



## ACOUSTICAL SOCIETY OF AMERICA STUDENT DESIGN COMPETITION 2017

PRESENTED BY: THE TECHNICAL COMMITTEE ON ARCHITECTURAL ACOUSTICS, THE ROBERT BRADFORD NEWMAN STUDENT AWARD FUND AND SPONSOR THE WENGER FOUNDATION, AND THE NATIONAL COUNCIL OF ACOUSTICAL CONSULTANTS

### ANNOUNCEMENT

The Technical Committee on Architectural Acoustics with support from the Robert Bradford Newman Student Award Fund (<http://www.newmanfund.org/>), The Wenger Foundation, and the National Council of Acoustical Consultants (<http://www.ncac.com/>) is sponsoring a student design competition to be displayed and judged at the 173rd meeting of the Acoustical Society of America in Boston, Massachusetts, June 25-29, 2017.

### ENTRY REQUIREMENTS

Entries may be submitted by individual students or teams of a maximum of three students. Undergraduate and graduate students are encouraged to participate. Participants must be registered as a student during the spring semester of 2017. Teams comprised of students from different institutions are welcome. Teams comprised of students from different disciplines are encouraged. A faculty sponsor is required. Meeting attendance is not required to participate in the competition.

### ENTRY LIMITS

Entries must be limited by each institution to three. Entries submitted by teams with teammates from different colleges within the same university will count as entries from the same institution. Up to two additional entries per institution are allowed if its entrants from the institution team with entrants from a separate institution.

### REGISTRATION

**Teams must register on or before May 1, 2017, by e-mail to the competition co-chairs at [sdc@newmanfund.org](mailto:sdc@newmanfund.org).** In the e-mail, indicate (1) your name and school; (2) the name of your teammates (if any), their school(s) (if different than your school), and their e-mail addresses, (3) the name of your faculty advisor, his or her school, and his or her e-mail address; (4) if the project will be completed (a) for credit as part of a design studio, (b) for credit as part of a non-studio class, or (c) as an extra-curricular; and (5) indicate the student participant who will serve as primary contact for the team. The primary contact will serve as a vital link for receiving



information and updates on the competition. This may include answers to frequently asked questions and changes to information presented in this bulletin.

#### JUDGING AND AWARDS

The submitted designs will be judged by a panel of practicing design professionals and university faculty. The panel may include acoustical consultants, architects, theatrical consultants, and educators in associated fields.

Entries will be evaluated on technical merit, design vision, innovation, and effectiveness of presentation.

One \$1,250 Wenger Prize will be awarded to the first honors entry, as selected by the judges. Four \$700 commendation awards will be made to other top entries.

At the co-chairs' discretion, the commendation awards may be categorized based on outstanding aspects of the entered designs.

Awards are made possible through a grant from the Newman Fund sponsor the Wenger Foundation.

#### PRESENTATION FORMAT AND SUBMISSION PROCEDURE

Entries shall be poster presentations. Entries shall be presented on up to three (3) separate display boards with maximum dimensions of 22 x 28 inches (56 x 71 cm) per board. It is advisable to mount posters to foam core board or other rigid backer. Additional documentation or three dimensional features may not be attached to the boards; however, this year we will allow the inclusion of a digital code such as a QR code for the inclusion of supplementary material as an option. Keep in mind that the judges will not be obligated to review such information.

In addition to the poster submission, a digital copy of each entry shall be e-mailed to the competition co-chairs at [sdc@newmanfund.org](mailto:sdc@newmanfund.org). Digital file format must be .pdf or .jpeg. If file size is prohibitive, participants may arrange other methods of file transfer with the co-chairs. Digital copy must be received on or before **Monday, June 26, 2017**. Supplementary materials (i.e. linked to QR code) may be submitted as well but must be received by the same deadline. It is advised that to ensure future viewers of your poster access to the supplementary materials that you maintain the linked supplementary information independent of the SDC.

The competition language is English.

The font size, amount of narrative text, and number of graphs should be appropriate for poster viewing. A thoughtful viewing of the presentation should be possible in about 10 minutes. Presentation boards should be suitable for wall or easel display. Means of attachment to the wall or easel will be provided by the competition (submissions need not include Velcro or pins). Please denote the orientation and arrangement for the presentation boards either on the rear of the boards or on an included sheet.



For entry in the competition, the physical presentation boards must be received no later than **Monday, June 19, 2017** at the following address:

Carl Rosenberg, c/o  
Acentech  
33 Moulton Street  
Cambridge, MA 02138, USA

Students attending the meeting may hand-deliver their entries. Entries delivered by students must be available at the meeting hotel no later than **8:00 am on Monday, June 26, 2017**. Students opting to deliver entries to the meeting are required to notify the competition co-chairs on or before **Monday, June 19, 2017**.

Affix an opaque envelope to the back of EACH display board. Within each envelope, enclose a loose sheet with the names, addresses, phone numbers, e-mail addresses, school affiliations, and advisor(s) of all participating team members. Please indicate summer e-mail and mailing addresses for all team members. Team member identifying information (names, addresses, etc.) will not be revealed to the competition judges. Entrants may include a layout diagram for the order in which the posters should be displayed, but this is not a requirement.

Please package display boards securely to prevent damage during shipping.

#### **DESIGN SCENARIO**

A small university has decided to open a multi-purpose facility. It will be located in a densely-populated urban setting. The site footprint is approximately 13,000 square feet (1207.7 square meters), and it is a rectangle of approximately 100 feet (30.5 m) by 130 feet (39.6 m). It is flanked on both long sides by neighboring buildings. It is to include an auditorium with a balcony, stage house, and orchestra pit. The auditorium will be used as a meeting space and for the school's drama and band programs as well as Broadway productions. The facility will also include a multipurpose rehearsal room which must have easy access to the stage. Music performed and rehearsed in this facility will be chamber ensembles, soloists, jazz ensembles and concert band ensembles. Discussions and visits to other similar venues with the owner have revealed the following details about their program requirements:

##### Auditorium

- **Emphasize the design of the auditorium and stage on your presentation posters. It will be weighted heavily when judged.**
- Main level 300 seats/Balcony 150 seats
- Auditorium 6000 sq ft. (557.4 square meters)
- Performance platform including wings: 3500 square feet (325.2 square meters)
  - o The performance platform is the stage and wings.
  - o The stage enclosure is to be fixed and designed for acoustical integrity.
  - o Full fly loft (2.5x to 3.5x proscenium arch height)
- Orchestra Pit 750 sq ft. (69.7 square meters)



### Auditorium Support Spaces

- Locate these spaces on the plan, but do not emphasize them on your presentation posters. All of these spaces must have easy stage access.
  - o Orchestra Pit Storage (400 sq ft [37.2 m<sup>2</sup>])
  - o Instrument Storage (225 sq ft [20.9 m<sup>2</sup>])
  - o Costume Shop (750 sq ft [69.7 m<sup>2</sup>])
  - o Scene Shop (3000 sq ft [278.7 m<sup>2</sup>])
  - o Stage left to stage right crossover/corridor
  - o Piano storage (100 sq ft [9.3 m<sup>2</sup>])
- Locate these spaces on the plan, but do not emphasize them on your presentation posters.
  - o Audio and recording booth (100 sq ft [9.3 m<sup>2</sup>])
  - o Lighting booth (120 sq ft [11.1 m<sup>2</sup>])
  - o Restrooms (1230 sq ft [114.3 m<sup>2</sup>])
  - o Box Office (240 sq ft [22.3 m<sup>2</sup>])
  - o Office (140 sq ft [13.0 m<sup>2</sup>])
  - o Lobby (3500 sq ft [325.2 m<sup>2</sup>])

### Rehearsal Room

- **Emphasize the design of the rehearsal room on your presentation posters. It will be weighted when judged.**
- Rehearsal Room (2000 sq ft [185.8 m<sup>2</sup>]) with 325 sq ft (30.2 m<sup>2</sup>) storage additional.
- Drama and music rehearsals and small performances will be held here. It may also be used as a small assembly space for receptions.
- The rehearsal room must have convenient stage access.

### Dressing Room Suite (3000 sq ft [278.7 m<sup>2</sup>])

- Locate these spaces on the plan, but do not emphasize them on your presentation posters. These areas must have easy access to the stage and the rehearsal room.
- Men's and women's restrooms
- 3 "star" dressing rooms
- 2 general large dressing rooms (8 makeup stations each).

### Storage and Service Areas

- **Emphasize noise control approaches related to the mechanical and electrical rooms on your posters.**
- general storage 1500 sq ft (139.3 m<sup>2</sup>)
- Mechanical Room 2800 sq ft (260.1 m<sup>2</sup>)
- Electrical room 250 sq ft (23.2 m<sup>2</sup>)

Circulation, Stairs, and Elevators, as required (should be roughly 10-15% of the total program area)

Allow considerations for loading and access, janitorial, and other typical functional requirements.



## TECHNICAL REQUIREMENTS

Design competition entries should emphasize the general building acoustics design (room acoustics, noise control, and sound transmission control). *The auditorium and rehearsal room are of primary importance, so these rooms must be emphasized on the posters.* Other programmed building spaces must be included in the overall design, and they may be similarly considered at the discretion of each team in the interest of design completeness. Presentations may include plan and section drawings, renderings, acoustical calculations, acoustical criteria, and details of construction relating to acoustics and noise control as necessary to describe and support the design. If computer programs are used in the design, graphics and data from the programs may be displayed.

Electroacoustic systems (sound reinforcement or electroacoustic enhancement systems) design is outside of the competition scope and is not required; however, it is appropriate to indicate the presence of electroacoustic sound reinforcement systems if the design approach requires it. Electroacoustic enhancement (active acoustic) systems may not be used to produce changes in the auditorium acoustical characteristics.

While the design of the building mechanical and electrical systems is very important to the acoustical success of a project, it is not necessary to indicate the details of the mechanical and electrical system noise control. However, teams may wish to indicate noise criteria, along with general noise and vibration control procedures relating to air handling, electrical transformers, theatrical lighting dimmers, etc. Location of mechanical and electrical rooms will be considered by the judges, as it relates to noise control.

## REFERENCES

Useful design references include:

*Concert Halls and Opera Houses: Music, Acoustics, and Architecture*, Leo Beranek, 2nd Edition, Acoustical Society of America, 2003

*Halls for Music Performance: Two Decades of Experience, 1962-1982*, Edited by Richard H. Talaske, Ewart A. Wetherill, and William J. Cavanaugh, Acoustical Society of America, 1982

*Halls for Music Performance: Another Two Decades of Experience, 1982-2002*, Edited by Ian Hoffman, Christopher Storch, and Timothy Foulkes, Acoustical Society of America, 2003

*Acoustical Design of Music Education Facilities*, Edited by Edward R. McCue and Richard H. Talaske, Acoustical Society of America, 1990

*Acoustical Designing in Architecture*, Vern O. Knudsen and Cyril M. Harris, Acoustical Society of America, 1980 (originally published in 1950)

*Acoustics of Auditoriums in Public Buildings*, Edited by Leonid I Makrinenko and John S. Bradley, Acoustical Society of America, 1994 (originally published 1986)



*Collected Papers on Acoustics*, Wallace Clement Sabine, Acoustical Society of America, 1993 (originally published in 1921)

*Deaf Architects and Blind Acousticians?*, Robert E. Apfel, Acoustical Society of America, 1998

#### REQUESTS FOR INFORMATION

Please direct questions to [sdc@newmanfund.org](mailto:sdc@newmanfund.org). Note that general questions and requests for more information about the design scenario or competition will be met with follow-up to all registered teams by the co-chairs.

#### COMPETITION TIMELINE SUMMARY

A summary of the competition timeline is presented below, for convenience.

December 2016: Release of announcement and design scenario

Monday, May 1, 2017: Registration Deadline

Monday, June 19, 2017: Entry Shipment Receipt Deadline; Notification of Personal Delivery Deadline

Sunday, June 25, 2017: Begin 173<sup>rd</sup> Meeting of the ASA in Boston, Massachusetts, USA

Monday, June 26, 2017, 8:00 a.m.: Personal Delivery Entry Receipt Deadline

Monday, June 26, 2017: Digital copy submission deadline (This is required *in addition to* the hard copy poster submission and is not a substitute for it.)

Thursday, June 29, 2017: End 173<sup>rd</sup> Meeting of the ASA in Boston, Massachusetts, USA

#### STUDENT DESIGN COMPETITION CO-CHAIRS CONTACT INFORMATION

Competition primary contact will be through the e-mail address [sdc@newmanfund.org](mailto:sdc@newmanfund.org).

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