#### **Engineering Student Design Competition Grant Application Cover Sheet**

This is a template to be utilized for guidance in preparing your student design competition grant application. Feel free to modify the template to meet your needs and objectives for consideration by the Foundation Board of Trustees.

*(Please Type)*

Project Title Engineering Student Design Competition

Name of College or University

Contact Name

Contact Title

Mailing Address

Phone:

Fax:

E-Mail:

Amount Requested:

Payment Schedule Requested:

Employer ID Number (EIN) or

Social Security Number (SSN)

(May be submitted separately for security purposes)

**This grant will be contingent upon the competition having at least twelve (12) student entrants.**

Proposed Reporting Schedule:

If Funded, Make Check(s) Payable To:

1. Project description

A. History of student design competition at applicant’s college or university.

B. Overview of competition

1. Several teams of students from our Engineering Department will compete to design a structure using concrete masonry units traditionally produced by NCMA Producer Members. Specifically, student teams will design, build and test a full-scale single-wythe concrete masonry wall with multiple opening(s) that add up to the 1/4th of the face area of the wall. The students will be given minimal dimensions for the width, height, height-to thickness ratio, reinforcement ratio and cross-sectional area of the wall. The test will involve out-of-plane testing of the walls.
2. We will work closely with the NCMA Producer Member or NCMA State and Province Alliance association that endorsed this grant application, to ensure that our entrants receive support in the form of concrete masonry plant tours, materials, facilities, and speakers that provide advice regarding each of the judged criteria.
3. The quantitative judging criteria, conducted by a panel of experts appointed by the organizing professors, will be composed of
   1. a professor of engineering,
   2. a local civil/structural engineer
   3. a skilled mason
   4. representatives from NCMA Producer Members or state/province association (including a skilled mason).

Judges will receive no compensation for serving on the panel. The judges will assign scores according to the following criteria:

|  |  |
| --- | --- |
| Score | Criteria |
| 35% | Structural Performance ( structural resistance to stresses imposed during out-of-plane testing) |
| 20% | Fidelity of Performance Predictions to Measurements (prediction accuracy of structural load carrying capacity) |
| 15% | Constructability (the ease with which the structure may be built and adequacy of details) |
| 15% | Aesthetic Concept and Craftsmanship (the visual appeal of the built wall and quality of the craftsmanship of the team) |
| 15% | Functional Use of Concrete Masonry Materials (how well the design utilizes the various capabilities of traditional concrete masonry units as a building material) |

4. Timeframe of competition

* 1. Initial marketing of the competition will commence on .
  2. The entry registration deadline will be .
  3. The entry submission deadline will be .
  4. Judging will take place during the week of .
  5. Results will be announced to the participants and publicized locally by .
  6. Results and other deliverables will be sent to NCMA by .

5. Prizes awarded

|  |  |
| --- | --- |
| **Award** | **Prize** |
| Best Design – First Place (awarded to the entry with the highest total score across all judged criteria) | $1,500 |
| Best Design – Second Place | $1,000 |
| Best Design – Third Place | $500 |
| Best Performance | $1,000 |
| Best Prediction of Performance\* | $1,000 |

6. Our marketing plan will include some or all of the following components:

* 1. Flyers advertising the competition, to be posted on campus (especially near the Engineering Department).
  2. An advertisement for the competition, to be posted on the school website.
  3. An advertisement for the competition, to be posted in the school newspaper.
  4. A Public Service Announcement advertising the competition, to be broadcast on the school radio station.
  5. In-class announcements of the competition by Engineering Department instructors (including teaching assistants).

Contest registration forms and complete rules will be available in the Engineering Department office.

1. Project objective

The short-term objective of this student design competition is to provide a hands-on experience in concrete masonry design using traditional concrete masonry units. The long-term objective is to inspire interest in concrete masonry among undergraduate and graduate students of engineering.

1. Scope of project, to include what work is included in the project and what the deliverables to NCMA are
   1. A summary report of the competition in PDF format will be sent to NCMA at the conclusion of the competition including drawings, a digital model, a physical model, empirical predictions of performance, and a brief essay describing the concept and features of the structure; the predictions of performance of each project receiving an award. —
   2. Judges’ scores and qualitative notes for each entry will be sent to NCMA at the conclusion of the competition.
   3. A copy of the competition guidelines will be sent to NCMA at the conclusion of the competition.
   4. Photos of each entry’s physical model prior to, during, and following the performance test will be sent to NCMA at the conclusion of the competition.
   5. A summary of the performance tests will be sent to NCMA at the conclusion of the competition.
2. Summary of qualifications to include who will perform the work and how their background qualifies them for this task

A. Organizing Professor’s qualifications

B. Participating professors’ qualifications

C. Judges’ qualifications

1. Anticipated impact on a national level, regional level, and local level

By providing a hands-on experience, we anticipate that designers will have a greater appreciation of the capabilities of concrete masonry. We anticipate that the increase in student interest resulting from this competition will lead to the expansion of the national pool of designers and professors who are familiar with concrete masonry. This will lead to concrete masonry being specified in more projects and to a long-term increase in the quality of concrete masonry construction.

1. Budget, to include anticipated expenses and expenses identified in attached addenda

Awards (prizes, trophy, certificates) $ \_\_\_\_\_\_\_\_\_\_\_\_

Testing Set-up ( testing frame first year only) $ \_\_\_\_\_\_\_\_\_\_\_\_

Graduate Assistant Salary or organizing Prof. Stipend $ \_\_\_\_\_\_\_\_\_\_\_\_

Marketing $ \_\_\_\_\_\_\_\_\_\_\_\_

TOTAL $ \_\_\_\_\_\_\_\_\_\_\_\_

1. Requested payment procedure (several payments tied to project milestones, with last payment upon receipt and acceptance of end-of-competition deliverables)

**This grant will be contingent upon the competition having at least twelve (12) student entrants.**

1. List of other funding sources, specifying amounts, matching funds, etc.
2. Reporting schedule

Date Action

We will notify NCMA of the progress of our marketing efforts

We will notify NCMA of the names of the entrants

We will send NCMA the results of the competition, all deliverables, and a report of our actual expenses

1. Endorsement of local NCMA State and Province Alliance association or local NCMA Producer Member

In support of this Structural Engineering Student Design Competition, I hereby endorse this grant application and commit to serving as the primary industry resource for the competition. I agree to serve as a volunteer member of the panel of judges for this competition. I also agree to provide direct support to the participants in this competition, in the form of concrete masonry plant tours, materials, facilities, and speakers providing advice regarding each of the judged criteria.

Signature Date

Name of Representative of NCMA Producer Member Company or Officer of NCMA State and Province Alliance Association

Name of NCMA Producer Member Company or NCMA State and Province Alliance Association

Address

Telephone Number

FAX Number

Email Address