

**Peace Lutheran Church  
Hartford, Wisconsin  
Acoustical Consultation Submission**

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Scott R. Riedel & Associates, Ltd.

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Key Contact Persons: Scott R. Riedel: Acoustician, Architectural-Acoustic Design Consultant, Organ Consultant; [riedel@riedelassociates.com](mailto:riedel@riedelassociates.com)

Craig R. Schaefer: Acoustical Engineer, Testing Engineer, Acoustical Project Designer; [schaefer@riedelassociates.com](mailto:schaefer@riedelassociates.com)

**Firm Background**

Scott R. Riedel & Associates, Ltd. began as a sole proprietorship by Mr. Riedel in the late 1970's. Early customers included Lutheran and Catholic churches in Wisconsin desiring organ selection and purchase consultation. Mr. Riedel also offered room acoustic consultation for worship spaces primarily in Wisconsin and northern Illinois. The series of educational articles on worship acoustic topics that Mr. Riedel wrote for *The Diapason* (Organ & Church Music Magazine) soon brought national recognition, bringing clients of many denominations from east to west coasts. The company grew over time; sound system design and organ tuning were added to the services offered, and the staff was expanded to include additional acousticians, system designers, organ technicians, as well as office management and architectural associates. The organization was incorporated in the State of Wisconsin during the 1990's. Today the original church organ and sacred worship space acoustical consultations are offered, along with sound and video system design, a wide scope of organ maintenance, as well as residential, commercial, industrial, institutional and educational consultation on all matters related to sound quality, noise control, systems and sound testing.

Consultation Services offered include:

- Acoustical Design for the Architectural Space
- Music Ministry Area Design
- Organ Space and Site Preparation Design
- Comprehensive Organ Consultation
- Sound System Design
- Sound System Evaluation and Training
- Video System Design
- Noise Testing and Control

### **Description of Project Scope of Services, Philosophy, Methodology and Goals**

#### **Scope of Services**

The scope of services offered within this proposal includes:

- A. Room Acoustic Design: Consultation on the design, location and selection of materials, finishes and details of architectural features that affect and define the worship space's acoustic environment, primarily for the purpose of facilitating the spoken and sung portions of the church's liturgy.
- B. Noise and Sound Isolation Control: Recommendations for achieving desirable background noise levels from HVAC and other mechanical systems as well as attenuation of unwanted noise from interior and exterior sources, as may be appropriate or necessary.
- C. Construction: Shop drawing and product data review/coordination, informational request responses, and change order reviews/recommendations are included as may be desired or appropriate.
- D. Coordination meetings/conferences with the architectural design team, contractors, and church committees are included.
- E. On site acoustical feature and treatment installation supervision, inspections, as well as testing are included as may be desired or appropriate.

#### **Acoustics Work Plan**

Our approach to acoustical design for worship includes an understanding that speech (of lessons, sermon, prayers, etc.), music (typically of organ, instruments, choirs, praise bands, soloists, etc.), and participation by the congregation (in hymns, psalms, and sung/spoken liturgy) must all find desirable acoustical support in the room. Our goal is to develop an acoustical environment that will enliven worship by encouraging the dynamic expression of the sounds of speech and music so the entire assembly can hear and celebrate. This desirable acoustical environment includes an appropriate reverberation period and clear, even, intelligible sound distribution throughout the space. It is free of echoes and other unwanted sound reflections, and does not have noise intruding from adjoining interior or exterior sources or from building mechanical systems.

Room Acoustic Consultation typically involves work with the design team and church leaders to determine the desired conditions for the worship space. This cooperative endeavor generates options, design parameters, recommendations, and specifications. Our work with the design team includes attention to the geometric form of the space, recommendations for the selection of materials, surface finishes, and the location/layout of key elements. We approach a design project from a holistic perspective; we understand that acoustical matters must fit with all the goals and needs of the church, while also accommodating the varied uses of the worship space. The process is typically one of survey, analysis, review, documentation, recommendation, and specification.

### Outline of Consultation Processes

#### Room Acoustics

The consultation process may include, but is not limited to:

- a. On-site scientific testing and measurement of current acoustic environment
- b. Survey and discussion of your unique acoustical requirements
- c. Dialogue with project team concerning various ideas, options, acoustical requirements, and solution scenarios.
- d. EASE (Electro Acoustic Simulation for Engineers) Computer modeling of the worship space, incorporating acoustic test data/current conditions and proposed designs for analysis and to facilitate development of improvement recommendations and specifications.
- e. Consideration of the HVAC (Heating, Ventilation & Air Conditioning) system to evaluate compliance with minimum NC (Noise Criteria) specifications.
- f. Complete development and refinement of recommendations, specifications, and CAD (Computer Aided) drawing details of acoustic solution design features.
- g. Development of a formal written report document complete with comprehensive rationale, specifications, treatment descriptions, and a summary checklist.
- h. Presentation of report to client, committee and architects in person or via WebEx online meeting software and teleconference.
- i. Field verification, as necessary, to ensure that acoustical specifications are implemented correctly.

Information provided includes:

1. Scientific Design Documentation/data: Reverberation Period, Speech Intelligibility (ALCONS), Ambient Noise levels, Sound Projection/Distribution, Echo Reflections & Room Modes/Anomalies as may be appropriate or necessary
2. Room design scenario analysis and acoustic data and documentation
3. Submission of recommended acoustic design solutions, detailing, treatment options, specifications, and drawings as may be appropriate
4. Written Report with documentation

While our firm provides acoustical testing and design services for a wide range of functions and differing clients, our *specialty* throughout our history has been in the area of service for *Worship* environments. We have accomplished hundreds of worship space acoustical consultations for many and diverse religious groups and denominations, including all “main-line” Christian denominations, as well as Non-Denominational, Jewish, and Buddhist faith communities. Facilities under our consultation have included Parish Churches, Cathedrals, Seminary Chapels, Devotional Chapels, Temples, etc.

#### Primary Team Member Resumes

**Scott R. Riedel:** *President/ Acoustician/ Architectural-Acoustic Designer/ (Organ Consultant):* Mr. Riedel is a graduate of the University Of Wisconsin School Of Architecture and the Wisconsin Conservatory of Music. He is Organist-Choirmaster at Christ Church, Episcopal, Whitefish Bay, Wisconsin, and is a guest lecturer at Columbia College in Chicago, Illinois. He has served on many church music committees and boards, including the American Guild of Organists, The Royal School of Church Music, and The Association of Lutheran Musicians. He is a member of the British Institute of Organ Studies, the Acoustical Society of America, and the American Institute of Architects. Mr. Riedel’s publications include a column in the GIA Quarterly Magazine as Architectural and Acoustics reviewer, the booklet “Acoustics in the Worship Space” Published by Concordia Publishing House, as a series of articles in “The Diapason” magazine. He has also edited a special issue of *CrossAccent*, a journal published by the Association of Lutheran Church Musicians, which focused on church architecture, acoustics, and music. Mr. Riedel has presented lectures on worship space acoustics, organ design and purchase to the Association of Lutheran Church Musicians, National Association of Pastoral Musicians, American Guild of Organists (various chapters and regions), Wisconsin Evangelical Lutheran Synod, American Institute of Architects, The Acoustical Society of America-Wisconsin Chapter, and the Lectures in Church Music at Concordia University.

**Craig R. Schaefer:** *Associate Acoustician, Lead Acoustical Engineer /Head of Acoustical Testing/Modeling Services:* Craig’s specialties include acoustical testing & analysis, acoustical modeling, acoustical design, noise control engineering, technical writing, and AutoCAD. Craig has degrees in Architectural Science and Design from the University of Wisconsin-Milwaukee, as well as Masters Degrees in Architectural Sciences and Acoustic Science from the Rensselaer Polytechnic Institute in Troy, New York. He holds memberships in the American Institute of Architects (AIA) and the Acoustical Society of America (ASA). Craig is published in the Journal of the Acoustical Society of America, and has made presentations at the Society’s national conventions.

(Schaefer, continued)

Prior to joining the Riedel organization, Craig has worked in other Architectural, Engineering, and Interior Design firms. His musical experience includes membership in both church and professional choirs, as well as in the Milwaukee Symphony Chorus.

Craig's experience includes the following technical and theoretical systems:

- Geometric Acoustics
- Psychoacoustics
- Stagecraft and Theater Design
- Coupled Space Modeling
- 3D Modeling and CAD software

**David L. Beyer:** *Vice President/Head Organ Technician:* Mr. Beyer is the principal organ technician at Scott R. Riedel & Associates Ltd. He began his work as church musician at age 15. He holds degrees in Music Education, cum laude, from Augustana College; and in Organ Performance from the New England Conservatory of Music in Boston; his teachers include Yuko Hayashi, Donald Teeters, Robert Schunemann, Merle Pflueger and Bessie Schober. Post-grad organ studies were made with Harald Vogel, Klaas Bolt, Umberto Pineschi, Russell Saunders, and Roberta Gary.

Mr. Beyer has assisted in restoring two historic European organs – an 18<sup>th</sup> century chamber organ in Pistoia, Italy; and the 1560 Epistle organ in the Cathedral of Salamanca, Spain. Both projects were under the direction of Japanese organ builder Hiroshi Tsuji. He also helped voice Tsuji's large concert organ built for Salamanca Hall in Gifu City, Japan. He studied organ history and construction with Fritz Noak and was designer/voicer for the J.F. Nordlie Company, Organ Builders, in Sioux Falls, South Dakota, from 1985 to 1996.

He serves as Music Director at Peace Lutheran Church in New Berlin, Wisconsin. Previously he was organist and lecturer at the Ecumenical Liturgy & Worship Seminar at Oxford, England. Mr. Beyer has performed worldwide and he has taught organ in Pennsylvania, South Dakota, and Japan. His compositions include settings for Holy Communion, hymn-tunes, wedding songs, and organ chorale preludes; his review articles have appeared in publications nationwide. He is a past Dean of the American Guild of Organists, a member of the Organ Historical Society, and a member of the Association of Lutheran Church Musicians, and is currently registrar for the Milwaukee Chapter AGO.

**Christopher Penkala** *Architectural Assistant*: Mr. Penkala is a 2009 and 2013 graduate from the University of Wisconsin Milwaukee where he received his BA in Architecture, a Certificate in Urban Planning, and a Master's Degree in Architecture. In addition to the classes that he has taken at the University of Wisconsin Milwaukee, Mr. Penkala has also taken AutoCAD training classes at Lakeshore Technical College in Sheboygan, WI. Christopher assists in CAD drawing production, color renderings, and the management of drawing and information processing and storage at Scott R. Riedel & Associates, Ltd. Chris has experience using many different computer drafting and modeling programs including AutoCAD, Revit, 3D Studio Max, and Microstation.

**Tim Foley** *IT Specialist/Architectural Assistant*: Mr. Foley is a graduate of the University of Wisconsin Milwaukee with a Bachelors of Science and Engineering, Computer Science as well as a Minor in Architectural Studies from the School of Architecture and Urban Planning. Prior to his time at UW-Milwaukee, he earned an Associate of Art and Science degree from Madison Area Technical College from their Architectural Technician program.

Mr. Foley is responsible for maintaining the computer systems and peripheral devices in the office. In addition to troubleshooting computer, printer, and network errors, Tim advises on the purchase of new hardware and software for use by Scott R. Riedel & Associates, Ltd. He also assists in CAD drawing production as well as information processing and storage for Scott R. Riedel & Associates, Ltd. Tim has experience with a variety of CAD software, including AutoCAD and Revit, EASE Modeling and 3D and artistic rendering drawings.

### **Project Experience, References, and Insurance**

Example project description, data, reference contact sheets on comparable relevant projects can be provided upon request, and can be viewed at our web-site; [www.riedelassociates.com](http://www.riedelassociates.com) .

Continuity and Timely Performance: Our firm has a nearly perfect track record for providing reports, data, specifications, and other deliverables on time per the client's request. This can be documented by contacting any of the previous client references attached. We have not been dismissed from nor abandoned any project before completion. (Additional references can be provided on request.)

On Budget Consultation Fees: In as much as our consultation fee is quoted on a "not to exceed" fee basis, consultation fee billing does not and cannot exceed the contracted and agreed upon fee limit amount.

On Budget Design and Specifications: The important architectural-acoustic design features of a project typically involve such factors as room configurations, and interior finish materials. The desired acoustical environment and result will often depend on the use of appropriate materials, designs, and systems. There are a great many materials and products available in the marketplace that are appropriate for acoustical application. All of our reports and recommendations include a list of product resources across a wide price range for the client's review and selection. Further, we work with the project team to meet budget needs within the context of desired scientific and aesthetic results. Acoustic recommendations and specifications are presented to the project team; cost control is typically achieved through careful communication, detailing and dialogue.

### **Professional Licenses and Memberships:**

- Acoustical Society of America (ASA)
- American Institute of Architects (AIA)
- American Guild of Organists (AGO)
- Organ Historical Society (OHS)
- British Institute of Organ Studies (BIOS)
- Association of Lutheran Church Musicians (ALCM)
- National Systems Contractors Association (NSCA)

### **Insurance Certificates**

Insurance certificates can be provided if desired.

### **Conflict of Interests**

As we are **not** the representatives of any acoustical material manufacturer, or sound system equipment manufacturer, supplier, or installer, or organ builder, we are able to consult and advise in an objective manner with only the best interests of the client in mind. No conflicts of interests exist in this proposal.

**Fee Proposal**

Fees for acoustical consultation are based on a rate of \$115.00 per hour with a “not to exceed” dollar limit based on the scope and magnitude of the project as determined by the needs of the client. The fee limit means the client will pay only for the hours used, and if our time involvement exceeds the fee limit, the client will receive full service and pay only the fee limit.

**Acoustical Consultation not to exceed limit is 65 hours**

*65 Hours x \$115.00/hr = Not-to-exceed \$7,475.00*) Includes:

- a. All services as described on Page 3 of this document, “Outline of Acoustic Consultation Services” for improvement of the Main Worship Space acoustical environment.
- b. On-site testing and evaluation of acoustic conditions in the main worship space.
- c. EASE modeling and analysis of the existing acoustic conditions in the main worship space
- d. Development of acoustic improvement design options and recommendations/specifications
- e. Preparation of comprehensive acoustic specifications and product descriptions/sources
- f. Coordination with Project Chair/Architect/A-V Designer, and/or other design team members for the integration of acoustic recommendations
- g. Review of project drawings, specifications, and vendor bids, submittals, and/or change requests
- h. Final inspection, testing, evaluation and report (with punch list as may be necessary) upon completion of construction

Any travel expense related to the project outside of Milwaukee County, Wisconsin is in addition (travel expense is not included in the 65 hour “not to exceed” fee limit) and is charged only at cost for air or rail fares, car rentals, tolls, meals, lodging, etc. Mileage is charged at current Federal Government Allowance (Currently \$0.565/mile). A reduced hourly rate (\$40/hr) is charged during travel and is not included in the not-to-exceed fee limit. All travel will be mutually agreed upon in advance and every effort is made to find economic rates and to meet with more than one client during a trip so that expenses can be lowered and shared.

We require building drawings in CAD format for use in the acoustical modeling program and report documents. If CAD drawings are unavailable from the church or architect, we can convert paper drawings into CAD format at the reduced rate of \$45.00/hour; this drawing conversion work is not included in the “not to exceed” fee limit quotation. CAD drawing conversion time from paper documents is typically from 2 to 5 hours.

For Room Acoustic Consultation, no other reimbursable fees are charged (the quoted fee is inclusive of all fax, telephone, web-ex, testing, printing and other system/process costs).

**ACOUSTIC DESIGN REFERENCES; Scott R. Riedel & Associates, Ltd.**

Atlanta, Georgia - **Trinity Presbyterian Church** (Norman Mackenzie, 404.495.8445)  
Chicago, Illinois - **Cone, Kalb, Wonderlick Architects** (Mr. Richard Kalb, AIA, 312.231.2607)  
Chicago, Illinois - **Lutheran School of Theology** (Bob Berridge, 773.256.0783)  
Duluth, MN – **First Lutheran Church** (Rev April Ullring Larson, 218.728.3668)  
Geneva, Illinois - **Geneva United Methodist** (John Snider, 630.979.6433)  
Hendersonville, NC - **St James Episcopal** (Nancy Kussrow, 828.693.8248)  
Kannapolis, NC – **Kimball Memorial Lutheran Church** (Crawford Murphy, AIA, 828.236.0370)  
Lancaster, PA - **Lutheran Church of the Good Shepherd** (Rev. Marilyn Witte, 717.393.3958)  
Louisville, KY - **Harvey Browne Memorial Presbyterian** (Larry Brandenburg, 502.896.1791)  
Menomonee Falls, WI - **St. Anthony Catholic Church** (Rev. Jerry Repenshek, 262.251.5910)  
Milwaukee, WI - **All Saints' Episcopal Cathedral** (Canon Joseph Kucharski, 414.271.7719)  
Milwaukee, Wisconsin - **Cathedral Church of St. John the Evangelist** (Michael Batcho, 414.276.9814)  
Milwaukee, Wisconsin - **Grace Evangelical Lutheran** (Rev. James Huebner, 414.256.3265)  
Naples, FL - **The Moorings Presbyterian Church** (Mr. Jim Shannon, 239.261.1487)  
New Ulm, MN - **Martin Luther College Chapel** (Kermit Moldenhauer, 507.354.8221)  
New York, New York - **St. James' Episcopal Church** (\*)  
Oak Creek, WI – **St Stephen Catholic Church** (Rich Pipek, AIA, 262.733.8001)  
Oconomowoc, WI – **St Jerome Catholic Church** (Fr John Yockey, 262.569.3020)  
Oregon, WI - **Deer Park Buddhist Center** (Ms. Ani Lhundub Jampa, 608-835-5572)  
Racine, WI - **Mt. Pleasant Lutheran Church** (\*)  
Raleigh, NC – **St Michael's Episcopal Church** (Kevin Kerstetter, 919.782.0731)  
Savannah, Georgia - **Independent Presbyterian Church** (Tom Tennille, 478.452.1759)  
Sheboygan, WI - **First Congregational UCC** (Mr. Gene Conger, 920.457.4818)  
St. Francis, WI - **3rd Ward Records Recording Studios** (Ken Krei, thirdwardrecords@yahoo.com)  
St. Louis, Missouri - **Hope United Church of Christ** (Jim Threlkeld, 314.353.2288)  
Superior WI - **Cathedral Of Christ The King, Roman Catholic** (\*)  
Temple Terrace, Florida - **St. Catherine's Episcopal Church** - (Dennis Rezabeck, 813-988-6483)  
Vero Beach, Florida - **Trinity Episcopal Church** - (Mr. John Hardy, 772.567.1146)

(\*) *Personnel has changed since work was completed*