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Influence of the multilayer coating obtained by the HVOF method on behavior of the steel barrier at dynamic loading PAVEL RADCHENKO, ANDREY RADCHENKO, STANISLAV BATUEV, Tomsk State University of Architecture and Building — The high velocity (supersonic) oxy-fuel (HVOF) thermal spray technology is a rather recent addition to family of thermal spray processes. This technique is considered most modern of technologies of spraying. The increase in velocity of the particles at lower temperatures allowed reducing level of oxidation of the particles and to increase the density of a powder coating. In HVOF dry dusting applicators of the first and second generations was used the cylindrical nozzle, whereas in the third generation expanding Laval nozzles are used. This method allows the velocity of a gas flow to exceed to 2000 m/sec, and the velocities of the powder particles 800 m/sec. Recently many results on elastic and strength properties of the multilayer coatings obtained by supersonic flame spraying method are received. But the main part of works on research of the coating obtained by the HVOF method is devoted to research of their stress-strain state at static loadings. In this work the behavior of the steel barrier with the multilayer coating applied by HVOF is researched, at dynamic loading of projectile structure at different velocities of interaction. The problem was solved numerically within Lagrangian approach, a finite element method with the use of the explicit finite difference scheme of G. Johnson.

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