

## ABSTRACT

Name : Fahmy Hermawan  
Student's Reg. No. : 327 073 803  
Major : Civil Engineering  
Title : COMPARATIVE PUSHOVER ANALYSIS BETWEEN BUILDING STRUCTURE MODEL WITH SHEAR WALL AS SHELL NONLINEAR ELEMENT AND SHEAR WALL AS COLUMN ANALOGY

A nonlinear pushover analysis will be utilized to identify the structural behavior in the Building X in managing earthquake load that is beyond earthquake load design and to evaluate the building's structural performance.

Building X is located in Jakarta in the 3<sup>rd</sup>, quake zone. The building's structure applies two models; first the shear wall is assigned as shell nonlinear element and second the shear wall is analogized as the column.

The structure analysis includes of earthquake reduction representative factor (R), vibration period, base shear, displacement and structure dynamic response towards the earthquake nominal load due to the earthquake design load. The calculation uses spectrum response from earthquake load design with the nominal vibration that is used in calculating various responses must have mass participation with minimum 90% to create total response.

Structure model will further be analyzed with statically non-linear pushover FEMA 356 analysis, by giving consistent lateral force, triangular force and higher mode. Afterwards, those forces are enlarged regularly until maximum deflection in the control point is achieved. In this condition, the structure will experience yield and reach critical failure condition in an inelastic behavior.

Structures that already apply Indonesian National Standardization (SNI) still require further analysis, to measure its performance against earthquake load beyond earthquake load design until the structure becomes yield in an inelastic condition.

Keywords : Shear wall, ductility, vibration period, nonlinear pushover FEMA 356 analysis