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NONDESTRUCTIVE EVALUATION ULTRASONIC METHODS FOR CONSTRUCTION MATERIALS

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The paper presents some ultrasonic methods for evaluation of physical-mechanical properties of construction materials (bricks, concrete, BCA), such as: pulse method, examination methods, and direct measurement of the propagation velocity and impact-echo method. Utilizing these nondestructive evaluation ultrasonic methods it can be determined the main material parameters and material characteristics (elasticity coefficients, density, propagation velocity, ultrasound attenuation, etc.) of construction materials. These method are suitable for construction materials because the defectoscopy methods for metallic materials cannot be utilized, due to its rugged and non-homogeneous structures and grate attenuation coefficients of ultrasound propagation through materials. Also, the impact-echo method is a technique for flaw detection in concrete based on stress wave propagation. Studies have shown that the impact-echo method is effective for locating voids, honeycombing, delaminating, depth of surface opening cracks, and measuring member thickness.

References

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