Arch 464 ECS Spring 2004

Name			

Quiz #4

#### "Festival at Ronchamp"

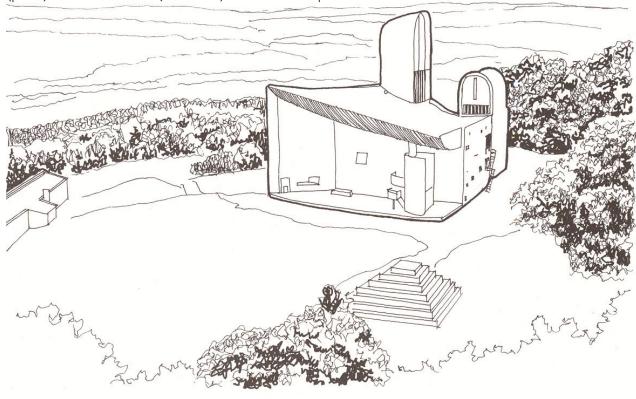
For this problem you are the acoustic consultant for the Chamber Music Festival at Notre-Dame-du-Haut, Ronchamp, France. Your task is to prepare le Corbusier's seminal sanctuary for a week-long musical event that uses both the chapel and the amphitheater. The performers range from trios to sextets playing a variety of woodwinds, strings, and horns.

**Context.** The chapel is situated on a hilltop accessible only by foot. The nearest traffic is on country lanes that approach the car park at the base of the hill.



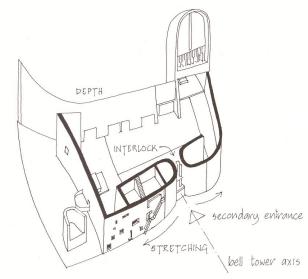
Schematic section of chapel, looking west..

**Numerics.** The nave averages 25' wide and is 40' long with a 18' ceiling. All interior and exterior finishes are stucco ( $\alpha$  = 0.06), except for the concrete floor ( $\alpha$  = 0.04), The chapel seating area (pews) is about 6' x 15' ( $\alpha$  = 0.75). Audience in upholstered seats has an  $\alpha$  = 0.88.



#### Reverberation

1 Estimate the reverberation time for the existing chapel and discuss its suitability for chamber music. The nave averages 25' wide and is 40' long with a 18' ceiling. All interior and exterior finishes are stucco ( $\alpha$  = 0.06), except for the concrete floor ( $\alpha$  = 0.04), The chapel seating area (pews) is about 6' x 15' ( $\alpha$  = 0.75).



Sectional perspective from above, looking south.

## **Analysis of Existing Chapel**

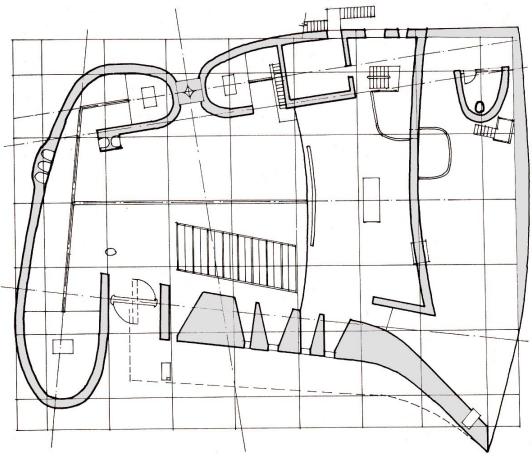
2. Categorize this space by its acoustic goal—silence or quiet—and explain how it meets this goal (or not).

Also **characterize** the space by its auditorium type—shoebox, wide, or surround—and **defend** your choice.

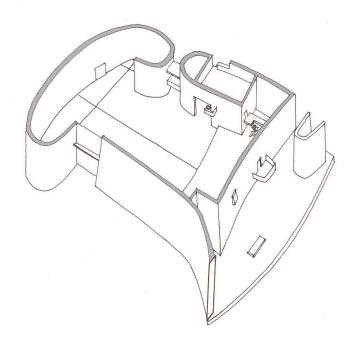
**Explain** why it's appropriate (or not) for chamber music.

## Acoustic Interventions for Existing Chapel

2. **Design** temporary acoustic interventions for this space to enhance it for chamber music performance. Be careful to respect the qualities of Corbu's design as many of the attendees come to experience the beauty of both the architecture and the music. **Show** your intentions (including seating and performers' position) on the drawings below. **Explain** why they're appropriate for chamber music.

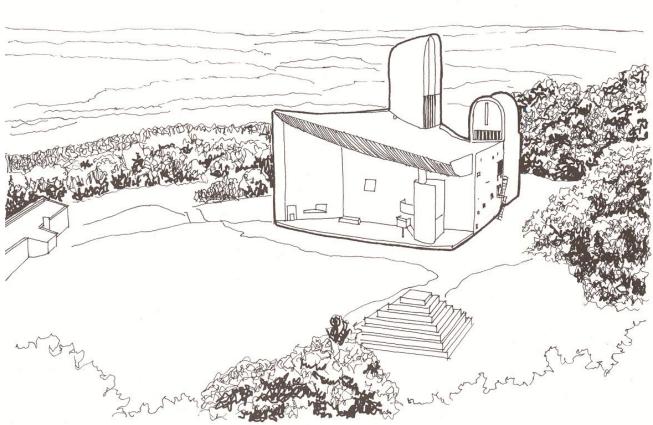


Floor plan. North is up. Wooden pews near south wall can be removed..



# Analysis and Design of Outdoor Space

3 **Explain** the positive features of using the outdoor space for performing chamber music. In the sketch below **show** how you'd configure the space. **Explain** why it's appropriate for chamber music.



East facade showing stage and pyramid as well as the lawn.