URBAN INCD INCERC

Research and Development in Construction, Urban Planning and Sustainable Territorial Development National Institute "URBAN-INCERC"

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EARTH AS A BUILDING MATERIAL: ANALYZING COMPRESSIVE STRENGTH OF EARTHEN MIXES VIA UPV

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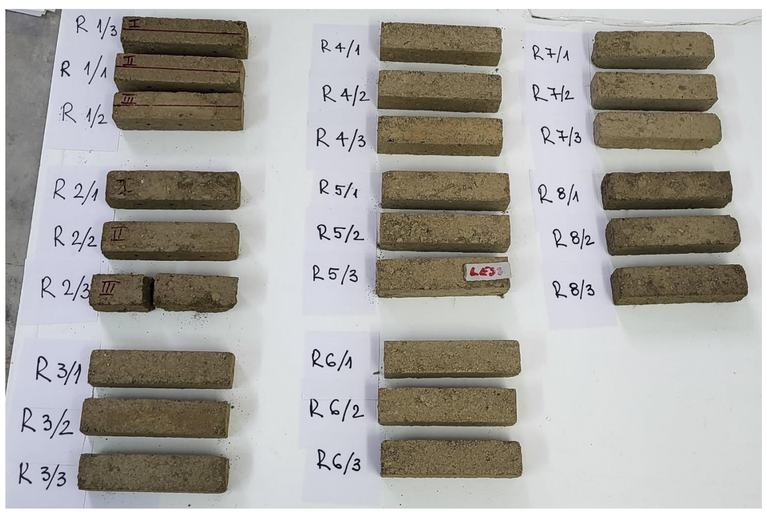
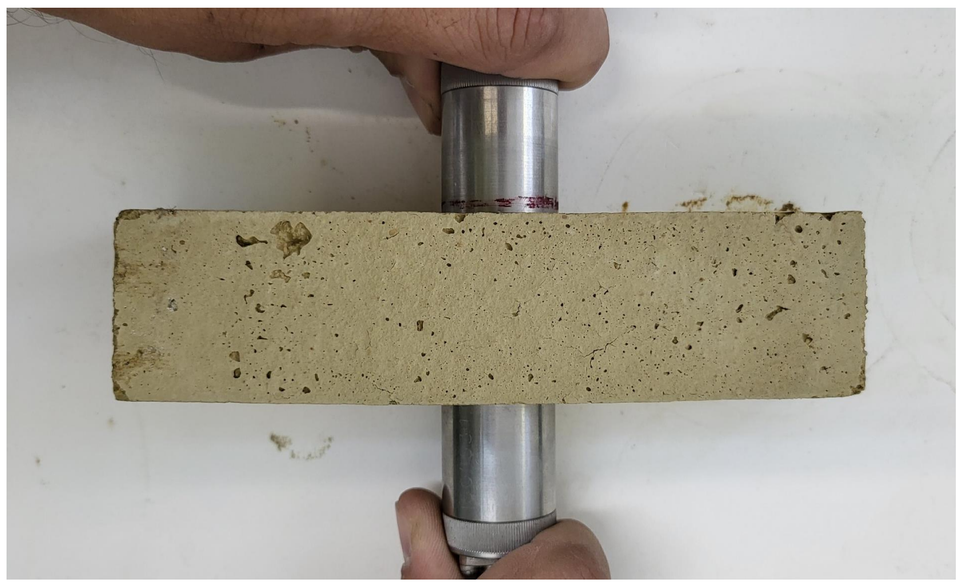
I. MATERIALS AND METHODS



Earth samples used for the study – 8 Mix designs

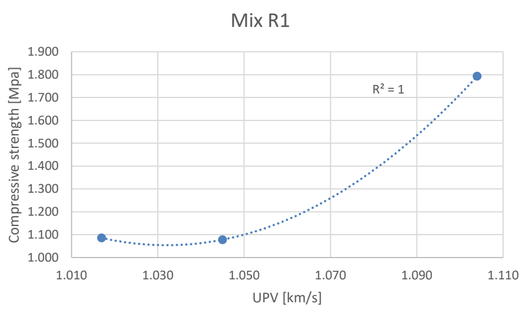
Non-destructive testing

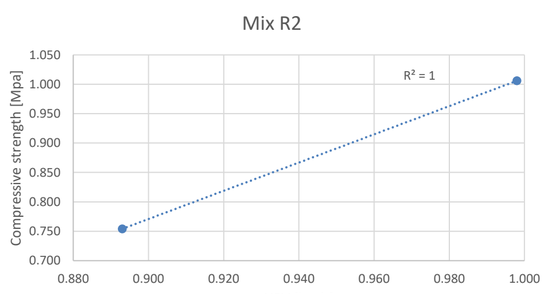
UPV

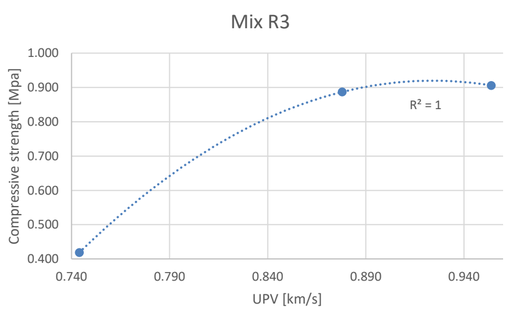


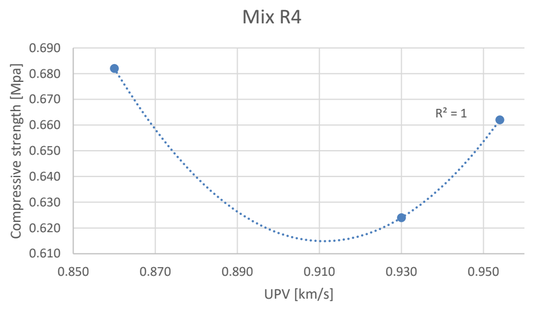
Destructive test: Compressive strength

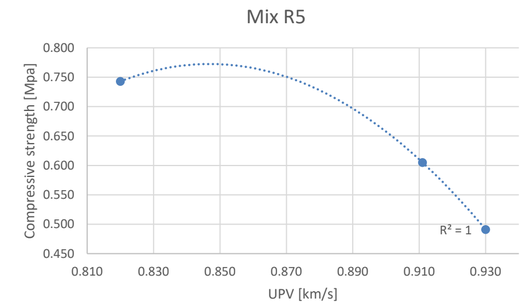
II. RESULTS

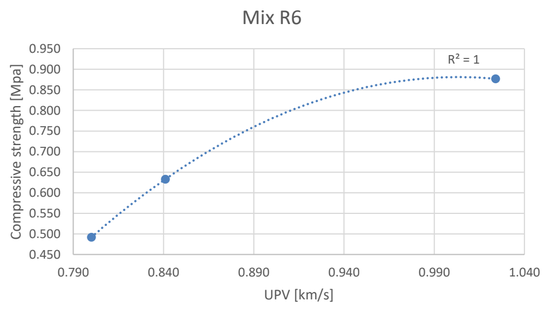


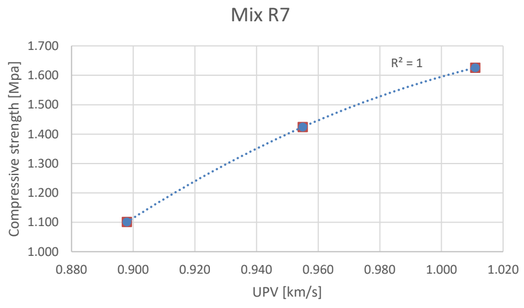


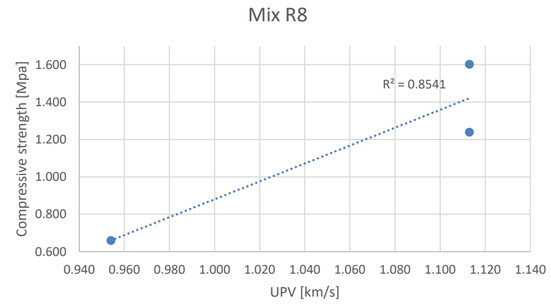












III. CONCLUSIONS

- Every mix design proves its own, customized correlation curve between the compressive strength and the ultrasonic pulse velocity;
- The polynomial equations for mixes R1-R7 have a coefficient of determination $R^2 = 1$, and for mix R8 the coefficient of determination $R^2 = 0.8541$;
- The high rate of correlation enhances the continuation of investigations with more samples in order to refine the equations.

Acknowledgments:

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