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Obosnovana System Logging and delivery solomы required to implement byotoplyvom tsentralyzovannыh kotelnыh. Opredelenы hrafycheskye dependence sebestoymosty tyukovanyya solomы annum from obъemov and razmerov tyukov.

Byomassa, harvesting, delivery, straw, teploэnerhetyka.

System of straw harvesting and supply for centralized biofuel boiler is based. Curves of straw bale cost on the annual volume and bales size are determined.

Biomass, harvesting, heat-power engineering, straw, supply.

UDC 521.4

EXPERIMENTAL STUDY OF CONCRETE compressed-bent elements PERERIZUPRY ROUND OF transverse forces

OO Davydenko, MA

The results of experimental studies of reinforced concrete columns with round cross-section at the bend of the previous compression without prior reduction, revealed an increase in carrying capacity of columns with the previous compression to 43.7%.

Concrete-section power element.

Problem. In recent years, reinforced concrete elements of circular cross section have been used widely for columns frame buildings, items, frames, operated in earthquake zones, bored piles retaining walls, anti buildings. However, research strength of compressed-bent concrete elements of circular cross section under the action of transverse forces are practically absent, and the calculation of inclined sections in the transverse force, in accordance with the rules for performing bending elements, excluding the impact of longitudinal compressive force.

Analysis of recent research. Research on the columns of rectangular cross section [1, 2] have shown that the addition of longitudinal compressive strength of eccentricity relative to the geometric axis of the column aimed towards bending or cross in the opposite

direction, the coincidence or discrepancy longitudinal and transverse flexure, transverse reinforcement quantity has a significant impact on strength and fracture toughness inclined sections.

The purpose The following research was to evaluate the influence of noncentral applied longitudinal compressive force that loadable compressed zone transverse bend on bearing capacity of circular cross section elements under the action of transverse forces.

Results. The study was conducted on the columns of circular cross section, made of concrete class C 25/30 diameter 190 mm with longitudinal reinforcement in the form of six rods Ø 10 A240S and transverse reinforcing spiral of reinforcing wire Ø 4VrI laid down in increments 100 mm, Flying cutoff when tested two equal columns column diameters less concrete cover 30 mm. Length column samples was 1000 mm. It was tested on three samples of each series of transverse compression level less than 0.25 P have been destroyed. in compression. The value of eccentricity was 4 cm. Size reduction efforts was 150 kN. Buckling reduction from the previous column was carried out in the same direction as the next transverse bending of transverse force that is applied.

For testing was special installation, fig. 1. To create a preliminary reduction efforts columns used quite rigid frame consisting of two traverse two guides hinge device for setting the eccentricity of load application, Jack. To create a transverse force in the vertical direction using a rigid traverse two guides are fixed on one side in streams of power poll and on the other guides fastened by nuts traverse. Concrete elements of circular cross section set for special hinge pillar made of steel pipe halves of the diameter of the column that spiral on the 2 mounting screw counters that have height adjustment. The second hydraulic jack installed vertically between the cross-piece and column. Shipping in horizontal and vertical direction was performed using a special pumping station. Investigations of concrete in the area of cross-bending performed using Indicator point value of 10^3 mm. Deflection Indicator measured with a scale division 10^2 mm.

Fig. 1. Device for testing columns with previous compression.

Test results showed that with a load of compression deformation does not exceed the elastic values. In the future, after the pre-compression columns, cross-bending first appeared normal cracks in the tension zone in the area of application of force to load approximately 0.42 Rruyn and deformation in the compressed area εv = 152h10-5 that approximately two times higher than the strain in the compressed area elements without prior reduction in the time of appearance of normal cracks.

Further to the disclosure of the normal crack at the site of Annex transverse force was reducing the height of the compressed zone over that crack formation and crack inclined. Before the moment of destruction in the compressed zone formed both longitudinal crack. The process of destruction occurred in old section, Fig. 2. The process of deformation of columns transverse bend until the formation of inclined cracks similar to the process of deformation at "pure" bend. As the experiments inclined crack appears after a significant reduction in the height of the compressed zone before the moment of fractures.

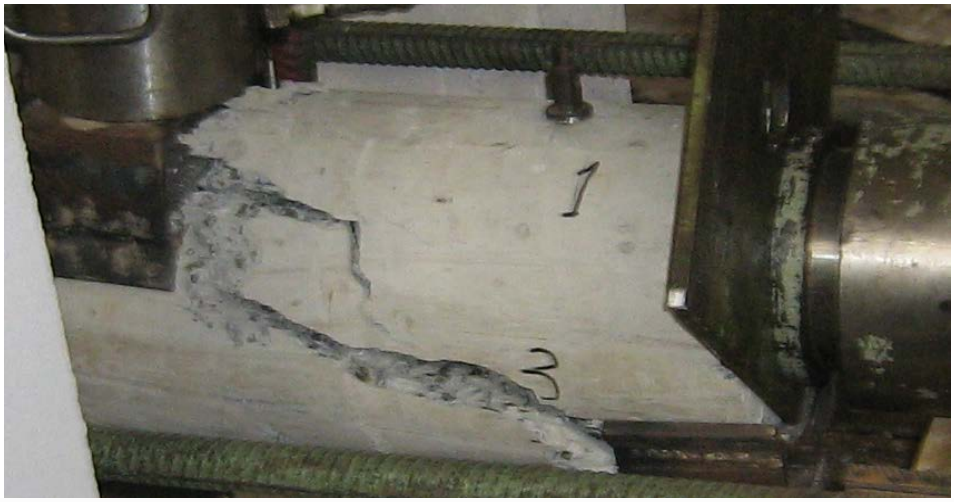

Fig. 2. The destruction of the previous column on ozhatyem old section.

Previous compression on one side loadable compressed zone of the column and thus increases the strain compression, on the other hand inhibits disclosure inclined cracks, preventing the rotation of one section against the other, as is the case with conventional transverse bending. The destruction of the previous column compression occurs in old section of longitudinal splitting of concrete compressed zone.

Comparison dependencies "moment-curvature" for columns with cross compression and without transverse compression obtained test results are shown in Fig. 3.

As shown in Fig. 3, pre-compression increases the carrying capacity of columns of circular cross section compared with columns, tested transverse bend without prior reduction with the same span of cut (a = 2h0) and identical transverse and longitudinal reinforcement - 43.7%. A comparison of columns of circular section, tested transverse bend without prior reduction showed that the bearing capacity for columns without transverse reinforcement was 43.3% lower than for columns with transverse reinforcement.

Conclusion. Tests columns with previous compression scheme meets the real settlement buildings loaded vertical and horizontal efforts. The obtained experimental results allow to formulate a new computational method of calculation prerequisites compressed-bent elements of circular cross section transverse bending.

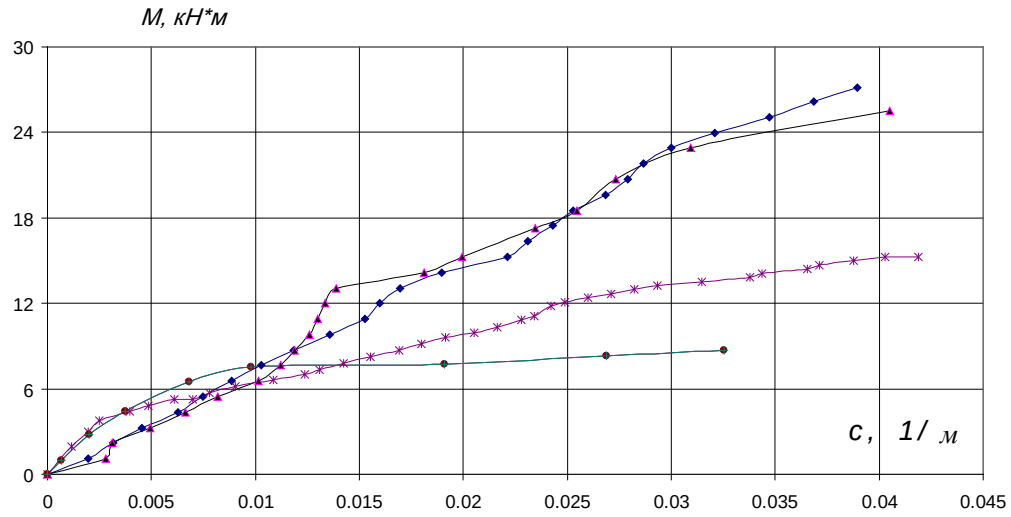

Fig. 3. Comparison of dependency "moment-curvature" Column transverse bending and flight cuts, = 2h0:

, - Columns with previous compression;

- Columns without prior reduction with transverse reinforcement;

- Kolonnы without prior compression and without transverse reinforcement.

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In Article pryvedenы эksperymentalnыh Results of research of concrete columned circular cross-section on poperechnыy with yzhyb to preliminary cogging and without preliminary cogging, Increase been detected nesuschey abilities to preliminary cogging columned with 43.7%.

Concrete, cross-section, the force element.

In paper the results of experimental studies of reinforced concrete columns of circular cross section on transverse bending with advanced compression and without compression, there was an increased carrying capacity of the column with the preliminary compression by 43.7%.

Concrete, section, power, element.