



ACOUSTICAL SOCIETY OF AMERICA STUDENT DESIGN COMPETITION 2012

PRESENTED BY:

- THE TECHNICAL COMMITTEE ON ARCHITECTURAL ACOUSTICS
- THE ROBERT BRADFORD NEWMAN STUDENT AWARD FUND
- THE NATIONAL COUNCIL OF ACOUSTICAL CONSULTANTS

ANNOUNCEMENT

The Acoustical Society of America's Technical Committee on Architectural Acoustics with support from the [Robert Bradford Newman Student Award Fund](#) and the [National Council of Acoustical Consultants](#) is sponsoring a student design competition to be judged and displayed at the 163rd meeting of the Acoustical Society of America in Hong Kong, May 13-18, 2012. The Student Design Competition is open to undergraduate and graduate 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. Teams comprised of students from different institutions are welcome. Teams comprised of students from different disciplines are encouraged. A faculty sponsor is required. Teams must register by sending a copied email to both the design competition chairs as noted below on or before the registration deadline. 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. * *A maximum of three entries from any given institution will be accepted.* For schools that will have more than three potential student design competition entries, it is suggested that the school hold their own internal competition to select the three entries that are to be advanced to the 2012 ASA competition in Hong Kong.

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. The competition language is English. It is not necessary to attend the meeting in order to participate in the competition. 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 4 to 6 minutes. Additional design details, calculations or other documentation may not be attached to the boards. The judges will not review such information. 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. Please package display boards securely to prevent damage during shipping. For entry in the competition, mailed presentation boards must be received no later than Thursday, May 3, 2012 at the following address:

Shen Milsom & Wilke Ltd.
c/o Him Tang
16F, Greenwich Centre
260 King's Road
North Point, Hong Kong
☎ +852 2850-1086
FAX +852 2544-4266

However, students attending the Hong Kong meeting may deliver their entries in person to the conference registration desk no later than 5:00 pm on Monday, May 14, 2012. Please indicate when registering, whether competition boards will be mailed or submitted in person.

TECHNICAL REQUIREMENTS

Design competition entries should emphasize the general building acoustics design (room acoustics, noise control, and acoustic isolation). Acoustical design for the open plan office, guest rooms, and the nightclub 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. However, the competition

judges will be directed to focus on the open plan office, typical guest room, and the nightclub. 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 system (sound reinforcement system) design is not required, but appropriate measures for isolation of the system or the club from the remainder of the building are.

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.

DESIGN SCENARIO

A mixed use building is planned for the [Mong Kok district](#) of Hong Kong to include offices on the lower floors, luxury hotel rooms in the middle floors, and a nightclub on the top floor. The site is currently a small parking lot, bound by busy streets to the south and east. Directly across the street to the east is the [Mong Kok East Metro Station](#) which carries [Hong Kong's East Rail Line](#). This line carries local passenger trains which stop at the station as well as through freight trains. Isolation from train and traffic noise is necessary for the office, hotel, and nightclub. The building may be located as you see fit on the site. The Google Earth image in Figure 1 shows the site highlighted in yellow. The site may be located using Google Earth (so that you may publish your own images, identify other building elevations with the 3D feature, identify geographic features, etc.). Coordinates: +22° 19' 12.99", +114° 10' 20.47"

BUILDING PROGRAM

While the program contains many elements, the primary focus should be on office acoustics and sound isolation, hotel room sound isolation, and nightclub/restaurant acoustics and sound isolation.

The total number of floors in the building is at the designers' discretion.

Footprint for each floor: 75' x 150' (23m x 45m) or 11,250 ft² (1035m²); shape is arbitrary. Approximate areas are shown only for general guidance.

Offices:

The first two floors shall house offices that have on each floor: a lobby, 5 isolated offices, and an open office for 50 individuals, with related facilities (toilets, copy area, kitchen, reception).

Hotel rooms (number of floors as required):

Luxury-quality isolation hotel rooms with kings, double-queens, etc. 27'x15' to 27'x12' typical, suites 39' x12'. It is not necessary to design every room and circulation, though representative examples should be included to illustrate all noise isolation strategies.

Other hotel facilities:

Entrance Floor:

Lobby, 5,000 ft² (465m²)

Reception/Front office, 500 ft² (46m²)

Manager's office, 120 ft² (46m²)

Break room 250 ft² (23m²)

Great room 2000 ft² (190m²)

Baggage storage, 400 ft² (35m²)

Meeting room (12 persons) 300 ft² (30m²)

Public bathrooms. 300 ft² (30m²)

Business center, including semi-private cubicle workstations for 6 people. 500 ft² (46m²)

Each floor: housekeeping, electrical/communication

Additional facilities: laundry, pantry, storage, kitchen, loading considerations, refuse disposal

2 public elevators, 1 service elevator.

Emergency stairs and/or stairs that encourage use.

Top floor Nightclub

Seating for 400-600 at tables on a terraced main floor and a mezzanine.

Restaurant kitchen, offices. 1500-2000 ft² (150-200m²) Stage for piano, jazz, karaoke, stand-up comedy. 500-1000 ft² (45-100m²)

Green room 200 ft² (45-100m²)

Sound levels at the perimeter of the room, expected from midnight to 4am:

LAeq: 110dB

Lceq: 115dB

Lcpeak: 132dB (kickdrum)

Mechanical Equipment Room(s)

It is up to the designer to determine the appropriate mechanical systems for the spaces, they may locate it/them anywhere, keeping in mind noise issues, energy efficiency, and local climate control.

REFERENCES

Useful references for opera house design include:

- Cavanaugh, Tocci, Wilkes, "Architectural Acoustics- Principles and Practice"
2nd Edition, John Wiley and Sons, Hoboken, 2010
- Egan, "Architectural Acoustics", McGraw Hill, Inc., New York, 1988
- Harris, "Noise Control in Buildings", McGraw Hill, Inc., New York, 1994
- Long, "Architectural Acoustics", Elsevier Academic Press, New York, 2006
- NRCC: <http://www.nrc-cnrc.gc.ca/eng/index.html>
- Mehta, Johnson, Rocafort, "Architectural Acoustics, Principles and Design", originally published by Prentice Hall, 1999, now available used or from Madan Mehta

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 to four other outstanding entries. Awards are made possible through a grant from the Wenger Foundation and by the Newman Student Award Fund.

QUESTIONS AND CLARIFICATIONS

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

COMPETITION TIMELINE

- December, 2011 Release of Announcement and Design Scenario.
- April 19, 2012 Registration Deadline.
- May 3, 2012 Deadline for receipt of submissions by mail.
- May 14, 2012 (5:00 pm) Deadline for receipt of submissions in person at the conference registration desk.
- May 13-18, 2012 163rd Meeting of the Acoustical Society of America, Hong Kong.

STUDENT DESIGN COMPETITION CHAIRS

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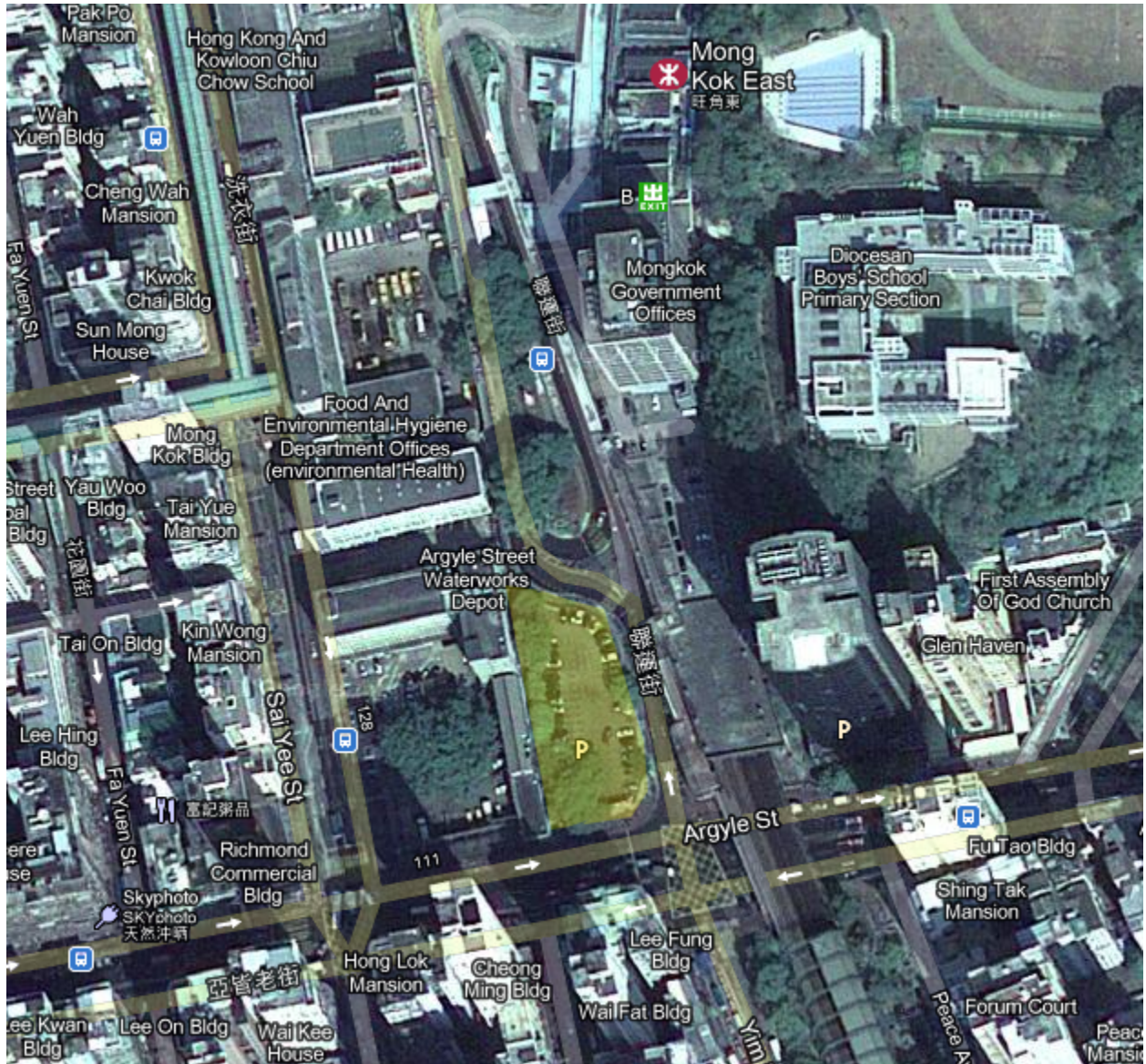


Figure 1: The site for a new mixed use building.