Request for Proposal:

Development and administration of on-line class / technical training for technicians of acoustic measurements

Sponsoring organization:	Institute of Noise Control Engineering of the USA
Date Issued:	February 25th, 2022
Submission Deadline:	April 15th, 2022

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1. Introduction

1.1. Overview of Technician Certification Program

Institute of Noise Control Engineering of the USA (INCE-USA) is developing a program to certify individuals who measure sound levels or test acoustical conditions. We are referring to this as a Technician Certification Program. The goal is to create a program that certifies individuals who have passed an examination covering the relevant standards and methodologies to perform measurements and testing for quantitative acoustical assessments. The initial development of this program will focus on two types of standards:

- the measurements of sound levels for outdoor and indoor conditions, and
- testing of building acoustic conditions (airborne and impact sound transmission).

We anticipate the initial demand for the Technician Certification Program in the market will come from:

- Individuals who are assessing conditions relative to sound level regulations, such as state, county or local municipal ordinances or bylaws,
- Individuals who are assessing building acoustic conditions relative to building code requirements, such as the International Building Code (IBC) and the International Green Construction Code (IgCC), both by The International Code Council (ICC),
- Individuals who are verifying acoustical performance for other voluntary programs, such as the WELL Building Standard (WELL™) of the International WELL® Building Institute (IWBI).

Over time, the Technician Certification program is anticipated to expand to other acoustical measurements and testing as the demand in the market grows for those other topics.

The Technician Certification will be distinct from INCE-USA Board Certification. This Technician Certification will be similar to a tradesman's license, as opposed to the Board Certification, which is analogous to a professional engineer's license. To emphasize this analogy, the tradesman is licensed to install systems (e.g., mechanical, electrical and plumbing), whereas the professional engineer is licensed to design these systems. As much as the professional engineer knows, unless they have been trained and licensed as a tradesman, they are not licensed to perform installations. A similar distinction is made for these certifications; while Board Certification confirms an accomplished level of knowledge in topics of noise control engineering, it does not ensure that knowledge of the measurement and testing standards has been achieved or maintained. For these reasons, this Technician Certification program is distinctly different from the Board Certification.

The Technician Certification program will include three components:

- Education (optional for those who feel they need it),
- Examination (required by everyone), and
- Continuing Education (required by everyone).

As described above, the Education portion of the program will be voluntary for those who feel they need the education in the standards. The Education Program will primarily be focused on individuals who may be new to the industry and new to the standards. Individuals who feel that they know the methods and processes of the measurement and testing standards can choose to bypass the Education Program and proceed to the Examination. By-passing the Education Program will be discouraged as an intimate working knowledge of the standards will be required for the examination. It is not uncommon to find that there are even experienced, long-standing members of ASTM International (ASTM) that do not fully appreciate the finer details of different standards, which will be covered by these courses.

Along the same thinking, the Technician Certification is not necessarily requiring individuals to be able to perform noise control or consulting activities. The focus of the program is to be able to measure and test acoustical conditions to the standards that are used for these assessments. The Technician Certification does not require a degree or advanced academic studies in acoustics, though the individuals will need to understand the equations and calculations that the standards are based on. This is the knowledge that the Education Program is intended to provide.

The Education program will be available online and allow for enrollees to proceed at the individual's pace, so that it is accessible to anyone that pays the registration, regardless of their region or schedule.

There will be a cost for the ANSI/ASA and ASTM standards covered in these courses, which will be provided to the enrollees. We will be determining how the costs of the standards are handled by the Program.

As mentioned above, the Technician Certification program will begin with two groups of standards for acoustical measurements and testing:

1. Background Sound Level Measurements Indoors and Outdoors
2. Building Acoustics Testing (airborne sound transmission, impact sound transmission, sound decay, etc.)

Successful completion of either course will earn the candidate a Technician Certification for that course.

It is expected that each of these groups will be taught and tested in separate courses, since individuals may decide that they need knowledge with one group or the other, or the individuals may decide to follow both. Successful completion of an examination for either group will earn the individual the Technician Certificate.

The two specific groups of standards will each be designated with a "badge" that will identify the certification for performing measurements and tests to those standards. These badges will be

listed in an online directory hosted by INCE-USA for others to view to confirm an individual's certification.

Upon successful completion of an exam, the individual will also be issued a digital stamp with their specific badge(s) noted, to be used when signing documents and reports associated with the measurements and testing that they perform. This digital badge will be developed and distributed by a Technician Certification Committee within INCE-USA with the assistance of the INCE-USA Business Office.

1.2. Education Program Administration

Since INCE-USA expects the Education Program to have a large user base with many different types of certificate courses, we require the successful bidder to use an online learning management system that INCE-USA chooses. The learning management system will streamline the administration, documentation, tracking, reporting, automation and delivery of educational courses, training programs, or learning and development programs. Currently INCE-USA is planning on using moodle.com. Since this system will be used by different educators as this contract continues into the future, INCE-USA will contract directly with the chosen company for the learning management system. This is a cost that INCE-USA will bear, and should not be a cost in the submission of this fee proposal.

1.3. Administration of Testing

The goal of INCE-USA is to offer the examination for the Technician Certification Program to anyone who is interested and qualified. With the anticipated demand of acoustical testing services in the future, INCE-USA has concerns about providing the necessary number of examinations to interested parties over a reasonable time frame. There is also an interest in offering the examination to individuals who may be located far from urban centers.

In order to deploy the examinations efficiently and have as wide of a reach as possible, INCE-USA has decided to have all testing computer-based through existing testing agencies. This approach is also sought to secure the integrity of the program final testing of certificate seekers, since established testing centers can provide the oversight of the test takers.

As with the online management system, INCE-USA will contract directly with the chosen testing agency company. Currently INCE-USA is planning on using (Pearson Vue, Prometric, PSI, Moodle, etc.).

1.4. Education Program Contract Term

The contract for the Education Program will have a four (4) year duration with an option for an additional two (2) year extension, decided solely by the INCE-USA Technician Certification committee. Additional extensions terms will be at the discretion of the INCE-USA Technician Certification committee.

1.5. Expected Demographics of Enrollees

There are at least 7 types of people that will take advantage of these courses and testing. These include:

- Engineers and technicians that require this certification to meet contract or RFP requirements,
- Code enforcement officials, including police, public health officers, municipal code officers, etc.,
- A new technician or engineer that has been hired by existing consulting companies. Their employers may use this course as a way of reinforcing any in-house training,
- Currently practicing junior engineers and technicians to make sure they have kept up with all the changes to the standards and to fill in any holes in their knowledge,
- Senior engineers that have been away from field testing for a while and want to refresh their knowledge of the standards,
- Newly formed testing agencies that may be created due to demand for post construction commissioning required in codes, standards and building programs,
- Students that are currently enrolled in college or graduate school and wish to pursue a career in noise control engineering. These students would be able to demonstrate to potential employers that they are motivated and educated.

1.6. Definitions

- INCE-USA Board of Directors (the **"Board"**)
  This is the elected individuals to lead and have fiduciary responsibility for the activities of INCE-USA.
- Technician Certification Committee (the **"Committee"**)
  Committee of individuals that have been appointed and/or approved by the INCE-USA Board of Directors.
  This committee is currently co-chaired by:
  Jeff Fullerton (jeffrey.fullerton@intertek.com)
  Matt Golden (mgolden@pliteq.com)
- INCE-USA Business Office (the **"IBO"**)
  The third party organization selected by the Board to run the day to day business aspects of INCE-USA.

- Education Program Provider (**"Provider"**)
  The organization selected by the Committee to develop the educational programs in this request for proposal.

- Education Program Project Manager (the **"Manager"**)
  The individual selected by the proposing organization to serve as the main point of contact between the proposing organization and the Committee, Board and IBO. This may be the same person as the Education Program Technical Lead.

- Education Program Technical Lead (the **"Technical Lead"**)
  The individual selected by the proposing organization to serve as technical lead on the development of all course material. They shall be responsible for the technical content. This may be the same person as the Manager.

- Education Program Additional Staff (the **"Staff"**)
  The individual selected by the proposing organization to assist in the creation of any education material.

- Learning Management System (the **"LMS"**)
  The Learning Management System is the online system for administration of the course, which will be used by the Education Provider for posting the educational material for students taking the course. Moodle (moodle.com) is anticipated to be used for the LMS system, similarly to how it is used for the INCE-USA Noise Control Engineering courses.

2. Education Program

The following sections describe the Education Program that the prospective bidders would develop to educate candidates on the relevant testing standards in preparation for the Technician Certification exam.

2.1 General Overview

The goal of the Education Program is to provide an educational resource for enrollees who are interested in applying for the Technician Certification examination. The courses will be online and conducted on the enrollees schedule. The Education Program courses should be interactive and relevant. It is our intent that each course be no more than 10 hours of instruction. If while creating the courses, it is not possible to keep the course under 10 hours, the Provider will discuss with the Committee as to possible sub-divisions of the courses.

2.2 Scope of Work

The subcontractor will provide the following services:

- Create and produce an online course to educate enrollees on the following standards of sound measurement, including ANSI S1.1, ANSI S12.2, ANSI S12.9, ANSI S12.72, ASTM 1503 and ASTM E1780;

- Create and produce an online course to educate enrollees on the following standards of building acoustic measurements, including ASTM E336, ASTM E413, ASTM E989, ASTM E1007, ASTM E2235, ASTM E3207 and ASTM E3222;

- Create and produce an online course to educate enrollees on the updates to the sound measurement standards in preparation for their recertification;

- Create and produce an online course to educate enrollees on the updates to the building acoustic testing standards in preparation for their recertification;

- Make improvements and revisions to the course and supplemental materials to improve engagement and understanding by the enrollees upon INCE-USA's request during the contract period.

The course development process will include a draft submission to the Committee for review and feedback for revisions. Following a discussion between the Committee and Provider about the feedback and proposed revisions, the Provider will update the courses and submit a final version for review and confirmation prior to releasing the course for use by the enrollees.

Each course on the measurement and testing standards is expected to be a 6 to 10-hour course for the enrollees to complete. Each course on the updates is expected to be a 1 to 8-hour course for the enrollees, depending on the extent of the updates to the standards.

2.4 Online Format

The Educational Program shall be web-based to allow flexibility in date, time, and place, for the enrollees. This format will also allow the largest number of people from any location and at any time to enroll in the course(s). INCE-USA plans to use an online learning management system called moodle™ (moodle.com) for hosting the education program. Moodle can host the lectures, course materials, quizzes (if desired), and tests.

INCE-USA envisions the course materials will be a combination of the following:

- Video presentations
- Demonstrations
- Reading assignments
- Standards (to be provided to each enrollee that subscribes to the courses)
- Lecture notes

- Quizzes
- etc.

The prospective Providers are encouraged to think creatively as to how to convey the technical information of the standards in visual, graphical and interactive formats to allow the enrollees to gain their knowledge of the standards experientially if possible. For example, conveying the proper positions and locations for using a sound level may be best conveyed through a video demonstration of someone (or graphical characters) using a meter, rather than conveying the same information via a spoken lecture.

Another possible example is the creation of some sort of web-based virtual sound level meter that includes input buttons, output screen and digital output. With the idea that the virtual sound level meter would be realistic enough to allow the students to make a mistake in its operation. INCE-USA can assist with making contacts with major sound level meter manufacturers (e.g. B&K, Norsonic, Larson Davis, etc.).

2.5 Courses

INCE-USA is planning to begin the Technician Certification program focusing on standards for the following two topics: background sound measurements (indoors and outdoors) and building acoustic testing (airborne and impact sound transmission). These two courses will be considered Phase 1 of the Education Program.

In addition to these two courses, each will require a Continuing Education Course that will be necessary for Technicians to recertify. This Continuing Education Course will be considered Phase 2 of the Education Program.

These will be the initial courses, which are described as follows.

2.5.1 Course 1 Background Sound Measurements (Phase 1)

This course will focus on the measurement of sound levels indoors or outdoors for assessment purposes. This course will focus on an audience of consultants/technicians, commissioning agents, contractors, governmental officials, law enforcement, and other individuals with organizations that may need to assess sound levels of conditions or equipment. This may serve as the entry portion of the Technician Certification Program for the enrollees.

In addition to the formal instruction on the following standards, we recommend instruction on various good practices that technicians should follow listed in Appendix A.

The standards that will be the basis for this course will be:
- ANSI S1.1 - Acoustic Terminology
- ANSI S12.2 - Criteria for Evaluating Room Noise

- ANSI S12.9 - Quantities and Procedures for Description and Measurement Of Environmental Sound
- ANSI S12.72 - Procedure of Measuring the Ambient Noise Level in a Room
- ASTM E1503 - Outdoor Measurements with Digital Statistical Analysis System
- ASTM E1780 - Conducting Outdoor Sound Measurements Received from a Fixed Source

Additional details on likely topics on each standard are listed in Appendix B. These are not exhaustive lists nor are they mandatory to teach.

Following the completion of this course, the enrollees shall be able to perform interior and exterior sound level measurements to assess the sound levels of a condition that they are seeking to quantify.

This course will likely be the course that a larger number of people enroll in, given that it is potentially most useful to a wider audience of people. This course should be immediately applicable to many people and organizations, since the users with this knowledge can assess conditions that apply to many existing regulations and guidelines that are currently used by governments, municipalities and organizations. We also expect that this will be the easier course to begin with as the subject matter is less complex compared to the Building Acoustics Measurement Course.

2.5.2 Course 2 Building Acoustics Measurements (Phase 1)

This course will focus on the measurement of building acoustics for assessment of demising assemblies for airborne and impact sound insulation. This course will focus on an audience of consultants, commissioning agents, contractors, and other individuals with organizations that may need to assess the acoustical performance of demising assemblies. We expect this to be a more advanced course for the enrollees.

- ASTM E336 - Measurement of Airborne Sound Attenuation between Rooms in Buildings
- ASTM E413 - Classification for Rating Sound Insulation
- ASTM E989 - Standard Classification for Determination of Single-Number Metrics for Impact Noise
- ASTM E1007 - Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-ceiling Assemblies and Associated Support Structures
- ASTM E2235 - Determination of Decay Rate for Sound Insulation Measurements
- ASTM E3207 - Standard Classification for Determination of Low-Frequency Impact Noise Ratings
- ASTM E3222 - Standard Classification for Determination of High-frequency Impact Sound Ratings

Additional details on likely topics on each standard are listed in Appendix C. These are not exhaustive lists nor are they mandatory to teach.

2.5.3 Continuing Education / Recertification (Phase 2)

The standards taught in the courses will evolve over time and require periodic updates that Technicians will need to know, particularly as they perform their recertification. The Education Program subcontractor will need to update the materials once a year to highlight any and all changes to the relevant ASTM standards. Each Phase 1 course (sound measurements and building acoustics) will require this continuing education/recertification course.

Separately from the Education Program, a continuing education tracking system shall be created and maintained by the Technician Certification committee of INCE-USA to keep track of all continuing education credits.

2.5.4 Maintenance of Education Program

After the courses are released, the Technician Certification committee will be monitoring the progress of the enrollees and participants. We anticipate that revisions and maintenance of the Education Program media will be necessary to make clarifications of the materials and concepts as determined by the outcomes and feedback from the enrollees and participants. This contract will require the Education Program subcontractor to review the previously produced materials to improve any previous portions that enrollees are not following or which requires clarification.

INCE-USA also expects the Provider will update the courses within 3 months of published updates to the standards. This would be considered as a separate fee proposal on an hourly basis to this contract.

2.6 Future Courses & Expansion of Education Program

INCE-USA expects that the Technician Certification Program can begin with the courses listed above, but that over time the Program and the associated Education Program will expand to additional areas of acoustic and vibration measurements. These may include topics on using sound intensity for quantifying sound power or vibration measurements. These future topics will be handled in future years to expand and adapt the Technician Certification program as necessary in response to the demand from the market. This activity is beyond the scope of the current RFP and would be handled by a separate RFP in the future.

3 Deliverables for Education Program

3.1 Ownership and Copyright of Courses

All course materials produced for this Education Program will be owned and copyrighted by INCE-USA. This includes all materials, graphics, videos and other elements developed for this Program. In addition, all content used in the courses must be original and copyright free, and cannot be materials from other books, media or other sources. Arrangements will be made for

the use of copyrighted ASTM and ANSI/ASA standards and other copyrighted material as needed.

3.2 Deliverables for the Courses

The Education Provider will develop and deliver the following submissions as part of this contract for each Course:

- Draft of detailed Course Outline and Syllabus
- Draft Course Materials for Enrollees (The course materials might include Presentations/Powerpoint Slides, Videos, Graphics, and other elements.)
- Draft Quizzes with answer keys
- Final Course Materials for Enrollees (this might include Presentations/Powerpoint Slides, Videos, Graphics, and other materials)
- Final Quizzes with answer keys
- Teachers Manual
- Source Code of any software elements that make up the course materials.
- Cross reference as to what standard is covered in each section of the courses
- A document that cross references the various sections of the course materials with the relevant sections of the standards.

The draft submissions will be reviewed by the Technician Certification Committee who will provide feedback for revisions and final approval.

4 Fee Proposal

The prospective Providers shall submit their proposed fee and fee schedule in the proposal. The Committee suggests that the proposed fee be a flat fee to cover all work as outlined in this document. There shall be a set of benchmarks to reach for the release of compensation. The benchmarks are not set and are open to negotiation. Some of the benchmarks that may be used could include:

- First draft submission of the education materials for Course 1 (fixed fee)
- First draft submission of the education materials for Course 2 (fixed fee)
- Final approval of the education materials including a working web portal for Course 1 (fixed fee)
- Final approval of the education materials including a working web portal for Course 2 (fixed fee)
- The completion of the first 10 students to take the course (monthly)
- First draft submission of the continuing education material for each course (fixed fee)
- Final approval of the continuing education material for each course (fixed fee)

If this structure or approach to the fee proposal can be improved, please provide an explanation of how the Provider proposes to be compensated.

5 Proposal Requirements, Process and Schedule

INCE-USA requires all submitted proposals meet the following requirements for consideration.

5.1 Qualifications

The prospective Provider for this contract shall be an organization(s) or individual(s) with the following capabilities:

- INCE-USA Board Certification,
- 10+ years of experience as an acoustics educator or practitioner,
- Knowledge and experience with the applicable standards,
- Knowledge and experience with asynchronous instruction,
- Ability to present the knowledge and experience to the audience of engineers, technicians, municipal code enforcement officials, police and safety officers,
- Ability to produce the content for this Education Program,
- Availability to update the information as standards are modified and updated.

The organizations may include universities, colleges, consulting firms, non-profit organizations, science institutes, or other groups that meet the capabilities listed above.

5.2 Deliverables

Each submitted proposal must include the following information for review:

- Description of organization's knowledge and experience with the applicable standards,
- Curriculum Vitae of all key personnel who will be creating content, teaching enrollees, or interacting with enrollees,
- Organization chart of the people involved with the proposed Education Program, including:
    - Project Manager (day-to-day INCE-USA contact),
    - Technical Lead,
    - Course Instructor(s),
    - Production managers and technicians,
- Description of how the courses will be presented, which may include materials such as:
    - Detailed syllabus for each course that includes a breakdown by each lesson,
    - A 5-minute video demonstrating how a course would be presented,
    - Presentation slides that may be the basis for one of the lessons,
- Description of how the course will be administered to support the enrollees to completion,

- Proposed fees and expenses.

5.3 Final Program Assessment by INCE-USA

The submissions for this proposal will be evaluated on the following criteria, listed in no specific order:

- Proposing Group/Individuals' knowledge and experience with the applicable standards,
- Technical description of how the services in the proposal will be delivered,
- Presentation of the proposed courses and proposed administration.
- Proposed fee for delivering the services in this proposal,
- Integrate the standards of the Quality Matters™ QM Continuing and Professional Education Rubric, Second Edition.

5.3.1 Selection Criteria

Each proposal will be assessed by the Committee. The same criteria will be used to assess all applicants according to the following 100 point scale.

1. Personnel (**10 points**)
    - Date of lead contractor obtaining their INCE-USA Board Certification (**prerequisite**)
    - The specialized experience, technical competence, curriculum vita of the key individuals and/or staff who will provide the requested services as detailed in the Scope of Work, including but not limited to the proposed project manager, major sub-consultants, and key staff from each firm.
2. Previous experience developing classes (**20 points**)
    - The proposed program leader's detailed experience working as an educator and/or practitioner.
    - Education programs similar in scope and complexity.
3. Program Approach (**40 points**)
    - Proposed approach to accomplish the work as described in the Scope of Work and, where appropriate, demonstrated capability to explore and develop an innovative program. Quality Matters rubric will be used as a guide for this evaluation.
4. Fee proposal (**10 points**)
5. Interview (**10 points**)
6. Proposal Requirements (**10 points**)

The Committee may contact any applicant to clarify uncertainties or eliminate confusion concerning the contents of a proposal. Proposals may not be modified as a result of any such clarification request. The Committee may contact any parties or other entity, whether or not included in the applicant's reference list, and use such information in the evaluation process.

5.4 Questions about RFP

Questions about this Request for Proposal can be submitted to the IBO (ibo@inceusa.org) prior to the date and time listed in the schedule below. Answers to the questions will be collected and responded to all interested parties by the following date listed below.

5.5 Request for Proposal Schedule

The following is an approximate schedule for proposal process

RFP will be advertised	- February & March 2022
RFP Questions due to INCE-USA	- March 18th, 2022 11:59pm EDT
Responses to RFP Questions issued	- April 1st, 2022
Proposals due to INCE-USA	- April 15th, 2022 11:59pm EDT
Contact final round applicants for interviews by	- May 1st, 2022
Final selection of service provider	- June 17th, 2022

6. INCE-USA/Virtual Inc. Terms & Conditions

1. This Request for Proposal is not an offer to contract and this RFP does not commit INCE-USA to award a contract, pay any costs incurred in preparation of proposals, or to contract for services. Proposer's participation in this process may result in INCE-USA selecting proposer to engage in further discussions and negotiations toward execution of a contract. The commencement of such negotiations does not, however, signify a commitment by INCE-USA to execute a contract nor to continue negotiations. INCE-USA may terminate negotiations at any time and for any reason, or for no reason.

2. INCE-USA reserves the right to accept or reject any or all proposals submitted, in whole or in part. INCE-USA reserves the right to award a single or multiple contracts. INCE reserves the right to reject any and all proposals responding to this RFP without indicating any reasons for such rejection(s).

3. The proposer assumes all costs in the preparation of the proposal and any potential costs associated with any interview process.

4. Proposals are required to be valid for a minimum of six months after the date of submission.

5. Each proposer who submits a proposal specifically waives any right to withdraw it except as hereinafter provided. Proposers will be given permission to withdraw any proposal after it has been submitted, provided the proposer makes the request by telephone or in writing, twenty-four (24) hours before the proposal due date and time. Requests pertaining to withdrawal by telephone shall be confirmed in writing by the proposer and shall reach INCE-USA not later than one (1) hour prior to the time fixed for submission of the proposals.

6. The selected proposer will be required to sign a written contract, as well as a non-disclosure agreement. INCE-USA reserves the right to incorporate contractual provisions into any contract negotiated as a result of a proposal submitted in response to this RFP. This RFP and the selected proposer's response to this RFP will be incorporated as part of any formal written contract. If the selected proposer fails to enter into the agreement as herein provided, the award will be annulled, and an award may be made to another proposer.

7. The selected proposer will be required to execute all required documents and permissions in order to transfer ownership of all materials to INCE.

8. INCE-USA may require the proposer to participate in negotiation and to submit such additional price or technical or other revision to the proposal as may result from negotiation.

9. INCE-USA reserves the right to postpone due dates and openings for its own convenience and to withdraw this RFP at any time without prior notice for any reason or for no reason. INCE-USA makes no commitments expressed or implied, that this process will result in a business transaction with any proposer.

10. If the proposal is made by an individual doing business under a fictitious name, the proposal shall so state. If the proposal is made by a partnership, the full names and addresses of all members and the address of the partnership shall be given and the proposal shall be signed for all members by one member. If the proposal is made by a corporation, it shall be signed in the corporation's name by an authorized officer. If the proposal is made by a joint venture, the full names and addresses of all members of the joint venture shall be given, and the proposal shall be signed by each venturer.

11. The services and materials provided shall be in compliance with all requirements of the laws and regulations of INCE, the Commonwealth of Virginia, and the United States. In performance of the agreement, the selected proposer will be required to comply with all applicable federal, state and local laws, ordinances, codes, and regulations. The cost of permits and other relevant costs required in the performance of the contract shall be borne by the successful proposer.

12. The proposer is fully responsible for the completeness and accuracy of their proposal, and for examining this RFP and all addenda. Failure to do so will be at the sole risk of the proposer.

13. Proposals become the property of INCE-USA at the proposal submission deadline. All proposals received are considered firm offers at that time.

14. If it becomes necessary to revise any part of the RFP, an addendum will be posted on the INCE-USA website and posted through INCE-USA social media accounts. INCE-USA is not bound by any statement related to this RFP made by any INCE-USA employee or its agents.

15. Any exceptions to the RFP, or INCE's Terms and Conditions, must be highlighted and included in writing in the proposal. Acceptance of exceptions is within the sole discretion of INCE.

16. By submitting a proposal, the proposer agrees that in the event it is awarded a contract, it will indemnify and otherwise hold harmless INCE, its directors, officers, employees, and agents from any and all liability, suits, actions, or claims, together with all costs, expenses for attorneys' fees, arising out of the proposer's, its agents and employees' performance, work, or services in connection with the contract, regardless of whether such suits, actions, claims, or liabilities are based upon acts or failures to act are attributable in whole or in part, to INCE, its officers, directors, employees, or agents.

17. Proposer shall warrant that all elements of its proposal, documentation, services and deliverables, do not and will not infringe upon or violate any patent, copyright, trade secret or other proprietary rights of any third party. In the event of any claim, suit, or action by any third party against INCE, INCE-USA shall promptly notify the proposer in writing and proposer shall defend such claim, suit, or action at proposer's expense, and proposer shall indemnify INCE-USA against any loss, cost, damage, expense, or liability arising out of such claim, suit or action (including, without limitation, litigation costs, lost employee time, and counsel fees) whether or not such claim, suit or action is successful.

18. A contract shall not be assignable by the selected proposer in whole or in part without the written consent of INCE-USA.

Appendix A - Good Practices for Technicians

The following topics are included for consideration in the teaching and instruction of Course 1 to supplement the instruction of the standards that are the focus of the course and described in Appendix B.

It is expected that most students in these courses will not have any experience with sound level meters (SLMs) or standards. So, several basic concepts of standards and using SLMs should be considered. These include:

- General handling and care of equipment
    - Assembly
    - Daily and Yearly calibration
    - Proper hand holding
    - Alternate fix location mounting
    - What to do if equipment is dropped
- General Equipment knowledge
    - Types of Microphones (Type 1&2, Pressure, Random Incident and Free Field)
    - Calibration of systems (field versus laboratory/annual)
- Settings on a typical meter
- How to read a plot / table of data
- Selection of data from output (which row to grab)
- Identify bad data (background sound levels louder than receiving sound levels)
- General Troubleshooting (Plugged in, turned on, batteries, cables connected, then check for bad cables)
- General overview of how ASTM standards are organized as described in the ASTM Handbook on “Form and Style for ASTM Standards”. This shall include:
    - Types of standards
    - Purpose of each sections
    - Mandatory vs Non-Mandatory language and sections including:
        - “Shall” is used to indicate that a provision is mandatory.
        - “Should” is used to indicate that a provision is not mandatory but is recommended as good practice.
        - “May” is used to indicate that a provision is optional.
        - “Will” is used to express futurity, but never to indicate any degree of requirement.
- Stress the importance of reading the standard before using it.
- What is repeatability (r) and reproducibility (R)
- What is the 95% Confidence Interval and how it does not relate to the accuracy of the measurement just how well the sound field in the room was measured.

INCE-USA is exploring the creation of a virtual sound level meter for use during testing. If we do, this application will likely be able to be shared with the educational course.

Appendix B - Course 1 Standards

We expect the following concepts from each standard to be covered in the education Course 1. These are not exhaustive lists nor are they mandatory to teach.

B.1 ANSI S1.1 - Acoustic Terminology

- That it exists.

B.2 ANSI S12.2 - Criteria for Evaluating Room Noise

- What are the three primary methods for evaluating room noise?
- Review definitions of different sound/noise descriptions
- Review calculations of different sound level criteria

B.3 ANSI S12.9 - Quantities and Procedures for Description and Measurement of Environmental Sound

- Review methods for assessing environmental sounds
- What are the descriptors for sound exposure level?
- Review the day-night sound level calculation
- What is the typical way that a microphone is set up to measure outdoor sound?

B.4 ANSI S12.72 - Procedure of Measuring the Ambient Noise Level in a Room

- What is the duration of a transient noise source?
- What is the range of octave band frequencies that should be measured?
- What is the difference between the Survey Method and Engineering Method?
- Multiple choice questions about definitions for:
    - Instantaneous sound pressure level
    - Peak sound pressure level
    - Maximum sound pressure level
    - Time-averaged sound level
    - Sound exposure level
- What is the penalty for the day-night sound exposure level?
- Statistical levels

B.5 ASTM E1503/E1780 - Outdoor Measurements with Digital Statistical Analysis System

- Dependent on the new draft standard to be issued shortly.

Appendix C - Course 2 Standards

We expect the following concepts from each standard to be covered in the education Course 2. These are not exhaustive lists nor are they mandatory to teach.

C.1 ASTM E336-20 Standard Test Method for Measurement of Airborne Sound Attenuation between Rooms in Buildings & E413-16 Classification for Rating Sound Insulation

- What transmission paths does E336 testing include?
- Flanking Paths and what to do about them
- What is the difference between sound isolation versus sound insulation?
- Coupled Space
- Room volume upper and lower limits
- Distance from objects
- Where to put and aim mics and speakers. How to support them.
- NR/NIC, NNR/NNIC, ATL/ASTC - what are these and when do you use them
- Not Doors (E2964)
- What to report- Data, environmental, graphical, assembly, equipment
- Flow chart - if we or instructors make the flowchart better we can get it into the standard
- When is the sound decay rate used for E336 testing?
- When is the sound absorption of the receiving room used for E336 testing?
- Actual calculation of curve
- Single number metric calc - ASTM E413 - move the ref curve up and down then make them select the right answer. Sum 32 and max 8
- Tips and tricks for isolation of speakers.
- Drying and curing

C.2 E1007-19 Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures, E989-18 Standard Classification for Determination of Single-Number Metrics for Impact Noise, ASTM E3207 - Standard Classification for Determination of Low-frequency Impact Sound Ratings, & ASTM E3222 - Standard Classification for Determination of High-frequency Impact Sound Ratings

- ISR (ISPL), NISR (RTNISPL), AIIC/(ANISPL), LIR, HIR, NHIR, AHIR
- Select the rating that uses the sound decay rate? Select the rating that uses the reference absorption?
- What is a tapping machine and how to use it,
- Tapping machine positions for 16oc, 24oc, concrete
- What to report- Data, environmental, graphical, assembly, equipment
- Drying and curing
- Receiver room selection
- How to actually calculate the ratings.

C.3 E2235-04(2020) Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods

- Types of sources (omni directional - multiple driver elements in a corner is adequate)
    - Location of speakers
- Fixed microphone location only
    - Number of decays - 15
    - Distance from other objects
    - What does a decay curve look like
    - Show a decay and have them calculate the rate
    - Difference between RT, T_{60}, T_{20}, T_{10}, (There is no such thing as a RT60)
    - Section 16.3.1 - linear decay region

Appendix D - Additional Standards

D.1 Other Standards of Note

There are many other standards that are used in building acoustics. While it will not be tested, the students should know that these others exist. They include:

- ASTM E966 - Field Measurement of Airborne Sound Attenuation of Building Facades and Facade Elements
- ASTM E1014 - Measurement of Outdoor A-weighted Sound Levels
- ASTM E1111 - Standard Test Method for Measuring the Interzone Attenuation of Open Office Components
- ASTM E1130 - Standard Test Method for Objective Measurement of Speech Privacy in Open Plan Spaces Using Articulation Index
- ASTM E1574 - Standard Test Method for Measurement of Sound in Residential Spaces
- ASTM E2638 - Standard Test Method for Objective Measurement of the Speech Privacy Provided by a Closed Room
- ASTM E2964 - Standard Test Method for Measurement of the Normalized Insertion Loss of Doors
- ANSI/ASA S1.13 Measuring Sound Pressure Levels in Air (cited in GBI)
- ANSI S12.9: Quantities And Procedures For Description And Measurement Of Environmental Sound
    - Part 4: Noise Assessment And Prediction Of Long-Term Community Response
    - Part 5: American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound – Part 5: Sound Level Descriptors for Determination of Compatible Land Use
- ANSI/ASA S12.60: American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools,
    - Part 1: Permanent Schools
    - Part 2: Relocatable Classroom Factors

    - Part 4: Acoustic Standards for Physical Education Teaching Environments
- ASTM E2179 - Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission through Concrete Floors
- ASTM E1414 - Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum
- ASTM E1573-18 Standard Test Method for Measurement and Reporting of Masking Sound Levels Using A-Weighted and One-Third-Octave-Band Sound Pressure Levels (cited in GBI)
- IgCC - Cited by GBI
- ASTM E2638-10 Standard Test Method for Objective Measurement of the Speech Privacy Provided by a Closed Room (Cited by GBI)
- ASTM E1130-16 Standard Test Method for Objective Measurement of Speech Privacy in Open Plan Spaces Using Articulation Index (Cited by GBI)