

May 12, 2022

NEx Request for Proposals Notice (3)

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

RD.03. Investigate high dosage of admixtures on concrete durability and cost to reduce cement content and water-cement ratio with a control concrete mix design.

Background

The global consumption of cement is more than four billion tons per year. If chemical admixture is used with 50% of the cement consumption at a rate of 1% by mass of cement, it would result in the demand for 20 million tons of chemical admixtures per year.

Each ton of cement production releases approximately one ton of CO₂ into the atmosphere, the conventional concrete mix design is made with 0.4 w/c ratios, and with 1 % by mass of cement chemical admixtures. The objective of this study is to reduce the cement content by at least 10% and w/c from 0.4 to 0.35 by investigating increasing dosage of chemical admixture, e.g. from 1% to 1.25% by mass of cement, resulting in the new concrete mix being equal to or better than the conventional mix. The outcome of this study could result in 200 million tons reduction of CO₂ emissions from cement consumption, 100 million tons reduction in water consumption and a 2.5-million-ton increase for the demand of chemical admixtures.

The cement and concrete industries are the main CO₂ emitters and drinking water consumers during the manufacturing of cement and production of concrete respectively.

Proposal Request

NEx invites proposals to investigate the increase dosage rate of chemical admixtures to reduce both cement content and w/cm ratio of the conventional concrete mix(es) on mechanical properties of fresh and hardened concrete.

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 decision on full or partial funding will be made by the NEx Steering Committee and NEx Board.

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.

Awarded Proposals

- 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) are 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 Aparna Deshmukh, NEx Technical Director, at aparna.deshmukh@nonmetallic.org, by 6:00 AM EDT on May 31, 2022. The following information is to help you prepare the proposal.

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 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 document (*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.