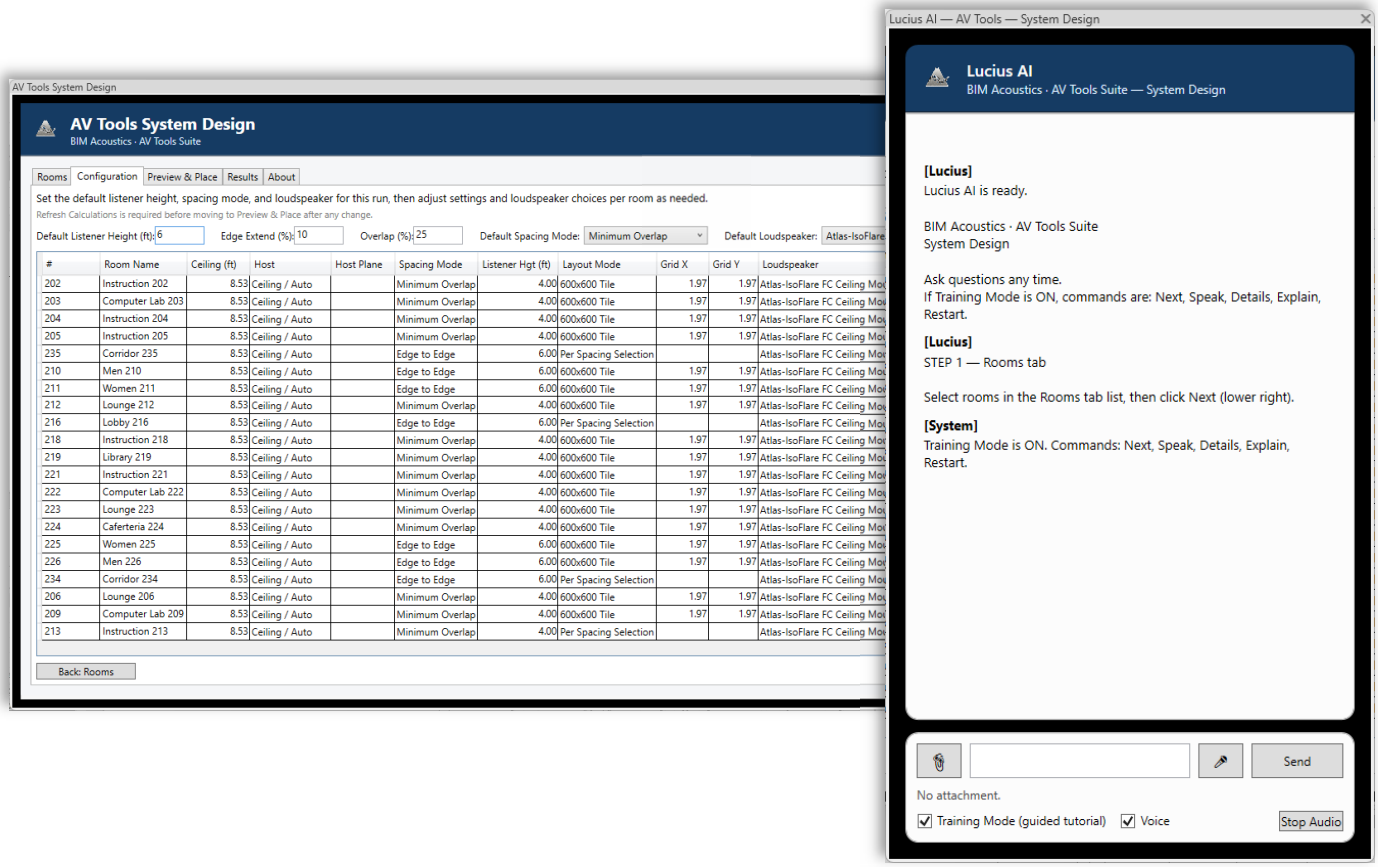
BIM Acoustics, LLC | 411 Forest Acres Circle | Walhalla, SC 29691

504-401-4983 | www.bimacoustics.net

BIM Acoustics AVTools System Designer



Distributed Loudspeaker Systems for Revit

Product Type: Revit Add-In
Platform: Autodesk Revit 2022–2026
Discipline: Audio-Video / Acoustics
Developer: J. Stevens BIM Acoustics

Overview

AVTools System Designer is a Revit add-in that automates and standardizes the layout of distributed ceiling loudspeaker systems directly within the BIM model. It is designed to reduce repetitive manual layout work, improve consistency across multi-room projects, and clearly express system intent early in design.

System Designer combines **rule-based automation** with **Lucius**, an integrated AI design assistant. The add-in handles repetitive layout tasks, while Lucius explains the assumptions and best practices behind those results. All final design decisions remain under the control of the engineer.

System Designer focuses on **geometric layout, spacing logic, and system-level intent**, not full acoustic simulation. It is intended to complement—rather than replace—detailed acoustic modeling tools and professional judgment.

Primary Use Cases

- Distributed ceiling loudspeaker systems
- Projects with many similar rooms (education, office, hospitality, healthcare, civic)
- Early-stage AV system layout and coordination in Revit
- Consultants seeking faster, more repeatable layouts with transparent assumptions

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Room-Aware Design Assistance

AVTools System Designer leverages **native Revit room data** to assist designers in identifying and prioritizing spaces that are likely to require audio coverage.

Using room names, room types, and model geometry, the add-in can help filter and group spaces such as:

- Conference rooms
- Meeting rooms
- Boardrooms
- Classrooms
- Restaurants and dining areas
- Corridors and circulation spaces
- Multi-purpose and assembly rooms

This room-aware approach accelerates the transition from model intake to review-ready layouts, while allowing designers to include, exclude, or override any space as needed.

Best-Practice–Driven Defaults (Designer-Controlled)

System Designer applies **transparent best-practice assumptions** derived from established distributed-system design methods to reduce repetitive setup tasks. These include assistance with:

- Spacing patterns appropriate for distributed ceiling loudspeaker systems
- Listener plane assumptions based on typical room use
- Target SPL guidance for speech and background music applications
- Initial tap recommendations consistent with spacing and coverage intent

All suggested values are **visible, adjustable, and optional**. The tool accelerates setup but does not hide assumptions or override engineering judgment.

Lucius AI — Integrated Design Assistant

Lucius is an AI-based design assistant integrated with AVTools System Designer. It is trained specifically on:

- The capabilities and limitations of System Designer
- Distributed loudspeaker design principles used by the add-in
- Spacing logic, coverage intent, and layout assumptions
- Best practices for Revit-based AV workflows

Lucius can:

- Explain how and why loudspeakers were placed
- Clarify spacing models, overlap intent, and listener assumptions
- Describe what the tool does and does not calculate
- Help users validate results before refinement

Lucius does **not** make design decisions or modify the model autonomously. It exists to increase **transparency, trust, and understanding** when automation is involved.

Editions

System Designer (Standard)

Focus: Layout automation with explainable design intent

Includes:

- Automated ceiling-hosted loudspeaker placement using industry-standard spacing models
- Room-aware filtering and prioritization using Revit room data
- Basic ISO-line (isobar) coverage visualization for relative uniformity
- Target SPL input with tap-setting recommendations
- Integrated Lucius AI for explanation of layout intent and best practices

Does **not** include:

- Frequency-dependent acoustic simulation
- SPL or STI prediction maps
- EASE-style modeling

System Designer (Standard) is intentionally focused on **speed, consistency, and clarity inside Revit**, not replacing specialized acoustic analysis tools.

System Designer (Pro) — Planned

Focus: Early validation and deeper analysis within Revit

Planned enhancements include:

- Enhanced coverage mapping using loudspeaker balloon data (where available)
- Improved spatial coverage visualization beyond basic ISO-line mapping
- Early-stage room acoustics metrics (RT60, STI)
- Electrical system modeling:
    - Amplifier loading
    - Circuiting
    - Line-loss analysis
- Expanded Lucius AI guidance aligned with these advanced features

Target Availability: *Q2 2026 (subject to change)*

Design Philosophy

AVTools System Designer is built from real-world consulting workflows. Its goal is to:

- Reduce repetitive manual work
- Make design assumptions visible and explainable
- Improve coordination and repeatability
- Preserve professional engineering judgment

The add-in is designed for **review and refinement**, not replacement of experience.

Availability

- **Edition:** System Designer (Standard)
- **Status:** Limited early access
- **Platform:** Autodesk Revit 2022–2026

Learn More

- Ask **Lucius** directly on the BIM Acoustics website for detailed explanations
- Contact: **info@bimacoustics.net**