

September 14, 2022

NEx Request for Proposals Notice

NEx encourages to submit proposals focused on the research topic described below:

Project ID: RD23.02.

Project Title: The Use of Synthetic Macrofibers to Improve Crack Control and Water Tightness in Environmental Structures

Background

Environmental structures are designed and constructed in accordance with ACI 350 code. The reinforcement ratios in these structures are quite high to limit the crack width and to ensure water / liquid tightness. The high amount of steel rebar used in this application can often cause steel congestion and potentially air pockets in the concrete, in addition to high labor, time and cost associated with steel work. Synthetic macrofibers are widely used in the construction of concrete slabs and more recently concrete walls as a full or partial replacement of steel rebar. These fibers improve crack width control and provide post-crack tensile and moment capacity. Instead of increasing the required reinforcement ratio for the purpose of enhanced crack control, one can consider using macrofibers in combination with rebar for environmental structures. The right amount of rebar will be used for "structural" reasons to provide load carrying capacity, while synthetic macrofibers will be added to provide "environmental" benefits in form of improving crack width control and water / liquid tightness. This can be implemented both for slabs and walls of these types of structures, making the construction faster, less costly, more sustainable, and more durable.

Proposal Request

NEx invites proposals for research that will study the use of synthetic (polymer) macrofibers in the concrete matrix to control the crack width of environmental structures. Further, the research results should be used in updating the current ACI code and specifications. It is expected that PI will work with ACI 544 committee for technical details and review of research progress.

NEx Mission Statement

Collaborate globally to expand and accelerate the use of nonmetallics in the built environment to drive innovation, research, education, awareness, adoption, and deployment.

Research and Development within NEx are among its core missions, and it supports and facilitates the development of new nonmetallic technologies to address challenges with effective solutions.

Funding Policy

NEx will impose a limit of 15% on indirect costs (overhead) by research organizations for any research it funds. The organization must waive the remainder of the indirect costs.

Award Amount

NEx does not impose any limit on the overall funding request; however, the anticipated budget for this project is to be around \$80,000-\$100,000. Proposals with higher budget estimates will be accepted with information on budget spending relevant to the value added to the project scope. Co-funding and co-sponsoring proposals with other organizations are welcomed.

Proposal Evaluation

NEx research proposals will be evaluated by the NEx Steering Committee. A winning proposal will be forwarded to the NEx Board of Directors with recommendations for funding.

Proposal evaluation criteria will include technical content, methodology, PI's relevant experience, potential impact/ industry adoption, cost and time, proposed deliverables and outcome.

Awarded Proposals

- The awarded proposal is expected to commence within the first quarter of 2023.
- NEx will enter into a contract with the researching entity. As part of the contract, it is mandated that the overhead or indirect return be set at no more than 15% of the direct cost of the research funding requested from NEx. Any overhead over the maximum allowed 15% that is waived by the researching entity shall be considered as cost sharing and shall be indicated on the budget table as waived overhead, separate from other co-funding. Non-compliant proposals in this regard shall be returned without review.
- The schedule of payments contingent upon milestone deliverables will be contained in the contract and will include, at a minimum, a final report deliverable to NEx. Progress reports, if required, will be identified in the final contract.
- If principal investigators (PI) from two organizations are collaborating on the research, the award must be to a single organization, which will then subcontract with the second organization.
- NEx will only consider funding research that involves the use of proprietary products if the goal of the research is to advance knowledge in a particular area of study and not solely on a proprietary product.
- In case of any co-funding arrangement with other organization(s), commitment letter(s) from co-funding organization(s) is required before funds are dispersed from NEx.
- The results of NEx-funded research will be owned by NEx, and possibly by other co-founding organization(s). PI should obtain approval from NEx before publishing any results.

Where and How to Submit Proposals

Submitted proposals will be evaluated by the NEx Steering Committee and the NEx Staff. Anyone who evaluates a proposal is required to agree and abide by NEx policies on confidentiality and conflict of interest.

Please email the proposal and supporting information to info@nonmetallic.org, by end of the day, October 5, 2022. The subject line shall include project ID (see top of page 1) and the name of the proposing organization (For example: "RD23.xx University of xyz").

If you have any questions regarding the proposal requirements or process, please contact NEx Technical Director, Aparna Deshmukh (aparna.deshmukh@nonmetallic.org).

Required Proposal Content

Proposals submitted to the NEx shall be provided in one unprotected pdf file and shall contain:

- Contact information of the Principal Investigator (PI), co-PI (*if applicable*) and administrative persons that may submit on behalf of the PI;
- Proposal Title;
- Executive summary to be used for promotional purposes:
 - Total project budget amount including up to 15% overhead, if any;
 - Value of any co-funding, identified as monetary or in-kind (monetary value of donated materials, consulting or testing services);
 - Amount of waived institution overhead;
 - Description of objectives of the proposal (300 words or less);
 - Description of significance/impact of the project (300 words or less).

Main body of the proposal (*maximum of 5 pages in 12-point font*) must include:

- Objectives;
- Significance/Impact;
- Project description to include enough detail to understand how the research will be performed;
- Matrix of tasks and schedule of completion, including progress and final reports;
- List of anticipated products, such as new material specifications, new documents, published papers, presentations, or conference proceedings;
- Table of funding that includes all support such as:
 - Total budget;
 - Any co-funding from organizations other than NEx;
 - Net value of waived institution overhead or planned co-funding (if not in place yet).

Supporting information should include:

- References cited;
- Qualifications of the investigator(s) and/or institution(s). Biographical sketches are limited to two pages per investigator.