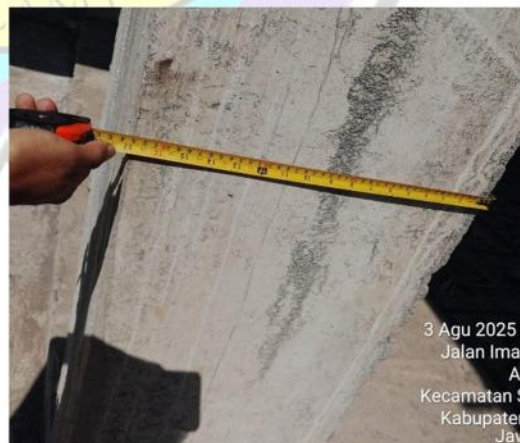
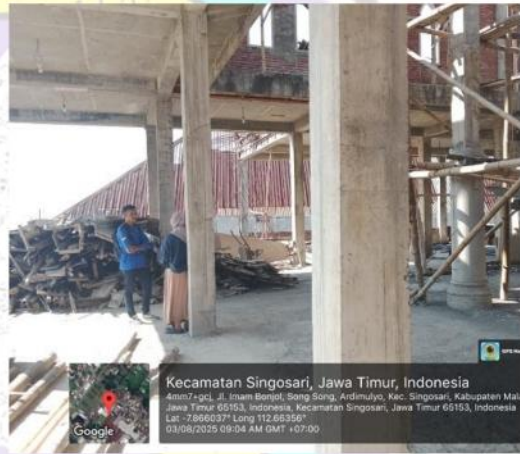


## LAMPIRAN

### 1) Lampiran dokumentasi di lapangan





3 Agu 2025 09:38.4  
No.173 Jalan Imam Bonjol  
Ardimulyo  
Kecamatan Singosari  
Kabupaten Malang  
Jawa Timur



3 Agu 2025 09:37.57  
No.173 Jalan Imam Bonjol  
Ardimulyo  
Kecamatan Singosari  
Kabupaten Malang  
Jawa Timur



Project properties: **BENEDIKTUS BEN HATA ( SKRIPSI)**

Structure type: Shell

Structure gravity center coordinates:  
X = 13.431 (m)  
Y = 12.569 (m)  
Z = 6.634 (m)

Central moments of inertia of a structure:  
Ix = 51399497.488 (kg\*m<sup>2</sup>)  
Iy = 37830294.649 (kg\*m<sup>2</sup>)  
Iz = 78166208.105 (kg\*m<sup>2</sup>)  
Mass = 728629.904 (kg)

Coordinates of structure centroid with static global masses considered:  
X = 13.565 (m)  
Y = 12.414 (m)  
Z = 7.076 (m)

Central moments of inertia of a structure with static global masses considered:  
Ix = 77847071.986 (kg\*m<sup>2</sup>)  
Iy = 57829688.679 (kg\*m<sup>2</sup>)  
Iz = 119996146.060 (kg\*m<sup>2</sup>)  
Mass = 1094397.405 (kg)

Coordinates of structure centroid with dynamic global masses considered:  
X = 13.565 (m)  
Y = 12.414 (m)  
Z = 7.076 (m)

Central moments of inertia of a structure with dynamic global masses considered:  
Ix = 77847071.986 (kg\*m<sup>2</sup>)  
Iy = 57829688.679 (kg\*m<sup>2</sup>)  
Iz = 119996146.060 (kg\*m<sup>2</sup>)  
Mass = 1094397.405 (kg)

Structure description

Number of nodes:	1159
Number of members:	337
Member finite elements:	801
Planar finite elements:	951
Volumetric finite elements:	0
No of static degr. of freedom:	6806
Cases:	150
Combinations:	136

**Table of load cases / analysis types**

Case 1 : SW  
Analysis type: Static - Linear

Case 2 : SDL  
Analysis type: Static - Linear

2) Output hasil analisis dengan program RSAP

Case 3 : LL  
Analyse type: Static - Linear

Case 4 : LR  
Analyse type: Static - Linear

Case 5 : R  
Analyse type: Static - Linear

Case 6 : Wind X+ 25 m/s (f =1.00) Simulation  
Analyse type: Static - Linear

**Data:**

Wind velocity : 25.00m/s  
Terrain level : 0.00m  
Wind profile : Constant - 1.00  
Exposed elements : Selection 413 414 416 423to453 458 463  
Openings : Closed for the wind flow  
Stop criterion : Automatic  
Sum of main forces : 122.63kN  
Sum of perpendicular forces : 0.22kN  
Sum of vertical forces : 19.67kN  
Precision : 0.50%  
Sum of forces may differ due to model simplification (forces on panel/cladding sidewalls and member top/bottom side are neglected)  
Loading based on pressure maps.

Case 7 : Wind Y+ 25 m/s (f =1.00) Simulation  
Analyse type: Static - Linear

**Data:**

Wind velocity : 25.00m/s  
Terrain level : 0.00m  
Wind profile : Constant - 1.00  
Exposed elements : Selection 413 414 416 423to453 458 463  
Openings : Closed for the wind flow  
Stop criterion : Automatic  
Sum of main forces : 95.36kN  
Sum of perpendicular forces : 9.81kN  
Sum of vertical forces : 9.41kN  
Precision : 0.50%  
Sum of forces may differ due to model simplification (forces on panel/cladding sidewalls and member top/bottom side are neglected)  
Loading based on pressure maps.

Case 8 : Wind X- 25 m/s (f =1.00) Simulation  
Analyse type: Static - Linear

**Data:**

Wind velocity : 25.00m/s  
Terrain level : 0.00m  
Wind profile : Constant - 1.00  
Exposed elements : Selection 413 414 416 423to453 458 463  
Openings : Closed for the wind flow  
Stop criterion : Automatic  
Sum of main forces : 129.59kN  
Sum of perpendicular forces : -19.47kN  
Sum of vertical forces : 20.35kN  
Precision : 0.50%  
Sum of forces may differ due to model simplification (forces on panel/cladding sidewalls and member top/bottom side are neglected)  
Loading based on pressure maps.

Case 9 : Wind Y- 25 m/s (f =1.00) Simulation  
Analysis type: Static - Linear

Data:  
Wind velocity : 25.00m/s  
Terrain level : 0.00m  
Wind profile : Constant - 1.00  
Exposed elements : Selection 413 414 416 423to453 458 463  
Openings : Closed for the wind flow  
Stop criterion : Automatic  
Sum of main forces : 84.00kN  
Sum of perpendicular forces : -8.28kN  
Sum of vertical forces : 25.45kN  
Precision : 0.50%  
Sum of forces may differ due to model simplification (forces on panel/cladding sidewalls and member top/bottom side are neglected)  
Loading based on pressure maps.

Case 10 : Modal  
Analysis type: Modal

Data:  
Analysis mode : Modal  
Type of mass matrix : Lumped without rotations  
Number of modes : 200  
Limits : 0.000  
Coefficient : 0.000

Case 11 : ASCE 7-16 Direction\_X  
Analysis type: Static - Seismic

Excitation direction:  
X = 1.000  
Y = 0.000  
Z = 0.000  
Data:  
Soil : D  
S<sub>i</sub> : 0.388

$S_2$  : 0.817

**Spectrum parameters:**

$F_a = 1.173$   $F_v = 1.914$   
 $S_{U2} = 0.959$   $S_{M1} = 0.739$   
 $S_{D2} = 0.639$   $S_{D1} = 0.493$   
 $T_o = 0.154$   $T_2 = 0.771$   
 $T_L = 20.000$   
 $I = 1.500$   $R = 8.000$

**Fundamental period:**

Approximated method  $T = 0.905$  (s)  
RC frames  $C_1 = 0.016$  (0.0466)  $x = 0.90$

**Structure range:**

Top story Level +27.00  
Bottom story Level +6.00  
Effective height  $H_n = 27.00$ (m)

**Base shear**

$k = 1.202$   
 $C_s = 0.102$   
 $C_{s,max} = 0.102$   
 $C_{s,min} = 0.042$

Effective seismic weight  $W = 1087650.57$ (kG)

Shear force  $V = 1089.19$ (kN)

**Vertical distribution of seismic forces**

Story	Height (m)	Weight (kG)	F(kN)	M(kN*m)
Level +6.00	6.00	610631.31	454.75	0.00
Level +9.00	3.00	439411.75	530.56	0.00
Level +12.00	3.00	23753.68	40.90	0.00
Level +16.80	4.80	12489.80	32.23	0.00
Level +22.30	5.50	6687.50	24.26	0.00
Level +27.00	4.70	1423.38	6.50	0.00

Case 12 : ASCE 7-16 Direction\_Y

Analysis type: Static - Seismic

**Excitation direction:**

$X = 0.000$   
 $Y = 1.000$   
 $Z = 0.000$

**Data:**

Soil : D  
 $S_1$  : 0.386  
 $S_2$  : 0.817

**Spectrum parameters:**

$F_a = 1.173$   $F_v = 1.914$   
 $S_{U2} = 0.959$   $S_{M1} = 0.739$   
 $S_{D2} = 0.639$   $S_{D1} = 0.493$   
 $T_o = 0.154$   $T_2 = 0.771$   
 $T_L = 20.000$   
 $I = 1.500$   $R = 8.000$

**Fundamental period:**

Approximated method  $T = 0.905$  (s)  
RC frames  $C_1 = 0.016$  (0.0466)  $x = 0.90$

**Structure range:**

Top story Level +27.00  
 Bottom story Level +8.00  
 Effective height  $H_n = 27.00(m)$

**Base shear**

$K = 1.202$   
 $C_s = 0.102$   
 $C_{s,max} = 0.102$   
 $C_{s,min} = 0.042$

Effective seismic weight  $W = 1086796.69(kG)$   
 Shear force  $V = 1088.34(kN)$

**Vertical distribution of seismic forces**

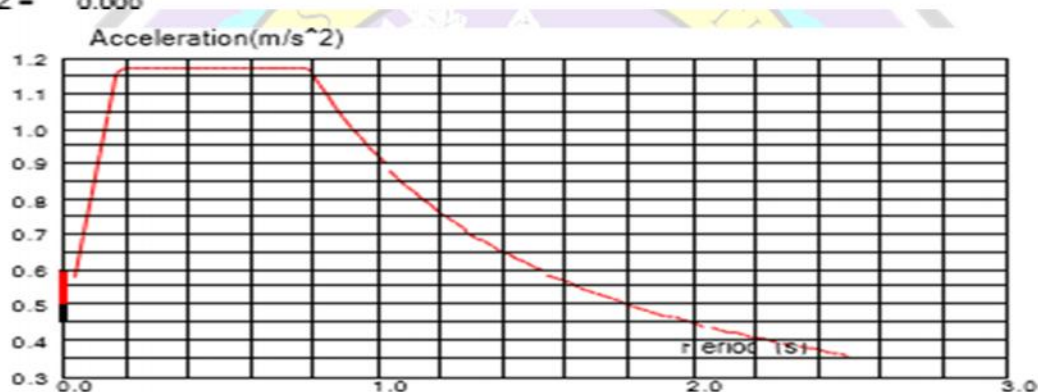
Story	Height (m)	Weight (kG)	F(kN)	M(kN*m)
Level +6.00	6.00	610631.31	454.07	0.00
Level +9.00	3.00	439411.75	530.41	0.00
Level +12.00	3.00	23753.68	40.89	0.00
Level +16.80	4.80	12489.80	32.22	0.00
Level +22.30	5.50	6687.50	24.25	0.00
Level +27.00	4.70	1423.38	6.50	0.00

**Case 13 : Seismic ASCE 7-16 Direction\_X****Analysis type: Dynamics - Seismic**

Base shear value **1095.862 (kN)**  
 Base shear coefficient for the combination SRSS : 1.192  
 Base shear coefficient for the combination CQC : 1.149  
 Base shear coefficient for the combination 10% : 1.157  
 Base shear coefficient for the combination 2S : 1.126

**Excitation direction:**

X = 1.000  
 Y = 0.000  
 Z = 0.000

**Data:**

Risk category : IV  
 Soil : D  
 $S_1 = 0.388$   
 $S_2 = 0.817$

Direction : Horizontal

**Spectrum parameters:**

$F_a = 1.173$   
 $S_{vs} = 0.959$   
 $S_{ps} = 0.639$   
 $T_0 = 0.154$   
 $I = 1.500$

$F_v = 1.914$   
 $S_{v1} = 0.739$   
 $S_{p1} = 0.493$   
 $T_s = 0.771$   
 $R = 8.000$

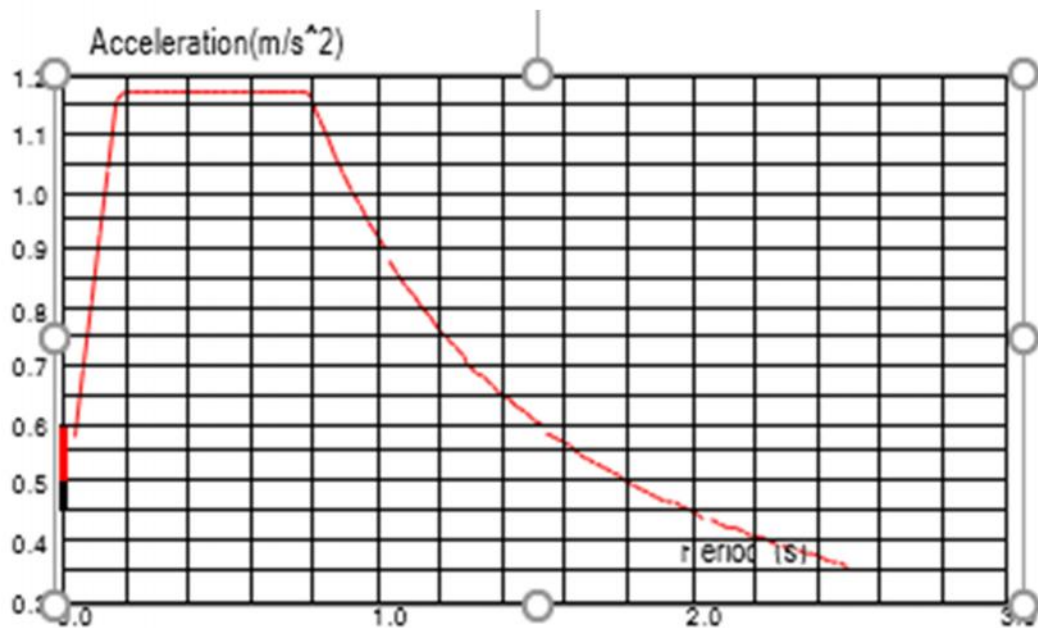
Seismic Design Category Based on SD1 : D  
 Seismic Design Category Based on SDS : D

**Case 14 : Seismic ASCE 7-16 Direction\_Y****Analysis type: Dynamics - Seismic**

Base shear value **1095.862 (kN)**  
 Base shear coefficient for the combination SRSS : 1.375  
 Base shear coefficient for the combination CQC : 1.339  
 Base shear coefficient for the combination 10% : 1.349  
 Base shear coefficient for the combination 2S : 1.308

**Excitation direction:**

X = 0.000  
 Y = 1.000  
 Z = 0.000



**Data:**

Risk category : IV  
 Soil : D  
 $S_1$  : 0.388  
 $S_2$  : 0.817

Direction : Horizontal

**Spectrum parameters:**

$F_a$ = 1.173	$F_v$ = 1.914
$S_{M2}$ = 0.959	$S_{M1}$ = 0.739
$S_{D2}$ = 0.639	$S_{D1}$ = 0.493
$T_c$ = 0.154	$T_g$ = 0.771
$I$ = 1.500	$R$ = 8.000

Seismic Design Category Based on SD1 : D

Seismic Design Category Based on SDS : D

Case 15 : ULS1 = 1,4 D

Analysis type: Linear combination

Case 16 : ULS2 = 1,2 D + 1,8 LL

Analysis type: Linear combination

Case 17 : ULS3 = 1,2 D + 1,8 L + 0,5 Lr

Analysis type: Linear combination

Case 18 : ULS4 = 1,2 D + 1,8 L + 0,5 R

Analysis type: Linear combination