NEWMAN STUDENT AWARD FUND'S

2025 STUDENT DESIGN COMPETITION

PRESENTED BY:

TCAA Technical Committee on Architectural Acoustics

Newman Student Award Fund

ASA Acoustical Society of America

ROBERT BRADFORD NEWMAN STUDENT AWARD FUND
THROUGH THE ACOUSTICAL SOCIETY OF AMERICA -
TECHNICAL COMMITTEE ON ARCHITECTURAL ACOUSTICS

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Introduction

The Technical Committee on Architectural Acoustics with support from the Robert Bradford Newman Student Award Fund and The Wenger Foundation is sponsoring a Student Design Competition to be judged in conjunction with the 188th meeting of the Acoustical Society of America, held in New Orleans, Louisiana, USA on 18-23 May 2025.

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

General Information

Entry Requirements

Entries may be submitted by individual students or teams of a maximum of three students. Each person is restricted to one submission, they may not submit as part of multiple teams. Undergraduate and graduate students are encouraged to participate. Participants must be registered as a student during a portion of the 2025 calendar year. Teams comprised of students from different institutions are welcome. Teams comprised of students from different disciplines (Acoustics, Sound Arts, Architecture, etc.) are encouraged. You may work with a faculty advisor, but it is not a requirement for entry. ASA Meeting attendance is not required to participate in the competition.

Registration

Teams must register by e-mail **before 1:00 PM (CT) on 7 April 2025** with the competition chair, Robin Glosemeyer Petrone at robin@thresholdacoustics.com. In the e-mail, please include the following information (in an editable text file – ***please do not attached as a pdf***):

1. The name and contact information of each entrant on the team. For each team member, please include:
   a. Name
   b. School affiliation
   c. Email addresses
2. The name of your faculty advisor, their school, and their e-mail address.
3. Please indicate 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
   c. As an extra-curricular project
4. 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

Entries will be evaluated on technical merit, design vision, innovation, and effectiveness of presentation. The submitted designs will be judged by a panel of practicing acoustic design professionals.

Awards are made possible through a generous donation from the Wenger Foundation to the Newman Student Award Fund and will include:

- One First Honors prize of 3,000 USD*
- Up to Four Commendation Awards of 1,000 USD*

* Should the judges determine there to be less than 4 entries worthy of Commendation Awards, the total prize award of USD 7000 will be subdivided between the First Honors and Commendation winners.

Presentation Format and Submission Procedure

Submission requirements will include a digital submission for judging prior to the in-person meeting and a printed copy of the submission for display at the 188th ASA Meeting in New Orleans, Louisiana, USA, where the winners will be announced during the Technical Committee on Architectural Acoustics (typically held on Tuesday evenings).

Entrants shall submit digital poster as pdfs with maximum dimensions equivalent to 3 poster boards of 22 x 28 inches (56 x 71 cm) per board. Additional documentation beyond that accommodated within the area of the 3 boards may not be included.

Text and image size on the display surface shall be legible at a distance of 3 feet (1 meter), as if the boards were to be printed and displayed. Body text may be no smaller than 24-point font; captions may be no smaller than 18-point font. 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. If information is not legible in the digital and print submission, if, for instance the text is too small or is pixilated to thew point of illegibility, no “credit” is given for the work.

The competition language is English.

Digital Submission:

- Please submit one version of your digital submission with no identifying team names or school affiliation for judging.
- Submit a second digital copy with all entrants’ names and school affiliation included under the submissions project name. The second version will be posted on the Robert Bradford Newman Student Award Fund website for viewing.
- Include a separate text file (.doc or similar, please do not send as a .pdf) with the names, e-mail addresses, school affiliations, and advisor(s) of all participating team members. Team member’s identifying information (names, addresses, etc.) will not be revealed to the competition judges.
- Digital submission shall be received on or before 1 PM (CT) on 28 April 2025.
- Please use send documents via We Transfer at **https://wetransfer.com/** to **Robin Glosemeyer Petrone** at **robin@thresholdacoustics.com**

Hard Copy Submission:

- Please bring or mail a hard copy of the submission to the 188th ASA Meeting in New Orleans, Louisiana for display during the Student Design Competition Session.
- If you choose to mail your hard copy, please send it to

  Atten: Robin Glosemeyer Petrone

Trahan Architects
701 Poydras St
#150p,
New Orleans, LA, USA 70139

- Hard Copy Submission must arrive between Monday, 12 May 2025 and Friday, 16 May 2025, 3 PM (CT).
- Submissions are to be mounted on up to three (3) separate display boards with maximum dimensions of 22 x 28 inches (56 x 71 cm) per board. Mount posters to foam core board or another rigid backer for display.

Awards

- Awards will be distributed after the meeting during the month of May 2025.

Additional Information

- Additional Information may be obtained by contacting:

Robin Glosemeyer Petrone
Threshold Acoustics
P 312.386.1400
E ASAStudentDesignComp@thresholdacoustics.com

Suggested References

- Architectural Acoustics (1988, reprinted in 2007) by M. David Egan
- Architectural Acoustics Illustrated (2015) by Michael Ermann
- Architectural Acoustics, 2nd Edition (2014) by Marshall Long
- Concert Halls and Opera Houses: Music, Acoustics, and Architecture, 2nd Edition (2003) by Leo Beranek
- Acoustical Design of Theatres for Drama Performance (2010) by David T. Bradley (Editor), Erica E. Ryherd (Editor), Michelle C. Vigeant (Editor)

Timeline Summary

- 06 January 2025 – Design Competition Announced
- 7 April 2025 – Registration to be submitted by 1:00 PM CT
- 28 April 2025 – Digital submissions to be posted by 1:00 PM CT
- 12-16 May 2025 – Mailed hard copy submissions to arrive off-site by 3:00 PM CT
- TBD May 2025 – Bring non-mailed hard copy submissions to the AA Student Design Session 30 minutes before the session begins
- TBD May 2025 – Posting of submissions for open exhibition at the 183rd ASA meeting
- 19-23 May 2025 – Announcement of winners in the TCAA meeting session
- 26-30 May 2025 – Distribution of awards

Contact Information

Competition primary contact will be through the e-mail address ASAStudentDesignComp@thresholdacoustics.com

Design Scenario

A college with a very strong drama, vocal, and dance program intends to construct a new 700-seat theatre primarily for dramatic/spoken word and musicals. Although the main purpose of the hall is to support their drama program, the hall will also be used for speaking engagements by the school's president and other invited speakers.

Program Details

The following architectural program statement defines the Theatre Performance Facility desired by the college. Submissions shall address the room acoustic, sound isolation, and noise control needed to support the Theatre and Rehearsal Room, as well as any interactions made with the front and back of house spaces.

700-seat Theatre

- Audience Seating:
  - 700 seats for dramatic events. The number of seats may be less for musical performances (when lifts are set to pit level)
  - Seating may be distributed between orchestra (main floor) level, upper-level sides and rear tiers
  - Main floor seating arrangement may be traditional or continental.
- Stage:
  - 40 ft (12 m) wide by 40 ft (12 m) deep play area.
  - 15 ft (4.5 m) wide wings to both sides.
  - Easy access to truck dock for scenery and other material load in and out.
  - There must be a stage crossover corridor for actors and technical staff during the performance, especially for use by staff and performers with mobility assistance need. You may ***not*** assume crossover can occur on stage, behind scenery.
- Stage Proscenium: Minimum dimensions of 40 ft (12 m) wide and 30 ft (9 m) high.
- Stage House: Height from stage floor to gridiron approximately 2.5 times height of proscenium.
- Orchestra Pit:
  - Provide one pit lift with the highest play position at stage level – the space will also host corporate events, presentations or lectures, downstage of the main curtain.
  - The pit shall accommodate 15 musicians, 13 musicians at 22 ft^2 (2m^2) per musician plus a drum kit and a grand piano.
  - The pit must be accessible for performers with mobility assistance needs and to bring large instruments to the pit level without raising the pit lift to stage level
- Variable Acoustics:
  - The Theatre will be used for both non-amplified and amplified spoken word as well as amplified musicals, corporate events, presentations and lectures. Variable acoustics finishes may be considered to adjust the room acoustic response for amplified and non-amplified events.
  - The Theatre will not host orchestra, recitals, or operatic events. An orchestra shell is not required.
- Lighting and Stage Manager Control Room: 300 ft^2 (28 m^2)
- In-house Audio Mix Position: 9 ft (3 m) wide, two seating rows deep
- Follow Spot Both: 250 ft^2 (22 m^2)

Rehearsal Room

- To accommodate spoken word, vocal, dance and pit musician rehearsal.
- Area: large enough to accommodate a "taped out" stage play area, plus circulation at the front and sides of the stage play area
- The Rehearsal Room will be in sure while the Theatre is in use.

Scene Shop

- Approximately 3,200 ft^2 (300 m^2) with easy access (minimal turns) to the stage and truck loading dock.
- One door for scenery entrance and exit with dimensions of approximately 18 ft (5.5 m) wide and 25 ft high.
- Room height: 35 ft (10.7 m)
- The Scene Shop will be in use while rehearsals take place in the Theatre and Rehearsal Room.

Dressing Rooms

- Two chorus dressing rooms, approximately 600 ft^2 (56 m^2) each.
- Eight solo dressing rooms, approximately 70 ft^2 (6.5 m^2) each. Dressing rooms may also be used as music practice rooms.

Green Room

- One multipurpose Green Room, approximately 500 ft^2 (46.5 m^2). This room may be used for meetings.

Off-stage Quick Toilet

- 60 ft^2 (5.5 m^2)

Costume Shop

- 800 ft^2 (70 m^2)

Wig and Make-Up

- 300 ft^2 (27 m^2)

Prop Storage

- 100 ft^2 (10 m^2)

Office Space

- Three offices for the facility's technical staff, approximately 120 ft^2.
- Two offices for the resident company's staff, approximately 100 ft^2.

Lobby

- 4900 ft^2 (450 m^2)
- The Lobby may be distributed over two levels

MEPFIT (mechanical, electrical, plumbing, fire protection, IT) Rooms

- The MEPFIT Rooms will be located on the second floor of the facility, over the Rehearsal Room, and shares a wall with the Theatre. See the Plans and Sections.
- The Main Equipment Room (MER) will house two air handlers. The casing radiated unweighted sound pressure levels, LZeq, for a single unit are as follows. SPLs were gathered in accordance with ARHI 260 (Sound Power).

	Sound Pressure Levels						
	Octave Band Center Frequency (Hz)						
	63	125	250	500	1000	2000	4000
AHU Casing Radiated	81	80	83	76	75	64	62

Site Noise Considerations

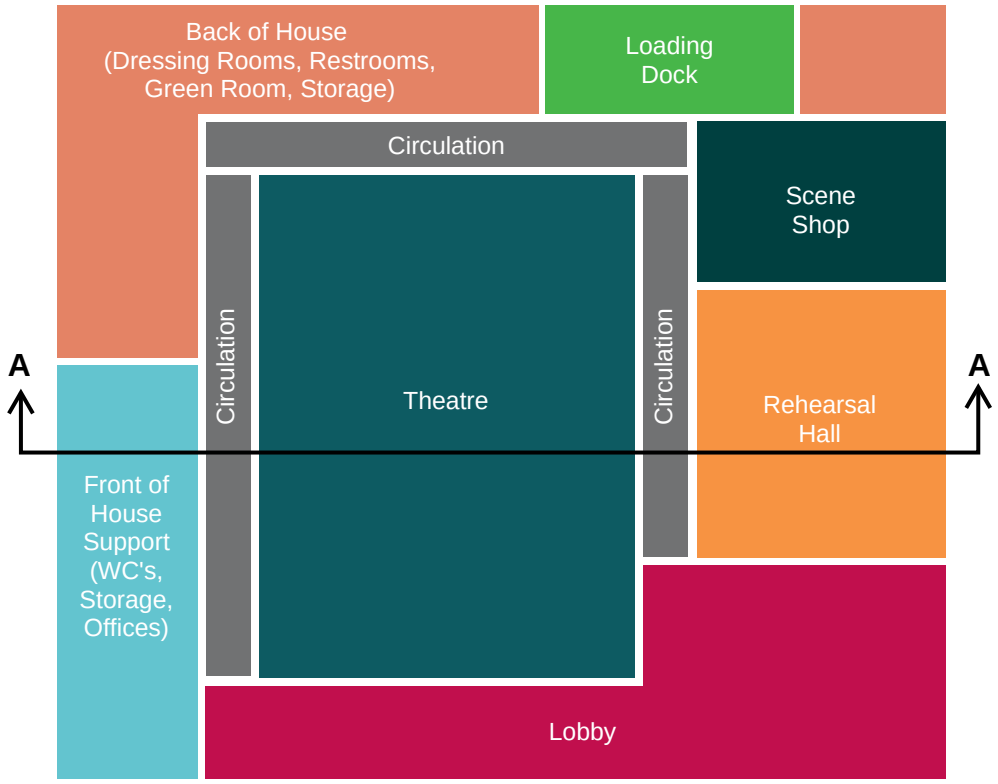
The building will be constructed in the city's downtown on an open city block measuring 300 ft x 360 ft (90 m x 110 m.) Highly trafficked streets surround the building site on all four cardinal directions. See the Site Plan. The peak, unweighted, LZeq, noise levels recorded for emergency vehicle traffic events, at a location of the building facade, in octave frequency bands are as follows:

	Sound Pressure Levels						
	Octave Band Center Frequency (Hz)						
	63	125	250	500	1000	2000	4000
Emergency Vehicular Traffic	72	73	76	81	66	54	40

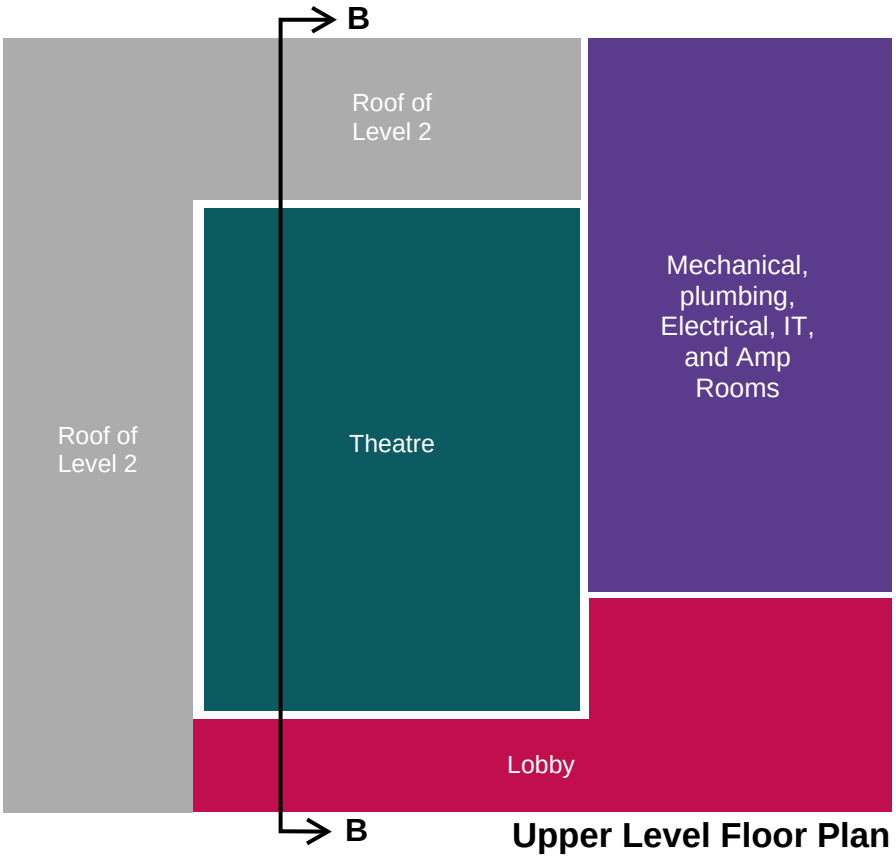
Plans and Sections

The plans and sections below provide a conceptual program layout on the site. Your entry must include the MEP, IT and Amp Rooms located above the Rehearsal Room.

Plans and Sections

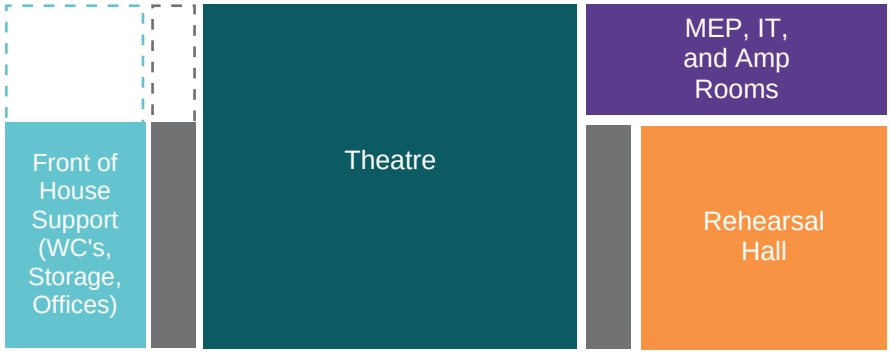


Lower Level Floor Plan

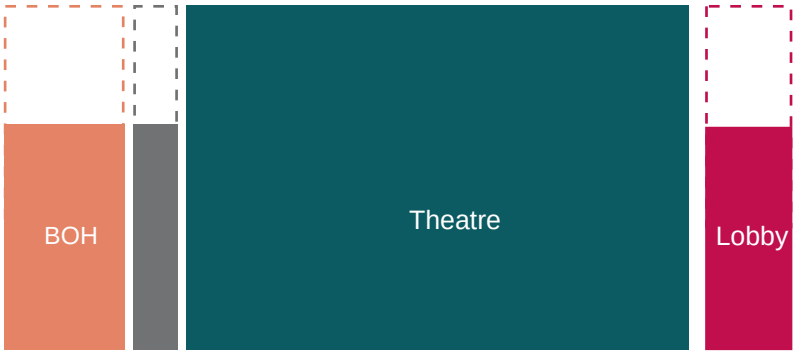


Upper Level Floor Plan

Plans and Sections

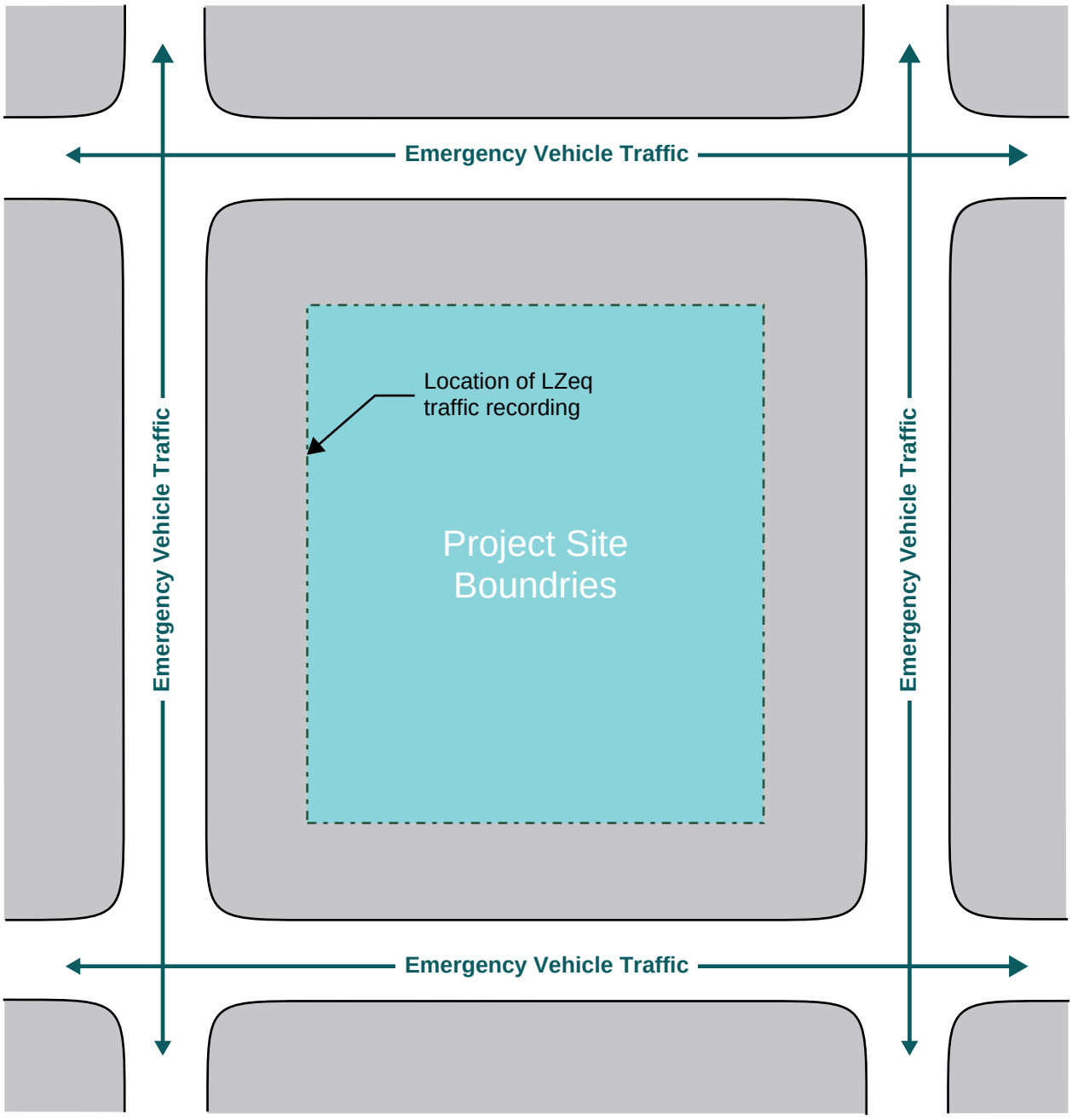


Section A-A



Section B-B

Plans and Sections



Site Plan

Technical Requirements

Design competition entries should emphasize the acoustic design, including the room acoustics, sound isolation and noise & vibration control, and its interaction with the overall architectural design for the Theatre and Rehearsal Room. The drawings should present comprehensive solutions to the acoustical design in schematic design format. It is not necessary to prepare architectural exterior building elevations.

In addition to plans and sections for the Theatre and Rehearsal Room, the poster boards should display acoustical calculations, acoustical criteria, and details of construction relating to acoustics, sound isolation and noise control as necessary to describe and support the design described. If computer programs are used in the design, graphics and data from the programs may be displayed.

Front and back of house support spaces, such as restrooms, costume storage, and equipment rooms, are to be included in the plan and section layout of the building. The submission does not need to address the interior room requirements of each space. If the spaces are likely to have the potential to produce noise either due to the equipment they hold or the intended use, the sound isolation of said rooms should be considered. Examples include noise generated by equipment in MEPFIT rooms, and activity noise from the truck loading dock and Scene Shop interrupting rehearsal on stage and/or in the rehearsal room, to name a few. Note the criteria indicated the MER will have two AHU's and shares common partitions with the Theatre and Rehearsal Room in plan or section. Judges will be looking for the submissions to include the desired background noise levels for each of the occupied spaces, at minimum the Theatre and Rehearsal Room, along with strategies to control interruptions from noisy spaces including the MEPFIT rooms, the truck loading dock, and the exterior.

While the design of the building's 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 for this particular design problem.

Designs shall provide an acoustic room's response capable of supporting the listed range of performance types. It is, perhaps necessary to address the presence of amplification loudspeakers as sound sources. However, electroacoustic sound systems are not to be used to produce the change in room acoustic response between amplified and non-amplified performance types. Sound amplification, lift, and electro-acoustic enhancement system design is considered outside of the scope of this competition.