

Arch 464
ECS
Spring 97

Name _____

Quiz #4

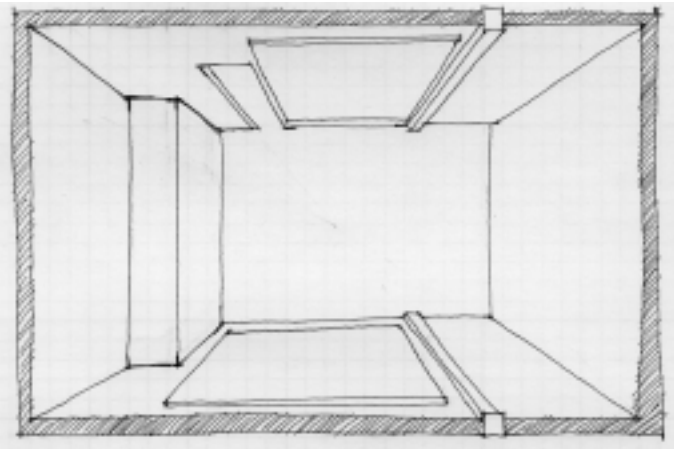
"The Sound of 203"

For this problem you are the acoustic consultant to the ad hoc committee to improve room 203. The committee wants to know what the acoustic problems are and how to solve them. The room will continue to be used as a seminar/critique space for 15 to 30 people. In its current configuration the room is 20' x 31' with a 12' ceiling height. The north wall has a 3x7 open door and an 8x11 gypboard tacking surface; the south wall has an 8x14 gypboard tacking surface; and the west wall has a built-in 3x20 wooden cabinet with a 2x20 marble countertop. The walls are painted concrete block, the ceiling is painted concrete, and the floor has a wall to wall carpet.

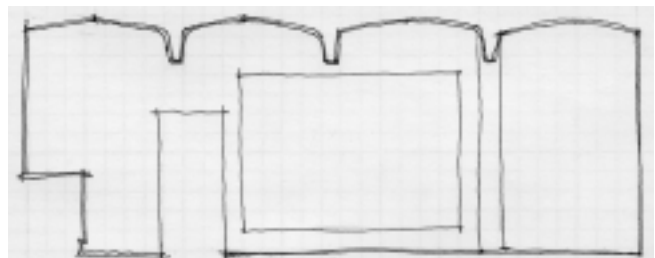
Pertinent coefficients of absorption (1000 Hz) are:

(others can be found in Table 27.1 of MEEB)

Carpet, heavy on concrete	0.37
Concrete block, painted	0.07
Marble or glazed tile	0.01
Gypsum board	0.03
Concrete	0.02
Plywood paneling	0.09



Plan perspective (north is up)

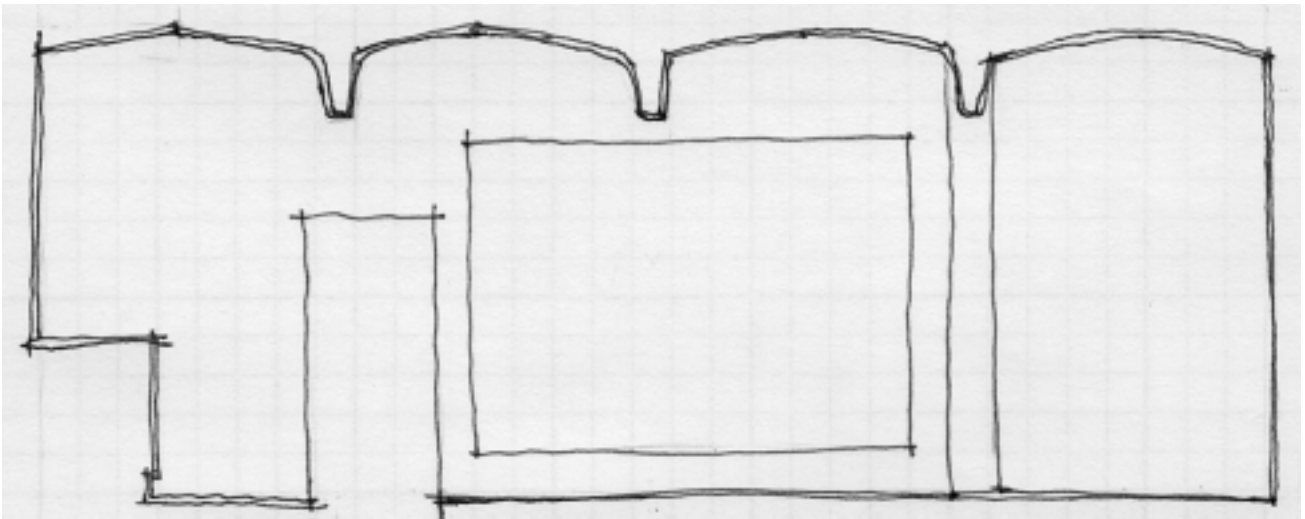
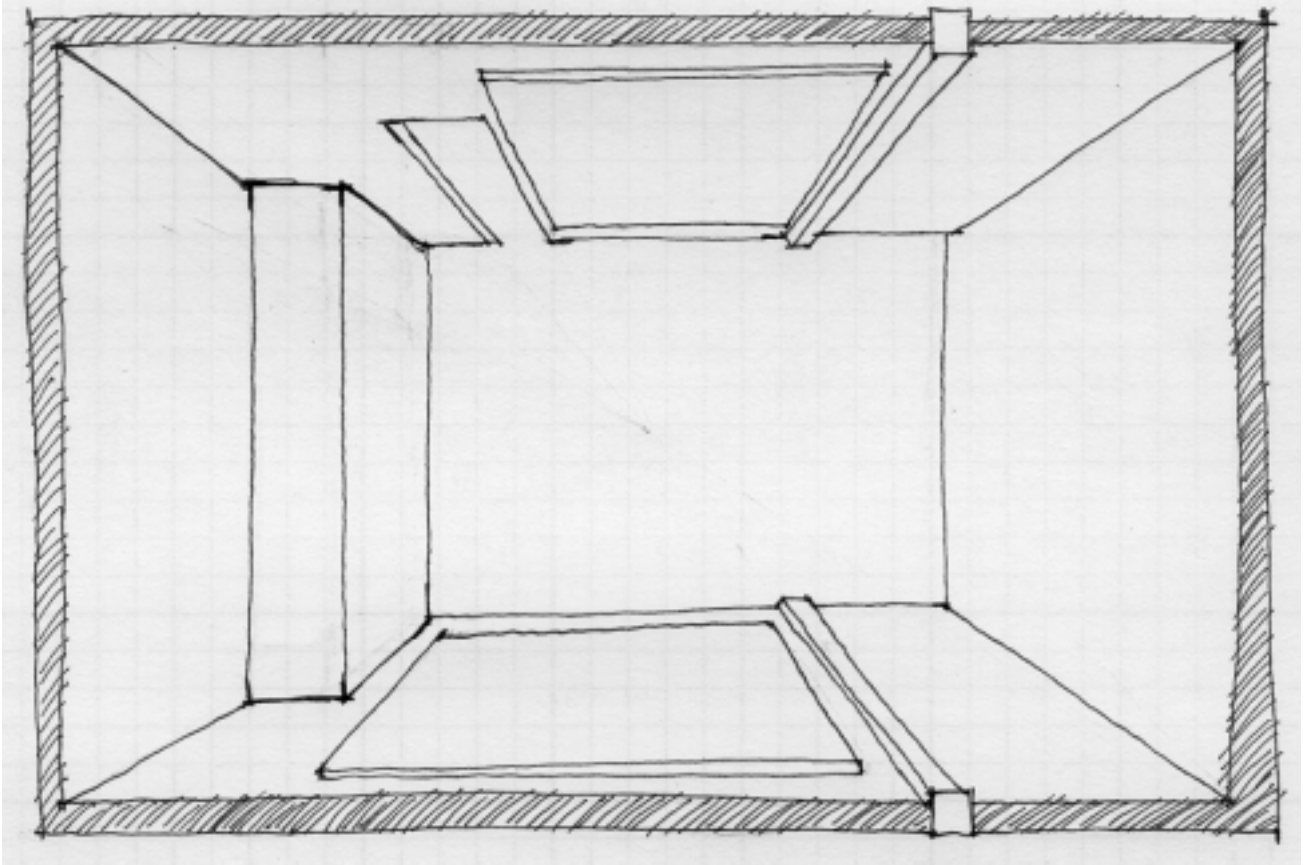


Room section with elevation of the north wall

1. Calculate the total absorption and the reverberation time for the room. Show your work!

2. Is the room excessively live, just right, or exceedingly dead? Explain why you think so and discuss the acoustic problems associated with the current configuration

3. Suggest changes in surface materials for the room. Tell why you recommend them. Call out your changes on the plan perspective and section below.



4. Recalculate the total absorption and the reverberation time for the room. Show your work! Explain why your proposal improves the room acoustically.