

WSDG
WALTERS-STORYK DESIGN GROUP



ARCHITECTURAL
ACOUSTIC
CONSULTING

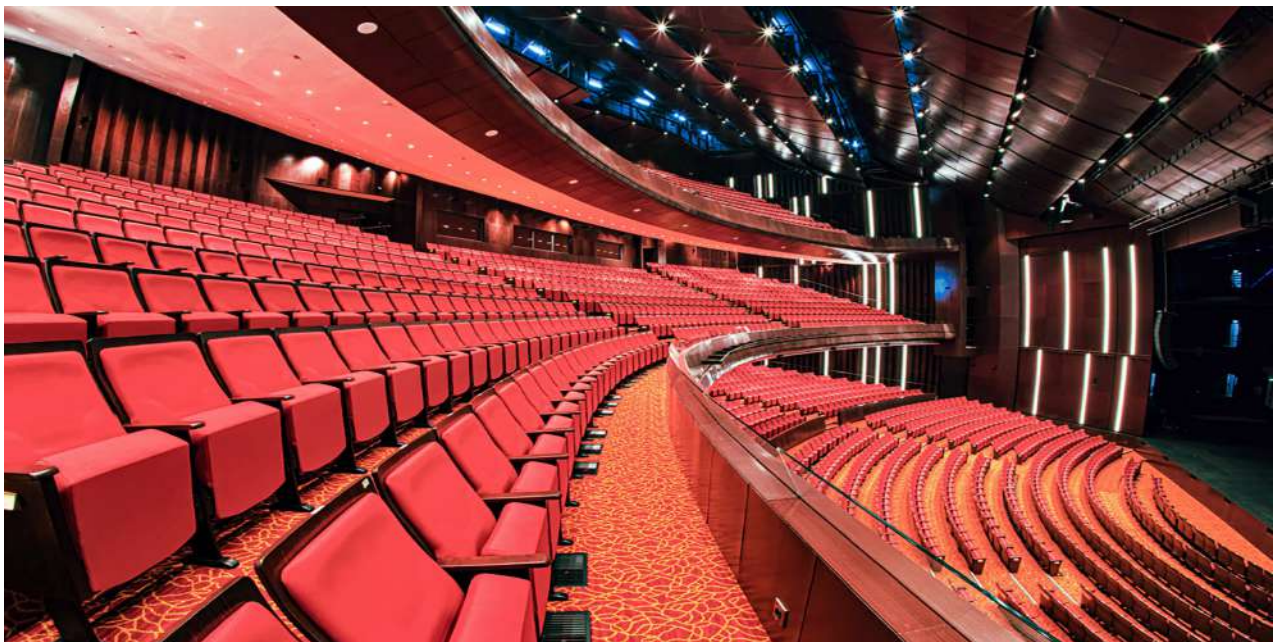
MEDIA
SYSTEMS
ENGINEERING

Company Profile Arts & Entertainment / Sports

wsdg.com

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Company Background and Structure

Company Background

WSDG - Walters-Storyk Design Group is a global architecture, acoustic, electro-acoustics and advanced audio-visual systems integration consulting and design firm. Pioneering architect/acoustician, John Storyk (AIA), founded the company in 1969 with the creation of Jimi Hendrix's Electric Lady Studios in New York.

WSDG was co-founded by Beth Walters and John Storyk. The firm's headquarters are located in Highland, New York, and it also has offices and representation in Latin America, Europe, Middle East and Asia as well as a global team that includes over 70 partners, associates and design professionals.

WSDG's history of innovative design achievement has produced over 4,000 diverse global projects, including acoustics and systems design for clients such as: Apple, Google, Spotify, Sony, Amazon, NY's Jazz At Lincoln Center, Alicia Keys, Jay-Z, Bob Marley, Bruce Springsteen, Celine Dion, Def-Jam Records, Epic Games, ESPN, KKL (Switzerland), MTV, TV Globo, WNET, UCLA, and Vienna Symphonic Library.

WSDG is a thirteen-time winner of the international NAMM TEC Award for studio design creativity. Recent WSDG TEC winners include: Jungle City Studios, NY, the Berklee College of Music – 160 Mass. Ave. recording/teaching complex, Boston, The Church Studios, London, Boston Symphony Orchestra Control Room, Boston, MA, Spotify at Mateo, Los Angeles, and Mix with The Masters' Rue Boyer, Paris. The firm's work has been published extensively and discussed in numerous professional audio, broadcast and systems design publications.



Company Structure

WSDG maintains offices and representation around the world:

USA:

Highland, New York
Miami, Florida
San Francisco, California
Los Angeles, California

Latin America:

Buenos Aires, Argentina
Belo Horizonte, Brazil
Bogotá, Colombia
México DF, México
Punta del Este, Uruguay

Europe:

Basel, Switzerland
Berlin, Germany (ADA-AMC GmbH)
Barcelona, Spain
Porto, Portugal
Vienna, Austria

Asia:

Beijing, China
Guangzhou City, China
Mumbai, India
St. Petersburg, Russia

Services | Architectural Acoustic Consulting

Acoustic Testing, Measurement and Assessment

WSDG employs sophisticated measurement equipment, the most up-to-date acoustical data-collection and analysis software and complex visualization tools to determine and optimize existing acoustical conditions in time and frequency domains, including RT60 Reverberation Times, Transmission Loss, STI Speech Intelligibility Assessments, SPL Sound Pressure Level distribution, Background Noise Levels and many other parameters. Our engineering team specializes in acquiring critical measurement data in-situ or laboratory-based for documentation. This work applies to both technical design and legal / forensic purposes and presents useful interpretations of measurement results and their consequences. All work complies to the latest international standards, industry benchmarks and professional compliance values.

Acoustic Simulation, Modeling, Auralization

WSDG uses complex prediction and analysis software, including some proprietary software that we developed ourselves, to model and study the behavior of sound in a three-dimensional virtual prototyping environment by means of an iterative process and has also pioneered the use of acoustical modeling tools and auralization by using the industry's most advanced acoustic prediction and modeling software. These software tools facilitate "auralization" - a complex calculated algorithm that allows for input of an original, non-processed audio file (such as a speech announcement or an acoustical instrument recording) and then renders an audible reproduction of the future acoustical situation in the virtual building environment. This allows all stakeholders to listen to music, speech or any audio content in the virtual design reality, thus providing an invaluable tool during design and planning.

Room Acoustics Analysis and Surface Treatments Design

Room Acoustics is the science of controlling a room's internal acoustic characteristics by creating geometry in combination with creative surface materialization using reflection, absorption and/or diffusion. Excessive reverberation time can lead to poor speech intelligibility, high ambient noise levels, poor ability to concentrate and limited comfort, specifically in workplace and privacy / confidentiality applications. Interior acoustical floor, wall, and ceiling surfaces can be created using a wide variety of materials and finishes, including perforated, slotted, fabric covered, foam based, plastic, wood, glass, metal or gypsum materialization. WSDG carefully studies and specifies appropriate materials and applications, always with a keen eye and respect for a project's underlying architecture.

Sound Isolation, Structural Acoustics Analysis and Design

Structural Acoustics analyzes noise transmission from building exterior envelope to interior and vice versa, as well as noise transmission from one room to another within the building environment. Inadequate acoustical isolation may lead to elevated sound levels within the space which reduces privacy, comfort level and concentration ability, severely limits speech intelligibility, and has implications for noise health effects. Primary noise paths often include through roofs, ceilings, walls, windows, doors, flanking around room partitions, as well as ducting and other penetrations. Sufficient noise containment control ensures space functionality and is often required by local municipal codes or by a project's technical requirements. WSDG specifications include construction details for wall and slab assemblies and special acoustical isolation conditions (including "room-within-room" construction).

Peer Review, Expert Reports, Studies and Surveys

WSDG is a trusted partner for Peer Review, Expert Reports, Studies and Surveys within the context of Architectural Acoustics Consultation. Peer review is the evaluation of work and studies conducted by other parties. This work is often required to maintain standards of quality, assess solutions and designs, provide a second opinion or variations to a concept, create alternate solutions to improve performance and efficiency, provide credibility, and verify costing and time table analysis. WSDG's studies and surveys are often based on in-situ or laboratory measurements and assessments utilizing a wide range of international benchmarks and standards.

Media Facility Site, Facility, Master Planning, Feasibility Studies

WSDG provides a wide portfolio of design and consulting services that support media facility conceptual planning, master planning, site selection and feasibility studies as well as timely, detailed, and cost-effective advice on highly sensitive and complex architectural construction and renovation projects. WSDG has extensive experience with sensitive architectural issues including historical renovations, additions, and new construction projects in media production, corporate, government, education, broadcasting and cultural / entertainment sectors.

Broadcast and Recording Studio Design

WSDG brings over 50 years of experience in providing design and consulting services that support Broadcast and Recording Studio projects during all phases (master planning, schematic design, design development, construction documentation, bidding / pricing, construction administration, and final commissioning / close out). WSDG provides timely, detailed, and cost-effective advice on highly sensitive and complex architectural construction and renovation projects, from small but critical retrofits to challenging ground-up construction. WSDG brings extensive experience to sensitive architectural issues including historical renovations, additions, and new construction projects in media production, corporate, government, education, broadcasting and cultural / entertainment sectors.

Technical Interior Design, Product Development and Prototype Testing

WSDG provides technical interior design and integration services for media production, cultural, entertainment and corporate environments in close collaboration with all stakeholders with the goal of enhancing room design, achieving a healthier, more inspiring, more ergonomically, and more aesthetically pleasing environment. WSDG provides conceptual development, space planning, site inspection, programming, research, and construction management for technical AV and lighting design, lighting control, acoustical surfaces, and sightline considerations. Designs are illustrated by means of 3D visualizations, renderings, and VR simulations. WSDG's engineering team and laboratories are available for acoustical studies, assessments, and measurements as well as for supporting further optimization of acoustical parameters of a given product under development. Feasibility studies and virtual prototyping can be conducted to ascertain the product's acoustical performance level and market position.

Services | Media Systems Engineering

Media Systems Design and Equipment Recommendations

WSDG gives guidance in an increasingly crowded world of technology devices, standards, and practices all claiming to be the best and the most futureproof. Corporate, cultural, educational, residential, and governmental sites alike are constantly striving to improve their media systems in an effort to stay on top of current presentation, communication, collaboration, conferencing, and entertainment techniques. WSDG provides highly integrated AV System Designs based on the highest industry standards, while working collaboratively with its clients in developing long term visions, outlooks, and strategies.

Media Network, Distribution, System Control, IT and Communication Systems

Telecollaboration, teleconferencing, and telecommuting significantly influence corporate culture and workflow. Substantial engineering and integration efforts are required to make these technological advances supportive to the workforce. WSDG designs individual office, boardroom, conference center, and site wide media networks, while providing AV infrastructure with solid privacy protection and high usability to satisfy even highest quality requirements in both sonic and visual aspects.

Audio / Electroacoustic Engineering, Simulation, Modeling and Auralization

The most visible part of the electroacoustical system is the loudspeaker. Loudspeakers are complex electromechanical devices so varied and rapidly shifting that the market is challenging to oversee even for professionals. WSDG specifications are based on 3D acoustical software simulations and virtual prototyping of the venue or room where the architectural conditions are overlaid with the technical, aesthetical, and budgetary criteria of the project at hand. WSDG often creates simulated audio playback demonstrations, called auralizations, to facilitate decisions based on auditory impact. Selecting the electroacoustic system most suitable for the space, after determining room acoustics and structural boundary conditions in what-if scenarios, enables WSDG to achieve and exceed target parameters such as loudness level, frequency range, coverage, directivity control, and speech intelligibility (STI). Electro acoustical systems may be used in voice alarm / emergency scenarios, where properties such as redundancy, certification, and reliability are highly critical. WSDG has extensive experience for such systems and is fully familiar with all current national and international regulation including e.g. FIFA, IOC, and UEFA.

Audio, Electroacoustic Systems Calibration, Tuning and Optimization

Audio System Calibration or Audio System Tuning is the science and art of bringing the entire sound system to operate at its peak performance. The commissioning process involves WSDG's highly experienced experts in audio measurement and sonic accuracy and is based on a sequence of tasks to obtain the maximum audio precision of the component ensemble installed in a space. Frequency and time-domain measurements as well as extensive listening tests are employed to carefully determine the correct placement, phase-alignments, crossover points, equalization, and gain control of a loudspeaker-room system. Full documentation concerning component settings is issued by WSDG for client's reference. For professional audio systems, WSDG recommends recalibration every 12 to 24 months to increase system accuracy and to maximize ROI.

Video Systems Engineering, Content Capturing, Display, Visibility and Sightline Studies

No media experience is complete without a clear, bright, high resolution visual solution. WSDG provides comprehensive video system engineering services, including design of networks, hardware, software, and other related infrastructure to support video applications within production, broadcasting, educational, corporate, information and entertainment contexts. Camera and display / projection system positioning often require integration and placement studies that are based on 3D visualization and studies. Typical auxiliary WSDG engineering fields include heat management and noise mitigation.

Peer Review, Experts Reports, Studies and Surveys

WSDG is a trusted partner for Peer Review, Expert Reports, Studies and Surveys within the context of Media Systems Engineering. Peer review is the evaluation of work and studies done by other parties. This work is often required to maintain standards of quality, assess solutions and designs, provide a second opinion or variations to a concept, create alternate solutions to improve performance and efficiency, provide credibility, and to verify costing and time table analysis. WSDG's studies and surveys are often based on in-situ or laboratory measurements and assessments utilizing a wide range of international benchmarks and standards.

Broadcast and Recording Studio Systems Design

WSDG brings over 50 years of experience in providing design and consulting services that support Broadcast and Recording Studio projects during all phases (master planning, schematic design, design development, construction documentation, bidding / pricing, construction administration and final commissioning / close out). WSDG provides timely, detailed and cost-effective advice on highly sensitive and complex architectural construction and renovation projects, from small but critical retrofits to challenging ground-up construction. WSDG has extensive experience with sensitive architectural issues including historical renovations, additions and new construction projects in media production, corporate, government, education, broadcasting, and cultural / entertainment sectors, and can suggest and recommend AV solutions that work within the project design.

Theatrical Systems

Theatrical Systems Engineering refers to conceptualizing, designing, and implementing technical equipment and devices for the performance community, while integrating these designs into the architectural and acoustic fabric of projects. WSDG provides these services including networking infrastructure, theatrical audio-video systems, immersive 3D audio replay, theatrical lighting, wired and wireless communication devices, and stage machinery with the goal to give venue owners, producers, and artists the means to express their talents to the full extent of their creative imagination.

Key Personnel



Beth Walters

Founder Partner

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Beth Walters-Storyk is a graduate of the Fashion Institute of Technology (New York) with two degrees, A.A.S. in Textile Design and a B.F.A. in Product Design. Her construction experience comes with having been a senior installation designer for the Gallery's exhibition and installation staff at the Fashion Institute for over 10 years. From 1982-1988, Beth also was the display and merchandising director for such noted home furnishing fabric firms as Boris Kroll Fabrics, Greff Fabrics and Design Tex Fabrics. Beth is a founding partner and principal of Walters-Storyk Design Group and leads the interior design services division.



John Storyk, R.A.

Founder Partner

john.storyk@wsdg.com

John Storyk, registered architect and acoustician, is a founding partner of WSDG. He has provided facility planning, acoustical and systems design services for the professional audio-video production and performance community since the 1969 completion of Jimi Hendrix's Electric Lady Studios in New York City. John received his architectural studies from Princeton and Columbia Universities. As an independent designer, engineer and founding partner of WSDG, he has been responsible for over 3,500 world-class audio-video production facilities, including studios, radio stations, video suites, entertainment clubs and theaters. He is a member of the American Institute of Architects (AIA), Audio Engineering Society (AES) and Acoustical Society of America (ASA) and is a frequent contributor to AES convention papers and professional industry periodicals. John is a frequent lecturer at schools throughout the nation and has established courses in acoustics at Full Sail (Orlando), Ex'Pression Center for the Media Arts (San Francisco), while maintaining adjunct professor status in Acoustics and Studio Design at Berklee College of Music (Boston).



Sergio Molho

Partner / Director of Business Development

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Named Partner/Director of Business Development in 2016 for the global WSDG architecture/acoustic design firm, Sergio Molho was a founding partner of WSDG Latin America in 1994. He has provided technical, acoustical and architectural supervision as well as project management for all WSDG Latin projects. He now provides daily and long-term technical, marketing, social media and business management direction for the firm's multiple offices. Sergio Molho has been an audio/video and recording industry professional since 1982. An accomplished keyboard artist and vocalist, in the 1980's he led popular Argentine funk band CASH. His technical credits range from AV and Systems Integration/design to project management. Sergio is a frequent contributor to technical workshops and is committed to expanding the knowledge and education of acoustics and electro-acoustics in their relationship to architecture. Sergio also serves as Director of WSDG International Relations, and contributes to the promotion and acquisition of new business worldwide.



Joshua Morris

Partner / Chief Operating Officer

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Joshua Morris graduated from the University of North Carolina in Charlotte with two Degrees, a Bachelor of Arts in Architecture and a Bachelor of Architecture. A love of music has led him to seek a combination of architecture and acoustics, beginning with his thesis on acoustics. Additionally, Josh has been educated in the Suzuki method for violin since age three, making acoustic design a natural choice for a career path. Joshua joined the WSDG team in January of 2005, moving from North Carolina to New York, and quickly settled into a key role as a project manager, designer, to his current status as a partner and COO. He has managed dozens of projects from China to the United States to Germany, and continues to add more skills to his design vocabulary each day, while refining his already well developed practice as a luthier.



Dirk Noy

Partner / Director of Applied Science and Engineering

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Dirk Noy, M.Sc. Physics, has a Diploma in Experimental Solid State Physics from the University of Basel, Switzerland and graduated from Full Sail Center for the Recording Arts, Orlando, USA, where he was one of John Storyk's students. After joining WSDG in early 1997 Dirk now heads the WSDG Europe office in Basel, Switzerland. Dirk has extensive experience in applied mathematics, acoustical measurement and calculation techniques, audio engineering, systems design and all facets of Information Technologies. His language abilities include German, Dutch, French and English. As a publishing member of the Audio Engineering Society (AES) and the Swiss Acoustical Society (SGA) he is a frequent lecturer at trade conventions, recording colleges, as well as architectural education institutions.



Silvia Campos Ulloa Molho

Partner / Art Director

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An audio/video industry professional since 1987, Silvia Molho has developed striking interior designs for an international client base ranging from luxury homes to high-end recording studios and state-of-the-art educational complexes. A graduate of the Bellas Artes University in Lima, Peru and Visual Anthropology in UBA, Buenos Aires. Silvia has served as a producer on several video and film productions and documentaries in Peru, Paraguay and Argentina. Her areas of expertise include graphic design and art direction. As a long-time partner in WSDG, she is a leader (with founding partner Beth Walters) of the firm's global graphic design team. Since joining the firm in 1994 she has represented WSDG in Latin America and served as interior designer and supervisor for countless high-end design projects including world class facilities.

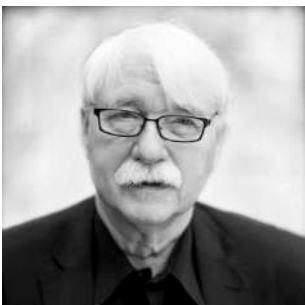


Gabriel Hauser

Partner / Director of Acoustics

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Gabriel Hauser graduated with a degree in electrical engineering from the Swiss Federal Institute of Technology, Zurich, in 2000. Analog and digital signal processing and acoustics were his primary focus. His Thesis was titled "Reduction of Nonlinear Distortion of Loudspeakers employing Volterra Filters" (at Studer Professional AG, Switzerland). After joining the WSDG New York office, Gabriel returned to Switzerland to become a founding partner at WSDG Europe. His specialties include Acoustical Simulation and Measurement, complex Acoustical Analysis and Methodology as well as Architectural Acoustics. During his studies Gabriel was a founding member of Abbaxx Soundsystems Ltd., whose principal field of work is sound reinforcement and loudspeaker technology. While with Abbaxx, he designed and developed sound systems for concert use, churches and installations. He writes articles for audio magazines and continues to be a performing musician.



Prof. Dr. Wolfgang Ahnert

Partner / Director of ADA/AMC, a WSDG Company

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After studying Technical Acoustics at the Technical University of Dresden and passing one year at the Moscow State University (Lomonossov) for a complementary course, Dr. Ahnert wrote his doctoral thesis and attained a Ph.D. In 1990 he founded the Engineering Office ADA – Acoustic Design Ahnert with at first two colleagues at the site of the former governmental Institute. In January 1993 the Office moved to a new location at the Berliner 'Innovations- und Gründerzentrum' (Berlin Innovation and Founders' Center) – BIG – which was established in an abandoned industrial area, formerly used by AEG, in Berlin's Municipal District of Wedding. Dr. Ahnert is a sought-after author, contributor, educator and lecturer at professional conferences and tradeshow and has authored countless white papers on subject matters such as acoustical simulation processes, measurement technology, electro-acoustical theory and applications.



Matthew Ballos

Partner / Director of Architectural Technology

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Mid-Hudson Valley, New York native Matt Ballos earned dual degrees in Architecture and Construction Management. A background in civil engineering and a lifelong love of construction and design has enabled Matt to quickly become a valuable member of WSDG's design and production team, currently as a project designer and manager. Matt's love of design extends from his drawing skills to his personal workshop where he spends his free time building furniture and fabricating functional pieces of art. He believes his experiences at WSDG coupled with having grown up on construction sites provides him with a functional knowledge of what can and can't be built, and enables him to apply his design talents in creating uniquely useful, beautiful and acoustically accurate spaces. WSDG is proud of Matt's continued affiliation with the US Air Force Reserve as an engineering specialist.



Tobias Behrens

Electrical Engineer / Project Engineer

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Tobias Behrens graduated in electrical engineering at the Technical University of Berlin in 1994 with a focus on technical acoustics and communications technologies. He then performed post graduate acoustic research on psycho-acoustic topics at ITA/Technical University, Berlin and ISVR / Southampton University, UK. At ADA-AMC (A WSDG Company) Tobias Behrens is working as a Project Engineer on room acoustics, electro acoustics and architectural acoustics, as well as executing and analyzing room acoustical and electro acoustical measurements. He brings with him 20 years of experience in professional planning and consulting on national and international projects. Room acoustic simulation and analysis, laboratory and field measurements, sound absorber technologies and electronic enhancement systems are main components of his recent work. During the last 24 years he coauthored over 15 papers and contributions for DAGA, ASA and ICA.



Jonathan Bickoff

Partner / Project Engineer

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Jonathan earned his B.S. in Music Technology and Business from Mercy College in 2009. He then went on to develop his skills in applied acoustics mixing front of house for live shows, AV for corporate functions, and mixing for commercials, TV, and film. Jonathan brings this real world experience and enthusiasm to the Highland, NY acoustics team. When not arguing about music and headphones, Jonathan is busy playing cello, road cycling, hiking, stand-up paddle boarding and practicing yoga.



Will Brown

Partner / Project Manager

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Will earned his B.S. in Mechanical Engineering from Columbia University and his B.S. in Applied Physics from Providence College. Once out of school, he spent 6 years in the manufacturing and construction industry designing and building highly specialized shielded door systems for applications in the aerospace, defense, energy, and entertainment industries. Will brings this design knowledge and expertise as well as a love for analog music production to the WSDG Highland NY team in the areas of Project Management and Engineering.



Victor Cañellas (Weike)

Representative

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Acousmatic Sinologist Víctor Cañellas (Weike) has been a successful acoustician/sound researcher in China since 2003. His expertise in developing acoustic interfaces for visual arts in performance venues has contributed to such demanding assignments as the Park19 and LOFT345 clubs in Guangzhou and for the popular 2007 La Fura dels Baus 'Imperium' premiere in Beijing. His expertise in acoustic treatments was enriched by serving as a representative for Jocavi Acoustic Panels and Soundbox Acoustic Tech fixed architectural acoustic systems. Victor studied Social Science at Universitat de Barcelona, Asian Studies at Universitat Autònoma de Barcelona Center of International and Intercultural Studies, and attended Chinese Language Studies in Sun Yat Sen University in Guangzhou. His wide-knowledge of 'Eastern thought and logics' provide a solid foundation for him in his new role as a WSDG representative.



Michael Chollet

Partner / Director of Systems

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Michael Chollet's first activities in the professional audio field were the development of loudspeaker systems and electronics. After graduation from High School with a focus on engineering he started self education in the fields of acoustical measurements, DSP programming, computer and network technology. He augmented this know-how foundation with advanced training courses in acoustics and environmental noise protection. At WSDG Michael has been in charge of different studio construction projects and large scale Installations, as the Swiss national broadcaster TSR in Geneva. Additional specialties include system integration, DSP programming and research on advanced problem solving. His language skills include German, French and English.



Judy Elliott-Brown

Senior Systems Designer Engineer

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Judy Elliott-Brown has been a professional audio engineer since 1977, with a background in live touring, remote recording, music recording, sound for television, studio maintenance and systems design. She has been responsible for the systems infrastructure design and installation of over 100 projects worldwide. Projects she has worked on include world class audio recording studios, media/broadcast production studios, educational facilities and multi-use performance spaces. Judy is a full-time systems design engineer and project manager, and has been responsible for systems design and installation on many WSDG projects for over 25 years. Judy is a member of the Audio Engineering Society (AES) and National Academy of Recording Arts and Sciences (NARAS). Additionally, she has worked on several Grammy nominated albums and was a sound engineer for a Sci-Fi cartoon show.



Enno Finder

Project Engineer

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Enno Finder studied Electrical Engineering at the Technical University Berlin, Germany, with a focus on Acoustics by Michael Möser. Having started 1995 as an intern at ADA Acoustic Design Ahnert, he was asked to join the company as an AV project consultant, starting at designing electro acoustical systems for major train stations, airports, working on large Houses of Worship such as the Berlin Cathedral, Parliament Buildings, up to large venue design (e.g. Berlin O2 World, Olympic Stadium). Enno Finder brings with him a rich musical experience in classical vocal music, having taken up singing as a little boy, he currently is an active member of several Berlin based vocal choirs and ensembles.



Flavio Gallacchi

Project Engineer

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Flavio Gallacchi received his diploma as an audio engineer from the audio engineering course fpton in Zurich, Switzerland. His main focus lies on performing room-acoustical and electro-acoustical measurements, their analysis and the subsequent process of optimization, which involves room-acoustics software and programming audio DPS. He is also busy working on the technical design and integration of audio and video-systems in WSDG Projects. Before joining WSDG, Flavio has been working as a live mixing engineer and as a technician in a local Hi-Fi retail store where he trained his ears and specialized in calibrating turntables. He has been owner of a drum school where he also was an instructor after graduating from the Los Angeles Music Academy.

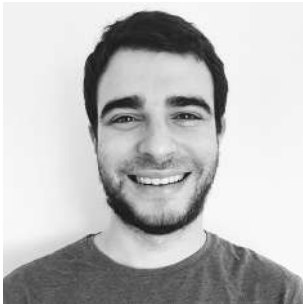


Pietro Gennenzi

Project Manager / Project Engineer

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After studying electrical engineering at the Ecole Centrale d'Electronique in Paris, Pietro moved to the US to pursue his passion for music and graduate from Berklee College of Music with a degree in Contemporary Writing and Production. Being part of several musical projects as a bass player, he spent countless hours in recording studios and concert venues around the world. Inspired by the variety and uniqueness of the spaces and places he experienced, his growing interest for architecture and design led him to WSDG in 2019. Since then he has been involved in acoustic prediction and analysis, measurement and modelling, as well as room tuning and calibration.



Leandro Kirjner

Project Manager

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Leandro Kirjner is a young professional from Argentina, graduated from Buenos Aires University (UBA) with Master of Architecture degree. In 2012 he joined to the WSDG Latin team, since that moment he has been involved in several projects around the world, being the project manager and in charge of the production for the construction documentation and part of the Audio / Video team. As one of the Architectural Team member, he decided to do a Lighting Design grade to improve his knowledge and let him to be in charge of the most of the lighting projects that the Latin Office had. Also, he did a BIM Manager grade to continue performing his skills in order to give an efficiencies approach on each project.



Romina Larregina

Partner / Director of Production

romina.larregina@wsdg.com

Romina Larregina graduated from the University of Palermo, Buenos Aires, with a degree in Architecture. Upon graduating, Romina took her skills to an engineering office, while teaching English and helping with the set up of trade shows. She apprenticed at WSDG – Latin for several years before moving to the United States in 1999, to become an integral member and now partner at WSDG (New York). Her multi-lingual skills in English, Spanish and Portuguese have been instrumental in leading numerous international projects. Romina is the Latin liaison, as well as project management and production coordinator for the New York office. She loves to travel and enjoys the day-to-day client interaction.



Alan Machado

Project Manager

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Alan graduated as an Architect and Urban Planner from FUMEC University, Belo Horizonte in 2013. Since then he has worked in many different areas of architecture, going from house and building modeling and executive project to markets and shopping malls. Alan has a deep connection with music, he is a passionate listener and has been playing the electric guitar as a hobby since the early 2000s. Working at WSDG since 2016, he discovered a new way to combine his passion for music and architecture and work with them for a common objective.



Breno Magalhães

Architect / Project Manager

breno.magalhaes@wsdg.com

Breno graduated as an Architect and Urban Planner from Federal University of Minas Gerais (UFMG) in 2010 and as a Product Designer from State University of Minas Gerais (UEMG) in 2006, both in Belo Horizonte. His interest in music and acoustics grew during his university period. Breno enjoys playing the guitar and he turned this hobby into his Product Design final graduation project, by developing an electric guitar with an innovative pickup swapping system for studio applications. The same thing happened in his Architect and Urban Planner graduation project when he designed a new music Arena for Belo Horizonte. At this point he was already a WSDG member. Also as a Product Design student, Breno took part in several research groups related to furniture design focused on manufacture optimization, ergonomics and sustainability. He was a partner in a design office with the same approach. Breno has worked as a Project Manager and Designer at WSDG Brazil office since 2008.



Robert Margouleff

Project Engineer

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Grammy-winning engineer/producer/studio-owner Robert Margouleff brings 40+ years of hands on experience in his role with WSDG. Beyond his long-time collaboration with Stevie Wonder, capped by a Best Engineered Album Grammy for *Innervisions* (shared with Malcolm Cecil,) Margouleff's producer/ engineer credits include work with Devo, Billy Preston, Depeche Mode, Jeff Beck, The Doobie Brothers, Quincy Jones, and many other stellar artists. After building his Hollywood-based Mi Casa Multimedia Studios, Margouleff became a leader in surround audio for home theater, and provided 5.1 and 7.1 mixing and mastering for DVD and Blu-ray releases and restorations for such films as: *The Sound Of Music*, six *James Bond* features, *Rush Hour* and the complete *Lord Of The Rings* cycle. Margouleff will be involved in all aspects of WSDG's west coast projects. He will consult with new clients on details ranging from site selection to design, construction, technology, acoustic treatments and systems integration.



David Molho

Project Engineer

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David graduated Magna Cum Laude as a Music Production & Engineering major from Berklee College of Music in 2011. Since then he has been working as an engineer, producer and composer for world renowned record labels in his Groovyland Studios in the city of Miami. After being involved with WSDG for several years, in 2018 he switched his role to become a Project Engineer in the area of acoustics, and a project manager for several projects ranging from recording studios to luxury buildings, performance venues, and corporate. Due to his ability in audio engineering, David is in charge of performing room calibration and commissioning services for projects around the globe.



Adam Paiva

Project Manager, Acoustic Engineer

adam.paiva@wsdg.com

Adam earned his B.S. in Architectural Engineering with a Structural Concentration from Drexel University in 2007. A love of audiophilia combined with a passion for architecture, design, and engineering led him to the field of acoustics. He developed his knowledge in the acoustics and isolation fields over 15 years, working on a variety of projects ranging from large corporate office fit-outs to boutique fitness clubs to concert halls. He also spent several years working on the client side in the design team of an international high-end fitness brand. Adam brings his expertise in architectural acoustics, isolation, and mechanical systems design to all our projects. Adam is a member of both ASA and INCE.



Gustavo Perezlindo

Systems Engineer

gustavo.perezlindo@wsdg.com

Gustavo Perezlindo has ventured from a young age in the development of technical solutions for live shows, applying his capabilities of Electronic Engineering, Architecture and Production, allowing him to face the integral production of shows in a wide spectrum, ranging from theatrical and rigging systems design, production, and technical direction, from the initial concept to the final reality.



Esther Roger

Project Manager

esther.roger@wsdg.com

Esther Roger is a South Florida native which graduated from FIU (Florida International University) with a Master of Architecture degree, and from FAMU (Florida A&M University) with a Bachelor of Science in Architectural Studies. As a young professional her career began with her love for humanitarian work as she began familiarizing herself with construction as an AmeriCorps worker at Habitat of Humanity in the construction division.

Esther joined the WSDG team in May of 2017 and works as a Project Manager and a 3 Dimensional Visual Creator in the Technical Interior Department.



Bob Skye

Project Engineer

bob.skye@wsdg.com

Bob is a leader in electro/acoustic design, recording studio construction and, a Grammy-winning engineer with Gold and Platinum credits, has joined the Walters-Storyk Design Group. As WSDG's west coast representative and project engineer, Skye shoulders a host of responsibilities ranging from new client development and overall business management to hands-on project design and construction supervision. He is a member of Audio Engineering Society, American College of Forensic Examiners and American Board of Recorded Evidence.



Laura Stillwell

Administration, Financial

laura.stillwell@wsdg.com

A skilled tactical and strategic planner, diplomatic problem solver and meticulous Bookkeeper, Laura Stillwell encapsulates all the prerequisites to meet the multitudinous requirements of WSDG's wide-ranging corporate family. After earning a Bachelor of Fine Arts, Photography Degree from Western Carolina University, Laura began a nine-year residence as Administrative/Executive Assistant for a privately owned regional utility company in Sylva, NC. Moving to Highland in 2017 she assumed Bookkeeper duties at Kimlin Energy Services in 2018. An intriguing Help Wanted ad from neighboring WSDG prompted her to interview and she was quickly hired. Laura easily adapted to WSDG's "Fast paced and frequently fascinating operation and celebrity client base."



Mariana E. Varon

Project Manager

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Mariana studied architecture at the UBA (Universidad Nacional de Buenos Aires / University of Buenos Aires) and graduated in 1995. Along with her MBA in Architectural Design at FADU (UBA) she continued her architecture studies at Universidad Torcuato Di Tella. From 2004 to 2011 she worked for WSDG Latin, being the project manager of many projects and in charge of the production of the construction documentation. In 2011, she created her own Architectural Firm: Mvaron Arch. & Assoc., working on Steel Framing projects and dry-wall construction. Mariana has been involved as a project manager with several architectural firms, including Clorindo Testa, Roberto Frangella and Justo Solsona Arquitectos. Her work led her to win several awards and mentions during her career.



Marc Viadiu

Project Engineer

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Marc studied Technical Engineering in Sound and Image and Higher Engineering in Electronics at the University Ramon Llull in Barcelona, Spain. After graduation, Marc worked in an industrial acoustics company in Barcelona. Later he started his own company of acoustic engineering and distribution of acoustic and audio products. At the beginning of 2009, Marc undertook a six month internship at the WSDG New York office preparing drawings, taking acoustical measurements and performing room acoustical calculations. Upon returning to Spain in 2010, he started a new company of designing acoustical products and opening the new WSDG office in Spain.



Nahuel Zaccagnino

Senior Project Engineer

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Nahuel received his degree in Electronic Arts from UNTreF and has worked as a professional audio engineer and musician based out of Buenos Aires ever since. His keen sensibilities for the crossroads of music and technology have made him an in-demand audio integrator, consultant, and tech support professional for many recording studios, broadcast facilities, and live event venues. Nahuel is a systems engineer at WSDG and has utilized his broad experience in these areas to develop the AV System Design department across many challenging projects.

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Relevant Experience

WSDG (Walters-Storyk Design Group) and its principals have an extensive body of clients in the fields of architectural acoustic consulting, facility master planning, and media systems engineering. A list of projects that supports our company profile and credentials follows. For a more extensive client list, please see www.wsdg.com. Our experience spans over 53 years in architectural design, internal room acoustics, advanced noise isolation, and systems design required for acoustically sensitive projects of all sizes. Moreover, WSDG has the ability to work seamlessly within a team design environment.

We have assembled a list of projects that underscore our experience with multiple project types:

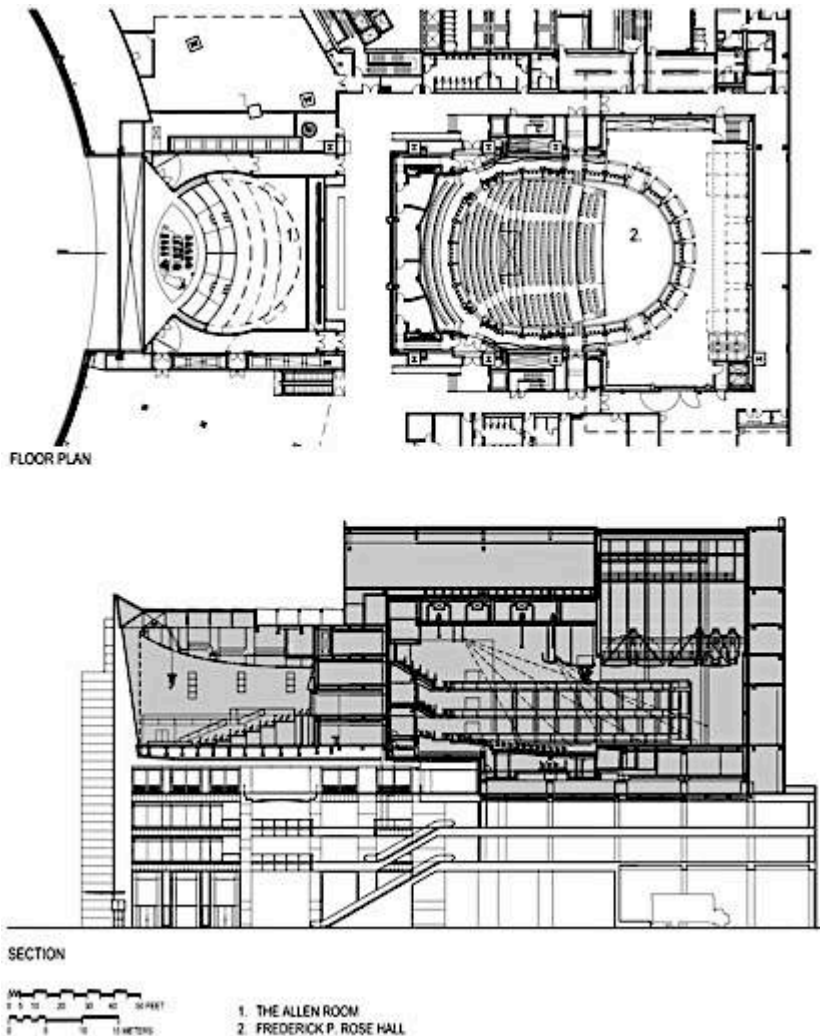
Jazz at Lincoln Center New York, USA	Restaurant T Buenos Aires, Argentina	Murray Arts Center Marietta, USA
Le Poisson Rouge (LPR) New York, USA	KKL Concert Hall Luzern, Switzerland	Inhotim Theater Brumadinho, Brazil
Parque Viva La Guacima de Alajuela, Costa Rica	Aura Club Events Hall Zurich, Switzerland	The Metroplex at KITEC Hong Kong, China
The Church Studios London, United Kingdom	Flughafenkopf – Zurich Airport Zurich, Switzerland	VSL Synchron Stage Vienna, Austria
ESPN - Digital Center 2 Bristol, USA	Rio 2016 – Barra Olympic Park Rio de Janeiro, Brazil	Morro de Chapéu Belo Horizonte, Brazil
Electric Lady Studios New York, USA	Kulturpalast Dresden Dresden, Germany	The Anthem Washington DC, USA
Jakarta International Expo Jakarta, Indonesia	Arena Thun Stadium Thun, Switzerland	Berklee College of Music Boston, USA
Green Point Stadium Cape Town, South Africa	Independência Stadium Belo Horizonte, Brazil	Maracanã Stadium Rio de Janeiro, Brazil
Merriweather Post Pavilion Columbia, USA	Minerão Stadium Belo Horizonte, Brazil	Orange Bowl Field at Harris Park Homestead, USA
Lushniki Stadium Moscow, Russia	Moses Mabhida Stadium Durban, South Africa	Olympia Stadium Berlin Berlin, Germany
Peloton Flagship Spinning Center New York, USA	PepsiCo Content Studio New York, USA	PostFinance Arena Bern, Switzerland
National Museum of Qatar Doha, Qatar	Avalon Theatre Easton, USA	Goshen High School Goshen, USA
UCLA Herb Alpert – Lani Hall Los Angeles, USA	Magazzino Italian Art Gallery Cold Spring, USA	Nordstern Basel, Switzerland
Rockwood Music Hall New York, USA	Jungle City Studio (Mincieli - Keys) New York City, USA	Melrose Ballroom New York, USA
Entra Live Music Venue Rapperswil-Jona, Switzerland	Mercedes-Benz Arena Berlin, Germany	MGM Music Hall at Fenway Boston, USA

Jazz at Lincoln Center - New York, USA

Jazz at Lincoln Center is one of New York City's premier attractions, housing over 100,000 sq. ft. of performance venues, educational suites and recording/post production facilities.

The Frederick P. Rose Hall project consists of a 1,200-seat concert hall with movable seating towers. The hall can be configured for dance, opera, theater as well as provide an intimate jazz setting by surrounding the musicians with the audience seated on three levels in a stage surround setting. The Allen Room is a 300 - 600 seat performance space with tiered platforms ascending from the stage level to a dance floor with movable tables and chairs. The Irene Diamond Education Center is 3,500 sq. ft. and contains two state-of-the-art education/rehearsal studios.

WSDG, as partners in the Sound of Jazz Consulting Group, worked closely with the architects and Wynton Marsalis to acoustically design the education, rehearsal and recording spaces. The systems integration design for all performance, educational and listening spaces within this facility are linked together for recording and playback. This facility is the world's first performing arts center designed specially for the performance and recording of jazz.



Jazz at Lincoln Center - New York, USA



Restaurant T - Buenos Aires, Argentina

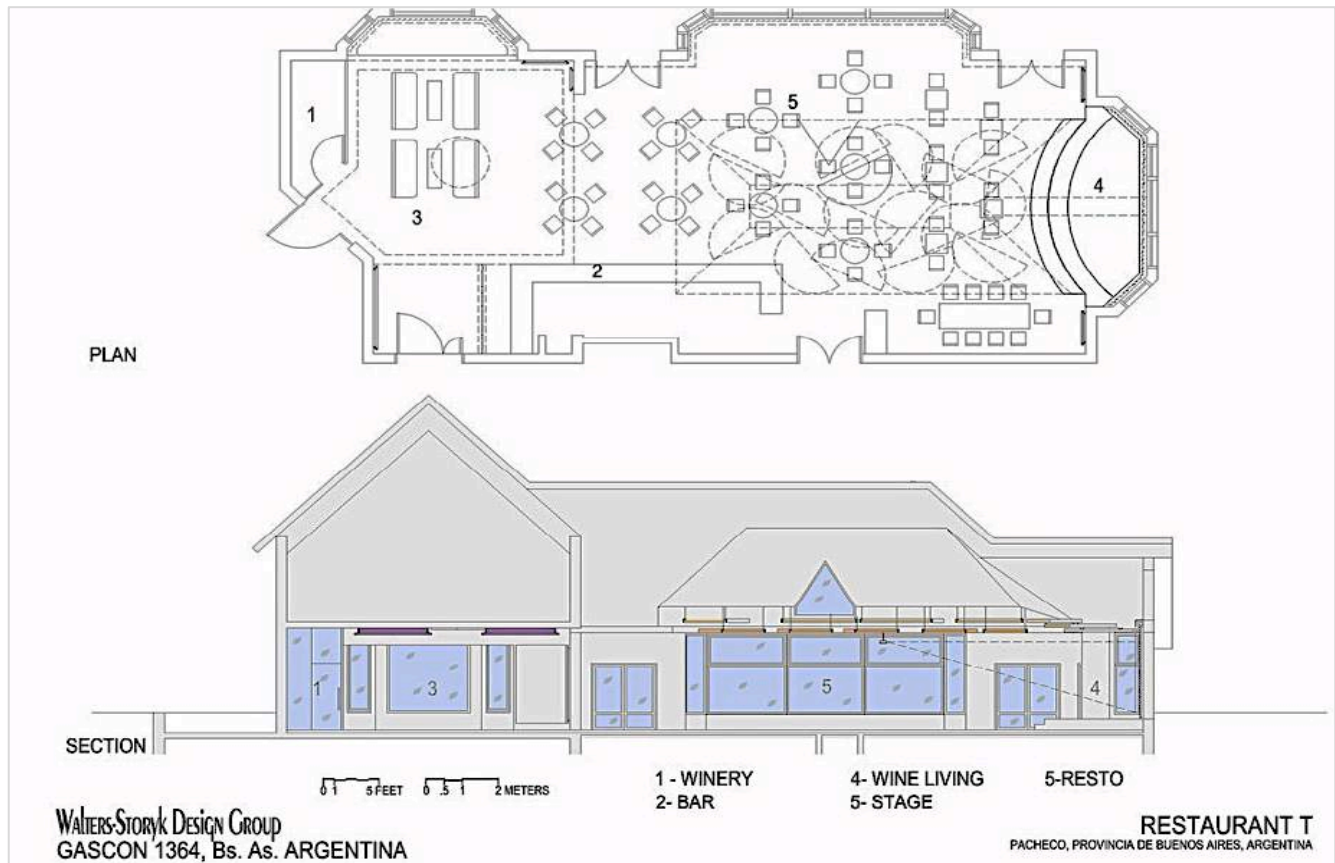
Restaurant T is an upscale gourmet restaurant, located in the Pacheco Golf Club, a gated community & country club in Nordelta, north of Buenos Aires. In addition to delicious food the elegant dining room offers two distinctive special attractions, special lighting capable of changing the entire atmosphere almost instantly and, a carefully tuned acoustic environment which comfortably enables diners to hear each other speak. The project marks the first restaurant completely designed by the Walters Storyk Design Group (WSDG) and included complete technical and acoustic conceptualization, and a unique set of aesthetic goals.

In April 2009, renowned Chef Hernán Taiana, a popular fixture in the celebrity-spiced world that summers in Punta del Este, Uruguay, approached Sergio Molho, founding partner of the WSDG Latin American office. Taiana's primary goal was to create a restaurant offering not only delectable food, but discernable acoustic comfort. When WSDG responded with a comprehensive proposal featuring aesthetic and technological recommendations, the firm was awarded the entire project.

In developing a unique look for the venue, the WSDG design team took advantage of recent developments in acoustic treatments such as clouds and panels to insure an environment which would promote conversation rather than drowning out conversations with the typical restaurant din. The design followed a very specific color palette of white, black, grey, and metallic colors over wooden diffusers to develop an elegant, modern look.



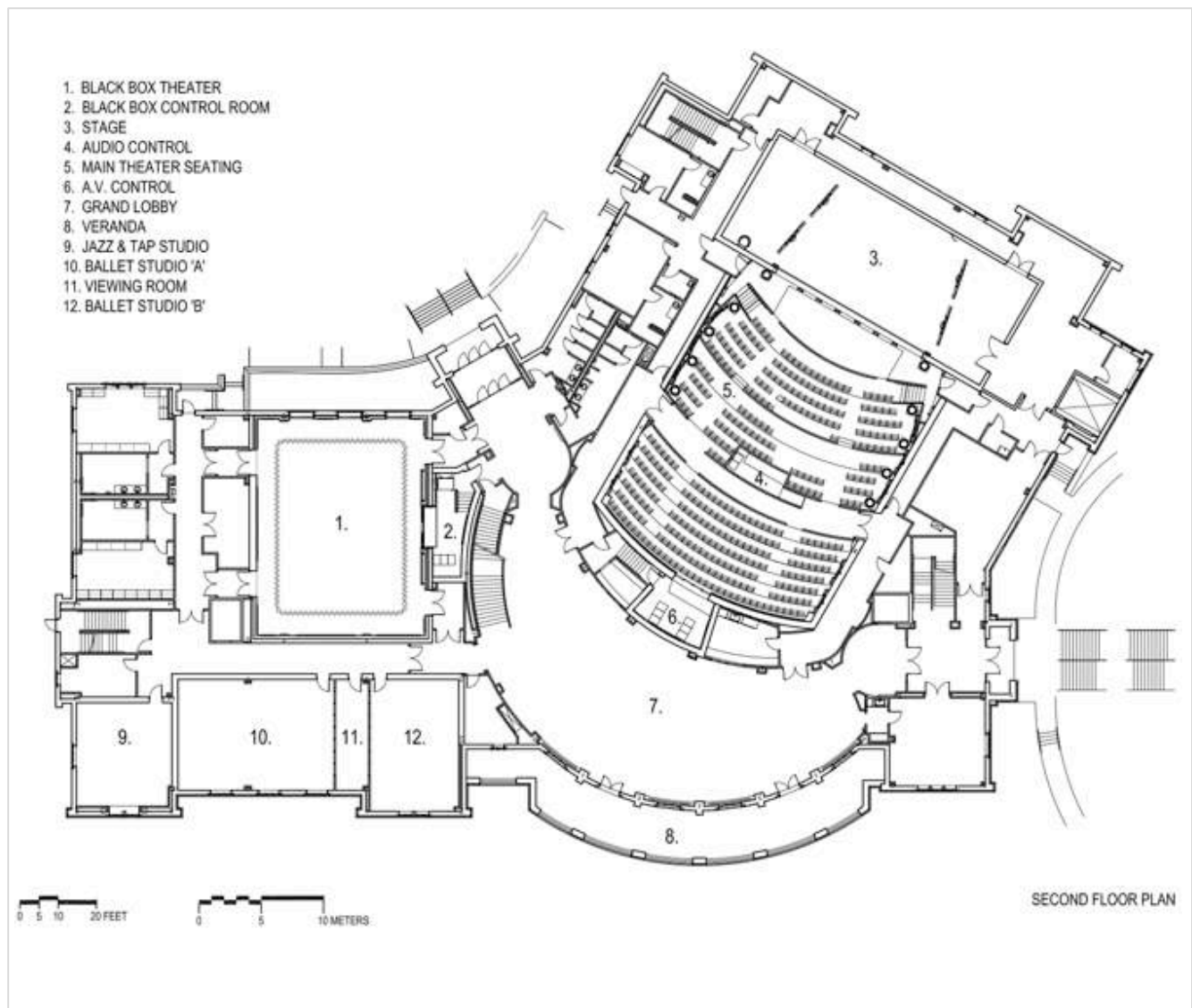
Restaurant T - Buenos Aires, Argentina



Murray Arts Center - Marietta, USA

The Murray Arts Center represents a unique addition to Atlanta's growing commitment to education and live entertainment. Recently purchased by the Mount Paran School with the aid of a generous grant from Atlanta's Murray Family Foundation, the \$35 million complex features a 600-seat music hall, an intimate 2,200-square-foot black-box theater, three dance studios, a cutting-edge recording studio and a sophisticated video production/post-production facility. Each of the Center's components are designed to support the development of the Mount Paran School's performing arts program. The Center has a dual role as a multi-faceted campus preparing students for post-secondary degrees in dance, theater, music, choral and digital media and as a professional-level performance venue.

Crowning a pastoral Marietta hilltop, the striking 84,000-square-foot brick and limestone, multi-level building was developed by award-winning Atlanta-based Randall-Paulson Architects. Distinguished by a soaring 5,600-square-foot 'Grand Lobby' the complex includes over 8,000 square feet of rehearsal space, dressing and green rooms. The architectural and acoustic design for the Center's theatrical performance spaces, state-of-the-art rehearsal rooms and high-tech audio/video facilities was entrusted to WSDG.



Murray Arts Center - Marietta, USA

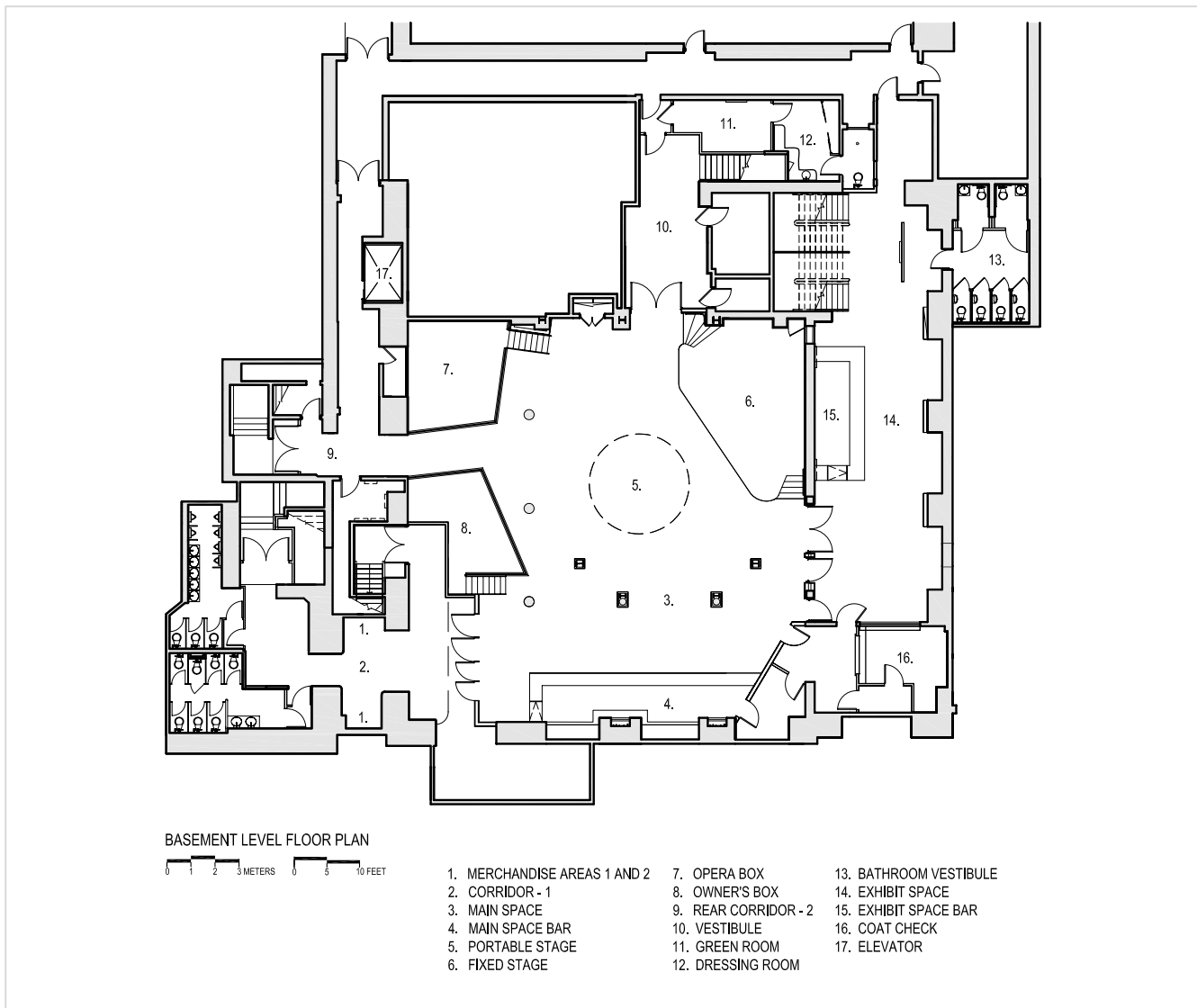


Le Poisson Rouge (LPR) - New York, USA

Le Poisson Rouge (LPR) now occupies the site of the historic Village Gate venue in Greenwich Village in NYC. The club features a flexible and intimate performance space with a capacity of 800 people (250 seated) as well as a 23 ft. diameter hardwood sprung dance floor. The stage itself is located in the corner of the performance space and measures 28 ft. x 21 ft. with options for increasing or decreasing the overall footprint. The 16 ft. diameter trundled round stage can be used in the center of the space as needed, for example to hold LPR's 9 ft. concert grand piano.

In addition to having a fully featured, flexible performance space, LPR also sports two cinema-sized screens, both of which feature surround sound. The lounge directly adjacent to the performance space can hold approximately 130 customers for concurrent events.

LPR was designed with two elevated VIP Opera Boxes as well as two private entrances for high profile guests or performers. The kitchen boasts a full catering capability, a concert bar menu and a daytime lounge menu. The club has featured a wide range of performers including Norah Jones, Mos Def, Paul Simon, Lou Reed, Moby and many others. WSDG provided all architectural, acoustic and A/V design for this project.



Le Poisson Rouge (LPR) - New York, USA



KKL Concert Hall - Luzern, Switzerland

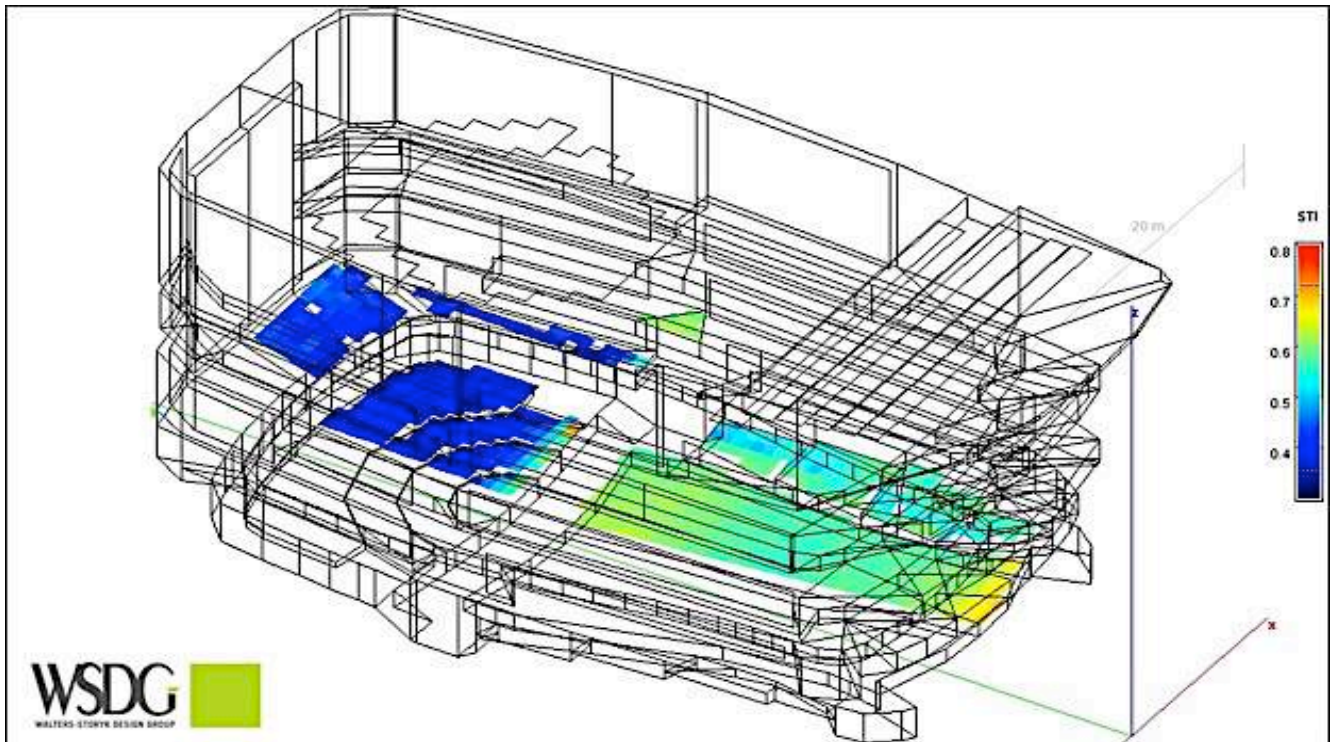
From its opening performance by the Berlin Philharmonic in August 1998, the KKL Luzern Concert Hall was recognized as one of the world's great performance centers. An international landmark, both architecturally and culturally, the complex attracts music fans from around the world to its picturesque lakeside setting. More than a dozen years of constant use – with an impressive yearly booking rate of more than 90% – coupled with significant technological advances prompted the KKL Luzern management group to upgrade its retractable electro acoustical system. WSDG was brought in to accomplish this essential project.

A major issue of this hall is the wide distribution of seats on five vertical levels surrounding three of the four walls, and consequently, the coverage requirements of the electro acoustical sound system. The core of the solution was the realization that the Hall is mainly designed for acoustical sources placed directly on stage. Consequently, the new main loudspeaker system was installed significantly lower and closer to the stage than the original system. The main system is supplemented by elements, which are permanently installed but retractable by motors. The project was divided into three phases: 1) Identification of the requirements, system planning and preparation of specifications; 2) On-site evaluation of a three loudspeaker system candidates; 3) The execution phase of installation planning, supervision and commissioning.

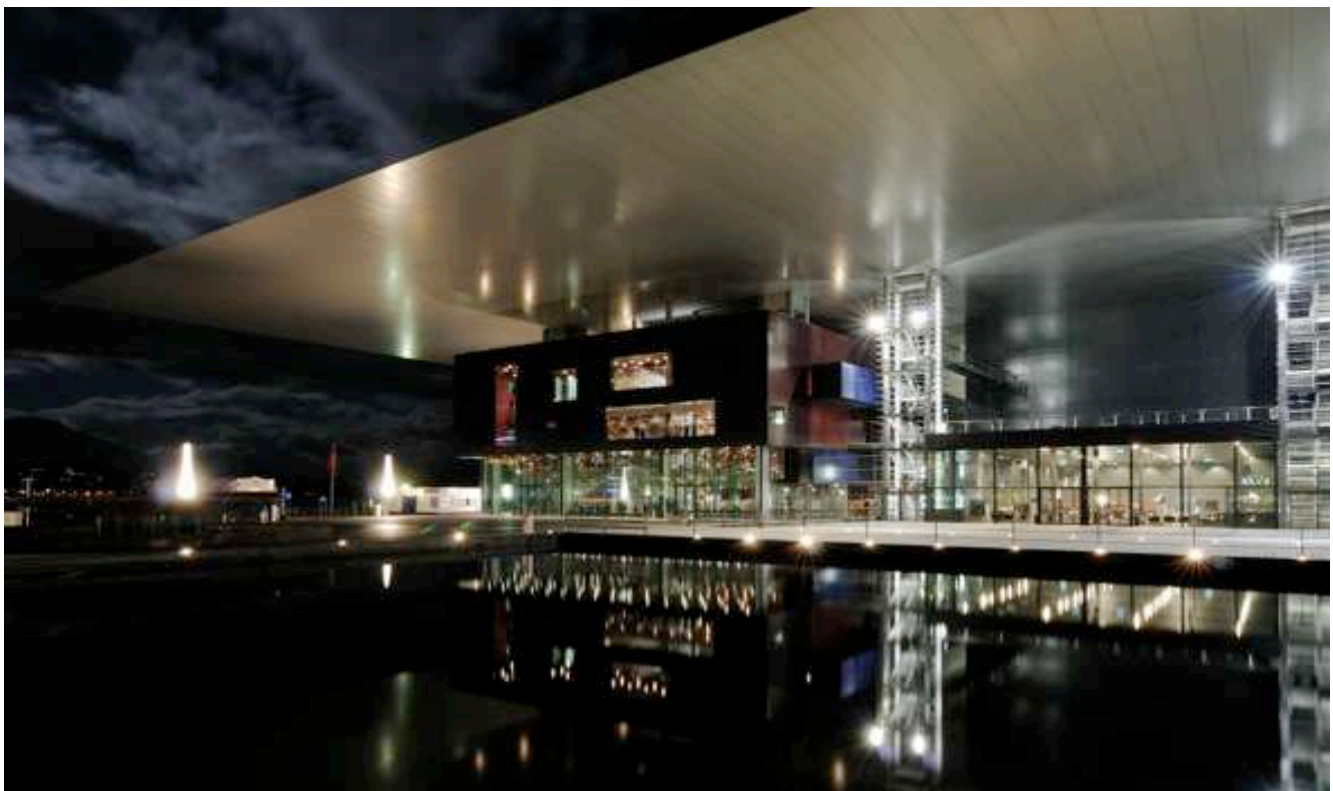
The new sound reinforcement system consists of the Left Right main system with two line arrays of eight d&b V12 units each, suspended above the stage front edge; two additional line arrays for covering each of the balconies with five d&b V12 units; a stage edge in-fill system consisting of two d&b V-Sub and two d&b V12 units each on the right and left and a stage mounted front-fill provided by six d&b E6 units. For events requiring a 360-degree speech reproduction, a retractable center cluster was provided with a front section (consisting of eleven d&b T10 units) and a rear section (consisting of three RCF VSA 2050 digitally controlled column loudspeakers).



KKL Concert Hall - Luzern, Switzerland



STI Speech Transmission Index

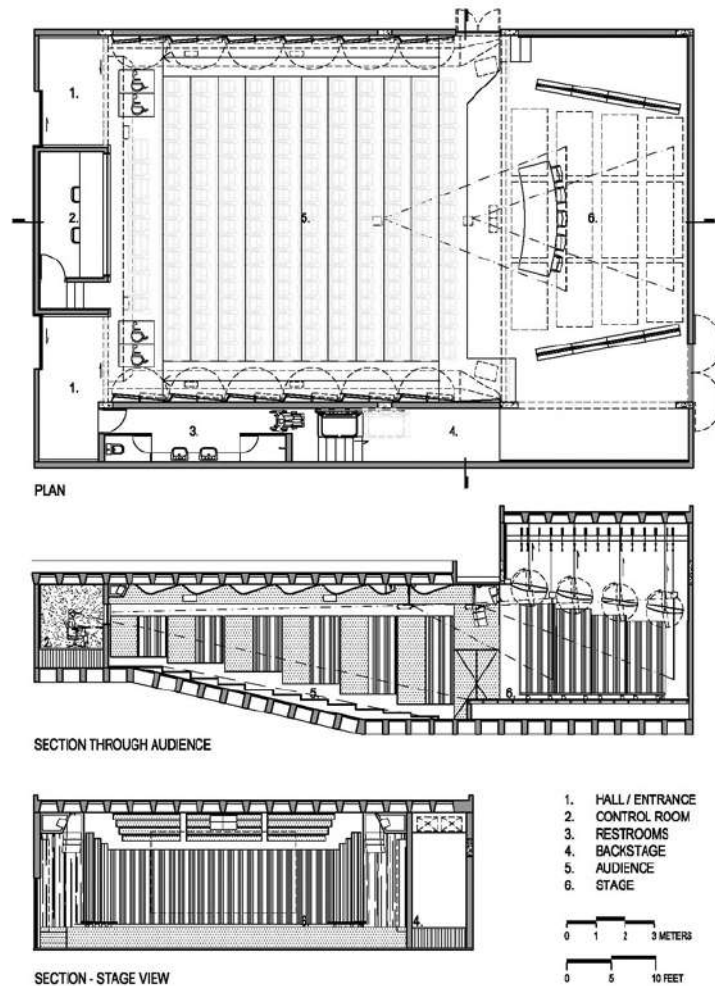


Inhotim Theater - Brumadinho, Brazil

Inhotim is the largest open-air museum of contemporary art in the world, located at Brumadinho a city nearby Belo Horizonte, Brazil. It has the most important contemporary art collections nowadays in the world. Besides that, the foundation also works on cultural, social and environmental conscious projects and events.

They needed to expand the museum facility by adding a small world-class theater; WSDG was invited to meet the client's expectations for the new building. The 250-seat space was designed to accommodate various types of music presentations, plays and art-oriented movies.

To achieve that, a series of variable acoustic panels, including an acoustic orchestra shell were installed. WSDG was responsible for all the acoustic design including construction and integration of the 7.1 surround audio system.



Walters-Stork Design Group
Highland, NY

INHOTIM AUDITORIUM
BRUMADINHO - MG, BRAZIL

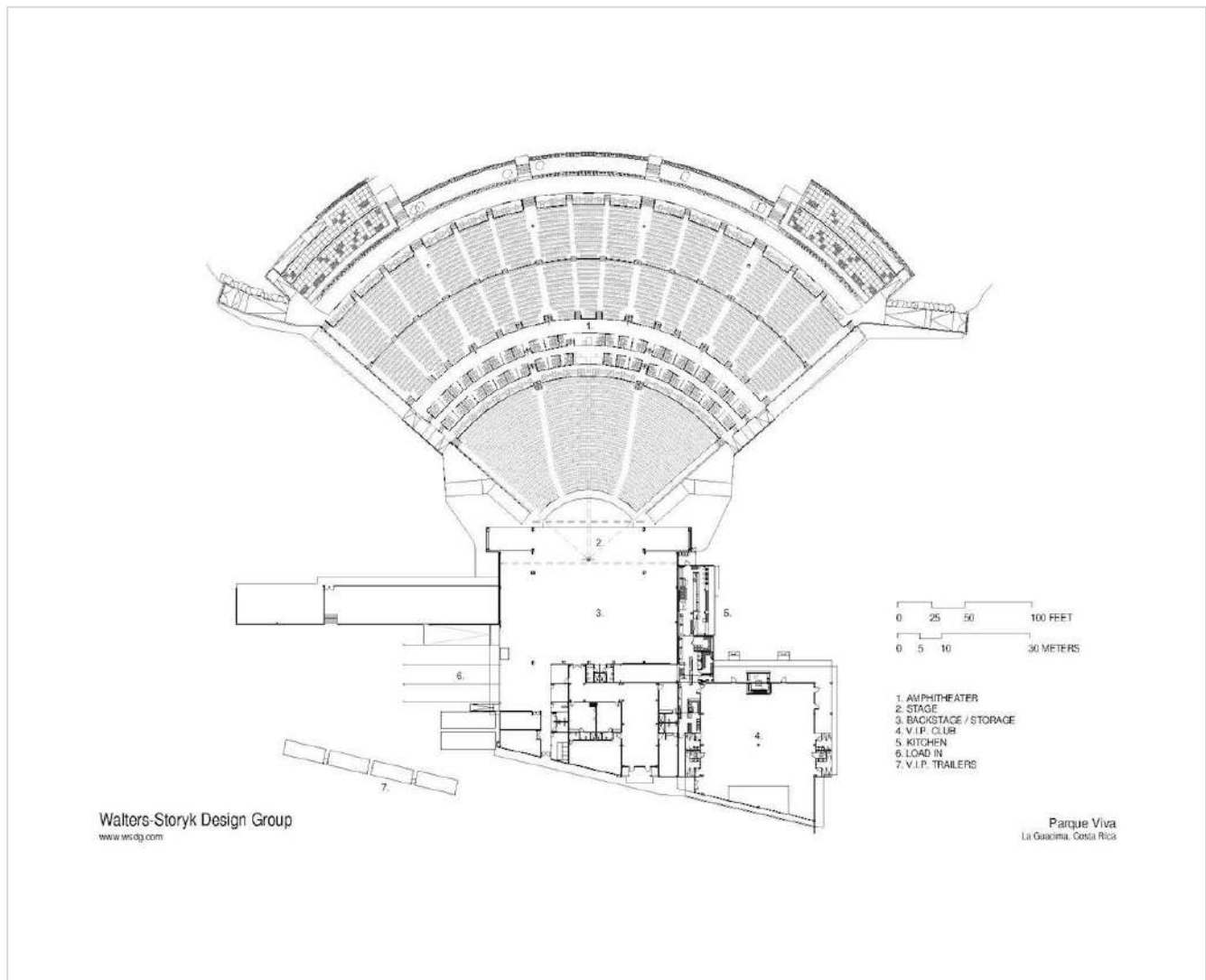
Inhotim Theater - Brumadinho, Brazil



Parque Viva - La Guacima de Alajuela, Costa Rica

Viva Park, Central America's first sports/entertainment/corporate events center is built on the 300,000 m² / 3,229,173 ft² grounds of a former auto racetrack. The venue creatively combines three separate attractions within a picturesque, estate-like setting. The Amphitheater is designed to host audiences of up to 16,000 fans for rock shows and other live performances. The Convention Center/Exhibition Hall is ideal for trade shows, and the original outdoor track has been redesigned to accommodate auto sports, running and cycling events. Featuring a variety of dining options, Viva Park represents an exceptional option in contemporary entertainment.

The ambitious project was conceived and developed by Bliss Entertainment, a recently formed, Costa Rican business initiative. Recognizing the need to insure impeccable music/performance audio quality and flawless speech intelligibility for Viva Park's three primary attractions, Bliss retained Jaime Molina, principal of leading Costa Rican Project Management firm, ICC. Molina engaged architectural/ acoustical experts Walters-Storyk Design Group-WSDG, to design performance audio and public address systems to insure the highest quality sound distribution for the venue.



Parque Viva - La Guacima de Alajuela, Costa Rica



Aura Club Events Hall - Zurich, Switzerland

Built within the historic 21,000 sq. ft. (2,000 sq. meter) former “Alte Boerse” Zurich Stock Exchange Building, AURA encompasses four distinct settings, a 100 seat gourmet restaurant, an intimate bar, a chic, stylish smokers’ lounge and, a 4,800 sq. ft. (450 sq. meter) Events Hall capable of accommodating up to 500 guests. Featuring groundbreaking 360° panoramic video projection and 3D audio systems, the Events Hall is designed to host galas ranging from awards and fashion shows to banquets, weddings and corporate gatherings.

AURA’s uniquely flexible, multi-purpose strategy required the amalgamation of state of the art technology, within a highly sophisticated acoustic environment. The video presentation system engages eight, ceiling-mounted, high-performance projectors. Audio distribution employs a total of 80 loudspeakers, (70 of which are skillfully concealed by acoustically transparent, architectural construction). Deploying such a massive arsenal of cutting edge technology within this urbane, 21st Century atmosphere necessitated an extremely flexible and creative systems integration.

Aura’s vision for 3D audio presentation required full integration with the venue’s video imagery and innovative lighting, to establish a combined central focus for the Events Hall. All three elements were tasked with functioning interactively, to achieve a fully immersive environment capable of completely engaging guests within messaging and/or entertainment programs. WSDG’s Basel office was retained to design and coordinate the massive sound isolation planning and construction project to fully adhere to Zurich’s stringent city center legislations and limits. Various preset programs were developed to enable a myriad of speaker combinations (all together, or in an infinite range of individual or cluster groupings), depending on need, e.g. live performance, 3D surround sound, etc. Additionally, the ‘sweet spot’ can be expanded to encompass the entire room, providing a spatial sound experience for all guests.



Aura Club Events Hall - Zurich, Switzerland



The Metroplex at KITEC - Hong Kong, China

The Metroplex, a luxurious 9 screen multiplex cinema, opened in Hong Kong's iconic Kowloon Bay International Trade & Exhibition Centre. Adjacent to the widely popular Star Hall, scene of many major international concerts, The Metroplex is an investment property of Hopewell Holdings Limited. The complex reflects the Group's vast experience in operating large-scale venues, and it establishes a new level of lavish comfort for filmgoers. Their unique concept was to bridge the gap between film and music by creating cross-over events and festivals that would benefit from the venue's diverse dining, socializing, large and small theaters and intimate screening rooms.

House 1, the Metroplex's largest theater, can accommodate an audience of 430. The five other "public" theaters can seat groups ranging from 151 to 97 guests. Three plush VIP Screening Suites (#'s 7,8, 9) are each designed to host twenty guests. Theaters 1 and 3 as well as all three VIP Suites offer opulent reclining lounge chairs, state of the art lighting, exquisite interior designs and Dolby® Atmos™+ Dolby Surround 7.1 sound. The four other theaters are outfitted with Dolby Surround 7.1. The futuristic lobby and dining areas provide an unsurpassed ambience for elegant gatherings. WSDG provided a comprehensive review of the architectural master plan layouts and a detailed analysis of the acoustic package recommendations provided by a local consultant. Particular attention was addressed to issues of sound isolation and (RT60) internal room acoustics. The client's primary concern was to assure absolute sound isolation between the movie theaters and the large event hall located on the upper floor specifically with regard to NC and STC parameters.



The Metroplex at KITEC - Hong Kong, China

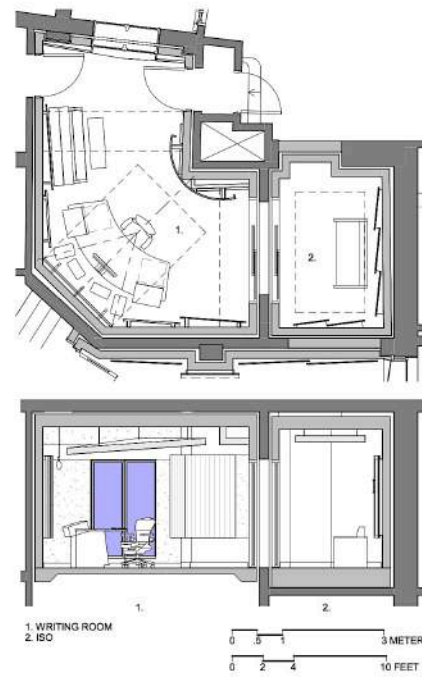
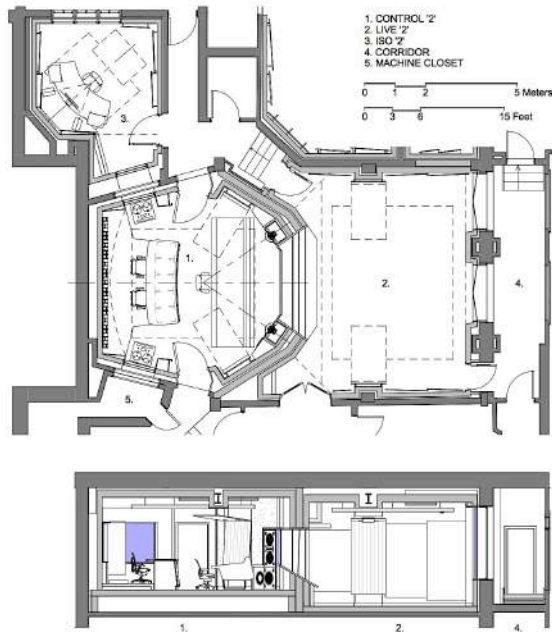


The Church Studios - London, United Kingdom

Grammy and Academy Award-winning producer Paul Epworth (Adele, Cee Lo Green) brought WSDG on board to reconfigure the famed Studio A Live, SSL Control Rooms and the addition of the Writers Room when he purchased London's iconic Church Studios. Interior aesthetics have been drawn from a palette of subtle whites which may then be 'colorized to desired mood' by a sophisticated computer program. The new, fully isolated 350 sq. ft. Control Room A will continue to rely on the studios' vintage, multi-platinum SSL console and new, custom-designed WSDG/Augsburger main monitors. The 450 sq. ft. / 11 ft. high ceiling Studio A Live Room features a customized designed wall and ceiling acoustic treatment package. The elegant, new ultra-modern 190 sq. ft. Writers Room includes a sleek, wall-mounted Data/Power Cable "box skirt" cabinet to support the uncluttered creative atmosphere. The Church received a NAMM TEC award for Best Studio Design Project.



The Church Studios - London, United Kingdom



Miloco
Walters-Storyk Design Group
www.wsdg.com

The Church Studios
Studio 2 - London, UK

Miloco
Walters-Storyk Design Group
www.wsdg.com

The Church Studios
Studio 3 - London, UK

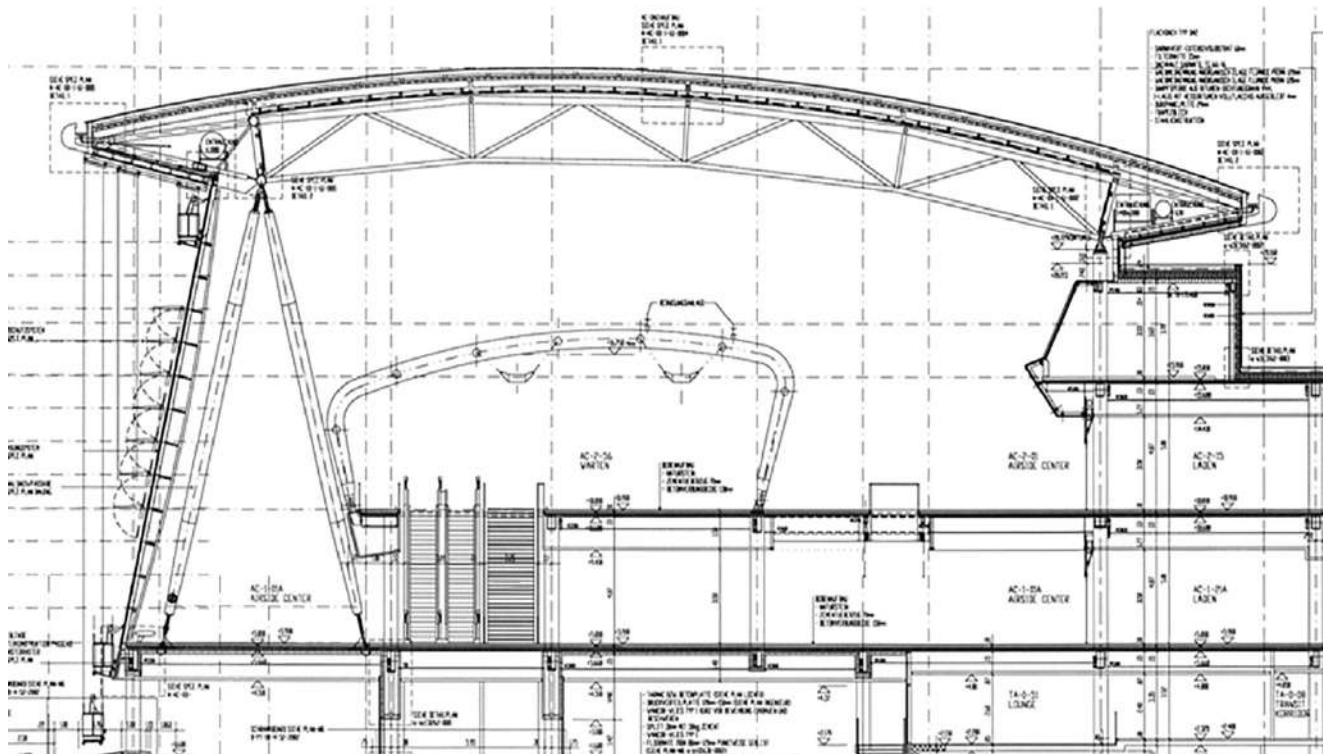


Flughafenkopf – Zurich Airport - Zurich, Switzerland

The Airside Center (A500), located between the existing finger docks A and B, acts as a focal point for travellers at the airport. The project is comprised of the new Airside Center (housing new shops and restaurants), the Underground Skymetro Station which connects the Airside Center to the Dock Midfield, the Arrival Hall just above the Skymetro Station, and various renovations within the A and B terminals. The previously existing buildings are all connected and the Airside Center, with its prominent shape, reflects the new identity of the airport.

WSDG was awarded the full electro-acoustic design of both of these new facilities by the responsible electrical engineering firm, Ernst Basler + Partner AG. WSDG's project scope included creating the electro-acoustic project requirements (e.g. Speech Intelligibility, Sound Pressure Levels, Frequency Responses, Coverage, etc.) in line with the appropriate national and international standards - IEC 60849; electro-acoustic design and optimization with assistance of computer simulations and other means of calculation; specifications and supervision of all driver components to the electro-acoustic system.

The specified system for the large open spaces with high ceilings is based on Duran Audio's Intellivox loudspeakers (a total of 16 units). These line array loudspeakers offer full digital beam steering control and, due to their narrow form factor, can be installed in a nearly invisible manner, meeting the project's architectural requirements. Ancillary specified loudspeakers for support spaces and adjacent areas are highly directional units from Frazier and HK.



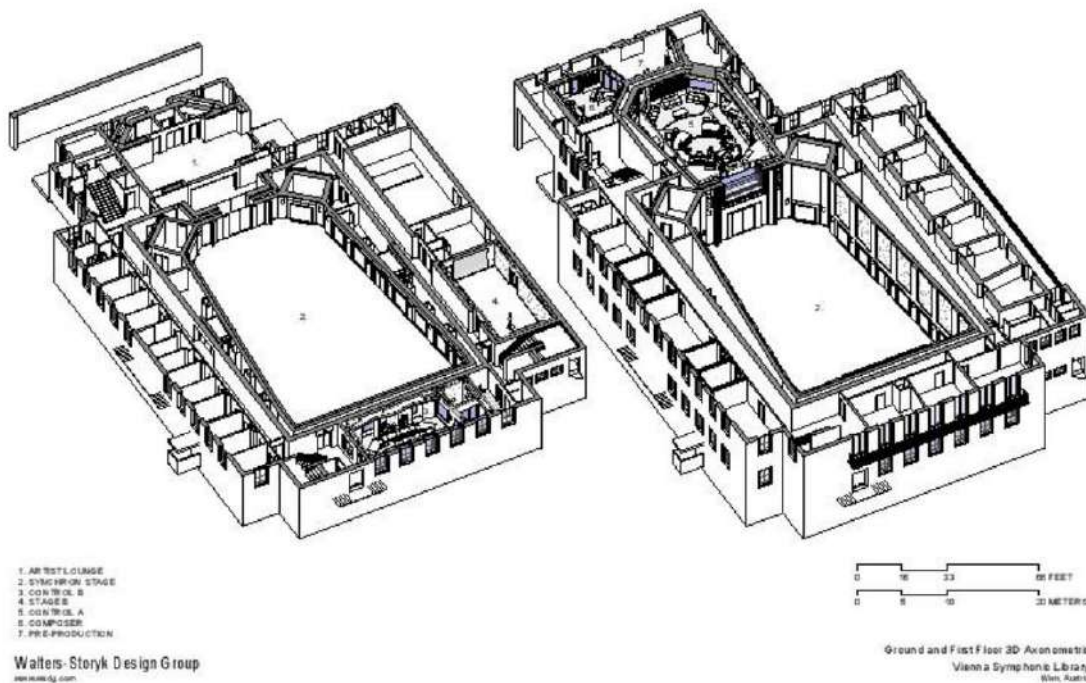
Flughafenkopf – Zurich Airport - Zurich, Switzerland



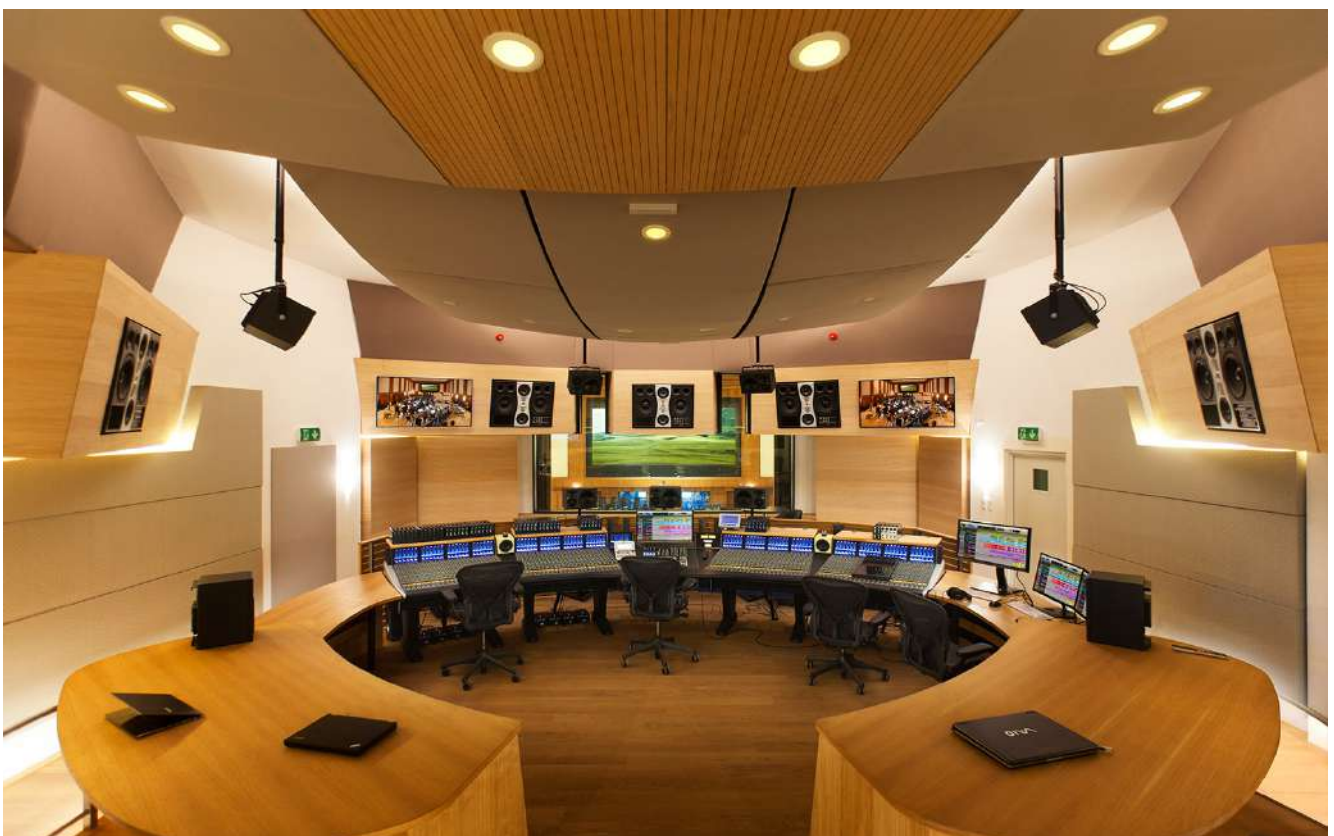
VSL Synchron Stage - Vienna, Austria

A leading developer of orchestral sample libraries and music production software, the VSL Synchron Stage enlisted WSDG to upgrade its historical (circa 1940) scoring stage into a cutting-edge recording facility. The reconfigured complex now provides enhanced acoustics and cutting edge technology for recording film music and, the full spectrum of orchestral and choral works. The 2,000 sq. m. / 21,000 sq. ft., VSL complex represents the World's only scoring stage capable of merging proprietary software innovations with traditional technologies and procedures.

The scope of the multi-year assignment required WSDG's wide-ranging facility planning services. Beginning with documentation of the overall state of the property, WSDG performed room and structural acoustical measurements and schematic conceptual planning. The Design Development Planning stage included interior design by company co-founder, Beth Walters. Construction Documentation was completed in collaboration with local architect, Schneider-Schumacher. The scope of work comprised: The VSL Synchron Stage A Control Room and large Recording Hall; VSL Synchron Stage B CR and Live Room; and the Studio C Edit Room, and Preproduction Suite. WSDG also performed the electro-acoustical system calibration for the audio monitoring system. The VSL Synchron State is distinguished by uniquely future-proof technology, making it a superb recording facility for film music and other orchestral and choral works. A large scale Dante Audio Network with input and output interface connection points at all relevant locations, serves as the facility's network backbone.



VSL Synchron Stage - Vienna, Austria



ESPN Digital Center 2 - Bristol, USA

ESPN, the global leader in comprehensive sports coverage, has completed a five-year development and construction project for its new Digital Center 2 studio/media production center. An ambitious addition to ESPN's existing Digital Center 1 campus in Bristol, Connecticut, the 194,000 sq. ft. complex was envisioned as a "format-agnostic/future-proof" creative production facility with unlimited potential for trail-blazing content creation. A comprehensive green and employee comfort-focused environment were primary goals for the new facility.

With six new production control rooms, four audio control rooms and 16 edit suites, ESPN's Digital Center 2 technical capabilities are exemplified by a multi-dimensional monitor wall featuring 56 variably sized individual monitors designed to provide 3D-like graphic images. An arsenal of 40 state-of-the-art cameras is highlighted by a JITA cam capable of swooping up to a height of 22 ft. and following a circular track to deliver a sweeping 360° studio overview. The Center 2 routing system can accommodate as many as 60,000 simultaneous signals over 1,100 miles of fiber optic and 247 miles of copper cable deployed throughout the facility.

All these rooms are dedicated to producing flawless audio and video for programs, interviews, voiceover recording and the full spectrum of broadcast audio for video support. Overall quietness throughout the entire creative plant was an absolute priority. High performance broadcast acoustic specifications and recommendations were developed for all critical services including HVAC, fire protection and electrical systems. ESPN Digital Center 2 represents the apex of broadcast, cable, and Internet streaming production. The complex stands as a major accomplishment in next-generation audio/video production and delivery.



ESPN Digital Center 2 - Bristol, USA



Rio 2016 – Barra Olympic Park - Rio de Janeiro, Brazil

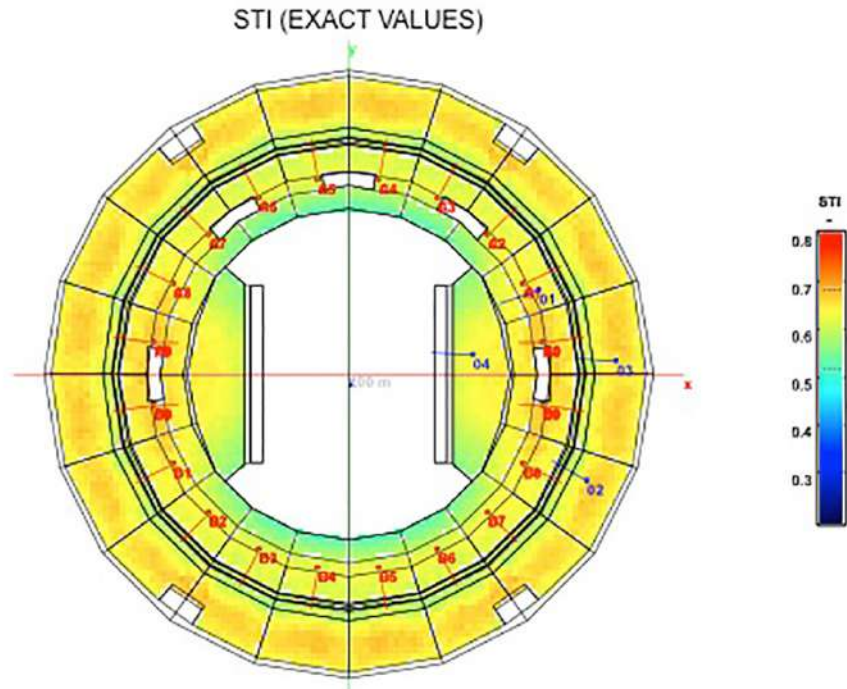
Barra Olympic Park was developed as Rio's primary 2016 Olympic and Paralympic Games competition center. Now it also serves as the city's largest sporting legacy. With an area of 1.18 million sq. m., Olympic Park includes nine sports venues. The Olympic Arena and Maria Lenk Aquatic Centre were built for the Rio 2007 Pan American Games. The seven new stadiums/sports venues are: The Olympic Tennis Centre, Aquatics Stadium and Rio Olympic Velodrome; plus: Olympic Hall 1 (basketball, wheelchair basketball and wheelchair rugby), Olympic Hall 2 (Olympic and Paralympic judo, plus wrestling and bocce), Olympic Hall 3 (taekwondo, fencing, sitting volleyball) and, Olympic Hall 4 (handball and goalball). Work on Olympic Halls 1, 2 and 3, plus the Tennis Centre began earlier.

The developers of this enormous Olympics complex retained WSDG to design the acoustics, sound and video systems for the 3 Tennis Arenas + practice fields (10,000, 5,000 and 3,000 seats); the 18,000 seat Aquatic Arena + Warm Up Pool; and, Audio and Video Systems for the COT Arenas (16,000 seat Basketball, 10,000 seat Judo and 10,000 Wrestling arenas).

All the systems were designed to meet international security standards and, Olympics Committee requirements. WSDG began the process by performing sophisticated electro-acoustic and modeling studies. The findings of these tests and procedures determined multiple solutions for each specific sound system. The primary goal was to insure the highest quality Speech Intelligibility and Sound Pressure levels. WSDG also designed large-scale Video Walls and Score Board screens, as well as Time Clock and Media Displays. Each unit was scaled to provide optimal visibility from every seat in the stands. Every Olympic Park stadium was created with 'future-proofing', for long post-competition service as Brazil's first Olympic Training Centre (OTC) and, South America's premium high performance athletic campus. The campus includes a research lab for nutrition, physiotherapy, sports and clinical medicine.



Rio 2016 – Barra Olympic Park - Rio de Janeiro, Brazil



Morro do Chapeu Residence - Belo Horizonte, Brazil

The architectural and acoustical design devised by WSDG for the villa's home theater and other living spaces leaned on solution suggested by the firms' professional recording studio expertise. Inhibiting sound from leaking into or out of sensitive listening areas such as recording studio live and control rooms is a WSDG specialty. The enclosed pool and spa area, however presented more troubling waters. Particularly challenging was the need for the acoustical treatments to unobtrusively compliment the custom finishes.

WSDG also designed a spacious (but cozy) home theater, which integrates the highest levels of audio and video technology. Recording studio-level, acoustical wall and ceiling treatments were engaged to provide superb frequency and time response. Bedrooms and a home office also benefitted from acoustical ceiling clouds, designed to control the reverberation time over a broad sound spectrum enabling each room's individual 5.1 surround sound and HD video system to deliver maximum performance quality.

The swimming pool and spa area, however, presented the project's primary acoustic challenge. The large area includes a gym, Jacuzzi and wet bar, surrounded by three walls of double height windows and a movable glass sealing system to maintain interior warmth in the cool, mountain region evenings. Again, professional recording studio design techniques provided solutions. Each window, including an expansive skylight grid of 20 individual panels was fitted with Acoustical Clearsorber Foil. Imported from Germany, the innovative translucent plastic sheets absorb medium and high frequency reverberation to resolve sonic reflection issues. Clearsorber also serves as a full room UV ray filtering system! Full transparency insures unimpeded views and, conversations free of traditional pool house reverberation.



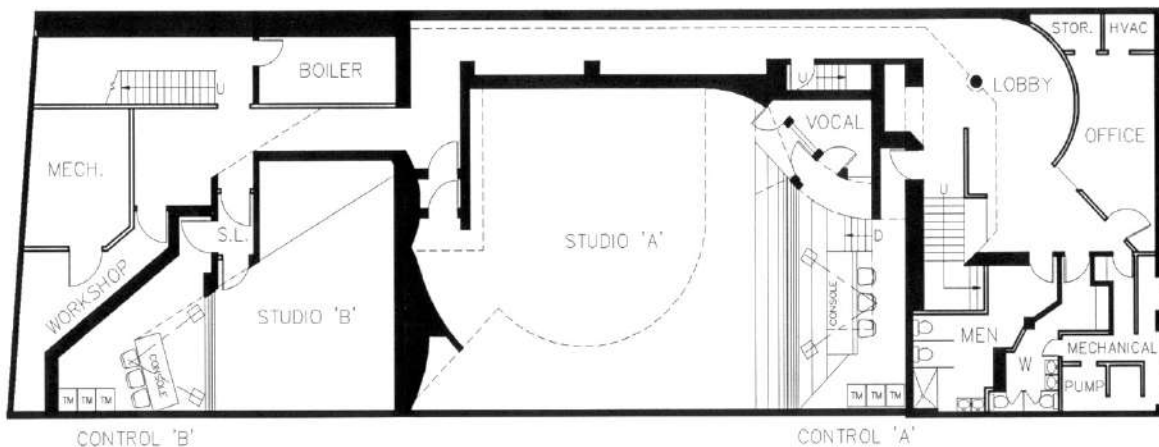
Morro do Chapéu Residence - Belo Horizonte, Brazil



Electric Lady Studios - New York, USA

Electric Lady is one of the world's first artist owned recording studios and one of the oldest, most famous and most successful studios ever. WSDG co-founder John Storyk was a 22-year-old fledgling architect fresh out of Princeton University when he was hired to design a studio for Jimi Hendrix. One summer evening in 1968, Storyk was enjoying an ice cream cone and leafing through the Village Voice when a classified ad caught his eye: "Carpenters wanted to work for free on experimental nightclub." Dialing the number from a corner pay phone, he got the gig. That club, Cerebrum, made the cover of Life Magazine after 6 months. When Jimi Hendrix visited the club one night and decided to hire Storyk to design his club (which became ELS), well the rest is history.

Eddie Kramer (Jimi's engineer) was adamant about Electric Lady having a tall, bright room similar to NY's legendary A&R Studios where Phil Spector did some of his greatest work. Kramer was also familiar with European studios like London's Olympic and Abbey Road. He believed drums required a big room. Storyk accommodated Kramer's need for high ceilings by excavating the basement, digging down to raise the height of the underground rooms. For the studios' interior, Jimi specified theatrical lighting, and his desire to have as many curved surfaces as possible (design elements which Storyk had originally incorporated in Cerebrum). Electric Lady's walls were painted white, so they could easily be turned into whatever color Hendrix was in the mood for with simple adjustments. One day Jimi arrived at the construction site and decided that he didn't like the square look of the expensive acoustic doors, which had just been installed. He asked Storyk if he could round off the tops, and when that proved impractical, he had them replaced by custom units with rounded, porthole-style windows.



ELECTRIC LADY STUDIOS
NEW YORK CITY



Electric Lady Studios - New York, USA

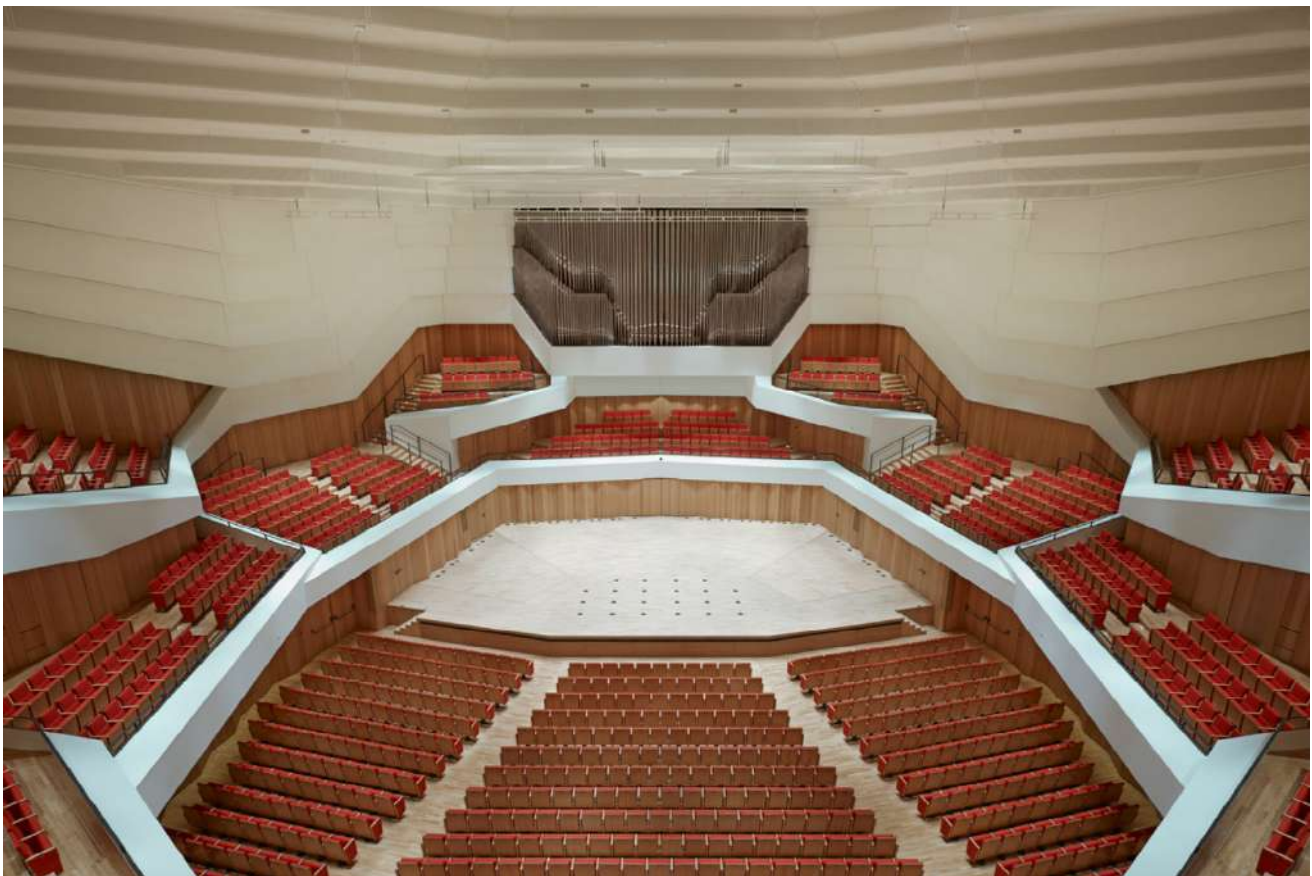


Kulturpalast Dresden - Dresden, Germany

A modernist box is located right in the middle of Dresden's old town: the Kulturpalast with its glass facades and striking roof structure. Centrally located between Altmarkt and Neumarkt, between Frauenkirche and Zwinger, the former GDR building is now once again one of the most important cultural places in the city – after renovation and conversion by gmp architects von Gerkan, Marg and Partners of Berlin. The heart of the building is the new concert hall for the Dresden Philharmonic. In addition, the municipal libraries, the cabaret “Herculeskeule” and a bistro have moved in here, which enliven the house throughout the day and into the evening.

The main venue of the Dresden Philharmonic follows the “vineyard” concept: the podium has moved into the center, the audience approach the orchestra in ascending ranks. Folded ceiling and wall surfaces enhance sound quality while wood paneling and red seat covers contribute to a more formal atmosphere. The first reviews confirm that the new hall has very good acoustic qualities.

ADA (a WSDG company) was the responsible acoustician for the owner and oversaw the works of design acousticians and theater technology planners Peutz (Dr. Vercammen and Margriet Lautenbach MA) and Daberto & Kollegen Munich gmp – Architects von Gerkan, Marg and Partner have transformed the Kulturpalast with its mixture of uses into a place of informal, civic encounter. The external appearance of the now energetically renovated building and the basic spatial organization with the large south foyer were retained. The design of the publicly accessible interiors also remained largely in the original style, but were completely renovated. The appreciation for modernity should be particularly beneficial to the historical complexity of the city.



Kulturpalast Dresden - Dresden, Germany

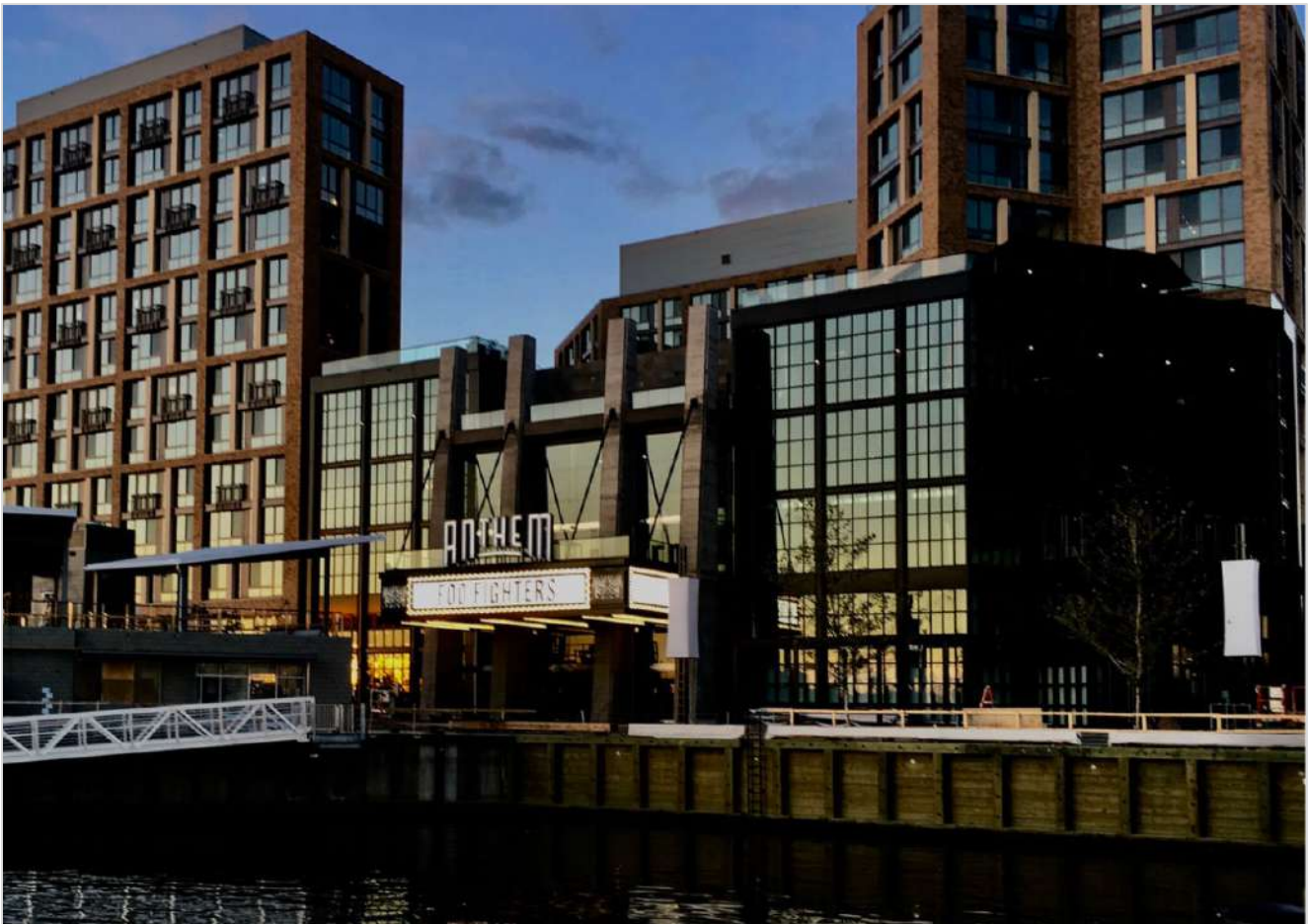


The Anthem - Washington DC, USA

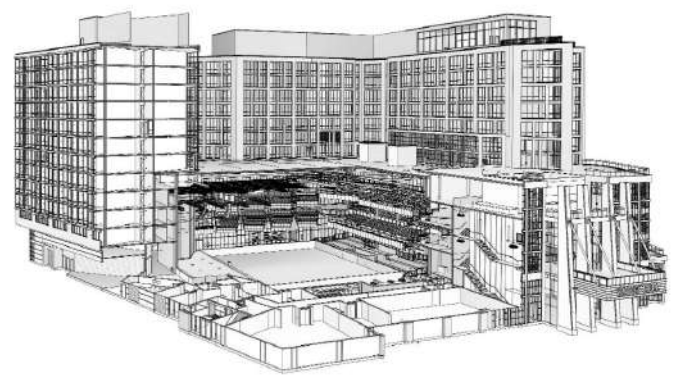
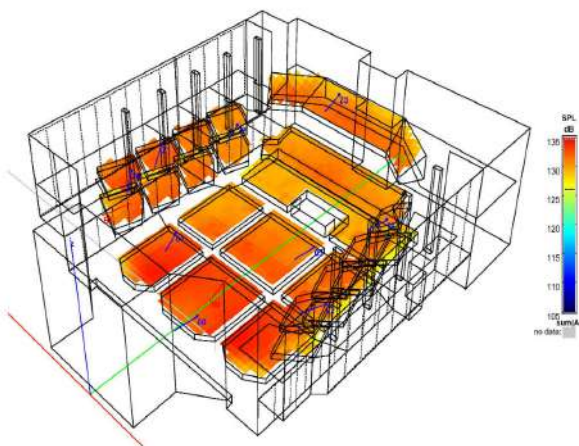
An extraordinary new venue set on the shores of the Potomac, The Anthem, is a game-changing, multi-tiered concert hall created by impresario, Seth Hurwitz. While his iconic D.C. 9:30 Club featured intimate performances by legendary acts like Iggy Pop, Nirvana, and Dolly Parton, The Anthem is scaled to host up to 6,000 fans on its expansive dance floor and two tiers of balcony-seating. A key component of The Wharf, a \$2.5 billion waterfront development, The Anthem will provide an epic setting for extraordinary concert experiences featuring artists ranging from Foo Fighters and The Killers to LCD Soundsystem and Lorde.

To support Hurwitz's commitment to providing fans with flawless acoustics, WSDG's U.S. and Swiss Architectural/Acoustical Design & Media Systems Engineering team employed extensive room modeling programs, and a variety of acoustical measurements and instrumentation tests at the project's earliest design stage. Hurwitz has relied on WSDG's extensive acoustic expertise, for both the 9:30 Club and his Frank Gehry-designed, Merriweather Post Pavilion. Experience taught Horowitz that creating an optimal listening environment required designing the acoustics prior to construction. Exhaustive WSDG research was also devoted to ensuring sound isolation to maintain quietude throughout the complex's residential sector.

WSDG recommended the installation of strategically positioned Helmholtz absorbers, and a selection of medium density rear wall broadband absorbers calibrated to enhance a wide range of performance styles. The electroacoustic arsenal employed arrays of flown Left and Right arrays, with the option to use Center and Front Fill speakers and a directional subwoofer array for even low frequency distribution. The Anthem will join a select group of the world's most versatile, and best sounding performance venues.



The Anthem - Washington DC, USA



Electro Acoustics - L/R Array SPL Distribution
The Anthem
Washington, D.C.



The Anthem
Washington, D.C.

Jakarta International Expo - Jakarta, Indonesia

At 430,000 sq. ft. the new Convention Centre and Theatre at Jakarta International Expo (JIExpo) complex will be one of the largest and most forward thinking convention and entertainment centers ever built in Indonesia. When completed in late 2018, this unique venue will offer a wealth of business, entertainment and civic options to visitors from around the globe. In 2015 when CCM's JIExpo project received a green light WSDG (Walters-Storyk Design Group) was called in at the design stage to consult with Aedas, one of the world's leading architecture and design practices. The mandate was to create an acoustic environment conducive to world-class acoustical standards throughout the complex.

A bold and visionary concept, JIExpo was envisioned as a comprehensive multi-use facility. A vast 30,000 sq. ft. main ballroom has been designed with moving walls, which enable it to be sub-divided into three smaller configurations. A comprehensive business center features fourteen large multifunctional meeting / presentation / conference rooms and a junior ballroom (ranging in size from 970 sq. ft. to 9,000 sq. ft.) designed for conferences, conventions, special events, awards shows and high level exhibitions such as jewelry, wedding and real estate shows. Four luxurious private bridal suites were created to host bridal parties preparing for ballroom weddings. JIExpo's pièce de résistance is a next generation, 2,500-seat Broadway-style theater with three full balconies. An ingenious proscenium arch with moveable sidewalls can change the stage width from 60 ft. to a stunning 100 ft. with no space loss. And, a (12 ft. deep x 60 ft. wide) motorized platform set 11 ft. below floor level as an orchestra pit. Elevated to ground level it provides 39 additional priority seats. Raised to stage level it expands the performance area. The theater will set a new benchmark for live theatrical presentation. Collaborating with Aedas at the design stage enabled WSDG to develop a structural and room acoustic program capable of meeting the most stringent sonic quality and speech intelligibility criteria.



Jakarta International Expo - Jakarta, Indonesia



Arena Thun Stadium - Thun, Switzerland

The Arena Thun is commonly referred to as the “jewel” in the Swiss Super League stadiums. With just over 10'000 seats the arena is compact, but outstanding by the unique location and a coherent architectural concept. There is hardly another stadium where the action is this close to the pitch.

For the moments before and after sports the Panorama Center shopping mall can be found immediately adjacent. The mall provides an area of 15'000 m2 and offers everything your heart desires – from fashion to electronics, from leisure to home improvement.

Due to the restaurants, the generous garage and the comfortably appointed VIP rooms the facility is well suited for major cultural and sporting events, but also for conferences, banquets and many other occasions. The breathtaking Alpine panorama makes this place truly unique.

The WSDG designed room acoustics concerns all relevant areas, including the materialization of the stadium roof underside. This allows for an intense, inspiring community experience, while maintaining a comfortable intimacy, excellent speech intelligibility and a limited impairment of the neighborhood.

The WSDG designed electro-acoustic system allows an excellent, targeted supply of the stadium, circulation, and shopping areas with voice and music content. Fully digital signal distribution and control combined with permanent signal monitoring and redundancy of key components and network connections make the system compliant with the strict requirements for audio evacuation systems.

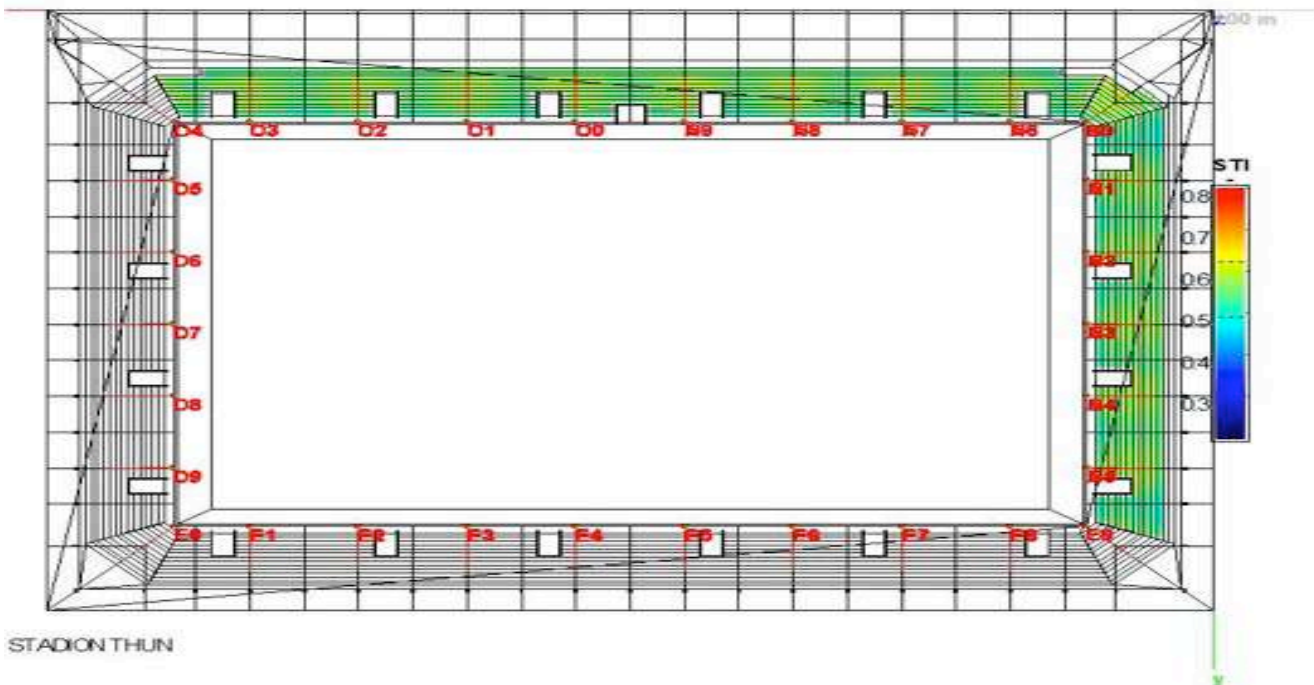


Arena Thun Stadium - Thun, Switzerland



STI original, masking on, [300000 rays (adapt), 3000 ms] (interference off)

Bkg [dB]: 96 100 95 91 88 84 81 -



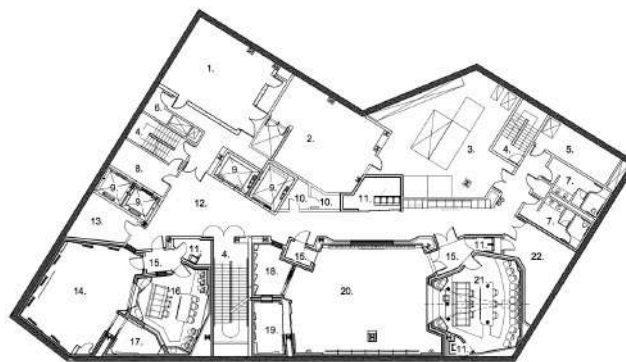
STI Distribution Model

Berklee College of Music – 160 Mass Ave - Boston, USA

For one of its latest real estate acquisitions, Berklee College of Music created *160 Massachusetts Avenue*, a 16-story, 170,000-square-foot mixed-use building. It houses dorm rooms with 350 beds, increasing Berklee's on-campus housing capacity to approximately 1,200 students, as well as a two-story dining hall that seats 400 and also includes a venue for student performances. Most importantly it is the new home for nine new audio production / teaching studios – housed in two levels below grade – all fully decoupled and capable of simultaneous use.

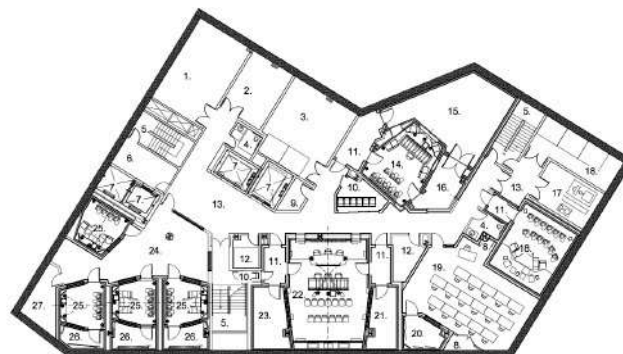
The music technology complex includes two professional-quality recording studios, a Dubbing Stage, a Mastering and Critical Listening lab, four production suites and a flexible performance venue / film scoring studio. WSDG designed and supervised construction of this facility in collaboration with chairs, deans, and technology lab staff from Berklee College of Music during a period of three years. Students can enjoy performance spaces that emulate professional environments, with state-of-the-art equipment and a wide variety of musical instruments.

In addition, WSDG worked on the two-story dining hall to address internal room acoustics, specifically with regard to the general intelligibility of the dining hall. The facility opened in 2014 and received a NAMM TEC award for Best Studio Design Project.



LEVEL B1 - FLOOR PLAN

- | | | |
|-----------------------|-----------------------|------------------------|
| 1. NSTAR VAULT | 9. ELEVATOR | 16. CONTROL ROOM 2 |
| 2. MAIN ELECTRIC ROOM | 10. ELECTRICAL CLOSET | 17. ISO 2 |
| 3. MECHANICAL | 11. EQUIPMENT CLOSET | 18. ISO 1.1 |
| 4. STAIRWAY | 12. CORRIDOR 1 | 19. ISO 1.2 |
| 5. MDF ROOM | 13. GENERAL STORAGE | 20. STUDIO 1 |
| 6. UTILITY/TYPE INS | 14. STUDIO 2 | 21. CONTROL ROOM 1 |
| 7. RESTROOM | 15. SOUND LOCK | 22. PERCUSSION STORAGE |
| 8. ELEVATOR LOBBY | | |

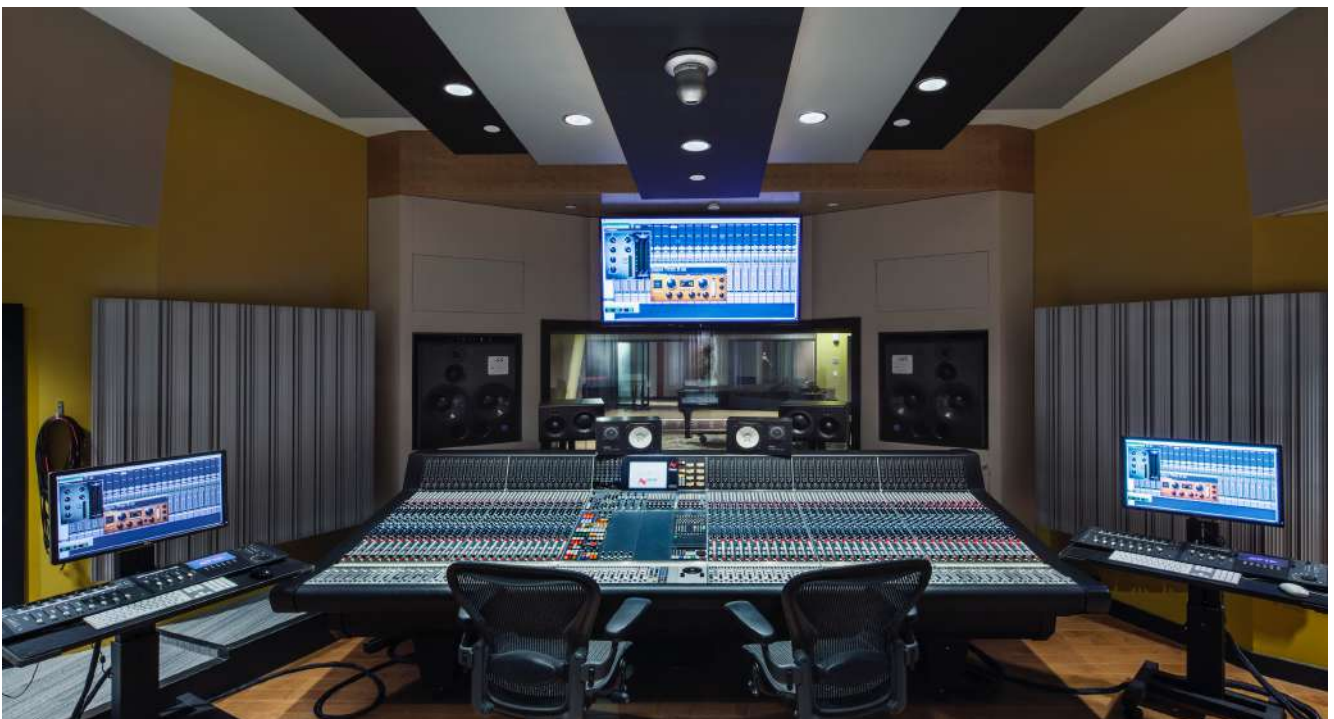


LEVEL B2 - FLOOR PLAN

- | | | | |
|--------------------------------------|----------------------|--|-----------------------|
| 1. FUTURE MUSIC TECH/GENERAL STORAGE | 8. CLOSET | 15. STUDIO 3 | 22. DUB STAGE |
| 2. GEN TANK | 9. ELECTRICAL CLOSET | 16. ISO 3 | 23. DUB - ISO 1 |
| 3. MECHANICAL | 10. EQUIPMENT CLOSET | 17. FIRE PUMP | 24. PRODUCTION LOUNGE |
| 4. RESTROOM | 11. SOUND LOCK | 18. MASTERING AND CRITICAL LISTENING LAB | 25. PRODUCTION CR |
| 5. STAIRWAY | 12. MECH. CLOSET | 19. TECH LAB | 26. PRODUCTION ISO |
| 6. ELEVATOR LOBBY | 13. CORRIDOR | 20. OVERDUB BOOTH | 27. STORAGE |
| 7. ELEVATOR | 14. CONTROL 3 | 21. DUB - ISO 2 | |



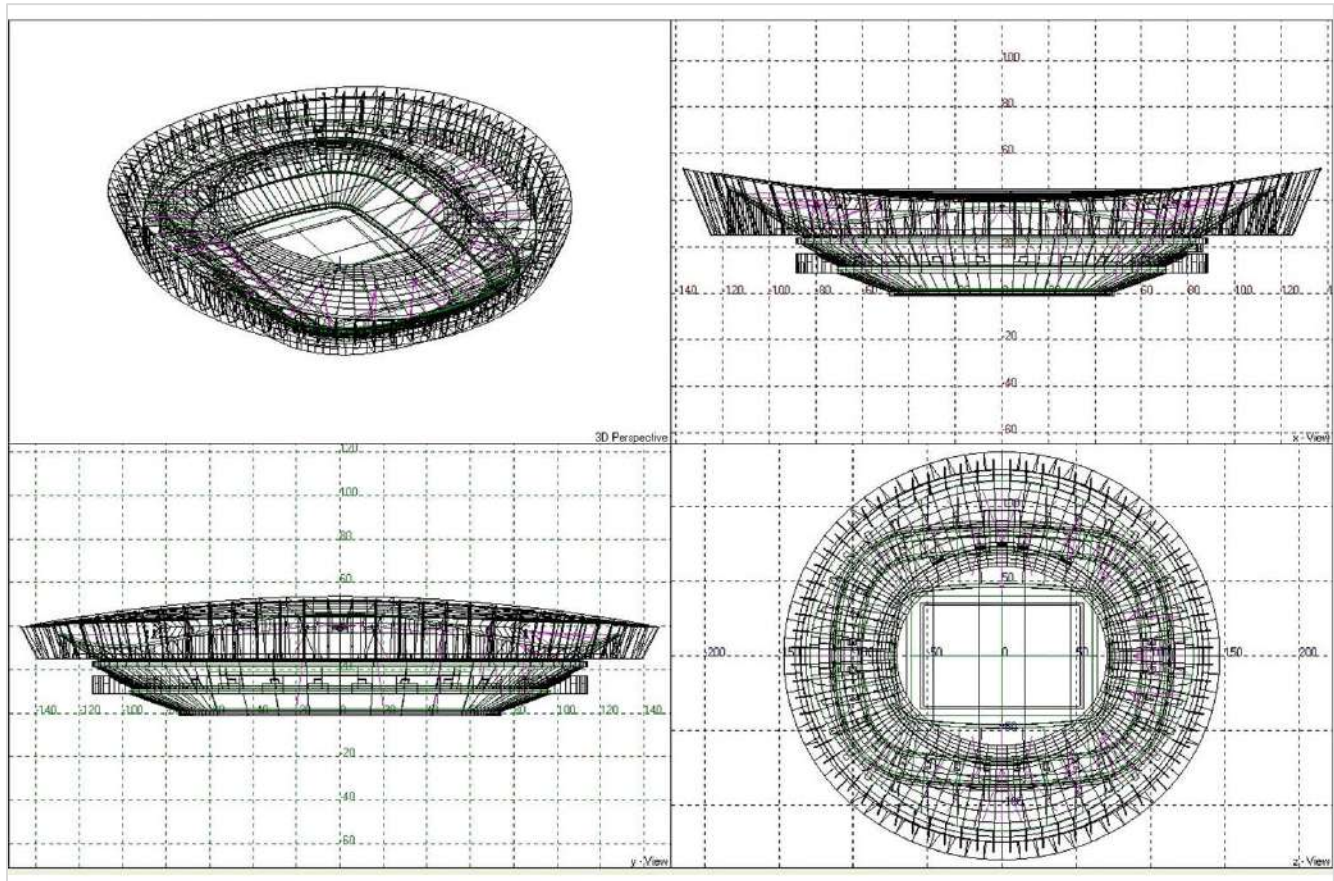
Berklee College of Music – 160 Mass Ave - Boston, USA



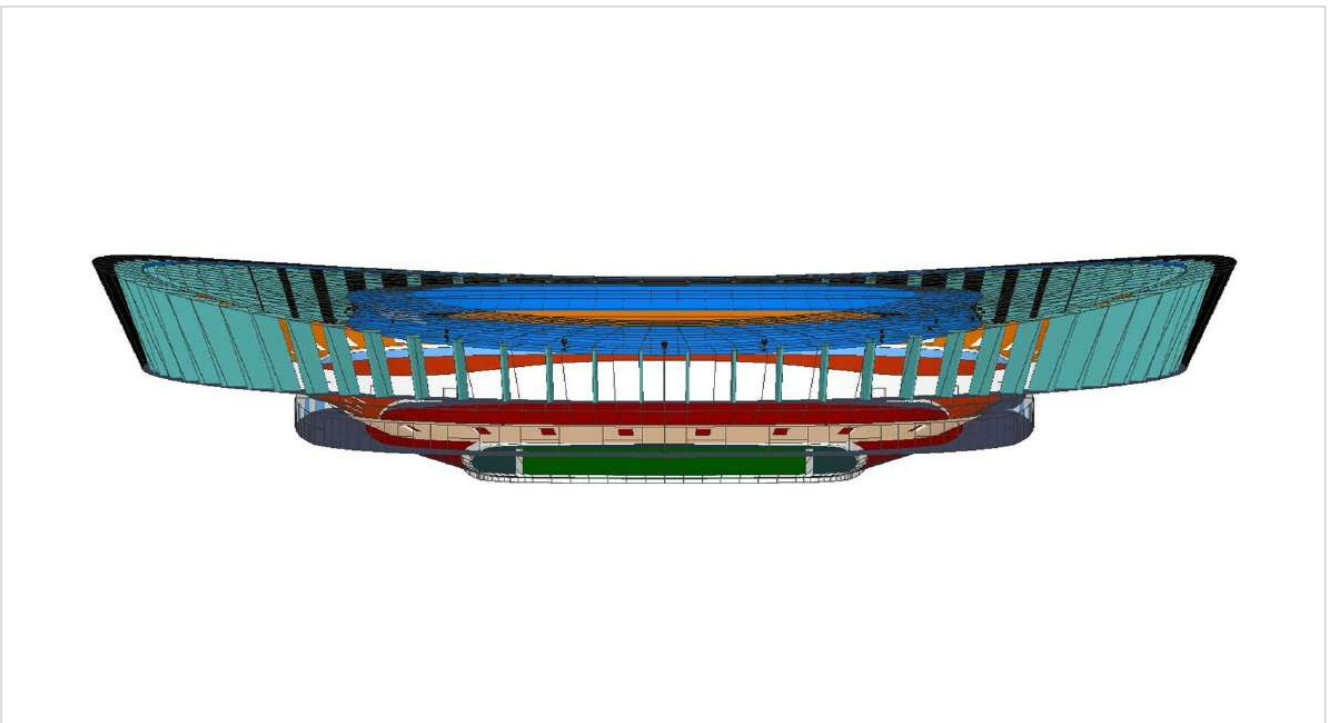
Green Point Stadium - Cape Town, South Africa

The Cape Town Stadium in Cape Town, South Africa is a stadium that was built for the 2010 FIFA World Cup. During the planning stage, it was known as the Green Point Stadium, which was the name of the previous stadium on the site, and this name was also used frequently during World Cup media coverage. It is the home ground of Premier Soccer League clubs Ajax Cape Town (since 2010) and Cape Town City (since 2016). It has also hosted the South Africa Sevens rugby tournament since 2015.

The stadium is located in Green Point, between Signal Hill and the Atlantic Ocean, close to the Cape Town city centre and to the Victoria & Alfred Waterfront, a popular tourist and shopping venue. The stadium had a seating capacity of 64,100 during the 2010 World Cup, later reduced to 55,000. The stadium is connected to the waterfront by a new road connection and is surrounded by a 60 hectare urban park.



Green Point Stadium - Cape Town, South Africa



Independência Stadium - Belo Horizonte, Brazil

Officially called Estádio Raimundo Sampaio and popularly called Independência, the stadium was also inaugurated in 1950 for FIFA's World Cup that year. It belonged to the now defunct Sete de Setembro Futebol Clube, hence the name Independence (September 7 is Brazil's Independence Day). The stadium currently leased by América Futebol Clube, which now plays their games at the stadium. Estádio Independência is the second most important stadium in Belo Horizonte, Brazil, only behind Mineirão. Its formal name honors Raimundo Sampaio, a former chairman of Sete de Setembro. The 25,000 seat stadium is being renovated to be used as a training center during the World Cup 2014 and completion is scheduled for early 2012.

WSDG was responsible for Audio System design for the entire stadium and public areas (25,000 seats), covering over 100,000 m² including:

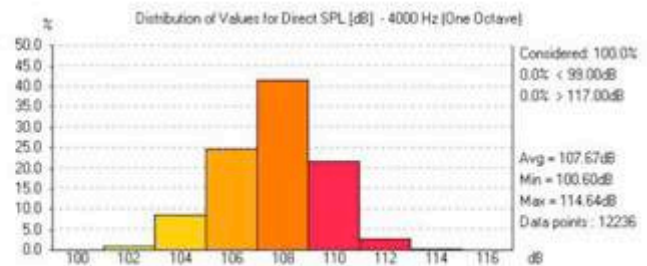
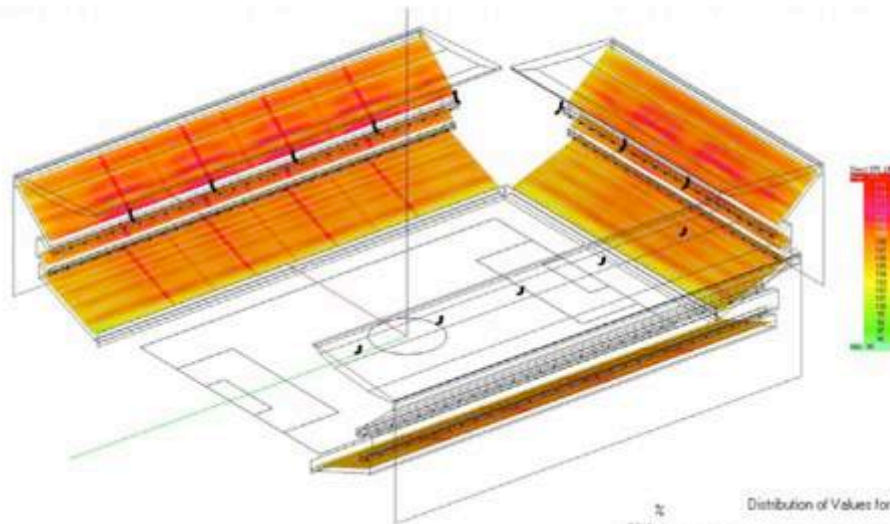
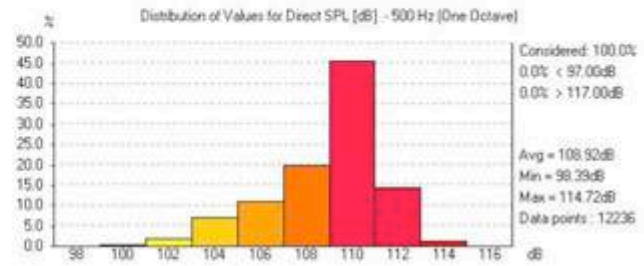
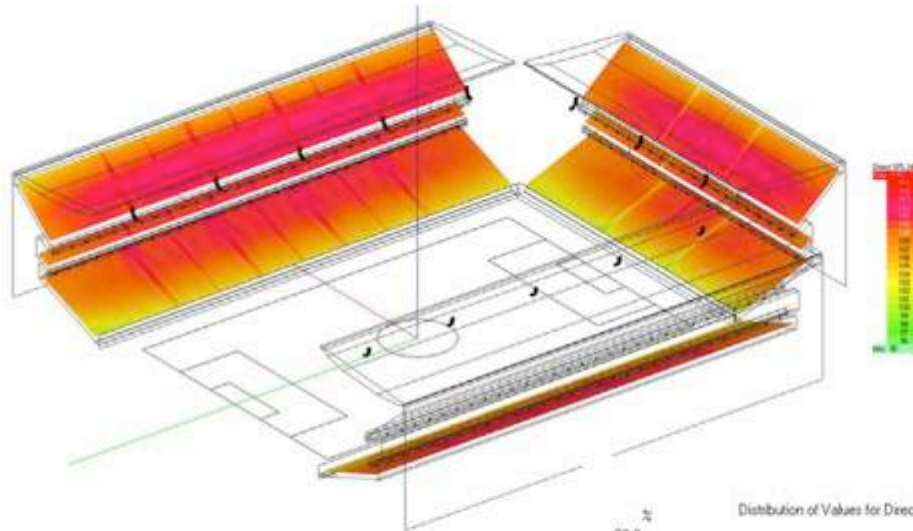
- Sound system for all spaces including the soccer field, audience and internal spaces such as VIP rooms, access, and office spaces.
- Audio and Video Control Rooms

In order to produce SPL levels above 106dB throughout the audience, WSDG specified the use of 13 line-array clusters, to be installed at the metal beams above the audience spaces. For the internal areas, including corridors and ramps, over 500 speakers were positioned at ceiling and walls. The entire system is controlled from the 3rd floor at the A/V Control Room and is distributed digitally around the stadium. Speaker positioning was defined for the internal and external areas, for various zoning maps that can be controlled individually to comply with the local security codes. Although the stadium will not be officially used for matches during the world cup of 2014, it was designed to meet FIFA's requirements.



Independência Stadium - Belo Horizonte, Brazil

SOUND PRESSURE LEVEL DISTRIBUTION @ 500HZ (without field)



Maracanã Stadium - Rio de Janeiro, Brazil

The “temple” of soccer officially called Estádio Jornalista Mário Filho, known popularly as Maracanã, is the biggest soccer stadium in Brazil. Inaugurated in 1950 for FIFA’s World Cup, it has been a stage for great moments in Brazilian and international soccer including Pelé’s thousandth goal. The stadium hosted the opening and closing of the final match in FIFA’s World Cup in 2014 as well as the 2016 Olympics.

Maracanã is not only famous for soccer games; it also hosts concerts and events. In 1980, Frank Sinatra sang for 170,000 fans, 1983 saw KISS perform in front of a crowd of 250,000, and a Tina Turner concert in 1988 drew 188,000 people.

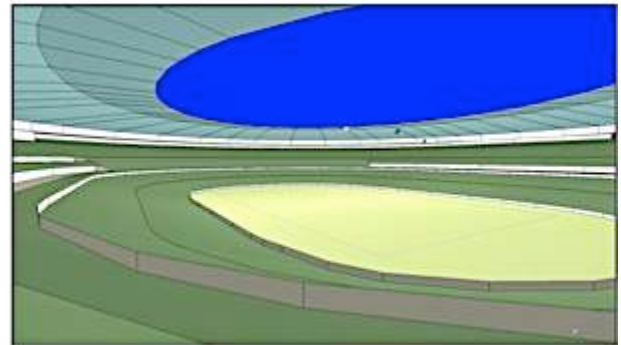
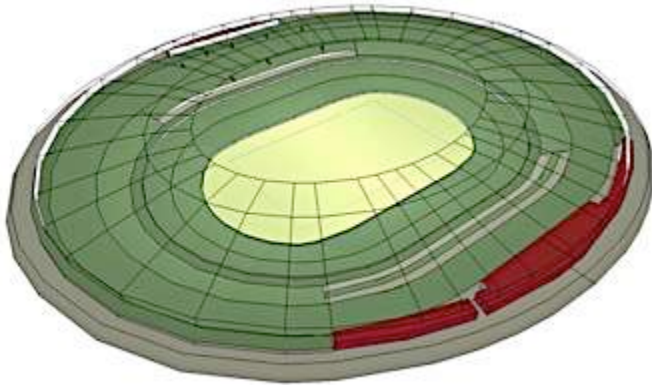
WSDG designed the audio and video systems for the entire stadium and the full renovation was completed for the Confederations Cup in 2013, one year prior to the 2014 World Cup.

The complex architecture was simulated in detail using the most advanced electro-acoustic tools. The biggest challenge encountered in the design phase was to define the final quantities and locations of the PA clusters, in order to achieve the required STI and SPL coverage as required by FIFA for such complex acoustical conditions. Speaker positioning was defined for the internal and external areas for innumerable zoning maps that can be controlled individually for more flexibility and to comply with security needs.

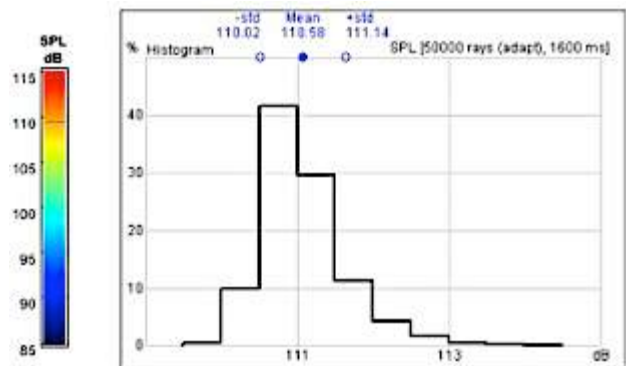
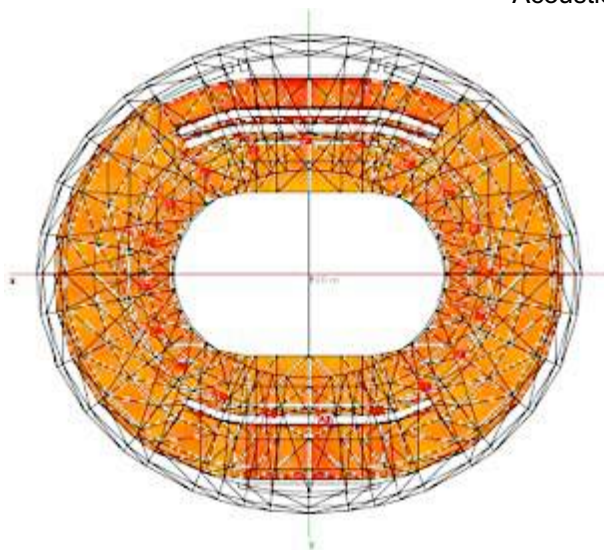
All specific audio and video needs were defined to meet FIFA’s requirements and WSDG has recommended the use of four x 100 sq. m. Video Walls for proper visual coverage.



Maracanã Stadium - Rio de Janeiro, Brazil

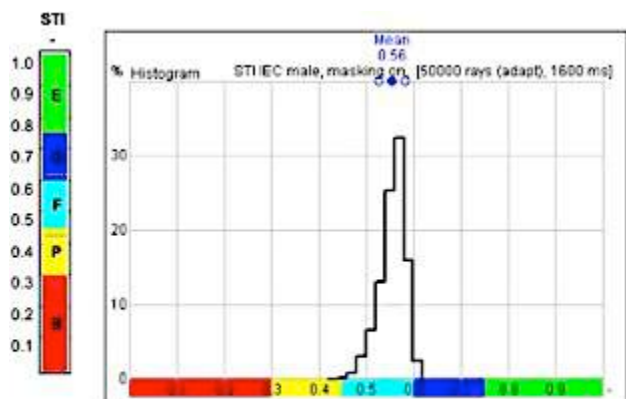
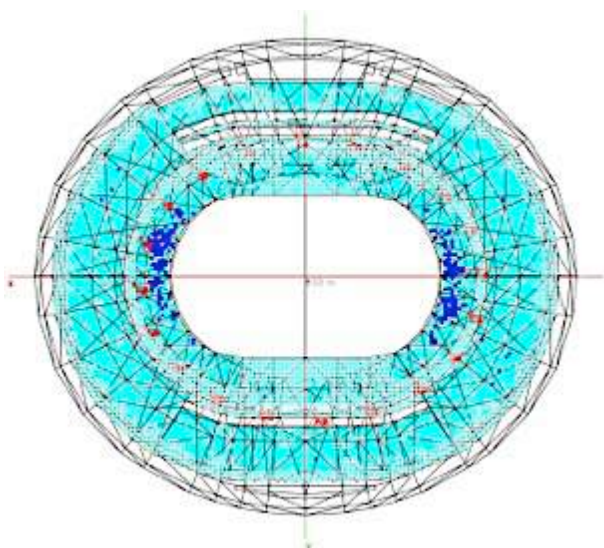


Acoustic Simulation Model



The SPL Distribution is very equal over the whole audience area with a mean value of 110dB(A).

Sound Pressure Level – Full Simulation



The mean value of speech intelligibility lies at 0.56 with the PA System at 110dB(A). Due to masking effects at these high sound pressure levels, the value can be greater with decreased level:

STI Speech Intelligibility – Partial Simulation

Merriweather Post Pavilion - Columbia, USA

Conveniently located in the Baltimore/Washington corridor off Route 29 in Columbia, Maryland, Merriweather is nestled within the 40 preserved acres known as Symphony Woods. The natural, outdoor concert setting is one that simply can't be matched. For more than 35 years, Merriweather has hosted a diverse range of artists and events, offering a variety of contemporary entertainment.

Merriweather was originally designed by world renowned architect Frank Gehry in the early 1960s. At the time, its acoustics were considered by many in the industry to be the best among outdoor venues. To refresh and maintain the acoustic standard that had been set over three decades ago, Merriweather brought in WSDG to evaluate and implement improvements.

John Storyk and Co. completely redesigned the venue's ceiling, among other things, offering a non-intrusive and artistic solution to low frequency absorption. In designing the solution, WSDG was careful to maintain an open and natural feeling in keeping with the facility's exterior.



Merriweather Post Pavilion - Columbia, USA



Mineirão Stadium - Belo Horizonte, Brazil

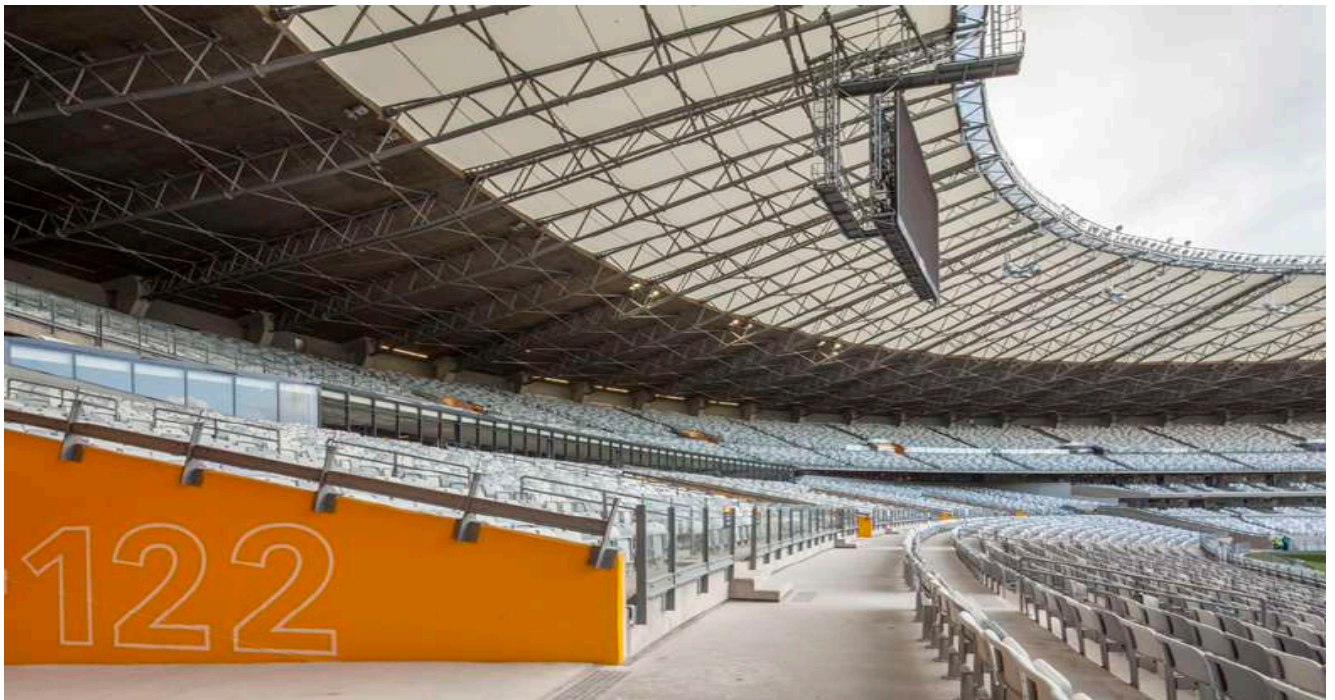
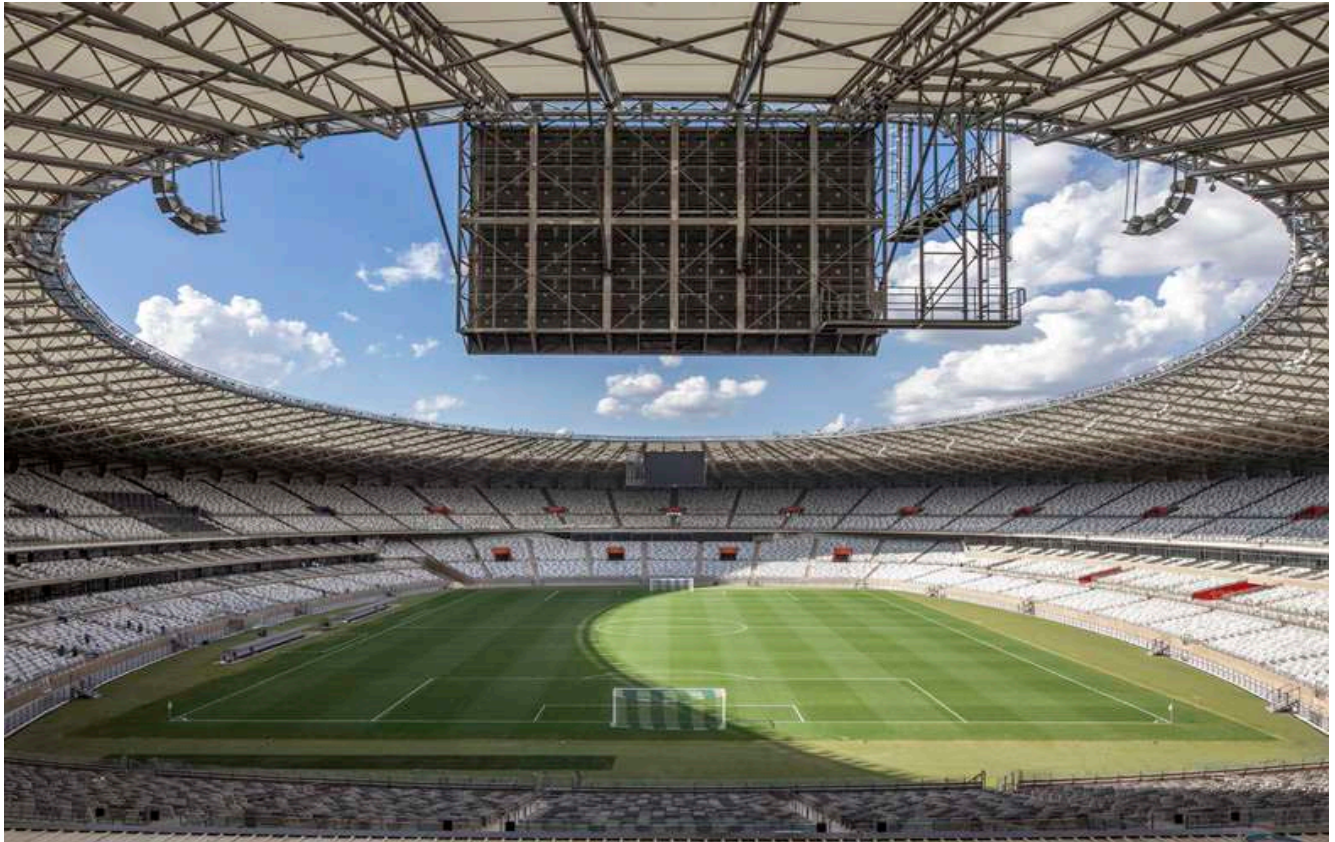
The second largest sports arena in Brazil, the 62,160-seat Mineirão Stadium was originally built in 1965. When Belo Horizonte was named one of 12 cities to host the 2014 World Cup, officials immediately recognized the need for a significant Audio/Video and acoustics upgrade to enable the 45-year-old complex to comply with FIFA technical requirements and 21st Century fan expectations.

WSDG was retained to design the Acoustic Renovations and complete Audio and Video Systems for the entire stadium including all public areas, a total of 300,000 sq m (3,000,000 sq. ft). Mission specifications encompass: inclusive acoustical treatments, a comprehensive sound system, serving the soccer field, audience and, internal spaces such as VIP rooms, access areas, and offices; video systems, including two large LED video walls (85 sq. m. / 915 sq. ft.) each; video displays throughout the stadium; and fully integrated Audio and Video Control Rooms.

Primary facility management concerns focused on the level of sound comfort and intelligibility in relation to the RT60 reverberation time required to meet stipulated FIFA STI mandates. Renato Cipriano, Partner/GM, WSDG/Brazil, explains that, “Our sophisticated simulation programs enabled us to assess and ‘auralize’ the entire complex. We identified extensive sound reflections throughout the arena and concluded that acoustical absorption needed to be installed at the inner ring of the audience sector to achieve the required STI values. Speaker positioning was defined for the internal and external areas, and for numerous zoning maps, which can now be individually controlled for increased flexibility and security purposes. All specific audio and video systems and control room speaker selections, were designed to meet FIFA requirements. Additionally, we recommended incorporating a Video Wall instead of a traditional scoreboard.”



Mineirão Stadium - Belo Horizonte, Brazil



Orange Bowl Field at Harris Field Park - Homestead, USA

In the fall evenings, high school football takes center stage in Homestead, Florida. The bleachers fill up with fans from several local schools that have been around for a long time alongside newer schools that have popped up more recently. Students line the sidelines alongside old-timers to watch some good old-fashioned gridiron battles under the lights at Orange Bowl Field. The Orange Bowl High School facility committed to a massive renovation of the aging facility as the Orange Bowl committee broke ground on a new field with the support of a \$2.1 million contribution. The WSDG team was reached by Groovyland Corp to design the sound system design and systems integration for the field's rejuvenation.

The Orange Bowl Field at Harris Field Park is the Orange Bowl's fourth Legacy Gift to the South Florida community. It features a new multi-purpose synthetic turf field designed for football and soccer, a new sound system and a video scoreboard, as well as goalposts, nets, landscaping, and renovated restrooms, locker rooms and press box. More than 40 JBL speakers were precisely hung and distributed at the light poles with custom-designed anti-hurricane hangers. The client required an easy-to-use turnkey system and a significant improvement over the field's original and existing extremely poor speech intelligibility. WSDG partner, Sergio Molho worked side by side with the Groovyland team to select and install the optimum system for the field.



Orange Bowl Field at Harris Field Park - Homestead, USA



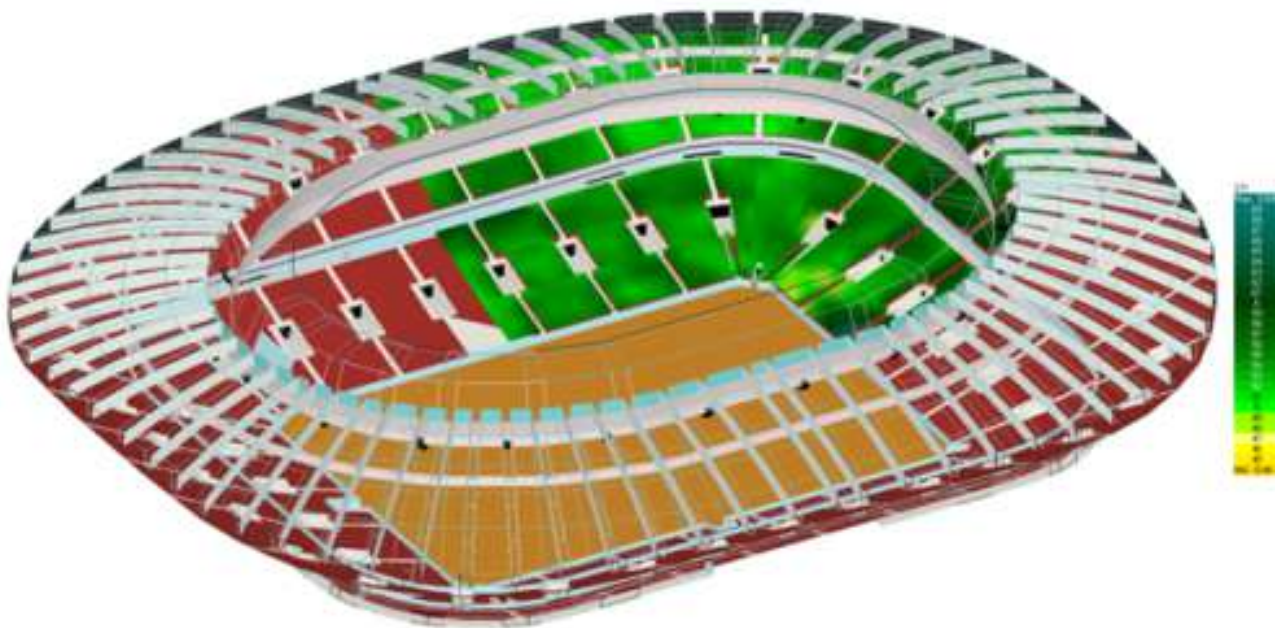
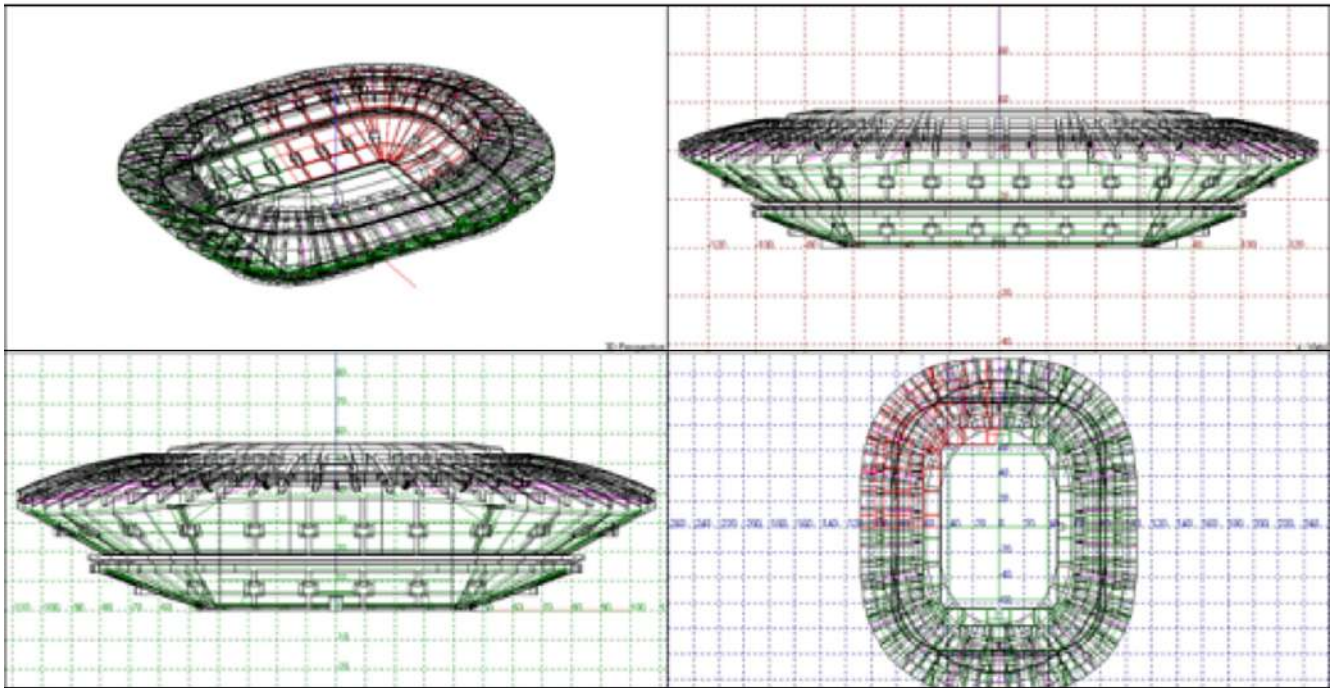
Lushniki Stadium - Moscow, Russia

The work was carried out together with the acoustic office Arhiton of St. Petersburg. Computer models of the software EASE were created in all stadiums under consideration. As per material specifications given by the architect, the reverberation times under the stadium roofs could be simulated.

Special services were carried out for the renovated Lushniki Stadium in Moscow (81,000 spectators), since several loudspeaker manufacturers were bidding for the equipment of the stadium. It was also important to consider the demanding FIFA requirements, which had been tightened once again for the World Cup in Russia in comparison to the last Cup in Brazil. In addition to high intelligibility values, noise levels around 110dBA are to be expected, which raise the demands on the maximum possible radiated sound pressure levels. At the Lushniki Stadium, McCauley's line arrays are installed as a result of these investigations. In other stadiums, JBL, Function One and Electrovoice products are planned or already installed.



Lushniki Stadium - Moscow, Russia



Moses Mabhida Stadium - Durban, South Africa

The Moses Mabhida Stadium is located in a sporting precinct in Durban on the shore of the Indian ocean and features a 105-metre arch that rises over the circular stadium.

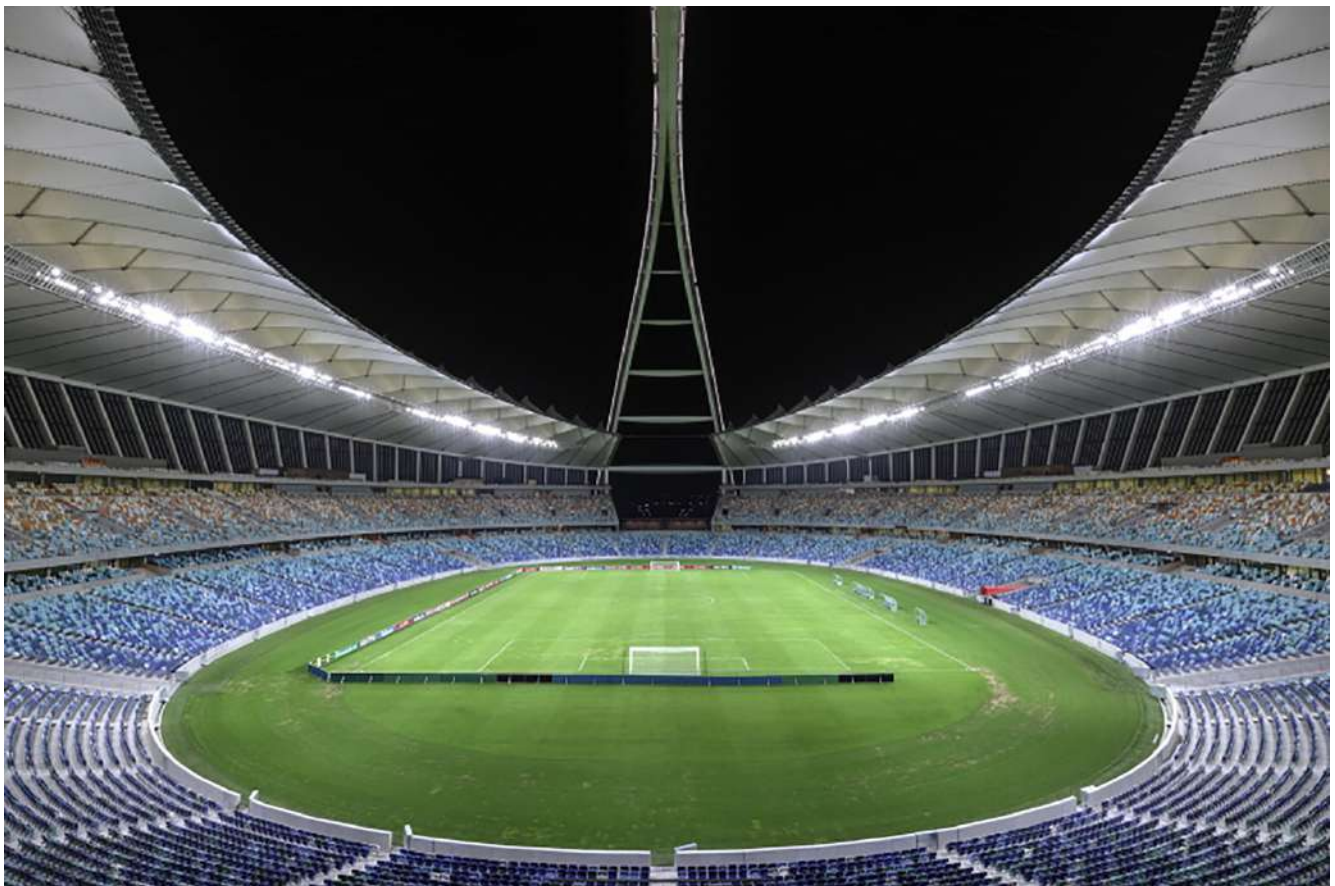
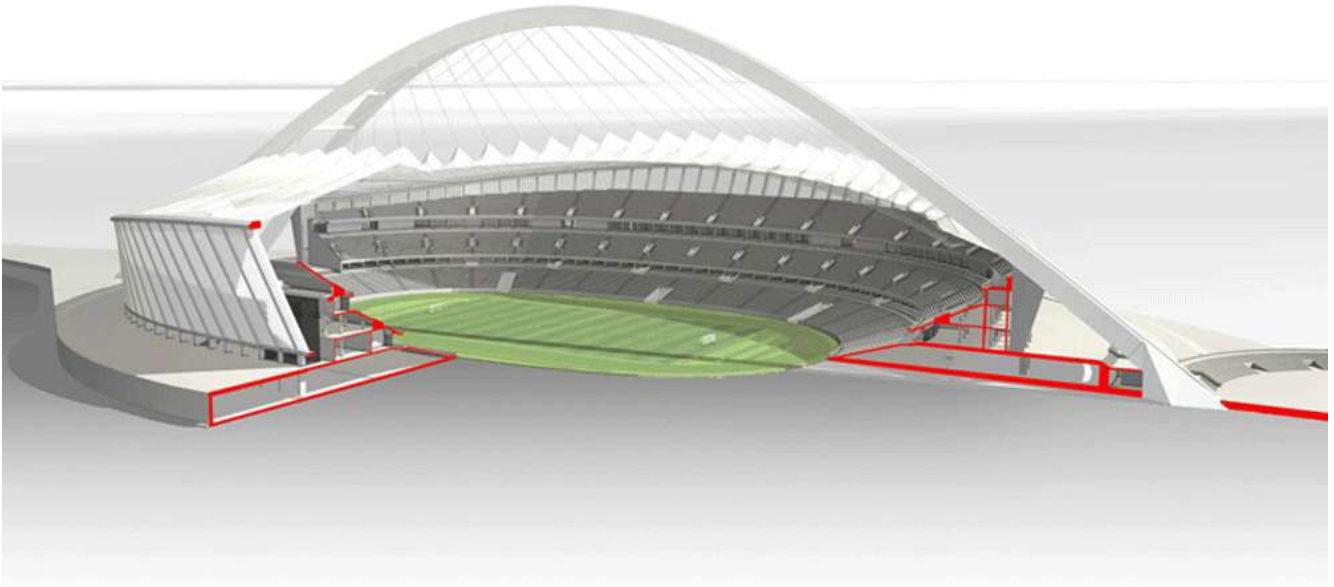
The multi-purpose stadium not only meets FIFA requirements but can also host the Commonwealth Games or Olympic Games.

The arch is connected by cable system to the external edges of the roof, carrying the weight of the roof's inner membrane.

A viewing platform, where visitors can enjoy panoramic views of the city and ocean, sits on the apex of the arch and can be reached via cable car. The 70,000 capacity stadium sits on an elevated platform, with a façade of perforated metal sheeting and a cable-tied canopy roof. The building offers excellent conditions for participants, journalists and spectators, with VIP facilities, the President and Ocean Atriums (both over six stories high), clubrooms and 130 spectator boxes.



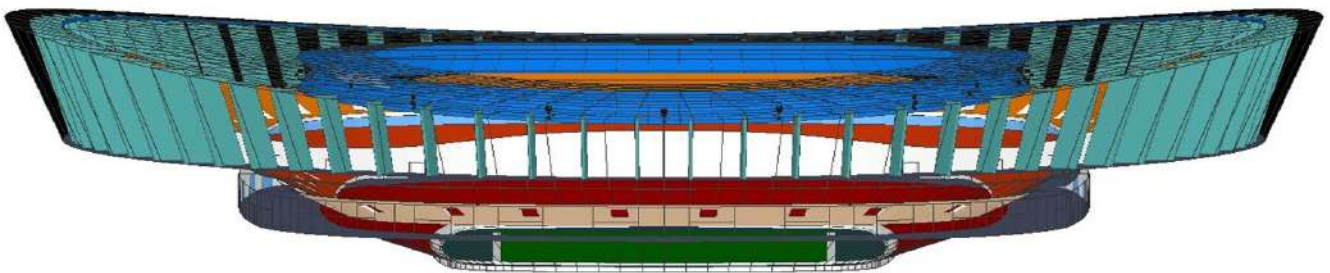
Moses Mabhida Stadium - Durban, South Africa



Olympia Stadium Berlin - Berlin, Germany

The Olympia Stadium of Berlin with 74,000 seats was extensively renovated in 2004 in preparation for the Football World Cup 2006, the pitch lowered and provided with a double-sided membrane roof.

Whereas the first concept initially featured decentralized high-performance loudspeakers along the roof catwalk, a solution with line arrays suspended to the roof was preferred in the further course of the project, which not only gave rise a uniform sound field distribution on the stadium grandstands, but also limited noise emissions from the stadium. Extensive simulation calculations using the computer model were the core of work of ADA.



Olympia Stadium Berlin - Berlin, Germany



Peloton Flagship Spinning Center - New York, USA

In developing a NYC flagship site for their live and on-demand, indoor spinning classes, the Peloton brain trust recognized the need for a cutting edge video broadcast studio for their streaming program. The company founders engaged WSDG to create a broadcast quality acoustic and isolation design and an audio/video production studio with professional lighting and systems integration. The resulting Production Control Room and 60-bike Spinning/Streaming Studio are key components of the 8,000 square foot complex. Located in NYC's trendy Chelsea District, the Peloton Spinning Studio also features spa-quality ambience, a refreshment lounge and a sports fashion retail shop.

The Peloton studio introduces a new level of broadcast quality video through the internet. The space is tailored to enhance the image quality of the webcast while maintaining the proper ambience for in-house spinning enthusiasts. The 300 sq. ft. Production Control Room sports a state-of-the-art Newtek Tricaster production switcher, a Telemetrics robotic camera controller connected to 3 Sony PTZ cameras, and a Telemetrics track and PTZ camera which provides high end and ultra steady camera moves and shots. PCR video display is provided by two 55" LCD monitors. The facility audio system is run by a fully-automatable Biamp Nexia console coupled with a Martin Engineering DSP, Genelec monitors and Sennheiser wireless microphones. Production lighting is controlled by LightJockey™ via a Windows-based USB to DMX interface. iPod docks and a Nexo line array complete the equation in the 1500 sq. ft. Spinning Studio for unrivaled audio quality from the beginning to the end of the audio production chain.



Peloton Flagship Spinning Center - New York, USA

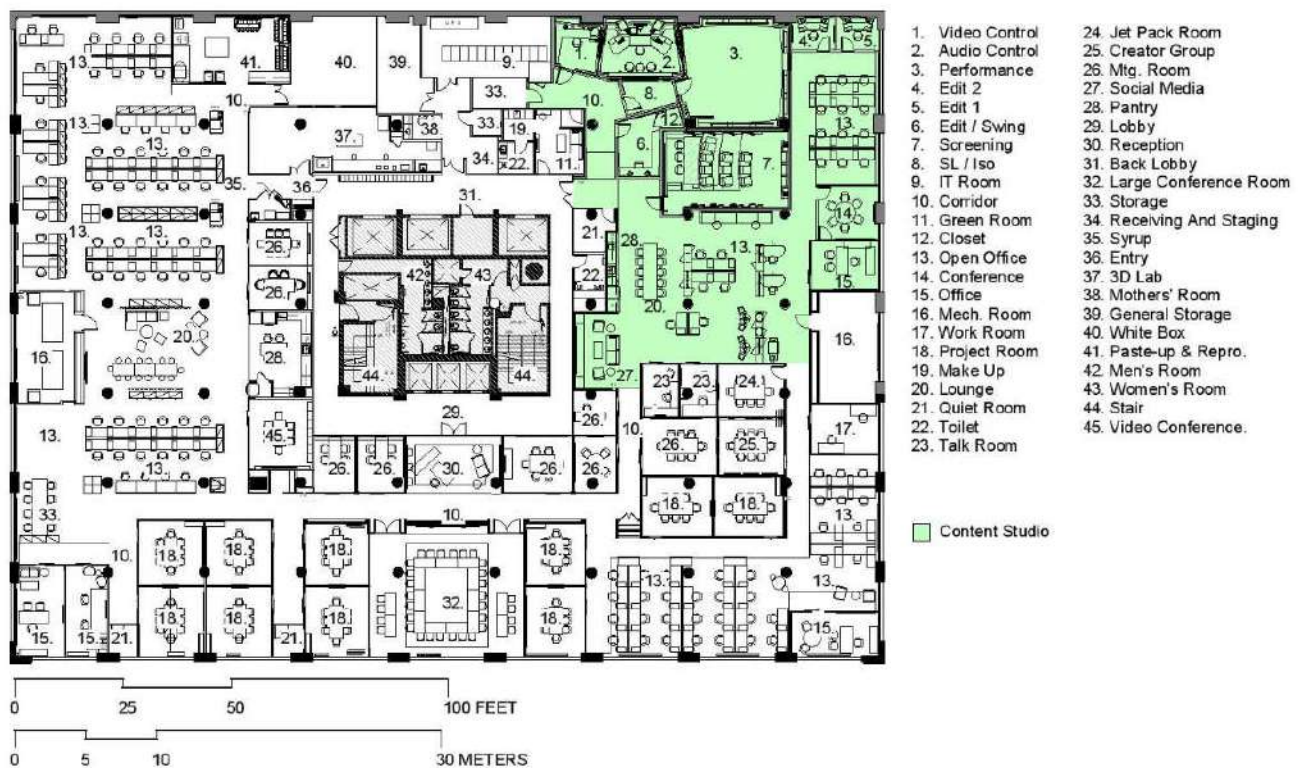


PepsiCo Content Studio - New York, USA

With the goal of initiating and nurturing synergistic relationships with new and established video, music, TV, digital and Internet content creators, PepsiCo commissioned a cutting edge 4,000 sq. ft. production/post-production complex at the hub of NYC's pacesetting SoHo artistic community. WSDG's architectural/ acoustical expertise was engaged to collaborate with Granoff Architects to create a technically flawless, aesthetically invigorating environment for the ambitious venture.

Designed to house a team of six to ten technicians and engineers, PepsiCo's Content Studio features an 1,150 sq. ft. multi use recording studio, five editing and production bays, a 575 sq. ft. soundstage, a 515 sq. ft. multi-format screening room, an 1,800 sq. ft. 'loft-like' creative bullpen and a spacious, informal reception/dining area. The concept was to establish a high tech production facility to provide a community of creative thinkers, artists and producers with the technological resources to foster their vision.

A striking, flexible, highly functional environment, the PepsiCo Content Audio Recording Studio is centered on an SSL AWS 948 console, complimented by a pair of soffit-mounted ATC SCM150ASL stereo monitors. Genelec 8250A monitors provide 5.1 – surround playback. A variety of outboard gear and mic preamps offer a wide range of options. Video is captured on the 26' x 25' Soundstage/Performance Area in resolutions up to 4K, and can be routed live throughout the facility in 1080p through SDI tie lines. A broadcast grade production switcher (Newtek Tricaster 460) expedites video feeds for live editing and processing for webcast, or to be stored in the Promax storage array. The switcher offers a full selection of video post-production tools, including live Chroma keying, virtual sets and color correction. Post also boasts a full nonlinear editing station and a digital audio workstation for ADR. Green Screen and LED production lights are managed from the VCR.



PepsiCo Content Studio - New York, USA



PostFinance Arena - Bern, Switzerland

Originally built in 1967, the PostFinance Arena (formerly known as Esstadion Allmend and Bern Arena), is the home stadium for the local SC Bern hockey team. With seating for 17,131 fans, PostFinance also boasts the world's largest standing room grandstand, a capacity of 10,422 benches. The Arena's management group invested \$100 million in an extensive renovation program, to ready it for the HHF World Championships. This substantial upgrade included the installation of a new hockey arena, and the total redesign of the VIP seating area. The venue has subsequently hosted a number of prestigious events, including the Inaugural Victoria Cup.

WSDG was engaged to perform a series of acoustic tests and measurements to facilitate the upgrade of the electro-acoustic system that had been implemented during the last major remodeling. The system was re-hung under a new and larger HD video cluster a few years later. WSDG was once again retained to engage improved software programs and consult on additional fine tuning of the electro-acoustic system.

Extensive predictive acoustic testing produced data which suggested that steeper shooting angles for the loudspeaker system would enable the stadium to optimize the system. The resulting modifications in speaker placement and overall system 'fine tuning' have appreciably improved speech intelligibility throughout the PostFinance Arena. This provides arena patrons with enhanced appreciation of the live game coverage, and also further insures their safety thanks to the upgraded public address system.



PostFinance Arena - Bern, Switzerland

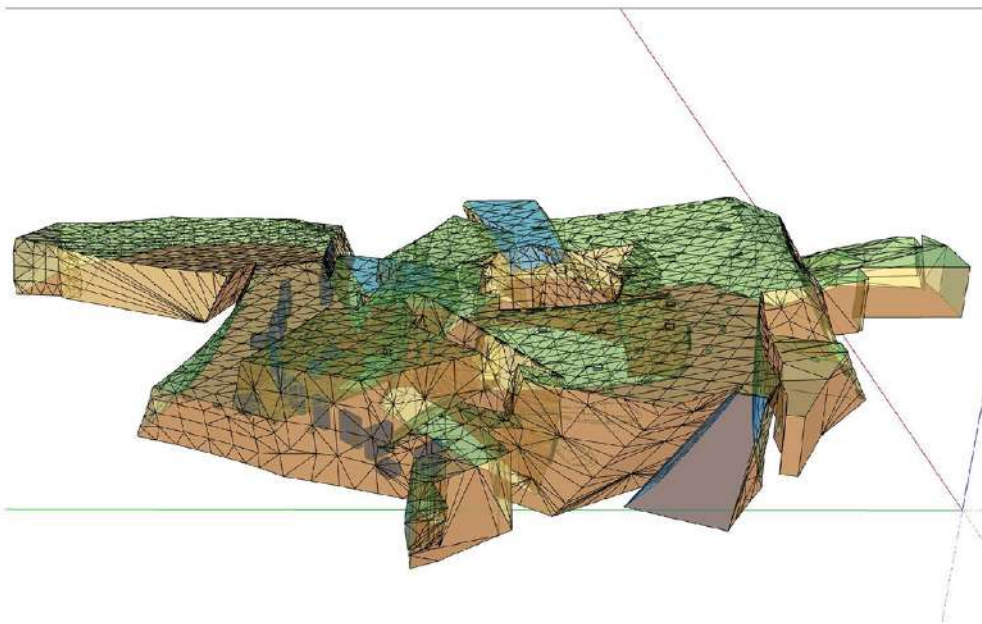


National Museum of Qatar - Doha, Qatar

The National Museum of Qatar was designed by architect Jean Nouvel. The 430,000 square foot building, which consists of a series of interlocking discs that resemble a desert rose, houses a collection of immersive multi-media exhibits that combine video projections, sound, and other sensory stimuli to expose visitors to Qatar's history and culture. The 3-D audio design for the exhibits was created by Swiss firm Idee und Klang.

Due to the unique construction of the building and the demanding sonic concerns of the exhibits, Idee und Klang contracted WSDG to create a 3-D acoustic model of the space and make recommendations regarding appropriate speaker usage and placement to maximize the effectiveness of the audio and minimizing the amount of spillover between exhibits without compromising the aesthetics of the museum.

The project took two years from conception to completion. WSDG Project Engineers Robi Hersberger and Christoph von Hollaky visited the space while it was under construction to measure its acoustic properties and determine its suitability for immersive audio. Due to the usage of acoustic plaster in the construction of the museum's ceilings and its irregular shape, WSDG determined that the rooms would be suitable for this and were able to recommend the best speaker implementation for the project. Von Hollaky then built the 3-D acoustical model allowing WSDG to create accurate acoustic simulations and begin to determine the type, number and positioning of speakers. WSDG recommended the use of Meyer UP-4slim, UPM-1P, Ashby 8C, and Amie Subs due to their effective compromise of size and power, and the speakers were installed in both the ceilings and around the projection areas to create an immersive sound field.



National Museum of Qatar - Doha, Qatar



Avalon Theatre - Easton, USA

The Avalon Theatre in Easton, MD was originally constructed in 1922 and has remained a vibrant hub of community life for the nine-county Eastern Shore territory east of the Chesapeake Bay ever since. The venue hosts both nationally known and local performers in a variety of musical and dramatic theater contexts, as well as being equipped for banquets, cabarets, exhibitions, and ballroom dancing. The Avalon Foundation, which runs the Avalon Theatre as a 501(c)(3) charitable organization, secured the services of WSDG during a larger overall renovation initiative to update the theater's acoustics, production lighting, and audiovisual capabilities, which ultimately resulted in WSDG being brought on to renovate the balcony as well.

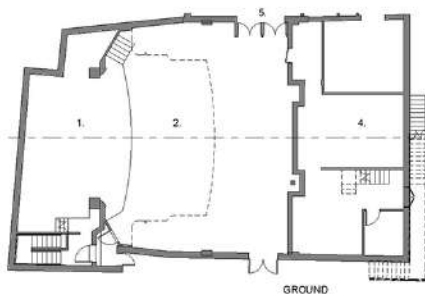
Early in the renovation process, the Avalon Foundation retained WSDG to complete a master plan study of the long-term renovations. Those plans included theater expansion, A/V upgrades and balcony reconstruction. As the Avalon Theatre no longer screens movies as its primary source of revenue, its old projection booth was removed to allow for the reconstruction of the balcony along with upgrades to the spectators' sight lines, comfort and safety. Key to this upgrade was that neither the seat count nor the acoustics of the balcony be compromised, while also improving the comfort, safety and visual experience of the audience.

WSDG took measurements to create extensive 3D models of the new balcony setup. The old projection booth's walls, door and floor were removed, and dimmer racks, exhaust ducts, speakers and other elements were relocated or reappointed. Obstructing railings were replaced, and improved lighting was added for increased visibility. The balcony's walkways were also given better tread depth and visibility, as well as height consistency for safety.

For better ergonomics, the balcony's seats were widened and positioned to be focused on stage performers, rather than a screen. The team succeeded in increasing the newly designed balcony's seat count to 219, while increasing the width of each seat by two inches and maintaining the excellent acoustics. Finally, all the renovations were aesthetically consistent with the Avalon Theatre's Art Deco motif.



Avalon Theatre - Easton, USA

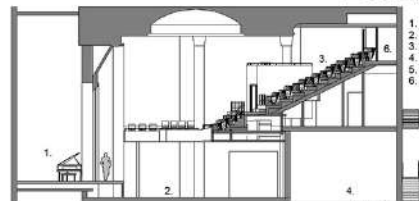
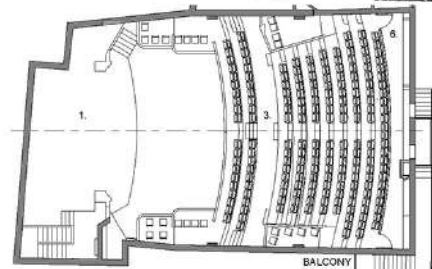
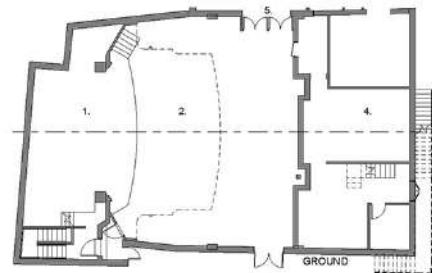


- 1. STAGE
- 2. ORCHESTRA SEATING
- 3. BALCONY SEATING
- 4. ADJACENT TENANT
- 5. LOBBY
- 6. STORAGE

0 10 Feet
0 3 Meters

Walters-Storck Design Group
www.wsdg.com

Avalon Theater
Easton, MD



- 1. STAGE
- 2. ORCHESTRA SEATING
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0 10 Feet
0 3 Meters

Walters-Storck Design Group
www.wsdg.com

Avalon Theater
Easton, MD

Goshen High School - Goshen, USA

Goshen High School in Goshen, NY received a \$30 million-dollar bond to update the school's academic, athletic, and arts facilities. WSDG collaborated with architectural firm LAN Associates to assist in the comprehensive renovation of the school's auditorium. This included measuring and updating the space's acoustics, seating accommodations, A/V equipment, and accessibility for the school's growing music and theatre programs.

The auditorium is 6,000 ft²/557 m² in total and seats 654. The initial space had been built in 1976 and was not optimized for musical or theatrical productions. It had a low reverberation time, but the absorptive ceiling provided little in terms of reflection support. The forced air system was also very loud and made speech intelligibility nearly impossible. The program goals of the school were to create a high-performance acoustically tuned performance space that would be optimized for the school's theater and music program, while still being versatile enough for other school functions. WSDG was retained to acoustically measure the space and collaborate on the redesign with LAN Associates to optimize the space for these needs while still retaining the aesthetic goals of the redesign.

The new auditorium was designed to serve multiple functions in the school and support varied acoustic needs, from multimedia presentations to unamplified choral performances. This was done by using acoustic modeling technology to measure the room, which then allowed WSDG to specify the appropriate materials in strategic locations to optimize the performance of the room while still maintaining the architectural character of LAN Associate's design as well as ensuring that room would have a lively sound character. Angled wood panels were also suspended from the ceiling to allow further control of the sound, as well as obscure lightning fixtures and mechanical ductwork from the audience's view. The ceiling itself was kept reflective to ensure that the room acoustics still have a vibrant quality that would enhance any performance on the stage. Motorized acoustic banners from iWeiss were also installed to allow for greater control of speech intelligibility. The banners can be raised and lowered along the back-of-house walls for sound absorption, enabling the space to be tuned and controllable for any kind of performance.

WSDG collaborated with Goshen High School alumnus Nick Bechard of Firehouse Productions to specify the new sound system, which is comprised of L-Acoustics ARCS loudspeakers. All of the A/V equipment is monitored by a sound booth in the back corner of the House. The A/V equipment and lighting fixtures are accessible from steel catwalks suspended above the ceiling plane and painted black to disappear into the backdrop.



Goshen High School - Goshen, USA

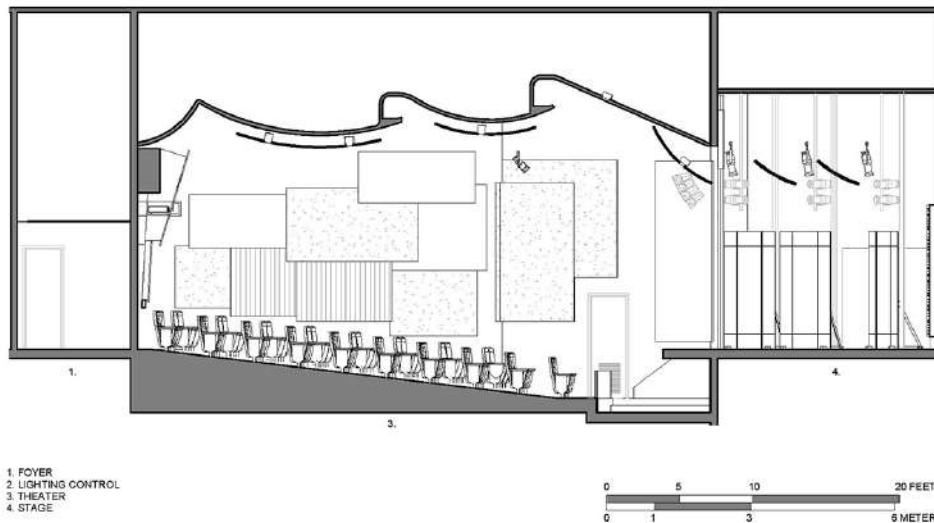


UCLA Herb Alpert School of Music – Lani Hall - Los Angeles, USA

Established by a grant from the Herb Alpert Foundation, The Herb Alpert School of Music on the UCLA campus is dedicated to providing students with academic opportunities that balance cutting-edge scholarship with sophisticated performance and composition mastery. Students are immersed in a multitude of learning and performing opportunities and have access to world-class archives and related study options. The missing link to this extraordinary musical education experience was a live performance venue with acoustic properties devised to provide artists with exceptional sound alternatives.

To meet this critical requirement, The Herb Alpert Foundation engaged WSDG to fully re-design the interior and acoustics for the small on-campus theater. The recently completed venue has been christened Lani Hall in honor of Grammy-winning vocalist (and co-founder with husband Herb Alpert of the foundation which bears his name) accommodates both musical and theatrical presentations. The 135 seat auditorium features a raised stage, innovative perforated wood rear and sidewall acoustic treatments and three innovative, full-width cylindrical ceiling treatments deployed above the stage. Outfitted with six multi-positional perforated gobos to provide the variable acoustics required by diverse performing artists and instrumentalists, the stage offers classic performance options.

Matthew Ballos, WSDG partner and co-designer of Lani Hall with founding partner John Storyk, reports that the tubular overhead wooden stage treatments, are complimented by twin 'rounded' wooden ceiling cloud/lighting fixtures, positioned over the audience seats, to further enhance listener audio quality. An elegant, cantilevered wooden rear wall diffuser fine-tunes the theater into an auditorium-size 'sweet spot.'



UCLA - Lani Hall
Los Angeles, CA

UCLA Herb Alpert School of Music – Lani Hall - Los Angeles, USA



Magazzino Italian Art Gallery - Cold Spring, USA

When American art-collector Nancy Olnick, and her Sardinia-born husband, Giorgio Spanu found their extensive collection of modern art had grown beyond the capacity of their two homes they considered options for sharing their collection with a wider audience. A search for a suitable repository for their 500+ assemblage led them to a 14,000 square-foot steel and concrete former industrial warehouse (circa 1964) nearby their Garrison, NY weekend home.

Olnick and Spanu acquired the building for \$12 million, and retained leading architect Miguel Quismondo to create a spacious, light filled gallery to appropriately exhibit their collection. Quismondo brought Alberto Campo Baeza, another noted Spanish architect on board as Construction Manager/Project Liaison. As Magazzino neared completion, its mandate was expanded to include a program of ambitious summertime International Art Film Screenings in the building's 3000 square foot courtyard. When the architectural team recognized the need to address challenging acoustic issues, they engaged prominent NY-based/global architectural/acoustical experts WSDG to recommend and integrate a comprehensive equipment package.

WSDG Project Manager Jonathan Bickoff reports that he and Founding Partner John Storyk performed several site visits and immediately recognized the primary acoustic issue. The rectangular courtyard was constructed of hard reflective surfaces. "We took extensive auditory measurements that guided us in developing a strategy for a diverse range of outdoor museum presentations. And, we worked closely with top Saugerties, NY-based pro audio-video supply firm, Markertek to customize the most efficient, reliable and cost-effective technical system, in a compact, easy to set up and breakdown configuration. The portability of the package was demonstrated when a surprise storm required it to be disassembled and moved indoors in under 10 minutes!" "We were privileged to have applied our expertise to Magazzino's program presentation needs," John Storyk concludes. "This gallery represents an important new asset to our Hudson Valley community," Nancy and Giorgio's extensive collection features works by many brilliant contemporary Italian artists. Their new gallery is a welcome addition to an extraordinary group of Hudson Valley Art Destinations that includes the Storm King Art Center and Dia: Beacon. We are extremely fortunate to have them as friends and neighbors."



Magazzino Italian Art Gallery - Cold Spring, USA



Nordstern - Basel, Switzerland

When the celebrated EDM nightclub Nordstern was forced to vacate its original premises in an industrial building in Basel, Switzerland, owner Agi Isaku selected a former riverboat docked in the Rhine River for its new location, and called upon WSDG to tackle the challenging task of external sound isolation and internal room acoustics for the ultimate floating discotheque experience. Before its transformation into the latest version of Nordstern, the whole ship was skinned and redone with the nightclub inside, under the direction of the architect in charge of interior design, Gabriel Heusser.

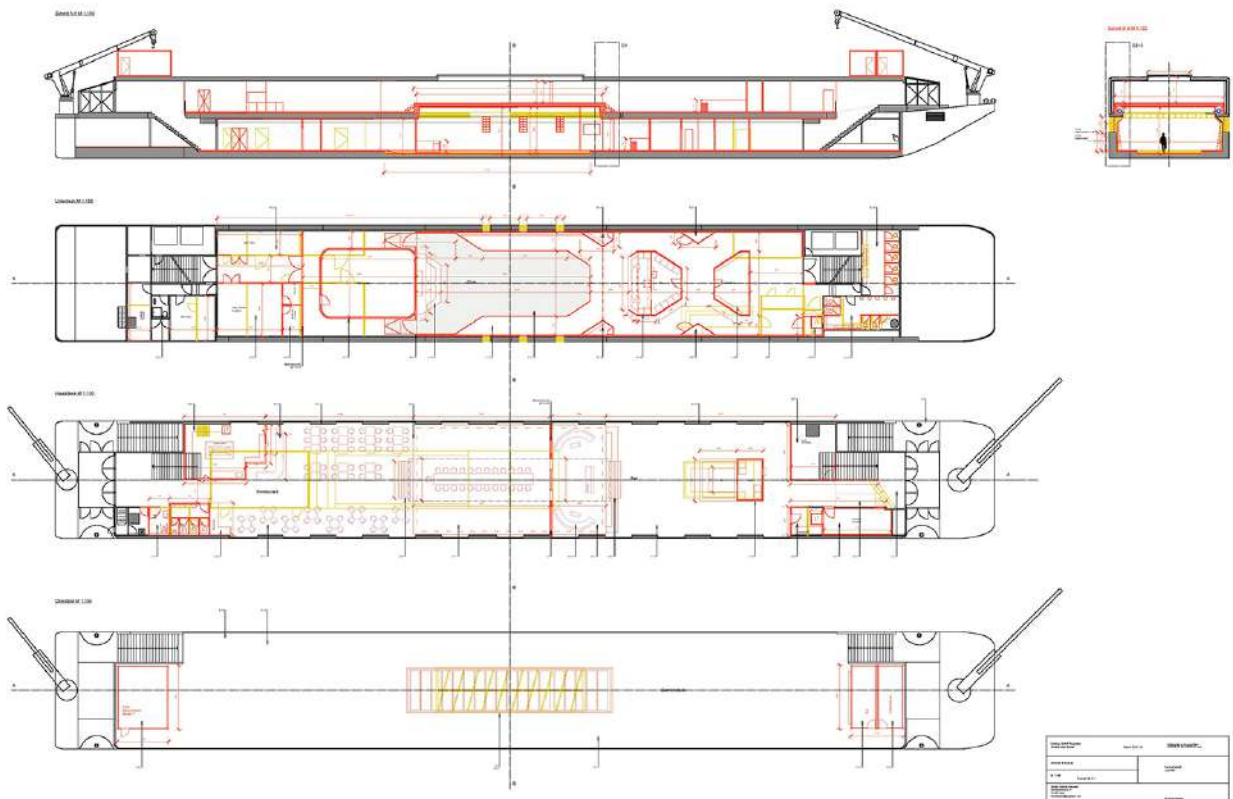
WSDG Partner and Director of Acoustics Gabe Hauser was in charge of Nordstern's sound isolation, acoustics, and audio design, with the mandate of ensuring that the music would be inaudible from outside of the club. In addition to this, the club's main subwoofers needed to be carefully positioned to meet the requirements for balanced low frequency distribution on the dancefloor while not being so close to the DJ booth that they would interfere with the vinyl records being used by the DJs.

Hauser used acoustic modeling to determine that angling the wall up would help with sound absorption and save on the cost of acoustic materials. Decoupled side walls and low-frequency absorbers were added for sound isolation, as well as compact decoupling mat for the floor. Reverberation times were reduced by angling the hard, reflective walls upwards by 7° to project sound energy into the absorptive ceiling.

Hauser chose all L-Acoustics loudspeakers, using eight ARCS II speakers for the mid/high frequencies, paired in four two-speaker arrays suspended from each corner of the 20 x 10 meter, 700-capacity room. Six SB28 subwoofers were installed in a row over the top of the dance floor, radiating in a cylindrical pattern along the length of the room resulting in even coverage of the dancefloor and steep drop in SPL at the ends of the dancefloor towards the DJ booth and the entrance area. The DJ booth system uses two lower-powered SB18 subwoofers with two X15 speakers, and the two fill speakers for the bar area are X12s.



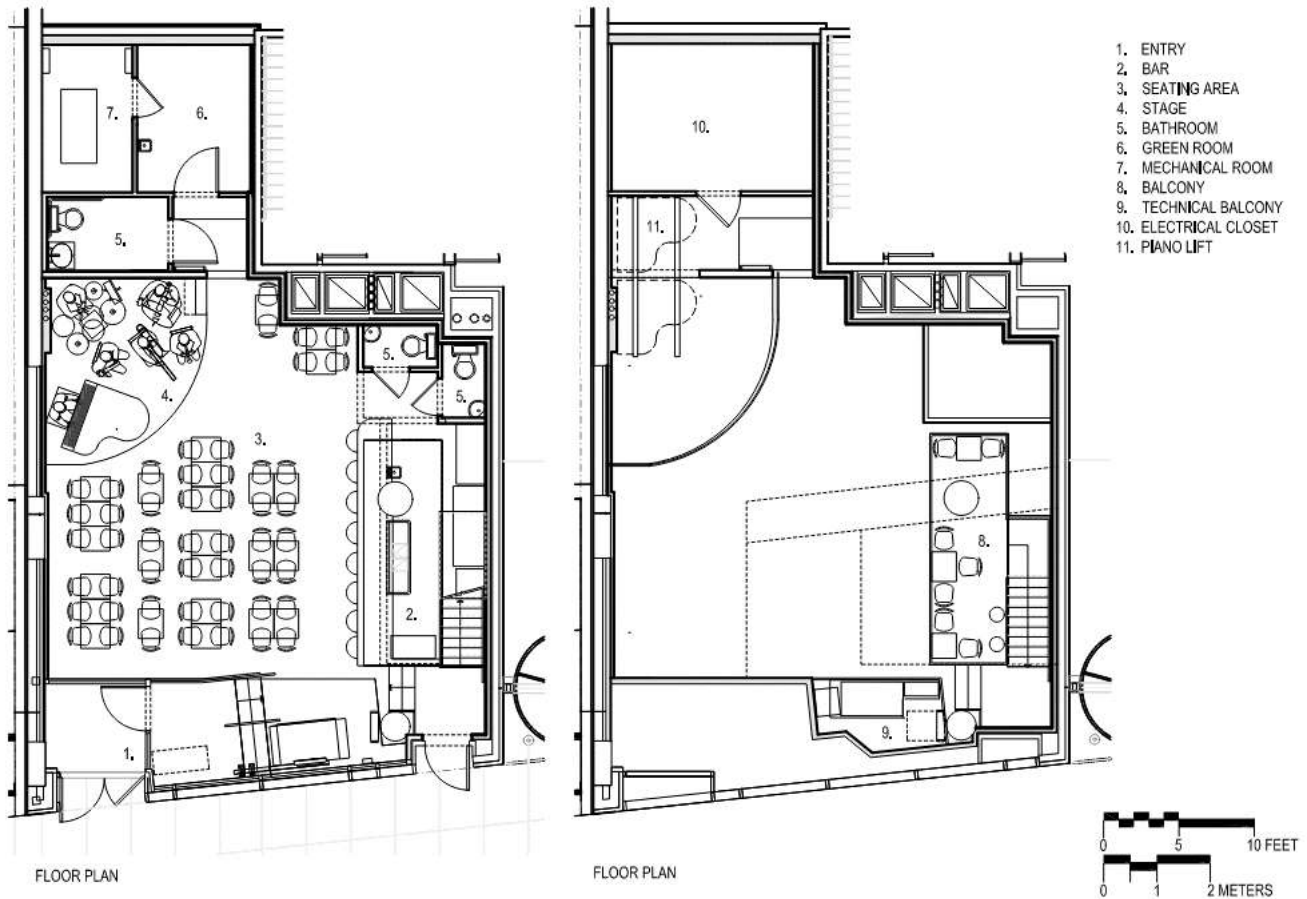
Nordstern - Basel, Switzerland



Rockwood Music Hall - New York, USA

Founded in 2005, owner Ken Rockwood hired WSDG to design Stage 3, the largest of the three Rockwood stages. Blessed with enough height for a balcony (and “hidden” front of house position), but challenged with a small footprint of less than 1,200 square feet, WSDG was able to develop a design that can accommodate both a 14x10 corner stage – complete with a lift for a baby grand piano to move it out of the way when not needed – and almost 70 patrons, perfect for an intimate NYC show, such as the likes of Lady Gaga and Mumford & Sons.

A perfectly tuned Meyer reinforcement system and 24-channel PA complete the jewel-like qualities of this venue, underscoring its position as “one of the 10 best venues in New York City”.



Rockwood Music Hall - New York, USA



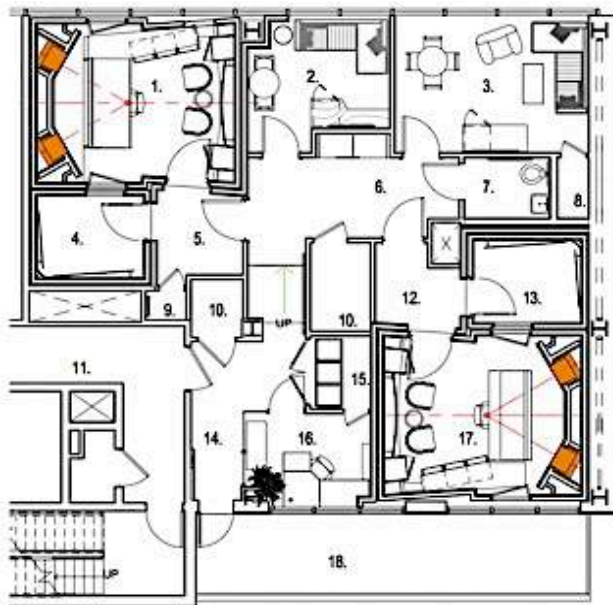
Jungle City Studios - New York, USA

Studio founder/Engineer Ann Mincieli has created Manhattan's first true destination studio, playing host to a wide range of artists such as Alicia Keys, Usher, Coldplay, Jay-Z, and more.

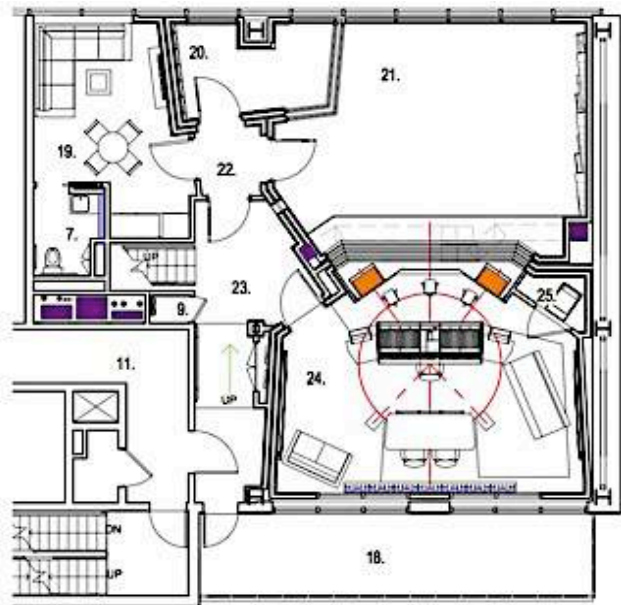
The challenge of creating the signature 11th floor live studio/control room directly above the two 10th floor production suites in a newly constructed lightweight, concrete building presented complex isolation challenges.

To maximize the impact of the studios' expansive North and South picture windows, WSDG decoupled the custom speakers in an outsized glass speaker baffle. This created a virtual "wall of sound" between the live and control rooms, which provides artists and engineers with the creative advantage of full visual connectivity. Additional isolation details allowed WSDG to install the expansive window wall to expose an impressive view of the Manhattan skyline and the new Highline Park, while maintaining strict isolation requirements for studio use. Test results show an NC rating of 15, which is nearly unparalleled for a studio glass wall application.

"Jungle City is one of the first major projects in our office to take advantage of the Revit 3D modeling program," reports Joshua Morris. "Revit enabled us to maximize the design by analyzing the relationships between the 10th and 11th floors. The program helped us to capitalize on adjacencies, particularly in terms of critical isolation. It also facilitated the elimination of an existing interior staircase which enabled us to capture a critical 120 square foot space which we transformed into a second 10th floor lounge to permit both suites to operate autonomously."



10th FLOOR PLAN

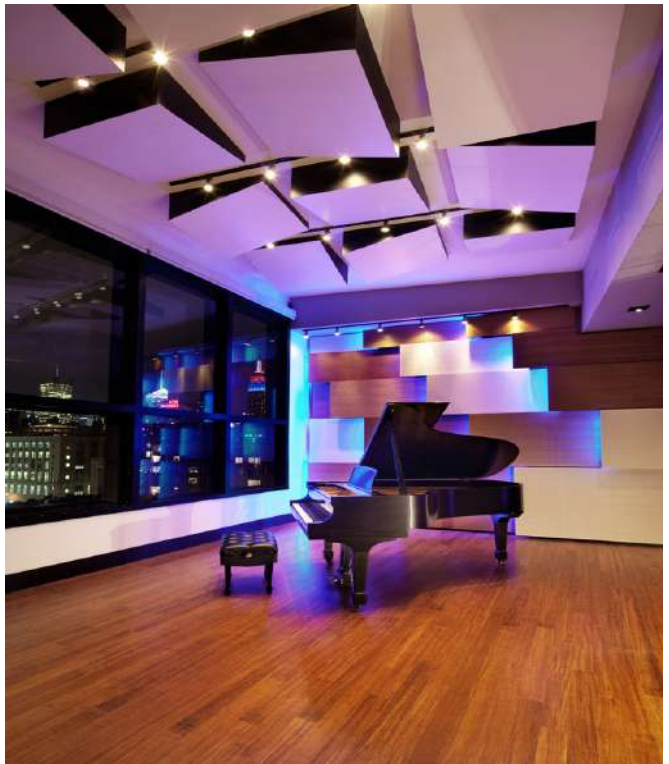


11th FLOOR PLAN

- | | | |
|---------------------|----------------------|------------------|
| 1. PRODUCTION NORTH | 11. ELEVATOR LOBBY | 21. LIVE ROOM |
| 2. LOUNGE B | 12. SOUND LOCK SOUTH | 22. SOUND LOCK |
| 3. LOUNGE A | 13. ISO SOUTH | 23. CORRIDOR |
| 4. ISO NORTH | 14. LOBBY/ENTRY | 24. CONTROL ROOM |
| 5. SOUND LOCK NORTH | 15. CMR | 25. AMP CLOSET |
| 6. CORRIDOR/PANTRY | 16. OFFICE | |
| 7. WC | 17. PRODUCTION SOUTH | |
| 8. STORAGE | 18. BALCONY | |
| 9. CLOSET | 19. LOUNGE C | |
| 10. MECHANICAL | 20. ISO BOOTH | |



Jungle City Studios - New York, USA



Melrose Ballroom - New York, USA

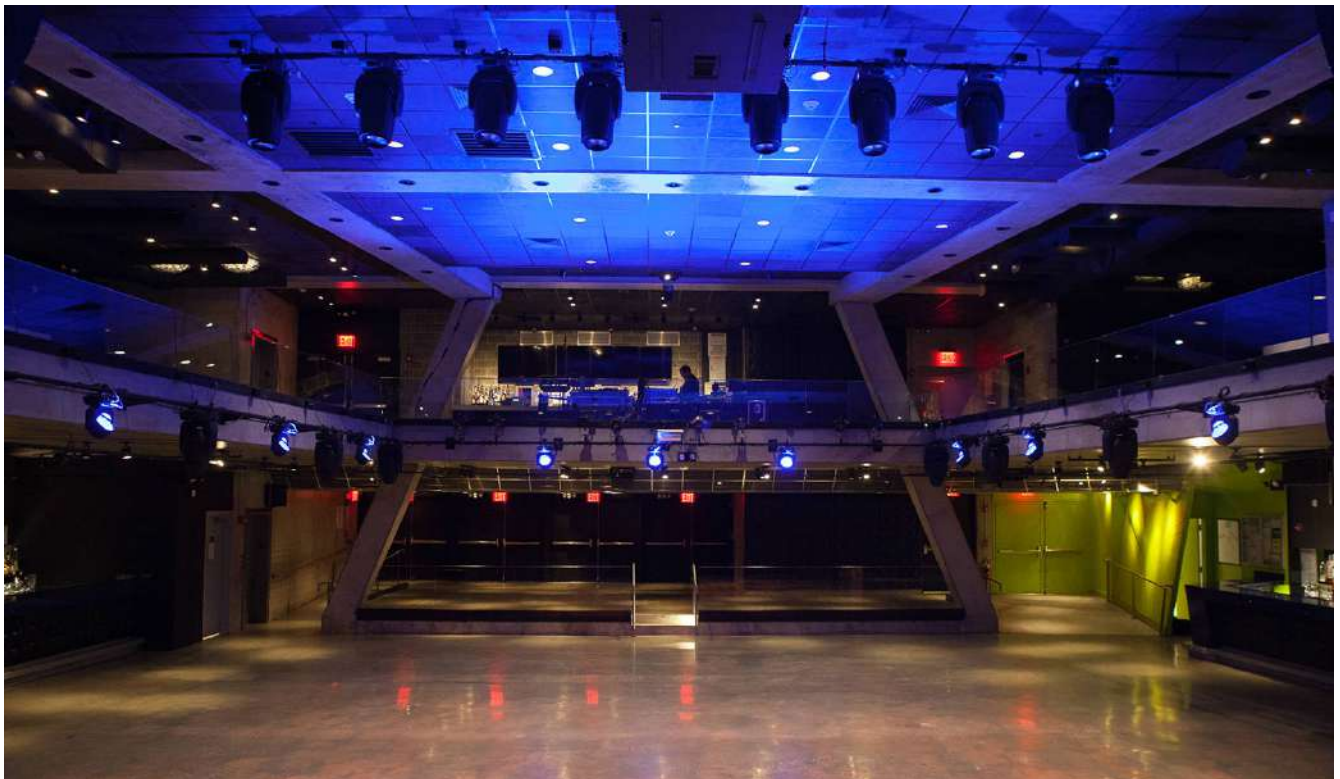
The Melrose Ballroom is one of NYC's most unusual live music and private event venues. A sprawling 25,000 sq. ft. four-story building just across Manhattan's Queensboro Bridge, the structure features a 5,000 sq. ft. Main Ballroom with a 20' ceiling height, a 2250 sq. ft. Mezzanine overlooking the ballroom, a 1,400 sq. ft. Rooftop Lounge and a 1400 sq. ft. Rooftop Deck with spectacular skyline views.

The Melrose Ballroom was created to host a single major social, performance or corporate event, or up to four simultaneous parties and/or performances. Acoustics therefore were a primary concern. WSDG was engaged at the design stage to determine the best possible acoustic isolation solutions and internal room acoustic treatments. A building-wide Systems Integration design was required to permit the four venues to function in unison and independently. The extensive technology program is highlighted by gear from L Acoustics, Genelec, Pioneer, BSS, Digico, Middle Atlantic and a broad range of Custom audio and video panels. An innovative theatrical lighting infrastructure was stipulated to provide guests with the most exciting party experience imaginable.

Working in collaboration with SWA Architecture, and the Archipelagos design studio, WSDG developed a comprehensive program focused on insuring optimal power and clarity for performances, corporate events, weddings, birthday parties, Bar & Bat Mitzvah's, the full range of contemporary gatherings. Design elements incorporated soundproof doors, room-within-room wall construction and precise dispersion of acoustic absorptive wall and ceiling treatments. WSDG also worked closely with Electronic Theater Controls Inc./ETC to assure guests of the ultimate theatrical lighting experience. The Melrose Ballroom has been recognized as one of NY's best sounding, best looking and most accommodating party/performance venues. The creative team pulled out the stops to make this venue a totally positive experience for every guest. And the project was accomplished in keeping with a realistic budget.



Melrose Ballroom - New York, USA



Deutsches Theater München - Munich, Germany

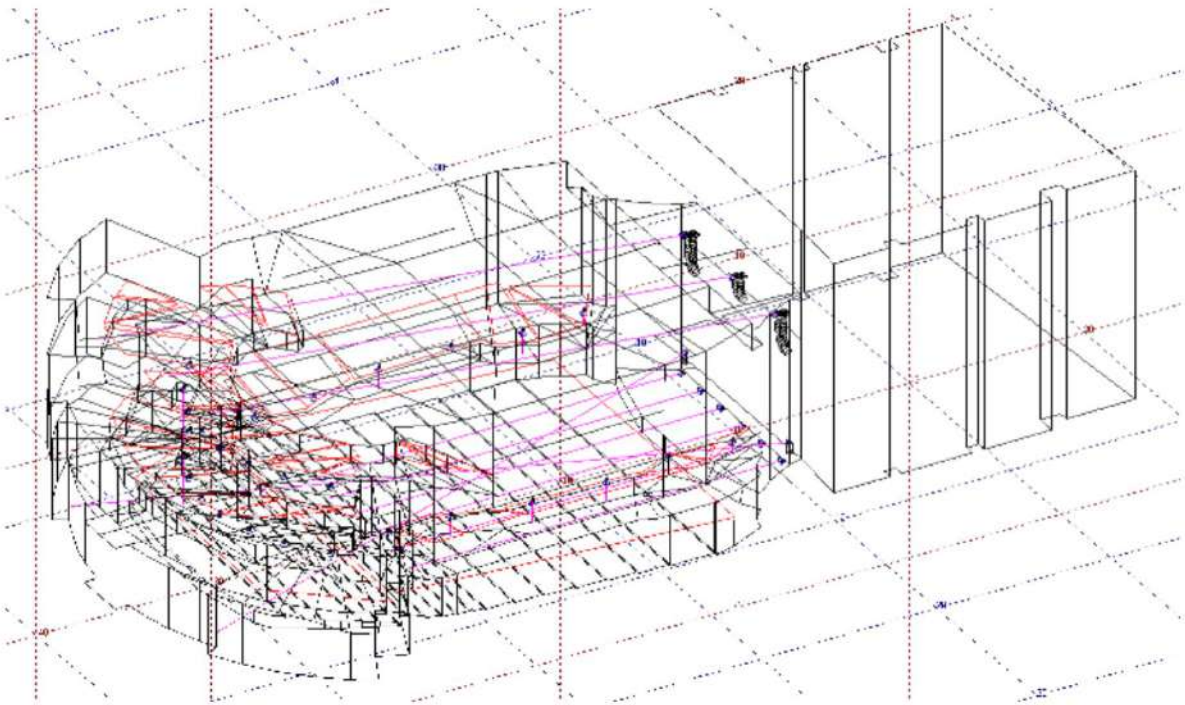
The Deutsches Theater München (German Theatre of Munich) is Germany's largest performance theater, staging musicals, operas, carnival balls, and other large parties. Starting in 2007, the theater went through a series of upgrades and renovations to its stage, orchestra pit, and seating. A major part of these renovations included an overhaul of the venue's sound and video infrastructure.

The WSDG design team was tasked with electroacoustics and A/V system design which included everything from the preliminary planning to the supervision of the installation and final tuning.

A sound studio was installed in the upper levels of the theater. The rear hall area was equipped with a brand-new sound control room with digital workflows for all of the theater's sound and video equipment. In addition to these efforts, the loudspeaker systems were renewed and the preexisting cable network throughout the building was completely replaced.



Deutsches Theater München - Munich, Germany



Entra Live Music Venue - Rapperswil-Jona, Switzerland

Entra is a massive, block-filling residential and commercial building in the center of Rapperswil-Jona, Switzerland, a picturesque city on the Lake of Zurich. Dedicated to providing the community with a top-notch culture and congress event venue that would be a multi-use space ideal for live concerts, corporate events, and religious services, owner Prisma included a 999-capacity live venue within the building. The venue was designed by architecture office Bucher Partner with general contracting by Methabau and AV systems integration by Event AG.

WSDG's services were commissioned for room acoustics and electroacoustics. The WSDG design team was tasked with ensuring excellent conditions in the venue area suitable for all manner of event programming as well as in the foyer leading into the venue. In addition to this, a number of smaller, partially variable, breakout rooms for conferencing situations needed to be acoustically treated as well.

The venue has a pair of line arrays allowing flexibility for the types of events it can host. The L'Acoustics K3 is utilized for concerts and larger touring acts, and a Tannoy Q-Flex Line Array is used for smaller events in the multiple configurations of the venue. The stage is also motorized and can be raised or lowered depending on the needs of the event.

The WSDG design team recommended a reorientation of the stage and reshaping of the balcony to redirect sound reflections away from the stage. The improved angles directed them towards acoustic absorption in the ceiling thus ensuring a more organic listening experience for the audience. The team also installed a slotted Helmholtz Resonator behind the stage for improved low frequency control. The resulting stage sound is very controlled with a low reverberation time.



Entra Live Music Venue - Rapperswil-Jona, Switzerland



La Cigale Sky View & Madison Piano Bar - Doha, Qatar

Adjacent to a large convention center, La Cigale, Doha's newest luxury hotel presents guests with a wealth of color, textures and creature comforts. And now, thanks to a full-blown acoustic makeover by WSDG, the hotel's sleek Piano Bar provides the ultimate listening (and speaking environment). With interiors graced by Murano chandeliers, and furnishings courtesy of Edra, Philippe Starck and Carlos Cruz-Díez, the 189 rooms, 36 suites, fitness center spa, indoor pool, restaurants and related accouterments in this one-of-a kind showplace have anticipated the needs of virtually every guest. Views, from the top floors of the nineteen-story building, sweep the cobalt day and nighttime star field sky above the desert surrounding this oil-rich city.

The hotel's only wrinkle was discovered in the sophisticated Madison Piano Bar and rooftop Sky View Terrace. Just prior to its formal opening, guests invited to a preview performance were rattled by a harsh acoustic anomaly. While no expense had been spared to insure the most tasteful and attractive surroundings, the contractor engaged to build the room was alarmingly lacking in acoustic expertise. As the performance began, the installed sound system immersed the room with music so abrasively loud that the walls began vibrating, and the guests were driven out by an intense dB tsunami. A similar problem was discovered at the Sky View venue. Because this club was set in an open-air rooftop environment, the reverberation issues were not as severe, but the inappropriate systems installation needed to be replaced, and additional acoustic treatments were required. This new "room-within-room" design stipulated 'recording studio-level' acoustic isolation treatments. The solutions included floating floor and de-coupled wall and ceiling construction, which effectively contain nightclub level loudness within the club and eliminate sound leakage to adjacent rooms. NC at the Apartments / VIP suites was above NC 55, with an average FSTC of 45, which was insufficient to contain the 110 dB of the sound system of the piano bar. WSDG achieved NC 28 (the number is also related to the HVAC noise), and most important eliminated low frequency leakage after the isolation solution. (FSTC >70!) Similar isolation and electroacoustic levels were established for the Sky View.



La Cigale Sky View & Madison Piano Bar - Doha, Qatar



Mercedes-Benz Arena - Berlin, Germany

Mercedes-Benz Arena is a multi-purpose indoor sports arena initially opened in 2008. It has a capacity of 17000 people and is home to several of Berlin's premier sports teams. The venue also hosts a wide variety of large concert events. It was designed by HOK Sports and JSK Architects.

The WSDG Design Team was tasked with room acoustics and electroacoustics of the entire complex to support all of its future programming needs.

The room acoustics measures aimed at keeping the reverberation time in the empty hall under 3 seconds as much as possible. Extensive absorber surfaces had to be introduced for this purpose, whose location had to be checked by means of computer simulation:

- Ceiling area through special acoustic mats
- Wall areas through broadband absorbers behind perforated corrugated metal sheet to protect against damage
- Absorber pads on ceiling sails
- Broadband absorber, hung on faces
- Padded plastic seating

This resulted in reverberation times of less than 2.5 s in the empty hall, which, when occupied (maximum 18,000 visitors), creates an acoustic atmosphere, which also supports classical concerts, but ensures in the same time high speech intelligibility when sound reinforcement systems are used.

The sound reinforcement system in the arena as a standard component of sports events follows a decentralized concept mounted to the roof structure / catwalk. Active loudspeakers with integrated power amplifiers are digitally fed from central control units distributed in the roof space. Exact settings of level and delay times create the impression that the sound emanates from the middle of the hall, where the large video cube is installed.



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Mercedes-Benz Arena - Berlin, Germany



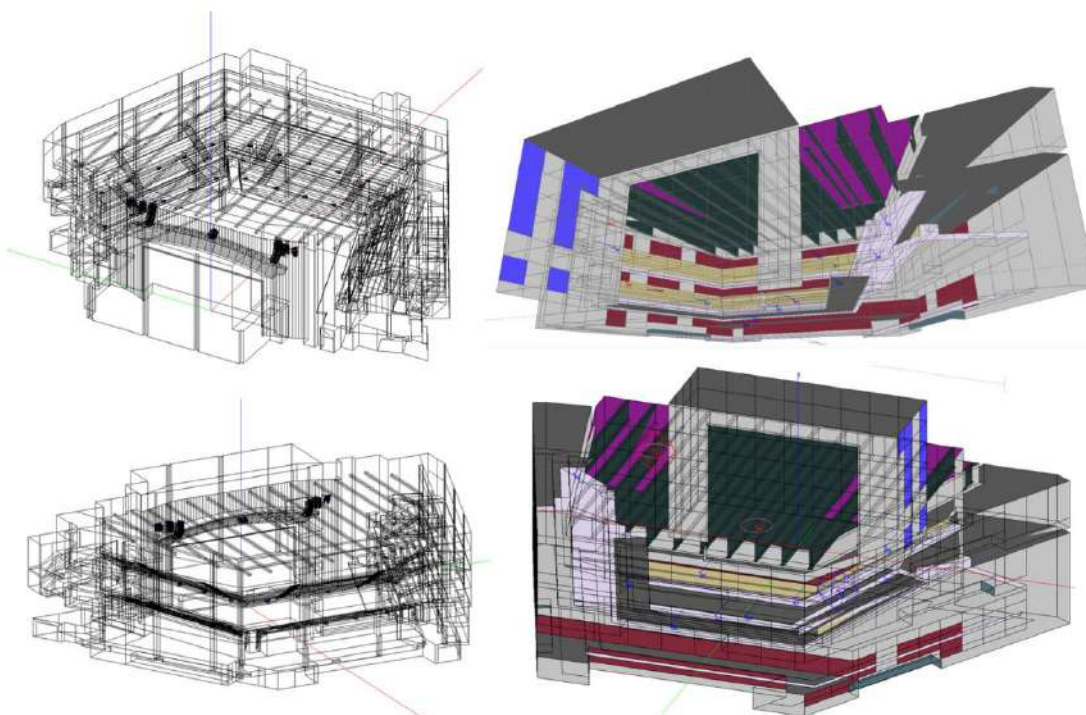
MGM Music Hall at Fenway - Boston, USA

The MGM Music Hall at Fenway is a 5,000-seat auditorium located in the heart of Boston on the legendary Lansdown Street leading to Fenway Park. The venue was commissioned by the Fenway Sports Group in 2019 to fill the void in the city for a world-class mid-sized destination stage that could serve the needs of touring musical and comedy acts and reinvigorate Boston's performance infrastructure. It is currently operated by LiveNation and booked by the Fenway Music Company.

This project was a collaboration between leading Boston-based architectural firm DAIQ Architects and WSDG. WSDG was brought on to assist with project programming and master planning of the space, consulting on both internal room acoustics and electroacoustic design, full A/V design of the facility including distributed audio and video systems, sightline review, and acoustic isolation.

The MGM Music Hall at Fenway is built on the 'triangle lot' at the corner of Lansdowne and Ipswich Streets, which was formerly utilized by mobile production trucks involved in sports broadcasting. It is four levels tall with an outdoor roof deck, lounge areas, and mezzanine box seating. The wedge shape of the lot created a unique design opportunity for the design team to maximize its functional goals, resulting in a room with excellent sound and sightlines where no concertgoer is further than 110 feet from the stage and every seat is a 'good seat'.

The venue features state-of-the-art A/V infrastructure, utilizing Clair Cohesion arrays, designed to meet the rigorous standards of international touring acts and increased flexibility to accommodate many different event typologies. It was also designed to have excellent acoustic isolation both inside and out, ensuring that simultaneous events taking place at the nearby House of Blues or Fenway Park don't sonically intrude on events at the Music Hall and vice-versa.



MGM Music Hall (at Fenway Park)
Boston, MA

MGM Music Hall at Fenway - Boston, USA



MusikTheater Linz - Linz, Austria

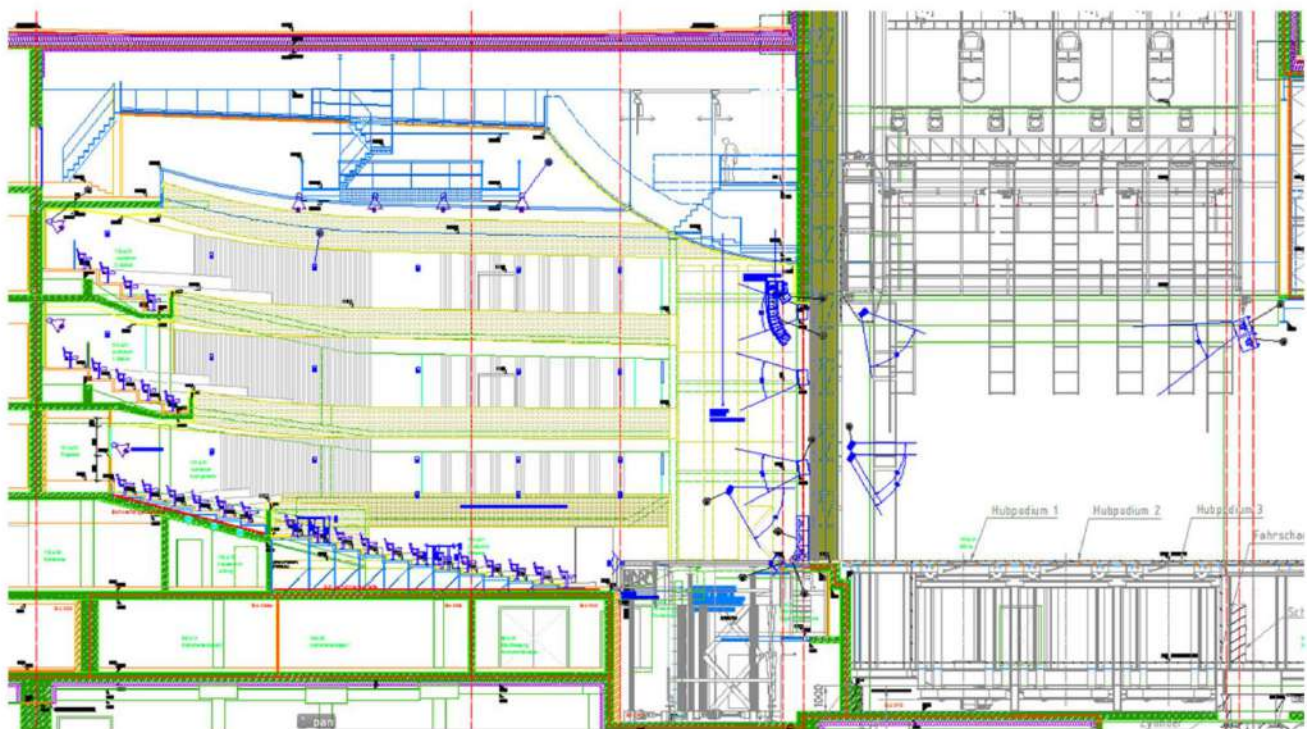
MusikTheater Linz is a modern opera house located in the heart of the Linz city center. It originally opened in 2013 and was designed by London architect Terry Pawson.

The WSDG design team was tasked with designing and implementing the complex's audio / video systems, digital audio and video networks, stage management, voice alarm, media control and data technology, cable network, and installation systems.

In the auditorium, line arrays can be lowered from the ceiling left and right. Furthermore, speakers are installed for effects left and right behind sound-transparent panels. The sound transparency of the covers was tested by ADA in the laboratory. More small speakers were installed in the stage edge in two levels (thus effective with and without orchestra pit). In the so-called crown floor (round ceiling part) are more speakers for effects play available.

In addition, panoramic loudspeakers were installed in all levels, which can feed circulating signals in the hall. In addition, the speakers can also be used for reverberation prolongation when using short delays. Signals can be sent from the stage depth as well as in the stage itself. Everywhere in the stage area as well as in the hall are floor boxes for other mobile speakers, and also for microphones.

The next major task was the planning of the intercom system, including the stage management console. On both sides of the stage, connection inlets are provided for the console, with the left side is considered the default parking space of the console. Since there are also simplified stage management consoles in the other venues of the house, preference circuits have been provided to prevent false communication.



MusikTheater Linz - Linz, Austria



Spotify At Mateo - Los Angeles, USA

Spotify is the world's largest streaming music provider with over 381 million active monthly users and growing. After several years of design and construction, the company opened Spotify At Mateo in 2022. The 150,000 sq ft campus is located in the heart of LA's historic Arts District and serves as Spotify's flagship destination for their rapidly growing content creation division as well as a crucial artistic hub for LA's podcast and music professionals.

Designed to be an immersive, all-in-one experience with all aspects of music and podcast production, post-production, and performance under one roof, Spotify At Mateo required a wide variety of recording and production spaces that would be utilized by both visiting artists and Spotify's in-house team of creators and producers. In addition to this, communal listening and performance spaces were also required. The campus was designed by LA design firm RIOS, with studio design, electroacoustics, A/V systems design, and production lighting by WSDG.

Building One has a pair of full-featured recording studios, A and B, and a podcast recording studio. Studio A features a 48-channel Rupert Neve Designs Shelford 5088 console. Studio B is equipped with an Avid S4 24-fader Control Surface with Dolby Atmos mix capability. Both studios share a purpose-designed echo chamber. Studios A and B also feature innovative sets of hinged acoustic panels which allow for variable acoustical conditions within the spaces as well as a purpose-designed echo chamber. WSDG also designed the acoustics of the onsite screening room, event hall, and three listening rooms in Building Two. Building Four's 'Pod City' is a honeycombed collection of spaces created specifically for podcasting. This includes Spotify's Flagship Podcast Studio D, as well as 15 additional podcast studios, two production rooms, and three artist lounges. All of the rooms have multiple windows for access to natural light and greenery and were created with ideal acoustic conditions and seamless system design in partnership with SPL. The exterior design of the rooms nicknamed 'The Craggle', give the space a sense of excitement and flow.



Spotify At Mateo - Los Angeles, USA



- Studio A and B Plan
- 0 5 10 20 FEET
0 1 3 6 METERS
- 1. Control A
 - 2. Live A
 - 3. Iso A1
 - 4. Iso A2
 - 5. Sound Lock
 - 6. AV A
 - 7. Amp Closet
 - 8. Echo Chamber
 - 9. Storage
 - 10. Control Room B
 - 11. Iso B1
 - 12. Iso B2
 - 13. AV B



Section Through Studio A and B

Representative Client List

26 Sushi & Tapas (Morris J. Kaplan) Surfside, FL
3:3:2 Buenos Aires, Argentina
54 Below New York, NY
55TEC Studios Beijing, China
Adverse Residence Belo Horizonte, Brazil
Alan May Listening Room Home Theater Dallas, TX
Albano Residence Monte Claros, Brazil
Alejandro Lerner Buenos Aires, Argentina
Alicia Keys (Oven Studios) Long Island, NY
Allaire Studios, Woodstock, NY
American University Washington, DC
Anel Paz – Supercharango Buenos Aires, Argentina
Appalachian State University Boone, NC
Art Institutes United States
AR Studios Rio de Janeiro, Brazil
Atlantic Recording New York, NY
Atomica Santiago, Chile
audioEngine New York, NY
Aura Club Events Hall Zurich, Switzerland
Bamyasi Studio Miami, FL
BBC Mundo, Coral Gables, FL
Bearsville Recording Bearsville, NY
Berklee College of Music – 160 Mass Ave Boston, MA
Berklee College of Music - Valencia Valencia, Spain
Big Mo Mobile Recording Kensington, MD
Blue Table Post Brooklyn, NY
Bob Margouleff (Mi Casa Studios) Hollywood, CA
Bob Marley Kingston, Jamaica
Boston Symphony Orchestra Control Room Boston, MA
Bruce Springsteen (Thrill Hill Studios) United States
Camden Yard / Baltimore Orioles Baltimore, MD
Carter Burwell New York, NY
Casa Cor Belo Horizonte, Brazil
Casa Ezeiza Buenos Aires, Argentina
Celine Dion United States
Central Synagogue New York, NY
Church Le Noirmont Le Noirmont, Jura, Switzerland
Citicorp Credit Services Huntington, NY
Clap Studios Medellin, Colombia
Club NEO Zurich, Switzerland
Comunidad de Fe Quito, Ecuador
Credit Suisse Zurich, Switzerland
Crossroads Tabernacle - Studio on the Hill Bronx, NY
Cuyahoga Community College - Center for Innovation in the Arts Cleveland, OH
Daniel Studio São Paulo, Brazil
Damian Marley Miami, FL
Diante do Trono Belo Horizonte, Brazil
Diego Torres Private Studio Buenos Aires, Argentina
Di Tella University Buenos Aires, Argentina
Different Fur Music San Francisco, CA
Dream Asylum – Danja & Marcella Araica Miami, FL
Duke Ellington High School Washington, DC
Eddie Kramer Rhinebeck, NY
EFE-X Bogota, Columbia
El Aleph Building – Norman Foster Buenos Aires, Arg
El Porteño Buenos Aires, Argentina
Electric Lady Studios New York, NY
Electronic Arts Vancouver, Canada
Elektra Entertainment New York, NY
Ellis Marsalis Center for Music (EMCM) – NOLA, LA
EMI – Escola de Marketing Industrial São Paulo, Brazil
Equiscosa Mexico City, Mexico
EUE Screen Gems (Rachel Ray) New York, NY
ESPN Bristol, CT
ESPM Broadcast Teaching Center São Paulo, Brazil
Estudio 13 Mexico City, NY
Ex'Pression College for Digital Arts San Jose, CA
Fito Paez (Circo Beat Studios) Buenos Aires, Argentina
Flughafenkopf – Zurich Airport Zurich, Switzerland
Fenix Club San Rafael, CA
Fontela Residence Buenos Aires, Argentina
Food Network New York, NY
Full Sail Center for the Recording Arts Orlando, FL
Goesgen Nuclear Plant Däniken, Switzerland
Goo Goo Dolls (GCR Audio) Buffalo, USA
Graeme Judd Voiceover Studio Calgary, Canada
Green Day – Jingtletown Recording Oakland, CA
Hard Rock Cafe New York, NY
Harman Flagship Store Listening Room New York, NY

Hilton Garden Inn Montevideo, Uruguay
Hirslanden Group Zurich, Switzerland
Hoffman LaRoche Basel, Switzerland
Howard Schwartz Recording New York, NY
Huber Music Room Carlsbad, CA
Hunter College New York, NY
IMAX Buenos Aires, Argentina
IDZI Lab Mexico City, Mexico
Independencia Stadium Belo Horizonte, Brazil
Interlochen Public Radio Interlochen, MI
Interim Services Ft. Lauderdale, FL
Isaac Hayes Westchester, NY
J Records (Clive Davis) New York, NY
J.A. Castle Recording Utica, NY
James Earl Jones Theater - PDS Poughkeepsie, NY
Jay-Z (Roc the Mic Studios) New York, NY
Jazz at Lincoln Center New York, NY
Jim Cramer's Real Money New York, NY
Jungle City Studios New York, NY
Kimmel Center Philadelphia, PA
KKL Concert Hall Luzern, Switzerland
La Rioja Theater La Rioja, Argentina
Le Poisson Rouge New York, NY
Mad Oak Studios Boston, MA
Maracana Stadium Rio de Janeiro
Manhattan School of Music New York, NY
Martin Scorsese Media Center Bronx, NY
Merriweather Pavilion Columbia, MD
Mineirao Stadium – FIFA Belo Horizonte, Brazil
Minnesota Public Radio Minneapolis, MN
MJI Broadcasting / Clear Channel New York, NY
MonkMusic Studios East Hampton, NY
Murray Arts Center Marietta, GA
MTV Latin America Buenos Aires, Argentina
National Council of Switzerland Bern, Switzerland
National Museum of the American Indian Washington, DC
New York University New York, NY
Northern Lights New York, NY
Novartis Basel, Switzerland
NYISO (NY Independent System Operator) Albany, NY
Peavey Electronics Meridian, MS
PepsiCo Content Studio New York, NY
Peloton Flagship Spinning Center New York, NY
PostFinance Arena Bern, Switzerland

Philippe Moritz Zurich, Switzerland
Planet Hollywood Screening Room New York, NY
Proctor and Gamble Buenos Aires, Argentina
Qatar Television Doha, Qatar
Record Plant Los Angeles, CA
Restaurant T Buenos Aires, Argentina
Richard Gere New York, NY
Rio 2016 – Barra Olympic Park Rio de Janeiro, Brazil
Robert Clivilles (Paradise Garage) Westchester, NY
Salvation Ministries Port Harcourt, Nigeria
SBK / EMI Records New York, NY
Skank Belo Horizonte, Brazil
SONY Corporation Teaneck, NJ
Spank! Music and Sound Design Chicago, IL
Stanwich Congregational Church Greenwich, CT
St. Gallen Train Station St. Gallen, Switzerland
Stevie Wonder (Wonderland) Los Angeles, CA
Sumitomo Boardroom New York, NY
Sunshine Mastering Vienna, Austria
Swiss Parliament Basel, Switzerland
Telefé Buenos Aires, Argentina
Teleproductions, Inc. Washington, DC
TSR – Télévision Suisse Romande Geneva, Switzerland
The Carpenters Church Port Harcourt, Nigeria
The Church Studios – Paul Epworth London, UK
The Cosmopolitan Las Vegas, Nevada
The Standard Hotel New York, NY
Thirteen / WNET New York, NY
TV Globo Sao Paulo, Brazil
Union College Schenectady, NY
University of Colorado – ATLAS Boulder, CO
University of Michigan Ann Arbor, MI
Univison Miami, USA
Universidad ICESI Cali, Colombia
Vassar Chapel Poughkeepsie, NY
Video Arts Studios Fargo, ND
Village Studios Guangzhou, China
Vocomotion Skokie, IL
VSL Synchron Stage Vienna, Austria
Vivace Studios Montevideo, Uruguay
Whitney Houston United States
WNYC Radio New York, NY
Woodrow Wilson Center– Smithsonian Washington, DC
Young Israel Synagogue Miami, FL



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