BIM-FIRST THINKING FOR AV

Why sound systems should start with the building, not the box.

by Jerrold Stevens

Above, a BIM-centric AV workflow, and below, a traditional workflow.

For decades, audiovisual (AV) system design has followed a familiar pattern. The building is designed, spaces are defined, and drawings advance through design development. Then, often late in construction documents, the AV system is "laid out": devices are placed on reflected ceiling plans, notes are added, schedules are generated, and coverage assumptions are made.
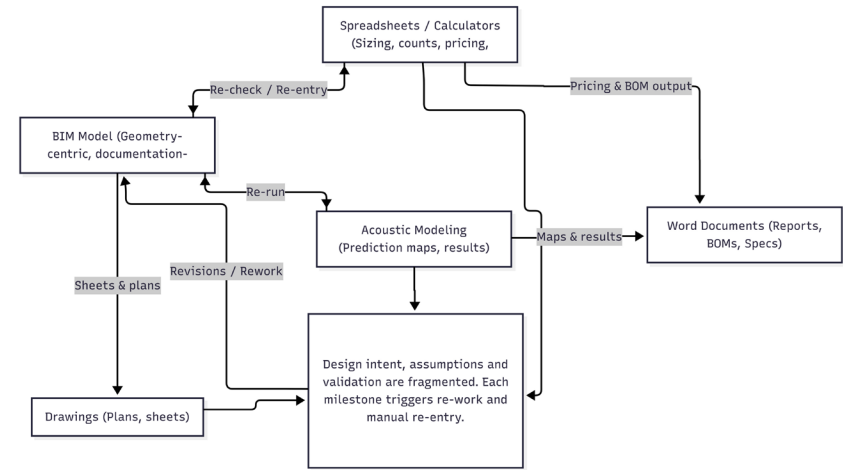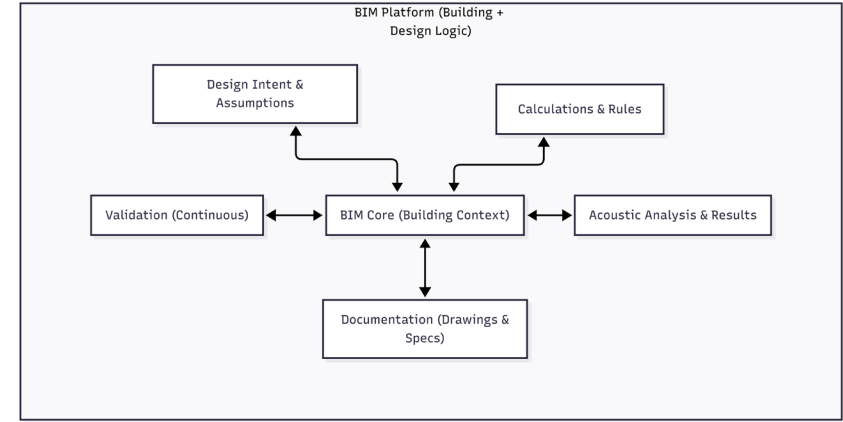
That approach works well enough to get projects built. But it also helps explain why AV so often feels disconnected from the building itself.

As other disciplines have matured their Building Information Modeling (BIM) workflows, AV has largely remained device-centric rather than model-centric. Loudspeakers, displays, microphones, and control devices are treated as objects to be placed, while much of the actual system design happens elsewhere. The result is that AV frequently appears as something layered onto the building, rather than something developed alongside it.

That distinction matters more than ever.

THE PROBLEM WITH LATE-STAGE AV DESIGN

Architects think in terms of space, proportion, circulation, and program. Mechanical and electrical engineers think in terms of zones, loads, and systems that respond directly to geometry. AV,

by contrast, is often perceived as an overlay—something added after the fact.

This positioning creates predictable challenges. Expectations between architects and AV consultants drift out of alignment. Coordination conflicts arise with ceilings, structure, and lighting. Performance is compromised by late design changes. When budgets tighten, AV is frequently targeted because it appears discretionary rather than integral.

None of these issues are rooted in technology. They are rooted in workflow.
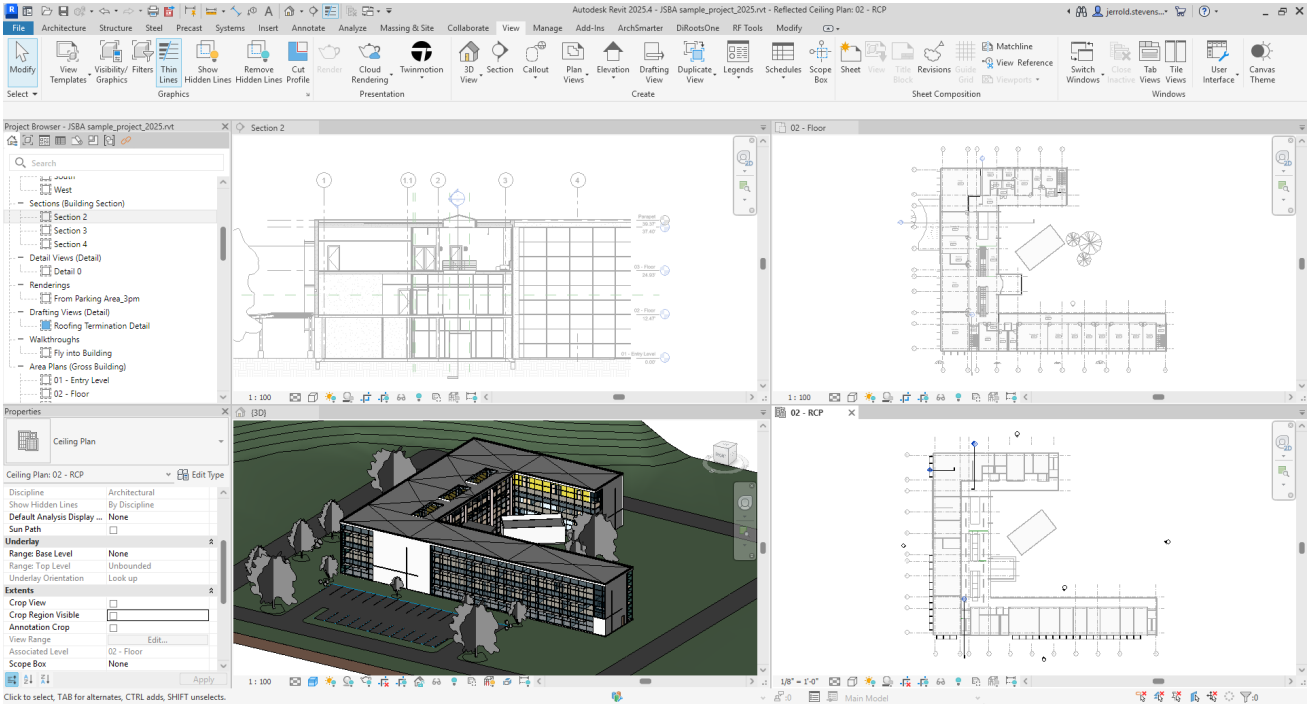
AV design often begins by asking what equipment should be used. A BIM-first

mindset re-frames that question: How does this system belong in this building?

IN THE ROOM, NOT FROM THE ROOM

AV system design has always started with rooms. No competent AV designer can work without understanding boundaries, volumes, finishes, adjacencies, and geometry. These factors drive coverage, intelligibility, sightlines, and system performance from the outset.

The challenge is not that AV designers ignore room data – it's that the building already lives in BIM, while much of AV design does not.

Autodesk Revit BIM software for architects, contractors as well as structural, electrical, and plumbing engineers, facilitates creation of accurate 3D models and more streamlined workflows.

In many workflows today, room information is effectively extracted from the model and re-created elsewhere. Geometry is interpreted, dimensions are copied, assumptions are made, and calculations are performed in external tools or spreadsheets. The results are then brought back into BIM as documentation artifacts rather than as live design intelligence.

That separation introduces friction. Any change to the room – a shifted wall, a revised ceiling height, a material change – requires the AV designer to manually reconcile updates across tools. The model becomes something to reference, not something to design within.

A BIM-first AV workflow removes that disconnect. Instead of pulling room data out of the model, the design logic lives alongside it. Coverage, spacing, and system intent are evaluated directly in context, using the same geometry and data the rest of the design team relies on. When the room changes, the design responds.

This is less about changing how AV designers think, and more about allowing their existing design process to remain where the building already is.

DESIGN PARTNER, NOT JUST DOCUMENTATION

Many AV professionals already work in BIM tools, often very competently. But in many cases, BIM is still treated primarily as a documentation environment rather than a place where design work is actually carried out. Families are placed, parameters are filled, and schedules are exported, but the core design logic often lives elsewhere.

What is missing is not information, but feedback.

In other disciplines, BIM is increasingly used to support design decisions as they are being made. Designers can test whether a system fits a space, understand the implications of a geometry change, and identify coordination risks while there is still time to respond. Those same needs exist in AV, yet they are often addressed outside the model – or reconciled manually after the fact.

When room geometry changes, an AV system should not quietly drift out of alignment with its original intent. A BIM-first workflow makes those changes visible and actionable, allowing designers to revisit assumptions and adjust execution without re-creating work across multiple tools.

AUTOMATION THAT SUPPORTS EXPERTISE

Automation in AV design is sometimes misunderstood as an attempt to replace professional judgment. In practice, the most effective automation does not replace decisions – it replaces the repetitive steps required to carry them out.

AV designers already make a series of informed decisions early in the process. They interpret what a room is meant to do, consider listener height, usage patterns, coverage goals, and architectural constraints, and decide what type of loudspeaker pattern is appropriate. They evaluate finishes, volumes, and adjacencies. None of that judgment should be automated.

What can be automated are the mechanical tasks that follow those decisions.

Extracting room geometry and dimensions, interpreting ceiling heights and materials, performing spacing calculations, mapping coverage, and translating those results into physical device placement are all necessary steps, but they are also repetitive. Today, those steps are often performed manually, room by room, and then repeated whenever the design changes.

Procedural automation streamlines that work. Once the designer has defined intent, the system can handle execution: applying spacing logic consistently, generating coverage mappings, and placing devices accurately in context. Instead of manually dragging families into ceilings, copy-pasting arrays, and nudging elements into position, the designer begins with a coherent baseline that reflects their decisions.

This approach scales expertise rather than bypassing it. Designers can apply the same rigor across multiple rooms at once, then focus their time on reviewing results, refining edge cases, and making adjustments where judgment matters most. Automation handles repetition; the designer remains in control.

SPEAKING THE ARCHITECT'S LANGUAGE

One reason AV design is often brought in late is communication. Architects care deeply about performance, but not necessarily about equipment minutiae. What resonates most is clarity of intent, predictability of outcomes, and respect for the building design.

When AV systems are developed directly within the building model and respond visibly to change, they are easier to engage with earlier in the process. BIM supports that dialogue, but only when AV workflows align with how BIM is actually used by the rest of the design team.

While this discussion focuses on AV, the same BIM-first thinking applies to other low-voltage disciplines as well. IT, security, and life-safety systems also benefit when design intent remains connected to building geometry and change-aware execution.

FROM OVERLAY TO INTEGRATED SYSTEM

The opportunity for AV is not simply better drawings or more detailed models. It is better alignment with the building itself.

A BIM-first AV workflow allows system design to develop in parallel with architecture and engineering rather than trailing behind them. It keeps intent, execution, and documentation connected. Most importantly, it re-frames AV not as a late-stage add-on, but as a building system that deserves early, informed design attention.

As BIM continues to evolve, AV has a choice: remain device-centric and reactive, or become spatially aware and proactive. The buildings we design – and the people who use them – will benefit from the latter. LSI

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