

INTISARI

Pembangunan Gedung *Smart and Green Learning Center* dilaksanakan demi menunjang kebutuhan akademisi dari setiap civitas Fakultas Teknik UGM. Gedung dengan 11 lantai pada area tower dan 5 lantai pada area podium ini memiliki sistem perencanaan tahan gempa dengan menggunakan teknologi perkakuan damper. Perlu dilakukan analisis kapasitas fondasi demi menjamin kekuatan fondasi dalam mendukung beban bangunan di atasnya.

Data *Standard Penetration Test* (SPT) digunakan sebagai acuan dalam melakukan analisis kapasitas dukung aksial fondasi dengan metode *O'Neil & Reese* (1989) dan metode *meyerhoff* serta analisis kapasitas dukung lateral tiang bor dengan pendekatan metode *Broms* (1964) dan metode *Brinch Hansen* (1961). Melakukan interpretasi kapasitas dukung aksial dan lateral *bored pile* berdasarkan hasil pengujian pembebanan *loading test*. Interpretasi dilakukan dengan metode *Chin* (1971) dan metode *Mazurkiewicz* (1972).

Hasil analisis kapasitas dukung aksial fondasi *bored pile* dengan metode *O'Neil & Reese* (1989) sebesar 374,717 Ton dan metode *meyerhoff* sebesar 410,502 Ton. kapasitas dukung lateral fondasi *bored pile* dengan metode *Broms* (1964) sebesar 37,69 Ton dan kapasitas dukung lateral fondasi *bored pile* tidak dapat diperoleh melalui metode *Brinch Hansen* (1961). Hasil interpretasi berdasarkan hasil pembebanan *Axial Loading Test* menggunakan metode *Chin* (1971) sebesar 500 Ton dan metode *Mazurkiewicz* (1972) sebesar 324 Ton. Hasil interpretasi berdasarkan hasil pembebanan *Lateral Loading Test* menggunakan metode *Chin* (1971) sebesar 59,7 Ton dan metode *Mazurkiewicz* (1972) sebesar 36,8 Ton. Nilai kapasitas dukung fondasi berdasarkan hasil pembebanan *Loading Test* lebih besar dibandingkan nilai kapasitas dukung fondasi berdasarkan metode empiris.

Kata kunci: *bored pile*, *loading test*, kapasitas pondasi, aksial, lateral

ABSTRACT

Smart and Green Learning Center was built to support each member of the UGM Faculty of Engineering. The building with 11 floors in the tower area and 5 floors in the podium area has an earthquake resistant planning system using damper stiffening technology. It is necessary to analyze the capacity of the foundation in order to ensure the strength of the foundation.

Standard Penetration Test (SPT) data used as a reference to determine axial bearing capacity based on O'Neil & Reese (1989) method and meyerhoff method as well as analyzing the lateral bearing capacity using Broms method (1964) and the Brinch Hansen method (1961). Interpreting the axial and lateral bearing capacity of the bored pile based on the results of the loading test. Interpretation was carried out using the Chin method (1971) and the Mazurkiewicz method (1972).

The results of the axial bearing capacity analysis based on O'Neil & Reese (1989) method is 374.717 tons and the Meyerhoff method is 410.502 tons. The lateral bearing capacity of the bored pile foundation using the Broms method (1964) is 37.69 Tons and the lateral bearing capacity of the bored pile IP 269 cannot be obtained using the Brinch Hansen method (1961). The interpretation results are based on the results of the Axial Loading Test using Chin method (1971) is 500 tons and Mazurkiewicz method (1972) is 324 tons. The interpretation results based on the results of the Lateral Loading Test using Chin method (1971) is 59.7 tons and Mazurkiewicz method (1972) is 36.8 tons. The value of bearing capacity based on the results of the Loading Test is greater than the value of bearing capacity based on the empirical method.

Keywords: bored pile, loading test, bearing capacity, axial, lateral