

LEMBAR PENGESAHAN

Analisis Eksperimental Perbandingan Slab-on-Ground Menggunakan Wiremesh GFRP dan Wiremesh Baja Diameter 6

Nama : M.afison
Nim : 4204221470
Dosen Pembimbing : Alamsyah,M.Eng

ABSTRACT

Slab-on-ground is one of the most widely used concrete structural elements for building floors, warehouses, and parking areas because it transfers loads directly to the supporting soil. In general, slab-on-ground uses steel wire mesh as reinforcement. However, the development of construction materials has introduced Glass Fiber Reinforced Polymer (GFRP) as an alternative reinforcement due to its high tensile strength, light weight, and excellent corrosion resistance. This study aims to compare the performance of slab-on-ground reinforced with D6 steel wire mesh and D6 GFRP wire mesh based on maximum load capacity, deflection, and crack patterns. The research employed an experimental laboratory method using four specimens, consisting of two slab-on-ground specimens reinforced with D6 steel wire mesh and two specimens reinforced with D6 GFRP wire mesh. All specimens were cast with the same dimensions and concrete quality and were cured for 28 days before being tested under loading until failure. The results showed that the slab-on-ground reinforced with D6 GFRP wire mesh achieved a maximum load capacity of 187.01 kN, which was higher than the D6 steel wire mesh specimen with a maximum load of 180.40 kN, representing an increase of approximately 3.66%. In addition, both specimens exhibited similar deflection behavior, with the maximum deflection occurring at the center of the slab. The crack pattern of the steel-reinforced slab was more widely distributed, while the GFRP-reinforced slab exhibited cracks that were more concentrated in the loading area. Based on these findings, it can be

concluded that D6 GFRP wire mesh provides a higher load-carrying capacity than D6 steel wire mesh, indicating its potential as an alternative reinforcement material for slab-on-ground construction, particularly in environments requiring high corrosion resistance.

Keywords: slab-on-ground, steel wire mesh, GFRP wire mesh, maximum load, deflection, crack pattern.