DISEÑO DE ESTUDIOS DE GRABACIÓN

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2009

SALA DE MÚSICOS
Condiciones acústicas básicas

Evitar paralelismos entre muros

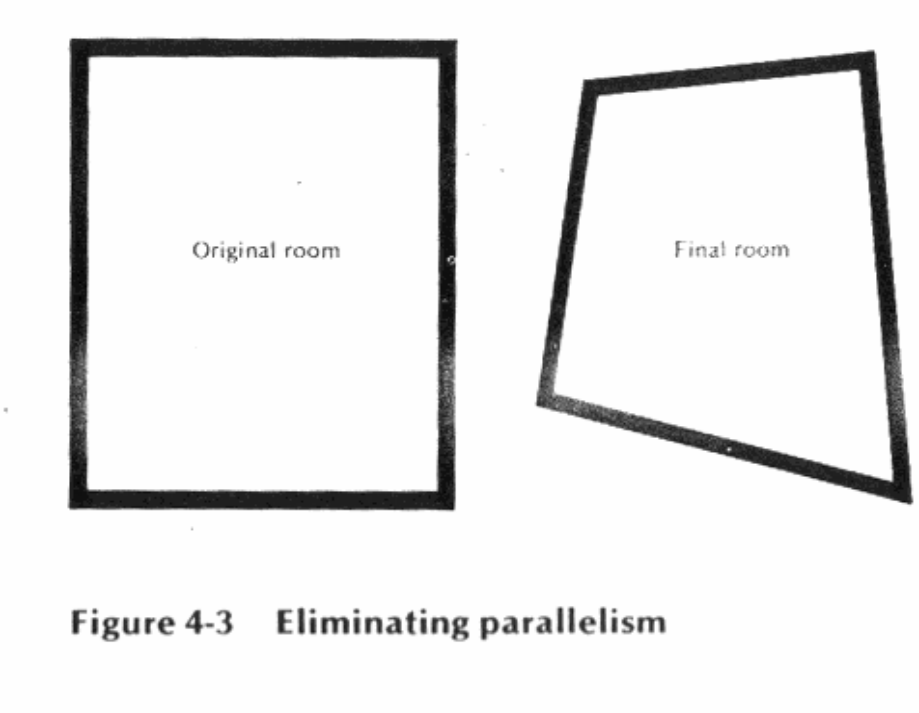
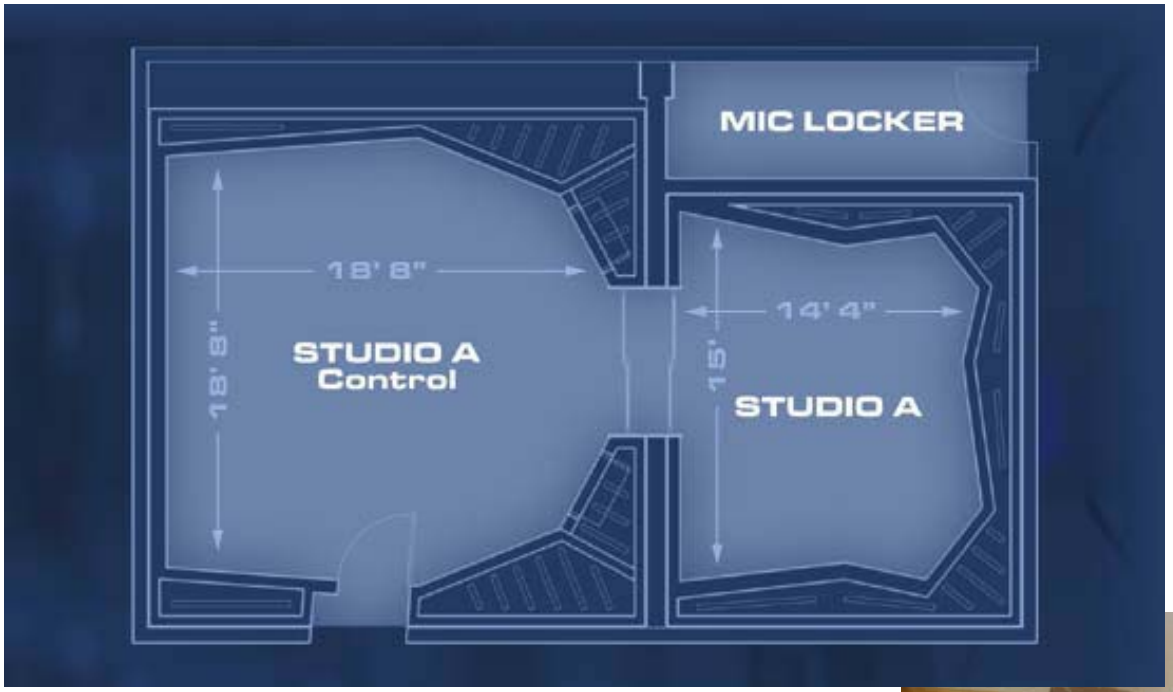
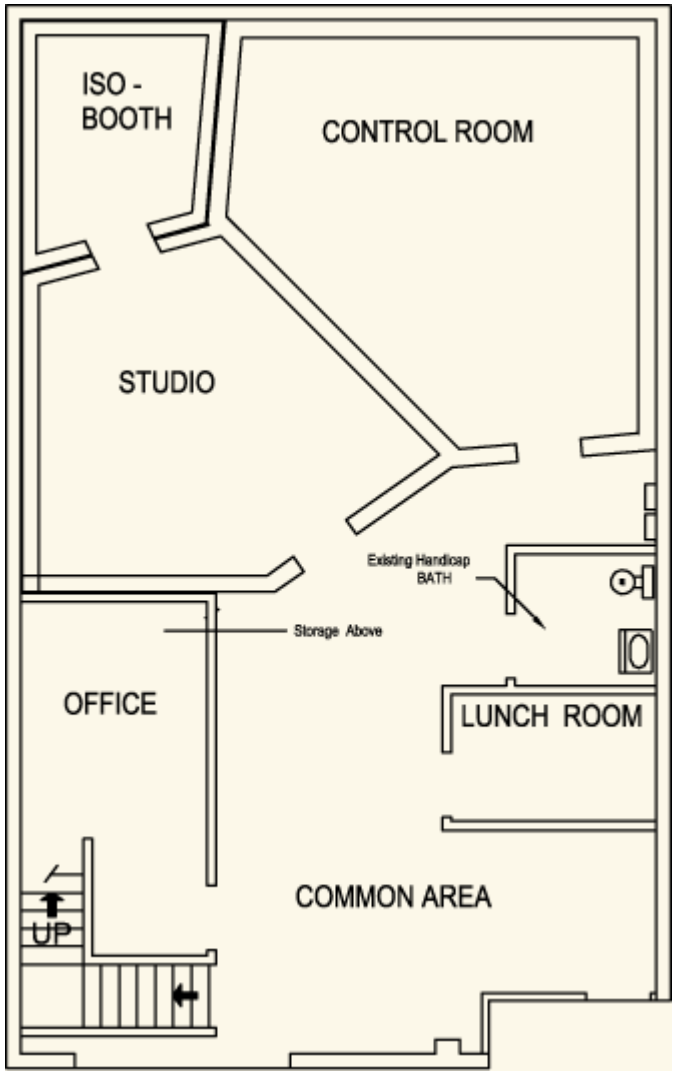
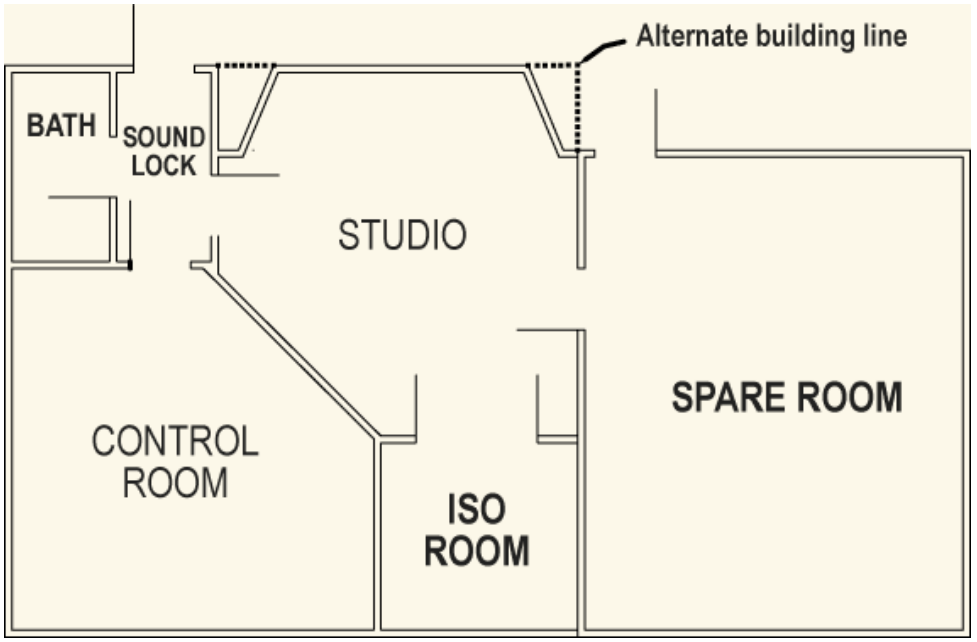


Figure 4-3 Eliminating parallelism

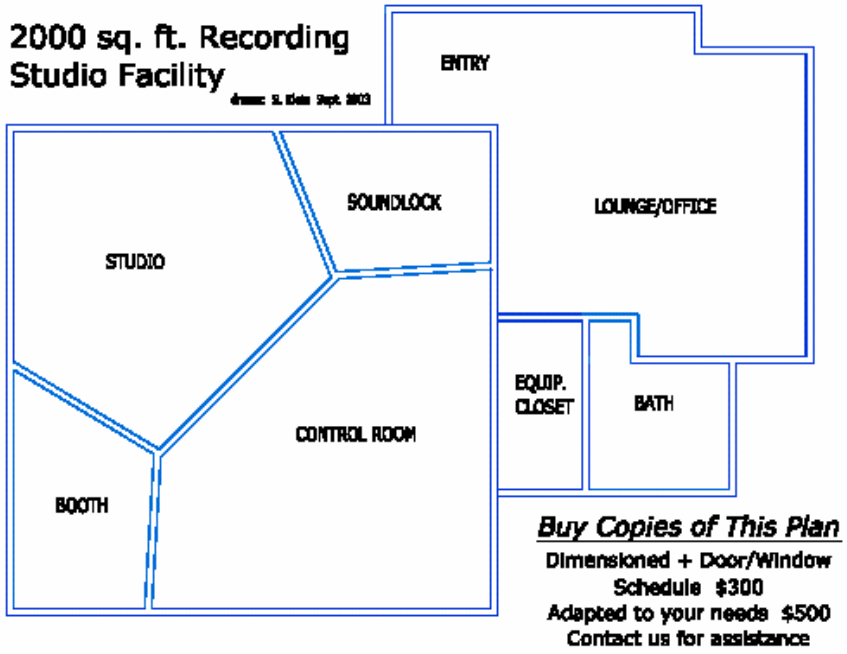


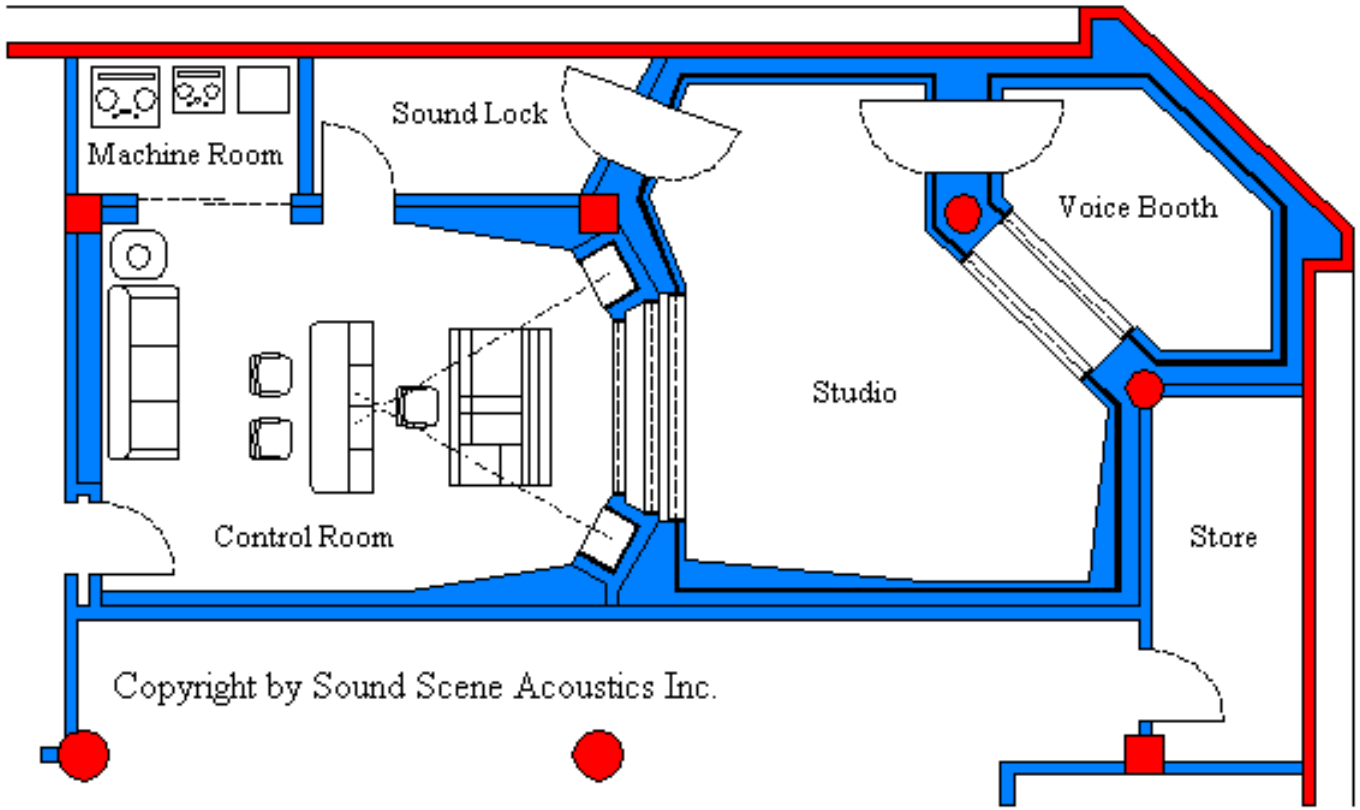
http://www.ampstudios.com/





http://www.soundcontrolroom.com/





http://home1.gte.net/mjarzo/index.htm

SALA DE MÚSICOS
Condiciones acústicas básicas

- Controlar “Flutter Echoes”

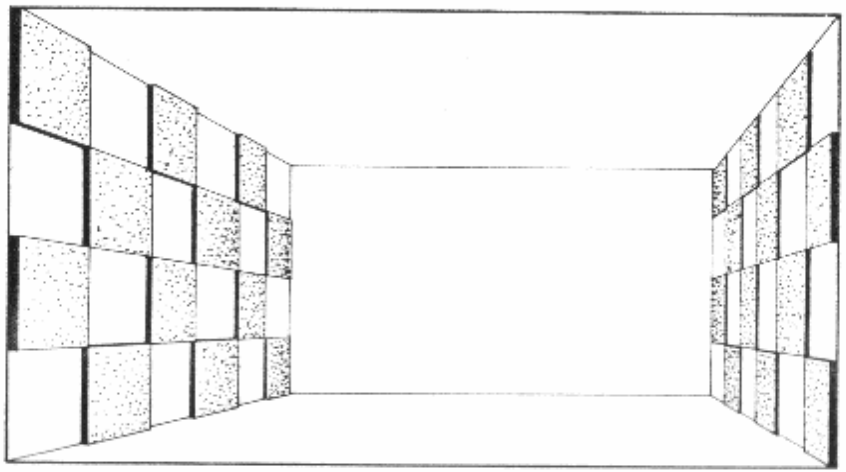


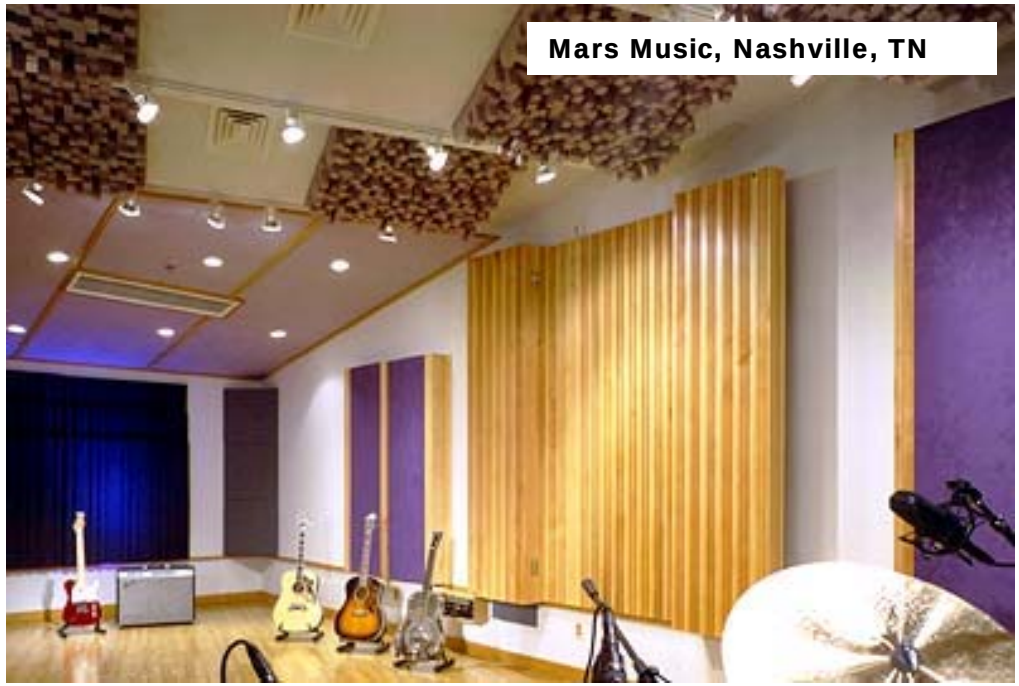
Figure 4-5 Controlling flutter by the application of patches of absorption

Digitron Drum Room

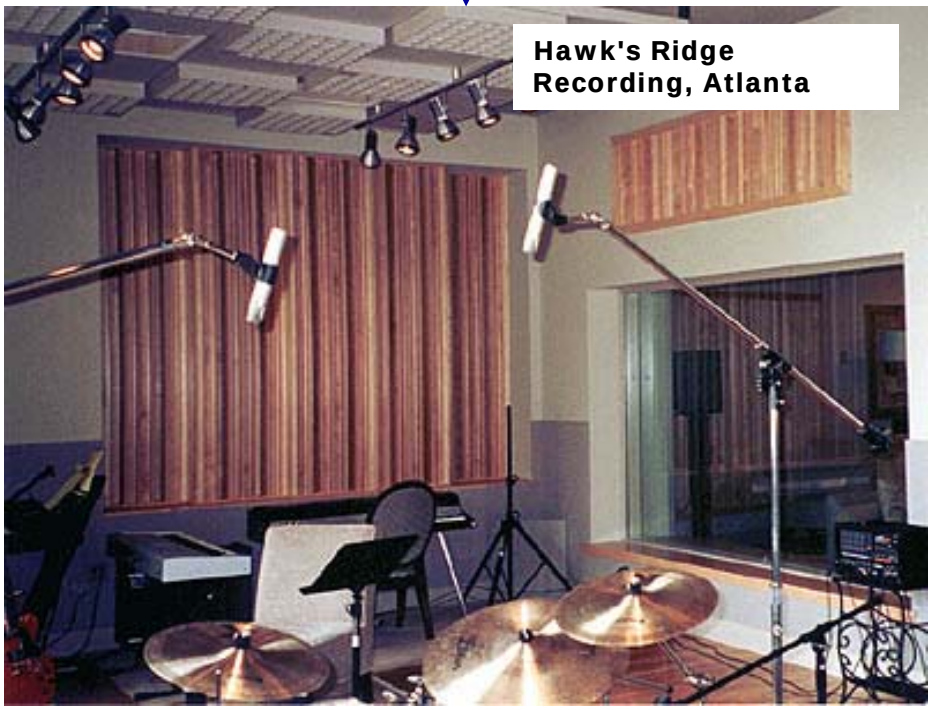
http://home1.gte.net/mjarzo/index.htm

http://www.sunsetsound.com

Digitron (view from studio towards the control room)



http://www.rpginc.com



SALA DE MÚSICOS
Condiciones acústicas básicas

- Eliminar Ondas Estacionarias

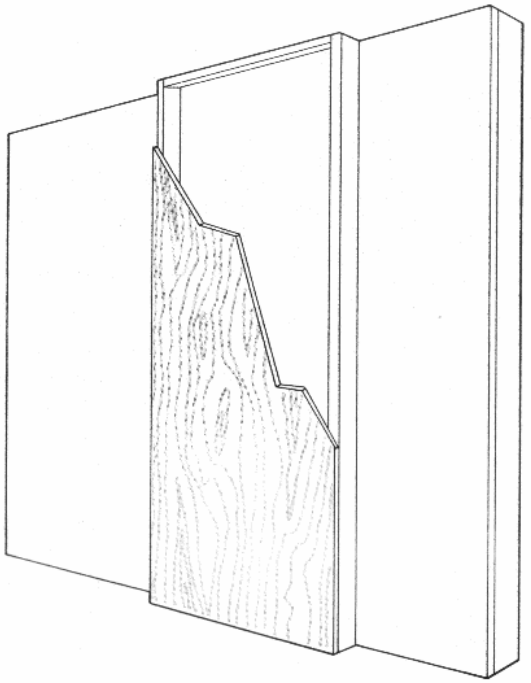


Figure 4-6 A typical basstrap

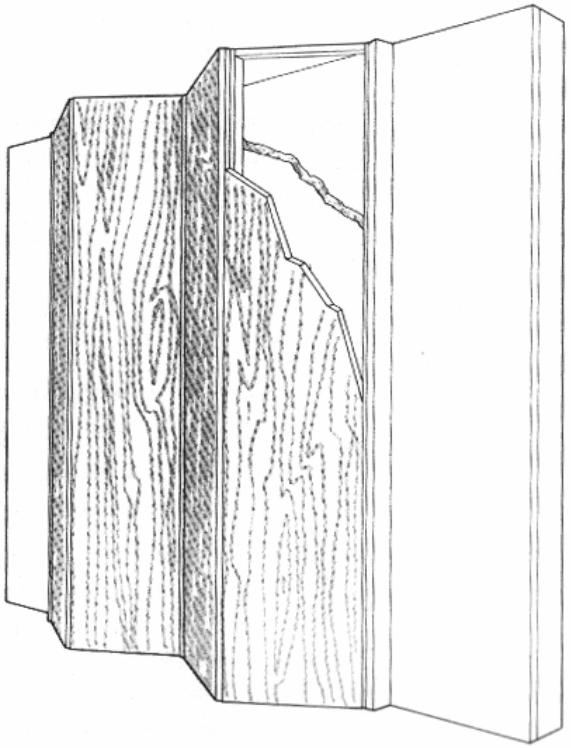


Figure 4-11 A multidimensional basstrap

http://www.soundcontrolroom.com/

http://www.sunsetsound.com

http://www.rpginc.com

SALA DE MÚSICOS
Condiciones acústicas básicas

- Flexibilidad acústica (LIVE v/s DEAD AREAS)

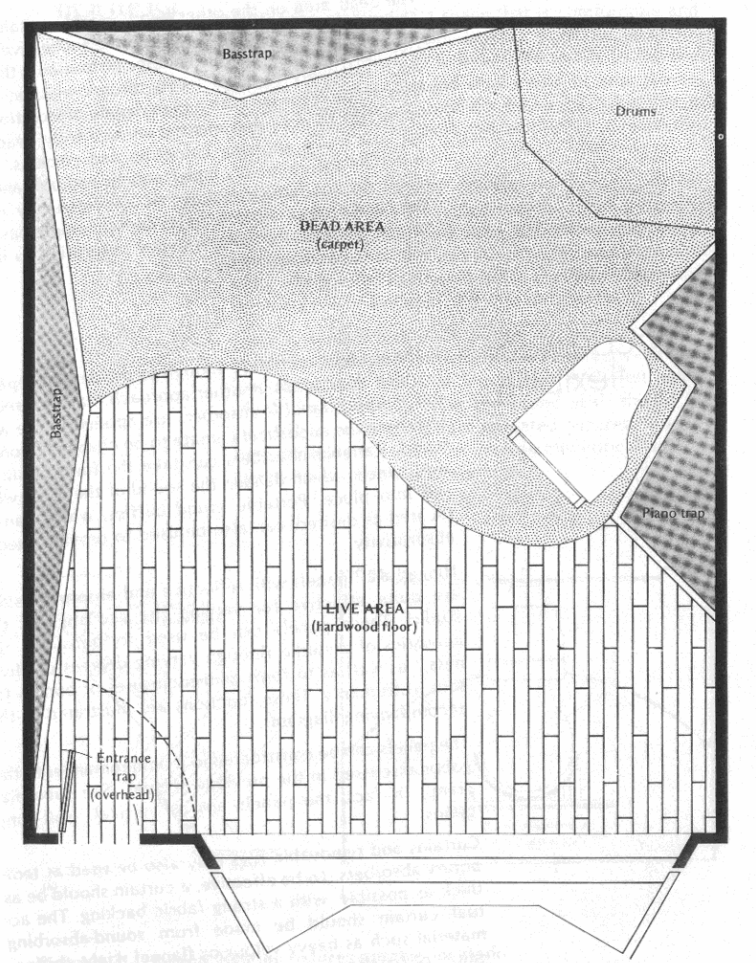
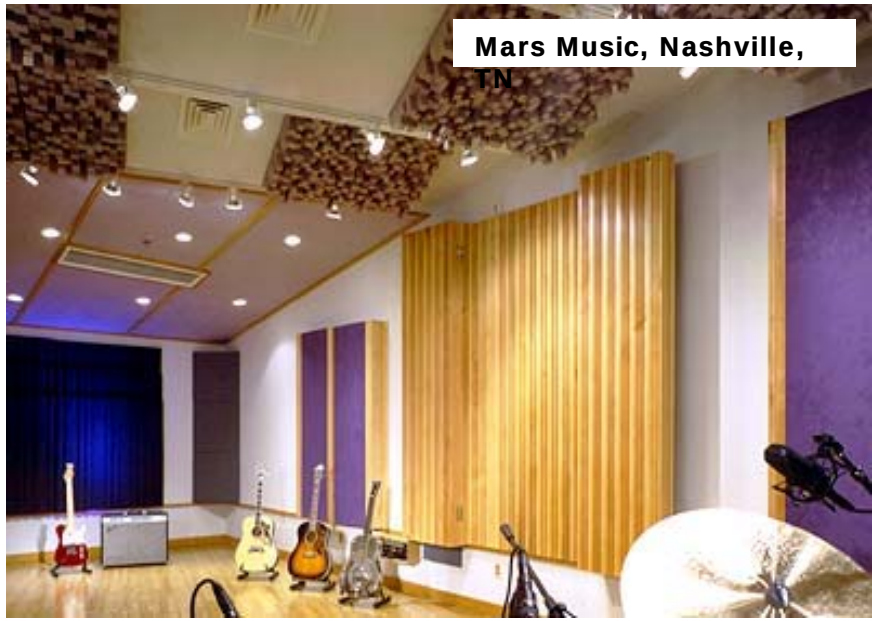


Figure 4-18 Live vs. dead areas in the studio

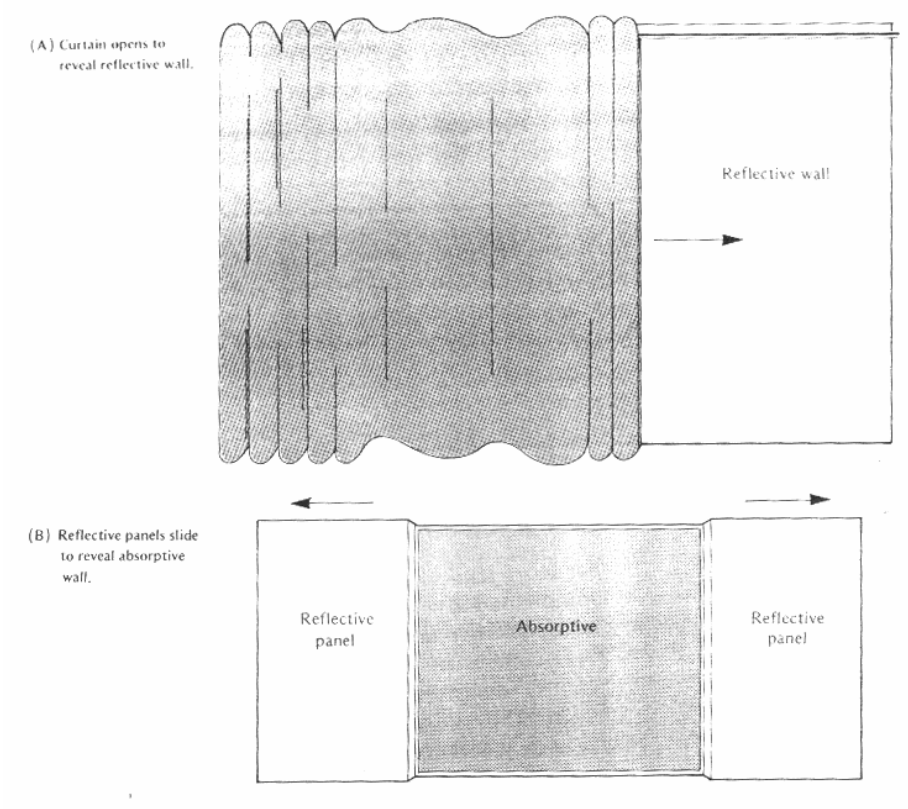
http://www.rpginc.com



http://www.soundcontrolroom.com/

SALA DE MÚSICOS
Condiciones acústicas básicas

- Acústica variable



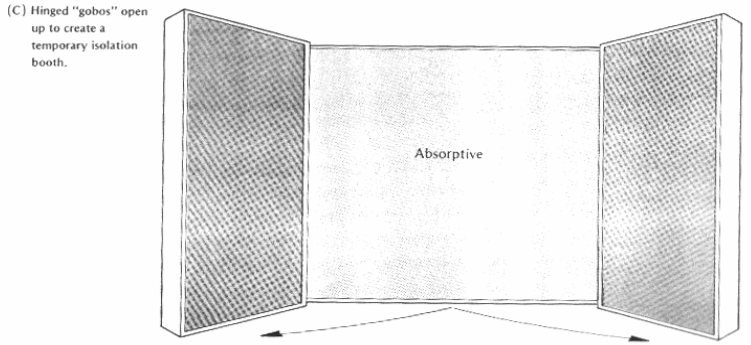
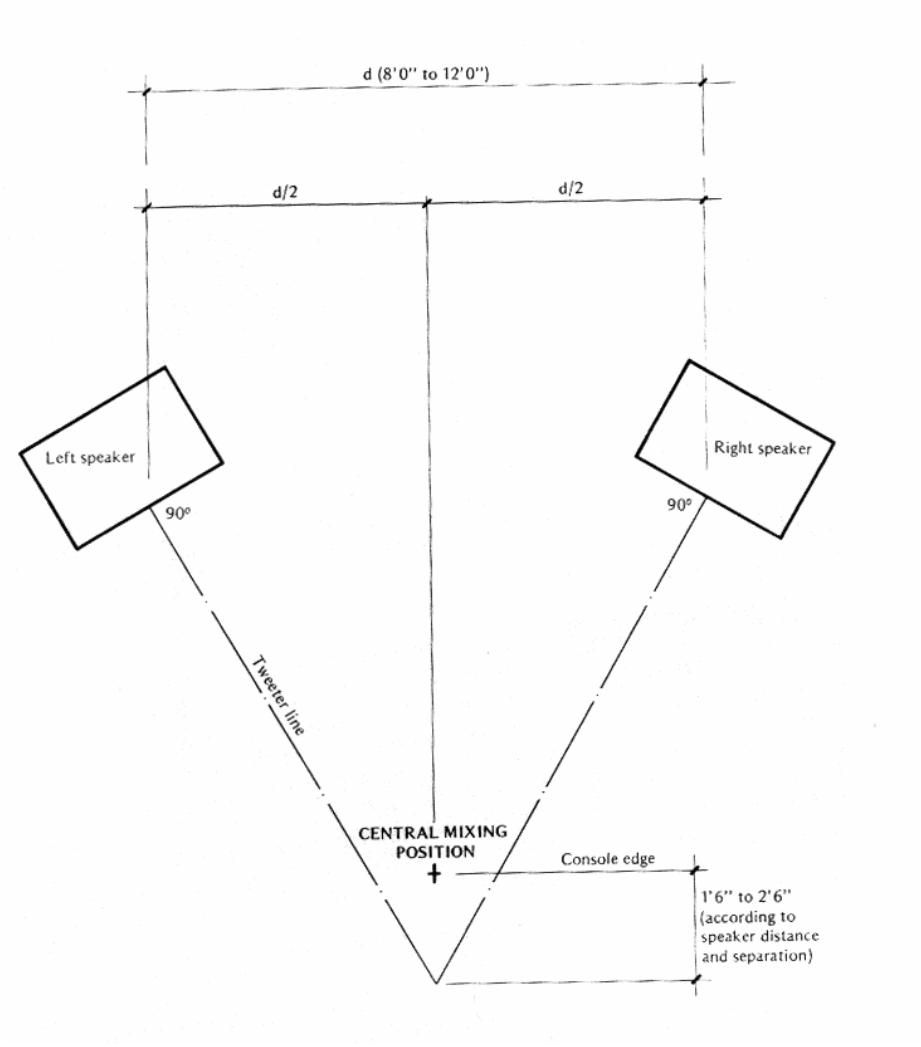


Figure 4-19 Variable absorbers

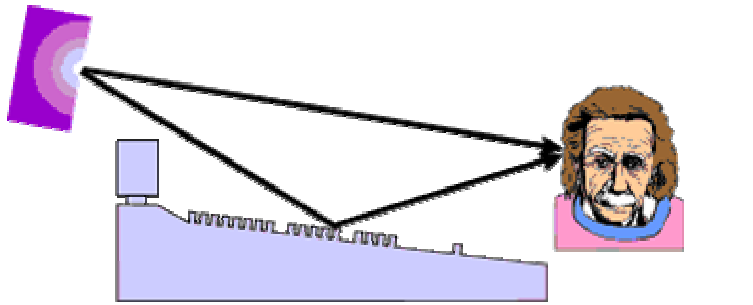
CONTROL ROOMS
Ubicación de los altavoces

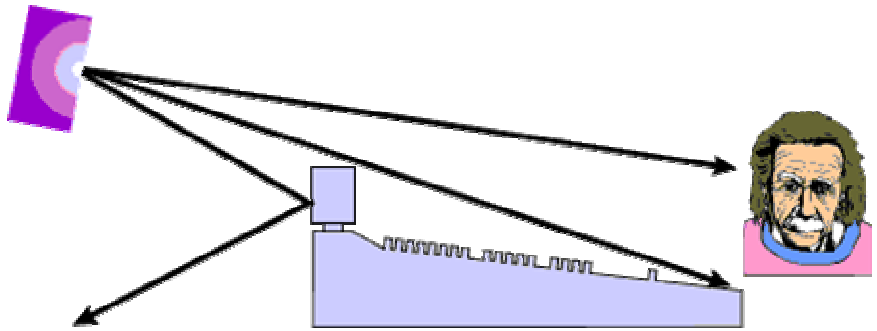
- Geometría del recinto de características simétricas.
- Distancia entre el ingeniero y cada uno de los monitores de campo lejano de unos 3m, formando 60° con el plano de visión (triángulo equilátero).



CONTROL ROOMS
Ubicación de los altavoces

- Monitores en las esquinas a unos 2 m de altura formando un ángulo de entre 10° a 20° con el nivel del oído.
- La ubicación vertical debe considerar el sonido reflejado en la consola.





TÉCNICAS DE DISEÑO DE CONTROL ROOMS

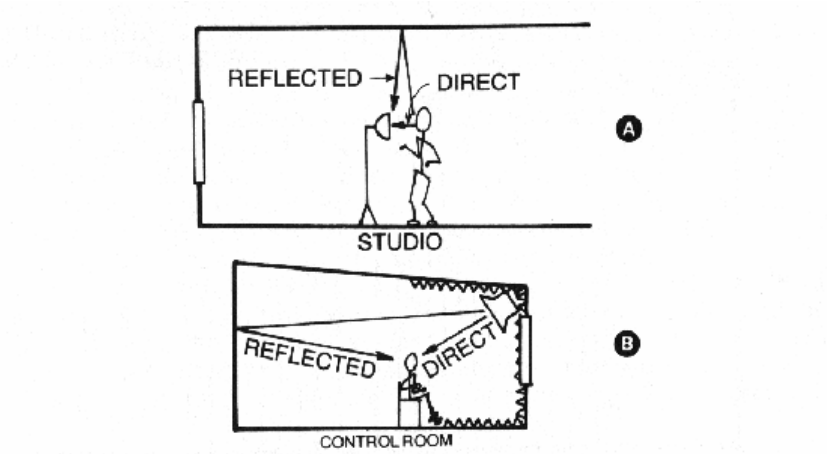


Fig. 17-1. The wider time-delay gap of a live-end-dead-end control room avoids masking that of the studio. (After Davis, reference 153.)

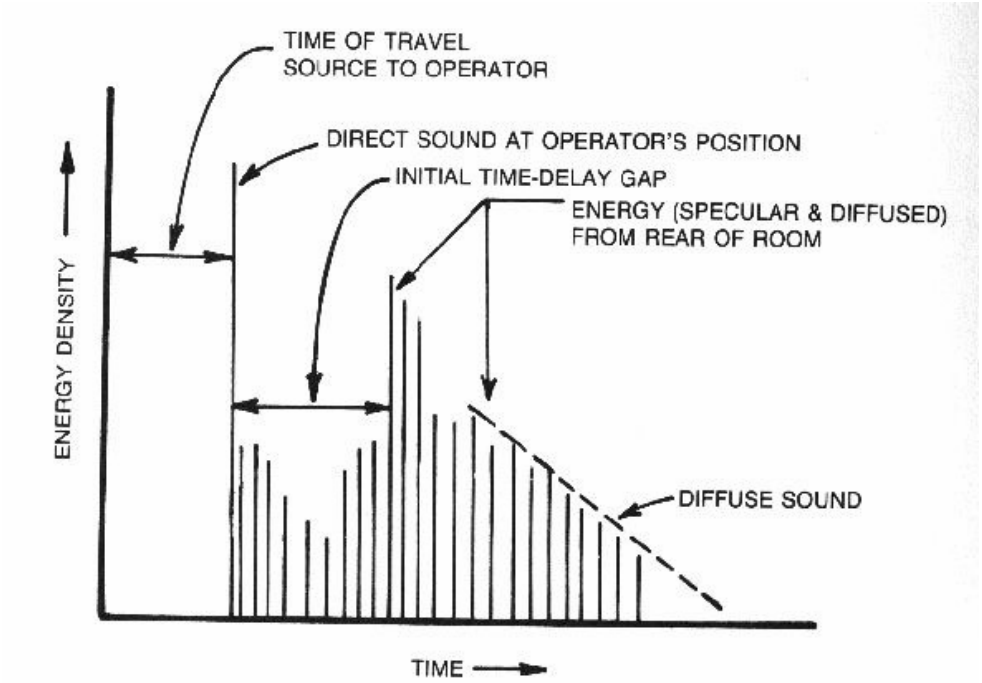
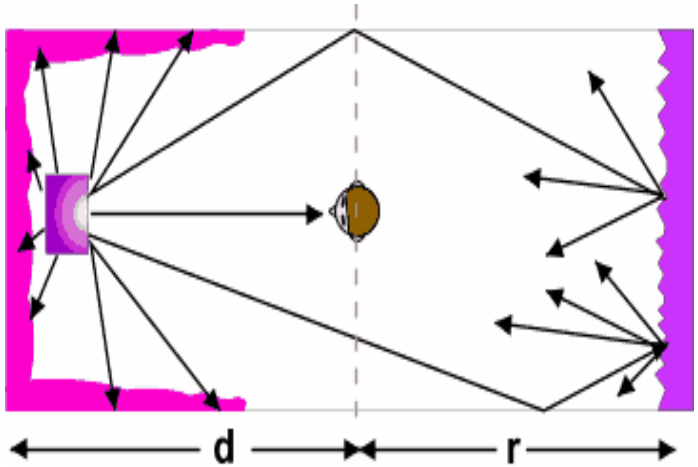


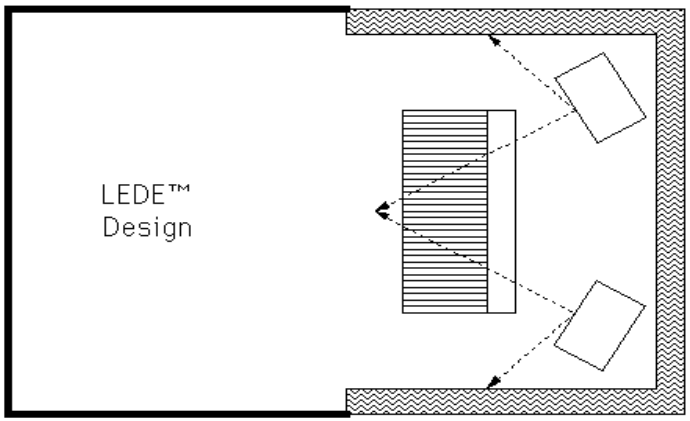
Fig. 17-2. The definition of the initial time-delay gap for a control room.

CONTROL ROOMS
Técnica LEDE (LIVE END DEAD END)
Don Davis (1978)

Objetivo acústico: Producir un ITDG ≥ 20ms para que la sala se perciba subjetivamente como una sala más grande.

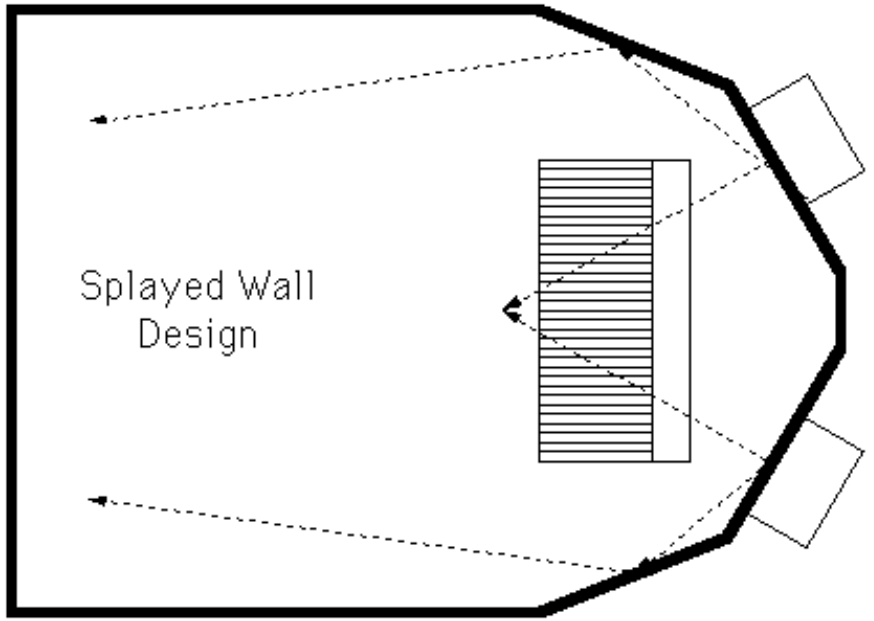


Solución: extremo frontal absorbente (DEAD END) y extremo posterior reflectante y difuso (LIVE END).

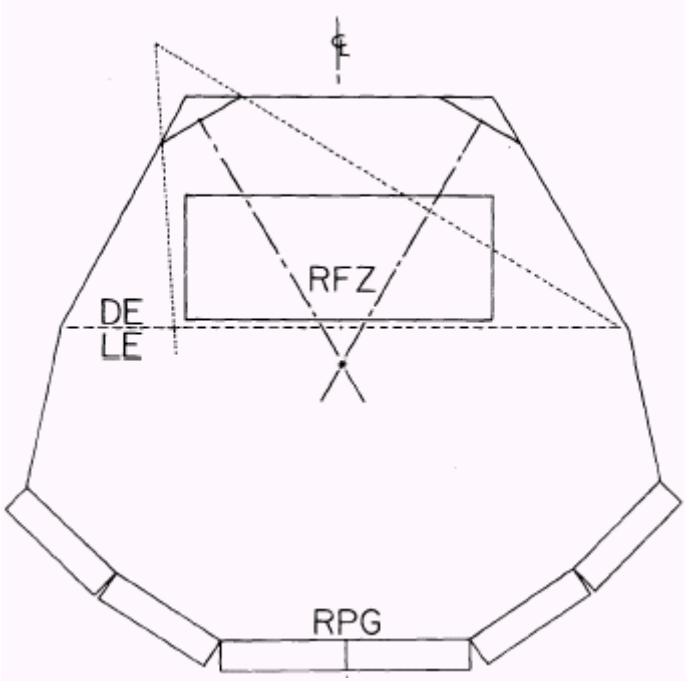


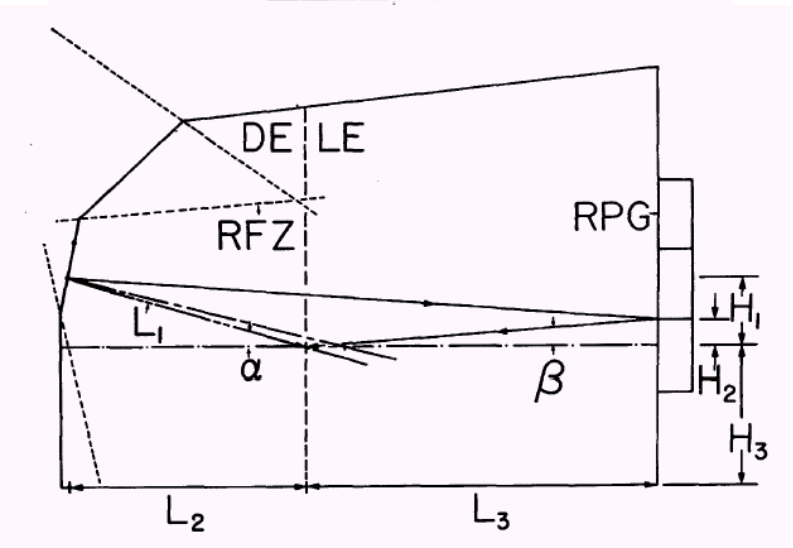
CONTROL ROOMS
Técnica RFZ (REFLECTION FREE ZONE)
D’ Antonio y Konnert (1984)

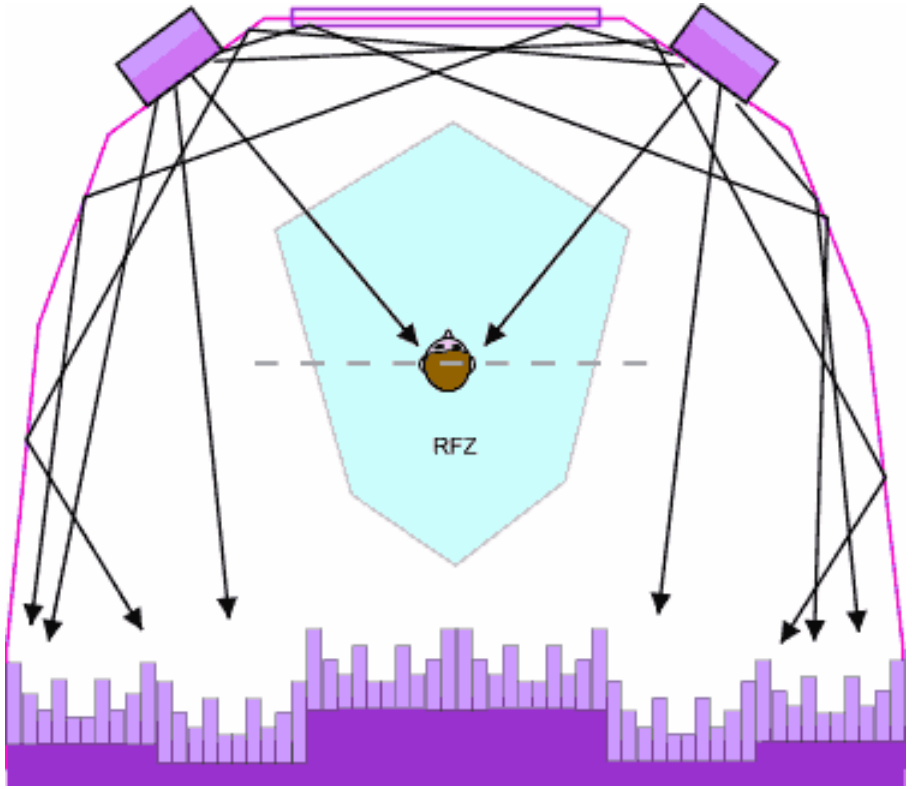
- Inclinación de los muros para enviar las primeras reflexiones al fondo de la sala.
- Uso de paneles livianos (madera o volcanita) que forman una estructura interna dentro de la obra gruesa (generalmente paralelepípeda).
- Difusores en pared trasera en el rango de 300Hz – 8kHz.



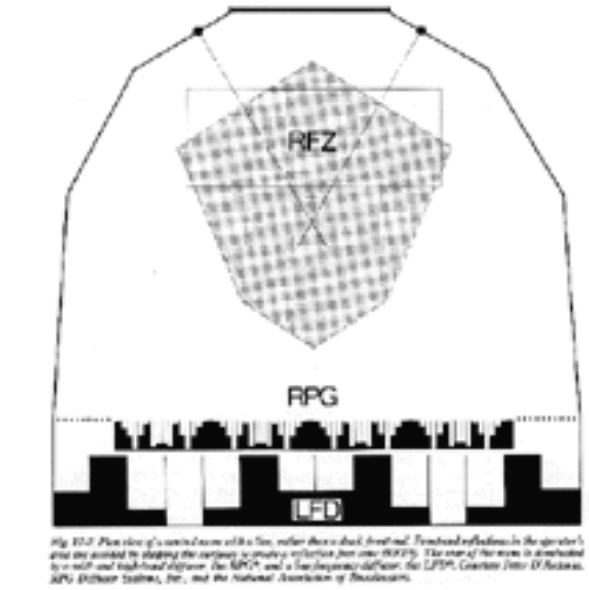
Técnica RFZ - D’ Antonio y Konnert (1984)

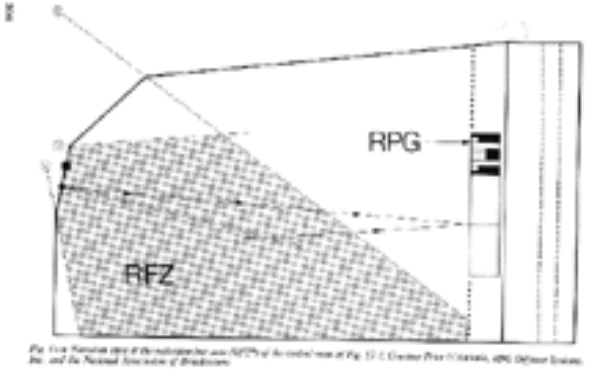






CONTROL ROOMS
Técnica RFZ (REFLECTION FREE ZONE)
D' Antonio y Konnert (1984)





- ITDG del control room mayor a 20ms y al menos 3ms mayor que la sala de músicos.
- Reflexiones durante el tiempo de eliminación de primeras reflexiones (dentro de los 20ms después de la llegada del sonido directo) deben ser atenuadas en al menos 20dB.

CONTROL ROOMS
Técnica RFZ (REFLECTION FREE ZONE)
D’ Antonio y Konnert (1984)

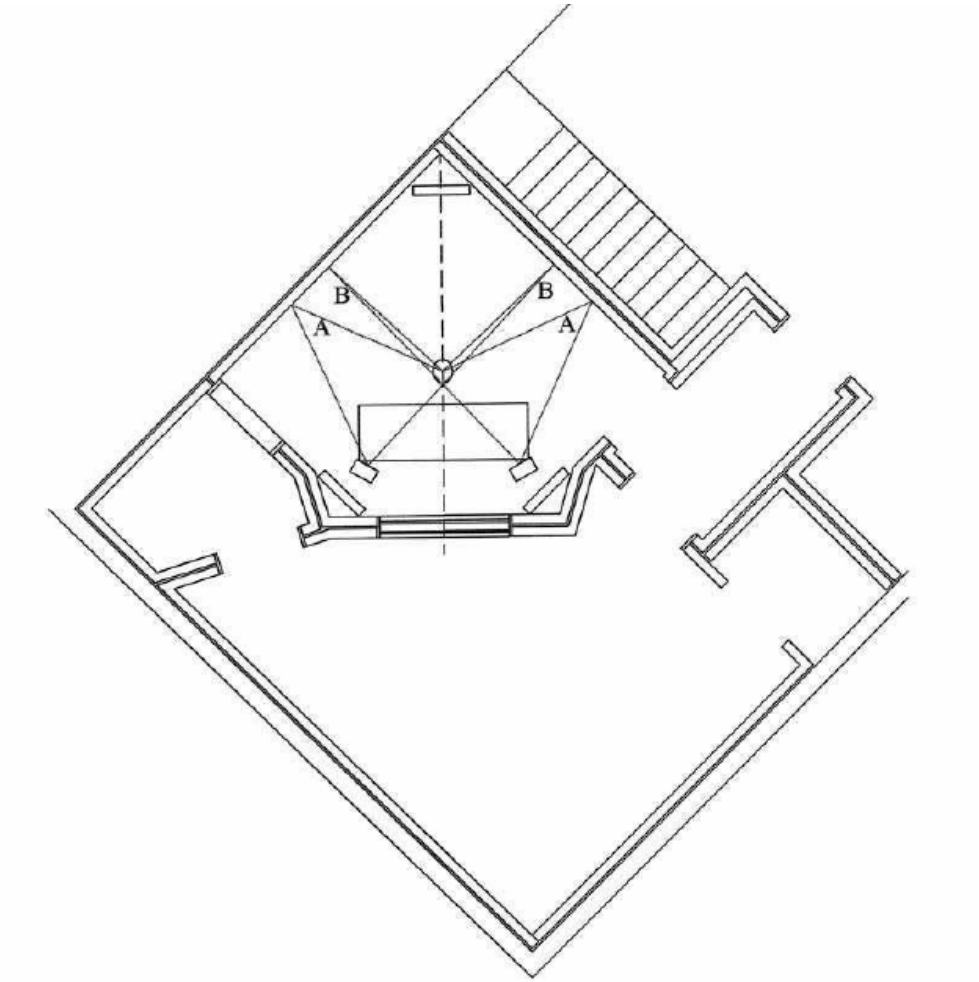
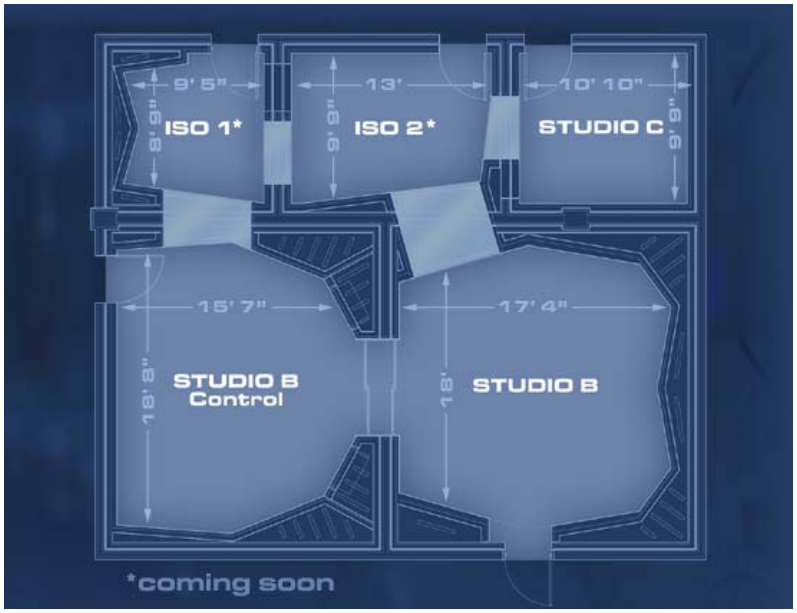


Figure 10.18 Creating an RFZ layout.

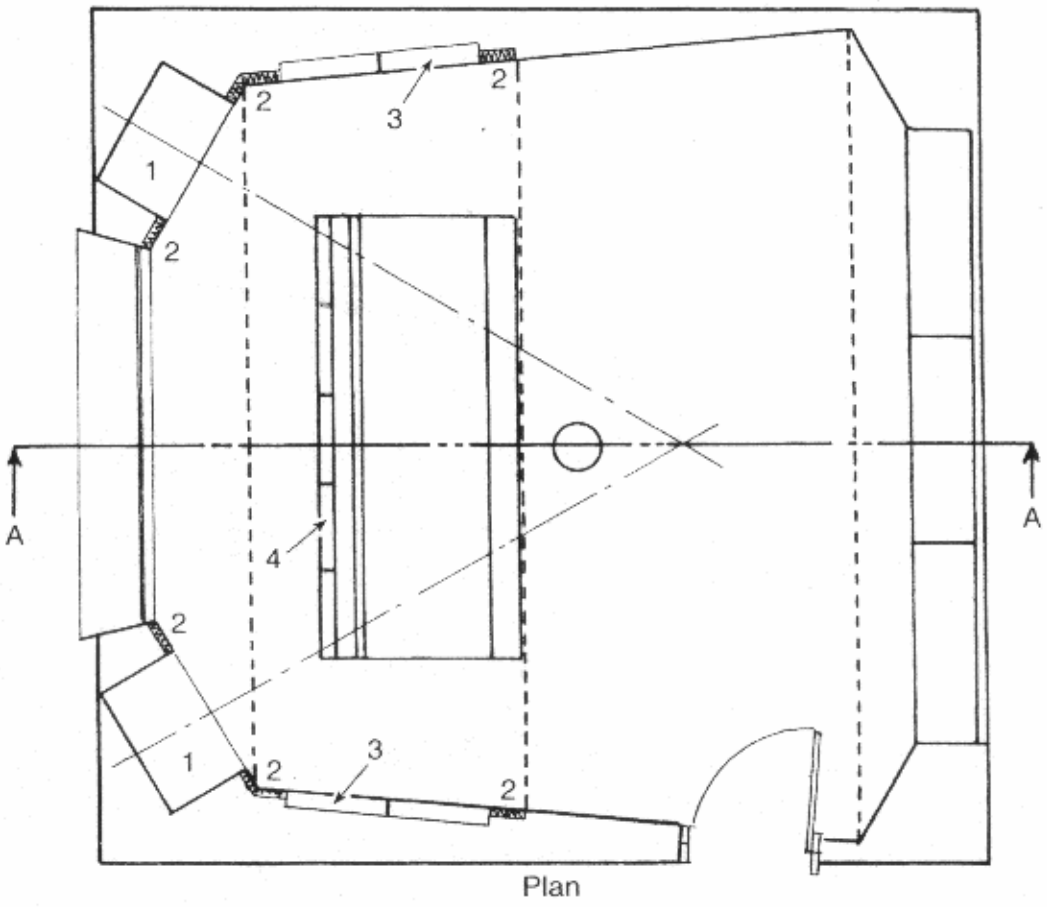
http://www.ampstudios.com/



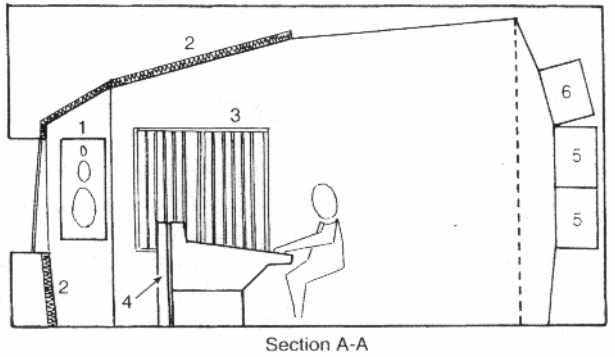
http://www.soundcontrolroom.com/

http://www.rpginc.com

CONTROL ROOMS
Ejemplo: Paredes levemente inclinadas

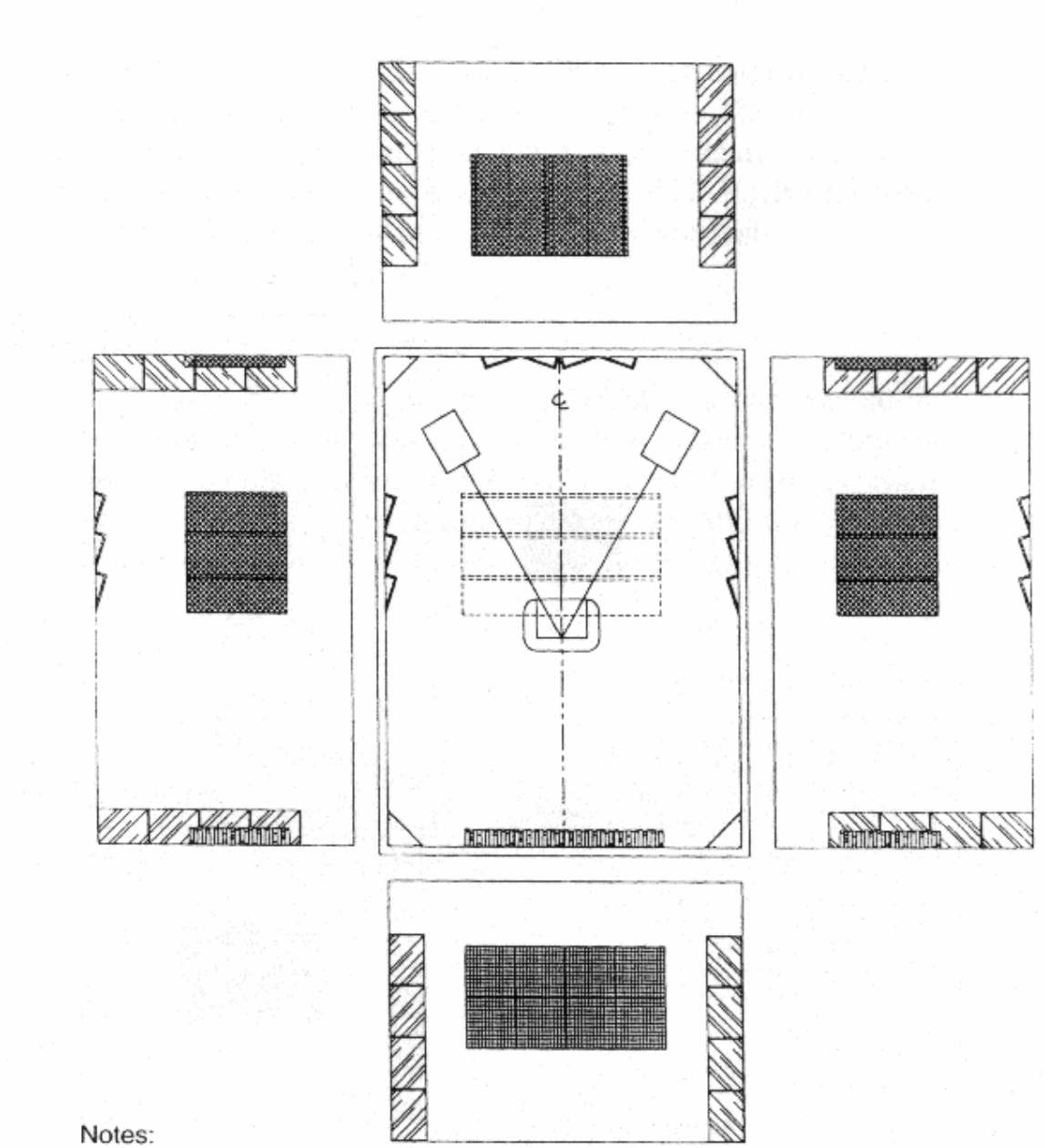


1. Parlantes
2. Absortor (fibra de vidrio entelada)
3. QRDs (p = 7,dmax=9”, W = 1”)
4. Resonador (resonancia de aire bajo ventana)
5. QRD (p = 19; W=2,5” dmax=16”)
6. QRD (p = 7; W=2,5” dmax=16”)



■ **6-5** *Control room example—slightly-splayed walls.*

Estudio Casero



Notes:
1. Room ratio 1:1.4:1.9
2. Drawings are not intended for construction

■ **4-6** *Project studio Step #3.*

Bibliografía Recomendada

LIBROS

- "Sound Studio Construction on a Budget", F Alton Everest.
- "Building a Recording Studio", Jeff Cooper.
- "The Master Handbook of Acoustics", F Alton Everest.

PAPERS

- "Engineering an Lede™ Control Room For a Broadcasting Facility", Don Davis, AES 67th Convention 1980 Oct. 31/Nov.3 NewYork.
- "The LEDE Concept for the Control of Acoustic and Psychoacoustic Par**a**me**t**ers in Recording Control Rooms", Davis D., C. Davis, JAES vol.28 N°9 585-95, 1980**.**
- "The Acoustic Treatment of Three Small Studios", F. Alton Everest, Journal AES Vol. 16, N°3, 1968.
- "The RFZ*/*RPG Approach To Control Room Monitoring", Peter D'Antonio and John H. Konnert, AES 76th Convention 1984 Oct. 8/11 NewYork.

INTERNET

- Diseño y Construcción de un Estudio de Grabación, Carlos García, http://perso.wanadoo.es/cgs/introduccion.htm
- Acoustics Studio Technology, http://www.gcat.clara.net/Room_Acoustics/room_designs.htm

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2009