

CASE STUDY BOYS TOWN, UNITED STATES



ETS-Lindgren has a long history with Boys Town, a national organization that reaches communities from coast to coast. Since 1917, Boys Town has given thousands of at-risk children the support and education they need to succeed. The internationally recognized Boys Town National Research Hospital in Omaha, Nebraska is a leader in clinical and research programs focusing on childhood deafness, visual impairment and related communication disorders. ETS-Lindgren provided sound isolation booths to improve patient diagnostic services. In the laboratory, customized booths address the specific research needs of the physicians. Working with Eclipse Acoustic Solutions, a turn-key equipment supplier and integrator, ETS-Lindgren's ability to design custom solutions ensures Boys Town's diverse audiology and research needs are met for acoustic performance, integration and efficient space utilization.

Standard Audiometric Specifications

ETS-Lindgren has provided its Single and Double Wall exam suites at the Boys Town National Research Hospital. Innovative features of these booths include:

- **Superior Acoustic Isolation:** Single Wall Control, Double Wall Exam Suites are constructed with premium AS-A504 10 cm (4 in) thick wall panels, which provide impressive isolation. Standard model booths are equipped with many premium features that are optional for other manufacturers.
- **SoundSecure™ Acoustic Doors:** As the most critical component of any sound isolation system, SoundSecure acoustic doors feature a double magnetic seal, heavy duty hinges, and

compression thresholds. These doors are a panelized design to ensure proper sound isolation performance and integration into the modular wall system.

- **SoundSecure Acoustic Windows:** Produced from double-glazed, laminated safety glass. Mounted in heavy-gauge steel frames with rubber compression seals free of plastic inserts, these windows offer excellent acoustic isolation, with the convenience of patient viewing.
- **Acoustic Floor System:** Many booths and suites offer a low profile, sound and vibration isolated floor system. This lower threshold allows easier patient entry into the testing environment, while maintaining excellent acoustic performance.

Custom Audiometric Booth

One of the physicians at the Boys Town National Research hospital wanted an acoustic booth that was multi-functional and had many observation windows to allow others to be able to view a surgical procedure. The result was a customized dual audiometric suite with the following unique features:

- **Oversize observation window** 91 cm x 91 cm (36 in x 36 in)
- **Access from control to host space,** where a desk was placed with equipment. It serves as an observation location, but also functions as a single wall exam booth.
- **Convenient cable routing** with 5 cm (2 in) diameter pipe penetrations for large cables. The pipe penetration is easily sealed once the cables are

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inserted, adding convenience for swapping out cables and equipment.

- Multiple patients may undergo a hearing evaluation at one time. A curtain on the center observation window easily divided the spaces.
- Dimmers were included to control the light intensity and increase patient comfort.

More recently, ETS-Lindgren designed a custom large single wall audiometric test booth utilizing 15 cm (6 in) thick wall panels to address the need for increased sound isolation in the footprint of a single wall booth.

Isolation Performance

ETS-Lindgren maintains an independent Acoustic Research Laboratory recognized by the National Voluntary Laboratory Accreditation Program (NVLAP lab code 100266-0). ETS-Lindgren's large reverberation chamber is the only one of its kind in the industry with sufficient volume to test a fully assembled single wall control/

double wall exam audiometric test suite. ETS-Lindgren uses the laboratory to measure noise reduction from the outside to inside of a properly installed booth in accordance with ASTM E596-96 (2009). This documents the performance of ETS-Lindgren booths and ensures high quality. Below is data typical of the Single Wall Control/Double Wall Exam Suites provided for Boys Town.

Dream Team

A key facilitator of the acoustic activity at Boys Town is Michael T. Reiter Jr. with Eclipse Acoustic Solutions, Inc. Eclipse provides the onsite audiometric booth installation support and interfaces with the physicians and researchers directly to understand their requirements. The requirements are communicated to the engineering team at ETS-Lindgren. The result is a customized acoustic audiometric booth that not only elevates the level of patient services and furthers the research capabilities of the physicians, but also provides the biggest return on investment to Boys Town.

ETS-Lindgren and Eclipse are proud to have been selected to provide an ISO 3745 compliant fully anechoic research chamber for sound localization studies, slated for completion in late 2019.

About ETS-Lindgren

ETS-Lindgren is an international manufacturer of components and systems that measure, shield, and control electromagnetic and acoustic energy. The company's products are used for electromagnetic compatibility (EMC), microwave and wireless testing, electromagnetic field (EMF) measurement, radio frequency (RF) personal safety monitoring, magnetic resonance imaging (MRI), and control of acoustic environments.

Headquartered in Cedar Park, Texas, ETS-Lindgren has manufacturing facilities in North America, Europe and Asia. Additional information about ETS-Lindgren is available at ets-lindgren.com.

Additional information about ETS-Lindgren's parent company ESCO and its subsidiaries is available at escotechnologies.com.

Noise Reduction Laboratory Test Results

Center Frequency (Hz)	125	250	500	1000	2000	4000	8000	NIC
Double Wall Exam Room	40	55	78	87	97	100	89	64
Single Wall Control Room	24	32	43	48	53	58	58	45



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