

Arch 464  
ECS  
Spring 2001

Name \_\_\_\_\_

#### Quiz #4

## "With a Little Help from My Friends"

For this problem you are both a performer in string quartet that plays authentic 17th century instruments and the quartet's acoustics expert. The group has been invited to perform in the Wainwright Studio in Durham, NC for the artist and sixty-five of his local friends, including the architect, Frank Harmon, FAIA.

The studio has walls of plywood panels, a ceiling of 2x6 tongue and groove deck, a floor of recycled pine t&g flooring over a concrete slab, and window of glass (view) and polycarbonate (light). The space is 750 sq.ft. and 11,250 cuft. The audience ( $\alpha = 0.96$ ) should cover about 400 sq.ft. of the floor ( $\alpha = 0.10$ ); the wall ( $\alpha = 0.15$ ) area is 750 sq.ft.; the ceiling ( $\alpha = 0.15$ ) is 700 sq.ft.; the windows ( $\alpha = 0.15$ ) are 700 sq.ft.; the doors can be open or closed ( $\alpha = 1.0$  or  $0.15$ ) are 5' x 10' and 6' x 7'.

Your job is to critique the existing studio as a venue for acoustic (no electronic enhancement) chamber music performance of a string quartet and to suggest improvements that can be made for your performance without permanently altering the space.



*Exterior view from the northeast.*



*Interior view looking east.*

## Critique of Existing Space

- 4 pts
1. Calculate the reverberation time for the existing space and comment on its suitability for chamber music (string quartet) performance. Sketch the position in the space from which your group would play and show how you would arrange the audience. Categorize this space as one of the three prototypical hall configurations and explain why it is suitable for your performance.



Source—Architectural Record 02.01

## Suggested Temporary Improvements

6 pts

2. Describe 3 temporary installations you can make in the studio that will improve its acoustics for your quartet's concert. Describe what acoustic problem each addresses and how the installation mitigates the problem. Make a sketch(es) in plan, section, or perspective that demonstrates your improvements.

