

STUDENT DESIGN COMPETITION 2007

TCAA
TECHNICAL COMMITTEE ON
ARCHITECTURAL ACOUSTICS



NCAC
NATIONAL COUNCIL OF
ACOUSTICAL CONSULTANTS

ANNOUNCEMENT

The Acoustical Society of America's Technical Committee on Architectural Acoustics and the National Council of Acoustical Consultants is sponsoring a student design competition to be judged and displayed at the 153rd meeting of Acoustical Society of America in Salt Lake City, Utah, June 4 – June 8, 2007.

The 2007 design competition involves the design of a college performance hall and related facilities primarily for the school's strong opera program. Refer to the Design Scenario that follows in this information.

The Student Design Competition is open to students in the disciplines of Architecture, Engineering, Physics and other curriculums that involve building design and/or acoustics. This competition is intended to encourage students to express their knowledge of architectural acoustics and noise control in the design of a facility in which acoustical considerations are of significant importance.

PARTICIPATION AND REGISTRATION

Entries may be submitted by individual students or teams of a maximum of three students. Undergraduate and graduate students are encouraged to participate.

Students intending to enter the competition must register by sending an email to Bob Coffeen (coffeen@ku.edu) on or before **April 9, 2007**. In the email, please indicate your name(s), school, and faculty advisor. Provide the email addresses of the faculty advisor and one team member to serve as contact for the entire team.

PRESENTATION FORMAT AND SUBMISSION PROCEDURE

Entries are to be poster presentations. Submissions shall be presented on up to three (3) separate display boards with maximum dimensions of 22x28 in. (56x71 cm) per board. (Note that this requirement has changed since previous competitions. The overall dimensional

area of presentation has not been significantly altered. The modified size is intended to ease handling and reduce shipping costs.)

Design and layout of the submissions should account for the presentation style. The font size, amount of narrative text, and number of graphs should be appropriate for poster viewing. A thoughtful viewing and analysis of the presentation should be possible in 5 to 8 minutes.

Separate design details, calculations or other documentation may not be attached to the boards. The judges will not review such information. However, such information may be displayed on the boards.

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.

In an opaque envelope affixed to the back of EACH display board, provide the name, address, phone, email addresses, school affiliation and advisor/sponsor of all participating team members. And, please indicate summer e-mail and mailing addresses for all team members. Team member names, school affiliation, etc. will not be revealed to the competition judges.

Presentations should be wrapped in opaque paper for submission to the competition. Wrapping will not be removed until the submissions are displayed for the competition. Please package display boards securely to prevent damage during shipping.

For entry in the competition, presentation boards must be received no later than **Tuesday May 22, 2007** at the following address:

Prof. Bob Coffeen
School of Architecture & Urban Design
The University of Kansas
1465 Jayhawk Blvd.
Lawrence KS 66045

However, students attending the Salt Lake City meeting may deliver their entries assuming that they are available at the host hotel in Salt Lake City no later than **8:30 am on Tuesday June 5, 2007**.

An e-mail message must be sent to Bob Coffeen (coffeen@ku.edu) by **5:00 pm on May 21, 2007** indicating that presentation boards have been sent to the above address or that they will be delivered at the meeting.

TECHNICAL REQUIREMENTS

Design competition entries should emphasize the general building acoustics design (room acoustics, noise control, and acoustic isolation). Acoustical design for **Performance Hall** and the **Rehearsal Room** are of primary importance, but other programmed building spaces must be included in the overall design and they may be similarly considered in regard to room acoustics and noise control at the discretion of each competition participant(s) and 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.

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 in detail the mechanical and electrical system noise control procedures that are required. However, the presenter(s) may wish to indicate noise criteria, along with general noise and vibration control procedures relating to air handling, electrical transformers, theatrical lighting dimmers, etc. And, for this particular design problem, it is not necessary to indicate special stage facilities for opera such as stage rigging; side and rear slip stages, stage traps, etc. But, space for these facilities should be included.

Specific design of sound reinforcement systems is not required. However, space for loudspeakers, an in-house mix location, etc. should be provided.

REFERENCES

Useful references for opera house design include:

Concert Halls and Opera Houses: Music, Acoustics, and Architecture, Leo Beranek, 2nd Edition, 2002, Springer-Verlag

Halls for Music Performance: Two Decades of Experience, 1962-1982, Acoustical Society of America

Halls for Music Performance: Another Two Decades of Experience, 1982-2002, Acoustical Society of America

Performing Arts Spaces, Paul Scarbrough and Robert Campbell, Time-Saver Standards for Building Types

DESIGN SCENARIO

A college of moderate size with a very strong music program intends to construct on their campus a performance hall primarily for opera. Opera performances are typically from the standard repertory (excluding Wagner) with a 70 member orchestra and a 40 to 50 person chorus with both student performances and performances by professional opera companies. Although the main purpose of the hall is to support the opera program, the hall will also be used for musical theatre, orchestral concerts, chamber music, chorus, dance, and an occasional lecture.

The site for the performance hall is relatively flat and it is located approximately 200 feet from a 6 lane interstate highway.

Following is the architectural program statement for the opera performance facility which defines the building desired by the college.

BUILDING PROGRAM

Performance Hall

Audience Seating: Approximately 1,200 seats with approximately 40% of the seating in two or three levels of side and rear balconies and/or boxes. The orchestra (main floor) seating arrangement may be traditional or continental.

Stage: Approximately 6,000 ft² (560 m²) with depth of approximately 60 ft (18m) and with side stage areas for rigging control, storage, and preparation. Easy access to truck loading dock for scenery and other materials.

Stage Proscenium: Minimum 50 ft (15.25 m) wide and 30 ft (9.15 m) high.

Stage House: Fully rigged with conventional counterweight rigging system and with stage to gridiron height of 2.5 to 3.0 times the proscenium height.

Orchestra Pit: To accommodate an orchestra of approximately 70 musicians. At least one pit lift with highest position at stage level.

Variable Acoustics: Since the hall is to be used for orchestra and choral stage performances, a portable stage enclosure (shell) is required. Also, consideration should be given to providing variable sound absorption for the hall due to the somewhat multipurpose nature of the hall.

Scene Shop

Approximately 2,800 ft² (260 m²) with easy access to stage and to truck loading dock. Door(s) for scenery entrance and exit with dimensions of approximately 18 ft (5.5 m) wide and 25 ft (7.6 m) high. It is anticipated that the Scene Shop will be in use during rehearsals in the Performance Hall and occasionally during performances.

Dressing Rooms

Three chorus dressing rooms at approximately 500 ft² each.

Five solo dressing rooms at approximately 200 ft² (18.6 m²) each.

Two 4-person dressing rooms at approximately 350 ft² (32.5 m²) each.

Orchestra dressing room at approximately 900 ft² (84 m²) with easy access to orchestra pit.

Costume Shop, Wardrobe Room, and Wig Shop

Total of approximately 1,200 ft² (112 m²).

Rehearsal Room

Approximately 2,200 ft² (200 m²) for dancers and chorus (with daylighting).

Green Room

Multipurpose Green Room at approximately 600 ft² (56 m²)

Lobby

To serve as the entrance to the Performance Hall and to a box office and house manager's office. In addition to serving as a typical lobby, it will be used on occasion for art exhibits, meetings, luncheons and dinners, receptions, and small group musical groups.

Mechanical Equipment Room

The MER will primarily house air handlers. Chilled water and steam are available from a nearby college building. Approximately 1,400 ft² (130 m²).

JUDGING AND AWARDS

The submitted designs will be judged by a panel of practicing design professionals. The panel will include acoustics consultants and may include architects and theater consultants.

Entries will be evaluated on technical merit, design vision, adherence to the design scenario and program requirements, and effectiveness of presentation.

An award of \$1,250 will be made to the individual or team whose entry is chosen as "First Honors". Commendation awards of \$700 will be made for four other outstanding entries.

QUESTIONS AND CLARIFICATIONS

Questions regarding the competition requirements or clarifications about the design scenario may be directed to Bob Coffeen via email (coffeen@ku.edu). Questions and answers deemed to affect all entries will be copied to all participants and advisors who have registered. Questions relating to procedural matters (shipping of posters, etc.) may be directed to any of the design competition chairs as noted below.

COMPETITION TIMELINE

November 2006	Release of Announcement and Design Scenario
April 09, 2007	Registration Deadline
May 21, 2007	Deadline for Receipt of Submissions
June 4-8, 2007	153rd Meeting of the Acoustical Society of America, Salt Lake City, Utah

STUDENT DESIGN COMPETITION CHAIRS

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