

LAMPIRAN

Lampiran 1 Pemeriksaan Persyaratan 100% Statik Ekuivalen

Tabel L1.1

Pemeriksaan Persyaratan 100% Statik Ekuivalen Bangunan 3.X.O.J.8

Penentuan Spektrum Respons Desain Bangunan 3.X.O.J.8				
Kota	Jayapura		S_{MS}	1.20
Kelas Situs	SE		S_{M1}	1.20
S_s	1.50		S_{DS}	0.80
S_1	0.60		S_{D1}	0.80
F_a	0.80		T_0	0.20
F_v	2.00		T_s	1.00
Kategori Desain Seismik (KDS) Bangunan 3.X.O.J.8				
Jenis Gedung	Perkantoran		KDS	D
Kategori Resiko	II		I_e	1
Prosedur Gaya Lateral Ekuivalen (GLE) X=Y Bangunan 3.X.O.J.8				
Tipe	C2		$T_{minimum}$	1.4945
R	7.00		$T_{maksimum}$	1.609
Ω_0	3.00		$T_{terpakai}$	1.4945
C_d	5.50		$C_{s maksimum}$	0.0764
C_t	0.0724		$C_{s hitungan}$	0.114
h_n	44.00		$C_{s minimum 1}$	0.0352
x	0.80		$C_{s minimum 2}$	0.0428
C_u	1.40		$C_{s terpakai}$	0.0764

T	1.396		W (ton)	16343.219
			V (ton)	1405.972
100% Static Equivalent Bangunan 3.X.O.J.8				
Response Spectrum Base Shear (kN)				638.607
100% Static Equivalent Base Shear (kN)				1405.972
R . Spectrum > 1.00 S . Equivalent				NOT OK
Scale Factor				2.201

Tabel L1.2

Pemeriksaan Persyaratan 100% Statik Ekvivalen Bangunan 3.V.O.J.8

Penentuan Spektrum Respons Desain Bangunan 3.V.O.J.8				
Kota	Jayapura		S_{MS}	1.20
Kelas Situs	SE		S_{M1}	1.20
S_s	1.50		S_{DS}	0.80
S_1	0.60		S_{D1}	0.80
F_a	0.80		T_0	0.20
F_v	2.00		T_s	1.00
Kategori Desain Seismik (KDS) Bangunan 3.V.O.J.8				
Jenis Gedung	Perkantoran		KDS	D
Kategori Resiko	II		I_e	1
Prosedur Gaya Lateral Ekvivalen (GLE) X=Y Bangunan 3.V.O.J.8				
Tipe	C2		$T_{minimum}$	1.4945
R	7.00		$T_{maksimum}$	1.609
Ω_0	3.00		$T_{terpakai}$	1.4945
C_d	5.50		$C_{s maksimum}$	0.0764
C_t	0.0724		$C_{s hitungan}$	0.114

h_n	44.00		$C_{s \text{ minimum } 1}$	0.0352
α	0.80		$C_{s \text{ minimum } 2}$	0.0428
C_u	1.40		$C_{s \text{ terpakai}}$	0.0764
T	1.367		$W \text{ (ton)}$	16328.073
			$V \text{ (ton)}$	1248.6219
100% Static Equivalent Bangunan 3.V.O.J.8				
<i>Response Spectrum Base Shear (kN)</i>				559.1422
100% Static Equivalent Base Shear (kN)				1248.6219
<i>R. Spectrum > 1.00 S. Equivalent</i>				NOT OK
<i>Scale Factor</i>				2.233

Tabel L1.3

Pemeriksaan Persyaratan 100% Statik Ekvivalen Bangunan 3.V.X.J.8

Penentuan Spektrum Respons Desain Bangunan 3.V.X.J.8				
Kota	Jayapura		S_{MS}	1.20
Kelas Situs	SE		S_{M1}	1.20
S_s	1.50		S_{DS}	0.80
S_1	0.60		S_{D1}	0.80
F_a	0.80		T_0	0.20
F_v	2.00		T_s	1.00
Kategori Desain Seismik (KDS) Bangunan 3.V.X.J.8				
Jenis Gedung	Perkantoran		KDS	D
Kategori Resiko	II		I_e	1
Prosedur Gaya Lateral Ekvivalen (GLE) X=Y Bangunan 3.V.X.J.8				
Tipe	C2		T_{minimum}	1.4945

R	7.00		$T_{maksimum}$	1.609
Ω_0	3.00		$T_{terpakai}$	1.4945
C_d	5.50		$C_{s maksimum}$	0.0764
C_t	0.0724		$C_{s hitungan}$	0.114
h_n	44.00		$C_{s minimum 1}$	0.0352
x	0.80		$C_{s minimum 2}$	0.0428
C_u	1.40		$C_{s terpakai}$	0.0764
T	1.255		$W (ton)$	18454.99
			$V (ton)$	1411.269
100% Static Equivalent Bangunan 3.V.X.J.8				
<i>Response Spectrum Base Shear (kN)</i>				716.4051
<i>100% Static Equivalent Base Shear (kN)</i>				1411.269
<i>R. Spectrum > 1.00 S. Equivalent</i>				NOT OK
<i>Scale Factor</i>				1.969

Tabel L1.4

Pemeriksaan Persyaratan 100% Statik Ekvivalen Bangunan 3.V.V.J.8

Penentuan Spektrum Respons Desain Bangunan 3.V.V.J.8				
Kota	Jayapura		S_{MS}	1.20
Kelas Situs	SE		S_{M1}	1.20
S_s	1.50		S_{DS}	0.80
S_1	0.60		S_{D1}	0.80
F_a	0.80		T_0	0.20
F_v	2.00		T_s	1.00
Kategori Desain Seismik (KDS) Bangunan 3.V.V.J.8				

Jenis Gedung	Perkantoran		KDS	D
Kategori Resiko	II		I_e	1
Prosedur Gaya Lateral Ekvivalen (GLE) X=Y Bangunan 3.V.V.J.8				
Tipe	C2		$T_{minimum}$	1.4945
R	7.00		$T_{maksimum}$	1.609
Ω_0	3.00		$T_{terpakai}$	1.4945
C_d	5.50		$C_{s maksimum}$	0.0764
C_t	0.0724		$C_{s hitungan}$	0.114
h_n	44.00		$C_{s minimum 1}$	0.0352
x	0.80		$C_{s minimum 2}$	0.0428
C_u	1.40		$C_{s terpakai}$	0.0764
T	1.277		$W (ton)$	18565.86
			$V (ton)$	1419.748
100% Static Equivalent Bangunan 3.V.V.J.8				
<i>Response Spectrum Base Shear (kN)</i>				711.6013
100% Static Equivalent Base Shear (kN)				1419.748
<i>R. Spectrum > 1.00 S. Equivalent</i>				NOT OK
<i>Scale Factor</i>				1.995

Lampiran 2 Pemeriksaan *Story Drift Preliminary*

Tabel L2.1.

Pemeriksaan *Story Drift Preliminary* Bangunan 3.X.O.J.8

PEMERIKSAAN STORY DRIFT X & Y BANGUNAN 3.X.O.J.8		
Cd	5.5	
le	1	
ρ	1.3	

Lantai	Drift Max		Drift Max x Cd / le		Tinggi Lantai	Simpangan Izin		Pemeriksaa n Drift	
	(mm)		Δi (mm)		hsx	Δa = 0.02 hsx/ρ (mm)			
	Arah x	Arah y	Arah x	Arah y	(mm)	Arah x	Arah y	Δi < Δa	
1	4.55	4.55	25.04	25.04	5500.00	84.62	84.62	OK	OK
2	9.74	9.74	53.55	53.55	5500.00	84.62	84.62	OK	OK
3	10.05	10.05	55.25	55.25	5500.00	84.62	84.62	OK	OK
4	9.14	9.14	50.29	50.29	5500.00	84.62	84.62	OK	OK
5	7.90	7.90	43.47	43.47	5500.00	84.62	84.62	OK	OK
6	6.60	6.60	36.31	36.31	5500.00	84.62	84.62	OK	OK
7	6.01	6.01	33.05	33.05	5500.00	84.62	84.62	OK	OK
8	4.30	4.30	23.63	23.63	5500.00	84.62	84.62	OK	OK

Tabel L2.2.

Pemeriksaan *Story Drift Preliminary* Bangunan 3.V.O.J.8

PEMERIKSAAN <i>STORY DRIFT X & Y</i> BANGUNAN 3.V.O.J.8									
Cd	5.5								
le	1								
ρ	1.3								
Lantai	<i>Drift Max</i>		<i>Drift Max x Cd / le</i>		Tinggi Lantai	Simpangan Izin		Pemeriksaan Drift	
	(mm)		Δi (mm)		hsx	Δa = 0.02 hsx/ρ (mm)			
	Arah x	Arah y	Arah x	Arah y	(mm)	Arah x	Arah y	Δi < Δa	
1	3.97	3.97	21.85	21.85	5500	84.62	84.62	OK	OK
2	8.49	8.49	46.71	46.71	5500	84.62	84.62	OK	OK
3	8.82	8.82	48.52	48.52	5500	84.62	84.62	OK	OK
4	8.17	8.17	44.92	44.92	5500	84.62	84.62	OK	OK
5	8.13	8.13	44.70	44.70	5500	84.62	84.62	OK	OK

6	7.30	7.30	40.15	40.15	5500	84.62	84.62	OK	OK
7	5.79	5.79	31.87	31.87	5500	84.62	84.62	OK	OK
8	4.06	4.06	22.32	22.32	5500	84.62	84.62	OK	OK

Tabel L2.3.

Pemeriksaan *Story Drift Preliminary* Bangunan 3.V.X.J.8

PEMERIKSAAN <i>STORY DRIFT</i> X & Y BANGUNAN 3.V.X.J.8									
Cd	5.5								
le	1								
ρ	1.3								
Lantai	<i>Drift Max</i>		<i>Drift Max x Cd / le</i>		Tinggi Lantai	Simpangan Izin		Pemeriksaan Drift	
	(mm)		Δi (mm)		hsx	Δa = 0.02 hsx/ρ (mm)			
	Arah x	Arah y	Arah x	Arah y	(mm)	Arah x	Arah y	Δi < Δa	
1	4.22	4.22	23.21	23.21	5500.00	84.62	84.62	OK	OK
2	8.86	8.86	48.75	48.75	5500.00	84.62	84.62	OK	OK
3	8.99	8.99	49.46	49.46	5500.00	84.62	84.62	OK	OK
4	8.24	8.24	45.30	45.30	5500.00	84.62	84.62	OK	OK
5	7.19	7.19	39.52	39.52	5500.00	84.62	84.62	OK	OK
6	5.92	5.92	32.55	32.55	5500.00	84.62	84.62	OK	OK
7	5.41	5.41	29.77	29.77	5500.00	84.62	84.62	OK	OK
8	3.45	3.45	18.99	18.99	5500.00	84.62	84.62	OK	OK

Tabel L2.4.

Pemeriksaan *Story Drift Preliminary* Bangunan 3.V.V.J.8

PEMERIKSAAN <i>STORY DRIFT</i> X & Y BANGUNAN 3.V.V.J.8									
Cd	5.5								
le	1								
ρ	1.3								

Lantai	Drift Max		Drift Max x Cd / Ie		Tinggi Lantai	Simpangan Izin		Pemeriksaan Drift	
	(mm)		Δi (mm)		hsx	Δa = 0.02 hsx/ρ (mm)			
	Arah x	Arah y	Arah x	Arah y	(mm)	Arah x	Arah y	Δi < Δa	
1	4.11	4.11	22.60	22.60	5500.00	84.62	84.62	OK	OK
2	8.61	8.61	47.36	47.36	5500.00	84.62	84.62	OK	OK
3	8.70	8.70	47.86	47.86	5500.00	84.62	84.62	OK	OK
4	7.86	7.86	43.25	43.25	5500.00	84.62	84.62	OK	OK
5	6.81	6.81	37.44	37.44	5500.00	84.62	84.62	OK	OK
6	5.66	5.66	31.13	31.13	5500.00	84.62	84.62	OK	OK
7	5.22	5.22	28.69	28.69	5500.00	84.62	84.62	OK	OK
8	3.24	3.24	17.80	17.80	5500.00	84.62	84.62	OK	OK

Lampiran 3 Perhitungan Persentase Gaya Geser Dasar Portal Eksterior dan Interior

Tabel L3.1.

Persentase *Base Shear Portal* Eksterior dan Interior pada Bangunan 3.X.O.J.8

Eksterior				Interior		
Joint	Case	F1 (tonf)		Joint	Case	F1 (tonf)
1	EQx	75,2755		6	EQx	109,7277
2	EQx	75,2755		7	EQx	109,7277
3	EQx	78,3236		10	EQx	109,7278
4	EQx	78,3236		11	EQx	109,7278
5	EQx	114,1038				
8	EQx	114,1039				
9	EQx	114,1038				
12	EQx	114,1039				
13	EQx	78,3236				

14	EQx	75,2755			
15	EQx	75,2755			
16	EQx	78,3236			
Total (tonf)		1070,812		Total (tonf)	438,911
Persentase <i>Base Shear</i>		70,928%		Persentase <i>Base Shear</i>	29,072%

Tabel L3.2.

Persentase *Base Shear Portal* Eksterior dan Interior pada Bangunan 3.V.O.J.8

Eksterior				Interior		
<i>Joint</i>	<i>Case</i>	F1 (tonf)		<i>Joint</i>	<i>Case</i>	F1 (tonf)
1	EQx	74,987		2	EQx	107,738
4	EQx	74,987		3	EQx	107,738
5	EQx	75,013		6	EQx	107,779
8	EQx	75,018		7	EQx	107,779
9	EQx	78,775				
10	EQx	113,194				
11	EQx	113,195				
12	EQx	78,770				
13	EQx	78,683				
14	EQx	113,078				
15	EQx	113,078				
16	EQx	78,683				
Total (tonf)		1067,461		Total (tonf)		431,033
Persentase <i>Base Shear</i>		71,236%		Persentase <i>Base Shear</i>		28,764%

Tabel L3.3.

Persentase *Base Shear Portal* Eksterior dan Interior pada Bangunan 3.V.X.J.8

Eksterior			Interior		
<i>Joint</i>	<i>Case</i>	F1 (tonf)	<i>Joint</i>	<i>Case</i>	F1 (tonf)
1	EQx	77.29	5	EQx	109.5421
2	EQx	73.259	9	EQx	109.5464
3	EQx	77.302	11	EQx	109.5426
4	EQx	73.256	7	EQx	109.5468
6	EQx	115.817			
8	EQx	115.834			
10	EQx	115.817			
12	EQx	115.834			
13	EQx	73.257			
14	EQx	77.293			
15	EQx	73.259			
16	EQx	77.305			
Total (tonf)		1065.521			
Persentase <i>Base Shear</i>		70.86%			
			Total (tonf)		438.178
			Persentase <i>Base Shear</i>		29.14%

Tabel L3.4.

Persentase *Base Shear Portal* Eksterior dan Interior pada Bangunan 3.V.V.J.8

Eksterior			Interior		
<i>Joint</i>	<i>Case</i>	F1 (tonf)	<i>Joint</i>	<i>Case</i>	F1 (tonf)
1	EQx	83.556	5	EQx	110.727
2	EQx	79.097	9	EQx	110.727
3	EQx	83.556	11	EQx	110.727

4	EQx	79.097		7	EQx	110.727
6	EQx	117.059				
8	EQx	117.059				
10	EQx	117.059				
12	EQx	117.059				
13	EQx	79.097				
14	EQx	83.556				
15	EQx	79.097				
16	EQx	83.556				
Total (tonf)		1118.845		Total (tonf)		442.906
Persentase Base Shear		71.64%		Persentase Base Shear		28.36%

Lampiran 4 Pemeriksaan *Drift Ratio* Akibat Gempa *Time History*

Tabel L4.1.

Pemeriksaan *Drift Ratio* Akibat Gempa *Time History* Bangunan 3.X.O.J.8

PEMERIKSAAN <i>STORY DRIFT</i> X & Y BANGUNAN 3.X.O.J.8								
Cd	5.5							
Ie	1							
ρ	1.3							
Lantai	Perpindahan		Perpindahan Elastik		Tinggi Lantai	Story Drift		Drift Ratio (%)
	δ(mm)		δe (mm)		hsx	Δ		
	Arah x	Arah y	Arah x	Arah y	(mm)	Arah x	Arah y	
1	37.038	11.794	37.038	11.794	5500	203.710	64.866	0.463%
2	120.930	37.290	83.892	25.496	5500	461.404	140.229	1.049%
3	212.960	63.307	92.030	26.017	5500	506.164	143.092	1.150%
4	301.135	86.552	88.175	23.245	5500	484.961	127.849	1.102%

5	379.525	106.028	78.391	19.476	5500	431.149	107.118	0.980%
6	445.591	121.957	66.065	15.929	5500	363.359	87.611	0.826%
7	506.628	135.934	61.038	13.977	5500	335.708	76.871	0.763%
8	550.257	145.503	43.629	9.570	5500	239.958	52.633	0.545%

Tabel L4.2.

Pemeriksaan *Drift Ratio* Akibat Gempa *Time History* Bangunan 3.V.O.J.8

PEMERIKSAAN STORY DRIFT X & Y BANGUNAN 3.V.O.J.8								
Cd	5.5							
Ie	1							
ρ	1.3							
Lantai	Perpindahan		Perpindahan Elastik		Tinggi Lantai	Story Drift		Drift Ratio (%)
	δ(mm)		δe (mm)		hsx	Δ		
	Arah x	Arah y	Arah x	Arah y	(mm)	Arah x	Arah y	
1	36.663	10.867	36.663	10.867	5500	201.647	59.766	0.458%
2	117.516	34.173	80.853	23.307	5500	444.693	128.187	1.011%
3	204.669	58.463	87.152	24.290	5500	479.338	133.593	1.089%
4	288.394	80.619	83.725	22.156	5500	460.488	121.860	1.047%
5	374.893	101.992	86.499	21.372	5500	475.747	117.548	1.081%
6	454.703	120.256	79.809	18.264	5500	438.952	100.453	0.998%
7	519.763	134.399	65.060	14.143	5500	357.831	77.789	0.813%
8	565.997	144.207	46.234	9.807	5500	254.287	53.941	0.578%

Tabel L4.3.

Pemeriksaan *Drift Ratio* Akibat Gempa *Time History* Bangunan 3.V.X.J.8

PEMERIKSAAN STORY DRIFT X & Y BANGUNAN 3.V.X.J.8								
Cd	5.5							
Ie	1							

ρ	1.3							
Lantai	Perpindahan		Perpindahan Elastik		Tinggi Lantai	Story Drift		Drift Ratio (%)
	δ (mm)		δ_e (mm)		hsx	Δ		
	Arah x	Arah y	Arah x	Arah y	(mm)	Arah x	Arah y	
1	34.422	11.401	34.422	11.401	5500	189.321	62.704	0.430%
2	108.891	34.732	74.469	23.331	5500	409.581	128.320	0.931%
3	186.283	57.513	77.392	22.781	5500	425.655	125.298	0.967%
4	261.383	77.869	75.100	20.356	5500	413.049	111.958	0.939%
5	332.424	95.299	71.041	17.430	5500	390.724	95.866	0.888%
6	394.304	109.330	61.881	14.031	5500	340.344	77.171	0.774%
7	453.082	123.192	58.777	13.862	5500	323.275	76.240	0.735%
8	488.764	132.733	35.682	9.540	5500	196.252	52.472	0.446%

Tabel L4.4.

Pemeriksaan *Drift Ratio* Akibat Gempa *Time History* Bangunan 3.V.V.J.8

PEMERIKSAAN <i>STORY DRIFT</i> X & Y BANGUNAN 3.V.V.J.8								
Cd	5.5							
Ie	1							
ρ	1.3							
Lantai	Perpindahan		Perpindahan Elastik		Tinggi Lantai	Story Drift		Drift Ratio (%)
	δ(mm)		δe (mm)		hsx	Δ		
	Arah x	Arah y	Arah x	Arah y	(mm)	Arah x	Arah y	
1	36.550	11.108	36.550	11.108	5500	201.025	61.097	0.457%
2	92.974	27.350	56.424	16.241	5500	310.332	89.327	0.705%
3	174.587	49.881	81.613	22.531	5500	448.872	123.921	1.020%
4	252.894	72.352	78.307	22.471	5500	430.686	123.590	0.979%
5	321.071	93.099	68.177	20.748	5500	374.975	114.112	0.852%

6	379.532	112.600	58.461	19.500	5500	321.536	107.251	0.731%
7	434.271	132.780	54.739	20.180	5500	301.066	110.991	0.684%
8	464.866	144.832	30.594	12.052	5500	168.268	66.286	0.382%