

**Teachers' Retirement System
of the State of Illinois**



**INVITATION TO BID FOR
CAMBRIDGE SOUND MASKING SYSTEM**

Issued February 2, 2023

Bids due by 2:00 p.m. CST, on March 1, 2022

Table of Contents

I. Introduction.....	3
II. Summary Description of TRS.....	3
III. Services Required	4
IV. Bid Content.....	4
V. Submission of Bids.....	6
VI. Bid Evaluation.....	7
VII. Anticipated Timeline	7
VIII. General Conditions	8
Appendix A: Bid Proposal.....	10
Appendix B: Vendor Type Verification Form	11
Appendix C: Reference Authorization Letter	12
Appendix D: Sample Agreement	13
Appendix E: Scope of Work/Technical Requirements.....	23
Appendix F: Project Product Listing.....	36
Appendix G: Sound Masking Layout	38

I. Introduction

The Teachers' Retirement System of the State of Illinois (the System or TRS) is requesting bids from qualified vendors to supply and implement a Cambridge Sound Masking System for the TRS building located at 2815 W. Washington St., Springfield, Illinois. Scope will include purchasing, preparation, execution, and oversight of the system installation activities. The objective of this invitation to bid is to solicit competitive bid proposals from qualified firms in sufficient detail to permit objective evaluation of all bid proposals which may result in a contract to provide Cambridge sound masking system and installation services to the Teachers' Retirement System.

TRS is committed to increasing racial, ethnic, and gender diversity in all aspects of its utilization of vendors to provide goods and services to the System, to the greatest extent feasible, and within the bounds of financial and fiduciary prudence. To that end, the System strongly encourages qualified minority, female, disabled, and veteran-owned firms to submit bids to this invitation to bid.

This Invitation to Bid is neither a contract nor meant to serve as a contract. A bidder's preparation or submittal of a bid or subsequent participation in presentations or contract negotiations creates no obligation on the System to award a contract or to pay any associated costs. All bids and related materials will be retained by the System and will be subject to disclosure as required in accordance with the Illinois Freedom of Information Act.

II. Summary Description of TRS

The General Assembly created the Teachers' Retirement System of the State of Illinois (TRS or the System) in 1939. TRS administers a multiple-employer public pension plan to provide its members with retirement, disability, and death benefits. Membership is mandatory for all full-time, part-time, and substitute Illinois public school personnel employed outside the city of Chicago in positions requiring certification by the Illinois State Board of Education. Persons employed at certain state agencies relating to education are also TRS members. The System serves over 434,000 members and had over \$63 billion in assets held in trust for its membership as of June 30, 2022.

The retirement system is administered as a qualified plan under the Internal Revenue Code. TRS benefits and investments are governed by Articles 1, 16, and 20 of the Illinois Pension Code, 40 ILCS 5. Funding comes from member contributions, contributions by TRS-covered employers, the state of Illinois, and investment income. The System's most recent Annual Comprehensive Financial Report as well as a variety of other information about TRS is available on the TRS website at <https://www.trsil.org>.

A Board of Trustees (the Board) is responsible for the general administration of the System, including the duties granted to it under Article 16 of the Illinois Pension Code, 40 ILCS 5/16. Under the direction of the Executive Director employed by the Board, the day-to-day administration of the System is delegated to the System's staff. The main office is in Springfield, Illinois and there is a satellite office in Lisle, Illinois.

III. Services Required

TRS is seeking bids for the purchase and implementation of a Cambridge sound masking system for its office building located at 2815 West Washington Street, Springfield, Illinois 62702, as more specifically described in this invitation to bid. The work to be performed in accordance with the Statement of Work (SOW) shall consist of furnishing all necessary plant, electrical connections, conduit and associated hardware, labor, tools, transportation, supplies, supervision, equipment, materials, and incidentals necessary for providing all work described in this statement of work, in accordance with all applicable building codes, regulations, standards, and criteria in effect at the date of solicitation, as required by the product listing and drawings.

Please refer to Appendix E, F, G for SOW/Technical Requirements, project product listing and layout drawings.

Bidders may request a pre-bid walk through of the TRS office building. Requests must be directed to Jim Harrison at (217) 814-2128 or via email Jharrison@trsil.org. Appointments for a walk through will be available February 6 – February 20, 2023.

Period of Delivery

Bidders must be capable of delivering proposed services by June 30, 2023.

IV. Bid Content

At a minimum, the bid must include the following information to be considered for the engagement. For ease of review, each requirement should be addressed in a separate section preceded by an index tab to identify the subject of the section. The bid should be formatted on consecutively numbered pages and include a table of contents. Failure to provide information in the prescribed format may result in rejection of the bid. All responses will be subject to verification for accuracy. **Bids containing false or misleading information will be rejected.**

A. Cover Letter

A cover letter, which will be considered an integral part of the bid response package, in the form of a standard business letter, must be signed by an individual authorized to bind the bidder contractually. This cover letter must indicate the signer is so authorized and must indicate the signer's title or position. An unsigned bid will be rejected. The cover letter must also include:

1. A statement that the bid meets all requirements of this Invitation to Bid, and that the offer tendered by the bid will remain in full force and effect until and may be accepted by the Teachers' Retirement System of the State of Illinois, at any time prior to June 30, 2023.
2. A statement certifying that the bidder either: (a) it is not required to register or (b) it is registered as a business entity with the State Board of Elections pursuant to the Procurement Code, 30 ILCS 500/20-160 and acknowledges a continuing duty to update such registration pursuant to the Procurement Code; and that bidder acknowledges that

any Agreement awarded as a result of this Invitation to Bid is voidable under Section 50-60 of the Procurement Code if the bidder fails to comply with the business entity registration requirements. 30 ILCS 500/20-160; 30 ILCS 500/50-60.

3. A statement that the bid is being made without fraud or collusion; that the bidder has not offered or received any finder's fees, inducements, or any other form of remuneration, monetary or non-monetary, from any individual or entity; and that the bidder has not conferred or promised to confer, on any individual or entity, any payment, loan, advance, services, or any other form of remuneration in connection with the award of this engagement.
4. A disclosure of any current business relationship or any current negotiations for prospective business with TRS, or with any member of the Board of Trustees or TRS staff, or any party currently rendering services to TRS. Provide a statement explaining why such relationships do not constitute a conflict of interest.
5. **A statement that the bidder is willing to enter into an agreement in the form attached to the Invitation to Bid as Appendix D including all certifications and representations contained therein, and that the bidder acknowledges and understands that certain general provisions in the sample agreement mandated by Illinois state law to be included in contracts with agencies of the State of Illinois are not subject to negotiation.**
6. A statement that the bidder acknowledges that all documents submitted in response to this Invitation to Bid may be subject to disclosure under the Illinois Freedom of Information Act, 5 ILCS 140, and the Illinois Open Meetings Act, 5 ILCS 120. TRS must comply with the Illinois Freedom of Information Act (5 ILCS 140/1 et seq.) TRS cannot represent or guarantee that any information submitted in response to this Invitation for Bids will be confidential. If TRS receives a request for any document submitted in response to the request for Proposal, TRS's sole responsibility will be to notify respondent of a request for such document to allow the respondent to seek protection from disclosure in a court of competent jurisdiction. No documentation will be provided under FOIA until the contract has been awarded.
7. An attestation by the signer that the information provided in the bid is true and accurate, and that the signer is aware that pursuant to the Illinois Pension Code, 40 ILCS 5/1-135, any person who knowingly makes any false statement or falsifies or permits to be falsified any record of a retirement system or pension fund created under this Code (i.e., the System) in an attempt to defraud the retirement system or pension fund is guilty of a Class 3 felony.

B. Pricing

Pricing for the proposed goods and/or services must be indicated on the bid pricing form enclosed in this invitation to bid as Appendix A. Bid price must be **FIRM**.

C. Vendor Type Verification Form

Proposers must complete the Vendor Type Verification Form contained in Appendix B and return

with the bid.

D. Contract

This Invitation to Bid is neither a contract nor meant to serve as a contract.

It is anticipated that one of the bids submitted in response to this Invitation to Bid may be selected as the basis for negotiation of a contract with the bidder. Such a contract is presently contemplated to contain, at a minimum, the terms and conditions set forth in the sample agreement included as Appendix D, but will also incorporate the terms of the bid submitted, as finally negotiated and approved by the System. TRS reserves the right to negotiate additions, deletions, or modifications to the sample agreement and/or the terms of bids submitted.

Certain provisions in the sample agreement are required by the State of Illinois and are therefore not subject to negotiation. **Thus, it is critically important that vendors submitting bids clearly and thoroughly identify any and all contractual concerns in their written bid. Material changes to the sample agreement may preclude the proposal from further consideration.** A bidder that waits until contract negotiation to object to TRS contract terms maybe precluded from further consideration.

V. Submission of Bids

Submission of a bid proposal is *prima facie* evidence that the bidder has full knowledge of the scope, nature, quantity, and quality of the goods and/or services to be provided, the detailed requirements of this invitation to bid including specifications, if any, the conditions under which the goods and/or services are to be provided, the criteria for evaluation, acceptance, and rejection of bid proposals, and the System's form of contract required to be executed by successful bidder(s).

Deadline for Submission

All bids must be received at the address designated below no later than 2:00 P.M. CST on March 1, 2023. Bids should be in an Adobe Acrobat format and should be emailed to Heidi Darow at bidsubmissions@trsil.org. Subject must contain **“Response to Invitation to Bid for Cambridge Sound Masking System – Name of Responder.”** Failure to clearly identify the bid in the subject line may result in the rejection of the proposal. Only email submissions will be accepted. TRS is not responsible for receipt of any bids which is improperly labeled. An email confirmation will be sent confirming receipt of the bid.

TRS accepts no responsibility for lost and/or late delivery of bids.. **Bids that arrive late for any reason whatsoever will not be considered.**

Bids become the property of TRS upon submission. All costs for developing bids and attending presentations and/or interviews are entirely the responsibility of the bidder and shall not be chargeable to TRS.

Only one bid from an individual, vendor, partnership, corporation, or combination thereof, will be considered for this assignment.

VI. Bid Evaluation

The award, if any, will be based on the lowest evaluated price, taking into consideration the responsibility of bidder, bid price, conformity with specifications, terms of delivery, quality, serviceability, and any other evaluation criteria specifically set forth in this invitation to bid. **The lowest evaluated price may or may not be the lowest dollar amount.**

A. Pre-Evaluation Review

All bids will be reviewed to determine if they contain all the required submittals specified in this ITB. Those not submitting all required information in the prescribed format will be rejected.

B. Evaluation Criteria

The successful bidder must be financially responsible, of good business character, and capable delivering goods and/or services in accordance with all terms specified in this invitation to bid, considering conformity with specifications, terms of delivery of services, quality and serviceability. All bid proposals will be evaluated on the following criteria:

- Understanding of the services requested
- Timeline for recommended solution to be implemented
- Willingness to negotiate contract terms
- Cost
- Proposed deliverables
- Relevant knowledge, experience and qualification of firm and team members including established record of success in similar work.
- Warranty
- References
- Adherence to ITB submission requirements
- Adherence to the Cover letter requirements and completion of all appendices

During the evaluation process, bidders may be requested to provide additional information and /or clarify contents of their bid.

VII. Anticipated Timeline

Subject to change at TRS's discretion

Schedule	Dates
ITB Issued	February 1, 2023
Vendor Walk Through	Feb. 6- Feb. 20, 2023, by appointment
ITB Responses Due on or Before	March 1, 2023, 2:00 p.m. CST
Evaluations & Selection	March 2023
Anticipated Project Start	March/April 2023

VIII. General Conditions

A. Clarification of the Invitation to Bid

To maintain the integrity of the Invitation to Bid process, interested bidders are expected to respond to this Invitation to Bid to the best of their understanding. Bidders must not contact TRS staff about this Invitation to Bid. If a bidder discovers an error in this Invitation to Bid, the bidder should immediately notify TRS of such error in writing to Heidi Darow at the following email address: purchasing@trsil.org. If deemed necessary or appropriate in the System's discretion, TRS may clarify or modify any part of this Invitation to Bid by posting notice on the TRS website prior to the bidding deadline.

B. Restrictions on Communication

Bidders must not discuss or share the contents of their bid proposal with other potential bidders. TRS policy and the Illinois state ethics law strictly limit communication during the bid process. **Any attempt to initiate contact with TRS staff or TRS Trustees, other than as specifically stated in this invitation to bid, may disqualify the bidder from further consideration.**

C. Prior Deficiencies

A bidder that is or has been deficient in current or recent contract performance in dealing with TRS or other clients may be disqualified unless the deficiency is shown to have been beyond the reasonable control of the bidder. TRS may reject a bid proposal from any bidder that is in default on any debt owed to, or contract with, TRS or other clients, or that is in default as surety or otherwise, upon any obligation to TRS, or has failed to perform faithfully any previous contract with TRS. Bidders that are newly formed business concerns having substantially the same owners, officers, directors, or beneficiaries as a previously existing non-responsible bidder may be disqualified unless the new organization can prove it was not set up for the purpose of avoiding an earlier declaration of non-responsibility.

D. Reservation of Rights

TRS reserves the right to withdraw this invitation to bid, to accept or reject any or all bid proposals submitted, and to waive any immaterial deviation, defect, or irregularity, whenever it would be in the best interest of TRS to do so. Waiver of an immaterial deviation shall in no way modify the invitation to bid or excuse a bidder from full compliance with all invitation to bid requirements.

Bid proposals that contain false or misleading statements or that provide references which do not support an attribute or condition claimed by the bidder will be rejected. Issuance of the invitation to bid creates no obligation to award a contract or to pay any costs incurred in the preparation of a bid proposal. Nothing in this invitation to bid or any resulting contract shall preclude TRS from procuring services similar to those described herein from other sources.

E. No Confidentiality

Bids and all materials submitted in response to this Invitation to Bid cannot be considered confidential except as provided below. All bids and related materials will be retained by TRS and will be subject to disclosure as required in accordance with the Illinois Freedom of Information

Act, 5 ILCS 140. Simply marking all or portions of the bid as “Proprietary” or “Confidential” will not protect it from disclosure in the event that a public record request is received. If a bidder is submitting proprietary information or strategies with the bid, the bidder should submit, along with the un-redacted bid, a redacted copy that removes only that material considered to be a trade secret, competitively sensitive, proprietary, privileged, or confidential such that disclosure would cause competitive harm to the bidder.

F. Equal Opportunity

TRS does not discriminate because of race, color, religion, creed, sex, sexual orientation, age, marital status, military status, certain unfavorable discharges from military service, political affiliation, citizenship, ancestry, national origin, physical or mental handicap or disability or any other characteristic protected by law. It is the System’s intent to comply with all state, federal, and local equal employment and opportunity laws and public policies.

G. Reference Checks

Reference checks may be conducted for each finalist. Please provide references in the format prescribed in Appendix C.

H. Specifications

The specifications, if any, are contained on the bid pricing form enclosed in this invitation to bid. Prior to bid submission, the bidder should **carefully** examine the specifications. Once a bid is accepted, the bidder is responsible for all errors resulting from the bidder’s failure or neglect to comply with the specifications. In no case will TRS be responsible for any change in anticipated profits resulting from the bidder’s failure or neglect to comply with the specifications.

Appendix A: Bid Proposal

<i>Name of Bidder:</i>	_____
<i>Contact Person:</i>	_____
<i>Address:</i>	_____
<i>City, State, Zip:</i>	_____
<i>Phone:</i>	_____
<i>E-Mail Address:</i>	_____

Provide a not-to-exceed fixed fee price quote for this project, showing the fee for the project in total, which must include any and all costs, reimbursable expenses, or other charges to the System in connection with the assignment. The below costs must include all expected travel expenses and said expenses will not be billed separately to TRS. **Please include services cost with each bid.**

Base Bid: Floor 1 and Floor 2

Total time and materials not to exceed: \$ _____

Alternate Bid 1: Floor 3

Total time and materials not to exceed: \$ _____

Total Bid with Base Bid and Alternate Bid 1

Total time and materials not to exceed: \$ _____

Authorized signature: _____

Name typed: _____

Title: _____

Date: _____

Appendix B: Vendor Type Verification Form

Please complete the information below as it applies to you/your company. This form must be included with your proposal.

Female Owned Business - Must be 51% independently owned by female(s) _____

Minority Owned Business - Must be 51% independently owned by minority(s) _____

Persons with Disability Business - Must be 51% independently owned by disabled person(s) _____

Combination of Above – Any combination of one or more of the three classes above which collectively represents at least 51% ownership _____

Veteran Owned Business - Must be 51% independently owned by veteran(s) _____

None of the above _____

Representative Signature

Date

Appendix C: Reference Authorization Letter

[On prospective firm letterhead]

[Month, Day, Year]

[Reference Name]

[Reference Title]

[Company Name]

[Reference Address]

[City, State, Zip]

Dear [Reference Name]:

(Prospective Vendor Name) has submitted a bid to the Teachers' Retirement System of the State of Illinois ("System") with regard to providing and implementing a Cambridge sound masking system. The System is conducting its due diligence with regard to *(Prospective Firm Name)*. Through this written authorization, *(Prospective Firm Name)* hereby authorizes any individual, business, corporation, retirement system, state agency, or other entity to release any facts and information it may have concerning *(Prospective Firm Name)*, its principals, employees and agents, to the System.

A copy of this authorization may be used as if it were an original. Thank you for your assistance.

Sincerely,

(Prospective Vendor Name)

(Authorized Signature and Title)

cc: Stan Rupnik, Executive Director & Chief Investment Officer
Teachers' Retirement System of the State of Illinois

Appendix D: Sample Agreement

This SAMPLE AGREEMENT FOR CAMBRIDGE SOUND MASKING SYSTEM (this “Agreement”) is made and entered into this _____ day of __, 2023, by and between the Teachers’ Retirement System of the State of Illinois (“TRS” or the “System”), a retirement system established under and pursuant to the laws of the State of Illinois, and *[NAME], (“Contractor”), a *[LEGAL STATUS], with offices at *[ADDRESS].

WHEREAS, the System has need to obtain the supplies, equipment, and/or services specified in this Agreement; and

WHEREAS, Contractor is qualified to and has agreed to provide such supplies and/or services; and

NOW THEREFORE, Contractor agrees to provide the following supplies, equipment, and/or services to the System as more fully detailed below:

Supplies, equipment, and/or services to be provided: In accordance with the terms of this Agreement and any attachments hereto, the Invitation for Bid for Cambridge Sound Masking System issued February 1, 2023 (the “ITB”), and Contractor’s response to the ITB (the “RFP Response”), Contractor shall provide such services. The services to be provided by the Contractor shall include, but are not limited to, the following: [AS AGREED]

Compensation:

- a) [AS AGREED]
- b) Unless otherwise agreed upon and stated herein, this Agreement does not allow for reimbursement of any expenses incurred by Contractor, including but not limited to telephone, facsimile, Internet, or other communications device, computer, postage, delivery, copying, travel, transportation, lodging, food and per diem, clerical time, and overtime.
- c) Contractor's invoice and/or job ticket or such detail shall be available upon request and shall provide a detailed listing of the supplies, equipment, and/or services provided.

Billing: Contractor shall invoice at the completion of the Agreement unless invoicing is tied in this Agreement to deliverables, or other invoicing requirements agreed to elsewhere in this Agreement.

- a) The amount shown on the invoice shall be in accordance with the fee or rate schedule provided herein.

- b) By submitting an invoice, Contractor certifies that the supplies, equipment, and/or services provided meet all requirements of the Agreement, that the amount billed is allowed in the Agreement, and that any expenses billed are reimbursable under this Agreement.
- c) Invoices submitted by Contractor for supplies, equipment, and/or services performed prior to July 1 must be presented to the System no later than July 15 of that year in order to ensure payment under this Agreement. Failure by Contractor to seek payment of invoices prior to July 15 may require Contractor to seek payment in the Illinois Court of Claims.
- d) Contractor shall not bill for any taxes unless accompanied by proof that TRS is subject to the tax. If necessary, Contractor may request the applicable Illinois tax exemption number and federal tax exemption information.

Payment: Payments will be paid in accordance with the Prompt Payment Act, 30 ILCS 540. Payment will be made in the amount earned to date of invoice, less previous partial payments. Final payment may be adjusted by the System if such adjustment is supported by a System audit. All recordkeeping shall be in accordance with sound accounting standards. TRS shall not be liable to pay for supplies or equipment provided or services rendered, including related expenses, incurred prior to the execution of this Agreement by all parties and the beginning of the term of this Agreement.

Term of the Agreement: The term of this Agreement shall begin on date of execution and end on August 15, 2023, unless earlier terminated in accordance with this Agreement. This Agreement may be extended at the System's option for additional periods upon execution of an amendment providing for such extension.

Agents and Employees: Contractor shall be responsible for the negligent acts and omissions of its agents, employees, and subcontractors in their performance of Contractor's duties and obligations under this Agreement. Contractor represents that it shall utilize the services of individuals skilled in the profession for which they will be used in performing services hereunder. In the event that the System determines that any individual performing services for Contractor hereunder is not providing such skilled services, it shall promptly notify Contractor and Contractor shall promptly replace that individual.

Amendment and Changes: This Agreement may be amended in writing from time to time by mutual consent of the parties. All amendments to this Agreement must be in writing and fully executed by the parties.

Applicable Law: This Agreement and Contractor's obligations and services hereunder are hereby made and must be performed in compliance with all applicable federal and state laws. This Agreement shall be construed and governed in accordance with the laws of the State of Illinois to the extent that such laws are not pre-empted by the laws of the United States of America. By entering into this Agreement, Contractor agrees to submit to the exclusive jurisdiction of the state and federal courts of Illinois and agrees that any action or proceeding against the System arising out of or in connection with this Agreement shall be instituted in the Illinois Court of Claims. The System shall not enter into binding arbitration to resolve any dispute arising out of this Agreement. The System does not waive sovereign immunity by entering into this Agreement.

Authorization: Each party to this Agreement represents and warrants that: (a) it has the right, power, and authority to enter into and perform its obligations under this Agreement; (b) it has taken all requisite action (corporate, statutory, or otherwise) to approve execution, delivery, and performance of this Agreement; and (c) this Agreement constitutes a legal, valid, and binding obligation upon itself in accordance with its terms.

Bankruptcy: Contractor shall promptly notify the System if Contractor becomes insolvent, files a petition in bankruptcy, becomes a party to an involuntary bankruptcy proceeding, or makes an assignment for the benefit of creditors. In such an event, the System may immediately cancel all or any portion of this Agreement upon written notice.

Building Security: Contractor shall comply with the System's security procedures during the time Contractor's personnel are on the premises.

Certifications and Conflicts: Contractor certifies that it is not legally prohibited from contracting with TRS or the State of Illinois, has no known conflicts of interest, and further specifically certifies as follows:

- a) **Educational Loan:** Contractor, in accordance with the Educational Loan Default Act, is not in default on an educational loan. **5 ILCS 385.**
- b) **Ethics:** Contractor acknowledges that employees and trustees of TRS are subject to the State Officials and Employees Ethics Act, that TRS has adopted a gift ban more restrictive than required by state law, and agrees to refrain from bestowing or offering gifts of any monetary or non-monetary value to TRS employees or trustees. Contractor agrees to complete ethics training upon request. **5 ILCS 430.**
- c) **Bribery:** Contractor has not been convicted of bribing or attempting to bribe an officer or employee of the State of Illinois or any other state, nor made an admission of guilt of such conduct that is a matter of record. TRS shall declare this Agreement void if this certification is false. **30 ILCS 500/50-5.**
- d) **Felony:** If Contractor has been convicted of a felony, at least five years has passed after the date of completion of the sentence for that felony, unless no person held responsible by a prosecutorial office for the facts upon which the conviction was based continues to have any involvement with the business. TRS shall declare this Agreement void if this certification is false. **30 ILCS 500/50-10.**
- e) **Sarbanes-Oxley:** If Contractor has been convicted of a felony under the Sarbanes-Oxley Act of 2002, or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953, 815 ILCS 5, at least five years has passed from the date of conviction. Contractor is not barred from being awarded a contract under 30 ILCS 500/50-10.5, and

acknowledges that TRS shall declare this Agreement void if this certification is false.
30 ILCS 500/50-10.5.

- f) **Debt Delinquency:** Contractor and its affiliates are not delinquent in the payment of any debt to the State, or if delinquent, have entered into a deferred payment plan to payoff the debt. Contractor further certifies that it is not barred from being awarded a contract under 30 ILCS 500/50-11, and acknowledges that TRS may declare this Agreement void if this certification is false, or if Contractor later becomes delinquent and has not entered into a deferred payment plan to pay off the debt. **30 ILCS 500/50-11; 30 ILCS ILCS 500/50-60.**
- g) **Illinois Use Tax:** Contractor is not barred from being awarded a contract under 30 ILCS 500/50-12, and acknowledges that TRS may declare this Agreement void if this certification is false. Contractor shall collect and remit Illinois Use Tax on all sales of tangible personal property into the State of Illinois in accordance with the provisions of the Illinois Use Tax Act, and acknowledges that failure to comply can result in this Agreement being declared void. **30 ILCS 500/50-12.**
- h) **Environmental Protection:** Contractor has not committed a willful or knowing violation of the Environmental Protection Act (EPA) relating to civil penalties within the last five years, and is therefore not barred from being awarded a contract. If this certification is later determined to be false, Contractor acknowledges that the System may declare this Agreement void. **30 ILCS 500/50-14.**
- i) **Lead Poisoning:** Contractor is not in violation of the Illinois Procurement Code provision prohibiting owners of residential buildings who have committed a willful or knowing violation of the Lead Poisoning Prevention Act from doing business with the State until the violation is mitigated. **30 ILCS 500/50-14(c), 410 ILCS 45.**
- j) **Conflict of Interest:** Contractor does not have any public or private interest, direct or indirect, and shall not acquire directly or indirectly any such interest which does or may conflict in any manner with Contractor's obligations under this Agreement. Contractor has disclosed, and agrees it is under a continuing obligation to disclose to TRS, financial or other interests, public or private, direct or indirect, that may be a potential conflict of interest or which would prohibit Contractor from entering into or continuing to perform under this Agreement. Contractor further certifies that, in the performance of this Agreement, no person having any such interest shall be employed by Contractor. If any elected or appointed State officer or employee, or spouse or minor child of same has any ownership or financial interest in Contractor or this Agreement, Contractor certifies that it has disclosed that information to TRS, and any waiver of the conflict has been issued in accordance with applicable law and rule. Membership in the Teachers' Retirement System of the State of Illinois does not constitute a conflict of interest within the meaning of this paragraph. **30 ILCS 500/50-13, 30 ILCS 500/50- 15, 30 ILCS 500/50-35.**
- k) **Inducement:** Contractor has not offered or paid any money or valuable thing to induce any person not to bid for a State contract, and has not accepted any money or valuable

thing, or acted upon the promise of same, for not bidding on a State contract. **30 ILCS 500/50-25.**

- l) **Non-Solicitation:** Contractor has not employed or retained any company or person, other than a bona fide employee working solely for Contractor, to solicit or secure this Agreement, and has not paid or agreed to pay any company or person, other than a bona fide employee working solely for Contractor, any fee, commission, percentage, brokerage fee, gifts, or any other consideration contingent upon or resulting from the award of making of this Agreement.
- m) **Revolving Door:** Contractor is not in violation of the “revolving door prohibition” on procurement activity relating to a State agency. **30 ILCS 500/50-30.**
- n) **Anticompetitive Practices:** Contractor will report to the Illinois Attorney General and the Chief Procurement Officer any suspected collusion or other anticompetitive practice among any bidders, offerors, contractors, proposers, or employees of the State. **30 ILCS 500/50-40, 30 ILCS 500/50-45, 30 ILCS 500/50-50.**
- o) **Business Entity Registration:** Contractor certifies either: (a) it is not required to register or (b) it is registered as a business entity with the State Board of Elections pursuant to the Procurement Code, 30 ILCS 500/20-160 and acknowledges a continuing duty to update such registration pursuant to the Procurement Code. Contractor acknowledges that this Agreement is voidable under Section 50-60 of the Procurement Code if Contractor fails to comply with the business entity registration requirements. **30 ILCS 500/20-160; 30 ILCS 500/50-60.**
- p) **ERI:** Contractor has informed the System in writing if Contractor was formerly employed by the System and received an early retirement incentive prior to 1993 under 40 ILCS 5/14-108.3 or 16-133.3 of the Illinois Pension Code, and acknowledges that contracts made without the appropriate filing with the Auditor General are not payable from the “contractual services” or other appropriation line items. Contractor has not received an early retirement incentive in or after 2002 under 40 ILCS 5/14-108.3 or 40 ILCS 5/16-133.3 of the Illinois Pension Code, and acknowledges that contracts in violation of Section 15a of the State Finance Act are not payable from the “contractual services” or other appropriation line items. **30 ILCS 105/15a.**
- q) **Drug Free Workplace:** Contractor will provide a drug free workplace and will not engage in the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance during the performance of this Agreement. This certification applies to contracts of \$5,000 or more with individuals, and to entities with 25 or more employees. **30 ILCS 580.**
- r) **International Boycott:** Neither Contractor, nor any substantially owned affiliate, is or shall participate in an international boycott in violation of the U.S. Export Administration Act of 1979 or applicable regulations of the U.S. Department of Commerce. This certification applies to contracts that exceed \$10,000. **30 ILCS 582.**

- s) **Forced Labor:** In accordance with the State Prohibition of Goods from Forced Labor Act, no foreign-made equipment, materials, or supplies furnished under this Agreement have been or will be produced in whole or in part by forced labor, convict labor, or indentured labor under penal sanction. **30 ILCS 583.**
- t) **Child Labor:** In accordance with the State Prohibition of Goods from Child Labor Act, no foreign-made equipment, materials, or supplies furnished under this Agreement have been or will be produced in whole or part by the labor of any child under the age of 12. **30 ILCS 584.**
- u) **Bid Rigging/Rotating:** Contractor has not been convicted of bid rigging or bid rotating or any similar offense of any state or of the United States. **720 ILCS 5/33E-3, E-4.**
- v) **Nondiscrimination/Equal Employment Opportunity:** Contractor will comply with applicable provisions of the State and Federal constitutions, laws, and regulations pertaining to unlawful discrimination, harassment, and equal employment opportunity, including but not limited to the U.S. Civil Rights Act, Section 504 of the Federal Rehabilitation Act, the Americans with Disabilities Act, the Public Works Employment Discrimination Act, and the Illinois Human Rights Act. **42 USC 12101 et seq., 775 ILCS 5, 775 ILCS 10.**
- w) **Discriminatory Club:** Contractor does not pay dues or fees, or subsidize or otherwise reimburse its employees or agents for any dues or fees to any discriminatory club. **775 ILCS 25.**
- x) **Affiliates:** Contractor shall disclose the names and addresses of (i) itself; (ii) any entity that is a parent of, or owns a controlling interest in Contractor; (iii) any entity that is a subsidiary of, or in which a controlling interest is owned by, Contractor; (iv) any persons who have an ownership or distributive income share in Contractor that is in excess of 7.5%; or (v) who serves as an executive officer of Contractor. **40 ILCS 5/1-113.14(c)(5).**

Compliance with Law: Contractor, its employees, agents, and subcontractors shall comply with all applicable federal, state, and local laws, rules, ordinances, regulations, orders, federal circulars, and all license and permit requirements in the performance of this Agreement. Contractor shall, at all times during the term of this Agreement, maintain compliance with all applicable tax requirements and be current in payment of such taxes.

Confidential Data and Information: Contractor, including its personnel, agents, and subcontractors, may have access to, collect, or receive confidential data, member records, or other information owned or maintained by the System in the course of carrying out its responsibilities under this Agreement. The System hereby designates all information received or accessed pursuant to this Agreement as confidential unless otherwise designated in writing by the System. Contractor shall not unnecessarily communicate such data or information within Contractor's operations. No such data or information shall be used for competitive purposes nor disclosed or disseminated except as authorized by law and with the written consent of the System, either during the period of this Agreement or thereafter. Contractor must return all such data and information, in whatever form it is maintained, promptly at the end of the Agreement or earlier at the request of the System,

or shall notify the System in writing of its destruction. The foregoing obligations do not apply to confidential data or information lawfully in the receiving party's possession prior to acquisition under this Agreement, received in good faith from a third party not subject to any confidentiality obligation, that is or becomes publicly known through no breach of confidentiality obligation, or that is independently developed by the receiving party without the use or benefit of the System's data or information.

Defective Goods: If supplies and/or equipment provided under this Agreement are found at any time to be defective in material or workmanship or otherwise not in conformity with the System's specifications, the System, in addition to any other rights which it may have under warranties or otherwise, shall have the right to reject such goods in whole or in part. The rejected goods shall be held at Contractor's risk for a reasonable time thereafter and shall be returned or disposed of at Contractor's expense according to Contractor's instructions. No goods returned shall be replaced by Contractor without written authorization from the System.

Employment and Use of Labor: Contractor shall conform to all Illinois statutory requirements regarding labor, including but not limited to: (i) the Prevailing Wage Act, as amended, 820 ILCS 130; and (ii) the Toxic Substances Disclosure to Employees Act, as amended, 820 ILCS 255. Contractor shall submit to the System copies of all Material Safety Data Sheets it has or may receive prior to or during the term of this Agreement.

Employment Status: Contractor and all personnel that Contractor assigns to perform services under this Agreement are not employees of the System and amounts paid pursuant to this Agreement do not constitute compensation paid to any employee of the System. The System assumes no liability for actions of Contractor or its personnel under this Agreement and this Agreement is not subject to the State Employee Indemnification Act, as amended, 5 ILCS 350.

Entire Agreement: This Agreement, together with any exhibits or attachments hereto, constitutes the entire agreement between the parties concerning the subject matter of this Agreement, and supersedes all prior proposals and contracts between the parties concerning the subject matter of this Agreement. Any provision of this Agreement officially declared void, unenforceable, or against public policy, shall be ignored and the remaining provisions shall be interpreted, as far as possible, to give effect to the parties' intent. All provisions that by their nature would be expected to survive, shall survive termination. In the event of a conflict between the System's and Contractor's terms, conditions, and attachments, the System's terms, conditions, and attachments shall prevail.

Execution of Originals: This Agreement may be executed in two or more counterparts, any one of which shall be an original without reference to the others.

FEIN Certification: Contractor certifies that the information listed below is correct.

Contractor's legal name of business: _____

Taxpayer Identification Number: _____

Legal status of business: _____

Tax classification: S = S Corporation
[Check only if legal status is C = Corporation
a limited liability company] P = Partnership

Inability to Perform: Contractor agrees that if, due to death, illness, departure, or any other occurrence, any principal or principals of Contractor become unable to perform the services set forth in this Agreement, neither Contractor nor the surviving principals shall be relieved of their obligations to complete performance hereunder. Contractor may substitute other professionals to perform such services only upon approval of the System. Contractor shall immediately notify the System of any occurrence resulting in the inability of any principal or principals of Contractor to perform the services set forth in this Agreement, in which event the System, at its own option, may immediately terminate this Agreement upon written notice to Contractor.

Indemnification and Liability: Contractor agrees to indemnify, defend, and hold harmless the System, its board members, trustees, officers, agents and employees, in both individual and official capacities, from and against any and all costs, demands, expenses, losses, claims, suits, damages, liabilities, settlements, and judgments, including in-house and contracted attorney fees and all expenses, arising out of (a) any breach or violation by Contractor of any of its representations, warranties, covenants, or agreements set forth herein, (b) any actual or alleged death or injury to any person, damage to any property, or any other damage or loss by whomsoever suffered, claimed to have resulted in whole or in part from performance hereunder, (c) any act, activity, or omission of Contractor or any of its employees, representatives, subcontractors, or agents. Neither party shall be liable for incidental, special, consequential, or punitive damages. In accordance with Article VIII, Section 1(a),(b) of the Constitution of the State of Illinois, the State may not indemnify private parties absent express statutory authority permitting the indemnification..

Insurance: Contractor shall, during the term of this contract and any renewals or extensions at its sole cost and expense, procure and maintain in full force and effect during the term of this Agreement, a Certificate of Insurance naming the System an additional insured for all required bonds and insurance. Certificates may not be modified or canceled until at least 30 days' notice has been provided to the System. Contractor shall provide in the following minimum amounts: (a) General Commercial Liability-occurrence form in the amount of \$1,000,000 per occurrence (Combined Single Limit Bodily Injury and Property Damage) and \$2,000,000 Annual Aggregate; (b) Auto Liability, including Hired Auto and Non-owned Auto, in the amount of \$1,000,000 per occurrence (Combined Single Limit Bodily Injury and Property Damage); and (c) Worker's Compensation Insurance in the amount required by law. Insurance shall not limit Contractor's obligation to indemnify, defend, or settle any claims.

Nonexclusive Agreement: Contractor understands, acknowledges, and agrees that Contractor does not have an exclusive agreement with the System to provide the supplies, equipment, and/or services hereunder, and that the System may engage others to provide the same or similar goods and/or services without any obligation to Contractor.

Notices: Notices and any other communication provided for herein shall be given in writing to the contacts designated below by registered or certified mail, return receipt requested, by receipted hand delivery, by courier (UPS, Federal Express, or other similar and reliable carrier), by email, or by fax showing the date and time of successful receipt. Each such notice shall be deemed to have been provided at the time it is actually received. By giving notice, either party may change the following contact information:

Contractor: [Company Name]
Attention:
[Mailing Address]
[City, State Zip Code]
Phone:

Email:

TRS: Teachers' Retirement System of the State of Illinois
Attention: Heidi Darow, Purchasing Manager
2815 W. Washington St., P.O. Box 19253
Springfield, Illinois 62794-9253
Phone: 217-814-2049
Email: Purchasing@trsil.org

No Waiver: Except as specifically waived in writing, failure by either party to exercise or enforce a right or obligation under this Agreement shall not affect any subsequent ability to exercise or enforce a right or obligation.

Performance: Contractor agrees that the System shall be the sole judge as to whether work performed under this Agreement has been satisfactory.

Record Retention – Right to Audit: Contractor and its subcontractors agree to comply with Section 20-65 of the Illinois Procurement Code, 30 ILCS 500/20-65, and shall maintain adequate books and records relating to the performance of this Agreement and necessary to support amounts charged to the System under this Agreement. Books and records, including information stored in databases or other computer systems, shall be maintained by Contractor and its subcontractors for a period of three years from the later of the date of final payment under the Agreement or completion of the Agreement. Such three-year period shall be extended for the duration of any audit in progress at the time of that period's expiration. Such books and records shall be available for review or audit by the Auditor General, other governmental entities with monitoring authority, and the System, upon reasonable notice and during normal business hours. Contractor and its subcontractors shall cooperate fully with any such review or audit. Failure to maintain such books and records shall establish a presumption in favor of the System for the recovery of any funds paid by the System under this Agreement for which adequate books and records are not available. Contractor shall not impose a charge or pass on fees or costs for review or audit of such books and records. Contractor shall take reasonable steps to ensure that its subcontractors are in compliance with this section.

RFP or Bid: The System's Request for Proposal (RFP), Invitation to Bid, or any similar document soliciting contractors for the work set forth herein, and Contractor's response thereto, are hereby incorporated by reference into this Agreement as though fully set forth herein. To the extent that there are any conflicts between the RFP or bid document and this Agreement, this Agreement shall prevail.

Schedule of Work: Any work performed on TRS premises shall be done during the hours designated by TRS and performed in a manner that does not interfere with TRS business and its personnel.

Severability: Any provision, covenant, or condition of this Agreement which is held by a court of competent jurisdiction to be invalid or not enforceable in any jurisdiction, shall be ineffective to the extent of such invalidity or unenforceability without invalidating or rendering unenforceable the remaining provisions hereof and any such invalidity or unenforceability in any jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction.

Subcontracting and Assignment: This Agreement may not be assigned, transferred, or subcontracted in whole or in part by Contractor.

Termination:

- a) This Agreement may be terminated at any time by the mutual consent of the System and Contractor.
- b) Either party may, without the consent of the other party, terminate this Agreement upon 30 days' prior written notice to the other party.
- c) Notwithstanding any contrary provision in this Agreement, this Agreement may be terminated at the option of the System whenever the System determines that such termination is in its best interests, upon 15 days' prior written notice to Contractor.
- d) Upon notice of termination, Contractor shall cease work under this Agreement except work that TRS directs in writing to be completed, and take all necessary or appropriate steps to limit disbursements and minimize costs, and cooperate in good faith with TRS during the transition period between notification of termination and substitution of any replacement contractor. Contractor shall be entitled to payment for satisfactory supplies, equipment and/or services provided under the Agreement. In the event the System and Contractor cannot agree to the amount of payment due Contractor, Contractor will receive a percentage of payment provided under the Agreement equal to the percentage of work completed prior to termination of the Agreement. Contractor shall immediately return to TRS any payments for supplies, equipment, or services that were not rendered by Contractor.
- e) Termination of this Agreement shall not relieve either party of any obligations hereunder which were incurred prior to the date upon which the termination is effective.

Third Parties Operating Policy and Technology Use Policy: Contractor shall also comply with the System's Third Parties Operating Policy and TRS Technology Use Policy which shall be provided to Contractor and their personnel.

Warranty of Service: Contractor warrants that all services will be performed in a good and professional manner to industry standards by trained and competent personnel. Contractor shall monitor performance of each individual and shall reassign immediately any individual who is not performing to professional standards, who is not efficient or effective in performing the work under this Agreement, who is disruptive or not respectful of others in the workplace, or who in any way violates the Agreement or TRS policy.

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement as of the dates below.

SIGNATURE BLOCK

Appendix E:

Scope Of Work/ Technical Requirements

I. General

A. Summary

This specification includes all components required for a fully functional Sound Masking System for the purpose of increased speech privacy, freedom from distraction, and/or sleep disturbance-reduction in the treated areas.

B. Description of Work

The work of this Section consists of the provision of all plant, materials, labor and equipment and the like necessary and/or required for the complete execution of the Sound Masking System and related work for this project, as required by the schedules, and keynotes and drawings.

C. Functional Requirements of the System

1. Distribute sound masking to all areas as indicated on the project drawings.
2. All active electronic components shall be conveniently accessible for service.
3. All systems components shall be supplied from a single manufacturer.

D. System Commissioning and Equipment Supply

1. Sound Masking System commissioning shall be performed by either:
 - a. A Qualified Consultant
 - b. An Authorized Dealer Trained and Certified by the Manufacturer.
2. Equipment and accessories, including such things as cabling where applicable, shall be supplied by a dealer authorized by the equipment manufacturer.

E. Installing Contractor Qualifications

1. Sound Masking System shall be installed by a qualified Contractor.
2. To be considered qualified for this work, the Contractor must be experienced in the provision of low-voltage electronic systems similar in complexity to those required for this project, and meet one or more of the following:
 - a. The Contractor's primary business is the provision, fabrication, and installation of integrated audio and video systems including distributed sound systems, structured cabling, and/or related systems in the commercial environment.
 - b. The Contractor has a verifiable history of successful installations of at least three projects of similar scope and size.

- c. The Contractor has all applicable business and regulatory licenses and certifications.

F. Installation And Quality Assurance

1. Required Permits: Installing Contractor or Project Manager shall obtain all necessary permits for installation work.
2. Project Management: Contractor shall assign a qualified person to manage the installation and maintain the same person in charge of work throughout installation.
3. Contract Documents: Contractor shall maintain a complete set of system drawings and specifications on the job site.
4. All equipment, cabling, accessories, and associated hardware shall be installed in accordance with manufacturer's instructions and according to standards of good engineering practice and other conditions as specified by the Project Manager.
5. Workmanship shall be of professional quality, best commercial practice and shall be accomplished by qualified personnel.

G. Job Conditions

1. Sequencing and Scheduling:
 - a. Coordinate work with Project Manager and other trades to facilitate construction and prevent conflicts.
 - b. Afford other trades reasonable opportunity for installation of work and for the storage of materials.
 - c. Refuse: Remove all refuse from the job site to the satisfaction of the Project Manager and Owner.
2. Insurance on the work of this specialty trade shall be provided.

H. Inspection

1. Notify the Project Manager of any defects in work by other trades affecting system installation, operation, or performance.

I. Warranty

1. Warrant the installation of all equipment, cabling, and labor for an initial period of one year from the date of final acceptance.
2. Owner requested services, including telephone support, shall be at no charge during the duration of the initial one-year warranty period.

3. During the initial warranty period, services shall include two semi-annual visits to the site for routine adjustment and maintenance of all equipment. Provide a preliminary schedule for the semi-annual visits.
4. Warrant all equipment to be free of faulty workmanship and defects for a minimum period of five years from date of final acceptance.

J. Training

1. Provide sufficient training to personnel selected by the Owner on operation and basic maintenance of all systems, software, and equipment. Explain operation of control systems, set-up, and operation of individual pieces of equipment, and functions of overall systems.
2. Provide manufacturer's operation manuals for all products used in the system.
3. Provide an overall system operation manual for use by the Owner's maintenance personnel.

II. Products

A. Manufacturer

1. The basis of design is Cambridge Sound Management Sound Masking System. Product details available at <https://cambridgesound.com/>

B. General

1. Product requirements include all masking, signal generation, signal processing, amplification, and Loudspeakers with associated wiring, software, and controls.
2. Sound Masking System shall be capable of multiple Zones as depicted on the project drawings in order to adjust for unique architectural spaces and facility uses.
3. The Sound Masking System shall be capable of automatically scheduling system parameter adjustments, including initial acclimatization, on a per Zone basis.
4. Means of control shall be facilitated through Privacy Manager Software provided by the manufacturer at no cost.
5. Sound Masking System shall be capable of generating, amplifying, and distributing a minimum of four non-correlated sound masking signals to adjacent Loudspeakers. Adjacent Loudspeakers may not reproduce coherent sound masking signals. Systems that do not offer at least four non-correlated sound masking signals are not acceptable under this specification.
6. Sound Masking System shall be capable of accepting at least two external line level analog audio sources or CobraNet™ digital audio sources from ancillary audio equipment with

control on a per Zone basis.

7. Sound Masking System Zones shall be determined by the functional requirements of each area(s) with separate independent level control for each Zone as indicated by the project documents.
8. A separate level control Zone shall be required in instances where a change in Loudspeaker type, functional space Use, or Loudspeaker mounting / ceiling variation exists throughout a functional space.
9. Zoning shall be determined by the Privacy Manager Software. A Zone may be a single Networked Loudspeaker Controller or multiple Networked Loudspeaker Controller as required.
10. Sound Masking system shall be deployed on an independent Ethernet network infrastructure separate from that used by the end user for other types of communication / information technology systems. Sound Masking System will maintain a dedicated “Static” IP range configured by the manufacturer. At no time shall Sound Masking System components be operated on the same network infrastructure as other technologies provided by the end user.

C. Loudspeakers – CambridgeSound DS 1357W

1. Loudspeaker shall be designed for upwards-facing use in the plenum above a suspended ceiling with a height from ceiling tile to deck of at least 18 inches (457 mm). Loudspeaker shall also be designed for upwards-facing use in open-ceiling structures and shall have an attractive yet unobtrusive appearance for such usage.

D. Networked Loudspeaker Controller – Cambridge Sound Qt X 800

1. Networked Loudspeaker Controller shall provide DSP-based masking sound generation with a minimum of four (4) uncorrelated masking signal outputs per Zone. Systems that do not offer at least four uncorrelated sound masking signals are not acceptable under this specification.

E. Privacy Manager Software

1. Privacy Manager Software shall run on a Microsoft Windows based PC or on optional Touch Screen Controller and provide full control over system setup and configuration.
2. Privacy Manager Software shall be provided by the Manufacturer at no cost.
3. Privacy Manager Software shall provide control of multi-Zone Sound Masking System with password-protected adjustment and configuration of the following minimum features:

- a. Independent control of each Network Speaker Controller and optional Networked Paging and Music Processor.
 - b. Flexible Zone assignment that allows any combination of one or more Networked Loudspeaker Controllers to become a named Zone.
 - c. Sound masking level adjustment on a global, per Zone and individual Loudspeaker basis.
 - d. Audio input level adjustment on a per input basis.
 - e. Equalization adjustment on a per source (voice, music, masking) basis.
 - f. Time of day masking level scheduling on a per Zone and daily basis.
 - g. Error notification / monitoring.
4. Privacy Manager Software shall provide user defined profiles.
 - a. Profiles may be used to reconfigure the Sound Masking System on a per-Zone or global basis.
 - b. Each profile shall contain all Sound Masking System settings.
 - c. Profiles may be scheduled to start automatically for selected Zones.
 - d. Profiles may be recalled with touch-screen buttons using optional Touch Screen Controller.
 - e. Systems that do not offer reconfiguration via software profiles are not acceptable under this specification.
 5. Privacy Manager Software shall provide an automatic, incremental level adjustment feature, allowing a gradual, one-time change of masking levels to commence upon completion of system commissioning, acclimating occupants to a newly sound masked environment (initial acclimatization).
 6. Fault reporting of Networked Loudspeaker Controllers trouble conditions shall be incorporated at the Privacy Manager Software level.

F. Cable Assemblies

1. All cable assemblies shall consist of the proper number of conductors, wire gauge, and type as approved by the system manufacturer based on the system design.
 - a. Loudspeaker Cabling shall be a single jacket - 2 Conductor, stranded 18 to 16 AWG loudspeaker cabling.
 - b. Ethernet cabling shall be a single jacket UTP Category 5e, Category 6, or Category 7
 - c. Each Ethernet cable shall be verified by the Installing Contractor to 10/100 MB/sec standards.
 - d. Line Level analog audio shall be a single jacket - 2 conductor 22 AWG stranded, twisted pair shielded cable designed for analog audio connectivity.
2. Cabling flammability rating shall meet the installation conditions as required by NFPA/NEC/CSA or local codes/ jurisdiction as follows:

3. Type CM – General Purpose for Commercial Installation. Meets UL-1581 requirements for smoke and flammability testing.
4. Type CMR/FT4 – Commercial Installation for vertical risers. Meets UL-1666 requirements for smoke and flammability testing.
5. Type CMP/FT6 – Commercial Installation for plenum airspaces. Meets UL-910 requirements for smoke and flammability testing.
6. Terminations shall be completed utilizing the appropriate connector type, method, and tooling as recommended by the product manufacturer.
 - a. Field terminations shall be permitted in cases only where approved by the product manufacturer.
7. Ethernet network category cabling shall not exceed 100 meters (330 feet) in length.

G. Labels

1. Except where otherwise specified, label each item of control equipment as shown on drawings.
2. Identify all wires and cables at every connection point to controllers with reference number keyed to the as-built wiring diagrams.
3. Room numbers appear on the contract documents for reference only. All labels shall reflect the Owner's final room designations.
4. Cable Markers:
 - a. High-grade PVC clip-on or permanent-type cable markers with permanent markings, or printed vinyl tape protected by clear shrink tubing or adhesive wrap.

H. Safety Listings

1. General
 - a. Products and system shall comply with all applicable local, regional and national safety codes.
2. Electrical Safety
 - a. All electronics shall be UL Listed or listed by an equivalent body such as Intertek ETL. Outside the USA, the electronics shall be certified by an equivalent certification body to meet local and/or national safety standards.
3. Fire Safety

- a. The Sound Masking System shall have the capability to mute or otherwise disable the sound masking signal and any voice paging or music signal using a dry contact closure from a third-party source such as a fire alarm panel.
- b. The Sound Masking System shall not be used as a primary means of emergency voice evacuation or ECS. For this reason, UL2572 compliance is not required under this specification.

I. Environmental Certification

1. Sound Masking System shall be LEED compliant when project requirements dictate

III. Execution

A. Examination

1. Prior to installation, ensure the site is suitable for system installation.
2. Verify all locations where system components are to be installed are free of conflicts with other trades prior to installation.
3. Verify that site building conditions match the system design plans including ceiling finishes, wall locations, and obstructions. Immediately notify the Project Manager of any discrepancies prior to the commencement of work.
4. Ensure system power requirements, network connectivity, and any other third-party infrastructure requirements for the system have been provided and installed prior to installation.

B. Delivery, Storage and Handling

1. Protect all system components from moisture, dust and damage during shipping, storage and handling.
2. Deliver in manufacturer's original unopened and undamaged packages with manufacturer's labels legible and intact.
3. Inspect all system components upon receipt and upon unpacking.

C. Installation

1. General
 - a. Comply with all applicable electrical and other safety codes.
 - b. Install Sound Masking System in compliance with manufacturer's recommendations and published documentation.
 - c. All equipment shall be installed by competent workers at locations shown on the drawings in strict accordance with approved shop drawings. Record any drawings

in strict accordance with approved shop drawings. Record any and all necessary changes to the system design in cases where different from the submittal documents.

- d. All equipment shall be firmly held in place including Loudspeakers, enclosures, amplifiers, processors, cables, etc. Fastenings and supports shall be adequate to support their loads with a safety factor of at least six unless otherwise stated.
- e. All system components shall be mounted in a level and plumb fashion utilizing the dimensions indicated on the associated drawings.
- f. User controllable devices shall be mounted at a location and height which allows for normal adjustment and operation.
- g. Electronics shall be conveniently accessible for service.
- h. Above-ceiling equipment shall be UL2043 rated for air handling environments.

2. Loudspeakers

- a. Locate Loudspeaker assemblies as indicated on project drawings and as required to meet the spatial uniformity requirements of this specification.
- b. Ensure Loudspeaker coverage pattern is not obstructed by building systems or structures which may impede performance of the Sound Masking System.
- c. Ensure minimum distance between the Loudspeaker and structure/obstacles are maintained to allow adequate clearance of cabling and connectors.
- d. When mounted in other substrates, ceiling types and or building structures, Loudspeakers shall be installed using manufacturer supplied accessories. Mount Loudspeaker assemblies to structure in an approved method as required by local codes and jurisdiction and indicated by the project submittals.
- e. Boot or otherwise acoustically treat all cold air return plenum openings in the ceiling.
- f. To the greatest extent possible, maintain equal loudspeaker spacing.
- g. For Type 2 Loudspeaker usage, ensure raised access floor openings are sealed.
- h. Verify loudspeaker locations are, at minimum, four feet away from open air vents for both Type 1 and Type 2 Loudspeakers.

3. Cabling

- a. All cable installation shall be done in professional workmanlike manner with adequate service loops where applicable. Dress cabling in a neat and consistent fashion using appropriate methods and materials.
- b. Test all field fabricated and manufacturer supplied cables, before installation, for open circuits, shorts, crossed pairs, reversed pairs, split pairs and proper pin-out.
- c. Refer to manufacturer recommendations as to maximum cabling distances and types to support control processor unit(s), controls, and Loudspeakers. Never

exceed manufacturer's cable distance limitations and quantity of devices per cable run.

- d. Cabling pathways shall be configured to prevent conflict with other building systems. Care should be taken to minimize and eliminate all RFI and EMI interference sources.
- e. Maintain appropriate separation between dissimilar signal types, voltages, and electrical devices.
- f. Cabling to be installed/supported in a manner and frequency utilizing approved methods and materials as required by the local AHJ (authority having jurisdiction).
- g. Cabling shall be installed in metallic rigid or flex conduit only as indicated on the associate project drawings/ specification and using manufacturer approved accessories.
- h. All cabling shall be supported from structure. Cabling shall not contact ceiling tiles or inhibit their removal for access to the plenum.

D. Site Quality Control

1. Ensure that Loudspeaker spacing is correct, consistent, and follows design guidelines set forth by the product manufacturer.
2. Securely terminate all cables

E. System Startup

1. Coordinate with building network administrator for an Ethernet connection to building LAN where required.
2. Perform the entire product manufacture's recommended testing and startup procedure as outlined in the manufacturer's product manual(s).
3. Ensure functional operation of all ancillary devices to include front panel controls, audio inputs, contact closures, wall controls, software control and third-party controllers. Test each setting and confirm expected results from actions taken. Correct all deficiencies in operation.
4. Perform system startup at a time when each Zone / space is completely vacant and free of any noise contamination.

F. System Tests and Adjustments

1. Qualifications of Testing Party.
 - a. Testing, calibration and setup shall be performed by a qualified manufacturer's employee or an authorized dealer or consultant who has been trained by the manufacturer.
2. Prior to Test and Adjustment: Ensure the site conditions are suitable for adjustment of the Sound Masking System. Adjustment can only be made when the following

site conditions exist:

3.
 - a. All ceiling assemblies are currently installed and completed.
 - b. Mechanical systems have been previously optimized to final operational conditions and are active in areas served by sound masking signals.
 - c. No occupants are present at the time of adjustment.
 - d. External noise sources (i.e., construction activities) are not present during testing.

4. Initial Test and Adjustments: Perform and record results of the following tests:
 - a. Loudspeaker Operation: Near field output of each Loudspeaker shall match the Zone average within +/- 2.0 dB. Listen directly below each installed Loudspeaker to confirm it is operating.
 - b. For any Loudspeakers found to be inoperative, or possibly operating at an incorrect level, use a calibrated sound level meter set to A-weighting and slow response to check the output. Place the microphone directly below and equal distance from each loudspeaker. Measure the variation between a minimum of 3 adjacent Loudspeakers of the same zone and sound level setting.
 - c. Replace any defective Loudspeakers or cabling, or otherwise correct cause for any Loudspeakers found to be operating outside the range stated.
 - d. Buzzes, Rattles, and Distortion: With system operating at maximum level, listen for any buzzes, rattles, and objectionable distortion in all areas covered. Correct all causes of these defects.

5. Final Test and Adjustment: Perform and record the results of the following tests:
 - a. Control Settings: Adjust all masking spectrum levels and audio level controls for initial operation using manufacturer recommended procedures. Document setting for each user control.
 - b. Adjustment of Sound Masking Levels: With the masking system active, measure the A-weighted sound pressure level of each Zone independently. Use an ANSI S1.4 approved and calibrated Type 1 or 2 sound level meter and/or calibrated real time acoustic analyzer with 1/3 octave filters per ANSI S1.11. Perform all SPL measurements at a typical seated height of 4ft AFF (1.2 meters). Adjust the sound masking frequency spectrum in each Zone to correspond with the A weighted average level and frequency levels (non-weighted) shown in Table 1. Document at minimum, one measurement per 1000sq ft. in open offices, one measurement in 50% of private offices, and one measurement in 50% of all other spaces where sound masking is present. All documented measurements shall meet the maximum level variation column criteria of Table 1. Correct any Sound Masking System deficiencies such as Loudspeaker placement or Loudspeaker tap settings to meet this performance criteria.

Table 1

Frequency	Open Office	Private Office	Corridor / Conference Room	Max Variation
125 Hz	45 dB	40.5 dB	42.5 dB	+/- 5 dB
160 Hz	45 dB	40.5 dB	42.5 dB	+/- 4 dB
200 Hz	45 dB	40.5 dB	42.5 dB	+/- 3 dB
250 Hz	44 dB	39.5 dB	41.5 dB	+/- 2 dB
315 Hz	43 dB	38.5 dB	40.5 dB	+/- 2 dB
400 Hz	41 dB	36.5 dB	38.5 dB	+/- 2dB
500 Hz	40 dB	35.5 dB	37.5 dB	+/- 2dB
630 Hz	39 dB	34.5 dB	36.5 dB	+/- 1.5dB
800 Hz	37 dB	32.5 dB	34.5 dB	+/- 1.5dB
1000 Hz	36 dB	31.5 dB	33.5 dB	+/- 1.5dB
1250 Hz	35 dB	30.5 dB	32.5 dB	+/- 1.5dB
1600 Hz	33 dB	28.5 dB	30.5 dB	+/- 1.5dB
2000 Hz	32 dB	27.5 dB	29.5 dB	+/- 1.5dB
2500 Hz	30 dB	25.5 dB	27.5 dB	+/- 1.5dB
3150 Hz	28 dB	23.5 dB	25.5 dB	+/- 1.5dB
4000 Hz	26 dB	21.5 dB	23.5 dB	+/- 1.5dB
5000 Hz	23 dB	18.5 dB	20.5 dB	+/- 1.5dB
Average “A” Weighted Sound Pressure Level (dBA)	46.6 dBA	42.1 dBA	44.1 dBA	+/- 2.5 dBA

- c. Configure time of day sound masking level adjustment following the final adjustment of sound masking levels. Coordinate with Owner to determine activity times and levels of occupancy. Adjust the Sound Masking System based on the target “Average A-Weighted Sound Pressure Level” in Table 1 as the final sound masking levels used for high activity/occupancy times. Adjust the Sound Masking System based on the targeted “Average A- Weighted Sound Pressure Level” in Table 1 with adjustment -3 to -9 dBA lower at times of inactivity/lower occupancy per product manufacturer’s recommendations.
- d. When integrating the Sound Masking System in a space previously occupied by workers, configure the incremental level adjustment feature of the control processor. Following the initial adjustment of sound masking levels, adjust each Zone’s initial sound masking level to a level 1.5 dBA above the average ambient noise level of the space. Engage the incremental level adjustment feature to automatically increase the sound masking level until reaching the “Average A-Weighted Sound Pressure Level shown in Table 1 for each type of space listed. Use a minimum time frame of five days for the incremental level adjustment to reach the final target levels.
- e. Provide a final testing report which states that the performance requirements of the Sound Masking System have been met.

6. Automatic Real-Time Masking Level Adjustment: Automatic adjustment of masking level based on ambient noise conditions shall not be permitted under this specification. Only scheduled adjustment of sound masking levels may occur at times when each Zone is vacant of occupants.
7. Sound Masking Equalization: On-site sound masking equalization shall be performed by those qualified personnel specified in Section 1.07B to meet the values specified in Table 1.

G. Proof of Performance Testing: If requested, demonstrate to the Owner's Representative that the system is fully operable and installed in compliance with the terms of the performance specifications hereunder.

1. Test the system to demonstrate that the design goal of Privacy Index (PI) = 80% (Normal Privacy) or better is met between representative workstations separated by partitions of 66" or greater height. For this test, select adjacent workstation pairs without direct line of sight or significant sound reflecting ceiling or wall elements between, and with a ceiling material rated at NRC of 0.85 or higher. Tests shall be in accordance with ASTM Standard E1130 except that the octave band calculation method of ANSI Standard S3.5 may be used. Lower levels of PI are acceptable only if the ceiling or partition requirements described herein before are not met. Document the results of this test.
2. Test the system in each open plan area Zone served to demonstrate that the design goal for spatial uniformity is met. Tests shall be carried out per ASTM Standard E1573 as measured in the 2,000 Hz octave band. At each location, the average sound pressure levels shall be measured over an interval of at least 4 seconds at four positions at 90° intervals around a circle of 0.3 m (1 ft.) radius centered on the location. The arithmetic mean sound pressure level shall be calculated from the four measured values. For at least 75% of the test locations, the arithmetic mean sound pressure level in the 2,000 Hz octave band shall not vary by more than +/-1 dB from the average of the arithmetic mean sound pressure levels measured at all locations. Document the results of this test.
3. Test the system to demonstrate that the Speech Privacy Class (SPC) is at least 75 (Standard Speech Privacy) between representative private (enclosed) offices served by the system. For this test, select adjacent offices with closed doors free of air gaps. Tests shall be in accordance with ASTM Standard E2638-10. Test 10% of all similar sized offices and meeting spaces utilizing the same basic construction methods. Lower levels of SPC are acceptable if the common walls between the offices are comprised of assemblies \leq STC 40 and which do not extend to the deck above -or- in cases where the common wall \leq STC40, does not extend to the deck, and the ceiling attenuation class of the ceiling material is less than 45 (\leq CAC 45). If the SPC achieved is lower than 75 due to architectural factors, bring this to the attention of the Owner or General Contractor. Document the results of this test.
4. The sound masking contractor will make all necessary modifications to the

system design, integration, and/or settings, as specified by the System Designer, to achieve the performance testing goals contained herein at no additional expense to the Owner.

H. Cleaning and waste management

1. Remove empty packaging and other material waste.
2. Clean all debris created by installation of components.
3. Clean system components where required

I. Final Closeout and As-Built Documentation

1. The Contractor shall document, prepare and submit all final control processor settings, Loudspeaker Zone maps, Loudspeaker tap settings, one-line diagrams, operational instruction, and testing results in PDF format. Submit three copies to the System Designer, the Project Manager and, if required, the Owner's representative for final review and acceptance.
2. Indicate the location of each sound pressure level measurement, privacy index measurement, and spatial uniformity measurement referenced within the final documents on the Zone map.
3. In cases where the Sound Masking System utilizes client control software for adjustment and operation, provide a copy on media with each documentation set utilizing the same software version as currently installed and operating.
4. With thirty-day advance notice, train Owner's designated representative(s) on Sound Masking System maintenance and proper operation.
 - a. Provide User Instruction on Operation
 - b. Discuss potential for mis-adjustment of sound masking levels and deterioration of both comfort / speech privacy performance.
 - c. Demonstrate all software features, controls, and configuration.

Appendix F: Project Product Listing

TRS Cambridge Sound Masking Project

- Listing is by Floor/Area.
- Product quoted must be Cambridge Sound. Product numbers and quantities required for each floor are listed below.
- Any required network switches/equipment will be provided by the installer
- Provide price quote by Area. (**Please include services cost with each bid**)
 - **Base Bid:** Floor 1 & Floor 2
 - **Alternate Bid 1:** Floor 3
- Quotation to include all costs: Product, freight, wiring and labor, product tuning by a qualified manufacturer's employee or an authorized dealer or consultant who has been trained by the manufacturer.
- Labor is during normal business hours unless otherwise noted.
- **Please note: Portion of** Floor 2 has existing Cambridge Dynasound Product

Cambridge Sound Masking System

FLOOR 1

<u>Product</u>	<u>Description</u>	<u>Quantity</u>
DS1357W	Network plenum loudspeaker - white	86
Qt X 800	Network sound masking processor and loudspeaker controller, 8 Ohm Outputs	12

FLOOR 2

<u>Product</u>	<u>Description</u>	<u>Quantity</u>
DS1357W	Network plenum loudspeaker - white	102
Qt X 800	Network sound masking processor and loudspeaker controller, 8 Ohm Outputs	14

FLOOR 3

Product	Description	Quantity
DS1357W	Network plenum loudspeaker - white	98
Qt X 800	Network sound masking processor and loudspeaker controller, 8 Ohm Outputs	14

SERVICES

Product	Description
Tuning	Onsite tuning and associated travel costs

PROJECT NAME:
**GENERIC SCHEMATIC
DRAWINGS AND
INSTALLATION NOTES**

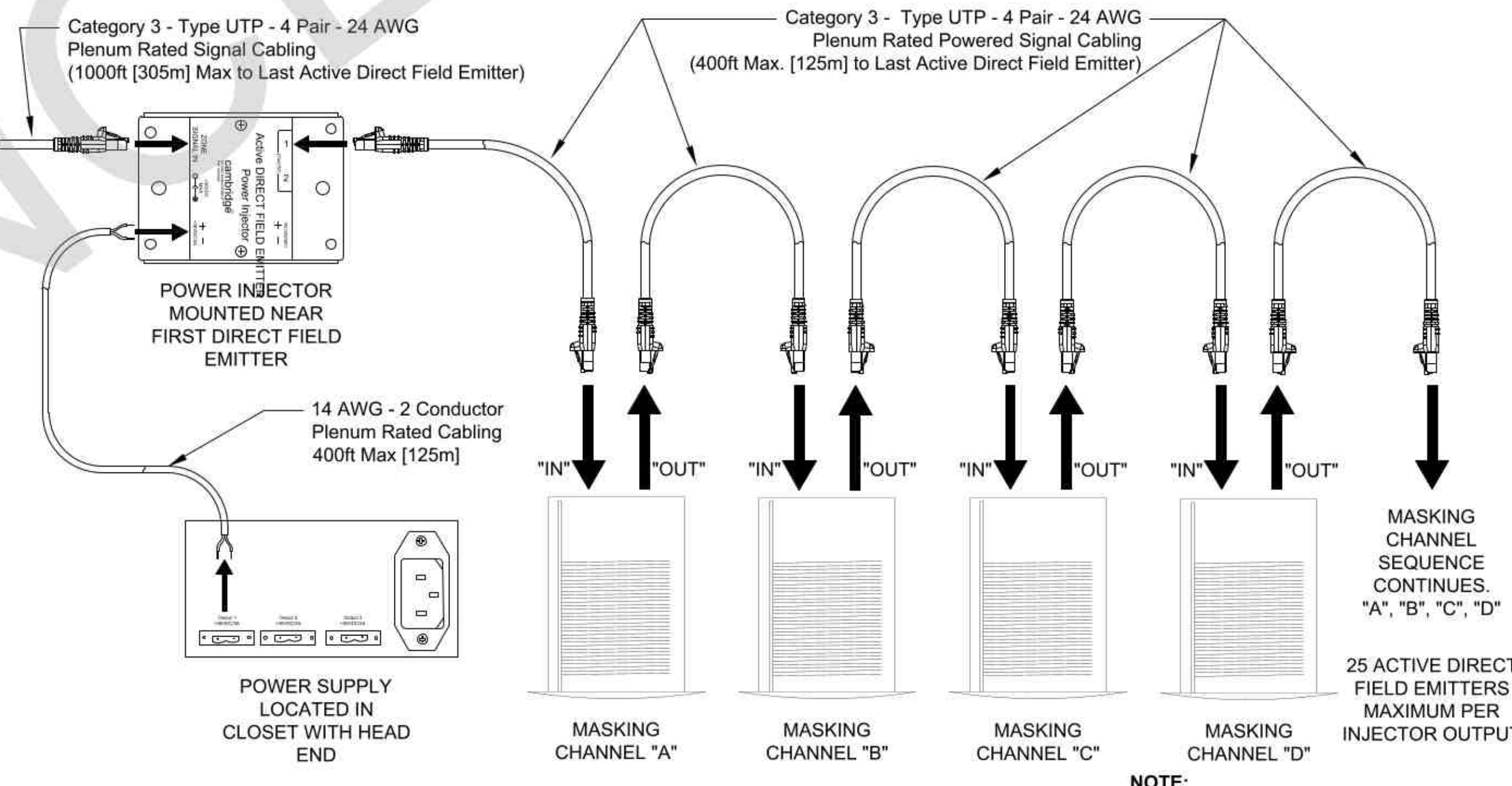
SOUND MASKING

- DO NOT REVERSE THE EMITTER INPUT AND OUTPUT FOR ANY REASON. IF AN EMITTER DOES NOT PLAY MASKING WHEN AN INPUT IS CONNECTED, CHECK 4 PREVIOUS CABLES AND SPEAKERS FOR PROBLEMS. IF THE ISSUE PERSISTS, CONTACT THE MANUFACTURER.
- ALL EMITTERS AND CONTROL MODULES USE RJ-45 CONNECTORS USING TIA-568B WIRING SCHEME.
- ALL CABLING TO BE TESTED FOR PROPER PIN ORDER / TERMINATION PRIOR TO CONNECTION TO SOUND MASKING COMPONENTS.
- QT X 300/QT X 600 CONTROL MODULES ARE CONFIGURED FOR QT STANDARD EMITTERS AT FACTORY AND MUST BE RECONFIGURED FOR QT ACTIVE EMITTER OPERATION USING SOFTWARE.
- PLEASE REFER TO THE INSTALLATION / OPERATIONS GUIDE / ADDENDA FOR DETAILS PROVIDED WITH EACH CONTROL MODULE.
- EMITTER GRID SPACING IS DETERMINED BY CEILING HEIGHT CHART AND SHOULD BE NO LESS THAN EIGHT FEET (8ft) [2.4m] CENTERS AND NO MORE THAN TWELVE FEET (12ft) [3.6m] CENTERS.
- EMITTERS MUST BE A MINIMUM OF TWO (2ft) [60cm] IN ANY DIRECTION TO AVOID CONFLICTS WITH LIGHTS, VENTS OR OTHER FIXTURES. TAKE PRECAUTIONS TO MAINTAIN CONSISTENT SPACING PATTERN WHERE POSSIBLE.
- EMITTERS SHOULD BE CENTERED IN CEILING TILE WHENEVER POSSIBLE AND ALIGNED IN STRAIGHT ROWS.
- ANY SINGLE EMITTER MAY BE MOVED UP TO TWO FEET (2ft) [60cm] IN ANY DIRECTION TO AVOID CONFLICTS WITH LIGHTS, VENTS OR OTHER FIXTURES. TAKE PRECAUTIONS TO MAINTAIN CONSISTENT SPACING PATTERN WHERE POSSIBLE.
- ALL SYSTEMS USE 4 MASKING CHANNELS. AVOID HAVING EMITTERS OF THE SAME CHANNEL NEXT TO ONE ANOTHER TO AVOID INTERFERENCE. CATTY-CORNER IS ACCEPTABLE. EMITTERS CONFIGURE THEMSELVES TO A CHANNEL BASED ON THEIR POSITION IN THE CHAIN FROM CHANNEL 1 TO CHANNEL 4.
- TO AVOID CHANNEL INTERFERENCE, A SERPENTINE WIRING PATTERN SHOULD BE USED.
- QT ACTIVE EMITTERS ARE NOT COMPATIBLE WITH THE QT-RC2 ROOM CONTROL.
- OUTPUTS MAY BE ASSIGNED TO SPECIFIC ZONES USING SOFTWARE/WEB INTERFACE. MULTIPLE OUTPUTS MAY BE ASSIGNED TO A SINGLE ZONE. (FUTURE SOFTWARE RELEASE)

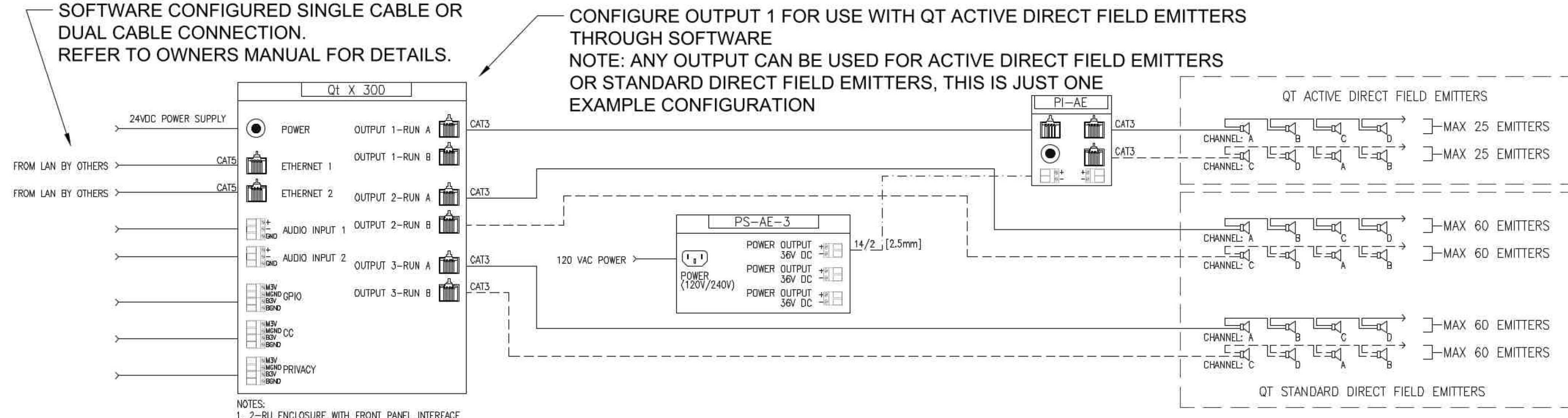
ZONE TYPE	CEILING HEIGHT	ZONE VOL LEVEL	INTENDED RESULT
OPEN OFFICE AREAS	< 9' [2.75m]	3.0 TO 6.0	45 - 48 dBA
OPEN OFFICE AREAS	9' - 10' [2.75 - 3m]	4.0 TO 7.0	45 - 48 dBA
OPEN OFFICE AREAS	10' - 11' [3.0 - 3.3m]	5.0 TO 8.0	45 - 48 dBA
OPEN OFFICE AREAS	11' - 12' [3.3 - 3.6m]	6.0 TO 9.0	45 - 48 dBA
OPEN OFFICE AREAS	> 12' [3.6m]	7.0 TO 10.0	45 - 48 dBA
PRIVATE OFFICE AREAS	ALL	-5.0 TO -1.0	38 - 42 dBA

NOTES:
- WARNING! - CONFIGURE QT X CONTROL PROCESSOR FOR PROPER DIRECT FIELD EMITTER TYPE PRIOR TO ADJUSTMENT.
- ALL LEVELS SHOULD BE MEASURED AND VERIFIED WITH A SOUND LEVEL METER USING A STANDARD "A" WEIGHTING ON SLOW RESPONSE. ALL MEASUREMENTS SHOULD BE RECORDED AT 4' (1.2M) ABOVE THE FLOOR (REFER TO ASTM E1573 FOR A STANDARDIZED PROCEDURE OF MEASURING SOUND MASKING LEVELS)
- ALL LEVELS PROVIDED ARE INTENDED AS DAYTIME LEVELS FOR TYPICAL WORKPLACE ENVIRONMENTS
- LEVELS FOR HALLWAYS, CORRIDORS, TRANSITIONAL SPACES, LOBBIES, ETC. SHOULD MATCH ADJACENT AREAS TO PROVIDE CONSISTENT/UNOBTRUSIVE COVERAGE
- ZONE LEVELS SHOWN ARE BASED ON ALL OUTPUT LEVELS EQUALING 0 dB.

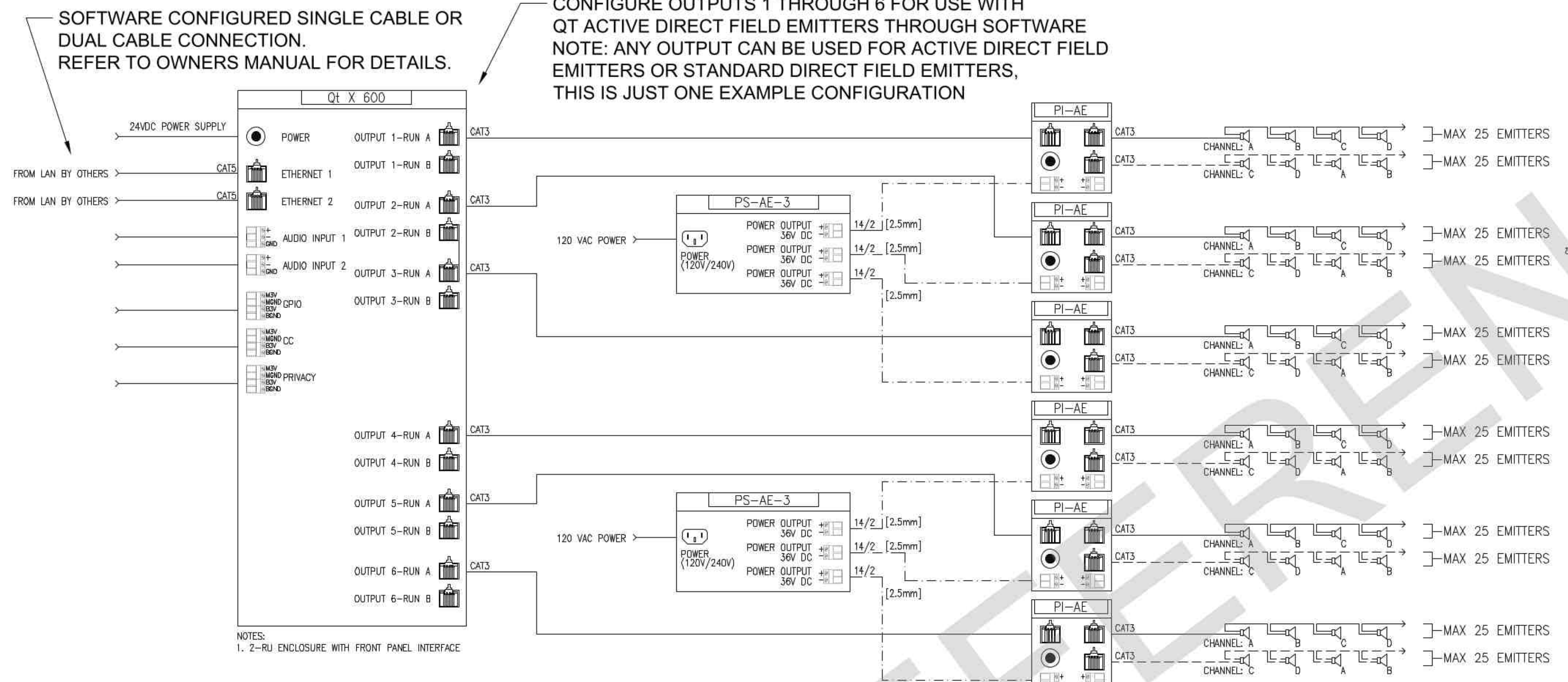
5 SOUND MASKING LEVELS
SM0.0 NOTE:



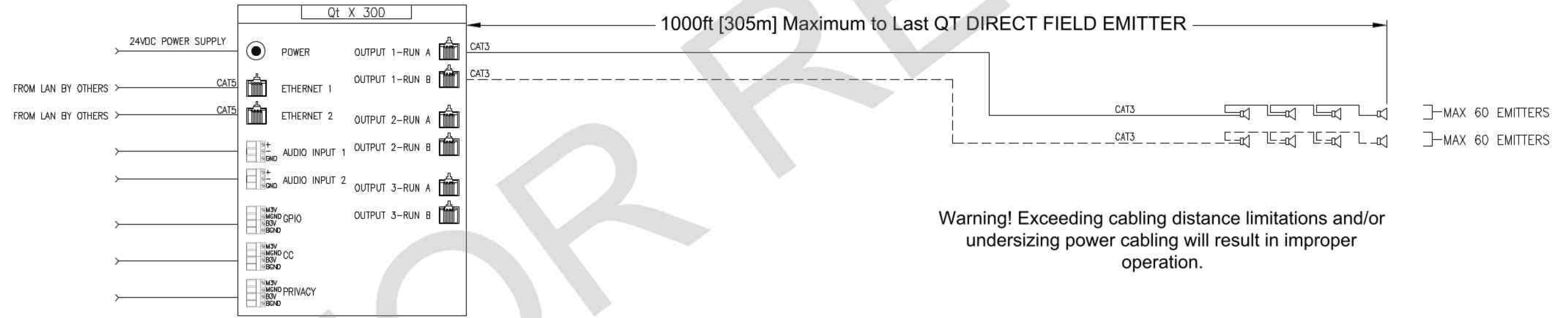
7 ACTIVE DIRECT FIELD EMITTER DAISY CHAIN WIRING
SM0.0 NOTE:



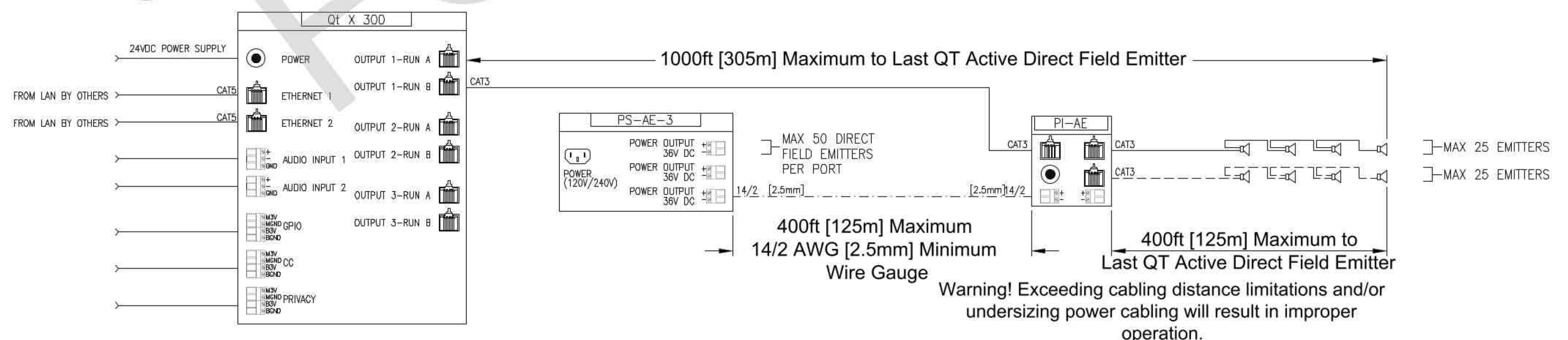
1 Qt X 300 - ACTIVE AND STANDARD DIRECT FIELD EMITTERS - BLOCK DIAGRAM - EXAMPLE
SM0.0 NOTE: UP TO 5 POWER SUPPLIES (PS-AE-3) CAN FIT IN 3 RU.



2 Qt X 600 - ACTIVE DIRECT FIELD EMITTERS - BLOCK DIAGRAM - EXAMPLE
SM0.0 NOTE: UP TO 5 POWER SUPPLIES (PS-AE-3) CAN FIT IN 3 RU.



3 CABLING - SIZING AND DISTANCE LIMITATIONS - STANDARD DIRECT FIELD EMITTERS - EXAMPLE
SM0.0 NOTE: UP TO 5 POWER SUPPLIES (PS-AE-3) CAN FIT IN 3 RU.



4 CABLING - SIZING AND DISTANCE LIMITATIONS - ACTIVE DIRECT FIELD EMITTERS
SM0.0 NOTE: UP TO 5 POWER SUPPLIES CAN FIT IN 3 RU.

OPEN OFFICES / HALLWAYS		PRIVATE OFFICES		RECOMMENDED PRIVATE OFFICE LAYOUT
CEILING HEIGHT	DIRECT FIELD EMITTER SPACING	ROOM SIZE	DIRECT FIELD EMITTER QUANTITY	
< 9' [$< 2.75m$]	8' X 8' [2.4m X 2.4m]	< 180 SQ FT [16.7 SQ m]	2	
9' to 10'-11' [2.7m to 3.3m]	10' X 10' [3m X 3m]	181 to 260 SQ FT [16.8 to 24.1 SQ m]	3	
11' to 14' [3.4m to 4.3m]	12' X 12' [3.6m X 3.6m]	261 to 340 SQ FT [24.2 to 31.5 SQ m]	4	
> 14' [$> 4.3m$]	CALL BIAMP	> 341 SQ FT [$> 31.6 SQ m$]	+ 1 FOR EVERY 80 SQ FT [7.4 SQ m] MORE	

8 DIRECT FIELD EMITTER LAYOUT GUIDELINES FOR CLOSED SPACES
SM0.0 NOTE:

PROJECT NAME:

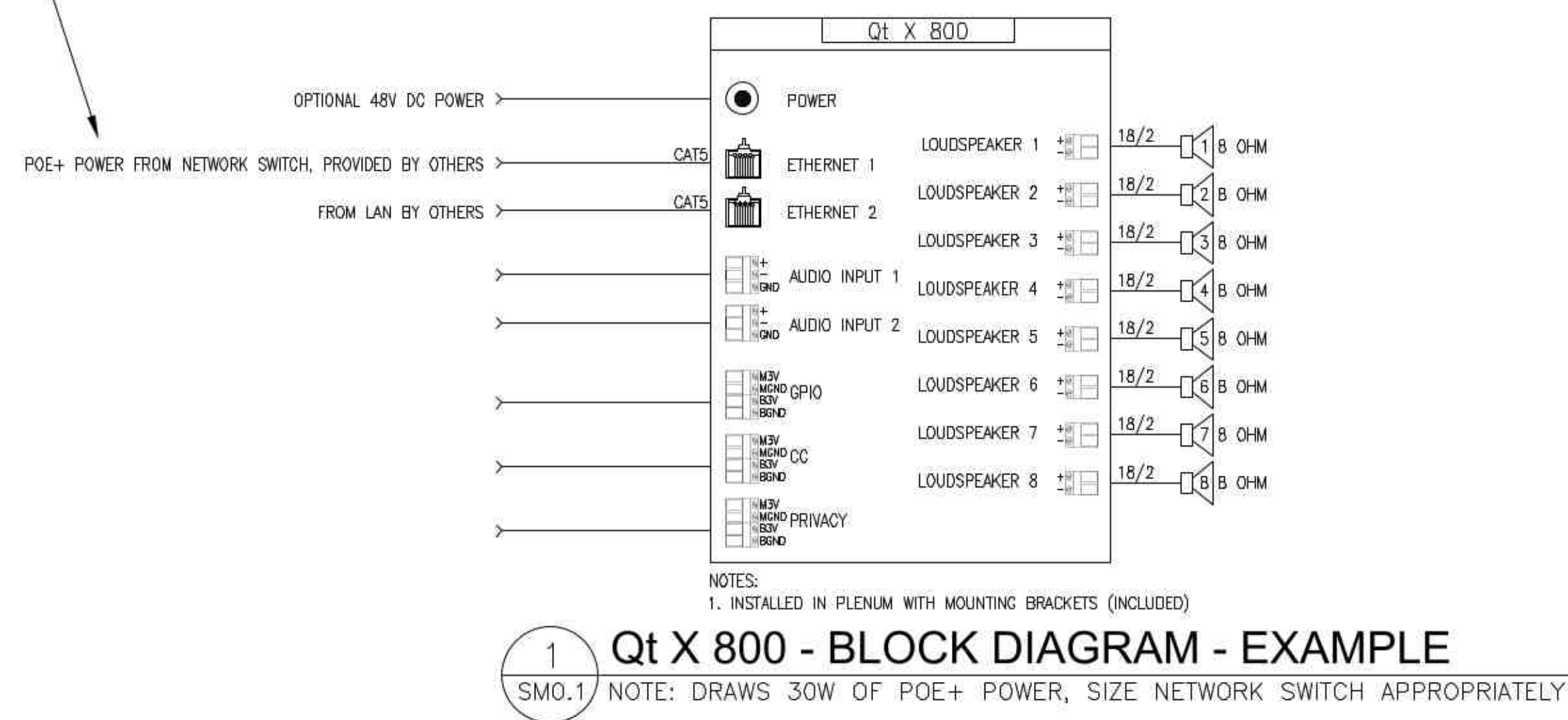
**Qt X 800 / 805
CONNECTION
DETAILS**

SOUND MASKING

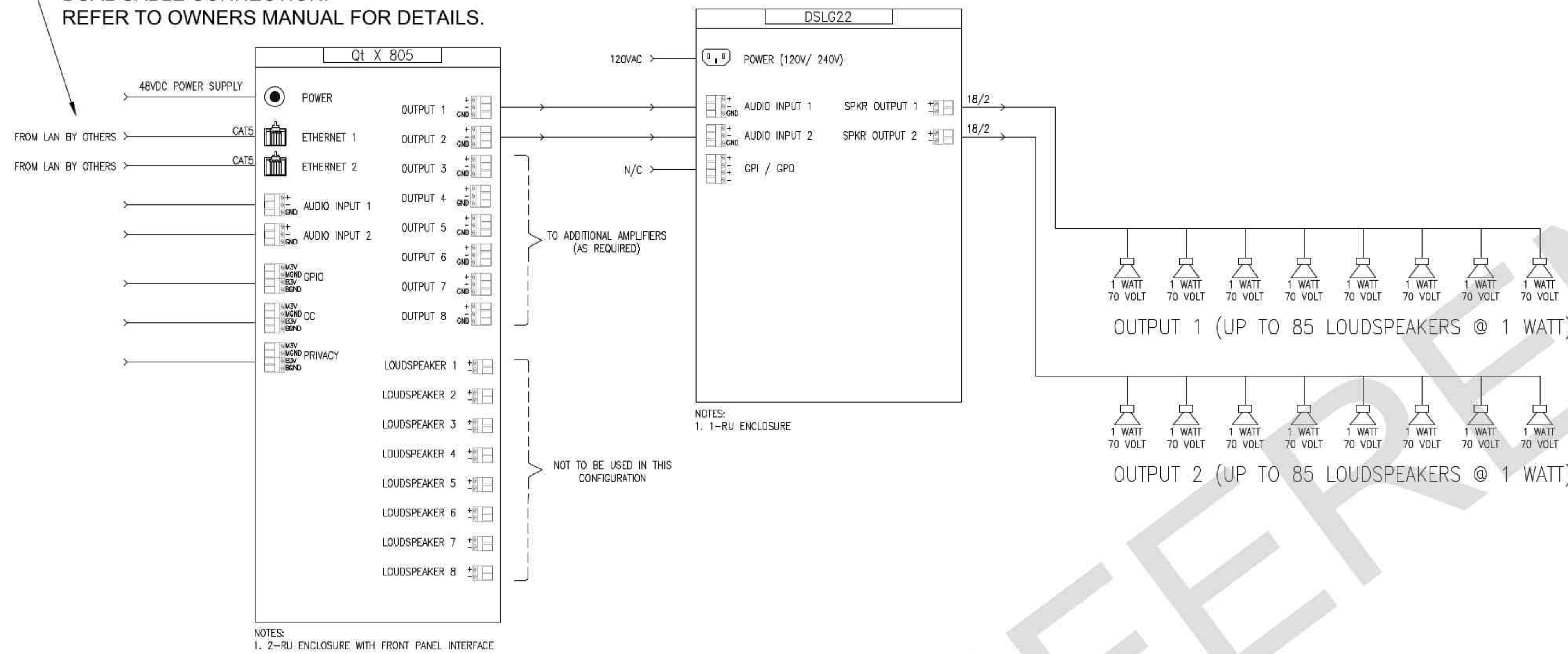
- ALL DSLG22 AMPLIFIERS MUST BE CONFIGURED FOR 70 VOLT OPERATION PRIOR TO POWER UP. (SEE DETAIL)
- EACH QT X 800/805 SOUND MASKING GENERATOR CONTAINS EIGHT UNIQUE MASKING CHANNELS CONFIGURED USING SOFTWARE.
- EACH OF THE EIGHT AMPLIFIED OUTPUT SPEAKERS/DIRECT FIELD EMITTERS CAN BE INDEPENDENTLY ADJUSTED FOR MASKING AND AUX AUDIO LEVELS AND SPECTRA.
- ENSURE LOUDSPEAKERS (ONE THROUGH EIGHT) CORRESPOND TO THE LOCATIONS EXACTLY AS SHOWN ON THE SOUND MASKING PLAN FOR EACH DEVICE.
- LOUDSPEAKER LOCATIONS SHOULD BE CLEAR OF ALL OBSTACLES AND OBSTRUCTIONS ABOVE FINISHED CEILING. MAINTAIN A MINIMUM DISTANCE OF 2FT FROM ANY OBSTACLE LARGER THAN 24 Sq INCHES.
- AVOID PLACEMENT OF LOUDSPEAKER DIRECTLY ABOVE CEILING OPENINGS SUCH AS AIR GRILLES. FOR BEST RESULTS "BOOT" ANY CEILING OPENING (MODEL DS2022 OR EQUIVALENT).
- OBSERVE LOUDSPEAKER POLARITY (+/-) AT EACH SPEAKER OUTPUT AND LOUDSPEAKER TERMINATION POINT.
- NEVER SUBJECT BUILDING OCCUPANTS TO EXCESSIVE OR IMPROPERLY ADJUSTED SOUND MASKING. PROPER TUNING AND ADJUSTMENT IS REQUIRED BY QUALIFIED PERSONNEL PRIOR TO OCCUPANCY.
- SET ALL LOUDSPEAKERS TAPS INITIALLY AT 1 WATT SETTING UNLESS OTHERWISE NOTED ON THE PROJECT DRAWINGS. ADDITIONAL ADJUSTMENT MAY BE REQUIRED AT THE TIME OF SYSTEM TUNING.
- WHEN MULTIPLE QT X CONTROLLERS ARE INCLUDED IN A SINGLE SYSTEM, AUDIO INPUTS CAN BE SHARED ACROSS ALL CONTROLLERS VIA AVB OR DANTE.
- WHEN MOUNTING QT X 800 IN PLENUM SPACE, 48VDC CONNECTION IS NOT REQUIRED WHEN POWERED VIA POE+.
- SOUND MASKING LEVELS VARY GREATLY DEPENDING ON THE CEILING ENVIRONMENTS, AND NEED TO BE ADJUSTED IN CONJUNCTION WITH USING AN SPL METER. SEE INSTALLATION GUIDELINES FOR MORE INFORMATION.
- OUTPUTS MAY BE ASSIGNED TO SPECIFIC ZONES USING SOFTWARE/WEB INTERFACE. MULTIPLE OUTPUTS MAY BE ASSIGNED TO A SINGLE ZONE. (FUTURE SOFTWARE RELEASE)

SHEET NO.

SOFTWARE CONFIGURED SINGLE CABLE OR DUAL CABLE CONNECTION. REFER TO OWNERS MANUAL FOR DETAILS.

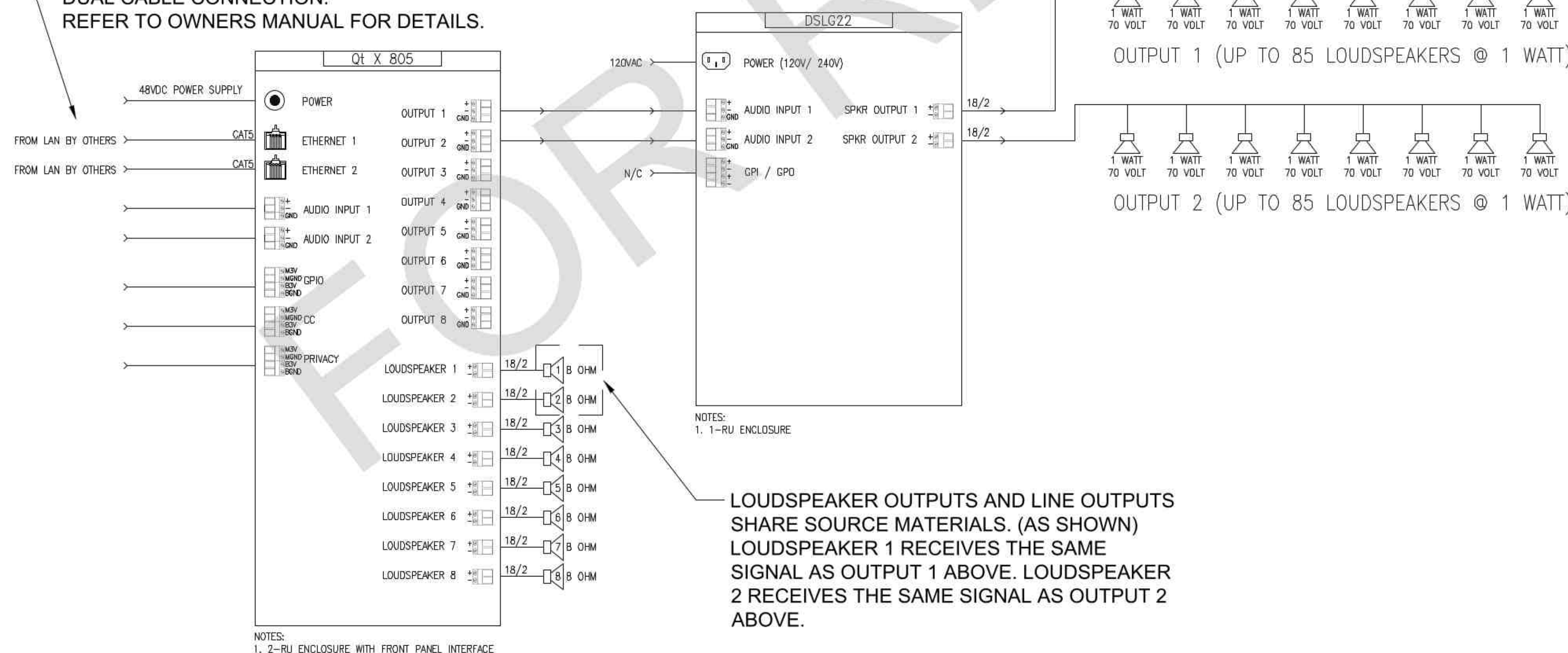


SOFTWARE CONFIGURED SINGLE CABLE OR DUAL CABLE CONNECTION. REFER TO OWNERS MANUAL FOR DETAILS.



Qt X 805 - 70V ONLY - BLOCK DIAGRAM - EXAMPLE
SMO.1 NOTE: UTILIZE OUTPUTS ONLY

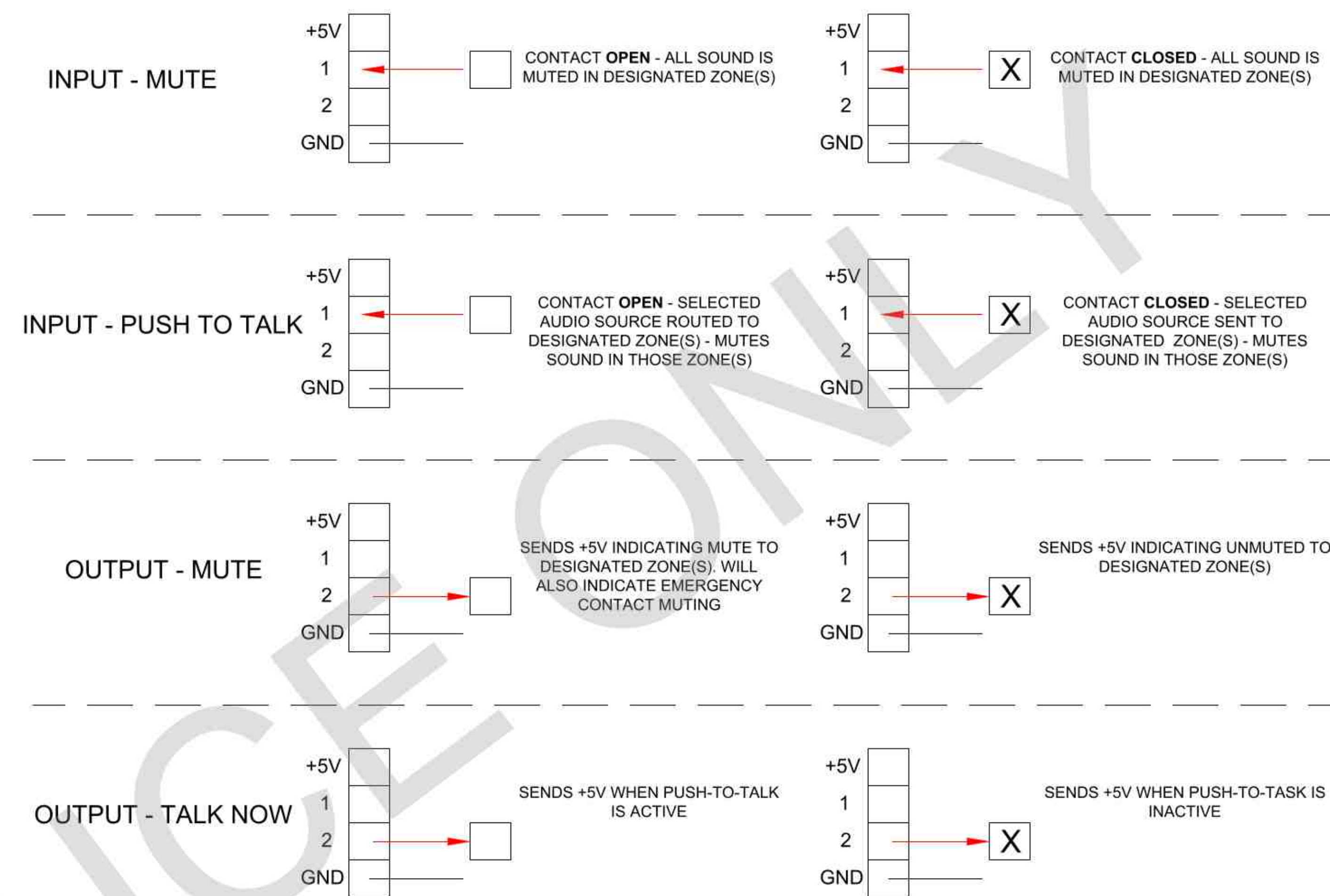
SOFTWARE CONFIGURED SINGLE CABLE OR DUAL CABLE CONNECTION. REFER TO OWNERS MANUAL FOR DETAILS.



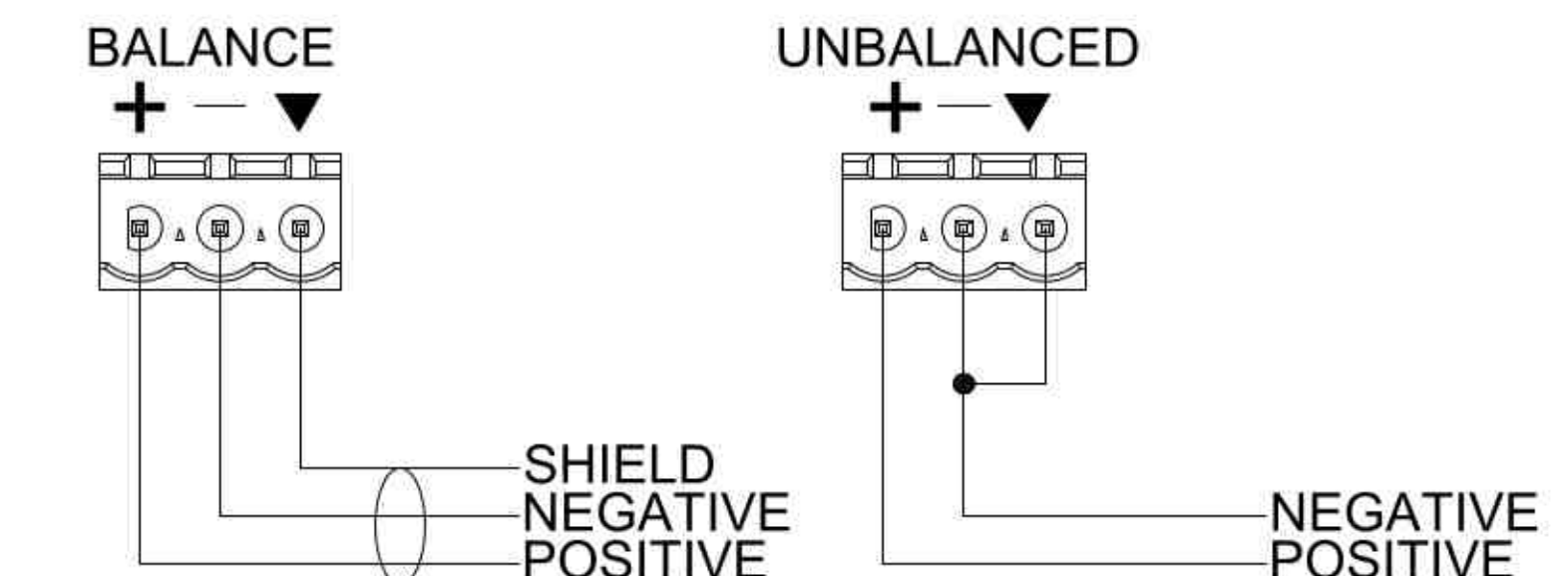
Qt X 805 - 70V AND 8 OHM - BLOCK DIAGRAM - EXAMPLE
SMO.1 NOTE: UTILIZE ONLY ONE OF OUTPUT OR SPEAKER

ACTIVE HIGH

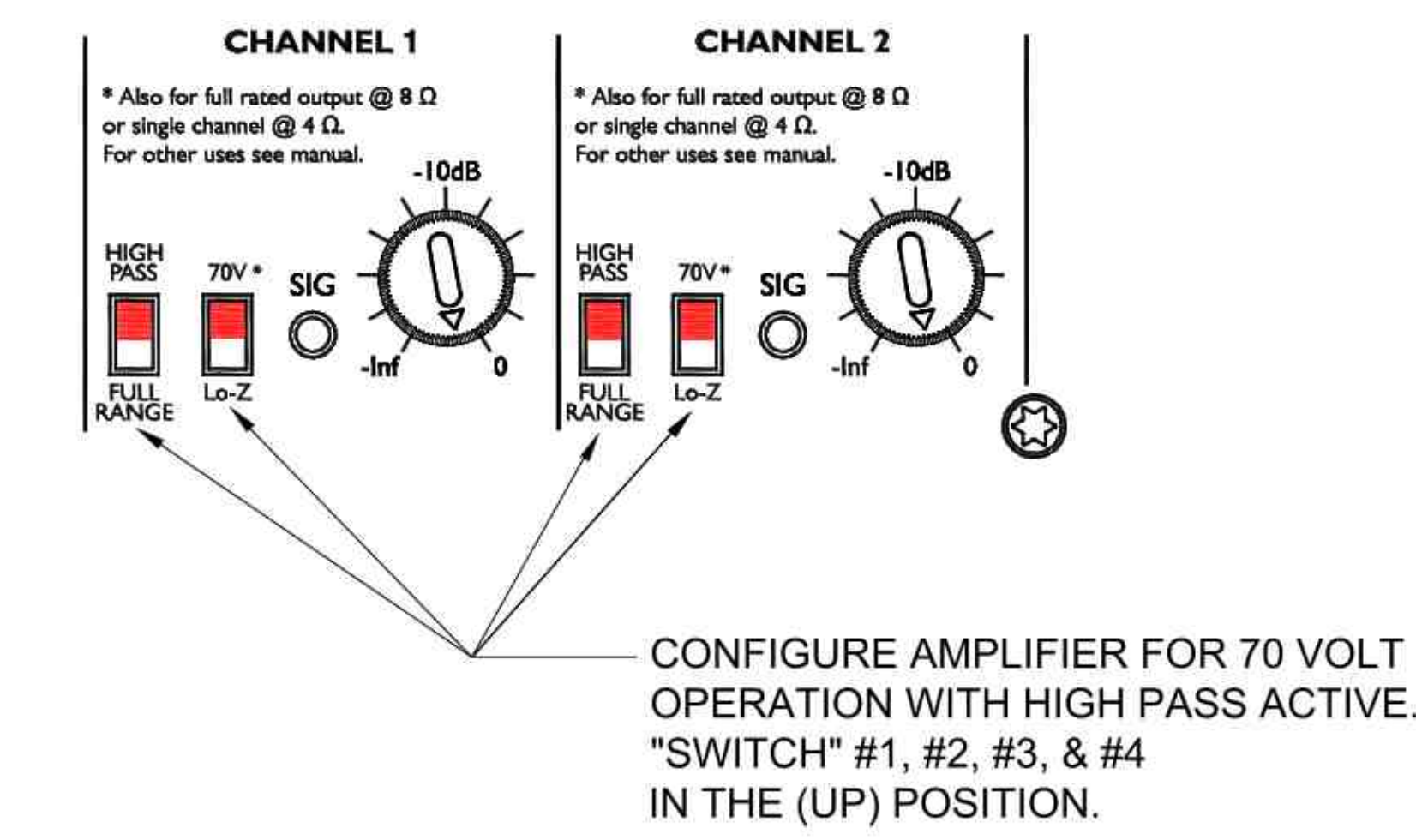
ACTIVE LOW



Qt X GPIO CONNECTIONS
SMO.1 NOTE: FOR STEREO CONNECTIONS UTILIZE A THIRD PARTY CONVERTER. REFER TO OWNERS MANUAL.



Qt X PROCESSORS LINE LEVEL AUDIO CONNECTIONS
SMO.1 NOTE: FOR STEREO CONNECTIONS UTILIZE A THIRD PARTY CONVERTER. REFER TO OWNERS MANUAL.

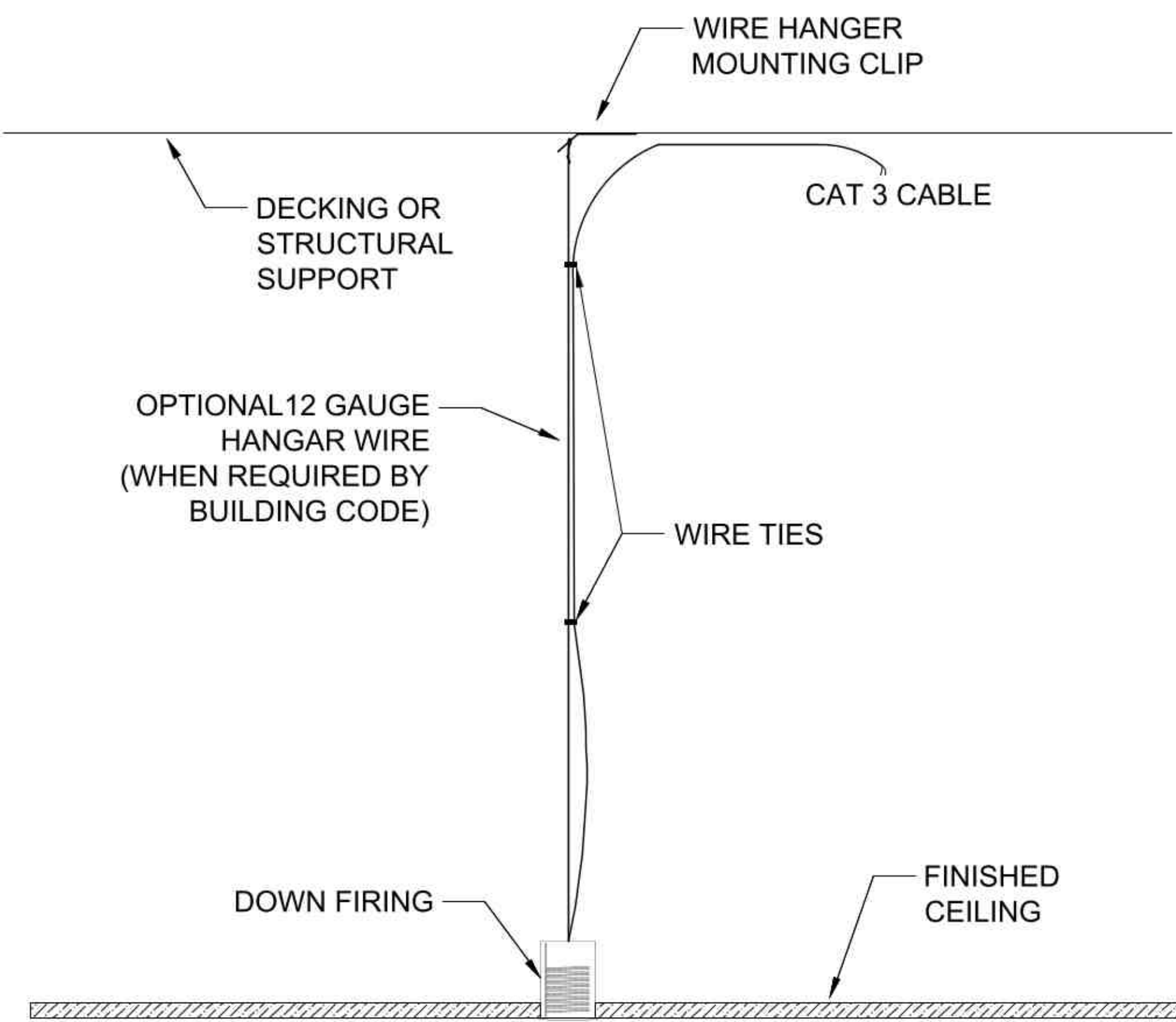


DSL22 AMPLIFIER CONFIGURATION
SMO.1 NOTE:

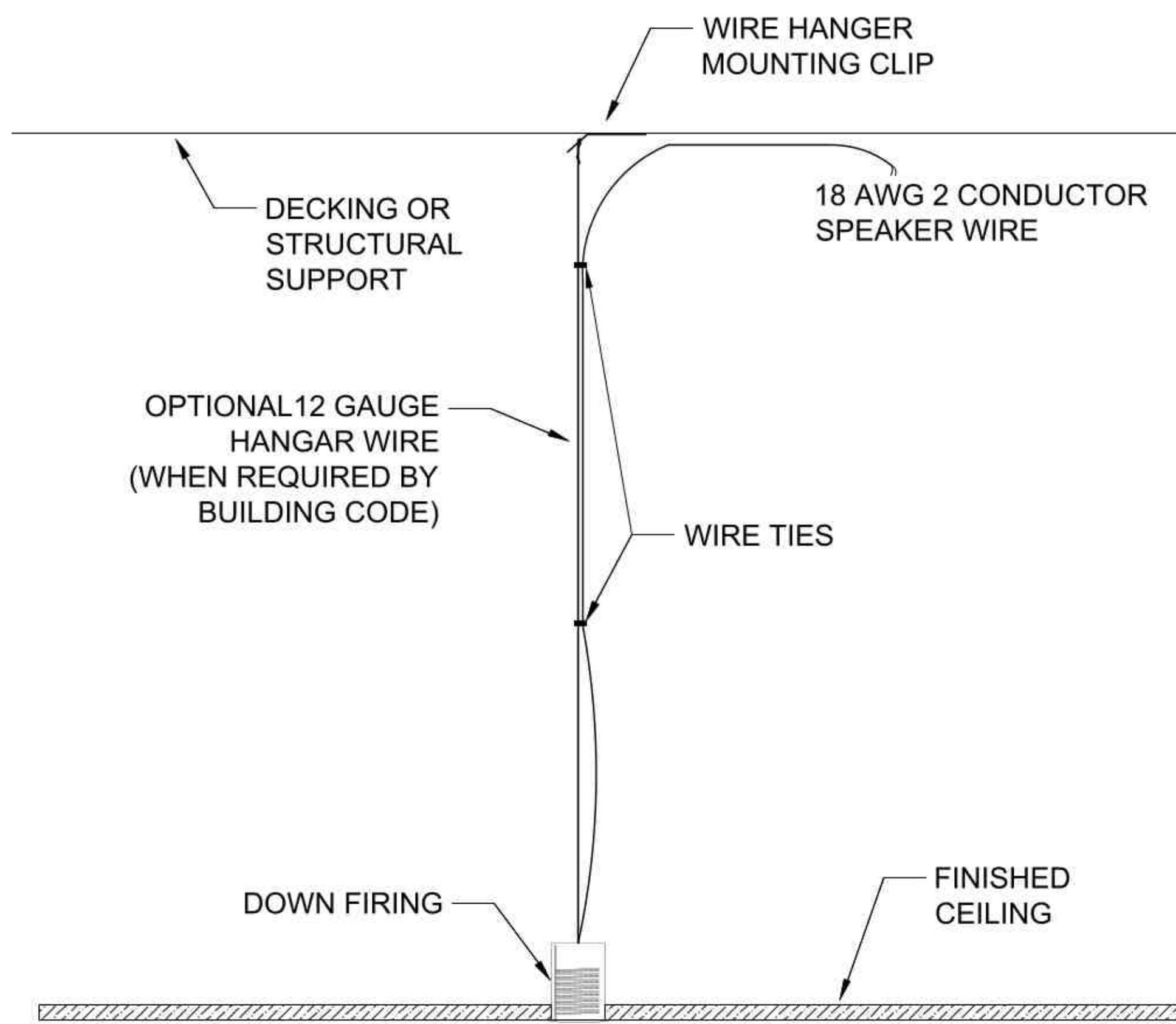
PROJECT NAME:

**PRODUCT MOUNTING
 DETAILS**

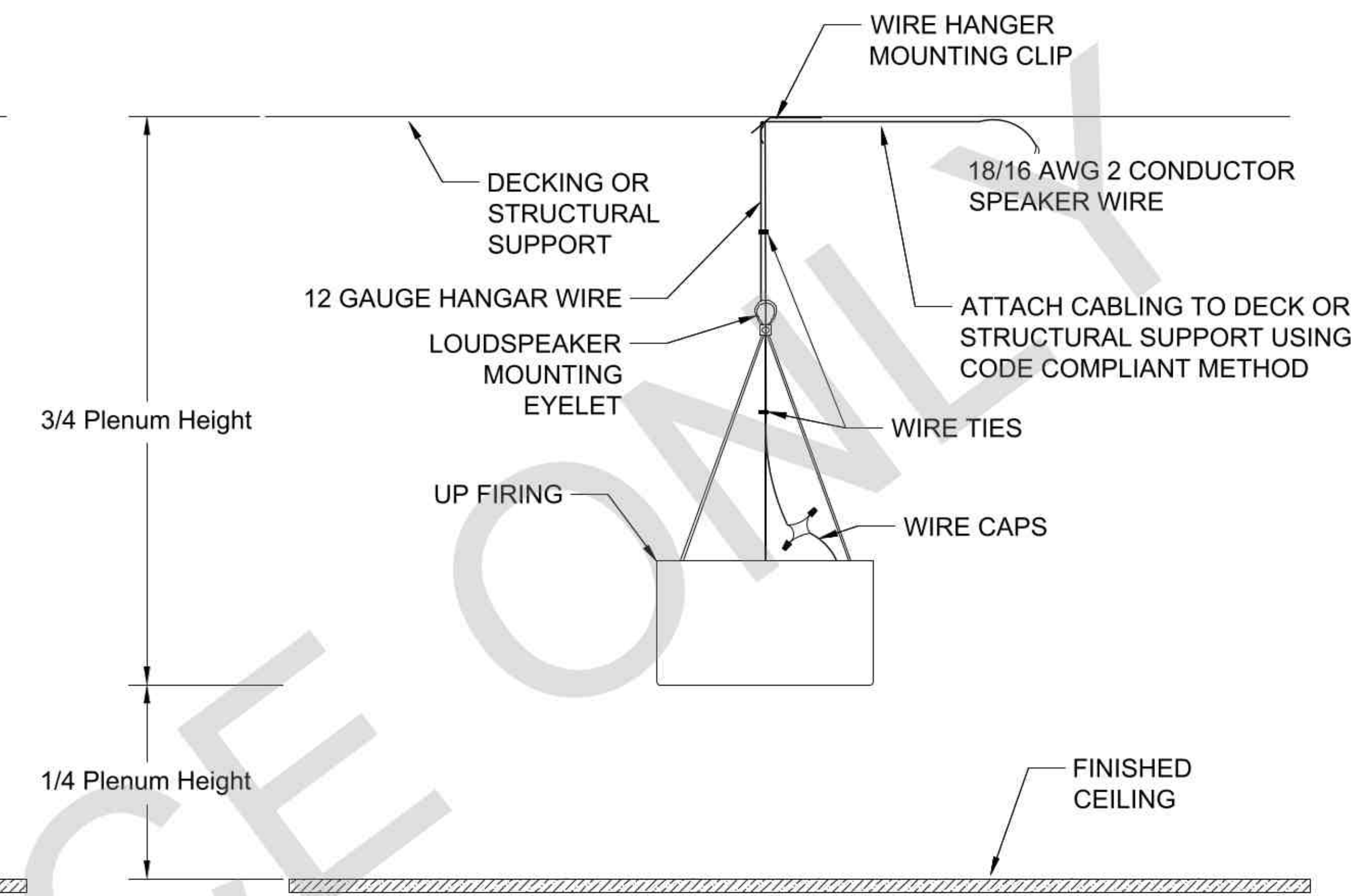
SOUND MASKING



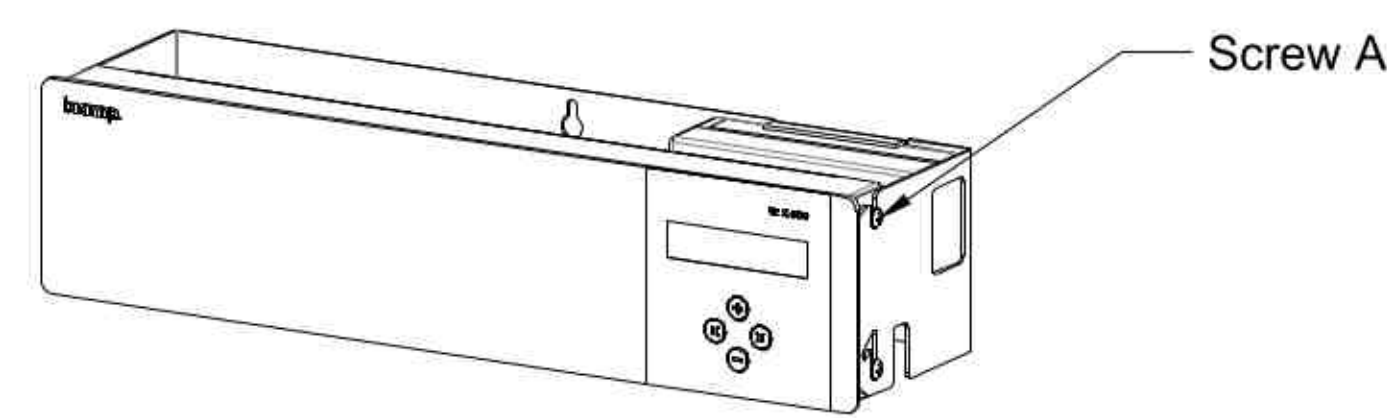
1 Qt STANDARD/ACTIVE MOUNTING DETAILS
 SMO.2 NOTE: SCALE 1/4" = 1'



2 DS1320 MOUNTING DETAILS
 SMO.2 NOTE: SCALE 1/4" = 1'



3 DS1339/DS1357 INDIRECT LOUDSPEAKER MOUNTING DETAILS
 SMO.2 NOTE: SCALE 1/4" = 1'

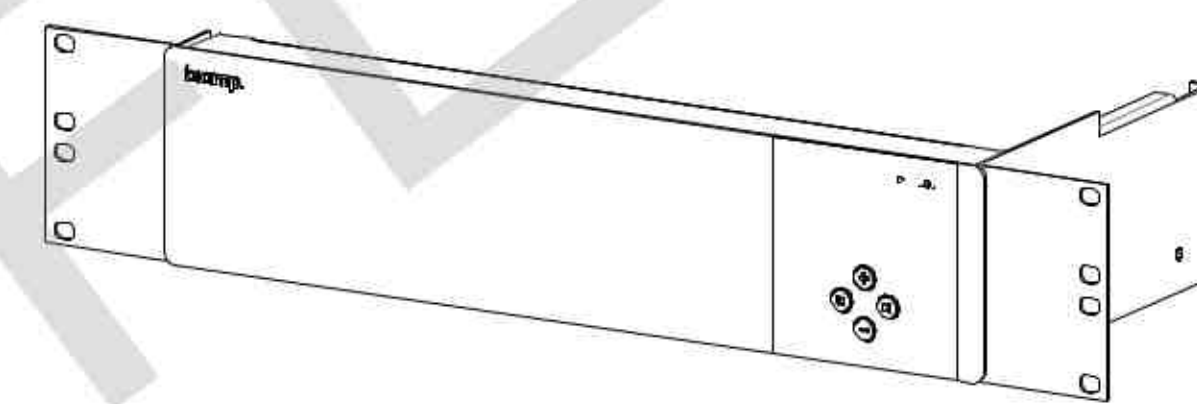


Installing the Control Module

Note: Always plug/unplug power supply at wall outlet
 Note: The QT X 600 is shown in the figures, but the QT X 300 installs in the same manner

Wall Mount

Mount the bracket using the three screws and plastic anchors (mollies) provided. Use a 1/4 inch drill bit for the anchor hole.
 Plastic anchors are #10-12 x 1 1/4 in. with #10 x 1 1/2 in. screws
 Note: The control module hinges forward for wall mounting and cable installation. To hinge forward, loosen screws A (and B) used to secure the module during shipping.
 Optional Accessory for QTX800/805 Models - Included with QTX300/600



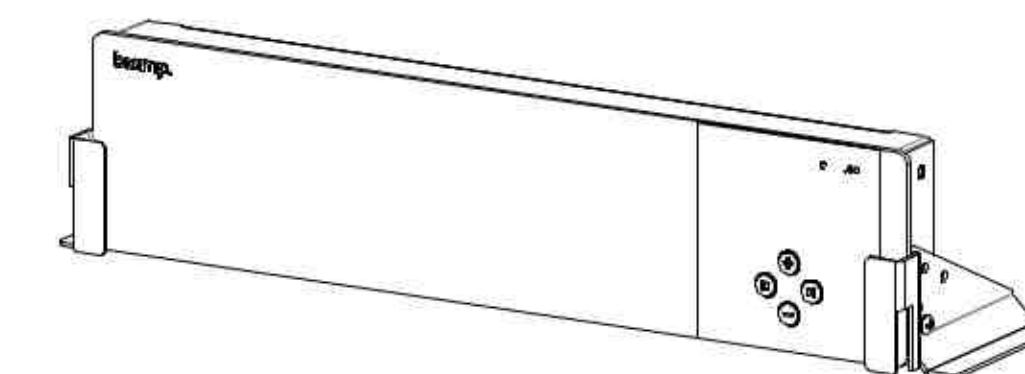
Rack Mount

Attach optional rack mount brackets to each end of the control module.
 Note: When rack mounted, the control module does not hinge forward.

Step 1

Remove the QT X and power supply bracket from the wall mount bracket.
 Step 2
 Reassemble power supply to right rack mount bracket using 6:32 black screws (included with bracket).
 Step 3
 Fasten left and right rack mount brackets to QT X using the screws removed in Step 1.
 Step 4
 Mount QT X to 19" cabinet rail using rack screws (10:32 rack screws included with bracket).

Optional Accessory for Qt X300/600/800 Models - Included with QtX805



Installing the Plenum Mount

A Pair of Mounting Brackets and M4 screws are included with the QT X 800/800D model.
 Note: If the panel is installed in the face down position, an additional M4 screw must be installed in the lower holes on each side to prevent panel movement. All wiring must be plenum rated if it is installed in the plenum space.

Three types of Mounting

1. **Over a ceiling rail (flush)**
2. **Face down against the ceiling tile**
3. **Controller is raised above the rail, connected with upper screw mount.**

Optional Accessory for Qt X 300/600/805 Models - Included with Qt X 800

4 Qt X WALL MOUNT
 SMO.2 NOTE: SCALE 1/4" = 1'

5 Qt X RACK MOUNT
 SMO.2 NOTE: SCALE 1/4" = 1'

6 Qt X PLENUM MOUNT
 SMO.2 NOTE: SCALE 1/4" = 1'

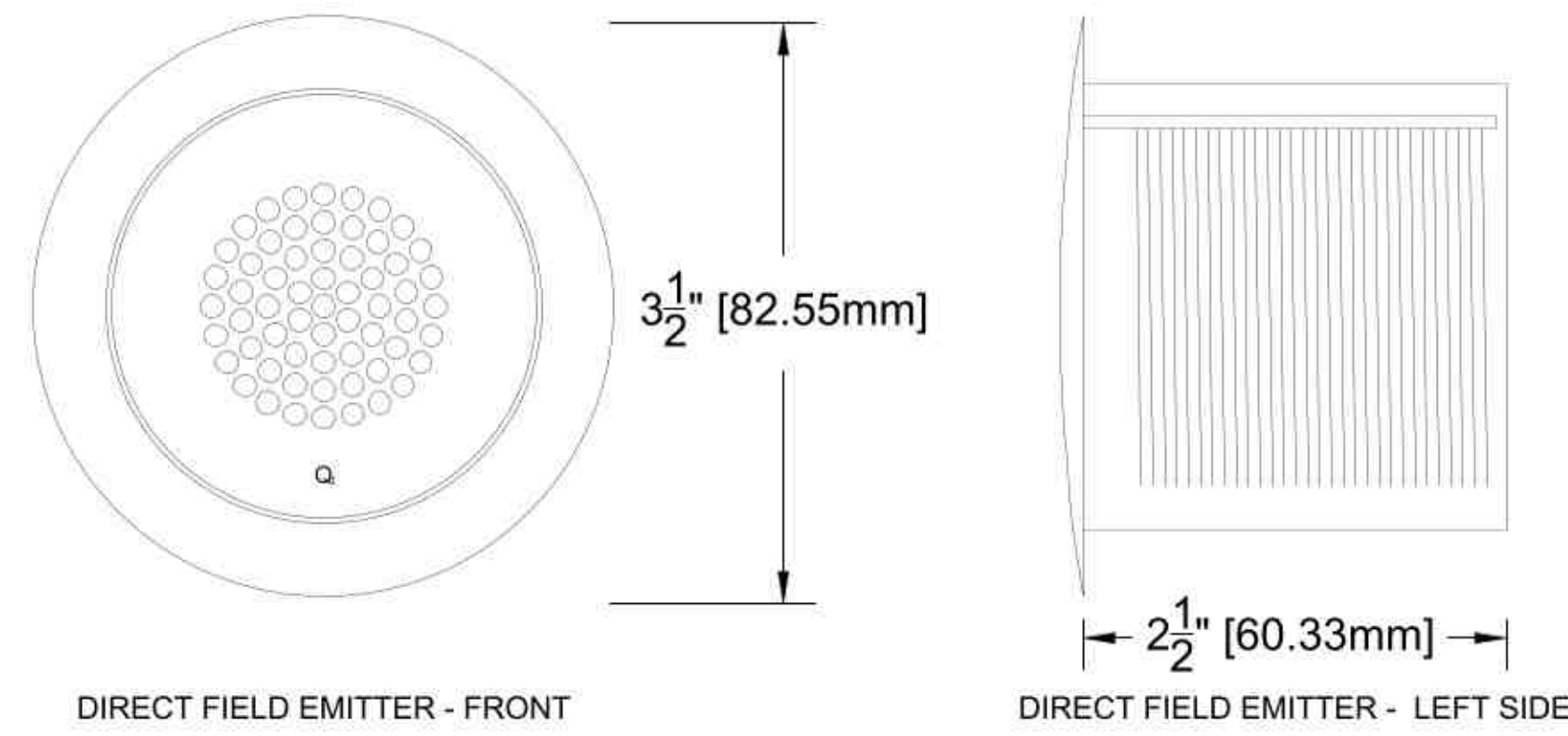
SHEET NO.

PROJECT NAME:

PRODUCT DETAILS

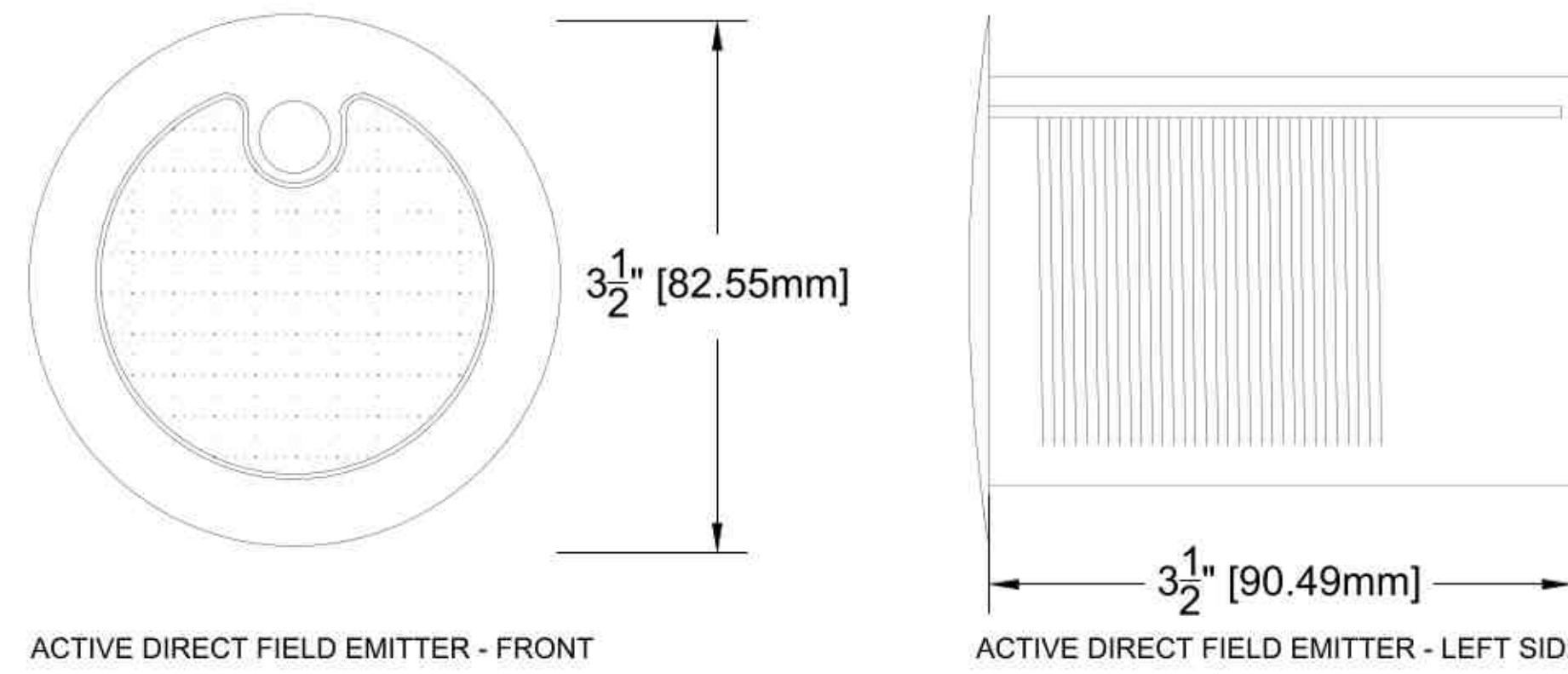
SOUND MASKING

SHEET NO.



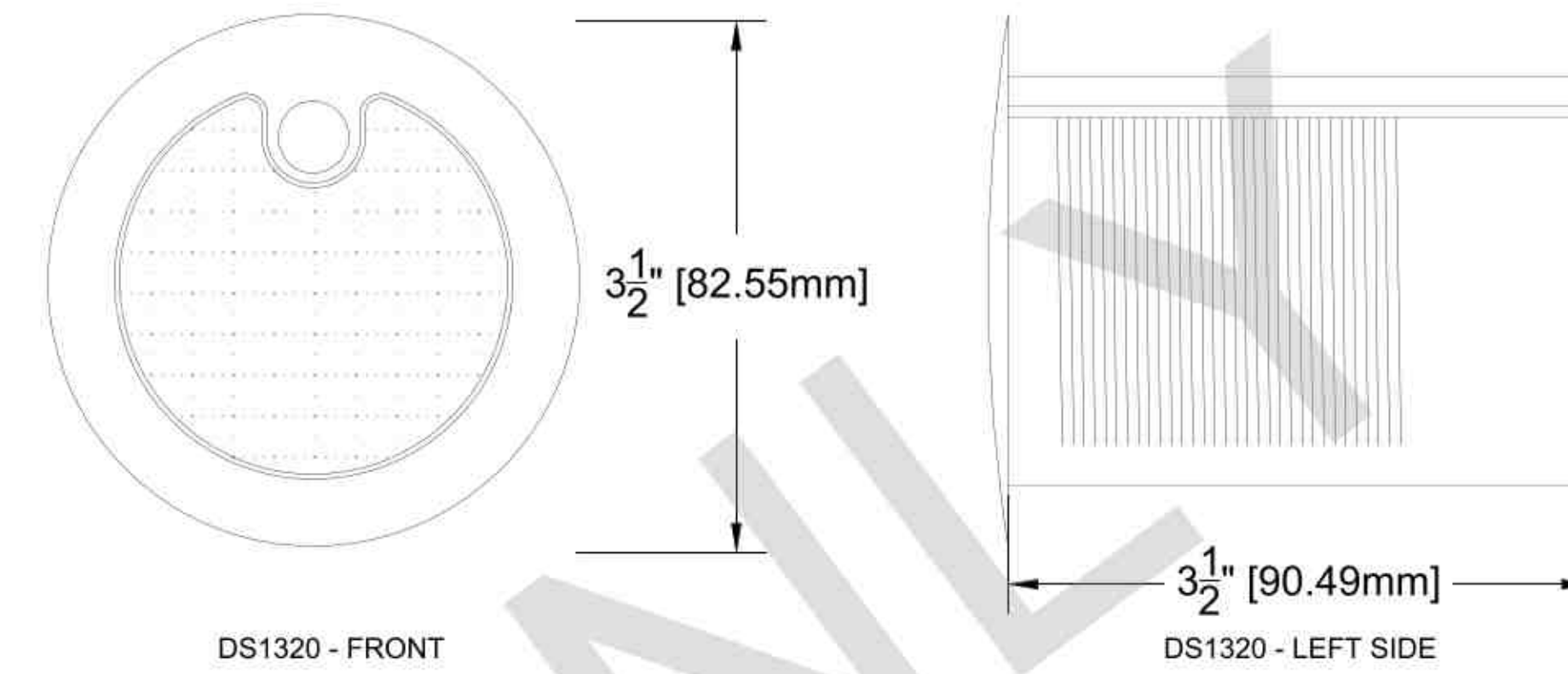
DIRECT FIELD EMITTER - FRONT

DIRECT FIELD EMITTER - LEFT SIDE



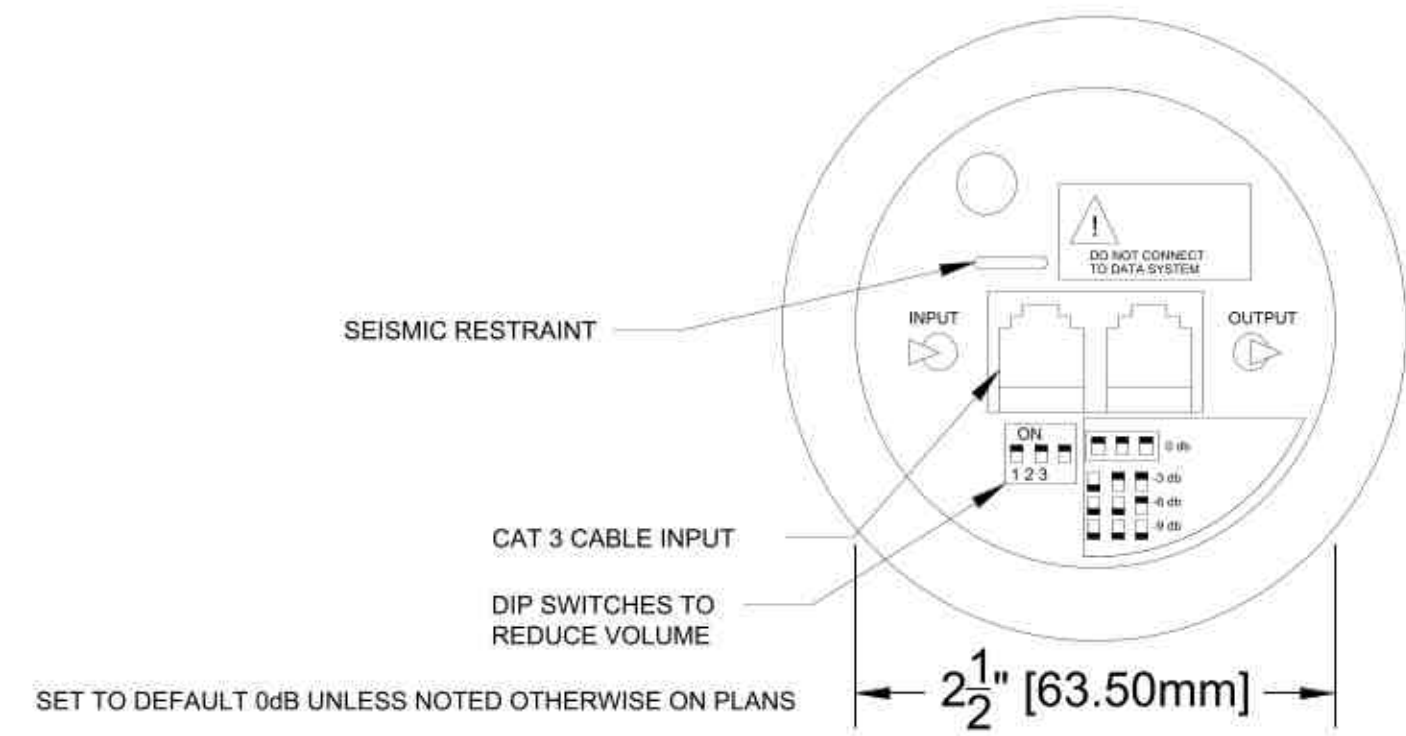
ACTIVE DIRECT FIELD EMITTER - FRONT

ACTIVE DIRECT FIELD EMITTER - LEFT SIDE

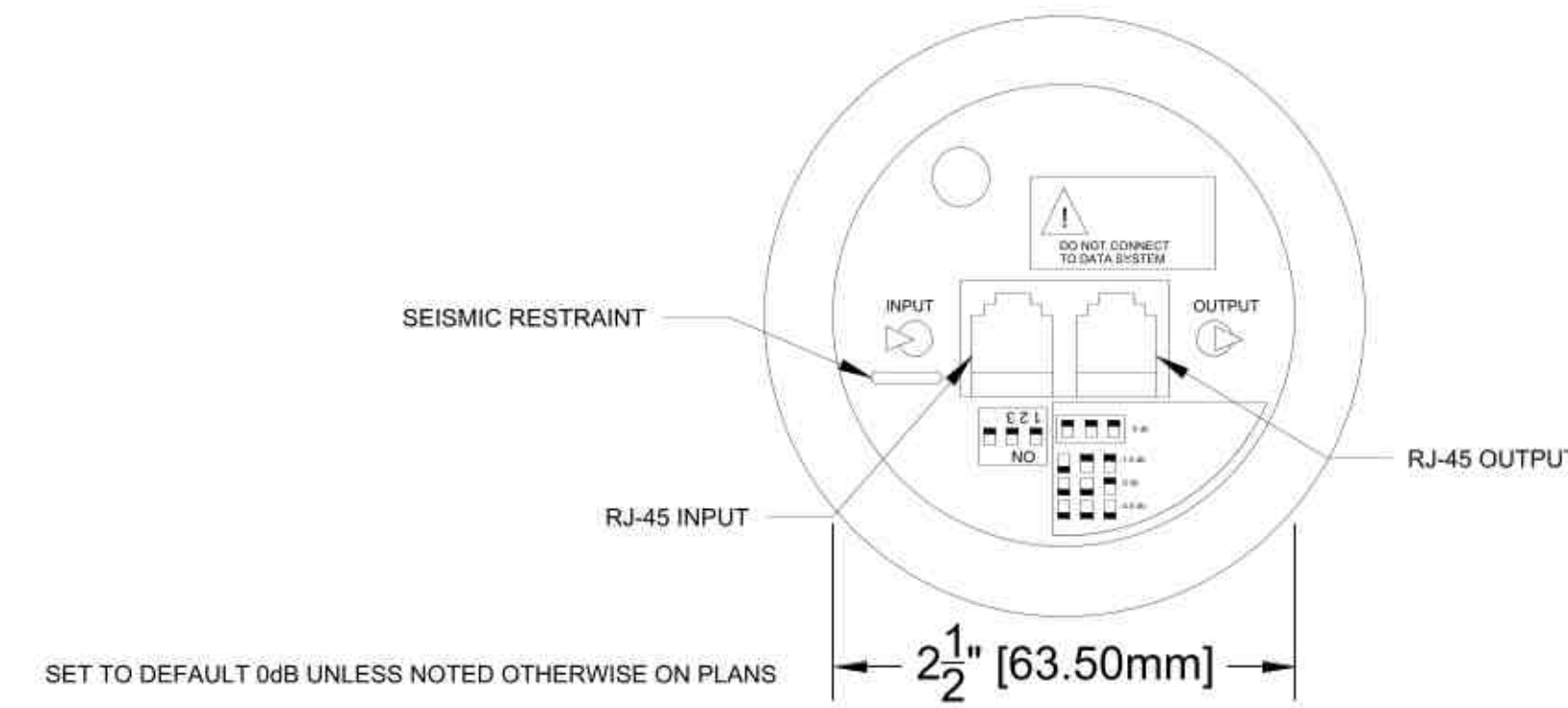


DS1320 - FRONT

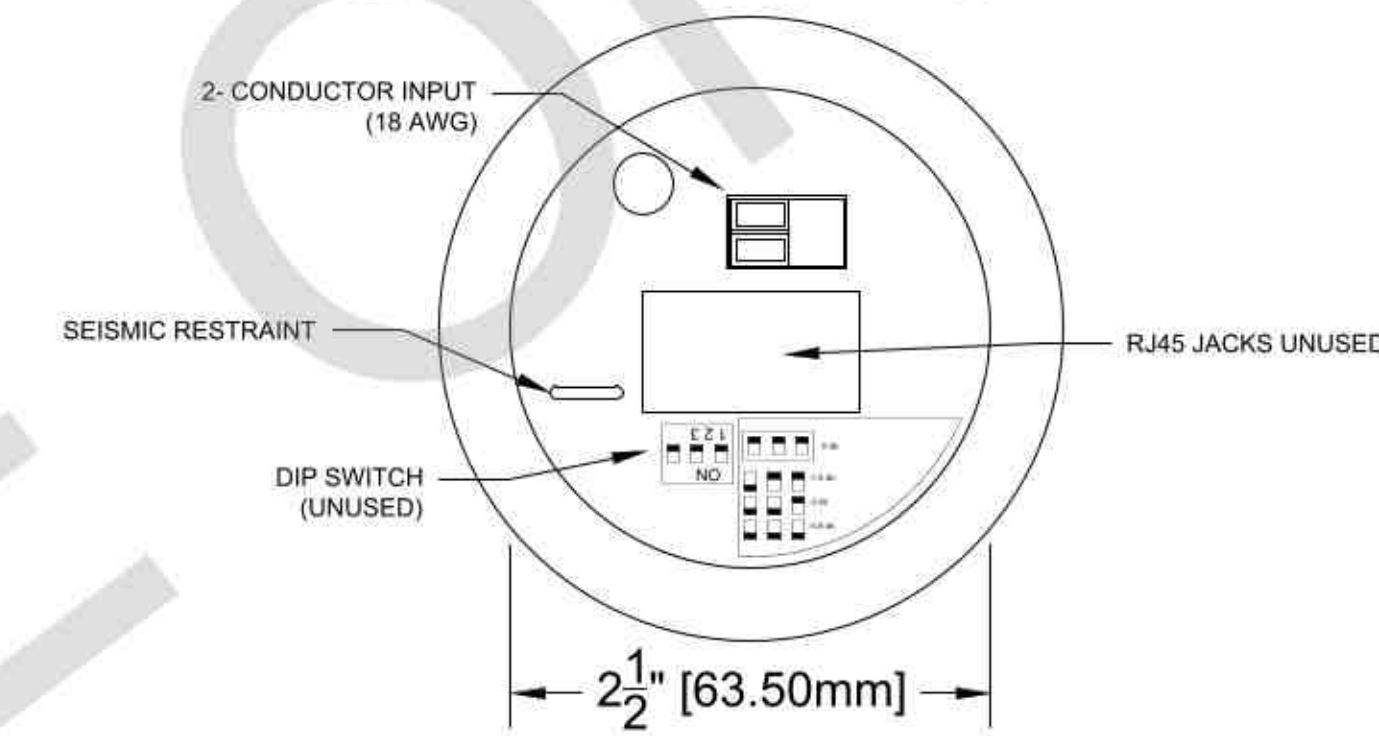
DS1320 - LEFT SIDE



DIRECT FIELD EMITTER - REAR



ACTIVE DIRECT FIELD EMITTER - REAR

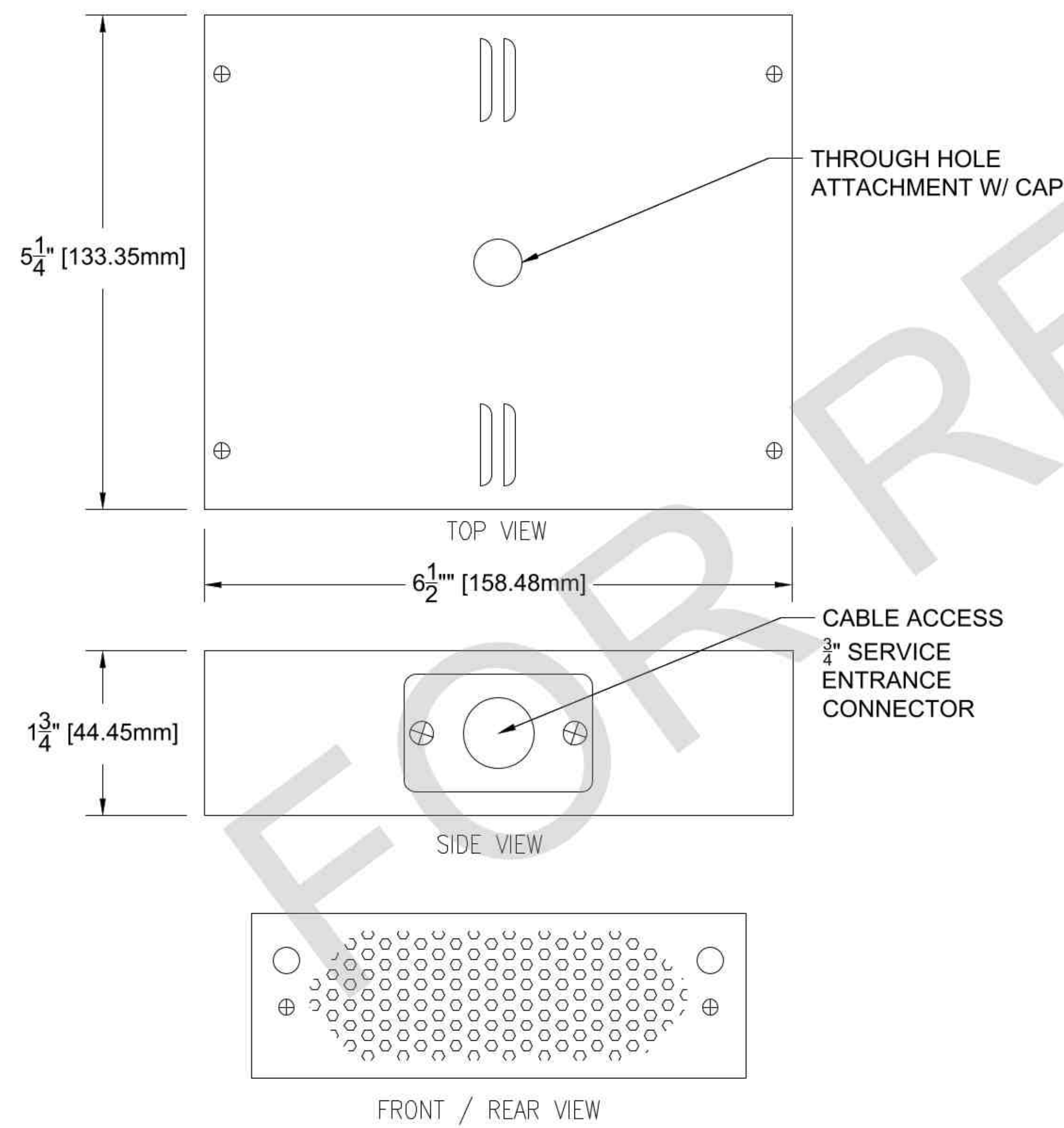


DS1320 - REAR

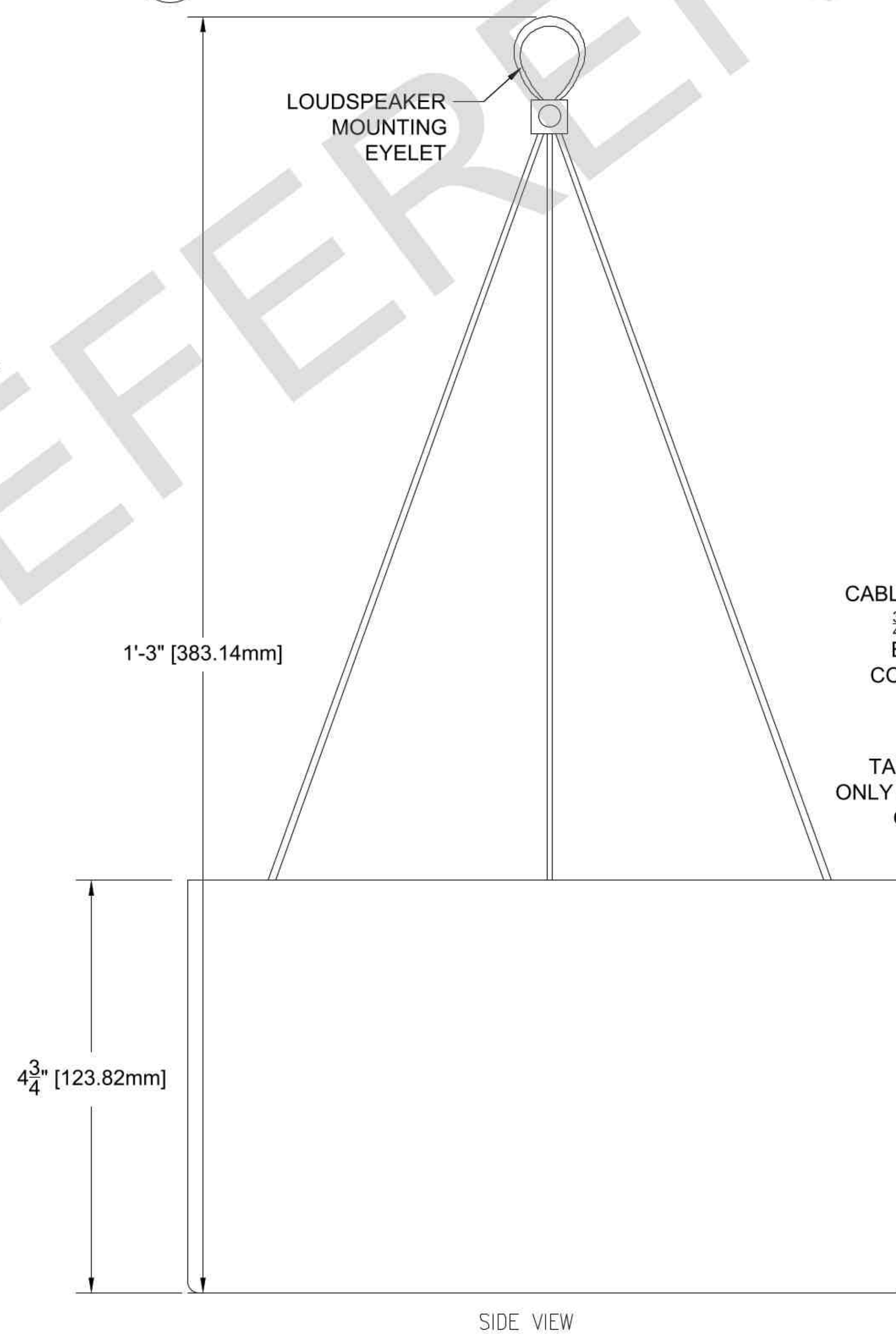
1 E-A-W Qt DIRECT FIELD EMITTER
 SMO.3 SCALE: 1:1

2 E-P-W Qt ACTIVE DIRECT FIELD EMITTER
 SMO.3 SCALE: 1:1

3 DS1320 DIRECT FIELD DIRECT FIELD EMITTER
 SMO.3 SCALE: 1:1

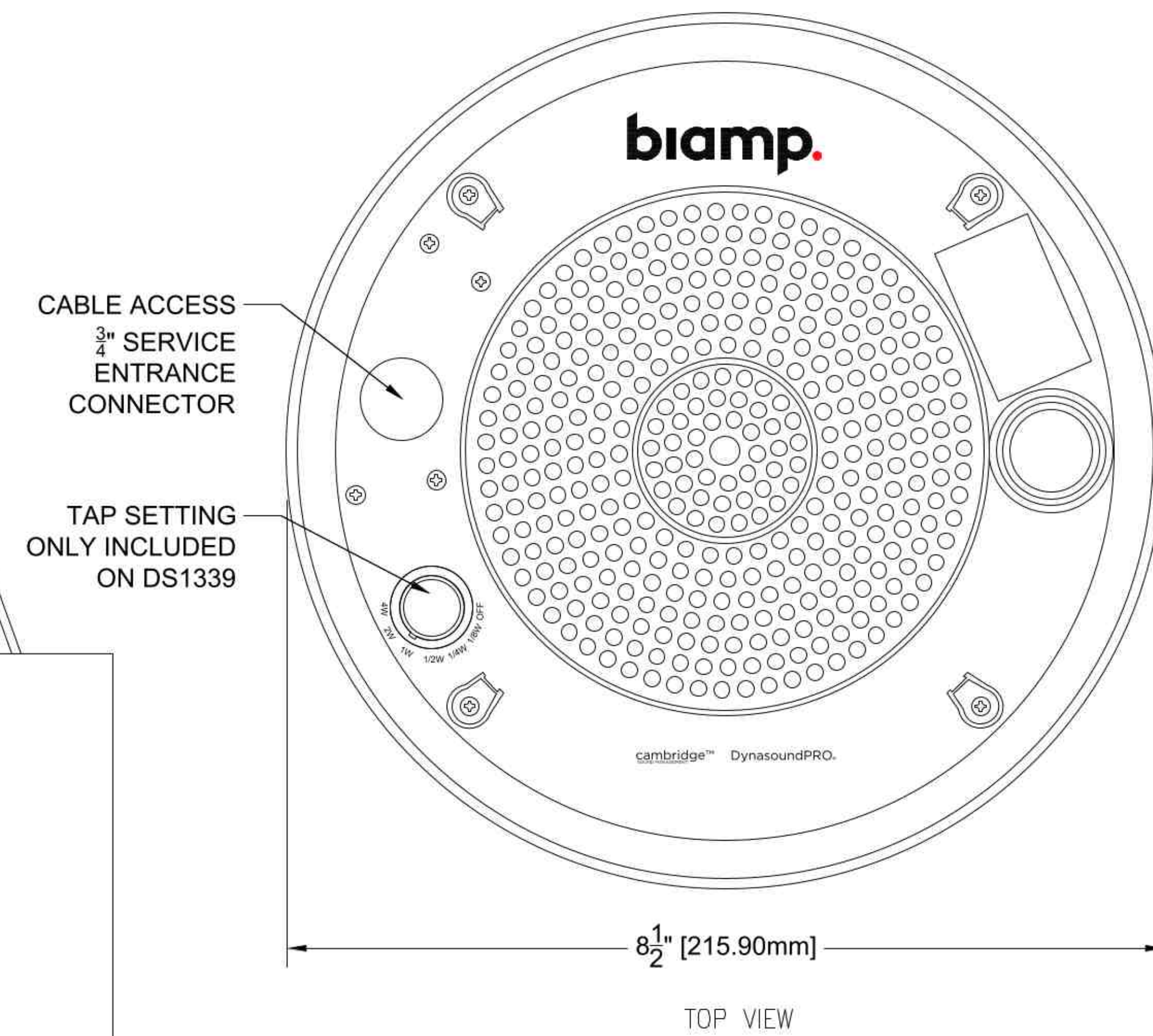


4 DS1398 SOUND MASKING LOUDSPEAKER DETAILS
 SMO.3 NOTE: SCALE 1/4" = 1"



SIDE VIEW

5 DS1339/DS1357 SOUND MASKING INDIRECT LOUDSPEAKER DETAILS
 SMO.3 NOTE: SCALE 1/4" = 1"



TOP VIEW

UTILIZE MODEL DS1357 (8Ω) WITH DIRECT LOUDSPEAKER CONNECTIONS Qt X 800.

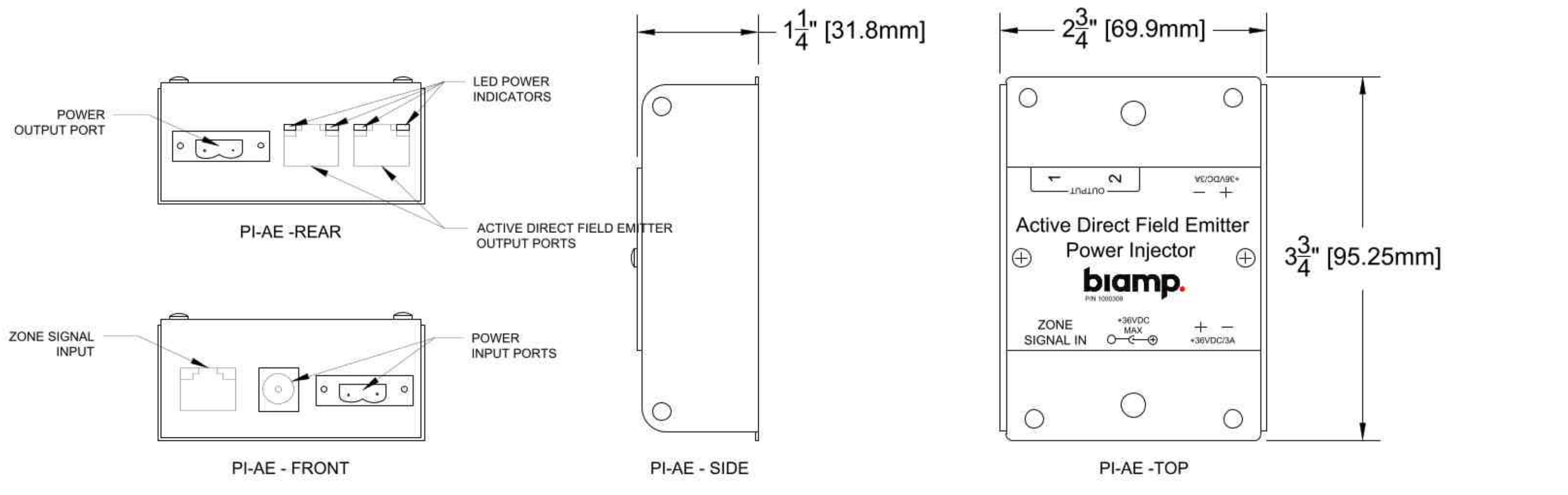
UTILIZE MODEL DS1339 (70V) WITH LG22 AMPLIFIER CONNECTIONS FROM Qt X 805

PROJECT NAME:

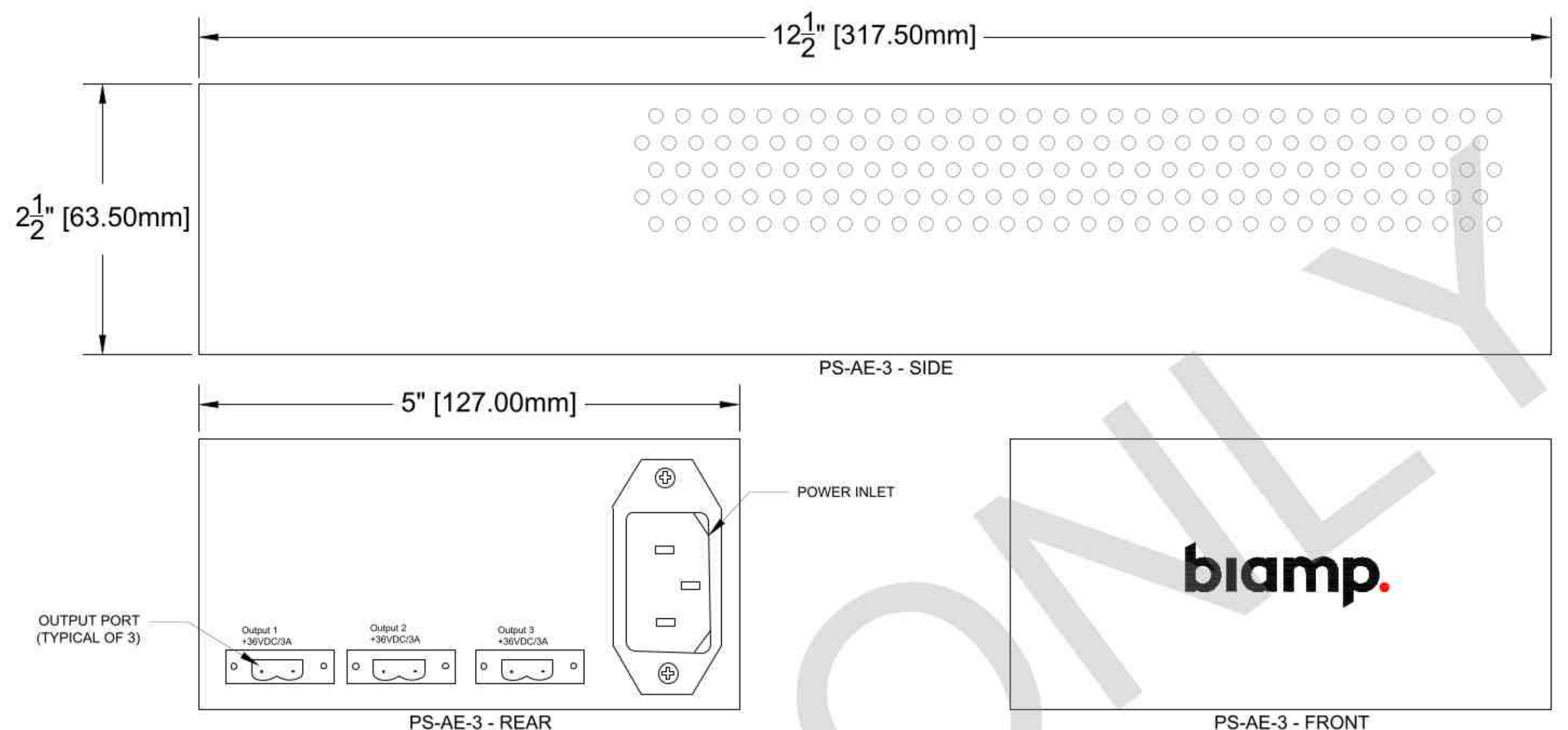
PRODUCT DETAILS

SOUND MASKING

SHEET NO.



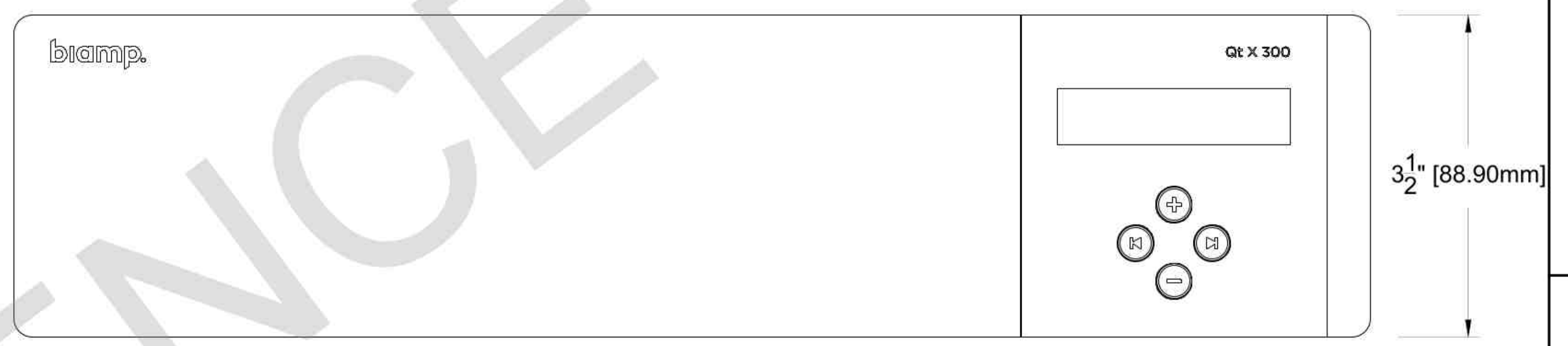
1 PI-AE POWER INJECTOR
SMD.4 SCALE: 1:1



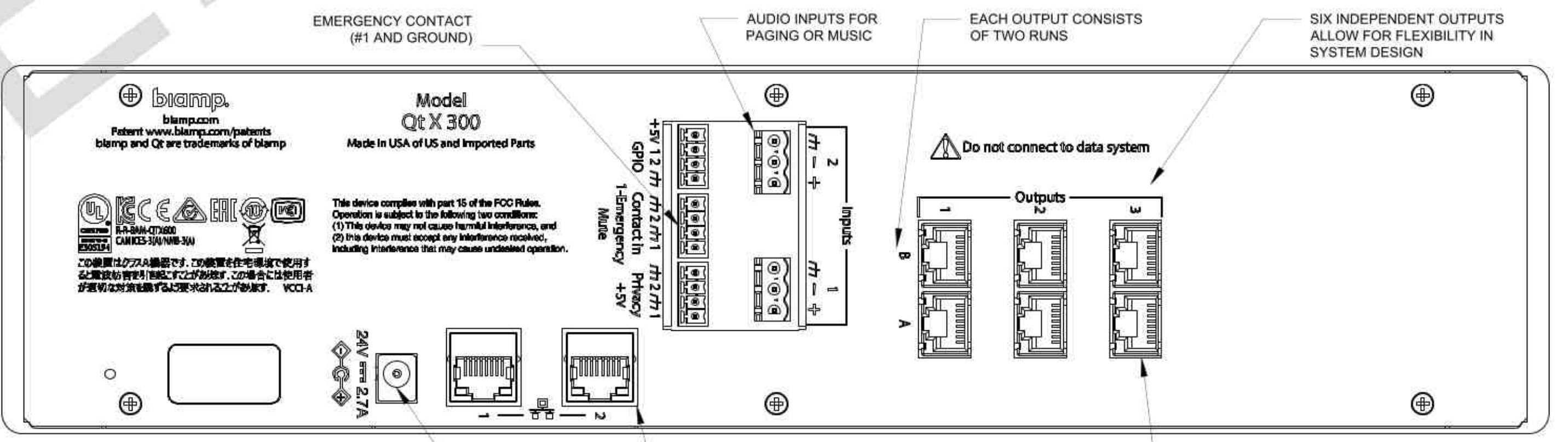
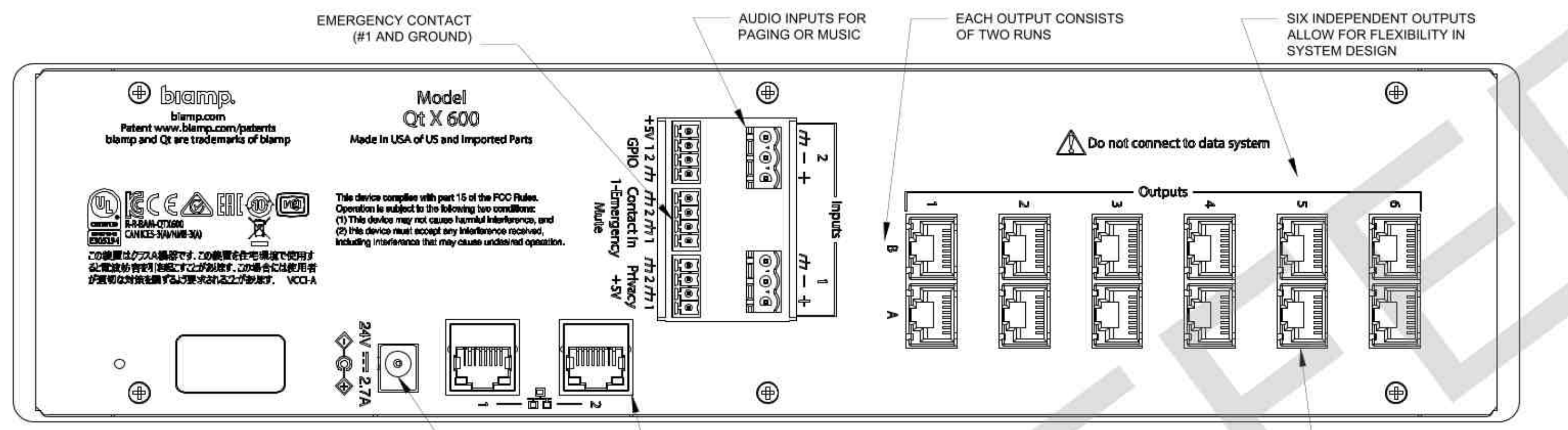
2 PS-AE-3 POWER SUPPLY
SMD.4 SCALE: 1:1



3 Qt X 600 CONTROL MODULE
SMD.4 SCALE: 1:1



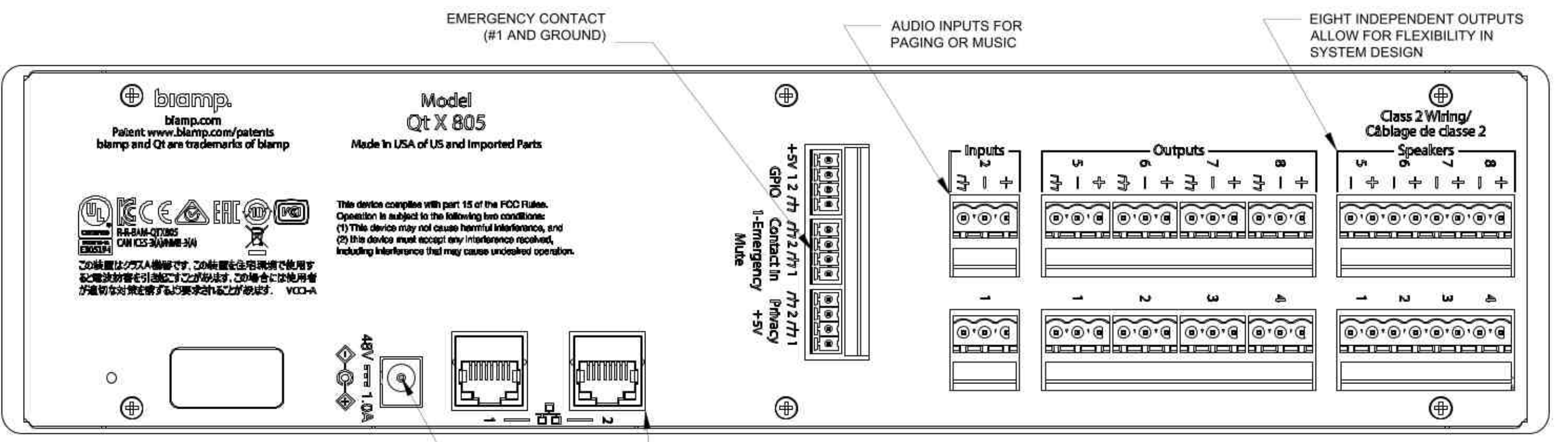
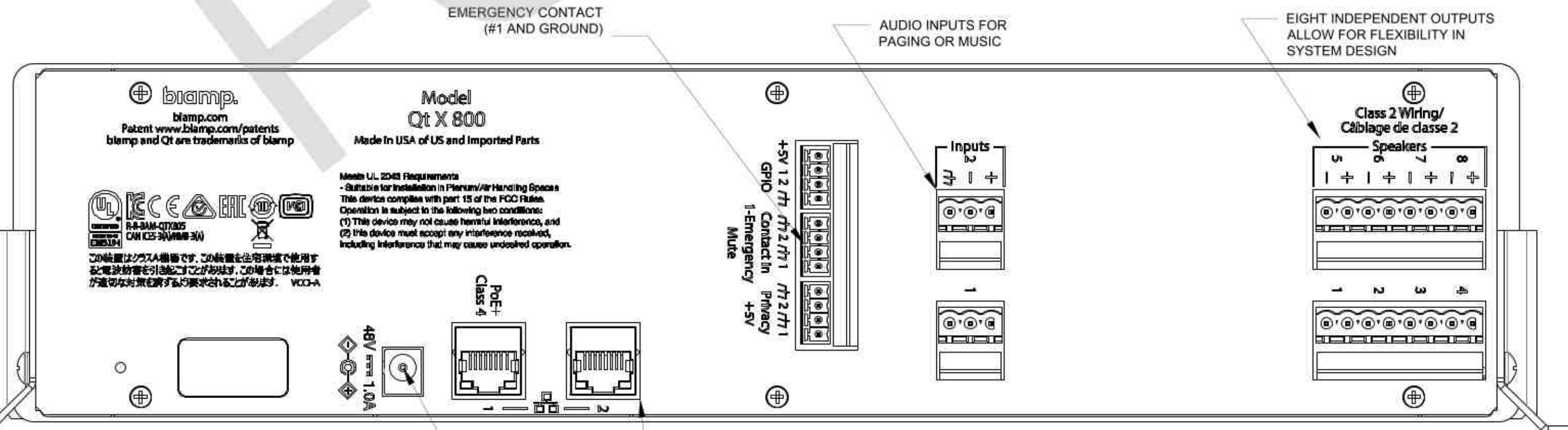
4 Qt X 300 CONTROL MODULE
SMD.4 SCALE: 1:1



5 Qt X 800 CONTROL MODULE
SMD.4 SCALE: 1:1



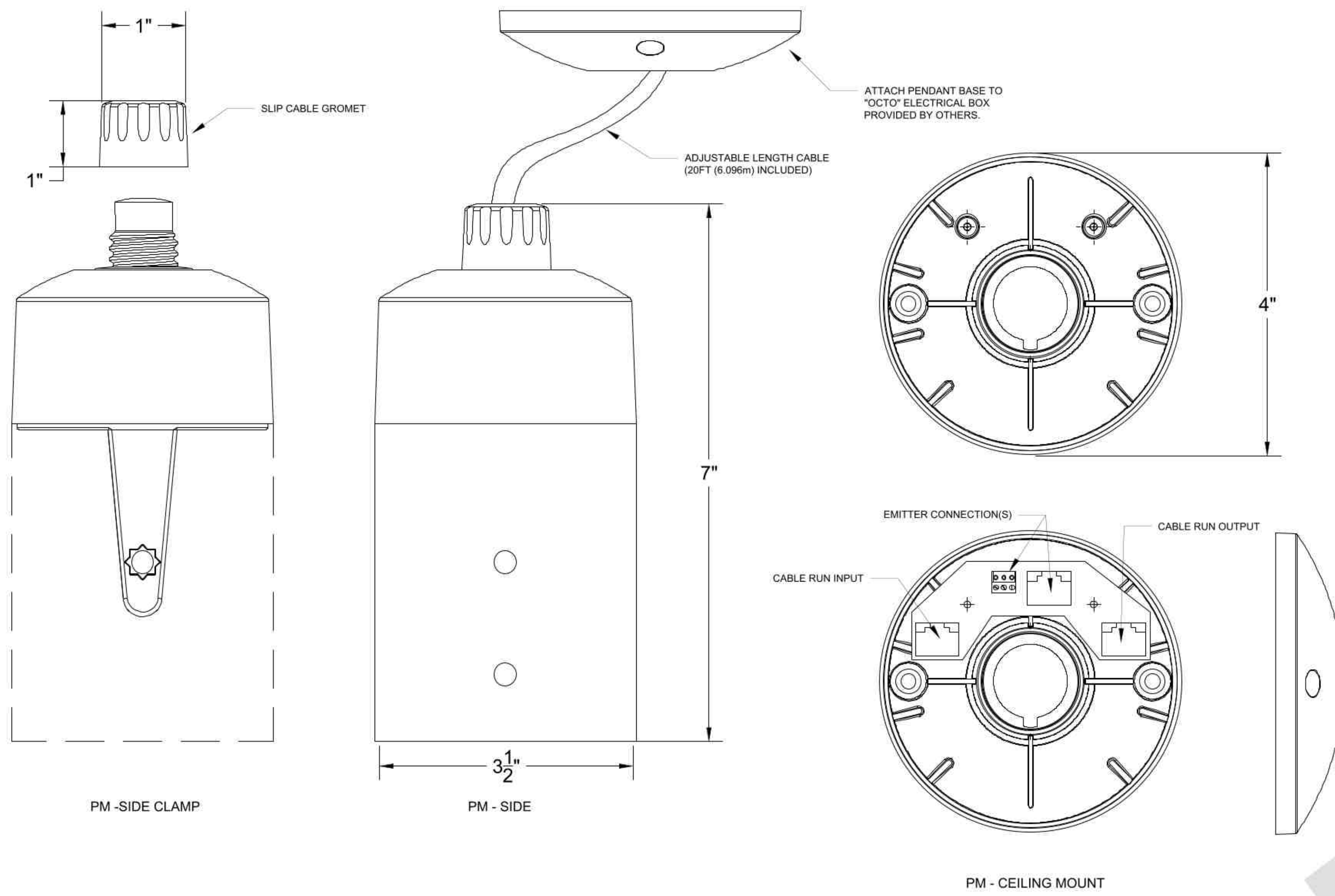
6 Qt X 805 CONTROL MODULE
SMD.4 SCALE: 1:1



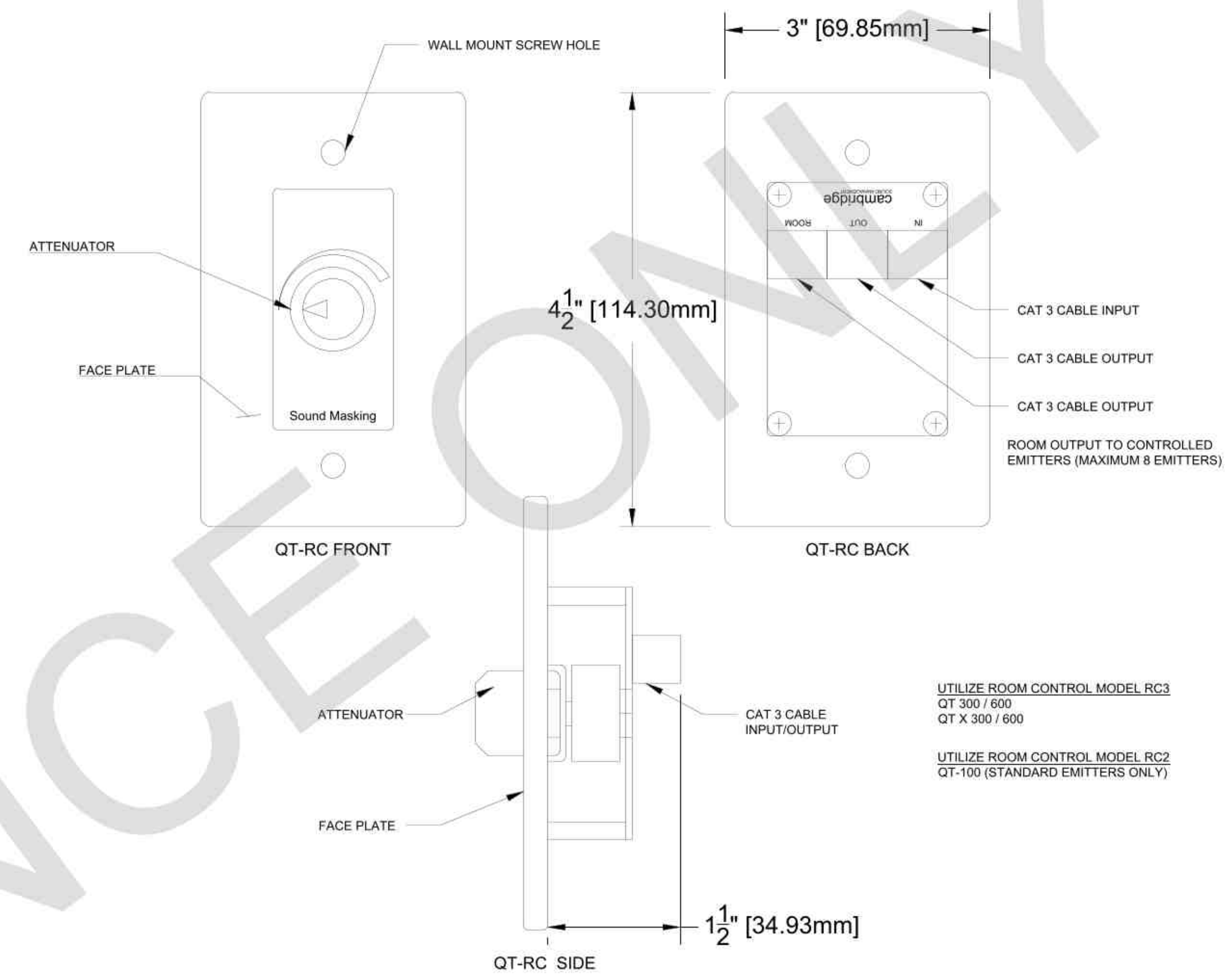
PROJECT NAME:

**PRODUCT MOUNTING
 DETAILS**

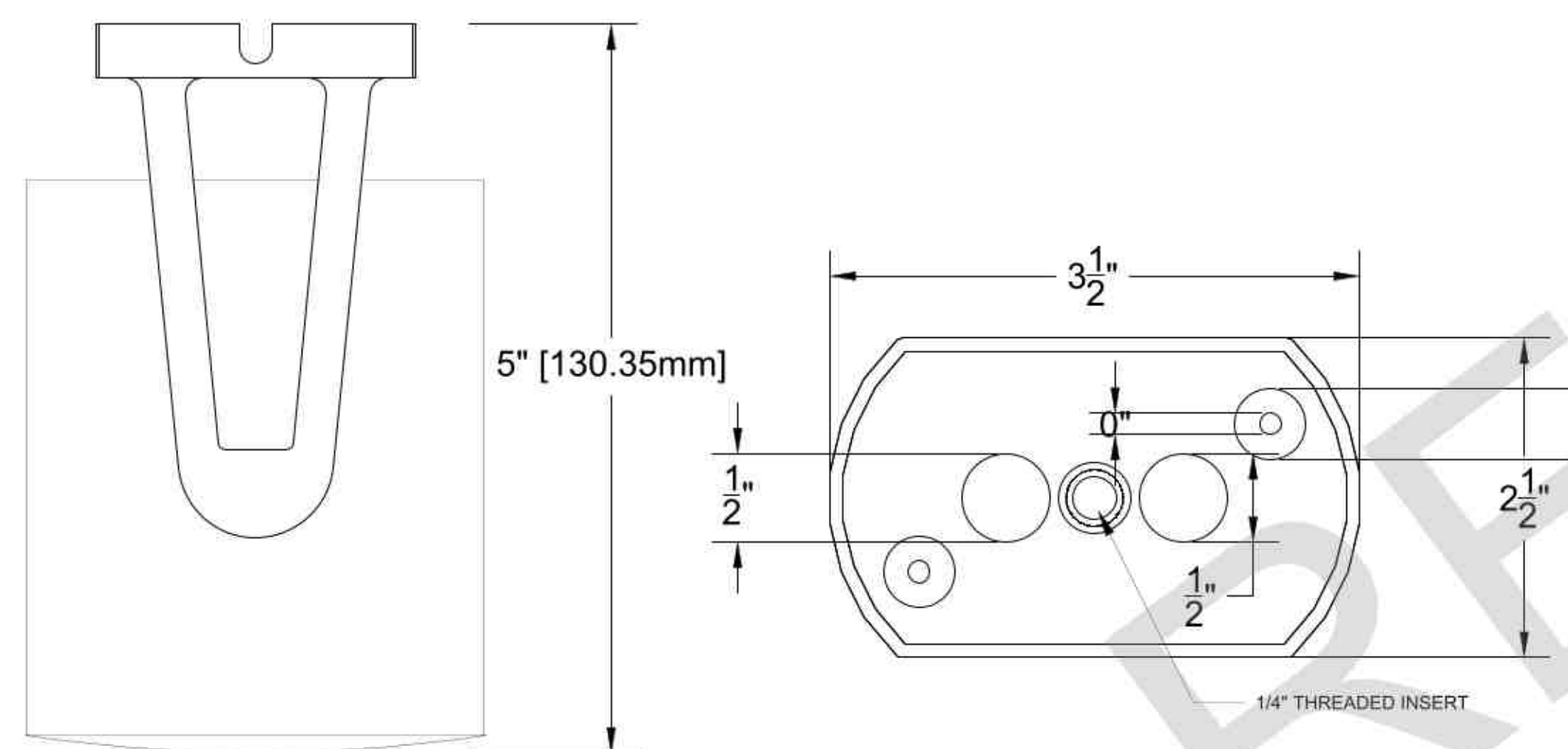
SOUND MASKING



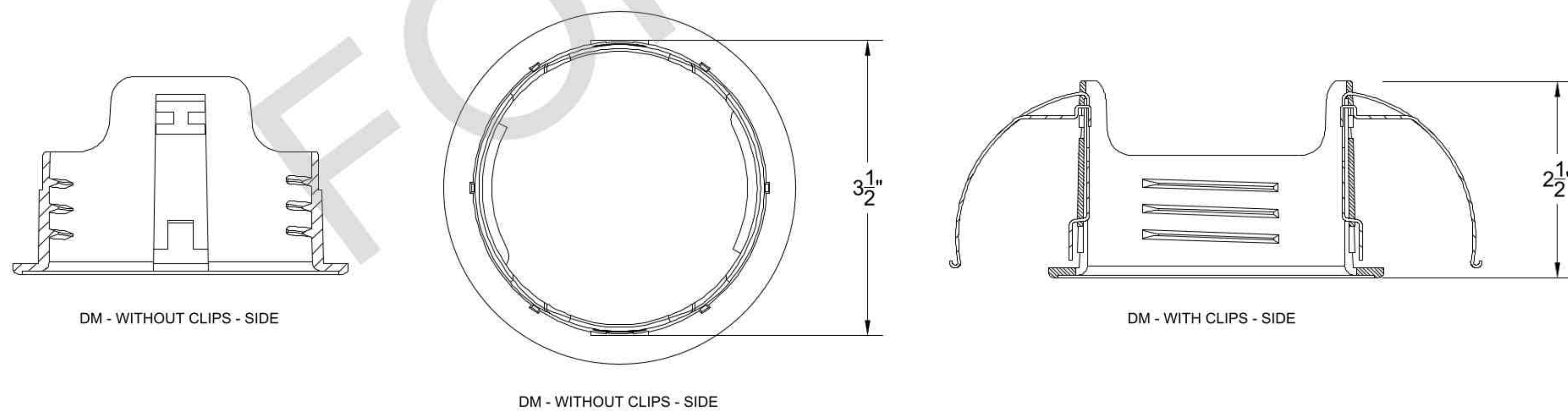
1 PM - PENDANT MOUNT
 SM0.5 SCALE: 1:2



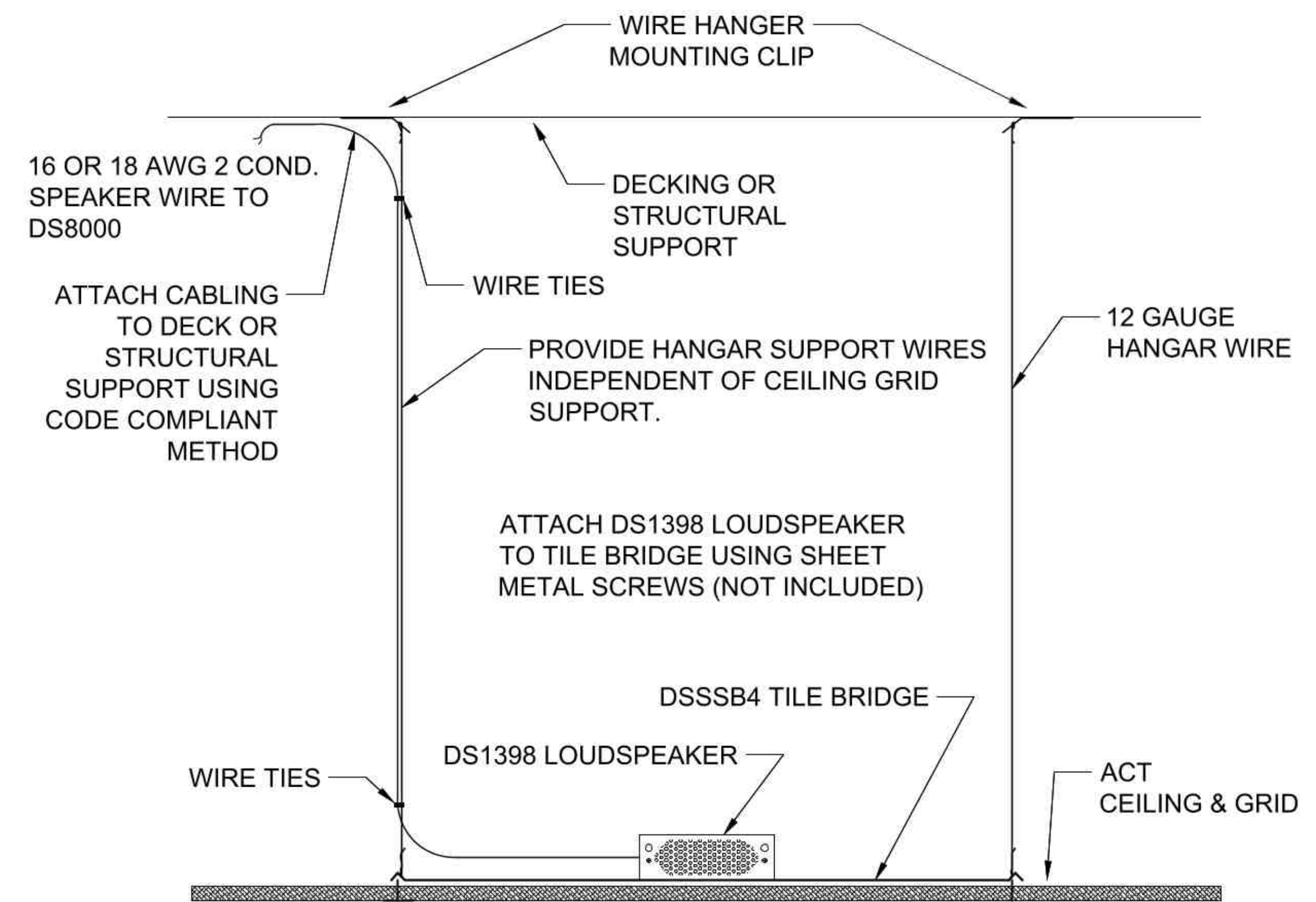
4 Qt ROOM CONTROL
 SM0.2 SCALE: 1:1



2 Qt UNIVERSAL BRACKET AE
 SM0.5 SCALE: 1:2



3 DM - DRYWALL MOUNT
 SM0.5 SCALE: 1:2



5 DS1398 T-BAR LOUDSPEAKER MOUNTING DETAILS
 SM0.5 NOTE: SCALE 1/4" = 1"

SHEET NO.

PROJECT NAME:

**TRS
 FLOOR 1
 SPRINGFIELD, IL**



SOUND MASKING DESIGN

EXISTING DYN
 2013 PF

- GENERAL NOTES**
1. SPEAKER LOCATIONS ARE APPROXIMATE, WITH FINAL LOCATIONS TO BE COORDINATED IN THE FIELD.
 2. EMITTERS / SPEAKERS SHALL NOT DEVIATE MORE THAN 2' IN ANY DIRECTION FROM THE ORIGINAL LOCATION.
 3. EMITTERS / SPEAKERS SHALL BE NO CLOSER THAN 2' TO ANY OBSTRUCTION, INCLUDING WALLS.
 4. HEAD END EQUIPMENT LOCATION IS SHOWN AS SUGGESTED AND MAY BE RELOCATED WITHIN LIMITED RANGE.
 5. REVIEW COVER SHEETS AND PRODUCT DOCUMENTATION TO UNDERSTAND CABLING TYPES AND DISTANCE LIMITATIONS FOR EACH EMITTER/SPEAKER TYPE.
 6. LAYOUT CREATED BASED ON INFORMATION PROVIDED. FINAL LAYOUT AND BOM IS THE RESPONSIBILITY OF THE INTEGRATOR.
 7. CONNECTIVITY DRAWINGS WILL BE EMAILED AT THE TIME OF ORDER AS PART OF THE "DRAWINGS" LINE ITEM.
 8. TAPS SHOULD BE SET AT 0 dB FOR EMITTERS AND ONE (1) WATT FOR SPEAKERS, UNLESS NOTED OTHERWISE.
 9. TO BE INSTALLED PER LOCAL CODE REQUIREMENTS.
 10. REFER TO APPLICABLE MOUNTING DETAILS ON COVER SHEETS, OTHERWISE CONTACT DESIGN ENGINEER OR FIELD SALES ENGINEER FOR QUESTIONS.

- PROJECT NOTES**
1. DESIGN BASED ON 9'-6" MINERAL TILE
 2. HEAD-END LOCATION TBD

REVISIONS

REV #	DATE
1	1/20/2023
2	
3	
4	

DRAWN BY: **BM** APPROVED BY: **XX**

SCALE: **1/8" = 1'-0"** DATE: **5-Apr-22**

PROJECT NUMBER: **PRJ056613**

SHEET NO.

SM1.0

EQUIPMENT LEGEND

- | | | | |
|---------------|---------------------|---------|-----------------------|
| QT-MOD | QTPRO CONTROLLER | DS3002 | 70V GENERATOR |
| PS-AE-3 | POWER SUPPLY | DS3008 | 70V GENERATOR |
| QTXMOD(X) S/N | QT X SERIES HEADEND | DSL G22 | 70V AMPLIFIER |
| PI-AE | POWER INJECTOR | DSRMP-X | 70V ATTENUATOR |
| | OUTPUT BOUNDARY | | VIRTUAL ZONE BOUNDARY |

SPEAKER LEGEND

- PORT NUMBER FOR APPLICABLE SPEAKER CONTROLLERS
- ADDITIONAL MOUNTING HARDWARE, AS REQUIRED:
 UB - UNIVERSAL BRACKET
 PM - PENDANT MOUNT
 DM - DRYWALL MOUNT
- SPEAKER TYPE:
 # - SEE SPEAKER KEY (1-8)
- SPEAKER CATEGORY:
 I - IN-DIRECT SOUND MASKING SPEAKER
 D - DIRECT SOUND MASKING SPEAKER
 P - PAGING SPEAKER

SPEAKER KEY

TYPE	MODEL	QUANTITY
1	DS1357W	86
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-

SPEAKER MOUNTS & ACCESSORIES

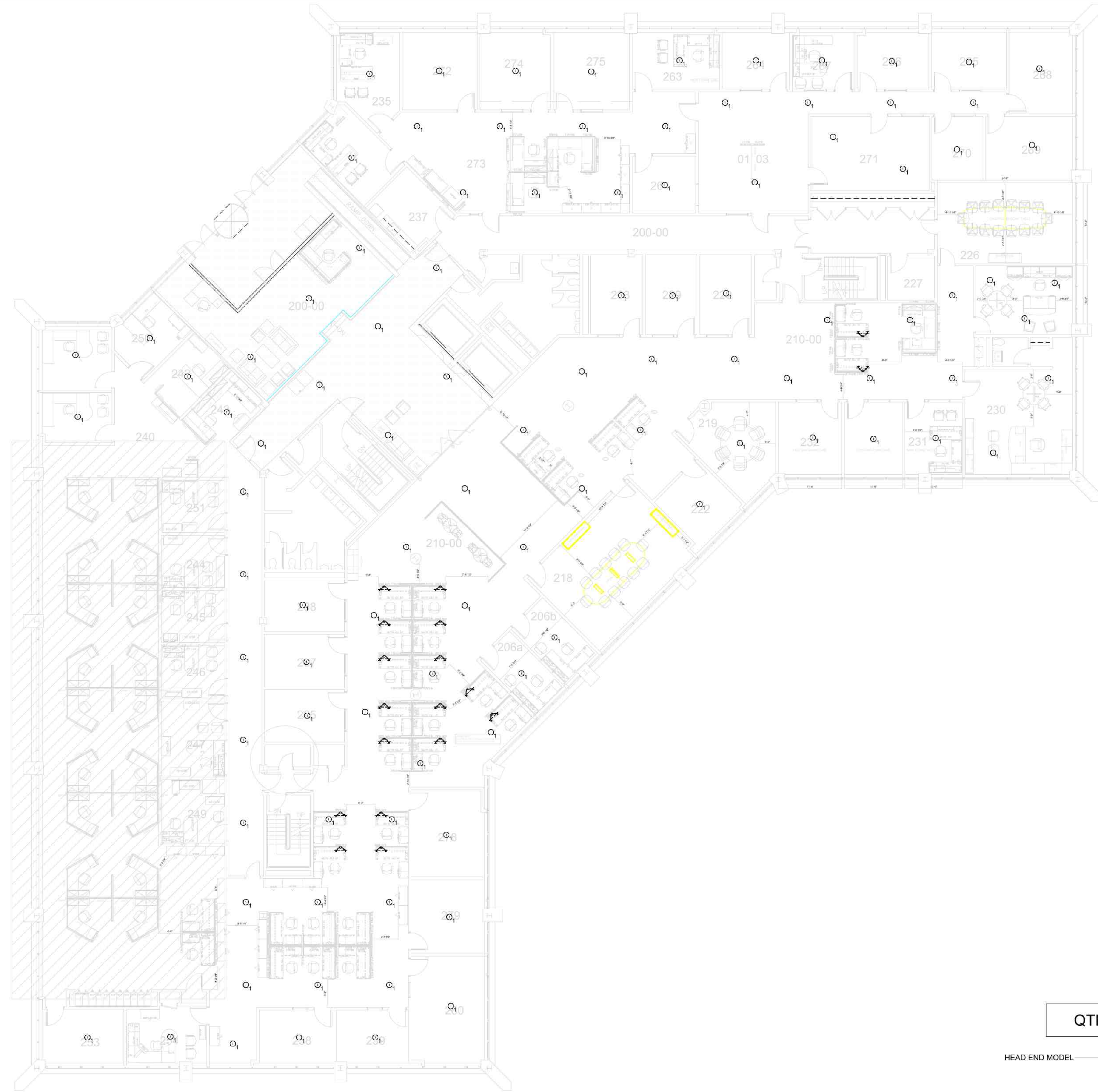
MODEL	QUANTITY	DESCRIPTION
AE-UB	0	UNIVERSAL BRACKET
AE-BB	0	BEAM BRACKET
DRB-1_KIT	0	DRYWALL ROUGH-IN MOUNT
PM	0	PENDANT MOUNT
CCM-1	0	CONDUIT MOUNT
HS-DW	0	HOLE SAW

HEAD-END EQUIPMENT

MODEL	QUANTITY	MODEL	QUANTITY
QT X 300	0	DS3002	0
QT X 600	0	DS3008	0
QT X 800	12	DSL G22	0
QT X 805	0	DSTS10POE	0
QT-100	0	DSPoE24	0
QT-300	0	DSPP24	0
QT-600	0	PI-AE	0
DS8000	0	PS-AE-3	0
RM-QT	0	QT-RC3	0

PROJECT NAME:

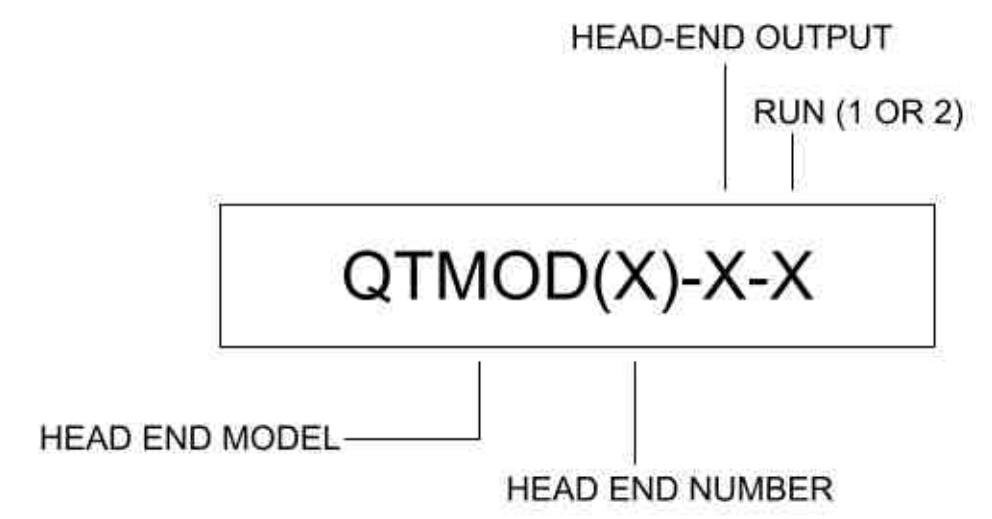
**TRS
 FLOOR 2
 SPRINGFIELD, IL**



SOUND MASKING DESIGN

- GENERAL NOTES**
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 10. REFER TO APPLICABLE MOUNTING DETAILS ON COVER SHEETS, OTHERWISE CONTACT DESIGN ENGINEER OR FIELD SALES ENGINEER FOR QUESTIONS.

- PROJECT NOTES**
1. DESIGN BASED ON 9'-6" MINERAL TILE
 2. HEAD-END LOCATION TBD



REVISIONS

REV #	DATE
1	1/20/2023
2	
3	
4	

DRAWN BY: **BM** APPROVED BY: **XX**
 SCALE: **1/8" = 1'-0"** DATE: **5-Apr-22**

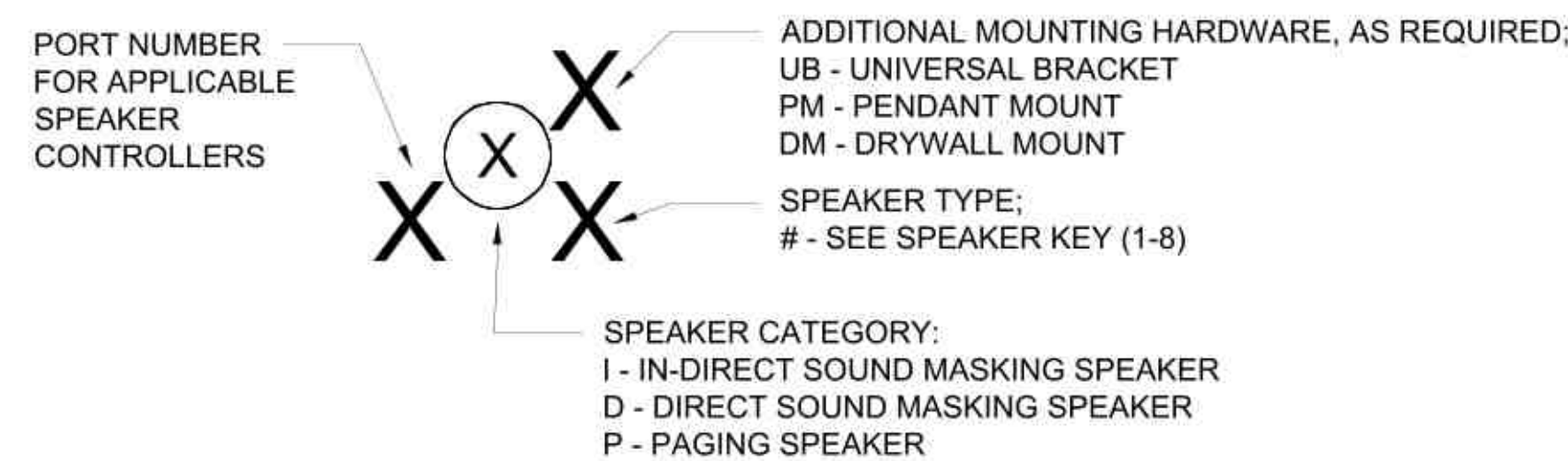
PROJECT NUMBER: **PRJ056613**
 SHEET NO.

SM2.0

EQUIPMENT LEGEND

QT-MOD	QTPRO CONTROLLER	X-X	SPEAKER CONTROLLER
PS-AE-3	POWER SUPPLY	DS3002	70V GENERATOR
QTXMOD(X) S/N	QT X SERIES HEADEND	DS3008	70V GENERATOR
PI-AE	POWER INJECTOR	DSL22	70V AMPLIFIER
———	OUTPUT BOUNDARY	DSRMP-X	70V ATTENUATOR
		- - -	VIRTUAL ZONE BOUNDARY

SPEAKER LEGEND



SPEAKER KEY

TYPE	MODEL	QUANTITY
1	DS1357W	102
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-

SPEAKER MOUNTS & ACCESSORIES

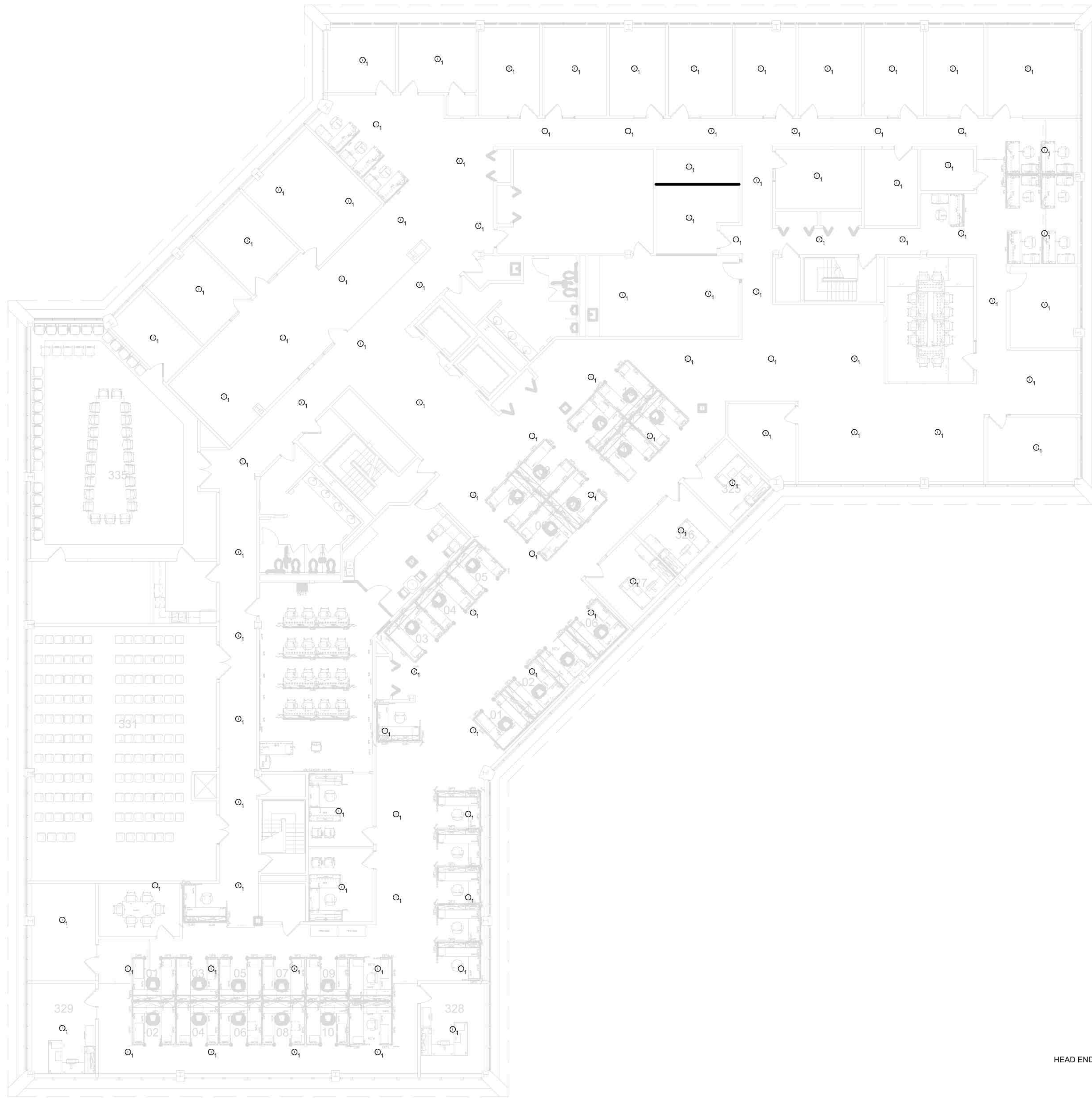
MODEL	QUANTITY	DESCRIPTION
AE-UB	0	UNIVERSAL BRACKET
AE-BB	0	BEAM BRACKET
DRB-1_KIT	0	DRYWALL ROUGH-IN MOUNT
PM	0	PENDANT MOUNT
CCM-1	0	CONDUIT MOUNT
HS-DW	0	HOLE SAW

HEAD-END EQUIPMENT

MODEL	QUANTITY	MODEL	QUANTITY
QT X 300	0	DS3002	0
QT X 600	0	DS3008	0
QT X 800	14	DSL22	0
QT X 805	0	DSTS10POE	0
QT-100	0	DSPoE24	0
QT-300	0	DSPP24	0
QT-600	0	PI-AE	0
DS8000	0	PS-AE-3	0
RM-QT	0	QT-RC3	0

PROJECT NAME:

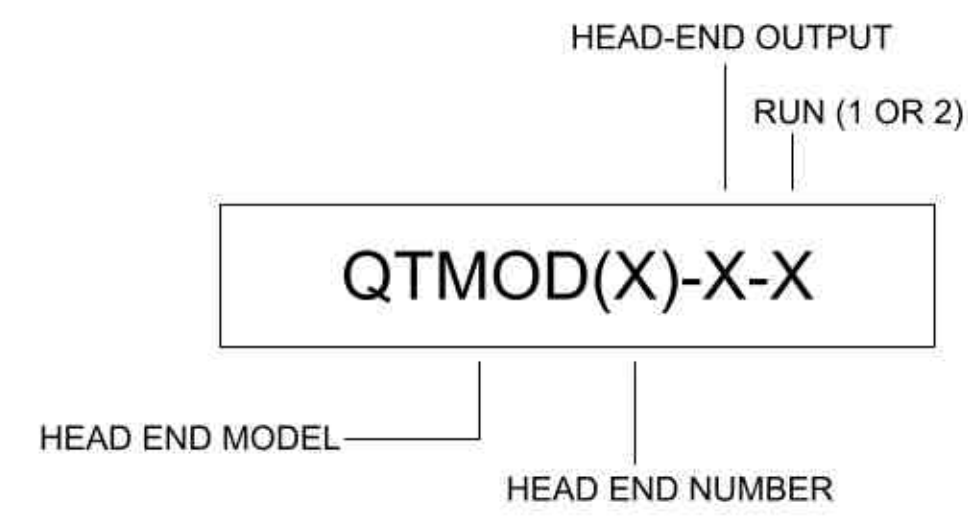
**TRS
 FLOOR 3
 SPRINGFIELD, IL**



SOUND MASKING DESIGN

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- PROJECT NOTES**
1. DESIGN BASED ON 9'-6" MINERAL TILE
 2. HEAD-END LOCATION TBD



REVISIONS

REV #	DATE
1	1/20/2023
2	
3	
4	

DRAWN BY: **BM** APPROVED BY: **XX**
 SCALE: **1/8" = 1'-0"** DATE: **5-Apr-22**

PROJECT NUMBER: **PRJ056613**
 SHEET NO.

SM3.0

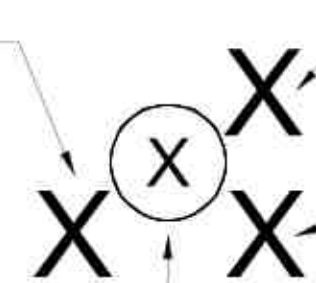
EQUIPMENT LEGEND

- QT-MOD QTPRO CONTROLLER
- PS-AE-3 POWER SUPPLY
- QT(X)MOD(X) S/N: QT X SERIES HEADEND
- PI-AE POWER INJECTOR
- OUTPUT BOUNDARY

- (X) SPEAKER CONTROLLER
- DS3002 70V GENERATOR
- DS3008 70V GENERATOR
- DSL22 70V AMPLIFIER
- DSRMP-X 70V ATTENUATOR
- VIRTUAL ZONE BOUNDARY

SPEAKER LEGEND

PORT NUMBER FOR APPLICABLE SPEAKER CONTROLLERS



- ADDITIONAL MOUNTING HARDWARE, AS REQUIRED; UB - UNIVERSAL BRACKET PM - PENDANT MOUNT DM - DRYWALL MOUNT
- SPEAKER TYPE: # - SEE SPEAKER KEY (1-8)
- SPEAKER CATEGORY: I - IN-DIRECT SOUND MASKING SPEAKER D - DIRECT SOUND MASKING SPEAKER P - PAGING SPEAKER

SPEAKER KEY

TYPE	MODEL	QUANTITY
1	DS1357W	98
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-

SPEAKER MOUNTS & ACCESSORIES

MODEL	QUANTITY	DESCRIPTION
AE-UB	0	UNIVERSAL BRACKET
AE-BB	0	BEAM BRACKET
DRB-1_KIT	0	DRYWALL ROUGH-IN MOUNT
PM	0	PENDANT MOUNT
CCM-1	0	CONDUIT MOUNT
HS-DW	0	HOLE SAW

HEAD-END EQUIPMENT

MODEL	QUANTITY	MODEL	QUANTITY
QT X 300	0	DS3002	0
QT X 600	0	DS3008	0
QT X 800	14	DSL22	0
QT X 805	0	DSTS10POE	0
QT-100	0	DSPoE24	1
QT-300	0	DSPP24	1
QT-600	0	PI-AE	0
DS8000	0	PS-AE-3	0
RM-QT	0	QT-RC3	0