

Arch 464
ECS
Spring 2006

Name _____

Quiz #4

"Exposing Sound Waves at the New Pompidou"

For this problem you are the acoustic consultant to Shigeru Ban who is designing the new addition to le Centre Pompidou, located in Metz, France. Your task is to advise Ban on the acoustic design of the planned auditorium for the new Pompidou. The auditorium has been assigned to an irregular space next to the cylindrical lobby. It has the potential to rise from the ground floor to the "Chinese hat" roof, two or three stories above. The auditorium is conceived to be located in the southwest corner of the building with an arcade entry on the south facade. It will be the site of guest lectures with the occasional performance by a small musical group—trios, quartets, and quintets.



Pompidou model, looking toward northeast. The arcade auditorium entry is central

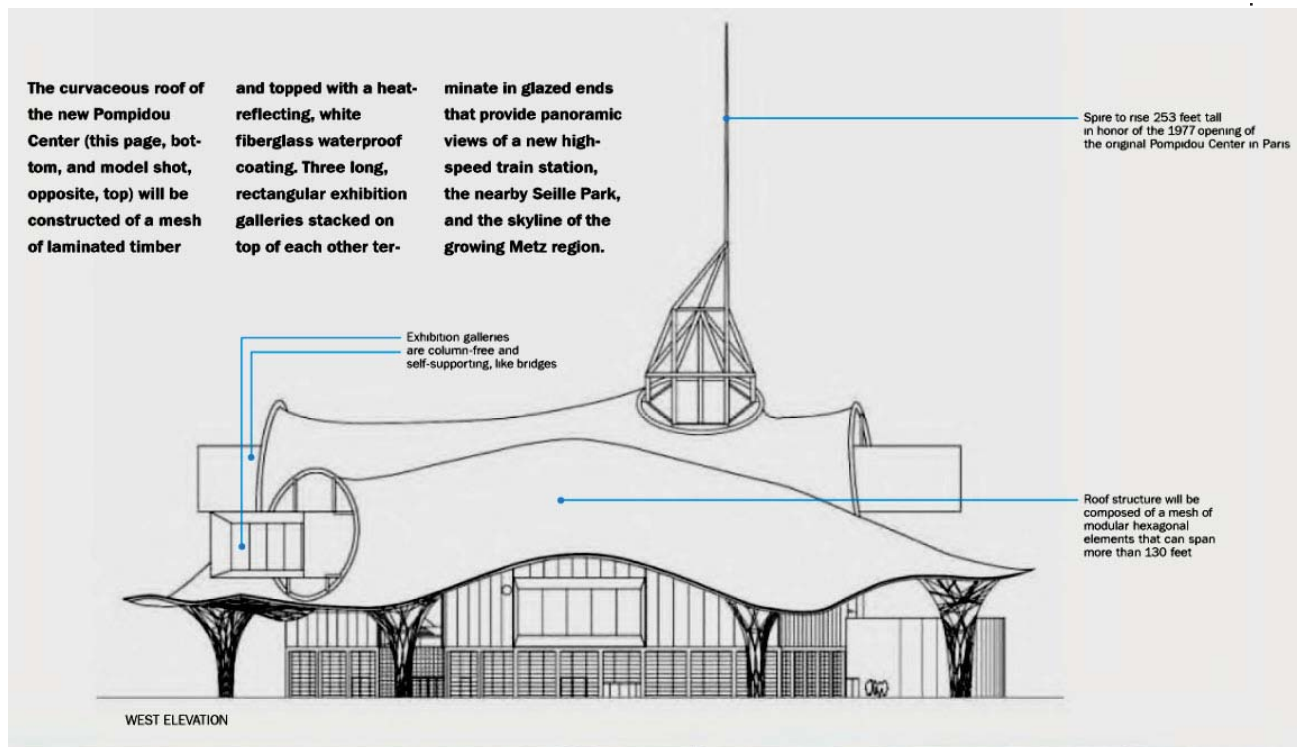
In France, another Pompidou Center takes shape

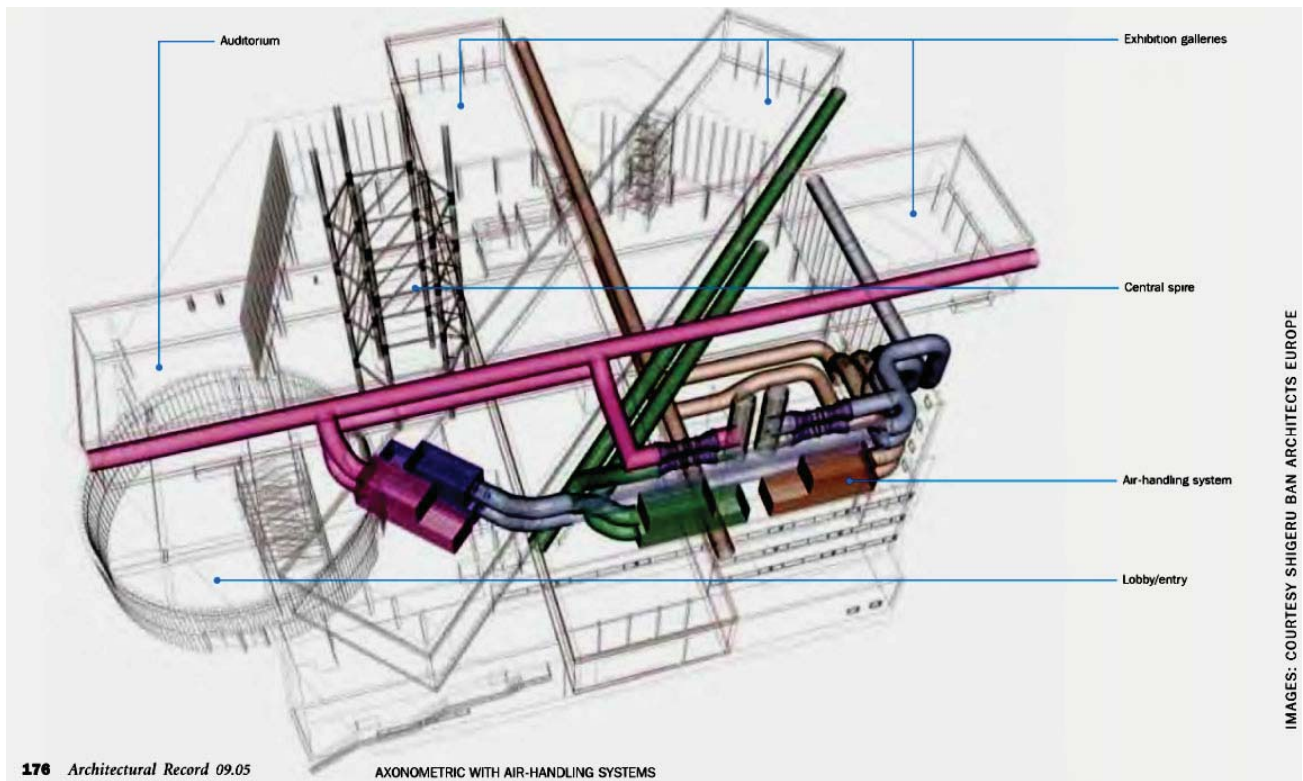
By Deborah Snoonian, P.E.

The brashly exposed systems of Rogers and Piano's original Pompidou Center in Paris captured the attention of critics when it opened in 1977, but it's the draped sculptural roof of the center's planned outpost some 200 miles east of the City of Lights that's getting the wows this time around. Inspired by the shape and texture of a woven Chinese hat he found in Paris, architect **Shigeru Ban**, working with **Jean de Gastines** and engineers at **Arup**, envisioned a free-form roof made from modular hexagonal cells of timber, measuring about 3 feet long on each side. The resulting mesh structure will be capable of spanning distances up to 130 feet, enabling the roof to be supported by just a few columns near the building's perimeter. The design team is still finessing how exactly to build it. "It's an exercise somewhere between form-finding and form-making," says **Ban**. Planners hope the new Pompidou Center, slated to open in 2008, will draw tourists to Metz, which is near the borders of Germany, Luxembourg, and Belgium. ■



Sketch model, northwest view





Sketch visible perspective looking west. The auditorium is located in the upper left corner (SW).

Analysis of Planned Auditorium

3 pts

1. **Sketch** a plan of the auditorium below. **Discuss** its acoustic fitness as a lecture hall. **Show** where you would locate the speaker and audience in this space and **explain** why.

Acoustic Interventions for Planned Auditorium

4 pts 2. **Re-sketch** the auditorium plan below. **Draw** a reflected ceiling plan that identifies its acoustic treatment and gives a rationale for their design. **Show** which walls should be acoustically reflective and which should be absorptive.

Reverberation

3 pts

3. **Estimate** the reverberation time required for the functions in the auditorium. **Explain** what design measures you could implement to allow it to convert from a hall for lectures to a hall for small group musical performance.

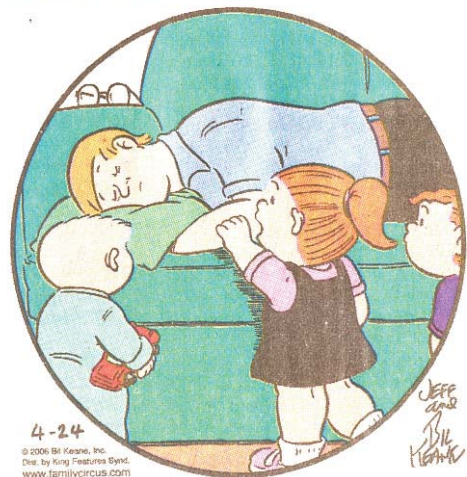
Extra Credit

1 pt

If Daddy had taken ECS at UI this semester, how would he answer the kids' question?

The Family Circus

Bill Keane



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JEFF
GARDNER
Bill
Keane

"Daddy? Besides church and libraries, where else do we hafta be quiet? Daddy?"