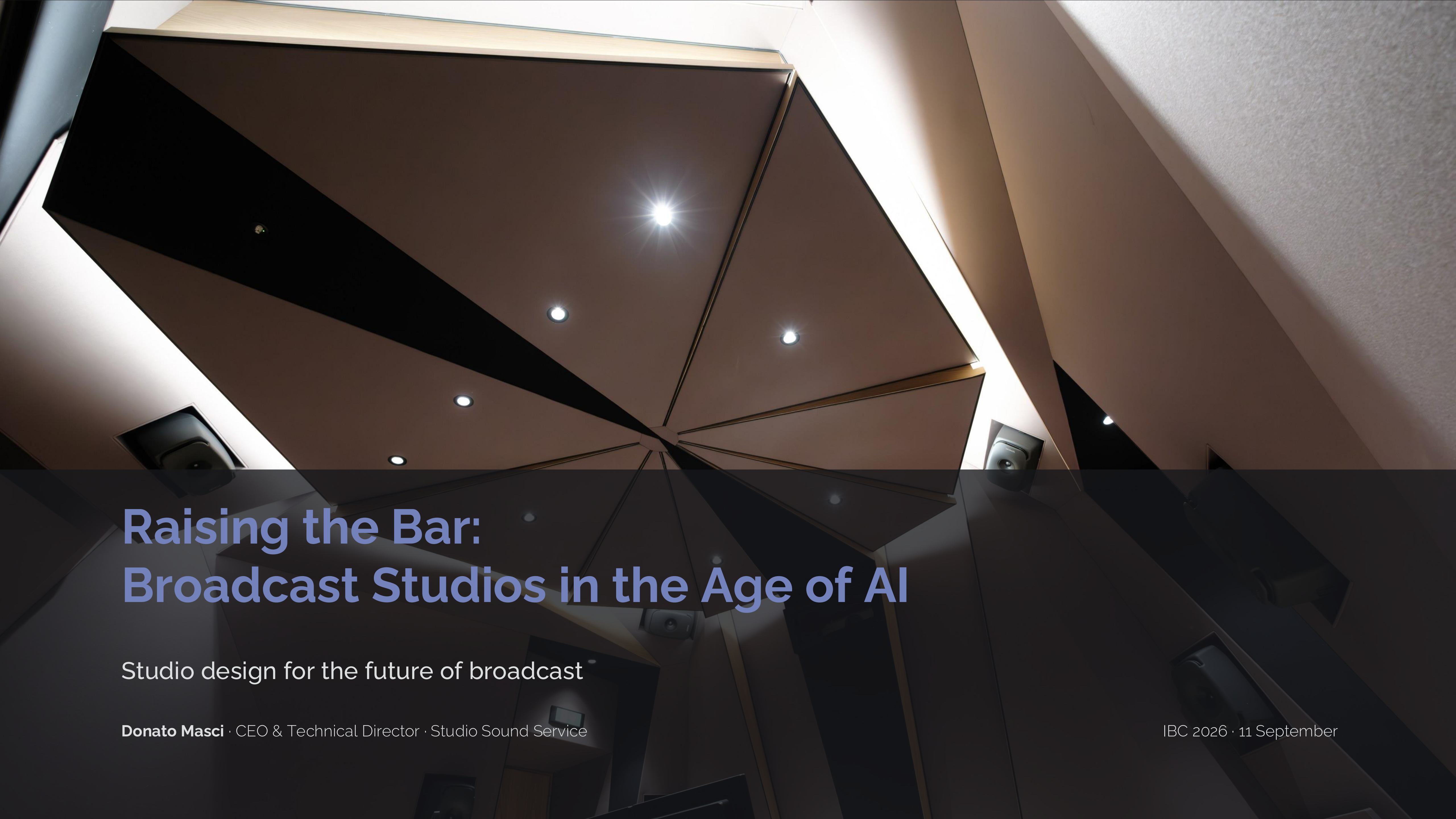




STUDIO
SOUND
SERVICE



Raising the Bar: Broadcast Studios in the Age of AI

Studio design for the future of broadcast

Donato Masci · CEO & Technical Director · Studio Sound Service

IBC 2026 · 11 September

AI raises the bar.

And it hands us the tools to
clear it.

The good enough is over.

The really good is finally
affordable: we can design a
room before it exists.



Genelec surround monitor, calibrated in the wall: the monitor is part of the room.

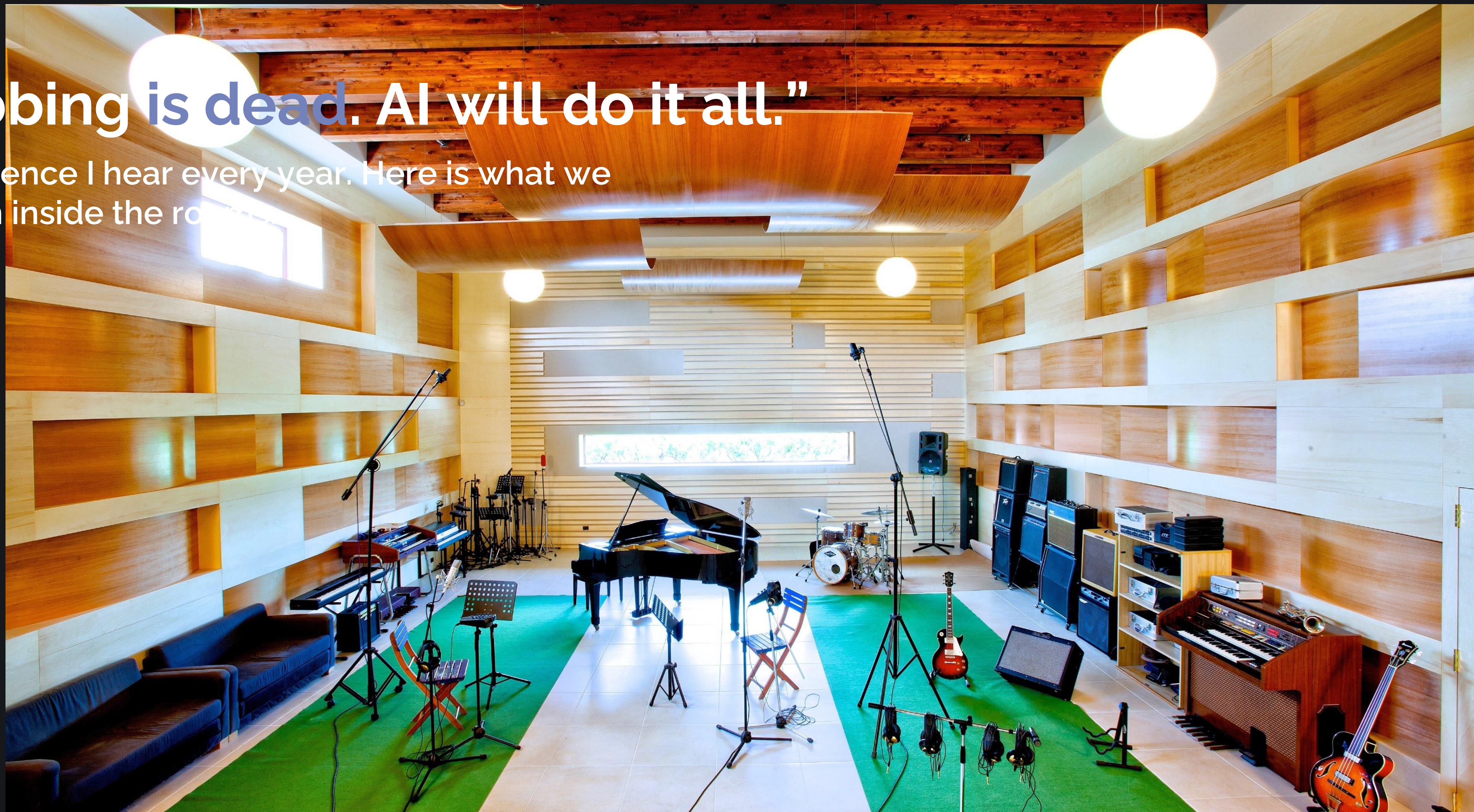
An orchestral room, today?

Cicaleto Recording, Arezzo

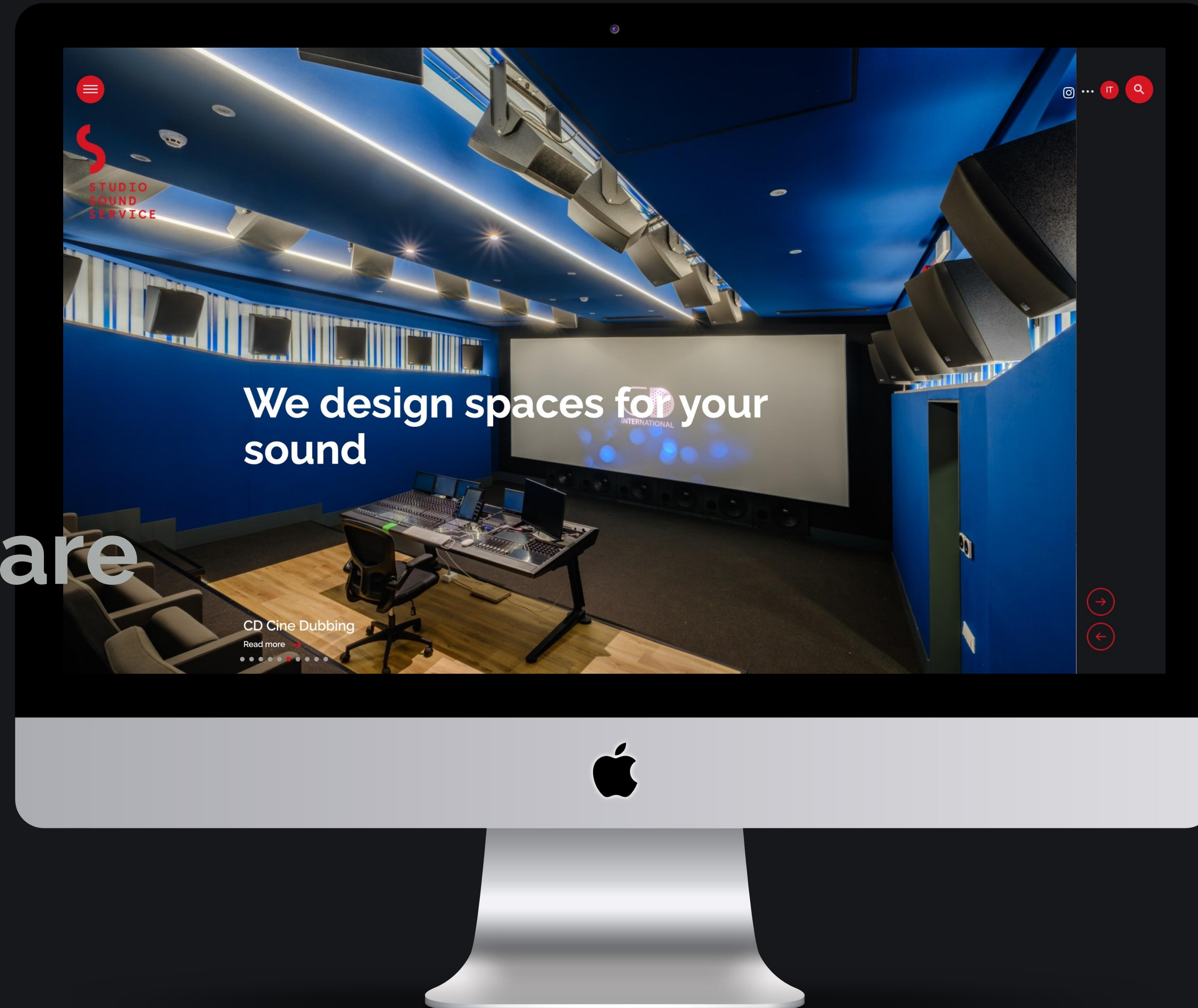


“Dubbing is dead. AI will do it all.”

The sentence I hear every year. Here is what we see from inside the room.



Who we are



Studio Sound Service is a well-established design and consultancy company that specialises in every aspect of acoustics and sound systems.

Founded in 1983

SSS has built an enviable reputation for the production of world class performance and recording spaces, from personal studios to large scale film, broadcast and corporate facilities.

By combining aesthetic and technical skills with decades for experience SSS strives to make every project successful, both sonically and visually.



Donato Masci
Physicist & Acoustic Designer - CEO



Cecilia Torracchi
Acoustic & Civil Engineer - Partner



Giulia Bondielli
Acoustic & Building Engineer - Partner



Elena Rossi
Acoustic & Building - Architectural Engineer



Niccolò Pizzamano
Architect & Acoustic Designer



Chantal Valdambrini
Communication Manager

ADR, Post & Broadcast. Cinema Mixing studios. Gaming Studios.

- Iyuno (ex SDI Media) Acoustic Designers (more than 15 countries)
- Cinecittà Studios (Postproduction Facility 2020 Renewal) @ Rome
- Dubbing Brothers (Italy, USA)
- 3Cycle postproduction Facility @ Rome
- FOX Dolby Atmos Studios @ Rome (IT), München (DE), London (UK)
- Netflix Facility @ Rome
- Disney Facility @ Warsaw (PO), Milan
- inHouse (Oscar winner Sorrentino) @ Roma

Music Studios (400+)

- Cicalto Recording – Francesco Ponticelli @ Arezzo
- Aemme Recording Studio – Salvatore Addeo @ Lecco
- D:POT Recording Arts @ Prato – Fabrizio Simoncioni
- Mulinetti Studio @ Genova – Alberto Parodi
Resolution Award 2015 Best Audio Facility
- The Garage @ Civitella v.d.C. (AR)
Resolution Award 2014 Best Audio Facility
- House of Glass @ Viareggio (LU) – Gianni Bini
Resolution Award 2013 Best Audio Facility
- SonicFab Studio @ Pioltello (MI)
- Waves Music @ Genova
- Marco Borsatti Studio @ Bologna
- Pop Fiction – Janie Price @ Firenze
- Sugarmusic @ Milano
- Experimental Studios @ Torino

Dolby Atmos Music Studios: 50+ rooms
Dolby Atmos Home Entertainment Studios: 80+ rooms
Dolby Atmos Theatrical Studios: 10+ Theatres
Personal Studios:

- Andrea Bocelli, Asaf Avidan, Biagio Antonacci, Daniele Silvestri, Damian Lazarus, Diego Calvetti, Enrico Cremonesi (Fiorello), Enrico Melozzi, Fabio Rovazzi, Federica Vincenti (Michele Placido), Gabry Ponte, Giorgia Angiuli, Irko (Kanye West sound engineer), Luca Agnelli, Marco Masini, Marco Messina (99 Posse), Merk & Kremont, Nari&Milani, Paolo Sandrini, Petra Magoni, Piero Pelù, Pino Iodice, Renato Zero, Vinai.

- Barys Arena (ice hockey) @ Astana, Kazakhstan
- Chorus Life (arena e cittadella) @ Bergamo
- Stadio Tardini @ Parma
- Hospitals: Nuovo Ruggi @ Salerno, Cesena
- George Lucas Home Theater, Italy
- Cinema Barberini @ Roma
- Chiesa Santa Maria Nuova (Arch. M. Botta) @ Terranuova B. (AR)
- Duomo di Siena new audio system
- Prada Auditorium and Conference Room via Orobia @ Milano
- Presentation room Ferrari HQ @ Maranello (MO)
- Siemens HQ @ Milano
- Heineken HQ @ Milano
- Leonardo Elicotteri @ Milano
- Four Seasons Hotel @ Firenze
- Portrait Milano – Ferragamo @ Milano
- Caffè dell'Oro – Ferragamo @ Firenze
- Hotel Veronesi (Calzedonia) @ Verona
- EVAC Dubai Metro
- EVAC Bahrain and Islamabad airport (THALES)
- EVAC Scuola di Magistratura Castelpulci @ Scandicci Firenze
- Teatro del Popolo @ Castelfiorentino (FI)
- Teatro del Popolo @ Colle di Val d'Elsa
- Teatro del Popolo @ Poggibonsi
- Teatro il Ferruccio @ Empoli
- Teatro Marconi @ Pistoia
- Teatro Nazionale @ Firenze



Studio Sound Service
is the only Italian
Dolby CSP.

We can provide
design,
commissioning and
consultancy services
worldwide with
Dolby's certified
quality standards.

The Dolby logo is displayed in white on a red rectangular background. It consists of two stylized 'D' symbols followed by the word 'Dolby' in a sans-serif font.

Certified service partner

PART 1: THE LANDSCAPE

More content, more languages, more rooms

Three numbers

1/3

of all viewing hours on Netflix are non-English titles (What We Watched, first half of 2026)

52%

of Netflix's new original TV seasons in 2025 were non-English: a majority, for the first time (Ampere Analysis)

21%

of those new seasons were in Spanish, the first non-English language (Cineuropa, 2026)

Key insight: every one of those titles is dubbed into a dozen languages. Localisation is not a niche, it is the main road.

Not the usual countries

IYUNO (EX SDI MEDIA, BTI)

Los Angeles, Mexico City, São Paulo

Berlin, Munich, Paris, Madrid, Valencia, Milan, Rome

Amsterdam, Copenhagen, Oslo, Stockholm, Helsinki

Warsaw, Prague, Budapest, Istanbul, Moscow

Shanghai, Hong Kong, Bangkok, Kuala Lumpur, Manila

DUBBING BROTHERS

Burbank, Madrid, Barcelona, Rome, Paris



Countries where Studio Sound Service has designed rooms.

AI dubbing: what actually exists

- 2024** SAG-AFTRA video-game strike over AI voices. It ends in 2025 with consent and pay rules for cloned performances.
- 2025** Prime Video pilots AI-assisted dubbing: 12 licensed titles, English and Latin-American Spanish, humans in the loop.
- 2025** German voice actors (VDS) boycott Netflix contracts over AI-training clauses. A petition passes 75,000 signatures.
- 2026** EU AI Act: AI-generated and manipulated content must be labelled, from 2 August 2026.

Key insight: the tools are real, the pushback is real, and quality is the battlefield.

Upgrade, not extinction

BELOW THE BAR

- Volume work, tight budgets
- Voices recorded in improvised rooms
- Fast turnaround, “good enough”
- → AI does it faster and cheaper

ABOVE THE BAR

- Premium content, local originals
- Real actors, real direction
- Rooms designed and measured to a standard
- → human work, at a higher standard

Good enough is over. Really good is finally affordable.

PART 2: WHAT “REALLY GOOD” MEANS

The voice, the targets, the standards – Design for Iyuno: a network with one standard

Why these targets

THE BRIEF: DISNEY, WITH ANDY MUNRO

- Accurate representation of the original dialogue
- No unwanted colouration, no ambience
- No background noise, no distortion

THE THREE ENEMIES

- Spectral colouration: frequency and timbre
- Reverberation above the threshold of audibility
- Resonance and modal effects

Key insight: the room must disappear from the recording, in every language.

The voice is the most exposed signal.

No mix to hide in, no reverb to forgive:
whatever the room does to a voice stays
on the recording, in every language.

Why is the voice special?

Because it is naked.

No mix to hide in,
no reverb to forgive.



Prelay Room: the most exposed microphone in broadcast.

That's the catch

EASY

- Absorbing bass: mass, membranes, depth
- Reverberation: a number, a target, done
- Nobody hears a 0.1 s tail on a voice

HARD

- Modes: the room keeps singing three or four notes
- SBIR: the wall behind the monitor digs a hole no EQ fills

Key insight: booming is how a dry room still sounds like a room.

The chain and its standards

BOOTH

- Neutral, dry, silent: NR20, $R_w > 65$ dB to the control room
- Reverberation 0.10–0.35 s, flat
- No audible modal decay

MIX STAGE

- Dolby Atmos HE or theatrical
- Calibrated monitoring (GLM)
- Dolby, EBU R128, streamer specs

LIVING ROOM

- Loudness-normalised delivery
- Downmixes, soundbars, headphones
- The mix has to translate

Key insight: a room that can be measured is a room that can be trusted.

“Really good”, in numbers

ADR / DUBBING

0.30–0.35 s

LF reverberation time

0.10–0.15 s

HF reverberation time, flat

$\text{NR}_{15-20} \cdot R_w > 65 \text{ dB}$

noise floor · isolation to control room

HE MIX / CRITICAL LISTENING

0.35–0.40 s

LF reverberation time

0.15–0.20 s

HF reverberation time

HE/Music Curve, $\pm 3 \text{ dB}$

frequency response after calibration

THEATRICAL MIX

0.40–0.80 s

LF reverberation time

0.20–0.40 s

HF reverberation time

X-curve, $\pm 3 \text{ dB}$

Dolby theatrical target



ADR and dubbing: a microscope for the voice. Neutral, dry, silent. The room must disappear.



Music: the room can have a character. Warm, alive, part of the sound. Marzi Recording, Riccione.



Ground 1: three Atmos mix rooms, the edit rooms, the theatrical stage and the prelay.



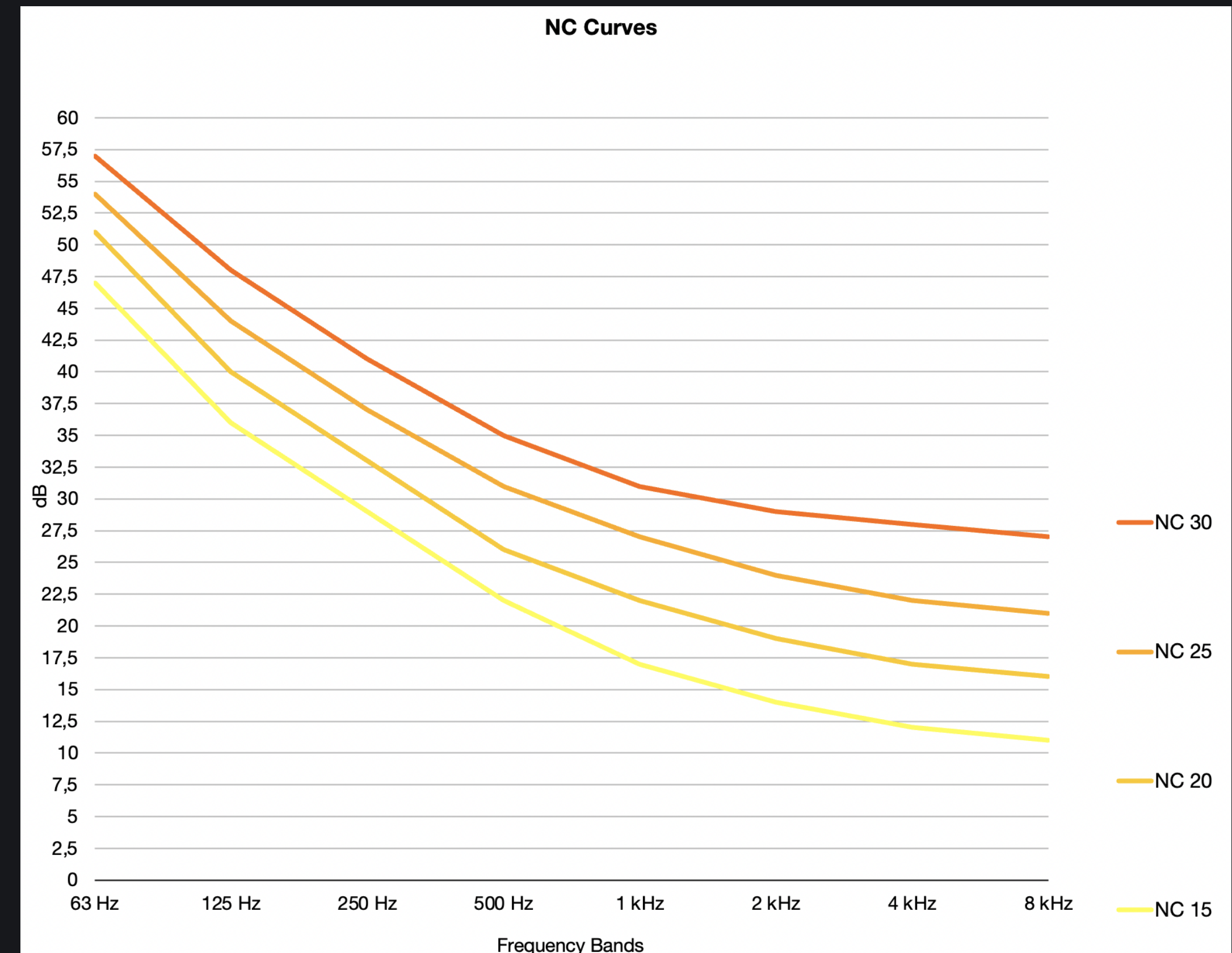
Ground 2: four ADR rooms, two hybrid ADR with 5.1 control, two VO booths.

External Noise

ingress of noise has to be below the background ventilation noise by a margin of 3dB in any octave band.

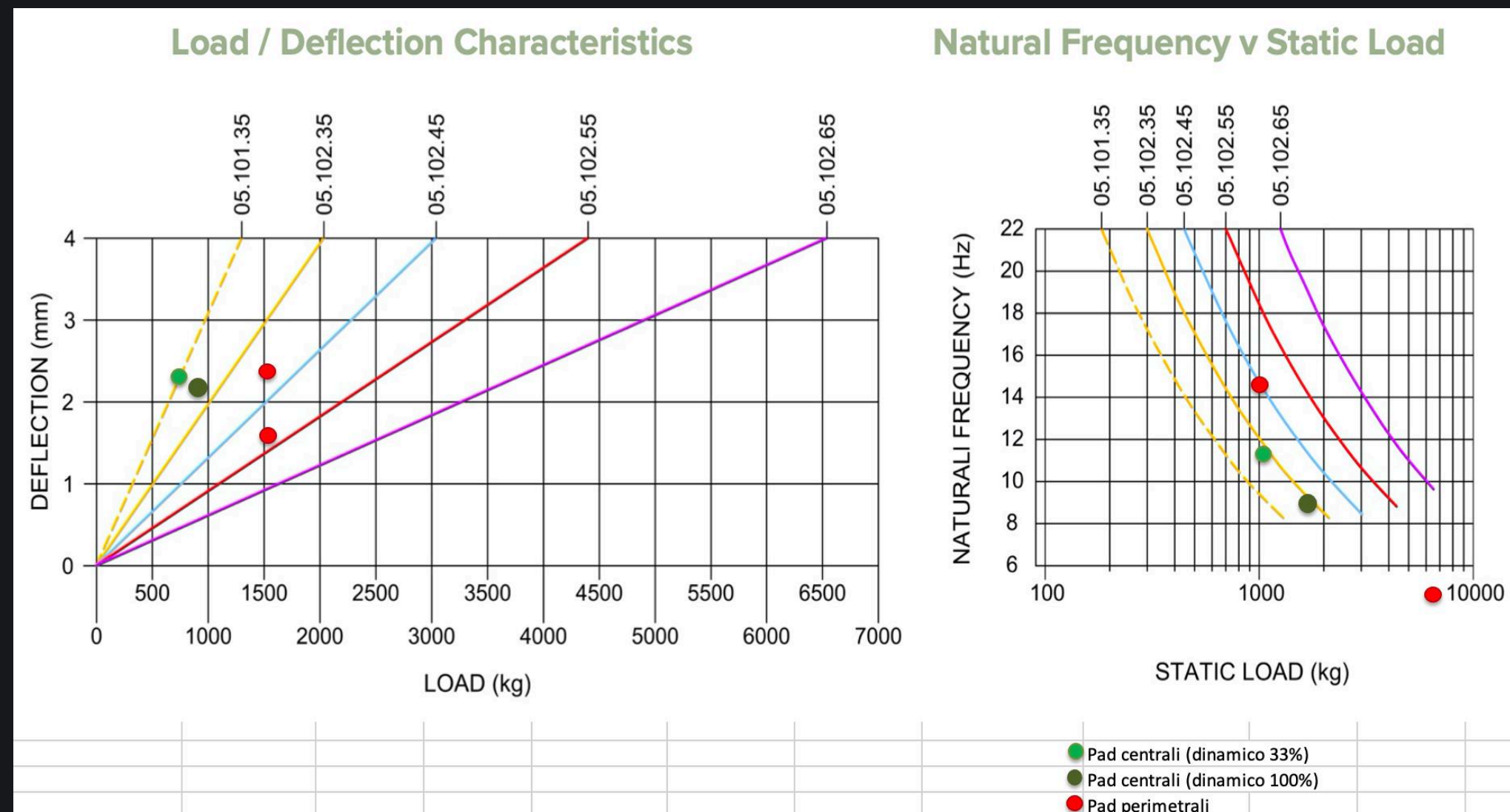
The background noise level should not exceed NC20 for voice recording when measured at the microphone in use.

Measurement of finished facility	General teaching studios and theatres	Post Production for television and media (off-line)	Recording rooms and ADR stages
Ventilation Background noise level	NR25	NR30	NR20
Intermittent noise Level L1	NR30	NR 35	NR25
Occasional Noise intrusionL10	NR25	NR30	NR20
Standardised Level difference DnTw	68dB	63dB	Site Specific to achieve above



Isolation Shell

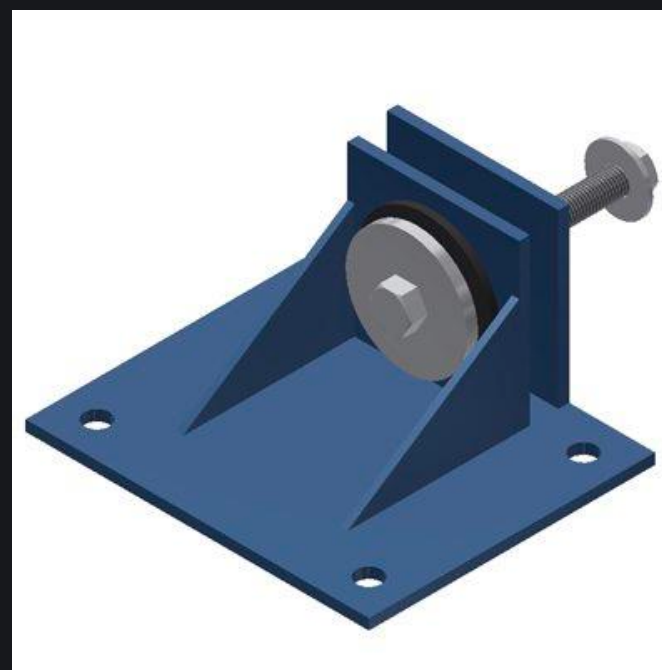
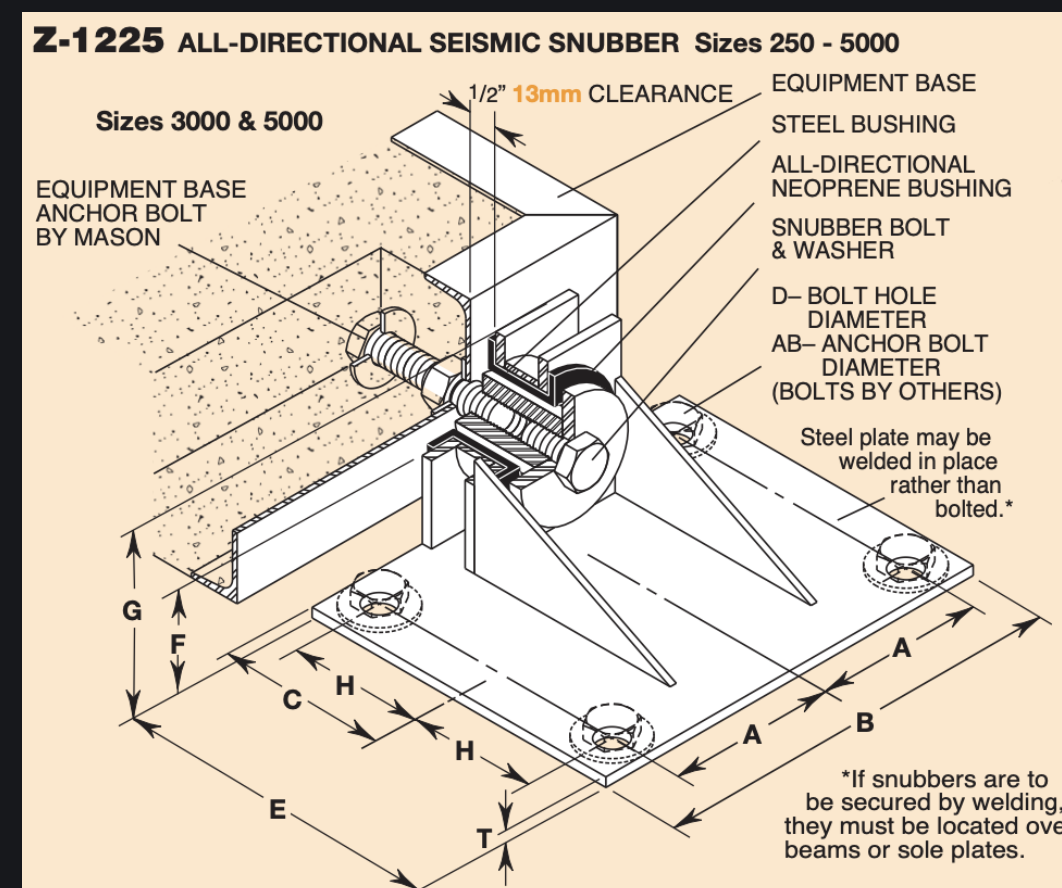
Floating Floors



Isolation Shell

False Ceiling and Walls

resilient wall brace and stud wall fixing if needed for structural reasons



Threshold of Modal Perception

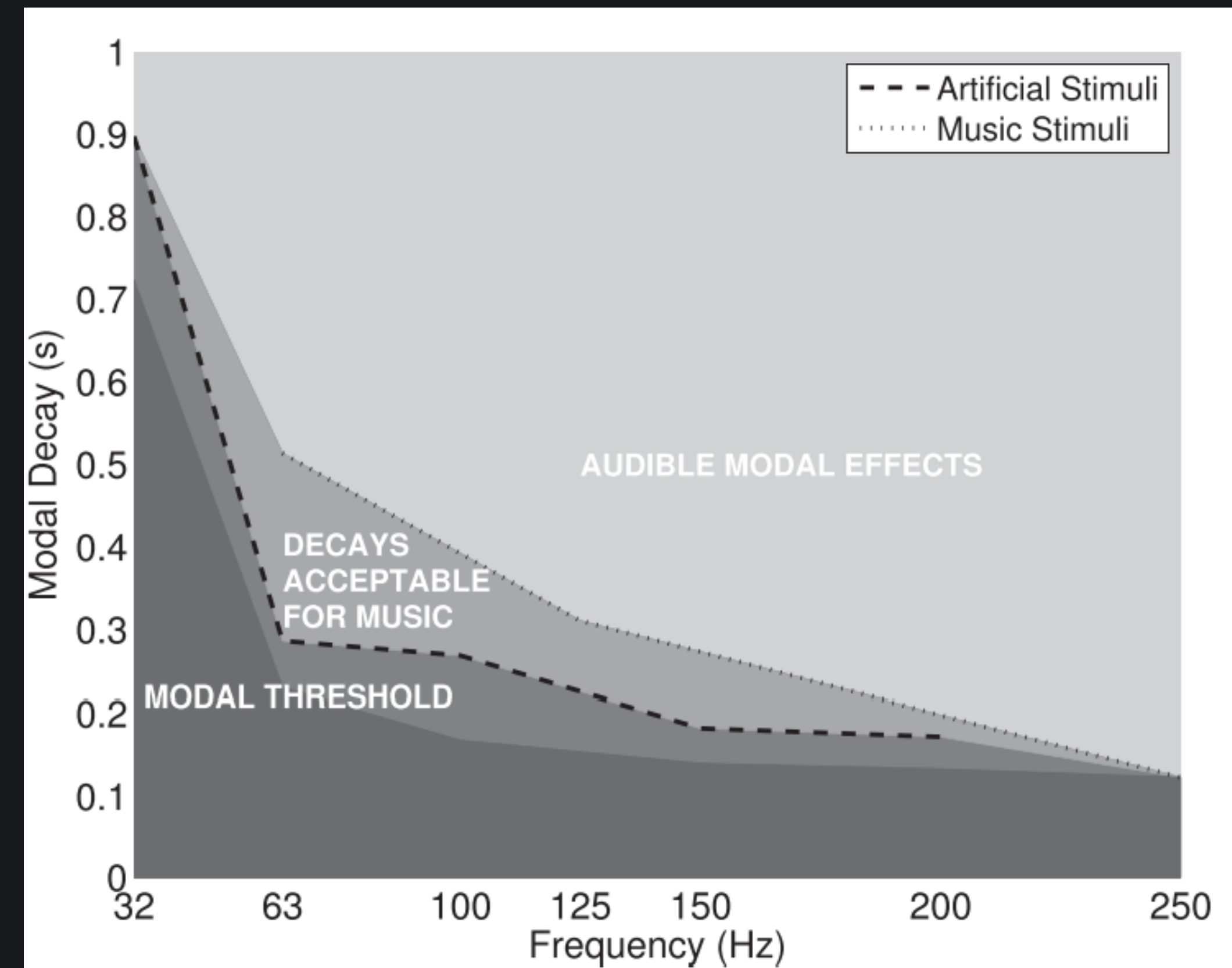
limits of audibility of fundamental room modes

We know where “really good” is.

Modal decay becomes audible above 0.2 s from 63 Hz up. Below 63 Hz the threshold rises towards 1 s. Above 250 Hz modes become reverberation.

The target is under the threshold, not zero.

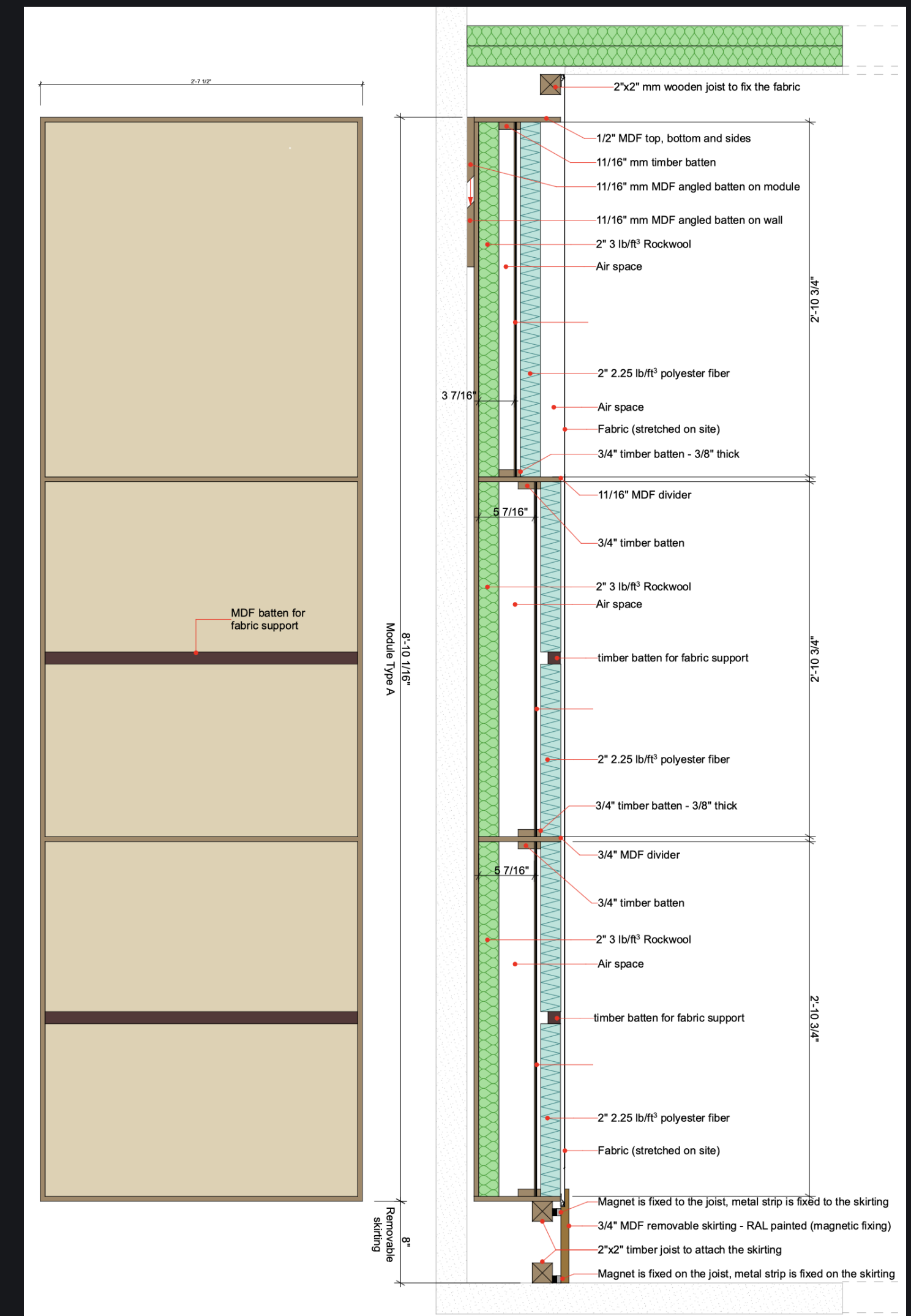
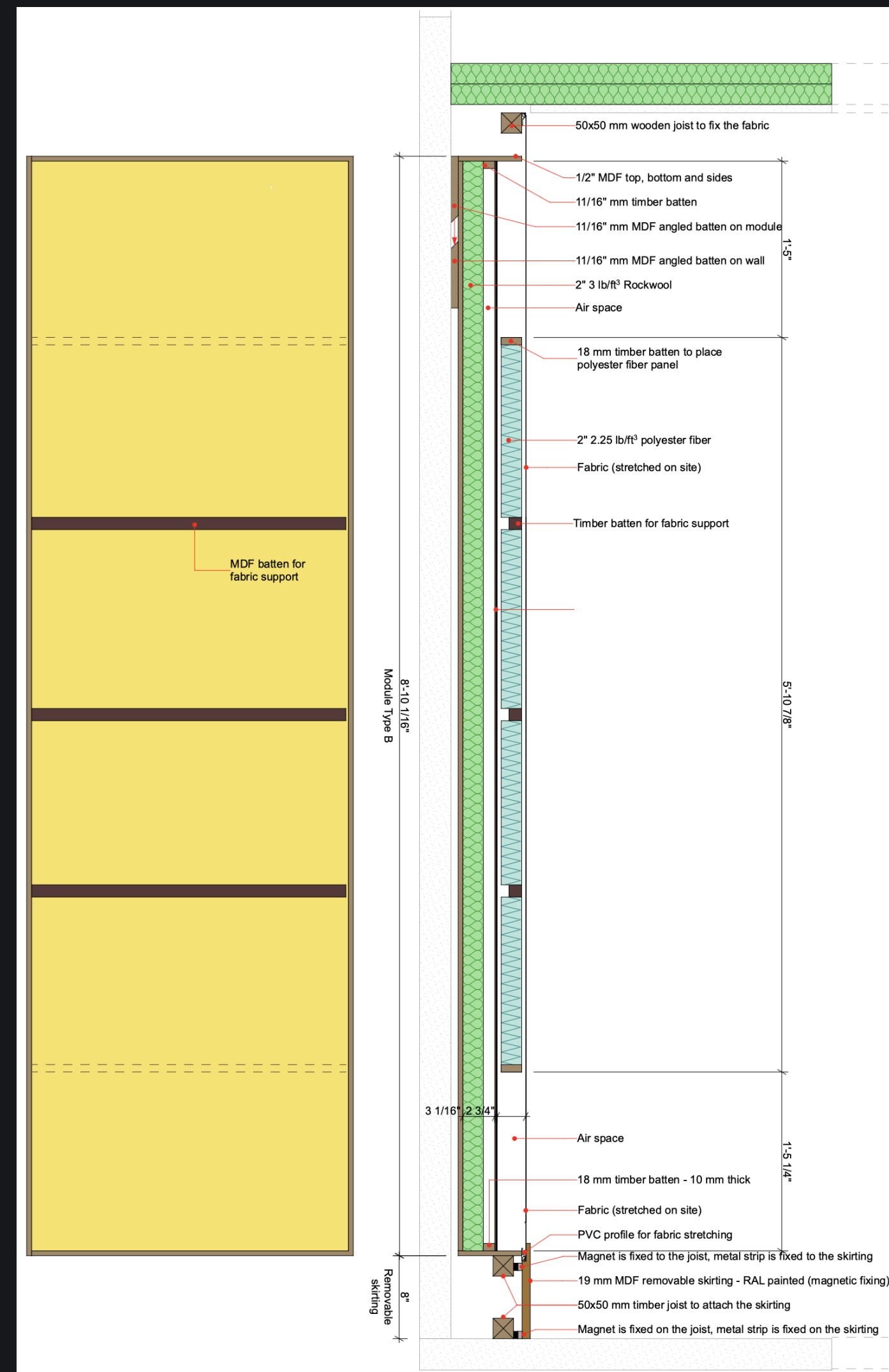
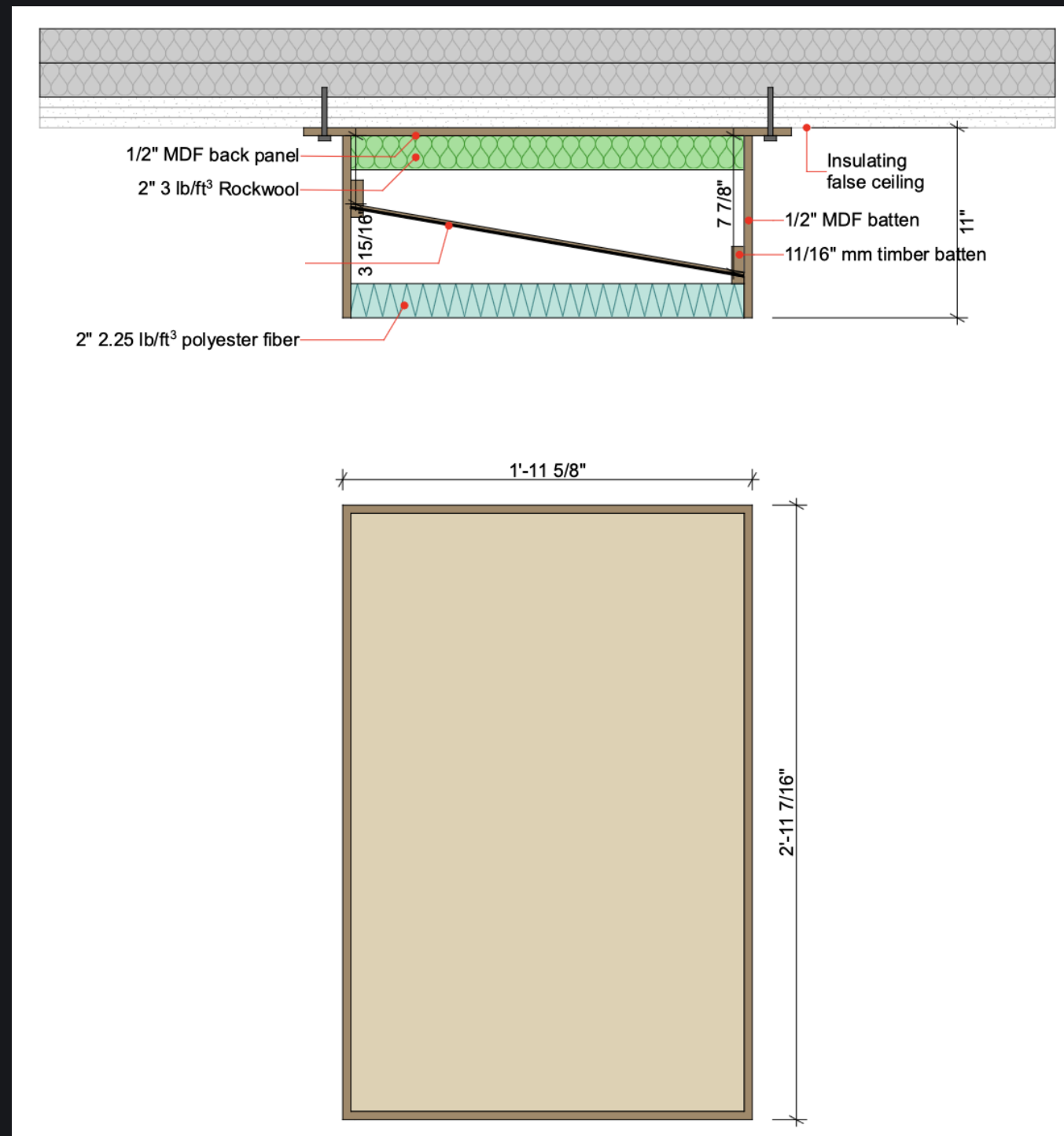
Perceptual thresholds for room-mode decay (Fazenda, Stephenson, Goldberg): artificial and music stimuli at 85 dB.



Logically reverberation control should match as close as possible the threshold for modes as they are basically the same but with different distribution.

Low Frequency Absorption

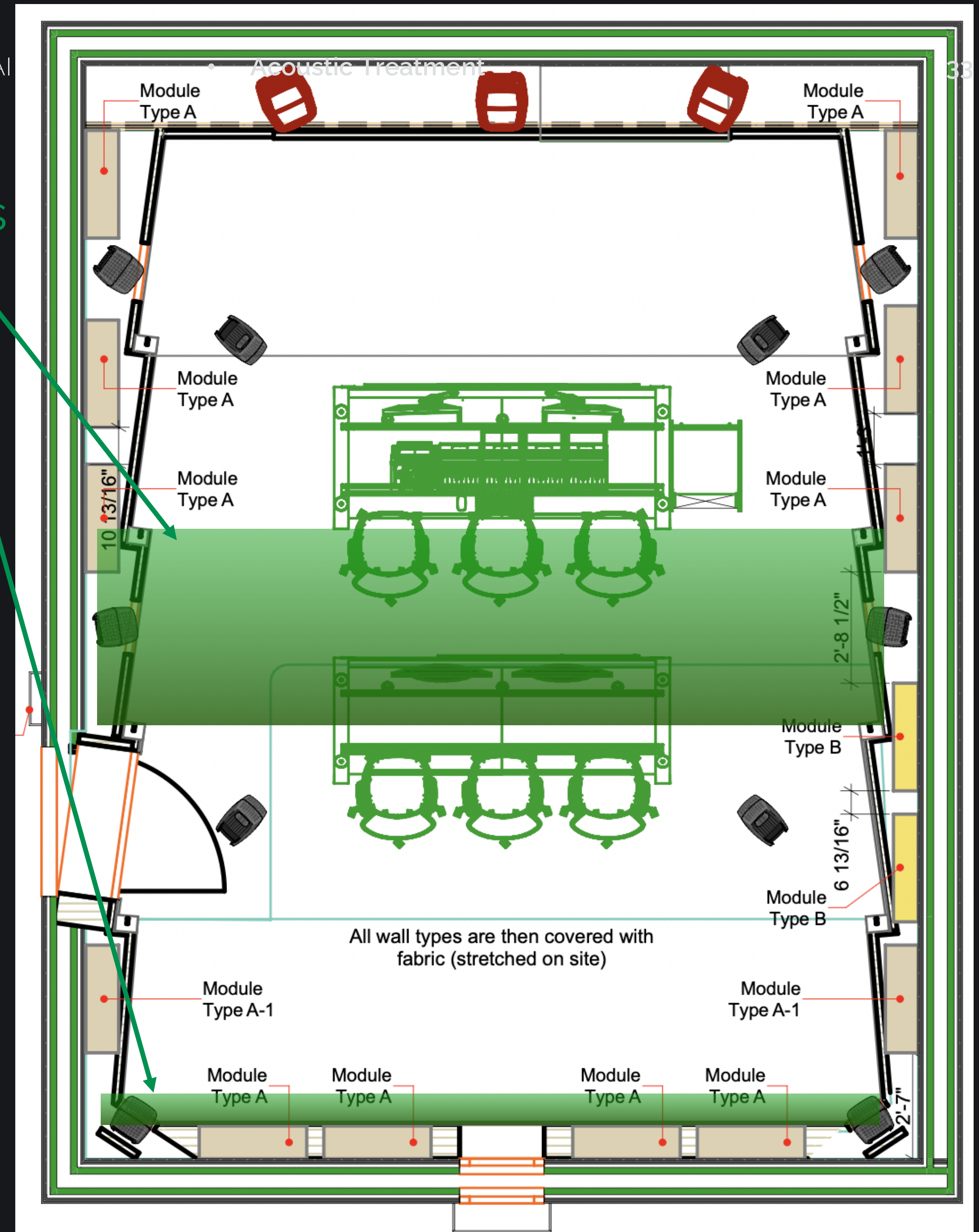
Munro broad-band absorbers Type A, Type B, Type D



Low Frequency Absorption

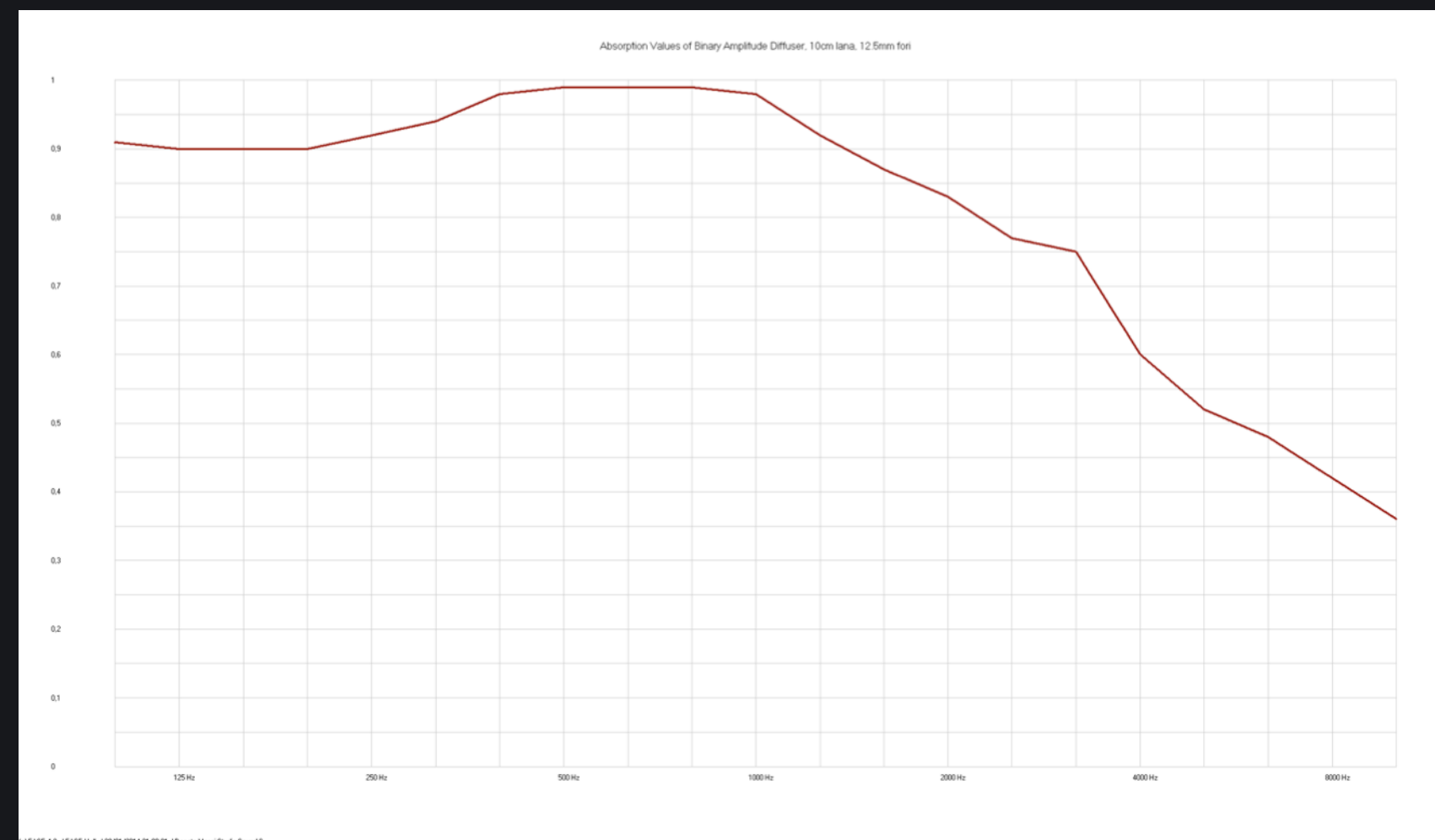


Diffusers

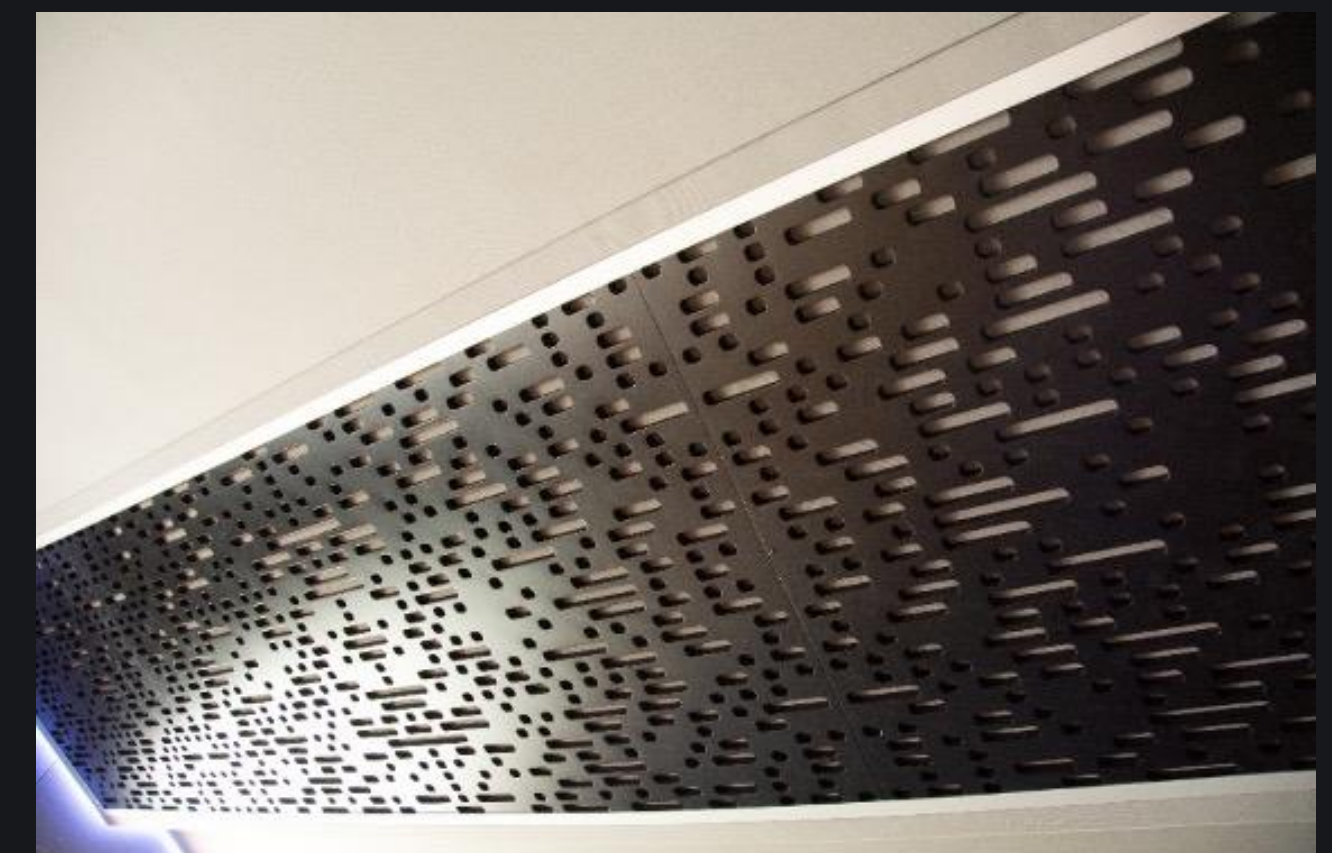
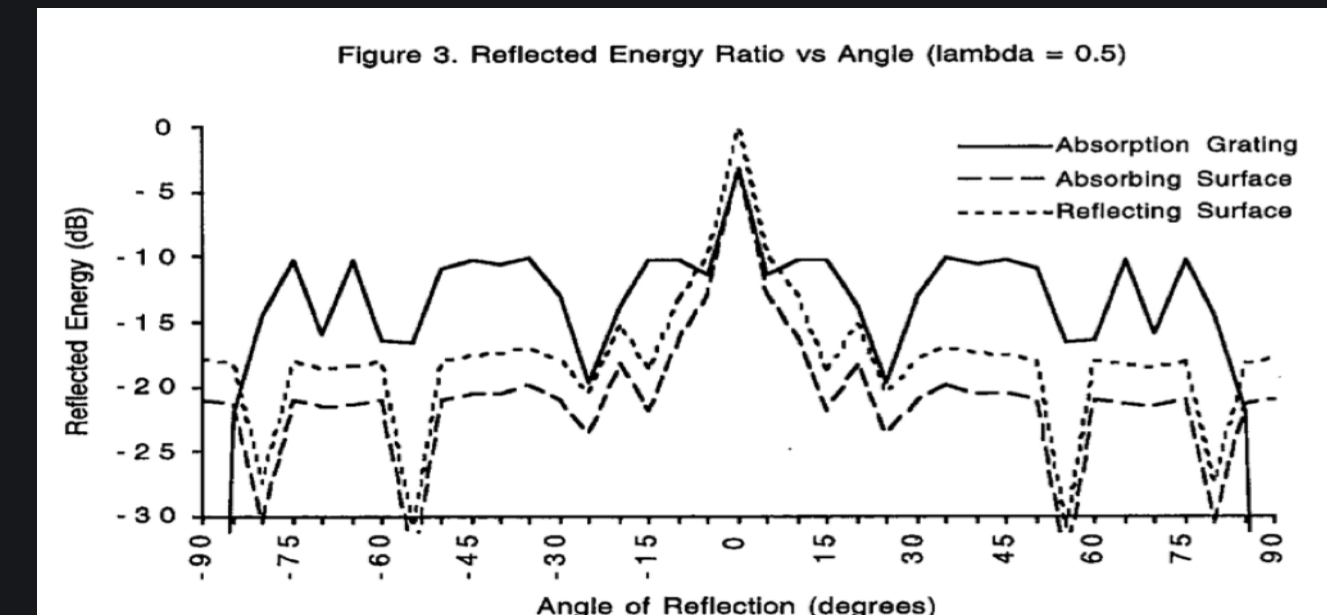
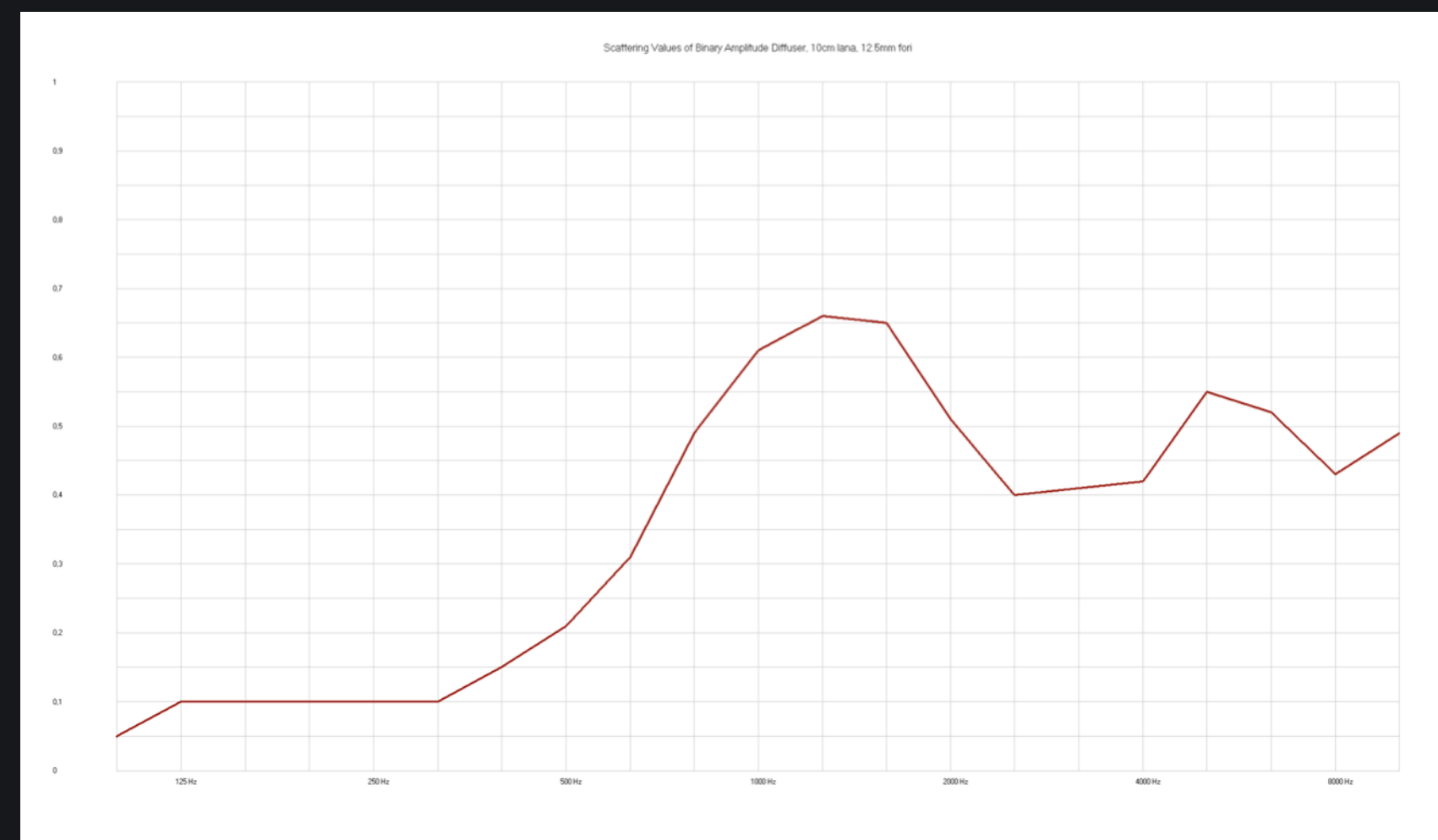


MIX 1: Diffusion (...and absorption) Binary Amplitude Diffuser

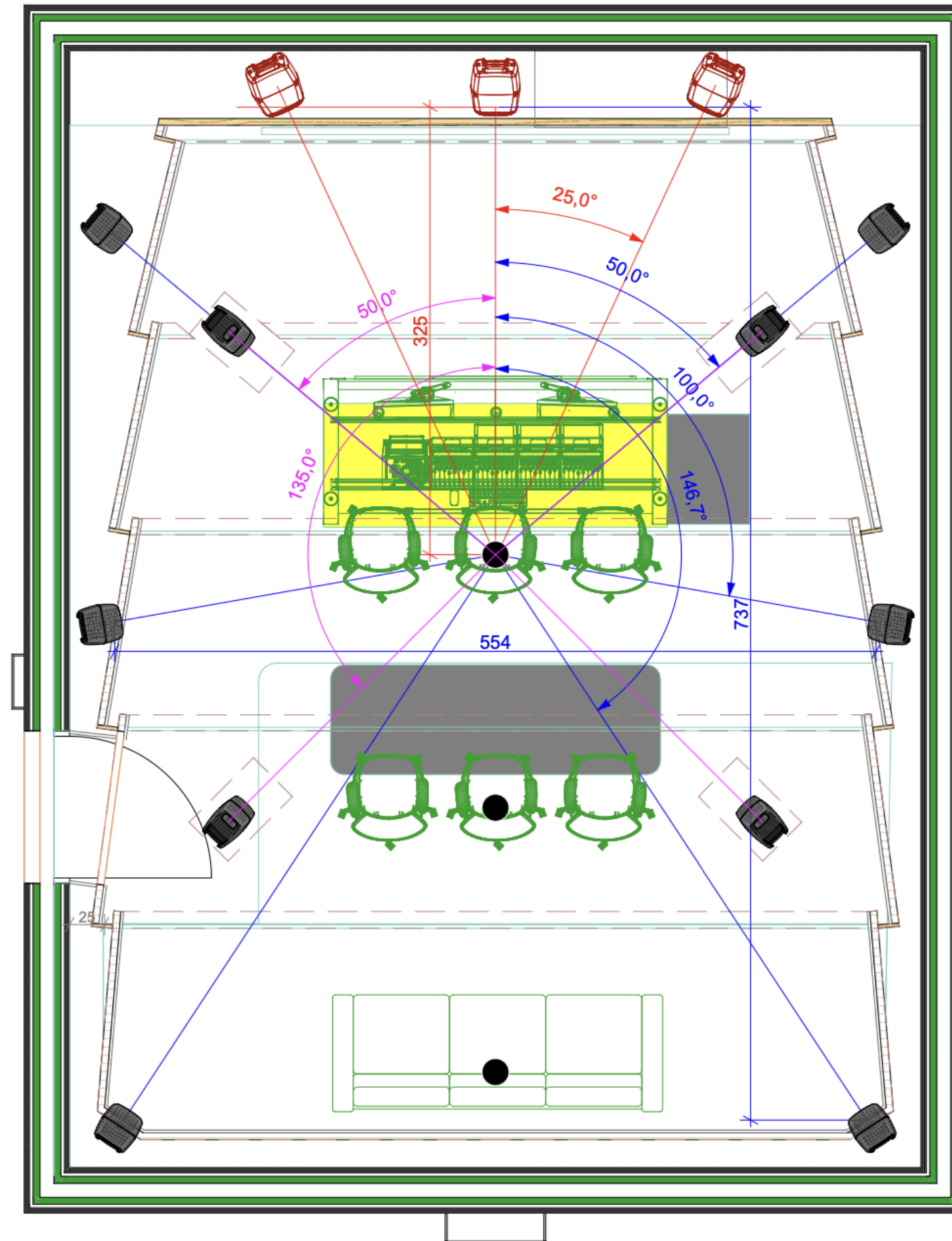
Absorption



Diffusion



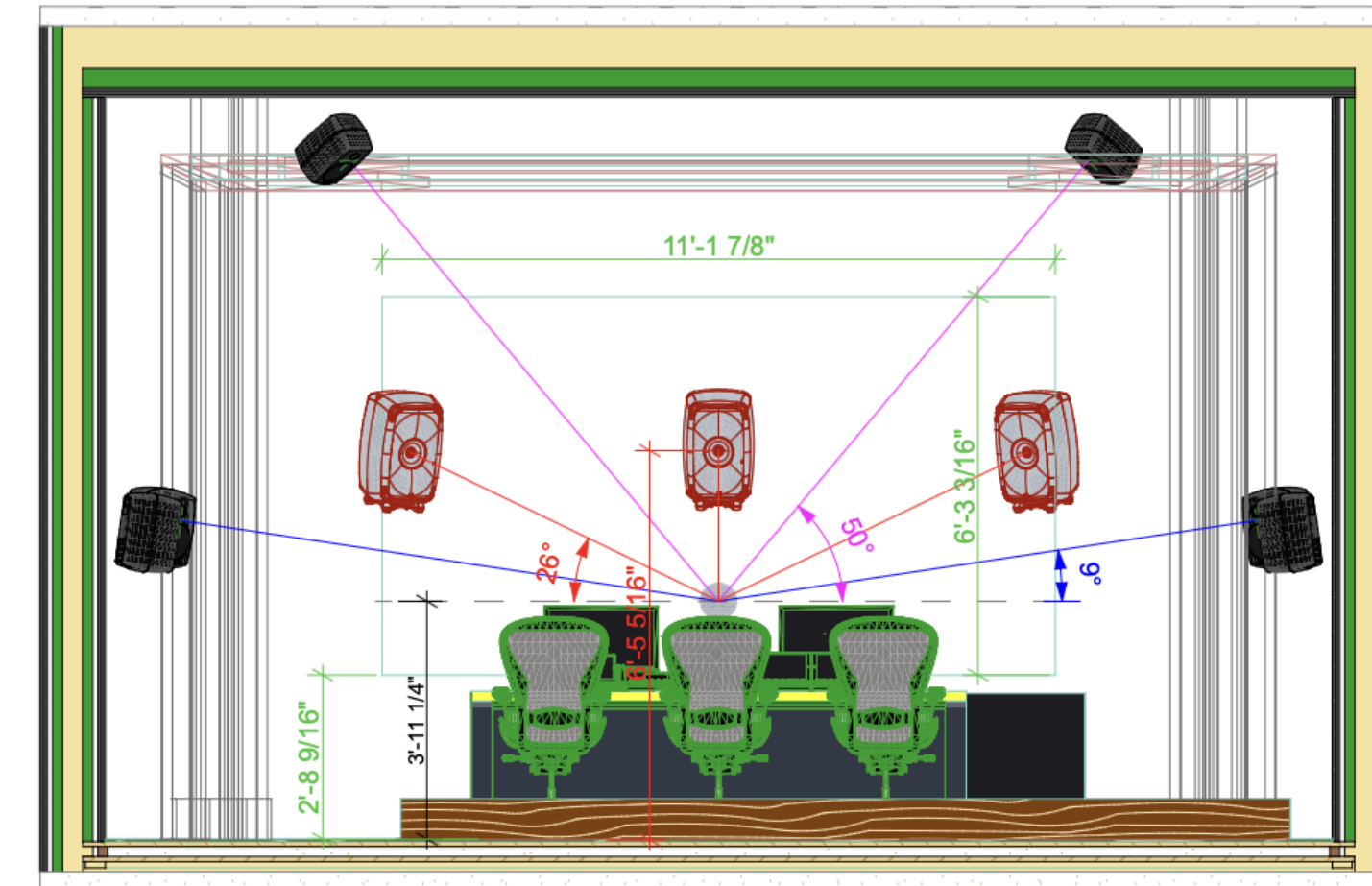
Mix 1



Dolby

Layout

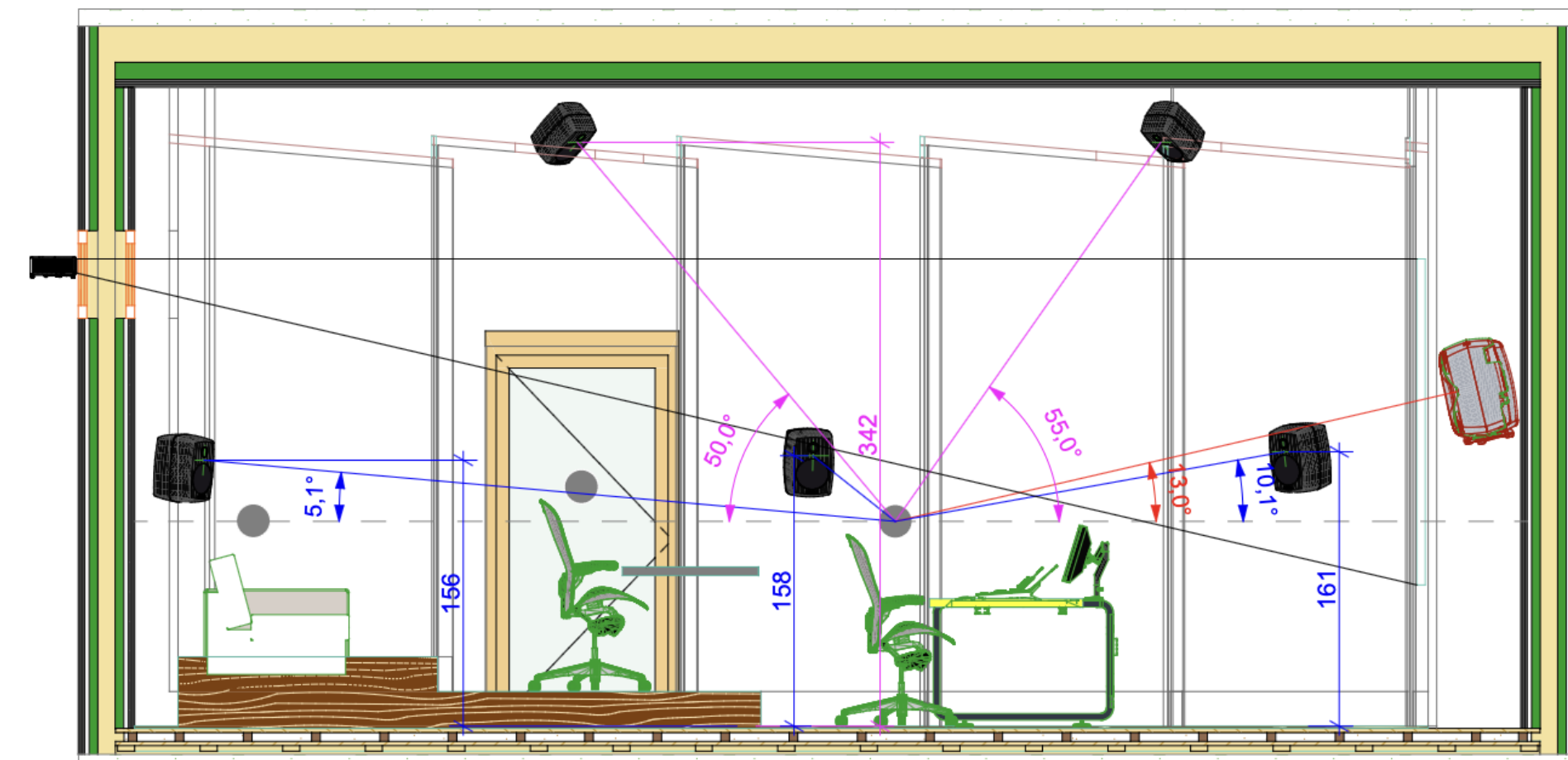
1:50



Dolby

Section F-F

1:50



iyuno

Los Angeles, Burbank



iyuno

Los Angeles, Burbank



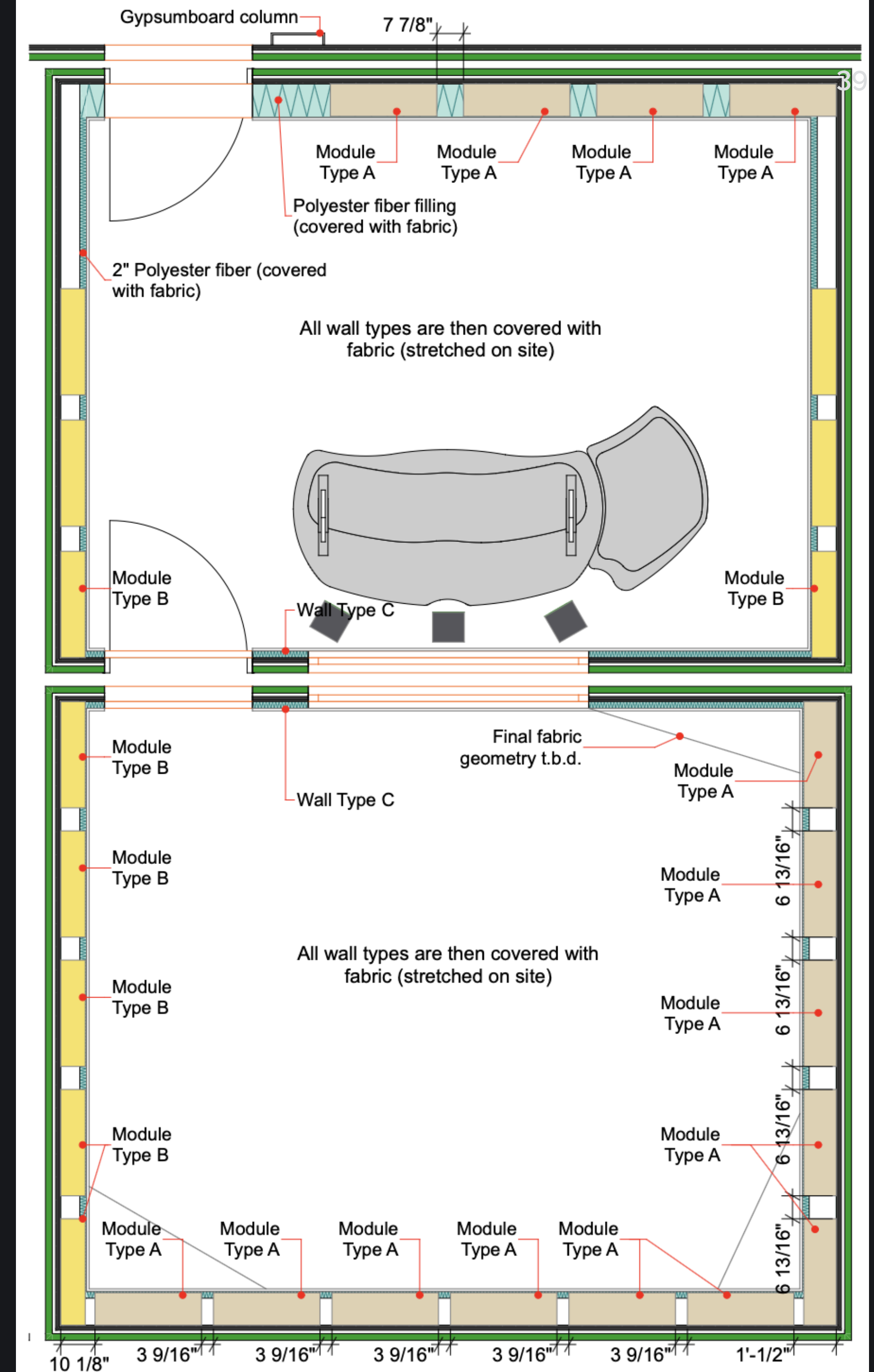
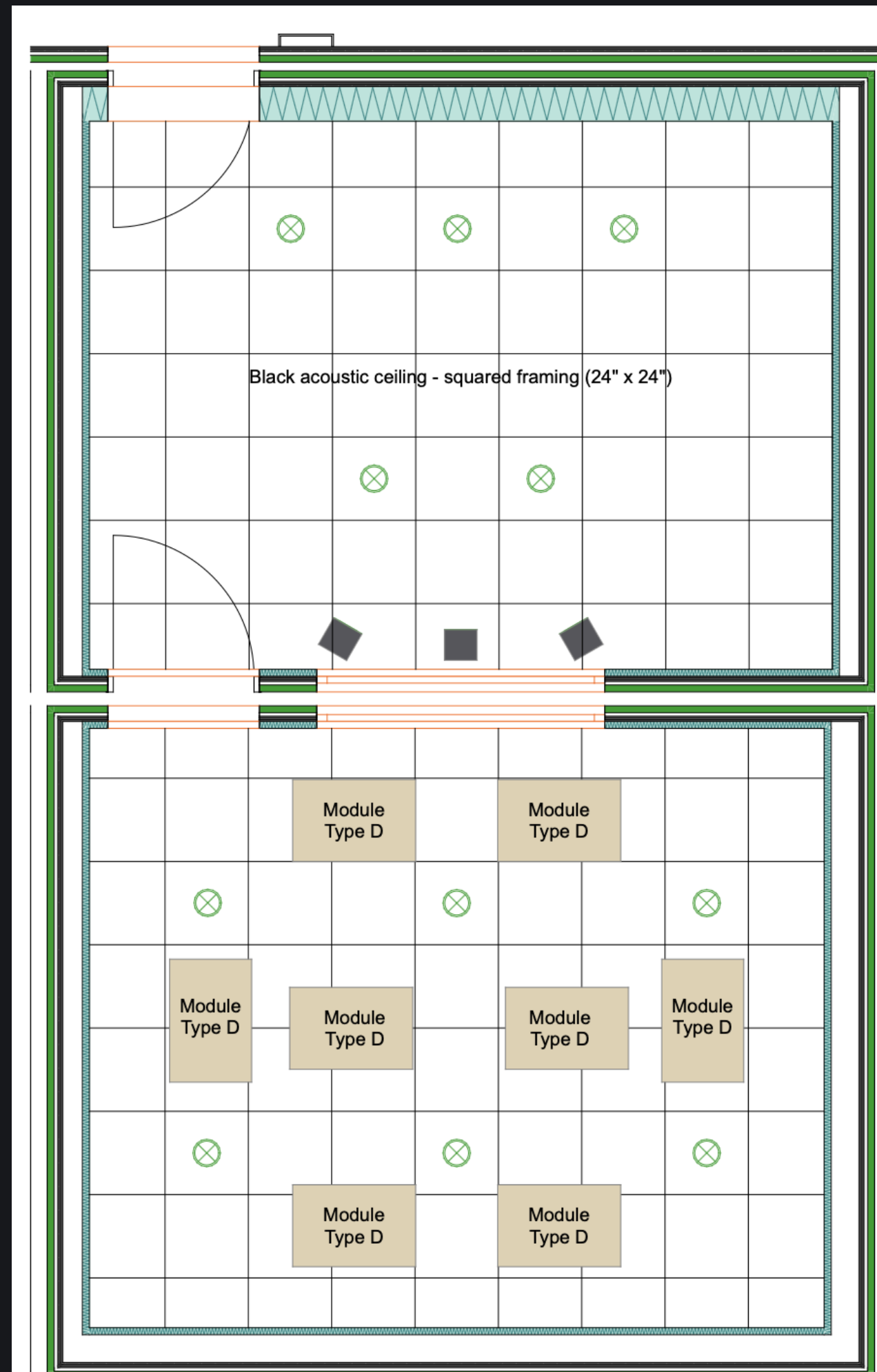


The render we showed the client, 2023.



The room we handed over, 2023.

ADR 2, 5, 6, 7: Acoustic Treatment



lyuno

Los Angeles, Burbank



Iyuno: the network.

Rooms designed by SSS for Iyuno (ex SDI Media) in 25 cities: ADR booths, TV and HE mix rooms, Atmos theatrical stages. Same targets everywhere, different buildings.



Iyuno, Los Angeles (Burbank): the flagship, 2023.



The render we showed the client, 2023.



The room we handed over, 2023.



MIX 1, the render.



MIX 1, built. Genelec, calibrated, measured, handed over with numbers.

Iyuno Burbank: the brief.

One prelay room, one Dolby Atmos theatrical, three Atmos HE suites, six ADR rooms.

Low-frequency control as the specification, not as a wish.

Genelec 8340 to 8361, 7380 subwoofers. Calibrated, measured, handed over with numbers.



Iyuno LA, 2023.



The render we showed the client, 2023.



The room we handed over, 2023.

iyuno

Berlin





Mix control room.



ADR control room.

Iyuno

Paris





The large Atmos HE mix room.



The new area: mix room.



Mexico City: ADR rooms, mix suites, Atmos theatrical cinema.



Hybrid, sustainable isolation system.

iyuno

Warsaw





Warsaw: Dolby Atmos theatrical stage, 2023.



Warsaw, from the back of the room.

What travels, and what doesn't

THE STANDARD

- ADR: RT 0.10–0.35 s, NR20, $R_w > 65$ dB
- HE mix: RT 0.35–0.45 s, Atmos 7.1.4 / 9.1.4
- Theatrical: Dolby spec, calibrated

THE VARIABLES

- The building: concrete, steel, timber
- Climate, HVAC, city noise
- Budget, schedule, local trades

THE CONSTANT

- Low-frequency control by design
- Calibrated monitoring (Genelec GLM)
- A measured hand-over

Key insight: the network works because the constant is designed, not hoped for.

The background is a dark, 3D grid of cubes, similar to a perspective drawing of a floor or ceiling. Overlaid on this are numerous glowing, chaotic lines in yellow and green. These lines form loops, spirals, and dense horizontal bands, suggesting a complex, possibly mathematical or physical, phenomenon like sound waves or a data visualization. The overall mood is mysterious and technical.

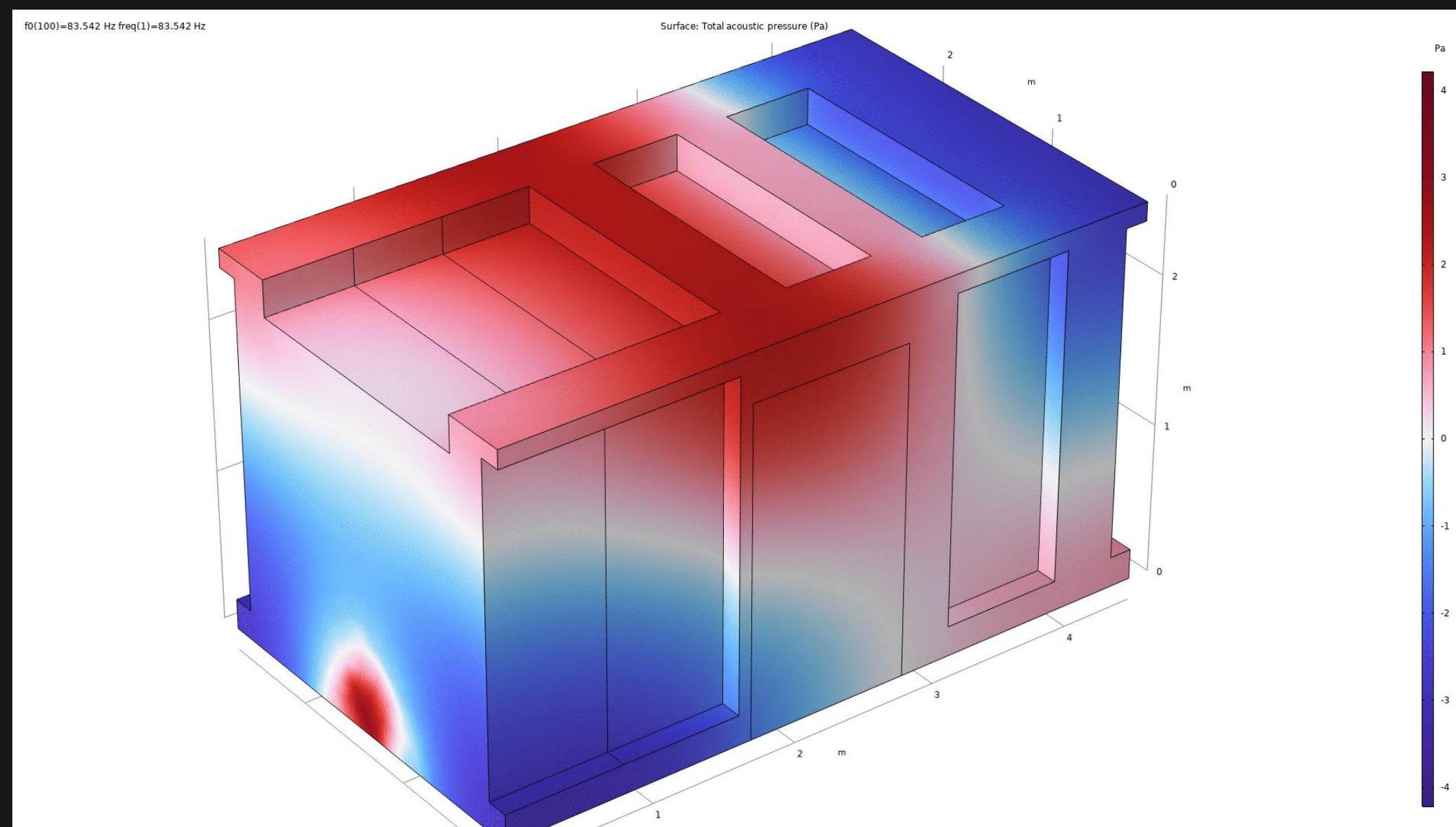
PART 3: DESIGNING ABOVE THE BAR

Why small rooms fail, and what we do about it

“

We see, therefore we judge.
We don't see, therefore it doesn't exist.

”



Acoustics cannot be seen, and acoustic memory is terrible: you cross the street and you have already forgotten the room. Simulation is how we see a room before it exists: here, the pressure field of our test room at 125 Hz, with the treatment in.

COMSOL wave-based model, SSS test room, 125 Hz.

Small rooms: money, money, height

WHY SMALL ROOMS FAIL

- Below ~200 Hz the room plays only a few notes
- The floor-to-ceiling standing wave: no shortcut
- 95% of the cost is invisible: bass absorption behind fabric

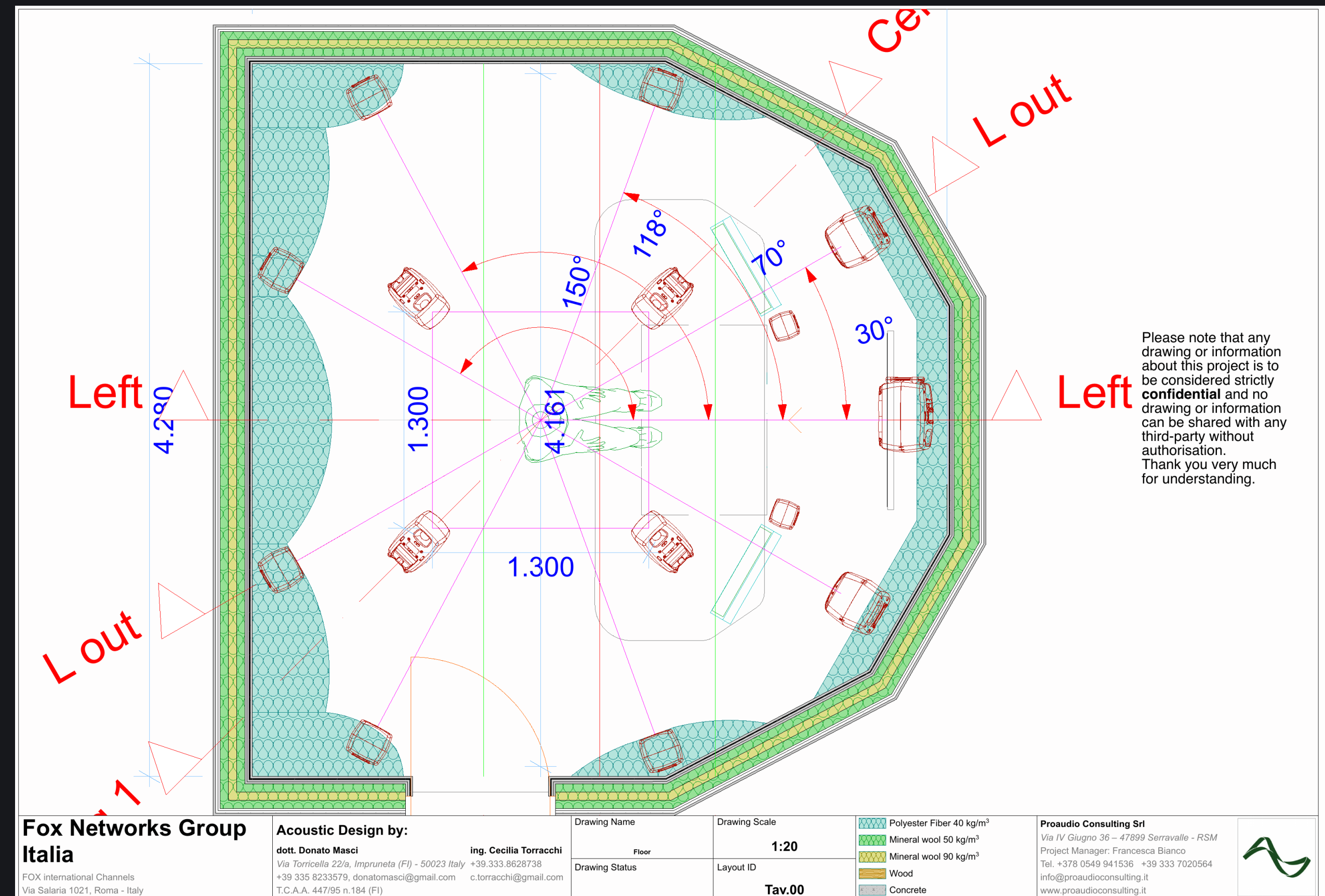
WHAT BROADCAST NEEDS

- Smaller footprints, more rooms per facility
- The same standards as the big stages
- Delivery in months, not years

Key insight: money, money, height. And height is the one thing you cannot buy later.

FOX Rome: the 9.1.4 layout.

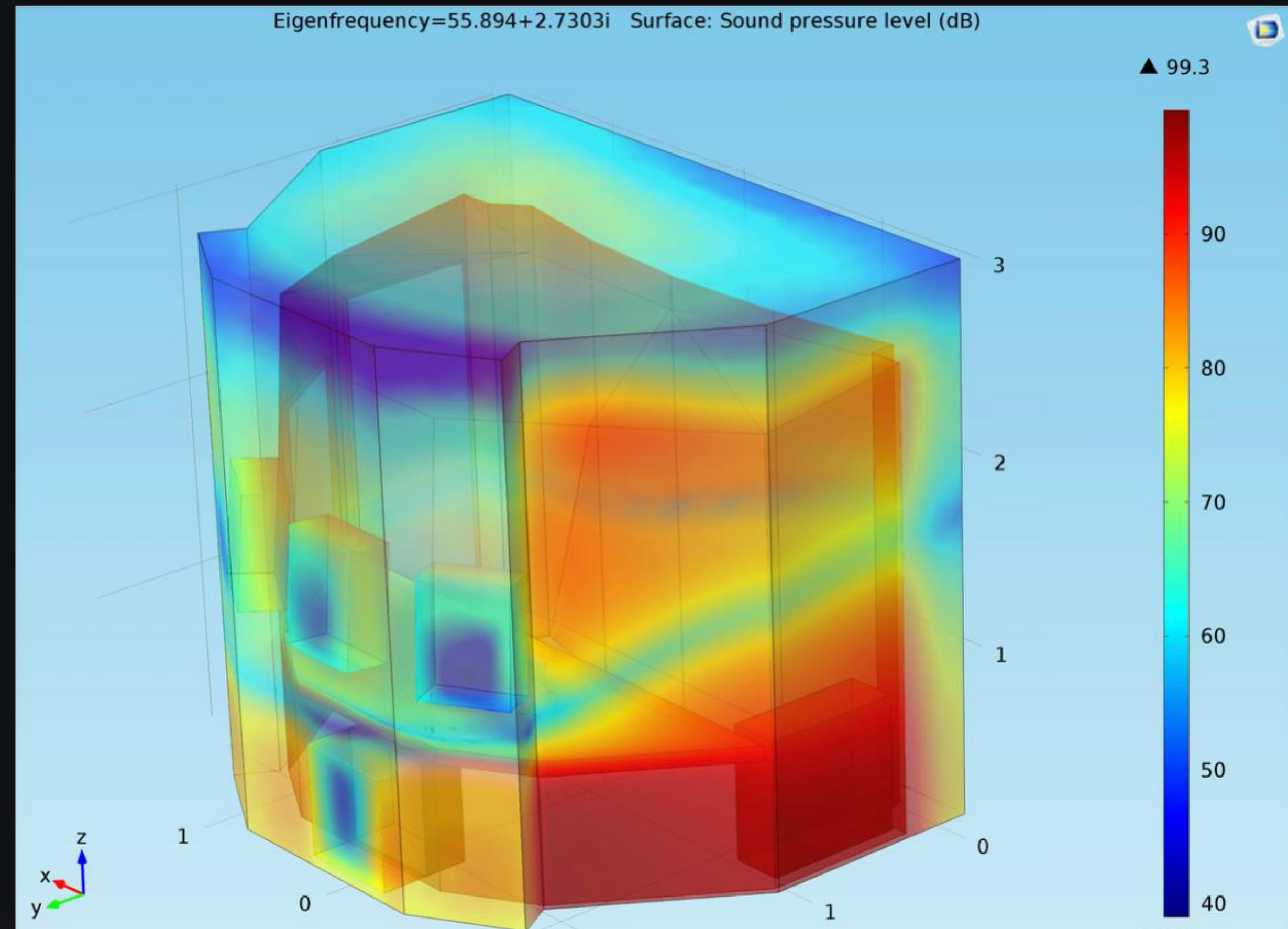
Loudspeaker angles, heights and distances designed with the room, not after it. The drawing is the contract between acoustics and the Dolby specification.



FOX Networks Italy, 9.1.4 Dolby Atmos home entertainment: layout drawing, 2018.

FOX UK:

First FEM simulation with Comsol
Thanks to B&C Speakers



FOX UK FEM Simulation with COMSOL

FOX - NatGeo UK

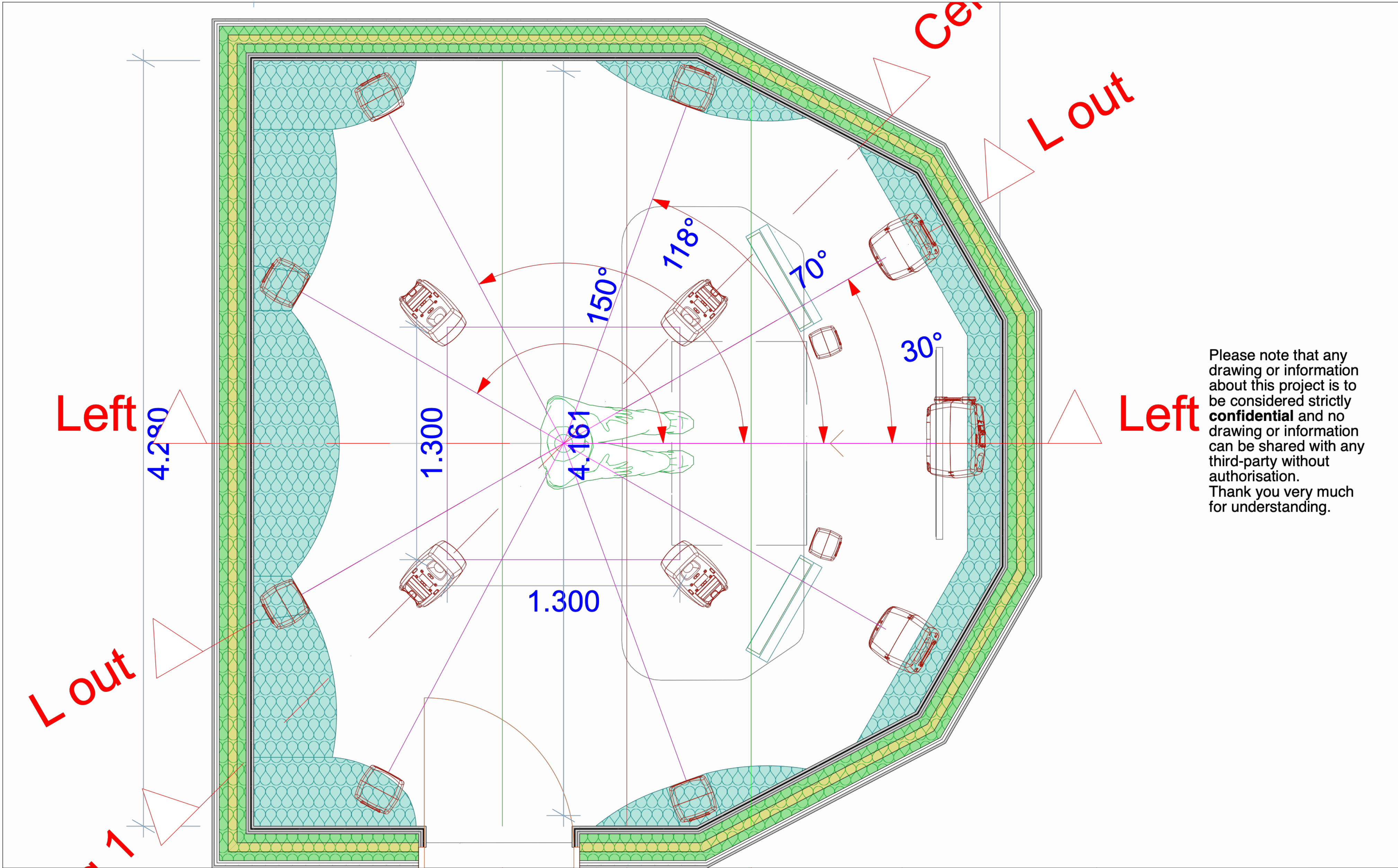
Hammersmith, London UK



FOX – NatGeo DE

München, DE





9.1.4

2018
Fox Networks IT

9.1.4 Dolby Atmos
Home Entertainment

**Fox Networks Group
Italia**

FOX international Channels
Via Salaria 1021, Roma - Italy

Acoustic Design by:

dott. Donato Masci

Via Torricella 22/a, Impruneta (FI) - 50023 Italy
+39 335 8233579, donatomasci@gmail.com

ing. Cecilia Torracchi

+39.333.8628738
c.torracchi@gmail.com

T.C.A.A. 447/95 n.184 (FI)

Drawing Name

Floor

Drawing Status

Drawing Scale

1:20

Layout ID

Tav.00

- Polyester Fiber 40 kg/m³
- Mineral wool 50 kg/m³
- Mineral wool 90 kg/m³
- Wood
- Concrete

Proaudio Consulting Srl

Via IV Giugno 36 – 47899 Serravalle - RSM
Project Manager: Francesca Bianco
Tel. +378 0549 941536 +39 333 7020564
info@proaudioconsulting.it
www.proaudioconsulting.it



FOX Studio

Rome





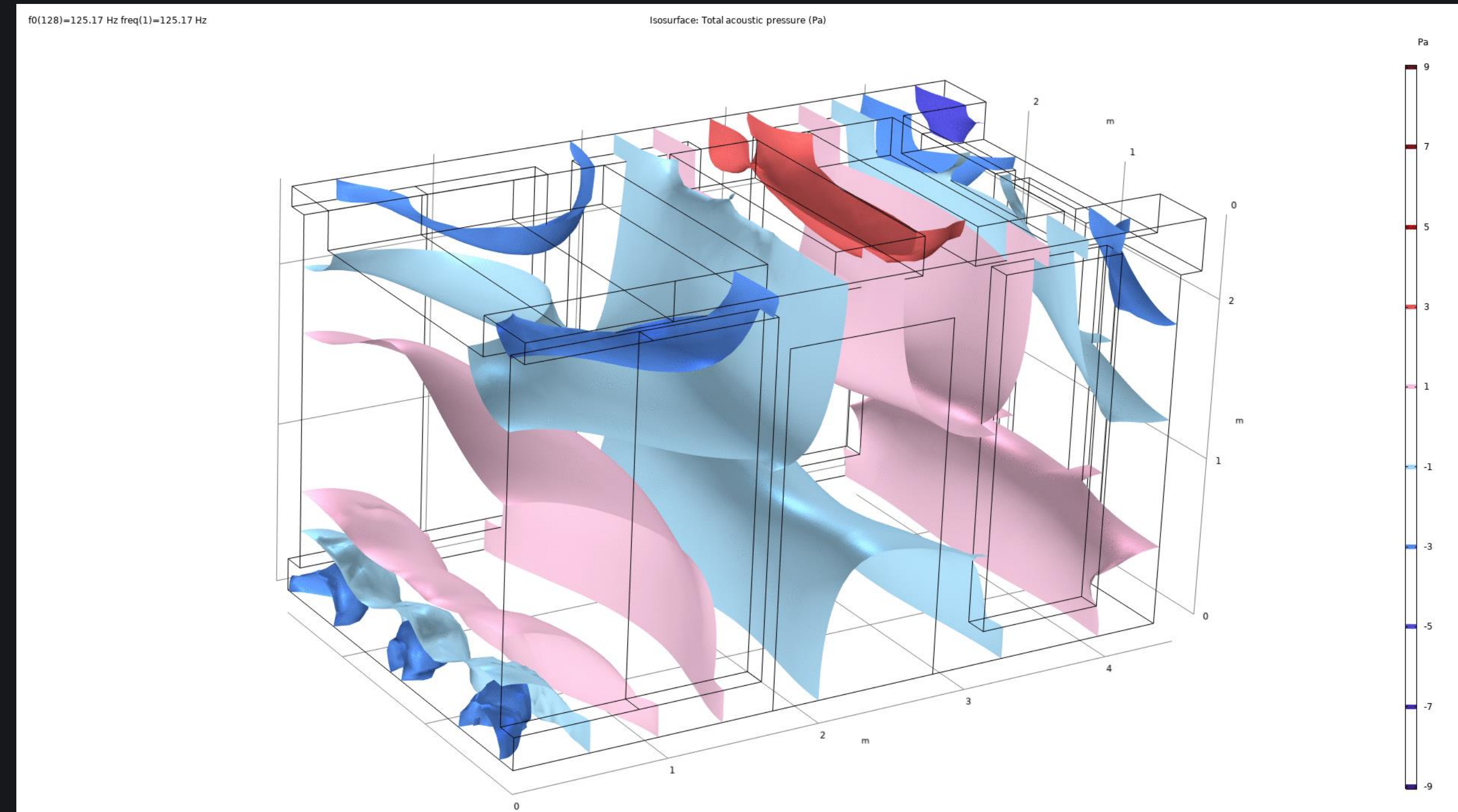
Dolby Atmos HE 9.1.4 mix room.



Vocal booth.

A small room plays a few notes.

Below the Schroeder frequency the field is quantised: only the room's own modes exist. We can count them, measure them, and kill them one by one.

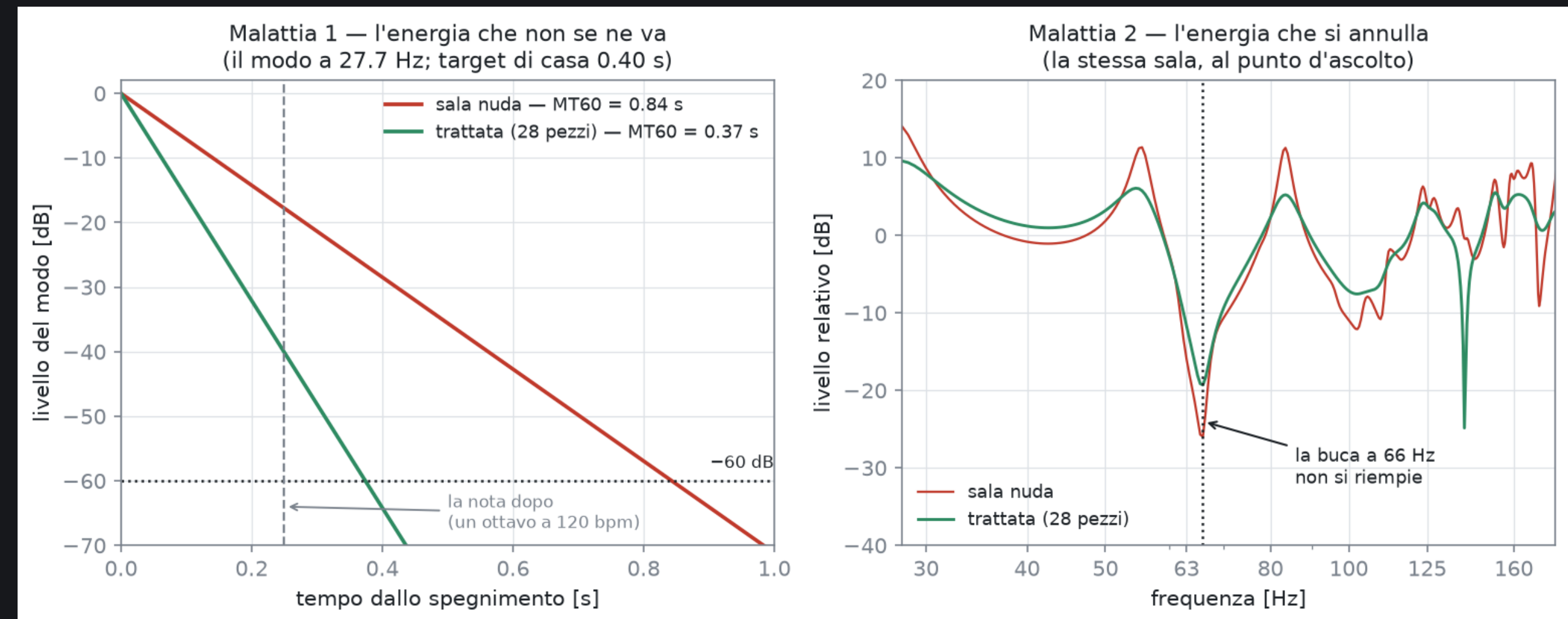


COMSOL model of our test room at 125 Hz: iso-surfaces of the sound pressure, treatment in. Each surface joins the points at the same pressure: the room's notes, made visible.

The two diseases.

Energy that won't leave: a mode keeps ringing after the signal stops.

Energy that cancels: monitor-to-wall distances dig notches no equaliser can fill.



Left: the tail of the 27.7 Hz mode, bare room 0.84 s, treated 0.37 s. Right: the 66 Hz hole at the listening seat does not fill. SSStudio notebook 02.

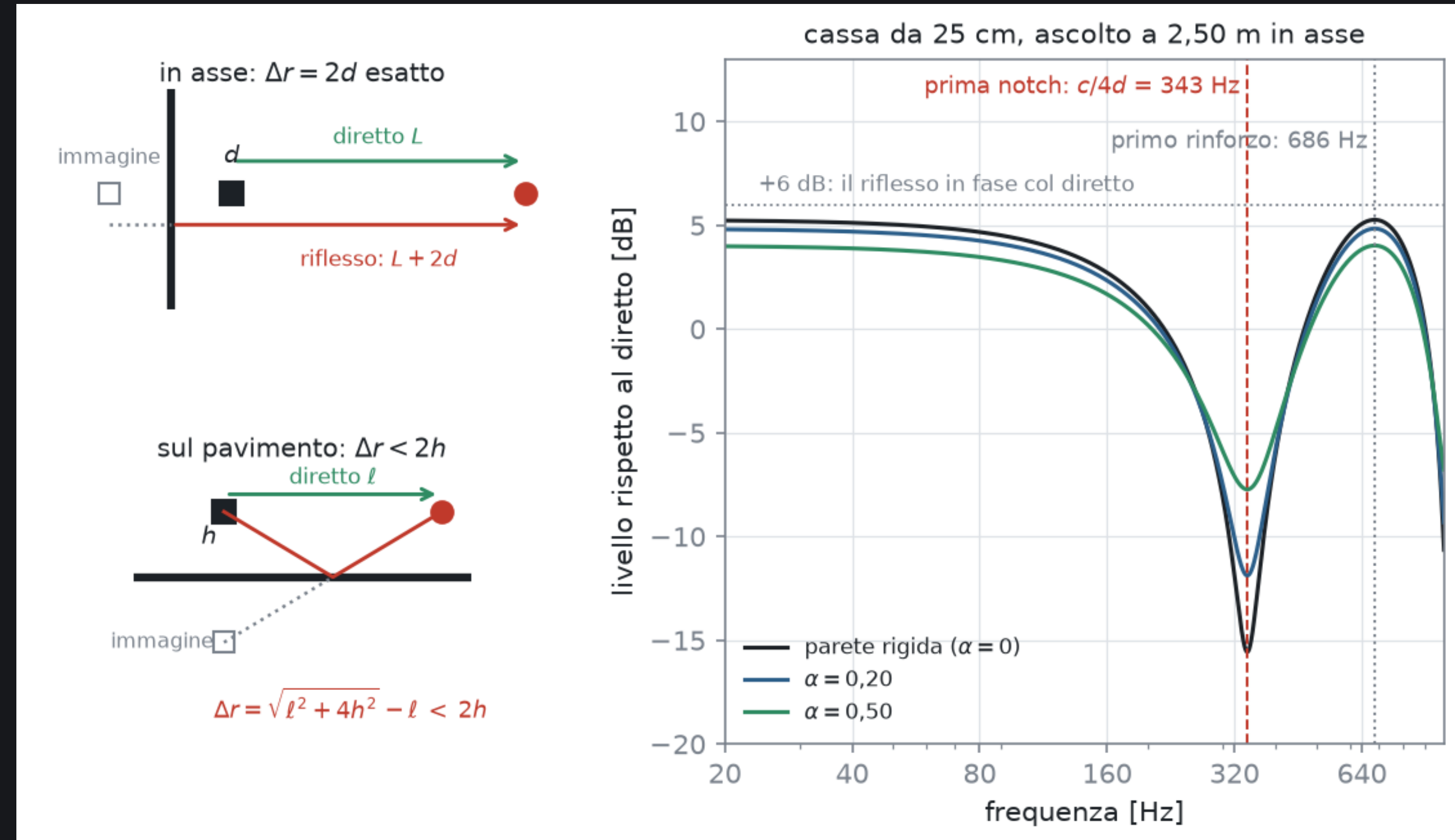
SBIR: the hole is born half a metre from the driver.

Direct sound plus the reflection from the wall behind the monitor.

Extra path $2d$: at $c/4d$ they cancel. 25 cm gives 343 Hz.

The wall's absorption sets the depth, never the frequency.

Move the speaker 15 cm and the hole moves. A mode never does.



Loudspeaker-boundary interference: the first notch at $c/4d$. Three walls, three depths, one frequency. SSStudio notebook 05.

Modes vs SBIR: same symptom, different cure

A MODE

- Decided by the room's dimensions
- Rings after the signal stops: a tail in time
- Shows in the decay, MT60 above 0.2 s
- Cure: damping where the pressure is, membranes and resonators

SBIR

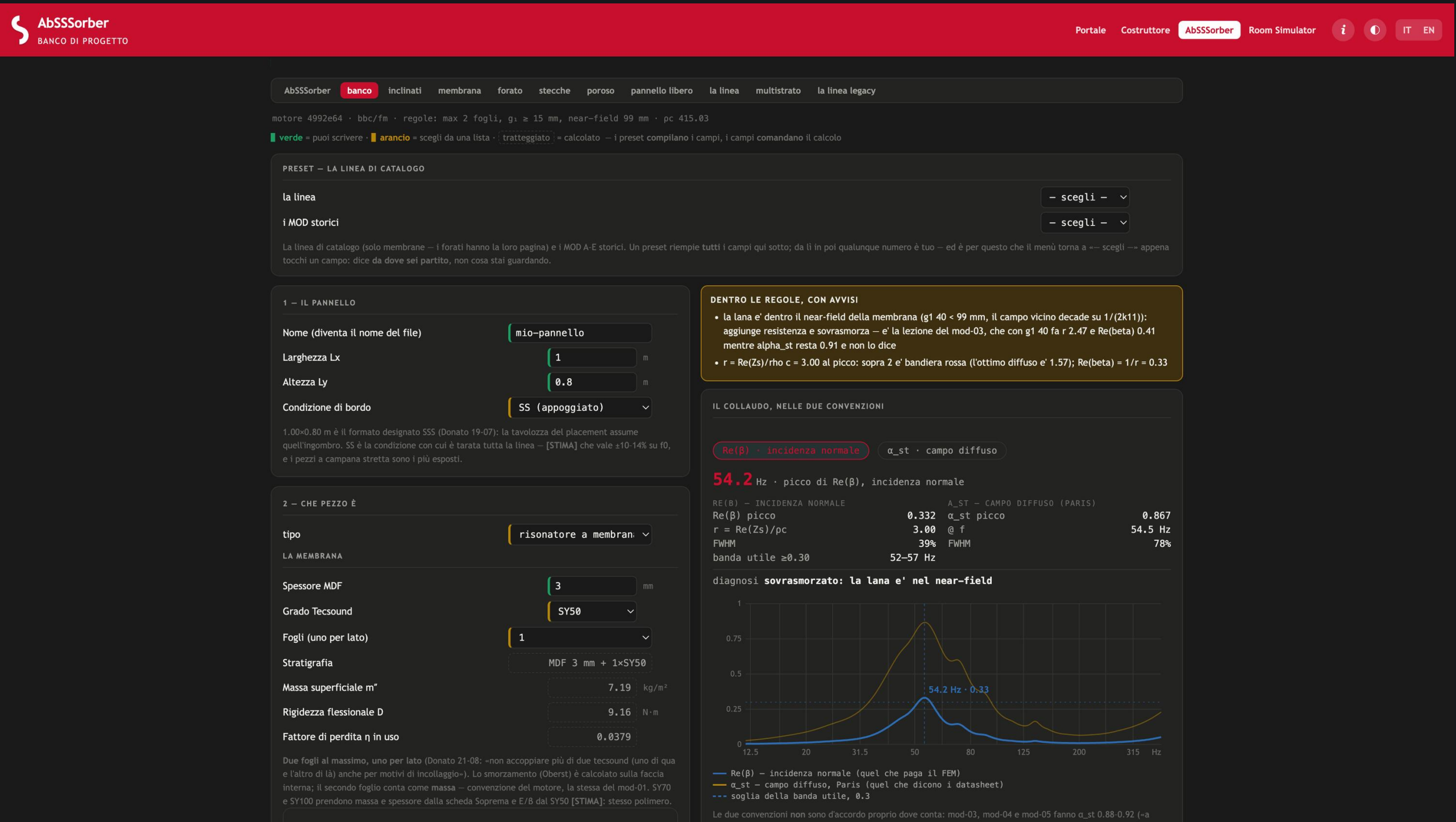
- Decided by the driver-to-wall distance
- No tail: a hole fixed in frequency
- Shows at once in the response, at the listening seat
- Cure: distance, and absorption at the first reflection

Key insight: move the speaker. If the dip moves, it was never a mode.

The recipe that travels.

Membrane absorbers for the bottom octaves, tuned by cavity depth and mass; Helmholtz resonators for the low-mids; porous panels above. Laid out by frequency band and by position.

The same recipe from Cinecittà to Budapest.



AbSSSorber, the workbench: the membrane panel designed on its measured impedance, then placed by the simulator.

“

Ancient acousticians had a lifetime of trial and error. We have one shot.

”



Theatre of Epidaurus, 4th century BC.

Vitruvius describes bronze vessels, the echea, tuned and placed in the theatre to correct its sound. Resonators, two thousand years ago.

Today we tune the resonators **before they are built.**

Why every simulation starts wrong

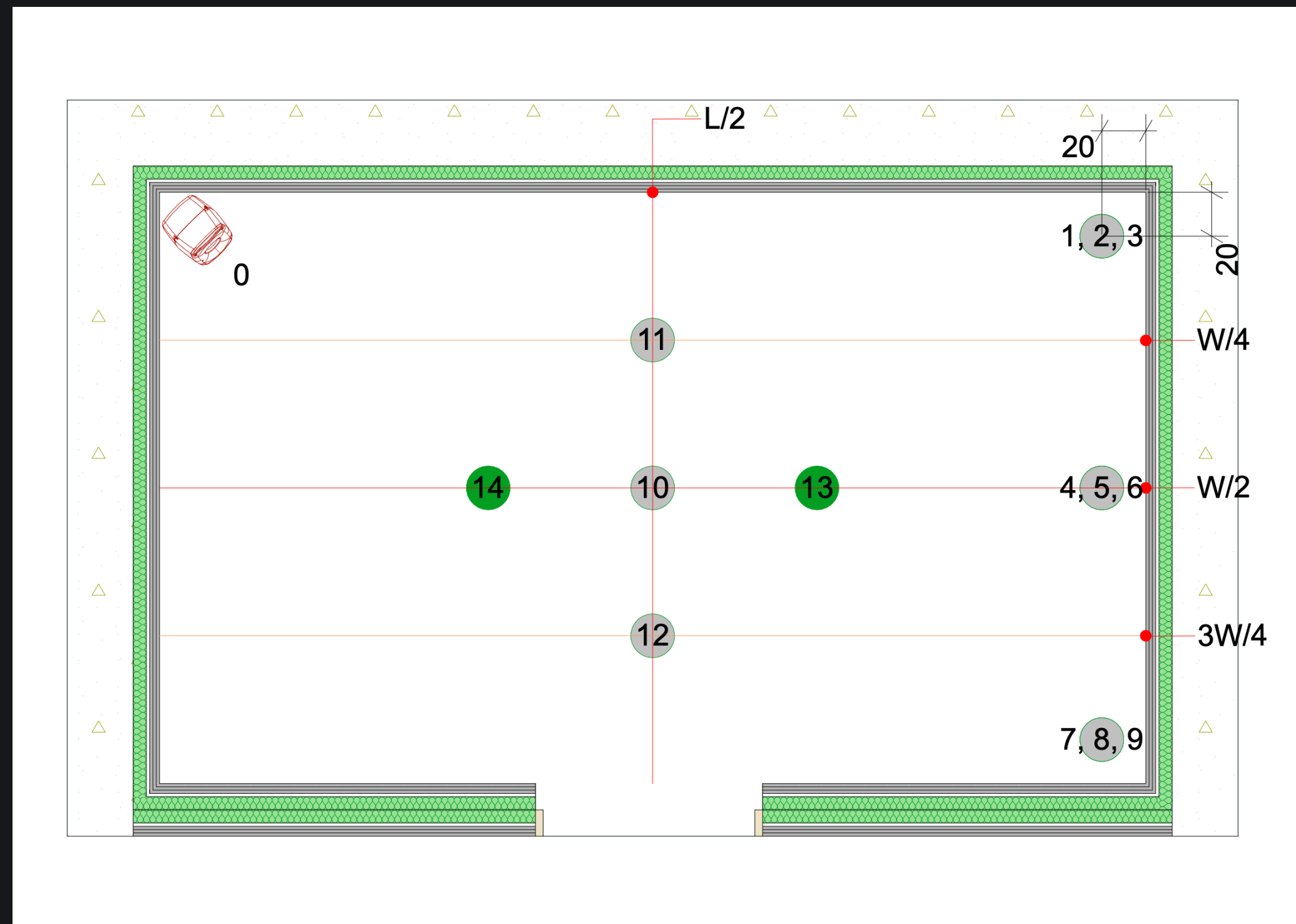
THE PROBLEM

- Books give absorption coefficients; small rooms need impedance
- Every drywall is different
- Guess, measure, adjust, repeat

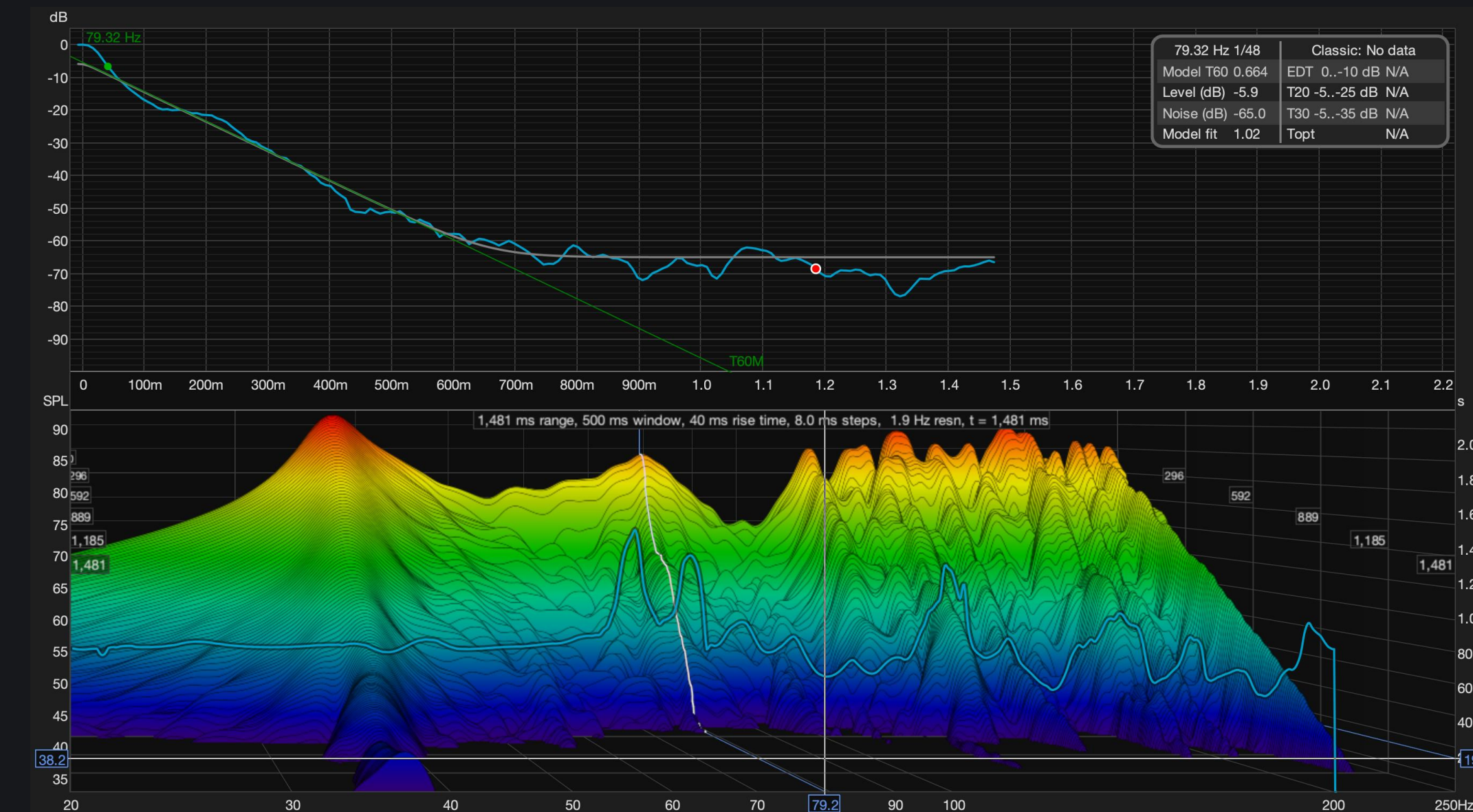
OUR METHOD

- Measure modal decay (MT60) in the real room
- Estimate wall impedance: inverse problem (COMSOL, Treble)
- Validated model: simulation vs measurement, point by point

Key insight: calibrated once, the model predicts the treated room before a single panel is built.



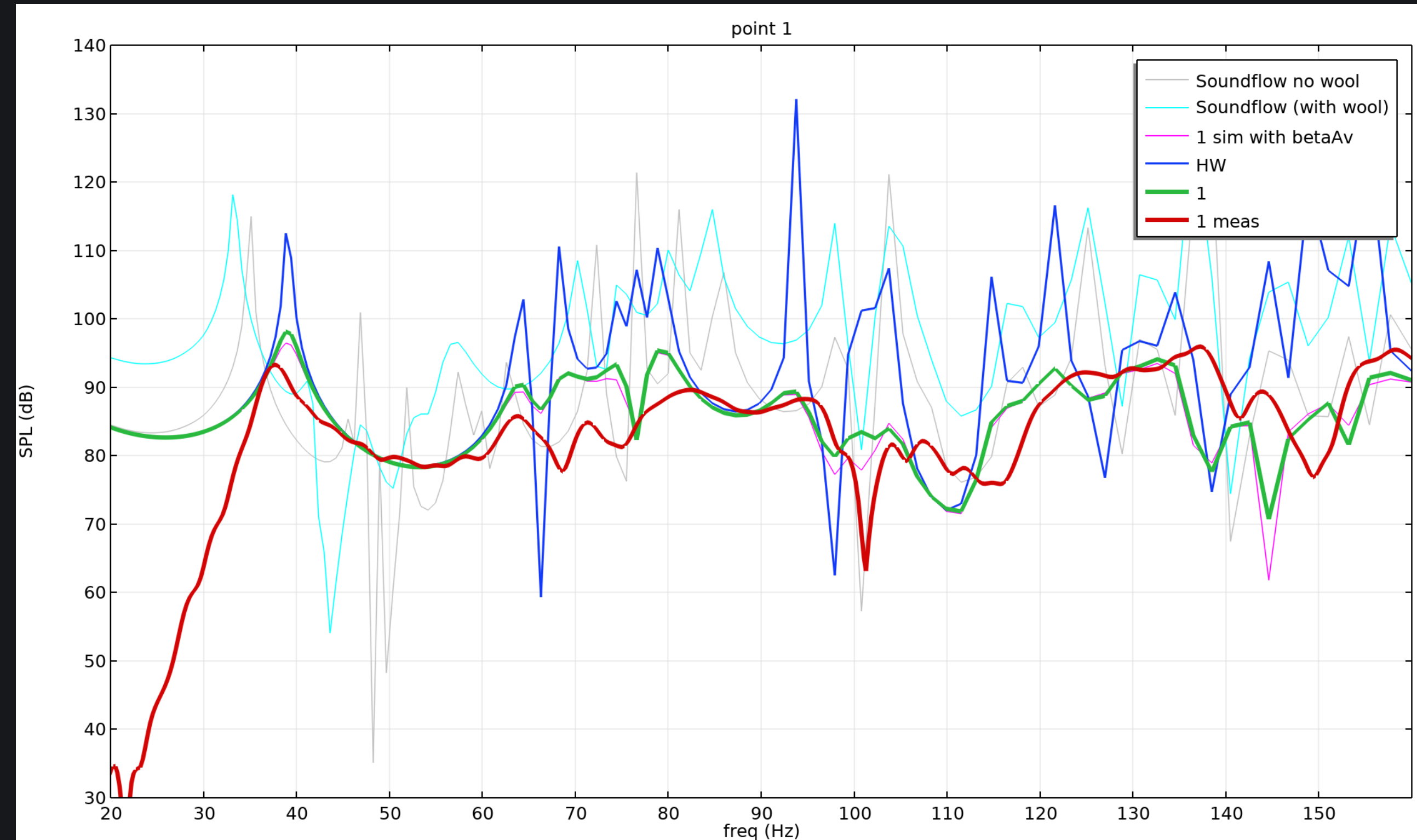
Fourteen measurement points, source in the corner to excite every mode.



Modal decay (MT60) read from the waterfall, mode by mode.

Model vs measurement.

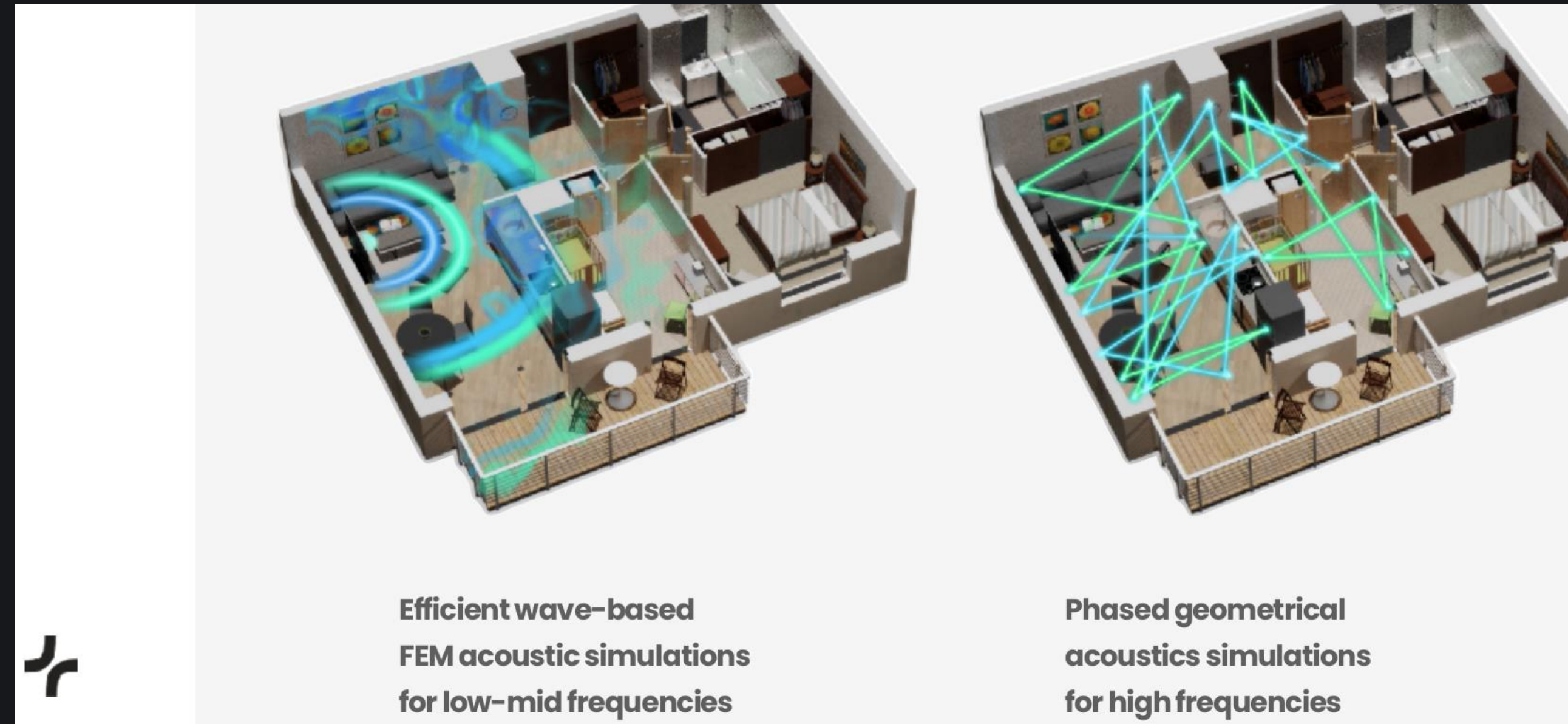
Wave-based model of our own test room, calibrated on measured decay and checked at 14 points. Good agreement in the 80–150 Hz band; the remaining errors sit on the drywall resonances.



Blue: rigid walls. Green: calibrated simulation. Red: measurement.

Hybrid simulation.

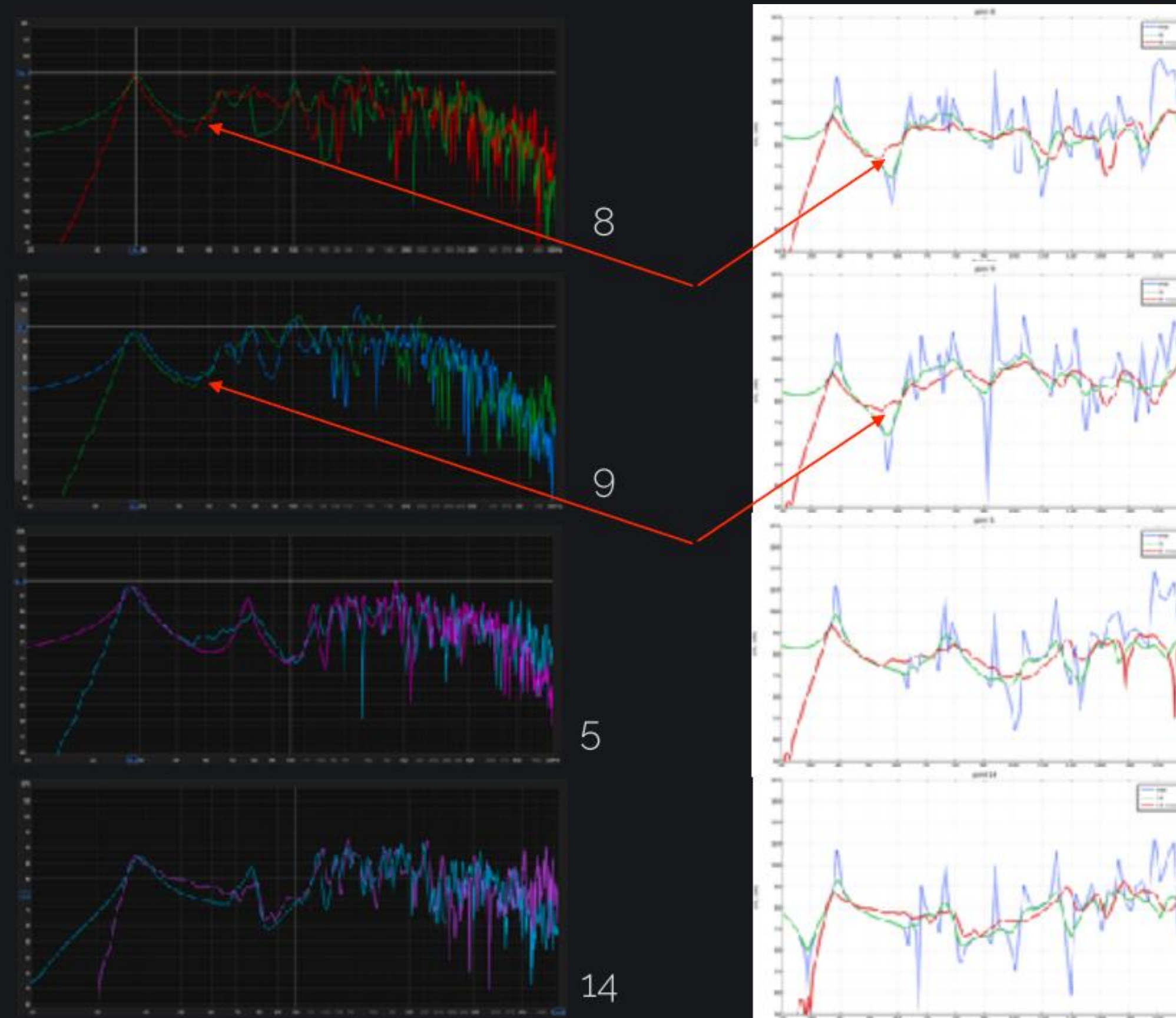
Wave-based finite elements below 250 Hz, where the modes live; geometrical acoustics above, where statistics take over. One model, the whole spectrum.



Treble: wave-based FEM for low-mid frequencies, phased geometrical acoustics for high frequencies.

Treble vs measurements.

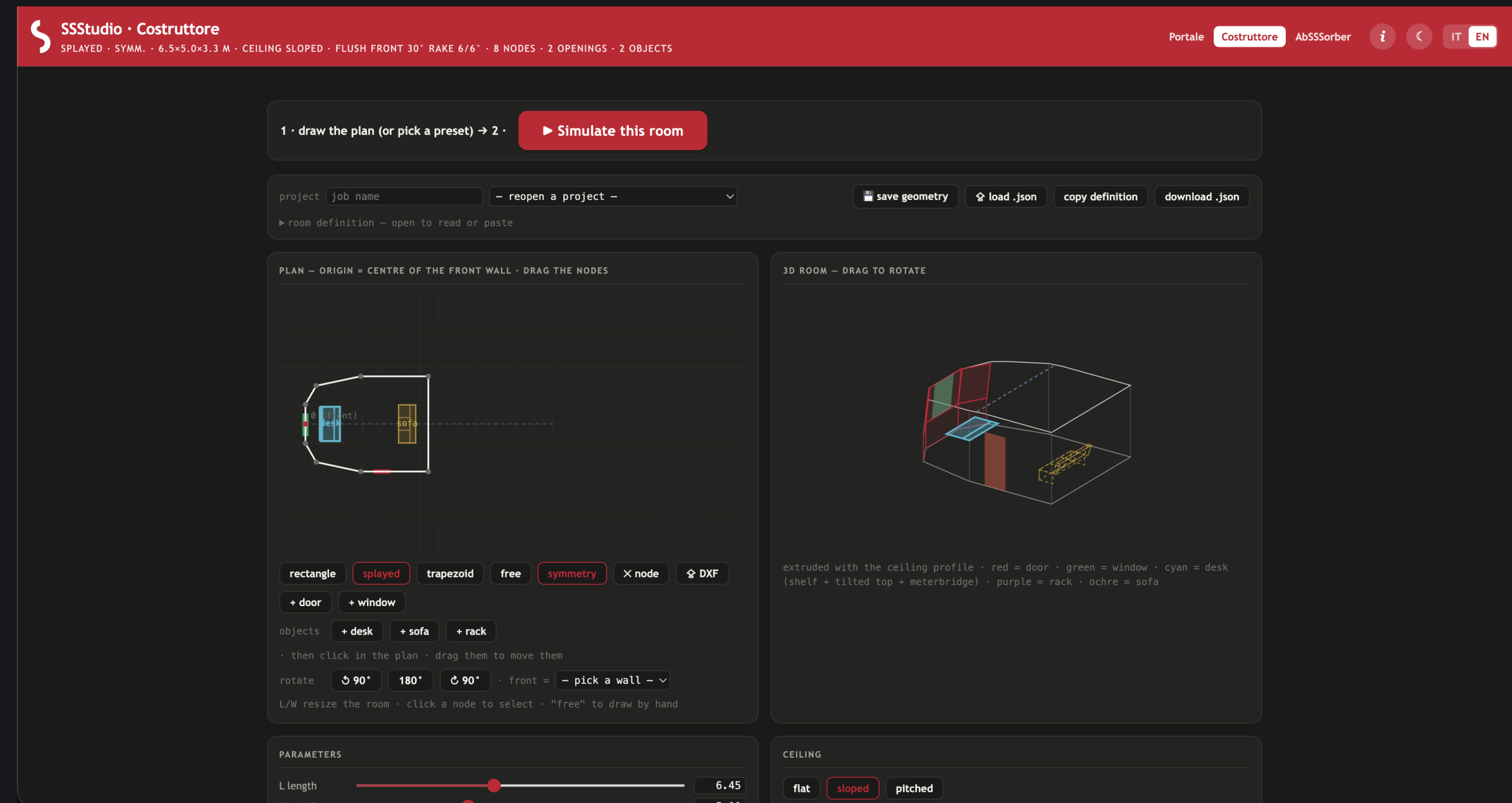
Calibrated by matching measured decay times band by band. Best points within a couple of dB across the range; the worst ones sit, again, on the drywall resonances.



Simulated vs measured frequency response at four points of the test room.

SSStudio.

Our in-house optimiser for critical-listening rooms, 20–200 Hz, finite elements on the real geometry. Three questions: where to put monitors and listener, what shape to give the room, where to put the treatment.



SSStudio, the room builder: plan, ceiling, doors and windows, or a DXF import.

SSSstudio · Room Simulator

PortaleCostruttoreAbSSSorberRoom Simulator*i*IT

n 6.45×5×2.8 m · V 80.9 m³ · 177 FEM modes up to 256 Hz · engine rev 95 · 54e3a6e · of 2026-09-05modal field · L/R monitors + sub · REW style

POSITIONS — MONITORS, LISTENER, SUB

3D ▾plan ▾side ▾

listener on centreline☒ equilateral triangle

monitor x 0.39

separation 1.12

monitor h 1.20

listener 2.32

speaker 1.20

desk locked at m

sub crossover 80 Hz

FREQUENCY AND VIEW

field · with speakersmodal map · bare room

0.0 Hz sweep

+ level at listener -15.5 dB

3D ▾plan ▾side ▾

SECTION PLANES

Absorption per surface (A)

STEP 3A — BEST POSITIONS

STEP 3B — ROOM SHAPE

STEP 4 — TREATMENT

STEP 5 — CURING ONE DIP

plan · z 1.20

long. · y 0.00

transv. · x 2.32

wireframefield

◆ isosurfaces

◀▶

5 · 62.6 Hz · axial (0,0)

FREQUENCY RESPONSE AT THE RECEIVER — LIVEshow the steps

BARE room (no treatment accepted) · modal sum · dip -15.6 dB at 61 Hz · swing 29.6 dB no fix computed yet: Step 4 proposes the treatment.

① CURRENT POSITIONS · BARE ROOM
— current positions (sliders)
the other families appear here once you run an optimisation (Step 3a), a treatment (Step 3b) or the optimisation on the treated room (Step 4b)

group delay (ms)

smoothingnone ▾measurement10 points (array) ▾21 cm ▾±1σ ▾halo ±1σ and figures: current positions (sliders) (follows the live curve)

true curve: every narrow dip is visible

pop outmodes overlaidoptimiser solutions overlaidcompare with previous optimisationbefore/after treatment (Step 4)fixed scale

SSSstudio · Room Simulator

PortaleCostruttoreAbSSSorberRoom Simulator*i*⌂IT

n 6.45×5×2.8 m · V 80.9 m³ · 177 FEM modes up to 256 Hz · engine rev 95 · 54e3a6e · of 2026-09-05modal field · L/R monitors + sub · REW style

SECTION PLANES

Absorption per surface (A)

STEP 3A — BEST POSITIONS
pick the options – press ► at the bottom – results appear in the “Step 3a” tab and the curves in the graph above

room type music – listener from 36% of the length ▾

| unlock height (soffit mains)

minimise the dips (deepest notch) ▾

look for the position with the smallest dip and the least missing energy · flatness may get worse, and that is intended

listening distance free ▾

| without subwoofer

mounting stand / shelf ▾

the baffle cannot sit closer than the cabinet depth

triangle angle equilateral · 60° ▾

angle at the listener (L–listener–R); with a range the angle becomes a search variable

constraints listener x free ▾

height from the rules ▾ setback

cabinet path 25 cm

with the baffle at its minimum (25 cm) the first front peak falls at 343 Hz · above 300 Hz geometric treatment works: manageable

bandwidth up to 200 Hz ▾

► optimise positions

3D visualization of the room simulation showing sound pressure level distribution.

transv. · x 2.32
5 · 62.6 Hz · axial (0,0)

ModesInterferenceSBIR · boundariesStep 3a · positions ●Step 3b · shapeStep 4 · treatmentStep 5 · the cure

	start 36%	optimum
listener x [m]	2.32	2.42
axis height [m]	1.20	1.20
triangle angle [°]	60.0	60.0
clearance from the wall behind the monitors [cm]	30	50
L+R separation [m]	2.23	2.15
triangle side = listening distance [m]	2.23	2.15
flatness [dB]	5.94	6.05
spatial deviation [dB]	1.61	1.64
SBIR	1.29	1.91
peak / dip at 1/3 oct [dB]	+8.3 / -11.9	+8.7 / -12.3
(unsmoothed) [dB]	+13.0 / -17.7	+12.8 / -17.5
within ±3 dB (1/3 oct)	no	no

Alternative solutions (at least 15 cm apart from one another – any closer and they would be the same thing):

best listener x 2.42 m separation 2.15 m triangle side 2.15 m from front wall 0.50 m flatness 6.05 · dip 12.3 dB	alternative 2 listener x 3.19 m separation 2.98 m triangle side 2.98 m from front wall 0.31 m flatness 5.46 · dip 9.7 dB	alternative 3 listener x 2.62 m separation 2.50 m triangle side 2.50 m from front wall 0.29 m flatness 6.46 · dip 11.8 dB
---	---	--

replay the searchlarge window (3D)
942 solutions evaluated · each dot is a listening position tried

5x2.8 m · V 80.9 m³ · 177 FEM modes up to 256 Hz · engine rev 95 · 54e3a6e · of 2026-09-05 modal field · L/R monitors + sub · REW style

fondo 45 laterale 35 soffitto 45

es. mod-03, mod-04, mod-05, mod-06

qualunque

control room (two stages) – decays to target

om (two stages): stage 1 modal to the MT60
stage 2 interference on the remaining spots – each
iece passes the decay guard (it cannot undo stage

two passes: the porous COUNTS in the number

egy does not change the panels chosen (same
ame pieces): it changes whether the porous you
y enters the calculation or stays out

P10 · 10 cm

none (SSS rule)

corners only (SSS rule)

the filler porous (for the site)

ng: front-listener zone first (first
ction)

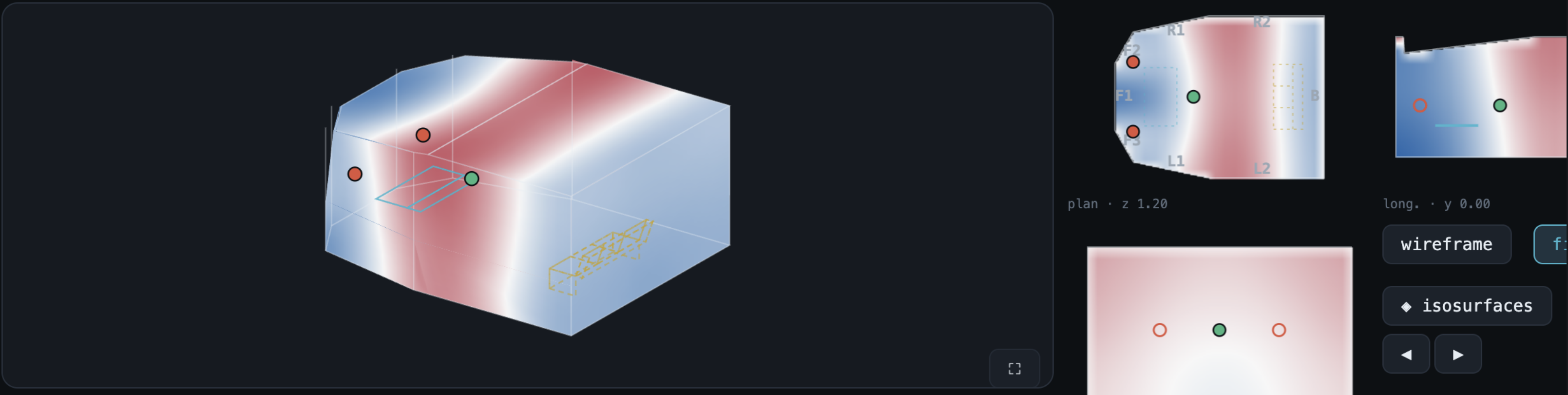
es of 15 types · J_house 167.96 → 0.00 · MT60
17 s · 36.3 m² treated · with porous in the
50 0.15 s 72s

– CURING ONE DIP

ERENCE – THE BLAME MAP

pute the map

ays WHERE the dip comes from: it starts from the
frequency and takes a few seconds (the complete



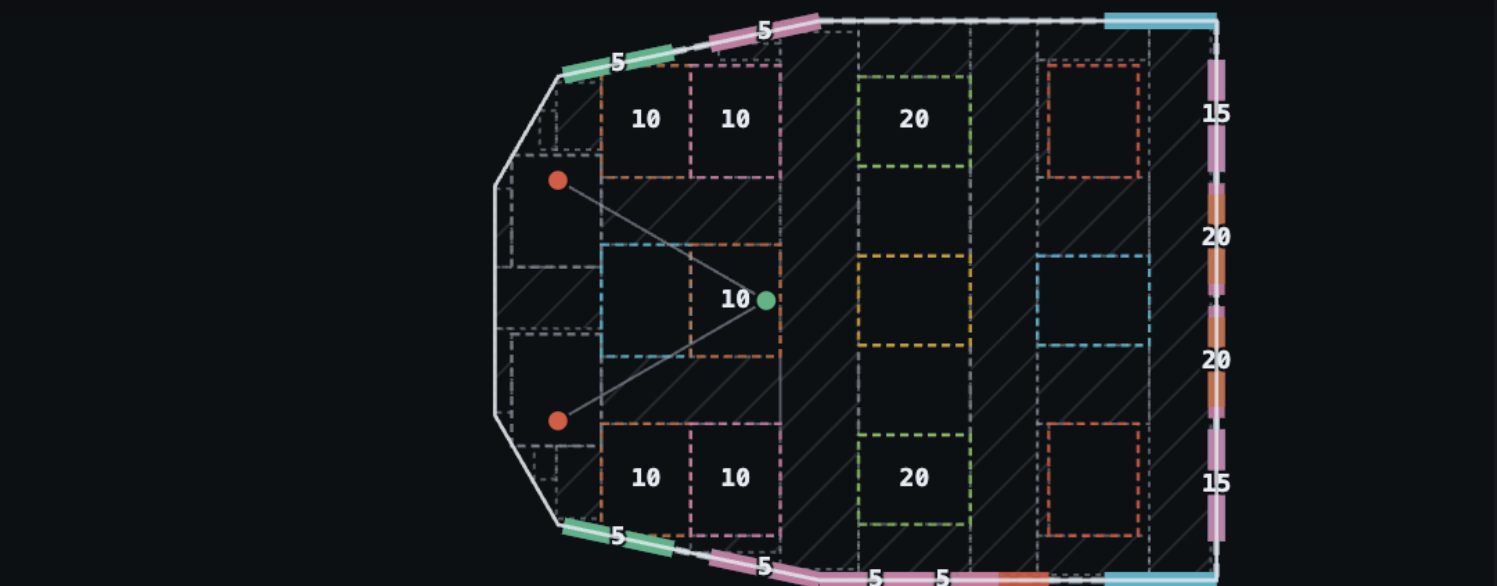
Modes Interference SBIR · boundaries Step 3a · positions Step 3b · shape Step 4 · treatment Step 5 · the cure

type	pieces	m×m	m²
P25 H	9	1.00×0.80	7.20
MOD01-00 H	5	1.00×0.80	4.00
MOD06-10 H	4	1.00×0.80	3.20
MOD06-05 H	4	1.00×0.80	3.20
MOD09-10 V	3	0.80×1.00	2.40
MOD02-00 V	3	0.80×1.00	2.40
P25 V	2	0.80×1.00	1.60
MOD06-10 V	2	0.80×1.00	1.60
MOD03-05 H	2	1.00×0.80	1.60
MOD01-10 H	2	1.00×0.80	1.60
MOD08-20 H	2	1.00×0.80	1.60
MOD06-15 H	2	1.00×0.80	1.60
MOD09-20 V	2	0.80×1.00	1.60
MOD01-00 V	1	0.80×1.00	0.80
*banco- H	1	1.00×0.80	0.80
total	44	35.20	[ESTIMATE] in legend

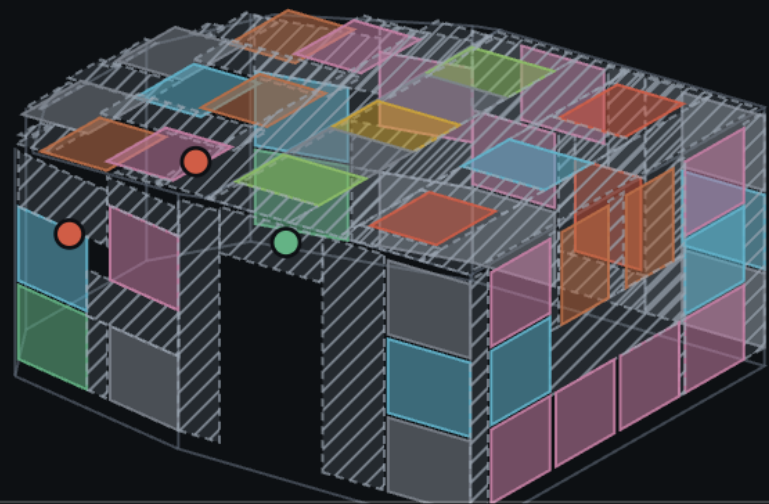
▼panel codes – legend · ★ = 1 panel(s) of yours, designed at the AbSSSorber bench (not from the catalogue)

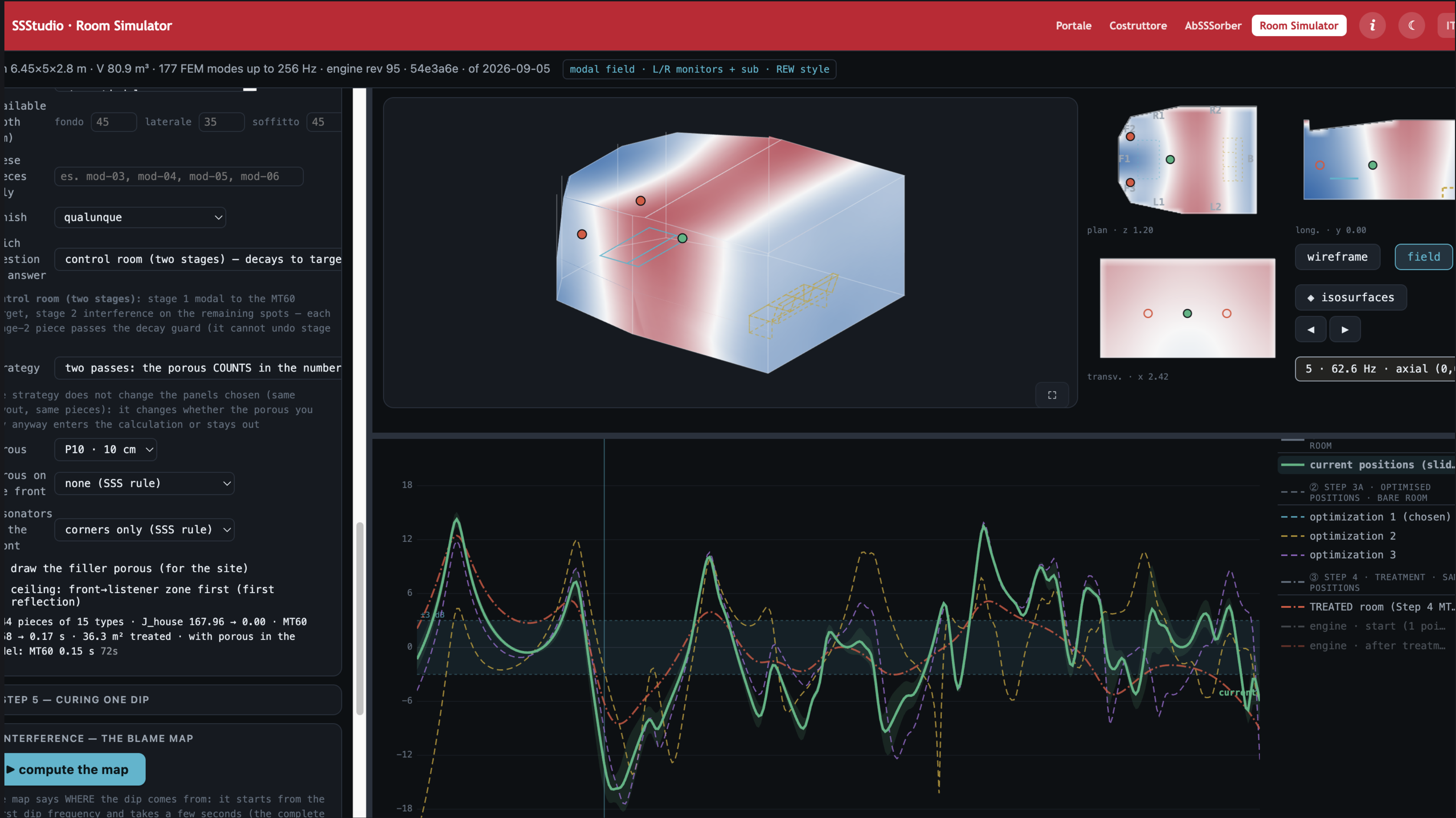
P25 = por25H
Garai-Pompoli 2005 (NMR+NMI, validato in valida_porosi.py): poliestere 25 cm, 40 kg/m³, sigma NMR 4614 Pa s/m² – pannello 100x80 cm (H)

MOD01-00 = mod-01H
AbSSSorber 1847b55 del 2026-08-29 · mod-01 (f0 28 Hz, membrane) – MDF 3 mm · 2× SY50 ·



plan: the panels on the real walls (thickness out of scale, so they can be seen)





AbSSSorberbancomembranaforatosteccheporoso pannello libero **la linea**multistratola linea legacy

motore 55697c4 · modo bbc · 10565 configurazioni × 2 convenzioni (normale + diffusa)

Questa pagina sfoglia una GRIGLIA GIÀ CALCOLATA — cassa a passi di 5 mm (10 sopra i 220), lana di 10, passo dei fori di 5, otto pelli. Serve a scegliere una linea: mettere otto o dieci pannelli uno accanto all'altro e guardare l'inviluppo. Ogni curva che vedi è un calcolo vero del motore, ma solo *sui nodi*: i numeri fuori griglia qui non esistono. Per progettare un pezzo — scrivere la cassa che vuoi, il grado di Tecsound, lo spessore dell'MDF, la posizione della lana, le dimensioni del pannello, e portartene via il JSON — la porta è il [banco di progetto](#): lì il motore gira davvero a ogni modifica e le guardie costruttive stanno in vista.

LE DIECI CURVE INSIEME — con l'inviluppo, che è il vero metro

il catalogo — la linea di serie

α: incidenza NORMALE — passa al campo diffuso

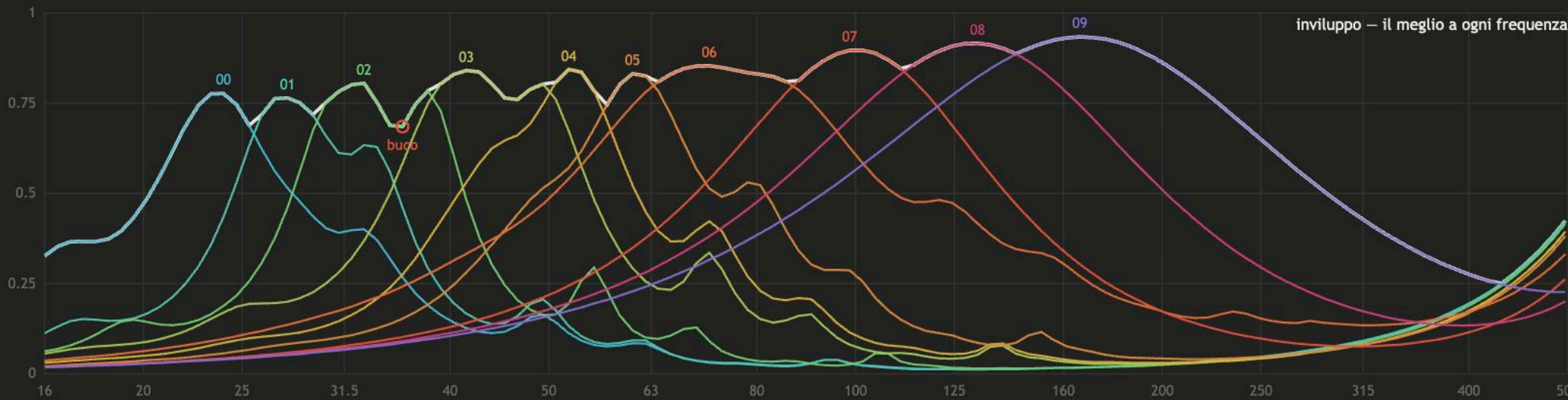
CON la stoffa davanti — toglì la stoffa

ENG

giù al catalogo

grafico più alto

scarica il JSON



mod-00
24 Hz
il piu' basso

mod-01
28 Hz
sovr. 73%

mod-02
33 Hz
sovr. 62%

mod-03
42 Hz
sovr. 48%

mod-04
52 Hz
sovr. 68%

mod-05
60 Hz
sovr. 63%

mod-06
72 Hz
sovr. 59%

mod-07
99 Hz
sovr. 64%

mod-08
132 Hz
sovr. 66%

mod-09
166 Hz
sovr. 78%

La linea bianca è l'inviluppo: il meglio che la serie sa fare a ogni frequenza — ed è il metro giusto, perché in sala il pannello lo scegli banda per banda. Il punto rosso è il suo minimo *dentro* la copertura della linea (24-166 Hz): qui $\alpha = 0.69$ a 36 Hz. Sotto i 24 Hz e sopra i 166 non è un buco, è dove la linea finisce.

Donato, 11/8: «mi fai un html in cui ci posso mettere le mani io? con cavità e tutto? poi ti esporto in json». Muovi i cursori qui sotto: il grafico resta incollato in cima e risponde subito, e la curva che stai toccando si accende. Quando ti torna, **scarica il JSON** e me lo mandi: da quello rigenero catalogo, schede e disegni. In fondo alla pagina c'è il [catalogo della serie](#): è il termine di paragone, nella stessa pagina.

Perché due convenzioni — α a incidenza normale è quello che paga il motore modale di SSStudio ($\text{Re } B = 1/r$, lineare nella resistenza); α in campo diffuso (Paris) è quello dei datasheet e della camera riverberante, con un plateau largo fino a $r=3$. Non sono intercambiabili: sul mod-03 il campo diffuso resta a 0.91-0.95 mentre togliere lana (80→30 mm) porta $\text{Re } B$ da 0.41 a 0.79 — il diffuso è cieco al sovrasmorzamento che l'incidenza normale vede benissimo (doc/BANDA_50_63.md, 20-08-2026). Lo switch qui sopra commuta TUTTA la pagina, catalogo compreso, e la convenzione corrente è sempre scritta sul bottone. Adesso stai guardando: *incidenza normale*.

mod-00

24 Hz

mod-01

28 Hz

mod-02

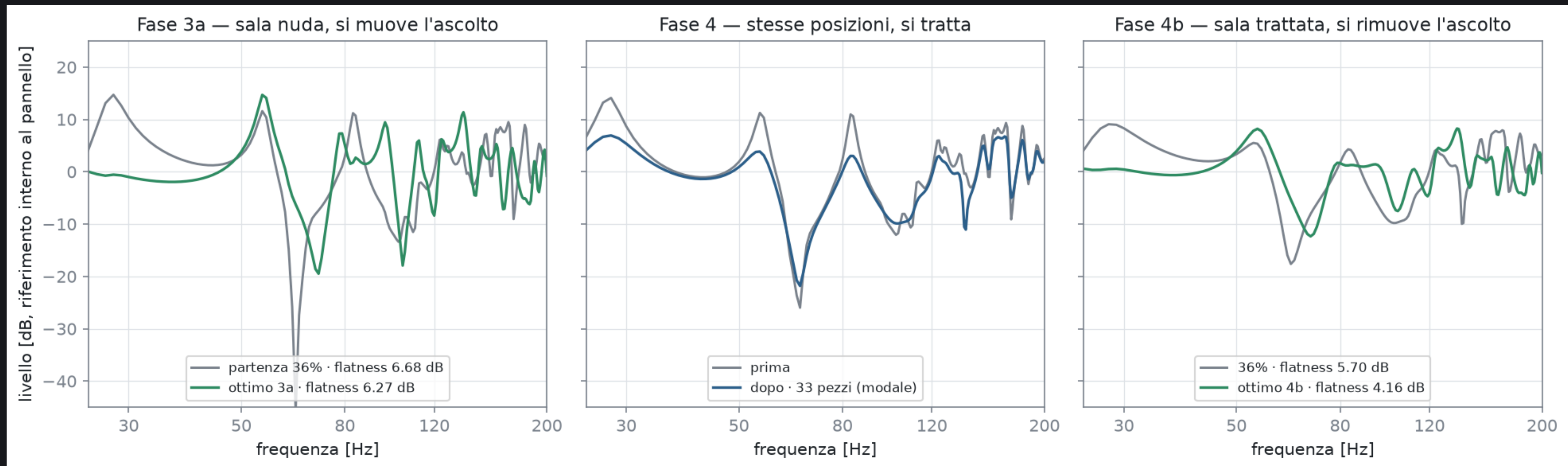
33 Hz

mod-03

42 Hz

Before and after.

Same room, same monitors. Optimised positions and tuned panels: the response at the listening position flattens from 6.7 dB to 4.2 dB of deviation, and the modal decay drops from 0.84 s to 0.37 s.



Same room, same monitors, response at the listening seat. Left: bare room, moving the listener. Centre: same positions, treated. Right: treated room, positions re-optimised. SSStudio notebook 07.

AbSSSorber
PANNELLO FORATO

engine 4992e64 · mode bbc

PRESETS – THE PERFORATED PANELS OF THE SERIES

mod-07

From Mod_Series: round Ø10 holes on a square grid, same 16 mm panel – the pitch changes, and the pitch moves the tuning. Presets fill the fields; the fields are in charge.

RESULTS – from the real engine

187 Hz · tuning, as built

peak α , normal incidence0.973

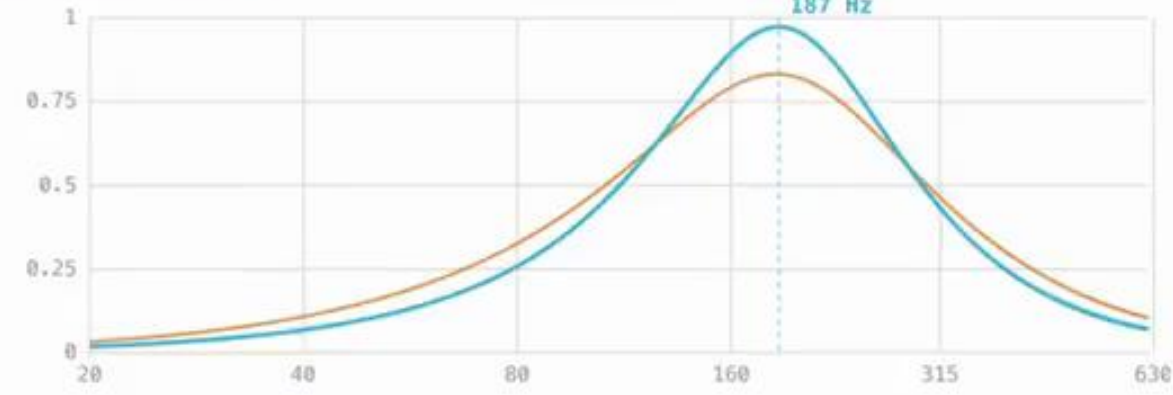
peak α , diffuse field (Paris)0.832

$r = \text{Re}(Z_s)/Z_0$ at the peak0.72

total built depth d + t176 mm

α

up to 630 Hz



The value r says how well the panel is -matched-: $r = 1$ means the impedance at the peak is close to that of air, and that is where it absorbs best.

1

Stampa

3 pagine

Destinazione

Salva come PDF

Pagine

Tutte

Layout

Verticale

Altre impostazioni

Annulla

Salva

Per

THE

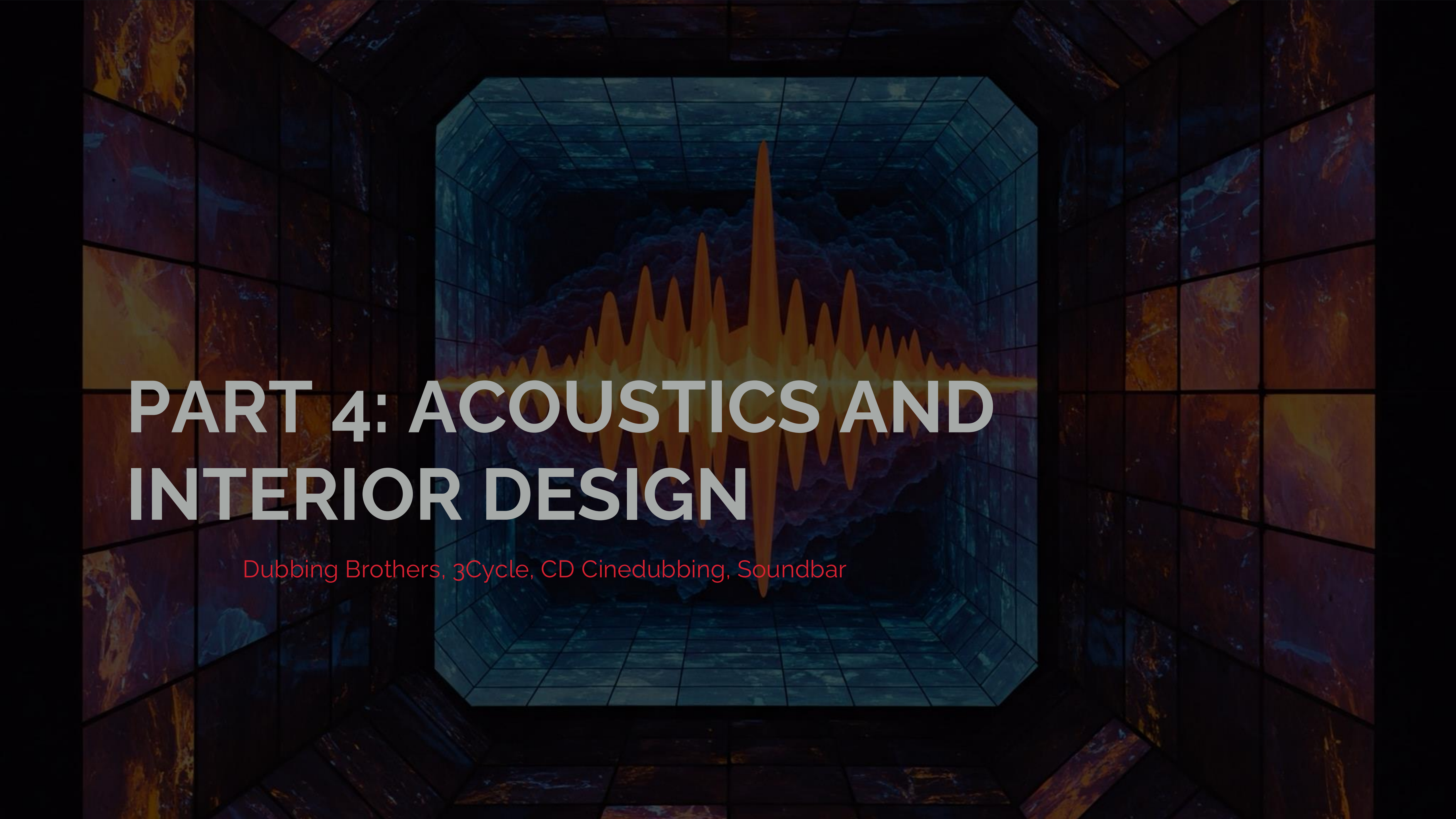
pat

p

% open area (computed)	5.67	%	equivalent aperture (computed)	20	mm
calculation regime	tondo		panel thickness t	16	mm
cavity depth d	160	mm	wool at the back t_f	90	mm
σ	30000	Pa·s/m²	glued fleece R	0	Pa·s/m
cavity fleece R	0	Pa·s/m	s_v	0	mm
front porous t_p	0	mm	σ_p	12000	Pa·s/m²
g_p	20	mm	front cloth R	0	Pa·s/m
g_s	20	mm			

BAND A – ONE-THIRD OCTAVES

Hz	50	63	80	100	125	160	200	250	315	400	500
alpha_norm	0.1063	0.1650	0.2629	0.4109	0.6273	0.8930	0.9405	0.7184	0.4323	0.2323	0.1261
alpha_diff	0.1580	0.2279	0.3301	0.4623	0.6245	0.7901	0.8111	0.6690	0.4612	0.2847	0.1721



PART 4: ACOUSTICS AND INTERIOR DESIGN

Dubbing Brothers, 3Cycle, CD Cinedubbing, Soundbar

Dubbing Brothers

Rome





Mix control.



ADR studio: the waveform on the wall is the diffuser.

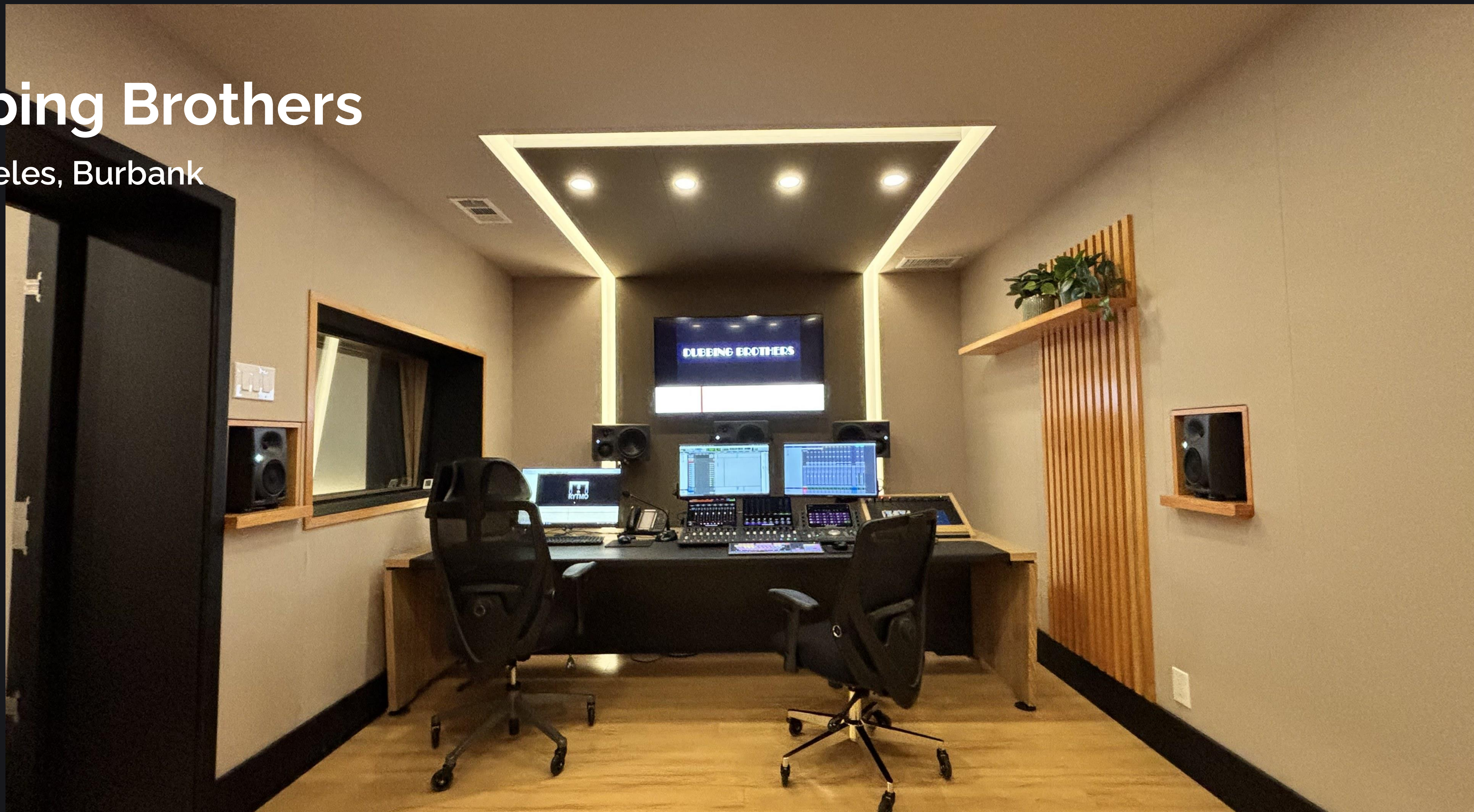
Dubbing Brothers

Rome



Dubbing Brothers

Los Angeles, Burbank





Control room, stage one.



Recording booth, with the director's screen.

3Cycle

Rome



3Cycle

Rome



3Cycle

Rome





The Atmos ceiling of the theatrical room.



Booth detail: the slats are the treatment.

CD Cine Dubbing

Rome





The Atmos ceiling of the theatrical room.



Booth detail: the slats are the treatment.

Disc to Disc

Milan



Disc to Disc

Milan





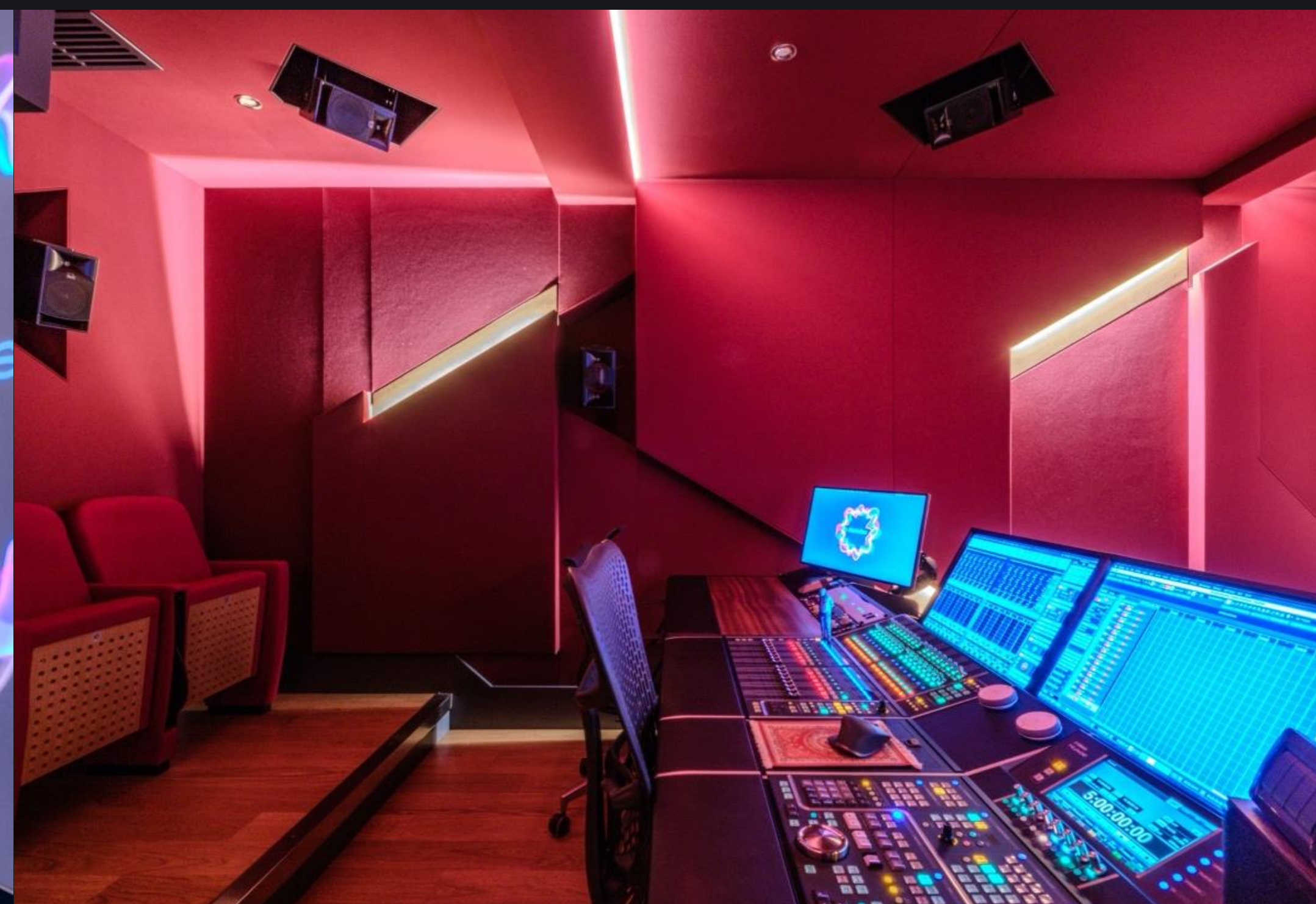
Sala Blu: 9.1.4 Atmos HE, 2024.



Sala Blu: the ceiling is the treatment.



Sala Blu: 9.1.4 Atmos HE, 2024.



Sala Rossa: 9.1.4 Atmos HE, 2023

Soundbar

Rome





Dolby Atmos HE mixing room, Genelec.



Dubbing suite: control room and live room.

A small new market: audio for games.

Game localisation is dubbing with more languages, more lines and tighter loops. Molok Studios in Milan records dialogue for games and films alike, for AAA publishers and independents, in seven languages.

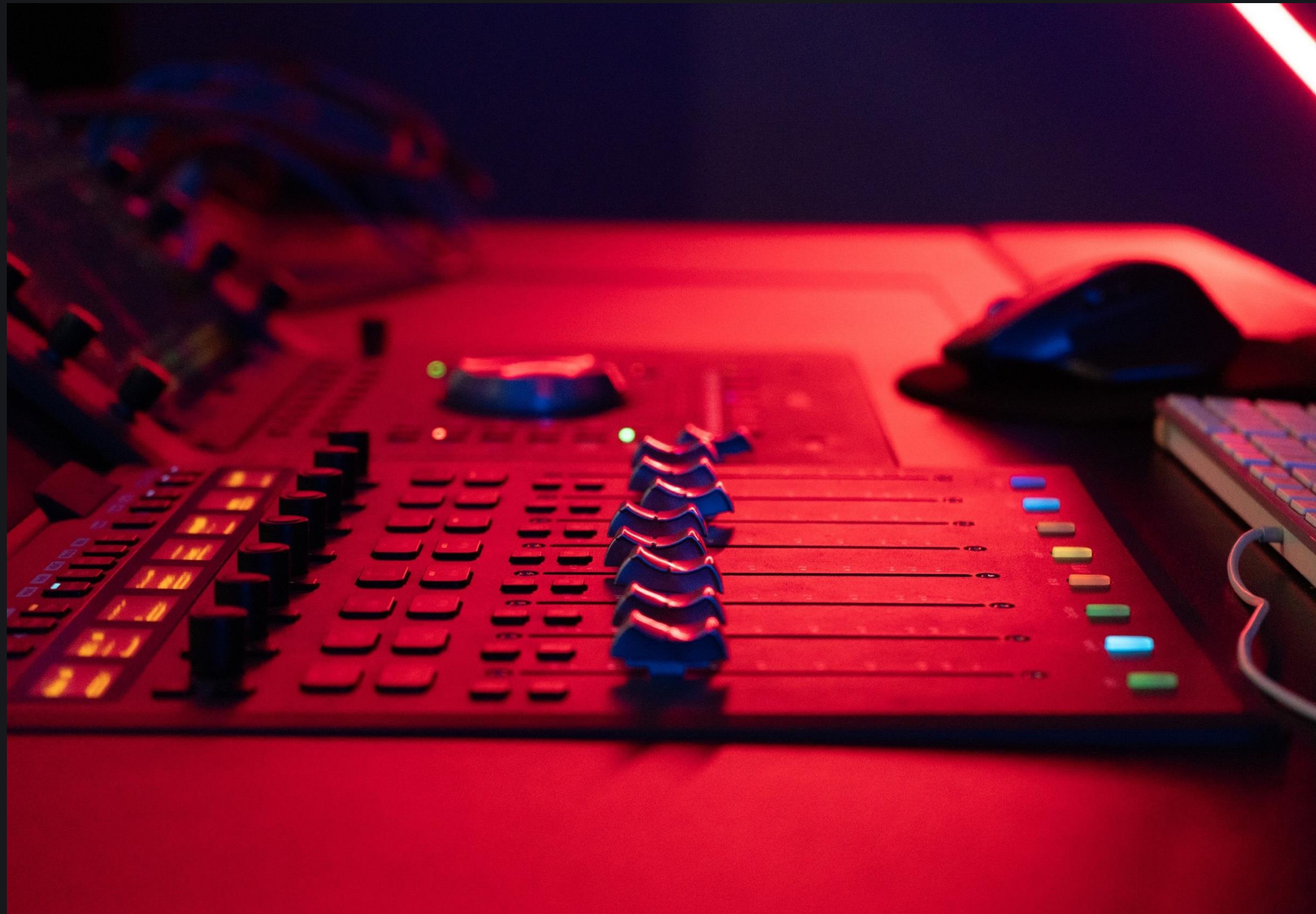


Molok Studios, Milan: post-production, gaming, Dolby Atmos Music. Genelec 8340, 8351B, 7380A.

Molok Studios

Milan





Studio Scorpion: the console, red.



The ceiling monitor, green. Colour is part of the brief for a gaming studio.



Cabina Sub Zero: the booth, dialogue for games and films.



Genelec in blue. A gaming studio has to look the part.

PART 5: CINECITTÀ

Sala A, Sala E, Color Blu, Millennium Falcon: the masterpieces

Cinecittà Sala A

Roma



Cinecittà Sala A

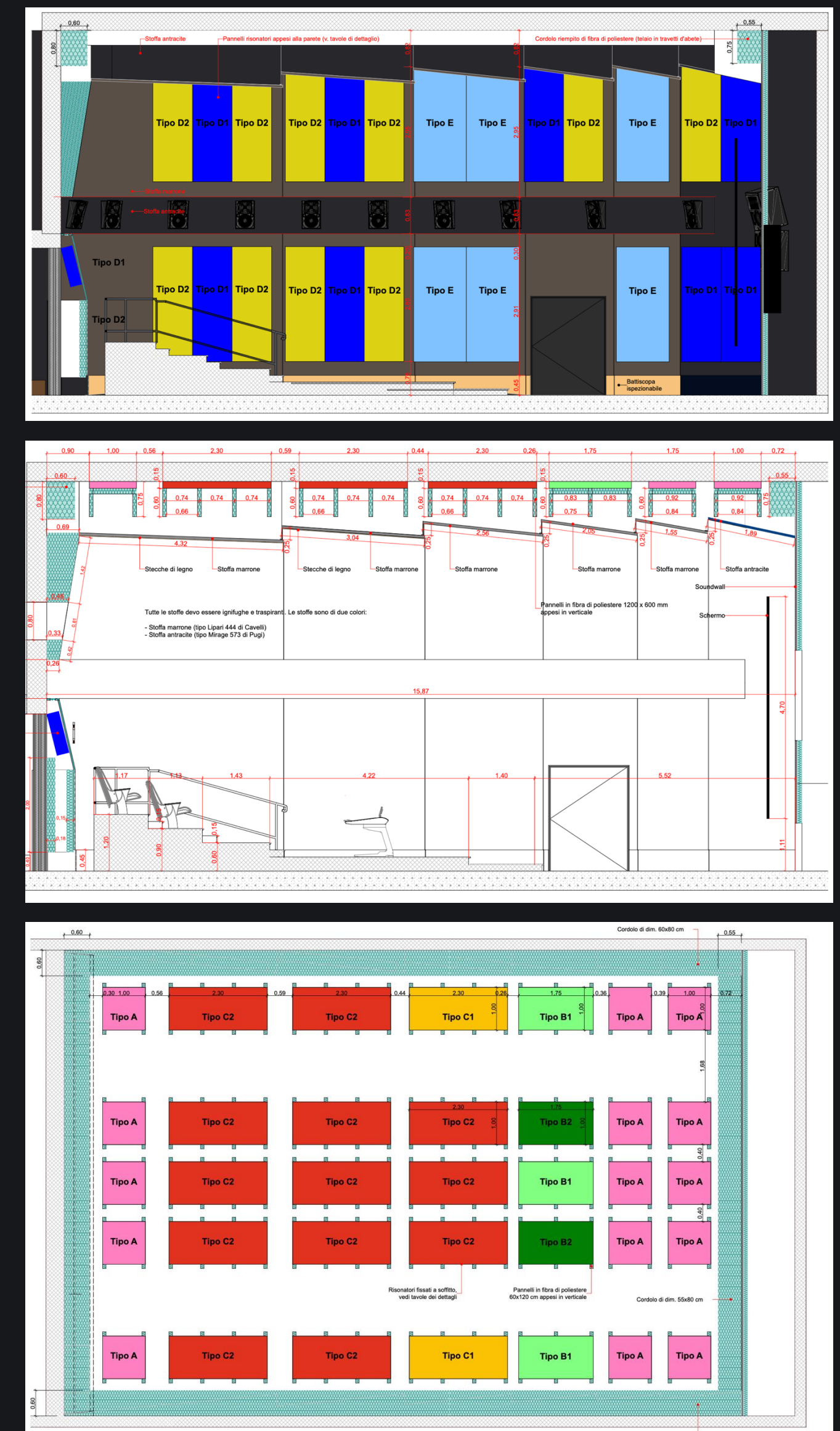
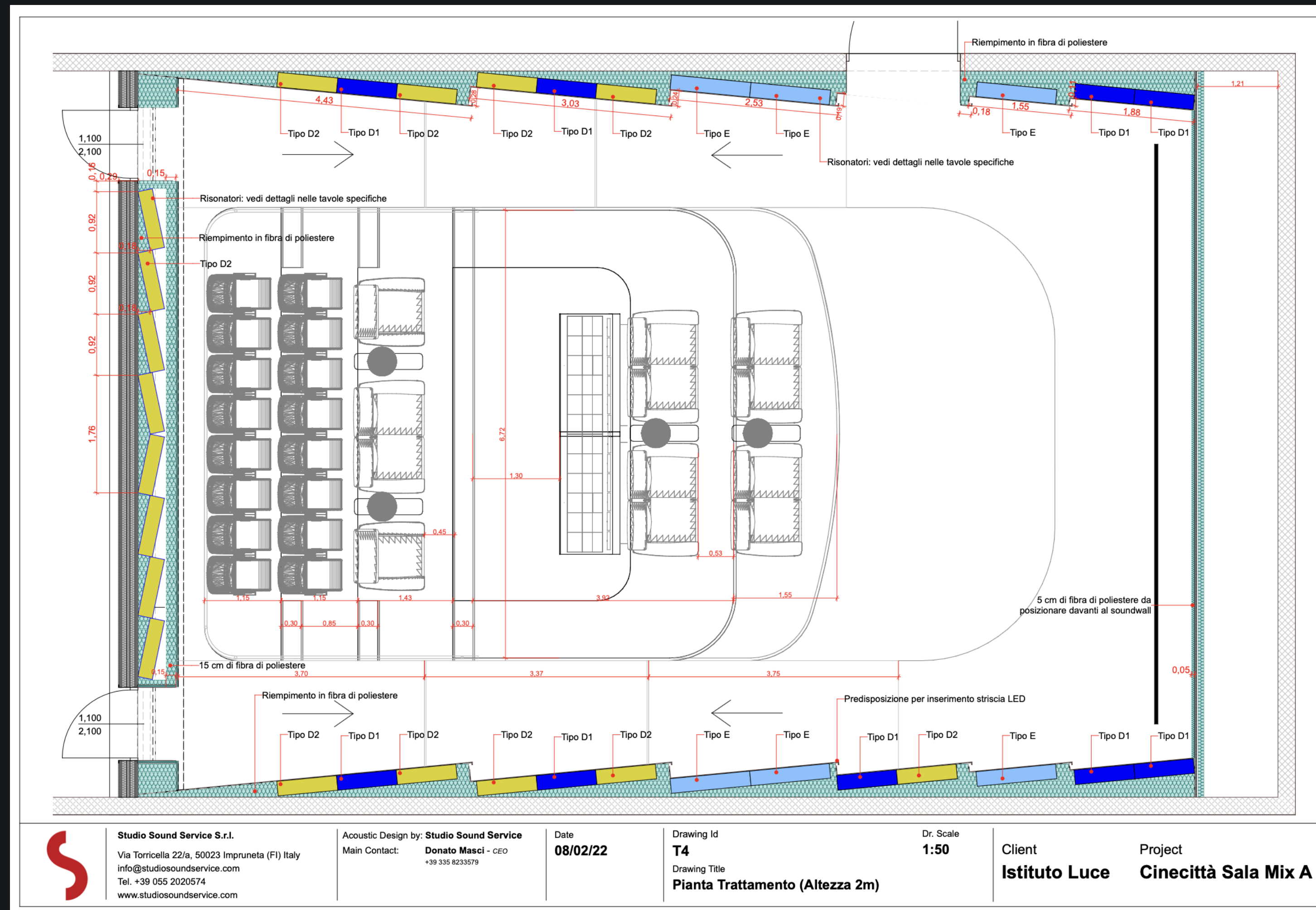
Roma



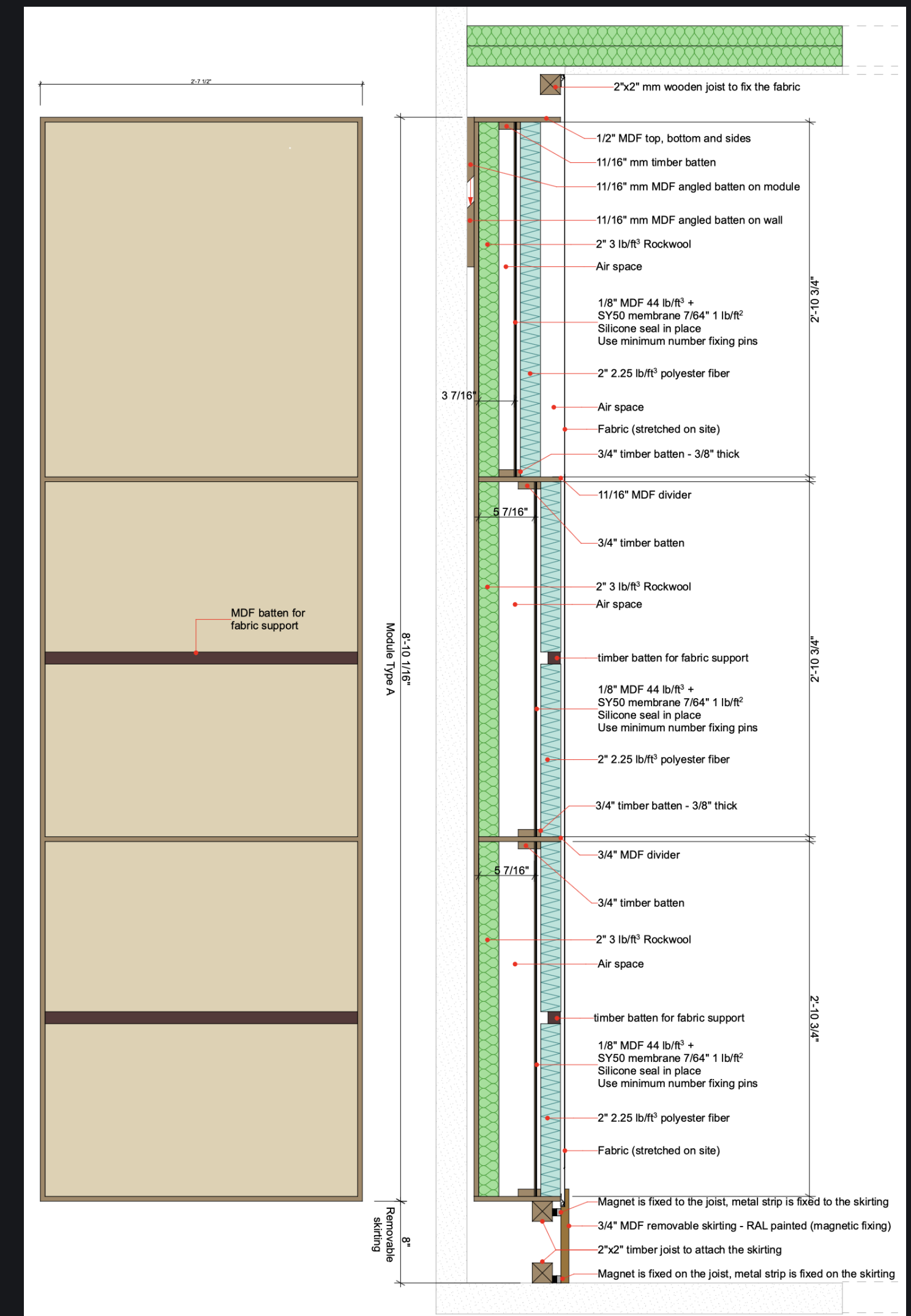
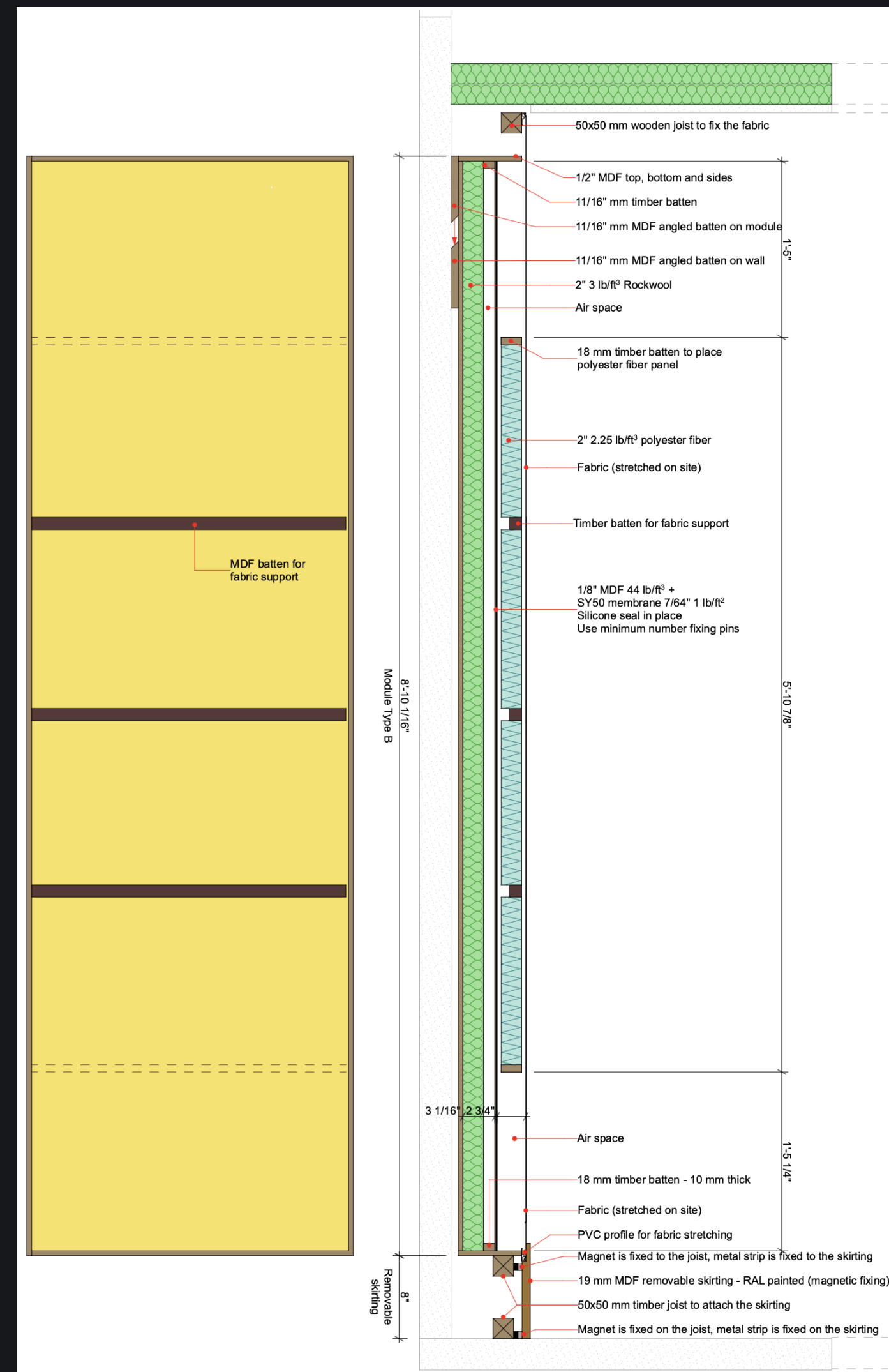
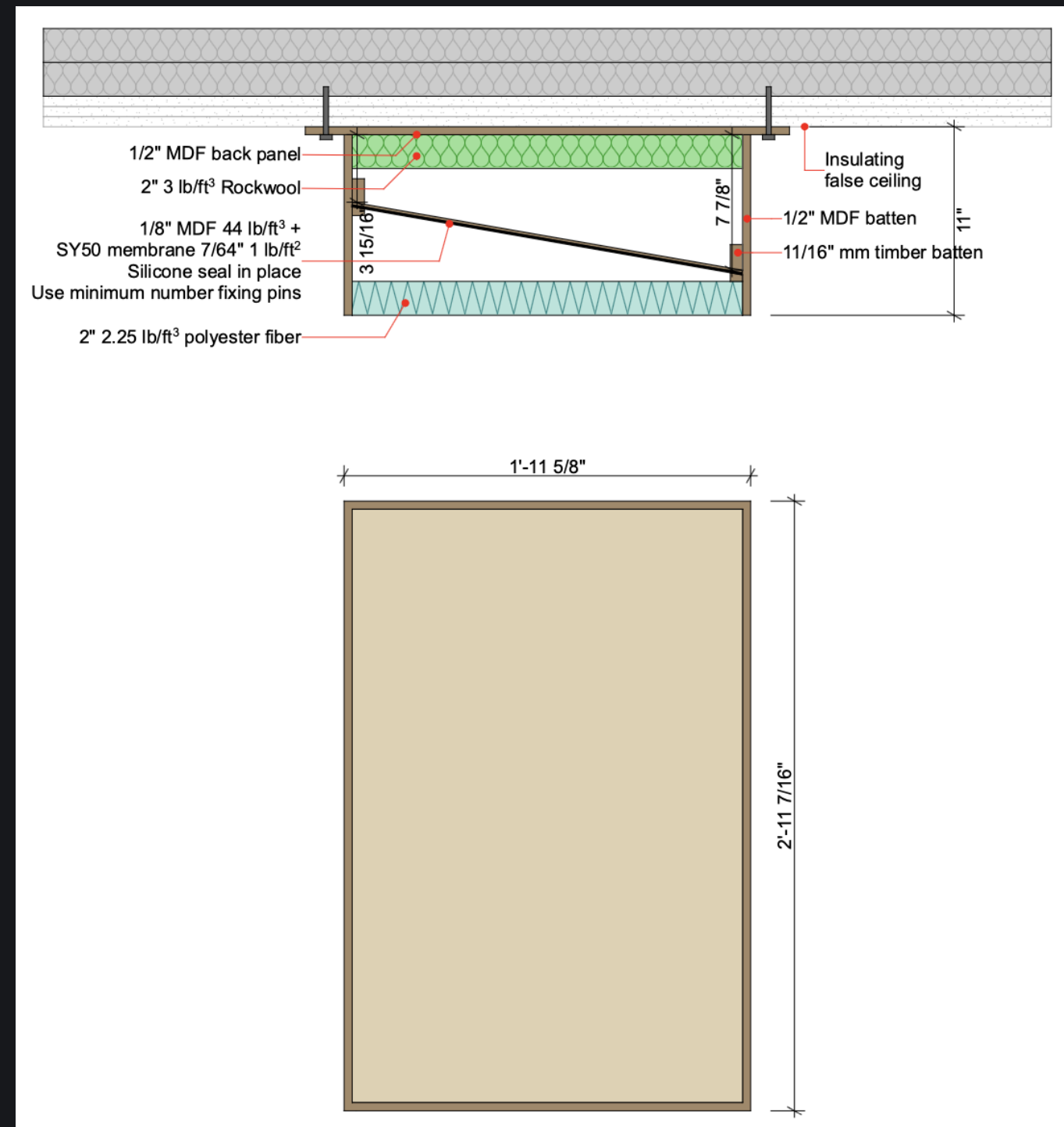
Cinecittà Sala A

Roma





Low Frequency Absorption



Low Frequency Absorption



Cinecittà Sala Color Blu

Roma



Cinecittà Sala Color Blu

Roma

Cinecittà Sala E

Roma



Cinecittà Sala E

Roma



Cinecittà Sala E

Roma



Cinecittà Sala HE Millennium Falcon

Roma



Cinecittà Sala HE Millennium Falcon

Roma



PART 6: THE FUTURE

Automated, better, human

Automated, better, human.

Automated: volume dubbing and versioning, geometry from point clouds, model calibration, first-pass placement and treatment.

Better: every room measured to a standard, small rooms that work below 200 Hz, faster delivery.

Human: the performance, the director's ear, the judgement about what a room is for.

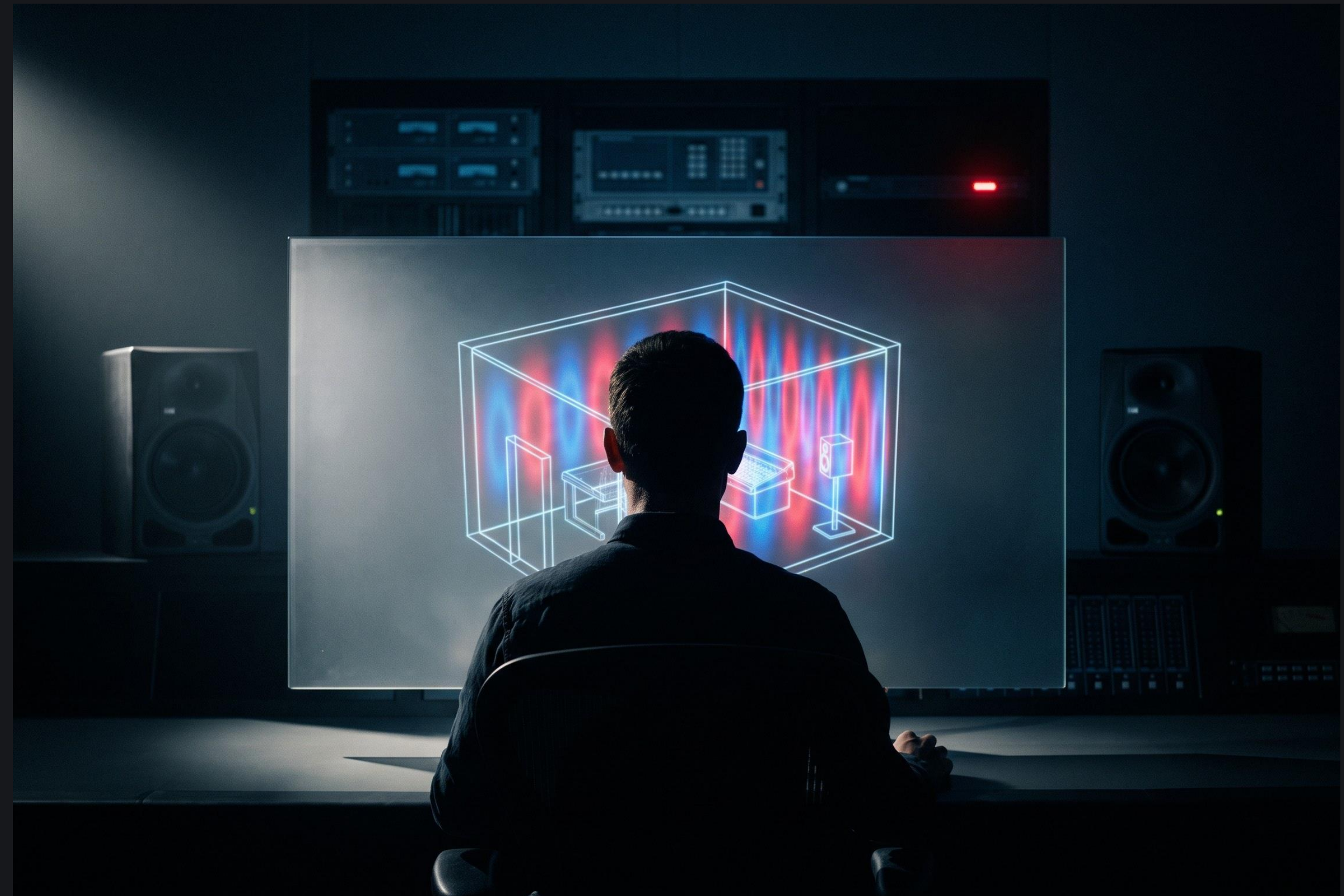


Image: AI-generated candidate, to be replaced or kept.

The measured chain.

The room: simulated, optimised, measured.

The monitoring: calibrated to the room. The measurement tells you the truth, and the truth is where design starts.

The output: loudness and true peak to spec, every version, every platform.

A room that can be measured is a room that can be trusted.

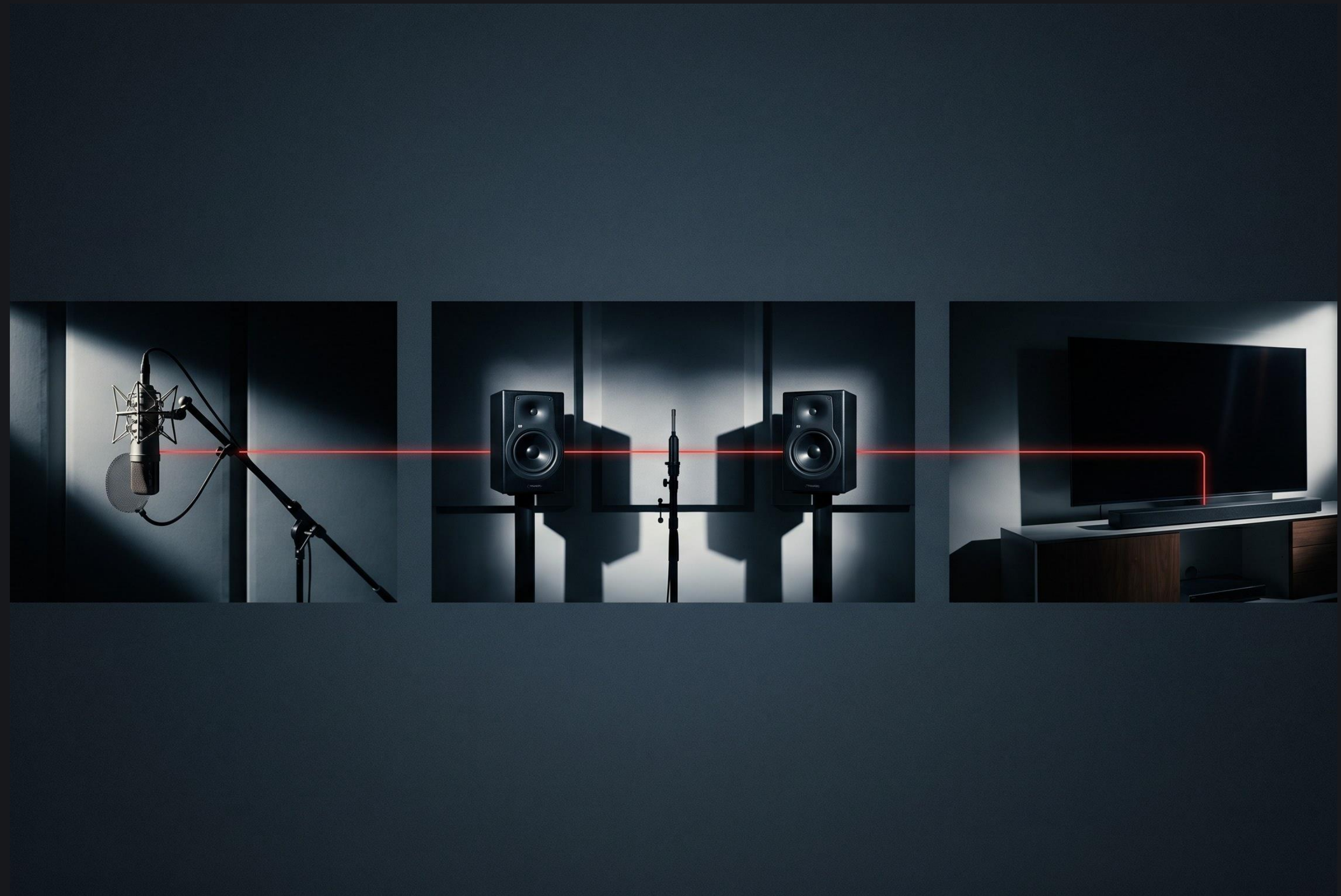


Image: AI-generated candidate, to be replaced or kept.

How we work with partners.

Design: acoustic and sound-system design to Dolby, Netflix and Genelec specs, simulated before construction.

Build: drawings your local trades can build, site supervision, remote support; panels ours or yours.

Verify: measurement, calibration, Dolby certification support, a hand-over with numbers.



Image: AI-generated candidate, to be replaced or kept.

Madness? No. Raising the bar.

Cicaleto Recording, Arezzo:
the orchestral room





Thank you

Raising the bar
since 1983

Remember: AI raises the bar. And it hands us the tools to clear it.

Presentation Download

www.studiosoundservice.com/en/education

Contacts

info@studiosoundservice.com

www.studiosoundservice.com

Sources

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Q&A

