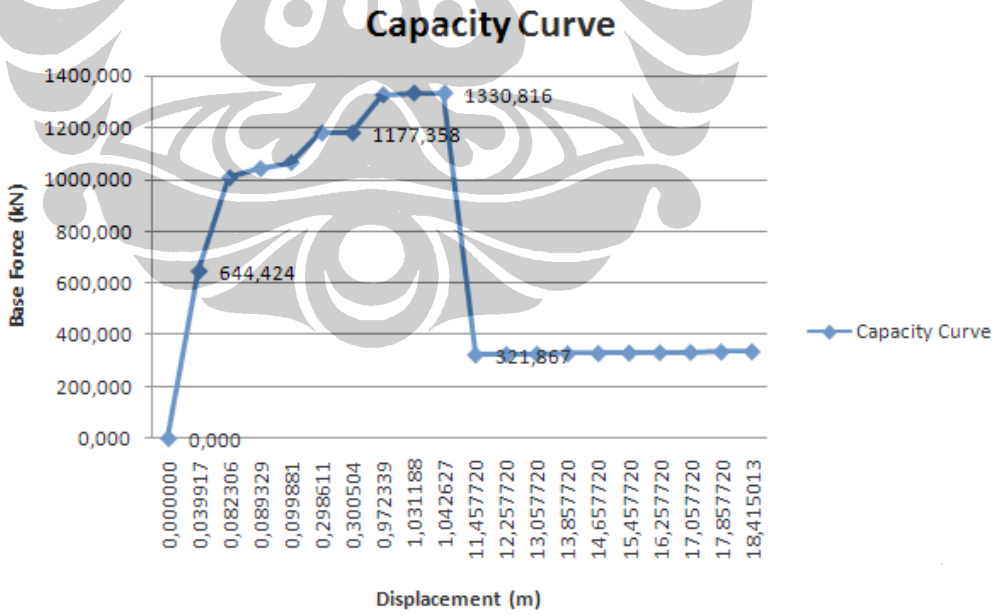
B. TIPE VOUTE 2

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	370	0	0	0	0	0	0	0	370
1	0,040800	648,544	369	1	0	0	0	0	0	0	370
2	0,083580	1007,229	339	18	13	0	0	0	0	0	370
3	0,088520	1032,942	331	25	14	0	0	0	0	0	370
4	0,099967	1059,597	326	25	19	0	0	0	0	0	370
5	0,101957	1061,938	321	30	19	0	0	0	0	0	370
6	0,300255	1175,181	305	20	7	14	24	0	0	0	370
7	0,302087	1175,802	303	22	7	14	24	0	0	0	370
8	0,973763	1322,311	303	7	0	0	47	13	0	0	370
9	1,032609	1328,924	298	12	0	0	29	31	0	0	370
10	1,044499	1329,108	298	12	0	0	23	37	0	0	370
11	11,454742	320,664	298	12	0	0	0	0	0	60	370
12	12,254742	322,088	298	12	0	0	0	0	0	60	370
13	13,054742	323,512	298	12	0	0	0	0	0	60	370
14	13,854742	324,937	298	12	0	0	0	0	0	60	370
15	14,654742	326,361	298	12	0	0	0	0	0	60	370
16	15,454742	327,785	298	12	0	0	0	0	0	60	370
17	16,254742	329,209	298	12	0	0	0	0	0	60	370
18	17,054742	330,633	298	12	0	0	0	0	0	60	370
19	17,854742	332,057	298	12	0	0	0	0	0	60	370
20	18,410163	333,046	298	12	0	0	0	0	0	60	370



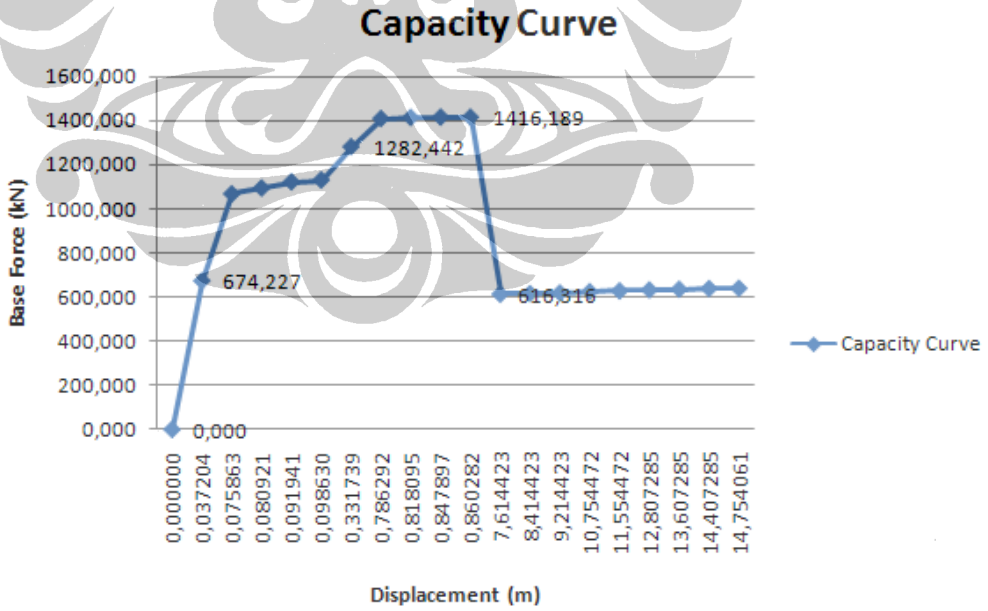
C. TIPE VOUTE 3

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	370	0	0	0	0	0	0	0	370
1	0,039917	644,424	369	1	0	0	0	0	0	0	370
2	0,082306	1004,898	339	18	13	0	0	0	0	0	370
3	0,089329	1039,385	328	27	15	0	0	0	0	0	370
4	0,099881	1062,755	322	29	19	0	0	0	0	0	370
5	0,298611	1176,714	305	20	7	14	24	0	0	0	370
6	0,300504	1177,358	303	22	7	14	24	0	0	0	370
7	0,972339	1324,026	303	7	0	0	47	13	0	0	370
8	1,031188	1330,639	298	12	0	0	29	31	0	0	370
9	1,042627	1330,816	298	12	0	0	23	37	0	0	370
10	11,457720	321,867	298	12	0	0	0	0	0	60	370
11	12,257720	323,291	298	12	0	0	0	0	0	60	370
12	13,057720	324,715	298	12	0	0	0	0	0	60	370
13	13,857720	326,139	298	12	0	0	0	0	0	60	370
14	14,657720	327,563	298	12	0	0	0	0	0	60	370
15	15,457720	328,987	298	12	0	0	0	0	0	60	370
16	16,257720	330,412	298	12	0	0	0	0	0	60	370
17	17,057720	331,836	298	12	0	0	0	0	0	60	370
18	17,857720	333,260	298	12	0	0	0	0	0	60	370
19	18,415013	334,252	298	12	0	0	0	0	0	60	370



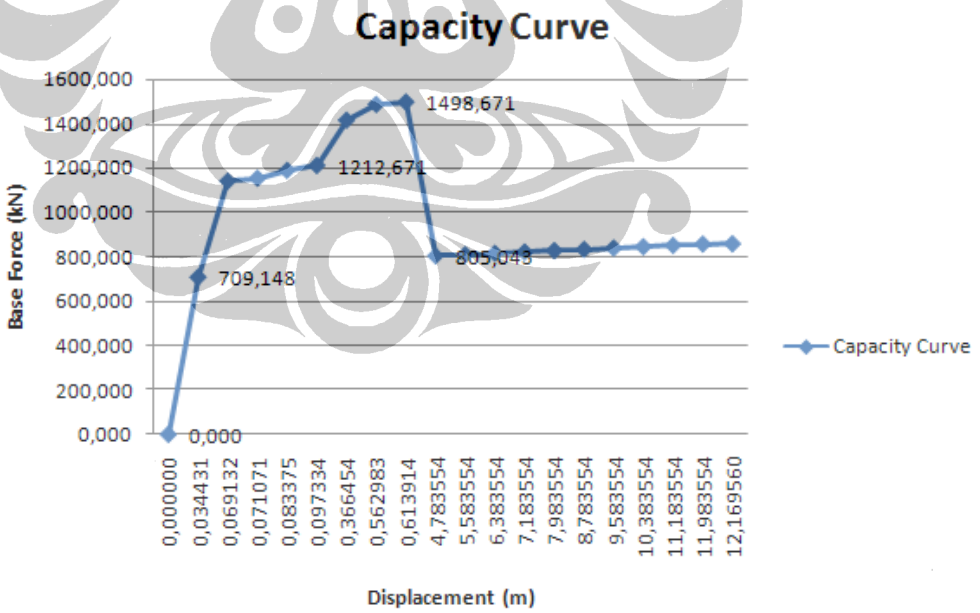
D. TIPE VOUTE 4

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	370	0	0	0	0	0	0	0	370
1	0,037204	674,227	369	1	0	0	0	0	0	0	370
2	0,075863	1068,177	340	18	12	0	0	0	0	0	370
3	0,080921	1095,141	328	29	13	0	0	0	0	0	370
4	0,091941	1122,672	326	27	17	0	0	0	0	0	370
5	0,098630	1131,232	321	30	17	2	0	0	0	0	370
6	0,331739	1282,442	303	17	8	6	36	0	0	0	370
7	0,786292	1409,842	293	17	0	0	50	10	0	0	370
8	0,818095	1414,765	292	18	0	0	42	18	0	0	370
9	0,847897	1416,175	291	19	0	0	42	18	0	0	370
10	0,860282	1416,189	291	19	0	0	36	24	0	0	370
11	7,614423	613,296	291	19	0	0	24	0	0	36	370
12	8,414423	616,316	291	19	0	0	24	0	0	36	370
13	9,214423	619,357	291	19	0	0	24	0	0	36	370
14	10,754472	625,186	291	19	0	0	24	0	0	36	370
15	11,554472	628,201	291	19	0	0	24	0	0	36	370
16	12,807285	632,938	291	19	0	0	24	0	0	36	370
17	13,607285	635,972	291	19	0	0	24	0	0	36	370
18	14,407285	638,984	291	19	0	0	24	0	0	36	370
19	14,754061	640,299	291	19	0	0	24	0	0	36	370



E. TIPE VOUTE 5

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	370	0	0	0	0	0	0	0	370
1	0,034431	709,148	369	1	0	0	0	0	0	0	370
2	0,069132	1142,205	338	24	8	0	0	0	0	0	370
3	0,071071	1155,047	329	29	12	0	0	0	0	0	370
4	0,083375	1190,764	327	29	13	1	0	0	0	0	370
5	0,097334	1212,671	321	30	16	3	0	0	0	0	370
6	0,366454	1416,858	297	24	5	2	42	0	0	0	370
7	0,562983	1487,807	289	21	5	1	48	6	0	0	370
8	0,613914	1498,671	286	24	4	2	36	18	0	0	370
9	4,783554	805,043	284	26	1	5	30	0	0	24	370
10	5,583554	810,940	284	26	1	5	30	0	0	24	370
11	6,383554	816,838	284	26	1	5	30	0	0	24	370
12	7,183554	822,735	284	26	1	5	30	0	0	24	370
13	7,983554	828,632	284	26	1	5	30	0	0	24	370
14	8,783554	834,530	284	26	1	5	30	0	0	24	370
15	9,583554	840,427	284	26	1	5	30	0	0	24	370
16	10,383554	846,324	284	26	1	5	30	0	0	24	370
17	11,183554	852,221	284	26	1	5	30	0	0	24	370
18	11,983554	858,119	284	26	1	5	30	0	0	24	370
19	12,169560	859,490	284	26	1	5	30	0	0	24	370



LAMPIRAN 4.05 Pengecekan Eksentrisitas Dan Drift Gedung 7 Lantai

1. Eksentrisitas

   Persamaan yang digunakan:

   - Untuk $0 < e \leq 0,3b$:

     ed = 1,5e + 0,05b

     atau:

     ed = e – 0,05b

     dipilih diantara keduanya yang pengaruhnya paling menentukan untuk unsur atau subsistem struktur gedung yang ditinjau, dengan b adalah ukuran horizontal terbesar denah struktur gedung tingkat itu, diukur tegak lurus pada arah pembebanan gempa.

   - Untuk $e > 0,3b$

     ed = 1,33e + 0,1b

     atau:

     ed = 1,17e – 0,1b

     Berikut adalah hasil pengecekan eksentrisitas bangunan gedung:

Story	Diaphragm	MassX	MassY	XCM	YCM	CumMassX	CumMassY	XCCM	YCCM	XCR	YCR
STORY7	D1	108538,2	108538,2	24	18	108538,245	108538,25	24	18	24	18
STORY6	D1	123376,7	123376,7	24	18	231914,91	231914,91	24	18	24	18
STORY5	D1	123376,7	123376,7	24	18	355291,576	355291,58	24	18	24	18
STORY4	D1	125943,6	125943,6	24	18	481235,213	481235,21	24	18	24	18
STORY3	D1	128914,9	128914,9	24	18	610150,069	610150,07	24	18	24	18
STORY2	D1	132022	132022	24	18	742172,118	742172,12	24	18	24	18
STORY1	D1	139315	139315	24	18	881487,16	881487,16	24	18	24	18

ex	b	edx	x	ratioex	ey	b	edy	y	ratioey
0	36	1,8	25,8	5,00%	0	48	2,4	20,4	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20,4	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20,4	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20,4	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20,4	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20,4	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20,4	5,00%

2. Drift

Simpangan (drift) antar tingkat dari suatu bangunan harus memenuhi persyaratan kinerja layan dan kinerja ultimit yang tercantum dalam "Tata Cara Perencanaan Ketahanan Gempa Untuk Bangunan Gedung". Persyaratan kinerja batas layan struktur gedung tidak boleh melampaui 0,03/R kali tinggi tingkat yang bersangkutan. Sementara persyaratan kinerja batas ultimit tidak boleh melampaui 0,02 kali tinggi tingkat yang bersangkutan.

PENGECEKAN DRIFT ARAH X

STORY	DRIFT	KINERJA LAYAN	KINERJA ULTIMIT	SYARAT (0,02 h)	keterangan
7FL	0,000932	0,01235	0,00555	0,07000	OK
6FL	0,001623	0,01235	0,00966	0,07000	OK
5FL	0,002263	0,01235	0,01346	0,07000	OK
4FL	0,002396	0,01235	0,01426	0,07000	OK
3FL	0,002591	0,01235	0,01542	0,07000	OK
2FL	0,002312	0,01235	0,01376	0,07000	OK
1FL	0,001356	0,01588	0,00807	0,09000	OK

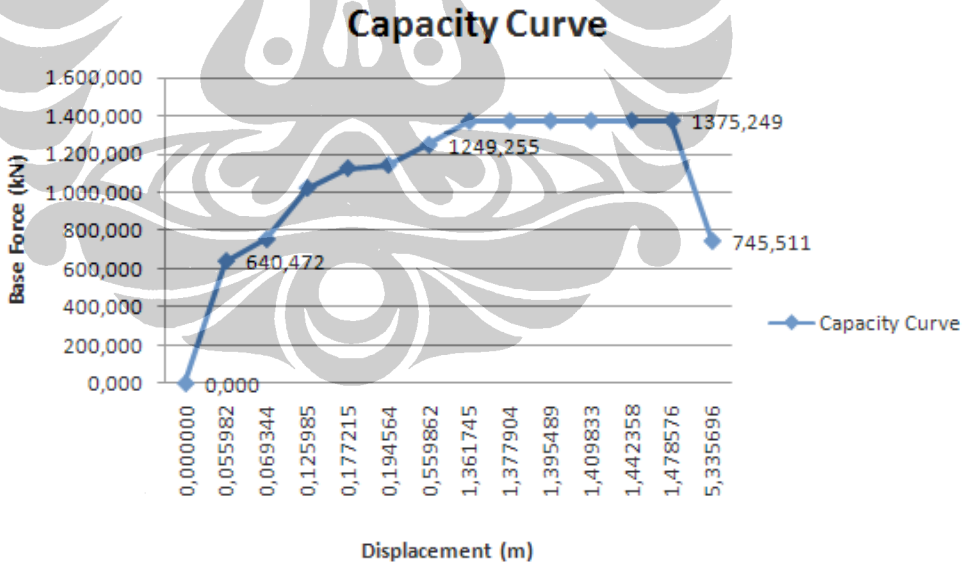
PENGECEKAN DRIFT ARAH Y

STORY	DRIFT	KINERJA LAYAN	KINERJA ULTIMIT	SYARAT (0,02 h)	keterangan
7FL	0,001011	0,01235	0,00602	0,07000	OK
6FL	0,001752	0,01235	0,01042	0,07000	OK
5FL	0,002441	0,01235	0,01452	0,07000	OK
4FL	0,002592	0,01235	0,01542	0,07000	OK
3FL	0,002799	0,01235	0,01665	0,07000	OK
2FL	0,002496	0,01235	0,01485	0,07000	OK
1FL	0,001456	0,01588	0,00866	0,09000	OK

LAMPIRAN 4.06 Tabel Push-Over Untuk Model Struktur Dengan Join Voute Interior Pada Gedung 7 Lantai

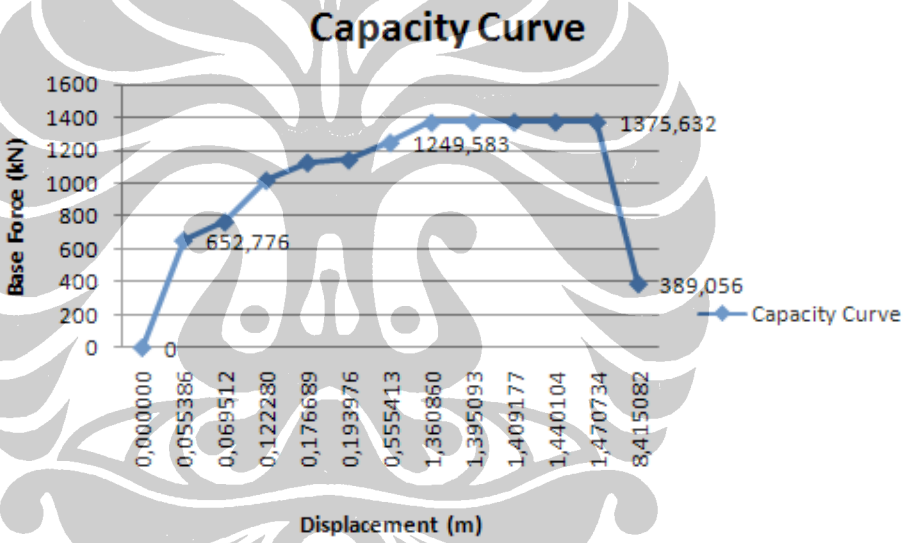
A. TIPE VOUTE 1

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	462	0	0	0	0	0	0	0	462
1	0,055982	640,472	461	1	0	0	0	0	0	0	462
2	0,069344	754,703	434	28	0	0	0	0	0	0	462
3	0,125985	1023,130	409	29	24	0	0	0	0	0	462
4	0,177215	1127,135	390	41	9	22	0	0	0	0	462
5	0,194564	1143,292	389	38	11	23	1	0	0	0	462
6	0,559862	1249,255	372	19	5	6	60	0	0	0	462
7	1,361745	1371,817	371	7	0	0	67	17	0	0	462
8	1,377904	1373,476	371	7	0	0	57	27	0	0	462
9	1,395489	1374,550	371	7	0	0	51	33	0	0	462
10	1,409833	1374,995	371	7	0	0	45	39	0	0	462
11	1,442358	1375,147	371	7	0	0	44	40	0	0	462
12	1,478576	1375,249	371	7	0	0	39	45	0	0	462
13	5,335696	745,511	371	7	0	0	0	72	0	12	462
analysis terminated, file open error											



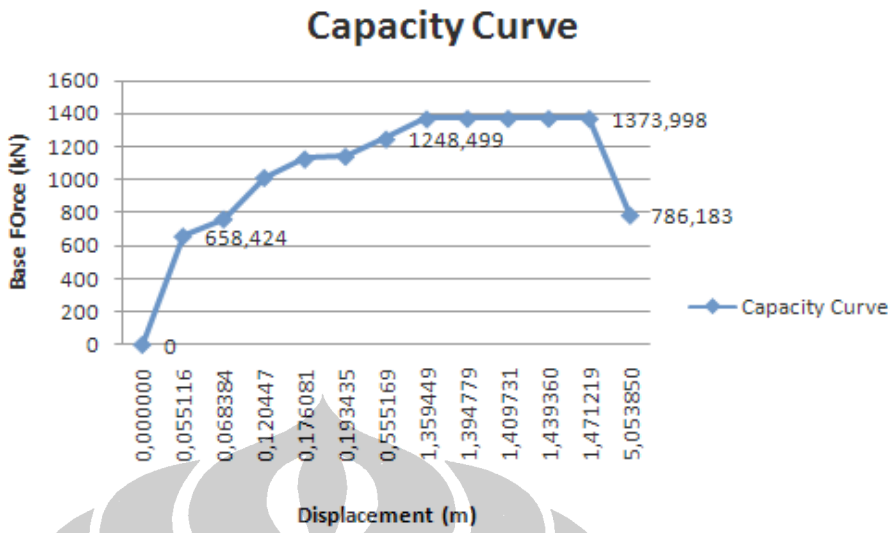
B. TIPE VOUTE 2

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	462	0	0	0	0	0	0	0	462
1	0,055386	652,776	461	1	0	0	0	0	0	0	462
2	0,069512	765,378	432	30	0	0	0	0	0	0	462
3	0,122280	1018,378	409	29	24	0	0	0	0	0	462
4	0,176689	1128,453	390	42	7	23	0	0	0	0	462
5	0,193976	1144,600	389	38	11	23	1	0	0	0	462
6	0,555413	1249,583	372	19	5	6	60	0	0	0	462
7	1,360860	1372,671	371	7	0	0	61	23	0	0	462
8	1,395093	1374,962	371	7	0	0	51	33	0	0	462
9	1,409177	1375,400	371	7	0	0	45	39	0	0	462
10	1,440104	1375,544	371	7	0	0	44	40	0	0	462
11	1,470734	1375,632	371	7	0	0	40	44	0	0	462
12	8,415082	389,056	371	7	0	0	0	0	0	84	462
file open error, analysis terminated											



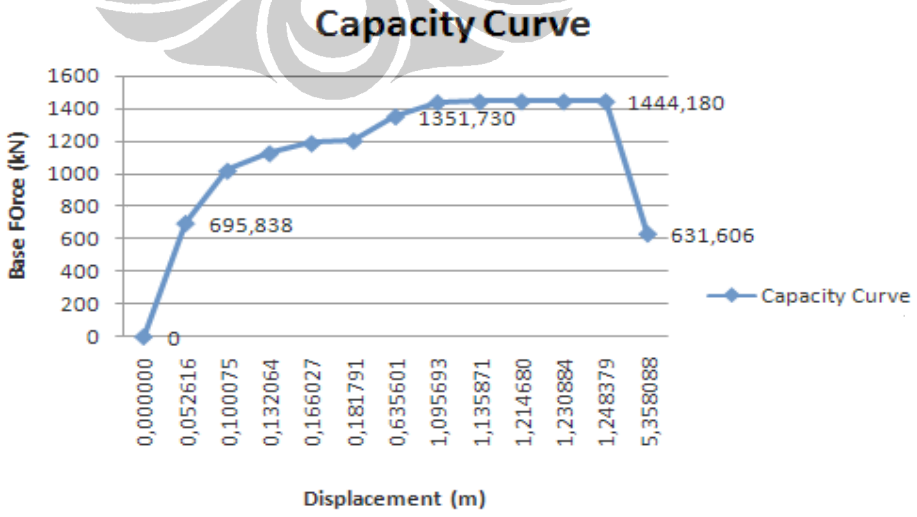
C. TIPE VOUTE 3

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	462	0	0	0	0	0	0	0	462
1	0,055116	658,424	459	3	0	0	0	0	0	0	462
2	0,068384	762,802	432	30	0	0	0	0	0	0	462
3	0,120447	1014,455	409	29	24	0	0	0	0	0	462
4	0,176081	1127,113	390	42	7	23	0	0	0	0	462
5	0,193435	1143,341	389	38	11	23	1	0	0	0	462
6	0,555169	1248,499	372	19	5	6	60	0	0	0	462
7	1,359449	1371,308	371	7	0	0	60	24	0	0	462
8	1,394779	1373,610	371	7	0	0	47	37	0	0	462
9	1,409731	1373,757	371	7	0	0	45	39	0	0	462
10	1,439360	1373,901	371	7	0	0	44	40	0	0	462
11	1,471219	1373,998	371	7	0	0	39	45	0	0	462
12	5,053850	786,183	371	7	0	0	0	72	0	12	462
file open error, analysis terminated											



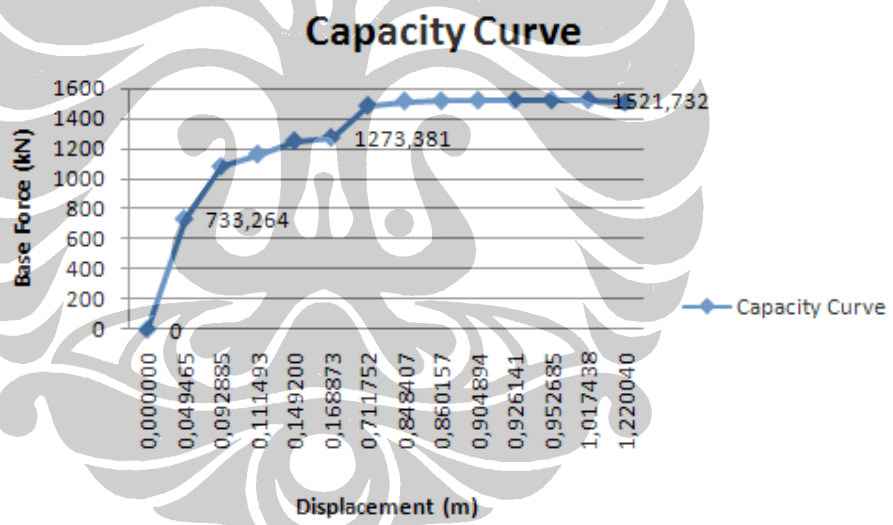
D. TIPE VOUTE 4

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	462	0	0	0	0	0	0	0	462
1	0,052616	695,838	457	5	0	0	0	0	0	0	462
2	0,100075	1017,988	422	25	15	0	0	0	0	0	462
3	0,132064	1125,069	399	33	28	2	0	0	0	0	462
4	0,166027	1186,348	390	42	8	22	0	0	0	0	462
5	0,181791	1202,025	389	41	8	22	2	0	0	0	462
6	0,635601	1351,730	371	14	11	0	66	0	0	0	462
7	1,095693	1438,512	371	7	0	0	68	16	0	0	462
8	1,135871	1442,188	371	7	0	0	56	28	0	0	462
9	1,214680	1443,940	371	7	0	0	49	35	0	0	462
10	1,230884	1444,090	371	7	0	0	48	36	0	0	462
11	1,248379	1444,180	371	7	0	0	43	41	0	0	462
12	5,358088	631,606	366	12	0	0	0	56	0	28	462
file open error, analysis terminated											



E. TIPE VOUTE 5

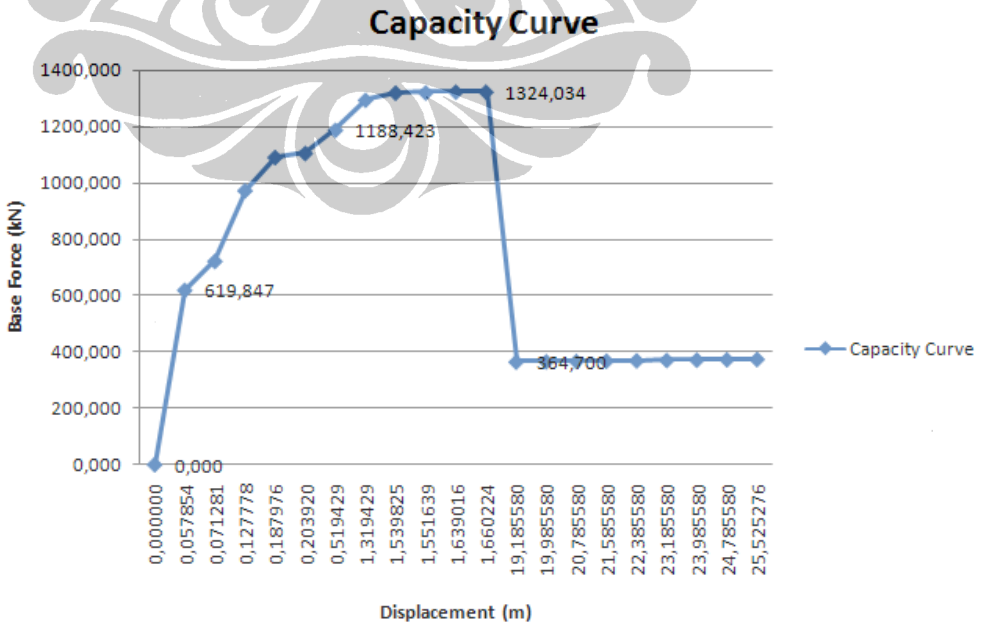
TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	462	0	0	0	0	0	0	0	462
1	0,049465	733,264	459	3	0	0	0	0	0	0	462
2	0,092885	1081,480	424	29	9	0	0	0	0	0	462
3	0,111493	1163,223	406	29	27	0	0	0	0	0	462
4	0,149200	1250,915	392	40	14	16	0	0	0	0	462
5	0,168873	1273,381	389	42	7	24	0	0	0	0	462
6	0,711752	1485,079	371	13	12	0	66	0	0	0	462
7	0,848407	1515,224	371	7	6	7	55	16	0	0	462
8	0,860157	1516,776	371	7	6	2	56	20	0	0	462
9	0,904894	1520,506	368	10	1	6	53	24	0	0	462
10	0,926141	1521,290	367	11	1	6	49	28	0	0	462
11	0,952685	1521,560	366	12	1	6	49	28	0	0	462
12	1,017438	1521,732	366	12	0	5	46	33	0	0	462
13	1,220040	1505,809	361	17	0	0	32	52	0	0	462
cannot find solution for step 14											



LAMPIRAN 4.07 Tabel Push-Over Untuk Model Struktur Dengan Join Voute Eksterior Pada Gedung 7 Lantai

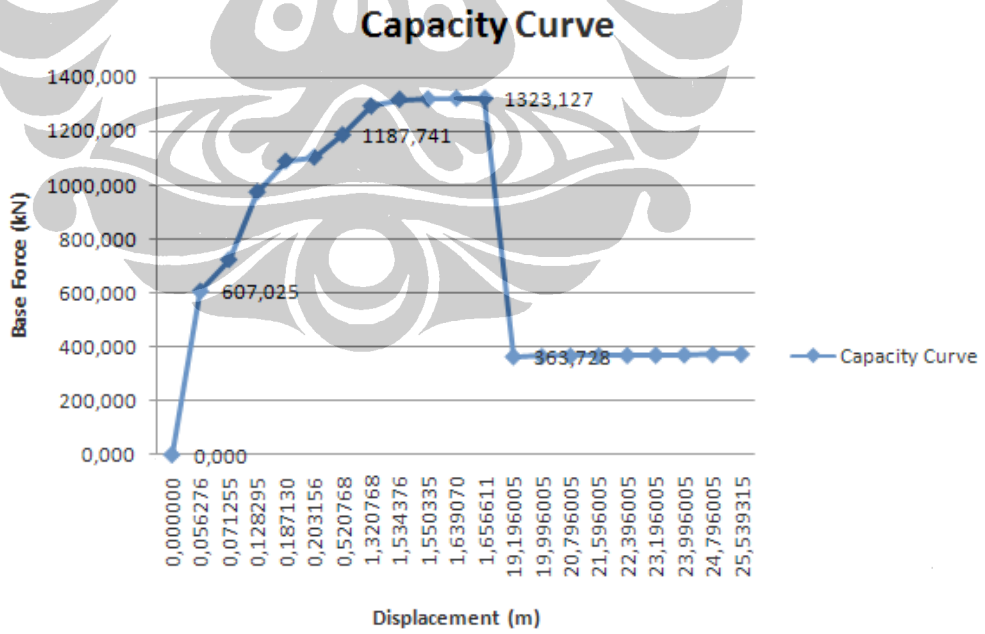
A. TIPE VOUTE 1

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	238	0	0	0	0	0	0	0	238
1	0,057854	619,847	237	1	0	0	0	0	0	0	238
2	0,071281	722,754	212	26	0	0	0	0	0	0	238
3	0,127778	973,297	188	26	24	0	0	0	0	0	238
4	0,187976	1091,518	166	36	16	19	1	0	0	0	238
5	0,203920	1105,789	165	37	12	22	2	0	0	0	238
6	0,519429	1188,423	147	23	2	16	50	0	0	0	238
7	1,319429	1295,244	147	7	0	0	84	0	0	0	238
8	1,539825	1320,760	147	7	0	0	60	24	0	0	238
9	1,551639	1321,551	147	7	0	0	51	33	0	0	238
10	1,639016	1323,909	147	7	0	0	42	42	0	0	238
11	1,660224	1324,034	147	7	0	0	37	47	0	0	238
12	19,185580	364,700	147	7	0	0	0	0	0	84	238
13	19,985580	365,885	147	7	0	0	0	0	0	84	238
14	20,785580	367,070	147	7	0	0	0	0	0	84	238
15	21,585580	368,255	147	7	0	0	0	0	0	84	238
16	22,385580	369,440	147	7	0	0	0	0	0	84	238
17	23,185580	370,625	147	7	0	0	0	0	0	84	238
18	23,985580	371,810	147	7	0	0	0	0	0	84	238
19	24,785580	372,995	147	7	0	0	0	0	0	84	238
20	25,525276	374,091	147	7	0	0	0	0	0	84	238



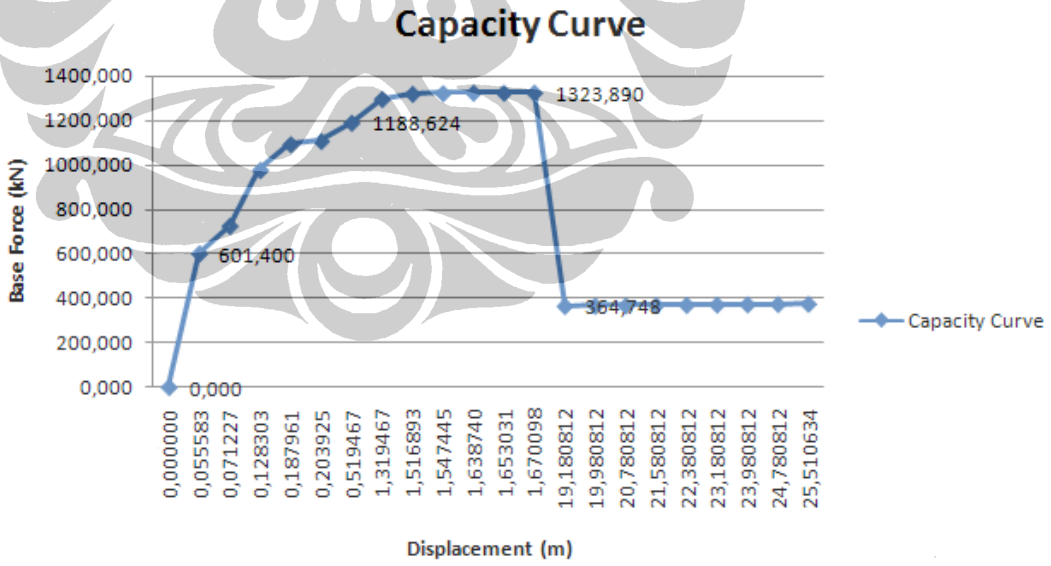
B. TIPE VOUTE 2

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	238	0	0	0	0	0	0	0	238
1	0,056276	607,025	237	1	0	0	0	0	0	0	238
2	0,071255	724,226	212	26	0	0	0	0	0	0	238
3	0,128295	975,706	188	26	24	0	0	0	0	0	238
4	0,187130	1090,240	166	37	15	19	1	0	0	0	238
5	0,203156	1104,593	165	37	12	23	1	0	0	0	238
6	0,520768	1187,741	147	23	2	15	51	0	0	0	238
7	1,320768	1294,583	147	7	0	0	84	0	0	0	238
8	1,534376	1319,515	147	7	0	0	64	20	0	0	238
9	1,550335	1320,751	147	7	0	0	49	35	0	0	238
10	1,639070	1323,023	147	7	0	0	42	42	0	0	238
11	1,656611	1323,127	147	7	0	0	37	47	0	0	238
12	19,196005	363,728	147	7	0	0	0	0	0	84	238
13	19,996005	364,913	147	7	0	0	0	0	0	84	238
14	20,796005	366,098	147	7	0	0	0	0	0	84	238
15	21,596005	367,283	147	7	0	0	0	0	0	84	238
16	22,396005	368,468	147	7	0	0	0	0	0	84	238
17	23,196005	369,653	147	7	0	0	0	0	0	84	238
18	23,996005	370,838	147	7	0	0	0	0	0	84	238
19	24,796005	372,023	147	7	0	0	0	0	0	84	238
20	25,539315	373,124	147	7	0	0	0	0	0	84	238



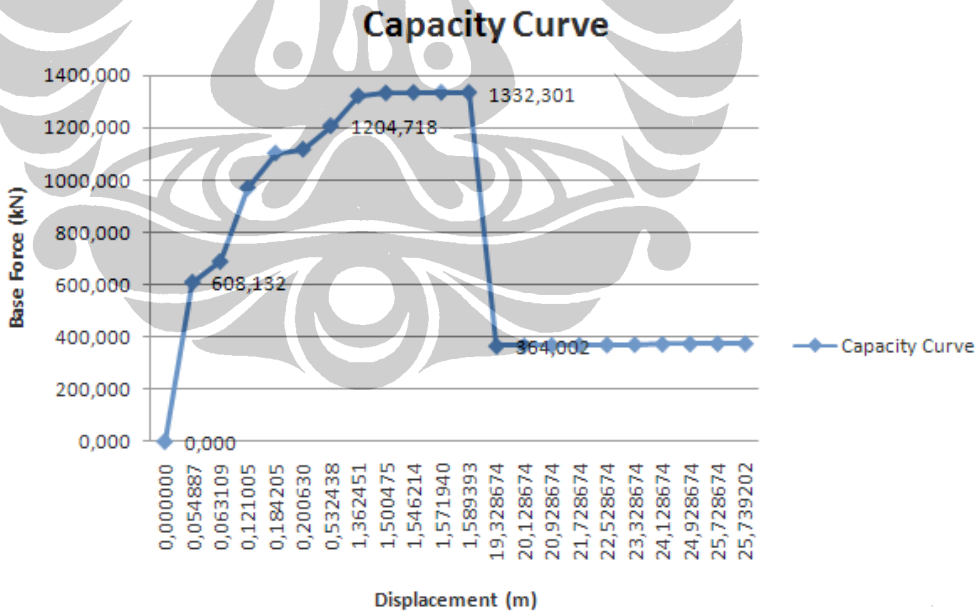
C. TIPE VOUTE 3

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	238	0	0	0	0	0	0	0	238
1	0,055583	601,400	237	1	0	0	0	0	0	0	238
2	0,071227	724,956	212	26	0	0	0	0	0	0	238
3	0,128303	976,069	188	26	24	0	0	0	0	0	238
4	0,187961	1091,863	166	36	16	19	1	0	0	0	238
5	0,203925	1106,165	165	37	12	22	2	0	0	0	238
6	0,519467	1188,624	147	23	2	14	52	0	0	0	238
7	1,319467	1295,463	147	7	0	0	84	0	0	0	238
8	1,516893	1319,052	147	7	0	0	64	20	0	0	238
9	1,547445	1321,417	147	7	0	0	49	35	0	0	238
10	1,638740	1323,759	147	7	0	0	42	42	0	0	238
11	1,653031	1323,844	147	7	0	0	41	43	0	0	238
12	1,670098	1323,890	147	7	0	0	35	49	0	0	238
13	19,180812	364,748	147	7	0	0	0	0	0	84	238
14	19,980812	365,933	147	7	0	0	0	0	0	84	238
15	20,780812	367,118	147	7	0	0	0	0	0	84	238
16	21,580812	368,303	147	7	0	0	0	0	0	84	238
17	22,380812	369,488	147	7	0	0	0	0	0	84	238
18	23,180812	370,673	147	7	0	0	0	0	0	84	238
19	23,980812	371,858	147	7	0	0	0	0	0	84	238
20	24,780812	373,043	147	7	0	0	0	0	0	84	238
21	25,510634	374,124	147	7	0	0	0	0	0	84	238



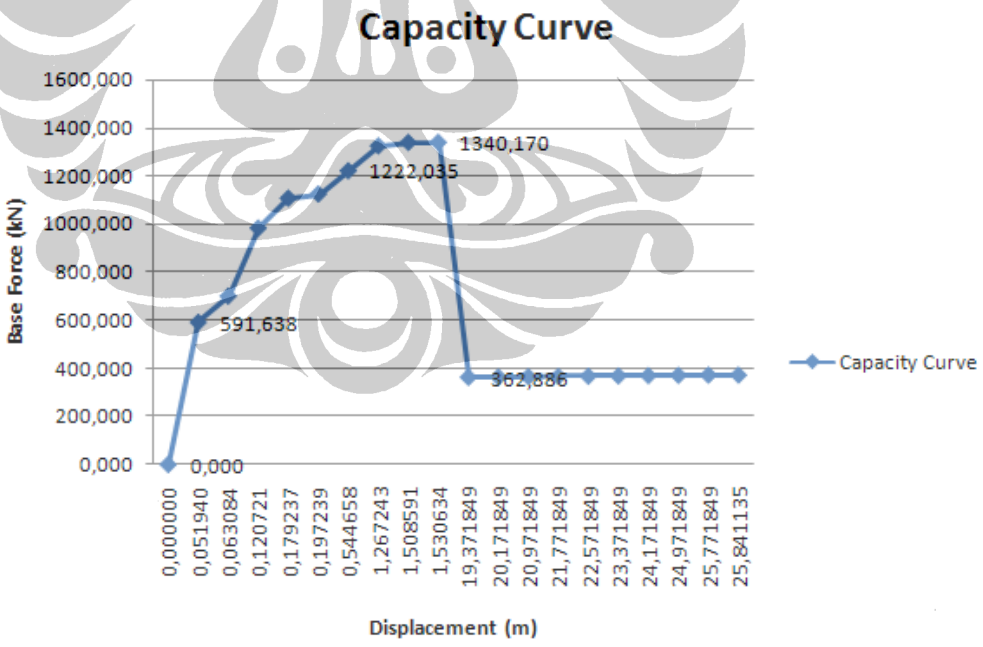
D. TIPE VOUTE 4

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	238	0	0	0	0	0	0	0	238
1	0,054887	608,132	235	3	0	0	0	0	0	0	238
2	0,063109	687,037	217	21	0	0	0	0	0	0	238
3	0,121005	968,172	192	22	24	0	0	0	0	0	238
4	0,184205	1100,676	166	40	12	19	1	0	0	0	238
5	0,200630	1115,563	165	36	13	21	3	0	0	0	238
6	0,532438	1204,718	147	21	4	13	53	0	0	0	238
7	1,362451	1318,964	147	7	0	0	74	10	0	0	238
8	1,500475	1330,186	147	7	0	0	61	23	0	0	238
9	1,546214	1331,948	147	7	0	0	46	38	0	0	238
10	1,571940	1332,243	147	7	0	0	43	41	0	0	238
11	1,589393	1332,301	147	7	0	0	42	42	0	0	238
12	19,328674	364,002	147	7	0	0	0	0	0	84	238
13	20,128674	365,187	147	7	0	0	0	0	0	84	238
14	20,928674	366,373	147	7	0	0	0	0	0	84	238
15	21,728674	367,558	147	7	0	0	0	0	0	84	238
16	22,528674	368,743	147	7	0	0	0	0	0	84	238
17	23,328674	369,928	147	7	0	0	0	0	0	84	238
18	24,128674	371,113	147	7	0	0	0	0	0	84	238
19	24,928674	372,298	147	7	0	0	0	0	0	84	238
20	25,728674	373,483	147	7	0	0	0	0	0	84	238
21	25,739202	373,498	147	7	0	0	0	0	0	84	238



E. TIPE VOUTE 5

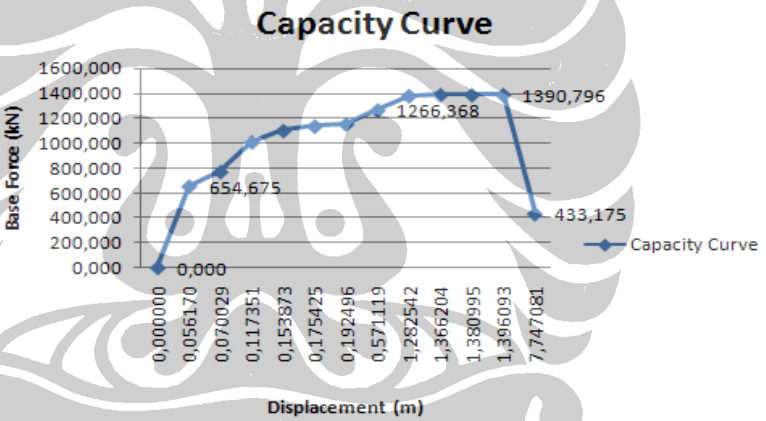
TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	238	0	0	0	0	0	0	0	238
1	0,051940	591,638	237	1	0	0	0	0	0	0	238
2	0,063084	700,754	216	22	0	0	0	0	0	0	238
3	0,120721	983,690	192	20	26	0	0	0	0	0	238
4	0,179237	1108,061	167	38	13	18	2	0	0	0	238
5	0,197239	1125,629	165	35	13	19	6	0	0	0	238
6	0,544658	1222,035	147	21	4	8	58	0	0	0	238
7	1,267243	1325,572	147	7	0	0	70	14	0	0	238
8	1,508591	1339,710	147	7	0	0	54	30	0	0	238
9	1,530634	1340,170	147	7	0	0	42	42	0	0	238
10	19,371849	362,886	147	7	0	0	0	0	0	84	238
11	20,171849	364,071	147	7	0	0	0	0	0	84	238
12	20,971849	365,256	147	7	0	0	0	0	0	84	238
13	21,771849	366,441	147	7	0	0	0	0	0	84	238
14	22,571849	367,626	147	7	0	0	0	0	0	84	238
15	23,371849	368,811	147	7	0	0	0	0	0	84	238
16	24,171849	369,996	147	7	0	0	0	0	0	84	238
17	24,971849	371,182	147	7	0	0	0	0	0	84	238
18	25,771849	372,367	147	7	0	0	0	0	0	84	238
19	25,841135	372,469	147	7	0	0	0	0	0	84	238



LAMPIRAN 4.08 Tabel Push-Over Untuk Model Struktur Dengan Join Voute Gabungan Pada Gedung 7 Lantai

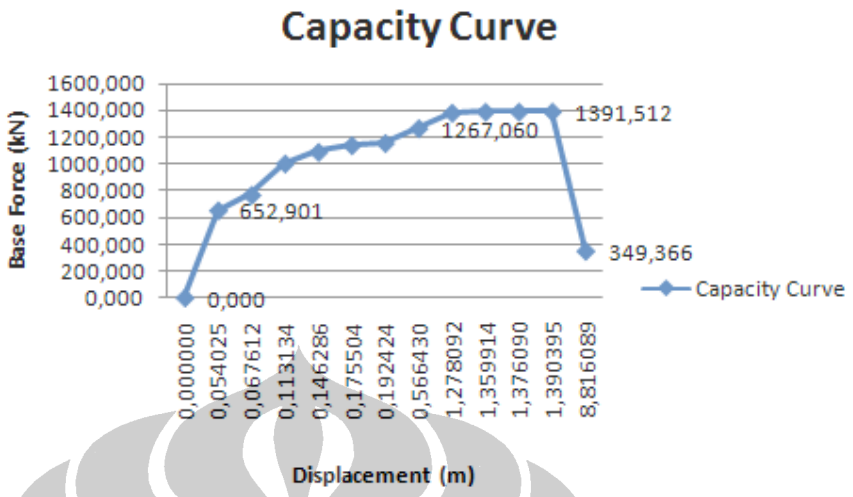
A. TIPE VOUTE 1

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	518	0	0	0	0	0	0	0	518
1	0,056170	654,675	517	1	0	0	0	0	0	0	518
2	0,070029	770,714	488	30	0	0	0	0	0	0	518
3	0,117351	1010,000	470	24	24	0	0	0	0	0	518
4	0,153873	1101,699	451	37	21	9	0	0	0	0	518
5	0,175425	1137,764	446	41	11	19	1	0	0	0	518
6	0,192496	1153,829	445	41	8	23	1	0	0	0	518
7	0,571119	1266,368	427	18	7	4	62	0	0	0	518
8	1,282542	1381,866	427	7	0	0	66	18	0	0	518
9	1,366204	1389,663	427	7	0	0	53	31	0	0	518
10	1,380995	1390,385	427	7	0	0	47	37	0	0	518
11	1,396093	1390,796	427	7	0	0	42	42	0	0	518
12	7,747081	433,175	427	7	0	0	0	0	0	84	518
file open error, analysis terminated											



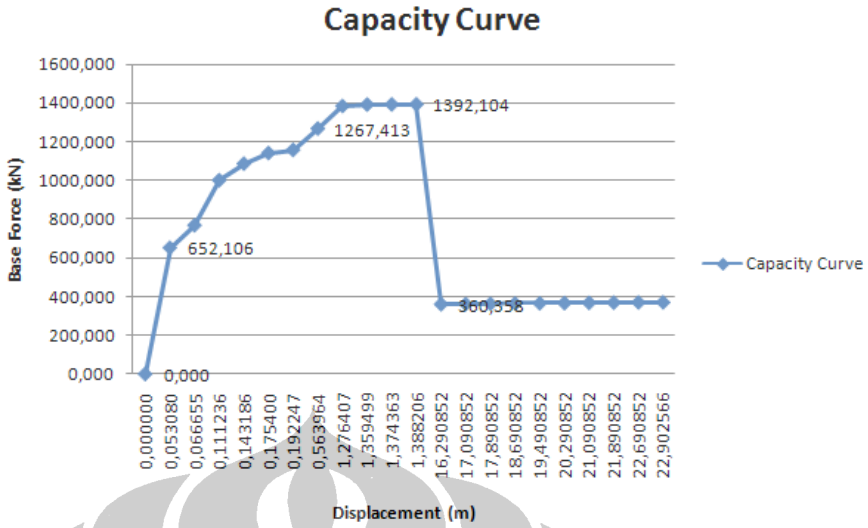
B. TIPE VOUTE 2

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	518	0	0	0	0	0	0	0	518
1	0,054025	652,901	516	2	0	0	0	0	0	0	518
2	0,067612	768,004	488	30	0	0	0	0	0	0	518
3	0,113134	1003,264	470	28	20	0	0	0	0	0	518
4	0,146286	1090,241	452	36	27	3	0	0	0	0	518
5	0,175504	1139,911	446	41	7	23	1	0	0	0	518
6	0,192424	1155,887	445	37	12	22	2	0	0	0	518
7	0,566430	1267,060	427	18	7	4	62	0	0	0	518
8	1,278092	1382,676	427	7	0	0	66	18	0	0	518
9	1,359914	1390,331	427	7	0	0	53	31	0	0	518
10	1,376090	1391,122	427	7	0	0	47	37	0	0	518
11	1,390395	1391,512	427	7	0	0	42	42	0	0	518
12	8,816089	349,366	427	7	0	0	0	0	0	84	518
file open error, analysis terminated											



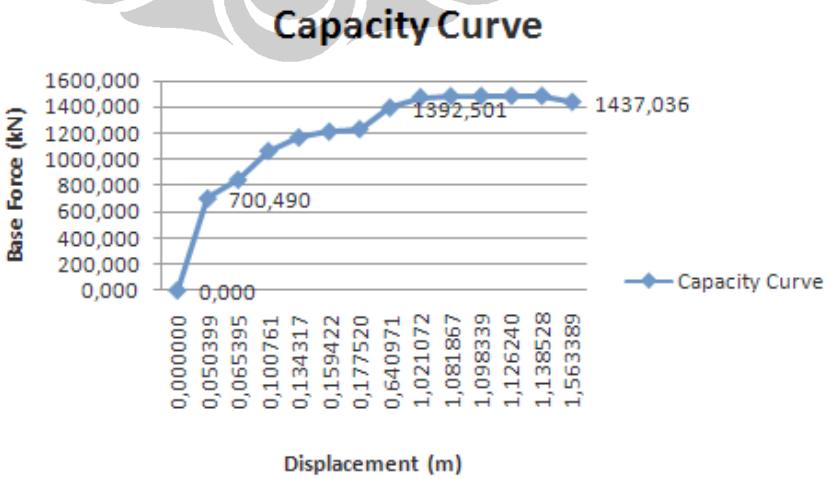
C. TIPE VOUTE 3

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	518	0	0	0	0	0	0	0	518
1	0,053080	652,106	516	2	0	0	0	0	0	0	518
2	0,066655	767,925	488	30	0	0	0	0	0	0	518
3	0,111236	1000,612	470	28	20	0	0	0	0	0	518
4	0,143186	1086,007	452	36	27	3	0	0	0	0	518
5	0,175400	1140,948	446	41	7	23	1	0	0	0	518
6	0,192247	1156,882	445	37	12	22	2	0	0	0	518
7	0,563964	1267,413	427	18	7	4	62	0	0	0	518
8	1,276407	1383,252	427	7	0	0	66	18	0	0	518
9	1,359499	1391,000	427	7	0	0	53	31	0	0	518
10	1,374363	1391,726	427	7	0	0	47	37	0	0	518
11	1,388206	1392,104	427	7	0	0	41	43	0	0	518
12	16,290852	360,358	427	7	0	0	0	0	0	84	518
13	17,090852	361,543	427	7	0	0	0	0	0	84	518
14	17,890852	362,728	427	7	0	0	0	0	0	84	518
15	18,690852	363,913	427	7	0	0	0	0	0	84	518
16	19,490852	365,099	427	7	0	0	0	0	0	84	518
17	20,290852	366,284	427	7	0	0	0	0	0	84	518
18	21,090852	367,469	427	7	0	0	0	0	0	84	518
19	21,890852	368,654	427	7	0	0	0	0	0	84	518
20	22,690852	369,840	427	7	0	0	0	0	0	84	518
21	22,902566	370,153	427	7	0	0	0	0	0	84	518



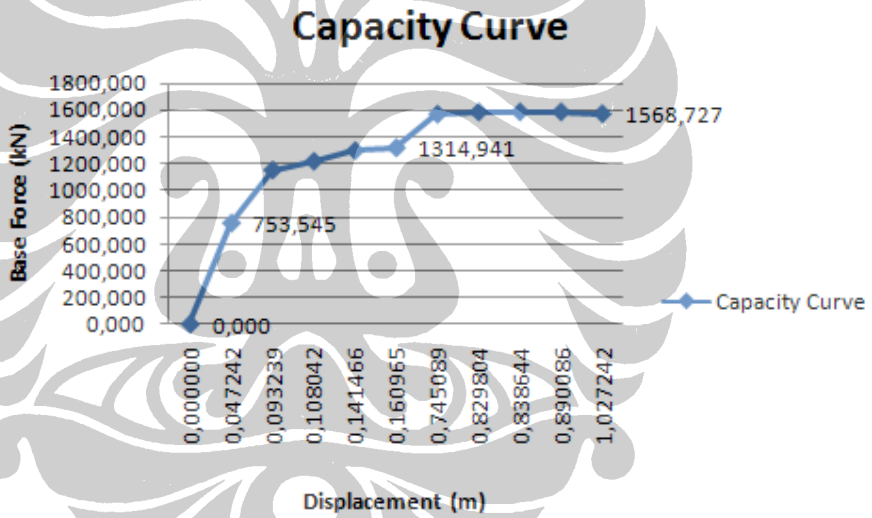
D. TIPE VOUTE 4

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	518	0	0	0	0	0	0	0	518
1	0,050399	700,490	516	2	0	0	0	0	0	0	518
2	0,065395	842,966	488	30	0	0	0	0	0	0	518
3	0,100761	1062,128	474	24	20	0	0	0	0	0	518
4	0,134317	1165,228	452	36	24	6	0	0	0	0	518
5	0,159422	1210,561	446	42	10	19	1	0	0	0	518
6	0,177520	1229,017	445	40	8	21	4	0	0	0	518
7	0,640971	1392,501	427	17	8	0	66	0	0	0	518
8	1,021072	1472,543	427	7	0	0	68	16	0	0	518
9	1,081867	1480,447	427	7	0	0	59	25	0	0	518
10	1,098339	1481,617	427	7	0	0	54	30	0	0	518
11	1,126240	1482,357	427	7	0	0	52	32	0	0	518
12	1,138528	1482,546	427	7	0	0	41	43	0	0	518
13	1,563389	1437,036	415	19	0	0	22	62	0	0	518
cannot find solution at step 14											



E. TIPE VOUTE 5

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	518	0	0	0	0	0	0	0	518
1	0,047242	753,545	517	1	0	0	0	0	0	0	518
2	0,093239	1149,272	475	26	17	0	0	0	0	0	518
3	0,108042	1214,101	458	32	26	2	0	0	0	0	518
4	0,141466	1293,062	446	42	12	17	1	0	0	0	518
5	0,160965	1314,941	445	39	8	20	6	0	0	0	518
6	0,745089	1564,755	427	13	9	3	59	7	0	0	518
7	0,829804	1581,966	422	16	2	9	41	28	0	0	518
8	0,838644	1582,217	422	16	2	9	39	30	0	0	518
9	0,890086	1582,219	422	12	5	9	34	36	0	0	518
10	1,027242	1568,727	420	14	4	1	30	49	0	0	518
cannot find solution at step 12											



LAMPIRAN 4.09 Pengecekan Eksentrisitas Dan Drift Gedung 9 Lantai

1. Eksentrisitas

   Persamaan yang digunakan:

   - Untuk $0 < e \leq 0{,}3b$:

     ed = 1,5e + 0,05b

     atau:

     ed = e – 0,05b

     dipilih diantara keduanya yang pengaruhnya paling menentukan untuk unsur atau subsistem struktur gedung yang ditinjau, dengan b adalah ukuran horizontal terbesar denah struktur gedung tingkat itu, diukur tegak lurus pada arah pembebanan gempa.

   - Untuk $e > 0{,}3b$

     ed = 1,33e + 0,1b

     atau:

     ed = 1,17e – 0,1b

     Berikut adalah hasil pengecekan eksentrisitas bangunan gedung:

Story	Diaphragm	MassX	MassY	XCM	YCM	CumMassX	CumMassY	XCCM	YCCM	XCR	YCR
STORY9	D1	108538,2	108538,2	24	18	108538,245	108538,25	24	18	24	18
STORY8	D1	123376,7	123376,7	24	18	231914,91	231914,91	24	18	24	18
STORY7	D1	123376,7	123376,7	24	18	355291,576	355291,58	24	18	24	18
STORY6	D1	125943,6	125943,6	24	18	481235,213	481235,21	24	18	24	18
STORY5	D1	128914,9	128914,9	24	18	610150,069	610150,07	24	18	24	18
STORY4	D1	132022	132022	24	18	742172,118	742172,12	24	18	24	18
STORY3	D1	135533,5	135533,5	24	18	877705,608	877705,61	24	18	24	18
STORY2	D1	139180,9	139180,9	24	18	1016886,51	1016886,5	24	18	24	18
STORY1	D1	148171,7	148171,7	24	18	1165058,25	1165058,3	24	18	24	18

ex	b	edx	x	ratioex	ey	b	edy	y	ratioey
0	36	1,8	25,8	5,00%	0	48	2,4	20,4	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20,4	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20,4	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20,4	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20,4	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20,4	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20,4	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20,4	5,00%
0	36	1,8	25,8	5,00%	0	48	2,4	20,4	5,00%

2. Drift

Simpangan (drift) antar tingkat dari suatu bangunan harus memenuhi persyaratan kinerja layan dan kinerja ultimit yang tercantum dalam "Tata Cara Perencanaan Ketahanan Gempa Untuk Bangunan Gedung". Persyaratan kinerja batas layan struktur gedung tidak boleh melampaui 0,03/R kali tinggi tingkat yang bersangkutan. Sementara persyaratan kinerja batas ultimit tidak boleh melampaui 0,02 kali tinggi tingkat yang bersangkutan.

PENGECEKAN DRIFT ARAH X

STORY	DRIFT	KINERJA LAYAN	KINERJA ULTIMIT	SYARAT (0,02 h)	keterangan
9FL	0,000945	0,01235	0,00562	0,07000	OK
8FL	0,001633	0,01235	0,00972	0,07000	OK
7FL	0,00228	0,01235	0,01357	0,07000	OK
6FL	0,002459	0,01235	0,01463	0,07000	OK
5FL	0,002806	0,01235	0,01670	0,07000	OK
4FL	0,002841	0,01235	0,01690	0,07000	OK
3FL	0,002815	0,01235	0,01675	0,07000	OK
2FL	0,002382	0,01235	0,01417	0,07000	OK
1FL	0,00126	0,01588	0,00750	0,09000	OK

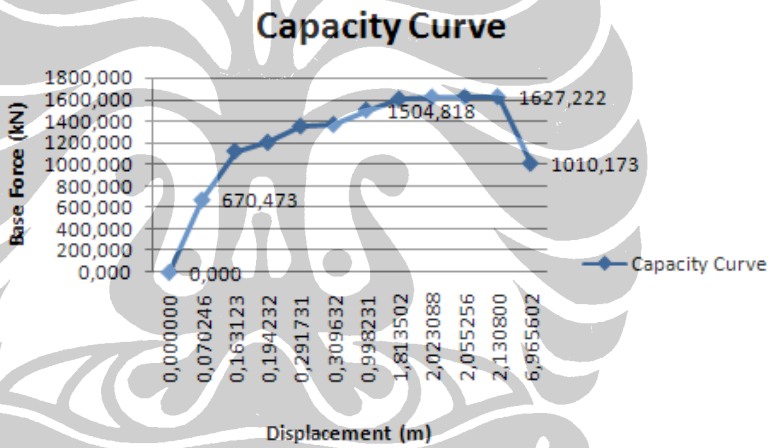
PENGECEKAN DRIFT ARAH Y

STORY	DRIFT	KINERJA LAYAN	KINERJA ULTIMIT	SYARAT (0,02 h)	keterangan
9FL	0,001028	0,01235	0,00612	0,07000	OK
8FL	0,001767	0,01235	0,01051	0,07000	OK
7FL	0,002466	0,01235	0,01467	0,07000	OK
6FL	0,002668	0,01235	0,01587	0,07000	OK
5FL	0,003044	0,01235	0,01811	0,07000	OK
4FL	0,003086	0,01235	0,01836	0,07000	OK
3FL	0,003054	0,01235	0,01817	0,07000	OK
2FL	0,002581	0,01235	0,01536	0,07000	OK
1FL	0,00136	0,01588	0,00809	0,09000	OK

LAMPIRAN 4.10 Tabel Push-Over Untuk Model Struktur Dengan Join Voute Interior Pada Gedung 9 Lantai

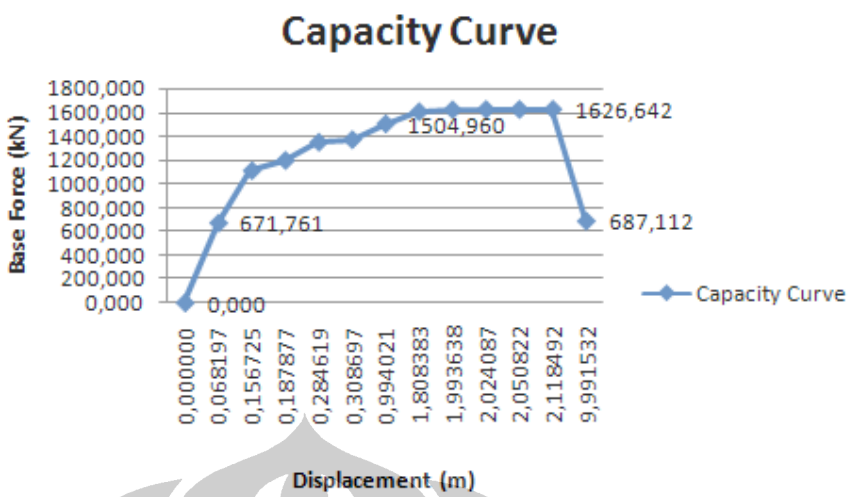
A. TIPE VOUTE 1

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	594	0	0	0	0	0	0	0	594
1	0,070246	670,473	589	5	0	0	0	0	0	0	594
2	0,163123	1123,735	542	27	25	0	0	0	0	0	594
3	0,194232	1204,833	525	39	17	13	0	0	0	0	594
4	0,291731	1355,420	510	42	12	12	18	0	0	0	594
5	0,309632	1370,402	504	38	22	12	18	0	0	0	594
6	0,998231	1504,818	479	13	12	12	78	0	0	0	594
7	1,813502	1606,727	479	7	0	0	96	12	0	0	594
8	2,023088	1625,115	479	7	0	0	68	40	0	0	594
9	2,055256	1626,438	479	7	0	0	60	48	0	0	594
10	2,130800	1627,222	479	7	0	0	53	55	0	0	594
11	6,965602	1010,173	479	7	0	0	0	88	0	20	594
analysis terminated, file open error											



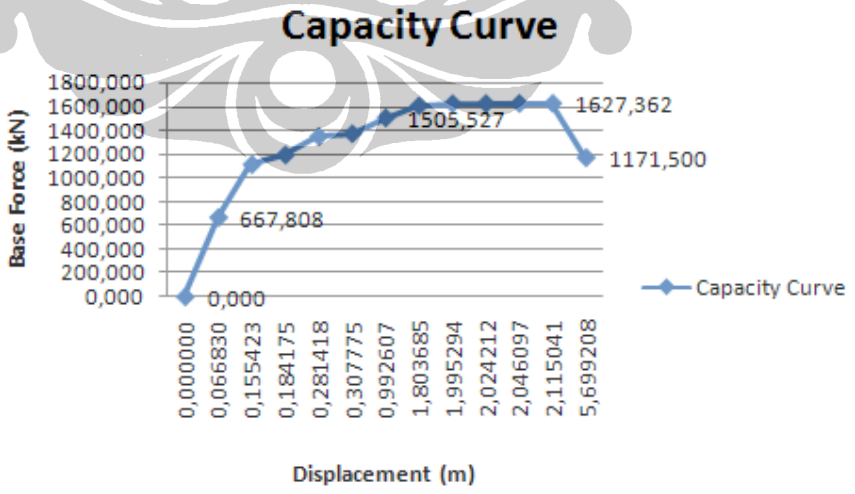
B. TIPE VOUTE 2

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	594	0	0	0	0	0	0	0	594
1	0,068197	671,761	589	5	0	0	0	0	0	0	594
2	0,156725	1112,040	544	26	24	0	0	0	0	0	594
3	0,187877	1197,065	525	39	18	12	0	0	0	0	594
4	0,284619	1350,746	508	44	12	12	18	0	0	0	594
5	0,308697	1371,400	503	35	26	12	18	0	0	0	594
6	0,994021	1504,960	479	13	12	12	78	0	0	0	594
7	1,808383	1606,830	479	7	0	0	96	12	0	0	594
8	1,993638	1623,501	479	7	0	0	74	34	0	0	594
9	2,024087	1625,206	479	7	0	0	64	44	0	0	594
10	2,050822	1625,935	479	7	0	0	60	48	0	0	594
11	2,118492	1626,642	479	7	0	0	53	55	0	0	594
12	9,991532	687,112	479	7	0	0	0	60	0	48	594
analysis terminated, file open error											



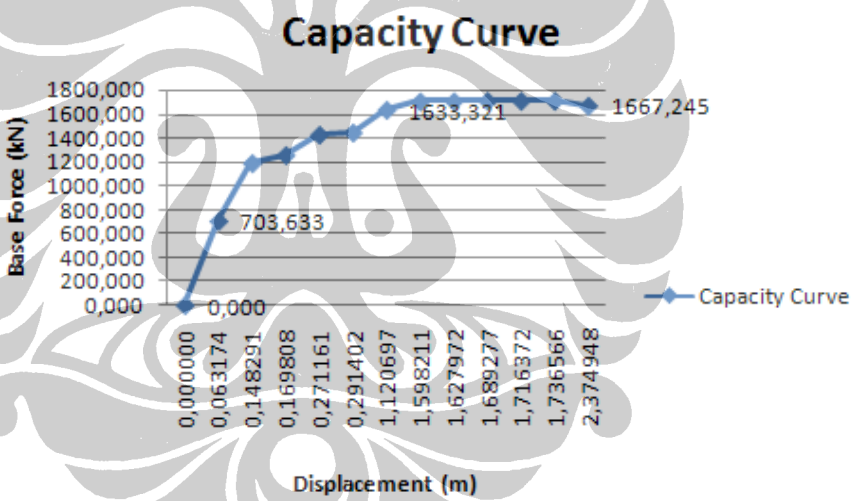
C. TIPE VOUTE 3

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	594	0	0	0	0	0	0	0	594
1	0,066830	667,808	590	4	0	0	0	0	0	0	594
2	0,155423	1112,997	544	26	24	0	0	0	0	0	594
3	0,184175	1193,732	526	38	18	12	0	0	0	0	594
4	0,281418	1349,207	508	44	12	12	18	0	0	0	594
5	0,307775	1371,827	503	35	26	12	18	0	0	0	594
6	0,992607	1505,527	479	13	12	12	78	0	0	0	594
7	1,803685	1607,160	479	7	0	0	96	12	0	0	594
8	1,995294	1624,425	479	7	0	0	74	34	0	0	594
9	2,024212	1626,047	479	7	0	0	64	44	0	0	594
10	2,046097	1626,643	479	7	0	0	60	48	0	0	594
11	2,115041	1627,362	479	7	0	0	54	54	0	0	594
12	5,699208	1171,500	479	7	0	0	0	100	0	8	594
analysis terminated, file open error											



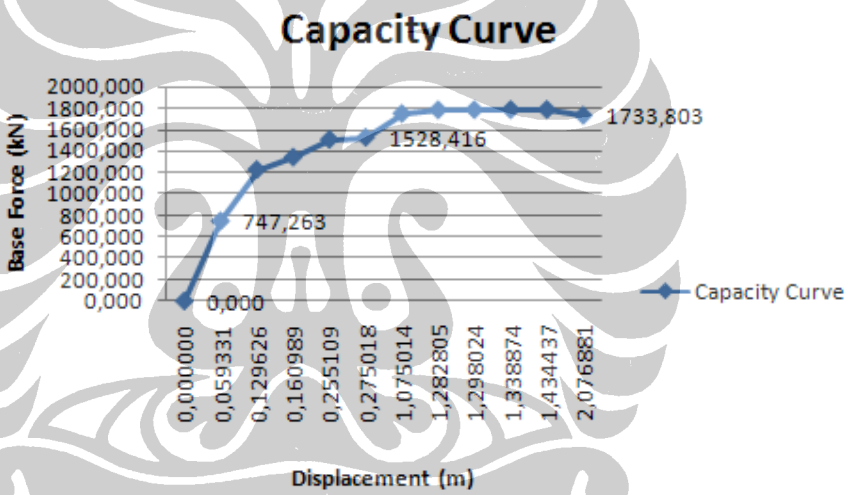
D. TIPE VOUTE 4

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	594	0	0	0	0	0	0	0	594
1	0,063174	703,633	590	4	0	0	0	0	0	0	594
2	0,148291	1186,897	543	27	22	2	0	0	0	0	594
3	0,169808	1254,746	526	35	21	12	0	0	0	0	594
4	0,271161	1425,038	510	36	18	10	20	0	0	0	594
5	0,291402	1442,982	504	32	24	14	20	0	0	0	594
6	1,120697	1633,321	479	13	12	7	83	0	0	0	594
7	1,598211	1702,233	479	7	0	1	79	28	0	0	594
8	1,627972	1704,562	479	7	0	0	72	36	0	0	594
9	1,689277	1706,957	479	7	0	0	68	40	0	0	594
10	1,716372	1707,441	479	7	0	0	64	44	0	0	594
11	1,736566	1707,516	479	7	0	0	62	46	0	0	594
12	2,374948	1667,245	472	14	0	0	32	76	0	0	594
cannot find solution at step 13											



E. TIPE VOUTE 5

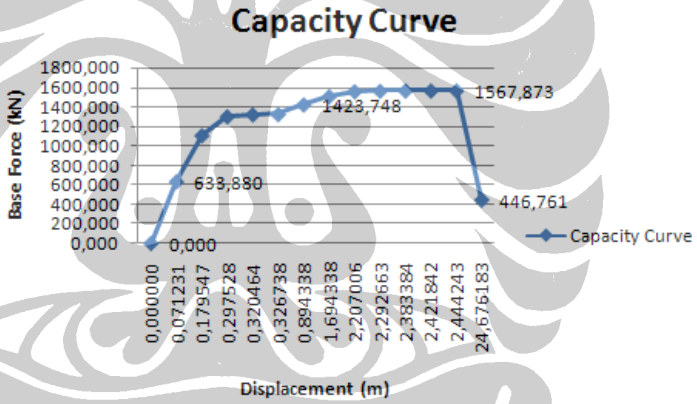
TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	594	0	0	0	0	0	0	0	594
1	0,059331	747,263	590	4	0	0	0	0	0	0	594
2	0,129626	1226,835	549	23	22	0	0	0	0	0	594
3	0,160989	1343,902	527	35	20	12	0	0	0	0	594
4	0,255109	1508,828	505	43	16	12	18	0	0	0	594
5	0,275018	1528,416	500	35	24	12	23	0	0	0	594
6	1,075014	1750,287	481	16	7	1	89	0	0	0	594
7	1,282805	1784,736	479	8	6	11	63	27	0	0	594
8	1,298024	1785,917	479	8	5	11	55	36	0	0	594
9	1,338874	1787,397	479	7	6	2	60	40	0	0	594
10	1,434437	1787,935	479	7	1	6	57	44	0	0	594
11	2,076881	1733,803	472	14	0	0	32	76	0	0	594
cannot find solution at step 12											



LAMPIRAN 4.11 Tabel Push-Over Untuk Model Struktur Dengan Join Voute Eksterior Pada Gedung 9 Lantai

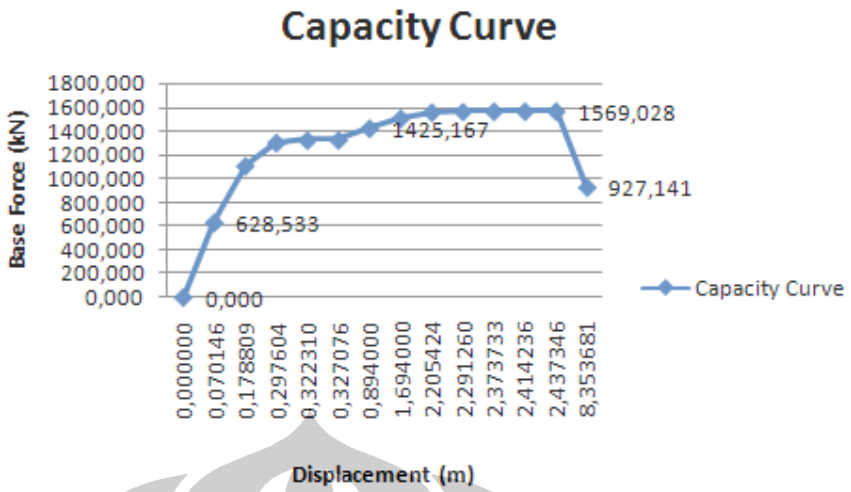
A. TIPE VOUTE 1

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	306	0	0	0	0	0	0	0	306
1	0,071231	633,880	304	2	0	0	0	0	0	0	306
2	0,179547	1107,661	251	25	28	2	0	0	0	0	306
3	0,297528	1302,070	222	42	12	12	18	0	0	0	306
4	0,320464	1321,908	213	46	17	11	19	0	0	0	306
5	0,326738	1324,366	209	45	22	10	20	0	0	0	306
6	0,894338	1423,748	191	18	15	4	78	0	0	0	306
7	1,694338	1508,630	191	7	0	0	108	0	0	0	306
8	2,207006	1559,668	191	7	0	0	82	26	0	0	306
9	2,292663	1564,573	191	7	0	0	68	40	0	0	306
10	2,383384	1567,320	191	7	0	0	56	52	0	0	306
11	2,421842	1567,749	191	7	0	0	54	54	0	0	306
12	2,444243	1567,873	191	7	0	0	49	59	0	0	306
13	24,676183	446,761	191	7	0	0	0	0	0	108	306
analysis terminated, file open error											



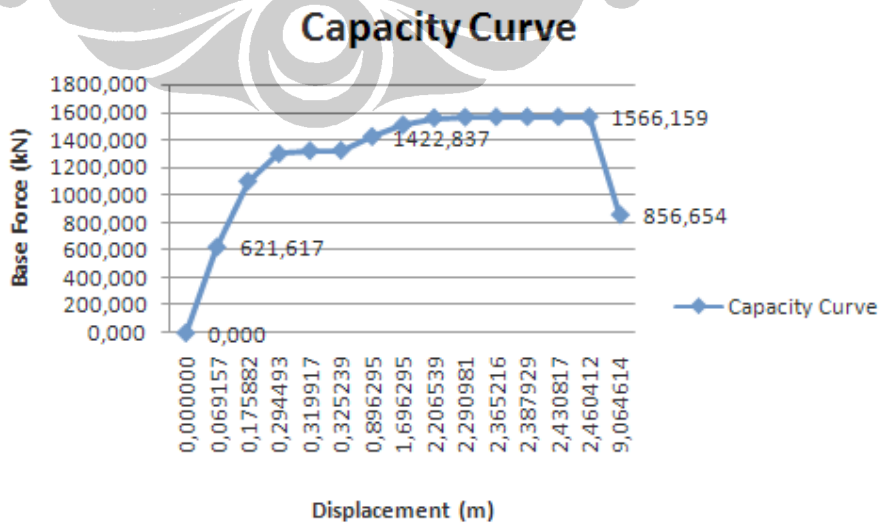
B. TIPE VOUTE 2

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	306	0	0	0	0	0	0	0	306
1	0,070146	628,533	304	2	0	0	0	0	0	0	306
2	0,178809	1107,769	250	26	28	2	0	0	0	0	306
3	0,297604	1303,150	221	43	12	12	18	0	0	0	306
4	0,322310	1324,095	213	42	20	11	20	0	0	0	306
5	0,327076	1325,964	209	44	22	11	20	0	0	0	306
6	0,894000	1425,167	191	18	16	3	78	0	0	0	306
7	1,694000	1510,102	191	7	0	0	108	0	0	0	306
8	2,205424	1560,995	191	7	0	0	82	26	0	0	306
9	2,291260	1565,856	191	7	0	0	69	39	0	0	306
10	2,373733	1568,446	191	7	0	0	56	52	0	0	306
11	2,414236	1568,899	191	7	0	0	54	54	0	0	306
12	2,437346	1569,028	191	7	0	0	49	59	0	0	306
13	8,353681	927,141	191	7	0	0	0	84	0	24	306
analysis terminated, file open error											



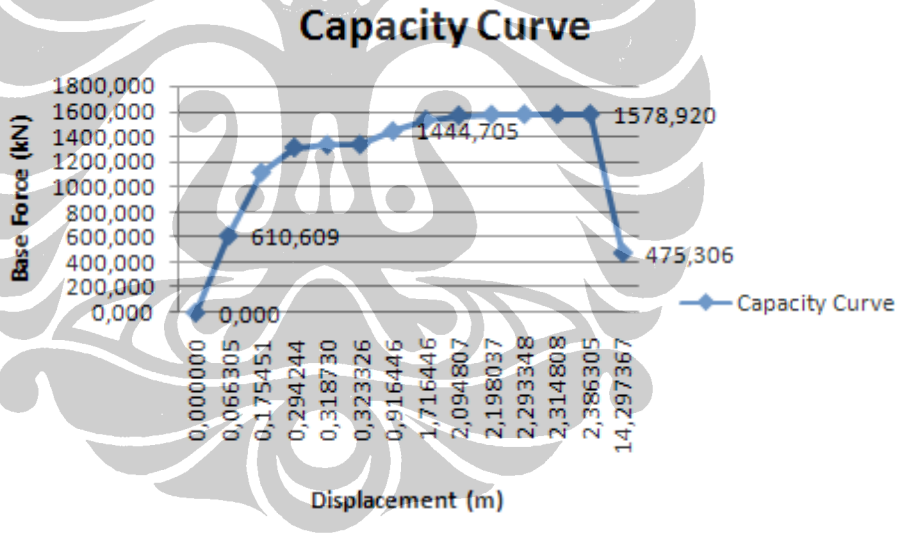
C. TIPE VOUTE 3

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	306	0	0	0	0	0	0	0	306
1	0,069157	621,617	304	2	0	0	0	0	0	0	306
2	0,175882	1099,431	255	21	28	2	0	0	0	0	306
3	0,294493	1298,555	224	40	12	12	18	0	0	0	306
4	0,319917	1320,469	217	42	16	12	19	0	0	0	306
5	0,325239	1322,674	209	44	22	11	20	0	0	0	306
6	0,896295	1422,837	191	22	11	4	78	0	0	0	306
7	1,696295	1507,752	191	7	0	0	108	0	0	0	306
8	2,206539	1558,453	191	7	0	0	78	30	0	0	306
9	2,290981	1563,032	191	7	0	0	68	40	0	0	306
10	2,365216	1565,359	191	7	0	0	57	51	0	0	306
11	2,387929	1565,683	191	7	0	0	55	53	0	0	306
12	2,430817	1566,044	191	7	0	0	53	55	0	0	306
13	2,460412	1566,159	191	7	0	0	47	61	0	0	306
14	9,064614	856,654	191	7	0	0	0	84	0	24	306
analysis terminated, file open error											



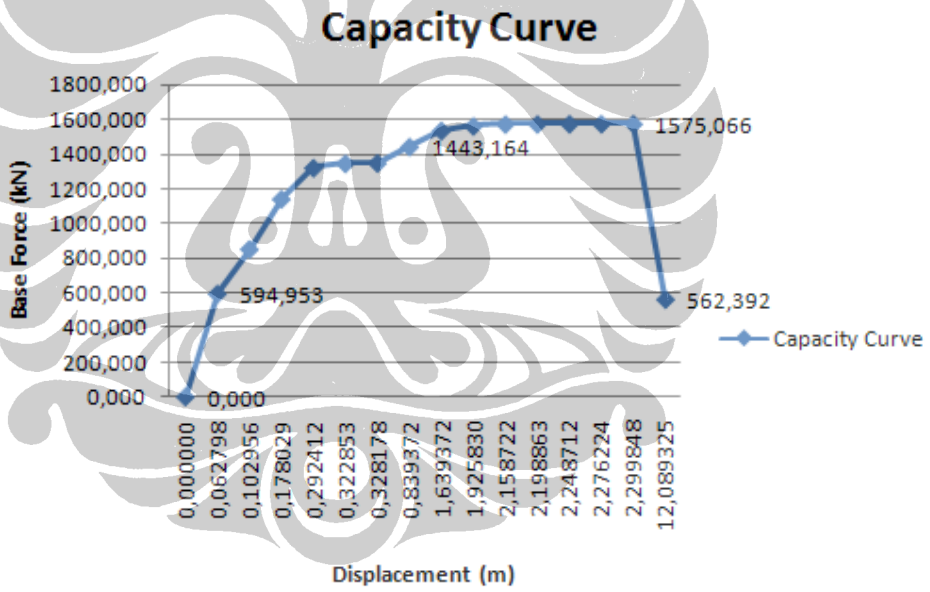
D. TIPE VOUTE 4

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	306	0	0	0	0	0	0	0	306
1	0,066305	610,609	305	1	0	0	0	0	0	0	306
2	0,175451	1116,061	253	23	27	3	0	0	0	0	306
3	0,294244	1314,820	223	38	15	11	19	0	0	0	306
4	0,318730	1335,644	217	40	18	10	21	0	0	0	306
5	0,323326	1337,572	213	43	18	11	21	0	0	0	306
6	0,916446	1444,705	191	17	12	8	78	0	0	0	306
7	1,716446	1533,760	191	7	0	0	108	0	0	0	306
8	2,094807	1569,809	191	7	0	0	88	20	0	0	306
9	2,198037	1575,708	191	7	0	0	68	40	0	0	306
10	2,293348	1578,035	191	7	0	0	61	47	0	0	306
11	2,314808	1578,371	191	7	0	0	56	52	0	0	306
12	2,386305	1578,920	191	7	0	0	50	58	0	0	306
13	14,297367	475,306	191	7	0	0	0	0	0	108	306
analysis terminated, file open error											



E. TIPE VOUTE 5

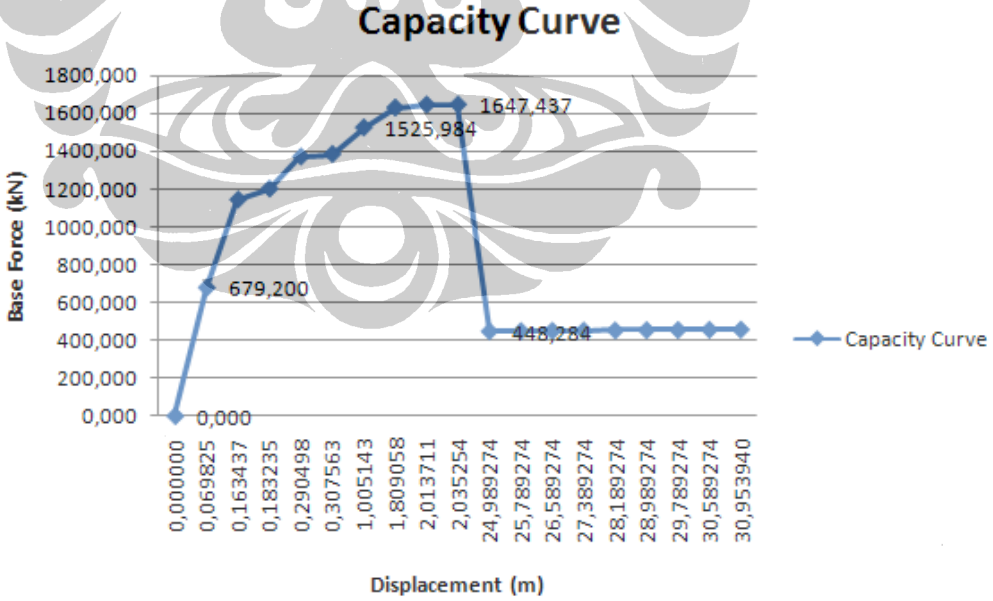
TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	306	0	0	0	0	0	0	0	306
1	0,062798	594,953	305	1	0	0	0	0	0	0	306
2	0,102956	852,071	270	36	0	0	0	0	0	0	306
3	0,178029	1141,103	244	31	26	5	0	0	0	0	306
4	0,292412	1321,184	216	41	18	11	20	0	0	0	306
5	0,322853	1346,632	213	41	19	11	22	0	0	0	306
6	0,328178	1348,786	209	37	27	11	22	0	0	0	306
7	0,839372	1443,164	191	18	11	6	80	0	0	0	306
8	1,639372	1535,973	191	7	0	0	107	1	0	0	306
9	1,925830	1562,469	191	7	0	0	88	20	0	0	306
10	2,158722	1573,280	191	7	0	0	72	36	0	0	306
11	2,198863	1574,234	191	7	0	0	64	44	0	0	306
12	2,248712	1574,861	191	7	0	0	60	48	0	0	306
13	2,276224	1575,050	191	7	0	0	58	50	0	0	306
14	2,299848	1575,066	191	7	0	0	56	52	0	0	306
15	12,089325	562,392	191	7	0	0	0	40	0	68	306
file open error, analysis terminated											



LAMPIRAN 4.12 Tabel Push-Over Untuk Model Struktur Dengan Join Voute Gabungan Pada Gedung 9 Lantai

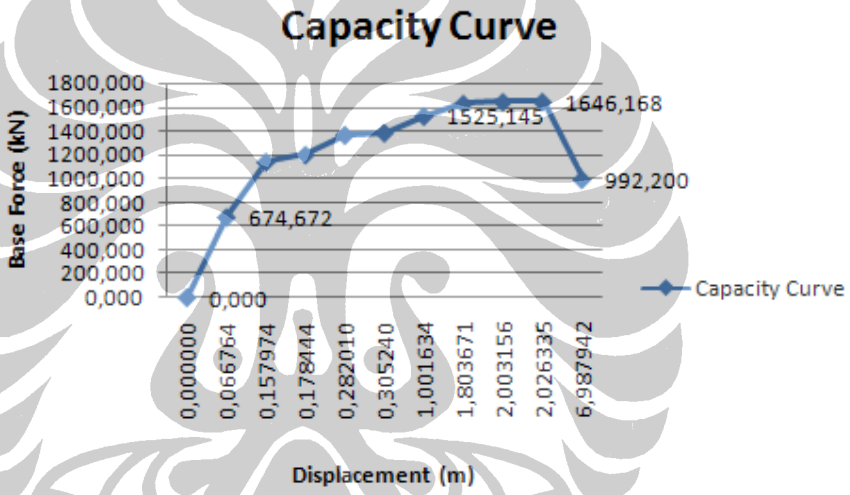
A. TIPE VOUTE 1

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	666	0	0	0	0	0	0	0	666
1	0,069825	679,200	665	1	0	0	0	0	0	0	666
2	0,163437	1144,966	612	28	25	1	0	0	0	0	666
3	0,183235	1202,681	601	34	18	13	0	0	0	0	666
4	0,290498	1371,620	584	37	15	11	19	0	0	0	666
5	0,307563	1385,552	575	33	27	9	22	0	0	0	666
6	1,005143	1525,984	551	13	12	12	78	0	0	0	666
7	1,809058	1630,594	551	7	0	0	91	17	0	0	666
8	2,013711	1646,473	551	7	0	0	67	41	0	0	666
9	2,035254	1647,437	551	7	0	0	51	57	0	0	666
10	24,989274	448,284	550	8	0	0	0	0	0	108	666
11	25,789274	449,406	550	8	0	0	0	0	0	108	666
12	26,589274	450,527	550	8	0	0	0	0	0	108	666
13	27,389274	451,649	550	8	0	0	0	0	0	108	666
14	28,189274	452,771	550	8	0	0	0	0	0	108	666
15	28,989274	453,892	550	8	0	0	0	0	0	108	666
16	29,789274	455,014	550	8	0	0	0	0	0	108	666
17	30,589274	456,136	550	8	0	0	0	0	0	108	666
18	30,953940	456,647	550	8	0	0	0	0	0	108	666



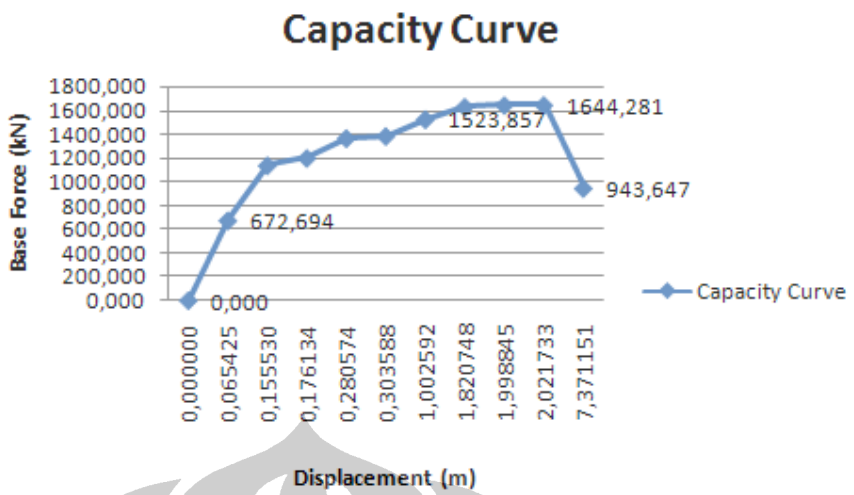
B. TIPE VOUTE 2

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	666	0	0	0	0	0	0	0	666
1	0,066764	674,672	665	1	0	0	0	0	0	0	666
2	0,157974	1139,106	612	29	25	0	0	0	0	0	666
3	0,178444	1199,619	601	34	18	13	0	0	0	0	666
4	0,282010	1366,226	583	39	14	12	18	0	0	0	666
5	0,305240	1384,829	575	33	27	9	22	0	0	0	666
6	1,001634	1525,145	551	13	12	12	78	0	0	0	666
7	1,803671	1629,566	551	7	0	0	91	17	0	0	666
8	2,003156	1645,129	551	7	0	0	67	41	0	0	666
9	2,026335	1646,168	551	7	0	0	51	57	0	0	666
10	6,987942	992,200	549	9	0	0	0	84	0	24	666
file open error, analysis terminated											



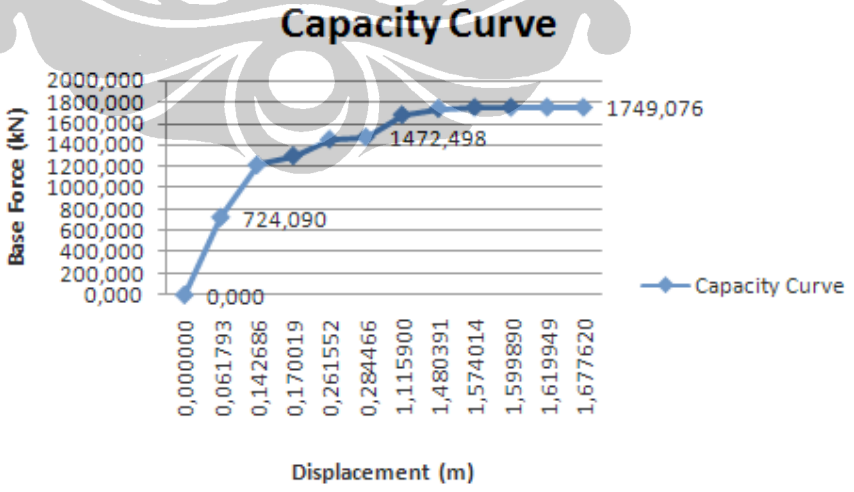
C. TIPE VOUTE 3

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	666	0	0	0	0	0	0	0	666
1	0,065425	672,694	665	1	0	0	0	0	0	0	666
2	0,155530	1136,123	612	29	25	0	0	0	0	0	666
3	0,176134	1197,450	600	35	18	13	0	0	0	0	666
4	0,280574	1364,735	581	40	15	12	18	0	0	0	666
5	0,303588	1382,895	575	33	27	9	22	0	0	0	666
6	1,002592	1523,857	551	13	12	12	78	0	0	0	666
7	1,820748	1629,728	551	7	0	0	90	18	0	0	666
8	1,998845	1643,254	551	7	0	0	67	41	0	0	666
9	2,021733	1644,281	551	7	0	0	51	57	0	0	666
10	7,371151	943,647	547	11	0	0	0	84	0	24	666
file open error, analysis terminated											



D. TIPE VOUTE 4

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	666	0	0	0	0	0	0	0	666
1	0,061793	724,090	665	1	0	0	0	0	0	0	666
2	0,142686	1211,672	617	23	24	2	0	0	0	0	666
3	0,170019	1297,111	594	36	20	16	0	0	0	0	666
4	0,261552	1451,195	581	36	18	10	21	0	0	0	666
5	0,284466	1472,498	580	24	26	14	22	0	0	0	666
6	1,115900	1678,051	553	16	7	6	84	0	0	0	666
7	1,480391	1737,966	551	7	0	5	79	24	0	0	666
8	1,574014	1748,059	551	7	0	4	69	35	0	0	666
9	1,599890	1749,851	551	7	0	0	61	47	0	0	666
10	1,619949	1750,346	551	7	0	0	55	53	0	0	666
11	1,677620	1749,076	551	7	0	0	48	60	0	0	666
file open error, analysis terminated											



E. TIPE VOUTE 5

TABLE: Pushover Curve - push											
Step	Displacement	BaseForce	AtoB	BtoIO	IOtoLS	LStoCP	CPtoC	CtoD	DtoE	BeyondE	Total
	m	KN									
0	0,000000	0,000	666	0	0	0	0	0	0	0	666
1	0,058012	787,542	664	2	0	0	0	0	0	0	666
2	0,130016	1308,285	617	24	22	3	0	0	0	0	666
3	0,164138	1422,623	593	37	20	14	2	0	0	0	666
4	0,237363	1550,163	576	42	17	10	21	0	0	0	666
5	0,262430	1575,550	574	36	20	10	26	0	0	0	666
6	1,097017	1833,093	556	13	7	0	84	6	0	0	666
7	1,242862	1859,326	551	13	5	7	56	34	0	0	666
8	1,291340	1861,895	551	12	5	6	45	47	0	0	666
9	1,254754	722,357	544	14	0	0	36	0	0	72	666
10	1,334754	724,493	544	14	0	0	36	0	0	72	666
file open error, analysis terminated