

Expression of interest for research cooperation

Description of institution

Interested institution:	Cracow University of Technology
Department carrying out the proposed research	Testing Laboratory For Building Materials and Structures Institute of Building Materials and Structures Faculty of Civil Engineering
Address and webpage	Warszawska 24, 31-155 Kraków, Poland http://l18.pk.edu.pl/
Contact person (name, e-mail address, phone)	Stanisław KAŃKA, e-mail: skanka@pk.edu.pl , l18@pk.edu.pl , phone: +48 126282389

Research offer

Brief description of the department (key research facilities, infrastructure, equipment)

(up to 1000 characters)

Testing Laboratory For Building Materials and Structures offers a comprehensive range of evaluation services for building materials used in the construction industry to ensure that the materials and structural elements perform as required. Operation method of the laboratory meets the requirements of the PN-EN ISO / IEC 17025: 2005 and PCA internal documents, which constituted the basis for the issue of the AB 1251 Certificate of Accreditation of Research Laboratory AB 1251 by the Polish Center for Accreditation. The PCA Accreditation Certificate covers 25 research methods (e.g. concrete mix: consistency, air content, density, compressive strength, splitting tensile strength, flexural strength, water penetration, modulus of elasticity; reinforced concrete elements: capacity and deformability at bending, steel bars, rods and splices: static tensile strength, bending test for reinforcing steel bars; fastening systems for railway sleepers: dynamic rigidity of railway washer, dynamic rigidity of elastic track fastening, vertical rigidity of fastening track joint etc., mono-block sleepers from prestressed concrete: crack resistance for support sections at static and dynamic loading).

Laboratory team has the wide experience in material properties testing and performances evaluation. The physical and mechanical properties of construction materials, building products and structural elements can be assessed according to current standards and achieve certification quickly and cost-effectively. Wide range of testing machines enable static and dynamic load application. The machines are equipped with high resolution strain measurement systems (strain gages, optical measurements, DIC).

Scientific area

<input type="checkbox"/> Chemistry	<input type="checkbox"/> Social Sciences and Humanities
<input type="checkbox"/> Economic Sciences	<input checked="" type="checkbox"/> Information Science and Engineering
<input type="checkbox"/> Environment and Geosciences	<input type="checkbox"/> Life Sciences
<input type="checkbox"/> Mathematics	<input type="checkbox"/> Physics

Research field

(up to 500 characters)

Thanks to materials and civil engineering structures expertise provided by Staff of the Institute of Building Materials and Structures, extensive testing facilities, knowledge of current regulations and industry experience we are able to work with manufacturers, building managers, designers, contractors, and end-users to optimize performance of materials, buildings and structures. Testing of mineral binders, concrete mixes; testing of reinforcing bars (steel, inox, FRP rebars); quality control of masonry units, paving, sewage systems; reinforcing structural elements testing (concrete, masonry, timber); static and dynamic tests of the structural elements (walls, slabs, columns, precast prestressed concrete slabs, hollow core slabs); fastening systems for railway sleepers and anchor rail fasteners, and mono-block sleepers from prestressed concrete etc.

The proposed research/project description

(up to 1000 characters)

Propositions of research/project:
-Improving performances, develop novel building products and improve existing ones, which comply with regulations.
- New materials development - properties testing and quality assessment;
- Cultural heritage preservation - material quality assessment with Laboratory and field tests (NDT);
- Static and dynamic analysis of engineering structures and building elements;
- Novel systems of strengthening structures (masonry, concrete, timber) with laminate composites;
- Development of novel fastening systems for railway sleepers.

Additional information (key Persons and Expertise; additional trainings, research programme, other)**Key Persons:**

Stanisław Kańka, Grzegorz Żwirski