ABSTRAK

Yuliaty A.D Sitanggang, 5123210038, Analisa Sengkang Terhadap Gaya Geser Pada Balok Beton Bertulang, Tugas Akhir, Medan : Program Studi D-3 Teknik Sipil, Jurusan Pendidikan Teknik Bangunan, Fakultas Teknik, Universitas Negeri Medan, 2016.

Beton adalah material yang kuat dalam kondisi tekan, tetapi lemah dalam kondisi tarik. Beton bukan material yang elastis. Beton dihasilkan dari sekumpulan interaksi mekanis dan kimiawi sejumlah material pembentuknya. Dalam perencanaan beton bertulang diperlukan perencanaan untuk mengurangi keretakan pada beton. Salah satu keretakan yang paling sering terjadi adalah pada balok. Salah satu perencanaannya adalah mengetahui lendutan pada balok tersebut.

Dalam analisis ini dilampirkan beberapa data umum dalam perencanaan balok bertulang berdasarkan data yang telah tertera dalam gambar bestek , yaitu: mutu beton *(fc')* = 26,4 Mpa (K-300), mutu baja *(fy)* = 400 Mpa, panjang balok = 4000 mm, lebar balok = 250 mm, tinggi balok = 500 mm, d=425, 427, 428 mm, diameter tulangan tarik & tekan = D16, diameter tulangan sengkang = D8, D9, D11, selimut beton 40 mm.

Hasil perhitungan kuat geser pada balok beton bertulang, diperoleh hasil-hasil sebagai berikut: untuk tulangan geser D8 jarak sengkang 200 mm memiliki kuat geser 177.639 kN; jarak sengkang 250 mm memiliki kuat geser 160,437kN; jarak sengkang 500 mm memiliki kuat geser 126,033 kN; jarak sengkang 1000 mm memiliki kuat geser 108,831 kN; jarak sengkang 2000 mm memiliki kuat geser 100,230 kN, untuk tulangan geser D9 jarak sengkang 200 mm memiliki kuat geser 200,018 kN; jarak sengkang 250 mm memiliki kuat geser 178,297 kN; jarak sengkang 500 mm memiliki kuat geser 134,856 kN; jarak sengkang 1000 mm memiliki kuat geser 113,135 kN; jarak sengkang 2000 mm memiliki kuat geser 102,275 kN, untuk tulangan geser D11 jarak sengkang 200 mm memiliki kuat geser 252,461 kN; jarak sengkang 250 mm memiliki kuat geser 220,166 kN; jarak sengkang 500 mm memiliki kuat geser 155,576 kN; jarak sengkang 1000 mm memiliki kuat geser 123,281 kN; jarak sengkang 2000 mm memiliki kuat geser 107,134 kN. Maka diperoleh tulangan yang paling aman digunakan untuk menggantikan tulangan geser D10 dengan jarak sengkang 200 mm dan kuat geser 221,797 kN adalah D11 dengan jarak sengkang 200 yang memiliki kuat geser 252,461 kN.

Kata Kunci : Balok beton bertulang, jarak sengkang, nilai *Vn*, gaya geser.

ABSTRACT

Yuliaty A.D Sitanggang, 5123210038, Sengkang Analysis Of Style Slide On Reinforced Concrete Beams, Final, Medan: Program D-3 Civil Engineering, Department of Technical Education Building, Faculty of Engineering, University of Medan, 2016.

Concrete is a material that is strong in press conditions, but weak in tensile conditions. Concrete is not an elastic material. Concrete results from the interaction of a set of mechanically and chemically number of its constituent materials. In the planning of reinforced concrete planning is necessary to reduce cracks in concrete. One of the most common fractures are on the beam. One of the planning is to know on the beam deflection.

In this analysis attached some general data in the planning of a reinforced beam based on the data shown in the image bestek, namely: the quality of concrete (fc ') = 26.4 MPa (K-300), the quality of steel (fy) = 400 MPa, the length of the beam = 4000 mm, width = 250 mm beam, high beam = 500 mm, d = mm, diameter of reinforcement pull & press = D16, the diameter of reinforcement stirrups = D8, D9, D11, concrete cover 40 mm.

The result of the calculation of the shear strength of reinforced concrete beams, obtained the results as follows: for shear stirrups D8 distance of 200 mm has a shear strength of 177 639 kN; stirrup distance of 250 mm has a shear strength 160,437kN; stirrup distance of 500 mm has a shear strength of 126.033 kN; a distance of 1000 mm has strong ties shear 108.831 kN; stirrup distance of 2000 mm has a shear strength 100.230 kN, for shear stirrups D9 distance of 200 mm has a shear strength of 200.018 kN; stirrup distance of 250 mm has a shear strength of 178.297 kN; stirrup distance of 500 mm has a shear strength of 134.856 kN; a distance of 1000 mm has strong ties shear 113.135 kN; stirrup distance of 2000 mm has a shear strength 102.275 kN, for shear stirrups D11 distance of 200 mm has a shear strength of 252.461 kN; stirrup distance of 250 mm has a shear strength of 220.166 kN; stirrup distance of 500 mm has a shear strength of 155.576 kN; a distance of 1000 mm has strong ties shear 123.281 kN; stirrup distance of 2000 mm has a shear strength of 107.134 kN. The obtained reinforcement safest used to replace shear stirrups D10 with a distance of 200 mm and a shear strength was 221.797 kN distance D11 with stirrups 200 which has a shear strength of 252.461 kN.

Keywords: Reinforced concrete beam, stirrups distance, the value Vn, the shear force.