Kajian eksperimental dan modelisasi grid gelagar sederhana pelat berongga terhadap beban statik = Study on grid experimentation and numerical modeling of voided slab simple girder to static load

Irvan Timotius, author

Abstrak

Pelat berongga adalah pelat yang memiliki rongga didalamnya untuk mengurangi berat sendirinya. Saat ini belum ada pemodelan sederhana pelat berongga yang benar-benar dapat mewakili perilaku pelat berongga. Penelitian dilakukan melalui dua pendekatan yaitu simulasi numerik dan eksperimen di laboratorium. Eksperimen di laboratorium dilakukan terlebih dahulu dan datanya dibandingkan dengan simulasi numerik. Simulasi numerik dilakukan dengan melakukan beberapa jenis pemodelan yaitu balok grid, balok sederhana dan pelat. Melalui simulasi numerik didapatkan bahwa pemodelan yang paling mendekati menggunakan pemodelan sebagai pelat dengan menggunakan pendekatan equivalent area.

.....Voided slab is a slab that has a hollow cavity therein to reduce the weight of its own. Currently there is no simple modeling of the hollow slab that can truly represents the behavior of hollow plate. The study was conducted through two approaches which are numerical simulation and laboratory experiment. Experiments in the laboratory was conducted first and the result experimental data was compared with numerical simulations. Numerical simulations were carried out by doing several modeling which are simple girder structure, grid structure, and slab structure. Through numerical simulations it was found that modeling using the slab with equivalent area give the closest displacements comparing with those of the experiment.