



# MANDRIVA BUILDERS INC.

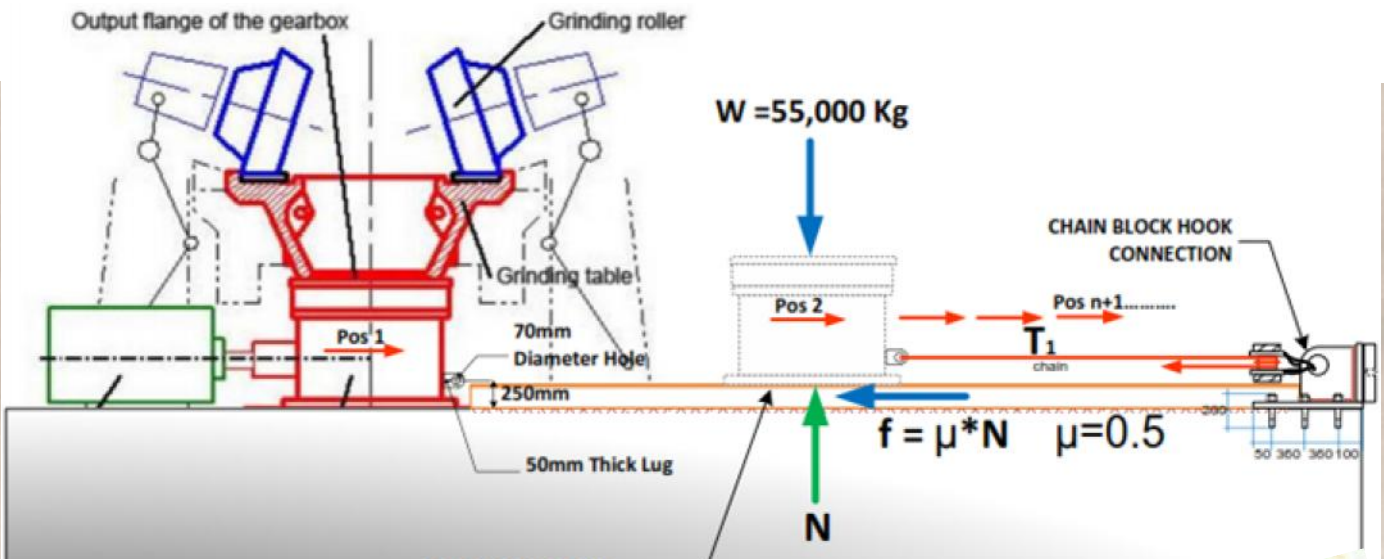
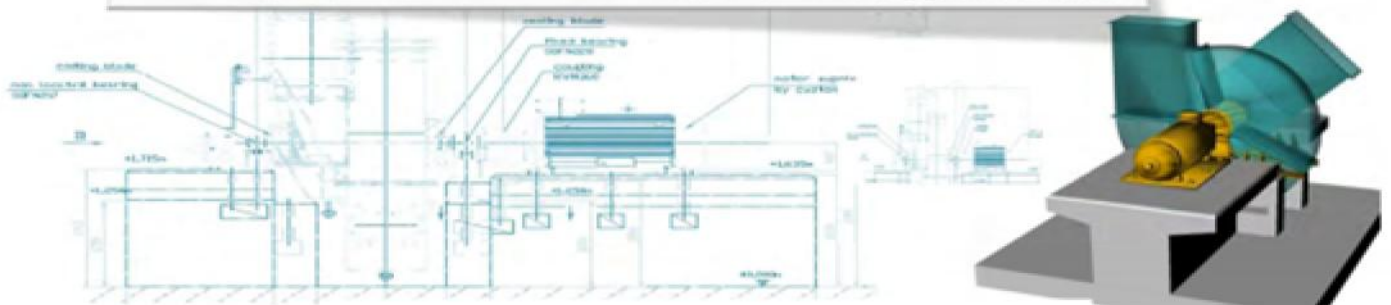
1573 5th street, 4th Floor, Fabie Estate, Paco Manila Philippines

[www.mandrivabuilders.com](http://www.mandrivabuilders.com)

## Structural Assessment & Retrofitting

Mandriva Builders Inc., specialized in the structural condition assessment, investigation, cover meter survey or existing bar determination, retrofitting, restoration or rehabilitation seismic upgrade of concrete and steel buildings and its structural components such as commercial buildings, industrial plants, roads, bridges, refineries, mining facilities, airport hangar and runways, silo, piers, jetties, reservoir, dams, power plants, condominiums, high rise buildings, heavy and light machinery foundations in accordance with the latest provision of the National Structural Code of the Philippines and employing the state of the art technology software and products such as chemical grouts, concrete epoxy, metal jacket and carbon fiber reinforced polymer and etc.

Mandriva offers carbon fiber sheet system, steel jacking, anchoring and section enlargement for structures requiring strengthening, reinforcement or additional stiffness and increase in tensile and compressive strength of structural elements.





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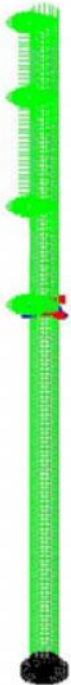
## Seismic consideration

### Basic Design Criteria

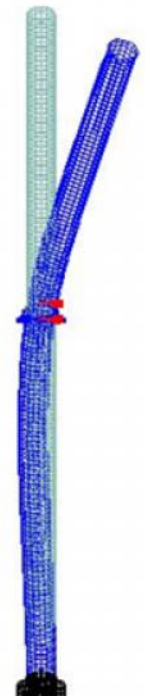
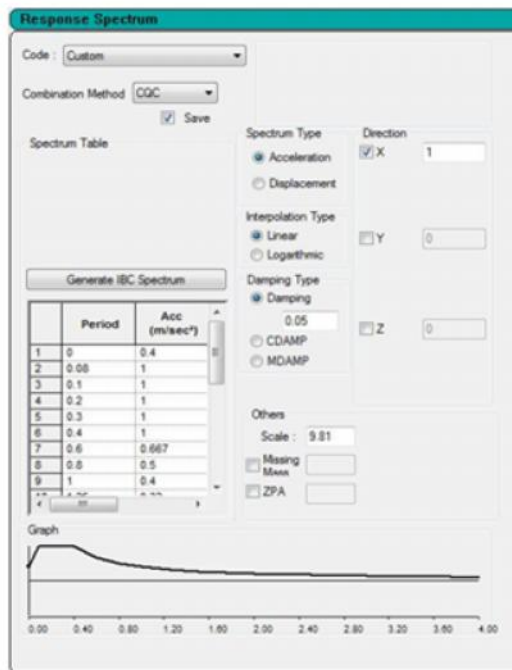
- Zone = 4
- Near source factor  $N_v = 1.0$
- Seismic source type =  $b \geq 10$  Km,  $N_a = 1.0$
- Pressure load = 200 daka or 2 KPa
- Soil type = Sb
- $C_a = 0.4N_v$
- $C_v = 0.4N_v$
- Scale factor =  $9.81 \text{ m/s}^2$

### Analysis (response spectrum)

- Dynamic H > 72 m
- Modal shape cut off mode = 30
- Generated modal shape = 13
- $C_a = 0.4N_v$



## Mode 1 of dynamic analysis



## Investigation of existing chimney w/o support modification

Allowable stress = 148.8 MPa

DL+LL+PRESSURE+TEMP+ (WINDX-POS)

