

Table 1

No	Elasticity modulus E, MPa	Poisson's constant	Uniaxial compression strength, MPa
1	5000	0.25	25

Physical and mechanical properties were generated according to Gaussian law with the variation of 5, 10, 15, 20, 25, and 30%. (Table 1)

Our research made it possible to define dependence of reserve strength ratio on the initial data variation.

Thanks to the development of numerical model we can draw a conclusion that it is possible to have more accurate calculations (change of strength reserve coefficient by 25% is quite a considerable factor), if structural heterogeneity is taken into account.

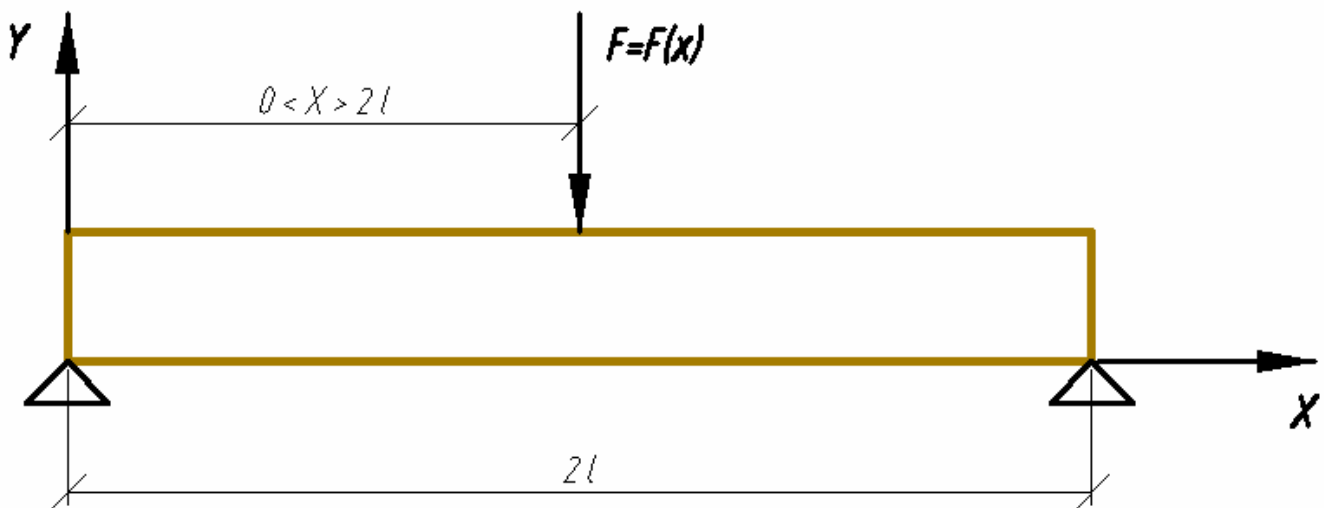


Figure 1 - Calculating model of crane-runway beam

References:

- 1) Shashenko, A.N., Sdvizhkova, E.A., Kuzhel, S.M. Scale effect in rocks. D.: ARTPress, 2004. 132 p.
- 2) Tsiskrelli, G.D., Lekishvili, G.L. On scale effect in concretes // Concrete and reinforced concrete. 1966. – No 10. - P. 29-31.
- 3) Leshchinsky, A.M. Systematic heterogeneity of heavy concrete strength in precast concrete units molded on vibrating tables: dissertation of the Candidate of Sciences. - Kiev, 1981. - 202 p.
- 4) Strizhevsky, K.I. Study of material heterogeneity influence on deformation of concrete and reinforced concrete elements: dissertation of the Candidate of Sciences. - M.: MNIITEP; NIIZhB, 1971. - 158 p.