

REQUEST FOR PROPOSAL

Code Requirements for Additively Constructed Walls in Residential Construction

1. Introduction & Project Description

The American Concrete Institute (ACI) has formed Innovation Task Group 93-12 ITG-12 (ITG-12) to develop code requirements, design, and prescriptive provisions for additively constructed above-grade concrete walls for residential structures for incorporation into ACI 332 and the International Residential Code (IRC). The ITG-12 task group is seeking proposals from qualified firms to create design and prescriptive code provisions that current building codes will adopt to meet design requirements for strength, serviceability, and durability requirements, with an optional second path of referencing performance-based testing/certification.

The ACI Foundation's Concrete Innovation Council (CIC) will manage the Request for Proposal (RFP) process. The awardee will be required to execute a contract with the ACI Foundation that details milestone deliverables tied to payments. Terms will be established based on the project timeline.

2. Solicitation Schedule

- 1.1 RFP Opens: **February 5, 2024**
- 1.2 Deadline for Questions: **March 5, 2024**
- 1.3 RFP Closes: **March 5, 2024**
- 1.4 Award Announced: **April 1, 2024**

3. Scope of Services

3.1 The code provisions shall include:

- 3.1.1 Limitations for the use of the code provisions, including but not limited to applicable building and/or wall height, wall geometry and reinforcing, seismic design factors, or other load-specific or environmental limitations.
- 3.1.2 Language that addresses the following:
 - 3.1.2.1 Strength design guidance for wall assemblies including but not limited to:
 - 3.1.2.2 Axial Compression
 - 3.1.2.3 In-plane Shear
 - 3.1.2.4 Out-of-plane Flexural and shear
 - 3.1.2.5 Connections to foundations and roof
 - 3.1.2.5.1 Durability considerations including but not limited to:
 - 3.1.2.5.1.1 Freeze-Thaw
 - 3.1.2.5.1.2 Water infiltration
 - 3.1.2.5.1.3 Chloride ingress
 - 3.1.2.5.2 Serviceability considerations

- 3.1.2.5.3 Constructability considerations
- 3.1.2.5.4 A detailed commentary sufficiently supporting the information used for each section listed above.
- 3.1.2.5.5 A detailed commentary sufficient to support the omission of any section listed above, if applicable.
- 3.1.2.5.6 Requirements for special inspections.
- 3.1.2.5.7 Equations, listed requirements, and table values shall be supported by at least 3 independent peer-reviewed publications, 3rd party reports, or reputable government studies and shall address the following assumptions:
 - 3.1.2.5.7.1 Materials property limitations
 - 3.1.2.5.7.2 Maximum aggregate size from studies
 - 3.1.2.5.7.3 Consideration of layer interface as related to strength and durability of the build structure.
 - 3.1.2.5.7.4 Composite behavior of cast sections and additively constructed sections of walls.
- 3.1.2.5.8 If modeling is chosen as proof of performance for the code language developed, the following must be documented: loading conditions, component geometry, cold joint considerations, boundary conditions, and model parameters.

3.2 Project Schedule – *will be determined based on the project timeline.*

- 3.2.1 Kick-off meeting with awardee: **week of April 1, 2024**
- 3.2.2 Interim meeting with awardee at 1/3rd point
- 3.2.3 Interim meeting with awardee at 2/3rd point
- 3.2.4 Final deliverables
- 3.2.5 Final meeting

3.3 Milestone Deliverables

- 3.3.1 Interim Reports describing progress on the project and state of the final deliverables.
- 3.3.2 Final deliverables will include:
 - 3.3.2.1 Code language addressing additively constructed concrete walls.
 - 3.3.2.2 Detailed commentary to the code language.
 - 3.3.2.3 Data that supports language, equations, or tables.

3.4 ACI Foundation & ITG-12 Review

- 3.4.1 Upon receipt of milestone progress reports review content and provide guidance and comments as deemed necessary.

4 Schedule

4.1 Respondents proposed milestones and project schedule.

5 Response Requirements

5.1 Scope, Approach & Methodology

5.1.1 Provide a detailed scope, approach, and methodology with the selected approach described in section 3, a list of tasks, time/dates to complete tasks, and description of methods for addressing the items in section 3. Time to complete each task should be directly related to the action's dollar value, importance, and complexity.

5.2 Company overview

5.2.1 Code Writing Experience - Provide proof of at least three examples where the offeror has developed code language for a code writing authority.

5.2.2 Field Specific Experience - Provide at least three examples of relevant projects, describing in detail the respondent's extent of involvement. Descriptions of relevant projects should include as many details of the respondent's involvement in the design, specification, testing, and/or review as possible.

5.2.3 Project Team staffing, resumes.

5.2.3.1 The project team should consist of the following:

5.2.3.1.1 Structural engineers who have displayed an understanding of the design and failure behavior of additively constructed walls produced using concrete extrusion.

5.2.3.1.2 Materials engineers that have experience specifying and reviewing fresh and hardened materials properties for extrusion based additive construction.

5.3 Form of Submission

5.3.1 Submissions should include a cover letter (signed by an officer of the company), and proposal description, be submitted by electronic form, and should include the following information on the first page of the document:

5.3.1.1 Title of project

5.3.1.2 Principle organization name and address

5.3.1.3 Principle Project Manager

5.3.1.3.1 Name, email, phone

5.3.1.4 Subcontractors, if any, including name and Point of Contact (POC)

5.3.2 Exceptions to the RFP requirements are discouraged and must be clearly delineated in the respondent's proposal response to this RFP. Non-compliant and conditional proposals may not be considered.

6 Requests for Information

6.1 Contact person: Tricia G. Ladely (POC), ACI Foundation Assistant Director

Email: Tricia.Ladely@acifoundation.org / Phone: 724-601-3075

6.2 Issuance of Q&A summary: Should any bidder have any questions about the scope of Services requested in this RFP or be in doubt as to the intention and meaning thereof, they should at once report such to the POC and request clarification, in writing. Clarification will be made only by written addenda sent to all prospective bidders. The POC will not be responsible in any manner for verbal answers regarding intent or meaning of the Scope of Services, or for any verbal instructions, by whomsoever made prior to the award.

6.3 Issuance of Addendum or extension:

6.3.1 An Addendum may be issued based on administrative reasons or upon consultation with ITG-12 on technical responses to Q&A.

6.3.2 Addendums or extensions will be issued to all potential bidders.

7 Miscellaneous Requirements

7.1 This RFP is issued under a condition of confidentiality, and the information herein may be shared with sub-consultants and project team members only to the degree necessary to complete a comprehensive proposal.

7.2 The respondent is expected to execute an agreement in the form attached. Any exceptions to the standard contract Agreement requested by the proposer are discouraged and must be included in the proposer's response to this RFP.

7.3 This RFP is not binding on the ACI Foundation. The ACI Foundation reserves the right to amend or otherwise modify this RFP at any time; to reject the response of a firm that, in the ACI Foundation's sole judgment, is not a responsible or responsive proposal; and to cancel this RFP. No party, including any respondent to this RFP, is granted any rights hereunder. The ACI Foundation is not liable for any costs associated with the preparation of any response to this RFP.

8 Selection Criteria

8.1 Experience: Experience will be assessed based on the requirements specified in section 5.2.

8.2 Cost

8.2.1 Bid prices should be broken out by tasks.

8.2.2 In case of an error in the extension of prices, the unit price will govern. In case of a discrepancy between the prices shown in the figures and words, the words will govern.

8.2.3 Bids having both a lump sum and unit-based pricing shall result in matching project totals unless accompanied by supportive explanations such as evidence for options or alternative provisions.

8.2.4 Bids providing both a lump sum fee and fee-based unit pricing resulting in a difference in project totals will be rejected unless accompanied by supportive explanation such as the inclusion of options or alternative units.

8.2.5 A bidder to whom award is made will be notified at the earliest possible date.

8.3 Responsiveness to RFP

8.4 Ability to meet schedule.

- 8.4.1 Preference will be given to companies with experience developing code language in the additive construction industry.

9 Disqualification of Bidders:

- 9.1 Evidence that any bidder is interested, as a principal, in more than one bid for the Work (for example, bidding in a partnership; as a joint partnership or association, and as a Partnership, association, or individual) will cause the rejection of any such Bid. If there is reason for believing that collusion exists among the bidders any or all Bids may be rejected. Bids in which prices are obviously unbalanced or unresponsive to the Invitation for Bids may be rejected. The right is reserved to reject a Bid from Bidder who has not paid, or satisfactorily settled, all bills due for labor and material on former contracts in force at the time of letting.
- 9.2 Bids may be rejected if they contain any omissions, additions not called for, conditional bids, alternate bids unless called for, incomplete bids, erasures, or irregularities of any kind.